Hardware Redundancy and Node Administration Commands on Cisco IOS XR Software

This module describes the commands used to manage the hardware redundancy, power, and administrative status of the nodes on a router running Cisco IOS XR software.

ce tftp server

To enable Trivial File Transfer Protocol (TFTP) on a specific directory, or to enable files to be written to the TFTP server, use the **ce tftp server** command in administration configuration mode.

ce tftp server {**homedir** *name* | **write**}

Syntax Description

homedir *name*	Specifies the home directory for TFTP server.
write	Enables files to be written to the TFTP server.

Defaults

No default behavior or values

Command Modes

Administration configuration

Command History

Release	Modification
Release 3.0	This command was introduced on the Cisco CRS-1.
Release 3.2	No modification.
Release 3.3.0	The **ce tftp server enable** EXEC mode command was replaced by the **ce tftp server** administration configuration mode command.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following example shows how to enable files to be written to the TFTP server:

```
RP/0/RP0/CPU0:router(config)# ce tftp server write
```

The following example shows how to enable TFTP on a specific directory. In this example, the directory is called “dir”:

```
RP/0/RP0/CPU0:router(config)# ce tftp server homedir dir
```

clear mbus-statistics location

To clear Mbus firmware statistics on a specific node, use the **clear mbus-statistics location** command in administration EXEC mode.

clear mbus-statistics location {*node-id* | **all**}

Syntax Description

node-id	Identifies the location of the node whose Mbus interface counters you want to clear. The *node-id* is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.
all	Clears Mbus interface counters for all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	execute

Examples

The following example shows how to clear all Mbus interface counters on a specific node:

```
RP/0/0/CPU0:router# admin

RP/0/0/CPU0:router(admin)# clear mbus-statistics location 0/0/CPU0
```

dsc serial

To define serial ID for a rack, use the **dsc serial** command in administration configuration mode. To remove a serial ID entry from the designated shelf controller (DSC) table, use the **no** form of this command.

dsc serial *serial_Id* **rack** *rack_num*

no dsc serial *serial_Id* **rack** *rack_num*

Syntax Description

serial_Id	Defines a serial ID for a rack. The serial ID is included as an entry in the DSC table. Range is from 0 through 16 characters.
rack *rack_num*	Identifies the rack whose ID you are configuring to be the serial ID. **Note** For systems that include two line card chassis and one fabric chassis, the line card chassis IDs are 0 and 1, and the fabric chassis ID is F0.

Defaults

No default behavior or values

Command Modes

Administration configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	The task ID was updated to system.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

For more information about identifying and selecting a DSC on a Cisco CRS-1 router, Cisco XR 12000 Series Router, or Cisco CRS-1 Multishelf System, refer to *Cisco IOS XR Getting Started Guide.*

Note The serial ID is the hardware serial number that identifies the chassis.

Use the **show running-config** command to display and verify the defined serial ID for a rack.

Task ID

Task ID	Operations
system	read, write

Examples

The following example shows how to define the serial ID for a rack:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# configure
RP/0/RP0/CPU0:router(admin-config)# dsc serial TBC0610991700000 rack 1
```

Related Commands

Command	Description
show dsc	Displays the current DSC configuration for the shelf or for the system.
show running-config	Displays the current running (active) configuration.

env disable

To disable environment monitoring on the chassis, use the **env disable** command in administration configuration mode. To reenable environment monitoring after it has been disabled, use the **no** form of this command.

env disable

no env disable

Syntax Description

This command has no arguments or keywords.

Defaults

Environment monitoring is enabled.

Command Modes

Administration configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	This command was first supported on the Cisco XR 12000 Series Router. The **env disable** command was moved from the root-system task ID to the system task ID.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

By default, environment monitoring related to temperature and voltage is enabled on a router running Cisco IOS XR software. If environmental monitoring is disabled, you are not alerted if the router overheats.

Task ID

Task ID	Operations
system	read, write

Examples

The following example shows how to disable environment monitoring with the **env disable** command:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# configure
RP/0/RP0/CPU0:router(admin-config)# env disable
```

Related Commands

Command	Description
env power-supply disable	Enables power supply monitoring on the chassis.

env power-supply disable

To disable power supply monitoring on the chassis, use the **env power-supply disable** command in administration configuration mode. To disable power supply monitoring, use the **no** form of this command.

env power-supply disable

no env power-supply disable

Syntax Description

This command has no arguments or keywords.

Defaults

Power supply monitoring is enabled.

Command Modes

Administration configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	The **env power-supply** command was moved from the root-system task ID to the system task ID. The **threshold** {**restart** *voltage* | **shutdown** *voltage*} keywords and arguments were added to the **env power-supply** command.
Release 3.4.0	No modification.
Release 3.4.1	The **threshold** {**restart** *voltage* | **shutdown** *voltage*} keywords and arguments were removed and the command was changed to **env power-supply disable**. Power supply monitoring was enabled by default.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
system	read, write

Examples

The following example shows how to disable power supply monitoring with the **env power-supply disable** command:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# configure
RP/0/RP0/CPU0:router(admin-config)# env power-supply disable
```

Related Commands

Command	Description
env disable	Disables environment monitoring on the chassis.

facility-alarm contacts

To set or unset facilities for processing alarms related to temperature and power supply conditions, use the **facility-alarm contacts** command in administration EXEC mode.

facility-alarm contacts {**all** | **critical** | **major** | **minor**} {**audio** | **both** | **visual**} {**on** | **off**}

Syntax Description

all	Sets the facility alarm contacts so that an audio and visual alarm alerts the user to a facility alarm of any severity.
critical	Sets the facility alarm contacts so that an audio and visual alarm alerts the user to critical facility alarms.
major	Sets the facility alarm contacts so that an audio and visual alarm alerts the user to major facility alarms.
minor	Sets the facility alarm contacts so that an audio and visual alarm alerts the user to minor facility alarms.
audio	Sets the facility alarm contacts so that an audio alarm alerts the user to alarms of the specified severity.
both	Sets the facility alarm contacts so that an audio and visual alarm alerts the user to alarms of the specified severity.
visual	Sets the facility alarm contacts so that a visual alarm alerts the user to alarms of the specified severity.
on	Enables facility alarm contacts configuration.
off	Disables facility alarm contacts configuration.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
root-system	read

Examples

The following example shows how to enable an audio alarm to alert the user when a critical facility-alarm occurs:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# configure
RP/0/0/CPU0:router(admin-config)# facility-alarm contacts critical audio on
```

Related Commands

Command	Description
show facility-alarm contacts	Displays audio and visual facility alarm information for the router.

hw-module boot override

To place the standby RP into ROM Monitor mode so that you can update the ROMMON software in a single chassis system to a compatible ROM Monitor version, use the **hw-module boot override** command in administration configuration mode. To remove an RP from ROM Monitor mode, use the **no** form of this command.

hw-module boot override

no hw-module boot override

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Administration configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Before you can upgrade a single-chassis system to Cisco IOS XR Software Release 3.3.0 or later release, you need to first upgrade the ROM Monitor software to a compatible version. If you do not perform this upgrade in a single-chassis system, the standby RP fails to boot and an error message appears. To avoid boot failure, you need to use the **hw-module boot override** command to place the standby RP into ROM Monitor mode, and update the ROMMON software as required.

For ROM Monitor requirements for Cisco IOS XR Software Release 3.01 and later releases, refer to Software/Firmware Compatibility Matrix at the following URL:

http://www.cisco.com/web/Cisco_IOS_XR_Software/index.html

Use the **show platform** command to view a summary of the nodes in the router, including status information.

Task ID

Task ID	Operations
root-system	read, write
root-lr	read, write

Examples

The following example shows how to boot the standby RP to upgrade its ROMMON software to a more recent ROM Monitor version:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# configure
RP/0/RP0/CPU0:router(admin-config)# hw-module boot override
```

Related Commands

Command	Description
show platform	Displays information and status for each node in the system.

hw-module location (Cisco XR 12000 Series Router)

To configure various hardware attributes for a specific node, or for all nodes installed in the router, use the **hw-module location** command. The syntax and tasks performed by the **hw-module location** command differ, depending on the command mode you are running when you enter the **hw-module location** command.

To reset a specific node or all nodes on the router, or to put a node into maintenance mode, use the **hw-module location** command in EXEC mode as follows:

hw-module location {*node-id* {**maintenance-mode | reload** {*path* | **warm**}} | **all reload** [*path*]}

To reset a specific node or all nodes, use the **hw-module location** command in administration EXEC mode as follows:

hw-module location {*node-id* | **all**} **reload** [*path* | **warm**]

To disable the power, monitor, or shutdown states of the hardware on a specific node, or on all nodes installed in the router, use the **hw-module location** command in administration configuration mode, as follows:

hw-module location {*node-id* | **all**} {**power disable | reset auto disable | shutdown**}

Syntax Description

node-id	Node whose hardware attributes you want to configure. The *node-id* is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.
all	Indicates that you want to configure the hardware attributes for all nodes installed in the router.
reload	Resets power-cycle, reloads hardware, or both on a specific node.
path	Specifies a specific image you want to download onto the specific node or nodes. Replace *path* with the TFTP or disk path to the image you want to download.
warm	Specifies a warm reload of the node.
maintenance-mode	Brings the node down and puts the node into maintenance mode.
power disable	Disables the power state on the specified node.
reset auto disable	Disables the automonitor state on the specified node or nodes.
shutdown	Disables the shutdown state on the specified node.

Defaults

No default behavior or values

Command Modes

EXEC
Administration EXEC
Administration configuration

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	The **maintenance-mode** keyword was added in EXEC mode.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Note By default, the node remains powered until you specify that you want it powered down with the **hw-module location** *node-id* **power disable** command.

Task ID

Task ID	Operations
root-lr	read (in EXEC mode, administration EXEC mode, and administration configuration mode) write (in administration configuration mode)
sysmgr	execute (in EXEC mode and administration EXEC mode) read (in administration configuration mode) write (in administration configuration mode)

Examples

The following example shows how to reset the hardware on all nodes in the router:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# hw-module location all reload

WARNING: This will take the requested node out of service.
Do you wish to continue?[confirm(y/n)]
```

The following example shows how to disable the auto monitor state on all nodes installed in the router:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# configure
RP/0/0/CPU0:router(admin-config)# hw-module location all reset auto disable
```

hw-module location (Cisco CRS-1)

To configure various hardware attributes for a specific node, or for all nodes installed in the router, use the **hw-module location** command. The syntax and tasks performed by the **hw-module location** command differ, depending on the command mode you are running when you enter the **hw-module location** command.

To reset a specific node, or to put a node into maintenance mode, use the **hw-module location** command in EXEC mode as follows:

hw-module location *node-id* {**maintenance-mode | reload** {*path* | **warm**}}

To reset a specific node or all nodes, use the **hw-module location** command in administration EXEC mode as follows:

hw-module location *node-id* **reload** {*path* | **warm**}

Syntax Description

node-id	Node whose hardware attributes you want to configure. The *node-id* is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.
maintenance-mode	Brings the node down and puts the node into maintenance mode.
reload	Resets power-cycle, reloads hardware, or both on a specific node.
path	Specifies a specific image you want to download onto the specific node or nodes. Replace *path* with the TFTP or disk path to the image you want to download.
warm	Specifies a warm reload of the node.

Defaults

No default behavior or values

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1.
Release 3.4.0	The **maintenance-mode** keyword was added in EXEC mode.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Note By default, the node remains powered until you specify that you want it powered down with the **hw-module location** *node-id* **power disable** command.

Note Before reloading nodes on a Cisco CRS-1, we recommend using the **cfs check** command to check the sanity of the configuration file system and attempt to recover from internal inconsistencies. You need to enter the **cfs check** command on each SDR that has nodes impacted by the reload.

Task ID

Task ID	Operations
root-lr	execute (in EXEC mode)
sysmgr	execute (in EXEC mode and administration EXEC mode)

Examples

The following example shows how to reset the hardware on a specific node from EXEC mode:

```
RP/0/RP0/CPU0:router # hw-module location 0/1/CPU0 reload
```

The following example shows how to reset the hardware on a specific node from Administration EXEC mode:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# hw-module location 0/3/CPU0 reload
```

hw-module port

To enable a SONET/SDH port to be used for Spatial Reuse Protocol (SRP), use the **hw-module port** command in global configuration mode. To disable SRP and enable the port for Packet-over-SONET/SDH (POS), use the **no** form of this command.

hw-module port *port-id* **srp location** [**preconfigure**] *node-id*

no hw-module port *port-id* **srp location** [**preconfigure**] *node-id*

Syntax Description

port-id	Number that identifies the physical port on a line card. • For the OC-192 physical layer interface module (PLIM), the range is from 0 through 3. • For the OC-48 PLIM, the range is from 0 through 15.
srp	Sets the port in Spatial Reuse Protocol (SRP) mode
location	Indicates a specific node location.
preconfigure	(Optional) Specifies the **preconfigure** option. **Note** Use the **preconfigure** option only if a node has not yet been inserted into the specified location.
node-id	Identifies the location of the node on which you want to enable an SRP port, in the *rack/slot/module* notation.

Defaults

SRP is disabled on all SONET/SDH ports.

Command Modes

Global configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1.
Release 3.4.0	The **hw-module port** command was supported on the OC-48 PLIM.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show platform** command to view a summary of the nodes in the router, including status information.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to enable a SONET/SDH port to be used for SRP:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# hw-module port 1 srp location 0/1/CPU0
```

Related Commands

Command	Description
show platform	Displays information and status for each node in the system.

hw-module power

To power on a specified line card or disable the node power-on feature, use the **hw-module power** command in administration configuration mode. To power off a line card, use the **no** form of this command.

hw-module power [**disable**] **location** *node-id*

no hw-module power [**disable**] **location** *node-id*

Syntax Description

disable	(Optional) Disables the power state
location *node-id*	Identifies the node you want to power on, or whose node power-on feature you want to disable. The *node-id* argument is expressed in the *rack/slot/module* notation.

Defaults

Power is on for all nodes.

Command Modes

Administration configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **hw-module power** command is available for line cards only; it is not available for router processor (RP) cards.

Use the **show platform** command to view a summary of the nodes in the router, including status information.

Task ID

Task ID	Operations
root-system	read, write
root-lr	read, write

Examples

The following example shows how to power on a line card:

```
RP/0/RP0/CPU0:router # admin
RP/0/RP0/CPU0:router(admin)# configure
RP/0/RP0/CPU0:router(admin-config)# hw-module power location 0/1/0
```

The following example shows how to disable the power-on feature for a line card:

```
RP/0/RP0/CPU0:router # admin
RP/0/RP0/CPU0:router(admin)# configure
RP/0/RP0/CPU0:router(admin-config)# hw-module power disable location 0/SM3/SP
```

Related Commands

Command	Description
show platform	Displays information and status for each node in the system.

hw-module power disable

To disable the node power-on feature on a specific line card, use the **hw-module power disable** command in administration configuration mode. To reenable the node power-on feature on a line card, use the **no** form of this command.

hw-module power disable location *node-id*

no hw-module disable location *node-id*

Syntax Description

location *node-id*	Identifies the node whose power-on feature you want to disable. The *node-id* argument is expressed in the *rack/slot/module* notation.

Defaults

Power is on for all nodes.

Command Modes

Administration configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show platform** command to view a summary of the nodes in the router, including status information.

The **hw-module power disable** command is available for line cards only; it is not available for RP cards.

Task ID

Task ID	Operations
sysmgr	read, write
root-lr	read, write

Examples

The following example shows how to disable the node power-on feature on a line card:

```
RP/0/0/CPU0:router # admin
RP/0/0/CPU0:router(admin)# configure
RP/0/0/CPU0:router(admin-config)# hw-module power disable location 0/0/CPU0
```

Related Commands	Command	Description
	show platform	Displays information and status for each node in the system.

hw-module reset auto

To reset a specific node, use the **hw-module reset auto** command in administration configuration mode. To disable the reset feature on a specific node, use the **no** form of this command.

hw-module reset auto [**disable**] **location** *node-id*

no hw-module reset auto [**disable**] **location** *node-id*

Syntax Description

disable	(Optional) Disables the node reset feature on the specified node.
location *node-id*	Identifies the node you want to reload. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The node reset feature is enabled for all nodes.

Command Modes

Administration configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **hw-module reset auto** command is used to reload Cisco IOS XR software on a specific node. The node reloads with the current running configuration and active software set for that node.

Task ID

Task ID	Operations
root-system	read, write
root-lr	read, write

Examples

The following example shows how to reload a node:

```
RP/0/RP0/CPU0:router # admin
RP/0/RP0/CPU0:router(admin)# configure
RP/0/RP0/CPU0:router(admin-config)# hw-module reset auto location 0/2/CPU0
```

```
RP/0/RP0/CPU0:router# RP/0/RP0/CPU0:Apr  2 22:04:43.659 : shelfmgr[294]: %S
HELFMGR-3-USER_RESET : Node 0/2/CPU0 is reset due to user reload request
```

Related Commands

Command	Description
hw-module power	Powers on a specified node. (Cisco CRS-1 router only)
hw-module shutdown	Administratively shuts down a specified node.

hw-module reset auto disable

To disable the node reset feature on a specific node, use the **hw-module reset auto disable** command in administration configuration mode. To reenable the reset feature on a specific node, use the **no** form of this command.

hw-module reset auto disable location *node-id*

no hw-module reset auto disable location *node-id*

Syntax Description

disable	(Optional) Disables the node reset feature on the specified node.
location *node-id*	Identifies the node you want to reload. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The node reset feature is enabled for all nodes.

Command Modes

Administration configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read, write
root-lr	read, write

Examples

The following example shows how to disable the reload feature on a node:

```
RP/0/0/CPU0:router # admin
RP/0/0/CPU0:router(admin)# configure
RP/0/0/CPU0:router(admin-config)# hw-module reset auto disable location 0/0/CPU0
```

Related Commands

Command	Description
hw-module power	Powers on a specified node. (Cisco CRS-1 router only)
hw-module shutdown	Administratively shuts down a specified node.

hw-module shutdown

To administratively shut down a specific node, use the **hw-module shutdown** command in administration configuration mode. To return a node to the up state, use the **no** form of this command.

hw-module shutdown location *node-id*

no hw-module shutdown location *node-id*

Syntax Description

location *node-id*	Identifies the node you want to shut down. The *node-id* argument is expressed in the *rack/slot/module* notation.

Defaults

Nodes are in the up state.

Command Modes

Administration configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1 router.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	This command was supported on the Cisco XR 12000 Series Router. This command was modified from the **hw-module node shutdown** command. The **node** keyword was replaced by the **location** keyword, which was moved to the end of the command string.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Nodes that are shut down still have power, but cannot load or operate Cisco IOS XR software.

Note Route processors (RPs) cannot be administratively shut down.

Enter the **show platform** command in EXEC mode to display the results of the **hw-module shutdown** command.

Task ID

Task ID	Operations
root-system	read, write (on the Cisco CRS-1)
sysmgr	read, write (on the Cisco XR 12000 Series Router)
root-lr	read, write

Examples

The following example shows how to administratively shut down the node 0/2/CPU0:

```
RP/0/RP0/CPU0:router # admin
RP/0/RP0/CPU0:router(admin)# configure
RP/0/RP0/CPU0:router(admin-config)# hw-module shutdown location 0/2/CPU0
```

The following example shows how to bring up a node using the **no** form of the **hw-module shutdown** command:

```
RP/0/RP0/CPU0:router # admin
RP/0/RP0/CPU0:router(admin)# configure
RP/0/RP0/CPU0:router(admin-config)# no hw-module shutdown location 0/2/CPU0
```

Related Commands

Command	Description
hw-module power	Powers on a specified node. (Cisco CRS-1 router only)
hw-module power disable	Disables the node power-on feature on a specific node. (Cisco XR 12000 Series Router only)
hw-module reset auto	Reloads a specified node. (Cisco CRS-1 only)
hw-module reset auto disable	Disables the node reset feature on a specific node. (Cisco XR 12000 Series Router only)

hw-module subslot reload

To reload Cisco IOS XR software on a specific subslot, use the **hw-module subslot reload** command in EXEC mode.

hw-module subslot *subslot-id* **reload**

Syntax Description

subslot-id	Specifies the subslot to be restarted. The *subslot-id* argument is entered in the *rack/slot/subslot* notation.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

This command reloads Cisco IOS XR software on the specified shared port adapter (SPA) and restarts the SPA interfaces. The SPA reloads with the current running configuration and active software set for the SPA.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to restart the SPA in slot 2, subslot 1:

```
RP/0/RP1/CPU0:router# hw-module subslot 0/2/1 reload
```

Related Commands

Command	Description
hw-module subslot shutdown	Administratively shuts down a SPA.

hw-module subslot shutdown

To administratively shut down a specific shared port adapter (SPA), use the **hw-module subslot shutdown** command in global configuration mode. To return a SPA to the up state, use the **no** form of this command.

hw-module subslot *subslot-id* **shutdown** [**powered** | **unpowered**]

no hw-module subslot *subslot-id* **shutdown**

Syntax Description

subslot-id	Specifies the subslot to be shut down. The *subslot-id* argument is entered in the *rack/slot/subslot* notation.
powered	(Optional) Retains power to the specified subslot.
unpowered	(Optional) Powers down completely the specified subslot.

Defaults

Shutdown is powered if no option is specified.

Command Modes

Global configuration

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

This command administratively shuts down the SPA in the specified subslot. Subslots that are shut down still have power, but cannot load or operate Cisco IOS XR software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to shut down the SPA in subslot 1 of the SPA interface processor (SIP) in slot 2:

```
RP/0/RP1/CPU0:router# configure
RP/0/RP1/CPU0:router(config)# hw-module subslot 0/2/1 shutdown powered
```

Related Commands

Command	Description
shutdown	Disables an interface (forces an interface to be administratively down).

redundancy switchover

To cause the primary (active) route processor (RP) to fail over to the redundant standby RP, use the **redundancy switchover** command in EXEC or administration EXEC mode. To disable the forced failover, use the **no** form of this command.

redundancy switchover [**location** *node-id*]

no redundancy switchover [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies the primary RP on which to force a failover. The *node-id* argument is expressed in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	This command was first supported on the Cisco XR 12000 Series Router. The **redundancy switchover** command was moved from the system task ID to the root-lr task ID.
Release 3.4.0	No modification.
Release 3.5.0	This command was supported in administration EXEC mode.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **redundancy switchover** command to trigger a failover from the primary RP to the standby RP. When the **redundancy switchover** command is issued, the running (committed) configuration is automatically saved and loaded during failover, and the standby RP becomes the active primary RP, while the original primary RP becomes the standby RP.

Note The **redundancy switchover** command can be used only if the standby RP is in the ready state. Use the **show redundancy** command to view the status of the RPs.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows partial output for a successful redundancy switchover operation:

```
RP/0/RP0/CPU0:router# show redundancy

Redundancy information for node 0/RP0/CPU0:
==========================================
Node 0/RP0/CPU0 is in ACTIVE role
Partner node (0/RP1/CPU0) is in STANDBY role
Standby node in 0/RP1/CPU0 is ready

Reload and boot info
----------------------
RP reloaded Tue Mar 28 09:02:26 2006: 5 hours, 41 minutes ago
Active node booted Tue Mar 28 09:02:56 2006: 5 hours, 41 minutes ago
Last switch-over Tue Mar 28 09:09:26 2006: 5 hours, 34 minutes ago
Standby node boot Tue Mar 28 09:10:37 2006: 5 hours, 33 minutes ago
Standby node last went not ready Tue Mar 28 09:25:49 2006: 5 hours, 18 minutes
go
Standby node last went ready Tue Mar 28 09:25:51 2006: 5 hours, 18 minutes ago
There has been 1 switch-over since reload
....
RP/0/RP0/CPU0:router# redundancy switchover

Initializing DDR SDRAM...found 2048 MB
Initializing ECC on bank 0
...
Turning off data cache, using DDR for first time

Initializing NVRAM...
Testing a portion of DDR SDRAM ...done
Reading ID EEPROMs ...
Initializing SQUID ...
Initializing PCI ...

PCI0 device[1]: Vendor ID 0x10ee

Configuring MPPs ...
Configuring PCMCIA slots ...
--More--
```

If the standby RP is not in the ready state, the failover operation is not allowed. The following example shows output for a failed redundancy switchover attempt:

```
RP/0/RP0/CPU0:router# show redundancy

This node (0/RP0/CPU0) is in ACTIVE role
Partner node (0/RP1/CPU0) is in UNKNOWN role

RP/0/RP0/CPU0:router# redundancy switchover

Standby card not running; failover disallowed.
```

Related Commands

Command	Description
show redundancy	Displays the redundancy status of the RPs.

show dsc

To display the current designated shelf controller (DSC) configuration for the shelf or for the system, enter the **show dsc** command in administration EXEC mode.

show dsc [**all** | **mine** | **location** *node-id*]

Syntax Description

all	(Optional) Displays DSC information from all available nodes in the system.
mine	(Optional) Displays information about the current node.
location *node-id*	(Optional) Displays DSC information for a specific node. The *node-id* is expressed in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	The **node** keyword was replaced by the **location** keyword. The **show dsc** command was moved from the root-system task ID to the system task ID.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

For more information about identifying and selecting a DSC on a Cisco CRS-1, Cisco XR 12000 Series Router, or Cisco CRS-1 Multishelf System, refer to *Cisco IOS XR Getting Started Guide.*

Task ID

Task ID	Operations
system	read

Examples

The following is sample output from the **show dsc mine** command on a Cisco CRS-1 router:

```
RP/0/RP0/CPU0:router# admin

RP/0/RP0/CPU0:router(admin)# show dsc mine

NODE            ROLE         PRIORITY      TBEACON    PRESENT  MIGRATION
======================================================================
0/0/CPU0        DSC          3             2000       YES      ENABLED
----------------------------------------------------------------------
```

Table 33 describes the significant fields shown in the display.

Table 33 show dsc Field Descriptions

Field	Description
NODE	Location of the node, in the *rack/slot/module* notation.
ROLE	Role this node is performing. Because the **show dsc** command shows the DSC node, the ROLE is always DSC.
PRIORITY	DSC priority assigned to this node.
TBEACON	Current DSC beacon timeout value.
PRESENT	Indicates whether the node is present in the slot.
SERIAL ID	Serial ID assigned to this node.
MIGRATION	Displays the current DSC migration functionality to the standby card. Can be one of the following: • ENABLE—Migration process is enabled • UNKNOWN—Migration configuration is unknown.

The following is sample output from the **show dsc all** command on a Cisco XR 12000 Series Router:

```
RP/0/0/CPU0:router(admin)# show dsc all

NODE            ROLE         PRIORITY      TBEACON    PRESENT  MIGRATION
======================================================================
0/0/CPU0        DSC          3             2000       YES      ENABLED
----------------------------------------------------------------------
0/5/CPU0        NON-DSC      5             2000       YES      ENABLED
----------------------------------------------------------------------
```

Table 33 describes the significant fields shown in the display.

Related Commands

Command	Description
dsc serial	Defines a serial ID for a rack.

show environment

To display environmental monitor parameters for the system, use the **show environment** command in EXEC mode or administration EXEC mode.

On the Cisco CRS-1 router, in EXEC mode:

show environment [**all** | **last** | **leds** | **table** | **temperatures** | **voltages**] [*node-id*]

On the Cisco CRS-1 router, in administration EXEC mode:

show environment [**all** | **fans** | **last** | **leds** | **power-supply** | **table** | **temperatures** | **trace** | **voltages**] [*node-id*]

On the Cisco XR 12000 Series Router, in EXEC mode:

show environment [**all** | **table** | **temperatures** | **voltages**] [**last**] [*node-id*]

On the Cisco XR 12000 Series Router, in administration EXEC mode:

show environment [**all** | **fans** | **last** | **leds** | **power-supply** | **table** | **temperatures** | **voltages**] [*node-id*]

Syntax Description

all	(Optional) Displays information for all environmental monitor parameters.
last	(Optional) Displays information for prior environmental monitor parameters.
fans	(Optional) Displays information about the fans.
leds	(Optional) Displays monitor parameters for LEDs on all cards in the node.
table	(Optional) Displays environmental parameter ranges.
temperatures	(Optional) Displays system temperature information.
power-supply	(Optional) Displays power supply voltage and current information.
trace	(Optional) Displays trace data for environment monitoring.
voltages	(Optional) Displays system voltage information.
node-id	(Optional) Identifies the node whose information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation.

Defaults

All environmental monitor parameters are displayed.

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.

Release	Modification
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	The optional *node-id* argument *was supported* on the Cisco CRS-1. The **show environment** command was moved from the root-system task ID to the system task ID.
Release 3.4.0	No modification.
Release 3.5.0	The **trace** keyword was added on the Cisco CRS-1 in administration EXEC mode.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **show environment** command displays information about the hardware that is installed in the system, including fans, LEDs, power supply voltage, and current information and temperatures.

Task ID

Task ID	Operations
system	read

Examples

The following is sample output from the **show environment** command with the **temperatures** keyword:

```
RP/0/RP0/CPU0:router# show environment temperatures

R/S/I   Modules         Inlet           Exhaust         Hotspot
                        Temperature     Temperature     Temperature
                        (deg C)         (deg C)         (deg C)

0/2/*   host              31, 27         43, 45         48
        cpu                                             31
        fabricq0                                        46
        fabricq1                                        44
        ingressq                                        34
        egressq                          41             43
        ingresspse                                      35
        egresspse                                       42
        plimasic          30, 31         42
0/RP1/* host              38                            44
        cpu                                             36
        ingressq                                        42
        fabricq0                                        43
0/SM0/* host              29, 29                        41, 33
```

Table 34 describes the significant fields shown in the display.

Table 34 show environment temperatures Field Descriptions

Field	Description
R/S/I	Rack number, slot number, and interface for which information is displayed, in the format *rack_num*/*slot_num*/*.
Modules	Module for which temperature information is displayed.
Inlet Temperature (deg C)	Current temperature of the inlet sensor in degrees Celsius. **Note** The inlet temperature corresponds to the room air temperature entering the router.
Exhaust Temperature (deg C)	Current temperature of the exhaust sensor in degrees Celsius. **Note** The exhaust temperature corresponds to the air being exhausted from the router.
Hotspot Temperature (deg C)	Displays the current temperature of the hotspot in degrees Celsius.

The following is sample output from the **show environment** command the with the **leds** keyword:

```
RP/0/RP0/CPU0:router# show environment leds

0/2/*: Module (host) LED status says: OK
0/2/*: Module (plimasic) LED status says: OK
0/SM0/*: Module (host) LED status says: OK
```

Table 35 describes the significant fields shown in the display.

Table 35 show environment leds Field Descriptions

Field	Description
rack_num/*slot_num*/*:	Rack number and slot number where the node resides.
Module (host) LED status says:	Current LED status of the specified node.

show facility-alarm contacts

To display audio and visual facility alarm information for the router, use the **show facility-alarm contacts** command in administration EXEC mode.

show facility-alarm contacts

Syntax Descriptionc

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	The **show facility-alarm contacts** command was moved from the root-system task ID to the system task ID. The **show facility-alarm contacts** command was removed from EXEC mode.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
system	read

Examples

The following is sample output from the **show facility-alarm contacts** command:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# show facility-alarm contacts

Alarm Contacts
+----------+-------+--------+
| Severity | Audio | Visual |
+----------+-------+--------+
| Critical | off   | off    |
| Major    | off   | off    |
| Minor    | off   | off    |
+----------+-------+--------+
```

Table 36 describes the significant fields shown in the display.

Table 36 show facility-alarm contacts Field Descriptions

Field	Description
Severity	Severity level of the alarm. Can be critical, major, or minor.
Audio	Describes whether there are audio alarms of the indicated severity on the router. “off” means there are no alarms. “on” means there are alarms.
Visual	Describes whether there are visual alarms of the indicated severity on the router. “off” means there are no alarms. “on” means there are alarms.

Related Commands

Command	Description
facility-alarm contacts	Sets or unsets facilities for processing alarms related to temperature and power supply conditions.

show fpd package

To display which shared port adapters (SPA) are supported with your current Cisco IOS XR software release, which field-programmable device (FPD) image you need for each SPA, and what the minimum hardware requirements are for the SPA modules, use the **show fpd package** command in administration EXEC mode.

show fpd package

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.4.1	The **show fpd package** command output was updated to display the rommon images.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

If there are multiple FPD images for your card, use the **show fpd package** command to determine which FPD image to use if you only want to upgrade a specific FPD type.

Task ID

Task ID	Operations
sysmgr	read

Examples

The following example shows partial sample output from the **show fpd package** command:

```
RP/0/0/CPU0:Router# admin
RP/0/0/CPU0:Router(admin)# show fpd package

================================ ================================================
                                        Field Programmable Device Package
                                 ================================================
                                                                      SW      Min Req
Card Type            FPD Description            Type Subtype   Version   HW Vers
==================== ========================== ==== ======= =========== =======
CRS1-SIP-800         JACKET FPGA swv2.0         lc   fpga        2.0       0.0
                     FPGA swv2.0 hwv80          lc   fpga        2.0       0.80
--------------------------------------------------------------------------------
8-10GBE              FPGA swvA.0                lc   fpga       10.0       0.0
--------------------------------------------------------------------------------
Route Processor      ROMMONA swv1.43 asmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 dsmp       lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 asmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 dsmp       lc   rommon      1.43      0.0
--------------------------------------------------------------------------------
SC                   ROMMONA swv1.43 asmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 dsmp       lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 asmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 dsmp       lc   rommon      1.43      0.0
--------------------------------------------------------------------------------
HQ Route Processor   ROMMONA swv1.43 asmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 dsmp       lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 asmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 dsmp       lc   rommon      1.43      0.0
--------------------------------------------------------------------------------
Shelf Controller GE  ROMMONA swv1.43 asmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 dsmp       lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 asmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 dsmp       lc   rommon      1.43      0.0
--------------------------------------------------------------------------------
Route Processor B    ROMMONA swv1.43 asmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 dsmp       lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 asmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 dsmp       lc   rommon      1.43      0.0
--------------------------------------------------------------------------------
Shelf Controller GE2 ROMMONA swv1.43 asmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 dsmp       lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 asmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 dsmp       lc   rommon      1.43      0.0
--------------------------------------------------------------------------------
DRP                  ROMMONA swv1.43 asmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 dsmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 asmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 dsmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
--------------------------------------------------------------------------------
DRP_B                ROMMONA swv1.43 asmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 dsmp       lc   rommonA     1.43      0.0
                     ROMMONA swv1.43 sp         lc   rommonA     1.43      0.0
                     ROMMONB swv1.43 asmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 dsmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
--------------------------------------------------------------------------------
S1S2S3               ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
--------------------------------------------------------------------------------
S1S3                 ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
```

```
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
S2                   ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
Fabric HS123         ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
Fabric HS123 Star    ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
Fabric HS13 Star     ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
Fabric QQS123        ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
LED                  ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
YYY-XXXIface         ROMMONA swv1.43 asmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 dsmp       lc   rommonA     1.32      0.0
                     ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 asmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 dsmp       lc   rommon      1.43      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
PSAL                 ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
FAN                  ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
FC Fan Controller    ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
LED                  ROMMONA swv1.43 sp         lc   rommonA     1.32      0.0
                     ROMMONB swv1.43 sp         lc   rommon      1.43      0.0
-------------------------------------------------------------------------------
SPA-4XT3/E3          SPA E3 Subrate FPGA        spa  fpga2       1.4       0.0
                     SPA T3 Subrate FPGA        spa  fpga3       1.4       0.0
                     SPA I/O FPGA               spa  fpga        1.0       0.0
                     SPA ROMMON                 spa  rommon      2.12      0.0
-------------------------------------------------------------------------------
SPA-2XT3/E3          SPA E3 Subrate FPGA        spa  fpga2       1.4       0.0
                     SPA T3 Subrate FPGA        spa  fpga3       1.4       0.0
                     SPA I/O FPGA               spa  fpga        1.0       0.0
                     SPA ROMMON                 spa  rommon      2.12      0.0
-------------------------------------------------------------------------------
SPA-OC192POS         SPA FPGA swv1.3            spa  fpga        1.3       0.0
-------------------------------------------------------------------------------
SPA-8XOC12-POS       SPA FPGA swv1.0            spa  fpga        1.0       0.5
-------------------------------------------------------------------------------
SPA-4XOC3-POS        SPA FPGA swv3.4            spa  fpga        3.4       0.0
-------------------------------------------------------------------------------
SPA-OC192POS-XFP     SPA FPGA swv1.2            spa  fpga        1.2       0.0
-------------------------------------------------------------------------------
SPA-8X1GE            SPA FPGA swv1.8            spa  fpga        1.8       0.0
-------------------------------------------------------------------------------
SPA-2XOC48POS/RPR    SPA FPGA swv1.0            spa  fpga        1.0       0.0
-------------------------------------------------------------------------------
SPA-4XOC48POS/RPR    SPA FPGA swv1.0            spa  fpga        1.0       0.0
-------------------------------------------------------------------------------
SPA-10X1GE-V2        SPA FPGA swv1.10           spa  fpga        1.10      0.0
```

```
-------------------------------------------------------------------------------
SPA-8X1GE-V2          SPA FPGA swv1.10            spa  fpga        1.10      0.0
-------------------------------------------------------------------------------
SPA-5X1GE-V2          SPA FPGA swv1.10            spa  fpga        1.10      0.0
-------------------------------------------------------------------------------
SPA-1X10GE-L-V2       SPA FPGA swv1.9             spa  fpga        1.9       0.0
-------------------------------------------------------------------------------
SPA-1X10GE-WL-V2      SPA FPGA swv1.11            spa  fpga        1.11      0.0
-------------------------------------------------------------------------------
```

Table 37 describes the significant fields shown in the display.

Table 37 show fpd package Field Descriptions

Field	Description
Card Type	Type of card that is associated with this FPD.
FPD Description	Currently running FPD type and image version.
Type	Hardware type. Can be one of the following types: • spa—shared port adapter • lc—line card.
Subtype	FPD type. Can be one of the following types: • fabldr—fabric downloader • fpga1—field-programmable gate array • fpga2—field-programmable gate array 2 • fpga3—field-programmable gate array 3 • fpga4—field-programmable gate array 4 • fpga5—field-programmable gate array 5 • rommon—read-only memory monitor • rommon2—read-only memory monitor 2
SW Version	Currently running FPD image version.
Min Req HW Version	Minimum required hardware version for the associated FPD image.

Related Commands

Command	Description
show hw-module fpd	Displays the FPD compatibility for all modules or for a specific module.
upgrade hw-module fpd	Manually upgrades the current FPD image package on a module.

show hw-module fpd

To display field-programmable device (FPD) compatibility for all modules or a specific module, use the **show hw-module fpd** command in the appropriate mode.

show hw-module fpd location {**all** | *node-id*}

Syntax Description

location	Specifies the location of the module.
all	Specifies all modules in the router.
node-id	Location of the module in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.4.1	The **show hw-module fpd** command output was updated to display the rommon images.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read
root-lr	read

Examples

The following example shows how to display FPD compatibility for all modules in the router:

```
RP/0/0/CPU0:Router# show hw-module fpd location all

==================================== ========================================
                                     Existing Field Programmable Devices
                                     ========================================
                                       HW                          Current SW Upg/
Location     Card Type               Version Type Subtype Inst   Version   Dng?
============ ======================= ======= ==== ======= ==== =========== ====
0/0/SP       YYY-XXXIface            255.254 lc   rommonA 0       1.43     No
                                             lc   rommon  0       1.43     No
------------------------------------------------------------------------------
0/0/CPU0     CRS1-SIP-800              0.104 lc   fpga    0       2.0      No
                                             lc   rommonA 0       1.43     No
                                             lc   rommon  0       1.43     No
------------------------------------------------------------------------------
0/0/0        SPA-OC192POS-XFP            2.1 spa  fpga    0       1.2      No
------------------------------------------------------------------------------
0/0/1        SPA-10X1GE-V2               1.0 spa  fpga    1       1.10     No
------------------------------------------------------------------------------
0/0/2        SPA-1X10GE-L-V2             1.0 spa  fpga    2       1.9      No
------------------------------------------------------------------------------
0/0/5        SPA-5X1GE-V2                1.0 spa  fpga    5       1.10     No
------------------------------------------------------------------------------
0/2/SP       YYY-XXXIface            255.254 lc   rommonA 0       1.43     No
                                             lc   rommon  0       1.43     No
------------------------------------------------------------------------------
0/2/CPU0     YYY-XXXIface            255.254 lc   rommonA 0       1.43     No
                                             lc   rommon  0       1.43     No
------------------------------------------------------------------------------
0/RP0/CPU0   HQ Route Processor          0.1 lc   rommonA 0       1.43     No
                                             lc   rommon  0       1.43     No
------------------------------------------------------------------------------
0/SM0/SP     Fabric HS123                0.1 lc   rommonA 0       1.43     No
                                             lc   rommon  0       1.43     No
------------------------------------------------------------------------------
0/SM1/SP     Fabric HS123                0.1 lc   rommonA 0       1.43     No
                                             lc   rommon  0       1.43     No
------------------------------------------------------------------------------
0/SM2/SP     Fabric HS123                0.1 lc   rommonA 0       1.43     No
                                             lc   rommon  0       1.43     No
------------------------------------------------------------------------------
0/SM3/SP     Fabric HS123                0.1 lc   rommonA 0       1.43     No
                                             lc   rommon  0       1.43     No
```

Table 38 describes the significant fields shown in the display.

Table 38 show hw-module fpd Field Descriptions

Field	Description
Location	Location of the module in the *rack*/*slot*/*module* notation.
Card Type	Module part number.
HW Version	Hardware model version for the module.
Type	Hardware type. Can be one of the following types: • spa—shared port adapter • lc—line card.

Table 38 show hw-module fpd Field Descriptions

Field	Description
Subtype	FPD type. Can be one of the following types: • fabldr—fabric downloader • fpga1—field-programmable gate array • fpga2—field-programmable gate array 2 • fpga3—field-programmable gate array 3 • fpga4—field-programmable gate array 4 • fpga5—field-programmable gate array 5 • rommonA—read-only memory monitor A • rommon—read-only memory monitor B
Inst	FPD instance. The FPD instance uniquely identifies an FPD and is used by the FPD process to register an FPD.
Current SW Version	Currently running FPD image version.
Upg/Dng	Specifies whether an FPD upgrade or downgrade is required. A downgrade will be required in rare cases when the version of the FPD image has a higher major revision than the version of the FPD image in the current Cisco IOS XR software package.

Related Commands

Command	Description
show fpd package	Displays which FPD image package is needed for the router to properly support the modules for the running Cisco IOS XR software release. Also indicates all available FPD images that are available for a specific module.
upgrade hw-module fpd	Manually upgrades the current FPD image package on a module.

show hw-module subslot brief

To display summary information related to a specified internal hardware device on a shared port adapter (SPA), use the **show hw-module subslot brief** command in EXEC mode.

show hw-module subslot [*node-id*] **brief** [*device* [*device-index* [*device-subindex*]]]

Syntax Description

node-id	(Optional) Location for which to display the specified information. The *node-id* argument is entered in the *rack/slot/module* notation.
device	(Optional) Internal hardware device for which to display the specified information. Valid devices include: • **analog-digital-converter**—Displays analog-to-digital converter information. • **c2w**—Displays Cisco-to-wire bus device information. • **fpga**—Displays SPA field-programmable gate array information. • **framer**—Displays SONET framer information. (Not applicable to Ethernet SPAs.) • **l2-tcam**—Displays SPA Layer 2 ternary content addressable memory information. (Not applicable to POS SPAs.) • **mac**—Displays SPA MAC information. (Not applicable to POS SPAs.) • **pluggable-optics**—Displays pluggable-optics module information. • **power-margining**—Displays power-margining device information. • **sdcc**—Displays section data communications channel device information. (Not applicable to Ethernet SPAs.) • **serdes**—Displays SPA serializer/deserializer information. • **spi4**—Displays system packet interface level 4.2 bus device information. • **temperature-sensor**—Displays temperature sensor information.
device-index	(Optional) Index of the specific device if there are multiple devices of the same type.
device-subindex	(Optional) Subindex of the specific device if there are multiple devices of the same device index.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

You can also enter a partially qualified location specifier by using the wildcard (*) character. For example, 0/1/* would display information for all modules on slot 1 in rack 0.

Use the **show hw-module subslot brief** command to obtain summary diagnostic information about a device on an interface on the SPA.

Task ID

Task ID	Operations
root-lr	read

Examples

The following is sample output for the **show hw-module subslot brief** command:

```
RP/0/RP0/CPU0:router# show hw-module subslot 0/1/0 brief

Subslot 0/1/0 brief info:
-------------------------
SPA inserted: YES
SPA type:     4xOC3 POS SPA
SPA operational state: READY
SPA cfg admin up: YES
```

Table 40 describes the significant fields shown in the display.

Table 39 show hw-module subslot config Field Descriptions

Field	Description
SPA inserted	Indicates if a SPA is currently detected in the subslot.
SPA type	Description of SPA including the technology type, number of ports, height of SPA (HHSPA—single height, FHSPA—double height), and optics type.
SPA operational state	Current state of the SPA module.
SPA cfg admin up	Configured state of the SPA: YES—the SPA is not shut down, NO—the SPA is shut down.

show hw-module subslot config

To display information related to configuration of the specified internal hardware device on a shared port adapter (SPA), use the **show hw-module subslot config** command in EXEC mode.

show hw-module subslot [*node-id*] **config** [*device* [*device-index* [*device-subindex*]]]

Syntax Description

node-id	(Optional) Location for which to display the specified information. The *node-id* argument is entered in the *rack/slot/module* notation.
device	(Optional) Internal hardware device for which to display the specified information. Valid devices include: • **analog-digital-converter**—Displays analog-to-digital converter information. • **c2w**—Displays Cisco-to-wire bus device information. • **fpga**—Displays SPA field-programmable gate array information. • **framer**—Displays SONET framer information. (Not applicable to Ethernet SPAs.) • **l2-tcam**—Displays SPA Layer 2 ternary content addressable memory information. (Not applicable to POS SPAs.) • **mac**—Displays SPA MAC information. (Not applicable to POS SPAs.) • **pluggable-optics**—Displays pluggable-optics module information. • **power-margining**—Displays power-margining device information. • **sdcc**—Displays section data communications channel device information. (Not applicable to Ethernet SPAs.) • **serdes**—Displays SPA serializer/deserializer information. • **spi4**—Displays system packet interface level 4.2 bus device information. • **temperature-sensor**—Displays temperature sensor information.
device-index	(Optional) Index of the specific device if there are multiple devices of the same type.
device-subindex	(Optional) Subindex of the specific device if there are multiple devices of the same device index.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

You can also enter a partially qualified location specifier by using the wildcard (*) character. For example, 0/1/* would display information for all modules on slot 1 in rack 0.

Use the **show hw-module subslot config** command to obtain diagnostic information about the configuration of an interface on the SPA.

Task ID

Task ID	Operations
root-lr	read

Examples

The following is sample output for the **show hw-module subslot config** command:

```
RP/0/RP1/CPU0:router# show hw-module subslot 0/2/cpu0 config

BAY 0 config info:
--------------------
SPA inserted: YES
SPA cfg admin up: YES
SPA cfg power up: YES

BAY 1 config info:
--------------------
SPA inserted: YES
SPA cfg admin up: YES
SPA cfg power up: YES
```

Table 40 describes the significant fields shown in the display.

Table 40 show hw-module subslot config Field Descriptions

Field	Description
SPA inserted	Indicates if a SPA is currently detected in the subslot.
SPA cfg admin up	Configured state of the SPA: YES—the SPA is not shut down, NO—the SPA is shut down.
SPA cfg power up	Indicates whether the subslot is currently configured as powered or not.

Related Commands

Command	Description
show controllers	Displays the controller type and other information.

show hw-module subslot counters

To display statistics related to the processing of internal hardware devices for a shared port adapter (SPA), use the **show hw-module subslot counters** command in EXEC mode.

show hw-module subslot [*node-id*] **counters** [*device* [*device-index* [*device-subindex*]]]

Syntax Description

node-id	(Optional) Location for which to display the specified information. The *node-id* argument is entered in the *rack/slot/module* notation.
device	(Optional) Internal hardware device for which to display the specified information. Valid devices include: • **analog-digital-converter**—Displays analog-to-digital converter information. • **c2w**—Displays Cisco-to-wire bus device information. • **fpga**—Displays SPA field-programmable gate array information. • **framer**—Displays SONET framer information. (Not applicable to Ethernet SPAs.) • **l2-tcam**—Displays SPA Layer 2 ternary content addressable memory information. (Not applicable to POS SPAs.) • **mac**—Displays SPA MAC information. (Not applicable to POS SPAs.) • **pluggable-optics**—Displays pluggable-optics module information. • **power-margining**—Displays power-margining device information. • **sdcc**—Displays section data communications channel device information. (Not applicable to Ethernet SPAs.) • **serdes**—Displays SPA serializer/deserializer information. • **spi4**—Displays system packet interface level 4.2 bus device information. • **temperature-sensor**—Displays temperature sensor information.
device-index	(Optional) Index of the specific device if there are multiple devices of the same type.
device-subindex	(Optional) Subindex of the specific device if there are multiple devices of the same device index.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

You can also enter a partially qualified location specifier by using the wildcard (*) character. For example, 0/1/* would display information for all modules on slot 1 in rack 0.

Use the **show hw-module subslot counters** command to display statistics related to the processing by the specified internal hardware device.

Task ID

Task ID	Operations
root-lr	read

Examples

The following is sample output for the **show hw-module subslot counters** command:

```
RP/0/RP0/CPU0:router# show hw-module subslot 0/2/cpu0 counters

BAY 0 counts info:
-------------------
SPA inserted: YES
SPA type:     5xGE SPA
SPA operational state: READY
SPA insertion time:  Fri Nov 19 01:49:07 2004
SPA last time ready: Fri Nov 19 01:49:42 2004
SPA uptime [HH:MM:SS]: 49:49:29

BAY 1 counts info:
-------------------
SPA inserted: YES
SPA type:     1xOC192 POS/RPR HHSPA with XFP
SPA operational state: READY
SPA insertion time:  Fri Nov 19 01:49:08 2004
SPA last time ready: Fri Nov 19 01:49:35 2004
SPA uptime [HH:MM:SS]: 49:49:36
```

Table 41 describes the significant fields shown in the display.

Table 41 show hw-module subslot counters Field Descriptions

Field	Description
SPA inserted	Indicates if a SPA is currently detected in the subslot.
SPA type	Description of SPA including the technology type, number of ports, height of SPA (HHSPA—single height, FHSPA—double height), and optics type.
SPA operational state	Current state of the SPA module.
SPA insertion time	Time the SPA module was last physically inserted or power-cycled.
SPA last time ready	Time the SPA module last changed state to up or ready (the last time the module was loaded or reloaded).
SPA uptime	The time in service or amount of time since the module was last out of service due to a reload, power cycle, or configuration event.

The following is sample output for the **show hw-module subslot counters** command with the **framer** option:

```
RP/0/RP0/CPU0:router# show hw-module subslot counters framer

SPA device framer index 0 subindex 0 info:

Milan Framer counters:
STREAM 0
Rx Bytes (48-bit) (#0x381fa078-0x883c): 163857232569448
Rx Good Bytes (48-bit) (#0x381fa080-0x8840): 1964924
Rx Good Packets (48-bit) (#0x381fa040-0x8820): 26234
Tx Byte Cnt Reg (48-bit) (#0x381fe070-0xa838): 9375380
Tx Good Bytes Cnt Reg (48-bit) (#0x381fe068-0xa834): 8909442
Tx Transmitted Packet Cnt Reg (48-bit) (#0x381fe040-0xa820): 114692
```

show hw-module subslot errors

To display error information about internal hardware devices for a shared port adapter (SPA), use the **show hw-module subslot errors** command in EXEC mode.

show hw-module subslot [*node-id*] **errors** [*device* [*device-index* [*device-subindex*]]]

Syntax Description

node-id	(Optional) Location for which to display the specified information. The *node-id* argument is entered in the *rack/slot/module* notation.
device	(Optional) Internal hardware device for which to display the specified information. Valid devices include: • **analog-digital-converter**—Displays analog-to-digital converter information. • **c2w**—Displays Cisco-to-wire bus device information. • **fpga**—Displays SPA field-programmable gate array information. • **framer**—Displays SONET framer information. (Not applicable to Ethernet SPAs.) • **l2-tcam**—Displays SPA Layer 2 ternary content addressable memory information. (Not applicable to POS SPAs.) • **mac**—Displays SPA MAC information. (Not applicable to POS SPAs.) • **pluggable-optics**—Displays pluggable-optics module information. • **power-margining**—Displays power-margining device information. • **sdcc**—Displays section data communications channel device information. (Not applicable to Ethernet SPAs.) • **serdes**—Displays SPA serializer/deserializer information. • **spi4**—Displays system packet interface level 4.2 bus device information. • **temperature-sensor**—Displays temperature sensor information.
device-index	(Optional) Index of the specific device if there are multiple devices of the same type.
device-subindex	(Optional) Subindex of the specific device if there are multiple devices of the same device index.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

You can also enter a partially qualified location specifier by using the wildcard (*) character. For example, 0/1/* would display information for all modules on slot 1 in rack 0.

Use the **show hw-module subslot errors** command to display error information related to the specified internal hardware device on a SPA.

Task ID

Task ID	Operations
root-lr	read

Examples

The following example shows partial sample output for the **show hw-module subslot errors** command:

```
Subslot 0/1/0 errors info:
------------------------
SPA inserted: YES
SPA type:     4xOC3 POS SPA
SPA operational state: READY
SPA last reset reason:   UNKNOWN
SPA last failure reason: UNKNOWN

Subslot 0/1/1 errors info:
------------------------
SPA inserted: YES
SPA type:     1x10GE XFP SPA
SPA operational state: READY
SPA last reset reason:   UNKNOWN
SPA last failure reason: UNKNOWN

Subslot 0/1/2 errors info:
------------------------
SPA inserted: NO

Subslot 0/1/3 errors info:
------------------------
SPA inserted: NO

Subslot 0/1/4 errors info:
------------------------
SPA inserted: YES
SPA type:     4xOC48 POS/RPR HHSPA
```

```
SPA operational state: READY
SPA last reset reason:   UNKNOWN
SPA last failure reason: UNKNOWN

Subslot 0/1/5 errors info:
------------------------
SPA inserted: YES
SPA type:     8xGE SPA
SPA operational state: READY
SPA last reset reason:   UNKNOWN
SPA last failure reason: UNKNOWN

 --More--
```

Table 42 describes the significant fields shown in the display.

Table 42 show hw-module subslot errors Field Descriptions

Field	Description
Subslot */*/* errors info	Indicates the SPA whose error information is being displayed. The location of the SPA is expressed in the *rack*/*slot*/*module* notation.
SPA inserted	Indicates if a SPA is currently detected in the subslot.
SPA type	Description of SPA including the technology type, number of ports, height of SPA (HHSPA—single-height, FHSPA—double-height), and optics type.
SPA operational state	Current operational state of the SPA module.
SPA last reset reason	Displays the reason for the most recent reset of this SPA.
SPA last failure reason	Reason for the last failure on this SPA.

Related Commands

Command	Description
show controllers	Displays the controller type and other information.

show hw-module subslot plim-subblock

To display SPA firmware information for a shared port adapter (SPA), use the **show hw-module subslot plim-subblock** command in EXEC mode.

show hw-module subslot [*node-id*] **plim-subblock**

Syntax Description

node-id	(Optional) Location for which to display the specified information. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.5.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show hw-module subslot plim-subblock** command to display SPA firmware information, both kernel and application information, as well as heartbeat and keepalive information. The **show hw-module subslot plim-subblock** command is mainly used for debugging purposes.

Task ID

Task ID	Operations
root-lr	read

Examples

The following example shows sample output for the **show hw-module subslot plim-subblock** command:

```
RP/0/0/CPU0:router# show hw-module subslot 0/5/0 plim-subblock

Subslot 0/5/0 Plim Subblock Info:
-------------------------------------

Firmware information:
  SPA v4.10.1, ifs-spa_ppc_iox.elf
  Application v3.44.0, spa_ct3_pat_apps_iox.tar.gz
```

```
SPA keepalive information:
  Heartbeat check disabled : FALSE
  Keepalive seq 372638, seen 372637, Time since last ipc keep 1s
```

Related Commands

Command	Description
show controllers	Displays the controller type and other information.

show hw-module subslot registers

To display register information about internal hardware devices for a shared port adapter (SPA), use the **show hw-module subslot registers** command in EXEC mode.

show hw-module subslot [*node-id*] **registers** [*device* [*device-index* [*device-subindex*]]]

Syntax Description

node-id	(Optional) Location for which to display the specified information. The *node-id* argument is entered in the *rack/slot/module* notation.
device	(Optional) Internal hardware device for which to display the specified information. Valid devices include: • **analog-digital-converter**—Displays analog-to-digital converter information. • **c2w**—Displays Cisco-to-wire bus device information. • **fpga**—Displays SPA field-programmable gate array information. • **framer**—Displays SONET framer information. (Not applicable to Ethernet SPAs.) • **l2-tcam**—Displays SPA Layer 2 ternary content addressable memory information. (Not applicable to POS SPAs.) • **mac**—Displays SPA MAC information. (Not applicable to POS SPAs.) • **pluggable-optics**—Displays pluggable-optics module information. • **power-margining**—Displays power-margining device information. • **sdcc**—Displays section data communications channel device information. (Not applicable to Ethernet SPAs.) • **serdes**—Displays SPA serializer/deserializer information. • **spi4**—Displays system packet interface level 4.2 bus device information. • **temperature-sensor**—Displays temperature sensor information.
device-index	(Optional) Index of the specific device if there are multiple devices of the same type.
device-subindex	(Optional) Subindex of the specific device if there are multiple devices of the same device index.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the command to display the nodes on the router.

You can also enter a partially qualified location specifier by using the wildcard (*) character. For example, 0/1/* would display information for all modules on slot 1 in rack 0.

Use the **show hw-module subslot registers** command to display register information for the specified internal hardware device on the SPA.

Task ID

Task ID	Operations
root-lr	read

Examples

The following example shows sample output for the **show hw-module subslot registers** command:

```
RP/0/RP0/CPU0:router# show hw-module subslot 0/2/CPU0 registers

BAY 0 registers info:
-----------------------
SPA hardware ID : 0x1
SPA SW FPGA rev.: 0x10

BAY 1 registers info:
-----------------------
SPA hardware ID : 0x90000000
SPA SW FPGA rev.: 0xD
```

Table 43 describes the significant fields shown in the display.

Table 43 show hw-module subslot registers Field Descriptions

Field	Description
SPA hardware ID	SPA hardware identifier in hexadecimal format.
SPA SW FPGA rev.	SPA software FPGA[1] revision number in hexadecimal format.

1. field-programmable gate array

Related Commands

Command	Description
show controllers	Displays the controller type and other information.

show hw-module subslot status

To display status information about internal hardware devices for a shared port adapter (SPA), use the **show hw-module subslot status** command in EXEC mode.

show hw-module subslot [*node-id*] **status** [*device* [*device-index* [*device-subindex*]]]

Syntax Description

node-id	(Optional) Location for which to display the specified information. The *node-id* argument is entered in the *rack/slot/module* notation.
device	(Optional) Internal hardware device for which to display the specified information. Valid devices include: • **analog-digital-converter**—Displays analog-to-digital converter information. • **c2w**—Displays Cisco-to-wire bus device information. • **fpga**—Displays SPA field-programmable gate array information. • **framer**—Displays SONET framer information. (Not applicable to Ethernet SPAs.) • **l2-tcam**—Displays SPA Layer 2 ternary content addressable memory information. (Not applicable to POS SPAs.) • **mac**—Displays SPA MAC information. (Not applicable to POS SPAs.) • **pluggable-optics**—Displays pluggable-optics module information. • **power-margining**—Displays power-margining device information. • **sdcc**—Displays section data communications channel device information. (Not applicable to Ethernet SPAs.) • **serdes**—Displays SPA serializer/deserializer information. • **spi4**—Displays system packet interface level 4.2 bus device information. • **temperature-sensor**—Displays temperature sensor information.
device-index	(Optional) Index of the specific device if there are multiple devices of the same type.
device-subindex	(Optional) Subindex of the specific device if there are multiple devices of the same device index.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

You can also enter a partially qualified location specifier by using the wildcard (*) character. For example, 0/1/* would display information for all modules on slot 1 in rack 0.

Use the **show hw-module subslot status** command to obtain status information about an interface on the SPA.

Task ID

Task ID	Operations
root-lr	read

Examples

The following example shows sample output for the **show hw-module subslot status** command with the **temperature-sensor** option:

```
RP/0/RP1/CPU0:router# show hw-module subslot 0/2/CPU0 status temperature-sensor

 SPA device temperature-sensor index 0 subindex 0 info:

DS1631 (0x0803c2e4) device status:
temperature = 0x1c80 (28.5 degree C)

 SPA device temperature-sensor index 0 subindex 0 info:

DS1631 (0x08063bec) device status:
temperature = 0x1e00 (30.0 degree C)
```

Table 44 describes the significant fields shown in the display.

Table 44 show hw-module subslot status Field Descriptions

Field	Description
DS1631 (0x0803c2e4) device status	Identifies the device whose temperature status is displayed.
temperature = 0x1c80 (28.5 degree C)	Current temperature of the specified device, in hexadecimal format and degrees celsius.

Related Commands

Command	Description
show controllers	Displays the controller type and other information.

show inventory

To retrieve and display information about all the Cisco products that are installed in the router, use the **show inventory** command in EXEC or administration EXEC mode.

In EXEC mode:

show inventory [*node-id* | **all** | **location** {*node-id* | **all**} | **raw**]

In administration EXEC mode:

show inventory [*node-id* | **all** | **chassis** | **fans** | **location** {*node-id* | **all**} | **power-supply** | **raw**]

Syntax Description

node-id	(Optional) Identifies the location of a specific node whose inventory information you want to display. The *node-id* is expressed in the *rack/slot/module* notation.
all	(Optional) Displays inventory information for all the physical entities in the chassis.
location {*node-id* | **all**}	(Optional) Displays inventory information for a specific node, or for all nodes in the chassis.
raw	(Optional) Displays raw information about the chassis for diagnostic purposes.
chassis	(Optional) Displays inventory information for the entire chassis.
fans	(Optional) Displays inventory information for the fans.
power-supply	(Optional) Displays inventory information for the power supply.

Defaults

All inventory information for the entire chassis is displayed.

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	This command was first supported on the Cisco CRS-1. The root-system task ID was removed from the **show inventory** command.
Release 3.4.0	No modification.
Release 3.5.0	Support for SFP information was added to the Cisco XR 12000 Series Router.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

If a Cisco entity is not assigned a product ID (PID), that entity is not retrieved or displayed.

Enter the **show inventory** command with the **raw** keyword to display every RFC 2737 entity installed in the router, including those without a PID, unique device identifier (UDI), or other physical identification.

Note The **raw** keyword is primarily intended for troubleshooting problems with the **show inventory** command itself.

If any of the Cisco products do not have an assigned PID, then the output may display incorrect PIDs, and the version ID (VID) and serial number (SN) elements may be missing.

For UDI compliance products, the PID, VID, and SN are stored in EEPROM and NVRAM. Use the **show inventory** command to display this information.

Prior to Cisco IOS XR Software Release 3.5.0, information for small form-factor pluggable (SFP) modules was not provided for the Cisco XR 12000 Series Router. Information for the following entities is not provided for the Cisco XR 12000 Series Router as of Cisco IOS XR Software Release 3.6.0:

- Power supply
- Fan trays and fans
- Flash memory devices
- Hard disk

Task ID

Task ID	Operations
sysmgr	read

Examples

The following is partial sample output from the **show inventory** command with the **raw** keyword:

```
RP/0/0/CPU0:router(admin)# show inventory raw

NAME: "0/1/*", DESCR: "Cisco CRS-1 Series Modular Services Card"
PID: CRS-MSC           , VID: V02, SN: SAD09280BS9

NAME: "0/1/* - host", DESCR: "host"
PID:                   , VID: N/A, SN:

NAME: "0/1/* - host - Inlet0", DESCR: "Temperature Sensor"
PID:                   , VID: N/A, SN:

NAME: "0/1/* - host - Inlet1", DESCR: "Temperature Sensor"
PID:                   , VID: N/A, SN:

NAME: "0/1/* - host - Exhaust0", DESCR: "Temperature Sensor"
PID:                   , VID: N/A, SN:

NAME: "0/1/* - host - Exhaust1", DESCR: "Temperature Sensor"
PID:                   , VID: N/A, SN:

NAME: "0/1/* - host - Hotspot0", DESCR: "Temperature Sensor"
```

```
PID:                    , VID: N/A, SN:

NAME: "0/1/* - host - 1.25V_ME0", DESCR: "Voltage Sensor"
PID:                    , VID: N/A, SN:
--More--
```

Table 45 describes the significant fields shown in the display.

Table 45 show inventory Field Descriptions

Field	Description
NAME	Hardware for which the inventory information is displayed. If you are displaying the chassis inventory, this field shows, “chassis.” If you are displaying raw inventory, or all inventory information for all nodes in the chassis, this field shows the node name in partially qualified format. For a node, the NAME is expressed in *node_type*/*rack* notation.
DESCR	Describes the chassis or the node. Chassis descriptions provide the name of the chassis and its Gbps. Node descriptions provide the type of node and its software version.
PID	Physical model name of the chassis or node.
VID	Physical hardware revision of the chassis or node.
SN	Physical serial number for the chassis or node.

show led

To display LED information for the router, or for a specific LED location, use the **show led location** command in EXEC or administration EXEC mode.

show led [**location** {*node-id* | **all**}]

Syntax Description

location {*node-id* | **all**}	(Optional) Displays LED information for a single LED location or for the entire router. Enter the **all** keyword to display LED information for the entire router, or use the *node-id* argument to specify LED location. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

The default is to enter the **show led** command without including any optional parameters to display information about all LEDs on the router.

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	The **show led** command was moved from the root-system task ID to the system task ID. The **show led** command was supported in administration EXEC mode.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
system	read

Examples

The following is sample output from the **show led location** command with the **all** keyword on a Cisco CRS-1 router:

```
RP/0/RP0/CPU0:router# show led location all

     LOCATION         MESSAGE         MODE       STATUS
    ================================================
         0/1/*        IOS XR         DEFAULT    UNLOCKED
         0/4/*        ACTVDRP        DEFAULT    UNLOCKED
         0/6/*        IOS XR         DEFAULT    UNLOCKED
       0/RP0/*        ACTV RP        DEFAULT    UNLOCKED
       0/RP1/*        STBYRDY        DEFAULT    UNLOCKED
```

Table 46 describes the significant fields shown in the display.

Table 46 show led location Field Descriptions

Field	Description
LOCATION	Identifies the location of the node. LOCATION is expressed in the *rack/slot/module* notation.
MESSAGE	Current message displayed by the LED.
MODE	Current operating mode of the specified node.
STATUS	Current status of the specified node.

The following is sample output from the **show led location** command with the **all** keyword on a Cisco XR 12000 Series Router:

```
RP/0/0/CPU0:router# show led location all

     LOCATION         MESSAGE         MODE       STATUS
    ================================================
      0/0/CPU0        ACTVRP         DEFAULT    UNLOCKED
      0/1/CPU0            PSC1       DEFAULT    UNLOCKED
      0/2/CPU0        IOX RUN        DEFAULT    UNLOCKED
      0/3/CPU0        IOX RUN        DEFAULT    UNLOCKED
      0/4/CPU0        IOX RUN        DEFAULT    UNLOCKED
      0/5/CPU0        IOX RUN        DEFAULT    UNLOCKED
```

show mbus

To display Mbus Controller Area Network (CAN) errors and interface counters, use the **show mbus** command in administration EXEC mode.

show mbus {**can-error** | **counters**} **location** {*node-id* | **all**}

Syntax Description

can-error	Displays CAN bus error statistics.
counters	Displays information about the firmware packets that were dropped.
location all	Displays Mbus information for all nodes installed in the router.
location *node-id*	Identifies the location of the node whose CAN errors and interface counters you want to display. The *node-id* is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	The root-system task ID was removed from the **show mbus** command.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read

Examples

The following is sample output from the **show mbus** command with the **can-error** and **location** keywords:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# show mbus can-error location 0/0/CPU0
```

```
Slot #  Stuff   Form    Ack     Bit_1   Bit_0   CRC
0       0       0       0       0       0       0
```

Table 47 describes the significant fields shown in the display.

Table 47 show mbus can-error Field Descriptions

Field	Description
Slot	Slot that contains the node whose Mbus counters are displayed.
Stuff	Number of stuff errors on the node.
Form	Number of form errors on the node.
Ack	Number of acknowledgement errors on the node.
Bit_1	Number of Bit_1 errors on the node.
Bit-0	Number of Bit_0 errors on the node.
CRC	Number of CRC[1] errors.

1. cyclic redundancy check

The following is sample output from the **show mbus** command with the **location** keyword:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# show mbus counters location 0/0/CPU0

Slot #  Mbox    Mbox    Mbus    Mbus    Obj
        Xmit    Rcv     Xmit    Rcv     Ovr_wr
0       0       0       0       0       0
```

Table 48 describes the significant fields shown in the display.

Table 48 show mbus counters Field Descriptions

Field	Description
Slot	Identifies the slot that contains the node whose Mbus counters are displayed.
Mbox Xmit	Number of packets dropped due to Mbox transmit errors. **Note** MBox is a chunk of the MP DMEM[1] that receives MIPC messages. The Norm Priority mailbox has a buffer of 32 KB, while the high-priority Mbox has a buffer of 8 KB.
Mbox Rcv	Number of packets dropped due to Mbox receive errors.
Mbus Xmit	Number of packets dropped due to Mbus transmit errors. **Note** The Mbus is a low-bandwidth (1 megabit per second) serial bus that connects cards, switch fabric cards, power supplies, and blower/fan assemblies to the PRPs[2]and counters.
Mbus Rcv	Number of packets dropped due to Mbus receive errors.
Obj Ovr_wr	Number of packets that were overwritten.

1. Maintenance Processor Data Memory
2. performance route processors

Related Commands

Command	Description
clear mbus-statistics location	Clears all Mbus interface counters on a specific node.

show operational

To display all operational data provided as XML schema, use the **show operational** command in EXEC mode.

show operational *mda-class* [*mda-class* [*mda-class*/*naming*=*value*] ...] [**descriptive**]

Syntax Description

mda-class	Name of the management data API (MDA) class to output. To specify a class name in hierarchy, all classes must be specified from the top of the class to the specific class name that you are interested in. To view all available MDA classes, use the question mark (**?**) online help function.
descriptive	Displays more descriptive information.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Although the **show operational** command uses the schema database, the command displays the information in a string format like the other **show** commands. No XML related setups or knowledge is required to use the command.

Task ID

The required task ID depends on the MDA class for which you are displaying the information.

Examples

The following is sample output from the **show operational** command with the **BGP DefaultVRF GlobalProcessInfo** MDA class and **descriptive** keyword. Not all the output is shown.

```
RP/0/0/CPU0:router# show operational BGP DefaultVRF GlobalProcessInfo descriptive

[BGP DefaultVRF GlobalProcessInfo]
    InStandaloneMode: true[Standalone or Distributed mode]
    RouterID: 0.0.0.0[Router ID for the local system]
    ConfiguredRouterID: 0.0.0.0[Configured router ID]
    LocalAS: 10[Local autonomous system #]
```

```
    RestartCount: 1[No of times BGP has started]
    ISRedistributeIBGPToIGPsEnabled: false[Redistribute iBGP into IGPs enabled]
    IsFastExternalFalloverEnabled: true[Fast external fallover enabled]
    IsBestpathMissingMEDIsWorstEnabled: false[Bestpath: Treat missing MED as worst]
.
.
.
    DefaultLocalPreference: 100[Default local preference]
    KeepAliveTime: 60[Default keepalive timer (seconds)]
    HoldTime: 180[Default hold timer (seconds)]
    GenericScanPeriod: 60[Period (in seconds) of generic scanner runs]
.
.
.
    VrfIsActive: true[VRF state ]
    VrfName: "default"[Name of the VRF ]
```

The following is sample output from the **show operational** command where only the top-level MDA class is specified. Not all of the output is shown.

```
RP/0/0/CPU0:router# show operational Inventory

[Inventory RackTable Rack/Number=0 SlotTable Slot/Number=1 BasicAttributes BasicInfo]
     Description: "Cisco CRS1 Line Card / Distributed Route Processor card slot"
     VendorType: "1.3.6.1.4.1.9.12.3.1.5.144"
     Name: "0/1"
.
.
.
     CompositeClassCode: 196742
     PhysicalLayerInterfaceModuleType: 6291590
[Inventory RackTable Rack/Number=0 SlotTable Slot/Number=1 BasicAttributes FRUInfo]
.
.
.
[Inventory RackTable Rack/Number=0 SlotTable Slot/Number=1 CardTable Card/Number=0
BasicAttribute BasicInfo]
.
.
.
[Inventory RackTable Rack/Number=0 SlotTable Slot/Number=RP1 BasicAttributes BasicInfo]
     Description: "Cisco CRS1 Line Card slot"
     VendorType: "1.3.6.1.4.1.9.12.3.1.5.144"
     Name: "0/1"
.
.
.
     CompositeClassCode: 196742
     PhysicalLayerInterfaceModuleType: 6291590

[Inventory RackTable Rack/Number=0 SlotTable Slot/Number=RP1 BasicAttributes FRUInfo]
```

show platform

To display information and status for each node in the system, use the **show platform** command in EXEC or administration EXEC mode.

On the Cisco CRS-1 router:

show platform [*node-id*]

On the Cisco XR 12000 Series Router:

show platform

Syntax Description

node-id	(Optional) Specifies the node whose information you want to display. The *node-id* argument is entered in the *rack/slot/module* notation. **Note** The *node-id* argument is available on the Cisco CRS-1 router only.

Defaults

Cisco CRS-1 router: Status and information are displayed for all nodes in the system.
Cisco XR 12000 Series Router: No default behavior or values.

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	The **show platform** command was first supported in administration EXEC mode. On the Cisco CRS-1, the EXEC mode **show platform** command was moved from the root-system task ID to the system task ID.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **show platform** command provides a summary of the nodes in the system, including node type and status.

Enter the **show platform** command in administration EXEC mode to display output for the entire system. Enter the **show platform** command in EXEC mode to display output for only those nodes that belong to the SDR on which the command is executed.

Task ID

Task ID	Operations
sysmgr	read (on the Cisco XR 12000 Series Router only)
system	read (in EXEC mode on the Cisco CRS-1 only)
root-system	read (in administration EXEC mode on the Cisco CRS-1 only)

Examples

The following is sample output from the **show platform** command:

```
RP/0/RP0/CPU0:router# show platform

Node            Type            PLIM            State           Config State
------------------------------------------------------------------------------
0/1/CPU0        MSC             Jacket Card     IOS XR RUN      PWR,NSHUT,MON
0/1/0           MSC(SPA)        4XOC3-POS       OK              PWR,NSHUT,MON
0/1/5           MSC(SPA)        8X1GE           OK              PWR,NSHUT,MON
0/6/CPU0        MSC             Jacket Card     IOS XR RUN      PWR,NSHUT,MON
0/6/0           MSC(SPA)        4XOC3-POS       OK              PWR,NSHUT,MON
0/6/4           MSC(SPA)        8XOC3/OC12-POS  OK              PWR,NSHUT,MON
0/6/5           MSC(SPA)        8X1GE           OK              PWR,NSHUT,MON
0/RP0/CPU0      RP(Active)      N/A             IOS XR RUN      PWR,NSHUT,MON
0/RP1/CPU0      RP(Standby)     N/A             IOS XR RUN      PWR,NSHUT,MON
```

The following is sample output for the **show platform** command with the *node-id* argument:

```
RP/0/RP0/CPU0:router# show platform 0/1/0

Node            Type            PLIM            State           Config State
------------------------------------------------------------------------------
0/1/0           MSC(SPA)        4XOC3-POS       OK              PWR,NSHUT,MON
```

Table 49 describes the significant fields shown in the display.

Table 49 show platform Field Descriptions

Field	Description
Node	Identifies the node, in the *rack*/*slot*/*module* format.
Type	Type of node.
PLIM	Type of PLIM[1] currently supported on the module.
State	Current state of the specified node.
Config State	Current status of the specified node.

1. physical layer interface module

Related Commands

Command	Description
show environment	Displays environmental monitor parameters for the system.

show redundancy

To display the status of route processor redundancy, use the **show redundancy** command in EXEC mode.

show redundancy [**location** {*node-id* | **all**} | **statistics** [**trace**] | **summary**]

Syntax Description

location	(Optional) Specifies the location of the node or nodes whose redundancy information you want to display. You can display information about a specific node, or about all nodes in the router.
node-id	Node whose redundancy information you want to display. The *node-id* is expressed in the *rack/slot/module* notation.
all	Displays redundancy information for all nodes installed in the router.
statistics	Displays redundancy statistics information.
trace	Displays redundancy statistics trace data.
summary	(Optional) Displays a summary of all redundant node pairs in the router.

Defaults

Route processor redundancy information is displayed for all nodes in the system.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	The **statistics** and **trace** keywords were added.
Release 3.6.0	Nonstop routing (NSR) indication was added to the command display.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show redundancy** command to display the redundancy status of the route processors (RPs). The **show redundancy** command also displays the boot and switchover history for the RPs. To view the nonstop routing (NSR) status of the standby RPs in the system, use the **summary** keyword.

Task ID

Task ID	Operations
system	read
basic-services	read (for **statistics** keyword)

Examples

The following is sample output from the **show redundancy** command on a Cisco CRS-1:

```
RP/0/RP0/CPU0:router# show redundancy location 0/rp0/cpu0

Node 0/RP0/CPU0 is in ACTIVE role
Partner node (0/RP1/CPU0) is in STANDBY role
Standby node in 0/RP1/CPU0 is ready
Standby node in 0/RP1/CPU0 is NSR-ready

Reload and boot info
----------------------
RP reloaded Mon Jul 30 19:27:42 2007: 2 weeks, 1 day, 13 hours, 40 minutes ago
Active node booted Mon Jul 30 19:27:42 2007: 2 weeks, 1 day, 13 hours, 40 minute
s ago
Standby node boot Mon Jul 30 19:28:13 2007: 2 weeks, 1 day, 13 hours, 39 minutes
 ago
Standby node last went not ready Mon Jul 30 20:27:00 2007: 2 weeks, 1 day, 12 ho
urs, 41 minutes ago
Standby node last went ready Mon Jul 30 20:27:00 2007: 2 weeks, 1 day, 12 hours,
 41 minutes ago
There have been 0 switch-overs since reload
```

Table 50 describes the significant fields shown in the display.

Table 50 show redundancy (Cisco CRS-1) Field Descriptions

Field	Description
Node */*/* is in *XXX* role	Current role of the primary route processor, where (*/*/*) is the route processor ID in the format *rack*/*slot*/*module*, and *XXX* is the role of the route processor (active or standby). In the example, this field shows that the node with the ID 0/RP0/CPU0 is in active role.
Partner node (*/*/*) is in *XXX* role	Current role of the secondary (or partner) route processor, where (*/*/*) is the route processor ID in the *rack*/*slot*/*module* format, and *XXX* is the role of the route processor (active or standby). In the example, this field shows that the node with the ID 0/RP1/CPU0 is in standby role.
Standby node in (*/*/*) is ready	Current state of the standby node, where (*/*/*) is the standby route processor ID. In the example, the standby node is ready.
Standby node in (*/*/*) is NSR-ready	Current state of the standby node regarding nonstop routing (NSR), where (*/*/*) is the standby route processor ID. In the example, the standby node is NSR-ready.
Reload and boot info	General overview of the active and standby route processors' reload and boot history.

The following is sample output from the **show redundancy** command on a Cisco XR 12000 Series Router:

```
RP/0/0/CPU0:router# show redundancy

Redundancy information for node 0/0/CPU0:
==========================================
Node 0/0/CPU0 is in ACTIVE role
Node 0/0/CPU0 has no valid partner

Reload and boot info
----------------------
PRP reloaded Wed Mar 15 19:50:31 2006: 1 week, 5 days, 18 hours, 57 minutes ago
Active node booted Wed Mar 15 19:50:31 2006: 1 week, 5 days, 18 hours, 57 minute
s ago

Redundancy information for node 0/1/CPU0:
==========================================
Node 0/1/CPU0 is in ACTIVE role
Node 0/1/CPU0 has no valid partner

Reload and boot info
----------------------
PSC1 reloaded Wed Mar 15 19:51:31 2006: 1 week, 5 days, 18 hours, 56 minutes ago
Active node booted Wed Mar 15 19:51:31 2006: 1 week, 5 days, 18 hours, 56 minutes ago
```

Table 51 describes the significant fields shown in the display.

Table 51 show redundancy (Cisco XR 12000 Series Router) Field Descriptions

Field	Description
Node */*/* is in *XXX* role	Current role of the primary route processor, where (*/*/*) is the route processor ID in the format *rack*/*slot*/*module*, and *XXX* is the role of the route processor (active or standby). In the example, this field shows that the node with the ID 0/RP0/CPU0 is in active role.
Partner node (*/*/*) is in *XXX* role	Current role of the secondary (or partner) route processor, where (*/*/*) is the route processor ID in the *rack*/*slot*/*module* format, and *XXX* is the role of the route processor (active or standby). In the example, this field shows that the node with the ID 0/RP1/CPU0 is in standby role.
Standby node in (*/*/*) is ready	Current state of the standby node, where (*/*/*) is the standby route processor ID. In the example, the standby node is ready.
Reload and boot info	General overview of the active and standby route processors' reload and boot history.

The following sample output shows the status of the redundant RPs in the system:

```
RP/0/RP0/CPU0:router# show redundancy summary

    Active Node     Standby Node
    -----------     ------------
       0/4/CPU0            N/A
       0/4/CPU1            N/A
     0/RP0/CPU0       0/RP1/CPU0 (Ready, NSR: Ready)
```

The status of the standby node is indicated in parentheses next to the node identifier. The nonstop routing (NSR) status is indicated following NSR:. Possible values are Ready and Not ready.

Related Commands

Command	Description
redundancy switchover	Causes the primary (active) RP to fail over to the redundant standby RP, if the standby RP is available.

show screddrv

To display system controller (SC) redundancy information, use the **show screddrv** command in EXEC mode.

show screddrv [**all** | **standby**]

Syntax Description

all	(Optional) Displays redundancy details for the entire router.
standby	(Optional) Displays detailed redundancy information for the standby node.

Defaults

SC redundancy information is displayed for all nodes in the system.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	The **show screddrv** command was moved from the root-system task ID to the system task ID. The **arbitration** keyword was removed from the **show screddrv** command.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Enter the **show screddrv** command without any of the optional parameters to display summarized SC redundancy and arbitration information for the router.

Task ID

Task ID	Operations
system	read

Examples

The following is sample output from the **show screddrv** command with the **all** keyword:

```
RP/0/RP0/CPU0:router# show screddrv all

Redundancy Driver Info for slot 32:
Slot=32
Role=active role
State=ACTIVE STATE
Prefer_slot=0
Registers: ICreg=[1], MSreg=[33], MPPReg=[c0005cc8]
Tx error count=0
Rx error count=22
Comm Statistics=5632
SHOW REDDRV ARBITRATION is not supported.
```

Table 52 describes the significant fields shown in the display.

Table 52 show screddrv Field Descriptions

Field	Description
Role	Current role of the card in the specified slot; for example, it may be active, standby, and so forth.
State	Current state of the card in the specified slot.
Prefer_slot	Information about the preferred redundancy slot.
Registers	Information about the following registers: • ICreg • MSreg • MPPReg
Tx error count	Number of transmit errors that have occurred on the card in the specified slot.
Rx error count	Number of receive errors that have occurred on the card in the specified slot.
Comm Statistics	Command statistics.
SHOW REDDRV ARBITRATION	Describes whether arbitration is supported or not on this slot. If arbitration is supported, this field provides arbitration information.

show version

To display the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images, use the **show version** command in EXEC mode.

show version

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	The **show version** command was moved from the sysmgr task ID to the basic-services task ID.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **show version** command displays a variety of system information, including hardware and software version, router uptime, boot settings (configuration register), and active software.

Task ID

Task ID	Operations
basic-services	read

Examples

The following example shows partial output from the **show version** command:

```
RP/0/RP0/CPU0:router# show version

Cisco IOS XR Software, Version 3.4.0
Copyright (c) 2006 by cisco Systems, Inc.
```

```
ROM: System Bootstrap, Version 1.32(20050525:193559) [CRS-1 ROMMON],

CRS-8_P1 uptime is 1 week, 22 hours, 27 minutes
System image file is "disk0:hfr-os-mbi-3.3.90/mbihfr-rp.vm"

cisco CRS-8/S (7457) processor with 4194304K bytes of memory.
7457 processor at 1197Mhz, Revision 1.2

16 Packet over SONET/SDH network interface(s)
16 SONET/SDH Port controller(s)
2 Ethernet/IEEE 802.3 interface(s)
16 GigabitEthernet/IEEE 802.3 interface(s)
2043k bytes of non-volatile configuration memory.
38079M bytes of hard disk.
1000592k bytes of ATA PCMCIA card at disk 0 (Sector size 512 bytes).
1000640k bytes of ATA PCMCIA card at disk 1 (Sector size 512 bytes).

Package active on node 0/1/SP:
hfr-diags, V 3.3.90[1I], Cisco Systems, at disk0:hfr-diags-3.3.90
    Built on Mon Mar 27 12:29:00 UTC 2006
    By edde-bld1 in /vws/aga/production/3.3.90.1I/hfr/workspace for c2.95.3-p8

hfr-admin, V 3.3.90[1I], Cisco Systems, at disk0:hfr-admin-3.3.90
    Built on Mon Mar 27 09:22:26 UTC 2006
    By edde-bld1 in /vws/aga/production/3.3.90.1I/hfr/workspace for c2.95.3-p8

hfr-base, V 3.3.90[1I], Cisco Systems, at disk0:hfr-base-3.3.90
    Built on Mon Mar 27 09:13:04 UTC 2006
    By edde-bld1 in /vws/aga/production/3.3.90.1I/hfr/workspace for c2.95.3-p8

hfr-os-mbi, V 3.3.90[1I], Cisco Systems, at disk0:hfr-os-mbi-3.3.90
    Built on Mon Mar 27 08:34:13 UTC 2006
    By edde-bld1 in /vws/aga/production/3.3.90.1I/hfr/workspace for c2.95.3-p8
--More--
```

Table 53 describes the significant fields shown in the display.

Table 53 show version Field Descriptions

Field	Description
Cisco IOS XR software, Version	Cisco IOS XR software version number currently running on the router.
ROM	System bootstrap version number currently running on the router.
router uptime	Number of uninterrupted days, hours, minutes, and seconds the system has been up and running.
System image file is	Location and name of the system image file currently running on the router.
Packet over SONET/SDH network interface(s)	Number of Packet-over-SONET/SDH interfaces available on the current router.
SONET/SDH Port controller(s)	Number of SONET or SDH[1] interfaces available on the current router.
Ethernet/IEEE 802.3 interface(s)	Number of Ethernet or IEEE 802.3 interfaces available on the current router.
GigabitEthernet/IEEE interface(s)	Number of Gigabit Ethernet or IEEE 802.3 interfaces available on the current router.

Table 53 show version Field Descriptions (continued)

Field	Description
bytes of non-volatile configuration memory	Available volatile configuration memory, in bytes.
bytes of ATA PCMCIA card at disk 0	ATA PCMCIA[2] available on the card in disk 0, in bytes.
Package active on node 0/1/SP	Provides details about the current software package that is running on the SP node in slot 1.

1. Synchronous Digital Hierarchy
2. AT Attachment Personal Computer Memory Card Industry Association

upgrade all

To upgrade the fabric-downloader, ROMMON, Mbus, and current field-programmable device (FPD) image package on a module or on all modules installed in a router, use the **upgrade all** command in administration EXEC mode.

upgrade all location {*node-id* | **all**} [**force**]

Syntax Description

location all	Upgrades all ROM images on all line cards (LCs) that are installed in the router.
location *node-id*	Upgrades all ROM images on a specific node. The *node-id* is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.
force	(Optional) Skips the version check and forces an upgrade.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to upgrade all ROM images on all line cards that are installed in the router:

```
RP/0/0/CPU0:Router# admin
```

```
RP/0/0/CPU0:router(admin)# upgrade all location all
```

Related Commands

Command	Description
clear mbus-statistics location	Clears all Mbus interface counters on a specific node.
show mbus	Displays Mbus CAN errors and interface counters.
show platform	Displays information and status for each node in the system.

upgrade cpuctrlbits

To upgrade the CPU controller bits on all nodes that are installed in the router or on a specific node, use the **upgrade cpuctrlbits** command in administration EXEC mode.

upgrade cpuctrlbits {**all** | **location** *node-id*} [**bootflash** | **disk0** | **disk1** | **internal**]

Syntax Description

all	Upgrades the CPU controller bits on all nodes installed in the router.
location *node-id*	Upgrades the CPU controller bits on a specific node. The *node-id* is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.
bootflash	(Optional) Uses the images located on the bootflash to upgrade the CPU controller on all nodes, or on the specified node.
disk0	(Optional) Uses the images located on disk0 to upgrade the CPU controller on all nodes, or on the specified node.
disk1	(Optional) Uses the images located on disk1 to upgrade the CPU controller on all nodes, or on the specified node.
internal	(Optional) Uses the images located in the /pkg/bin. **Note** This is the default location for the ROMMON image.

Defaults

Default location for the ROMMON image: **internal**

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	The **upgrade cpuctrlbits** command was moved from the sysmgr task ID to the system task ID.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **upgrade cpuctrlbits** command is only applicable to boards that use the Squid CPU controller, and not the Squirt controller. Use the **show controller cpuctrl internal** command to determine which CPU controller is used in a specific card, as indicated in bold in the following example:

```
RP/0/RP0/CPU0:router# show controller cpuctrl internal

Cpuctrl Internal Info for node 0/1/CPU0:
        Error Interrupts = 0    Spurious Error Interrupts = 0
        PCI Error Overflows = 0         PCI PM Error Overflows = 0
        PCIX Error Overflows = 0        Internal Access PCI Overflows = 0
        Port Error Overflows = 0        Error Log Overflows = 0
        cpuctrl Config Reg = 0x8357ffff  cpuctrl Physical Offset = 0x80000000
        cpuctrl Window Size = 0x40000000 cpuctrl Port Window Size = 0x04000000
        cpuctrl SHMem Size = 0x00800000  cpuctrl SHMem Used = 0x00224fb0
        cpuctrl version info: Squid FPGA v2.07 Fri Jan 23 16:21:01 2004 ykoren

Cpuctrl Internal Info for node 0/4/CPU0:
        Error Interrupts = 0    Spurious Error Interrupts = 0
        PCI Error Overflows = 0         PCI PM Error Overflows = 0
        PCIX Error Overflows = 0        Internal Access PCI Overflows = 0
        Port Error Overflows = 0        Error Log Overflows = 0
        cpuctrl Config Reg = 0xffffffff  cpuctrl Physical Offset = 0x80000000
        cpuctrl Window Size = 0x40000000 cpuctrl Port Window Size = 0x04000000
        cpuctrl SHMem Size = 0x00800000  cpuctrl SHMem Used = 0x00224fb0
        cpuctrl version info: SQUIRT v3
.
.
.
```

Task ID

Task ID	Operations
system	read, write

Examples

The following example shows how to upgrade the CPU controller bits on all nodes in a router:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# upgrade cpucrtlbits all

Please do not power cycle, reload the router or reset any nodes until
 all upgrades are completed.
Please check the syslog to make sure that all nodes are upgraded successfully.
If you need to perform multiple upgrades, please wait for current upgrade
 to be completed before proceeding to another upgrade.
Failure to do so may render the cards under upgrade to be unusable.
```

Related Commands

Command	Description
show controller cpuctrl internal	Displays information about the internal CPU controller in the cards in the router.
show platform	Displays information and status for each node in the system.

upgrade fabric-downloader

To upgrade the fabric-downloader image package on a module or on all modules installed in a router, use the **upgrade fabric-downloader** command in administration EXEC mode.

upgrade fabric-downloader location {*node-id* | **all**} [**force**]

Syntax Description

location *node-id*	Upgrades the fabric-downloader on a specific LC. The *node-id* is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.
location all	Upgrades the fabric-downloader on all LCs that are installed in the router.
force	(Optional) Skips the version check and forces an upgrade.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to upgrade the fabric-downloader image package on a specific node:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# upgrade fabric-downloader location 0/0/CPU0
```

Related Commands

Command	Description
show platform	Displays information and status for each node in the system.

upgrade hw-module fpd

To manually upgrade the current field-programmable device (FPD) image package on a module, use the **upgrade hw-module fpd** command in administration EXEC mode.

On the Cisco CRS-1:

upgrade hw-module fpd {**all** | *fpga-type* | **rommon**} [**force**] **location** [**all** | *node-id*]

On the Cisco XR 12000 Series Router:

upgrade hw-module fpd {**all** | *fpga-type* | **rommon**} [**force**] **location** [**all** | *node-id*] [**reload**]

Syntax Description

all	Upgrades all FPD images on the selected module.
fpga-type	Upgrades a specific field-programmable gate array (FPGA) image on the module. Use the **show fpd package** command to view all available FPGA images available for a specific module.
rommon	Upgrades the ROMMON image on the module.
force	(Optional) Forces the update of the indicated FPD image package on a shared port adapter (SPA) that meets the minimum version requirements. Without this option, the manual upgrade upgrades only incompatible FPD images.
location	Specifies the location of the module.
all	(Optional) Upgrades the FPD image of all modules in the router.
node-id	(Optional) Location of the module. Naming notation is *rack*/*slot*/*subslot* and a slash between values is required as part of the notation. • *rack*: Chassis number of the rack. • *slot*: Physical slot number of the SPA interface processor (SIP). • *subslot*: Subslot number of the SPA. For more information about the syntax for the router, use the question mark (?) online help function.
reload	(Optional) Reloads the module after the FPD image has been updated. If you do not use the **reload** keyword, you must manually reload the modulebefore the FPD upgrade is complete. Use the **hw-module reset** or **hw-module subslot reload** command in EXEC mode to reload the module. **Note** The **reload** keyword is available on the Cisco XR 12000 Series Router only.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	The **reload** keyword was added to this command. Support for multiple FPGA images was added.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

During the upgrade procedure, the module must be offline (shut down but powered).

Task ID

Task ID	Operations
system	read, write (on the Cisco CRS-1 router only)
sysmgr	read, write

Examples

The following example shows how to upgrade the default FPGA on a SPA in the Cisco CRS-1 router:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router(admin)# upgrade hw-module fpd fpga force location 0/1/4

% RELOAD REMINDER:
  - The upgrade operation of the target module will not interrupt its normal
    operation. However, for the changes to take effect, the target module
    will need to be manually reloaded after the upgrade operation. This can
    be accomplished with the use of "hw-module <target> reload" command.
  - If automatic reload operation is desired after the upgrade, please use
    the "reload" option at the end of the upgrade command.
  - The output of "show hw-module fpd location" command will not display
    correct version information after the upgrade if the target module is
    not reloaded.
Continue? [confirm] y

SP/0/1/SP:Dec 22 05:41:17.920 : upgrade_daemon[125]: programming...with file /ne
t/node0_RP1_CPU0/hfr-lc-3.3.83/fpd/ucode/fpga_gladiator_sw0.6.xsvf
SP/0/1/SP:Dec 22 05:41:28.900 : upgrade_daemon[125]: ...programming...
SP/0/1/SP:Dec 22 05:41:28.906 : upgrade_daemon[125]: ...it will take a while...
SP/0/1/SP:Dec 22 05:41:29.004 : upgrade_daemon[125]: ...it will take a while...
SP/0/1/SP:Dec 22 05:43:03.432 : upgrade_daemon[125]: ...programming...
SP/0/1/SP:Dec 22 05:43:03.438 : upgrade_daemon[125]: ...it will take a while...
Successfully upgraded spa fpga instance 4 on location 0/1/4.
```

The following example shows how to upgrade the default FPGA on a SPA in the Cisco XR 12000 Series Router:

```
RP/0/0/CPU0:Router# admin
RP/0/0/CPU0:Router(admin)# upgrade hw-module fpd fpga force location 0/3/0

% RELOAD REMINDER:
  - The upgrade operation of the target module will not interrupt its normal
    operation. However, for the changes to take effect, the target module
    will need to be manually reloaded after the upgrade operation. This can
    be accomplished with the use of "hw-module <target> reload" command.
  - If automatic reload operation is desired after the upgrade, please use
    the "reload" option at the end of the upgrade command.
  - The output of "show hw-module fpd location" command will not display
    correct version information after the upgrade if the target module is
    not reloaded.
Continue? [confirm] y

LC/0/3/CPU0:Dec 22 06:46:59.732 : spa_192_jacket_v2[203]: %SPA_FPD-6-UPDATE_STAR
T : SPA-4XCT3/DS0[0]: Starting update of FPD 'fpga' image
LC/0/3/CPU0:Dec 22 06:47:23.518 : spa_192_jacket_v2[203]: %SPA_FPD-6-UPDATE_PASS
ED : SPA-4XCT3/DS0[0]: Successfully updated FPD 'fpga' image
Successfully upgraded spa fpga instance 0 on location 0/3/0.
```

Related Commands

Command	Description
show hw-module fpd	Displays the FPD compatibility for all modules or a specific module.
show fpd package	Displays which FPD image package is needed for the router to properly support the modules for the running Cisco IOS XR software release. Also indicates all available FPD images that are available for a specific module.

upgrade mbus

To upgrade the Mbus agent ROM image on a module or on all modules installed in a router, use the **upgrade mbus** command in administration EXEC mode.

upgrade mbus [**force**] **location** {**all** | *node-id*}

Syntax Description

force	(Optional) Skips the version check and forces an upgrade.
location all	Upgrades the Mbus agent ROM on all line cards (LCs) that are installed in the router.
location *node-id*	Upgrades the Mbus agent ROM on a specific node. The *node-id* is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
sysmgr	read, write

Examples

The following example shows how to upgrade the Mbus agent ROM on a specific node:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# upgrade mbus location 0/0/CPU0

Upgrading the MBUS agent rom on slot 0
```

```
RP/0/0/CPU0:Nov 18 16:52:23.296 : upgrade_mbus[65703]: %MBUS-6-API_INFO_DUMP : d
ownload status slot 0, DOWNLOAD_SUCCESS
RP/0/0/CPU0:Nov 18 16:52:33.422 : upgrade_mbus[65703]: %MBUS-6-API_INFO_DUMP : d
ownload status slot 0, PROGRAM_ROM SUCCESS
Upgrade complete.  Use admin CLI "test mbus soft-reset-agent" or OIR the card to
 force new MBUS Rom image to execute.
```

Related Commands

Command	Description
clear mbus-statistics location	Clears all Mbus interface counters on a specific node.
show mbus	Displays Mbus CAN errors and interface counters.
show platform	Displays information and status for each node in the system.