SPA Interface Processor and Shared Port Adapter Commands on Cisco IOS XR Software

This module describes the Cisco IOS XR commands which are specific to SPA interface processors (SIPs) and shared port adapters (SPAs). For general configuration and troubleshooting commands, refer to the *Ethernet Switch and Server Platform Commands on Cisco IOS XR Software* or *Packet-over-SONET User Interface and SONET Layer 1 Commands on Cisco IOS XR Software* modules.

hw-module subslot power-cycle

To power-cycle the subslot and reload Cisco IOS XR software, use the **hw-module subslot power-cycle** command in EXEC mode.

> **hw-module subslot** *subslot-id* **power-cycle**

Syntax Description

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

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

Usage Guidelines

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

This command power-cycles the subslot (including the installed SPA).

Examples

The following example shows how to power-cycle the SPA in slot 2, subslot 1:

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

Related Commands

Command	Description
hw-module subslot reload	Reloads the Cisco IOS XR software on a specific SPA module.

hw-module subslot reload

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

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

Syntax Description

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

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

Usage Guidelines

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

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

Examples

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

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

Related Commands

Command	Description
hw-module subslot power-cycle	Power-cycles a SPA module.

hw-module subslot shutdown

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

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

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

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

Defaults Shutdown is powered if no option is specified.

Command Modes Global configuration

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

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

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

Examples The following example shows how to shut down the SPA in subslot 1 of the SIP in slot 2:

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

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

show fpd package

To display which field-programmable device (FPD) image package is needed for the router to properly support the modules for the running Cisco IOS XR software release, use the **show fpd package** command.

show fpd package

Syntax Description   This command has no arguments or keywords.

Defaults   No default behavior or values

Command Modes   Admin EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

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

Use the **show fpd package** command to determine which FPD image should be running on the module installed in your system.

Examples   The following example shows how to display FPD image information:

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

=============================== =================================================
                                        Field Programmable Device Package
                                =================================================
                                                          SW        Min Req
Card Type             FPD Description           Type Subtype Version   HW Vers
=================== ======================== ==== ======= =========== =======
SPA-OC192RPR-XFP      SPA FPGA swv1.2           spa  fpga    1.2       0.0
--------------------------------------------------------------------------------
SPA-OC192POS-XFP      SPA FPGA swv1.2           spa  fpga    1.2       0.0
                      SPA FPGA swv1.2 hwv2      spa  fpga    1.2       2.0
--------------------------------------------------------------------------------
SPA-10X1GE            SPA FPGA swv1.6           spa  fpga    1.6       0.0
--------------------------------------------------------------------------------
SPA-5X1GE             SPA FPGA swv1.6           spa  fpga    1.6       0.0
--------------------------------------------------------------------------------
SPA-1XTENGE-XFP       SPA FPGA swv1.6           spa  fpga    1.6       0.0
--------------------------------------------------------------------------------
```

Table 31 describes the significant fields shown in the display.

Table 31   show fpd package Field Descriptions

Field	Description
Card Type	Module part number.
FPD Description	Description of all FPD images available for the SPA.
Type	Hardware type can be: spa—shared port adapter; lc—line card.
Subtype	FPD type can be: fabldr—fabric downloader; fpga—field-programmable gate array; rommon—read-only memory monitor
SW Version	FPD software version required for the associated module running the current Cisco IOS XR software.
Min Req HW Vers	Minimum required hardware version for the associated FPD image.

Related Commands

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

show hw-module fpd

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

> **show hw-module fpd location** [**all** | *node-id*]

Syntax Description		
	location	Specifies the location of the module.
	all	Upgrades the FPD image of all modules in the router.
	node-id	Location of the module in the *rack*/*slot*/*module* notation.

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

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

Examples   The following example shows how to display FPD compatibility for a specific module. Because the current FPGA image needs to be upgraded, a note is displayed at the end of the output:

```
RP/0/0/CPU0:Router# show hw-module fpd location 0/3/1

=============================== ==================================================
                                        Existing Field Programmable Devices
                                ==================================================
                                                   Current SW    HW     Upg/
Location    Card Type                Type Subtype Inst  Version   Version Dng?
=========== ======================== ==== ======= ==== ========== ======= ====
0/3/1       SPA-1XTENGE-XFP          spa  fpga    1       0.17     2.0    Yes
-------------------------------------------------------------------------------
NOTES:
1.  One or more FPD needs an upgrade or a downgrade.  This can be accomplished using the
"admin upgrade hw-module fpd" CLI.
```

Table 32 describes the significant fields shown in the display.

Table 32 *show hw-module fpd Field Descriptions*

Field	Description
Location	Location of the module in the *rack*/*slot*/*module* notation.
Card Type	Module part number.
Type	Hardware type can be: spa—shared port adapter; lc—line card.
Subtype	FPD type can be: fabldr—fabric downloader; fpga—field-programmable gate array; rommon—read-only memory monitor
Inst	Instance—A unique identifier that is used by the FPD process to register an FPD.
Current SW Version	Currently running FPD image version.
Min Req HW Vers	Minimum required hardware version for the associated FPD image.
Upg/Dng	Specifies whether an FPD upgrade or downgrade is required. A downgrade will be required in rare cases when the version of the FPD image has a higher major revision than the version of the FPD image in the current Cisco IOS XR software package.

Related Commands	Command	Description
	show fpd package	Displays which FPD image package is needed for the router to properly support the modules for the running Cisco IOS XR software release.
	upgrade hw-module fpd	Manually upgrades the current FPD image package on a module.

show hw-module subslot brief

To display summary diagnostic information about internal hardware devices for a SPA, use the **show hw-module subslot brief** command in EXEC mode.

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

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

Enter the command **show platform** to display the nodes on the router.

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

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

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

```
RP/0/RP1/CPU0:router# show hw-module subslot brief

BAY 0 brief info:
------------------
SPA inserted: YES
SPA type:     1xOC192 POS/RPR HHSPA with XFP
SPA operational state: READY
SPA cfg admin up: YES

BAY 1 brief info:
------------------
SPA inserted: YES
SPA type:     1xOC192 POS/RPR FHSPA
SPA operational state: READY
SPA cfg admin up: YES
```

Table 33 describes the significant fields shown in the display.

Table 33   show hw-module subslot brief Field Descriptions

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

The following is sample output for the **show hw-module subslot brief** command with the **c2w** option:

```
RP/0/RP1/CPU0router# show hw-module subslot 0/2/cpu0 brief c2w

 SPA device c2w index 0 subindex 0 info:

Auxiliary C2W (0x0803bfbc), name AUX C2W (busywait), state 4

SPA device c2w index 0 subindex 0 info:

Auxiliary C2W (0x080638c4), name AUX C2W (busywait), state 4
```

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

show hw-module subslot config

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

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

Enter the command **show platform** to display the nodes on the router.

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

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

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

```
RP/0/RP1/CPU0router# show hw-module subslot 0/2/cpu0 config

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

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

Table 34 describes the significant fields shown in the display.

Table 34   show hw-module subslot config Field Descriptions

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

Related Commands

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

show hw-module subslot counters

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

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

Syntax Description

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

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

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

Enter the command **show platform** to display the nodes on the router.

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

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

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

```
RP/0/RP1/CPU0router# show hw-module subslot 0/2/cpu0 counters

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

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

Table 35 describes the significant fields shown in the display.

Table 35   show hw-module subslot counters Field Descriptions

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

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

```
RP/0/RP1/CPU0router# show hw-module subslot counters framer

SPA device framer index 0 subindex 0 info:

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

show hw-module subslot errors

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

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

Syntax Description

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

Defaults　　No default behavior or values

Command Modes　　EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

Usage Guidelines

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

Enter the command **show platform** to display the nodes on the router.

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

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

Examples

The following is sample output for the **show hw-module subslot errors** command with the **pluggable-optics** option:

```
RP/0/RP1/CPU0router# show hw-module subslot 0/2/cpu0 errors pluggable-optics

 SPA device pluggable-optics index 0 subindex 0 info:

Phased Initialization
        Phase Reached: 4
        Phase Exit Code: 0
        Phase Read Offset: 256

Socket Verification
        Not supported

 SPA device pluggable-optics index 0 subindex 0 info:

Phased Initialization
        Phase Reached: 2
        Phase Exit Code: 3
        Phase Read Offset: 256

Socket Verification
        Not supported
```

Related Commands

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

show hw-module subslot registers

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

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

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

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

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

Enter the command **show platform** to display the nodes on the router.

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

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

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

```
RP/0/RP1/CPU0router# show hw-module subslot 0/2/cpu0 registers

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

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

Related Commands

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

show hw-module subslot status

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

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

Enter the command **show platform** to display the nodes on the router.

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

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

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

```
RP/0/RP1/CPU0router# show hw-module subslot 0/2/cpu0 status temperature-sensor

 SPA device temperature-sensor index 0 subindex 0 info:

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


 SPA device temperature-sensor index 0 subindex 0 info:

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

Related Commands

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

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 admin EXEC mode.

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

Syntax Description

all	Upgrades all FPD images on the selected module.
fabldr	Upgrades the fabric-downloader image on the module.
fpga	Upgrades the field-programmable gate array (FPGA) image(s) on the module.
rommon	Upgrades the rommon on the module.
force	Forces the update of the indicated FPD image package on the SPA that meet the minimal version requirements. Without this option, the manual upgrade will only upgrade incompatible FPD images.
location	Specifies the location of the module.
all	Upgrades the FPD image of all modules in the router.
node-id	Location of the module in the *rack*/*slot*/*module* notation.

Defaults   No default behavior or values

Command Modes   Admin EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.

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

During the upgrade procedure, the module needs to be offline (shutdown but powered).

Examples   The following example shows how to upgrade the FPGA on a SPA and the output generated:

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

LC/0/3/CPU0:Feb 12 12:00:22.157 : spa_192_jacket[188]: %L2-SPA-5-STATE_CHANGE : SPA in bay
0 exiting ready state
LC/0/3/CPU0:Feb 12 12:00:40.172 : spa_192_jacket[188]: %L2-SPA_192-6-UPGRADE_FPGA :
Prepared SPA in bay 0 for FPGA upgrade, spa_type 0x44e
LC/0/3/CPU0:Feb 12 12:00:40.348 : spa_192_jacket[188]: %L2-SPA_192-6-UPGRADE_FPGA :
Writing FPGA image to SPA bay 0...
```

```
LC/0/3/CPU0:Feb 12 12:01:04.326 : spa_192_jacket[188]: %L2-SPA_192-6-UPGRADE_FPGA :
Programmed SPA in bay 0 FPGA, spa_type 0x44e
SuccesLC/0/3/CPU0:Feb 12 12:01:04.328 : spa_192_jacket[188]: %L2-SPA_192-6-UPGRADE_FPGA :
Launched SPA in bay 0 after FPGA upgrade, spa_type 0x44e
sLC/0/3/CPU0:Feb 12 12:01:04.329 : spa_192_jacket[188]: %L2-SPA-5-OIR_INSERTED : SPA
discovered in bay 0
fully upgraded spa fpga instance 0 on location 0/3/0
LC/0/3/CPU0:Feb 12 12:01:15.099 : spa_192_jacket[188]: %L2-SPA-5-STATE_CHANGE : SPA in bay
0 entering ready state
LC/0/3/CPU0:Feb 12 12:01:18.549 : spa_192_jacket[188]: %SCC-2-PROTO_HW : Module (0/3/0) is
a registered proto-type for Cisco Lab use only, and not certified for live network
operation.
```

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