Hardware Redundancy and Node Administration Commands on Cisco IOS XR Software

This module describes the administrative platform 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 enable

To enable or disable 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 enable** command in global configuration mode.

ce tftp server enable {**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

Global 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.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

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 enable 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 enable homedir dir
```

clear mbus location

To clear all MBUS interface counters on a specific node, use the **clear mbus location** command in admin EXEC mode.

clear mbus location *node-id*

Syntax Description

node-id	Identifies the location of the node whose MBUS 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

Admin EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

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

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

diag

To run field diagnostics on a node, and to configure various diagnostics testing parameters, use the **diag** command.

On the Cisco CRS-1:

diag *node-id* [**errorpolicy** {**coe** | **hoe** | **loe** | **roe**} | **halt** | **testlevel** *level* | **verbose** *level* | **wait**]

On the Cisco XR 12000 Series Router:

diag *syslog* [**verbose** *level* | **testlevel** *level* | **wait** | **errorpolicy** {**coe** | **roe**} | **halt**] **location** *node-id*

Syntax Description

The following syntax is available on the Cisco CRS-1 only:

node-id	Identifies the location of the node on which you want to run field diagnostics. 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.
errorpolicy	(Optional) Specifies the error policy. Enter one of the following keywords: • **hoe**: halt-on-error, remain down (default) • **coe**: continue-on-error (recommended) • **loe**: loop on error • **roe**: reload on error
halt	(Optional) Stops field diagnostic testing on the line card. **Note** The **halt** keyword is not applicable on SFCs or CSCs.
testlevel *level*	(Optional) Specifies the test level. Range is from 1 through 90.
verbose *level*	(Optional) Specifies the verbosity output level, or the level of descriptive language to describe the diagnostic test. Range is from 0 through 9. • 0: pass/fail results upon test completion • 1: pass/fail results (default) • 2: level 1 + number of tests run and fail counts • 3: level 2 + error messages. (recommended) • 4: level 3 + start and pass/fail messages for each test • 5: level 4 + progress messages within each test • 6: level 5 + board debug messages • 7, 8, 9: + debug messages (not recommended for standard testing)
wait	(Optional) Suspends the resumption of normal router operation upon completion of the diagnostic test.

The following syntax is available on the Cisco XR 12000 Series Router only:

syslog	Redirects all output to syslog.
verbose *level*	(Optional) Specifies print test name and failure details. Range is from 0 through 9. • 0: pass/fail results upon test completion • 1: pass/fail results (default) • 2: level 1 + number of tests run and fail counts. • 3: level 2 + error messages. (recommended) • 4: level 3 + start and pass/fail messages for each test • 5: level 4 + progress messages within each test • 6: level 5 + board debug messages • 7, 8, 9: + debug messages (not recommended for standard testing)
testlevel *level*	(Optional) Specifies the level of testing to perform on the node. There are two options: • Level 1: extensive diagnostic test (default). Duration is from 6 through 8 hours. • Level 2: abbreviated diagnostic test. Duration is from 1 through 5 minutes. **Note** The **testlevel** *level* keyword argument is available for RP cards only.
wait	(Optional) Stops the Cisco IOS XR software from automatically reloading on the line card after the successful completion of field diagnostic testing. **Note** The **wait** keyword is not applicable on RPs, SFCs, or CSCs.
errorpolicy	(Optional) Specifies the error policy. Enter one of the following keywords to specify an error policy: • **coe**: continue-on-error. • **roe**: reload on error **Note** The **errorpolicy** keyword is available for RP cards only
halt	(Optional) Stops field diagnostic testing on the line card. **Note** The **halt** keyword is not applicable on SFCs or CSCs.
location *node-id*	Identifies the location of the node on which you want to run field diagnostics.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

On the Cisco CRS-1:
Error policy **= hoe**
Verbosity output level = **1**

On the Cisco XR 12000 Series Router:
Verbosity output level = **1**
Level of testing = **1**

Command Modes

On the Cisco CRS-1:
EXEC

On the Cisco XR 12000 Series Router:
Admin 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. On the Cisco CRS-1, the **diag** command was updated to include the **halt** keyword and the **location** *node-id* argument.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Note User-initiated diagnostics may run up to 8 hours or longer.

Keep the following guidelines in mind when using the **diag** command on the Cisco CRS-1:

- The recommended error policy setting is continue-on-error (**coe**). This setting continues to run tests despite a test failure. If you specify a **coe** error policy, we recommend setting the verbose level to 5 and above.
- The recommended verbosity level is 3, which provides a progress indicator and a final test result summary. The diagnostic verbose output appears on the route processor (RP) console; consequently, you must have a connection to that port to view the output.
- To terminate a field diagnostic test and return the node to normal operation, use the **diag** *node-id* **halt** command in admin mode.

Keep the following guidelines in mind when using the **diag** command on the Cisco XR 12000 Series Router:

- Use the following **diag** command syntax when configuring a diagnostics test on an RP:

  diag [*syslog*] [**verbose** *level* | **testlevel** *level* | **errorpolicy coe**] **location** *node-id*

- Use the following **diag** command syntax when configuring a diagnostics test on a CFC or SFC node:

  diag [*syslog*] [**verbose** *level*] **location** *node-id*

- Use the following **diag** command to cancel a diagnostics test that is running on an MSC or an RP, and to reload that card:

  diag halt location *node-id*

- Perform diagnostics on the CSC only if there is a redundant CSC installed in the router.
- Diagnostics can be performed on redundant RPs only.
- Currently, SFC and CSC testing is not available for Cisco 12400 Series Internet Routers.
- If you use the **wait** keyword, you must take one of the following actions to ensure that the RP recognizes the line card and downloads the Cisco IOS XR software image on the line card:
  - Use the **microcode reload slot** command in global configuration mode.
  - Manually remove and re-insert the line card to power it up.

The following guidelines apply to both the Cisco CRS-1 and the Cisco XR 12000 Series Router:

- You must install the field diagnostic image on your router before you can run the **diag** command.
- Some nodes include components that are unable to isolate internal node testing traffic from customer premises connections. Before testing such nodes, you can ensure reliable results and minimize traffic disruption by disconnecting any connections to those nodes.
- The diagnostics software prompts you for confirmation before altering the router configuration. For example, running diagnostics on an SFC or CSC causes the fabric to go from full bandwidth to one-quarter bandwidth. Bandwidth is not affected by RP, line card, or modular services card diagnostics.
- If a test fails in normal mode, the title of the failed test is displayed on the console. However, not all tests that are performed are displayed. To view all performed tests, use the **verbose** keyword. After all diagnostic tests are completed on the line card or modular services card, a PASSED or TEST FAILURE message is displayed. If the line card or modular services card sends a PASSED message, the Cisco IOS XR software image on the card is automatically reloaded unless you specified the **wait** keyword with the **diag** command. If the card sends a TEST FAILURE message, the Cisco IOS XR software image is not automatically reloaded on the card.
- If you want to reload the line card or modular services card after it fails diagnostic testing, use the **reload** command.
- If a line card or modular services card fails the diagnostics test, the card is defective and needs to be replaced. Technical support engineers may direct you to replace field-replaceable memory modules and retest the card. This should be done only under the guidance of a Technical Support Center engineer. For example, if the DRAM test fails, a customer might need to replace only the DRAM on the card.
- We recommend using the **verbose** option with the **diag** command to ensure that you achieve the right level of verbosity in the diagnostics test.
- Use the **show diag** command to view field diagnostic test results.

Caution Performing field diagnostics on a card stops all activity on the card. Before the **diag** command begins running diagnostics, you are prompted to confirm the request to perform field diagnostics on the card.

Note When you stop the field diagnostic test with the **diag halt** command, the card remains down (or in an unbooted state). Generally, you would stop testing in order to remove or replace the card. If you do not want to remove or replace the card, you can use the **microcode reload** command or power cycle the card to bring it back up (online).

Examples

The following example shows the output when field diagnostics are performed on the modular services card in slot 2 of a Cisco CRS-1:

```
RP/0/RP0/CPU0:router# diag 0/2/CPU0 testlevel 2
Running DIAG check
Running Diags will halt ALL activity on the requested slot. [confirm(y/n)] y

RP/0/RP0/CPU0:crs1_1#Starting fdiags
Preparing UUT for Diagnostics software.
Downloading IDS diagnostics image /pkg/gsr/ucode/hfr-diag-l3sp-fdiags
Downloading IDS diagnostics image /pkg/gsr/ucode/hfr-diag-l3-fdiags
Please wait for UUT image downloading ...
RP/0/RP0/CPU0:Apr 27 22:37:26.280 : shelfmgr[298]: %PLATFORM-SHELFMGR-3-USER_RES
ET : Node 0/2/SP is reset due to user reload request
RP/0/RP0/CPU0:Apr 27 22:37:26.322 : fabricq_mgr[168]: %FABRIC-FABRICQ-3-SPI_FBP_
MAJOR : fabricq: Major error:Cluster: 1 in Fabricq ASIC 0 has SPI FBP Idle Count
 error
RP/0/RP0/CPU0:Apr 27 22:37:26.433 : fsdb_server[179]: %FABRIC-FDI-3-GSP_SEND_FAI
LED : send_msgs: gsp_send on conn 1 seqnum 1 failed with 2
RP/0/RP0/CPU0:Apr 27 22:37:26.441 : fsdb_server[179]: %FABRIC-FDI-3-GSP_SEND_FAI
LED : send_msgs: gsp_send on conn 2 seqnum 17 failed with 2

Fdiag on UUT(0/2/CPU0) starts ...
UUT(0/2/CPU0) reports: [RESULT: UUT HFR Linecard Field Diagnostics status: FAIL
]
UUT(0/2/CPU0) reports: [RESULT:   Unit L3 Linecard status: PASS
]
UUT(0/2/CPU0) reports: [RESULT:   Unit PLIM status: FAIL
```

Related Commands

Command	Description
show diag	Displays details about the hardware and software on each node on a router.

dsc node

To configure designated node priority, use the **dsc node** command in admin configuration mode.

dsc node {*node-id*} **priority** *number* | **set-as-backup** | **set-as-dsc**} | **tbeacon** *timeout*}

Syntax Description

node-id	Identifies the location of a node. The *node-id* is expressed in the *rack/slot/module* notation.
priority *number*	Configures priority for this router. Replace the *number* argument with a priority number. Range is from 1 through 255.
priority set-as-backup	Configures this router to act as a backup DSC.
priority set-as-dsc	Configures this rack to be the DSC on re-election.
tbeacon *timeout*	Modifies the DSC beacon timeout value. **Note** We recommend that you do not use the **tbeacon** *timeout* keyword argument to modify the DSC beacon timeout value.

Defaults

No default behavior or values

Command Modes

Admin 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.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

The following example shows how to configure designated node priority:

```
RP/0/RP0/CPU0:router(admin-config)# dsc node 0/0/CPU0 priority 30
```

Related Commands

Command	Description
dsc serial	Defines a serial ID for a rack.
show dsc	Displays the current dial shelf controller (DSC) configuration for the shelf or for the system.

dsc serial

To define serial ID for a rack, use the **dsc serial** command in admin configuration mode. To remove a serial ID entry from the DSC table, use the **no** form of this command.

dsc serial *serialId* **rack** *rack_num*

no dsc serial *serialId* **rack** *rack_num*

Syntax Description

serialId	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 *serialId.*

Defaults

No default behavior or values

Command Modes

Admin 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.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

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

```
RP/0/RP0/CPU0:router(admin-config)# dsc serial 10 rack 1
```

Related Commands

Command	Description
dsc node	Configures DSC priority for a node.
show dsc	Displays the current dial shelf controller (DSC) configuration for the shelf or for the system.

env

To enable environment monitoring on the chassis, use the **env** command in admin configuration mode. To disable environment monitoring, use the **no** form of this command.

env

no env

Syntax Description

This command has no arguments or keywords.

Defaults

Environment monitoring is enabled

Command Modes

Admin 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.

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, refer to 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.

Examples

The following example shows how to disable environment monitoring with the **no env** command:

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

RP/0/RP0/CPU0:router(admin-config)# no env
```

Related Commands

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

env power-supply

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

env power-supply

no env power-supply

Syntax Description

This command has no arguments or keywords.

Defaults

Power supply monitoring is disabled

Command Modes

Admin 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.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Note Do not enable power supply monitoring unless the system uses B0 (or greater) power supplies.

Examples

The following example shows how to disable power supply monitoring with the **no env power-supply** command:

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

RP/0/RP0/CPU0:router(admin-config)# no env power-supply
```

Related Commands

Command	Description
env	Enables 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 admin 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

Admin EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

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)# 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 node power

To power on a specified node, use the **hw-module node power** command in global configuration mode. To power off a node, use the **no** form of this command.

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

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

Syntax Description

node-id	Identifies the node you want to power on. The *node-id* argument is expressed in the *rack/slot/module* notation.
disable	(Optional) Disables the node power on feature. **Note** Use the **no** form of the **hw-module node power** command to enable the node power on feature.

Defaults

power is on for all nodes

Command Modes

Global 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.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **hw-module node power** command to administratively turn power on or off for a node. The changes do not take effect until you enter the **commit** command.

Note Route processors (RPs) cannot be powered down.

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

Examples

In the following example, the **no hw-module node power** command is used to power off a node:

```
RP/0/RP0/CPU0:router(config)# no hw-module node 0/2/cpu0 power
```

In the following example, the **show platform** command is used to display the status of the nodes in the system:

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

Node             Type             PLIM             State           Config State
-------------------------------------------------------------------------------
0/2/SP           MSC(SP)          N/A              MBI-RUNNING     PWR,NSHUT,MON
0/2/CPU0         MSC              N/A              UNPOWERED       NPWR,SHUT,MON
0/RP1/CPU0       RP(Active)       N/A              IOS-XR RUN      PWR,NSHUT,MON
0/SM0/SP         FC/S(SP)         N/A              IOS-XR RUN      PWR,NSHUT,MON
```

In the following example, the **hw-module node power** command is used to power on a node:

```
RP/0/RP0/CPU0:router(config)# hw-module node 0/0/cpu0 power
```

Related Commands

Command	Description
hw-module node reset	Reloads a specified node.
hw-module node shutdown	Administratively shuts down a specified node.
show platform	Displays information and status for each node in the system.

hw-module node reset

To reset a specific node, use the **hw-module node reset** command in global configuration mode.

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

Syntax Description

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

Defaults

The node reset feature is enabled for all nodes

Command Modes

Global 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.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **hw-module node reset** 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.

Examples

The following example shows how to reload a node:

```
RP/0/RP0/CPU0:router(config)# hw-module node 0/2/cpu0 reset

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 node power	Powers on a specified node.
hw-module node shutdown	Administratively shuts down a specified node.

hw-module node shutdown

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

hw-module node *node-id* **shutdown**

no hw-module node *node-id* **shutdown**

Syntax Description

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

Global 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.

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, refer to 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. Use the **hw-module node shutdown** command to administratively shut down a node.

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 node shutdown** command.

Examples

In the following example, the node 0/0/CPU0 is administratively shut down:

```
RP/0/RP0/CPU0:router(config)# hw-module node 0/2/cpu0 shutdown
```

In the following example, the specified node is brought up using the **no** form of the **hw-module node shutdown** command:

```
RP/0/RP0/CPU0:router(config)# no hw-module node 0/2/cpu0 shutdown
```

Related Commands

Command	Description
hw-module node power	Powers on a specified node.
hw-module node reset	Reloads a specified node.

led mode

To specify the LED mode parameters, use the **led mode** command in admin configuration mode. To return the LED mode to the default settings, use the **no** form of this command.

led mode {**default** | **blink** | **scroll**} {**lock** | **unlock**} *led-display-text* **location** *node-id*

no led mode {**default** | **blink** | **scroll**} {**lock** | **unlock**} *led-display-text* **location** *node-id*

Syntax Description

default	Sets the LED mode to the default fixed display.
blink	Sets the LED mode to blink alpha display.
scroll	Sets the LED mode to scroll alpha display.
lock	Locks LED so the display message cannot be changed.
unlock	Unlocks the LED and allows the display message to be changed.
led-display-text	Specifies the message shown on the card in the LED display.
location *node-id*	Specifies the LED mode parameters for the designated node. The *node-id* argument is expressed in the *rack/slot/module* notation.

Defaults

LED display message = IOX-RUN (except for active and standby Route processors (RPs), which display “ACTV RP” and “STBY RP”)

Command Modes

Admin 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.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **led mode** command to specify the message to be displayed on the LED display on the card.

Use the **no** form of the **led mode** command to reset the message to the default setting. The default message is “IOX-RUN,” except for the RP, which has “ACTV RP” for the active RP, and “STBY RP” for the standby RP.

Examples

The following example shows the LED display message being set to “SW-RUN”:

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

RP/0/RP0/CPU0:router(admin-config)# led mode default unlock SW-RUN location 0/0/SP
```

Related Commands

Command	Description
show led location	Lists the LED locations on the router.

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 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

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.

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, refer to 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 to the standby RP.

When the **redundancy switchover** command is issued, the running (committed) configuration is automatically saved and loaded during failover.

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

The standby RP must be available for the primary (active) route processor (RP) to fail over.

You can force a manual failover from the primary RP to the standby RP using the **redundancy switchover** command. If a standby RP is installed and in the ready state for failover, then the standby RP becomes the active primary RP, and the original primary RP becomes the standby RP.

Examples

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

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

This 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
....
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 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 route processor (RP) nodes.

redundancy reddrv

To enable the route processor (RP) and system controller (SC) redundancy, use the **redundancy reddrv** command in global configuration mode

redundancy reddrv *rackID* [**disable** | **prefer-slot** {**32** | **33**}]

Syntax Description

rackID	Identifies the rack on which you want to enable RP or SC redundancy. Range is from 1 through 127.
disable	(Optional) Disables RP or SC redundancy.
prefer-slot {**32**	**33**}	(Optional) Sets a slot number as the preferred active RP or SC. Possible slot numbers are 32 or 33.

Defaults

No default behavior or values

Command Modes

Global 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.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

The following example shows how to enable redundancy on a rack that is identified by the number *1*:

```
RP/0/RP0/CPU0:router(config)# redundancy reddrv 1
```

Related Commands

Command	Description
show screddrv	Displays SC redundancy information.

show diag

To display details about the hardware and software on each node in a router, use the **show diag** command in EXEC mode.

On the Cisco CRS-1:

show diag [*node-id* [**details** | **eeprom-info** | **power-supply** | **summary**]] | **chassis** | **details** | **fans** [**eeprom-info**] | **power-supply** [**eeprom-info**] | **summary**]

On the Cisco XR 12000 Series Router:

show diag [*slot*] [**details**] [**summary**]

Syntax Description

node-id	(Optional) Identifies the node whose information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation. Follow the *node-id* argument with one of the following optional keywords to specify specific test results: • **details** • **eeprom-info** • **power-supply** • **summary** **Note** The *node-id* argument is available on the Cisco CRS-1 only.
chassis	(Optional) Displays diagnostics information about the current chassis only. **Note** The **chassis** keyword is available on the Cisco CRS-1 only.
details	(Optional) Displays detailed diagnostics information for the current node.
fans	(Optional) Displays fan tray diagnostics. To display fan-tray-related field diagnostics results from EEPROM, follow the **fans** keyword with the optional **eeprom-info** keyword. **Note** The **fans** keyword is available on the Cisco CRS-1 only.
eeprom-info	(Optional) Displays field diagnostics results from the EEPROM.
power-supply	(Optional) Displays power-supply diagnostics. To display power-supply related field diagnostics results from EEPROM, follow the **fans** keyword with the optional **eeprom-info** keyword. **Note** The **power-supply** keyword is available on the Cisco CRS-1 only.
summary	(Optional) Displays summarized diagnostics results for all nodes in the system.
slot	Identifies the slot that hosts the node on which you want to run diagnostics. Replace *slot-number* with a slot number. Range is from 0 through 22. **Note** The *slot* argument is available on the Cisco CRS-1 only.

Defaults

Diagnostics for all nodes installed in the router are displayed.

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. On the Cisco CRS-1, the **show diag** command was modified to display the last diagnostic result for a card.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **show diag** command displays detailed information on the hardware components for each node, and on the status of the software running on each node.

Examples

The following example shows sample output from the **show diag details** command on a Cisco CRS-1:

```
RP/0/RP1/CPU0:router# show diag details

NODE 0/0/SP : MSC(SP)
  MAIN:  board type 500060
         0-0-00 rev 00
         dev N/A
         S/N SAD072102RS
  PCA:   73-7648-04 rev 08
  PID:    rev 00
  VID:   V00
  CLEI:
  ECI:   0
  Board State : IOS-XR RUN
  PLD:   Motherboard: 0x0025, Processor: 0xda13, Power: N/A
  MONLIB: QNXFFS Monlib Version 3.0
  ROMMON: Version 1.19(20040603:013227)  [CRS-1 ROMMON]
  SPEED: OSC Speed:  100 Mhz, CPU Speed:  800 Mhz
         BUS Speed:  100 Mhz, MEM Speed:  100 Mhz
  MEM Size: 2048 Mbytes
  RMA:   Test Hist: ab, RMA#: 00-00-00, RMA Hist: 00
  DIAGNOSTICS RESULTS:
    ENTRY 1: 0
      TIMESTAMP: 00/00/0000 00:00:00
      VERSION: v0.0
      PARAM1: 0      PARAM2: n/a
      TESTNUM: 0
      RESULT: 0 (PASS)
      ERRCODE: 0
    ENTRY 2: 0
      TIMESTAMP: 00/00/0000 00:00:00
      VERSION: v0.0
      PARAM1: 0      PARAM2: n/a
      TESTNUM: 0
      RESULT: 0 (PASS)
      ERRCODE: 0
    ENTRY 3: 0
      TIMESTAMP: 00/00/0000 00:00:00
      VERSION: v0.0
      PARAM1: 0      PARAM2: n/a
      TESTNUM: 0
```

```
      RESULT: 0 (PASS)
      ERRCODE: 0
--More--
```

Table 1 describes the significant fields shown in the display.

Table 1 show diag Field Descriptions (Cisco CRS-1)

Field	Description
MAIN	Provides the following general information about the hardware: • Board type • Revision • Device identifier • S/N
PCA	Cisco PCA[1] hardware and revision number.
PID	Displays the PID[2] revision for the specified node.
VID	Displays the VID[3] for the specified node.
CLEI	Displays the CLEI[4] for the specified node.
ECI	Displays the EDI[5] for the specified node.
Board State	Displays the current software on the board (in this case, Cisco IOS XR software) and whether or not the board is running.
PLD	Displays the information about the following PLD[6] components on the current module: • Processor • Power • MONLIB
SPEED	Displays speed information for the various components of the specified node, in Mhz.
MEM Size	Displays the memory size of the specified node, in megabytes.
RMA	Displays RMA[7] information for the specified node.
DIAGNOSTICS RESULTS	Provides the following information about the last diagnostics test that was run on the specified node: • ENTRY 1 • TIMESTAMP—Time stamp for the last diagnostic test that was run on the node. • VERSION • PARAM1 • PARAM2 • TESTNUM—Identifies the test that was run on the node. • RESULT—Displays whether the last diagnostic test passed or failed. • ERRCODE

1. protection channel access
2. process identifier
3. version identifier
4. common language equipment identifier
5. extended call interface
6. programmable logic device
7. Return Material Authorization

The following example shows sample output from the **show diag** command on a Cisco XR 12000 Series Router. In this example, the **show diag** command is entered without any of the optional parameters. Diagnostic test results are displayed for all nodes in the router:

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

SLOT 0  (RP/LC 0 ): Route Processor
  MAIN: type 19,  800-2427-01 rev J0
        Deviation: 0
        HW config: 0xFF    SW key: FF-FF-FF
  PCA:  73-2170-03 rev G0 ver 3
        Design Release 1.4  S/N CAB040879NN
  MBUS: MBUS Agent (1)  73-2146-07 rev B0 dev 0
        HW version 1.2  S/N CAB040877IM
        Test hist: 0xFF    RMA#: FF-FF-FF    RMA hist: 0xFF
  DIAG: Test count: 0xFFFFFFFF    Test results: 0xFFFFFFFF
  FRU:  Linecard/Module: GRP=
        Route Memory: MEM-GRP-512=
  MBUS Agent Software version 1.100 (RAM) (ROM version is 2.9)
  ROM Monitor version 181 (old numbering scheme)
  Primary clock is CSC 1
  Board State is IOS Running  ACTIVE (ACTV  RP )
  Insertion time: 00:00:04 (5d01h ago)
  DRAM size: 536870912 bytes
```

Table 2 describes the significant fields shown in the display.

Table 2 show diag Field Descriptions (Cisco 12000 Series Router)

Field	Description
SLOT	Physical slot number of the line card.
MAIN	General information about the hardware.
PCA	Cisco PCA[1] hardware and revision number.
MBUS	Provides version information for the Mbus agent.
DIAG	Results of the last diagnostics test, in hexadecimal format.
FRU	Information about the FRUs[2] associated with the nodes that are installed in the router.
MBUS Agent Software version	Mbus agent software version currently running on the router.
ROM monitor version	Version of monitor library used by ROMMON.
Primary clock	Primary clock source configured on the router.
Board State	Current software on the board (in this case, Cisco IOS XR software), and whether or not the board is running.
Insertion time	Time at which the last diagnostics test was executed.
DRAM size	DRAM[3] size in bytes.

1. protection channel access
2. Field-replaceable units
3. dynamic random-access memory

Related Commands

Command	Description
diag	Runs field diagnostics on a node.
show platform	Displays information and status for each node in the system.
show version	Displays details on the hardware and software status of the system.

show dsc

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

show dsc [**all** | **mine** | **node** {*node-id*}]

Syntax Description

all	(Optional) Displays DSC information from all available nodes in the system.
mine	(Optional) Displays information about the current DSC.
node *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

Admin 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.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

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

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

NODE            ROLE        PRIORITY      TBEACON   PRESENT  SERIAL ID
=========================================================================
0/RP0/CPU0      DSC         529           5000      YES
-------------------------------------------------------------------------
```

Table 3 describes the significant fields shown in the display.

Table 3 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.

Table 3 show dsc Field Descriptions (continued)

Field	Description
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.

Related Commands

Command	Description
dsc node	Configures DSC priority for a node.
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.

On the Cisco CRS-1:

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

On the Cisco XR 12000 Series Router:

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

Syntax Description

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

Defaults

All environmental monitor parameters are displayed.

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.

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, refer to 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 on the hardware that is installed in the system, including fans, LEDs, power supply voltage, and current information and temperatures.

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 4 describes the significant fields shown in the display.

Table 4 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 5 describes the significant fields shown in the display.

Table 5 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.

Related Commands

Command	Description
show platform	Displays information about the Cisco IOS XR system.

show facility-alarm contacts

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

show facility-alarm contacts

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Admin EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

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

```
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 6 describes the significant fields shown in the display.

Table 6 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 fmgr interface

To display ternary content addressable memory (TCAM) entries for QoS, enter the **show fmgr interface** command in EXEC mode.

show fmgr interface [**Bundle-Ether** *bundle-id* | **Bundle-POS** *bundle-id* | **GigabitEthernet** *interface_instance*| **Loopback** *interface_instance* | **MgmtEth** *interface_instance* | **Null 0** | **POS** *interface_instance*] **feature** {**policer** | **qos** | **qos-all**} {**in** | **out**} {**all** [**dup-bank**] | **dup-bank** | **hw** [**all** | **dup-bank** | **ipv4-mpls** | **ipv6**] | **ipv4-mpls** [**dup-bank**] | **ipv6** [**dup-bank**] | **sw** [**all** | **dup-bank** | **ipv4-mpls** | **ipv6**]} **location** *node-id*}

Syntax Description

Bundle-Ether *bundle-id*	Identifies the Aggregated Ethernet interface(s) whose egress queue information you want to display. Replace *bundle-id* with a port number. Range is from 1 through 65535.
Bundle-POS *bundle-id*	Identifies the Aggregated PoS interfaces whose egress queue information you want to display. Replace *bundle-id* with a port number. Range is from 1 through 65535.
GigabitEthernet *interface_instance*	Identifies the GigabitEthernet or IEEE 802.3 interfaces whose egress queue information you want to display.
Loopback *interface_instance*	Identifies the loopback interface(s) whose egress queue information you want to display. Replace *interface_instance* with a loopback interface identifier. Range is from 1 through 65535.
MgmtEth *interface_instance*	Identifies the Ethernet or IEEE 802.3 interface(s) whose egress queue information you want to display.
Null 0	Identifies the Null interface.
POS *interface_instance*	Identifies the PoS interfaces whose egress queue information you want to display.
feature	Displays feature specific information.
policer	Displays policer entries.
qos	Displays quality of service (QoS) entries.
qos-all	Displays QoS and policer entries.
in	Specifies the ingress direction.
out	Specifies the egress direction.
all	Displays all TCAM entries.
dup-bank	Displays entries from the duplicate bank in turbo mode.
hw	Reads from the hardware.
ipv4-mpls	Displays ipv4-mpls entries.
ipv6	Displays ipv6 entries.
sw	Reads from the software.
location *node-id*	Identifies the location of the interface whose TCAM information 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 EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples The following example shows how to display all ingress QoS and policer TCAM entries for an Ethernet bundle:

```
RP/0/RP0/CPU0:router# show fmgr interface Bundle-Ether 1 feature qos-all in

QOS ENTRIES
================================================================================
Interface = Bundle-Ether1     Feature = qos     Direction = in
TCAM Fields:
IPv4: ip/mpls bndl drid ip_src proto frag dscp ip_dest qos_grp dc  dest_port
MPLS: ip/mpls bndl label exp qos_grp dc

CSRAM Fields:
prio sh_q red_ctr qos_grp dc l2_mark l3_mark l3_mark_val max_th seg_size min_th
1st_seg pol_has_hpq
================================================================================
No QoS configured on this interface
QOS ENTRIES
================================================================================
Interface = Bundle-Ether1     Feature = qos     Direction = in
TCAM Fields:
IPv6: ipv6 dest_port ip_dest ip_src ext_dst ext_rtg ext_ah ext_frag bndl_id dest
_rng_id dc  qos_grp proto dscp/prec

CSRAM Fields:
prio sh_q red_ctr qos_grp dc l2_mark l3_mark l3_mark_val max_th seg_size min_th
1st_seg pol_has_hpq
================================================================================
No QoS configured on this interface


POLICER ENTRIES
================================================================================
Interface = Bundle-Ether1     Feature = policer     Direction = in
TCAM Fields:
IPv4: ip/mpls bndl drid ip_src l4_proto frag dscp ip_dest qos_grp dc  dest_port
MPLS: ip/mpls bndl label exp qos_grp dc

CSRAM Fields:
token1 stats_ptr conform1 exceed1 violate1 token2 conform2 exceed2 violate2
================================================================================
No QoS configured on this interface
```

```
POLICER ENTRIES
================================================================================
Interface = Bundle-Ether1     Feature = policer     Direction = in
TCAM Fields:
IPv6: ipv6 dst_port ip_dest ip_src ext_dst ext_rtg ext_ah ext_frag bndl_id dest_
rng_id dc  qos_grp l4_proto dscp/prec

CSRAM Fields:
token1 stats_ptr conform1 exceed1 violate1 token2 conform2 exceed2 violate2
================================================================================
No QoS configured on this interface

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

Table 7 describes the significant fields shown in the display.

Table 7 show fmgr interface Field Descriptions

QOS ENTRIES	Displays the following QoS information: • Interface—Interface type and identifier. • Feature—Feature currently running on the specified interface. • Direction—Direction of interface (ingress or egress).
TCAM Fields	General TCAM information for the specified interface.
CSRAM Fields	General CSRAM[1] information.

1. Cisco SRAM

show inventory

To retrieve and display information about all the Cisco products that are installed in the router and assigned a PID, VID, and SN, use the **show inventory** command in EXEC or admin EXEC mode.

show inventory [*node-id* | **all** | **location** {*node-id* | **all**}| **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 noes in the chassis.
raw	(Optional) Displays raw information about the chassis for diagnostic purposes.

Defaults

All inventory information for the entire chassis is displayed

Command Modes

EXEC

Admin EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.

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, refer to 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 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, 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 VID and SN elements may be missing.

Examples

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

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

NAME: "Chassis", DESCR: "GSR 12410 200 Gbps"
PID: GSR10/200-AC      , VID: 1.0, SN: TBA07420157
```

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

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

NAME: "Chassis", DESCR: "GSR 12410 200 Gbps"
PID: GSR10/200-AC      , VID: 1.0, SN: TBA07420157

NAME: "slot 0", DESCR: "Line Card/RP slot "
PID:                   , VID: N/A, SN:

NAME: "0/0/CPU0", DESCR: "Cisco 12000 Series Performance Route Processor  1"
PID: PRP-1             , VID: N/A, SN: SAD0742066T

NAME: "voltages 0/0/CPU0", DESCR: "host__PLIM_V4_1.6V"
PID:                   , VID: N/A, SN:

NAME: "voltages 0/0/CPU0", DESCR: "host__PLIM_V5_1.8V"
PID:                   , VID: N/A, SN:

NAME: "voltages 0/0/CPU0", DESCR: "host__PLIM_V3_2.5V"
PID:                   , VID: N/A, SN:

NAME: "voltages 0/0/CPU0", DESCR: "host__3.3V"
PID:                   , VID: N/A, SN:

NAME: "voltages 0/0/CPU0", DESCR: "host__5V"
PID:                   , VID: N/A, SN:

NAME: "voltages 0/0/CPU0", DESCR: "host__Mbus5V"
 --More--
```

Table 8 describes the significant fields shown in the display.

Table 8 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. 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 a list of the LED locations on the router, or on a specific node, use the **show led** command in EXEC mode.

show led

Syntax Description

This command has no arguments or keywords.

Defaults

All LED locations on the router are displayed.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

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

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

NODE 0/0/CPU0 : PRI  RP
NODE 0/3/CPU0 : IOX  RUN
NODE 0/4/CPU0 : IOX  RUN
NODE 0/5/CPU0 : IOX  RUN
NODE 0/6/CPU0 : IOX  RUN
NODE 0/7/CPU0 : IOX  RUN
NODE 0/8/CPU0 : IOX  RUN
```

Table 9 describes the significant fields shown in the display.

Table 9 show led Field Descriptions

Field	Description
IOX	Current platform running on this router (Cisco IOS XR software).
RP	Current state of the RP[1].

1. route processor

show led location

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

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

Syntax Description

node-id	Specifies a node whose LED information you want to display. The *word* 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.
all	Displays LED information for the entire router.

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	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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

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

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

  LOCATION        MESSAGE         MODE       STATUS
================================================
     0/0/SP       IOS-XR         DEFAULT   UNLOCKED
     0/3/SP       IOS-XR         DEFAULT   UNLOCKED
 0/RP0/CPU0       ACTV RP        DEFAULT   UNLOCKED
   0/SM0/SP       IOS-XR         DEFAULT   UNLOCKED
```

Table 10 describes the significant fields shown in the display.

Table 10 show led location Field Descriptions

Field	Description
LOCATION	Identifies the location of the node. The LOCATION is expressed in the *rack/slot/module* notation.
IOS-XR	Current message displayed by the LED.
DEFAULT	Current operating mode of the specified node.
UNLOCKED	Current status of the specified node.

Related Commands

Command	Description
led mode	Specifies the LED mode parameters.

show mbus

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

Admin EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

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

```
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 11 describes the significant fields shown in the display.

Table 11 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.

Table 11 show mbus can-error Field Descriptions (continued)

Field	Description
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)# 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 12 describes the significant fields shown in the display.

Table 12 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 megabyte per second) serial bus that connects cards, switch fabric cards, power supplies, and blower/fan assemblies to the GRP[2].
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. gigabit route processor

Related Commands

Command	Description
clear mbus location	Clears all MBUS interface counters on a specific node.

show platform

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

On the Cisco CRS-1:

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.

Defaults

Cisco CRS-1 = Status and information are displayed for all nodes in the system

Cisco XR 12000 Series Router = 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.

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, refer to 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.

Examples

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

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

Node            Type            PLIM            State           Config State
--------------------------------------------------------------------------------
0/0/SP          MSC(SP)         N/A             IOS-XR RUN      PWR,NSHUT,MON
0/0/CPU0        MSC             16OC48-POS/DPT  IOS-XR RUN      PWR,NSHUT,MON
0/2/SP          MSC(SP)         N/A             IOS-XR RUN      PWR,NSHUT,MON
0/2/CPU0        MSC             16OC48-POS/DPT  IOS-XR RUN      PWR,NSHUT,MON
0/RP0/CPU0      RP(Standby)     N/A             IOS-XR RUN      PWR,NSHUT,MON
0/RP1/CPU0      RP(Active)      N/A             IOS-XR RUN      PWR,NSHUT,MON
0/SM0/SP        FC/S(SP)        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 0/2/cpu0

Node            Type            PLIM            State           Config State
--------------------------------------------------------------------------------
0/2/CPU0        MSC             16OC48-POS/DPT  IOS-XR RUN      PWR,NSHUT,MON
```

Table 13 describes the significant fields shown in the display.

Table 13 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.

On the Cisco CRS-1:

show redundancy [**global** | **trace**]

On the Cisco XR 12000 Series Router:

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

Syntax Description

global	(Optional) Displays the status of the local card and of the route processor (RP).
trace	(Optional) Displays redundancy trace data.
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	Specifies the location of the 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.
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.

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, refer to 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. The **show redundancy** command also displays the boot and switch-over history for the RPs.

Examples

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

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

This 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 Fri Apr  9 03:44:28 2004: 16 hours, 51 minutes ago
This node booted Fri Apr  9 06:19:05 2004: 14 hours, 16 minutes ago
Last switch-over Fri Apr  9 06:53:18 2004: 13 hours, 42 minutes ago
Standby node boot Fri Apr  9 06:54:25 2004: 13 hours, 41 minutes ago
Standby node last not ready Fri Apr  9 20:35:23 2004: 0 minutes ago
Standby node last ready Fri Apr  9 20:35:23 2004: 0 minutes ago
There have been 2 switch-overs since reload
```

Table 14 describes the significant fields shown in the display.

Table 14 show redundancy Field Descriptions

Field	Description
This 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.

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** | **arbitration** | **standby** | **trace**]

Syntax Description

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

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.

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, refer to 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.

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 15 describes the significant fields shown in the display.

Table 15 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.

Related Commands

Command	Description
redundancy reddrv	Enables the RP and displays SC redundancy.

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.

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, refer to 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.

Examples

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

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

Cisco IOS-XR Software, Version 1.0.0
Copyright (c) 2004 by cisco Systems, Inc.

ROM: System Bootstrap, Version 1.15(20040120:002852) ,

router uptime is 2 days, 1 hour, 59 minutes
System image file is "tftp://223.0.0.0/usr/comp-hfr-full.vm-1.0.0

cisco CRS-16/S (7450) processor with 2097152K bytes of memory.
7450 processor at 650Mhz, Implementation , Revision

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

Configuration register is 0x2
```

```
Package active on node 0/2/SP:
hfr-admin, V 1.0.0, Cisco Systems, at mem:hfr-admin-1.0.0
    Built on Fri Mar  5 19:12:26 PST 2004
 --More--
```

Table 16 describes the significant fields shown in the display.

Table 16 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 network interface(s)	Number of Packet-over-SONET 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.
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 0/2/SP	Provides details about the current software package that is running on the SP node in slot 2.

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

upgrade

To upgrade the fabric-downloader, ROMMON, or Mbus images on all nodes or on a specific node, use the **upgrade** command in admin EXEC mode.

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

Syntax Description

all all	Upgrades all ROM images on all line cards (LCs) that are installed in the router.
all *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.
fabric-downloader *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.
fabric-downloader all	Upgrades the fabric-downloader on all LCs that are installed in the router.
mbus 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.
rommon *node-id*	Upgrades the ROMMON on a specific line card (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.
rommon all	Upgrades the ROMMON on a specific LC.
force	Skips the version check and forces an upgrade.

Defaults

No default behavior or values

Command Modes

Admin EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.

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, refer to the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Examples

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

```
RP/0/RP0/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 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 on each node in the system.