

debug cca

To debug CCA register activity, use the **debug cca** command. Use the **no** form of this command to disable debugging output.

debug cca

no debug cca

Syntax Description This command has no arguments or keywords.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to debug CCA register activity:

```
Router# debug cca  
CCA debugging is on  
Router#
```

Related Commands **undebug cca** (same as **no debug cca**)

debug condition interface

To limit the debugging output of interface-related activities, use the **debug condition interface** command. Use the **no** form of this command to disable debugging output.

```
debug condition interface {{ interface interface-number } | null interface-number |
  { port-channel number } | { vlan vlan-id group-number } }
```

```
no debug condition interface {{ interface interface-number } | null interface-number |
  { port-channel number } | { vlan vlan-id group-number } }
```



Note

The **vlan** keyword for the **debug condition interface** command is only supported on the MSFC and can be entered only from the router console.

Syntax Description

<i>interface</i>	(Optional) Interface type; possible valid values are ethernet , fastethernet , gigabitethernet , tengigabitethernet , pos , atm , and ge-wan .
<i>interface-number</i>	(Optional) Module and port number; see the “Usage Guidelines” section for valid values.
null <i>interface-number</i>	Limits debugging to null interfaces; the valid value is 0 .
port-channel <i>number</i>	Limits debugging to port-channel interfaces; see the “Usage Guidelines” section for valid values.
vlan <i>vlan-id</i>	Limits debugging to VLANs; see the “Usage Guidelines” section for valid values.
<i>group-number</i>	VLAN group number; valid values are from 0 to 255.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.
12.1(3a)E3	The number of valid values for port-channel <i>number</i> was changed; see the “Usage Guidelines” section for valid values.
12.1(11b)E	This command was changed to include the pos , atm , and ge-wan keywords.

Usage Guidelines

The number of valid values for **port-channel number** depends on the software release. For releases prior to Release 12.1(3a)E3, valid values are from 1 to 256; for Releases 12.1(3a)E3, 12.1(3a)E4, and 12.1(4)E1, valid values are from 1 to 64. Release 12.1(5c)EX and later support a maximum of 64 values ranging from 1 to 256.

The *interface-number* argument designates the module and port number. Valid values for *interface-number* depend on the specified interface type and the chassis and module used. For example, if you specify a Gigabit Ethernet interface and have a 48-port 10/100BASE-T Ethernet module installed in a 13-slot chassis, valid values for the module number are from 2 to 13 and valid values for the port number are from 1 to 48.

If your system is configured with a Supervisor Engine 1, valid values for *vlan-id* are from 1 to 1005. If your system is configured with a Supervisor Engine 2, valid values for *vlan-id* are from 1 to 4094. Extended-range VLANs are not supported on systems configured with a Supervisor Engine 1.

Examples

This example shows how to limit debugging output to VLAN interface 1:

```
Router# debug condition interface vlan 1
Condition 2 set
Router#
```

Related Commands

debug interface
undebug condition interface (same as **no debug condition interface**)

debug condition standby

To limit the debugging output of Hot Standby Router Protocol state changes, use the **debug condition standby** command. Use the **no** form of this command to disable debugging output.

```
debug condition standby {{ interface interface-number } | port-channel number } | { vlan vlan-id
group-number } }
```

```
no debug condition standby {{ interface interface-number } | { port-channel number } | { vlan
vlan-id group-number } }
```

Syntax Description

<i>interface</i>	(Optional) Interface type; possible valid values are ethernet , fastethernet , gigabitethernet , tengigabitethernet , pos , atm , and ge-wan .
<i>interface-number</i>	(Optional) Module and port number; see the “Usage Guidelines” section for valid values.
port-channel <i>number</i>	Limits debugging output to port-channel interfaces; see the “Usage Guidelines” section for valid values.
vlan <i>vlan-id</i>	Limits debugging output to a VLAN interface; see the “Usage Guidelines” section for valid values.
<i>group-number</i>	VLAN group number; valid values are from 0 to 255.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.
12.1(3a)E3	The number of valid values for port-channel <i>number</i> was changed; see the “Usage Guidelines” section for valid values.
12.1(11b)E	This command was changed to include the pos , atm , and ge-wan keywords.

Usage Guidelines

The number of valid values for **port-channel** *number* depends on the software release. For releases prior to Release 12.1(3a)E3, valid values are from 1 to 256; for Releases 12.1(3a)E3, 12.1(3a)E4, and 12.1(4)E1, valid values are from 1 to 64. Release 12.1(5c)EX and later support a maximum of 64 values ranging from 1 to 256.

The *interface-number* argument designates the module and port number. Valid values for *interface-number* depend on the specified interface type and the chassis and module used. For example, if you specify a Gigabit Ethernet interface and have a 48-port 10/100BASE-T Ethernet module installed in a 13-slot chassis, valid values for the module number are from 2 to 13 and valid values for the port number are from 1 to 48.

If your system is configured with a Supervisor Engine 1, valid values for *vlan-id* are from 1 to 1005. If your system is configured with a Supervisor Engine 2, valid values for *vlan-id* are from 1 to 4094. Extended-range VLANs are not supported on systems configured with a Supervisor Engine 1.

If you attempt to remove the only condition set, you will be prompted with a message asking if you want to abort operation. You can press **n** to abort or **y** to proceed with removal. Removing the only condition set may cause an excessive number of debugging messages.

Examples

This example shows how to limit the debugging output to group 0 in VLAN 1:

```
Router# debug condition standby vlan 1 0
Condition 3 set
Router#
```

This example shows the display if you try to turn off the last standby debug condition:

```
Router# no debug condition standby vlan 1 0
This condition is the last standby condition set.
Removing all conditions may cause a flood of debugging
messages to result, unless specific debugging flags
are first removed.

Proceed with removal? [yes/no]: n
% Operation aborted
Router#
```

Related Commands

undebug condition standby (same as **no debug condition standby**)

debug condition vlan

To limit the VLAN debugging output to a specified VLAN, use the **debug condition vlan** command. Use the **no** form of this command to disable debugging output.

debug condition vlan {*vlan-id*}

no debug condition vlan {*vlan-id*}

Syntax Description	<i>vlan-id</i> Number of the VLAN; see the “Usage Guidelines” section for valid values.
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Defaults	This command has no default settings.
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Command Modes	Privileged EXEC
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Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.	

Usage Guidelines	<p>If you attempt to remove the only VLAN condition set, you will be prompted with a message asking if you want to abort operation. You can press n to abort or y to proceed with removal. Removing the only condition set may cause an excessive number of debugging messages.</p>
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If your system is configured with a Supervisor Engine 1, valid values for *vlan-id* are from 1 to 1005. If your system is configured with a Supervisor Engine 2, valid values for *vlan-id* are from 1 to 4094. Extended-range VLANs are not supported on systems configured with a Supervisor Engine 1.

Examples	This example shows how to limit debugging output to VLAN 1:
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```
Router# debug condition vlan 1
Condition 4 set
Router#
```

This example shows the display if you try to turn off the last VLAN debug condition:

```
Router# no debug condition vlan 1
This condition is the last vlan condition set.
Removing all conditions may cause a flood of debugging
messages to result, unless specific debugging flags
are first removed.
Proceed with removal? [yes/no]: n
% Operation aborted
Router#
```

Related Commands **undebg condition vlan** (same as **no debug condition vlan**)

debug earl

To enable debugging of EARL activity, use the **debug earl** command. Use the **no** form of this command to disable debugging output.

```
debug earl {L2 aging | L2 events | L3 aging | L3 control | L3 netflow}
```

```
no debug earl {L2 aging | L2 events | L3 aging | L3 control | L3 netflow}
```

Syntax Description

L2 aging	Enables debugging of EARL Layer 2 aging.
L2 events	Enables debugging of EARL Layer 2 events.
L3 aging	Enables debugging of EARL Layer 3 aging.
L3 control	Enables debugging of EARL Layer 3 control events.
L3 netflow	Enables debugging of EARL Layer 3 NDE.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines

This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the [remote login](#) command).

Examples

This example shows how to enable debugging of EARL events and provides a sample of the output:

```
Switch-sp# debug earl L2 events
EARL5 events debugging is on
Router#
*Sep 29 13:31:04: SP: cafe_general_isr: EARL5 INT

*Sep 29 13:31:04: SP: cafe_general_isr: intr source 0x4 with mask 0x3FEC6
*Sep 29 13:31:04: SP: cafe_general_isr: NMI intr source 0x3
.
.
.
Switch-sp#
```

Related Commands

undebug earl (same as **no debug earl**)
[remote login](#)

debug ehsa

To enable debugging of EHSA activity, use the **debug ehsa** command. Use the **no** form of this command to disable debugging output.

```
debug ehsa {all | config_sync | fsm | general}
```

```
no debug ehsa {all | config_sync | fsm | general}
```

Syntax Description

all	Enables debugging of all EHSA events.
config_sync	Enables debugging of EHSA configuration synchronization.
fsm	Enables debugging of EHSA FSM.
general	Enables debugging of EHSA general events.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines

This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the [remote login](#) command).

Examples

This example shows how to enable debugging of general EHSA events:

```
Switch-sp# debug ehsa general
EHSA general debugging is on
Switch-sp#
```

Related Commands

undebug ehsa (same as **no debug ehsa**)
[remote login](#)

debug entry

To debug incoming queue entries, use the **debug entry** command. Use the **no** form of this command to disable debugging output.

debug entry

no debug entry

Syntax Description This command has no arguments or keywords.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to enable debugging of incoming queue entries:

```
Router# debug entry
Incoming queue entry debugging is on
Router#
```

Related Commands **undebg entry** (same as **no debug entry**)

debug etherchnl

To enable EtherChannel/PAgP shim debugging, use the **debug etherchnl** command. Use the **no** form of this command to disable debugging output.

debug etherchnl [**all** | **detail** | **error** | **event** | **idb** | **linecard**]

no debug etherchnl

Syntax Description

all	(Optional) Displays all EtherChannel debug messages.
detail	(Optional) Displays detailed EtherChannel debug messages.
error	(Optional) Displays EtherChannel error debug messages.
event	(Optional) Debugs major EtherChannel event messages.
idb	(Optional) Debugs PAgP IDB messages.
linecard	(Optional) Debugs SCP messages to the line card.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines

If you do not specify a keyword, all debug messages are displayed.

Examples

This example shows how to display all EtherChannel debug messages:

```
Router# debug etherchnl
Sep 14 12:59:40: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet5/8
, changed state to down
Sep 14 12:59:42: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet5/9
, changed state to down
Sep 14 13:01:05: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet5/8
, changed state to up
Sep 14 13:11:03: %SYS-5-CONFIG_I: Configured from console by vty2 (171.69.200.22
7)
.
.
.
Router#
```

debug etherchnl

This example shows how to display EtherChannel IDB debug messages:

```
Router# debug etherchnl idb  
Agport idb related debugging is on  
Router#
```

Related Commands **undebg etherchnl** (same as **no debug etherchnl**)

debug ethernet-interface

To debug Ethernet interface events, use the **debug ethernet-interface** command. Use the **no** form of this command to disable debugging output.

debug ethernet-interface

no debug ethernet-interface

Syntax Description This command has no arguments or keywords.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to enable debugging of Ethernet interface events and provides a sample of the output:

```
Router# debug ethernet-interface
Ethernet network interface debugging is on
Router# RX:(D)b000.0000.0ffc (S)0000.0000.0000 (T)0x4000 (L)92 (IP)0.0.0.80 (TL)6
RX:(D)b800.0000.0ffc (S)0000.0000.0000 (T)0x4000 (L)92 (IP)0.0.255.255 (TL)57344
RX:(D)c800.0008.0000 (S)0000.0000.0000 (T)0x6000 (L)124 (IP)0.0.255.255 (TL)3225
<... output truncated ...>
Router#
```

Related Commands **undebug ethernet-interface** (same as **no debug ethernet-interface**)

debug fastethernet

To debug Fast Ethernet interface events or packets, use the **debug fastethernet** command. Use the **no** form of this command to disable debugging output.

```
debug fastethernet {events | packets}
```

```
no debug fastethernet {events | packets}
```

Syntax Description

events Debugs Fast Ethernet events.

packets Debugs Fast Ethernet packets.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

These examples show how to debug Fast Ethernet events and packets:

```
Router# debug fastethernet events
Fast Ethernet events debugging is on
Router#
```

```
Router# debug fastethernet packets
Fast Ethernet packets debugging is on
Router#
```

Related Commands

undebg fastethernet (same as **no debug fastethernet**)

debug fm

To debug feature manager (fm) events and activities, use the **debug fm** command. Use the **no** form of this command to disable debugging output.

```
debug fm {all | event | queue-event | unusual | verbose}
```

```
no debug fm {all | event | queue-event | unusual | verbose}
```

Syntax Description

all	Debugs all FM activity.
event	Debugs FM events.
queue-event	Debugs only FM queue events.
unusual	Debugs only unusual FM events.
verbose	Displays verbose debug output for FM.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to enable verbose debugging output of feature manager events and activities:

```
Router# debug fm verbose
FM verbose debugging is on
Router#
```

Related Commands

undebg fm (same as **no debug fm**)

debug gssapi

To debug GSSAPI events, use the **debug gssapi** command. Use the **no** form of this command to disable debugging output.

debug gssapi

no debug gssapi

Syntax Description This command has no arguments or keywords.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to enable debugging of GSSAPI events:

```
Router# debug gssapi
GSSAPI debugging is on
Router#
```

Related Commands **undebug gssapi** (same as **no debug gssapi**)

debug icc

To debug ICC events, use the **debug icc** command. Use the **no** form of this command to disable debugging output.

debug icc [**all** | **async-requests** | **events** | **exceptions** | **requests**]

no debug icc [**all** | **async-requests** | **events** | **exceptions** | **requests**]

Syntax Description

all	(Optional) Debugs all ICC events.
async-requests	(Optional) Debugs ICC asynchronous requests.
events	(Optional) Debugs only ICC events.
exceptions	(Optional) Debugs ICC exceptions.
requests	(Optional) Debugs ICC requests.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to enable debugging of ICC asynchronous requests and provides a sample of the output:

```
Router# debug icc async-requests
ICC Asynchronous Requests debugging is on
Router# #icc_append_async_request: msg 0x617E2058, id 0x62595448, cb 0x603E9CB8
icc_append_async_request: ar 0x618438E0
icc_append_async_request: head 0x0, tail 0x61479B50
icc_async_callback: msg=0x617E2058, err=0
icc_unlink_async_request: msg 0x617E2058
icc_unlink_async_request: head matches
<... output truncated ...>
Router#
```

Related Commands

undebug icc (same as **no debug icc**)

debug iccshim

To debug ICC shim events, use the **debug iccshim** command. Use the **no** form of this command to disable debugging output.

debug iccshim [**all** | **event** | **packet**]

no debug iccshim [**all** | **event** | **packet**]

Syntax Description	all	(Optional) Debugs all ICC shim events.
	event	(Optional) Debugs only ICC shim events.
	packet	(Optional) Debugs ICC shim packets.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to enable debugging of ICC shim packets and provides a sample of the output:

```
Router# debug iccshim packet
ICCSHIM packets debugging is on
Router# icc_append_async_request: msg 0x617E25AC, id 0x62595448, cb 0x603E9CB8
icc_append_async_request: ar 0x618438E0
icc_append_async_request: head 0x0, tail 0x61479B50
icc_async_callback: msg=0x617E25AC, err=0
icc_unlink_async_request: msg 0x617E25AC
icc_unlink_async_request: head matches
icc_unlink_async_request: took tail
icc_unlink_async_request: head 0x0, tail 0x61479B50, p 0x618438E0
icc_async_callback: ar 0x618438E0, cb 0x603E9CB8, id 0x62595448
icc_async_callback: got rpc response, msg=0x617E2058
icc_async_callback: got rpc response, pak=0x6176B770
icc_async_callback: calling callback
icc_async_callback: callback complete
<... output truncated ...>
Router#
```

Related Commands **undebug iccshim** (same as **no debug iccshim**)

debug interface

To create a shortcut for the **debug condition interface** command, use the **debug interface** command. Use the **no** form of this command to disable debugging output.

```
debug interface {{ interface interface-number } | null interface-number | { port-channel number } | { vlan vlan-id } }
```

```
no debug interface {{ interface interface-number } | null interface-number | { port-channel number } | { vlan vlan-id } }
```



Note

The **vlan** parameter for the **debug interface** command only applies to the MSFC and can be entered only from the router console.

Syntax Description

<i>interface</i>	Interface type; valid values are ethernet , fastethernet , gigabitethernet , tengigabitethernet , pos , ge-wan , and atm .
<i>interface-number</i>	Module and port number; see the “Usage Guidelines” section for valid values.
null <i>interface-number</i>	Limits debugging to null interfaces; the valid value is 0 .
port-channel <i>number</i>	Limits debugging to port-channel interfaces; see the “Usage Guidelines” section for valid values.
vlan <i>vlan-id</i>	Specifies the VLAN interface number; see the “Usage Guidelines” section for valid values.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.
12.1(3a)E3	The number of valid values for port-channel <i>number</i> was changed; see the “Usage Guidelines” section for valid values.
12.1(11b)E	This command was changed to include the pos , ge-wan , and atm keywords.

Usage Guidelines

The number of valid values for **port-channel number** depends on the software release. For releases prior to Release 12.1(3a)E3, valid values are from 1 to 256; for Releases 12.1(3a)E3, 12.1(3a)E4, and 12.1(4)E1, valid values are from 1 to 64. Release 12.1(5c)EX and later support a maximum of 64 values ranging from 1 to 256.

The *interface-number* argument designates the module and port number. Valid values for *interface-number* depend on the specified interface type and the chassis and module used. For example, if you specify a Gigabit Ethernet interface and have a 48-port 10/100BASE-T Ethernet module installed in a 13-slot chassis, valid values for the module number are from 2 to 13 and valid values for the port number are from 1 to 48.

If your system is configured with a Supervisor Engine 1, valid values for *vlan-id* are from 1 to 1005. If your system is configured with a Supervisor Engine 2, valid values for *vlan-id* are from 1 to 4094. Extended-range VLANs are not supported on systems configured with a Supervisor Engine 1.

Examples

This example shows how to limit debugging to interface VLAN 1:

```
Router# debug interface vlan 1
Condition 1 set
Router#
```

Related Commands

[debug condition interface](#)
undebug interface (same as **no debug interface**)

debug ipc

To debug IPC activity, use the **debug ipc** command. Use the **no** form of this command to disable debugging output.

```
debug ipc {all | errors | events | headers | packets | ports | seats}
```

```
no debug ipc {all | errors | events | headers | packets | ports | seats}
```

Syntax Description

all	Turns on all IPC debugging.
errors	Turns on IPC error debugging.
events	Turns on IPC event debugging.
headers	Turns on IPC header debugging.
packets	Turns on IPC packet debugging.
ports	Turns on debugging of creation and deletion of ports.
seats	Turns on debugging of creation and deletion of nodes.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to enable debugging of IPC events:

```
Router# debug ipc events
Special Events debugging is on
Router#
```

Related Commands

undebg ipc (same as **no debug ipc**)

debug ip rgmp

To debug RGMP activity, use the **debug ip rgmp** command. Use the **no** form of this command to disable debugging output.

```
debug ip rgmp [name | group-address]
```

```
no debug ip rgmp [name | group-address]
```

Syntax Description

<i>name</i>	(Optional) Multicast group name.
<i>group-address</i>	(Optional) Multicast group address.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(3a)E	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(8a)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to enable RGMP debugging:

```
Router# debug ip rgmp
RGMP debugging is on
Router#
```

This example shows how to disable RGMP debugging:

```
Router# no debug ip rgmp
RGMP debugging is off
Router#
```

Related Commands

[ip rgmp](#)

debug l2-mgr events

To debug Layer 2 manager events, use the **debug l2-mgr events** command. Use the **no** form of this command to disable debugging output.

debug l2-mgr events

no debug l2-mgr events

Syntax Description This command has no arguments or keywords.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the [remote login](#) command).

Examples This example shows how to enable debugging of Layer 2 manager events:

```
Switch-sp# debug l2-mgr events
L2 mgr events debugging is on
Switch-sp#
```

Related Commands [remote login](#)
undebugl2-mgr events (same as **no debug l2-mgr events**)

debug l3-mgr

To debug Layer 3 manager activity, use the **debug l3-mgr** command. Use the **no** form of this command to disable debugging output.

```
debug l3-mgr {all | events | global | packets}
```

```
no debug l3-mgr {all | events | global | packets}
```

Syntax Description

all	Displays all Layer 3 manager debug messages.
events	Displays Layer 3 manager-related events.
global	Displays a bug trace of IP global purge events.
packets	Displays Layer 3 manager packets.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to enable global Layer 3 manager debugging:

```
Router# debug l3-mgr global
L3 mgr ip global purge debugging is on
Router#
```

Related Commands

undebugl3-mgr (same as **no debug l3-mgr**)

debug local-ack

To debug local acknowledgment activity, use the **debug local-ack** command. Use the **no** form of this command to disable debugging output.

```
debug local-ack {errors | packets | state}
```

```
no debug local-ack {errors | packets | state}
```

Syntax Description

errors	Displays all local acknowledgement errors.
packets	Displays local acknowledgment packets.
state	Displays local acknowledgment state changes.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to enable debugging of local acknowledgement state changes:

```
Router# debug local-ack state
Local Acknowledgement states debugging is on
Router#
```

Related Commands

undebug local-ack (same as **no debug local-ack**)

debug ltl

To enable debugging of LTL manager activity, use the **debug ltl** command. Use the **no** form of this command to disable debugging output.

debug ltl

no debug ltl

Syntax Description This command has no arguments or keywords.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the [remote login](#) command).

Examples This example shows how to enable LTL manager debugging:

```
Switch-sp# debug ltl
ltl mgr debugging is on
Switch-sp#
```

Related Commands [remote login](#)
undebug ltl (same as **no debug ltl**)

debug mergeapi

To debug ACL merge activity, use the **debug mergeapi** command. Use the **no** form of this command to disable debugging output.

```
debug mergeapi {all | normal | profile | verbose}
```

```
no debug mergeapi {all | normal | profile | verbose}
```

Syntax Description	all	Displays all ACL merge activity.
	normal	Displays the main steps traversed by the ACL merge program.
	profile	Displays a profile of the CUDD library internal cache.
	verbose	Displays detailed information on ACL merge events.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to debug the CUDD library's internal cache:

```
Router# debug mergeapi profile
ACLMERGE debug time profile debugging is on
Router#
```

Related Commands **undebug mergeapi** (same as **no debug mergeapi**)

debug mls ip multicast

To debug MLS IP multicast activity, use the **debug mls ip multicast** command. Use the **no** form of this command to disable debugging output.

```
debug mls ip multicast {all | error | events | group | messages}
```

```
no debug mls ip multicast {all | error | events | group | messages}
```

Syntax Description

all	Enables debugging of all MLS IP multicast activity.
error	Enables MLS IP multicast error debugging.
events	Enables MLS IP multicast event debugging.
group	Enables MLS IP multicast group-based debugging.
messages	Enables MLS IP multicast message debugging.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to enable debugging of MLS IP multicast errors:

```
Router# debug mls ip multicast error
mcast error debugging is on
Router#
```

Related Commands

undebug mls ip multicast (same as **no debug mls ip multicast**)

debug mls rp

To debug MLS RP activity, use the **debug mls rp** command. Use the **no** form of this command to disable debugging output.

```
debug mls rp {all | error | events | ip | ipx | locator | packets | verbose packets}
```

```
no debug mls rp {all | error | events | ip | ipx | locator | packets | verbose packets}
```

Syntax Description

all	Enables debugging of all MLS RP activities.
error	Enables debugging of MLS RP errors.
events	Enables debugging of MLS RP events.
ip	Enables debugging of MLS IP events.
ipx	Enables debugging of MLS IPX events.
locator	Enables debugging of the MLS RP locator.
packets	Enables debugging of MLS RP packets without keepalives.
verbose packets	Enables debugging of MLS RP packets with keepalives.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines

This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the [remote login](#) command).

Examples

This example shows how to enable debugging of MLS RP IGMP events:

```
Switch-sp# debug mls rp events
mls events debugging is on
Switch-sp#
```

Related Commands

[remote login](#)
undebug mls rp (same as **no debug mls rp**)

debug monitor

To display monitoring activity, use the **debug monitor** command. Use the **no** form of this command to disable debugging output.

debug monitor { **all** | **errors** | **idb-update** | **list** | **notifications** | **platform** | **requests** }

no debug monitor { **all** | **errors** | **idb-update** | **list** | **notifications** | **platform** | **requests** }

Syntax Description

all	Displays all SPAN debugging messages.
errors	Displays SPAN error details.
idb-update	Displays SPAN IDB update traces.
list	Displays SPAN and VLAN list tracing.
notifications	Displays SPAN notifications.
platform	Displays SPAN platform tracing.
requests	Displays SPAN requests.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to debug monitoring errors:

```
Router# debug monitor errors
SPAN error detail debugging is on
Router#
```

Related Commands

undebg monitor (same as **no debug monitor**)

debug msc

To debug MSC activity, use the **debug msc** command. Use the **no** form of this command to disable debugging output.

```
debug msc {all | events | pak}
```

```
no debug msc {all | events | pak}
```

Syntax Description

all	Debugs all MSC activity.
events	Enables MSC event debugging.
pak	Enables MSC packet debugging.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to debug MSC packets:

```
Router# debug msc pak
Router#
```

Related Commands

undebug msc (same as **no debug msc**)

debug netdr

To debug NetDriver activity, use the **debug netdr** command. Use the **no** form of this command to disable debugging output.

```
debug netdr {all | data}
```

```
no debug netdr {all | data}
```

Syntax Description	all	Debugs all NetDriver activity.
	data	Debugs NetDriver data flow.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to debug the NetDriver data flow:

```
Router# debug netdr data
NetDriver Receive Data on interrupt debugging is on
NetDriver Receive Data debugging is on
NetDriver Transmit Data debugging is on
NetDriver Relay Data debugging is on
Router#
2d21h: const_ether_vlan_vencap() Vlan1:
2d21h:   src_vlan=0x1  src_indx=0x3  len=0xE9  bpdu=0
2d21h:   index_dir=0  dest_indx=0x0  dont_lrn=0
2d21h:   Dbus hdr:  00000000 00010000 00030000 E9000000
2d21h:             00000000 00000000 00000000 00000000
2d21h:   MAC hdr:  dmac=00801C.938040, smac=00503E.8D6400, typelen=0800
2d21h:   IP hdr:  45C000DB 02F30000 FF066331 AC143412 AB45C8CC
2d21h: fx1000_process_receive_packet() Vlan1:
2d21h:   src_vlan=0x1  src_indx=0x108  len=0x40  bpdu=0
2d21h:   index_dir=0  dest_indx=0x3  dont_lrn=0
```

```
2d21h:   Dbus hdr:  60000000 00010000 01080000 40100000
2d21h:                0006AC14 3412AB45 C8CC0000 00030000
2d21h:   MAC hdr:  dmac=00503E.8D6400, smac=00605C.865B28, typelen=0800
2d21h:   IP  hdr:  45000028 B5254000 7D06F471 AB45C8CC AC143412
<... output truncated ...>
Router#
```

Related Commands **undebug netdr** (same as **no debug netdr**)

debug nvram

To debug NVRAM activity, use the **debug nvram** command. Use the **no** form of this command to disable debugging output.

debug nvram

no debug nvram

Syntax Description This command has no arguments or keywords.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to debug NVRAM:

```
Router# debug nvram
NVRAM behaviour debugging is on
Router#
```

Related Commands **undebug nvram** (same as **no debug nvram**)

debug pagp

To debug PAgP activity, use the **debug pagp** command. Use the **no** form of this command to disable debugging output.

```
debug pagp [all | event | fsm | misc | packet]
```

```
no debug pagp
```

Syntax Description

all	(Optional) Enables all PAgP debugging.
event	(Optional) Enables debugging of PAgP events.
fsm	(Optional) Enables debugging of the PAgP finite state machine.
misc	(Optional) Enables miscellaneous PAgP debugging.
packet	(Optional) Enables PAgP packet debugging.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines

This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the [remote login](#) command).

Examples

This example shows how to enable PAgP miscellaneous debugging:

```
Switch-sp# debug pagp misc
Port Aggregation Protocol Miscellaneous debugging is on
Router#
*Sep 30 10:13:03: SP: PAgP: pagp_h(Fa5/6) expired
*Sep 30 10:13:03: SP: PAgP: 135 bytes out Fa5/6
*Sep 30 10:13:03: SP: PAgP: Fa5/6 Transmitting information packet
*Sep 30 10:13:03: SP: PAgP: timer pagp_h(Fa5/6) started with interval 30000
<... output truncated ...>
Switch-sp#
```

Related Commands

[remote login](#)
[undebug pagp](#) (same as **no debug pagp**)

debug pf

To debug PF activity, use the **debug pf** command. Use the **no** form of this command to disable debugging output.

```
debug pf {all | errors | events | learns | sm}
```

```
no debug pf {all | errors | events | learns | sm}
```

Syntax Description

all	Enables all PF debugging.
errors	Enables PF error debugging.
events	Enables PF event debugging.
learns	Debugs PF address learning.
sm	Debugs the state machine.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to debug the PF learned addresses:

```
Router# debug pf learns
Address learning debugging is on
Router#
```

Related Commands

undebug pf (same as **no debug pf**)

debug pm

To debug PM activity, use the **debug pm** command. Use the **no** form of this command to disable debugging output.

```
debug pm {all | card | cookies | etherchnl | messages | port | registry | scp | sm | span | split |
          vlan | vp}
```

```
no debug pm {all | card | cookies | etherchnl | messages | port | registry | scp | sm | span | split |
            vlan | vp}
```

Syntax	Description
all	Displays all PM debugging messages.
card	Debugs line card-related events.
cookies	Enables internal PM cookie validation.
etherchnl	Debugs EtherChannel-related events.
messages	Debugs PM messages.
port	Debugs port-related events.
registry	Debugs PM registry invocations.
scp	Debugs SCP line card messaging.
sm	Debugs state machine-related events.
span	Debugs spanning tree-related events.
split	Debugs split processor.
vlan	Debugs VLAN-related events.
vp	Debugs virtual port-related events.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

debug pm**Examples**

This example shows how to enable all PM debugging:

```
Router# debug pm all  
Router#
```

Related Commands

undebug pm (same as **no debug pm**)

debug priority

To debug priority output queueing, use the **debug priority** command. Use the **no** form of this command to disable debugging output.

debug priority

no debug priority

Syntax Description This command has no arguments or keywords.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to debug priority output queueing:

```
Router# debug priority  
Priority output queueing debugging is on  
Router#
```

Related Commands **undebug priority** (same as **no debug priority**)

debug qm

To debug QM activity, use the **debug qm** command. Use the **no** form of this command to disable debugging output.

```
debug qm {all | error | event | packet}
```

```
no debug qm {all | error | event | packet}
```

Syntax Description

all	Debugs all QM activity.
error	Enables debugging of QM errors.
event	Enables QM event debugging.
packet	Enables QM packet debugging.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to debug QM packets:

```
Router# debug qm packet
QM packet debug debugging is on
Router#
```

Related Commands

undebug qm (same as **no debug qm**)

debug qm-sp

To debug the switch processor QoS manager activity, use the **debug qm-sp** command. Use the **no** form of this command to disable debugging output.

```
debug qm-sp {all | event | packet}
```

```
no debug qm-sp {all | event | packet}
```

Syntax Description

all	Debugs all QM-SP activity.
event	Enables QM-SP event debugging.
packet	Enables QM-SP packet debugging.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines

This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the **remote login** command).

Examples

This example show how to debug QM packets:

```
Switch-sp# debug qm-sp packet
QoS Manager Packet debugging is on
Switch-sp#
```

Related Commands

[remote login](#)
undebug qm-sp (same as **no debug qm-sp**)

debug rpc

To debug RPC activity, use the **debug rpc** command. Use the **no** form of this command to disable debugging output.

```
debug rpc {all | errors | events | packets | requests}
```

```
no debug rpc {all | errors | events | packets | requests}
```

Syntax Description

all	Debugs all RPC activity.
errors	Enables debugging of RPC errors.
events	Enables RPC event debugging.
packets	Enables RPC packet debugging.
requests	Enables debugging of RPC requests.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to debug RPC packets:

```
Router# debug rpc packets
RPC packet debugging is on
Router#
2d20h: rpc-tx-req: 123790 cygnus-oir: req 6: size 12
2d20h:    00 01 E3 8D 0E C3 EB 5C 00 00 00 00
2d20h: rpc-rx-req: 123791 draco-oir: req 4: size 12
2d20h:    00 01 E3 8D 0E C3 EC A0 00 00 00 00
.
.
.
```

```
2d20h:      00 01 E3 8F 0E C3 FA FC 00 00 00 00
2d20h: rpc-rx-req: 123793 draco-oir: req 4: size 12
2d20h:      00 01 E3 8F 0E C3 FC 40 00 00 00 00
2d20h: rpc-tx-res: 123793 draco-oir: req 4(okay)
<... output truncated ...>
Router#
```

Related Commands **undebg rpc** (same as **no debug rpc**)

debug scp

To debug SCP activity, use the **debug scp** command. Use the **no** form of this command to disable debugging output.

```
debug scp {all | async | data | errors | packets | timeouts}
```

```
no debug scp {all | async | data | errors | packets | timeouts}
```

Syntax Description

all	Debugs all SCP activity.
async	Debugs asynchronous data in and out of the SCP system.
data	Enables a data packet trace.
errors	Enables debugging of SCP errors.
packets	Enables SCP packet debugging.
timeouts	Keyword to report SCP timeouts.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to debug SCP packets:

```
Router# debug scp packets
SCP packets debugging is on
Router#
```

Related Commands

undebug scp (same as **no debug scp**)

debug smf updates

To debug SMF address insertions and deletions, use the **debug smf updates** command. Use the **no** form of this command to disable debugging output.

debug smf updates

no debug smf updates

Syntax Description This command has no arguments or keywords.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to debug SMF updates:

```
Router# debug smf updates
Software MAC filter address insertions and deletions debugging is on
Router
```

Related Commands **undebug smf** (same as **no debug smf**)

debug spanning-tree

To debug spanning tree activities, use the **debug spanning-tree** command. Use the **no** form of this command to disable debugging output.

```
debug spanning-tree {all | bpdu | bpdu-opt | etherchannel | config | events | exceptions | general |
pvst+ | root | snmp}
```

```
no debug spanning-tree {all | bpdu | bpdu-opt | etherchannel | config | events | exceptions |
general | pvst+ | root | snmp}
```

Syntax Description

all	Displays all spanning tree debugging messages.
bpdu	Debugs spanning tree BPDU.
bpdu-opt	Debugs optimized BPDU handling.
etherchannel	Debugs spanning tree EtherChannel support.
config	Debugs spanning tree configuration changes.
events	Enables TCAM event debugging.
exceptions	Debugs spanning tree exceptions.
general	Debugs general spanning tree activity.
pvst+	Debugs PVST+ events.
root	Debugs spanning tree root events.
snmp	Debugs spanning tree SNMP events.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to debug spanning tree PVST+:

```
Router# debug spanning-tree pvst+
Spanning Tree PVST+ debugging is on
Router
```

Related Commands

undebug spanning-tree (same as **no debug spanning-tree**)

debug spanning-tree backbonefast

To enable debugging of spanning tree BackboneFast events, use the **debug spanning-tree backbonefast** command. Use the **no** form of this command to disable debugging output.

debug spanning-tree backbonefast [**detail** | **exceptions**]

no debug spanning-tree backbonefast

Syntax Description	detail	(Optional) Displays detailed BackboneFast debugging messages.
	exceptions	(Optional) Enables debugging of spanning tree BackboneFast exceptions.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the [remote login](#) command).

Examples This example shows how to display detailed spanning tree BackboneFast debugging information:

```
Switch-sp# debug spanning-tree backbonefast detail
Spanning Tree backbonefast detail debugging is on
Switch-sp#
```

Related Commands [remote login](#)
undebug spanning-tree backbonefast (same as **no debug spanning-tree backbonefast**)

debug spanning-tree switch

To enable switch shim debugging, use the **debug spanning-tree switch** command. Use the **no** form of this command to disable debugging output.

```
debug spanning-tree switch {all | errors | general | pm | rx {decode | errors | interrupt | process}
| state | tx [decode]}
```

```
no debug spanning-tree switch {all | errors | general | pm | rx {decode | errors | interrupt |
process} | state | tx [decode]}
```

Syntax Description		
all		Displays all spanning tree switch shim debugging messages.
errors		Enables debugging of switch shim errors or exceptions.
general		Enables debugging of general events.
pm		Enables debugging of port manager events.
rx		Displays received BPDU handling debugging messages.
decode		Enables debugging of spanning tree switch shim decode received packets.
errors		Enables debugging of spanning tree switch shim receive errors.
interrupt		Enables spanning tree switch shim receive BPDU debugging.
process		Enables spanning tree switch shim process receive BPDU debugging.
state		Enables debugging of spanning tree port state changes.
tx		Enables spanning tree switch shim transmit BPDU debugging.
decode		(Optional) Enables spanning tree switch shim decode transmitted packets debugging.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the [remote login](#) command).

Examples

This example shows how to enable spanning tree switch shim transmit BPDU debugging:

```
Switch-sp# debug spanning-tree switch tx
Spanning Tree Switch Shim transmit bpdu debugging is on
Router#
*Sep 30 08:47:33: SP: STP SW: TX: bpdu of type ieee-st size 92 on FastEthernet5/
9 303
*Sep 30 08:47:33: SP: STP SW: TX: bpdu of type ieee-st size 92 on FastEthernet5/
9 304
*Sep 30 08:47:33: SP: STP SW: TX: bpdu of type ieee-st size 92 on FastEthernet5/
9 305
*Sep 30 08:47:33: SP: STP SW: TX: bpdu of type ieee-st size 92 on FastEthernet5/
9 349
*Sep 30 08:47:33: SP: STP SW: TX: bpdu of type ieee-st size 92 on FastEthernet5/
9 350
*Sep 30 08:47:33: SP: STP SW: TX: bpdu of type ieee-st size 92 on FastEthernet5/
9 351
*Sep 30 08:47:33: SP: STP SW: TX: bpdu of type ieee-st size 92 on FastEthernet5/
9 801
<... output truncated ...>
Switch-sp#
```

Related Commands

[remote login](#)

undebg spanning-tree switch (same as **no debug spanning-tree switch**)

debug spanning-tree uplinkfast

To enable debugging of spanning tree UplinkFast events, use the **debug spanning-tree uplinkfast** command. Use the **no** form of this command to disable debugging output.

debug spanning-tree uplinkfast [exceptions]

no debug spanning-tree uplinkfast

Syntax Description	exceptions (Optional) Enables debugging of spanning tree UplinkFast exceptions.
---------------------------	--

Defaults	This command has no default settings.
-----------------	---------------------------------------

Command Modes	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines	This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the remote login command).
-------------------------	--

Examples	This example shows how to debug spanning tree UplinkFast exceptions:
-----------------	--

```
Switch-sp# debug spanning-tree uplinkfast exceptions
Spanning Tree uplinkfast exceptions debugging is on
Switch-sp#
```

Related Commands	remote login undebug spanning-tree uplinkfast (same as no debug spanning-tree uplinkfast)
-------------------------	---

debug sw-vlan

To debug VLAN manager activities, use the **debug sw-vlan** command. Use the **no** form of this command to disable debugging output.

```
debug sw-vlan {badpmcookies | events | management | packets | registries}
```

```
no debug sw-vlan {badpmcookies | events | management | packets | registries}
```

Syntax Description

badpmcookies	Displays VLAN manager incidents of bad port manager cookies.
events	Debugs VLAN manager events.
management	Debugs VLAN manager management of internal VLANs.
packets	Debugs packet handling and encapsulation processes.
registries	Debugs VLAN manager registries.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to debug sw-vlan events:

```
Router# debug sw-vlan events
vlan manager events debugging is on
Router#
```

Related Commands

undebug sw-vlan (same as **no debug sw-vlan**)

debug sw-vlan ifs

To enable VLAN manager Cisco IOS file system error tests, use the **debug sw-vlan ifs** command. Use the **no** form of this command to disable debugging output.

```
debug sw-vlan ifs {open {read | write} | read {1 | 2 | 3 | 4} | write}
```

```
no debug sw-vlan ifs {open {open | read} | read {1 | 2 | 3 | 4} | write}
```

Syntax Description

open	Enables VLAN manager IFS debugging of errors in an IFS file open operation.
read	Enables debugging of errors that occurred when opening the IFS VLAN configuration file in order to read it.
write	Enables debugging of errors that occurred when performing an IFS file write operation.
read	Enables debugging of errors that occurred when performing an IFS file read operation.
{1 2 3 4}	Determines the file read operation; see the “Usage Guidelines” section for information about operation levels.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines

When determining the file read operation, Operation **1** reads the file header, which contains the header verification word and the file version number. Operation **2** reads the main body of the file, which contains most of the domain and VLAN information. Operation **3** reads TLV descriptor structures. Operation **4** reads TLV data.

Examples

This example shows how to enable debugging of TLV data errors during a file read operation:

```
Router# debug sw-vlan ifs read 4  
vlan manager ifs read #4 errors debugging is on  
Router#
```

Related Commands

undebg sw-vlan ifs (same as **no debug sw-vlan ifs**)

debug sw-vlan notification

To enable debugging messages that trace the activation and deactivation of ISL VLAN IDs, use the **debug sw-vlan notification** command.

```
debug sw-vlan notification { accfwdchange | allowedvlanfgchange | fwdchange linkchange |
modechange | pruningcfgchange | statechange }
```

```
no debug sw-vlan notification { accfwdchange | allowedvlanfgchange | fwdchange | linkchange
| modechange | pruningcfgchange | statechange }
```

Syntax Description

accfwdchange	Enables VLAN manager notification of aggregated access-interface STP-forwarding changes.
allowedvlanfgchange	Enables VLAN manager notification of change to allowed VLAN configuration.
fwdchange	Enables VLAN manager notification of STP-forwarding changes.
linkchange	Enables VLAN manager notification of interface link-state changes.
modechange	Enables VLAN manager notification of interface mode changes.
pruningcfgchange	Enables VLAN manager notification of change to pruning configuration.
statechange	Enables VLAN manager notification of interface state changes.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples

This example shows how to debug sw-vlan interface mode change notifications:

```
Router# debug sw-vlan notification modechange
vlan manager port mode change notification debugging is on
Router#
```

Related Commands

undebg sw-vlan notification (same as **no debug sw-vlan notification**)

debug sw-vlan vtp

To enable debugging messages that are generated by the VTP code, use the **debug sw-vlan vtp** command. Use the **no** form of this command to disable debugging output.

```
debug sw-vlan vtp {events | packets | pruning [packets | xmit] | xmit}
```

```
no debug sw-vlan vtp {events | packets | pruning [packets | xmit] | xmit}
```

Syntax Description

events	Displays general-purpose logic flow and detailed VTP debugging messages generated by the VTP_LOG_RUNTIME macro in the VTP code.
packets	Displays the contents of all incoming VTP packets that have been passed into the VTP code from the Cisco IOS VTP platform-dependent layer except for pruning packets.
pruning	Enables debugging message to be generated by the pruning segment of the VTP code.
packets	(Optional) Displays the contents of all incoming VTP pruning packets that have been passed into the VTP code from the Cisco IOS VTP platform-dependent layer.
xmit	(Optional) Displays the contents of all outgoing VTP packets that the VTP code will request the Cisco IOS VTP platform-dependent layer to send.
xmit	Displays the contents of all outgoing VTP packets that the VTP code will request the Cisco IOS VTP platform-dependent layer to send except for pruning packets.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines

If you do not enter any parameters after entering **pruning**, the VTP pruning debugging messages are displayed. The messages are generated by the VTP_PRUNING_LOG_NOTICE, VTP_PRUNING_LOG_INFO, VTP_PRUNING_LOG_DEBUG, VTP_PRUNING_LOG_ALERT, and VTP_PRUNING_LOG_WARNING macros in the VTP pruning code.

debug sw-vlan vtp**Examples**

This example shows how to debug sw-vlan outgoing VTP packets:

```
Router# debug sw-vlan vtp xmit  
vtp xmit debugging is on  
Router#
```

Related Commands

undebg sw-vlan vtp (same as **no debug sw-vlan vtp**)

debug tcam

To debug TCAM activity, use the **debug tcam** command. Use the **no** form of this command to disable debugging output.

```
debug tcam {all | events | messages | verbose}
```

```
no debug tcam {all | events | messages | verbose}
```

Syntax Description	all	Enables full TCAM debugging.
	events	Enables TCAM event debugging.
	messages	Enables debugging of messages sent to the TCAM.
	verbose	Displays detailed TCAM debugging information.

Defaults This command has no default settings.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Examples This example shows how to display detailed TCAM debugging information:

```
Router# debug tcam verbose
TCAM verbose debugging is on
Router#
```

Related Commands **undebug tcam** (same as **no debug tcam**)

debug udd

To enable debugging of UDLD activity, use the **debug udd** command. Use the **no** form of this command to disable debugging output.

```
debug udd { events | packets | registries }
```

```
no debug udd { events | packets | registries }
```

Syntax Description

events	Enables debugging of UDLD process events as they occur.
packets	Enables debugging of the UDLD process as it receives packets from the packet queue and attempts to transmit packets at the request of the UDLD protocol code.
registries	Enables debugging of the UDLD process as it processes registry upcalls from the UDLD process-dependent module and other feature modules.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines

This command is supported by the supervisor engine only and can be entered only from the Catalyst 6500 series switch console (see the [remote login](#) command).

Examples

This example shows how to enable debugging of UDLD events:

```
Switch-sp# debug udd events
UDLD events debugging is on
Switch-sp#
```

This example shows how to enable debugging of UDLD packets:

```
Switch-sp# debug udd packets
UDLD packets debugging is on
Switch-sp#
```

This example shows how to enable debugging of UDDL registry events:

```
Switch-sp# debug uddl registries  
UDDL registries debugging is on
```

Related Commands **undebug uddl** (same as **no debug uddl**)

debug vacl

To debug VACL activity, use the **debug vacl** command. Use the **no** form of this command to disable debugging output.

```
debug vacl {all | event | unusual | verbose}
```

```
no debug vacl {all | event | unusual | verbose}
```

Syntax Description

all	Enables full VACL debugging.
event	Enables VACL event debugging.
unusual	Enables VACL unusual event debugging.
verbose	Enables detailed VACL debugging information.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(8a)EX	Support for this command was introduced on the Catalyst 6500 series switches.

Examples

This example shows how to display detailed VACL debugging information:

```
Router# debug vacl verbose
VACL verbose debugging is on
Router#
```

Related Commands

undebug vacl (same as **no debug vacl**)

debug vlog

To debug VACL logging activity, use the **debug vlog** command. Use the **no** form of this command to disable debugging output.

```
debug vlog {all | event | queue-event | unusual | verbose}
```

```
no debug vlog {all | event | queue-event | unusual | verbose}
```

Syntax Description

all	Enables full VACL logging debugging.
event	Enables VACL logging event debugging.
queue-event	Enables VACL logging pending queue event debugging.
unusual	Enables VACL logging for unusual event debugging.
verbose	Enables detailed VACL logging debugging information.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(8a)EX	Support for this command was introduced on the Catalyst 6500 series switches.

Examples

This example shows how to display detailed VACL logging debugging information:

```
Router# debug vlog verbose
VACL logging verbose debugging is on
Router#
```

Related Commands

undebug vlog (same as **no debug vlog**)

define interface-range

To create an interface-range macro, use the **define interface-range** command.

```
define interface-range macro-name interface-range
```

Syntax Description	
<i>macro-name</i>	Name of the interface range macro; the macro name can contain up to 32 characters.
<i>interface-range</i>	Interface range; for a list of valid values for interface ranges, see the “Usage Guidelines” section.

Defaults This command has no default settings.

Command Modes Global configuration

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

Usage Guidelines The macro name is a 32-character maximum character string.

A macro can contain up to five ranges. An interface range cannot span slots. When entering the *interface-range*, these formats can be used:

- *card-type* {*slot*}/{*first-interface*} - {*last-interface*}
- *card-type* {*slot*}/{*first-interface*} - {*last-interface*}

Valid values for *card-type* are as follows:

- **ethernet**
- **fastethernet**
- **gigabitethernet**
- **tengigabitethernet**
- **ge-wan**
- **pos**
- **atm**
- **vlan** *vlan-id* (valid values are from 1 to 4094)
- **port-channel** *interface-number*

Examples

This example shows how to create a multiple-interface macro:

```
Router(config)# define interface-range macro1 ethernet 1/2 - 5, fastethernet 5/5 - 10  
Router(config)#
```

Related Commands

[interface range](#)

diagnostic level

To set the bootup online diagnostic level, use the **diagnostic level** command. Use the **bypass** keyword to bypass diagnostic testing.

diagnostic level [**minimal** | **complete** | **bypass**]

Syntax Description	minimal	(Optional) Specifies minimal diagnostics; see the “Usage Guidelines” section for additional information.
	complete	(Optional) Specifies complete diagnostics; see the “Usage Guidelines” section for additional information.
	bypass	(Optional) Specifies bypass diagnostics; see the “Usage Guidelines” section for additional information.

Defaults minimal

Command Modes Global configuration

Command History	Release	Modification
	12.1(11b)E	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines This command is supported in Catalyst 6500 series switches configured with a Supervisor Engine 2 with Layer 3 Switching Engine II (PFC2) only.

Setting the diagnostic level determines the level of testing that occurs when the system or module is reset. The three levels are as follows:

- Complete—Runs all tests.
- Minimal—Runs only EARL tests for the supervisor engine and loopback tests for all ports in the system.
- Bypass—Skips all tests.



Note

Although the default is **minimal**, you can set the diagnostic level to **complete** for troubleshooting hardware problems.

In certain circumstances, you might want to skip the bootup online diagnostics completely. For example, you might skip the bootup online diagnostics to verify that a port is as bad as online diagnostics reports. To skip online diagnostic testing completely, enter the **diagnostic level bypass** command.

For information on the diagnostic test types, see the [show diagnostic](#) command.

The new level takes effect at the next reload or the next time an online insertion and removal is performed.

Examples

This example shows how to set the bootup online diagnostics level:

```
Router(config)# diagnostic level complete
Router(config)#
```

Related Commands

[show diagnostic](#)

disconnect qdm

To disconnect a QDM session, use the **disconnect qdm** command.

```
disconnect qdm [{client client-id}]
```

Syntax Description	client <i>client-id</i> (Optional) Specifies a client to disconnect.
---------------------------	---

Defaults	This command has no default settings.
-----------------	---------------------------------------

Command Modes	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	12.1(8a)EX	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines	<p>QDM is not supported on OSM interfaces.</p> <p>If you enter the disconnect qdm command without any arguments, all QDM sessions are disconnected. You can obtain the <i>client-id</i> by entering the show qdm status command.</p>
-------------------------	--

Examples	This example shows how to disconnect a QDM session:
-----------------	---

```
Router# disconnect qdm client 1
Router#
```

Related Commands	show qdm status
-------------------------	------------------------

do

To execute EXEC-level commands from global configuration mode or other configuration modes or submodes, use the **do** command.

do *command*

Syntax Description

<i>command</i>	EXEC-level command to be executed.
----------------	------------------------------------

Defaults

This command has no default settings.

Command Modes

Global configuration or any other configuration mode or submode from which you are executing the EXEC-level command.

Command History

Release	Modification
12.1(11b)E	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines



Caution

Do not enter the **do** command in EXEC mode. Interruption of service may occur.

You cannot use the **do** command to execute the **configure terminal** EXEC command because issuing the **configure terminal** command changes the mode to configuration mode.

Examples

This example shows how to execute the EXEC-level **show interface** command from within global configuration mode:

```
Router(config)# do show interfaces serial 3/0

Serial3/0 is up, line protocol is up
  Hardware is M8T-RS232
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, rely 255/255, load 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
  Last input never, output 1d17h, output hang never
  Last clearing of "show interface" counters never
  .
  .
  .
Router(config)#
```

dot1x default

To reset the configurable 802.1X parameters to the default values, use the **dot1x default** command.

dot1x default

Syntax Description

This command has no arguments or keywords.

Defaults

The default values are as follows:

- The per-interface 802.1X protocol enable state is disabled (force-authorized).
- The number of seconds between reauthentication attempts is 3600 seconds.
- The quiet period is 60 seconds.
- The retransmission time is 30 seconds.
- The maximum retransmission number is 2 times.
- The multiple host support is disabled.
- The client timeout period is 30 seconds.
- The authentication server timeout period is 30 seconds.

Command Modes

Interface configuration

Command History

Release	Modification
12.1(13)E	Support for this command was introduced on the Catalyst 6500 series switches.

Examples

This example shows how to reset the configurable 802.1X parameters to the default values:

```
Router(config-if)# dot1x default
Setting the Default Configuration for Dot1x on this interface

Router(config-if)#
```

Related Commands

[show dot1x](#)

dot1x max-req

To set the number of times that the switch sends an EAP-request/identity frame to the client before restarting the authentication process, use the **dot1x max-req** command. Use the **no** form of this command to return to the default settings.

dot1x max-req *count*

no dot1x max-req

Syntax Description

<i>count</i>	Number of times the switch sends an EAP-request/identity frame to the client before restarting the authentication process; valid values are from 1 to 10.
--------------	---

Defaults

count is 2.

Command Modes

Interface configuration

Command History

Release	Modification
12.1(13)E	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines

You should change the default value only to adjust for unusual circumstances such as unreliable links or specific behavioral problems with certain clients and authentication servers.

Examples

This example shows how to set 5 as the number of times that the switch sends an EAP-request/identity request before restarting the authentication process:

```
Router(config-if)# dot1x max-req 5
Router(config-if)#
```

Related Commands

[show dot1x](#)

dot1x multi-hosts

To allow multiple hosts (clients) on an 802.1X-authorized port, use the **dot1x multi-hosts** command. Use the **no** form of this command to disallow multiple hosts.

dot1x multi-hosts

no dot1x multi-hosts

Syntax Description This command has no arguments or keywords.

Defaults Multiple host support is disabled.

Command Modes Interface configuration

Command History	Release	Modification
	12.1(13)E	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines Before entering this command, ensure that the **dot1x port-control** interface configuration command set is set to **auto** for the specified interface.

Examples This example shows how to allow multiple hosts:

```
Router(config-if)# dot1x multi-hosts
Router(config-if)#
```

This example shows how to disallow multiple hosts:

```
Router(config-if)# no dot1x multi-hosts
Router(config-if)#
```

Related Commands [dot1x port-control](#)
[show dot1x](#)

dot1x port-control

To set the port control value, use the **dot1x port-control** command. Use the **no** form of this command to return to the default settings.

dot1x port-control *value*

no dot1x port-control

Syntax Description

value Port-control value; valid values are **auto**, **force-authorized**, and **force-unauthorized**; see the “Usage Guidelines” section for more information.

Defaults

value is **force-authorized**.

Command Modes

Interface configuration

Command History

Release	Modification
12.1(13)E	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines

The port-control *value* definitions are as follows:

- **force-authorized**—Disables 802.1X port-based authentication and causes the port to transition to the authorized state without any authentication exchange required. The port transmits and receives normal traffic without 802.1X-based authentication of the client.
- **force-unauthorized**—Causes the port to remain in the unauthorized state, ignoring all attempts by the client to authenticate. Authentication services are not provided to the client through the interface.
- **auto**—Enables 802.1X port-based authentication and causes the port to begin in the unauthorized state, allowing only EAPOL frames to be sent and received through the port. The authentication process begins when the link state of the port transitions from down to up or when an EAPOL-start frame is received. The system requests the identity of the client and begins relaying authentication messages between the client and the authentication server. Each client attempting to access the network is uniquely identified by the system by using the client’s MAC address.

To check the port-control configuration, enter the **show dot1x** command and check the Status column in the 802.1X Port Summary section. An *enabled* status means the port-control value is set either to **auto** or to **force-unauthorized**.

dot1x port-control**Examples**

This example shows how to set the port control to auto:

```
Router(config-if)# dot1x port-control auto
Router(config-if)#
```

Related Commands

[show dot1x](#)

dot1x reauthentication

To enable periodic reauthentication of the client, use the **dot1x reauthentication** command. Use the **no** form of this command to return to the default settings.

dot1x reauthentication

no dot1x reauthentication

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Interface configuration

Command History	Release	Modification
	12.1(13)E	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines Reauthentication does not disturb the status of an already authorized port.

Examples This example shows how to enable periodic reauthentication of the client:

```
Router(config-if)# dot1x reauthentication
Router(config-if)#
```

This example shows how to disable periodic reauthentication of the client:

```
Router(config-if)# no dot1x reauthentication
Router(config-if)#
```

Related Commands [dot1x timeout](#)
[show dot1x](#)

dot1x system-auth-control

To enable 802.1X globally, use the **dot1x system-auth-control** command. Use the **no** form of this command to disable 802.1X globally.

dot1x system-auth-control

no dot1x system-auth-control

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Global configuration

Command History	Release	Modification
	12.1(13)E	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines You must enable AAA and specify the authentication method list before enabling 802.1X. A method list describes the sequence and authentication methods to be queried to authenticate a user.

Examples This example shows how to enable 802.1X:

```
Router(config)# dot1x system-auth-control
Router(config)#
```

This example shows how to disable 802.1X:

```
Router(config)# no dot1x system-auth-control
Router(config)#
```

Related Commands **aaa authentication dot1x** (refer to the *Cisco IOS Release 12.1 Command Reference*)
aaa new-model (refer to the *Cisco IOS Release 12.1 Command Reference*)
[show dot1x](#)

dot1x timeout

To set the reauthentication timer, use the **dot1x timeout** command. Use the **no** form of this command to return to the default settings.

```
dot1x timeout {{ reauth-period seconds } | { quiet-period seconds } | { tx-period seconds } |
              { supp-timeout seconds } | { server-timeout seconds }}
```

```
no dot1x timeout { reauth-period | quiet-period | tx-period | supp-timeout | server-timeout }
```

Syntax Description

reauth-period <i>seconds</i>	Number of seconds between reauthentication attempts; valid values are from 1 to 4294967295. See the “Usage Guidelines” section for additional information.
quiet-period <i>seconds</i>	Number of seconds that the system remains in the quiet state following a failed authentication exchange with the client; valid values are from 0 to 65535 seconds.
tx-period <i>seconds</i>	Number of seconds that the system waits for a response to an EAP-request/identity frame from the client before retransmitting the request; valid values are from 0 to 65535 seconds.
supp-timeout <i>seconds</i>	Number of seconds that the system waits for the retransmission of EAP-request packets; valid values are from 0 to 65535 seconds.
server-timeout <i>seconds</i>	Number of seconds that the system waits for the retransmission of packets by the backend authenticator to the authentication server; valid values are from 1 to 65535 seconds.

Defaults

The defaults are as follows:

- **reauth-period** *seconds* is 3600 seconds.
- **quiet-period** *seconds* is 60 seconds.
- **tx-period** *seconds* is 30 seconds.
- **supp-timeout** *seconds* is 30 seconds.
- **server-timeout** *seconds* is 30 seconds.

Command Modes

Interface configuration

Command History

Release	Modification
12.1(13)E	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines

You must enable periodic reauthentication before you enter the **dot1x timeout reauth-period** command. Enter the **dot1x reauthentication** command to enable periodic reauthentication. The **dot1x timeout reauth-period** command affects the behavior of the system only if periodic reauthentication is enabled.

Examples

This example shows how to set the number of seconds between reauthentication attempts to 4000:

```
Router(config-if)# dot1x timeout reauth-period 4000
Router(config-if)#
```

This example shows how to set the quiet time on the system to 30 seconds:

```
Router(config-if)# dot1x timeout quiet-period 30
Router(config-if)#
```

This example shows how to set 60 as the number of seconds to wait for a response to an EAP-request/identity frame from the client before retransmitting the request:

```
Router(config-if)# dot1x timeout tx-period 60
Router(config-if)#
```

This example shows how to set the system-to-client retransmission time for the EAP-request frame to 25 seconds:

```
Router(config-if)# dot1x timeout supp-timeout 25
Router(config-if)#
```

This example shows how to set the system-to-authentication-server retransmission time for transport layer packets to 25 seconds:

```
Router(config-if)# dot1x timeout server-timeout 25
Router(config-if)#
```

This example shows how to return to the default reauthorization period:

```
Router(config-if)# no dot1x timeout reauth-period
Router(config-if)#
```

Related Commands

dot1x reauthentication
show dot1x

duplex

To configure the duplex operation on an interface, use the **duplex** command. Use the **no** form of this command to return the system to half-duplex mode.

duplex { **full** | **half** }

no duplex

Syntax Description

full	Specifies full-duplex operation.
half	Specifies half-duplex operation.

Defaults

Half-duplex mode

Command Modes

Interface configuration

Command History

Release	Modification
12.1(8a)E3	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines

[Table 2-6](#) lists the supported command options by interface.

Table 2-6 Supported duplex Command Options

Interface Type	Supported Syntax	Default Setting	Usage Guidelines
10/100-Mbps module	duplex [half full]	See the “Usage Guidelines” section.	If the speed is set to auto , you will not be able to set duplex . If the speed is set to 10 or 100 , and you do not configure the duplex setting, the duplex is set to half .
100-Mbps fiber modules	duplex [half full]	half	
Gigabit Ethernet Interfaces	duplex full	full	
10-Mbps ports	duplex [half full]	half	

If the transmission speed on a 16-port RJ-45 Gigabit Ethernet port is set to 1000, the duplex mode is set to full. If the transmission speed is changed to 10 or 100, the duplex mode stays at half duplex. You must configure the correct duplex mode when the transmission speed is changed to 10 or 100 from 1000.

Gigabit Ethernet is full duplex only. You cannot change the duplex mode on Gigabit Ethernet ports or on a 10/100/1000-Mbps port configured for Gigabit Ethernet.

When manually configuring the interface speed to either 10 or 100 Mbps, you should also configure duplex mode on the interface.

**Note**

Catalyst 6500 series switches cannot automatically negotiate the interface speed and duplex mode if either connecting interface is configured to a value other than **auto**.

**Caution**

Changing the interface speed and duplex mode configuration might shut down and reenables the interface during the reconfiguration.

Table 2-7 describes the relationship and the results for the different combinations of the **duplex** and **speed** commands.

Table 2-7 Relationship Between duplex and speed Commands

duplex Command	speed Command	Resulting System Action
duplex half or duplex full	speed auto	Autonegotiates both speed and duplex modes
duplex half	speed 10	Forces 10 Mbps and half duplex
duplex full	speed 10	Forces 10 Mbps and full duplex
duplex half	speed 100	Forces 100 Mbps and half duplex
duplex full	speed 100	Forces 100 Mbps and full duplex

Examples

This example shows how to configure the interface for full-duplex operation:

```
Router(config-if)# duplex full
Router(config-if)#
```

Related Commands

interface (refer to the *Cisco IOS Release 12.1 Command Reference*)
show controllers (refer to the *Cisco IOS Release 12.1 Command Reference*)
show interfaces (refer to the *Cisco IOS Release 12.1 Command Reference*)
speed