Cisco IOS Virtual Switch Command Reference

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Cisco IOS Release 12.2(33)SXI and Later Releases

Cisco IOS Virtual Switch Command Reference

CONTENTS

Virtual Switch Commands

attach (virtual switch)

To connect to a specific module from a remote location, use the **attach** command in privileged EXEC mode.

attach {*slot* | {**switch** *num* **module** *num*}}

Syntax Description

slot	Slot number.
switch *num*	Specifies the switch to access; valid values are 1 and 2.
module *num*	Module number; see the "Usage Guidelines" section for valid values.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Caution When you enter the **attach** or **remote login** command to access another console from your switch, if you enter global or interface configuration mode commands, the switch might reset.

The valid values for **module** *num* depend on the chassis that is used. For example, if you have a 13-slot chassis, valid values for the module number are from 1 to 13.

This command is supported on DFC-equipped modules and the supervisor engine only.

When you execute the **attach** command, the prompt changes to Router-dfcx# or Switch-sp1# or Switch-sp2#, depending on the type of module to which you are connecting.

The **attach (virtual switch)** command is identical to the **remote login (virtual switch)** command.

There are two ways to end this session:

- You can enter the **exit** command as follows:

```
Router-dfc3# exit

[Connection to Switch closed by foreign host]
Router#
```

- You can press **Ctrl-C** three times as follows:

```
Router-dfc3# ^C
Router-dfc3# ^C
Router-dfc3# ^C
Terminate remote login session? [confirm] y
[Connection to Switch closed by local host]
Router#
```

Examples

The following example shows how to log in remotely to the DFC-equipped module:

```
Console (enable)# attach switch 2 module 3
Trying Switch ...
Entering CONSOLE for Switch
Type "^C^C^C" to end this session


Router-dfc3#
```

Related Commands

Command	Description
remote login (virtual switch	Accesses the Catalyst 6500 series switch console or a specific module.

clear mls acl counters (virtual switch)

To clear the MLS ACL counters, use the **clear mls acl counters** command in privileged EXEC mode.

clear mls acl counters [{**interface** *interface switch/slot/port.subinterface*} | {**switch** *num*} [**module** *num*]]

Syntax Description

interface *interface*	Specifies the interface type.
switch	Switch number; valid values are 1 and 2.
/slot	Module or slot number.
/port	Port number.
.subinterface	Subinterface number. Range: 0 to 4294967295.
switch *num*	Specifies the switch to access; valid values are 1 and 2.
module *num*	(Optional) Specifies a module and clears all the MLS ACL counters on that module.
interface *interface*	Clears counters that are associated with the specified interface; possible valid values are **gigabitethernet** and **tengigabitethernet**.
port-channel *number*	(Optional) Specifies the channel interface. Range: 1 to 496 with a maximum of 128 values.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify a switch or module number, the command applies to all switches and all modules.

This command is supported on Catalyst 6500 series switches that are configured with a WS-F6K-DFC3B-XL, release 2.1 and later.

Examples

The following example shows how to reset the MLS ACL counters in all interfaces and modules on a specific switch:

```
Router# clear mls acl counters switch 1
Router#
```

Related Commands

Command	Description
show tcam interface (virtual switch)	Displays information about the interface-based TCAM.

clear mls netflow (virtual switch)

To clear the MLS NetFlow-shortcut entries, use the **clear mls netflow** command in privileged EXEC mode.

clear mls netflow {**ip** | **mpls**} [**switch** *num*] [**module** *mod*]

Syntax Description

ip	Clears IP MLS entries.
switch *num*	(Optional) Specifies the switch to access; valid values are 1 and 2.
module *mod*	(Optional) Specifies a module number.
mpls	Clears MPLS software-installed entries.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify a switch or module number, the command applies to both switches and all modules.

Examples

The following example shows how to clear all the entries that are associated with a specific module (2):

```
Router# clear mls netflow ip switch 1 module 2
Router#
```

The following example shows how to clear the MPLS software-installed entries for all switches and modules:

```
Router# clear mls netflow mpls
Router#
```

Related Commands

Command	Description
show mls netflow ip switch (virtual switch)	Displays information about the hardware NetFlow IP.

clear mls statistics (virtual switch)

To reset the MLS statistics counters, use the **clear mls statistics** command in privileged EXEC mode.

clear mls statistics [**switch** *num*] [**module** *num*]

Syntax Description

switch *num*	(Optional) Specifies the switch to access; valid values are 1 and 2.
module *num*	(Optional) Specifies the module number.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify a switch or module number, the command applies to both switches and all modules.

Examples

The following example shows how to reset the MLS statistics counters for all modules:

```
Router# clear mls statistics switch 2
Router#
```

The following example shows how to reset the MLS statistics counters for a specific module:

```
Router# clear mls statistics switch 2 module 5
Router#
```

Related Commands

Command	Description
show mls statistics	Displays the MLS statistics.

dual-active detection (virtual switch)

To enable and configure dual-active detection, use the **dual-active detection** command in virtual switch configuration submode. To disable dual-active detection, use the **no** form of this command.

dual-active detection {**bfd** | {**pagp** [**trust channel-group** *num*]} | **fast-hello**}

no dual-active detection {**bfd** | **pagp** | **fast-hello**}

Syntax Description

bfd	Configures Bidirectional Forwarding Detection (BFD) as the dual-active detection method. Default: enabled.
pagp	Configures Port Aggregation Protocol (PAgP) as the dual-active detection method. Default: enabled.
trust channel-group *num*	(Optional) Specifies the EtherChannel/port bundling to be used for PAgP dual-active detection. Range: 1 to 256. Default: disabled.
fast-hello	Configures fast hello packet detection as the dual-active detection method. Default: enabled.

Command Default

All detection methods (**pagp**, **bfd**, and **fast-hello**) are enabled and **trust** is disabled by default.

Command Modes

Virtual switch configuration submode (config-vs-domain)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.
12.2(33)SXI	Support for the **fast-hello** keyword was introduced.

Usage Guidelines

If PAgP is running on the MECs between the VSS and its access switches, the VSS can use enhanced PAgP messaging to detect dual-active scenario. The MEC must have links from both chassis of the VSS to the access switch. By default, PAgP dual-active detection is enabled. However, the enhanced messages are only sent on channel groups with trust mode enabled.

If you configure BFD heartbeat mechanism as the dual-active method, you must also configure dual-active interface pairs that act as BFD heartbeat links and enable the BFD dual-active detection. See the **dual-active pair bfd (virtual switch)** command.

If you configure the fast hello dual-active detection mechanism, you must also configure dual-active interface pairs to act as fast hello dual-active messaging links. See the **dual-active fast-hello (virtual switch)** command.

When you enter the optional **trust channel-group** *num* keywords and argument, the following applies:

- You can configure trust mode on a port channel even if there are no interfaces on the port channel or the port channel is a protocol type other than PAgP. The trust mode status is displayed in the **show pagp dual-active** command output, but no interfaces are displayed.

- Configuring trust mode requires that the port channel exists. If the port channel does not exist, the following error message is displayed:

```
Router(config-vs-domain)# dual-active trust pagp channel-group 30
Port-channel 30 not configured
```

- If a trusted port is deleted, the trust-mode configuration is deleted and the following warning message is displayed:

```
Port-channel num is a trusted port-channel for PAgP
  dual-active detection. Restricting this
  port-channel has deleted the dual-active trust
  channel-group configuration associated with it.
```

- If a trusted port is changed to a virtual switch port, the trust mode configuration is deleted when the port becomes restricted and the following warning message is displayed:

```
Port-channel num is a trusted port-channel for PAgP
  dual-active detection. Deletion of this
  port-channel has deleted the dual-active trust
  channel-group configuration associated with it.
```

- If you enter the **dual-active detection pagp trust port-channel** command on a virtual switch port channel, the following error message is displayed:

```
Cannot configure dual-active trust mode on a virtual switch port-channel
```

Examples

The following example shows how to configure interfaces for BFD dual-active detection:

```
Router(config)# switch virtual domain domain-id
Router (config-vs-domain)# dual-active detection bfd
Router (config-vs-domain)# dual-active pair interface g 1/9/48 interface g 2/1/48 bfd

adding a static route 200.230.230.0 255.255.255.0 Gi2/1/48 for this dual-active pair
adding a static route 201.230.230.0 255.255.255.0 Gi1/9/48 for this dual-active pair
```

The following example shows how to configure interfaces for PAgP dual-active detection:

```
Router(config)# switch virtual domain domain-id
Router (config-vs-domain)# dual-active detection pagp
Router (config-vs-domain)#
```

The following example shows how to specify that EtherChannel/port bundling to be used for PAgP dual-active detection;

```
Router(config)# switch virtual domain domain-id
Router (config-vs-domain)# dual-active detection pagp trust port-channel 20
Router (config-vs-domain)#
```

The following example shows how to configure an interface for fast hello dual-active detection:

```
Router(config)# switch virtual domain domain-id
Router (config-vs-domain)# dual-active detection fast-hello
Router (config-vs-domain)# exit
Router(config)# interface fastethernet 1/2/40
Router(config-if)# dual-active fast-hello
WARNING: Interface FastEthernet1/2/40 placed in restricted config mode. All extraneous
configs removed!
Router(config-if)# no shutdown
```

Related Commands

Command	Description
bfd interval	Sets the baseline BFD session parameters on an interface.
dual-active fast-hello (virtual switch)	Configures an interface for fast hello dual-active detection.
dual-active pair bfd (virtual switch)	Configures the connection for BFD dual-active detection.
show switch virtual dual-active	Displays information about dual-active detection configuration and status.

dual-active exclude (virtual switch)

To exclude the interface from shutdown during recovery, use the **dual-active exclude** command in virtual switch configuration submode. To return to the default settings, use the **no** form of this command.

dual-active exclude

no dual-active exclude

Syntax Description

This command has no arguments or keywords.

Command Default

Exclusion of the interface from shutdown during recovery is disabled by default.

Command Modes

Virtual switch configuration submode (config-vs-domain)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

When you configure the exclusion list, note the following information:

- The interface must be a physical port with an IP address.
- The interface must not be a VSL port.
- The interface must not be configured for BFD dual-active detection.
- The interface must not be configured as a fast hello dual-active messaging link.

Examples

The following example shows how to exclude the interface from shutdown during recovery:

```
Router(config)# switch virtual domain domain-id
Router (config-vs-domain)# dual-active exclude interface gigabitethernet 1/9/48
Router (config-vs-domain)#
```

Related Commands

Command	Description
dual-active pair bfd (virtual switch)	Configures the connection for BFD dual-active detection.

dual-active fast-hello (virtual switch)

To enable an interface to be a fast hello dual-active messaging link, use the **dual-active detection** command in interface configuration mode. To disable dual-active detection on an interface, use the **no** form of this command.

dual-active fast-hello

no dual-active fast-hello

Syntax Description

This command has no arguments or keywords.

Command Default

Fast hello dual-active detection is disabled on all interfaces by default.

Command Modes

Interface configuration mode (config-if)

Command History

Release	Modification
12.2(33)SXI	Support for this command was introduced.

Usage Guidelines

This command automatically removes all other configuration from the interface and restricts the interface to dual-active configuration commands.

Examples

The following example shows how to configure an interfaceas a fast hello dual-active messaging link:

```
Router(config)# switch virtual domain domain-id
Router (config-vs-domain)# dual-active detection fast-hello
Router (config-vs-domain)# exit
Router(config)# interface fastethernet 1/2/40
Router(config-if)# dual-active fast-hello
WARNING: Interface FastEthernet1/2/40 placed in restricted config mode. All extraneous
configs removed!
Router(config-if)# no shutdown
```

Related Commands

Command	Description
dual-active detection	Configure dual-active detection on the virtual switch.
show switch virtual dual-active	Displays information about dual-active detection configuration and status.

dual-active pair bfd (virtual switch)

To configure the connection for IP BFD dual-active detection, use the **dual-active** pair command in virtual switch configuration submode. To delete the pair, use the **no** form of this command.

dual-active pair interface *type1* **interface** *type2* **bfd**

Syntax Description

interface *type1*	Specifies the physical interface for one end of the connection.
interface *type2*	Specifies the physical interface for the other end of the connection.

Command Default

No dual-active interfaces are connected by default.

Command Modes

Virtual switch configuration submode (config-vs-domain)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Add the optional **direct** keyword if the interfaces are directly connected.

When you configure the dual-active interface pairs, note the following information:

- You must first configure the individual ports with both an IP address and BFD configuration. This configuration is validated when you add the dual-active interface pair. To configure the BFD pairs, see the **bfd interval** command.
- The IP addresses assigned to the dual-active pair must be from two different networks or subnetworks.
- You must configure the same BFD configuration on both ports or the behavior of the Layer 3 BFD dual-active detection cannot be guaranteed, as the timers on both sides will be different.
- You must provide a direct connection between the interfaces to support dual-active detection.
- For a direct connection, you cannot specify a MAC address on the interface. This is also validated when adding the dual-active interface pair.

Examples

The following example shows how to configure interfaces for BFD dual-active detection:

```
Router(config)# switch virtual domain domain-id
Router (config-vs-domain)# dual-active pair interface gigabitethernet 1/9/48 interface
gigabitethernet 2/1/48 bfd
Router (config-vs-domain)#
```

Related Commands

Command	Description
bfd interval	Sets the baseline BFD session parameters on an interface.
dual-active detection (virtual switch)	Enables and configures dual-active detection.

fabric buffer-reserve (virtual switch)

To reserve ASIC buffers, use the **fabric buffer-reserve** command in global configuration mode. To return to the default settings, use the **no** form of this command.

[**default**] **fabric** {**switch** *num*} **buffer-reserve** [**high** | **low** | **medium** | **queue** | *value*]

no fabric {**switch** *num*} **buffer-reserve**

Syntax Description

default	(Optional) Specifies the default queue setting.
switch *num*	Specifies the switch number; valid values are 1 and 2.
high	(Optional) Reserves the high (0x5050) ASIC buffer spaces.
low	(Optional) Reserves the low (0x3030) ASIC buffer spaces.
medium	(Optional) Reserves the medium (0x4040) ASIC buffer spaces.
value	(Optional) 16-bit value. Range: 0x0 to 0x5050. Default: 0x0.
queue	Specifies the queue setting for the buffer reserve.

Command Default

The default settings are as follows:

- Buffer reserve is set to 0x0.
- Two queues.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Note Use this command only under the direction of Cisco TAC.

The **fabric buffer-reserve queue** command is supported on Catalyst 6500 series switches that are configured with the following modules:

- WS-X6748-GE-TX
- WS-X6724-SFP
- WS-X6748-SFP
- WS-X6704-10GE

Entering the **default fabric buffer-reserve queue** command is the same as entering the **fabric buffer-reserve queue** command.

You can enter the **fabric buffer-reserve** command to improve the system throughput by reserving ASIC buffers.

This command is supported on the following modules:

- WS-X6704-10GE
- WS-X6748-SFP
- WS-X6748-GE-TX
- WS-X6724-SFP

Examples

The following example shows how to reserve the high (0x5050) ASIC buffer spaces:

```
Router(config)# fabric switch 1 buffer-reserve high
Router(config)#
```

The following example shows how to reserve the low (0x3030) ASIC buffer spaces:

```
Router(config)# fabric switch 1 buffer-reserve low
Router(config)#
```

Related Commands

Command	Description
show fabric	Displays the information about the crossbar fabric.

fabric clear-block (virtual switch)

To enable the clear-block congestion control for the fabric channels, use the **fabric clear-block** command in global configuration mode. To disable the clear-block congestion control for the fabric channels, use the **no** form of this command.

fabric {**switch** *num*} **clear-block**

no fabric {**switch** *num*} **clear-block**

Syntax Description

switch *num*	Specifies the switch number; valid values are 1 and 2.

Command Default

The clear-block congestion control for the fabric channels is disabled by default.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Note Do not enter the **fabric clear-block** command unless TAC advises you to do so.

Examples

The following example shows how to enable the clear-block congestion control for the fabric channels:

```
Router(config)# fabric switch 1 clear-block
Router(config)#
```

The following example shows how to disable the clear-block congestion control for the fabric channels:

```
Router(config)# no fabric switch 1 clear-block
Router(config)#
```

Related Commands

Command	Description
show fabric	Displays the information about the crossbar fabric.

fabric error-recovery fabric-switchover (virtual switch)

To enable a supervisor engine switchover when excessive fabric synchronization errors are detected on the fabric-enabled module, use the **fabric error-recovery fabric-switchover** command in global configuration mode. To disable the supervisor engine switchover for excessive fabric synchronization errors, use the **no** form of this command.

fabric {**switch** *num*} **error-recovery fabric-switchover**

no fabric {**switch** *num*} **error-recovery fabric-switchover**

Syntax Description

switch *num*	Specifies the switch number; valid values are 1 and 2.

Command Default

Excessive fabric synchronization errors initiate a supervisor engine switchover, and the configuration is not saved to the configuration file.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

When a fabric-capable switching module has fabric errors, a supervisor engine switchover is initiated.

You can use the **no fabric error-recovery fabric-switchover** command to avoid the supervisor engine switchover. This command does not perform the supervisor engine switchover but powers down the module that is experiencing the excessive fabric errors. This command is saved to the configuration file.

Examples

The following example shows how to enable a supervisor engine switchover when excessive fabric synchronization errors are detected on the fabric-enabled module:

```
Router(config)# fabric switch 2 error-recovery fabric-switchover
Router(config)#
```

The following example shows how to disable a supervisor engine switchover when excessive fabric synchronization errors are detected on the fabric-enabled module:

```
Router(config)# no fabric switch 2 error-recovery fabric-switchover
Router(config)#
```

Related Commands

Command	Description
show fabric	Displays the information about the crossbar fabric.

fabric required (virtual switch)

To prevent the Catalyst 6500 series switch from coming online without a Switch Fabric Module, use the **fabric required** command in global configuration mode. To allow the Catalyst 6500 series switch to come up without a Switch Fabric Module, use the **no** form of this command.

fabric {**switch** *num*} **required**

no fabric {**switch** *num*} **required**

Syntax Description

switch *num*	Specifies the switch number; valid values are 1 and 2.

Command Default

A Switch Fabric Module is not required in the system to come online.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you enter the **fabric required** command, when you remove or power down the last Switch Fabric Module, all modules except the supervisor engine, power down. When you insert or power on the first Switch Fabric Module, the modules that were previously powered down power up if the Switch Fabric Module configuration is not in conflict with other configurations.

If you enter the **no fabric required** command, the modules will also power on if a Switch Fabric Module is not present and the configuration allows for it.

Examples

The following example shows how to prevent the Catalyst 6500 series switch from coming online without a Switch Fabric Module:

```
Router(config)# fabric switch 1 required
Router(config)#
```

The following example shows how to allow the Catalyst 6500 series switch to come up without a Switch Fabric Module:

```
Router(config)# no fabric switch 1 required
Router(config)#
```

Related Commands

Command	Description
show fabric	Displays the information about the crossbar fabric.

fabric switching-mode allow (virtual switch)

To enable the truncated mode in the presence of two or more fabric-enabled switching modules, use the **fabric switching-mode allow** command in global configuration mode. To disable truncated mode, use the **no** form of this command.

fabric {**switch** *num*} **switching-mode allow** {**bus-mode** | **dcef-only** | {**truncated** [{**threshold** [*mod*]}]}}

no fabric {**switch** *num*} **switching-mode allow** {**bus-mode** | {**truncated** [**threshold**]}}

Syntax Description

switch *num*	Specifies the switch number; valid values are 1 and 2.
bus-mode	Specifies bus mode.
dcef-only	Allows switching in dCEF mode only.
truncated	Specifies truncated mode.
threshold *mod*	(Optional) Specifies the number of Switch Fabric Module-capable modules that are needed for truncated switching; see the "Usage Guidelines" section for additional information.

Command Default

The truncated mode is disabled.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Bus mode—The Catalyst 6500 series switch uses this mode for traffic between nonfabric-enabled modules and for traffic between a nonfabric-enabled module and a fabric-enabled module. In this mode, all traffic passes between the local bus and the supervisor engine bus.

dcef-only mode—Supervisor engines, both active and redundant, operate as nonfabric-capable modules with their Gigabit Ethernet ports relying on the PFC on the active supervisor engine for all forwarding decisions. The dcef-only mode disables the Gigabit Ethernet ports on the supervisor engines so that they do not operate as nonfabric-capable modules. If all other modules are operating in dCEF mode, module OIR is non-disruptive.

Truncated mode—The Catalyst 6500 series switch uses this mode for traffic between fabric-enabled modules when there are both fabric-enabled and non fabric-enabled modules installed. In this mode, the Catalyst 6500 series switch sends a truncated version of the traffic (the first 64 bytes of the frame) over the switch fabric channel.

Compact mode—The Catalyst 6500 series switch uses this mode for all traffic when only fabric-enabled modules are installed. In this mode, a compact version of the DBus header is forwarded over the switch fabric channel, which provides the best possible performance.

To prevent use of non fabric-enabled modules or to prevent fabric-enabled modules from using bus mode, enter the **no fabric switching-mode allow bus-mode** command.

Caution Entering the **no fabric switching-mode allow bus-mode** command removes power from any non fabric-enabled modules that are installed in the Catalyst 6500 series switch.

The **fabric switching-mode allow** command affects Catalyst 6500 series switches that are configured with a minimum of two fabric-enabled modules.

You can enter the **fabric switching-mode allow truncated** command to unconditionally allow truncated mode.

You can enter the **no fabric switching-mode allow truncated** command to allow truncated mode if the threshold is met.

You can enter the **no fabric switching-mode allow bus-mode** command to prevent any module from running in bus-mode.

To return to the default truncated-mode threshold, enter the **no fabric switching-mode allow truncated threshold** command.

The valid value for *mod* is the threshold value.

Examples

The following example shows how to specify truncated mode:

```
Router(config)# fabric switch 1 switching-mode allow truncated
Router(config)#
```

Related Commands

Command	Description
show fabric	Displays the information about the crossbar fabric.

fabric switching-mode force bus-mode (virtual switch)

To force fabric-enabled modules into bus switching mode, use the **fabric switching-mode force bus-mode** command in global configuration mode. To power cycle the module to truncated mode, use the **no** form of this command.

fabric {**switch** *num*} **switching-mode force bus-mode**

no fabric {**switch** *num*} **switching-mode force bus-mode**

Syntax Description

switch *num*	Specifies the switch number; valid values are 1 and 2.

Command Default

This command has no default settings.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

This command applies to the following modules:

- WS-SVC-NAM-1—Network Analysis Module 1
- WS-SVC-NAM-2—Network Analysis Module 2

After you enter the **fabric switching-mode force busmode** or the **no fabric switching-mode force busmode** command, the fabric-enabled service modules power cycle immediately. The mode change occurs as the modules come up after the power cycle.

Examples

The following example shows how to force fabric-enabled modules into flow-through switching mode:

```
Router(config)# fabric switch 1 switching-mode force bus-mode
Router(config)#
```

Related Commands

Command	Description
show fabric	Displays the information about the crossbar fabric.

hw-module boot (virtual switch)

To specify the boot options for the module through the power management bus control register, use the **hw-module boot** command in privileged EXEC mode.

hw-module {**switch** *num* **module** *num*} {**boot** [*value*] {**config-register** | **eobc** | {**flash** *image*} | **rom-monitor**}}

Syntax Description

switch *num*	Specifies the switch number; valid values are 1 and 2.
module *num*	Specifies the number of the module to apply the command.
value	(Optional) Literal value for the module's boot option. Range: 0 to 15. See the "Usage Guidelines" section for additional information.
config-register	Boots using the module's config-register value.
eobc	Boots using an image downloaded through EOBC.
flash *image*	Specifies the image number in the module's internal Flash memory for the module's boot option; valid values are 1 and 2.
rom-monitor	Stays in ROM-monitor (ROMMON) mode after the module resets.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The valid values for the **boot** *value* argument are as follows:

0—Specifies the module's config-register value.

1—Specifies the first image in the Flash memory.

2—Specifies the second image in the Flash memory.

3—Stays in ROM-monitor mode after the module reset.

4—Specifies the download image through EOBC.

Examples

The following example shows how to reload the module in slot 6 using the module's config-register value:

```
Router# hw-module slot switch 1 module 6 boot config-register
Router#
```

The following example shows how to reload the module in slot 3 using an image downloaded through EOBC:

```
Router# hw-module switch 1 module 6 boot eobc
Router#
```

interface (virtual switch)

To select an interface to configure and enter interface configuration mode, use the **interface** global configuration mode command.

interface {*interface switch-num/slot/port.subinterface*}

Syntax Description

interface	Type of interface to be configured; see Table 1 for valid values.
switch-num	Switch ID
slot	Slot number.
port	Port number.
.subinterface	Port subinterface number to be configured. Range: 0 to 4294967295.

Command Default

No interface types are configured.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.
12.2(33)SXI4	Added support for SIP-400 CWAN linecards.

Usage Guidelines

Table 1 lists the valid values for *type*.

Table 1 Valid type Values

Keyword	Definition
gigabitethernet	Gigabit Ethernet IEEE 802.3z interface.
tengigabitethernet	10-Gigabit Ethernet IEEE 802.3ae interface.
vlan	VLAN interface; see the **interface vlan** command.
port-channel	Port channel interface; see the **interface port-channel** command.
null	Null interface; the valid value is **0**.
tunnel	Tunnel interface.

Examples

The following example shows how to enter the interface configuration mode on the GigabitEthernet interface for switch 1, module 2, port 4:

```
Router(config)# interface gigabitethernet 1/2/4
Router(config)#
```

Related Commands

Command	Description
show interfaces (virtual switch)	Displays the traffic that is seen by a specific interface.

mac-address (virtual switch)

To specify a Media Access Control (MAC) address to use as the common router MAC address for interfaces on the active and standby chassis, use the **mac-address** virtual switch configuration submode command. To return to the default setting, use the **no** form of this command.

mac-address {*mac-address* | **use-virtual**}

Syntax Description

mac-address	MAC address in hexadecimal format.
use-virtual	Specifies the MAC address range reserved for the virtual switch system (VSS).

Command Default

The router MAC address is derived from the backplane of the active chassis.

Command Modes

Virtual switch configuration submode (config-vs-domain)

Command History

Release	Modification
12.2(33)SXH2	Support for this command was introduced.

Usage Guidelines

When a virtual switch comes up, the router MAC address is derived from the backplane of the active chassis and is used as the common router MAC address for interfaces on both the active and the standby chassis. Between switchovers, this MAC address is maintained on the new active switch. You can enter the **mac-address** *mac-address* command to specify a MAC address to use or the **mac-address use-virtual to** use the MAC address range reserved for the VSS.

The MAC address range reserved for the VSS is derived from a reserved pool of addresses with the domain ID encoded in the leading 6 bits of the last octet and trailing 2 bits of the previous octet of the mac-address. The last two bits of the first octet is allocated for protocol mac-address which is derived by adding the protocol ID (0 to 3) to the router MAC address.

Note You must reload the virtual switch for the new router MAC address to take effect. If the MAC address you configured is different from the current MAC address, the following message is displayed:

```
Configured Router mac address is different from operational value. Change will take effect
after config is saved and switch is reloaded.
```

Examples

The following example shows how to specify the MAC address to use in hexadecimal format:

```
Router(config)# switch virtual domain test-mac-address
Router(config-vs-domain)# mac-address 0000.0000.0000
Router(config-vs-domain)#
```

The following example shows how to specify the MAC address range reserved for the VSS:

```
Router(config)# switch virtual domain test-mac-address
Router(config-vs-domain)# mac-address use-virtual
Router(config-vs-domain)#
```

Related Commands

Command	Description
switch virtual domain	Assigns a switch number and enters virtual switch domain configuration submode.

mac-address-table learning (virtual switch)

To enable MAC-address learning on a VLAN, range of VLANs, or an interface, use the **mac-address-table learning** command in global configuration mode. To disable learning, use the **no** form of this command.

[**default**] **mac-address-table learning** {{**vlan** *vlan-id* | *range*} | {**interface** *interface switch/slot/port*}} [**switch** *num*] [**module** *num*]

no mac-address-table learning {{**vlan** *vlan-id*} | {**interface** *interface switch/slot/port*}} [**switch** *num*] [**module** *num*]

Syntax Description

default	(Optional) Returns to the default settings.
vlan *vlan-id*	Specifies the VLAN to apply the learning of all MAC addresses. Range: 1 to 4094.
vlan *range*	Specifies a range of VLANs to apply the learning of all MAC addresses. Range: 1 to 4094.
interface	Specifies per-interface based learning of all MAC addresses.
interface type switch/slot/port	Interface type, the switch number, slot number, and the port number.
switch *num*	(Optional) Specifies the switch number; valid values are 1 and 2.
module *num*	(Optional) Specifies the module number.

Command Default

If you configure a VLAN on a port in a module, all the supervisor engines and DFCs in the Catalyst 6500 series switch are enabled to learn all the MAC addresses on the specified VLAN.

Command Modes

Global configuration

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Note When you enable or disable MAC learning for a VLAN, you must also enable or disable MAC learning on any switching modules that hosts VSL ports.

You can use the **vlan** *vlan-id* keyword and argument on switch-port VLANs only. You cannot use the **vlan** *vlan-id* keyword and argument to configure learning on routed interfaces.

If you specify a range of VLANs, use the following guidelines:

- Enter a hyphen (-) to denote a range of VLANs, for example 24-35.
- Separate each entry with a comma (,), for example, 24, 48, 52-59, 62

You can use the **interface** *interface slot/port* keyword and arguments on routed interfaces, supervisor engines, and DFCs only. You cannot use the **interface** *interface slot/port* keyword and arguments to configure learning on switch-port interfaces or non-DFC modules.

Examples

The following example shows how to enable MAC-address learning on a switch-port interface on all modules:

```
Router (config)# mac-address-table learning vlan 100
Router (config)#
```

The following example shows how to enable MAC-address learning on a range of VLANs on all modules:

```
Router (config)# mac-address-table learning vlan 100-115,125
Router (config)#
```

The following example shows how to enable MAC-address learning on a switch-port interface on switch 1:

```
Router (config)# mac-address-table learning vlan 100 switch 1
Router (config)#
```

The following example shows how to disable MAC-address learning on a specified switch-port interface for all modules:

```
Router (config)# no mac-address-table learning vlan 100
Router (config)#
```

The following example shows how to enable MAC-address learning on a routed interface on all modules:

```
Router (config)# mac-address-table learning vlan 100
Router (config)#
```

The following example shows how to enable MAC-address learning on a routed interface for a specific module:

```
Router (config)# mac-address-table learning interface GigabitEthernet 3/48 switch 2 module
4
Router (config)#
```

The following example shows how to disable MAC-address learning for all modules on a specific routed interface:

```
Router (config)# no mac-address-table learning interface GigabitEthernet 3/48
Router (config)#
```

Related Commands

Command	Description
show mac-address-table learning (virtual switch)	Displays the MAC-address learning state.

mls ip multicast egress fast-redirect

To enable fast-redirect optimization on any Layer 2 trunk multichassis EtherChannel or on a Distributed EtherChannel, use the **mls ip multicast egress fast-redirect** command in interface configuration mode. To disable fast-redirect optimization, use the **no** form of this command.

mls ip multicast egress fast-redirect

no mls ip multicast egress fast-redirect

Syntax Description

This command has no keywords or attributes.

Defaults

This command has no default settings.

Command Modes

Interface configuration mode (config-interface)

Command History

Release	Modification
12.2(33)SXI4	Support for this command was introduced on the Supervisor Engine 720.

Examples

This example shows how to enable a fast-redirect optimization on a Layer 2 multichassis EtherChannel:

```
Router(config)# interface port-channel 4
Router(config-interface)# mls ip multicast egress fast-redirect
```

Related Commands

Command	Description
show mmls fast-redirect	Displays the list of port channels, ports, and VLANs that have fast-redirect optimization enabled.

module provision (virtual switch)

To provision modules on the virtual switching system (VSS), use the **module provision** command in global configuration mode. Use the **no** form of this command to return to the default settings.

module provision {**switch** *num*}

no module provision {**switch** *num*}

Syntax Description

switch *num*	Specifies the number of the virtual switch chassis; valid values are 1 and 2.

Command Default

first-insert

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

When you convert two standalone chassis into a VSS, modules on the standby chassis are auto-provisioned onto the active chassis. For additional information, see Chapter 4, "Converting Between Standalone Mode and the Virtual Switch Mode" of the *Virtual Switch Cisco IOS Software Configuration Guide*.

Once you enter the module provisioning configuration submode, the prompt changes to `Router (config-prov-switch)#` and the following commands are available:

- **default**—Sets a command to its defaults
- **exit**—Exits the module provisioning configuration submode and returns to the global configuration mode.
- **no**—Negates a command or sets its defaults
- **slot**—Specifies the module number and allows you to configure module provisioning using the following syntax:

  slot *number* **slot-type** *type* **port-type** *port-type* **number** *total-ports* **virtual-slot** *slot-num*

  slot *number* **slot-type** *type* **vdb-type** *vdb-type* **port-type** *port-type* **number** *total-ports* **virtual-slot** *slot-num*

slot-type *type*	Specifies the type of module installed in the slot; valid values are 0 to 286.
port-type *port-type*	Specifies the port type. Range: 1 to 100.
vdb-type *vdb-type*	Specifies the VDB type. Range: 1 to 250.
number *num*	Specifies the number of ports found on the module.
virtual-slot *slot-num*	Specifies where the module fits in the switch. See below for additional information.

For The following example, **slot 3 slot-type 227 port-type 60 number 8 virtual-slot 19**, the following applies:

- The **slot-type** is the VSL module type and the value 227 translates into the 8-port 10GE module (WS-X6708-10G-3C).
- The **port-type** of 60 indicates 10GE ports found on the 8-port 10GE module.
- The **number 8** is the number of ports found on the actual module.
- The **virtual-slot** *slot-num* keyword and argument is calculated as (Switch # * 16) + Slot #.

  So in this case, 19 is calculated as 1 * 16 + 3 = 19

For additional information, see Chapter 4, "Converting Between Standalone Mode and the Virtual Switch Mode" of the *Virtual Switch Cisco IOS Software Configuration Guide* for the recommended method for copying the configuration from the active chassis to the standby chassis.

Examples

The following example shows how to enter the module provisioning configuration submode:

```
Router(config)# module provision switch 2
Router (config-prov-switch)#
```

These examples shows how to configure module provisioning:

```
Router(config)# module provision switch 2
Router (config-prov-switch)# slot 3 slot-type 227 port-type 60 number 8 virtual-slot 19
Router (config-prov-switch)#
```

Related Commands

Command	Description
show module provision switch	Displays the module provisioning status.

monitor session servicemodule (virtual switch)

To start a new ERSPAN, SPAN, or RSPAN session, add or delete interfaces or VLANs to or from an existing session, filter ERSPAN, SPAN, or RSPAN traffic to specific VLANs, or delete a session, use the **monitor session** command in global configuration mode. To remove one or more source or destination interfaces from the session, remove a source VLAN from the session, or delete a session, use the **no** form of this command.

monitor session servicemodule switch *num* **module** *mod-list*

no monitor session servicemodule switch *num* **module** *mod-list*

Syntax Description

switch *num*	Specifies the chassis number; valid values are 1 and 2.
module *mod-list*	Specifies the list of modules to be monitored.

Command Default

All service modules are allowed to use the SPAN service module session.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Note Be careful when configuring SPAN-type source ports that are associated to SPAN-type destination ports because you do not configure SPAN on high-traffic interfaces. If you configure SPAN on high-traffic interfaces, you may saturate fabric channels, replication engines, and interfaces. To configure SPAN-type source ports that are associated to SPAN-type destination ports, enter the **monitor session** *session* **source** {{**interface** *type*} | {{**vlan** *vlan-id*} [**rx** | **tx** | **both**]} | {**remote vlan** r*span-vlan-id*}} command.

The local SPAN, RSPAN, and ERSPAN session limits are as follows:

Total Sessions	Local SPAN, RSPAN Source, or ERSPAN Source Sessions	RSPAN Destination Sessions	ERSPAN Destination Sessions
66	2 (ingress or egress or both)	64	23

The local SPAN, RSPAN, and ERSPAN source and destination limits are as follows:

	In Each Local SPAN Session	In Each RSPAN Source Session	In Each ERSPAN Source Session	In Each RSPAN Destination Session	In Each ERSPAN Destination Session
Egress or ingress and egress sources				—	—
	128	128	128		
Ingress sources				—	—
	128	128	128		
RSPAN and ERSPAN destination session sources	—	—	—	1 RSPAN VLAN	1 IP address
Destinations per session	64	1 RSPAN VLAN	1 IP address	64	64

A particular SPAN session can either monitor the VLANs or monitor individual interfaces—you cannot have a SPAN session that monitors both specific interfaces and specific VLANs. If you first configure a SPAN session with a source interface, and then try to add a source VLAN to the same SPAN session, you get an error. You also get an error if you configure a SPAN session with a source VLAN and then try to add a source interface to that session. You must first clear any sources for a SPAN session before switching to another type of source.

The **show monitor** command displays the SPAN servicemodule session only if it is allocated in the system. It also displays a list of allowed modules and a list of active modules that can use the servicemodule session.

Only the **no** form of the **monitor session servicemodule** command is displayed when you enter the **show running-config** command.

If no module is allowed to use the servicemodule session, the servicemodule session is automatically deallocated. If at least one module is allowed to use the servicemodule session and at least one module is online, the servicemodule session is automatically allocated.

If you allow or disallow a list of modules that are not service modules from using the servicemodule session, there will be no effect on the allocation or deallocation of the servicemodule session. Only the list of modules is saved in the configuration.

If you disable the SPAN servicemodule session with the **no monitor session servicemodule** command, allowing or disallowing a list of modules from using the servicemodule session has no effect on the allocation or deallocation of the servicemodule session. Only the list of modules is saved in the configuration.

The **monitor session servicemodule** command is accepted even if there are no modules physically inserted in any slot.

Examples

The following example shows how to allow a list of modules to use the SPAN servicemodule session:

```
Router(config)# monitor session servicemodule switch 1 module 1-2
Router(config)#
```

The following example shows how to disallow a list of modules from using the SPAN servicemodule session:

```
Router(config)# no monitor session servicemodule switch 1 module 1-2
Router(config)#
```

Related Commands

Command	Description
remote span	Configures a VLAN as an RSPAN VLAN.
show monitor session	Displays information about the ERSPAN, SPAN, and RSPAN sessions.

platform hardware vsl pfc mode pfc3c

To configure the system to operate in PFC3C mode after the next reload, use the **platform hardware vsl pfc mode pfc3c** command in global configuration mode. To return to the default settings, us e the **no** form of this command.

platform hardware vsl pfc mode pfc3c

no platform hardware vsl pfc mode pfc3c

Syntax Description

This command has no arguments or keywords.

Command Default

The default PFC mode is PFC3CXL.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

After entering this command, you must perform a system reload before the command takes affect.

If both supervisor engines are provisioned with PFC3C, the VSS automatically operates in PFC3C mode, even if there are switchingmodules equipped with (DFC) 3CXL daughter cards.

If both supervisor engines are provisioned with PFC3CXL and there is a mixture of DFC3C and DFC3CXL switching modules, the system PFC mode depends on how the 3C and 3CXL switching modules are distributed between the two chassis.

Each chassis in the VSS determines its system PFC mode. If there is a mismatch between the PFC modes on both chassis, the VSS comes up in RPR mode instead of SSO mode. Use the **platform hardware vsl pfc mode pfc3c** command to operate in PFC3C mode after the next reload.

Examples

The following example shows how to configure the system to operate in PFC3C mode after the next reload;

```
Router(config)# platform hardware vsl pfc mode pfc3c
Router(config)#
```

Related Commands

Command	Description
show power	Displays platform information.

port-channel hash-distribution (virtual switch)

To set the hash distribution algorithm method, use the **port-channel hash-distribution** command in global configuration mode. To return to the default settings, use the **no** or **default** form of this command.

port-channel hash-distribution {**adaptive** | **fixed**}

{**no** | **default**} **port-channel hash-distribution**

Syntax Description

adaptive	Specifies selective distribution of the bundle select register among the port-channel members.
fixed	Specifies fixed distribution of the bundle select register among the port-channel members
default	Specifies the default setting.

Command Default

The default setting is **fixed**.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The EtherChannel load distribution algorithm uses a register (the bundle select register) in the port ASIC to determine the port for each outgoing packet. When you use the **fixed** algorithm and you add a port to the EtherChannel or delete a port from the EtherChannel, the switch updates the bundle select register for each port in the EtherChannel. This causes a short outage on each port.

When you use the **adaptive** algorithm, The adaptive algorithm does not require the bundle select register to be changed for existing member ports.

Note When you change the algorithm, the change is applied at the next member link event. Example events include link down, up, addition, deletion, no shutdown, and shutdown. When you enter the command to change the algorithm, the command console issues a warning that the command does not take effect until the next member link event

Examples

The example shows how to set the hash distribution algorithm method to adaptive:

```
Router(config)# port-channel hash adaptive
Router(config)#
```

port-channel port hash-distribution (virtual switch)

To configure the port hash-distribution method, use the **port-channel port hash-distribution** command in interface configuration mode. To return to the default settings, use the **no** or **default** form of this command.

port-channel port hash-distribution {**adaptive** | **fixed**}

{**no** | **default**} **port-channel port hash-distribution**

Syntax Description

adaptive	Specifies selective distribution of the bundle select register among the port-channel members.
fixed	Specifies fixed distribution of the bundle select register among the port-channel members
default	Specifies the default setting.

Command Default

For non-VSL EtherChannel groups the default setting is **fixed**.

For VSL EtherChannel groups the default setting is **adaptive**.

Command Modes

Interface configuration (config-if)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The **adaptive** port-channel method is not supported on virtual switch port channels.

The EtherChannel load distribution algorithm uses a register (the bundle select register) in the port ASIC to determine the port for each outgoing packet. When you use the **fixed** algorithm and you add a port to the EtherChannel or delete a port from the EtherChannel, the switch updates the bundle select register for each port in the EtherChannel. This causes a short outage on each port.

When you use the **adaptive** algorithm, The adaptive algorithm does not require the bundle select register to be changed for existing member ports.

Note When you change the algorithm, the change is applied at the next member link event. Example events include link down, up, addition, deletion, no shutdown, and shutdown. When you enter the command to change the algorithm, the command console issues a warning that the command does not take effect until the next member link event

Examples

The example shows how to set the hash distribution algorithm method to fixed:

```
Router(config-if)# port-channel port hash-distribution fixed
Router(config)#
```

power enable (virtual switch)

To turn on power for the modules, use the **power enable** command in global configuration mode. Use the **no** form of this command to power down a module.

power enable {**switch** *num*} {**module** *slot*}

no power enable {**switch** *num*} {**module** *slot*}

Syntax Description

switch *num*	Specifies the switch where the module resides; valid values are 1 and 2.
module *slot*	Specifies a module slot number; see the "Usage Guidelines" section for valid values.

Command Default

Power to the modules is turned on by default.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced

Usage Guidelines

When you power down a module, the module's configuration is not saved.

When you power down an empty slot, the configuration is saved.

The *slot* argument designates the module number. Valid values for *slot* depend on the switch that is used. For example, if you have a 13-slot switch, valid values for the module number are from 1 to 13.

Examples

The following example shows how to turn on the power for a module that was previously powered down:

```
Router(config)# power enable switch 1 module 5
Router(config)#
```

The following example shows how to power down a module:

```
Router(config)# no power enable switch 2 module 5
Router(config)#
```

Related Commands

Command	Description
show power	Displays information about the power status

power redundancy-mode (virtual switch)

To set the power-supply redundancy mode, use the **power redundancy-mode** command in global configuration mode.

power redundancy-mode {**combined** | **redundant**} **switch** *num*

Syntax Description

combined	Specifies no redundancy (combined power-supply outputs).
redundant	Specifies redundancy (either power supply can operate the system).
switch *num*	Specifies the switch number; valid values are 1 and 2.

Command Default

The default setting is **redundant.**

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Examples

The following example shows how to set the power supplies to the no-redundancy mode:

```
Router(config)# power redundancy-mode combined switch 1
Router(config)#
```

The following example shows how to set the power supplies to the redundancy mode:

```
Router(config)# power redundancy-mode redundant switch 2
Router(config)#
```

Related Commands

Command	Description
show power	Displays information about the power status

remote command (virtual switch)

To execute a Catalyst 6500 series switch command directly on the switch console or a specified module without having to log into the Catalyst 6500 series switch first, use the **remote command** command in privileged EXEC mode.

remote command switch *num* {**module** *num*} *command*

remote command {{**module** *num*} | **standby-rp** | **standby-sp** | **switch**} *command*

Syntax Description

switch *num*	Specifies the switch to access; valid values are 1 and 2.
module *num*	Specifies the module to access; see the "Usage Guidelines" section for valid values.
command	Command to be executed.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The **module** *num* keyword and argument designate the module number. Valid values depend on the chassis that is used. For example, if you have a 13-slot chassis, valid values are from 1 to 13.

When you execute the **remote command switch-id** command, the prompt changes to Switch-sp1# or Switch-sp2#.

This command is supported on DFC-equipped modules and the supervisor engine only.

This command does not support command completion, but you can use shortened forms of the command (for example, entering **sh** for **show**).

Examples

The following example shows how to execute the **show calendar** command from the standby route processor:

```
Router# remote command standby-sp show calendar
Switch-sp1#
09:52:50 UTC Mon Feb 12 2007
Router#
```

Related Commands

Command	Description
remote login (virtual switch)	Accesses the Catalyst 6500 series switch console or a specific module.

remote login (virtual switch)

To access the Catalyst 6500 series switch console or a specific module, use the **remote login** command in privileged EXEC mode.

remote login switch *num* {**module** *num*}

remote login {{**module** *num*} | **standby-rp** | **standby-sp** | **switch** | {**switch** *num*}}

Syntax Description

switch *num*	Specifies the switch to access; valid values are 1 and 2.
module *num*	Specifies the module to access; see the "Usage Guidelines" section for valid values.
standby-rp	Specifies the standby route processor.
standby-sp	Specifies the standby switch processor.
switch	Specifies the active switch processor.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Caution When you enter the **attach** or **remote login** command to access another console from your switch, if you enter global or interface configuration mode commands, the switch might reset.

The **module** *num* keyword and argument designate the module number. Valid values depend on the chassis that is used. For example, if you have a 13-slot chassis, valid values are from 1 to 13. The **module** *num* keyword and argument are supported on DFC-equipped modules and the standby supervisor engine only.

When you execute the **remote login module** *num* command, the prompt changes to Router-dfcx# or Switch-sp1# or Switch-sp2#, depending on the type of module to which you are connecting.

When you execute the **remote login standby-rp** command, the prompt changes to Router-sdby#.

When you execute the **remote login switch-id** command, the prompt changes to Switch-sp1# or Switch-sp2#.

The **remote login module** *num* command is identical to the **attach** (virtual switch) command.

There are two ways to end the session:

- You can enter the **exit** command as follows:

```
Switch-sp# exit

[Connection to Switch closed by foreign host]
Router#
```

- You can press **Ctrl-C** three times as follows:

```
Switch-sp1# ^C
Switch-sp1# ^C
Switch-sp1# ^C
Terminate remote login session? [confirm] y
[Connection to Switch closed by local host]
Router#
```

Examples

The following example shows how to perform a remote login to a specific module:

```
Router# remote login switch-id 1 module 1
Trying Switch ...
Entering CONSOLE for Switch
Type "^C^C^C" to end this session


Switch-sp1#
```

The following example shows how to perform a remote login to the Catalyst 6500 series active chassis switch processor:

```
Router# remote login switch
Trying Switch ...
Entering CONSOLE for Switch
Type "^C^C^C" to end this session
Switch-sp1#
```

The following example shows how to perform a remote login to the standby route processor:

```
Router# remote login switch-id 1 module 4
Trying Switch ...
Entering CONSOLE for Switch
Type "^C^C^C" to end this session
Router-sdby1#
```

Related Commands

Command	Description
attach	Connects to a specific module from a remote location.

session slot (virtual switch)

To open a session with a module (for example, the NAM), use the **session slot** command in EXEC mode.

session switch *num* **slot** *num* **processor** *processor-id*

Syntax Description

switch *num*	Specifies the switch to access; valid values are 1 and 2.
slot *num*	Slot number of the module.
processor *processor-id*	Specifies the processor ID number. Range: 0 to 9.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

To end the session, enter the **quit** command.

This command allows you to use the module-specific CLI.

Examples

The following example shows how to open a session with module 4:

```
Router# session switch-id 2 slot 4 processor 2
Router#
```

show asic-version (virtual switch)

To display the ASIC version for a specific module, use the **show asic-version** command in EXEC mode.

show asic-version {**switch** *num*} {**slot** *num*}

Syntax Description

switch *num*	Specifies the switch to access; valid values are 1 and 2.
slot *num*	Specifies a slot number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

In the **show asic-version** command output, the possible ASIC types are as follows:

- Lyra—Layer 2 forwarding engine
- Hyperion—Packet rewrite, multicast, and SPAN engine
- Medusa—Crossbar and bus fabric interface
- Polaris—Layer 3 CEF engine
- Pinnacle—4-port Gigabit Ethernet interface
- Titan—Packet rewrite and replication engine
- Vela—Bus interface
- Kuma 2—Bus bridge/converter ASIC.
- Metro_Argos 2—Metropolis Argos ASIC. Bridge between the port, fabric, and the forwarding engine.
- Metro_Krypton 2—Metropolis Krypton ASIC. Interface ASIC that sits between a port ASIC and the EARL complex.
- SSA 2 —Super Santa Anna ASIC. Serial link transceiver.
- R2D2 4—Port interface ASIC.
- SSA 1—Super Santa Anna ASIC. Serial link transceiver.
- SSO 4—Crossbar switch fabric ASIC.
- Tiangang 4—Interface between two R2D2s to be interfaced to one channel of the Metropolis ASIC instead of one R2D2 per channel.

Examples

The following example shows how to display the ASIC type and version for a specific module:

```
Router# show asic-version switch 1 slot 1
Module in switch 1, slot 4 has 5 type(s) of ASICs
        ASIC Name      Count      Version
             KUMA          2      (2.0)
      METRO_ARGOS          2      (2.0)
    METRO_KRYPTON          2      (2.0)
              SSA          2      (8.0)
             R2D2          4      (2.0)

Router#
```

show environment (virtual switch)

To display information about the environmental status, use the **show environment** command in EXEC mode.

show environment [**switch** *num*] [{**alarm** [{**status** | **threshold**} [*frutype*]]} | **connector** *parameter* | **cooling** *parameter* | **status** [*frutype*] | **temperature** *parameter*]

Syntax Description

switch *num*	(Optional) Specifies the switch to access; valid values are 1 and 2.
alarm	(Optional) Displays environmental alarm status.
status	(Optional) Displays the operational FRU status.
threshold	(Optional) Displays the preprogrammed alarm thresholds.
frutype	(Optional) Field-replaceable unit (FRU) type; see the "Usage Guidelines" section for a list of valid values.
connector *parameter*	(Optional) Displays the information about the connector parameters. • **all**—(Optional) Selects all FRU-types • **backplane**—(Optional) Specifies the backplane connectors. • **module** *slot*—(Optional) Specifies the module number.
cooling *parameter*	(Optional) Displays the information about the cooling parameters; valid values are as follows: • **all**—(Optional) Selects all FRU-types • **fan-tray** *num*—(Optional) Specifies the number of the fan-tray. • **module** *slot*—(Optional) Specifies the module number.
status	(Optional) Displays the operational status of the FRU-types.
temperature *parameter*	(Optional) Displays the temperature readings valid values are as follows: • **all**—(Optional) Selects all FRU-types. • **backplane**—(Optional) Specifies the backplane. • **earl**—(Optional) Specifies the enhanced recognition logic (EARL) slot. • **module** *slot*—(Optional) Specifies the module number. • **rp** *slot*—(Optional) Specifies the RP (MSFC) number. • **vdb** *slot*—(Optional) Specifies the VDB number. • **vdb** *num*—(Optional) Specifies the VTT number.

Command Default

If you enter the **show environment** command without entering additional keywords or arguments, all the information about the environmental status is displayed for both switches.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Valid values for the *frutype* are as follows:

- **all**—No arguments. Specifies all FRU types.
- **backplane**—No arguments. Specifies the backplane.
- **clock** *number*—Specifies the clock number; the valid values are 1 and 2.
- **earl** *slot*—See the "Usage Guidelines" section for valid values.
- **fan-tray** [*num*]—Specifies the fan tray, and optionally, you can specify the fan-tray number; the valid value is 1-1.
- *interface switch/slot/port.subinterface*—Specifies the interface type, switch number, module number, port number, and the subinterface number.
- **module** *slot*—See the "Usage Guidelines" section for valid values.
- **power-supply** *num*—Specifies the power supply; the valid values are 1 and 2.
- **rp** *slot*—See the "Usage Guidelines" section for valid values.
- **supervisor** *slot*—See the "Usage Guidelines" section for valid values.
- **vdb** *slot*—See the "Usage Guidelines" section for valid values.
- **vtt** *number*—1 to 3.

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

The **show environment temperature module** command output includes the updated information after an SCP response is received.

In the output display, the following applies:

- N/O means not operational—The sensor is broken, returning impossible values.
- N/A means not available—The sensor value is presently not available; try again later.
- VTT 1, 2, and 3 refer to the power monitors that are located on the chassis backplane under the rear cover.
- The names of the ASIC are listed if there is more than one ASIC.
- The type of sensor is listed if there is more than one sensor on the ASIC.
- Current temperature.
- Major/minor threshold as read in the IDPROM.
- Status of whether the current temperature has exceeded any temperature thresholds.
- outlet temperature—Exhaust temperature value.
- inlet temperature—Intake temperature value.
- device-1 and device-2 temperature—Two devices that measure the internal temperature on the indicated module. The temperature shown indicates the temperature that the device is recording. The devices are not placed at an inlet or an exit but are additional reference points.

Examples

The following example shows how to display all the environmental status information for both switches:

```
Router# show environment
 chassis id 0 switch_id 2

 chassis id 0 switch_id 2

environmental alarms:
system minor alarm on switch 2 power-supply 2 power-output-fa (raised 3w3d ago)

backplane:
  operating clock count: 0
  operating VTT count: 0

switch 1 fan-tray 1:
  switch 1 fan-tray 1 type: WS-C6K-6SLOT-FAN
  switch 1 fan-tray 1 version: 1
  switch 1 fan-tray 1 fan-fail: OK
switch 2 fan-tray 1:
  switch 2 fan-tray 1 type: WS-C6K-6SLOT-FAN
  switch 2 fan-tray 1 version: 2
  switch 2 fan-tray 1 fan-fail: OK
switch 2 VTT 1:
  switch 2 VTT 1 OK: OK
  switch 2 VTT 1 outlet temperature: 33C
switch 2 VTT 2:
  switch 2 VTT 2 OK: OK
  switch 2 VTT 2 outlet temperature: 29C
switch 2 VTT 3:
  switch 2 VTT 3 OK: OK
  switch 2 VTT 3 outlet temperature: 32C
switch 2 clock 1:
  switch 2 clock 1 OK: OK, switch 2 clock 1 clock-inuse: in-use
switch 2 clock 2:
  switch 2 clock 2 OK: OK, switch 2 clock 2 clock-inuse: not-in-use
switch 1 power-supply 1:
  switch 1 power-supply 1 fan-fail: OK
  switch 1 power-supply 1 power-input: AC low
  switch 1 power-supply 1 power-output-mo: low
  switch 1 power-supply 1 power-output-fa: OK
switch 1 power-supply 2:
  switch 1 power-supply 2 power-output-fa: failed
switch 2 power-supply 1:
  switch 2 power-supply 1 fan-fail: OK
  switch 2 power-supply 1 power-input: AC low
  switch 2 power-supply 1 power-output-mo: low
  switch 2 power-supply 1 power-output-fa: OK
switch 2 power-supply 2:
  switch 2 power-supply 2 power-output-fa: failed
switch 1 module 3:
  switch 1 module 3 power-output-fail: OK
  switch 1 module 3 outlet temperature: 43C
  switch 1 module 3 inlet temperature: 32C
  switch 1 module 3 aux-1 temperature: 43C
  switch 1 module 3 aux-2 temperature: 32C
  switch 1 module 3 asic-1 temperature: 66C
  switch 1 module 3 asic-2 temperature: 63C
  switch 1 module 3 EARL outlet temperatu: 38C
  switch 1 module 3 EARL inlet temperatur: 33C
switch 1 module 4:
  switch 1 module 4 power-output-fail: OK
  switch 1 module 4 outlet temperature: 38C
  switch 1 module 4 inlet temperature: 27C
switch 1 module 5:
```

```
  switch 1 module 5 power-output-fail: OK
  switch 1 module 5 outlet temperature: 31C
  switch 1 module 5 inlet temperature: 25C
  switch 1 module 5 device-1 temperature: 37C
  switch 1 module 5 device-2 temperature: 37C
  switch 1 module 5 asic-1 temperature: 25C
  switch 1 module 5 asic-2 temperature: 26C
  switch 1 module 5 asic-3 temperature: 25C
  switch 1 module 5 asic-4 temperature: 26C
  switch 1 module 5 asic-5 temperature: 26C
  switch 1 module 5 asic-6 temperature: 26C
  switch 1 module 5 RP outlet temperature: 27C
  switch 1 module 5 RP inlet temperature: 27C
  switch 1 module 5 EARL outlet temperatu: 34C
  switch 1 module 5 EARL inlet temperatur: 29C
switch 2 module 1:
  switch 2 module 1 power-output-fail: OK
  switch 2 module 1 outlet temperature: 43C
  switch 2 module 1 inlet temperature: 31C
switch 2 module 4:
  switch 2 module 4 power-output-fail: OK
  switch 2 module 4 outlet temperature: 38C
  switch 2 module 4 inlet temperature: 26C
switch 2 module 5:
  switch 2 module 5 power-output-fail: OK
  switch 2 module 5 outlet temperature: 31C
  switch 2 module 5 inlet temperature: 24C
  switch 2 module 5 device-1 temperature: 36C
  switch 2 module 5 device-2 temperature: 37C
  switch 2 module 5 asic-1 temperature: 25C
  switch 2 module 5 asic-2 temperature: 25C
  switch 2 module 5 asic-3 temperature: 25C
  switch 2 module 5 asic-4 temperature: 25C
  switch 2 module 5 asic-5 temperature: 25C
  switch 2 module 5 asic-6 temperature: 25C
  switch 2 module 5 RP outlet temperature: 31C
  switch 2 module 5 RP inlet temperature: 31C
  switch 2 module 5 EARL outlet temperatu: 34C
  switch 2 module 5 EARL inlet temperatur: 28C


 chassis id 0 switch_id 2

  chassis connector rating: 1260.00 Watts (30.00 Amps @ 42V)

switch 2 module 1
  switch 2 module 1 connector rating: 2016.00 Watts (48.00 Amps @ 42V)
  switch 2 module 1 power consumption: 295.26 Watts ( 7.03 Amps @ 42V)
switch 2 module 2
  switch 2 module 2 connector rating: 2016.00 Watts (48.00 Amps @ 42V)
  switch 2 module 2 power consumption: 444.36 Watts (10.58 Amps @ 42V)
switch 2 module 3
  switch 2 module 3 connector rating: 1260.00 Watts (30.00 Amps @ 42V)
  switch 2 module 3 power consumption: 152.04 Watts ( 3.62 Amps @ 42V)
switch 2 module 4
  switch 2 module 4 connector rating: 2016.00 Watts (48.00 Amps @ 42V)
  switch 2 module 4 power consumption: 240.24 Watts ( 5.72 Amps @ 42V)
switch 2 module 5
  switch 2 module 5 connector rating: 1260.00 Watts (30.00 Amps @ 42V)
  switch 2 module 5 power consumption: 325.50 Watts ( 7.75 Amps @ 42V)

chassis per slot cooling capacity: 70 cfm
ambient temperature: < 55C
  switch 1 module 1 cooling requirement: 70 cfm
```

```
  switch 1 module 2 cooling requirement: 30 cfm
  switch 1 module 3 cooling requirement: 84 cfm
  switch 1 module 4 cooling requirement: 70 cfm
  switch 1 module 5 cooling requirement: 35 cfm
  switch 2 module 1 cooling requirement: 70 cfm
  switch 2 module 2 cooling requirement: 84 cfm
  switch 2 module 3 cooling requirement: 30 cfm
  switch 2 module 4 cooling requirement: 70 cfm
  switch 2 module 5 cooling requirement: 35 cfm
```

The following example shows how to display all the information about the status of the environmental alarm:

```
Router> show environment alarm threshold
environmental alarm thresholds:

power-supply 1 fan-fail: OK
  threshold #1 for power-supply 1 fan-fail:
    (sensor value != 0) is system minor alarm
power-supply 1 power-output-fail: OK
  threshold #1 for power-supply 1 power-output-fail:
    (sensor value != 0) is system minor alarm
fantray fan operation sensor: OK
  threshold #1 for fantray fan operation sensor:
    (sensor value != 0) is system minor alarm
operating clock count: 2
  threshold #1 for operating clock count:
    (sensor value < 2) is system minor alarm
  threshold #2 for operating clock count:
    (sensor value < 1) is system major alarm
operating VTT count: 3
  threshold #1 for operating VTT count:
    (sensor value < 3) is system minor alarm
  threshold #2 for operating VTT count:
    (sensor value < 2) is system major alarm
VTT 1 OK: OK
  threshold #1 for VTT 1 OK:
    (sensor value != 0) is system minor alarm
VTT 2 OK: OK
  threshold #1 for VTT 2 OK:
    (sensor value != 0) is system minor alarm
VTT 3 OK: OK
  threshold #1 for VTT 3 OK:
    (sensor value != 0) is system minor alarm
clock 1 OK: OK
  threshold #1 for clock 1 OK:
    (sensor value != 0) is system minor alarm
clock 2 OK: OK
  threshold #1 for clock 2 OK:
    (sensor value != 0) is system minor alarm
module 1 power-output-fail: OK
  threshold #1 for module 1 power-output-fail:
    (sensor value != 0) is system major alarm
module 1 outlet temperature: 21C
  threshold #1 for module 1 outlet temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 1 outlet temperature:
    (sensor value > 70) is system major alarm
module 1 inlet temperature: 25C
  threshold #1 for module 1 inlet temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 1 inlet temperature:
    (sensor value > 70) is system major alarm
module 1 device-1 temperature: 30C
```

```
  threshold #1 for module 1 device-1 temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 1 device-1 temperature:
    (sensor value > 70) is system major alarm
module 1 device-2 temperature: 29C
  threshold #1 for module 1 device-2 temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 1 device-2 temperature:
    (sensor value > 70) is system major alarm
module 5 power-output-fail: OK
  threshold #1 for module 5 power-output-fail:
    (sensor value != 0) is system major alarm
module 5 outlet temperature: 26C
  threshold #1 for module 5 outlet temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 5 outlet temperature:
    (sensor value > 75) is system major alarm
module 5 inlet temperature: 23C
  threshold #1 for module 5 inlet temperature:
    (sensor value > 50) is system minor alarm
  threshold #2 for module 5 inlet temperature:
    (sensor value > 65) is system major alarm
EARL 1 outlet temperature: N/O
  threshold #1 for EARL 1 outlet temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for EARL 1 outlet temperature:
    (sensor value > 75) is system major alarm
EARL 1 inlet temperature: N/O
  threshold #1 for EARL 1 inlet temperature:
    (sensor value > 50) is system minor alarm
  threshold #2 for EARL 1 inlet temperature:
    (sensor value > 65) is system major alarm
Router>
```

The following example shows how to display the information about the connector parameters:

```
Router# show environment switch 1 connector
 chassis id 1 switch_id 1

  chassis connector rating: 1260.00 Watts (30.00 Amps @ 42V)

switch 1 module 1
  switch 1 module 1 connector rating: 2016.00 Watts (48.00 Amps @ 42V)
  switch 1 module 1 power consumption: 402.36 Watts ( 9.58 Amps @ 42V)
switch 1 module 2
  switch 1 module 2 connector rating: 1260.00 Watts (30.00 Amps @ 42V)
  switch 1 module 2 power consumption: 152.04 Watts ( 3.62 Amps @ 42V)
switch 1 module 3
  switch 1 module 3 connector rating: 2016.00 Watts (48.00 Amps @ 42V)
  switch 1 module 3 power consumption: 444.36 Watts (10.58 Amps @ 42V)
switch 1 module 4
  switch 1 module 4 connector rating: 2016.00 Watts (48.00 Amps @ 42V)
  switch 1 module 4 power consumption: 240.24 Watts ( 5.72 Amps @ 42V)
switch 1 module 5
  switch 1 module 5 connector rating: 1260.00 Watts (30.00 Amps @ 42V)
  switch 1 module 5 power consumption: 325.50 Watts ( 7.75 Amps @ 42V)
Router#
```

The following example shows how to display the information about the cooling parameter:

```
Router# show environment switch 1 cooling
 chassis id 1 switch_id 1

switch 1 fan-tray 1:
  switch 1 fan-tray 1 type: WS-C6K-6SLOT-FAN
  switch 1 fan-tray 1 version: 1
  switch 1 fan-tray 1 fan-fail: OK
chassis per slot cooling capacity: 70 cfm
  switch 1 module 1 cooling requirement: 70 cfm
  switch 1 module 2 cooling requirement: 30 cfm
  switch 1 module 3 cooling requirement: 84 cfm
  switch 1 module 4 cooling requirement: 70 cfm
  switch 1 module 5 cooling requirement: 35 cfm
Router#
```

The following example shows how to **display the status of all FRU types:**

```
Router# show environment switch 1 status
backplane:
  operating clock count: 2
  operating VTT count: 3
switch 1 fan-tray 1:
  switch 1 fan-tray 1 type: WS-C6K-6SLOT-FAN
  switch 1 fan-tray 1 version: 1
  switch 1 fan-tray 1 fan-fail: OK
switch 1 VTT 1:
  switch 1 VTT 1 OK: OK
  switch 1 VTT 1 outlet temperature: 33C
switch 1 VTT 2:
  switch 1 VTT 2 OK: OK
  switch 1 VTT 2 outlet temperature: 33C
switch 1 VTT 3:
  switch 1 VTT 3 OK: OK
  switch 1 VTT 3 outlet temperature: 32C
switch 1 clock 1:
  switch 1 clock 1 OK: OK, switch 1 clock 1 clock-inuse: in-use
switch 1 clock 2:
  switch 1 clock 2 OK: OK, switch 1 clock 2 clock-inuse: not-in-use
switch 1 power-supply 1:
  switch 1 power-supply 1 fan-fail: OK
  switch 1 power-supply 1 power-input: AC low
  switch 1 power-supply 1 power-output-mo: low
  switch 1 power-supply 1 power-output-fa: OK
switch 1 power-supply 2:
  switch 1 power-supply 2 power-output-fa: failed
switch 1 module 3:
  switch 1 module 3 power-output-fail: OK
  switch 1 module 3 outlet temperature: 43C
  switch 1 module 3 inlet temperature: 32C
  switch 1 module 3 aux-1 temperature: 43C
  switch 1 module 3 aux-2 temperature: 32C
  switch 1 module 3 asic-1 temperature: 66C
  switch 1 module 3 asic-2 temperature: 60C
  switch 1 module 3 EARL outlet temperatu: 38C
  switch 1 module 3 EARL inlet temperatur: 33C
switch 1 module 4:
  switch 1 module 4 power-output-fail: OK
  switch 1 module 4 outlet temperature: 38C
  switch 1 module 4 inlet temperature: 27C
switch 1 module 5:
  switch 1 module 5 power-output-fail: OK
  switch 1 module 5 outlet temperature: 31C
```

```
  switch 1 module 5 inlet temperature: 25C
  switch 1 module 5 device-1 temperature: 37C
  switch 1 module 5 device-2 temperature: 37C
  switch 1 module 5 asic-1 temperature: 25C
  switch 1 module 5 asic-2 temperature: 26C
  switch 1 module 5 asic-3 temperature: 25C
  switch 1 module 5 asic-4 temperature: 26C
  switch 1 module 5 asic-5 temperature: 26C
  switch 1 module 5 asic-6 temperature: 26C
  switch 1 module 5 RP outlet temperature: 27C
  switch 1 module 5 RP inlet temperature: 27C
  switch 1 module 5 EARL outlet temperatu: 34C
  switch 1 module 5 EARL inlet temperatur: 29C
Router#
```

The following example shows how to display the recorded temperature information:

```
Router# show environment switch 1 temperature
 chassis id 1 switch_id 1

  switch 1 VTT 1 outlet temperature: 33C
  switch 1 VTT 2 outlet temperature: 33C
  switch 1 VTT 3 outlet temperature: 32C
  switch 1 module 3 outlet temperature: 43C
  switch 1 module 3 inlet temperature: 32C
  switch 1 module 3 aux-1 temperature: 43C
  switch 1 module 3 aux-2 temperature: 33C
  switch 1 module 3 asic-1 temperature: 66C
  switch 1 module 3 asic-2 temperature: 60C
  switch 1 module 3 EARL outlet temperatu: 38C
  switch 1 module 3 EARL inlet temperatur: 34C
  switch 1 module 4 outlet temperature: 38C
  switch 1 module 4 inlet temperature: 28C
  switch 1 module 5 outlet temperature: 31C
  switch 1 module 5 inlet temperature: 25C
  switch 1 module 5 device-1 temperature: 37C
  switch 1 module 5 device-2 temperature: 37C
  switch 1 module 5 asic-1 temperature: 25C
  switch 1 module 5 asic-2 temperature: 26C
  switch 1 module 5 asic-3 temperature: 25C
  switch 1 module 5 asic-4 temperature: 26C
  switch 1 module 5 asic-5 temperature: 26C
  switch 1 module 5 asic-6 temperature: 26C
  switch 1 module 5 RP outlet temperature: 27C
  switch 1 module 5 RP inlet temperature: 27C
  switch 1 module 5 EARL outlet temperatu: 34C
  switch 1 module 5 EARL inlet temperatur: 29C
Router#
```

Table 2 describes the fields that are shown in the **show environment status** command example.

Table 2 show environment status Command Output Fields

Field	Description
operating clock count	Physical clock count.
operating VTT count	Physical VTT count.
fan tray fan operation sensor	System fan tray failure status. The failure of the system fan tray is indicated as a minor alarm.

Table 2 show environment status Command Output Fields (continued)

Field	Description
VTT 1, VTT2, and VTT3	Status of the chassis backplane power monitors that are located on the rear of the chassis under the rear cover. Operation of at least two VTTs is required for the system to function properly. A minor system alarm is signaled when one of the three VTTs fails. A major alarm is signaled when two or more VTTs fail and the supervisor engine is accessible through the console port.
clock # clock-inuse	Clock status. Failure of either clock is considered to be a minor alarm.
power-supply # fan-fail	Fan failure. Fan failures on either or both (if any) power supplies are considered minor alarms.
power-input-fail	Power input failure status (none, AC high, AC low).
power-output-fail	Power output failure status (high, low).
outlet temperature	Exhaust temperature value.
inlet temperature	Intake temperature value.
device-1 and device-2 temperature	Two devices that measure the internal temperature on each indicated module. The temperature shown indicates the temperature that the device is recording. The devices are not placed at an inlet or an exit but are additional reference points.

show fabric (virtual switch)

To display the information about the crossbar fabric, use the **show fabric** command in EXEC mode.

show fabric switch *num* [**active** | {**channel-counters** | **errors** | **status** [*slot* | **all**]} | {**switching-mode** [**module** {*slot* | **all**}]} | {**utilization** [*slot* | **all**]}]

Syntax Description

switch *num*	Specifies the switch to access; valid values are 1 and 2.
active	(Optional) Displays the redundancy status for the Switch Fabric Module.
channel-counters	(Optional) Displays the fabric channel-counter information.
errors	(Optional) Displays the errors that are associated with the crossbar fabric; see the "Usage Guidelines" section for additional information.
status	(Optional) Displays the current status of the fabric channel.
slot	(Optional) Number of the slot.
all	(Optional) Displays the information for all modules using the crossbar fabric.
switching-mode	(Optional) Displays the module switching mode; see the "Usage Guidelines" section for additional information.
module *slot*	(Optional) Displays the switching mode for the specified slot.
module all	(Optional) Displays the switching mode for all installed modules.
utilization	(Optional) Displays the percentage utilization for each fabric channel.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you specify *slot*, the information is displayed for the specified slot. If you specify **all**, the information for all slots using the crossbar fabric is displayed. If you do not specify *slot* or **all**, the display is the same as if you entered **all**.

To display all the related crossbar fabric information, enter the **show fabric** command without keywords.

A fabric channel is each connection between a module and the crossbar fabric module. Each module can have zero, one, or two fabric channels. The more fabric channels that a module has, the more overall bandwidth is available to the module.

The following errors are associated with the crossbar fabrics:

- Synchronization errors—General errors are the most common types of errors.
- Heartbeat errors—The supervisor engine sends out periodic heartbeat packets to each module using the crossbar fabric. If any of these modules or the crossbar fabric fail to detect heartbeat packets for a period of time, this error is reported.
- CRC errors—All packets crossing the crossbar fabric are CRC protected. If any of the ASICs between a module and the crossbar fabric module detect a CRC error, this error is reported.

The three types of fabric switching modes are as follows:

- Bus—Packets that travel across the traditional backplane and that are shared by all modules to be switched by the supervisor engine. Modules without the crossbar fabric connectors are restricted to this mode. The 48-port 10/100TX RJ-45 module is an example of this module type.
- Crossbar—Packets with headers only that travel across the traditional backplane to be switched by the supervisor engine and that travel across the crossbar fabric. The 16-port Gigabit Ethernet GBIC switching module is an example of this module type.
- dCEF—Packets that are switched by the module and that travel across the crossbar fabric. The 16-port Gigabit Ethernet GBIC switching module and the 16-port Gigabit Ethernet module are examples of this module type. The 16-port Gigabit Ethernet GBIC switching module can be in any of these three modes, but the 16-port Gigabit Ethernet module can only be in dCEF mode.

The threshold information is shown only when you enter the **no fabric switching-mode allow truncated** command.

In the **show fabric switching-mode** command output, the possible global switching modes are as follows:

- Flow-through (Bus)—Mode that the switch uses for traffic between nonfabric-enabled modules and for traffic between a nonfabric-enabled module and a fabric-enabled module. In this mode, all traffic passes between the local bus and the supervisor engine bus.
- Truncated—Mode that the switch uses for traffic between fabric-enabled modules when both fabric-enabled and nonfabric-enabled modules are installed. In this mode, the switch sends a truncated version of the traffic (the first 64 bytes of the frame) over the switch fabric channel.
- Compact—Mode that the switch uses for all traffic when only fabric-enabled modules are installed. In this mode, a compact version of the DBus header is forwarded over the switch fabric channel, which provides the best possible performance.

Examples

The following example shows how to display the redundancy status of the Switch Fabric Module:

```
Router# show fabric switch 1 active
Active fabric card in slot 5
No backup fabric card in the system
Router#
```

The following example shows how to display the channel-counter information:

```
Router# show fabric switch 1 channel-counters
 slot channel   rxErrors   txErrors    txDrops  lbusDrops
    1       0          0          0          0          0
    1       1          0          0          0          0
    4       0          0          0          0          0
    4       1          0          0          0          0
    5       0          1          0          0          0
Router#
```

The following example shows how to display the errors that are associated with the crossbar fabric:

```
Router# show fabric switch 1 errors
Module errors:
slot     channel        crc      hbeat       sync      DDR sync
   1           0          0          0          0             0
   8           0          0          0          0             0
   8           0          0          0          0             0
   9           0          0          0          0             0

Fabric errors:
slot     channel       sync     buffer    timeout
   1           0          0          0          0
   8           0          0          0          0
   8           0          0          0          0
   9           0          0          0          0
Router#
```

The following example shows how to display the module switching mode:

```
Router# show fabric switch 1 switching-mode
Global switching mode is Compact
dCEF mode is not enforced for system to operate
Fabric module is not  required for system to operate
Modules are allowed to operate in bus mode
Truncated mode is allowed, due to presence of DFC, aCEF720 module

Module Slot     Switching Mode
    19                  dCEF
    20              Crossbar
    21                  dCEF
Router#
```

The following example shows how to display the fabric-channel status:

```
Router# show fabric switch 1 status
 slot  channel speed module   fabric   hotStandby  Standby  Standby
                    status   status      support  module   fabric
    3        0   20G     OK       OK   Y(not-hot)
    3        1   20G     OK       OK   Y(not-hot)
    4        0   20G     OK       OK   Y(not-hot)
    4        1   20G     OK       OK   Y(not-hot)
    5        0   20G     OK       OK   Y(not-hot)
Router#
```

The following example shows how to display the percentage utilizations for all fabric-enabled channels:

```
Router# show fabric switch 1 utilization all
 slot    channel      speed    Ingress %     Egress %
    3          0        20G            0            0
    3          1        20G            0            0
    4          0        20G            0            0
    4          1        20G            0            0
    5          0        20G            0            0
Router#
```

show idprom (virtual switch)

To display the IDPROMs for FRUs, use the **show idprom** command in EXEC mode.

show idprom switch *num* {**all** | *frutype* | **module** {*slot* | *slot*/*subslot* | *slot*/*bay-num*} [**clei** | **detail**]

Syntax Description

switch *num*	Specifies the switch to access; valid values are 1 and 2.
all	Displays the information for all FRU types.
frutype	Type of FRU to display information; see the "Usage Guidelines" section for valid values.
module	Displays the IDPROMs in the module.
slot	Slot number.
subslot	Subslot number.
bay-num	Bay number.
clei	(Optional) Displays the Common Language Equipment Identifiers (CLEI) in the IDPROM data.
detail	(Optional) Displays the details of the IDPROM data (verbose).

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Valid *frutypes* are as follows:

Valid values for the *frutype* are as follows:

- **all**—No arguments. Specifies all FRU types.
- **backplane**—No arguments. Specifies the backplane.
- **clock** *number*—Specifies the clock number; the valid values are 1 and 2.
- **earl** *slot*—See the "Usage Guidelines" section for valid values.
- **fan-tray** [*num*]—Specifies the fan tray, and optionally, you can specify the fan-tray number; the valid value is 1-1.
- **module** *slot*—See the "Usage Guidelines" section for valid values.
- **power-supply** *num*—Specifies the power supply; the valid values are 1 and 2.
- **rp** *slot*—See the "Usage Guidelines" section for valid values.

- **supervisor** *slot*—See the "Usage Guidelines" section for valid values.
- **vdb** *slot*—See the "Usage Guidelines" section for valid values.
- **vtt** *number*—1 to 3.

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

Use the **show idprom backplane** command to display the chassis serial number.

Examples

The following example shows how to display IDPROM information for clock 1:

```
Router> show idprom switch 1 clock 1
IDPROM for clock, chassis 1, #1
  (FRU is 'Clock FRU')
  OEM String = 'Cisco Systems'
  Product Number = 'WS-C6000-CL'
  Serial Number = 'SMT03073115'
  Manufacturing Assembly Number = '73-3047-04'
  Manufacturing Assembly Revision = 'A1'
  Hardware Revision = 2.0
  Current supplied (+) or consumed (-) = 0.000A
Router>
```

The following example shows how to display IDPROM information for power supply 1:

```
Router> show idprom switch 1 power-supply 2
IDPROM for power-supply, chassis 1, #2
  (FRU is '110/220v AC power supply, 2500 watt')
  OEM String = 'Cisco Systems,Inc.'
  Product Number = 'WS-CAC-2500W'
  Serial Number = 'ART0902E08E'
  Manufacturing Assembly Number = '34-1535-04'
  Manufacturing Assembly Revision = 'A0'
  Hardware Revision = 1.2
  Current supplied (+) or consumed (-) = 27.46A
Router>
```

The following example shows how to display detailed IDPROM information for power supply 1:

```
Router# show idprom switch 1 power-supply 2 detail
IDPROM for power-supply, chassis 1, #2
IDPROM image:

  (FRU is '110/220v AC power supply, 2500 watt')

IDPROM image block #0:

  block-signature = 0xABAB, block-version = 1,
  block-length = 144, block-checksum = 4634

  *** common-block ***
  IDPROM capacity (bytes) = 256  IDPROM block-count = 2
  FRU type = (0xAB01,0x18)
  OEM String = 'Cisco Systems,Inc.'
  Product Number = 'WS-CAC-2500W'
  Serial Number = 'ART0902E08E'
  Manufacturing Assembly Number = '34-1535-04'
  Manufacturing Assembly Revision = 'A0'
  Manufacturing Assembly Deviation = ''
```

```
  Hardware Revision = 1.2
  Manufacturing bits = 0x0  Engineering bits = 0x0
  SNMP OID = 9.12.3.1.6.24
  Power Consumption = 2746 centiamperes    RMA failure code = 0-0-0-0
  *** end of common block ***

IDPROM image block #1:

  block-signature = 0xAB01, block-version = 1,
  block-length = 20, block-checksum = 614

  *** power supply block ***
  feature_bits =   00000000 00000000
  rated current at 110v:  2746    rated current at 220v:  5550   (centiamperes)
  CISCO-STACK-MIB SNMP OID = 30
  *** end of power supply block ***

End of IDPROM image
Router#
```

The following example shows how to display IDPROM information for the backplane:

```
Router# show idprom switch 1 backplane
IDPROM for backplane, chassis 1, #1
  (FRU is 'Catalyst 6500 6-slot backplane')
  OEM String = 'Cisco Systems'
  Product Number = 'WS-C6506'
  Serial Number = 'SAL08486GNS'
  Manufacturing Assembly Number = '73-3436-03'
  Manufacturing Assembly Revision = 'B0'
  Hardware Revision = 3.0
  Current supplied (+) or consumed (-) =  -
Router#
```

The following example shows how to display the CLEI in the IDPROM of a specific module:

```
Router# show idprom switch 1 module 1 clei
SW#   FRU             PID                 VID SN          CLEI
----- --------------- ------------------- --- ----------- ----------
1     module #1       WS-X6704-10GE           SAD074303FC CNS9KK0AAB
Router#
```

show interfaces (virtual switch)

To display traffic that is seen by a specific interface, use the **show interfaces** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*]

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2.
/mod	Module number.
/port	Port number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Statistics are collected on a per-VLAN basis for Layer 2-switched packets and Layer 3-switched packets. Statistics are available for both unicast and multicast traffic. The Layer 3-switched packet counts are available for both ingress and egress directions. The per-VLAN statistics are updated every 5 seconds.

In some cases, you might see a difference in the duplex mode that is displayed between the **show interfaces (virtual switch)** command and the **show running-config switch (virtual switch)** command. In this case, the duplex mode that is displayed in the **show interfaces (virtual switch)** command is the actual duplex mode that the interface is running. The **show interfaces (virtual switch)** command shows the operating mode for an interface, while the **show running-config switch (virtual switch)** command shows the configured mode for an interface.

If you do not specify an interface, the information for all interfaces is displayed.

The output of the **show interfaces GigabitEthernet** command displays an extra 4 bytes for every packet that is sent or received. The extra 4 bytes are the Ethernet frame CRC in the input and output byte statistics.

Examples

The following example shows how to display traffic for a specific interface:

```
Router# show interfaces GigabitEthernet switch 1/3/3
GigabitEthernet1/3/3 is up, line protocol is up (connected)
  Hardware is C6k 1000Mb 802.3, address is 000f.2305.49c0 (bia 000f.2305.49c0)
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID  1., loopback not set
  Keepalive set (10 sec)
  Full-duplex, 1000Mb/s, media type is LH
  input flow-control is off, output flow-control is on
  Clock mode is auto
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:19, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
  L2 Switched: ucast: 360 pkt, 23040 bytes - mcast: 0 pkt, 0 bytes
  L3 in Switched: ucast: 0 pkt, 0 bytes - mcast: 0 pkt, 0 bytes mcast
  L3 out Switched: ucast: 0 pkt, 0 bytes mcast: 0 pkt, 0 bytes
     437 packets input, 48503 bytes, 0 no buffer
     Received 76 broadcasts (0 IP multicast)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 watchdog, 0 multicast, 0 pause input
     0 input packets with dribble condition detected
     86 packets output, 25910 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier, 0 PAUSE output
     0 output buffer failures, 0 output buffers swapped out
Router#
```

Related Commands

Command	Description
interface (virtual switch)	Selects an interface to configure and enters the interface configuration mode.

show interfaces accounting (virtual switch)

To display the number of packets of each protocol type that have been sent through all configured interfaces, use the **show interfaces accounting** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **accounting**

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2.
/mod	Module number.
/port	Port number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Note The Pkts Out and Chars Out fields display IPv6 packet counts only. The Pkts In and Chars In fields display both IPv4 and IPv6 packet counts, except for tunnel interfaces. For tunnel interfaces, the IPv6 input packets are counted as IPv6 packets only.

If you do not specify an interface, the information for all interfaces is displayed.

The port channels from 257 to 282 are internally allocated and are not supported.

If you do not enter any keywords, all counters for all modules are displayed.

Examples

The following example shows how to display the number of packets of each protocol type that have been sent through all configured interfaces:

```
Router# show interfaces gigabitethernet 1/5/2 accounting
GigabitEthernet1/5/2
Protocol Pkts In Chars In Pkts Out Chars Out
IP       50521   50521000 0        0
DEC MOP  0       0        1        129
CDP      0       0        1        592
IPv6     11      834      96       131658
Router#
```

Table 3 describes the fields that are shown in the example.

Table 3 show interfaces accounting Command Output Fields

Field	Description
Protocol	Protocol that is operating on the interface.
Pkts In	Number of IPv4 packets received for the specified protocol.
Chars In	Number of IPv4 characters received for the specified protocol.
Pkts Out	Number of hardware-switched IPv6 packets transmitted for the specified protocol.
Chars Out	Number of IPv6 characters transmitted for the specified protocol.

show interfaces capabilities (virtual switch)

To display the interface capabilities, use the **show interfaces capabilities** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **capabilities**

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2.
/mod	Module number.
/port	Port number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify an interface, the information for all interfaces is displayed.

Examples

The following example shows how to display the interface capabilities for a module:

```
Router# show interfaces gigabitethernet 1/2/5 capabilities
GigabitEthernet1/2/5
  Model:                 WS-X6516A-GBIC
  Type:                  unknown (4)
  Speed:                 1000
  Duplex:                full
  Trunk encap. type:     802.1Q,ISL
  Trunk mode:            on,off,desirable,nonegotiate
  Channel:               yes
  Broadcast suppression: percentage(0-100)
  Flowcontrol:           rx-(off,on,desired),tx-(off,on,desired)
  Membership:            static
  Fast Start:            yes
  QOS scheduling:        rx-(1p1q4t), tx-(1p2q2t)
  QOS queueing mode:     rx-(cos), tx-(cos)
  CoS rewrite:           yes
  ToS rewrite:           yes
  Inline power:          no
  Inline power policing: no
```

```
  SPAN:                 source/destination
  UDLD                  yes
  Link Debounce:        yes
  Link Debounce Time:   yes
  Ports on ASIC:        1-8
  Remote switch uplink: yes
  Dot1x:                yes
  Port-Security:        yes
Router#
```

show interfaces counters (virtual switch)

To display the traffic that the physical interface sees, use the **show interfaces counters** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **counters** [**errors | etherchannel | protocol status | storm-control**]

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.
errors	(Optional) Displays the interface-error counters.
etherchannel	(Optional) Displays information about the EtherChannel interface.
protocol status	(Optional) Displays information about the current status of the enabled protocols.
storm-control	(Optional) Displays the discard count and the level settings for each mode.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The **show interfaces counters** command displays the number of all of the packets arriving and includes the number of packets that may be dropped by the interface due to the storm-control settings. To display the total number of dropped packets, you can enter the **show interfaces counters storm-control** command.

The **show interfaces counters storm-control** command displays the discard count and the level settings for each mode. The discard count is a total of all three modes.

If you do not enter any keywords, all counters for all modules are displayed.

If you do not specify an interface, the information for all interfaces is displayed.

When you enter the **show interfaces** *interface* **counters etherchannel** command, follow these guidelines:

- If *interface* specifies a physical port, the command displays the message “Etherchnl not enabled on this interface.”
- If *interface* is omitted, the command displays the counters for all port channels (in the system) and for their associated physical ports.

- If *interface* specifies a port channel, the command displays the counters for the port channel and all of the physical ports that are associated with it. In addition, when you enter the command specifying the primary aggregator in a Link Aggregation Control Protocol (LACP) port channel with multiple aggregators, the output includes the statistics for all of the aggregators in the port channels and for the ports that are associated with them.

Examples

The following example shows how to display the error counters for a specific interface:

```
Router# show interfaces gigabitethernet 2/4/47 counters errors

Port            Align-Err    FCS-Err   Xmit-Err    Rcv-Err UnderSize OutDiscards
Gi2/4/47                0          0          0          0         0           0

Port          Single-Col Multi-Col  Late-Col Excess-Col Carri-Sen     Runts    s
Gi2/4/47               0         0         0          0         0         0    0

Port           SQETest-Err Deferred-Tx IntMacTx-Err IntMacRx-Err Symbol-Err
Gi2/4/47                 0           0            0            0          0
Router#
```

The following example shows how to display traffic that is seen by a specific interface:

```
Router# show interfaces gigabitethernet 1/2/5 counters

Port            InOctets   InUcastPkts   InMcastPkts   InBcastPkts
Gi1/2/5                0             0             0             0
Port           OutOctets  OutUcastPkts  OutMcastPkts  OutBcastPkts
Gi1/2/5                0             0             0             0
Router#
```

The following example shows how to display the counters for all port channels (in the system) and their associated physical ports:

```
Router# show interfaces counters etherchannel
Port                InOctets   InUcastPkts   InMcastPkts   InBcastPkts
Po1                        0             0             0             0
Po3                        0             0             0             0
Po10              16341138343      77612803      12212915      14110863
Gi1/4/1           15628478622      77612818       7525970      14110865
Gi1/4/2             712662881             0       4686951             5
Po20              33887345029      88483183      11506653      14101212
Gi2/4/1           33326378013      88491521       7177393      14101663
Gi2/4/2             562904837             0       4330030             6

Port                OutOctets  OutUcastPkts  OutMcastPkts  OutBcastPkts
Po1                        0             0             0             0
Po3                        0             0             0             0
Po10              33889238079      14101204      99999327             0
Gi1/4/1           33326354634      14101205      95669326             0
Gi1/4/2             562904707             7       4330029             0
Po20              16338422056      14353951      89573339             0
Gi2/4/1           15628501864      14232410      85017290             0
Gi2/4/2             712663011        121541       4565416             0
Router#
```

The following example shows how to display the protocols enabled for a specific interface:

```
Router# show interfaces gigabitethernet 1/2/5 counters protocol status
Protocols allocated:
 GigabitEthernet1/2/5: Other, IP
Router#
```

The following example shows how to display the discard count and the level settings for each mode for a specific interface:

```
Router# show interfaces gigabitethernet 1/2/5 counters storm-control

Port          UcastSupp %     McastSupp %     BcastSupp %   TotalSuppDiscards
Gi1/2/5             100.0           100.0           100.0                   0
Router#
```

Related Commands

Command	Description
clear counters	Clears the interface counters.

show interfaces debounce (virtual switch)

To display the status and configuration for the debounce timer, use the **show interfaces debounce** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **debounce**

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify an interface, the information for all interfaces is displayed.

Examples

The following example shows how to display the debounce configuration of an interface:

```
Router# show interfaces GigabitEthernet 1/2/5 debounce
Port          Debounce time   Value(ms)
Gi1/2/5       disable
Router#
```

Related Commands

Command	Description
link debounce	Enables the debounce timer on an interface.

show interfaces description (virtual switch)

To display a description and a status of an interface, use the **show interfaces description** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **description**

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify an interface, the information for all interfaces is displayed.

Examples

The following example shows how to display the information for all interfaces:

```
Router# show interfaces gigabitethernet 1/2/5 description
Interface                      Status         Protocol Description
Gi1/2/5                        admin down     down
Router#
```

Related Commands

Command	Description
description	Includes a specific description about the DSP interface.

show interfaces flowcontrol (virtual switch)

To display flow-control information, use the **show interfaces flowcontrol** command in EXEC mode.

show interfaces [*interface switch-num*/*mod*/*port*] **flowcontrol**

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/*mod*	Module number.
/*port*	Port number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify an interface, the information for all interfaces is displayed.

Examples

The following example shows how to display flow-control information for a specific interface:

```
Router# show interfaces gigabitethernet 1/2/5 flowcontrol

Port    Send    FlowControl Receive FlowControl RxPause TxPause
        admin     oper      admin     oper
------- --------  --------  --------  --------  -------  -------
Gi1/2/5 desired   off       off       off       0        0
Router#
```

Table 4 describes the fields that are shown in the example.

Table 4 show port flowcontrol Command Output Fields

Field	Description
Port	Interface type and module and port number.
Send admin	Flow-control operation for admin state. On indicates that the local port is allowed to send pause frames to remote ports, off indicates that the local port is prevented from sending pause frames to remote ports, and desired indicates predictable results whether a remote port is set to **receive on**, **receive off**, or **receive desired**.

Table 4 show port flowcontrol Command Output Fields (continued)

Field	Description
Send oper	Current flow-control operation. On indicates that the local port is allowed to send pause frames to remote ports, off indicates that the local port is prevented from sending pause frames to remote ports, and desired indicates predictable results whether a remote port is set to **receive on**, **receive off**, or **receive desired**.
Receive admin	Flow-control operation for admin state. On indicates that the local port is allowed to send pause frames to remote ports, off indicates that the local port is prevented from sending pause frames to remote ports, and desired indicates predictable results whether a remote port is set to **send on**, **send off**, or **send desired**.
Receive oper	Current flow-control operation. On indicates that the local port is allowed to send pause frames to remote ports, off indicates that the local port is prevented from sending pause frames to remote ports, and desired indicates predictable results whether a remote port is set to **send on**, **send off**, or **send desired**.
RxPause	Number of pause frames that are received.
TxPause	Number of pause frames that are transmitted.

Related Commands

Command	Description
flowcontrol	Configures a port to send or receive pause frames.

show interfaces private-vlan mapping (virtual switch)

To display the information about the private VLAN (PVLAN) mapping for VLAN switched virtual interfaces (SVIs), use the **show interfaces private-vlan mapping** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **private-vlan mapping**

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

This command displays SVI information only.

If you do not specify an interface, the information for all interfaces is displayed.

Examples

The following example shows how to display the information about the PVLAN mapping for a specific interface:

```
Router# show interfaces gigabitethernet 1/4/48 private-vlan mapping
Interface Secondary VLAN Type
--------- -------------- -----------------
gi1/4/48  301            community
Router#
```

Related Commands

Command	Description
private-vlan	Configures PVLANs and the association between a PVLAN and a secondary VLAN.
private-vlan mapping	Creates a mapping between the primary and the secondary VLANs so that both VLANs share the same primary VLAN SVI.

show interfaces status (virtual switch)

To display the interface status or a list of interfaces in an error-disabled state on local area network (LAN) ports only, use the **show interfaces status** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **status** [**err-disabled** | **inactive**]

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.
err-disabled	(Optional) Displays the LAN ports in an error-disabled state.
inactive	(Optional) Displays the interface inactive state.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify an interface, the information for all interfaces is displayed.

To find out if an interface is inactive, enter the **show interfaces status** command in EXEC mode. If the interface is inactive, the Status field displays “inactive.” If the port is not inactive, the Status field displays “none.”

To find the packet and byte count, you can enter the **show interfaces counters (virtual switch)** command or the **show interfaces** *interface interface-number* **status** command in EXEC mode. The **show interfaces counters (virtual switch)** command is the preferred command to use. In some cases, the packet and byte count of the **show interfaces** *interface interface-number* **status** command is the preferred command.

Examples

The following example shows how to display the status of all interfaces:

```
Router# show interfaces status

Port         Name               Status       Vlan       Duplex  Speed Type
Te1/3/1                         notconnect   routed       full    10G No Connecr
Te1/3/2                         notconnect   routed       full    10G No Connecr
Te1/3/3                         notconnect   routed       full    10G No Connecr
Te1/3/4                         notconnect   routed       full    10G No Connecr
Te1/3/5                         notconnect   routed       full    10G No Connecr
Te1/3/6                         notconnect   routed       full    10G No Connecr
Te1/3/7                         notconnect   routed       full    10G No Connecr
```

```
Te1/3/8                       notconnect   routed       full    10G No Connecr
Gi1/4/1                       connected    routed     a-full a-1000 10/100/10T
Gi1/4/2                       connected    routed     a-full a-1000 10/100/10T
Gi1/4/3                       disabled     routed       auto   auto 10/100/10T
.
.
.
Gi2/4/48                      disabled     routed       auto   auto 10/100/10T
Gi2/5/1                       disabled     routed       full   1000 No Transcr
Gi2/5/2                       connected    routed     a-full  a-100 10/100/10T
Router#
```

The following example shows how to display the packet and byte count of a specific LAN port:

```
Router# show interfaces gigabitethernet 2/5/2 status
Gi2/5/2
Switching path    Pkts In   Chars In   Pkts Out  Chars Out
               Processor         17       1220         20       2020
             Route cache          0          0          0          0
       Distributed cache         17       1220  206712817 2411846570
                   Total         34       2440  206712837 2411848590
Router#
```

The following example shows how to display the status of the interfaces that are in an error-disabled state:

```
Router# show interfaces status err-disabled

Port    Name               Status       Reason
Gi2/5/1                    notconnect   link-flap

informational error message when the timer expires on a cause
-----------------------------------------------------------------

5d04h:%PM-SP-4-ERR_RECOVER:Attempting to recover from link-flap err-disable state on
Gi2/5/1
Router#
```

Related Commands

Command	Description
errdisable detect cause	Enables the error-disable detection.
show errdisable recovery	Displays the information about the error-disable recovery timer.

show interfaces summary (virtual switch)

To display a summary of statistics for all interfaces that are configured on a networking device, use the **show interfaces summary** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **summary** [**vlan**]

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.
vlan	(Optional) Displays the total number of VLAN interfaces.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Separate counters for subinterfaces are not maintained and are not displayed in the **show interfaces summary** output.

If you do not specify an interface, the information for all interfaces is displayed.

Examples

The following example shows how to display a summary of statistics for all interfaces that are configured on a networking device:

```
Router# show interfaces summary
 *: interface is up
 IHQ: pkts in input hold queue     IQD: pkts dropped from input queue
 OHQ: pkts in output hold queue    OQD: pkts dropped from output queue
 RXBS: rx rate (bits/sec)          RXPS: rx rate (pkts/sec)
 TXBS: tx rate (bits/sec)          TXPS: tx rate (pkts/sec)
 TRTL: throttle count

  Interface               IHQ    IQD  OHQ    OQD  RXBS RXPS  TXBS TXPS TRTL
------------------------------------------------------------------------------
  Vlan1                    0      0    0      0     0    0     0    0     0
  TenGigabitEthernet1/1/1  0      0    0      0     0    0     0    0     0
  TenGigabitEthernet1/1/2  0      0    0      0     0    0     0    0     0
  GigabitEthernet1/2/1     0      0    0      0     0    0     0    0     0
.
.
.
Router#
```

The following example shows how to display the total number of VLAN interfaces:

```
Router# show interfaces summary vlan
Total number of Vlan interfaces: 7
Vlan interfaces configured:
1,5,20,2000,3000-3001,4000
Router#
```

show interfaces switchport (virtual switch)

To display the administrative and operational status of a switching (Layer 2) port, use the **show interfaces switchport** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **switchport** [**backup** | **brief**]

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.
backup	(Optional) Displays Flexlink pair information.
brief	(Optional) Displays a brief summary of information.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify an interface, the information for all interfaces is displayed.

Examples

The following example shows how to display the switchport configuration of a specific interface:

```
Router# show interfaces gigabitethernet 2/4/19 switchport
Name: Gi2/4/19
Switchport: Enabled
Administrative Mode: dynamic desirable
Operational Mode: down
Administrative Trunking Encapsulation: negotiate
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Administrative Native VLAN tagging: enabled
Operational Native VLAN tagging: disabled
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Operational private-vlan: none
Trunking VLANs Enabled: ALL
Pruning VLANs Enabled: 2-1001
```

```
Capture Mode Disabled
Capture VLANs Allowed: ALL

Unknown unicast blocked: disabled
Unknown multicast blocked: disabled

Router#
```

The following example shows how to display all Flexlink pairs:

```
Router# show interfaces switchport backup
Switch Backup Interface Pairs:
Active Interface        Backup Interface        State
------------------------------------------------------------------------
GigabitEthernet1/3/1    GigabitEthernet1/4/1    Active Up/Backup Standby
GigabitEthernet1/5/1    GigabitEthernet1/5/2    Active Down/Backup Up
GigabitEthernet1/3/2    GigabitEthernet1/5/4    Active Standby/Backup Up
Router#
```

The following example shows how to display a Flexlink pair for a specific interface:

```
Router# show interfaces gigabitethernet 1/4/1 switchport backup
Switch Backup Interface Pairs:
Active Interface        Backup Interface        State
------------------------------------------------------------------------
GigabitEthernet1/4/1    GigabitEthernet1/3/1    Active Up/Backup Standby
Router#
```

The following example shows how to display a brief summary of information:

```
Router# show interfaces switchport brief
 Port    Status     Op.Mode  Op.Encap Channel-id Vlan
 Gi2/4/1 disabled    none     native   --          1    (default )
Router#
```

show interfaces transceiver (virtual switch)

To display information about the optical transceivers that have digital optical monitoring (DOM) enabled, use the **show interfaces transceiver** command in privileged EXEC mode.

show interfaces [*interface switch-num/mod/port*] **transceiver** [**detail** | **supported-list** | {**switch** *switch-num/mod/port*} | **threshold table** | **threshold violations**]

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.
detail	(Optional) Displays detailed information about the interface transceiver.
supported-list	(Optional) Displays the supported transceivers
switch	(Optional) Specifies the interface.
threshold table	(Optional) Displays information about the interface transceiver alarm and warning threshold table.
threshold violations	(Optional) Displays the interface transceiver threshold information.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify an interface, the information for all interfaces is displayed. The **switch** *switch-num/mod/port* keyword and arguments do not appear if you specify an interface.

After a transceiver is inserted, the software waits approximately 10 seconds before reading the diagnostic monitoring information. If you enter the **show interfaces transceiver** command before the software has read the diagnostic monitoring information, the following message is displayed:

```
Waiting for diagnostic monitoring information to settle down.
Please try again after a few seconds.
```

Wait a few seconds and reenter the **show interfaces transceiver** command.

Examples

The following example shows how to list all supported transceivers:

```
Router# show interface transceiver supported-list
Transceiver Type           Cisco p/n min version
                               supporting DOM
------------------       -------------------------

   DWDM GBIC                ALL
   DWDM SFP                 ALL
   RX only WDM GBIC         ALL
   DWDM XENPAK              ALL
   DWDM X2                  ALL
   DWDM XFP                 ALL
   CWDM GBIC                NONE
   CWDM X2                  ALL
   CWDM XFP                 ALL
   XENPAK ZR                ALL
   X2 ZR                    ALL
   XFP ZR                   ALL
   Rx_only_WDM_XENPAK       ALL
   XENPAK_ER                10-1888-03
   X2_ER                    ALL
   XFP_ER                   ALL
   XENPAK_LR                10-1838-04
   X2_LR                    ALL
   XFP_LR                   ALL
   XENPAK_LW                ALL
   X2_LW                    ALL
   XFP_LW                   NONE
   XENPAK SR                NONE
   X2 SR                    ALL
   XFP SR                   ALL
   XENPAK LX4               NONE
   X2 LX4                   NONE
   XFP LX4                  NONE
   XENPAK CX4               NONE
   X2 CX4                   NONE
   SX GBIC                  NONE
   LX GBIC                  NONE
   ZX GBIC                  NONE
   CWDM_SFP                 ALL
   Rx_only_WDM_SFP          NONE
   SX_SFP                   ALL
   LX_SFP                   ALL
   ZX_SFP                   ALL
   SX SFP                   NONE
   LX SFP                   NONE
   ZX SFP                   NONE
   GIgE BX U SFP            NONE
   GigE BX D SFP            ALL
Router#
```

The following example shows how to display the threshold violations for all the transceivers:

```
Router# show interfaces transceiver threshold violations
        Rx: Receive, Tx: Transmit.
        DDDD: days, HH: hours, MM: minutes, SS: seconds

                                Time since Last Known
                Time in slot    Threshold Violation     Type(s) of Last Known
        Port    (DDDD:HH:MM:SS)  (DDDD:HH:MM:SS)        Threshold Violation(s)
        ------- --------------- ----------------------  ----------------------
        Gi1/1/1    0000:00:03:41    Not applicable        Not applicable
        Gi1/2/1    0000:00:03:40    0000:00:00:30         Tx bias high warning
                                                          50.5 mA >  40.0 mA
                                    0000:00:00:30         Tx power low alarm
                                                          -17.0 dBm <  -0.5 dBm
        Gi1/2/2    0000:00:03:40    Not applicable        Not applicable
Router#
```

The following example shows how to display information about the interface transceiver alarm and warning threshold table:

```
Router# show interfaces transceiver threshold table
              Optical Tx     Optical Rx    Temp     Laser Bias    Voltage
                                                    current
             -------------  -------------  ------   ------------  ---------

 DWDM GBIC
Min1              -0.50        -28.50        0            N/A          4.50
Min2              -0.30        -28.29        5            N/A          4.75
Max2               3.29         -6.69        60           N/A          5.25
Max1               3.50          6.00        70           N/A          5.50
 DWDM SFP
Min1              -0.50        -28.50        0            N/A          3.00
Min2              -0.30        -28.29        5            N/A          3.09
Max2               4.30         -9.50        60           N/A          3.59
Max1               4.50          9.30        70           N/A          3.70
 RX only WDM GBIC
Min1               N/A         -28.50        0            N/A          4.50
Min2               N/A         -28.29        5            N/A          4.75
Max2               N/A          -6.69        60           N/A          5.25
Max1               N/A           6.00        70           N/A          5.50
 DWDM XENPAK
Min1              -1.50        -24.50        0            N/A          N/A
Min2              -1.29        -24.29        5            N/A          N/A
Max2               3.29         -6.69        60           N/A          N/A
Max1               3.50          4.00        70           N/A          N/A
.
.
.
 GigE BX D SFP
Min1               N/A           N/A         0            N/A          N/A
Min2               N/A           N/A         0            N/A          N/A
Max2               N/A           N/A         0            N/A          N/A
Max1               N/A           N/A         0            N/A          N/A
Router#
```

The following example shows how to display the threshold violations for all transceivers on a specific interface:

```
Router# show interfaces gigabitethernet 1/2/1 transceiver threshold violations
        lo: low, hi: high, warn: warning
        DDDD: days, HH: hours, MM: minutes, SS: seconds

                              Time since Last Known
                Time in slot  Threshold Violation     Type(s) of Last Known
        Port    (DDDD:HH:MM:SS)  (DDDD:HH:MM:SS)     Threshold Violation
        ------- --------------  ---------------------  ----------------------
        Gi1/2/1  0000:00:03:40    0000:00:00:30        Tx bias high warning
                                                        50.5 mA >  40.0 mA
                                  0000:00:00:30        Tx power low alarm
                                                       -17.0 dBm <  -0.5 dBm
Router#
```

The following example shows how to display violations for the transceiver on a specific interface:

```
Router# show interfaces gigabitethernet1/2/1 transceiver threshold violations
        Rx: Receive, Tx: Transmit.
        DDDD: days, HH: hours, MM: minutes, SS: seconds

                              Time since Last Known
                Time in slot  Threshold Violation     Type(s) of Last Known
        Port    (DDDD:HH:MM:SS)  (DDDD:HH:MM:SS)     Threshold Violation(s)
        ------- --------------  ---------------------  ----------------------
        Gi1/2/1  0000:00:03:40    0000:00:00:30        Tx bias high warning
                                                        50.5 mA >  40.0 mA
                                  0000:00:00:30        Tx power low alarm
                                                       -17.0 dBm <  -0.5 dBm
Router#
```

show interfaces unidirectional (virtual switch)

To display the operational state of an interface with a receive-only transceiver, use the **show interfaces unidirectional** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **unidirectiona**l

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify an interface, the information for all interfaces is displayed.

Examples

The following example shows how to display the operational state of an interface with a receive-only transceiver:

```
Router# show interfaces gigabitethernet 1/5/2 unidirectional
Unidirectional configuration mode: send only
Unidirectional operational mode: receive only
CDP neighbour unidirectional configuration mode: off
Router#
```

Related Commands

Command	Description
show interfaces status (virtual switch)	Displays the interface status or a list of interfaces in an error-disabled state on LAN ports only.
unidirectional	Configures the software-based unidirectional Ethernet (UDE).

show interfaces vlan mapping (virtual switch)

To display the status of a VLAN mapping on a port, use the **show interfaces vlan mapping** command in EXEC mode.

show interfaces [*interface switch-num/mod/port*] **vlan mapping**

Syntax Description

interface	(Optional) Interface type.
switch-num	Switch number; valid values are 1 and 2
/mod	Module number.
/port	Port number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify an interface, the information for all interfaces is displayed.

Examples

The following example shows how to list all of the VLAN mappings that are configured on a port and indicate whether such mappings are enabled or disabled on the port:

```
Router# show interfaces gigabitethernet 1/5/2 vlan mapping
State: enabled
Original VLAN Translated VLAN
------------- ---------------
  1649           755
Router#
```

Related Commands

Command	Description
show vlan mapping	Registers a mapping of an 802.1Q VLAN to an Inter-Switch Link (ISL) VLAN.
switchport vlan mapping enable	Enables VLAN mapping per switch port.

show ip cache flow (virtual switch)

To display a summary of the NetFlow cache-flow entries, use the **show ip cache flow** command in EXEC mode.

show ip cache flow [**aggregation** *type*] [**switch** *num* **module** *num*]

Syntax Description

aggregation *type*	(Optional) Displays the configuration of a particular aggregation cache; see the "Usage Guidelines" section for valid values.
switch *num*	(Optional) Specifies the switch number; valid values are 1 and 2.
module *num*	Specifies the module number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify switch number, the information for all interfaces is displayed.

Valid values for **aggregation** *type* are as follows:

- **as**—AS aggregation cache
- **as-tos**—AS TOS aggregation cache
- **bgp-nexthop-tos**—BGP next hop TOS aggregation cache
- **destination-prefix**—Destination Prefix aggregation cache
- **destination-prefix-tos**—Destination Prefix TOS aggregation cache
- **mp**—Monitor Prefixes aggregation cache
- **prefix**—Source/Destination Prefix aggregation cache
- **prefix-port**—Source/Destination Prefix port aggregation cache
- **prefix-tos**—Source/Destination Prefix TOS aggregation cache
- **protocol-port**—Protocol and port aggregation cache
- **protocol-port-tos**—Protocol, port, TOS aggregation cache
- **source-prefix**—Source Prefix aggregation cache
- **source-prefix-tos**—Source Prefix TOS aggregation cache

Examples

The following example shows how to display a summary of the NetFlow cache-flow entries:

```
Router# show ip cache flow
------------------------------------------------------------------------------

Displaying software-switched flow entries on the MSFC in Module 37:

IP packet size distribution (0 total packets):
   1-32   64   96  128  160  192  224  256  288  320  352  384  416  448  480
   .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000

    512  544  576 1024 1536 2048 2560 3072 3584 4096 4608
   .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000

IP Flow Switching Cache, 0 bytes
  0 active, 0 inactive, 0 added
  0 ager polls, 0 flow alloc failures
  Active flows timeout in 30 minutes
  Inactive flows timeout in 15 seconds
  last clearing of statistics never
Protocol         Total    Flows   Packets Bytes  Packets Active(Sec) Idle(Sec)
--------         Flows     /Sec     /Flow  /Pkt     /Sec     /Flow     /Flow

SrcIf         SrcIPaddress    DstIf         DstIPaddress    Pr SrcP DstP  Pkts

------------------------------------------------------------------------------

Displaying hardware-switched flow entries in the DFC in Module 19:

 SrcIf            SrcIPaddress     DstIf            DstIPaddress    Pr SrcP Dsts



Displaying hardware-switched flow entries in the DFC in Module 21:

 SrcIf            SrcIPaddress     DstIf            DstIPaddress    Pr SrcP Dsts

 --               0.0.0.0          ---              0.0.0.0         00 0000 000


Displaying hardware-switched flow entries in the DFC in Module 37:

 SrcIf            SrcIPaddress     DstIf            DstIPaddress    Pr SrcP Dsts

 --               0.0.0.0          ---              0.0.0.0         00 0000 000
Router#
```

Table 5 describes the fields in the flow-switching cache lines of the output.

Table 5 show ip cache flow Command Output Fields

Field	Description
IP packet size distribution	Two lines below this banner that show the percentage distribution of packets by size range. In this display, 55.4% of the packets fall in the size range of 33 to 64 bytes.
bytes	Number of bytes of memory that the NetFlow cache uses.
active	Number of active flows in the NetFlow cache at the time this command was entered.

Table 5 show ip cache flow Command Output Fields (continued)

Field	Description
inactive	Number of flow buffers that are allocated in the NetFlow cache but are not currently assigned to a specific flow at the time this command was entered.
added	Number of flows that were created since the start of the summary period.
ager polls	Number of times that the NetFlow code looked at the cache to expire entries (used by Cisco for diagnostics only).
flow alloc failures	Number of times that the NetFlow code tried to allocate a flow but could not.
Exporting flows to	IP address and UDP port number of the workstation to which flows are exported.
Exporting using source interface	Interface type that is used as the source IP address.
Version 5 flow records, peer-as	Exported packets that use version 5 format and the export statistics that include the peer AS for the source and destination. The number of records stored in the datagram is between 1 and 30 for version 5.
Active flows timeout in	Timeout period for active flows in the NetFlow cache.
flows exported in udp datagrams	Total number of flows that are exported and the total number of UDP datagrams that are used to export the flows to the workstation.
failed	Number of flows that could not be exported by the router because of output interface limitations.
last clearing of statistics	Standard time output (hh:mm:ss) since the **clear ip flow stats** command was executed. This time output changes to hours and days after the time exceeds 24 hours.

Table 6 describes the fields that are shown in the example.

Table 6 show ip cache flow Command Output Fields—NetFlow Activity by Protocol

Field	Description
Protocol	IP protocol and the well-known port number as described in RFC 1340.
Total Flows	Number of flows for this protocol since the last time that the statistics were cleared.
Flows/Sec	Average number of flows for this protocol seen per second; equal to total flows/number of seconds for this summary period.
Packets/Flow	Average number of packets observed for the flows seen for this protocol. Equal to total packets for this protocol/number of flows for this protocol for this summary period.
Bytes/Pkt	Average number of bytes observed for the packets seen for this protocol. Equal to total bytes for this protocol/total number of packets for this protocol for this summary period.
Packets/Sec	Average number of packets for this protocol per second. Equal to total packets for this protocol/total number of seconds for this summary period.

Table 6 show ip cache flow Command Output Fields—NetFlow Activity by Protocol (continued)

Field	Description
Active(Sec)/Flow	Sum of all the seconds from the first packet to the last packet of an expired flow (for example, TCP FIN, time-out, and so forth) in seconds/total flows for this protocol for this summary period.
Idle(Sec)/Flow	Sum of all the seconds from the last packet seen in each nonexpired flow for this protocol until the time this command was entered in seconds/total flows for this summary period.

Table 7 describes the fields that are shown in the example.

Table 7 show ip cache flow Command Output Fields—Current Flow

Field	Description
SrcIf	Internal port name for the source interface.
SrcIPaddress	Source-IP address for this flow.
DstIf	Router internal port name for the destination interface.
DstIPaddress	Destination-IP address for this flow.
Pr	IP protocol; for example, 6=TCP, 17=UDP, …. as defined in RFC 1340.
SrcP	Source port address, TCP/UDP “well known” port number, as defined in RFC 1340.
DstP	Destination-port address, TCP/UDP “well known” port number, as defined in RFC 1340.
Pkts	Number of packets observed for this flow.
B/Pkt	Average observed number of bytes per packet for this flow.
Active	Number of seconds between first and last packet of a flow.

Related Commands

Command	Description
ip flow-aggregation cache	Creates a flow-aggregation cache and enters the aggregation cache configuration mode.
ip-flow-cache entries	Changes the number of entries that are maintained in the NetFlow cache.
clear ip flow stats	Clears the NetFlow-switching statistics.

show ip cache verbose flow (virtual switch)

To display a detailed summary of NetFlow statistics, use the **show ip cache verbose flow** command in privileged EXEC mode.

show ip cache verbose flow [**aggregation** *type*] [**switch** *num* **module** *num*]

Syntax Description

aggregation *type*	(Optional) Displays the configuration of a particular aggregation cache; see the "Usage Guidelines" section for valid values.
switch *num*	(Optional) Specifies the switch number; valid values are 1 and 2.
module *num*	Specifies the module number.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify switch number, the information for all interfaces is displayed.

Valid values for **aggregation** *type* are as follows:

- **as**—AS aggregation cache
- **as-tos**—AS TOS aggregation cache
- **bgp-nexthop-tos**—BGP nexthop TOS aggregation cache
- **destination-prefix**—Destination Prefix aggregation cache
- **destination-prefix-tos**—Destination Prefix TOS aggregation cache
- **mp**—Monitor Prefixes aggregation cache
- **prefix**—Source/Destination Prefix aggregation cache
- **prefix-port**—Source/Destination Prefix port aggregation cache
- **prefix-tos**—Source/Destination Prefix TOS aggregation cache
- **protocol-port**—Protocol and port aggregation cache
- **protocol-port-tos**—Protocol, port, TOS aggregation cache
- **source-prefix**—Source Prefix aggregation cache
- **source-prefix-tos**—Source Prefix TOS aggregation cache

Use the **show ip cache verbose flow** command to display the flow record fields in the NetFlow cache in addition to the fields that are displayed with the **show ip cache flow** command. The values in the additional fields that are shown depend on the NetFlow features that are enabled and the flags that are set in the flow.

Note The flags and the fields displayed vary from flow to flow.

When you configure the MPLS-aware NetFlow feature, you can use the **show ip cache verbose flow** command to display both the IP and MPLS portions of the MPLS flows in the NetFlow cache on a router module. To display only the IP portion of the flow record in the NetFlow cache when MPLS-aware NetFlow is configured, use the **show ip cache flow** command.

Examples

The following example shows how to display a detailed summary of NetFlow statistics:

```
Router# show ip cache verbose flow
------------------------------------------------------------------------------

Displaying software-switched flow entries on the MSFC in Module 37:

IP packet size distribution (0 total packets):
   1-32   64   96  128  160  192  224  256  288  320  352  384  416  448  480
   .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000

    512  544  576 1024 1536 2048 2560 3072 3584 4096 4608
   .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000

IP Flow Switching Cache, 4456704 bytes
  0 active, 65536 inactive, 0 added
  0 ager polls, 0 flow alloc failures
  Active flows timeout in 30 minutes
  Inactive flows timeout in 15 seconds
IP Sub Flow Cache, 533192 bytes
  0 active, 16384 inactive, 0 added, 0 added to flow
  0 alloc failures, 0 force free
  1 chunk, 1 chunk added
  last clearing of statistics never
Protocol         Total    Flows   Packets Bytes  Packets Active(Sec) Idle(Sec)
--------         Flows     /Sec     /Flow  /Pkt     /Sec     /Flow     /Flow

SrcIf          SrcIPaddress    DstIf          DstIPaddress    Pr TOS Flgs  Pkts
Port Msk AS                    Port Msk AS    NextHop              B/Pk  Active

------------------------------------------------------------------------------

Router#
```

Table 8 describes the fields shown in the NetFlow cache lines of the display.

Table 8 show ip cache verbose flow Field Descriptions in the NetFlow Cache Display

Field	Description
bytes	Number of bytes of memory that are used by the NetFlow cache.
active	Number of active flows in the NetFlow cache at the time this command was entered.
inactive	Number of flow buffers that are allocated in the NetFlow cache but that are not assigned to a specific flow at the time this command is entered.
added	Number of flows that were created since the start of the summary period.

Table 8 show ip cache verbose flow Field Descriptions in the NetFlow Cache Display (continued)

Field	Description
ager polls	Number of times that the NetFlow code caused entries to expire (used by Cisco for diagnostics only).
flow alloc failures	Number of times that the NetFlow code tried to allocate a flow but could not.
last clearing of statistics	Standard time output (hh:mm:ss) since the **clear ip flow stats** privileged EXEC command was last executed. This time output changes to hours and days after the time exceeds 24 hours.

Table 9 describes the fields shown in the activity by the protocol lines of the display.

Table 9 show ip cache verbose flow Field Descriptions in Activity By Protocol Display

Field	Description
Protocol	IP protocol and the "well-known" port number. (Refer to http://www.iana.org, *Protocol Assignment Number Services*, for the latest RFC values.) **Note** Only a small subset of all protocols is displayed.
Total Flows	Number of flows for this protocol since the last time statistics were cleared.
Flows/Sec	Average number of flows for this protocol per second; equal to the total flows divided by the number of seconds for this summary period.
Packets/Flow	Average number of packets for the flows for this protocol; equal to the total packets for this protocol divided by the number of flows for this protocol for this summary period.
Bytes/Pkt	Average number of bytes for the packets for this protocol; equal to the total bytes for this protocol divided by the total number of packets for this protocol for this summary period.
Packets/Sec	Average number of packets for this protocol per second; equal to the total packets for this protocol divided by the total number of seconds for this summary period.
Active(Sec)/Flow	Number of seconds from the first packet to the last packet of an expired flow (for example, TCP connection close request [FIN], timeout, and so on) divided by the total flows for this protocol for this summary period.
Idle(Sec)/Flow	Number of seconds observed from the last packet in each nonexpired flow for this protocol until the time at which this command was entered divided by the total flows for this protocol for this summary period.

Table 10 describes the fields in the NetFlow record lines of the display.

Table 10 show ip cache verbose flow Field Descriptions in NetFlow Record Display

Field	Description
SrcIf	Interface on which the packet was received.
Port Msk AS	Source port number (displayed in hexadecimal format), IP address mask, and autonomous system number. This field is always set to 0 in MPLS flows.
SrcIPaddress	IP address of the device that transmitted the packet.
DstIf	Interface from where the packet was transmitted.
Port Msk AS	Destination port number (displayed in hexadecimal format), IP address mask, and autonomous system. This field is always set to 0 in MPLS flows.
DstIPaddress	IP address of the destination device.
NextHop	BGP next-hop address. This field is always set to 0 in the MPLS flows.
Pr	IP protocol "well-known" port number, displayed in hexadecimal format. (Refer to http://www.iana.org, *Protocol Assignment Number Services*, for the latest RFC values.)
TOS	Type of service, displayed in hexadecimal format.
B/Pk	Average number of bytes that are observed for the packets seen for this protocol.
Flgs	TCP flags, shown in hexadecimal format (result of bitwise OR of TCP flags from all packets in the flow).
Pkts	Number of packets in this flow.
Active	Time the flow has been active.
FO	Fragment offset.

Related Commands

Command	Description
ip flow-cache mpls label positions	Enables MPLS-aware NetFlow.
ip route-cache flow	Enables NetFlow switching for IP routing.
show ip cache flow	Displays a summary of the NetFlow cache-flow entries.

show mac-address-table (virtual switch)

To display the information about the Media Access Control (MAC)-address table, use the **show mac-address-table** command in privileged EXEC mode.

show mac-address-table [**switch** *num* [**module** *num*]]

show mac-address-table {**address** *mac-addr*} [**all** | {**interface** *interface*/*switch-num*//*slot/port*} | {**switch** *num* [**module** *num*]} | {**vlan** *vlan-id*}]

show mac-address-table aging-time [**vlan** *vlan-id*]

show mac-address-table aging-type routed mac

show mac-address-table count [{**switch** *num* **module** *num*} | {**vlan** *vlan-id*}]

show mac-address-table dynamic [{**address** *mac-addr*} | {**interface** *interface*/*switch-num*//*slot/port*} | {**switch** *num* [**module** *num*]} | {**vlan** *vlan-id*}]

show mac-address-table interface *interface*/*switch-num*//*slot/port* [**all** | {**interface** *interface*/*switch-num*//*slot/port*} | {**switch** *num* [**module** *num*]} | {**vlan** *vlan-id*}]

show mac-address-table limit [{**interface** *interface*/*switch-num*//*slot/port*} | {**switch** *num* [**module** *num*]} | {**vlan** *vlan-id*}]

show mac-address-table multicast [**count** | {{**igmp-snooping** | **mld-snooping**} [**count**]} | {**user** [**count**]} | {**vlan** *vlan-id*}]

show mac-address-table notification {**change** [**interface** *interface*/*switch-num*//*slot/port*] | **mac-move**}

show mac-address-table static [{**address** *mac-addr*} | {**interface** *interface*/*switch-num*//*slot/port*} | {**switch** *num* [**module** *num*]} | {**vlan** *vlan-id*}]

show mac-address-table synchronize statistics

show mac-address-table vlan *vlan-id* [**all** | {**switch** *num* [**module** *num*]}

Syntax Description

switch *num*	(Optional) Specifies the number of the switch; valid values are 1 and 2.
module *num*	(Optional) Displays information about the MAC-address table for a specific DFC module.
address *mac-addr*	Displays information about the MAC-address table for a specific MAC address; see the "Usage Guidelines" section for format guidelines.
all	(Optional) Displays every instance of the specified MAC address in the forwarding table.
interface *interface*	(Optional) Displays information about a specific interface type; possible valid values are **gigabitethernet** and **tengigabitethernet**.
/switch-num	Switch number; valid values are 1 and 2.
/slot	Module number.
/port	Port number.
vlan *vlan-id*	(Optional) Displays information for a specific VLAN only. Range: 1 to 4094.

aging-time	Displays information about the MAC-address aging time.
aging-type	Displays the routed-MAC aging status.
count	Displays the number of entries that are currently in the MAC-address table.
dynamic	Displays information about the dynamic MAC-address table entries only.
limit	Displays MAC-usage information.
multicast	Displays information about the multicast MAC-address table entries only.
igmp-snooping	Displays the addresses learned by Internet Group Management Protocol (IGMP0 snooping.
mld-snooping	Displays the addresses learned by multicast listener discovery version 2 (MLDv2) snooping.
user	Displays the manually entered (static) addresses.
notification change	Displays the MAC notification feature parameters and history table.
notification mac-move	Displays the MAC-move notification status.
static	Displays information about the static MAC-address table entries only.
synchronize statistics	Displays information about the statistics collected on the switch processor/DFC.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

If you do not specify a module number, the output of the **show mac-address-table** command displays information about the supervisor engine. To display information about the MAC-address table of the DFCs, you must enter the module number or the **all** keyword.

The **synchronize statistics** keywords are supported on the Supervisor Engine 720 and the Supervisor Engine 720-10GE only

The *mac-addr* is a 48-bit MAC address and the valid format is H.H.H.

The optional **module** *num* keyword and argument are supported only on Distributed Forwarding Card (DFC) modules. The **module** *num* keyword and argument designate the module number.

Valid values for *mac-group-address* are from 1 to 9.

The **count** keyword displays the number of multicast entries.

The **multicast** keyword displays the multicast MAC addresses (groups) in a VLAN or displays all statically installed or IGMP snooping-learned entries in the Layer 2 table.

The dynamic entries that are displayed in the Learn field are always set to Yes.

The **show mac-address-table limit** command output displays the following information:

- The current number of MAC addresses.
- The maximum number of MAC entries that are allowed.
- The percentage of usage.

The **show mac-address-table synchronize statistics** command output displays the following information:

- Number of messages processed at each time interval.
- Number of active entries sent for synchronization.
- Number of entries updated, created, ignored, or failed.

Examples

Note In a distributed EARL switch, the asterisk (*) indicates a MAC address that is learned on a port that is associated with this EARL.

The following example shows how to display MAC-address table information about the supervisor engine:

```
Router# show mac-address-table
Legend: * - primary entry
        age - seconds since last seen
        n/a - not available

  vlan   mac address     type    learn     age              ports
------+----------------+--------+-----+----------+--------------------------
*  ---  0000.0000.aaaa    static  No           -   Switch
*  ---  0012.44d8.2800    static  No           -   Router
*  ---  0012.44d8.2800    static  No           -   Router
*  ---  0012.44d8.2800    static  No           -   Router
Router#
```

The following example shows how to display MAC-address table information for a specific MAC address:

```
Router# show mac-address-table address 0012.44d8.2800
Legend: * - primary entry
        age - seconds since last seen
        n/a - not available

  vlan   mac address     type    learn     age              ports
------+----------------+--------+-----+----------+--------------------------
switch 1 Module 3:
*  ---  0012.44d8.2800    static  No          -   Router
*  ---  0012.44d8.2800    static  No          -   Router
*  ---  0012.44d8.2800    static  No          -   Router
Supervisor switch 1 Module 6
*  ---  0012.44d8.2800    static  No          -   Router
*  ---  0012.44d8.2800    static  No          -   Router
*  ---  0012.44d8.2800    static  No          -   Router
switch 2 Module 2:
*  ---  0012.44d8.2800    static  No          -   Router
*  ---  0012.44d8.2800    static  No          -   Router
*  ---  0012.44d8.2800    static  No          -   Router
Supervisor switch 2 Module 5
*  ---  0012.44d8.2800    static  No          -   Router
*  ---  0012.44d8.2800    static  No          -   Router
*  ---  0012.44d8.2800    static  No          -   Router
Router#
```

The following example shows how to display the currently configured aging time for all VLANs:

```
Router# show mac-address-table aging-time
Vlan    Aging Time
----    ----------
*100     300
200     1000

Router#
```

The following example shows how to display the routed-MAC aging status:

```
Router# show mac-address-table aging-type routed-mac
 Routed MAC aging : enabled
Router#
```

The following example shows how to display the entry count for a specific slot:

```
Router# show mac-address-table count switch 1 module 3
MAC Entries for switch 1 module 3 :
Dynamic Address Count:                0
Static Address (User-defined) Count:  4
Total MAC Addresses In Use:           4
Total MAC Addresses Available:        98304
Router#
```

The following example shows how to display the dynamic MAC-address entries on a specific VLAN:

```
Router# show mac-address-table dynamic vlan 1
Legend: * - primary entry
age - seconds since last seen
n/a - not applicable
vlan     mac address      type   learn    age              ports
------+----------------+--------+-----+----------+--------------------------
* 1    0009.12e9.adc0   static   No    -          Router
Router#
```

The following example shows how to display the information about the MAC-address table for a specific interface:

```
Router# show mac-address-table interface gigabitethernet 1/6/45
Legend: * - primary entry
        age - seconds since last seen
        n/a - not available

  vlan   mac address     type    learn     age              ports
------+----------------+--------+-----+----------+--------------------------
*   45  00e0.f74c.842d   dynamic  Yes          5   Gi1/6/45
Router#
```


Note A leading asterisk (*) indicates entries from a MAC address that was learned from a packet coming from an outside device to a specific module.

The following example shows how to display the MAC notification parameters and history table for a specific interface:

```
Router# show mac-address-table notification change interface gigabitethernet 1/5/3
MAC Notification Feature is Disabled on the switch
Interface                   MAC Added Trap MAC Removed Trap
--------------------        -------------- ----------------
GigabitEthernet1/5/3        Disabled       Disabled
Router#
```

The following example shows how to display the MAC-move notification status:

```
Router# show mac-address-table notification mac-move
MAC Move Notification: Enabled
Router#
```

The following example shows how to display all the static MAC-address entries:

```
Router# show mac-address-table static
Codes: * - primary entry

  vlan   mac address     type    learn qos            ports
------+----------------+--------+-----+---+--------------------------
*  ---  0001.6441.60ca    static  No    --  Router

Router#
```

The following example shows how to display the statistics for the synchronization feature:

```
Router# show mac-address-table synchronize statistics

MAC Entry Out-of-band Synchronization Feature Statistics:
---------------------------------------------------------

    Switch [1] Module [3]
    ---------------------

    Module Status:
Statistics collected from Switch/Module            :  1/3
Number of L2 asics in this module                  :  1

    Global Status:
Status of feature enabled on the switch            :  on
Default activity time                              :  160
Configured current activity time                   :  160
```

```
    Statistics from ASIC 0 when last activity timer expired:
Age value in seconds from age byte register         :  0x0
Current activity interval start time for seconds    :  0xE0
Current activity interval end time for seconds      :  0x0
Current inactive interval start time for seconds    :  0xC0
Current inactive interval end time for seconds      :  0xE0
Age value in minutes from age byte register         :  0xEA
Current activity interval start time for minutes    :  0xE7
Current activity interval end time for minutes      :  0xEA
Current inactive interval start time for minutes    :  0xE4
Current inactive interval end time for minutes      :  0xE7
Age value in hours from age byte register           :  0x10
Current activity interval start time for hours      :  0xF
Current activity interval end time for hours        :  0x10
Current inactive interval start time for hours      :  0xF
Current inactive interval end time for hours        :  0xF
Age value in days from age byte register            :  0x0
Current activity interval start time for days       :  0xFF
Current activity interval end time for days         :  0x0
Current inactive interval start time for days       :  0xFF
Current inactive interval end time for days         :  0xFF
Number of active entries read                       :  0
Number of entries ignored with update to age byte   :  0
Number of entries updated with age byte             :  0
Number of entries created new                       :  0


    Switch [1] Module [6]
    ---------------------

    Module Status:
Statistics collected from Switch/Module             :  1/6
Number of L2 asics in this module                   :  1

    Global Status:
Status of feature enabled on the switch             :  on
Default activity time                               :  160
Configured current activity time                    :  160

    Statistics from ASIC 0 when last activity timer expired:
Age value in seconds from age byte register         :  0x20
Current activity interval start time for seconds    :  0x0
Current activity interval end time for seconds      :  0x20
Current inactive interval start time for seconds    :  0xE0
Current inactive interval end time for seconds      :  0x0
Age value in minutes from age byte register         :  0xED
Current activity interval start time for minutes    :  0xEA
Current activity interval end time for minutes      :  0xED
Current inactive interval start time for minutes    :  0xE7
Current inactive interval end time for minutes      :  0xEA
Age value in hours from age byte register           :  0x10
Current activity interval start time for hours      :  0xF
Current activity interval end time for hours        :  0x10
Current inactive interval start time for hours      :  0xF
Current inactive interval end time for hours        :  0xF
Age value in days from age byte register            :  0x0
Current activity interval start time for days       :  0xFF
Current activity interval end time for days         :  0x0
Current inactive interval start time for days       :  0xFF
Current inactive interval end time for days         :  0xFF
Number of active entries read                       :  0
Number of entries ignored with update to age byte   :  0
Number of entries updated with age byte             :  0
Number of entries created new                       :  0
```

```
    Switch [2] Module [2]
    ----------------------

    Module Status:
Statistics collected from Switch/Module             :  2/2
Number of L2 asics in this module                   :  1

    Global Status:
Status of feature enabled on the switch             :  on
Default activity time                               :  160
Configured current activity time                    :  160

    Statistics from ASIC 0 when last activity timer expired:
Age value in seconds from age byte register         :  0x0
Current activity interval start time for seconds    :  0xE0
Current activity interval end time for seconds      :  0x0
Current inactive interval start time for seconds    :  0xC0
Current inactive interval end time for seconds      :  0xE0
Age value in minutes from age byte register         :  0x15
Current activity interval start time for minutes    :  0x12
Current activity interval end time for minutes      :  0x15
Current inactive interval start time for minutes    :  0xF
Current inactive interval end time for minutes      :  0x12
Age value in hours from age byte register           :  0x11
Current activity interval start time for hours      :  0x10
Current activity interval end time for hours        :  0x11
Current inactive interval start time for hours      :  0x10
Current inactive interval end time for hours        :  0x10
Age value in days from age byte register            :  0x0
Current activity interval start time for days       :  0xFF
Current activity interval end time for days         :  0x0
Current inactive interval start time for days       :  0xFF
Current inactive interval end time for days         :  0xFF
Number of active entries read                       :  0
Number of entries ignored with update to age byte   :  0
Number of entries updated with age byte             :  0
Number of entries created new                       :  0


    Switch [2] Module [5]
    ----------------------

    Module Status:
Statistics collected from Switch/Module             :  2/5
Number of L2 asics in this module                   :  1

    Global Status:
Status of feature enabled on the switch             :  on
Default activity time                               :  160
Configured current activity time                    :  160

    Statistics from ASIC 0 when last activity timer expired:
Age value in seconds from age byte register         :  0xE0
Current activity interval start time for seconds    :  0xC0
Current activity interval end time for seconds      :  0xE0
Current inactive interval start time for seconds    :  0xA0
Current inactive interval end time for seconds      :  0xC0
Age value in minutes from age byte register         :  0x12
Current activity interval start time for minutes    :  0xF
Current activity interval end time for minutes      :  0x12
Current inactive interval start time for minutes    :  0xC
Current inactive interval end time for minutes      :  0xF
```

```
Age value in hours from age byte register           :  0x11
Current activity interval start time for hours      :  0x10
Current activity interval end time for hours        :  0x11
Current inactive interval start time for hours      :  0x10
Current inactive interval end time for hours        :  0x10
Age value in days from age byte register            :  0x0
Current activity interval start time for days       :  0xFF
Current activity interval end time for days         :  0x0
Current inactive interval start time for days       :  0xFF
Current inactive interval end time for days         :  0xFF
Number of active entries read                       :  0
Number of entries ignored with update to age byte   :  0
Number of entries updated with age byte             :  0
Number of entries created new                       :  0
Router#
```

The following example shows how to display the information about the MAC-address table for a specific VLAN:

```
Router# show mac-address-table vlan 100
vlan   mac address     type    protocol  qos             ports
-----+---------------+--------+---------+---+--------------------------------
 100  0050.3e8d.6400  static   assigned  --  Router
100  0050.3e8d.6400   static        ipx  --  Router
 100  0050.3e8d.6400  static      other  --  Router
 100  0100.0cdd.dddd  static      other  --  Gi1/5/9,Router,Switch
 100  00d0.5870.a4ff  dynamic        ip  --  Gi1/5/9
 100  00e0.4fac.b400  dynamic        ip  --  Gi1/5/9
 100  0100.5e00.0001  static         ip  --  Gi1/5/9,Switch
 100  0050.3e8d.6400  static         ip  --  Router
Router#
```

The following example shows how to display the information about the MAC-address table for MLDv2 snooping:

```
Router# show mac-address-table multicast mld-snooping
vlan mac address type learn qos ports
-----+---------------+--------+-----+---+--------------------------------
--- 3333.0000.0001 static Yes - Switch,Stby-Switch
--- 3333.0000.000d static Yes - Gi1/2/1,Gi1/4/1,Router,Switch
--- 3333.0000.0016 static Yes - Switch,Stby-Switch
Router#
```

Related Commands

Command	Description
mac-address-table aging-time	Configures the aging time for entries in the Layer 2 table.
mac-address-table learning (virtual switch)	Configures the aging time for entries in the Layer 2 table.
mac-address-table limit	Enables MAC limiting.
mac-address-table notification mac-move	Enables MAC-move notification.
mac-address-table static	Adds static entries to the MAC-address table or configures a static MAC address with IGMP snooping disabled for that address.
mac-address-table synchronize	Synchronizes the Layer 2 MAC address table entries across the Policy Feature Card (PFC) and all the DFCs.

show mac-address-table learning (virtual switch)

To display the MAC-address learning state, use the **show mac-address-table learning** command in EXEC mode.

show mac-address-table learning [{**interface** *interface*/*switch-num*//*slot/port*} | {**switch** *num* [**module** *num*]} | {**vlan** *vlan-id*}]

Syntax Description

interface *interface*	(Optional) Displays information about a specific interface type.
/*switch-num*	Switch number; valid values are 1 and 2.
/*slot*	Module number.
/*port*	Port number.
switch *num*	(Optional) Specifies the number of the switch; valid values are 1 and 2.
module *num*	(Optional) Displays information for the specified module number.
vlan *vlan-id*	(Optional) Displays information for a specific VLAN only. Range: 1 to 4094.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The **module** *num* keyword and argument can be used to specify supervisor engines or DFCs only.

The **interface** *interface*/*switch-num*//*slot/port* keyword and arguments can be used on routed interfaces only. The **interface** *interface*/*switch-num*//*slot/port* keyword and arguments cannot be used to configure learning on switch-port interfaces.

If you specify the **vlan** *vlan-id*, the state of the MAC-address learning of the specified VLAN, including router interfaces, on all modules, is displayed.

If you specify the **vlan** *vlan-id* and the **module** *num*, the state of the MAC-address learning of a specified VLAN on a specified module is displayed.

If you specify the interface, the state of the MAC-address learning of the specified interface on all modules is displayed.

If you enter the **show mac-address-table learning** command with no arguments or keywords, the status of MAC learning on all the existing VLANs on all the supervisor engines or DFCs configured on a Catalyst 6500 series switch is displayed.

Examples

The following example shows how to display the MAC-address learning status on all the existing VLANs on all the supervisor engines or DFCs configured on a Catalyst 6500 series switch:

```
Router# show mac-address-table learning
Flag : Switch/Module
VLAN / Int     1/3   1/6
----------    ------------
1             yes   yes
10            yes   yes
13            yes   yes
14            yes   yes
19            yes   yes
.
.
.
1019           no    no
Te1/6/4        no    no
Te1/6/5        no    no
Gi1/1/1        no    no
Gi1/5/27       no    no
Gi1/5/47       no    no

Router#
```

Table 11 describes the fields that are shown in the example.

Table 11 show mac-address-table learning Field Descriptions

Field	Description
VLAN/Interface[1]	VLAN ID or interface type, module, and port number.
Mod#	Module number of a supervisor engine or DFC.
yes	MAC-address learning is enabled.
no	MAC-address learning is disabled.

1. The interfaces displayed are routed interfaces that have internal VLANs assigned to them.

The following example shows how to display the status of MAC-address learning on all the existing VLANs on a single supervisor engine or a DFC:

```
Router# show mac-address-table learning interface gigabitethernet 1/5/3

Flag : Switch/Module

Interface     1/3   1/6
---------    ------------
Gi1/5/3       no    no
Router#
```

The following example shows how to display the status of MAC-address learning for a specific VLAN on a specific switch:

```
Router# show mac-address-table learning vlan 100 switch 1

Flag : Switch/Module

VLAN     1/3   1/6
----    ------------
100     yes   yes
Router
```

The following example shows how to display the status of MAC-address learning for a specific VLAN on a specific supervisor engine or DFC:

```
Router# show mac-address-table learning vlan 100 module 7

VLAN    Mod7
----    -----
100     yes
Router
```

The following example shows how to display the status of MAC-address learning for a specific supervisor engine or DFC:

```
Router# show mac-address-table learning interface gigabitethernet 1/5/3
Flag : Switch/Module

Interface     1/3   1/6
---------    ------------
Gi1/5/3       no    no
Router
```

The following example shows how to display the status of MAC-address learning for a specific interface on a specific supervisor engine or DFC:

```
Router# show mac-address-table learning interface gigabitethernet 1/5/3 switch 1 module 3

Flag : Switch/Module

Interface     1/3
---------    ------
Gi1/5/3      no
Router
```

Related Commands

Command	Description
mac-address-table learning	Enables MAC-address learning.

show mls cef switch (virtual switch)

To display the Multilayer Switching (MLS)-hardware Layer 3-switching table entries, use the **show mls cef** command in EXEC mode.

show mls cef switch *num* [**module** *num*]

Syntax Description

num	Specifies the number of the switch; valid values are 1 and 2.
module *num*	(Optional) Displays information for the specified module number.

Command Default

The default display is the global CEF table.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The **...** indicates that there is additional information.

The MLS-hardware Layer 3 switching applies to IP traffic only.

Use the **show mls cef vrf** command to display the VRF CEF table entries.

You can enter this command on the supervisor engine or switch consoles. Enter the **remote login (virtual switch)** command to session into the supervisor engine to enter the commands.

Examples

The following example shows how to display the MLS-hardware Layer 3-switching table entries:

```
Router# show mls cef switch 1

Codes: decap - Decapsulation, + - Push Label
Index  Prefix              Adjacency
64     127.0.0.51/32       punt
65     127.0.0.0/32        punt
66     127.255.255.255/32  punt
67     1.1.1.100/32        punt
.
.
.
3201   1.1.1.0/24          punt
3202   2.2.2.0/24          punt
134400 200.0.0.0/8         punt
134432 0.0.0.0/0           drop
524256 0.0.0.0/0           drop
Router#
```

Table 12 describes the fields in the examples.

Table 12 show mls cef switch Command Output Fields

Field	Description
Index	MLS-hardware Layer 3-switching table entry index; the maximum is 256,000 entries.
Prefix	Entry prefix address/mask.
Adjacency	Adjacency types are as follows: • drop—Packets matching the prefix entry are dropped. • punt—Packets are redirected to an MSFC for further processing. • *mac-address*—Packets matching the prefix are forwarded to this specific next hop or the final destination host if directly attached.

Related Commands

Command	Description
show mls cef vrf (virtual switch)	Displays information about the VPN routing and forwarding instance CEF table for a specific VRF name.

show mls cef vrf (virtual switch)

To display information about the VPN routing and forwarding instance (VRF) Cisco Express Forwarding (CEF) table for a specific VRF name, use the **show mls cef vrf** command in EXEC mode.

show mls cef vrf *instance-name* [*prefix*] [**detail** [**switch** *num* [**module** *num*]] [**internal**] [**lookup**] [**rpf** [*ip-address*] [**summary**] [**switch** *num* [**module** *num*]]

Syntax Description

instance-name	VPN routing/forwarding instance name. Range: 0 to 4095.
prefix	(Optional) Prefix of the entry to display.
detail	(Optional) Displays the hardware-entry details.
switch *num*	(Optional) Specifies the number of the switch; valid values are 1 and 2.
module *num*	(Optional) Displays information for the specified module number.
internal	(Optional) Displays internal CEF entry information.
lookup *ip-address*	(Optional) Displays the longest prefix-match lookup entry for the specified address.
rpf *ip-address*	(Optional) Displays the reverse path forwarding (RPF) check information for the (optional) specified IP address.
summary	(Optional) Displays a summary of VRF CEF table information.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The **show mls cef switch (virtual switch)** command displays the CEF entries in the default VRF. To display specific (nondefault) VRF entries, use the **show mls cef** [**ip**] **vrf** *vrf-name* command.

Examples

The following example shows how to display information about the VPN routing and forwarding instance CEF table for a specific VRF name:

```
Router# show mls cef vrf vpn-1

Codes: decap - Decapsulation, + - Push Label
Index Prefix Adjacency
64 0.0.0.0/32 receive
65 255.255.255.255/32 receive
280 7.50.27.1/32 receive
281 7.50.27.0/32 receive
282 7.50.27.255/32 receive
298 2.1.1.1/32 receive
```

```
299 2.1.1.0/32 receive
300 2.1.1.255/32 receive
656 2.1.99.1/32 receive
Router#
```

Table 13 describes the fields in the examples.

Table 13 show mls cef vrf Command Output Fields

Field	Description
Index	MLS-hardware Layer 3-switching table entry index; the maximum is 256,000 entries.
Prefix	Entry prefix address/mask.
Adjacency	Adjacency types are as follows: • drop—Packets matching the prefix entry are dropped. • punt—Packets are redirected to an MSFC for further processing. • receive—Packets matching the prefix entry are received. • *mac-address*—Packets matching the prefix are forwarded to this specific next hop or the final destination host if directly attached.

Related Commands

Command	Description
show mls cef switch (virtual switch)	Displays the IP entries in the MLS-hardware Layer 3-switching table.

show mls ip multicast (virtual switch)

To display the MLS IP information, use the **show mls ip multicast** command in EXEC mode.

show mls ip multicast [{**capability** [**module** *num*]} | **connected** | **group**} {{*hostname* | *ip-address*} [*ip-mask*]} | {**interface** *interface*/*switch-num*/*slot*/*port*} | {**module** *number*} | **mdt** | {**source** {*hostname* | *ip-address*}} | **statistics** | **summary**]

show mls ip multicast consistency-check [**mroute-mlsm** | {**rp-sp** [**log** [**clear**] | **statistics**]}]

Syntax Description

capability	Displays information about the multicast-replication capabilities.
module *num*	(Optional) Specifies the module number.
connected	(Optional) Displays the installed interface or mask entries.
group	(Optional) Displays the entries for a specific multicast-group address.
hostname	Group IP hostname.
ip-address	Group IP address.
ip-mask	(Optional) IP mask for group IP address.
interface *interface*	(Optional) Displays information about a specific interface type.
/*switch-num*	Switch number; valid values are 1 and 2.
/slot	Module number.
/port	Port number.
mdt	(Optional) Displays hardware-accelerated multicast distribution tree (MDT) information.
source *hostname*	(Optional) Displays the entries for a specific source address.
source *ip-address*	(Optional) Displays the entries for a specific source IP address.
statistics	(Optional) Displays the statistics from multicast entries.
summary	(Optional) Displays a summary of statistics from multicast entries.
consistency-check	Displays consistency-checker information.
mroute-mlsm	(Optional) Displays multicast route (mroute)/multilayer switching for multicast (MLSM) consistency-checker information.
rp-sp	(Optional) Displays route processor/switch processor consistency-checker information.
log	(Optional) Displays a log of mismatches that have been detected and corrected.
clear	(Optional) Clears the mismatches log.
statistics	(Optional) Displays the statistics of prefixes checked.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

When you view the output, note that a colon (:) is used to separate the fields.

Examples

The following example shows how to display general MLS IP-multicast information:

```
Router# show mls ip multicast
Multicast hardware switched flows:
(*, 224.1.1.1) Incoming interface: Vlan0, Packets switched: 0
Hardware switched outgoing interfaces: Vlan202
RPF-MFD installed
Total hardware switched flows : 1
Router#
```

The following example shows how to display a summary of MLS information:

```
Router# show mls ip multicast summary
1 MMLS entries using 168 bytes of memory
Number of partial hardware-switched flows: 0
Number of complete hardware-switched flows: 1
Directly connected subnet entry install is enabled
Aggregation of routed oif is enabled
Hardware shortcuts for mvpn mroutes supported
Egress Mode of replication is enabled
Maximum route support is enabled
Router#
```

The following example shows how to display MLS information on a specific interface:

```
Router# show mls ip multicast interface gigabitethernet 1/5/9
DstIP           SrcIP           Dst i/f:DstMAC       Pkts         Bytes
-------------------------------------------------------------------------
SrcDstPorts   SrcDstEncap Age   LastSeen
----------------------------------------
172.20.52.37    0.0.0.0         100: 00d0.5870.a4ff 1            129
Gi1/5/9,----- ARPA,ARPA   107   06:10:02
172.20.52.36    0.0.0.0         100 : 0050.7312.0cff 50           6403
Gi1/5/9,----- ARPA,ARPA   107   06:10:04
 Number of Entries Found = 2
Router#
```

The following example shows how to display information about the multicast-replication capabilities:

```
Router# show mls ip multicast capability
Current mode of replication is Ingress
auto replication mode detection is ON

 Slot           Multicast replication capability
    2                       Egress
    5                       Egress
    6                       Egress
    8                       Ingress
    9                       Ingress
Router#
```

The following example shows how to display information about the mroute consistency-checker log:

```
Router# show mls ip multicast consistency-check mroute-mlsm
MMLS Consistancy checker of mroute-scan type is enabled
Inter scan period = 2 sec
Number of entry scanned = 20
Settle time = 60 sec
Storage for 1000 events (40000 bytes)
Mroute entry missed for a Shortcut : 0
Mroute entry was uneligible for a Shortcut : 0
Mroute entry rpf i/f mismatched with Shortcut : 0
Mroute oif in hw and Shortcut oif in sw : 0
Mroute oif in sw and Shortcut oif in sw : 0
Mroute oif in sw and Shortcut oif in hw : 0
Mroute #oif mismatched with Shortcut #oif : 0
.
.
.
<Output is truncated>
```

The following example shows how to display a log of mismatches that have been detected and corrected:

```
Router# show mls ip multicast consistency-check rp-sp log
MLSM RP<->SP Consistency Checker Mismatch log for Table 0:
size 512 current-index 0

0 total used entries in log
Router#
```

Related Commands

Command	Description
mls ip multicast (interface configuration command)	Enables MLS IP shortcuts on the interface.

show mls ip multicast bidir (virtual switch)

To display the bidirectional (Bidir) hardware-switched entries, use the **show mls ip multicast bidir** command in EXEC mode.

show mls ip multicast bidir [{**group** {{*hostname* | *ip-address*} [*ip-mask*]}} | {**interface** *interface*/*switch-num*//*slot*/*port*}} | {**source** {*hostname* | *ip-address*}}]

Syntax Description

group	(Optional) Displays the entries for a specific multicast-group address.
hostname	Group IP hostname.
ip-address	Group IP address.
ip-mask	(Optional) IP mask for group IP address.
interface *interface*	(Optional) Displays information about a specific interface type.
/*switch-num*	Switch number; valid values are 1 and 2.
/slot	Module number.
/port	Port number.
source *hostname*	(Optional) Displays the entries for a specific source address.
source *ip-address*	(Optional) Displays the entries for a specific source IP address.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Examples

The following example shows how to display the Bidir hardware-switched entries:

```
Router# show mls ip multicast bidir
Multicast hardware switched flows:
(*, 226.1.4.0) Incoming interface: Vlan51, Packets switched: 0
Hardware switched outgoing interfaces: Vlan51 Vlan30
RPF-MFD installed
(*, 227.1.4.0) Incoming interface: Gi2/1, Packets switched: 0
Hardware switched outgoing interfaces: Gi2/1 Vlan30
RPF-MFD installed
Router#
```

Related Commands

Command	Description
mls ip multicast bidir gm-scan-interval	Sets the RPF scan interval for the Bidir rendezvous point.

show mls netflow ip switch (virtual switch)

To display information about the hardware NetFlow IP entries, use the **show mls netflow ip switch** command in EXEC mode.

show mls netflow ip switch switch *num* [**module** *num*]

Syntax Description

num	Number of the switch; valid values are 1 and 2.
module *num*	(Optional) Displays information for the specified module number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

When you view the output, note that a colon (:) is used to separate the fields.

Examples

The following example shows how to display information about any MLS NetFlow IP entries:

```
Router# show mls netflow ip switch 1 module 3
Displaying Netflow entries in EARL in module 1/3
No Entries
Displaying Netflow entries in Active Supervisor EARL in module 1/6
DstIP           SrcIP           Prot:SrcPort:DstPort  Src i/f          :AdjPtr
--------------------------------------------------------------------------------
Pkts         Bytes         Age   LastSeen  Attributes
-------------------------------------------------
0.0.0.0         0.0.0.0         0   :0      :0        --               :0x0

359          16514         501   12:52:09   L3 - Dynamic

Router#
```

Related Commands

Command	Description
clear mls netflow	Clears the MLS NetFlow-shortcut entries.
ip flow-aggregation cache	Creates a flow-aggregation cache and enters the aggregation cache configuration mode.
show ip cache flow	Displays a summary of the NetFlow cache-flow entries.

show mmls fast-redirect

To display information about fast-redirect optimization on Multicast Multilayer Switching (MMLS), use the switch processor **show mmls fast-redirect** command in privileged EXEC mode.

show mmls [**verbose**] **fast-redirect**

Syntax Description

verbose	(Optional) Displays more detailed information.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC mode (#)

Command History

Release	Modification
12.2(33)SXI4	Support for this command was introduced on the Supervisor Engine 720.

Examples

This example shows how to display information about Layer 2 multichassis EtherChannels with fast-redirect optimazation enabled:

```
Router# remote command switch show mmls fast-redirect
Fast-Redirect is set on following Port-Channel(s):
Port Channel     Active    Vlan Count
Po40              NO        0
Po49              YES       5

Fast-Redirect is ON for the following interfaces:
vlan    Port-Channel     interface       link-status
47       Po49             Gi1/2/10         up
47       Po49             Gi2/2/10         down (ignored)
48       Po49             Gi1/2/10         up
48       Po49             Gi1/2/10         down (ignored)

Router#
```

Related Commands

Command	Description
mls ip multicast egress fast-redirect	Enables fast-redirect optimization on any Layer 2 multichassis EtherChannel.

show module switch (virtual switch)

To display the module status and information, use the **show module** command in EXEC mode.

show module switch [**all** | *switch-num* [**slot** *num* | **version**] | **all** | **version**]

Syntax Description

switch-num	Number of the switch; valid values are 1 and 2.
slot *num*	(Optional) Displays information for the specified slot number.
all	(Optional) Displays the information for all modules.
version	(Optional) Displays the version information.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

In the Mod Sub-Module fields, the **show module** command displays the supervisor engine number but appends the uplink daughter card's module type and information.

Examples

The following example shows how to display information for all modules on a switch:

```
Router# show module 6
Mod Ports Card Type Model Serial No.
--- ----- -------------------------------------- ------------------ -----------
5 5 Supervisor Engine 720 10GE (Active) VS-S720-10G SAD1205069Y
6 5 Supervisor Engine 720 10GE (RPR-Warm) VS-S720-10G SAD1205065B
Mod MAC addresses Hw Fw Sw Status
--- ---------------------------------- ------ ------------ ------------ -------
5 001e.4aaa.ee70 to 001e.4aaa.ee77 2.0 8.5(2) 12.2(2009050 Ok
6 001e.4aaa.ed58 to 001e.4aaa.ed5f 2.0 8.5(2) 12.2(2009042 Ok
Mod Sub-Module Model Serial Hw Status
---- --------------------------- ------------------ ----------- ------- -------
5 Policy Feature Card 3 VS-F6K-PFC3C SAD120504EB 1.0 Ok
5 MSFC3 Daughterboard VS-F6K-MSFC3 SAD120301PL 1.0 Ok
6 Policy Feature Card 3 VS-F6K-PFC3C SAD1203057R 1.0 Ok
Mod Online Diag Status
---- -------------------
5 Pass
6 Pass
Router#
```

The following example shows how to display information for a specific module:

```
Router# show module switch 1 slot 3
Switch Number:     1   Role:   Virtual Switch Active
--------------------  ----------------------------
Mod Ports Card Type                              Model              Serial No.
-- ----- ------------------------------------- ------------------ -----------
 3    8  CEF720 8 port 10GE with DFC            WS-X6708-10GE      SAD1013073J

Mod MAC addresses                       Hw    Fw           Sw           Status
-- ---------------------------------- ------ ------------ ------------ -------
 3  0030.f275.9afa to 0030.f275.9b01   0.508 12.2(18r)S1  12.2(2007062 Ok

Mod  Sub-Module                  Model              Serial       Hw     Status
--- --------------------------- ------------------ ----------- ------- -------
 3  Distributed Forwarding Card WS-F6700-DFC3CXL   SAD101303XN  0.402  Ok

Mod  Online Diag Status
--- -------------------
 3  Bypass

Mod Online Diag Status
--- -------------------
  5 Not Available
Router#
```

The following example shows how to display version information:

```
Router# show module switch 1 version
Mod  Port Model              Serial #    Versions
---- ---- ------------------ ----------- -----------------------------------
 Switch Number:     1   Role:   Virtual Switch Active
----------------------  ----------------------------
  1   48  WS-X6148-GE-TX     SAD08250ABL Hw : 6.1
                                         Fw : 7.2(1)
                                         Sw : 8.6(0.22)SXH2
  3    8  WS-X6708-10GE      SAD1013073J Hw : 0.508
                                         Fw : 12.2(18r)S1
                                         Sw : 12.2(20070628:210705)
                                         Sw1: 8.7(0.22)FW37
         WS-F6700-DFC3CXL   SAD101303XN Hw : 0.402
  4    4  WS-X6708A-10GE     SAD103001YC Hw : 0.102
                                         Fw : unknown
                                         Sw : unknown
  5   48  WS-X6748A-GE-TX    SAD09260ASR Hw : 0.252
                                         Fw : 12.2(18r)S1
                                         Sw : 12.2(20070628:210705)
                                         Sw1: 8.7(0.22)FW37
  6    5  WS-S720-10G        SAD1047079X Hw : 0.423
                                         Fw : 8.4(2
                                         Sw : 12.2(20070628:210705)
                                         Sw1: 8.7(0.22)FW37
         WS-F6K-MSFC3       SAD104607US Hw : 0.100
                                         Fw : 12.2(17r)S4
                                         Sw : 12.2(20070628:210705)
         WS-F6K-PFC3CXL     SAD104704UM Hw : 0.203
Router#
```

show pagp dual-active (virtual switch)

To display dual-active detection information, use the **show pagp dual-active** command in EXEC mode.

show pagp [*group-number*] **dual-active**

Syntax Description

group-number	(Optional) Channel-group number. Range: 1 to 282 with a maximum of 64 values.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The *group-number* values from 257 to 282 are not supported.

Examples

The following example shows how to display dual-active detection information:

```
Router# show pagp dual-active
PAgP dual-active detection enabled: Yes
PAgP dual-active version: 1.1

Channel group 1
Dual-Active trusted group: Yes

Channel group 2
Dual-Active trusted group: Yes

Channel group 3 dual-active detect capability w/nbrs
Dual-Active trusted group: No
          Dual-Active     Partner              Partner   Partner
Port      Detect Capable  Name                 Port      Version
Fa1/2/33  No              None                 None      N/A
Router#
```

The following example shows how to display dual-active detection information for a specific port channel:

```
Router# show pagp dual-active
PAgP dual-active detection enabled: Yes
PAgP dual-active version: 1.1

Channel group 3 dual-active detect capability w/nbrs Dual-Active trusted group: No
          Dual-Active     Partner              Partner   Partner
Port      Detect Capable  Name                 Port      Version
Fa1/2/33  No              None                 None      N/A

Channel group 4
```

```
Dual-Active trusted group: Yes
No interfaces configured in the channel group

Channel group 5
Dual-Active trusted group: Yes
Channel group 5 is not participating in PAGP

Channel group 10 dual-active detect capability w/nbrs Dual-Active trusted group: Yes
          Dual-Active     Partner              Partner   Partner
Port      Detect Capable  Name                 Port      Version
Gi1/6/1   Yes             mr-rogers-nbr        Gi1/5/1   1.1
Gi2/5/1   Yes             mr-rogers-nbr        Gi1/5/2   1.1

Channel group 11 dual-active detect capability w/nbrs Dual-Active trusted group: No
          Dual-Active     Partner              Partner   Partner
Port      Detect Capable  Name                 Port      Version
Gi1/6/2   Yes             mr-rogers-nbr        Gi1/3/1   1.1
Gi2/5/2   Yes             mr-rogers-nbr        Gi1/3/2   1.1

Channel group 12 dual-active detect capability w/nbrs Dual-Active trusted group: Yes
          Dual-Active     Partner              Partner   Partner
Port      Detect Capable  Name                 Port      Version
Fa1/2/13  Yes             mr-rogers-nbr        Fa1/2/13  1.1
Fa1/2/14  Yes             mr-rogers-nbr        Fa1/2/14  1.1
Gi2/1/15  Yes             mr-rogers-nbr        Fa1/2/15  1.1
Gi2/1/16  Yes             mr-rogers-nbr        Fa1/2/16  1.1
Router#
```

The following example shows how to display dual-active detection information for a specific port channel:

```
Router# show pagp dual-active
PAgP dual-active detection enabled: Yes
PAgP dual-active version: 1.1

Channel group 3 dual-active detect capability w/nbrs
Dual-Active trusted group: No
          Dual-Active     Partner              Partner   Partner
Port      Detect Capable  Name                 Port      Version
Fa1/2/33  No              None                 None      N/A
Router#
```

Related Commands

Command	Description
dual-active detection (virtual switch)	Enables and configures dual-active detection.

show power switch (virtual switch)

To display information about the power status, use the **show power switch** command in EXEC mode.

show power switch {**all** | *num*}

Syntax Description

all	Displays the power status for all switches.
num	Displays the power status for a specific switch.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Regardless of the type of supervisor engine you are using, the Catalyst 6500 series switch allocates power to the second supervisor engine slot in anticipation of a redundant supervisor engine configuration. You cannot turn off this function.

If you do not install a second supervisor engine, we recommend that you put the highest power-consuming module into the second supervisor engine slot to get the maximum power utilization.

The Inline power field in the **show power** output displays the inline power that is consumed by the modules. For example, The following example shows that module 9 has consumed 0.300 A of inline power:

```
Inline power   #    current
module         9    0.300A
```

Examples

This command shows how to display the system-power status for a switch:

```
Router# show power switch 1
Switch Number: 1
system power redundancy mode = redundant
system power redundancy operationally = non-redundant
system power total =     1153.32 Watts (27.46 Amps @ 42V)
system power used =      1038.24 Watts (24.72 Amps @ 42V)
system power available =  115.08 Watts ( 2.74 Amps @ 42V)
                       Power-Capacity PS-Fan Output Oper
PS   Type              Watts   A @42V Status Status State
---- ----------------- ------- ------ ------ ------ -----
1    WS-CAC-2500W      1153.32 27.46  OK     OK     on
2    none
                       Pwr-Requested  Pwr-Allocated  Admin Oper
Slot Card-Type         Watts   A @42V Watts   A @42V State State
---- ----------------- ------- ------ ------- ------ ----- -----
1    WS-X6148-GE-TX     103.74  2.47   103.74  2.47  on    on
3    WS-X6708-10GE      473.76 11.28   473.76 11.28  on    on
```

```
4    WS-X6708A-10GE      375.06  8.93     -     -     on    off (not supported)
5    WS-X6748A-GE-TX     240.24  5.72   240.24  5.72  on    on
6    WS-S720-10G         220.50  5.25   220.50  5.25  on    on
Router>
```

The following example shows how to display the power status for all switches:

```
Router# show power switch all
Switch Number: 1
system power redundancy mode = redundant
system power redundancy operationally = non-redundant
system power total =     1153.32 Watts (27.46 Amps @ 42V)
system power used =      1038.24 Watts (24.72 Amps @ 42V)
system power available =  115.08 Watts ( 2.74 Amps @ 42V)
                         Power-Capacity PS-Fan Output Oper
PS   Type                Watts   A @42V Status Status State
---- ------------------ ------- ------ ------ ------ -----
1    WS-CAC-2500W        1153.32 27.46  OK     OK     on
2    none
                         Pwr-Requested  Pwr-Allocated  Admin Oper
Slot Card-Type           Watts   A @42V Watts   A @42V State State
---- ------------------ ------- ------ ------- ------ ----- -----
1    WS-X6148-GE-TX       103.74  2.47   103.74  2.47  on    on
3    WS-X6708-10GE        473.76 11.28   473.76 11.28  on    on
4    WS-X6708A-10GE       375.06  8.93     -     -     on    off (not supported)
5    WS-X6748A-GE-TX      240.24  5.72   240.24  5.72  on    on
6    WS-S720-10G          220.50  5.25   220.50  5.25  on    on
Switch Number: 2
system power redundancy mode = redundant
system power redundancy operationally = non-redundant
system power total =     0 Watt
system power used =      0 Watt
system power available = 0 Watt
                         Power-Capacity PS-Fan Output Oper
PS   Type                Watts   A @42V Status Status State
---- ------------------ ------- ------ ------ ------ -----
1    none
2    none
                         Pwr-Requested  Pwr-Allocated  Admin Oper
Slot Card-Type           Watts   A @42V Watts   A @42V State State
---- ------------------ ------- ------ ------- ------ ----- -----
                         Inline         Inline         Inline         Inline
                         Pwr-Requested  Pwr-Allocated  Local-Pwr-Pool Power
Slot Card-Type           Watts   A @42V Watts   A @42V Watts   A @42V Status
---- ------------------ ------- ------ ------- ------ ------- ------ ----------

Router#
```

Related Commands

Command	Description
power enable	Turns on power for the modules.
power redundancy-mode	Sets the power-supply redundancy mode.

show running-config switch (virtual switch)

To display the status and configuration of the switch, use the **show running-config switch** command in EXEC mode.

show running-config switch *num* [**module** *num*]

Syntax Description

num	Number of the switch; valid values are 1 and 2.
module *num*	(Optional) Displays information for the specified module number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

In some cases, you might see a difference in the duplex mode that is displayed between the **show interfaces (virtual switch)** command and the **show running-config switch (virtual switch)** command. In this case, the duplex mode that is displayed in the **show interfaces (virtual switch)** command is the actual duplex mode that the interface is running. The **show interfaces (virtual switch)** command shows the operating mode for an interface, while the **show running-config switch (virtual switch)** command shows the configured mode for an interface.

The **show running-config switch (virtual switch)** command output for an interface might display the duplex mode but no configuration for the speed. This output indicates that the interface speed is configured as auto and that the duplex mode shown becomes the operational setting once the speed is configured to something other than auto. With this configuration, it is possible that the operating duplex mode for that interface does not match the duplex mode that is shown with the **show running-config switch (virtual switch)** command.

Examples

The following example shows how to display the module and status configuration for all modules on a switch:

```
Router# show running-config switch 1
Building configuration...

Current configuration : 8183 bytes
!
interface GigabitEthernet1/1/1
 no switchport
 no ip address
 speed 1000
!
interface GigabitEthernet1/1/2
 no switchport
```

```
 no ip address
 shutdown
!
interface GigabitEthernet1/1/3
 no switchport
 no ip address
 shutdown
!
interface GigabitEthernet1/1/4
 no switchport
 no ip address
 shutdown
.
.
.
```

show switch virtual (virtual switch)

To display configuration and status information for a virtual switching system (VSS), use the **show switch virtual** command in EXEC mode.

show switch virtual [**dual-active** {**bfd** | **pagp** | **fast-hello** | **summary**} | **link** [**counters** | **detail** | **port-channel** | **ports**] | **redundancy** | **role** | **slot-map**]

Syntax Description

detail	(Optional) Displays detailed virtual switch information.
dual-active	(Optional) Displays virtual switch dual-active information.
bfd	Specifies a summary of dual-active IP BFD information.
pagp	Specifies a summary of dual-active PAgP information
fast-hello	Specifies a summary of dual-active fast-hello information,
summary	Specifies a summary of dual-active configuration information,
link	(Optional) Displays the virtual switch link information.
counters	(Optional) Displays VSL counter information
port-channel	(Optional) Displays VSL port channel information.
ports	(Optional) Displays VSL port information.
redundancy	(Optional) Displays the VSS redundancy status.
role	(Optional) Displays the VSS role information.
slot-map	(Optional) Displays the VSS slot map table.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.
12.2(33)SXI	Support for the **fast-hello** keyword was introduced.

Usage Guidelines

Use this command to display configuration and status information for a VSS.

The **show switch virtual link detail** command displays the output of the **show switch virtual link** commands and the **show vslp lmp internal** commands. In the output, the entry “show int” is displayed for all the VSL members.

The **show switch virtual dual-active pagp** command displays dual-active trust mode status.

Examples

The following example shows how to display configuration and status information for the VSS:

- In virtual switch mode without skipping config-register:

```
Router# show switch virtual

Switch mode : Virtual Switch
Virtual switch domain number : 1
Local switch number : 2
Local switch operational role: Virtual Switch Active
Peer switch number : 1
Peer switch operational role : Virtual Switch Standby
Router#
```

- In virtual switch mode with skipping config-register but not yet rebooted:

```
Router# show switch virtual

Switch mode : Virtual Switch
Virtual switch domain number : 1
Local switch number : 2
Local switch operational role: Virtual Switch Active
Peer switch number : 1
Peer switch operational role : Virtual Switch Standby
Warning: Config-register set or will be set to skip configuration 0x2142 in the next
reload.
Change config-register; otherwise, switch will be boot in Standalone mode with some
default config.
Router#
```

- In standalone mode without skipping config-register:

```
Router# show switch virtual
Switch Mode : Standalone
 Not in Virtual Switch mode due to:
  Domain ID is not configured
Router#
```

- In standalone mode with skipping config-register:

```
Router# show switch virtual
Switch Mode : Standalone
 Not in Virtual Switch mode due to:
  Domain ID is not configured
  Warning: config-register is set to skip parse 0x2142 in RP or SP
Use [show boot] on RP/SP to verify.
Router#
```

The following examples show how to display a summary of dual-active information:

```
Router# show switch virtual dual-active bfd
Ip bfd dual-active detection enabled: Yes

No ip bfd dual-active interface pairs configured


Router# show switch virtual dual-active fast-hello
Fast-hello dual-active detection enabled: Yes
Fast-hello dual-active interfaces:
Port       State (local only)
-----------------------------
Gi1/4/47   Link dn
Gi2/4/47   -
```

```
Router# show switch virtual dual-active summary
Pagp dual-active detection enabled: Yes
Ip bfd dual-active detection enabled: Yes
Fast-hello dual-active detection enabled: Yes

No interfaces excluded from shutdown in recovery mode

In dual-active recovery mode: No
Router#
```

The following example shows how to display the virtual switch link information:

```
Router# show switch virtual link
VSL Status              : UP
VSL Uptime              : 4 hours, 26 minutes
VSL SCP Ping            : Pass (or Fail)   OK (or Not OK)
VSL ICC (Ping)          : Pass (or Fail)
VSL Control Link        : Te1/3/1
Router#
```

The following example shows how to display the virtual switch link counter information:

```
Router# show switch virtual link counters
Port                InOctets   InUcastPkts   InMcastPkts   InBcastPkts
Po10                66340451        190415         15637        112069
Te1/3/1             66981250        194528         15770        112072
Po20                42116619         92926         16406        128593
Te2/2/1             42117401         92932         16406        128593

Port               OutOctets  OutUcastPkts  OutMcastPkts  OutBcastPkts
Po10                39030669        112680        105482             0
Te1/3/1             42133252        129182        108824             0
Po20                66948309        112069        210227             0
Te2/2/1             66957613        112070        210233             0

Port       Align-Err    FCS-Err   Xmit-Err    Rcv-Err UnderSize OutDiscards
Te1/3/1   0          0          0          0         0      0
Po10      0          0          0          0         0      0
Te1/3/1   0          0          0          0         0      0
Po20      0          0          0          0         0      0
Te2/3/1   0          0          0          0         0      0
Router#
```

The following example shows how to display the virtual switch link port-channel information:

```
Router# show switch virtual link port-channel

VSL Port Channel Information

Flags:  D - down        P - bundled in port-channel
        I - stand-alone s - suspended
        H - Hot-standby (LACP only)
        R - Layer3      S - Layer2
        U - in use      N - not in use, no aggregation
        f - failed to allocate aggregator

        M - not in use, no aggregation due to minimum links not met
        m - not in use, port not aggregated due to minimum links not met
        u - unsuitable for bundling
        w - waiting to be aggregated
```

```
Group  Port-channel  Protocol    Ports
------+-------------+-----------+-----------------------------------------------
10     Po10(RU)         -        Te1/3/1(P)
20     Po20(RU)         -        Te2/2/1(P)
Router#
```

The following example shows how to display the virtual switch link port information:

```
Router# show switch virtual link port

VSL Link Info          : Configured: 3   Operational: 1


                          Peer         Peer    Peer
Interface   State         MAC          Switch  Interface
-----------------------------------------------------------------------
 Gi1/3/1   link_down     -               -     -
 Gi1/5/4   operational   0013.5fcb.1480  2    Gi1/6/4
 Gi1/5/5   link_down     -               -     -

            Last operational         Current packet       Last Diag   Time since
Interface   Failure state            State                Result      Last Diag
-------------------------------------------------------------------------------
 Gi1/1/1   No failure               Hello bidir           Never ran   7M:51S
 Gi1/1/2   No failure               No failure            Never ran   7M:51S


                            Hello Tx (T4) ms        Hello Rx (T5*) ms
 Interface  State        Cfg     Cur     Rem     Cfg     Cur     Rem
-----------------------------------------------------------------------
 Te1/1/1    operational  500     500     404     5000    5000    4916
 Te1/1/2    link_down    500     -       -       500000  -       -
 Te1/3/3    link_down    500     -       -       500000  -       -
 Te1/3/4    operational  500     500     404     500000  500000  499916
 *T5 = min_rx * multiplier
Router#
```

The following example shows how to display redundancy status information for each switch in the virtual switch:

```
Router# show switch virtual redundancy
My Switch Id = 1
Peer Switch Id = 2
Last switchover reason = user forced
Configured Redundancy Mode = sso
Operating Redundancy Mode = sso
Switch 1 Slot 5 Processor Information :
-----------------------------------------------
Current Software state = ACTIVE
Uptime in current state = 9 hours, 32 minutes
Image Version = Cisco IOS Software, s72033_rp Software
(s72033_rp-ADVENTERPRISEK9_WAN_DBG-VM), Version 12.2(SIERRA_INTEG_090405) INTERIM SOFTWARE
Synced to V122_32_8_11, 12.2(32.8.11)SR on rainier, Weekly 12.2(32.8.11)SX261
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2009 by Cisco Systems, Inc.
Compiled Mon 06-Apr-09 02:54 by kchristi
BOOT = disk0:mz_good_image,12;
CONFIG_FILE =
BOOTLDR =
Configuration register = 0x2
Fabric State = ACTIVE
Control Plane State = ACTIVE
```

```
Switch 1 Slot 6 Processor Information :
-----------------------------------------------
Current Software state = RPR-Warm
Uptime in current state = 4 days, 17 hours, 36 minutes
Image Version =
BOOT = disk0:mz-rbh,12;
CONFIG_FILE =
BOOTLDR =
Configuration register = 0x2
Fabric State = RPR-Warm
Control Plane State = RPR-Warm
Switch 2 Slot 5 Processor Information :
-----------------------------------------------
Current Software state = STANDBY HOT (switchover target)
Uptime in current state = 9 hours, 24 minutes
Image Version = Cisco IOS Software, s72033_rp Software
(s72033_rp-ADVENTERPRISEK9_WAN_DBG-VM), Version 12.2(SIERRA_INTEG_090405) INTERIM SOFTWARE
Synced to V122_32_8_11, 12.2(32.8.11)SR on rainier, Weekly 12.2(32.8.11)SX261
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2009 by Cisco Systems, Inc.
Compiled Mon 06-Apr-09 02:54 by kchristi
BOOT = disk0:mz_good_image,12;
CONFIG_FILE =
BOOTLDR =
Configuration register = 0x2
Fabric State = ACTIVE
Control Plane State = STANDBY
Switch 2 Slot 6 Processor Information :
-----------------------------------------------
Current Software state = RPR-Warm
Uptime in current state = 4 days, 17 hours, 36 minutes
Image Version =
BOOT = disk0:mz-rbh,12;
CONFIG_FILE =
BOOTLDR =
Configuration register = 0x2
Fabric State = RPR-Warm
Control Plane State = RPR-Warm
Router#
```

The following example shows how to display role and configuration and status information for each switch in the virtual switch:

```
Router# show switch virtual role

Switch   Switch   Status  Preempt  Priority  Role   Session ID
         Number                                    Local Remote
------------------------------------------------------------------------
Local      1     UP      TRUE     200       ACTIVE    0     0
Remote     2     UP      FALSE    100       STANDBY   9272  271

In dual-active recovery mode: No

Valid flag can be moved to detail
SID
```

The following example shows how to display the virtual switch slot map table:

```
Router# show switch virtual slot-map
Virtual Slot to Remote Switch/Physical Slot Mapping Table:

Virtual    Remote /    Physical   Module
Slot No    Switch No   Slot No    Uptime
---------+-----------+----------+----------
  17        1              1        03:04:51
  18        1              2        03:04:50
  19        1              3        03:00:25
  20        1              4        03:04:53
  21        1              5        03:04:59
  22        1              0          -
  23        1              0          -
  24        1              0          -
  25        1              0          -
  26        1              0          -
  27        1              0          -
  28        1              0          -
  29        1              0          -
  30        1              0          -
  31        1              0          -
  32        1              0          -
  33        2              1        02:59:25
  34        2              2        02:59:23
  35        2              3        02:59:23
  36        2              4        02:59:27
  37        2              5        03:03:17
  38        1              0          -
  39        1              0          -
  40        1              0          -
  41        1              0          -
  42        1              0          -
  43        1              0          -
  44        1              0          -
  45        1              0          -
  46        1              0          -
  47        1              0          -
  48        1              0          -
  49        1              0          -
Router#
```

Related Commands

Command	Description
dual-active detection (virtual switch)	Enables and configures dual-active detection.
dual-active pair bfd (virtual switch)	Configures the dual-active pair of interfaces
switch (virtual switch)	Configures the VSS domain number and enter the virtual switch domain configuration submode.

show tcam counts (virtual switch)

To display the TCAM statistics, use the **show tcam counts** command in EXEC mode.

show tcam counts [{**arp** | **detail** | **ip** | **mpls** | **other**} [**switch** *num* [**module** *num*]} | **switch** *num* [**module** *num*]]

Syntax Description

arp	(Optional) Displays TCAM statistics for Address Resolution Protocol (ARP).
detail	(Optional) Displays detailed information.
ip	(Optional) Displays TCAM statistics for IP protocol.
mpls	(Optional) Displays TCAM statistics for Multiprotocol Label Switching (MPLS) protocol.
other	(Optional) Displays TCAM statistics for protocols other than ARP, IP, or MPLS.
switch *num*	(Optional) Displays TCAM statistics for the specified switch; valid values are 1 and 2.
module *num*	(Optional) Displays information for the specified module number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The display includes information about the per-bank TCAM utilization for the ACL/QoS TCAM.

Examples

The following example shows how to display the TCAM statistics for the ARP protocol:

```
Router# show tcam counts arp
           Used        Free        Reserved
           ----        ----        --------

ACL_TCAM
--------
  Masks:      3        4019             72
Entries:      5       32717            576

QOS_TCAM
--------
  Masks:      1        4074             18
Entries:      2       32746            144
Router#
```

The following example shows how to display TCAM statistics for protocols other than ARP, IP, or MPLS:

```
Router# show tcam counts other
           Used        Free        Reserved
           ----        ----        --------

ACL_TCAM
--------
  Masks:      3        4019             72
Entries:      6       32717            576

QOS_TCAM
--------
  Masks:      1        4074             18
Entries:      2       32746            144
```

The following example shows how to display TCAM statistics for a specific switch:

```
Router# show tcam counts switch 1
           Used        Free        Percent Used       Reserved
           ----        ----        ------------       --------
 Labels:(in)  4        4092             0
 Labels:(eg)  2        4094             0

ACL_TCAM
--------
  Masks:     77        4019             1                   72
Entries:     51       32717             0                  576

QOS_TCAM
--------
  Masks:     22        4074             0                   18
Entries:     22       32746             0                  144

    LOU:      0         128             0
  ANDOR:      0          16             0
  ORAND:      0          16             0
    ADJ:      3        2045             0
Router#
```

Table 14 describes the fields that are shown in the example.

Table 14 show tcam counts Command Output Fields

Field	Description
Labels Used	Number of labels that are used (maximum of 512).
Labels Free	Number of free labels remaining.
Labels Percent Used	Percentage of labels that are used.
Masks Used	Number of masks that are used (maximum of 4096).
Masks Free	Number of free labels remaining.
Masks Percent Used	Percentage of masks that are used.
Entries Used	Number of labels that are used (maximum of 32767).
Entries Free	Number of free labels that are remaining.
Entries Percent Used	Percentage of entries that are used.

show tcam interface (virtual switch)

To display information about the interface-based Ternary Content Addressable Memory (TCAM), use the **show tcam interface** command in EXEC mode.

show tcam interface *interface/switch-num/slot/port* {**acl** {**in** | **out**}} | {**qos** {**type1** | **type2**}} *type* [**all** | **detail** | **switch** *num* [**module** *num*]

Syntax Description

interface *interface*	Displays information about a specific interface type.
/switch-num	Switch number; valid values are 1 and 2.
/slot	Module number.
/port	Port number.
acl in	(Optional) Displays the access-control list (ACL)-based incoming packets.
acl out	(Optional) Displays the ACL-based outgoing packets.
qos type1	(Optional) Displays the quality of service (QoS)-based Type 1 packets.
qos type2	(Optional) Displays the QoS-based Type 2 packets.
type	Protocol type to display; valid values are **arp**, **ipv6**, **mpls**, and **other**.
all	(Optional) Displays all forwarding engines.
detail	(Optional) Displays detailed information.
switch *num*	(Optional) Specifies the switch number.
module *num*	(Optional) Specifies the module number.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

Use the **clear mls acl counters** command to clear the TCAM ACL match counters.

The match counts display is supported in PFC3BXL or PFC3B mode only.

The **all** keyword enables you to view the interface access control entry (ACE) counters for each module.

Examples

The following example shows how to display interface-based TCAM information:

```
Router# show tcam interface gigabitethernet 1/5/3 acl in ip
deny ip any any
permit ip 20.20.0.0 0.0.255.255 22.22.0.0 0.0.255.255
redirect ip 20.21.0.0 0.0.255.255 22.23.0.0 0.0.255.255
permit tcp 24.24.0.0 0.0.255.255 30.30.0.0 0.0.255.255
```

```
Fragments (1 match)
permit tcp 25.25.0.0 0.0.255.255 31.31.0.0 0.0.255.255
fragments
permit tcp 25.25.0.0 0.0.255.255 range 30000 30020 31.31.0.0
0.0.255.255 range 10000 10010 (102 matches)
permit tcp 24.24.0.0 0.0.255.255 eq 9000 30.30.0.0 0.0.255.255
eq telnet
deny ip any any
deny ip any any
Router#
```

The following example shows how to display detailed TCAM information:

```
Router# show tcam interface gigabitethernet 1/5/3 acl in ip detail

------------------------------------------------------------------------------
----------------------------------
DPort - Destination Port   SPort - Source Port        TCP-F - U -URG
 Pro   - Protocol
I     - Inverted LOU       TOS   - TOS Value                - A -ACK
 rtr   - Router
MRFM  - M -MPLS Packet     TN    - T -Tcp Control           - P -PSH
 COD   - C -Bank Care Flag
      - R -Recirc. Flag          - N -Non-cachable          - R -RST
       - I -OrdIndep. Flag
      - F -Fragment Flag   CAP   - Capture Flag             - S -SYN
       - D -Dynamic Flag
      - M -More Fragments  F-P   - FlowMask-Prior.          - F -FIN
 T     - V(Value)/M(Mask)/R(Result)
X     - XTAG               (*)   - Bank Priority
------------------------------------------------------------------------------
----------------------------------


Interface: 1018   label: 1   lookup_type: 0
protocol: IP   packet-type: 0

+-+-----+---------------+---------------+---------------+---------------+-------
+---+----+-+---+--+---+---+
|T|Index|  Dest Ip Addr | Source Ip Addr|     DPort     |     SPort     | TCP-F
|Pro|MRFM|X|TOS|TN|COD|F-P|
+-+-----+---------------+---------------+---------------+---------------+-------
+---+----+-+---+--+---+---+
 V 18396         0.0.0.0         0.0.0.0       P=0             P=0        ------
   0 ---- 0   0 -- --- 0-0
 M 18404         0.0.0.0         0.0.0.0         0               0
   0 ---- 0   0
 R rslt: L3_DENY_RESULT                rtr_rslt: L3_DENY_RESULT


 V 36828         0.0.0.0         0.0.0.0       P=0             P=0        ------
   0 ---- 0   0 -- --- 0-0
 M 36836         0.0.0.0         0.0.0.0         0               0
   0 ---- 0   0
 R rslt: L3_DENY_RESULT (*)            rtr_rslt: L3_DENY_RESULT (*)
Router#
```

Related Commands

Command	Description
clear mls acl counters	Clears the MLS ACL counters.

show vslp (virtual switch)

To display Virtual Switch Link Protocol (VSLP) instance information, use the **show vslp** command in EXEC mode.

show vslp {*instance-number* {**lmp** | **rrp** [*type*]}} | {**instances** | **lmp** [*type*] | **packet** [**counters**] | **rrp** [*type*]}

Syntax Description

instance-number	Instance number; valid values are from 1 and 2.
lmp	Specifies the Link Maintenance Protocol (LMP) information.
rrp	Specifies the Role Resolution Protocol (RRP) information.
type	Type of information; see the "Usage Guidelines" section for valid values.
instances	Displays the VSLP instance mappings.
packet	Displays the VSLP packet information.
counters	(Optional) Displays the VSLP packet counter information.

Command Default

This command has no default settings.

Command Modes

EXEC (>)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The valid values for the *type* argument are as follows:

- **counters**—Displays counter information.
- **detail**—Displays detailed information.
- **fsm**—Displays Finite State Machine (FSM) information.
- **neighbors**—Displays neighbor information (supported with the **lmp** keyword only).
- **status**—Displays status information.
- **summary**—Displays a summary of information.
- **timer**—Displays Tx and Rx hello timer values.

The timers already displayed in the **show vslp lmp timers** output are shown in the output of the **show vslp lmp summary** command.

The output of the **show vslp rrp detail** command includes the information from the following commands:

- **show vslp rrp summary**
- **show vslp rrp counters**
- **show vslp rrp fsm**

Examples

The following example shows how to display a summary of LMP information for a specific VSLP instance.

```
Router# show vslp 2 lmp summary
  LMP summary

    Link info:        Configured: 2        Operational: 0

                           Peer Peer            Peer  Peer   Timer(s) running
Port   Flag State          Flag MAC             Swtch Port   (Time remaining)
--------------------------------------------------------------------------------
 4/1   v    link_down      -    -               -     -
 4/2   v    link_down      -    -               -     -
Router#
```

The following example shows how to displays the VSLP instance mappings.

```
Router# show vslp instances
VSLP instance mappings:

Instance Num  Name                                  Switch Num   Flag
------------------------------------------------------------------------
2             VSL                                   2            0x00000001
Router#
```

The following example shows how to display LMP neighbor information:

```
Router# show vslp 2 lmp neighbors

  LMP neighbors

    Peer Group info:        # Groups: 0
Router#
```

The following example shows how to display a summary of LMP information:

```
Router# show vslp lmp summary

Instance #1:

LMP summary
Link info:        Configured: 3        Operational: 1

                               Peer Peer         Peer   Peer        Timer(s) running
 Interface  Flag State         Flag MAC          Switch Interface   (Time remaining)
--------------------------------------------------------------------------------
 Gi1/3/1    v    link_down     -    -               -     -
 Gi1/5/4    vf   operational   vf   0013.5fcb.1480  2     Gi1/6/4   T4(240ms) T5(2.22s)
 Gi1/5/5    v    link_down     -    -               -     -

Flags:  V - valid        f -> B - bidirectional
```

The following examples shows how to display the LMP Tx and Rx hello timer values:

```
Router# show vslp lmp timer
Instance #1:

  LMP hello timer
                         Hello Tx (T4) ms          Hello Rx (T5*) ms
Interface   State        Cfg     Cur     Rem       Cfg     Cur     Rem
-------------------------------------------------------------------------
Gi1/9/1     link_down    1000    -       -         500000  -       -
Gi1/9/3     link_down    1000    -       -         500000  -       -
Gi1/9/5     link_down    1000    -       -         500000  -       -

Router#
```

The following example shows how to display VSLP packet information:

```
Router# show vslp packet
VSLP packet counters
  Transmitted:
    total       = 1543
    error       = 0
    err_cksum   = 0
    eobc        = 0
    ibc         = 0
    eobc[LMP]   = 0
    eobc[RRP]   = 0
    eobc[PING]  = 0
  Received:
    total       = 1564
    error       = 0
    err_cksum   = 0
    eobc        = 1564
    ibc         = 0
    total[LMP]  = 0
    total[RRP]  = 0
    total[PING] = 0
    eobc[LMP]   = 1559
    eobc[RRP]   = 5
    eobc[PING]  = 0

Router#
```

The following example shows how to display VSLP packet counter information:

```
Router# show vslp packet counters
VSLP packet counters
  Transmitted:
    total       = 28738
    error       = 0
    err_cksum   = 0
    eobc              = 28738
      eobc[LMP]   = 28701
      eobc[RRP]   = 17
      eobc[PING]  = 20
    ibc                 = 0
      ibc[LMP]      = 0
      ibc[RRP]      = 0
      ibc[PING]     = 0
  Received:
    total       = 28590
    error       = 0
    err_cksum   = 0
    eobc              = 28590
      eobc[LMP]   = 28552
```

```
      eobc[RRP]    = 18
      eobc[PING]   = 20
    ibc                 = 0
      ibc[LMP]       = 0
      ibc[RRP]       = 0
      ibc[PING]      = 0
Router#
```

The following example shows how to display a summary of RRP information:

```
Router# show vslp rrp summary
RRP information for Instance 1
------------------------------

Valid  Flags   Peer      Preferred  Reserved
               Count     Peer       Peer
-----------------------------------------------
TRUE    V        1           1          1

Switch   Peer  Switch   Status  Preempt  Priority  Role   Local  Remote
         Group  Number                                   SID     SID
---------------------------------------------------------------------
Local     0     1     UP      TRUE     200      ACTIVE    0       0
Remote    1     2     UP      FALSE    100      STANDBY   9272    271

Flags:  V - valid
```

standby port

To defer the activation of a port on the standby chassis during standby recovery, use the **standby port** virtual switching system (VSS) mode command. To disable port deferral activation, use the **no** form of this command.

standby port {**bringup** *num duration* | **delay** *seconds*}

Syntax Description

bringup	Configures the number of ports to be activated per cycle and the waiting time between cycles. Note: You must configure the standby port delay time before you can configure the standby port bringup time.
num	Number of ports to be activated per cycle. Range: 1 to 100. Default: 1.
duration	Period of time in seconds between cycles. Range: 1 to 10. Default: 1.
delay *seconds*	Specifies the period in seconds before port activation is performed. Range: 30 to 3600. Default: 0.

Command Default

Port deferral activation is disabled if **standby port delay** is not configured. If port deferral activation is enabled, the default number of ports activated in one cycle is one and the duration of the cycle is one second.

Command Modes

Virtual switch configuration submode (config-vs-domain)

Command History

Release	Modification
12.2(33)SXH2	Support for this command was introduced.

Usage Guidelines

Note We recommend that enter you this command under TAC supervision.

Note You must configure the **standby port delay** command before you can configure the **standby port bringup** command.

If the you configure the standby port bringup without configuring the standby port delay, a message is displayed asking you to configure the standby port delay first and then the standby port bringup. If you remove the standby port delay configuration, the standby port bringup is automatically removed.

In default configuration, all ports are activated simultaneously when a failed chassis is restarted as the standby chassis. You can enter the **standby port** command to defer the activation of ports that are not virtual switch link (VSL) ports and then activate the ports in groups over a period of time.

You can enter the **standby port** command to defer the activation of ports that are not virtual switch link (VSL) ports and then activate the ports in groups over a period of time. This can help in reducing traffic loss on the standby ports and alleviate the high CPU utilization on the active switch and route processors during system initialization of the standby chassis.

Examples

The following example shows how to configure the period in seconds before port activation is performed:

```
Router(config)# switch virtual domain 22
Router (config-vs-domain)# standby port delay 400
Router (config-vs-domain)#
```

The following example shows how to configure the bringup delay for a port's activation during a standby recovery:

```
Router(config)# switch virtual domain 22
Router (config-vs-domain)# standby port bringup 2 30
Router (config-vs-domain)#
```

Related Commands

Command	Description
switch virtual domain	Assigns a switch number and enters virtual switch domain configuration submode.

switch (virtual switch)

To assign a switch number, use the **switch** command in virtual switch domain configuration submode.

switch *num* [**preempt** *delay* | p**riority** *priority*]

Syntax Description

num	Switch number; valid values are 1 or 2.
preempt	(Optional) Enables preemption.
delay	Delay in minutes before the standby chassis takes over as the active chassis. Range: 5 to 20. Default: 5.
priority *priority-value*	(Optional) Specifies a priority number to determine the standby chassis that will become the new active chassis if the active chassis fails. Range: 1 (lowest priority) to 255 (highest priority).

Command Default

Switch 1 and Switch 2 *priority-value* settings are 100.

Command Modes

Virtual switch domain configuration submode (config-vs-domain)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced

Usage Guidelines

You must set the virtual domain name and the switch number prior to converting the chassis into a virtual switch. You cannot configure the switch number after the chassis is in virtual switch mode.

When you bring up the virtual switch, the role resolution logic validates that the chassis numbers are different in the two chassis.

When you configure **preempt**, the switch with the highest priority assumes the active role during role negotiation.

Examples

The following example shows how to assign a switch number and configure the virtual switch domain:

```
Router1(config)# switch virtual domain 100
Router1(config-vs-domain)# switch 1 priority 20
Router1(config-vs-domain)# switch 1 preempt 12
Router1(config-vs-domain)#
```

Related Commands

Command	Description
switch virtual domain (virtual switch)	Configures the virtual switch domain number and enter the virtual switch domain configuration submode.

switch accept mode virtual (virtual switch)

To select the switch mode, use the **switch accept mode virtual** command in privileged EXEC mode.

switch accept mode virtual

Syntax Description

This command has no arguments or keywords.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced

Usage Guidelines

For the VSS to operate correctly, the active chassis needs the configuration information for the other end of the VSL link. The **switch accept mode virtual** command automatically copies the VSL link configuration from the standby chassis onto the active chassis. The updated configuration is automatically saved to the startup configuration file on the active and standby chassis.

The **switch accept mode virtual** command performs this action only the first time that the chassis come up as a VSS.

Note The standby chassis must be in hot standby state for the **switch accept mode virtual** command to execute successfully.

There are no **no** forms of this command.

Examples

The following example shows how to configure a device in the distribution layer as a standalone switch that has a switch number of 1:

```
Router1# switch accept mode virtual
switch virtual domain 1
 switch 2 preempt
 switch 2 priority 120
power redundancy-mode combined switch 2
no power enable switch 2 module 2
interface Port-channel20
 switch virtual link 2
 no shutdown
interface TenGigabitEthernet2/1/1
 channel-group 20 mode on
 no shutdown
interface TenGigabitEthernet2/1/2
 channel-group 20 mode on
 no shutdown
```

```
interface TenGigabitEthernet2/1/3
 channel-group 20 mode on
 no shutdown
interface TenGigabitEthernet2/1/4
 channel-group 20 mode on
 no shutdown
interface TenGigabitEthernet2/1/5
 channel-group 20 mode on
 shutdown
interface TenGigabitEthernet2/1/6
 channel-group 20 mode on
 no shutdown
interface TenGigabitEthernet2/1/7
 channel-group 20 mode on
 no shutdown
interface TenGigabitEthernet2/1/8
 channel-group 20 mode on
 shutdown

This command will populate the above VSL configuration from
the standby switch into the running configuration.
The startup configuration will also be updated with the
new merged configuration if merging is successful.
Do you want to proceed? [yes/no]: yes
Merging the standby VSL configuration...

%Power admin state updated
Building configuration...
[OK]
Router#
```

switch convert mode (virtual switch)

To select the switch mode, use the **switch convert mode** command in privileged EXEC mode.

switch convert mode {**stand-alone** | **virtual**}

Syntax Description

stand-alone	Specifies standalone mode.
virtual	Specifies virtual switch mode.

Command Default

The standalone mode is the default mode.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced

Usage Guidelines

You must reboot both switches when you convert a switch to virtual switch mode.

In a VSS, the interface naming convention includes the switch number. For example, you must use switch/module/port to specify a port on a switching module. The switch convert mode virtual command converts the configuration file to use the VSS naming convention, and saves a backup copy of the file in the RP bootflash.

Note After you confirm the command (by entering **yes** at the prompt), the switch converts the configuration file and restarts both chassis. After the restart, the chassis is in virtual switch mode. From this point on, you must specify interfaces with three identifiers (*switch*/*module*/*port*).

There are no **no** forms of this command. You have to specify **stand-alone** or **virtual** mode.

You can enter the **switch convert mode virtual** command only after the standby switch is fully operational (in hot standby mode). If you enter the command before the standby switch is fully operational, a message is displayed telling you to try again later.

Note If you have configured your config-register with a value that would skip file parsing during the bootup process, your change to either a standalone or virtual switch will not take place until you reconfigure your config-register. The config-register must be allowed to parse files in order to ensure the conversion from either a standalone or virtual switch.

Examples

The following example shows how to configure a device in the distribution layer as a standalone switch that has a switch number of 1:

```
Router1# switch convert mode virtual
This command will convert all interface names to naming convention "interface-type
chassis-number/slot/port", save the running config to startup-config and reload the
switch.
Do you want proceed? [yes/no]: yes
Converting interface names
Building Configuration...
[OK]
Saving converted configuration to bootflash: ...
Destination filename [startup-config.converted_vs-20070723-235834]?
```

switch read switch_num

To read the switch processor (SP) ROMMON variable, use the **switch read switch_num** command in EXEC mode.

switch read switch_num {**local** | **peer**}

Syntax Description

local	Specifies to read the active SP ROMMON switch number.
peer	Specifies to read the standby SP ROMMON switch number

Defaults

This command has no default settings.

Command Modes

EXEC mode

Command History

Release	Modification
12.2(33)SXI	Support for this command was introduced on the Supervisor Engine 720.
12.2(33)SXI4	Added support for **local** and **peer** keywords in standalone and VSS mode.

Usage Guidelines

The **switch read switch_num** command is available in both standalone and VSS modes.

In a standalone setting, use the **switch read switch_num** command to read the value of the active or standby SP ROMMON.

In VSS mode, use the **switch read switch_num** command to read the value of the active or standby switch supervisor engines SP ROMMON. In a system with four supervisor engines, the in-chassis active (ICA) and in-chassis standby (ICS) should already have the same switch number.

Examples

This example shows how to read the active SP ROMMON:

```
Router# switch read switch local
```

Related Commands

Command	Description
switch set switch	Sets the SP ROMMON variable.

switch set switch_num

To set the Switch Processor (SP) ROMMON variable, use the **switch set switch_num** command in EXEC mode.

switch set switch_num {*switch_num*} {**local** | **peer**}

Syntax Description

switch_num	Specifies the switch to be set to SP ROMMON.
local	Specifies the active SP ROMMON switch number.
peer	Specifies the standby SP ROMMON switch number

Defaults

This command has no default settings.

Command Modes

EXEC mode

Command History

Release	Modification
12.2(33)SXI	Support for this command was introduced on the Supervisor Engine 720.
12.2(33)SXI4	Added support for **local** and **peer** keywords in standalone and VSS mode.

Usage Guidelines

The **switch set switch_num** command is only available in standalone mode. Because the **switch set switch_num** command is available only while the switch is in standalone mode, both the local and peer supervisor engines SP ROMMON switch numbers should be set to the same value.

The **switch set switch_num** command sets or changes the SP ROMMON switch number. Currently, you can set the number to 1 or 2.

The **switch set switch_num** command is used only as part of the shortcut process to bring up VSS by reusing a saved and matched VSS configuration without going through the actual standalone-to-VSS conversion process. We usually recommend that you follow the official supported VSS conversion process.

Examples

This example shows how to set the active SP ROMMON to 2:

```
Router# switch set switch_num 2 local
```

Related Commands

Command	Description
switch read switch_num	Reads the SP ROMMON variable.

switch virtual domain (virtual switch)

To configure the virtual switch domain number and enter the virtual switch domain configuration submode, use the **switch virtual domain** command in global configuration mode.

switch virtual domain *number*

Syntax Description

number	Virtual switch domain number. Range: 1 to 255.

Command Default

No virtual switch domain number is configured.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

When you enter the **switch virtual domain** command, you enter the virtual switch domain configuration submode, and the prompt changes to `Router1(config-vs-domain)#`. Within the virtual switch domain configuration submode, the following commands are available:

- **default**—Sets a command to its defaults
- **exit**—Exits the virtual-switch-domain-mode and returns to the global configuration mode.
- **no**—Negates a command or set its defaults
- **switch** *num*—Assigns the switch number. See the **switch (virtual switch)** command for additional information.

You must configure the same virtual switch domain number on both chassis of the virtual switch. The virtual switch domain is a number between 1 and 255, and must be unique for each virtual switch in your network.

Note The domain identification takes effect only after you enter the **switch convert mode virtual** command.

Note The switch number is not stored in the startup or running configuration, because both chassis use the same configuration file (but must not have the same switch number).

Examples

The following example shows how to configure the virtual switch number and virtual switch domain on two switches:

```
Router1(config)# switch virtual domain 100
Router1(config-vs-domain)# switch 1
Router1(config-vs-domain)# exit
Router2(config)# switch virtual domain 100
Router2(config-vs-domain)# switch 2
Router2(config-vs-domain)# exit
```

Related Commands

Command	Description
switch (virtual switch)	Assigns a switch number and enters virtual switch domain configuration submode.

switch virtual in-chassis standby switch

To enable the supervisor engine, use the **switch virtual in-chassis standby swtich** command in EXEC mode.

switch virtual in-chassis standby switch {*switch-id*} {**enable** | **disable**}

Syntax Description

switch *switch-id*	Specifies the supervisor engine to be disabled or enabled.
enable	Specifies inchassis standby is enabled.
disable	Specifies inchassis standby is disabled.

Defaults

This command has no default settings.

Command Modes

EXEC mode

Command History

Release	Modification
12.2(33)SXI4	Support for this command was introduced on the Supervisor Engine 720.

Usage Guidelines

Use this command only with an ISSU system that has four supervisor engines installed: two in each chassis. Use this command only after a particular ICS has been disabled, and you need to reenable the ICS.

This command ensures that the ICS can participate in the ISSU cycle. However, you still need to boot up the ICS manually from ROMMON with the desired image. After you enter this command, a message is displayedthat indicates that you need to manually boot up from ROMMON.

Examples

This example shows how to enable a supervisor engine with the switch ID of 3:

```
Router# switch virtual in-chassis standby switch 3 enable
```

This example shows how to disable a supervisor engine with the switch ID of 3:

```
Router# switch virtual inc-hassis standby switch 3 disable
```

Related Commands

Command	Description
switch virtual in-chassis standby bootup version mismatch-check	Checks the version of your ISSU in-chassis active (ICA) supervisor engines.

switch virtual in-chassis standby bootup version mismatch version-check

To check the versions on your ISSU in-chassis standby active (ICA) supervisor engines, use the **switch virtual in-chassis standby bootup version mismatch version-check** command in EXEC mode. To disable version checks, use the no form of this command.

switch virtual in-chassis standby standby bootup version mismatch version check

no switch virtual in-chassis standby standby bootup version mismatch version check

Defaults

Version mismatch checks occur by default.

Command Modes

EXEC mode (#)

Command History

Release	Modification
12.2(33)SXI4	Support for this command was introduced.

Usage Guidelines

If a version mismatch occurs your ICA is dropped to ROMMON mode.

Examples

This example shows how to disable version mismatch checks on your ICA:

```
Router# no switch virtual in-chassis standby bootup version mismatch version-check
Router#
```

Related Commands

Command	Description
switch virtual in-chassis standby switch	Disables the ICS.

switch virtual link (virtual switch)

To associate a switch to an interface, use the **switch virtual link** command in interface configuration mode.

switch virtual link *switch-number*

Syntax Description

switch-number	Switch number; valid values are 1 and 2.

Command Default

The interfaces are not associated by default.

Command Modes

Interface configuration (config-if)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

The virtual switch link (VSL) is configured with a unique port channel on each chassis. You must add the VSL physical ports to the port channel. The VSL channel group must contain a minimum of two ports.

Examples

The following example shows how to associate switch 2 to a port channel:

```
Router-2(config)# interface port-channel 20
Router-2(config-if)# switch virtual link 2
Router-2(config-if)#
```

vslp interval (virtual switch)

To configure the virtual switch link protocol (VSLP) hello packet interval, use the **vslp interval** command in interface configuration mode. To return to the default settings, use the **no** form of this command.

vslp interval *interval* **min_rx** *min-interval* **multiplier** *factor*

no vslp interval

Syntax Description

interval	Hello packet interval in milliseconds between the transmission of hello packets. Range: 300 to 5000.
min_rx *min-interval*	Specifies the minimum interval in milliseconds for received hello packets. Range: 300 to 10000.
multiplier *factor*	Specifies a factor in which, if no hello packets are received, the link is flagged as non operational. Range: 3 to 50.

Command Default

The interfaces are not associated by default.

Command Modes

Interface configuration (config-if)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.

Usage Guidelines

When you specify a factor, the formula is if no hello packets are received in (min_rx * multiplier) milliseconds, the link is flagged as non-operational.

Examples

The following example shows how to configure the virtual switch link protocol (VSLP) hello packet interval:

```
Router-2(config-if)# vslp interval 400 min_rx 500
Router-2(config-if)#
```