

## ddns through debug xdmcp Commands

---

## ddns (DDNS-update-method)

To specify a DDNS update method type, use the **ddns** command in DDNS-update-method mode. To remove an update method type from the running configuration, use the **no** form of this command.

**ddns [both]**

**no ddns [both]**

<b>Syntax Description</b>	<b>both</b> (Optional) Specifies updating to both the DNS A and PTR resource records (RRs).
---------------------------	---

<b>Defaults</b>	Update only A RRs.
-----------------	--------------------

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple Context	System
DDNS-update-method	•	—	•	•	—

Command History	Release	Modification
	7.2(1)	This command was introduced.

<b>Usage Guidelines</b>	Dynamic DNS (DDNS) updates the name to address and address to name mappings maintained by DNS. Of the two methods for performing DDNS updates—the IETF standard defined by RFC 2136 and a generic HTTP method—the security appliance supports the IETF method in this release.
-------------------------	--

Name and address mappings are contained in two types of resource records (RR):

- The A resource record contains domain name to IP address mappings.
- The PTR resource record contains IP address to domain name mappings.

DDNS updates can be used to maintain consistent information between the A and PTR RR types.

When issued in DDNS-update-method configuration mode, the **ddns** command defines whether the update is just to A RR, or to both A RR and PTR RR.

<b>Examples</b>	The following example configures updating to both the A and PTR RRs for the DDNS update method named ddns-2:
-----------------	--

```
hostname(config)# ddns update method ddns-2
hostname(DDNS-update-method)# ddns both
```

**Related Commands**

Command	Description
<b>ddns update (interface config mode)</b>	Associates a dynamic DNS (DDNS) update method with a security appliance interface or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>dhcp-client update dns</b>	Configures the update parameters that the DHCP client passes to the DHCP server.
<b>dhcpd update dns</b>	Enables a DHCP server to perform DDNS updates.
<b>interval maximum</b>	Configures the maximum interval between update attempts by a DDNS update method.

# ddns update (interface configuration)

To associate a dynamic DNS (DDNS) update method with a security appliance interface or an update hostname, use the **ddns update** command in interface configuration mode. To remove the association between the DDNS update method and the interface or the hostname from the running configuration, use the **no** form of this command.

**ddns update** [*method-name* | **hostname** *hostname*]

**no ddns update** [*method-name* | **hostname** *hostname*]

## Syntax Description

<b>hostname</b>	Specifies that the next term in the command string is a hostname.
<i>hostname</i>	Specifies a hostname to be used for updates.
<i>method-name</i>	Specifies a method name for association with the interface being configured.

## Defaults

No default behavior or values.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

After defining a DDNS update method, you must associate it with a security appliance interface to trigger DDNS updates.

A hostname could be a Fully Qualified Domain Name (FQDN) or just a hostname. If just a hostname, the security appliance appends a domain name to the hostname to create a FQDN.

## Examples

The following example associates the interface GigabitEthernet0/2 with the DDNS update method named ddns-2 and the hostname hostname1.example.com:

```
hostname(config)# interface GigabitEthernet0/2
hostname(config-if)# ddns update ddns-2
hostname(config-if)# ddns update hostname hostname1.example.com
```

## Related Commands

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>dhcp-client update dns</b>	Configures the update parameters that the DHCP client passes to the DHCP server.
<b>dhcpd update dns</b>	Enables a DHCP server to perform DDNS updates.
<b>interval maximum</b>	Configures the maximum interval between update attempts by a DDNS update method.

## ddns update method (global configuration mode)

To create a method for dynamically updating a DNS resource records (RRs), use the **ddns update method** command in global configuration mode. To remove a dynamic DNS (DDNS) update method from the running configuration, use the **no** form of this command.

**ddns update method** *name*

**no ddns update method** *name*

### Syntax Description

<i>name</i>	Specifies the name of a method for dynamically updating DNS records.
-------------	--

### Defaults

No default behavior or values.

### Command Modes

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

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

### Command History

Release	Modification
7.2(1)	This command was introduced.

### Usage Guidelines

DDNS updates the name to address and address to name mappings maintained by DNS. The update method configured by the **ddns update method** command determines what and how often dynamic DNS updates are performed. Of the two methods for performing DDNS updates—the IETF standard defined by RFC 2136 and a generic HTTP method—the security appliance supports the IETF method in this release.

Name and address mappings are contained in two types of resource records (RR):

- The A resource record contains domain name to IP address mappings.
- The PTR resource record contains IP address to domain name mappings.

DDNS updates can be used to maintain consistent information between the A and PTR RR types.



#### Note

Before **ddns update method** will work, you must configure a reachable default DNS server using the **dns** command with domain lookup enabled on the interface.

### Examples

The following example configures the DDNS update method named ddns-2:

```
hostname(config)# ddns update method ddns-2
```

**Related Commands**

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a dynamic DNS (DDNS) update method with a security appliance interface or a DDNS update hostname.
<b>dhcp-client update dns</b>	Configures the update parameters that the DHCP client passes to the DHCP server.
<b>dhcpd update dns</b>	Enables a DHCP server to perform dynamic DNS updates.
<b>interval maximum</b>	Configures the maximum interval between update attempts by a DDNS update method.

# 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** | **common** | **internal** | **vpn** [ *level* ] ]

**no debug aaa**

## Syntax Description

<b>accounting</b>	(Optional) Show debug messages for accounting only.
<b>authentication</b>	(Optional) Show debug messages for authentication only.
<b>authorization</b>	(Optional) Show debug messages for authorization only.
<b>common</b>	(Optional) Show debug messages for different states within the AAA feature.
<b>internal</b>	(Optional) Show debug messages for AAA functions supported by the local database only.
<i>level</i>	(Optional) Specifies the debug level. Valid with the <b>common</b> and <b>vpn</b> keywords only.
<b>vpn</b>	(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:

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

## Command History

Release	Modification
7.0(1)	This command was modified to include new keywords.

## Usage Guidelines

The **debug aaa** command displays detailed information about AAA activity. The **no debug all** 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
	<code>show running-config aaa</code>	Displays running configuration related to AAA.

# debug appfw

To display detailed information about application inspection, use the **debug appfw** command in privileged EXEC mode. To disable debugging, Use the **no** form of this command.

**debug appfw** [**chunk** | **event** | **eventverb** | **regex**]

**no debug appfw** [**chunk** | **event** | **eventverb** | **regex**]

## Syntax Description

<b>chunk</b>	(Optional) Displays runtime information about processing of chunked transfer encoded packets.
<b>event</b>	(Optional) Displays debug information about packet inspection events.
<b>eventverb</b>	(Optional) Displays the action taken by the security appliance in response to an event.
<b>regex</b>	(Optional) Displays information about matching patterns with predefined signatures.

## Defaults

All options are enabled by default.

## Command Modes

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

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

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

## Examples

The following example enables the display of detailed information about application inspection:

```
hostname# debug appfw
```

## Related Commands

Commands	Description
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.

# 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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>arp</b>	Adds a static ARP entry.
<b>show arp statistics</b>	Shows ARP statistics.
<b>show debug</b>	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:

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

Release	Modification
7.0(1)	This command was introduced.

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

**Examples** The following example enables debug messages for ARP inspection:

```
hostname# debug arp-inspection
```

Command	Description
<b>arp</b>	Adds a static ARP entry.
<b>arp-inspection</b>	For transparent firewall mode, inspects ARP packets to prevent ARP spoofing.
<b>show debug</b>	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:

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

## Command History

Release	Modification
7.0(1)	This command was changed from the <b>debug pdm history</b> command to the <b>debug asdm history</b> 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
<b>show asdm history</b>	Displays the contents of the ASDM history buffer.

# 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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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
<b>context</b>	Creates a security context in the system configuration and enters context configuration mode.
<b>show context</b>	Shows context information.
<b>show debug</b>	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(1)	This command was introduced.

## Usage Guidelines

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

## Examples

The following example enables debug messages for the control plane:

```
hostname# debug cplane
```

## Related Commands

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

Command	Description
<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.
<b>show module</b>	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

<b>messages</b>	(Optional) Shows only debug messages for PKI input and output messages.
<b>transactions</b>	(Optional) Shows only debug messages for PKI transactions.
<i>level</i>	(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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>debug crypto engine</b>	Shows debug messages for the crypto engine.
<b>debug crypto ipsec</b>	Shows debug messages for IPsec.
<b>debug crypto isakmp</b>	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		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

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

## Examples

The following example enables debug messages for the crypto engine:

```
hostname# debug crypto engine
```

## Related Commands

Command	Description
<b>debug crypto ca</b>	Shows debug messages for the CA.
<b>debug crypto ipsec</b>	Shows debug messages for IPSec.
<b>debug crypto isakmp</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>debug crypto ca</b>	Shows debug messages for the CA.
<b>debug crypto engine</b>	Shows debug messages for the crypto engine.
<b>debug crypto isakmp</b>	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

<b>timers</b>	(Optional) Shows debug messages for ISAKMP timer expiration.
<i>level</i>	(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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>debug crypto ca</b>	Shows debug messages for the CA.
<b>debug crypto engine</b>	Shows debug messages for the crypto engine.
<b>debug crypto ipsec</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple 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
<b>inspect ctiqbe</b>	Enables CTIQBE application inspection.
<b>show ctiqbe</b>	Displays information about CTIQBE sessions established through the security appliance.
<b>show conn</b>	Displays the connection state for different connection types.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# debug ddns

To show debug messages for DDNS, use the **debug ddns** command in privileged EXEC mode. To disable debug messages, use the **no** form of this command.

**debug ddns**

**no debug ddns**

## Syntax Description

This command has no arguments or keywords.

## Defaults

The default behavior or values.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **debug ddns** command displays detailed information about DDNS. The **undebug ddns** turns off DDNS debugging information as does the **no debug ddns** command.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example shows an example of enabling DDNS debug messages:

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

## Related Commands

Command	Description
<b>ddns (DDNS-update-method mode)</b>	Specifies a DDNS update method type for a created DDNS method.
<b>ddns update (interface config mode)</b>	Associates a dynamic DNS (DDNS) update method with a security appliance interface or a DDNS update hostname.
<b>ddns update method (global config mode)</b>	Creates a method for dynamically updating DNS resource records.
<b>show running-config ddns</b>	Displays the type and interval of all configured DDNS methods in the running configuration.



# debug dhcpc

To enable debugging of the DHCP client, use the **debug dhcpc** command in privileged EXEC mode. To disable debugging, use the **no debug dhcpc** form of this command.

**debug dhcpc** {**detail** | **packet** | **error**} [*level*]

**no debug dhcpc** {**detail** | **packet** | **error**} [*level*]

## Syntax Description

<b>detail</b>	Displays detail event information that is associated with the DHCP client.
<b>error</b>	Displays error messages that are associated with the DHCP client.
<i>level</i>	(Optional) Specifies the debug level. Valid valuse range from 1 to 255.
<b>packet</b>	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		
	Routed	Transparent	Single	Multiple 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
<b>show ip address dhcp</b>	Displays detailed information about the DHCP lease for an interface.
<b>show running-config interface</b>	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

<b>event</b>	Displays event information that is associated with the DHCP server.
<b>level</b>	(Optional) Specifies the debug level. Valid valuse range from 1 to 255.
<b>packet</b>	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 **debug 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 example shows an example of enabling DHCP event debugging:

```
hostname# debug dhcpd event
debug dhcpd event enabled at level 1
```

Related Commands	Command	Description
	show dhcpd	Displays DHCP binding, statistic, or state information.
	show running-config dhcpd	Displays the current DHCP server configuration.

# debug dhcpd ddns

To enable debugging of the DHCP DDNS, use the **debug dhcpd ddns** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

**debug dhcpd ddns** [*level*]

**no debug dhcpd ddns** [*level*]

## Syntax Description

*level* (Optional) Specifies the debug level. Valid values range from 1 to 255.

## Defaults

The default debug level is 1.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The **debug dhcpd ddns** command displays detailed information about DHCP and DDNS. The **undebug dhcpd ddns** command turns off DHCP and DDNS debugging information as does the **no debug dhcpd ddns** command.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example shows DHCP DDNS debugging being enabled:

```
hostname# debug dhcpd ddns
debug dhcpd ddns enabled at level 1
```

## Related Commands

Command	Description
<b>dhcpd update dns</b>	Enables a DHCP server to perform dynamic DNS updates.
<b>show running-config dhcpd</b>	Displays the current DHCP server configuration.
<b>show running-config ddns</b>	Display the DDNS update methods of the running configuration.

# debug dhcprelay

To enable debugging of the DHCP relay server, use the **debug dhcpreleay** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

**debug dhcprelay {event | packet | error} [level]**

**no debug dhcprelay {event | packet | error} [level]**

## Syntax Description

<b>error</b>	Displays error messages that are associated with the DHCP relay agent.
<b>event</b>	Displays event information that is associated with the DHCP relay agent.
<i>level</i>	(Optional) Specifies the debug level. Valid valuse range from 1 to 255.
<b>packet</b>	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		
	Routed	Transparent	Single	Multiple 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
<b>clear configure dhcprelay</b>	Removes all DHCP relay agent settings.
<b>clear dhcprelay statistics</b>	Clears the DHCP relay agent statistic counters.
<b>show dhcprelay statistics</b>	Displays DHCP relay agent statistic information.
<b>show running-config dhcprelay</b>	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 debug disk** form of this command.

**debug disk** { **file** | **file-verbose** | **filesystem** } [*level*]

**no debug disk** { **file** | **file-verbose** | **filesystem** }

## Syntax Description

<b>file</b>	Enables file-level disk debug messages.
<b>file-verbose</b>	Enables verbose file-level disk debug messages
<b>filesystem</b>	Enables file system debug messages.
<i>level</i>	(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		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	—	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables 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

<i>level</i>	(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.
<b>resolver</b>	(Optional) Shows only DNS resolver messages.
<b>all</b>	(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 messages.

## Command Modes

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

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect dns</b>	Enables DNS application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.

# debug eap

To enable logging of Extensible Authentication Protocol events to debug Network Admission Control messaging, use the **debug eap** command in privileged EXEC mode. To disable the logging of EAP debug messages, use the **no** form of this command.

**debug eap** {all | errors | events | packets | sm}

**no debug eap** [all | errors | events | packets | sm]

## Syntax Description

<b>all</b>	Enables logging of debug messages about all EAP information.
<b>errors</b>	Enables logging of EAP packet errors.
<b>events</b>	Enables logging of EAP session events.
<b>packets</b>	Enables logging of debug messages about EAP packet information.
<b>sm</b>	Enables logging of debug messages about EAP state machine information.

## Defaults

No default behavior or values.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

When you use this command, the security appliance records EAP session state changes and EAP status query events, and generates a complete record of EAP and packet contents in hexadecimal format.

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables the logging of all EAP session events:

```
hostname# debug eap events
hostname#
```

The following example enables the logging of all EAP debug messages:

```
hostname# debug eap all
hostname#
```

The following example disables the logging of all EAP debug messages:

```
hostname# no debug eap
hostname#
```

**Related Commands**

Command	Description
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>eou initialize</b>	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
<b>eou revalidate</b>	Forces immediate posture revalidation of one or more NAC sessions.
<b>show debug</b>	Displays current debug configuration.

# 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		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables MIB 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 eou

To enable logging of Extensible Authentication Protocol over UDP (EAPoUDP) events to debug Network Admission Control messaging, use the **debug eou** command in privileged EXEC mode. To disable the logging of EAPoUDP debug messages, use the **no** form of this command.

**debug eou** {all | eap | errors | events | packets | sm}

**no debug eou** [all | eap | errors | events | packets | sm]

## Syntax Description

<b>all</b>	Enables logging of debug messages about all EAPoUDP information.
<b>eap</b>	Enables logging of debug messages about EAPoUDP packets.
<b>errors</b>	Enables logging of EAPoUDP packet errors.
<b>events</b>	Enables logging of EAPoUDP session events.
<b>packets</b>	Enables logging of debug messages about EAPoUDP packet information.
<b>sm</b>	Enables logging of debug messages about EAPoUDP state machine information.

## Defaults

No default behavior or values.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

When you use this command, the security appliance records EAPoUDP session state changes and timer events, and generates a complete record of EAPoUDP header and packet contents in hexadecimal format.

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables the logging of all EAPoUDP session events:

```
hostname# debug eou events
```



```
hostname#
```

The following example enables the logging of all EAPoUDP debug messages:

```
hostname# debug eou all  
hostname#
```

The following example disables the logging of all EAPoUDP debug messages:

```
hostname# no debug eou  
hostname#
```

#### Related Commands

Command	Description
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug nac</b>	Enables logging of NAC events.
<b>eou initialize</b>	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
<b>eou revalidate</b>	Forces immediate posture revalidation of one or more NAC sessions.
<b>show debug</b>	Displays current debug configuration.

# debug esmtp

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

```
debug esmtp [level]

no debug esmtp [level]
```

Syntax Description	level	(Optional) Sets the 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 <i>level</i> is 1.
----------	--

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

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

Command History	Release	Modification
	Preexisting	This command was preexisting.

Usage Guidelines	To see the current debug command settings, enter the <b>show debug</b> command. To stop the debug output, enter the <b>no debug</b> command. To stop all debug messages from being displayed, enter the <b>no debug all</b> command.
------------------	--



Note	Enabling the <b>debug esmtp</b> command may slow down traffic on busy networks.
------	---

Examples	<p>The following example enables debug messages at the default level (1) for SMTP/ESMTP application inspection:</p> <pre>hostname# debug esmtp</pre>
----------	--

## Related Commands

Command	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect esmtp</b>	Enables ESMTP application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.
<b>show conn</b>	Displays the connection state for different connection types, including SMTP.

# 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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect protocol</b>	Enables application inspection for specific protocols.
<b>policy-map</b>	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** | **rxdump** | **rxip** | **switch** | **sync** | **tx** | **txdump** | **txip** | **verify** }

**no debug fover** { **cable** | **fail** | **fmsg** | **ifc** | **open** | **rx** | **rxdump** | **rxip** | **switch** | **sync** | **tx** | **txdump** | **txip** | **verify** }

## Syntax Description

<b>cable</b>	Failover LAN status or serial cable status.
<b>fail</b>	Failover internal exception.
<b>fmsg</b>	Failover message.
<b>ifc</b>	Network interface status trace.
<b>open</b>	Failover device open.
<b>rx</b>	Failover message receive.
<b>rxdump</b>	Failover receive message dump (serial console only).
<b>rxip</b>	IP network failover packet receive.
<b>switch</b>	Failover switching status.
<b>sync</b>	Failover configuration/command replication.
<b>tx</b>	Failover message transmit.
<b>txdump</b>	Failover transmit message dump (serial console only).
<b>txip</b>	IP network failover packet transmit.
<b>verify</b>	Failover message verify.

## Defaults

No default behavior or values.

## Command Modes

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

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

## Command History

Release	Modification
7.0(1)	This command was 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
<b>show failover</b>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>copy</b>	Uploads or downloads image files or configuration files to or from an FTP server.
<b>ftp mode passive</b>	Configures the mode for FTP sessions.
<b>show running-config ftp mode</b>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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

<b>error</b>	Displays debug information on errors encountered while processing the GTP message.
<b>event</b>	Displays debug information on GTP events.
<b>ha option</b>	Debugs information on GTP HA events.
<b>parser</b>	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		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **debug gtp** command displays detailed information about GTP inspection. The **no debug all** or **undebug all** 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
<b>clear service-policy inspect gtp</b>	Clears global GTP statistics.
<b>gtp-map</b>	Defines a GTP map and enables GTP map configuration mode.
<b>inspect gtp</b>	Applies a GTP map to use for application inspection.
<b>show service-policy inspect gtp</b>	Displays the GTP configuration.
<b>show running-config gtp-map</b>	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

<b>h225</b>	Specifies H.225 signaling.
<b>h245</b>	Specifies H.245 signaling.
<b>ras</b>	Specifies the registration, admission, and status protocol.
<b>asn</b>	(Optional) Displays the output of the decoded protocol data units (PDU)s.
<b>event</b>	(Optional) Displays the signaling events or turns on both traces.

## Defaults

No default behavior or values.

## Command Modes

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

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>inspect h323</b>	Enables H.323 application inspection.
<b>show h225</b>	Displays information for H.225 sessions established across the security appliance.
<b>show h245</b>	Displays information for H.245 sessions established across the security appliance by endpoints using slow start.
<b>show h323-ras</b>	Displays information for H.323 RAS sessions established across the security appliance.
<b>timeout h225   h323</b>	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	<i>level</i>	(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 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		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

Command History	Release	Modification
	7.0(1)	This command was introduced.

**Usage Guidelines** The **debug http** command displays detailed information about HTTP traffic. The **no debug all** or **undebug all** 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
	<a href="#">http</a>	Specifies hosts that can access the HTTP server internal to the security appliance.
	<a href="#">http-proxy</a>	Configures an HTTP proxy server.
	<a href="#">http redirect</a>	Redirects HTTP traffic to HTTPS.
	<a href="#">http server enable</a>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>debug appfw</b>	Displays detailed information about HTTP application inspection.
<b>http-map</b>	Defines an HTTP map for configuring enhanced HTTP inspection.
<b>inspect http</b>	Applies a specific HTTP map to use for application inspection.
<b>policy-map</b>	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

<b>trace</b>	Displays debug information about ICMP trace activity.
<i>level</i>	(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		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	—

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

The **debug icmp** command displays detailed information about ICMP inspection. The **no debug all** or **undebug all** 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
<b>clear configure icmp</b>	Clears the ICMP configuration.
<b>icmp</b>	Configures access rules for ICMP traffic that terminates at a security appliance interface.
<b>show conn</b>	Displays the state of connections through the security appliance for different protocols and session types.

Commands	Description
<b>show icmp</b>	Displays ICMP configuration.
<b>timeout icmp</b>	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

<b>group</b> <i>group_id</i>	Displays IGMP debug information for the specified group.
<b>interface</b> <i>if_name</i>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
	<b>show igmp groups</b>	Displays the multicast groups with receivers that are directly connected to the security appliance and that were learned through IGMP.
	<b>show igmp interface</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect ils</b>	Enables ILS application inspection.

Command	Description
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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

 debug imagemgr

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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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

 debug ipsec-over-tcp

Command	Description
show debug	Displays current debug configuration.

# 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

<b>icmp</b>	Displays debug messages for IPv6 ICMP transactions, excluding ICMPv6 neighbor discovery transactions.
<b>interface</b>	Displays debug information for IPv6 interfaces.
<b>nd</b>	Displays debug messages for ICMPv6 neighbor discovery transactions.
<b>packet</b>	Displays debug messages for IPv6 packets.
<b>routing</b>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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#
```

■ debug iua-proxy

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**

<b>Syntax Description</b>	<i>level</i>	(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.
---------------------------	--------------	---

<b>Defaults</b>	The default value for <i>level</i> is 1.
-----------------	--

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

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

Command History	Release	Modification
	7.0(1)	This command was introduced.

<b>Usage Guidelines</b>	Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use <b>debug</b> commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use <b>debug</b> commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased <b>debug</b> command processing overhead will affect system use.
-------------------------	---

<b>Examples</b>	The following example enables Kerberos debug messages. The <b>show debug</b> 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 l2tp

To display L2TP debug information, use the **debug l2tp** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

**debug l2tp** { **data** | **error** | **event** | **packet** } *level*

**no debug l2tp** { **data** | **error** | **event** | **packet** } *level*

## Syntax Description

<b>data</b>	displays data packet trace information.
<b>error</b>	Displays error events.
<b>event</b>	Displays L2TP connection events.
<b>packet</b>	Displays packet trace information.
<i>level</i>	(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:

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables L2TP debug messages for connection events. The **show debug** command reveals that L2TP debug messages are enabled.

```
hostname# debug l2tp event 1
hostname# show debug
debug l2tp event enabled at level 1
hostname#
```

Related Commands

Command	Description
show debug	Displays 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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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
<b>mac-address-table aging-time</b>	Sets the timeout for dynamic MAC address entries.
<b>mac-address-table static</b>	Adds static MAC address entries to the MAC address table.
<b>mac-learn</b>	Disables MAC address learning.

Command	Description
<b>show debug</b>	Shows all enabled debuggers.
<b>show mac-address-table</b>	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:

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

### Command History

Release	Modification
7.0(1)	This command was introduced.

### 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
<b>show debug</b>	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** | **mrrib** | **pak** | **ps** | **signal** } [*group*]

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

## Syntax Description

<b>db</b>	(Optional) Displays debug information for route database operations.
<i>group</i>	(Optional) IP address of the multicast group.
<b>init</b>	(Optional) Displays system initialization activity.
<b>mrrib</b>	(Optional) Displays debug information for communication with MRIB.
<b>pak</b>	(Optional) Displays debug information for packet forwarding operations.
<b>ps</b>	(Optional) Displays debug information for process switching operations.
<b>signal</b>	(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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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 database 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}

<b>messages</b>	Displays debug information about MGCP messages.
<b>parser</b>	Displays debug information for parsing MGCP messages.
<b>sessions</b>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect mgcp</b>	Enables MGCP application inspection.
<b>mgcp-map</b>	Defines an MGCP map and enables MGCP map configuration mode.
<b>show mgcp</b>	Displays information about MGCP sessions established through the security appliance.
<b>show conn</b>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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
<b>hw-module module recover</b>	Recovers an intelligent SSM by loading a recovery image from a TFTP server.
<b>hw-module module reset</b>	Shuts down an SSM and performs a hardware reset.
<b>hw-module module reload</b>	Reloads the intelligent SSM software.

Command	Description
<b>hw-module module shutdown</b>	Shuts down the SSM software in preparation for being powered off without losing configuration data.
<b>show module</b>	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

<b>client</b>	Enables debugging for MRIB client management activity.
<b>io</b>	Enables debugging of MRIB I/O events.
<b>route</b>	Enables debugging of MRIB routing entry activity.
<i>group</i>	Enables debugging of MRIB routing entry activity for the specified group.
<b>table</b>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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
<b>show mrib client</b>	Displays information about the MRIB client connections.
<b>show mrib route</b>	Displays MRIB table entries.



# debug nac

To enable logging of Network Admission Control events, use the **debug nac** command in privileged EXEC mode. To disable the logging of NAC debug messages, use the **no** form of this command.

**debug nac** {all | auth | errors | events}

**no debug nac** [all | auth | errors | events]

## Syntax Description

<b>all</b>	Enables logging of debug messages about all NAC information.
<b>auth</b>	Enables logging of debug messages about NAC authentication requests and responses.
<b>errors</b>	Enables logging of NAC session errors.
<b>events</b>	Enables logging of NAC session events.

## Defaults

No default behavior or values.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

When you use this command, the security appliance logs the following types of NAC events: initializations, exception list matches, ACS transactions, clientless authentications, default ACL applications, and revalidations.

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables the logging of all NAC session events:

```
hostname# debug nac events
hostname#
```

The following example enables the logging of all NAC debug messages:

```
hostname# debug nac all
hostname#
```

The following example disables the logging of all NAC debug messages:

```
hostname# no debug nac
hostname#
```

#### Related Commands

Command	Description
<b>debug eap</b>	Enables logging of EAP events to debug NAC messaging.
<b>debug eou</b>	Enables logging of EAP over UDP (EAPoUDP) events to debug NAC messaging.
<b>eou initialize</b>	Clears the resources assigned to one or more NAC sessions and initiates a new, unconditional posture validation for each of the sessions.
<b>eou revalidate</b>	Forces immediate posture revalidation of one or more NAC sessions.
<b>show debug</b>	Displays current debug configuration.

# 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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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#
```

■ debug ntdomain

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

<b>adjust</b>	Shows messages about NTP clock adjustments.
<b>authentication</b>	Shows messages about NTP authentication.
<b>events</b>	Shows messages about NTP events.
<b>loopfilter</b>	Shows messages about NTP loop filter.
<b>packets</b>	Shows messages about NTP packets.
<b>params</b>	Shows messages about NTP clock parameters.
<b>select</b>	Shows messages about NTP clock selection.
<b>sync</b>	Shows messages about NTP clock synchronization.
<b>validity</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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	
<b>adj</b>	(Optional) Enables the debugging of OSPF adjacency events.
<b>database-timer</b>	(Optional) Enables the debugging of OSPF timer events.
<b>events</b>	(Optional) Enables the debugging of OSPF events.
<b>external</b>	(Optional) Limits SPF debugging to external events.
<b>flood</b>	(Optional) Enables the debugging of OSPF flooding.
<b>inter</b>	(Optional) Limits SPF debugging to inter-area events.
<b>intra</b>	(Optional) Limits SPF debugging to intra-area events.
<b>lsa-generation</b>	(Optional) Enables the debugging of OSPF summary LSA generation.
<b>packet</b>	(Optional) Enables the debugging of received OSPF packets.
<b>retransmission</b>	(Optional) Enables the debugging of OSPF retransmission events.
<b>spf</b>	(Optional) Enables the debugging of OSPF shortest path first calculations. You can limit the SPF debug information by using the <b>external</b> , <b>inter</b> , and <b>intra</b> keywords.
<b>tree</b>	(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
<b>show ospf</b>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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#
```

■ debug parser cache

Related Commands

Command	Description
show debug	Displays current debug configuration.

# debug pim

To display PIM 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

<b>df-election</b>	(Optional) Displays debug messages for PIM bidirectional DF-election message processing.
<b>group</b> <i>group</i>	(Optional) Displays debug information for the specified group. The value for <i>group</i> can be one of the following: <ul style="list-style-type: none"> <li>Name of the multicast group, as defined in the DNS hosts table or with the domain <b>ipv4 host</b> command.</li> <li>IP address of the multicast group. This is a multicast IP address in four-part dotted-decimal notation.</li> </ul>
<b>interface</b> <i>if_name</i>	(Optional) When used with the <b>df-election</b> keyword, it limits the DF election debug display to information for the specified interface.  When used without the <b>df-election</b> keyword, displays PIM error messages for the specified interface.  <b>Note</b> The <b>debug pim interface</b> command does not display PIM protocol activity messages; it only displays error messages. To see debug information for PIM protocol activity, use the <b>debug pim</b> command without the <b>interface</b> keyword. You can use the <b>group</b> keyword to limit the display to the specified multicast group.
<b>neighbor</b>	(Optional) Displays only the sent/received PIM hello messages.
<b>rp</b> <i>rp</i>	(Optional) Can be either one of the following: <ul style="list-style-type: none"> <li>Name of the RP, as defined in the Domain Name System (DNS) hosts table or with the domain <b>ipv4 host</b> command.</li> <li>IP address of the RP. This is a multicast IP address in four-part dotted-decimal notation.</li> </ul>

## Defaults

No default behavior or values.

## Command Modes

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

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

**Command History**

Release	Modification
7.0(1)	This command was introduced.

**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
<b>show pim group-map</b>	Displays group-to-protocol mapping table.
<b>show pim interface</b>	Displays interface-specific information for PIM.
<b>show pim neighbor</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple 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
<b>debug pix process</b>	Shows debug messages for xlate and secondary connections processing.
<b>show debug</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>debug pix pkt2pc</b>	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.
<b>show debug</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect pptp</b>	Enables PPTP application inspection.

Command	Description
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	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		
<b>all</b>	(Optional) Show RADIUS debugging messages for all users and sessions, including decoded RADIUS messages.	
<b>decode</b>	(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.	
<b>session</b>	(Optional) Show session-related RADIUS messages. Packet types for sent and received RADIUS messages display but not the packet content.	
<b>user</b>	(Optional) Show RADIUS debugging messages for a specific user.	
<i>username</i>	Specifies the user whose messages you want to see. Valid with the <b>user</b> keyword only.	

## Defaults

No default behavior or values.

## Command Modes

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

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

## Command History

Release	Modification
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
<b>show running-config</b>	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** [**database** | **events**]

**no debug rip** [**database** | **events**]

## Syntax Description

<b>database</b>	Displays RIP database events.
<b>events</b>	Displays RIP processing events.

## Defaults

All RIP events are shown in the debug output.

## Command Modes

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

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

## Command History

Release	Modification
Preexisting	This command was preexisting.
7.2(1)	The <b>database</b> and <b>events</b> keywords were added.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following is sample output from the **debug rip** command:

```
hostname# debug rip
```

```
RIP: broadcasting general request on GigabitEthernet0/1
RIP: broadcasting general request on GigabitEthernet0/2
RIP: Received update from 10.89.80.28 on GigabitEthernet0/1
      10.89.95.0 in 1 hops
      10.89.81.0 in 1 hops
      10.89.66.0 in 2 hops
      172.31.0.0 in 16 hops (inaccessible)
      0.0.0.0 in 7 hops
RIP: Sending update to 255.255.255.255 via GigabitEthernet0/1 (10.89.64.31)
```

```
subnet 10.89.94.0, metric 1
172.31.0.0 in 16 hops (inaccessible)
RIP: Sending update to 255.255.255.255 via GigabitEthernet0/2 (10.89.94.31)
subnet 10.89.64.0, metric 1
subnet 10.89.66.0, metric 3
172.31.0.0 in 16 hops (inaccessible)
default 0.0.0.0, metric 8
RIP: bad version 128 from 192.168.80.43
```

**Related Commands**

Command	Description
<b>router rip</b>	Configures a RIP process.
<b>show running-config rip</b>	Displays the RIP commands in the running configuration.

# debug rtp

To display debug information and error messages for RTP packets associated with H.323 and SIP inspection, use the **debug rtp** command in privileged EXEC mode. To disable the display of debug information, use the **no** form of this command.

**debug rtp** [*level*]

**no debug rtp** [*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:

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example shows how to enable debugging for RTP packets using the **debug rtp** command:

```
hostname# debug rtp 255
debug rtp enabled at level 255
```

## Related Commands

Command	Description
<b>policy-map</b>	Creates a Layer 3/4 policy map.

Command	Description
<b>rtp-conformance</b>	Checks RTP packets flowing on the pinholes for protocol conformance in H.323 and SIP.
<b>show running-config policy-map</b>	Displays all current policy map configurations.

# 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*]

<b>Syntax Description</b>	<i>level</i>	(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.
---------------------------	--------------	---

<b>Defaults</b>	The default value for <i>level</i> is 1.
-----------------	--

<b>Command Modes</b>	The following table shows the modes in which you can enter the command:
----------------------	---

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

Command History	Release	Modification
	Preexisting	This command was preexisting.

<b>Usage Guidelines</b>	To see the current debug command settings, enter the <b>show debug</b> command. To stop the debug output, enter the <b>no debug</b> command. To stop all debug messages from being displayed, enter the <b>no debug all</b> command.
-------------------------	--



<b>Note</b>	Enabling the <b>debug rtsp</b> command may slow down traffic on busy networks.
-------------	--

<b>Examples</b>	The following example enables debug messages at the default level (1) for RTSP application inspection:  hostname# <b>debug rtsp</b>
-----------------	---

## Related Commands



Command	Description
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect rtsp</b>	Enables RTSP application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	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		
	Routed	Transparent	Single	Multiple Context	System
Privileged EXEC	•	•	•	•	•

## Command History

Release	Modification
7.0(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables SDI 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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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
<b>session</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect sip</b>	Enables SIP application inspection.

Command	Description
<b>show conn</b>	Displays the connection state for different connection types.
<b>show sip</b>	Displays information about SIP sessions established through the security appliance.
<b>timeout</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple 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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect skinny</b>	Enables SCCP application inspection.
<b>show skinny</b>	Displays information about SCCP sessions established through the security appliance.
<b>show conn</b>	Displays the connection state for different connection types.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# debug sla monitor

To display debug messages for the SLA monitor operation, use the **debug sla monitor** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

**debug sla monitor** [**error** | **trace**] [*sla-id*]

**no debug sla monitor** [*sla-id*]

## Syntax Description

<b>error</b>	(Optional) Output IP SLA Monitor Error Messages.
<i>sla-id</i>	(Optional) The ID of the SLA to debug.
<b>trace</b>	(Optional) Output IP SLA Monitor Trace Messages.

## Defaults

Both error and trace messages are shown by default.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

Only 32 SLA operations can be debugged at one time.

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco TAC. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables SLA operation error debugging:

```
hostname(config)# debug sla monitor error
```

The following example shows how to display SLA operation trace messages for the specified SLA operation:

```
hostname(config)# debug sla monitor trace 123
```

Related Commands	Command	Description
	<b>clear configure route</b>	Removes statically configured <b>route</b> commands.
	<b>clear route</b>	Removes routes learned through dynamic routing protocols such as RIP.
	<b>show route</b>	Displays route information.
	<b>show running-config route</b>	Displays configured routes.

# 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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple 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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect sqlnet</b>	Enables SQL*Net application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.
<b>show conn</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple 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
<b>clear configure ssh</b>	Clears all SSH commands from the running configuration.
<b>show running-config ssh</b>	Displays the current SSH commands in the running configuration.
<b>show ssh sessions</b>	Displays information about active SSH sessions to the security appliance.
<b>ssh</b>	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

<b>cipher</b>	Display information about the cipher negotiation between the HTTP server and the client.
<b>device</b>	Displays information about the SSL device including session initiation and ongoing status.
<i>level</i>	(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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple	
				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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple 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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect sunrpc</b>	Enables Sun RPC application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>show conn</b>	Displays the connection state for different connection types, including RPC.
<b>timeout</b>	Sets the maximum idle time duration for different protocols and session types.

# debug switch ilpm

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, show debug messages for PoE using the **debug switch ilpm** command in privileged EXEC mode. To stop showing debug messages for PoE, use the **no** form of this command.

**debug switch ilpm** [**events** | **errors**] [*level*]

**no debug switch ilpm** [**events** | **errors**] [*level*]

## Syntax Description

<b>errors</b>	(Optional) Shows troubleshooting information when there is an error.
<b>events</b>	(Optional) Shows PoE events.
<i>level</i>	(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

By default, both events and errors are shown if you do not specify a keyword. The default level is 1.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

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

## Examples

The following example enables debug messages for PoE ports:

```
hostname# debug switch ilpm
```

## Related Commands

Command	Description
<b>interface vlan</b>	Adds a VLAN interface.
<b>debug switch manager</b>	Shows debug messages for VLAN assignment and <b>switchport</b> command-caused events and errors.
<b>show debug</b>	Shows all enabled debuggers.

# debug switch manager

For models with a built-in switch, such as the ASA 5505 adaptive security appliance, show debug messages for VLAN assignment and **switchport** command-caused events and errors using the **debug switch manager** command in privileged EXEC mode. To stop showing debug messages for switch ports, use the **no** form of this command.

**debug switch manager** [**events** | **errors**] [*level*]

**no debug switch manager** [**events** | **errors**] [*level*]

## Syntax Description

<b>errors</b>	(Optional) Shows troubleshooting information when there is an error.
<b>events</b>	(Optional) Shows the switch manager events.
<i>level</i>	(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

By default, both events and errors are shown if you do not specify a keyword. The default level is 1.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

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

## Examples

The following example enables debug messages for switch ports:

```
hostname# debug switch manager
```

## Related Commands

Command	Description
<b>interface vlan</b>	Adds a VLAN interface.
<b>debug switch ilpm</b>	Shows debug messages for PoE.
<b>show debug</b>	Shows all enabled debuggers.

# 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

<b>session</b>	Displays session-related TACACS+ debug messages.
<b>user</b>	Displays user-specific TACACS+ debug messages. You can display TACACS+ debug messages for only one user at a time.
<i>username</i>	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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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#
```

debug tacacs

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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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:

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

## Command History

Release	Modification
7.0(1)	This command was introduced.

## 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
```

debug timestamps

```
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:

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

## Command History

Release	Modification
7.0(1)(1)	This command was introduced.

## Usage Guidelines

Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables 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

■ debug vpn-sessiondb

Command	Description
show debug	Displays current debug configuration.

# debug wccp

To enable logging of WCCP events, use the **debug wccp** command in privileged EXEC mode. To disable the logging of WCCP debug messages, use the **no** form of this command.

**debug wccp {events | packets | subblocks}**

**no debug wccp {events | packets | subblocks}**

## Syntax Description

<b>events</b>	Enables logging of WCCP session events.
<b>packets</b>	Enables logging of debug messages about WCCP packet information.
<b>subblocks</b>	Enables logging of debug messages about WCCP subblocks.

## Defaults

No default behavior or values.

## Command Modes

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

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

## Command History

Release	Modification
7.2(1)	This command was introduced.

## Usage Guidelines

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

## Examples

The following example enables the logging of all WCCP session events:

```
hostname# debug wccp events
hostname#
```

The following example enables the logging of WCCP packet debug messages:

```
hostname# debug wccp packets
hostname#
```

The following example disables the logging of WCCP debug messages:

```
hostname# no debug wccp
```

debug wccp

hostname#

Related Commands

Command	Description
wccp	Enables support of WCCP.
show debug	Displays current debug configuration.



# debug webvpn

To log WebVPN debug messages, use the **debug webvpn** command in privileged EXEC mode.

To disable the logging of WebVPN debug messages, use the **no** form of this command.

```
debug webvpn [chunk | cifs | citrix | failover | html | javascript | request | response | svc |
transformation | url | util | xml] [level]
```

```
no debug webvpn [chunk | cifs | citrix | failover | html | javascript | request | response | svc |
transformation | url | util | xml] [level]
```

Syntax Description		
<b>chunk</b>		Displays debug messages about memory blocks used to support WebVPN connections.
<b>cifs</b>		Displays debug messages about connections between Common Internet File System (CIFS) servers and WebVPN users.
<b>citrix</b>		Displays debug messages about connections between Citrix Metaframe Servers and Citrix ICA clients over WebVPN.
<b>failover</b>		Displays debug messages about equipment failovers affecting WebVPN connections.
<b>html</b>		Displays debug messages about HTML pages sent over WebVPN connections.
<b>javascript</b>		Displays debug messages about JavaScript sent over WebVPN connections.
<b>request</b>		Displays debug messages about requests issued over WebVPN connections.
<b>response</b>		Displays debug messages about responses issued over WebVPN connections.
<b>svc</b>		Displays debug messages about connections to SSL VPN clients over WebVPN.
<b>transformation</b>		Displays debug messages about WebVPN content transformation.
<b>url</b>		Displays debug messages about website requests issued over WebVPN connections.
<b>util</b>		Displays debug messages about CPU utilization dedicated to support connections to WebVPN remote users.
<b>xml</b>		Displays debug messages about JavaScript sent over WebVPN connections.
<i>level</i>		(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.

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

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

#### Command History

Release	Modification
7.0(1)	This command was introduced.

#### Usage Guidelines

The high priority assigned to debugging output can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased **debug** command processing overhead will affect system use.

#### Examples

The following example enables WebVPN debug messages, specifically for CIFS. The **show debug** command reveals that CIFS debug messages are enabled.

```
hostname# debug webvpn cifs
INFO: debug webvpn cifs enabled at level 1.
hostname# show debug
debug webvpn cifs enabled at level 1
hostname#
```

#### Related Commands

Command	Description
<b>show debug</b>	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:

Command Mode	Firewall Mode		Security Context		
	Routed	Transparent	Single	Multiple 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
<b>class-map</b>	Defines the traffic class to which to apply security actions.
<b>inspect xdmcp</b>	Enables XDMCP application inspection.
<b>policy-map</b>	Associates a class map with specific security actions.
<b>service-policy</b>	Applies a policy map to one or more interfaces.



