Troubleshooting the SIPs

Interpreting Console Error Messages

To view the explanations and recommended actions for Cisco uBR10012 router system messages, including messages related to SIPs, refer to the Cisco IOS CMTS Cable System Messages Guide.

System messages are organized in the documentation according to the particular system facility that produces the messages. The Cisco Wideband SIP error messages use the facility name **C10KJACKET**, and the Cisco 10000 Series SPA Interface Processor-600 error messages use the facility name **C10K_JACKET4SPA**.

Using debug Commands

The **debug** command is primarily used by Cisco technical support personnel.

⚠️

Caution Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network traffic and fewer users.

Following are some **debug** commands for debugging SIPs and SPAs on the Cisco uBR10012 router:

- **debug c10k-jacket2spa**—Enables debug information for the Cisco Wideband SIP card.
- **debug c10k-jacket4spa**—Enables debug information for the Cisco SIP-600 card.
- **debug hw-module bay**—Enables debugging information for a SPA.
- **debug cable fn**—Enables debugging information for cable fiber nodes.

- **debug cable wbcmts**—Enables debug information for the wideband CMTS.

- **debug hw-module subslot**—Enables debug information for a SPA and all of its interfaces.

For information about other **debug** commands supported on the Cisco uBR10012 router, see the Cisco IOS CMTS Cable Command Reference.

To view the explanation and recommended action for the Cisco uBR10012 router system messages, including messages related to Cisco uBR10012 SIPs and SPAs, see the Cisco IOS CMTS Cable System Messages Guide.

Using show Commands to Troubleshoot SIPs

The **show diag** and **show controllers jacket** commands allow you to monitor and troubleshoot the SIPs on the Cisco uBR10012 router.

- The **show diag** command shows the revision-level information on a SIP and on any SPAs installed in the SIP.

- The **show controllers jacket** command shows the register values of a SIP.

Effective with Cisco IOS Release 12.2(33)SCI, the **show ib statistic** command allows you to monitor the SIP throughput. It shows the Iron bus statistics information on a SIP.

Preparing for Online Removal of a SIP

The Cisco uBR10012 router supports OIR of the SIP. To do this, you can power down a SIP (which automatically deactivates any installed SPAs) and remove the SIP with the SPAs still intact.

Although graceful deactivation of a SIP is preferred using the **hw-module shutdown** command, the Cisco uBR10012 router does support removal of the SIP without deactivating it first.

If you plan to remove a SIP, you can deactivate the SIP first, using the **hw-module shutdown** global configuration command. When you deactivate a SIP using this command, it automatically deactivates each of the SPAs that are installed in that SIP. Therefore, it is not necessary to deactivate each of the SPAs prior to deactivating the SIP.

Either a blank filler plate or a functional SPA should reside in every bay (subslot) of a SIP during normal operation.

For more information about the recommended procedures for physical removal of the SIP, see the Cisco uBR10012 Universal Broadband Router SIP and SPA Hardware Installation Guide.

Deactivating a SIP

To deactivate a SIP and its installed SPAs prior to removal of the SIP, use the following command in global configuration mode:

DETAILED STEPS

	Command or Action	Purpose
Step 1	**hw-module subslot** *slot*/*subslot* **shutdown**	Deactivates the SIP in the specified slot, where: • *slot*—Specifies the slot where the SIP resides. On the Cisco uBR10012 router, slots 1 and 3 can be used for the SIPs. • *subslot*—Specifies the subslot where the SIP resides. On the Cisco uBR10012 router, subslot 0 is always specified. For more information about chassis slot numbering, see the Identifying the Location of the Cisco Wideband SIP and Cisco Wideband SPA section.

What to Do Next

- To reactivate a SIP, follow the steps in Reactivating a SIP section.

- To verify deactivation of a SIP, see Verifying Deactivation and Activation of a SIP section.

- To reactivate a SPA, follow the steps in Reactivating a SPA section.

Reactivating a SIP

After you deactivate a SIP, whether or not you have performed an OIR, you must use the **no hw-module shutdown** global configuration command to reactivate the SIP.

If you did not execute a command to deactivate the SPAs installed in a SIP, but you did deactivate the SIP using the **hw-module subslot shutdown** command, then you do not need to reactivate the SPAs after an OIR of the SIP. The installed SPAs automatically reactivate upon reactivation of the SIP in the router.

For example, consider the case where you remove a SIP from the router to replace it with another SIP. You reinstall the same SPAs into the new SIP. When you enter the **no hw-module subslot shutdown** command on the router, the SPAs will automatically reactivate with the new SIP.

To activate a SIP and its installed SPAs after the SIP has been deactivated, use the following command in global configuration mode:

DETAILED STEPS

	Command or Action	Purpose
Step 1	**no hw-module subslot** *slot* /*subslot* **shutdown**	Activates the SIP in the specified slot and its installed SPAs, where: • *slot*—Specifies the slot where the SIP resides. On the Cisco uBR10012 router, slots 1 and 3 can be used for the SIPs. • *subslot*—Specifies the subslot where the SIP resides. On the Cisco uBR10012 router, subslot 0 is always specified.

Command or Action	Purpose
	For more information about chassis slot numbering, see Identifying the Location of the Cisco Wideband SIP and Cisco Wideband SPA section.

What to Do Next

- To deactivate a SIP, follow the steps in Deactivating a SIP section.

- To verify deactivation of a SIP, see Verifying Deactivation and Activation of a SIP section.

Verifying Deactivation and Activation of a SIP

To verify the deactivation of a SIP, enter the **show diag** command in privileged EXEC mode. When a SIP is powered down, the SIP no longer appears in the output of the **show diag** command or any other Cisco IOS command.

The following example shows how to deactivate and verify deactivation for the Cisco Wideband SIP located in slot 1, subslot 0. Notice that there is no output for the **show diag** command after the SIP is deactivated.

```
Router# configure terminal
Router(config)# hw-module subslot 1/0 shutdown
Router(config)#
00:44:02: %IPCOIR-3-TIMEOUT: Timeout waiting for a response from slot 1/0.
00:44:02: %IPCOIR-2-CARD_UP_DOWN: Card in slot 1/0 is down. Notifying 2jacket-1 driver.
00:44:04: %LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:0, changed state to down
00:44:04: %LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:1, changed state to down
...
Router# show diag 1/0 // Displays no output
```

The following example shows how to activate and verify activation for the Cisco Wideband SIP located in slot 1, subslot 0. If there is output for the **show diag** command, the SIP has been powered on.

```
Router(config)# no hw-module subslot 1/0 shutdown
Router(config)#
00:44:28: %IPCOIR-5-CARD_DETECTED: Card type 2jacket-1 (0x415) in slot 1/0
00:44:28: %IPCOIR-5-CARD_LOADING: Loading card in slot 1/0
00:44:38: %C10K-5-LC_NOTICE: Slot[1/0] Line-card Image Downloaded...Booting...
00:45:11: %IPCOIR-5-CARD_DETECTED: Card type 2jacket-1 (0x415) in slot 1/0
00:45:11: %IPCOIR-2-CARD_UP_DOWN: Card in slot 1/0 is up. Notifying 2jacket-1 driver.
00:45:21: %C10K-5-LC_NOTICE: Slot[1/0] Line-card WB Chan 1/0/0:0 Disabled
00:45:21: %SPAWBCMTS-4-SFP_OK: Wideband-Cable 1/0/0, 1000BASE-SX SFP inserted in port 0
...
Router# show diag 1/0
Slot/Subslot 1/0:
2jacket-1 card, 0 ports
Card is full slot size
Card is analyzed
Card detected 0:3:16 ago
Card uptime 0 days, 0 hours, 3 minutes, 17 seconds
...
```

What to do Next

- To deactivate a SIP, see Deactivating a SIP section.

- To reactivate a SIP, see Reactivating a SIP section.

Preparing for Online Removal of a SPA

The Cisco uBR10012 router supports OIR of a SPA independently of removing the SIP. This means that a SIP can remain installed in the router with one SPA remaining active, while you remove another SPA from one of the SIP bays. If you are not planning to immediately replace a SPA into the SIP, then be sure to install a blank filler plate in the bay. The SIP should always be fully installed with either functional SPAs or blank filler plates.

The interface configuration is retained (recalled) if a SIP or SPA is removed and then replaced with one of the same type.

If you are planning to remove a SIP along with its SPAs, then you do not need to follow the instructions in this section. To remove a SIP along with its SPAs, see the Preparing for Online Removal of a SIP section.

Deactivating a SPA

Although graceful deactivation of a SPA is preferred using the **hw-module bay shutdown** command, the Cisco uBR10012 router does support removal of the SPA without deactivating it first. Before deactivating a SPA, ensure that the SIP is seated securely into the slot before pulling out the SPA itself.

> **Note** If you are preparing for an OIR of a SPA, there are no standard interfaces to be shut down prior to deactivation of the SPA. The **hw-module bay shutdown** command automatically stops traffic on the Gigabit Ethernet interfaces and deactivates them along with the SPA in preparation for OIR. In similar fashion, you do not need to independently restart any Gigabit Ethernet interfaces on a SPA after OIR of a SPA or SIP.

To deactivate a SPA and all of its interfaces prior to removal of the SPA, use the following command in global configuration mode:

DETAILED STEPS

	Command or Action	Purpose
Step 1	**hw-module bay** {*slot*/*subslot*/*bay* | *slot*/*bay*} **shutdown unpowered**	In Cisco IOS Releases 12.2(33)SCA and 12.3BC **hw-module bay** *slot*/*subslot*/*bay* **shutdown unpowered** Starting with Cisco IOS Release 12.2(33)SCB release **hw-module bay** *slot*/*bay* **shutdown unpowered** Deactivates the specified SPA, where: *slot*—Specifies the slot where the SIP resides. On the Cisco uBR10012 router, slots 1 and 3 are used for a SIP. *subslot*—Specifies the subslot where the SIP resides (Cisco IOS Releases 12.2(33)SCA and 12.3BC). On the Cisco uBR10012 router, subslot 0 is always specified. *bay* —Specifies the SIP subslot where a SPA resides. Valid values are 0 (upper bay) and 1 (lower bay).

Command or Action	Purpose
	• **unpowered**—Shuts down the SPA and all of its interfaces, and leaves them in an administratively down state without power. For more information about chassis slot and SIP bay numbering, see the Identifying the Location of the Cisco Wideband SIP and Cisco Wideband SPA section.

What to Do Next

- To reactivate a SPA, see the Reactivating a SPA section.

- To verify deactivation and reactivation of the SPA, see the Verifying Deactivation and Activation of a SPA section.

Reactivating a SPA

Note　You do not need to reactivate a SPA after an OIR of either the SIP or a SPA if you did not deactivate the SPA prior to removal. If the router is running, then the SPAs automatically start upon insertion into the SIP or with insertion of a SIP into the router.

If you deactivate a SPA using the **hw-module bay shutdown** global configuration command and need to reactivate it without performing an OIR, you must use the no hw-module bay shutdown global configuration command to reactivate the SPA and its interfaces.

To activate a SPA and its interfaces after the SPA has been deactivated, use the following command in global configuration mode:

DETAILED STEPS

	Command or Action	Purpose
Step 1	**no hw-module bay** {*slot*/*subslot*/*bay*	*slot*/*bay*} **shutdown**	In Cisco IOS Releases 12.2(33)SCA and 12.3BC **no hw-module bay** *slot*/*subslot*/*bay* **shutdown** Starting with Cisco IOS Release 12.2(33)SCB release **no hw-module bay** *slot*/*bay* **shutdown** Activates the SPA and its interfaces in the specified slot and subslot of the SIP, where: • *slot*—Specifies the slot where the SIP resides. On the Cisco uBR10012 router, slots 1 and 3 are used for a SIP. • *subslot*—Specifies the subslot where the SIP resides (Cisco IOS Releases 12.2(33)SCA and 12.3BC). On the Cisco uBR10012 router, subslot 0 is always specified.

Command or Action	Purpose
	• *bay* —Specifies the SIP subslot where a SPA resides. Valid values are 0 (upper bay) and 1 (lower bay). For more information about chassis slot and SIP bay numbering, see the Identifying the Location of the Cisco Wideband SIP and Cisco Wideband SPA section.

What to Do Next

- To deactivate a SPA, see the Deactivating a SPA section.

- To verify deactivation and reactivation of the SPA, see the Verifying Deactivation and Activation of a SPA section.

Verifying Deactivation and Activation of a SPA

To verify the deactivation of a SPA, enter the **show hw-module bay oir** command in privileged EXEC configuration mode, and look at the Operational Status of the SPA.

The example below shows how to deactivate and verify deactivation for the Cisco Wideband SPA located in slot 1, subslot 0, bay 0. In the output of the **show hw-module bay oir** command, notice **admin down** in the Operational Status field.

Note The example below shows the syntax supported prior to Cisco IOS Release 12.2(33)SCB.

```
Router# configure terminal
Router(config)# hw-module bay 1/0/0 shutdown unpowered
%SPAWBCMTS-4-SFP_MISSING: Wideband-Cable 1/0/0, 1000BASE-SX SFP missing from port 0
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:1, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:2, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:3, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:4, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:5, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:6, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:7, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:8, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:9, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:10, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:11, changed state to down
...

Router# show hw-module bay 1/0/0 oir
Module       Model            Operational Status
------------------------------------------------
bay 1/0/0  SPA-24XDS-SFP     admin down
```

The example below shows how to activate and verify activation for the Cisco Wideband SPA located in slot 1, subslot 0, bay 0. In the output of the **show hw-module bay oir** command, notice **ok** in the Operational Status field.

```
Router# configure terminal
```

```
Router(config)# no hw-module bay 1/0/0 shutdown
%SPAWBCMTS-4-SFP_OK: Wideband-Cable 1/0/0, 1000BASE-SX SFP inserted in port 0
%SPAWBCMTS-4-SFP_LINK_OK: Wideband-Cable 1/0/0, port 0 link changed state to up
%SNMP-5-LINK_UP: LinkUp:Interface Wideband-Cable1/0/0:0 changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:0, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:1, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:2, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:3, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:4, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:5, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:6, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:7, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:8, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:9, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:10, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:11, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Wideband-Cable1/0/0:0, changed state to up
...

Router# show hw-module bay 1/0/0 oir
Module      Model             Operational Status
-------------------------------------------------
bay 1/0/0   SPA-24XDS-SFP      ok
```

The example below shows how to deactivate, activate, and verify the Cisco 3 Gbps Wideband Shared Port Adapter located in slot 1, bay 0.

```
Router# configure terminal
Router(config)# hw-module bay 1/0 shutdown unpowered
%SPAWBCMTS-2-CARD_UP_DOWN: Card SPA-DOCSIS-HD-V1 in bay 1/0/0 is down.
%SPA_OIR-6-OFFLINECARD: SPA (DOCSIS HD SPA ) offline in bay 1/0
%LINK-3-UPDOWN: Interface GigabitEthernet1/0/0, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:0, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:1, changed state to down
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:20, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/0, changed state to down
%SPAWBCMTS-4-SFP_MISSING: Modular-Cable 1/0/0, 1000BASE-T SFP missing from port 0
%SPAWBCMTS-4-SFP_MISSING: Modular-Cable 1/0/2, 1000BASE-LX SFP missing from port 2
SPA TSM Error: bay:1/0 fail_code:0x9080(SPA shutdown)
%SPA_OIR-6-OFFLINECARD: SPA (DOCSIS HD SPA ) offline in bay 1/0
Router(config)# no hw-module bay 1/0 shutdown
%SPAWBCMTS-2-CARD_UP_DOWN: Card SPA-DOCSIS-HD-V1 in bay 1/0/0 is up.
%SPAWBCMTS-4-SFP_MISSING: Modular-Cable 1/0/0, 1000BASE-T SFP missing from port 0
%SPAWBCMTS-4-SFP_OK: Modular-Cable 1/0/0, 1000BASE-T SFP inserted in port 0
%SPAWBCMTS-4-SFP_MISSING: Modular-Cable 1/0/2, 1000BASE-LX SFP missing from port 2
%SPAWBCMTS-4-SFP_OK: Modular-Cable 1/0/2, 1000BASE-LX SFP inserted in port 2
%SPAWBCMTS-4-SFP_OK: Modular-Cable 1/0/0, 1000BASE-T SFP inserted in port 0
%SPAWBCMTS-4-SFP_OK: Modular-Cable 1/0/2, 1000BASE-LX SFP inserted in port 2
%SPA_OIR-6-ONLINECARD: SPA (DOCSIS HD SPA ) online in bay 1/0
%LINEPROTO-5-UPDOWN: Line protocol on Interface Wideband CMTS Base1/0/0, changed state to down
%SPAWBCMTS-4-SFP_LINK_OK: Modular-Cable 1/0/0, port 0 link changed state to up
%LINK-3-UPDOWN: Interface GigabitEthernet1/0/0, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:0, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:1, changed state to up
%LINK-3-UPDOWN: Interface Wideband-Cable1/0/0:20, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Wideband CMTS Base1/0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/0, changed state to up

Router# show hw-module bay 1/0/0 oir
Module     Model          Operational Status
--------------- -----------------------------
bay 1/0   SPA-UBR10-DS-HD  ok
```