



Hardware Redundancy Commands

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environment altitude

To specify the chassis altitude, so the system can adjust the fan speed to compensate for lower cooling capability at higher altitudes, use the environment altitude command in administration configuration mode. To remove the altitude setting, use the no form of this command.

environment altitude *altitude* **rack** *rack-no*
no environment altitude *altitude* **rack** *rack-no*

| | | |
|---------------------------|----------------------------|---|
| Syntax Description | <i>altitude</i> | Chassis location altitude in meters. Values can range from 0 to 4000. |
| | rack <i>rack-no</i> | Specifies the rack number of the chassis. |

Command Default 1800 meters

Command Modes Administration configuration

| Command History | Release | Modification |
|------------------------|----------------|------------------------------|
| | Release 7.0.12 | This command was introduced. |

Usage Guidelines No specific guidelines impact the use of this command.

| Task ID | Task ID | Operation |
|----------------|----------------|------------------|
| | root-system | read, write |

This example specifies that the chassis is located at sea level:

```
RP/0/RP0/CPU0:router(admin-config)#environment altitude 0 rack 0
```

fpd auto-upgrade

To enable the automatic upgrade of FPD images during a software upgrade, use the **fpd auto-upgrade** command in System Admin Config mode. To disable automatic FPD upgrades, use the **no** form of this command.

fpd auto-upgrade

Syntax Description This command has no keywords or arguments.

Command Default FPD images are not automatically upgraded.

Command Modes System Admin Config mode

| Command History | Release | Modification |
|-----------------|----------------|------------------------------|
| | Release 7.0.12 | This command was introduced. |

Usage Guidelines By default automatic upgrades of the FPD images are not performed during a software upgrade. Once the **fpd auto-upgrade** command is enabled, when you upgrade the software and an FPD upgrade is required, the FPD upgrade is done automatically before the router is rebooted. The automatic FPD upgrade works only if the FPD image is upgraded together with the mini installation PIE. For example, use the **install add** and **install activate** commands as shown here:

```
(admin)# install add comp-hfr-mini.pie hfr-fpd.pie hfr-mpls-p.pie
(admin)# install activate disk0:/comp-hfr-mini.pie disk0:/hfr-fpd.pie disk0:/hfr-mpls-p.pie
```

| Task ID | Task ID | Operation |
|---------|---------|----------------|
| | system | read, write |

The following example shows how to enable automatic FPD upgrades:

```
RP/0/RP0/CPU0:router(admin-config)# fpd auto-upgrade
```

hw-module npu-power-profile

To configure NPU power mode, use the **hw-module npu-power-profile** command in XR Config mode.

hw-module npu-power-profile { **high** | **medium** | **low** }

| Syntax Description | high | The router will use the maximum amount of power, resulting in the best possible performance. |
|--------------------|--------|---|
| | medium | The router power consumption and performance levels are both average. |
| | low | The router operates with optimal energy efficiency while providing a modest level of performance. |

Command Default No default behavior or values

Command Modes XR Config

| Command History | Release | Modification |
|-----------------|----------------|------------------------------|
| | Release 7.3.15 | This command was introduced. |

Usage Guidelines Reload the chassis using the **reload** command for the configuration changes to take effect.

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

The following example shows how to configure an NPU power mode on a fixed chassis:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# hw-module npu-power-profile high
RP/0/RP0/CPU0:router(config)# commit

RP/0/RP0/CPU0:router(config)# reload
```



Note Note: Reload the chassis for the configurations changes to take effect.

Use the **show controllers npu driver** command to verify the NPU power mode configuration on a fixed chassis:

```
RP/0/RP0/CPU0:router# show controllers npu driver location 0/RP0/CPU0
Mon Aug 24 23:29:34.302 UTC
=====
```

```

NPU Driver Information
=====
Driver Version: 1
SDK Version: 1.32.0.1
Functional role: Active,      Rack: 8203, Type: lcc, Node: 0
Driver ready      : Yes
NPU first started : Mon Aug 24 23:07:41 2020
Fabric Mode:
NPU Power profile: High
Driver Scope: Node
Respawn count    : 1
Availability masks :
      card: 0x1,      asic: 0x1,      exp asic: 0x1
...

```

The following example shows how to configure an NPU power mode on a fabric card and a line card:

```

RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# hw-module npu-power-profile card-type FC high
RP/0/RP0/CPU0:router(config)# hw-module npu-power-profile card-type LC low location 0/1/cpu0
RP/0/RP0/CPU0:router(config)# commit

```



Note For the configurations to take effect, you must:

- Reload a line card if the configuration is applied on the line card.
- Reload a router if the configuration is applied on a fabric card.

Use the **show controllers npu driver location** command to verify the NPU power mode configuration on a fabric card and a line card:

```

RP/0/RP0/CPU0:router# show controllers npu driver location 0/1/CPU0

Functional role: Active,      Rack: 8808, Type: lcc, Node: 0/RP0/CPU0
Driver ready      : Yes
NPU first started : Mon Apr 12 09:57:27 2021
Fabric Mode: FABRIC/8FC
NPU Power profile: High
Driver Scope: Rack
Respawn count    : 1
Availability masks :
      card: 0xba,      asic: 0xcfcc,      exp asic: 0xcfcc
Weight distribution:
      Unicast: 80,      Multicast: 20
-----+-----
| Process | Connection | Registration | Connection | DLL |
| /Lib    | status     | status       | requests   | registration|
-----+-----
| FSDB    | Active     | Active       |           1| n/a     |
| FGID    | Active     | Active       |           1| n/a     |
| AEL     | n/a        | n/a          |          n/a| Yes     |
| SM      | n/a        | n/a          |          n/a| Yes     |
-----+-----

Asics :
HP - HotPlug event, PON - Power On reset
HR - Hard Reset,      WB - Warm Boot
-----+-----

```

```

| Asic inst. | fap|HP|Slice|Asic|Admin|Oper | Asic state | Last |PON|HR | FW |
| (R/S/A)   | id | |state|type|state|state|         | init |(#)|(#)| Rev |
+-----+
| 0/FC1/2   | 202| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/FC1/3   | 203| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/FC3/6   | 206| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/FC3/7   | 207| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/FC4/8   | 208| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/FC4/9   | 209| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/FC5/10  | 210| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/FC5/11  | 211| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/FC7/14  | 214| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/FC7/15  | 215| 1| UP |s123| UP | UP |NRML      |PON  | 1| 0|0x0000|
+-----+

```

SI Info :

```

+-----+
| Card | Board | SI Board | SI Param | Retimer SI | Retimer SI | Front Panel |
|      | HW Version | Version | Version | Board Version | Param Version | PHY |
+-----+
| FC1 | 0.22 | 1 | 6 | NA | NA | NA |
| FC3 | 0.21 | 1 | 6 | NA | NA | NA |
| FC4 | 0.21 | 1 | 6 | NA | NA | NA |
| FC5 | 0.21 | 1 | 6 | NA | NA | NA |
| FC7 | 0.21 | 1 | 6 | NA | NA | NA |
+-----+

```

```

Functional role: Active, Rack: 8808, Type: lcc, Node: 0/1/CPU0
Driver ready : Yes
NPU first started : Mon Apr 12 09:58:10 2021
Fabric Mode: FABRIC/8FC
NPU Power profile: Low
Driver Scope: Node
Respawn count : 1
Availability masks :
card: 0x1, asic: 0x7, exp asic: 0x7
Weight distribution:
Unicast: 80, Multicast: 20
+-----+

```

```

+-----+
| Process | Connection | Registration | Connection | DLL |
| /Lib    | status     | status       | requests   | registration|
+-----+
| FSDB    | Active     | Active       | 1          | n/a        |
| FGID    | Inactive   | Inactive     | 0          | n/a        |
| AEL     | n/a       | n/a         | n/a       | Yes        |
| SM      | n/a       | n/a         | n/a       | Yes        |
+-----+

```

Asics :

HP - HotPlug event, PON - Power On reset
HR - Hard Reset, WB - Warm Boot

```

+-----+
| Asic inst. | fap|HP|Slice|Asic|Admin|Oper | Asic state | Last |PON|HR | FW |
| (R/S/A)   | id | |state|type|state|state|         | init |(#)|(#)| Rev |
+-----+
| 0/2/0     | 8 | 1| UP |npu | UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/2/1     | 9 | 1| UP |npu | UP | UP |NRML      |PON  | 1| 0|0x0000|
| 0/2/2     | 10| 1| UP |npu | UP | UP |NRML      |PON  | 1| 0|0x0000|
+-----+

```

```
+-----+
SI Info :
+-----+
| Card | Board      | SI Board | SI Param | Retimer SI  | Retimer SI  | Front Panel
|      | HW Version | Version  | Version  | Board Version | Param Version | PHY
+-----+
| LC2  | 0.41      | 1       | 9       | NA          | NA          | DEFAULT
+-----+
```

hw-module profile pbr vrfredirect

To redirect policy-based routing to VRF, use the **hw-module profile pbr vrfredirect** command in XR Config mode. To disable the redirect feature, use the **no** form of this command.

```
hw-module profile pbr vrfredirect
no hw-module profile pbr vrfredirect
```

| | |
|---------------------------|--|
| Syntax Description | This command has no keywords or arguments. |
|---------------------------|--|

| | |
|------------------------|-------------------------------|
| Command Default | No default behavior or values |
|------------------------|-------------------------------|

| | |
|----------------------|-----------|
| Command Modes | XR Config |
|----------------------|-----------|

| Command History | Release | Modification |
|------------------------|----------------|------------------------------|
| | Release 7.8.1 | This command was introduced. |

| | |
|-------------------------|--|
| Usage Guidelines | No specific guidelines impact the use of this command. |
|-------------------------|--|

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

The following example shows how to redirect a policy-based routing to VRF:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# hw-module profile pbr vrfredirect

Tue Mar 21 18:07:18.338 UTC
In order to activate/deactivate this stats profile, you must manually reload the chassis/all
line cards
```


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 | Disables the node reset feature on the specified node. |
| | location <i>node-id</i> | Identifies the node you want to reload. The <i>node-id</i> argument is entered in the <i>rack/slot</i> notation. |
| Command Default | The node reset feature is enabled for all nodes. | |
| Command Modes | Administration configuration | |
| Command History | Release | Modification |
| | Release 7.0.12 | This command was introduced. |

Usage Guidelines 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 |

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
```

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 switchover, use the **no** form of this command.

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

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

| | |
|---------------------------|---|
| Syntax Description | location <i>node-id</i> (Optional) Specifies the primary RP on which to force a switchover. The <i>node-id</i> argument is expressed in the <i>rack/slot</i> notation. |
|---------------------------|---|

| | |
|------------------------|-------------------------------|
| Command Default | No default behavior or values |
|------------------------|-------------------------------|

| | |
|----------------------|-----------------------------|
| Command Modes | EXEC Administration EXEC |
|----------------------|-----------------------------|

| Command History | Release | Modification |
|------------------------|----------------|------------------------------|
| | Release 7.0.12 | This command was introduced. |

| | |
|-------------------------|---|
| Usage Guidelines | Use the redundancy switchover command to trigger a switchover 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 switchover, 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 |

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 switchover 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.
```

show environment

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

```
show environment [ all | alarm | altitude | current | fan | humidity | power | temperature
| voltage ] [ node-id ]
```

Syntax Description

| | |
|--------------------|--|
| all | Displays information for all environmental monitor parameters. |
| alarm | Displays information for all alarm port information. |
| altitude | Displays altitude information. |
| current | Displays system current information. |
| fan | Displays information about the fans. |
| humidity | Displays the system humidity information. |
| temperature | (Optional) Displays system temperature information. |
| power | Displays the maximum power limit of a router. |
| voltage | (Optional) Displays system voltage information. |
| <i>node-id</i> | (Optional) Node whose information you want to display. |

Command Default

All environmental monitor parameters is displayed.

Command Modes

System Admin EXEC

Command History

| Release | Modification |
|----------------|---|
| Release 24.1.1 | This command was modified to include <code>Total feed redundancy capacity</code> field in the command output. |
| Release 7.11.1 | This command was modified to include the power keyword. |
| Release 7.0.12 | This command was introduced. |

Usage Guidelines

The **show environment** command displays information about the hardware that is installed in the system, including fans, altitude, humidity, current, and temperature information.

Task ID**Task Operations ID**

system read

The following example shows sample output from the **show environment** command with the **power** keyword:

```
Router:#show environment power
Tue Nov 7 20:38:01.700 PST
=====
CHASSIS LEVEL POWER INFO: 0
=====
Total output power capacity (N + 1)      : 18900W + 6300W
Total output power required              : 16222W
Total power input                        : 5527W
Total power output                       : 5033W
Configured max power capacity         : 20000W
=====
Power      Supply      -----Input-----  -----Output---  Status
Module     Type                Volts A/B    Amps A/B    Volts    Amps
=====
0/PT0-PM0  PSU6.3KW-HV         212.6/212.6 3.3/3.3    55.0     23.4    OK
0/PT0-PM1  PSU6.3KW-HV         212.6/212.6 3.2/3.2    54.9     22.2    OK
0/PT0-PM2  PSU6.3KW-HV         212.9/212.9 3.2/3.2    55.1     22.6    OK
0/PT1-PM1  PSU6.3KW-HV         212.3/212.3 3.3/3.3    54.8     23.4    OK
Total of Power Modules:                5527W/26.0A                5033W/91.6A
=====
```

The following example shows sample output for **show environment** command including the **Total feed redundancy capacity** field:

```
Router:#show environment power
=====
CHASSIS LEVEL POWER INFO: 0
=====
Total output power capacity (N + 1)      : 28800W + 4800W
Total output power required              : 6679W
Total power input                        : 2394W
Total power output                       : 2066W
Total feed redundancy capacity (Single Fault) : 16800W
=====
Power      Supply      -----Input-----  -----Output---  Status
Module     Type                Volts A/B    Amps A/B    Volts    Amps
=====
0/PT0-PM0  PSU4.8KW-DC100     62.8/62.7   2.6/2.5    55.2     5.3     OK
0/PT0-PM1  PSU4.8KW-DC100     62.7/62.7   2.7/2.6    55.3     5.3     OK
0/PT0-PM3  PSU4.8KW-DC100     61.0/62.7   2.6/2.5    55.2     4.8     OK
0/PT1-PM0  PSU4.8KW-DC100     67.3/67.3   2.7/2.5    55.3     5.2     OK
0/PT1-PM1  PSU4.8KW-DC100     67.3/67.2   2.8/2.7    55.3     5.7     OK
0/PT1-PM2  PSU4.8KW-DC100     67.3/67.4   2.7/2.7    55.2     5.6     OK
=====
```

```
show environment
```

```
0/PT1-PM3  PSU4.8KW-DC100  67.3/67.3  2.6/2.5  55.3  5.5  OK
Total of Power Modules:      2394W/36.7A      2066W/37.4A
```

```
=====
```

show fpd package

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

show fpd package

Syntax Description This command has no keywords or arguments.

Command Default No default behavior or values

Command Modes Administration EXEC
System Admin EXEC

| Command History | Release | Modification |
|-----------------|----------------|------------------------------|
| | Release 7.0.12 | This command was introduced. |

Usage Guidelines 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 Operations ID |
|---------|--------------------|
| | sysmgr read |

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

```

=====
                                Field Programmable Device Package
                                =====
Card Type           FPD Description           Req   SW   Min Req   Min Req
                        Reload Ver   SW Ver   Board Ver
=====
-----
8800-LC-36H Bios YES 1.15 1.15 0.0
BiosGolden YES 1.15 1.15 0.0
EthSwitch YES 0.07 0.07 0.0
EthSwitchGolden YES 0.07 0.07 0.0
IoFpga YES 0.08 0.08 0.0
IoFpgaGolden YES 0.08 0.08 0.0
x86Fpga YES 0.33 0.33 0.0
x86FpgaGolden YES 0.33 0.33 0.0
x86TamFw YES 5.05 5.05 0.0
x86TamFwGolden YES 5.05 5.05 0.0
-----
8800-LC-48H Bios YES 1.15 1.15 0.0
BiosGolden YES 1.15 1.15 0.0
EthSwitch YES 0.07 0.07 0.0
EthSwitchGolden YES 0.07 0.07 0.0
IoFpga YES 0.08 0.08 0.0

```

show fpd package

```

IoFpgaGolden YES 0.08 0.08 0.0
x86Fpga YES 0.33 0.33 0.0
x86FpgaGolden YES 0.33 0.33 0.0
x86TamFw YES 5.05 5.05 0.0
x86TamFwGolden YES 5.05 5.05 0.0
-----
8800-RP Bios YES 1.15 1.15 0.0
BiosGolden YES 1.15 1.15 0.0
BmcFitPrimary YES 0.300 0.300 0.0
BmcFpga YES 0.19 0.19 0.0
BmcFpgaGolden YES 0.19 0.19 0.0
BmcTamFw YES 5.05 5.05 0.0
BmcTamFwGolden YES 5.05 5.05 0.0
BmcUbootPrimary YES 0.15 0.15 0.0
EthSwitch YES 0.07 0.07 0.0
EthSwitchGolden YES 0.07 0.07 0.0
TimingFpga YES 0.11 0.11 0.0
TimingFpgaGolden YES 0.11 0.11 0.0
x86Fpga YES 0.24 0.24 0.0
x86FpgaGolden YES 0.24 0.24 0.0
x86TamFw YES 5.05 5.05 0.0
x86TamFwGolden YES 5.04 5.04 0.0
-----
8808-FC IoFpga YES 0.05 0.05 0.0
IoFpgaGolden YES 0.05 0.05 0.0
-----
8812-FC IoFpga YES 0.05 0.05 0.0
IoFpgaGolden YES 0.05 0.05 0.0
-----
8818-FC IoFpga YES 0.05 0.05 0.0
IoFpgaGolden YES 0.05 0.05 0.0
-----
FAM7008-FAN FTFPGAGolden YES 0.16 0.16 0.0
FTFPGAUpgrade NO 0.16 0.16 0.0
-----
FAM7012-FAN FTFPGAGolden YES 0.16 0.16 0.0
FTFPGAUpgrade NO 0.16 0.16 0.0
-----
FAM7018-FAN FTFPGAGolden YES 0.16 0.16 0.0
FTFPGAUpgrade NO 0.16 0.16 0.0
-----
PSU6.3KW-HV LogicMCU NO 4.11 4.11 0.0
PrimMCU NO 4.01 4.01 0.0
SecMCU NO 4.00 4.00 0.0
-----
PWR-4.4KW-DC-V3 LogicMCU NO 3.00 3.00 0.0
Prim1MCU NO 3.00 3.00 0.0
Prim2MCU NO 3.00 3.00 0.0
Sec1MCU NO 3.00 3.00 0.0
Sec2MCU NO 3.00 3.00 0.0

```

This table describes the significant fields shown in the display:

Table 1: show fpd package Field Descriptions

| Field | Description |
|-----------------|---|
| Card Type | Module part number. |
| FPD Description | Description of all FPD images available for the module. |
| Req Reload | Displays if the module requires a reload. |

| Field | Description |
|--------------------|---|
| SW Version | FPD software version recommended for the associated module running the current Cisco IOS XR software. |
| Min Req SW Vers | Minimum required FPD image software version to operate the card. Version 0.0 indicates that a minimum required image was not programmed into the card. |
| Min Req Board Vers | Minimum required board version for the associated FPD image. A minimum board requirement of version 0.0 indicates that all hardware can support this FPD image version. |

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 XR EXEC mode.

```
show hw-module [{ fpd | location node-id fpd | location node-id fpd fpd-name | location all fpd
fpd-name }]
```

| Syntax Description | location { <i>node-id</i> all } Specifies the location of the module. The <i>node-id</i> argument is expressed in the <i>rack/slot</i> notation. Use the all keyword to indicate all nodes. | | | | | | |
|---------------------------|--|---------|--------------|----------------|------------------------------|---------|------|
| Command Default | None | | | | | | |
| Command Modes | XR EXEC mode | | | | | | |
| Command History | <table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 7.0.12</td> <td>This command was introduced.</td> </tr> </tbody> </table> | Release | Modification | Release 7.0.12 | This command was introduced. | | |
| Release | Modification | | | | | | |
| Release 7.0.12 | This command was introduced. | | | | | | |
| Usage Guidelines | No specific guidelines impact the use of this command. | | | | | | |
| Task ID | <table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>sysmgr</td> <td>read</td> </tr> <tr> <td>root-lr</td> <td>read</td> </tr> </tbody> </table> | Task ID | Operations | sysmgr | read | root-lr | read |
| Task ID | Operations | | | | | | |
| sysmgr | read | | | | | | |
| root-lr | read | | | | | | |

The following example shows the output of **show hw-module fpd** command:

```
Router#show hw-module fpd
Wed Apr 5 17:46:55.067 UTC

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
FPD Versions
=====
Location   Card type      HWver FPD device      ATR Status  Running Programd  Reload Loc
-----
0/RP0/CPU0 8201           0.2   Bios             S   CURRENT          1.27    1.27    0/RP0/CPU0
0/RP0/CPU0 8201           0.2   BiosGolden      BS  CURRENT          1.20    1.20    0/RP0/CPU0
0/RP0/CPU0 8201           0.2   IoFpga          S   CURRENT          1.11    1.11    0/RP0
0/RP0/CPU0 8201           0.2   IoFpgaGolden   B   CURRENT          1.01    1.01    0/RP0
0/RP0/CPU0 8201           0.2   x86Fpga        S   CURRENT          1.06    1.06    0/RP0
0/RP0/CPU0 8201           0.2   x86FpgaGolden  BS  CURRENT          1.01    1.01    0/RP0
0/RP0/CPU0 8201           0.2   x86TamFw       S   CURRENT          5.13    5.13    0/RP0
0/RP0/CPU0 8201           0.2   x86TamFwGolden BS  CURRENT          5.06    5.06    0/RP0
0/PM0      PSU1.4KW-ACPE 0.0   DT-PrimMCU     S   CURRENT          3.01    3.01    NOT REQ
0/PM0      PSU1.4KW-ACPE 0.0   DT-SecMCU     S   CURRENT          2.02    2.02    NOT REQ
0/PM1      PSU1.4KW-ACPE 0.0   DT-PrimMCU     S   CURRENT          3.01    3.01    NOT REQ
0/PM1      PSU1.4KW-ACPE 0.0   DT-SecMCU     S   CURRENT          2.02    2.02    NOT REQ
```

The following example shows how to display FPD compatibility for specific location module in the router:

```
Router#show hw-module location 0/RP0/CPU0 fpd
Wed Apr 5 17:47:01.104 UTC

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
FPD Versions
=====
Location   Card type   HWver FPD device   ATR Status   Running Programd   Reload Loc
-----
0/RP0/CPU0 8201        0.2   Bios           S   CURRENT       1.27   1.27   0/RP0/CPU0
0/RP0/CPU0 8201        0.2   BiosGolden     BS  CURRENT       1.20   1.20   0/RP0/CPU0
0/RP0/CPU0 8201        0.2   IoFpga         S   CURRENT       1.11   1.11   0/RP0
0/RP0/CPU0 8201        0.2   IoFpgaGolden   B   CURRENT       1.01   1.01   0/RP0
0/RP0/CPU0 8201        0.2   x86Fpga        S   CURRENT       1.06   1.06   0/RP0
0/RP0/CPU0 8201        0.2   x86FpgaGolden  BS  CURRENT       1.01   1.01   0/RP0
0/RP0/CPU0 8201        0.2   x86TamFw       S   CURRENT       5.13   5.13   0/RP0
0/RP0/CPU0 8201        0.2   x86TamFwGolden BS  CURRENT       5.06   5.06   0/RP0
```

The following example shows the output of **show hw-module location 0/RP0/CPU0 fpd Bios** command:

```
Router#show hw-module location 0/RP0/CPU0 fpd Bios
Wed Apr 5 17:47:04.255 UTC

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
FPD Versions
=====
Location   Card type   HWver FPD device   ATR Status   Running Programd   Reload Loc
-----
0/RP0/CPU0 8201        0.2   Bios           S   CURRENT       1.27   1.27   0/RP0/CPU0
```

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

```
Router#show hw-module fpd all
Tue Apr 4 08:55:32.545 UTC

Auto-upgrade:Disabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware

FPD Versions
=====
Location   Card type   HWver FPD device   ATR Status   Running Programd   Reload Loc
-----
0/RP0/CPU0 8201        0.30  Bios           NEED UPGD     7.01   7.01   0/RP0/CPU0
0/RP0/CPU0 8201        0.30  BiosGolden     B   NEED UPGD     7.01   7.01   0/RP0/CPU0
0/RP0/CPU0 8201        0.30  IoFpga         NEED UPGD     7.01   7.01   0/RP0
0/RP0/CPU0 8201        0.30  IoFpgaGolden   B   NEED UPGD     7.01   7.01   0/RP0
0/RP0/CPU0 8201        0.30  SsdIntelS3520  NEED UPGD     7.01   7.01   0/RP0
0/RP0/CPU0 8201        0.30  x86Fpga        NEED UPGD     7.01   7.01   0/RP0
0/RP0/CPU0 8201        0.30  x86FpgaGolden  B   NEED UPGD     7.01   7.01   0/RP0
0/RP0/CPU0 8201        0.30  x86TamFw       NEED UPGD     7.01   7.01   0/RP0
0/RP0/CPU0 8201        0.30  x86TamFwGolden B   NEED UPGD     7.01   7.01   0/RP0
0/PM0      PSU2KW-ACPI 0.0   PO-PrimMCU     NEED UPGD     7.01   7.01   NOT REQ
0/PM1      PSU2KW-ACPI 0.0   PO-PrimMCU     NEED UPGD     7.01   7.01   NOT REQ
```

The following example shows the output of **show hw-module location all fpd IoFpga** command:

```
Router#show hw-module location all fpd IoFpga
Wed Apr 5 17:47:10.752 UTC

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
```

```
show hw-module fpd
```

```
FPD Versions
```

```
=====
```

| Location | Card type | HWver | FPD device | ATR Status | Running Programd | Reload Loc |
|------------|-----------|-------|------------|------------|------------------|------------|
| 0/RP0/CPU0 | 8201 | 0.2 | IoFpga | CURRENT | 1.11 1.11 | 0/RP0 |

show inventory

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

```
show inventory [{ node-id | all | location { node-id | all } | raw | chassis | details | fan | power | vendor-type }]
```

| Syntax Description | | |
|--------------------|---|--|
| | <i>node-id</i> | (Optional) Location for which to display the specified information. The <i>node-id</i> argument is entered in the <i>rack/slot</i> notation. |
| | all | (Optional) Displays inventory information for all the physical entities in the chassis. |
| | location { <i>node-id</i> 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 only information about the chassis. |
| | details | (Optional) Displays detailed entity information. |
| | fan | (Optional) Displays inventory information for the fans. |
| | power | (Optional) Displays inventory information for the power supply. |
| | vendor-type | (Optional) Displays vendor-type information. |

Command Default All inventory information for the entire chassis is displayed.

Command Modes XR EXEC mode

| Command History | Release | Modification |
|-----------------|----------------|------------------------------|
| | Release 7.0.12 | This command was introduced. |

Usage Guidelines 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, the output displays incorrect PIDs, and 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.

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

```
Router#show inventory raw
Tue Mar 7 07:34:48.602 UTC

NAME: "Rack 0", DESCR: "Cisco 8201 1RU Chassis"
PID: 8201 , VID: V00, SN: FOC2217JIRS

NAME: "Rack 0-Control Card Slot 0", DESCR: "8201 Route Processor Slot 0"
PID: N/A , VID: N/A, SN: N/A

NAME: "0/RP0/CPU0", DESCR: "Cisco 8201 1RU Chassis"
PID: 8201 , VID: V00, SN: FOC2219JGLB

NAME: "0/RP0/CPU0-Mother Board", DESCR: "Mother Board"
PID: N/A , VID: N/A, SN: N/A

NAME: "0/RP0/CPU0-Broadwell-DE (D-1530)", DESCR: "Processor Module"
PID: N/A , VID: N/A, SN: N/A

NAME: "0/RP0/CPU0-Attention", DESCR: "LED Sensor"
PID: N/A , VID: N/A, SN: N/A

NAME: "0/RP0/CPU0-Status", DESCR: "LED Sensor"
PID: N/A , VID: N/A, SN: N/A

NAME: "0/RP0/CPU0-Sync", DESCR: "LED Sensor"
PID: N/A , VID: N/A, SN: N/A

NAME: "0/RP0/CPU0-MB_RT_GB_PIN", DESCR: "Power Sensor - MB-RT_GB_ONLY_0.8VB_PIN"
PID: N/A , VID: N/A, SN: N/A
--More--
```

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

```
Router#show inventory chassis
Thu Apr 6 04:56:46.987 UTC

NAME: "Rack 0", DESCR: "Cisco 8808 8-slot Chassis"
PID: 8808 , VID: V00, SN: FOX224PPUDA
```

The following table describes the significant fields shown in the display.

Table 2: 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 <i>rack / slot</i> 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. |

| Field | Description |
|-------|--|
| 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** command in System Admin EXEC mode or administration EXEC mode.

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

| | | |
|---------------------------|---|--|
| Syntax Description | location { <i>node-id</i> all } | (Optional) Specifies the node for which to display LED information. The <i>node-id</i> argument is expressed in the <i>rack/slot</i> notation. Use the all keyword to indicate all nodes. |
|---------------------------|---|--|

Command Default If no node is specified, information about all LEDs on the router is displayed.

Command Modes EXEC
Administration EXEC

| Command History | Release | Modification |
|------------------------|----------------|------------------------------|
| | Release 7.0.12 | This command was introduced. |

Usage Guidelines Enter the **show platform** command to see the location of all nodes installed in the router.

| Task ID | Task Operations ID |
|----------------|---------------------------|
| | system read |

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

```
RP/0/RP0/CPU0:router# show led location all
Thu Jul 30 05:26:24.896 DST
  Location      Message      Mode      Status
  =====
    0/RSP0/*      ACTV      DEFAULT  UNLOCKED
```

Table 3: show led location Field Descriptions

| Field | Description |
|--------------|---|
| LOCATION | Location of the node. LOCATION is expressed in the <i>rack/slot</i> notation. |
| MESSAGE | Current message displayed by the LED. |
| MODE | Current operating mode of the specified node. |

| Field | Description |
|--------|---------------------------------------|
| STATUS | Current status of the specified node. |

show platform

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

show platform [*node-id*]

| | | |
|---------------------------|----------------|--|
| Syntax Description | <i>node-id</i> | (Optional) Node for which to display information. The <i>node-id</i> argument is entered in the <i>rack/slot</i> notation. |
|---------------------------|----------------|--|

Command Default Status and information are displayed for all nodes in the system.

Command Modes XR EXEC mode

| Command History | Release | Modification |
|------------------------|----------------|------------------------------|
| | Release 7.0.12 | This command was introduced. |

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

The following example shows sample output from the **show platform** command:

```
Router#show platform
Thu Apr 6 00:56:22.922 UTC
Node                Type                State                Config state
-----
0/RP0/CPU0          8800-RP(Active)    IOS XR RUN          NSHUT,NMON
0/0/CPU0             8800-LC-48H        IOS XR RUN          NSHUT
0/1/CPU0             88-LC0-36FH-M     IOS XR RUN          NSHUT
0/FC0                8812-FC            OPERATIONAL         NSHUT
0/FC1                8812-FC            OPERATIONAL         NSHUT
0/FT0                8812-FAN           OPERATIONAL         NSHUT
0/FT1                8812-FAN           OPERATIONAL         NSHUT
0/FT2                8812-FAN           OPERATIONAL         NSHUT
0/FT3                8812-FAN           OPERATIONAL         NSHUT
0/PT0                8800-HV-TRAY      OPERATIONAL         NSHUT
0/PT1                8800-HV-TRAY      OPERATIONAL         NSHUT
0/PT2                8800-HV-TRAY      OPERATIONAL         NSHUT
```

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

```
Router#show platform location 0/RP0/CPU0
Wed Mar 8 04:05:07.106 UTC
Node                Type                State                Config state
-----
0/RP0/CPU0          8201(Active)      IOS XR RUN          NSHUT
```

This table describes the significant fields shown in the display.

Table 4: show platform Field Descriptions

| Field | Description |
|--------------|--|
| Node | Identifier of the node in the <i>rack/slot</i> notation. |
| Type | Type of node. |
| State | Current state of the specified node. |
| Config State | Current configuration state of the specified node. |

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** | **summary**}]

| Syntax Description | | |
|---|--|--|
| location { <i>node-id</i> all } | | (Optional) Specifies the node for which to display LED information. The <i>node-id</i> argument is expressed in the <i>rack/slot</i> notation. Use the all keyword to indicate all nodes. |
| statistics | | (Optional) Displays redundancy statistics information. |
| summary | | (Optional) Displays a summary of all redundant node pairs in the router. |

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

Command Modes EXEC

| Command History | Release | Modification |
|-----------------|----------------|------------------------------|
| | Release 7.0.12 | This command was introduced. |

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

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

The following example shows sample output from the **show redundancy** command:

```
Router# show redundancy location 0/rsp0/cpu0
Thu Jul 30 05:47:12.155 DST
Node 0/RSP0/CPU0 is in ACTIVE role
Node 0/RSP0/CPU0 has no valid partner

Reload and boot info
-----
A9K-RSP-4G reloaded Tue Jul 14 15:21:30 2009: 2 weeks, 1 day,
14 hours, 25 minutes ago
Active node booted Tue Jul 14 15:21:30 2009: 2 weeks, 1 day,
14 hours, 25 minutes ago
```

Active node reload "Cause: User initiated forced reload all"

Table 5: show redundancy Field Descriptions

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

show version

To display the software version, build information, system hardware type and uptime, use the **show version** command in XR EXEC mode.

show version

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes XR EXEC mode

| Command History | Release | Modification |
|-----------------|----------------|------------------------------|
| | Release 7.0.12 | This command was introduced. |

Usage Guidelines The **show version** command displays a variety of system information, including hardware and software version, router uptime, and active software.

| Task ID | Task ID | Operations |
|---------|----------------|------------|
| | basic-services | read |

This example shows partial output from the **show version** command:

```
Router#show version
Cisco IOS XR Software, Version 7.8.2 LNT
Copyright (c) 2013-2023 by Cisco Systems, Inc.

Build Information:
  Built By      : ingunawa
  Built On     : Wed Mar 15 16:45:19 UTC 2023
  Build Host   : iox-ucs-060
  Workspace    : /auto/srcarchive13/prod/7.8.2/8000/ws
  Version      : 7.8.2
  Label       : 7.8.2

cisco 8000 (Intel(R) Xeon(R) CPU D-1530 @ 2.40GHz)
cisco 8812 (Intel(R) Xeon(R) CPU D-1530 @ 2.40GHz) processor with 32GB of memory
R1 uptime is 7 hours, 19 minutes
Cisco 8812 12-slot Chassis
```

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 .

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

| Syntax Description | all | Upgrades all FPD images on the selected module. |
|--------------------|---|--|
| | fabldr | Upgrades the fabric-downloader FPD image on the module. |
| | <i>fpga-type</i> | 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 { <i>node-id</i> all } | Specifies the node for which to upgrade the FPD image. The <i>node-id</i> argument is expressed in the <i>rack/slotsubslot</i> notation. Use the all keyword to indicate all nodes. |
| Command Default | None | |
| Command Modes | | |
| Command History | Release | Modification |
| | Release 7.0.12 | This command was introduced. |

Usage Guidelines



Note The use of the force option when doing a fpd upgrade is not recommended except under explicit direction from Cisco engineering or TAC.

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

Naming notation for the *node-id* argument is *rack/slotsubslot*; 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.

When you start the FPD upgrade procedure or log into a router that is running the FPD upgrade procedure, the following message is displayed to the screen on TTY, console and AUX ports:

```
FPD upgrade in progress on some hardware, reload/configuration change on those
is not recommended as it might cause HW programming failure and result in RMA
of the hardware.
```

If you enter administration mode while the FPD upgrade procedure is running, the following message is displayed to the screen on TTY, console and AUX ports:

```
FPD upgrade in progress on some hardware, reload/configuration change on those
is not recommended as it might cause HW programming failure and result in RMA
of the hardware. Do you want to continue? [Confirm (y/n)]
```

If you enter global configuration mode while the FPD upgrade procedure is running, the following message is displayed to the screen on TTY, console and AUX ports:

```
FPD upgrade in progress on some hardware, configuration change on those is not
recommended as it might cause HW programming failure and result in RMA of the
hardware. Do you want to continue? [Confirm (y/n)]
```

When the FPD upgrade global timer expires, the following warning message displayed to the screen.

```
FPD upgrade has exceeded the maximum time window, the process will terminate now.
Please check the status of the hardware and reissue the upgrade command if required.
```

| Task ID | Task ID | Operations |
|---------|---------|----------------|
| | sysmgr | read, write |

The following example shows how to upgrade the default FPGA on a SPA:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# upgrade hw-module fpd fpga 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
```



```
/net/node0_RP1_CPU0/-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.
```

Show asic-error

To display error messages related to ASIC (Application-Specific Integrated Circuit) components use the **show-asic error** command in EXEC mode. This command provides information on ASIC errors like error type, error code, and affected ASIC component.

show asic-errors all { **Detail** | **Summary** | **history** | **location** } [**all** | *<location>*]

| Syntax Description | Detail | Description |
|--------------------|-----------------|--|
| | Detail | Displays detailed information about ASIC errors that occurred on the current node. |
| | Summary | Provides a summarized view of ASIC errors that occurred on the current node. |
| | history | Displays the system history of events and errors before the current node reload or shutdown. |
| | location | Displays ASIC errors for all instances at all locations. |

Command Default No default behavior or values.

Command Modes Admin EXEC mode

| Command History | Release | Modification |
|-----------------|---------------|------------------------------|
| | Release 7.9.1 | This command was introduced. |

Usage Guidelines You can use the **show asic-error** command, along with other tools, to find and fix problems with the ASIC components on the routers.

The common error messages in the **show asic-error** command output include interface errors, buffer errors, and packet errors. Depending on the specific error message, administrators can take appropriate action to resolve the issue, such as resetting the affected interface.



Note ASIC error interrupts occur when the ASICs detect errors or critical situations, signaling the need for attention. These interrupts include reset, single-bit, multiple-bit, and parity errors.

| Task ID | Task ID | Operations |
|---------|---------|------------|
| | drivers | read |

Examples

The following example displays ASIC errors details for 0/RP0/CPU0.

```
RP0/RP0/CPU0:ios#show asic-errors all detail location 0/RP0/CPU0
Thu Jun  1 09:46:00.873 UTC
```

```

*****
*                               0_RP0_CPU0                               *
*****
*                               NPU ASIC Error Summary                    *
*****
*                               Instance : 0                             *
*****
*                               Reset Errors                             *
*****
*                               Single Bit Errors                        *
*****
*                               Multiple Bit Errors                      *
*****
*                               Parity Errors                            *
*****
*                               Unexpected Errors                        *
*****
*                               Link Errors                              *
*****
8000, 8201, 0/RP0/CPU0, npu[0]
Name       : slice[0].ifg[0].mac_pool8[0].rx_link_status_down.rx_link_status_down0
Block ID   : 0x62
Addr       : 0x100
Leaf ID    : 0xc402000
Error count : 1
Last clearing : Thu Jun  1 07:51:26 2023
Last N errors : 1
-----

```

Show asic non-error

To display non-error messages related to ASIC (Application-Specific Integrated Circuit) components use the **show asic non-error** command in EXEC mode. This command provides status messages, statistics, and performance metrics for regular operation, and details on affected non-ASIC components.

show asic non-error all { **Detail** | **Summary** | **history** | **location** } [**all** | *<location>*]

| Syntax Description | Detail | Description |
|--------------------|-----------------|--|
| | Detail | Displays detailed information about ASIC non-errors that occurred on the current node. |
| | Summary | Provides a summarized view of ASIC non-errors that occurred on the current node. |
| | history | Displays the system history of events and errors before the current node reload or shutdown. |
| | location | Displays ASIC non-errors for all instances at all locations. |

Command Default No default behavior or values.

Command Modes Admin EXEC mode

| Command History | Release | Modification |
|-----------------|---------------|------------------------------|
| | Release 7.9.1 | This command was introduced. |

Usage Guidelines You can use the **show asic non-error** command, along with other tools, to find nonerror messages related to ASIC components on the routers.

The common nonerror messages in the **show asic non-error** command output include informational or status messages indicating regular operation, statistics, or performance metrics. Administrators can take appropriate action to resolve the issue depending on the specific nonerror message, such as resetting the affected interface.



Note ASICs generate non-error interrupts to provide information or signaling for non-error conditions or events. These interrupts include updates on system operations, status, or specific ASIC events.

| Task ID | Task ID | Operations |
|---------|---------|------------|
| | drivers | read |

The following example displays ASIC nonerror details for 0/RP0/CPU0.

```
RP/0/RP0/CPU0:ios#show asic non-errors all detail location
0/RP0/CPU0*****
*                0_RP0_CPU0                *
*****
*****
*                Non Errors                *
*****
8000, 8201-32FH, 0/RP0/CPU0, npu[0]
Name       : slice[2].ifg[1].mac_pool8[2].rx_link_status_down.rx_link_status_down0
Block ID   : 0x143
Addr       : 0x100
Leaf ID    : 0x28602000
Error count : 1
Last clearing : Mon Feb 13 02:41:39 2023
Last N errors : 1
-----
```

power-mgmt configured-power-capacity

To configure a maximum power limit for a router, use the **power-mgmt configured-power-capacity** command in Global Configuration mode .

Syntax:

```
power-mgmt configured-power-capacity
maximum-watts
```

| | |
|---------------------------|--|
| Syntax Description | <i>maximum-watts</i> Specifies the maximum power capacity, in watts, to be set for the router. |
|---------------------------|--|

| | |
|------------------------|------|
| Command Default | None |
|------------------------|------|

| | |
|----------------------|----------------|
| Command Modes | XR Config mode |
|----------------------|----------------|

| | | |
|------------------------|----------------|------------------------------|
| Command History | Release | Modification |
| | Release 7.11.1 | This command was introduced. |

| | |
|-------------------------|--|
| Usage Guidelines | Make sure the configured max power doesn't cross the max PSUs capacity and not below minimum chassis required power. |
|-------------------------|--|

A new alarm **PKT_INFRA-FM-3-FAULT_MAJOR : ALARM_MAJOR :Power reservation exceeds configured power** is introduced to be raised when the max power capacity is crossed.



| | |
|-------------|---|
| Note | This alarm is extremely rare and is raised only when the power reservation exceeds configured power. This can only happen when hardware is inserted, it is granted power without a request, such as a fan tray. |
|-------------|---|

| | | |
|----------------|-----------------|------------------|
| Task ID | Task ID | Operation |
| | config-services | read, write |

This example shows how to set the maximum power limit for the router.

```
Router#configure
Router(config)#power-mgmt configured-power-capacity 20000
Router(config)#commit
Router(config)#exit
```

power-mgmt feed-redundancy

To configure feed failure protection in the router, use the **power-mgmt feed-redundancy** command in Global Configuration mode.

```
power-mgmt feed-redundancy { dual-fault-protection | single-fault-protection } capacity single feed capacity
```

| Syntax Description | |
|--------------------------------|---|
| dual-fault-protection | Provides protection against power supply feed failure and PSU redundancy failure. |
| single-fault-protection | Provides protection against power supply feed failure or PSU redundancy failure. |
| <i>single feed capacity</i> | Specifies the PSU single feed capacity for feed redundancy budget calculation in watts. |

Command Default By default, this feature is not enabled.

Command Modes XR Config mode

| Command History | Release | Modification |
|-----------------|----------------|------------------------------|
| | Release 24.1.1 | This command was introduced. |

Usage Guidelines The PSU single feed capacity range differs across various models of Cisco 8000 Series Routers. We recommend configuring the PSU single feed capacity value adhering to your network requirements.

| Task ID | Task ID | Operation |
|---------|-----------------|----------------|
| | config-services | read, write |

This example shows how to configure feed failure protection in the router:

```
Router# config
Router(config)# power-mgmt feed-redundancy dual-fault-protection capacity 2400
Router(config)# commit
Router(config)#exit
```

hw-module fault-recovery

To configure the number of times a fault recovery can take place before permanently shutting down a line card, fabric card or a route processor, use the **hw-module fault-recovery** command in Global Configuration modeXR Config mode.

hw-module fault-recovery location *hw-module-location* *count*

| Syntax Description | location | count |
|--------------------|---------------------------|--|
| | <i>hw-module-location</i> | |
| | | <i>count</i> |
| | | Specifies the number of times a hardware module can attempt fault recovery before permanently shutting down. The range is from 1 to 255. |

Command Default Disabled, by default

Command Modes XR Config mode
XR Config

| Command History | Release | Modification |
|-----------------|---------------------------------|-----------------------------|
| | Release 7.3.6 Release 24.2.1 | The command was introduced. |

Usage Guidelines No specific guidelines impact the use of this command.

| Task ID | Task ID | Operation |
|---------|-----------------|------------|
| | config-services | read,write |

The configuration example shows the fault recovery attempts on the fabric card FC0:

```
Router#configure
Router (config)#hw-module fault-recovery location 0/FC0 count 1
Router (config)#commit
```