CHAPTER 4

D through F Commands

debug aaa

To show debug messages for AAA, use the **debug aaa** command in privileged EXEC mode. To stop showing AAA messages, use the **no** form of this command.

debug aaa [**accounting** | **authentication** | **authorization** | **internal** | **vpn** [*level*]]

no debug aaa

Syntax Description

accounting	(Optional) Show debug messages for accounting only.
authentication	(Optional) Show debug messages for authentication only.
authorization	(Optional) Show debug messages for authorization only.
internal	(Optional) Show debug messages for AAA functions supported by the local database only.
level	(Optional) Specifies the debug level. Valid with the **vpn** keyword only.
vpn	(Optional) Show debug messages for VPN-related AAA functions only.

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	This command was modified to include new keywords.

Usage Guidelines

The **debug aaa** command displays detailed information about AAA activity. The **no debug all** or **undebug all** commands turn off all enabled debugs.

Examples

The following example enables debugging for AAA functions supported by the local database:

```
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 running configuration related to AAA.

debug arp

To show debug messages for ARP, use the **debug arp** command in privileged EXEC mode. To stop showing debug 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
Preexisting	This command was preexisting.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug 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 debug messages for ARP inspection, use the **debug arp-inspection** command in privileged EXEC mode. To stop showing debug 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	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug 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 debug information for ASDM, use the **debug asdm history** command in privileged EXEC mode.

debug asdm history *level*

Syntax Description

level	(Optional) Specifies the debug level.

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	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 cmgr

To show debug messages about the SSM card manager, use the **debug cmgr** command in privileged EXEC mode. To stop showing debug messages for the card manager, use the **no** form of this command.

debug cmgr [*level*]

no debug cmgr [*level*]

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.

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	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for the card manager:

```
hostname# debug cmgr
```

Related Commands

Command	Description
hw-module module recover	Recovers an AIP SSM by loading a recovery image from a TFTP server.
hw-module module reset	Shuts down an AIP SSM and performs a hardware reset.
hw-module module reload	Reloads the AIP SSM software.

Command	Description
hw-module module shutdown	Shuts down the AIP SSM software in preparation for being powered off without losing configuration data.
show module	Shows SSM information.

debug context

To show debug messages when you add or delete a security context, use the **debug context** command in privileged EXEC mode. To stop showing debug messages for contexts, use the **no** form of this command.

debug context [*level*]

no debug context [*level*]

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.

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	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 debug messages about the control plane that connects internally to an SSM, use the **debug cplane** command in privileged EXEC mode. To stop showing debug 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 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.

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	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug 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 debug messages for PKI activity (used with CAs), use the **debug crypto ca** command in privileged EXEC mode. To stop showing debug 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 debug messages for PKI input and output messages.
transactions	(Optional) Shows only debug messages for PKI transactions.
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. 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 debug 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
Preexisting	This command was preexisting.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for PKI:

```
hostname# debug crypto ca
```

Related Commands

Command	Description
debug crypto engine	Shows debug messages for the crypto engine.
debug crypto ipsec	Shows debug messages for IPSec.
debug crypto isakmp	Shows debug messages for ISAKMP.

debug crypto engine

To show debug messages for the crypto engine, use the **debug crypto engine** command in privileged EXEC mode. To stop showing debug 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 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.

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	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for the crypto engine:

```
hostname# debug crypto engine
```

Related Commands

Command	Description
debug crypto ca	Shows debug messages for the CA.
debug crypto ipsec	Shows debug messages for IPSec.
debug crypto isakmp	Shows debug messages for ISAKMP.

debug crypto ipsec

To show debug messages for IPSec, use the **debug crypto ipsec** command in privileged EXEC mode. To stop showing debug 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 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.

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
Preexisting	This command was preexisting.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for IPSec:

```
hostname# debug crypto ipsec
```

Related Commands

Command	Description
debug crypto ca	Shows debug messages for the CA.
debug crypto engine	Shows debug messages for the crypto engine.
debug crypto isakmp	Shows debug messages for ISAKMP.

debug crypto isakmp

To show debug messages for ISAKMP, use the **debug crypto isakmp** command in privileged EXEC mode. To stop showing debug messages for ISAKMP, use the **no** form of this command.

debug crypto isakmp [**timers**] [*level*]

no debug crypto isakmp [**timers**] [*level*]

Syntax Description

timers	(Optional) Shows debug messages for ISAKMP timer expiration.
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. Level 1 (the default) shows messages only when errors occur. Levels 2 through 7 show additional information. Level 254 shows decrypted ISAKMP packets in a human readable format. Level 255 shows hexadecimal dumps of decrypted ISAKMP packets.

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
Preexisting	This command was preexisting.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for ISAKMP:

```
hostname# debug crypto isakmp
```

Related Commands

Command	Description
debug crypto ca	Shows debug messages for the CA.
debug crypto engine	Shows debug messages for the crypto engine.
debug crypto ipsec	Shows debug messages for IPSec.

debug ctiqbe

To show debug messages for CTIQBE application inspection, use the **debug ctiqbe** command in privileged EXEC mode. To stop showing debug 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 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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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 security appliance.
show conn	Displays the connection state for different connection types.
timeout	Sets the maximum idle time duration for different protocols and session types.

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 debug level. Valid valuse range from 1 to 255.
packet	Displays packet information that is associated with the DHCP client.

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
Preexisting	This command was preexisting.

Usage Guidelines

Displays DHCP client debug 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 debug level. Valid valuse 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
Preexisting	This command was preexisting.

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.

Use the **no** form of the d**ebug dhcpd** commands to disable debugging.

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 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, statistic, or state information.
show running-config dhcpd	Displays the current DHCP server 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 debug level. Valid valuse 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
Preexisting	This command was preexisting.

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 debug information, use the **debug disk** command in privileged EXEC mode. To disable the display of debug 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 debug messages.
file-verbose	Enables verbose file-level disk debug messages
filesystem	Enables file system debug messages.
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.

Defaults

The default value for *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	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 file-level disk debug messages. The **show debug** command reveals that file-level disk debug messages are enabled. The **dir** command causes several debug messages.

```
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 current debug configuration.

debug dns

To show debug messages for DNS, use the **debug dns** command in privileged EXEC mode. To stop showing debug messages for DNS, use the **no** form of this command.

debug dns [**resolver** | **all**] [*level*]

no debug dns [**resolver** | **all**] [*level*]

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.
resolver	(Optional) Shows only DNS resolver messages.
all	(Default) Shows all messages, including messages about the DNS cache.

Defaults

The default level is 1. If you do not specify any keywords, the security appliance 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	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug 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 entity

To display management information base (MIB) debug information, use the **debug entity** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug entity [*level*]

no debug entity

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.

Defaults

The default value for *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	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 debug messages. The **show debug** command reveals that MIB debug 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 current debug 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
Preexisting	This command was preexisting.

Usage Guidelines

The **debug fixup** command displays detailed information about application inspection. The **no debug all** or **undebug all** commands turn off all enabled debugs.

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** | **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.
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	This command was modified. It includes additional debug 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 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 display debug information for failover command replication:

```
hostname# debug fover sync
fover event trace on
```

Related Commands

Command	Description
show failover	Displays information about the failover configuration and operational statistics.

debug fsm

To display FSM debug information, use the **debug fsm** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug fsm [*level*]

no debug fsm

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.

Defaults

The default value for *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	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 debug messages. The **show debug** command reveals that FSM debug 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 current debug configuration.

debug ftp client

To show debug messages for FTP, use the **debug ftp client** command in privileged EXEC mode. To stop showing debug 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 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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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 FTP client configuration.

debug generic

To display miscellaneous debug information, use the **debug generic** command in privileged EXEC mode. To disable the display of miscellaneous debug information, use the **no** form of this command.

debug generic [*level*]

no debug generic

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.

Defaults

The default value for *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	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 reveals that miscellaneous debug 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 current debug 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	(Optional) Displays debug information on errors encountered while processing the GTP message.
event	(Optional) Displays debug information on GTP events.
ha option	(Optional) Debugs information on GTP HA events.
parser	(Optional) Displays debug 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	This command was introduced.

Usage Guidelines

The **debug gtp** command displays detailed information about GTP inspection. The **no debug all** or **undebug all** commands turn off all enabled debugs.

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 debug messages for H.323, use the **debug h323** command in privileged EXEC mode. To stop showing debug 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 events of the H.245 signaling 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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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 security appliance.
show h245	Displays information for H.245 sessions established across the security appliance by endpoints using slow start.
show h323-ras	Displays information for H.323 RAS sessions established across the security appliance.
timeout h225 | h323	Configures 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 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.

Defaults

The defaful for *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	This command was introduced.

Usage Guidelines

The **debug http** command displays detailed information about HTTP traffic. The **no debug all** or **undebug all** commands turn off all enabled debugs.

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 security appliance.
http-proxy	Configures an HTTP proxy server.
http redirect	Redirects HTTP traffic to HTTPS.
http server enable	Enables the security appliance HTTP server.

debug http-map

To show debug messages for HTTP application inspection maps, use the **debug http-map** command in privileged EXEC mode. To stop showing debug messages for HTTP application inspection, use the **no** form of this command.

debug http-map

no debug http-map

Defaults

The default value for *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	This command was introduced.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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.

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

trace	Displays debug information about ICMP trace activity.
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.

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	This command was introduced.

Usage Guidelines

The **debug icmp** command displays detailed information about ICMP inspection. The **no debug all** or **undebug all** commands turn 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 security appliance interface.
show conn	Displays the state of connections through the security appliance for different protocols and session types.

Commands	Description
show icmp	Displays ICMP configuration.
timeout icmp	Configures idle timeout for ICMP.

debug igmp

To display IGMP debug information, use the **debug igmp** command in privileged EXEC mode. To stop the display of debug 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 debug information for the specified group.
interface *if_name*	Display IGMP debug 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**
Preexisting	This command was preexisting.

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 security appliance and that were learned through IGMP.
show igmp interface	Displays multicast information for an interface.

debug ils

To show debug messages for ILS, use the **debug ils** command in privileged EXEC mode. To stop showing debug messages for ILS, use the **no** form of this command.

debug ils [*level*]

no debug ils [*level*]

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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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.

Command	Description
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 debug information, use the **debug imagemgr** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug imagemgr [*level*]

no debug imagemgr

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.

Defaults

The default value for *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	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 Image Manager debug messages. The **show debug** command reveals that Image Manager debug messages are enabled.

```
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 current debug configuration.

debug ipsec-over-tcp

To display IPSec-over-TCP debug information, use the **debug ipsec-over-tcp** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug ipsec-over-tcp [*level*]

no debug ipsec-over-tcp

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.

Defaults

The default value for *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	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 IPSec-over-TCP debug messages. The **show debug** command reveals that IPSec-over-TCP debug 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 current debug configuration.

debug ipsec-pass-thru

To show debug messages for ipsec-pass-thru, use the **debug ipsec-pass-thru** command in privileged EXEC mode. To stop showing debug messages for DNS, use the **no** form of this command.

debug ipsec-pass-thru *level*

no debug ipsec-pass-thru

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.

Defaults

The default level is 1. If you do not specify any keywords, the security appliance 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(5)	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for DNS:

```
hostname# debug ipsec-pass-thru
```

Related Commands

Command	Description
inspect ipsec-pass-thru	Enables IPSec pass-thru application inspection.

debug ipv6

To display ipv6 debug messages, use the **debug ipv6** command in privileged EXEC mode. To stop the display of debug messages, use the **no** form of this command.

debug ipv6 {icmp | interface | nd | packet | routing}

no debug ipv6 {icmp | interface | nd | packet | routing}

Syntax Description

icmp	Displays debug messages for IPv6 ICMP transactions, excluding ICMPv6 neighbor discovery transactions.
interface	Displays debug information for IPv6 interfaces.
nd	Displays debug messages for ICMPv6 neighbor discovery transactions.
packet	Displays debug messages for IPv6 packets.
routing	Displays debug 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	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 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 a security appliance 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 iua-proxy

To display individual user authentication (IUA) proxy debug information, use the **debug iua-proxy** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug iua-proxy [*level*]

no debug iua-proxy

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.

Defaults

The default value for *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	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 debug messages. The **show debug** command reveals that IUA-proxy debug 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 current debug configuration.

debug kerberos

To display Kerberos authentication debug information, use the **debug kerberos** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug kerberos [*level*]

no debug kerberos

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.

Defaults

The default value for *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	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 debug messages. The **show debug** command reveals that Kerberos debug 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 current debug configuration.

debug ldap

To display LDAP debug information, use the **debug ldap** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug ldap [*level*]

no debug ldap

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.

Defaults

The default value for *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	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 debug messages. The **show debug** command reveals that LDAP debug 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 current debug configuration.

debug mac-address-table

To show debug messages for the MAC address table, use the **debug mac-address-table** command in privileged EXEC mode. To stop showing debug 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 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.

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	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug 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 debug information for specific features, use the **debug menu** command in privileged EXEC mode.

debug menu

⚠ **Caution** The **debug menu** command should be used only under the supervision of Cisco technical support staff.

Syntax Description

This command should be used only under the supervision of Cisco technical support staff.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you 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

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

This command should be used only under the supervision of Cisco technical support staff.

Related Commands

Command	Description
show debug	Displays current debug configuration.

debug mfib

To display MFIB debug information, use the **debug mfib** command in privileged EXEC mode. To stop displaying debug information, use the **no** form of this command.

debug mfib {**db** | **init** | **mrib** | **pak** | **ps** | **signal**} [*group*]

no debug mfib {**db** | **init** | **mrib** | **pak** | **ps** | **signal**} [*group*]

Syntax Description

db	(Optional) Displays debug information for route database operations.
group	(Optional) IP address of the multicast group.
init	(Optional) Displays system initialization activity.
mrib	(Optional) Displays debug information for communication with MRIB.
pak	(Optional) Displays debug information for packet forwarding operations.
ps	(Optional) Displays debug information for process switching operations.
signal	(Optional) Displays debug 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	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 displays MFIB dabase operation debug information:

```
hostname# debug mfib db
MFIB IPv4 db debugging enabled
```

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**}

messages	Displays debug information about MGCP messages.
parser	Displays debug information for parsing MGCP messages.
sessions	Displays debug 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	This command was introduced.

Usage Guidelines

The **debug mgcp** command displays detailed information about mgcp inspection. The **no debug all** or **undebug all** commands turn off all enabled debugs.

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 security appliance.
show conn	Displays the connection state for different connection types.

debug module-boot

To show debug messages about the SSM booting process, use the **debug module-boot** command in privileged EXEC mode. To stop showing debug 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 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.

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	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug 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 debug information, use the **debug mrib** command in privileged EXEC mode. To stop the display of debug 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	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 of MRIB I/O events:

```
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 ntdomain

To display NT domain authentication debug information, use the **debug ntdomain** command in privileged EXEC mode. To disable the display of NT domain debug information, use the **no** form of this command.

debug ntdomain [*level*]

no debug ntdomain

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.

Defaults

The default value for *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	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 debug messages. The **show debug** command reveals that NT domain debug 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 current debug configuration.

debug ntp

To show debug messages for NTP, use the **debug ntp** command in privileged EXEC mode. To stop showing debug 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
Preexisting	This command was preexisting.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug 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 security appliance is associated.
show ntp status	Shows the status of the NTP association.

debug ospf

To display debug information about the OSPF routing processes, use the **debug ospf** command in privileged EXEC mode.

debug ospf [**adj** | **database-timer** | **events** | **flood** | **lsa-generation** | **packet** | **retransmission** | **spf** [**external** | **inter** | **intra**] | **tree**]

no debug ospf [**adj** | **database-timer** | **events** | **flood** | **lsa-generation** | **packet** | **retransmission** | **spf** [**external** | **inter** | **intra**] | **tree**]

Syntax Description

adj	(Optional) Enables the debugging of OSPF adjacency events.
database-timer	(Optional) Enables the debugging of OSPF 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.
inter	(Optional) Limits SPF debugging to inter-area events.
intra	(Optional) Limits SPF debugging to intra-area events.
lsa-generation	(Optional) Enables the debugging of OSPF summary LSA generation.
packet	(Optional) Enables the debugging of received OSPF packets.
retransmission	(Optional) Enables the debugging of OSPF retransmission events.
spf	(Optional) Enables the debugging of OSPF shortest path first calculations. You can limit the SPF debug information by using the **external**, **inter**, and **intra** keywords.
tree	(Optional) Enables the debugging of OSPF database events.

Defaults

Displays all OSPF debug 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
Preexisting	This command was preexisting.

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 parser cache

To display CLI parser debug information, use the **debug parser cache** command in privileged EXEC mode. To disable the display of CLI parser debug information, use the **no** form of this command.

debug parser cache [*level*]

no debug parser cache

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.

Defaults

The default value for *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	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 debug messages. The **show debug** command reveals the current debug configuration. The CLI parser debug 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 current debug configuration.

debug pim

To display PI M debug information, use the **debug pim** command in privileged EXEC mode. To stop displaying debug 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 debug messages for PIM bidirectional DF-election message processing.
group *group*	(Optional) Displays debug 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. This is a multicast IP address in four-part dotted-decimal notation.
interface *if_name*	(Optional) When used with the **df-election** keyword, it limits the DF election debug 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 debug 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/received PIM hello messages.
rp *rp*	(Optional) 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
Privileged EXEC	•	—	•	—	—

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

Logs PIM packets received and transmitted and also 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 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 pkt2pc

To show debug 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 debug 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
Preexisting	This command was preexisting.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug 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 debug messages for xlate and secondary connections processing.
show debug	Shows all enabled debuggers.

debug pix process

To show debug messages for xlate and secondary connections processing, use the **debug pix process** command in privileged EXEC mode. To stop showing debug 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
Preexisting	This command was preexisting.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for xlate and secondary connections processing:

```
hostname# debug pix process
```

Related Commands

Command	Description
debug pix pkt2pc	Shows debug 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 pptp

To show debug messages for PPTP, use the **debug pptp** command in privileged EXEC mode. To stop showing debug messages for PPTP, use the **no** form of this command.

debug pptp [*level*]

no debug pptp [*level*]

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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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.

Command	Description
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 debug messages for AAA, 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 display 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
Preexisting	This command was preexisting.

Usage Guidelines

The **debug radius** command displays detailed information about RADIUS messaging between the security appliance and a RADIUS AAA server. The **no debug all** or **undebug all** commands turn off all enabled debugs.

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 security appliance.

debug rip

To display debug information for RIP, use the **debug rip** command in privileged EXEC mode. To disable the debug information display, use the **no** form of this command.

debug rip

no debug rip

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

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

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

Command History

Release	Modification
Preexisting	This command was preexisting.

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 RIP:

```
hostname# debug rip
debug rip enabled at level 1

hostname#
```

Related Commands

Command	Description
clear configure rip	Clears all RIP commands from the running configuration.

Command	Description
rip	Configures RIP on the specified interface.
show running-config rip	Displays the RIP commands in the running configuration.

debug rtsp

To show debug messages for RTSP application inspection, use the **debug rtsp** command in privileged EXEC mode. To stop showing debug 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 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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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 debug information, use the **debug sdi** command in privileged EXEC mode. To disable the display of SDI debug information, use the **no** form of this command.

debug sdi [*level*]

no debug sdi

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.

Defaults

The default value for *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	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 debug messages. The **show debug** command reveals that SDI debug 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 current debug configuration.

debug sequence

To add a sequence number to the beginning of all debug messages, use the **debug sequence** command in privileged EXEC mode. To disable the use of debug sequence numbers, use the **no** form of this command.

debug sequence [*level*]

no debug sequence

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.

Defaults

The defaults are as follows:

- Debug message sequence numbers are disabled.
- The default value for *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	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 debug messages. The **debug parser cache** command enables CLI parser debug messages. The **show debug** command reveals the current debug configuration. The CLI parser debug 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 current debug configuration.

debug session-command

To show debug messages for a session to an SSM, use the **debug session-command** command in privileged EXEC mode. To stop showing debug 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 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.

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	This command was introduced.

Usage Guidelines

Using **debug** commands might slow down traffic on busy networks.

Examples

The following example enables debug messages for sessions:

```
hostname# debug session-command
```

Related Commands

Command	Description
session	Sessions to an SSM.

debug sip

To show debug messages for SIP application inspection, use the **debug sip** command in privileged EXEC mode. To stop showing debug messages for SIP application inspection, use the **no** form of this command.

debug sip [*level*]

no debug sip [*level*]

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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug sip** command may slow down traffic on busy networks.

Examples

The following example enables debug messages at the default level (1) for SIP application inspection:

```
hostname# debug sip
```

Related Commands

Command	Description
class-map	Defines the traffic class to which to apply security actions.
inspect sip	Enables SIP application inspection.

Command	Description
show conn	Displays the connection state for different connection types.
show sip	Displays information about SIP sessions established through the security appliance.
timeout	Sets the maximum idle time duration for different protocols and session types.

debug skinny

To show debug messages for SCCP (Skinny) application inspection, use the **debug skinny** command in privileged EXEC mode. To stop showing debug 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 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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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 security appliance.
show conn	Displays the connection state for different connection types.
timeout	Sets the maximum idle time duration for different protocols and session types.

debug smtp

To show debug messages for SMTP/ESMTP application inspection, use the **debug smtp** command in privileged EXEC mode. To stop showing debug messages for SMTP/ESMTP application inspection, use the **no** form of this command.

debug smtp [*level*]

no debug smtp [*level*]

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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug messages from being displayed, enter the **no debug all** command.

Note Enabling the **debug smtp** command may slow down traffic on busy networks.

Examples

The following example enables debug messages at the default level (1) for SMTP/ESMTP application inspection:

```
hostname# debug smtp
```

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 sqlnet

To show debug messages for SQL*Net application inspection, use the **debug sqlnet** command in privileged EXEC mode. To stop showing debug 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 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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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 debug information and error messages associated with SSH, use the **debug ssh** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

debug ssh [*level*]

no debug ssh [*level*]

Syntax Description

level	(Optional) Specifies an optional level of debug.

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
Preexisting	This command was preexisting.

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 security appliance.
ssh	Allows SSH connectivity to the security appliance from the specified client or network.

debug ssl

To display SSL debug information, use the **debug ssl** command in privileged EXEC mode. To disable the display of SSL debug information, use the **no** form of this command.

debug ssl {**cipher** | **device**} [*level*]

no debug ssl {**cipher** | **device**}

Syntax Description

cipher	Display information about the cipher negotiation between the HTTP server and the client.
device	Displays information about the SSL device including session initiation and ongoing status.
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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

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 SSL debug messages, specifically for cipher negotiation. The **show debug** command reveals that SSL debug messages are enabled.

```
hostname# debug ssl cipher
debug ssl cipher enabled at level 1
hostname# show debug
debug ssl cipher enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays current debug configuration.

debug sunrpc

To show debug messages for RPC application inspection, use the **debug sunrpc** command in privileged EXEC mode. To stop showing debug 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 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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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 tacacs

To display TACACS+ debug information, use the **debug tacacs** command in privileged EXEC mode. To disable the display of TACACS+ debug 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+ debug messages.
user	Displays user-specific TACACS+ debug messages. You can display TACACS+ debug messages for only one user at a time.
username	Specifies the user whose TACACS+ debug 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	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+ debug messages. The **show debug** command reveals that TACACS+ debug messages are enabled.

```
hostname# debug tacacs user admin342
hostname# show debug
debug tacacs user admin342
hostname#
```

Related Commands

Command	Description
show debug	Displays current debug configuration.

debug tcp-map

To show debug messages for TCP application inspection maps, use the **debug tcp-map** command in privileged EXEC mode. To stop showing debug 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	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 debug messages for TCP application inspection maps. The **show debug** command reveals that debug 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 current debug configuration.

debug timestamps

To add timestamp information to the beginning of all debug messages, use the **debug timestamps** command in privileged EXEC mode. To disable the use of debug timestamps, use the **no** form of this command.

debug timestamps [*level*]

no debug timestamps

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.

Defaults

The defaults are as follows:

- Debug timestamp information is disabled.
- The default value for *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	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 timestamps in debug messages. The **debug parser cache** command enables CLI parser debug messages. The **show debug** command reveals the current debug configuration. The CLI parser debug 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 current debug configuration.

debug vpn-sessiondb

To display VPN-session database debug information, use the **debug vpn-sessiondb** command in privileged EXEC mode. To disable the display of VPN-session database debug information, use the **no** form of this command.

debug vpn-sessiondb [*level*]

no debug vpn-sessiondb

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.

Defaults

The default value for *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	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 VPN-session database debug messages. The **show debug** command reveals that VPN-session database debug 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 current debug configuration.

debug xdmcp

To show debug messages for XDMCP application inspection, use the **debug xdmcp** command in privileged EXEC mode. To stop showing debug 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 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.

Defaults

The default value for *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
Preexisting	This command was preexisting.

Usage Guidelines

To see the current debug command settings, enter the **show debug** command. To stop the debug output, enter the **no debug** command. To stop all debug 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 debug 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.

default

To restore default settings for the **time-range** command **absolute** and **periodic** keywords, 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	(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.
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 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
Time-range configuration	•	•	•	•	—

Command History

Release	Modification
7.0	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 security appliance; 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 security appliance based on time.

default (crl configure)

To return all CRL parameters to their system default values, use the **default** command in crl configure configuration mode. 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.

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	This command was introduced.

Usage Guidelines

Invocations of this command do not become part of the active configuration.

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 (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

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**
Time-range configuration	•	•	•	•	

Command History

Release	**Modification**
7.0	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 security appliance; 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 security appliance based on time.

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	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.

To prevent users from inheriting a domain name, use the **default-domain none** command.

The security appliance passes the default domain name to the IPSec client 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.

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	•	—	•	—	—

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

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 security appliance 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 cleartext 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

Release	Modification
7.0	This command was introduced.

Usage Guidelines

The default group policy DfltGrpPolicy comes with the initial configuration of the security appliance. 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-general)# default-group-policy first-policy
hostname(config-general)# accounting-server-group aaa-server123
hostname(config-general)# address-pool (inside) addrpool1 addrpool2 addrpool3
hostname(config-general)# authentication-server-group aaa-server456
hostname(config-general)# authorization-server-group aaa-server78
hostname(config-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-map default group	Associates the certificate map entries created using the **crypto ca certificate map** command with tunnel groups.

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. WebVPN, IMAP4S, POP3S, and SMTPS sessions require either a specified or a default group policy. For WebVPN, use this command in webvpn mode. For e-mail proxy, use this command in the applicable e-mail proxy mode. To remove the attribute from the configuration, use the **no** version 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 in configuration mode to configure a group policy.

Defaults

A default group policy, named *DfltGrpPolicy*, always exists on the security appliance. 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	•	—	•	—	—
Imap4s	•	—	•	—	—
Pop3s	•	—	•	—	—
Smtps	•	—	•	—	—

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

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

Attribute	Default Value
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	mpme

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 mode. To remove the default idle timeout value from the configuration and reset the default, use the **no** form of this command.

The default idle timeout prevents stale sessions.

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	•	—	•	—	—

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

The security appliance 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.

We recommend that you set this command to a short time period. This is 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 (**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. Use in group-policy or username mode.

default-information originate

To generate a default external route into an OSPF routing domain, use the **default-information originate** command in 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** *name*]

no default-information originate [[**always**] [**metric** *value*] [**metric-type** {**1** | **2**}] [**route-map** *name*]]

Syntax Description

always	(Optional) Always advertises the default route regardless of whether the software has a default route.
metric *value*	(Optional) Specifies the OSPF default metric value from 0 to 16777214.
metric-type {1 | 2}	(Optional) 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 *name*	(Optional) 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
Router configuration	•	—	•	—	—

Command History

Release	Modification
Preexisting	This command was preexisting.

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 **no default-information originate metric** *3* 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-router)# default-information originate always metric 3 metric-type 2
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.

delete

To delete a file in the disk partition, use the **delete** command in privileged EXEC mode.

delete [**/noconfirm**] [**/recursive**] [**disk0: | disk1: | flash:**]*filename*

Syntax Description

/noconfirm	(Optional) Specifies not to prompt for confirmation.
/recursive	(Optional) Deletes the specified file recursively in all subdirectories.
disk0*:*	(Optional) Specifies the internal Flash memory, followed by a colon.
disk1:	(Optional) Specifies the external Flash memory card, followed by a colon.
filename	Specifies the name of the file to delete.
flash:	Specifies the nonremovable internal Flash, followed by a colon. In the ASA 5500 series, the **flash** keyword is aliased to **disk0**.

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
Preexisting	This command was preexisting.

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 you must confirm the deletion.

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.
rmdir	Removes a file or directory.
show file	Displays the specified file.

deny version

To deny a specific version of SNMP traffic, use the deny version command in SNMP map configuration mode, which is accessible by entering the snmp-map command from global configuration mode. To disable this command, use the **no** version of the command.

deny version *version*

deny version *version*

Syntax Description

version	Specifies the version of SNMP traffic that the security appliance 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	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. 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	Enable 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), use the **description** command in various configuration modes. To remove the description, use the **no** form of this command. The description adds helpful notes in your configuration.

description *text*

no description

Syntax Description

text	Sets the description as a text string up to 200 characters in length. 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

The 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	•	•	•	•	—
Context configuration	•	•	—	—	•
Gtp-map configuration	•	•	•	•	—
Interface configuration	•	•	•	•	•
Object-group configuration	•	•	•	•	—
Policy-map configuration	•	•	•	•	—

Command History

Release	Modification
7.0	This command was added to several new configuration modes.

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-network-scope

To specify the range of IP addresses the security appliance 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. This option allows inheritance of a value from another group policy. To prevent inheriting a value, use the **dhcp-network-scope none** 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	This command was introduced.

Examples

The following example shows how to set an IP subnetwork of 10.10.85.0 for the group policy named First Group:

```
hostname(config)# group-policy FirstGroup attributes
hostname(config-group-policy)# dhcp-network-scope 10.10.85.0
```

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 *hostname1* [*...hostname10*]

no dhcp-server *hostname*

Syntax Description

hostname1 *...hostname10*	Specifies the IP address of the DHCP server. You can specify up to 10 DHCP 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
Tunnel-group general attributes configuration	•		•		

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

You can apply this attribute to IPSec 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 ipsec_ra
hostname(config)# tunnel-group remotegrp general
hostname(config-general)# default-group-policy remotegrp
hostname(config-general)# dhcp-server dhcp1 dhcp2 dhcp3
hostname(config-general)
```

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-map default group	Associates the certificate map entries created using the **crypto ca certificate map** command with tunnel groups.

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 the address pool is assigned to.
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
Preexisting	This command was preexisting.

Usage Guidelines

The **dhcpd address** *ip1*[**-***ip2*] *interface_name* command specifies the DHCP server address pool. The address pool of a security appliance DHCP server must be within the same subnet of the security appliance interface on which it is enabled, and you must specify the associated security appliance interface using *interface_name*.

The size of the address pool is limited to 256 addresses per pool on the security appliance. If the address pool range is larger than 253 addresses, the netmask of the security appliance 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 security appliance DCHP server interface.

The **dhcpd address** command cannot use interface names with a “-” (dash) character because the “-” 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.

Refer to the *Cisco Security Appliance Command Line Configuration Guide* for information on how to implement the DHCP server feature into the security appliance.

Examples

The following example shows how to use the **dhcpd address**, **dhcpd dns**, and **dhcpd enable** *interface_name* commands to configure an address pool and DNS server for the DHCP clients on the **dmz** interface of the security appliance:

```
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. It uses the **dhcpd address** command to assign 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, statistic, or state information.
show running-config dhcpd	Displays the current DHCP server configuration.

dhcpd auto_config

To enable the security appliance to automatically configure DNS, WINS and domain name values for the DHCP server based on the values obtained from an interface running a DHCP client, 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*

no dhcpd auto_config *client_if_name*

Syntax Description

client_if_name	Specifies the interface running the DHCP client that supplies the DNS, WINS, and domain name 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
Global configuration	•	—	•	•	—

Command History

Release	Modification
Preexisting	This command was preexisting.

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 autoconfig 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.

Command	Description
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*]

no dhcpd dns [*dnsip1* [*dnsip2*]]

Syntax Description

dnsip1	IP address of the primary DNS server for the DHCP client.
dnsip2	(Optional) IP address of the alternate DNS server for the DHCP 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
Preexisting	This command was preexisting.

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 use the **dhcpd address**, **dhcpd dns**, and **dhcpd enable** *interface_name* commands to configure an address pool and DNS server for the DHCP clients on the **dmz** interface of the security appliance.

```
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*

no dhcpd domain [*domain_name*]

Syntax Description

domain_name	The DNS domain name, for example 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
Preexisting	This command was preexisting.

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 use the **dhcpd domain** command to configure the domain name supplied to DHCP clients by the DHCP server on the security appliance:

```
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. The DHCP server provides network configuration parameters to DHCP clients. Support for the DHCP server within the security appliance means that the security appliance can use DHCP to configure connected clients.

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
Preexisting	This command was preexisting.

Usage Guidelines

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 security appliance responds to a DHCP client request, it uses the IP address and subnet mask of the interface where the request was received as the IP address and subnet mask of the default gateway in the response.

Note The security appliance DHCP server daemon does not support clients that are not directly connected to a security appliance interface.

Refer to the *Cisco Security Appliance Command Line Configuration Guide* for information on how to implement the DHCP server feature into the security appliance.

Examples

The following example shows how to use the **dhcpd enable** command 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 debug 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, statistic, 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*

no dhcpd lease [*lease_length*]

Syntax Description

lease_length	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
Preexisting	This command was preexisting.

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 use the **dhcpd lease** command 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. You can use the **dhcpd option** command to provide TFTP server information to Cisco IP Phones and routers.

dhcpd option *code* {**ascii** *string*} | {**ip** *IP_address* [*IP_address*]} | {**hex** *hex_string*}

no dhcpd option *code*

Syntax Description

ascii	Specifies that the option parameter is an ASCII character string.
code	A number representing the DHCP option being set. Valid values are 0 to 255.
hex	Specifies that the option parameter is a hexadecimal string.
hex_string	Specifies a hexadecimal string with an even number of digits and no spaces. You do not need to use a 0x prefix.
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.
string	Specifies an ASCII character string without 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**
Preexisting	This command was preexisting.

Usage Guidelines

When a DHCP option request arrives at the security appliance DHCP server, the security appliance 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 the 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, refer to RFC2132.

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. To avoid address conflicts, the DHCP server sends two ICMP ping packets to an address before assigning that address to a DHCP client. This command specifies the ping timeout in milliseconds.

dhcpd ping_timeout *number*

no dhcpd ping_timeout

Syntax Description

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
Preexisting	This command was preexisting.

Usage Guidelines

The security appliance 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 security appliance 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 wins

To define the WINS servers for DHCP clients, use the **dhcpd wins** command in global configuration mode. To remove the WINS servers from the DHCP server, use the **no** form of this command.

dhcpd wins *server1 [server2]*

no dhcpd wins [*server1* [*server2*]]

Syntax Description

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
Preexisting	This command was preexisting.

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 use the dhcpd wins command 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, statistic, 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 DHCP relay agent, use the **no** form of this command. The DHCP relay agent allows DHCP requests to be forwarded from a specified security appliance interface to a specified DHCP server.

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
Preexisting	This command was preexisting.

Usage Guidelines

For the security appliance 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 security appliance 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.
- You cannot enable DHCP relay in a context at the same time as the DHCP server.
- 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 *interface_name* 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 security appliance, client requests on the inside interface of the security appliance, 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 debug information for the DHCP relay agent.
dhcprelay server	Specifies the DHCP server that the DHCP relay agent forwards DHCP requests to.
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 server

To specify the DHCP server that DHCP requests are forwarded to, 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. The DHCP relay agent allows DHCP requests to be forwarded from a specified security appliance interface to a specified DHCP server.

dhcprelay server *IP_address interface_name*

no dhcprelay server *IP_address* [*interface_name*]

Syntax Description

interface_name	Name of the security appliance interface on which the DHCP server resides.
IP_address	The IP address of the DHCP 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
Global configuration	•	—	•	•	—

Command History

Release	Modification
Preexisting	This command was preexisting.

Usage Guidelines

You can add up to four DHCP relay servers per interface. You must add at least one **dhcprelay server** command to the security appliance 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. If there is **no dhcprelay enable** command in the configuration, then the sockets are not opened and the DHCP relay task does not start.

When you use the **no dhcprelay server** *IP_address* [*interface_name*] command, the interface stops forwarding DHCP packets to that server.

The **no dhcprelay server** *IP_address* [*interface_name*] command removes the DHCP relay agent configuration for the DHCP server that is specified by *IP_address* [*interface_name*] 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 security appliance, client requests on the inside interface of the security appliance, 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 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. This command causes the default IP address of the DHCP reply to be substituted with the address of the specified security appliance interface.

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
Preexisting	This command was preexisting.

Usage Guidelines

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 security appliance adds one containing the address of *interface*. This action allows the client to set its default route to point to the security appliance.

When you do not configure the **dhcprelay setroute** *interface* command (and there is a default router option in the packet), it passes through the security appliance with the router address unaltered.

Examples

The following example shows how to use the **dhcprelay setroute** command to set the default gateway in the DHCP reply from the external DHCP server to the inside interface of the security appliance:

```
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 dhcprelay 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
Preexisting	This command was preexisting.

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 security appliance, client requests on the inside interface of the security appliance, 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 that the DHCP relay agent forwards DHCP requests to.
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.

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.
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.
/recursive	(Optional) Displays the directory contents recursively.
system:	(Optional) Displays the directory contents of the file system.
flash:	(Optional) Displays the directory contents of the default Flash partition.
path	(Optional) Specifies a specific path.

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	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)
```

This 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)
```

This example shows how 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
Preexisting	This command was preexisting.

Usage Guidelines

Use the **enable** command to enter privileged mode. The **disable** command allows you to exit privileged mode and returns you to 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.

distance ospf

To define OSPF 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*	Distance for each route types. 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
Preexisting	This command was preexisting.

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 re-enter the configurations for the route types 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-router)# distance ospf intra-area 105 inter-area 105
hostname(config-router)# distance ospf intra-area 105
hostname(config-router)# distance ospf external 105
hostname(config-router)# 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-router)# distance ospf external 105 intra-area 105 inter-area 105
hostname(config-router)# distance ospf external 150
hostname(config-router)# 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.
show running-config router	Displays the commands in the global router configuration.

dns domain-lookup

To enable the security appliance 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 lookup, use the **no** form of this command.

dns domain-lookup *interface_name*

no dns domain-lookup *interface_name*

Syntax Description

interface_name	Specifies the interface on which you want to enable DNS lookup. If you enter this command multiple times to enable DNS lookup on multiple interfaces, the security appliance tries each interface in order until it receives a response.

Defaults

DNS lookup 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	This command was introduced.

Usage Guidelines

Use the **dns name-server** command to configure the DNS server addresses to which you want to send DNS requests. See the **dns name-server** command for a list of commands that support DNS lookup.

The security appliance maintains a cache of name resolutions that consists of dynamically learned entries. Instead of making queries to external DNS servers each time an hostname-to-IP-address translation is needed, the security appliance caches information returned from external DNS requests. The security appliance only makes requests for names that are not in the cache. The cache entries time out automatically according to the DNS record expiration, or after 72 hours, whichever comes first.

Examples

The following example enables DNS lookup on the inside interface:

```
hostname(config)# dns domain-lookup inside
```

Related Commands

Command	Description
dns name-server	Configures a DNS server address.
dns retries	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
dns timeout	Specifies the amount of time to wait before trying the next DNS server.
domain-name	Sets the default domain name.
show dns-hosts	Shows the DNS cache.

dns-guard

To enable the DNS guard function, use the **dns-guard** command in global configuration mode. To disable the DNS guard feature, use the **no** form of this command.

dns-guard

no dns-guard

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
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0(5)	This command was introduced.

Usage Guidelines

DNS guard tears down the DNS session associated with a DNS request as soon as the DNS response is forwarded by the security appliance. DNS guard also monitors the message exchange to ensure that the ID of the DNS response matches the ID of the DNS request.

The **dns-guard** command provides the capability to turn on or off the DNS guard function when DNS inspection is not enabled (when the **inspect dns** command is not configured). This command is only effective on the interfaces without DNS inspection. When DNS inspection is effective, the DNS guard function is always performed.

DNS guard is enabled together with the **inspect dns** command or the **fixup protocol dns** in earlier versions, and remains active when the inspection is disabled. This is still the default behavior, but now you have the option to disable this function.

Examples

The following example shows how to enable DNS guard:

```
hostname(config)# dns-guard
```

The following example shows how to disable DNS guard:

```
hostname(config)# no dns-guard
```

Related Commands

Commands	Description
inspect dns	Enables the DNS inspection.
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.

dns name-server

To identify one or more DNS servers, use the **dns name-server** command in global configuration mode. To remove a server, use the **no** form of this command. The security appliance uses DNS to resolve server names in your WebVPN 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.

dns name-server *ip_address* [*ip_address2*] [...] [*ip_address6*]

no dns 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 security appliance saves each server in a separate command in the configuration. The security appliance 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
Global configuration	•	•	•	•	—

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

To enable DNS lookup, configure the **dns domain-lookup** command. If you do not enable DNS lookup, the DNS servers are not used.

WebVPN 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.

See the **dns retries** command to set how many times the security appliance tries the list of DNS servers.

Examples

The following example adds three DNS servers:

```
hostname(config)# dns name-server 10.1.1.1 10.2.3.4 192.168.5.5
```

The security appliance saves the configuration as separate commands, as follows:

```
dns name-server 10.1.1.1
dns name-server 10.2.3.4
dns name-server 192.168.5.5
```

To add two additional servers, you can enter them as one command:

```
hostname(config)# dns name-server 10.5.1.1 10.8.3.8
hostname(config)# show running-config dns
dns name-server 10.1.1.1
dns name-server 10.2.3.4
dns name-server 192.168.5.5
dns name-server 10.5.1.1
dns name-server 10.8.3.8
...
```

Or you can enter them as two commands:

```
hostname(config)# dns name-server 10.5.1.1
hostname(config)# dns 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)# no dns name-server 10.5.1.1 10.8.3.8
```

Related Commands

Command	Description
dns domain-lookup	Enables the security appliance to perform a name lookup.
dns retries	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
dns timeout	Specifies the amount of time to wait before trying the next DNS server.
domain-name	Sets the default domain name.
show dns-hosts	Shows the DNS cache.

dns retries

To specify the number of times to retry the list of DNS servers when the security appliance 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.

dns retries *number*

no dns retries [*number*]

Syntax Description

number	Specifies the number of retries between 0 and 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
7.0	This command was introduced.

Usage Guidelines

Add DNS servers using the **dns name-server** command.

Examples

The following example sets the number of retries to 0. The security appliance only tries each server one time.

```
hostname(config)# dns retries 0
```

Related Commands

Command	Description
dns domain-lookup	Enables the security appliance to perform a name lookup.
dns name-server	Configures a DNS server address.
dns timeout	Specifies the amount of time to wait before trying the next DNS server.
domain-name	Sets the default domain name.
show dns-hosts	Shows the DNS cache.

dns timeout

To specify the amount of time to wait before trying the next DNS server, use the **dns timeout** command in global configuration mode. To restore the default timeout, use the **no** form of this command.

dns timeout *seconds*

no dns timeout [*seconds*]

Syntax Description

seconds	Specifies the timeout in seconds between 1 and 30. The default is 2 seconds. Each time the security appliance retries the list of servers, this timeout doubles. See the **dns retries** command 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
7.0	This command was introduced.

Examples

The following example sets the timeout to 1 second:

```
hostname(config)# dns timeout 1
```

Related Commands

Command	Description
dns name-server	Configures a DNS server address.
dns retries	Specifies the number of times to retry the list of DNS servers when the security appliance does not receive a response.
dns domain-lookup	Enables the security appliance to perform a name lookup.
domain-name	Sets the default domain name.
show dns-hosts	Shows the DNS cache.

dns-server

To set the IP address of the primary and secondary DNS servers, use the **dns-server** command in group-policy mode. To remove the attribute from the running configuration, use the **no** form of this command. This option allows inheritance of a DNS server from another group policy. To prevent inheriting a server, use the **dns-server none** command.

dns-server {**value** *ip_address* [*ip_address*] | none}

no dns-server

Syntax Description

none	Sets dns-servers 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	•	—	•	—	—

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

Every 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
```

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. The security appliance 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 security appliance qualifies the name to "jupiter.example.com."

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
Preexisting	This command was preexisting.

Usage Guidelines

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 as example.com:

```
hostname(config)# domain-name example.com
```

Related Commands

Command	Description
dns domain-lookup	Enables the security appliance to perform a name lookup.
dns name-server	Configures a DNS server address.

Command	Description
hostname	Sets the security appliance hostname.
show running-config domain-name	Shows the domain name configuration.

downgrade

To downgrade to a previous version of the operating system software (software image), use the **downgrade** command in privileged EXEC mode.

Caution Do not load a previous version of software if your PIX security appliance is currently running PIX Version 7.0 or later. Loading a software image from monitor mode, on a PIX security appliance that has a PIX Version 7.0 file system, results in unpredictable behavior and is not supported. We strongly recommend that you use the **downgrade** command from a running PIX Version 7.0 image that facilitates the downgrade process.

downgrade *image_url* **[activation-key [flash** | *4-part_key* | *file*]] **[config** *start_config_url*]

Syntax Description

4-part_key	(Optional) Specifies the four-part activation key to write to the image. If you are using a five-part key, a warning with the list of features that might be lost by going back to the four-part key is generated. If the system Flash has been reformatted or erased, no default key is available for the downgrade. In that case, the CLI prompts you to enter an activation key at the command line. This is the default behavior if the **activation-key** keyword is not specified at the command line.
activation-key	(Optional) Specifies the activation key to use with the downgraded software image.
config	(Optional) Specifies the startup configuration file.
file	(Optional) Specifies the path/URL and name of the activation key file to use after the downgrade procedure completes. If the source image file is the one saved in Flash during the upgrade process, the activation key in this file is used with the downgrade.
flash	(Optional) Specifies to look in Flash memory for the four-part activation key that was used on the device prior to using a five-part activation key. This is the default behavior if the **activation-key** keyword is not specified at the command line.
image_url	Specifies the path/URL and name of the software image to downgrade to. The software image must be a version prior to 7.0.
start_config_url	(Optional) Specifies the path/URL and name of the configuration file to use after the downgrade procedure completes.

Defaults

If the **activation-key** keyword is not specified, the security appliance tries to use the last four-part activation key used. If the security appliance cannot find a four-part activation key in Flash, the command is rejected and an error message displays. In this case, a valid four-part activation-key must be specified at the command line next time. The default activation key or the user specified activation key is compared with the activation key currently in effect. If there is a potential loss of features by using the chosen activation key, a warning displays with the list of features that could be lost after downgrade.

The security appliance uses downgrade.cfg by default if the startup configuration file is not 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	This command was introduced.

Usage Guidelines

This command is not supported on Cisco ASA 5500 series security appliances.

Caution A power failure during the downgrade process might corrupt the Flash memory. As a precaution, backup all data on the Flash memory to an external device prior to starting the downgrade process.

Recovering corrupt Flash memory requires direct console access. See the **format** command for more information.

Examples

The following example downgrades the software to Release 6.3.3:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3 activation-key
32c261f3 062afe24 c94ef2ea 0e299a3f
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!

Buffering startup config

All items have been buffered successfully.
If the flash reformat is interrupted or fails, data in flash will be lost
and the system might drop to monitor mode.
Do you wish to continue? [confirm]
Installing the correct file system for the image and saving the buffered data
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Flash downgrade succeeded







Rebooting....
```

```
Enter zero actkey:
```

The following example shows what happens if you enter an invalid activation key:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3 activation-key
0 0 0 0
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!
Error: activation key entered is invalid.

Enter the file option when there is no actkey in the source image (happens if the source
is in tftp server).
```

The following example shows what happens if you specify the activation key in the source image and it does not exist:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3 activation-key file
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!
Activation key does not exist in the source image.
Please use the activation-key option to specify an activation key.
```

The following example shows how to abort the downgrade procedure at the final prompt:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!

Buffering startup config

All items have been buffered successfully.
If the flash reformat is interrupted or fails, data in flash will be lost
and the system might drop to monitor mode.
Do you wish to continue? [confirm] ===<typed n here>
Downgrade process terminated.
```

To downgrade, the software version must be less than 7.0. The following example shows a failed attempt at downgrading the software:

```
hostname# downgrade tftp://17.13.2.25//scratch/views/test/target/sw/cdisk
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Error: Need to use an image with version less than 7-0-0-0.
```

The following example shows what happens if you specify an image and do not verify the activation key:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.4.4.1-rel
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Image checksum has not been verified
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Warning: Activation key not verified.
Key 32c261f3 633fe24 c94ef2ea e299a3f might be incompatible with the image version
4-4-1-0.
Do you wish to continue? [confirm]
Downgrade process terminated.
Please enter an activation-key in the command line.
```

The following example shows what happens if the four-part activation key does not have all the features that the current five-part activation key has:

```
hostname# downgrade tftp://17.13.2.25//tftpboot/mananthr/cdisk.6.3.3
This command will reformat the flash and automatically reboot the system.
Do you wish to continue? [confirm]
Buffering image
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!
The following features available in current activation key in flash
are NOT available in 4 tuple activation key in flash:
VPN-3DES-AES
GTP/GPRS
5 Security Contexts
Failover is different:
current activation key in flash: UR(estricted)
4 tuple activation key in flash: R(estricted)
Some features might not work in the downgraded image if this key is used.
Do you wish to continue? [confirm]
Downgrade process terminated.
Please enter an activation-key in the command line.
```

Related Commands

Command	Description
copy running-config startup-config	Saves the current running configuration to Flash memory.

drop

To drop specified GTP messages, use the **drop** command in GTP map configuration mode, which is accessed by using the **gtp-map** command. Use the **no** form to remove the command.

drop {**apn** *access_point_name* | **message** *message_id* | **version** *version*}

no drop {**apn** *access_point_name* | **message** *message_*id | **version** *version*}

Syntax Description

apn	Drops GTP messages with the specified access point name.
access_point_name	The text string of the APN which will be dropped.
message	Drops specific GTP messages.
message_id	An alphanumeric identifier for the message that you want to drop. The valid range for *message_id* is 1 to 255.
version	Drops GTP messages with the specified version.
version	Use 0 to identify Version 0 and 1 to identify Version 1. Version 0 of GTP uses port 2123, while Version 1 uses port 3386.

Defaults

All messages with valid message IDs, APNs, and version are inspected.

Any APN is allowed.

Command Modes

The 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	This command was introduced.

Usage Guidelines

Use the **drop message** command to drop specific GTP messages that you do not want to allow in your network.

Use the **drop apn** command to drop GTP messages with the specified access point. Use the **drop version** command to drop GTP messages with the specified version.

Examples

The following example drops traffic to message ID 20:

```
hostname(config)# gtp-map qtp-policy
hostname(config-gtpmap)# drop message 20
```

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.

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	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 adaptive security appliance, 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.

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.

email

To include the indicated email 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 the command.

email *address*

no email

Syntax Description

address	Specifies the email address. The maximum length of *address* 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	This command was introduced.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and includes the email address jjh@nhf.net in the enrollment request for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# email jjh@nhf.net
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters 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.

Defaults

Enters privilege level 15 unless you are using command authorization, 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
Preexisting	This command was preexisting.

Usage Guidelines

The default enable password is blank. See the **enable password** command to set the password.

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.

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 mode. For e-mail proxies (IMAP4S. POP3S, SMTPS), use this command in the applicable e-mail proxy mode. To disable WebVPN on an interface, use the **no** version of the command.

enable *ifname*

no enable

Syntax Description

ifname	Identifies the previously configured inteface. 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
Webvpn	•	—	•	—	—
Imap4s	•	—	•	—	—
Pop3s	•	—	•	—	—
SMTPS	•	—	•	—	—

Command History

Release	Modification
7.0	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 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. You cannot remove the level 15 password.

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 security appliance 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 up to 16 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
Preexisting	This command was preexisting.

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*.

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 security appliance:

```
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.

enforcenextupdate

To specify how to handle the NextUpdate CRL field, use the **enforcenextupdate** command in ca-crl configuration mode. If set, this command requires CRLs to have a NextUpdate field that has not yet lapsed. If not used, the security appliance allows a missing or lapsed NextUpdate field in a CRL.

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
CRL configuration	•	•	•	•	•

Command History

Release	Modification
7.0	This command was introduced.

Examples

The following example enters ca-crl configuration mode, and requires CRLs to have a NextUpdate field that has not expired for 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 trustpoint configuration mode.

enrollment retry count

To specify a retry count, use the **enrollment retry count** command in Crypto ca trustpoint configuration mode. After requesting a certificate, the security appliance waits to receive a certificate from the CA. If the security appliance does not receive a certificate within the configured retry period, it sends another certificate request. The security appliance repeats the request until either it receives a response or reaches the end of the configured retry period.

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 range is 0, 1-100 retries.

Defaults

The default setting for *number* 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	This command was introduced.

Usage Guidelines

This command is optional and applies only when automatic enrollment is configured.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and configures an enrollment retry count of 20 retries within 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 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. After requesting a certificate, the security appliance waits to receive a certificate from the CA. If the security appliance does not receive a certificate within the specified retry period, it sends another certificate request.

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	This command was introduced.

Usage Guidelines

This command is optional and applies only when automatic enrollment is configured.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and configures an enrollment retry period of 10 minutes within 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 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	This command was introduced.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and specifies the cut and paste method of CA enrollment for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# enrollment terminal
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters 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	This command was introduced.

Examples

The following example enters crypto ca trustpoint configuration mode for 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 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.

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, and then reinstalls the file system.

erase [**disk0:** | **disk1:** | **flash:**]

Syntax Description

disk0*:*	(Optional) Specifies the internal Flash memory, 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 prior to erasing the Flash memory. In the ASA 5500 series, the **flash** keyword is aliased to **disk0**.

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	This command was introduced.

Usage Guidelines

The **erase** command erases all data on 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 Cisco ASA 5500 series security appliances, 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.

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 dport* [*sport*] [**permitto** *protocol port* [-*port*]] [**permitfrom** *protocol port*[-*port*]]

no established *est_protocol dport* [*sport*] [**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.
dport	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.
sport	(Optional) Specifies the source port to use for the established connection lookup.

Defaults

The defaults are as follows:

- *dport*—0 (wildcard)
- *sport*—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	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 security appliance. This command works with an original connection that is outbound from a network and protected by the security appliance 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.

The following 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 0 4000
```

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 properly, 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 security appliance supports XDMCP with assistance from the **established** command.

Caution Using XWindows system applications through the security appliance 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 0 6000 to tcp 6000 from 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 *sport* field as 0 (wildcard). The *dport* 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 security appliance performs XDMCP fixups transparently. No configuration is required, but you must enter the **established** command to accommodate the TCP session.

Examples

This example shows a connection between two hosts using protocol A from the SRC port B destined for port C. To permit return connections through the security appliance 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
```

This example shows how a connection is started by an internal host to an external host using TCP source port 6060 and any destination port. The security appliance permits return traffic between the hosts through TCP destination port 6061 and TCP source port 6059.

```
hostname(config)# established tcp 6060 0 permitto tcp 6061 permitfrom tcp 6059
```

This 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 security appliance permits return traffic between the hosts through TCP destination port 6061 and TCP source port 1024-65535.

```
hostname(config)# established udp 0 6060 permitto tcp 6061 permitfrom tcp 1024-65535
```

This example shows how a local host 10.1.1.1 starts a TCP connection on port 9999 to a foreign host 209.165.201.1. The example allows packets from the foreign host 209.165.201.1 on port 4242 back to local host 10.1.1.1 on port 5454.

```
hostname(config)# established tcp 9999 permitto tcp 5454 permitfrom tcp 4242
```

This example shows how to allow packets from foreign host 209.165.201.1 on any port back to local host 10.1.1.1 on port 5454:

```
hostname(config)# established tcp 9999 permitto tcp 5454
```

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 exceedx the TCP maximum segment size 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.
drop	Drops packets that exceed the MSS.

Defaults

Packets are dropped 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	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 **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 allows flows on port 21 to send packets in excess of MSS:

```
hostname(config)# tcp-map tmap
hostname(config-tcp-map)# exceed-mss allow
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.
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.

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
Preexisting	This command was preexisting.

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 security appliance. 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, and then logout from the session:

```
hostname(config)# exit
hostname# exit

Logoff
```

The following example shows how to use the **exit** command to exit global configuration mode, and 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 from privileged or user EXEC modes.

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	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 security appliance 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 security appliance to terminate VPN tunnels.

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 security appliance or failover group to the active state, use the **failover active** command in privileged EXEC mode. To switch an active security appliance 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	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 a security appliance from a failed state to standby.

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:

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

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

You can define a maximum of 2 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 effect 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 IP address and mask for 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*

no failover interface ip *if_name ip_address mask* **standby** *ip_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 module.
standby *ip_address*	Specifies the IP address used by the secondary module to communicate with the primary module.

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	This command was introduced.

Usage Guidelines

Failover and stateful failover interfaces are functions of Layer 3, even when the security appliance 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 a security appliance for LAN failover.

Examples

The following example shows how to specify the IP 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
```

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	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 security appliance is functioning properly, the security appliance will mark itself as failed and a failover may occur (if the active security appliance 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 key

To specify the key for encrypted and authenticated communication between units in a failover pair, use the **failover key** command in global configuration mode. To remove the key, use the **no** form of this command.

failover key {*secret* | **hex** *key*}

no failover key

Syntax Description

hex *key*	Specifies a hexadecimal value for the encryption key. The key must be 32 hexadecimal characters (0-9, a-f).
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

No default behavior or values.

Command Modes

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

	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.

Usage Guidelines

To encrypt and authenticate failover communications between the units, you must configure both units with a shared secret or hexadecimal key. If you do not specify a failover key, failover communication is transmitted in the clear.

Note On the PIX security appliance platform, if you are using the dedicated serial failover cable to connect the units, then communication over the failover link is not encrypted even if a failover key is configured. The failover key only encrypts LAN-based failover communication.

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 security appliance 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 security appliance to terminate VPN tunnels.

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
```

Related Commands

Command	Description
show running-config failover	Displays the failover commands in the running configuration.

failover lan enable

To enable lan-based failover on the PIX security appliance, use the **failover lan enable** command in global configuration mode. To disable LAN-based failover, use the **no** form of this command.

failover lan enable

no failover lan enable

Syntax Description

This command has no arguments or keywords.

Defaults

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
Preexisting	This command was preexisting.

Usage Guidelines

When LAN-based failover is disabled using the **no** form of this command, cable-based failover is used if the failover cable is installed. This command is available on the PIX security appliance only.

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 security appliance 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 security appliance to terminate VPN tunnels.

Examples

The following example enables LAN-based failover:

```
hostname(config)# failover lan enable
```

Related Commands

Command	Description
failover lan interface	Specifies the interface used for failover communication.
failover lan unit	Specifies the LAN-based failover primary or secondary unit.
show failover	Displays information about the failover status of the unit.
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*

no failover lan interface *if_name phy_if*

Syntax Description

if_name	Specifies the name of the security appliance interface dedicated to failover.
phy_if	Specifies the physical or logical interface port.

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
Preexisting	This command was modified to include the *phy_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 security appliance 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 a security appliance for LAN failover.

Examples

The following example configures the failover LAN interface:

```
hostname(config)# failover lan interface folink e4
```

Related Commands

Command	Description
failover lan enable	Enables LAN-based failover on the PIX security appliance.
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 security appliance 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 security appliance as a primary unit.
secondary	Specifies the security appliance 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
Preexisting	This command was preexisting.

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 issue 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 a security appliance for LAN failover.

Examples

The following example sets the security appliance as the primary unit in LAN-based failover:

```
hostname(config)# failover lan unit primary
```

Related Commands

Command	Description
failover lan enable	Enables LAN-based failover on the PIX security appliance.
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 security appliance 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

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
Preexisting	This command was modified to include the *phy_if* argument.
7.0(4)	This command was modified to accept standard firewall interfaces.

Usage Guidelines

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 security appliance.

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.

In multiple context mode, the Stateful Failover interface 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 security appliance 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 security appliance 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.
mtu	Specifies the maximum transmission unit for an interface.

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

phy_if	The physical name of the interface to set the MAC address.
active_mac	The MAC address assigned to the specified interface the active security appliance. The MAC address must be entered in h.h.h format, where h is a 16-bit hexadecimal number.
standby_mac	The MAC address assigned to the specified interface of the standby security appliance. 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
Preexisting	This command was preexisting.

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 effect when the security appliance 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 security appliance 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.

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 and interface poll times and unit hold time, use the **failover polltime** command in global configuration mode. To restore the default poll time, use the **no** form of this command.

failover polltime [**unit**] [**msec**] *time* [**holdtime** *time*]

failover polltime interface *time*

no failover polltime [**unit**] [**msec**] *time* [**holdtime** *time*]

no failover polltime interface *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 range from 3 to 45 seconds.
interface *time*	Specifies the poll time for interface monitoring. Valid values range from 3 to 15 seconds.
msec	(Optional) Specifies that the time interval between messages is in milliseconds. The minimum value is 500 milliseconds.
time	Amount of time between hello messages. The maximum value is 15 seconds.
unit	(Optional) Sets how often hello messages are sent on the failover link.

Defaults

The defaults are as follows:

- The **unit** poll *time* on the security appliance is 1 second.
- The **interface** poll *time* is 15 seconds.
- The **holdtime** *time* is 45 seconds (3 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	This command was changed from the **failover poll** command to the **failover polltime** command and now includes **unit**, **interface**, and **holdtime** keywords.

Usage Guidelines

You cannot enter a **holdtime** value that is less than 3 times the unit poll time. With a faster poll time, the security appliance can detect failure and trigger failover faster. However, faster detection can cause unnecessary switchovers when the network is temporarily congested.

When the **unit** or **interface** keywords are not specified, the poll time configured is for the unit.

You can include both **failover polltime unit** and **failover polltime interface** commands in the configuration.

Note The **failover polltime interface** command applies to 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.

If a hello packet is not heard on the failover communication interface or cable during the hold time, the standby unit switches to active and the peer is considered failed. Five missed consecutive interface hello packets cause interface testing.

Note When CTIQBE traffic is passed through a security appliance in a failover configuration, you should decrease the failover hold time on the security appliance 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 the Cisco Call Manager are dropped, and the IP SoftPhone clients will need to reregister with the Call Manager.

Examples

The following example sets the unit poll time frequency to 3 seconds:

```
hostname(config)# failover polltime 3
```

Related Commands

Command	Description
polltime interface	Specify 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	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
Preexisting	This command was changed from **failover replicate http** to **failover replication http**.

Usage Guidelines

By default, the security appliance 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 effect 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 reset

To restore a failed security appliance 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.
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	This command was modified to allow 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** version 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	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.

Enter 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.

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 mode. To remove the access list, including a null value created by issuing the **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 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.

filter {**value** *ACLname* | **none**}

no filter

Syntax Description

none	Indicates that there is no **webvpntype** 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 mode	•	•	—	—	•

Command History

Release	Modification
7.0	This command was introduced.

Usage Guidelines

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 mode to configure parameters that apply to group policies or usernames.
webvpn	Use in global configuration mode. Lets you configure global settings for WebVPN.

filter activex

To remove ActiveX objects in HTTP traffic passing through the security appliance, 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 local_mask foreign_ip foreign_mask*]

no filter activex {[*port*[**-***port*] | **except** } *local_ip local_mask foreign_ip foreign_mask*]

Syntax Description

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. For a listing of the well-known ports and their literal values, see
port-port	(Optional) Specifies a port range.
except	Creates an exception to a previous **filter** condition.
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 *local_ip*. You can use **0.0.0.0** (or in shortened form, **0**) to specify all hosts.
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 *foreign_ip*. Always specify a specific mask value. You can use **0.0.0.0** (or in shortened form, **0**) to specify all hosts.

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
Preexisting	This command was preexisting.

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 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 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 security appliance cannot block the tag.

ActiveX blocking does not occur when users access an IP address referenced by the **alias** command.

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 security appliance.
show running-config filter	Displays filtering configuration.
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 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 local_mask foreign_ip foreign_mask*] [**allow**] [**interact-block**]

no filter ftp {[*port*[**-***port*] | **except** } *local_ip local_mask foreign_ip foreign_mask*] [**allow**] [**interact-block**]

Syntax Description

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-port	(Optional) Specifies a port range.
except	Creates an exception to a previous **filter** condition.
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 *local_ip*. You can use **0.0.0.0** (or in shortened form, **0**) to specify all hosts.
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 *foreign_ip*. Always specify a specific mask value. You can use **0.0.0.0** (or in shortened form, **0**) to specify all hosts.
allow	(Optional) When the server is unavailable, let outbound connections pass through the security appliance without filtering. If you omit this option, and if the N2H2 or Websense server goes off line, the security appliance stops outbound port 80 (Web) traffic until the N2H2 or Websense server is back on line.
interact-block	(Optional) Prevents users from connecting to the FTP server through an interactive FTP program.

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
Preexisting	This command was preexisting.

Usage Guidelines

The **filter ftp** command lets you identify the FTP traffic to be filtered by a Websense server. FTP filtering is not supported on N2H2 servers.

After enabling this feature, when a user issues an FTP GET request to a server, the security appliance sends the request to the FTP server and to the Websense server at the same time. If the Websense server permits the connection, the security appliance 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 server denies the connection, the security appliance alters the FTP return code to show that the connection was denied. For example, the security appliance 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 server.
filter java	Removes Java applets from HTTP traffic passing through the security appliance.
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 https

To identify the HTTPS traffic to be filtered by a 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 local_mask foreign_ip foreign_mask*] [**allow**]

no filter https {[*port*[**-***port*] | **except** } *local_ip local_mask foreign_ip foreign_mask*] [**allow**]

Syntax Description

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***-***port*	(Optional) Specifies a port range.
except	(Optional) Creates an exception to a previous **filter** condition.
dest-port	The destination port number.
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 *local_ip*. You can use **0.0.0.0** (or in shortened form, **0**) to specify all hosts.
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 *foreign_ip*. Always specify a specific mask value. You can use **0.0.0.0** (or in shortened form, **0**) to specify all hosts.
allow	(Optional) When the server is unavailable, let outbound connections pass through the security appliance without filtering. If you omit this option, and if the N2H2 or Websense server goes off line, the security appliance stops outbound port 443 traffic until the N2H2 or Websense server is back on line.

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
Preexisting	This command was preexisting.

Usage Guidelines

The security appliance supports filtering of HTTPS and FTP sites using an external Websense filtering server.

Note HTTPS is not supported for the 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 security appliance 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 security appliance.
filter java	Removes Java applets from HTTP traffic passing through the security appliance.
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 java

To remove Java applets from HTTP traffic passing through the security appliance, 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

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.
except	(Optional) Creates an exception to a previous **filter** condition.
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 *local_ip*. You can use **0.0.0.0** (or in shortened form, **0**) to specify all hosts.
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*foreign_ip*. Always specify a specific mask value. You can use **0.0.0.0** (or in shortened form, **0**) to specify all hosts.

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
Preexisting	This command was preexisting.

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 security appliance 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.

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 security appliance 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
```

This command 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 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
```

This command prevents host 192.168.3.3 from downloading Java applets.

Related Commands

Commands	Description
filter activex	Removes ActiveX objects from HTTP traffic passing through the security appliance.
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 local_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 security appliance without filtering. If you omit this option, and if the N2H2 or Websense server goes off line, the security appliance stops outbound port 80 (Web) traffic until the N2H2 or Websense server is back on line.
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 *foreign_ip*. 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 *local_ip*. 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 Websense server if the URL is over the URL buffer limit.
mask	Any mask.
[*port*[**-***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 security appliance.

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		
				Multiple	
	Routed	Transparent	Single	Context	System
Global configuration	•	•	•	•	•

Command History

Release	Modification
Preexisting	This command was preexisting.

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 to the **filter url** command determines how the security appliance 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 security appliance without filtering. Used without the **allow** option and with the server off line, the security appliance stops outbound port 80 (Web) traffic until the server is back on line, or if another URL server is available, passes control to the next URL server.

Note With the **allow** option set, the security appliance now passes control to an alternate server if the N2H2 or Websense server goes off line.

The N2H2 or Websense server works with the security appliance to deny users from access to websites based on the company security policy.

Using the Websense Filtering Server

Websense protocol Version 4 enables group and username authentication between a host and a security appliance. The security appliance 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 security appliance to check outgoing URL requests against the policy defined on the Websense server.
- Username logging tracks username, group, and domain name on the Websense server.
- Username lookup enables the security appliance 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:

Step 1 Designate an N2H2 or Websense server with the appropriate vendor-specific form of the **url-server** command.

Step 2 Enable filtering with the **filter** command.

Step 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.

Step 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 1159 bytes 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 security appliance drops the packet.

The **longurl-truncate** option causes the security appliance 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 security appliance performance.

Buffering HTTP Responses

By default, when a user issues a request to connect to a specific website, the security appliance 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:

```
url-block block block-buffer-limit
```

Replace *block-buffer-limit* with the maximum number of blocks that will be buffered. The permitted values are from 0 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 security appliance.
filter java	Removes Java applets from HTTP traffic passing through the security appliance.
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 or disable policy-checking to enforce FIPS compliance on the system or module, use the **fips enable** command, or [**no**] **fips enable** 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.

Usage Guidelines

To run in a FIPS-compliant mode of operation, you must apply both the **fips enable** command and the proper configuration specified in the Security Policy. The internal API allows the device to migrate towards enforcing proper configuration at run-time.

When “fips enable” 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

```
sw8-ASA(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 security appliance.

fips self-test poweron

To execute power-on self-tests, use the **fips self-test powereon** command.

fips self-test poweron

Syntax Description

poweron	Executes Power-On Self-Tests.

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

Executing this command causes the device to run all self-tests required for FIPS 140-2 compliance. Tests are compreised of: cryptographic algorithm test, software integrity test and critical functions test.

Examples

```
sw8-5520(config)# fips self-test poweron
```

RelateCommands

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 FWSM.

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. 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.

firewall transparent

no firewall transparent

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you 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.

Usage Guidelines

For multiple context mode, you can use only one firewall mode for all contexts. You must set the mode in the system configuration. This command also appears in each context configuration for informational purposes only; you cannot enter this command in a context.

When you change modes, the security appliance 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 security appliance that changes the mode with the **firewall transparent** command, be sure to put the command at the top of the configuration; the security appliance 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 security appliance 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.

format

To erase all files and format the file system, use the **format** command in privileged EXEC mode. This command erases all files on the file system, including hidden system files, and reinstalls the file system.

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	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 Cisco ASA 5500 series security appliances, 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.

fqdn

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*

no fqdn

Syntax Description

fqdn	Specifies the fully qualified domain name. The maximum length of *fqdn* is 64 characters.

Defaults

The default setting is not to 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	This command was introduced.

Examples

The following example enters crypto ca trustpoint configuration mode for trustpoint central, and includes the FQDN engineering in the enrollment request for trustpoint central:

```
hostname(config)# crypto ca trustpoint central
hostname(ca-trustpoint)# fqdn engineering
hostname(ca-trustpoint)#
```

Related Commands

Command	Description
crypto ca trustpoint	Enters 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 trying to send an enrollment request.
enrollment terminal	Specifies cut and paste enrollment with this trustpoint.

fragment

To provide additional management of packet fragmentation and improve compatibility with NFS, use the **fragment** command in global configuration mode.

fragment {**size** | **chain** | **reassembly full** | **timeout** *limit*} [*interface*]

no fragment {**size** | **chain** | **reassembly full** | **timeout** *limit*} *interface*

Syntax Description

chain *limit*	Specifies the maximum number of packets into which a full IP packet can be fragmented.
interface	(Optional) Specifies the security appliance interface. If an interface is not specified, the command applies to all interfaces.
size *limit*	Sets the maximum number of packets that can be in the IP reassembly database waiting for reassembly. **Note** The security appliance 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.
reassembly full	Enables full reassembly for fragments that are routed through the device. Fragments that terminate at the device are always fully reassembled.
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

Command Modes

The following table shows the modes in which you 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 modified so that you now must choose one of the following arguments: **chain**, **size**, or **timeout**. You can no longer enter the **fragment** command without entering one of these arguments, as was supported in prior releases of the software.
7.0.8	The keyword **reassembly full** was added to enable full reassembly for fragments that are routed through the device.

Usage Guidelines

By default, the security appliance accepts up to 24 fragments to reconstruct a full IP packet. Based on your network security policy, you should consider configuring the security appliance to prevent fragmented packets from traversing the security appliance 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 security appliance 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 security appliance 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.

If **reassembly full** is enabled, fragments in the completed fragment set are merged into one packet. The fragments are then released.

Examples

This 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.

This 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
```

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.

ftp-map

To identify a specific map for defining the parameters for strict FTP inspection, use the **ftp-map** command in global configuration mode. To remove the map, use the **no** form of this command.

ftp-map *map_name*

no ftp-map *map_name*

Syntax Description

map_name	The name of the FTP 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	This command was introduced.

Usage Guidelines

Use the **ftp-map** command to identify a specific map to use for defining the parameters for strict FTP inspection. When you enter this command, the system enters the FTP map configuration mode, which lets you enter the different commands used for defining the specific map. Use the **request-command deny** command to prevent the FTP client from sending specific commands to the FTP server.

After defining the FTP map, use the **inspect ftp strict** command to enable the map. Then 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 FTP traffic, define an FTP map, define a policy, and apply the policy to the outside interface:

```
hostname(config)# class-map ftp-port
hostname(config-cmap)# match port tcp eq 21
hostname(config-cmap)# exit
hostname(config)# ftp-map inbound_ftp
hostname(config-ftp-map)# request-command deny put stou appe
hostname(config-ftp-map)# exit
hostname(config)# policy-map inbound_policy
hostname(config-pmap)# class ftp-port
hostname(config-pmap-c)# inspect ftp strict inbound_ftp
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 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-command deny	Specifies FTP commands to disallow.

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	This command was introduced.

Usage Guidelines

The **ftp mode passive** command sets the FTP mode to passive.The security appliance 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 security appliance 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

To configure file access and file browsing, MAPI Proxy, HTTP Proxy, and URL entry over WebVPN for this user or group policy, use the **functions** command in webvpn mode, which you enter from group-policy or username mode. To remove a configured function, use the **no** form of this command.

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.

functions {**file-access** | **file-browsing** | **file-entry** | **filter** | **http-proxy** | **url-entry** | **mapi** | **port-forward** | **none**}

no functions [**file-access** | **file-browsing** | **file-entry** | **filter** | **url-entry** | **mapi** | **port-forward**]

Syntax Description

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 of disables user ability to enter names of file servers.
filter	Applies a webtype ACL. When enabled, the security appliance applies the webtype ACL defined with the webvpn **filter** command.
http-proxy	Enables or disables the forwarding of an HTTP applet proxy to the client. 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 security appliance. 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.
mapi	Enables or disables Microsoft Outlook/Exchange port forwarding.
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 security appliance uses the port forwarding list defined with the webvpn **port-forward** command.
url-entry	Enables or disables user entry of URLs. When enabled, the security appliance still restricts URLs with any configured URL or network ACLs. When URL entry is disabled, the security appliance 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 mode	•	—	•	—	—

Command History

Release	Modification
7.0	This command was introduced.

Examples

The following example shows how to configure file access, file browsing, and MAPI Proxy 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 MAPI
```

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.