



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.
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Command Default	No default behavior or values.
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Command Modes	XR Config mode
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Command History	Release	Modification
	Release 24.2.11	This command was introduced.

Usage Guidelines	No specific guidelines impact the use of this command.
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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 <i>hw-module-location</i>	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
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 / Lib	Connection status	Registration status	Connection requests	DLL 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. (R/S/A)	fap id	HP 	Slice state	Asic type	Admin state	Oper state	Asic state	Last init	PON (#)	HR (#)	FW 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 / Lib	Connection status	Registration status	Connection requests	DLL 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. (R/S/A)	fap id	HP Slice state	Asic Admin Oper state	Asic state	Last init	PON HR FW	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.
	<i>mode-name</i> Allows you to set the mode, such as Q100, Q200, or P100.

Command Default No default behavior or values

Command Modes XR Config

Command History	Release	Modification
	Release 7.7.1	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

Task ID	Operations
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)# reload
```

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

NPU Type      Compatibility      Compatibility
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 <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: <pre> 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 </pre>		

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 transceiver 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	<i>start-port end-port</i>	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 these examples: port-range 0-71 port-range 0-71
	instance <i>mpa-instance</i>	Specify the MPA-instance.
	location <i>node-id</i>	Specify the node location.

mode	<i>mode-type</i>	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
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Command Default	None.	
Command Modes	Global Configuration	
Command History	Release	Modification
	Release 25.3.1	This command was modified to include mode 800 .
	Release 7.3.2	This command was introduced.

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

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
```

hw-module port-range