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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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	Enables BFD dual-active detection method.
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

Detection methods (**bfd**, **pagp** 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.
12.2(50)SY	Support for this command was introduced. The bfd keyword is unsupported in this release.
15.0(1)SY	Support for this command was introduced. The bfd keyword is unsupported in this release.

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 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 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
dual-active fast-hello (virtual switch)	Configures an interface for fast hello 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.
12.2(50)SY	Support for this command was introduced. The bfd keyword is unsupported in this release.
15.0(1)SY	Support for this command was introduced. The bfd keyword is unsupported in this release.

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 as a fast hello dual-active messaging link.
- The interface must not be in use for IP BFD dual-active detection.
- The interface must not be in use for fast hello dual-active detection.

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)#
```

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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.

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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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 (virtual switch)

To specify the boot options for the module through the power management bus control register, use the **hw-module** 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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	Support for this command was introduced.

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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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 have PFC3Cs installed, the VSS automatically operates in PFC3C mode, even if there are switching modules equipped with (DFC) 3CXL daughter cards.

If both supervisor engines have PFC3CXLs installed and there is a combination of DFC3C and DFC3CXL switching modules, the system PFC mode is dependant 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.

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.

platform hardware vsl pfc mode non-xl

To configure the system to operate in PFC4C mode when you reload, use the **platform hardware vsl pfc mode non-xl** command in global configuration mode. To return to the default settings, use the **no** form of this command.

platform hardware vsl pfc mode non-xl

no platform hardware vsl pfc mode non-xl

Syntax Description

This command has no arguments or keywords.

Command Default

The default PFC mode is PFC4CXL.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(50)SY	Support for this command was introduced.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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 have PFC4Cs installed, the VSS automatically operates in PFC4C mode, even if there are switching modules equipped with (DFC) 4CXL daughter cards.

If both supervisor engines have PFC4CXLs installed and there is a combination of DFC4C and DFC4CXL switching modules, the system PFC mode is dependant on how the 4C and 4CXL 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.

Examples

The following example shows how to configure the system to operate in PFC4C mode when you reload:

```
Router(config)# platform hardware vsl pfc mode non-xl
Router(config)#
```

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**.

In Cisco IOS Release 12.2(50)SY or later releases, the hash distribution algorithm method is set to **adaptive**.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(33)SXH1	Support for this command was introduced.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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 load-defer

To configure the port load share deferral interval for all port channels, use the **port-channel load-defer** command in global configuration mode. To reset the port defer interval to the default setting, use the **no** form of this command.

port-channel load-defer *seconds*

no port-channel load-defer *seconds*

Syntax Description

seconds	Sets the time interval in seconds by which load sharing will be deferred on the switch. Valid range is from 1 to 1800 seconds. The default deferal interval is 120 seconds

Defaults

The port defer interval is 120 seconds.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	Support for this command was introduced.

Usage Guidelines

To reduce data loss following a stateful switchover (SSO), port load share deferral can be enabled by entering the **port-channel port load-defer** command on a port channel of a switch that is connected by a multichassis EtherChannel (MEC) to a virtual switching system (VSS). Port load share deferral temporarily prevents the switch from forwarding data traffic to MEC member ports on a failed chassis of the VSS while the VSS recovers from the SSO.

The load share deferral interval is determined by a single global timer configurable by the **port-channel load-defer** command. After an SSO switchover, a period of several seconds to several minutes can be required for the reinitialization of line cards and the reestablishment of forwarding tables, particularly multicast topologies.

The valid range of *seconds* is 1 to 1800 seconds; the default is 120 seconds.

Examples

This example shows how to set the global port deferral interval to 60 seconds:

```
Router(config)# port-channel load-defer 60
Router(config)#
```

This example shows how to verify the configuration of the port deferral interval on a port channel:

```
Router# show etherchannel 50 port-channel

                Port-channels in the group:
                ----------------------

Port-channel: Po50    (Primary Aggregator)
```

```
------------

Age of the Port-channel   = 0d:00h:22m:20s
Logical slot/port   = 46/5          Number of ports = 3
HotStandBy port = null
Port state          = Port-channel Ag-Inuse
Protocol            =   LACP
Fast-switchover     = disabled
Load share deferral = enabled   defer period = 60 sec   time left = 57 sec

Router#
```

Related Commands

Command	Description
interface port-channel	Creates a port channel virtual interface and enters interface configuration mode.
port-channel port load-defer	Enables the port load share deferral feature on a port channel.
show etherchannel	Displays the EtherChannel information for a channel.

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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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)#
```

port-channel port load-defer

To enable the temporary deferral of port load sharing during the connection or reconnection of a port channel, use the **port-channel port load-defer** command in interface configuration mode. To disable the deferral of port load sharing on a port channel, use the **no** form of this command.

port-channel port load-defer

no port-channel port load-defer

Syntax Description

This command has no keywords or arguments.

Defaults

The port load share deferral feature is not enabled on a port channel.

Command Modes

Interface configuration (config-if)

Command History

Release	Modification
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	Support for this command was introduced.

Usage Guidelines

To reduce data loss following a stateful switchover (SSO), a port load share deferral can be enabled on a port channel of a switch that is connected by a multichassis EtherChannel (MEC) to a virtual switching system (VSS). The load share deferral interval prevents the switch from forwarding data traffic to MEC member ports on a failed chassis of the VSS while the VSS recovers from the SSO.

When load share deferral is enabled on a port channel, the assignment of a member port's load share is delayed for a period that is configurable globally by the **port-channel load-defer** command. During the deferral period, the load share of a deferred member port is set to 0. In this state, the deferred port is capable of receiving data and control traffic, and of sending control traffic, but the port is prevented from sending data traffic over the MEC to the VSS. Upon expiration of the global deferral timer, the deferred member port exits the deferral state and the port assumes its normal configured load share.

Load share deferral is applied only if at least one other member port of the port channel is currently active with a nonzero load share. If a port enabled for load share deferral is the first member bringing up the EtherChannel, the deferral feature does not apply and the port will forward traffic immediately.

The load share deferral interval is determined by a single global timer configurable from 1 to 1800 seconds by the **port-channel load-defer** command. The default interval is 120 seconds. After an SSO switchover, a period of several seconds to several minutes can be required for the reinitialization of line cards and the reestablishment of forwarding tables, particularly multicast topologies.

Examples

This example shows how to enable the load share deferral feature on port channel 50 of a switch that is an MEC peer to a VSS:

```
Router(config)# interface port-channel 50
Router(config-if)# port-channel port load-defer
This will enable the load share deferral feature on this port-channel.
The port-channel should connect to a Virtual Switch (VSS).
Do you wish to proceed? [yes/no]: yes
Router(config-if)#
```

This example shows how to verify the state of the port deferral feature on a port channel:

```
Router# show etherchannel 50 port-channel

                Port-channels in the group:
                ----------------------

Port-channel: Po50    (Primary Aggregator)

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

Age of the Port-channel   = 0d:00h:22m:20s
Logical slot/port   = 46/5          Number of ports = 3
HotStandBy port = null
Port state          = Port-channel Ag-Inuse
Protocol            =   LACP
Fast-switchover     = disabled
Load share deferral = enabled   defer period = 120 sec   time left = 57 sec

Router#
```

power enable (virtual switch)

Command	Description
interface port-channel	Creates a port channel virtual interface and enters interface configuration mode.
port-channel load-defer	Configures the global port load share deferral time interval for port channels.
show etherchannel	Displays the EtherChannel information for a channel.

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
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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.

service issu upgrade staggered

To stop using the staggered upgrade mode, use the **no service issu upgrade staggered** command in Global configuration mode.

service issu upgrade staggered

no service issu upgrade staggered

Syntax Description

This command has no keywords or arguments.

Command Default

The default setting is **staggered.**

Command Modes

Global configuration (config)

Command History

Release	Modification
15.1(1)SY	Support for this command was introduced.

Usage Guidelines

The no service issu upgrade staggered command allows you to opt-out of the staggered mode upgrade process.

Examples

The following example shows how to stop using the staggered upgrade mode:

```
Router# no service issu upgrade staggered
Router#
```

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.
12.2(50)SY	Support for this command was introduced.
15.0(1)SY	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#
```