

Hardware Module Commands

This module lists the Cisco IOS XR Interfaces commands on the Cisco 8000 Series Routers.

For detailed information about the hardware module configuration tasks and examples, refer to the *Interface and Hardware Components Configuration Guide for Cisco 8000 Series Routers*.

- Hardware Module Commands, on page 2
- Hardware Redundancy Commands, on page 3

Hardware Module Commands

GRE Tunnel Interface Commands

- hw-module profile cef ttl tunnel-ip decrement disable
- hw-module profile gue
- hw-module profile gue underlay-hash enable

Hardware Redundancy Commands

hw-module fabric-fec-monitor disable

To disable the fabric FEC monitor, use the **hw-module fabric-fec-monitor disable** command in XR Config mode mode.

hw-module fabric-fec-monitor disable

Syntax Description

This command has no keywords or arguments.

Command Default

No default behavior or values.

Command Modes

XR Config

mode

Command History

Release	Modification
Release 24.2.11	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
sysmgr	read

The following example shows how to disable the fabric FEC monitor:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# hw-module fabric-fec-monitor disable
RP/0/RP0/CPU0:router(config)# commit
```

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 *hw-module-location*	Specifies the hardware module for which fault recovery limit is configured.
count	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 24.2.11	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
```

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
Availablity 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
Availablity 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
Availablity 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 profile npu-compatibility

To configure a router for handling line cards of different ASIC families, use the **hw-module npu-compatibility** command in XR Config mode. To go back to the default mode, use the **no** form of this command.

hw-module profile npu-compatibility *mode-name*

Syntax Description

npu-compatibility	Allows you to make a router compatible with an ASIC family.
mode-name	Allows you to set the mode, such as Q100, Q200, P100, or P200.

Command Default No default behavior or values

Command Modes XR Config

Command History

Release	Modification
Release 7.7.1	This command was introduced.
Release 25.4.1	The option P200 was added.

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 the NPU compatibility mode on a chassis:

```
Router# configure
Router(config)# hw-module profile npu-compatibility q200
Router(config)# commit
Router(config)# exit
Router# reload location all
```



Note The **reload** command restarts the device, applying configuration changes.

Use the **show hw-module profile npu-compatibility matrix** command to verify the NPU compatibility mode configuration on a chassis:

```
RP/0/RP0/CPU0:router# show hw-module profile npu-compatibility matrix
Mon Aug 24 23:29:34.302 UTC
Node          Card Type                NPU Type
-------------------------------------------------------------
0/0/CPU0      8800-LC-48H              Q100

              Compatibility       Compatibility
NPU Type     Mode Q100            Mode Q200
-------------------------------------------------------
Q100          Compatible             Not Compatible
Q200          Compatible             Compatible
Default mode: Q100
RP/0/RP0/CPU0:ios# show hw-module profile npu-compatibility
Mon Jun 27 19:41:59.318 UTC
-----------------------------------------------------------------
Knob                Status             Applied      Action
-----------------------------------------------------------------
npu_compatibility   Unconfigured       N/A           None


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

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 *node-id*	Identifies the node you want to reload. The *node-id* argument is entered in the *rack/slot* 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
```

hw-module shutdown

To administratively shut down a specific node, use the **hw-module shutdown** command in XR Config mode.

hw-module shutdown location *node-id*

Syntax Description

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

Command Default

Nodes are in the up state when the system is powered on and when the software boots on the cards.

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.0.12	The command was introduced.

Usage Guidelines

Nodes that are shut down do not have power.

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

Task ID

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

This example displays how to shutdown the node 0/3/CPU0:

```
Router# configure
Router(config)# hw-module shutdown location 0/3/CPU0
Router(config)# commit
```

Verify the result using the **show platform** command:

```
Router# show platform
Fri Sep 20 05:22:12.596 UTC
Node              Type                       State                     Config state
--------------------------------------------------------------------------------
0/RP0/CPU0        8800-RP(Active)            IOS XR RUN                NSHUT
0/RP1/CPU0        8800-RP(Standby)           IOS XR RUN                NSHUT
0/3/CPU0          8800-LC-48H                SHUT DOWN                 SHUT
0/5/CPU0          88-LC0-36FH-M              IOS XR RUN                NSHUT
0/8/CPU0          88-LC0-36FH-M              IOS XR RUN                NSHUT
0/FC0             8812-FC                    OPERATIONAL               NSHUT
0/FC3             8812-FC                    OPERATIONAL               NSHUT
0/FT0             SF-D-12-FAN                OPERATIONAL               NSHUT
0/FT1             SF-D-12-FAN                OPERATIONAL               NSHUT
0/FT2             SF-D-12-FAN                OPERATIONAL               NSHUT
0/FT3             SF-D-12-FAN                OPERATIONAL               NSHUT
0/PT0             FAM7000-ACHV-TRAY          OPERATIONAL               NSHUT
0/PT1             FAM7000-ACHV-TRAY          OPERATIONAL               NSHUT
0/PT2             FAM7000-ACHV-TRAY          OPERATIONAL               NSHUT
```

hw-module port-range

To configure the muxponder or transciever mode, use the **hw-module port-range** command in the global configuration mode.

hw-module port-range *start-port end-port* **[instance** *mpa-instance* **] location** *node-id* **mode** *mode-type*

Syntax Description

start-port end-port	Specify the port range - start and end port. Start port must be an even port and the end port must be an odd port. The port range must be provided in the format as shown in this example: **0-71**
instance *mpa-instance*	Specify the MPA-instance.
location *node-id*	Specify the node location.
mode *mode-type*	Configures the mode-type for this controller. Mode-type options available are: • port mode 40 • 40-100 • 400 • 2x100 • 4x10 • 4x25 • 4x10-4x25 • 1x100 • 2x100-PAM4 • 3x100 • 4x100 • 2x400 • 8x100 • 800 • 25

Command Default

None.

Command Modes

Global Configuration

Command History

Release	Modification
Release 26.3.1	This command was modified to include the mode-type 25.
Release 25.3.1	This command was modified to include **mode 800.**
Release 7.3.2	This command was introduced.

Usage Guidelines

For the 88-LC1-48Y8H-EM line card, the configurable port-range is 0–63 and the only supported mode-type is 25.

Example

This example shows how to configure the 4x100 mode using the **hw-module port-range** command:

```
Router#configure
Router(config)#hw-module port-range 2 3 location 0/0/CPU0 mode 4x100
Router(config)#commit
```

Example

This example shows how to configure 800G optics using the **hw-module port-range** command:

```
Router#configure
Router(config)#hw-module port-range 2 3 location 0/0/CPU0 mode 800
Router(config)#commit
```

Example

This example shows how to configure mode 25 using the **hw-module port-range** command for the 88-LC1-48Y8H-EM line card:

```
Router#configure
Router(config)#hw-module port-range 7 8 location 0/0/CPU0 mode 25
Router(config)#commit
```

Example

This example shows how to remove the mode 25 configuration using the **hw-module port-range** command:

```
Router#configure
Router(config)#no hw-module port-range 7 8 location 0/0/CPU0 mode 25
Router(config)#commit
```