



# CHAPTER 4

## Troubleshooting the Installation

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This chapter provides basic troubleshooting information to solve the most common installation problems with the Cisco uBR10012 universal broadband router. Your Cisco uBR10012 router went through extensive testing before leaving the factory. However, if you encounter problems starting the router, use the information in this chapter to help isolate the cause of the problems.

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### Note

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The procedures in this chapter assume that you are troubleshooting the initial system startup, and that your router is in the original factory configuration. If you have removed or replaced components or changed any default settings, the recommendations in this chapter might not apply.

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Make sure to review the safety warnings listed in this manual, especially in [Chapter 2, “Preparing for Installation,”](#) before using the troubleshooting procedures in this chapter.

# Troubleshooting Methods

This section describes the troubleshooting methods used in this chapter and describes how Cisco uBR10012 routers are divided into subsystems for more efficient problem solving.

## Before You Call for Technical Assistance

If you are unable to easily solve the problem, contact a customer service representative for assistance and further instructions. Provide the representative with the following information:

- Date you received the router
- Chassis serial number
- Type of software and release number
- Brief description of the problem you are having
- Brief explanation of the steps you have taken to isolate and resolve the problem
- Maintenance agreement or warranty information

## Problem Solving Using a Subsystems Approach

The key to solving problems with the system is isolating the problem to a specific subsystem. Because a startup problem is usually caused by a single component, it is more efficient to first isolate the problem to a subsystem rather than troubleshoot each component in the system. For these troubleshooting procedures, consider the following subsystems:

- Power subsystem—Includes the power supply and the external power cable.
- Processor subsystem—Includes the network processing card, the modular port adapter, the service module, and the fixed RF ports. The system memory and management functions reside on the network processing card, and the enabled LED on each port indicates if the port is initialized. A port adapter that is partially installed in the router can cause the system to hang and crash.
- Cooling subsystem—Includes the fans.

The following sections help you isolate a problem to one of these subsystems and direct you to the appropriate troubleshooting section.

## Troubleshooting Installation Problems

This section contains general troubleshooting information to help you solve any problems you might encounter during the installation of the system.

## General Troubleshooting Tips

All Cisco uBR10012 router FRUs (field replaceable units) are hot-swappable. Procedures for removing and replacing the FRUs can be found in [Chapter 5, “Maintaining the Cisco uBR10012 Router.”](#)

List of FRU modules:

- Fan module

- TCC+ modules
- Power entry modules (PEM)
- PRE modules
- Cable interface cards and uplink cards

Table 4-1 lists general FRU fault symptoms and recommendations.

**Table 4-1**      **General Troubleshooting Tips**

Symptom	Steps to Take
System fails to power on	Check that: <ul style="list-style-type: none"> <li>• All power cords are properly connected to the Cisco uBR10012 router and at the power connection end.</li> <li>• The DC PEM power switches are turned on and the POWER LED is on (green).</li> <li>• The AC PEM power switches are turned on and the POWER LED is on (green).</li> <li>• The fan assembly module is fully inserted, and the FANS OK LED is lighted (green).</li> </ul>
System fails to boot up properly	If the system has power, check the FAIL LED on the PRE and any information on the alphanumeric display. If the FAIL LED is on, see <a href="#">Troubleshooting the Power Subsystem, page 4-7</a>
DC PEM problem	<ul style="list-style-type: none"> <li>• If the FAULT LED is on, see <a href="#">Troubleshooting the Power Subsystem, page 4-7</a>.</li> <li>• If the MISWIRE LED is on, the -48/-60VDC and return (RTN+) wires are reversed. Power off the PEM and reconnect the wires correctly (see the “<a href="#">Connecting DC Power to the Cisco uBR10012 Router</a>” section on page 3-28).</li> </ul>
AC PEM problem	<ul style="list-style-type: none"> <li>• If the power LED on the AC PEM is off, check the AC power source.</li> <li>• If the fault LED is yellow, check to see if the PEM is properly inserted in the chassis.</li> <li>• Check the Cisco IOS Release version that you are using. Versions earlier than Cisco IOS Release 12.2(4)XFI, 12.2(4)BC1, or later do not correctly identify the AC PEM’s error messages.</li> </ul>
System experiences a critical alarm (Critical LED on the PRE is on)	Enter the <b>show facility-alarm status</b> command at the console.
System experiences a major alarm (Major LED on the PRE is on)	Enter the <b>show facility-alarm status</b> command at the console.
System experiences a minor alarm (Minor LED on the PRE is on)	Enter the <b>show facility-alarm status</b> command at the console.
You cannot establish a console or Telnet connection to the system.	<p>For information about troubleshooting Ethernet connections, see the “<a href="#">Troubleshooting Ethernet Connections</a>” section on page 4-4.</p> <p>For information about troubleshooting the console port serial connections, see the “<a href="#">Troubleshooting the Console Port Serial Connection</a>” section on page 4-5.</p>

Table 4-1 General Troubleshooting Tips (continued)

Symptom	Steps to Take
Fan failure	<p>Perform the following if a FAN FAILURE LED lights:</p> <ul style="list-style-type: none"> <li>Reseat the fan assembly module (see the “<a href="#">Removing and Replacing the Fan Assembly Module</a>” section on page 5-6).</li> <li>Remove the rear safety cover and be sure that the fan assembly module cable is connected securely (see the “<a href="#">Removing and Replacing the Fan Assembly Module</a>” section on page 5-6).</li> </ul>
System overheats	<p>This may be due to a failure in the fan assembly module (see Fan Failure above), insufficient ventilation, or high ambient temperature. See the “<a href="#">Troubleshooting the Cooling Subsystem</a>” section on page 4-11 for additional information.</p>

## Troubleshooting Ethernet Connections

If an Ethernet connection to your Cisco uBR10012 router fails to work properly, and the corresponding LNK (Link) LED is not on, check for the following problems:

- Visually check that an Ethernet cable is connected to the correct Ethernet port on the PRE, and that the other end of the cable is connected to an Ethernet hub that is powered on and functioning properly.
- Check to see if you are using the correct type of cable. The cable must meet the specifications given in the “[Connecting to a 10Base-T Ethernet Network](#)” section on page 3-52.
- The cable might be bad or broken. Replace the cable with a known, reliable straight-through Ethernet cable, checking to be sure the LNK LED comes on (green).
  - If the LNK LED is still off, it is possible that the Ethernet port might be functioning properly, but the LED is not working. Check the Ethernet port (by trying to ping over it, for example) to determine if the problem is due to a bad LED or if the Ethernet link is bad.
- Make sure the PRE has booted up properly as follows:
  - The Status LED should be on (green).
  - If the Fail LED is on (yellow), refer to [Troubleshooting the Processor Subsystem, page 4-10](#).
- Check the hub:
  - Is the cable connected into the correct hub port (for example, the hub LED is on, but the LNK LED on the PRE is not on).
  - Be sure that the cable is not connected to an uplink port.
- If the LNK LED is on (green), but the Ethernet port does not seem to be working properly, make sure that the port in question is configured properly and is not administratively shut down. If you have a working console connection, perform the following steps:
  - At the router prompt, enter **show int fast0/0/0**. If the port is administratively down, enter these commands to enable it:

```
switch> configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
router(config-if)# int fast0/0/0
router(config-if)# no shut
router(config-if)# exit
router(config)# exit
```

```
router#
```

- Check that the Ethernet port in question has a valid IP address assigned to it.

**Note**

The Cisco uBR10012 router also has an internal Ethernet interface, Ethernet0/0/0, which PRE processors and line cards use to transfer packets between cards. This interface is not user-configurable, although you can see the configuration and run-time information using the **show interface** command.

For more information about configuring Ethernet ports, refer to the *Cisco uBR10012 Router Software Configuration Guide* at the following URL:

<http://www.cisco.com/en/US/docs/cable/cmts/ubr10012/configuration/guide/scg.html>

If the cable, connections, power, and configuration all check out, and you still cannot connect to the Ethernet port on the module, you probably need to replace the PRE. Contact the Cisco TAC for further assistance.

## Troubleshooting the Console Port Serial Connection

If the terminal connected to the Cisco uBR10012 router console port appears frozen or fails to work properly, check for the following problems:

- Check the console cable and make sure it is properly connected to the correct console port on the PRE, and to your terminal equipment at the other end.
- Verify that you are using the right type of cable and adapter. For additional information about cable pin-outs, refer to the “[Connecting the Console Port and Auxiliary Port](#)” section on page 3-49.
- To be sure the cable is not defective or broken, replace the cable with another high quality cable if possible.
- Check that your terminal equipment is working properly and configured with the correct settings for the console port. The default console port settings are:
  - 9600 baud
  - 8 data bits
  - 1 stop bit
  - No parity
  - No flow control
- Check the LEDs on the PRE to make sure that it is powered up properly.
- If the cable, connections, power, and terminal settings all check out and you still cannot connect to the console port on the module, you probably need to replace the PRE. Contact the Cisco TAC for further assistance. See the “[Obtaining Documentation and Submitting a Service Request](#)” section on page xi.

# Identifying Startup Problems

Startup problems are commonly due to the source power or to a line card that is not properly seated in the router. Although an overtemperature condition is unlikely at initial startup, the environmental monitoring functions are included in this chapter because they also monitor internal voltages.

When you start up the router for the first time, observe the startup sequence described in the [“Powering On the System” section on page 3-59](#). This provides a detailed description of a normal startup sequence.

LEDs indicate all system states in the startup sequence. By checking the state of the LEDs, you can determine when and where the system failed in the startup sequence. Use the following descriptions to isolate the problem to a subsystem, and then proceed to the appropriate sections to try to resolve the problem.

When you start up the system by turning the power supply switch to the on (I) position, the following should occur:

1. Fans—the fans start operating. The FANS OK LED on the fan assembly module turns green. You should be able to feel the air being taken in at the bottom front of the router and blown out at the top rear of the router.

If not, proceed to the [“Troubleshooting the Cooling Subsystem” section on page 4-11](#).

2. DC PEM—the Power LED on each DC PEM turns green to indicate that the PEM is connected to an active DC power source and is supplying power to the chassis.
  - If the Fault LED is on (yellow), it indicates that the PEM is connected to an active DC power source but is not providing power to the chassis.
  - If the Miswire LED is on (yellow), it indicates that the wires from the DC power source to this DC PEM are reversed.
  - Proceed to the [“Troubleshooting the Power Subsystem” section on page 4-7](#).

3. PREs—the FAIL LED on the PRE modules briefly lights during the power-on sequence and then it turns off. If the FAIL LED remains on, try removing and reseating the PRE module, and verify that the card is fully inserted and that both locking levers are fully down in the locked position.

If the FAIL LED remains on, make a note of the failure code that appears in the PRE module’s LCD screen and call TAC for instructions.

4. Line cards—Verify the line card “Enabled” LEDs.

Each line card has an enabled LED that goes on initially at power-on and then goes off. The LED then goes on and remains on when the corresponding port is enabled and configured for operations.

If an enabled LED fails to go on at initial power-on, or if the LED fails to go on and remain on after the port is enabled and configured, proceed to the [“Troubleshooting the Cooling Subsystem” section on page 4-11](#).

**Note**

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The slot 0 and slot 1 LEDs only go on when the PC media card slot is being accessed by the system. These LEDs remain off during normal operation of the router and do not indicate startup problems.

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5. The initial system banner displays on the console screen.

If it is not displayed, see the [“Connecting Network Management Cables” section on page 3-52](#) to verify that the terminal is set up correctly and that it is properly connected to the router’s console port.

# Troubleshooting the Power Subsystem

AC power entry modules, DC power entry modules, or an AC power shelf combined with the DC power modules are used to power the Cisco uBR10012 router.

## Troubleshooting the AC Power Subsystem

Use the following steps to isolate a problem with the AC power subsystem.

**Step 1** Use the **show environment** command to display the general health of the power system.

```
Router# show environment
Temperature normal: chassis inlet measured at 29C/84F
Temperature normal: chassis core measured at 42C/107F
Fan: OK
Power Entry Module 0 type DC status: OK
Power Entry Module 1 type DC status: OK
Router#
```

**Note**

The **show environment** command provides accurate information on the AC PEM only when using Cisco IOS Release 12.2(4)XF1, 12.2(4)BC1a, or a later release. If using an earlier release, the **show environment** command does not correctly identify the AC PEM error messages.

- a. Verify that the temperatures are within the valid operating ranges, and that the fan assembly and both AC PEM modules are present and OK.
- b. If this is not the case, check for the following issues:
  - Fan is reported MISSING—Insert the fan assembly or shut down the router immediately to avoid running the router beyond its operating temperature range.
  - AC PEM is not listed—Verify that both AC PEMs are present, and if so, that each PEM is fully inserted into the chassis.
  - The “Input/Output Voltage Fault” message indicates that the output voltage from one of the AC PEMs is not within the correct range. This can occur when the input AC voltage to the AC PEM is either too low or too high. Measure the input AC voltage, and if it is correct, the AC PEM has failed and should be replaced.

**Note**

Wall input voltage for the AC PEM must be 200 - 240 VAC at 50/60Hz.

**Step 2** Verify that the power LED on each AC PEM is green.

- a. If yes, the PEM is connected to an active AC power source and is supplying power to the chassis.
- b. If the Power LED is not on, and if no other LEDs are on, verify that the plug is securely inserted into the wall plug and the AC power socket.
- c. If the AC PEM LED is still off, try connecting the AC power cable to another wall outlet.

**Step 3** Check to see if the PEM Fault LED is yellow.

If yes, it indicates that the AC PEM is connected to an active AC power source but is not providing power to the chassis. Check that the PEM is properly inserted into the chassis and that its power switch is on.

- Step 4** If none of the above suggestions correct the problem, the AC PEM could be faulty. Contact a service representative for further instructions. See the [“Obtaining Documentation and Submitting a Service Request”](#) section on page xi.

## Troubleshooting the DC Power Subsystem

Use the following steps to isolate a problem with the DC power subsystem.

- Step 1** Use the **show environment** command to display the general health of the power system.

```
Router# show environment
Temperature normal: chassis inlet measured at 29C/84F
Temperature normal: chassis core measured at 42C/107F
Fan: OK
Power Entry Module 0 type DC status: OK
Power Entry Module 1 type DC status: OK
Router#
```

- a. Verify that the temperatures are within the valid operating ranges, and that the fan assembly and both DC PEM modules are present and OK.
- b. If this is not the case, check for the following issues:
  - Fan is reported MISSING—Insert the fan assembly or shut down the router immediately to avoid running the router beyond its operating temperature range.
  - DC PEM is not listed—Verify that both DC PEMs are present, and if so, that each PEM is fully inserted into the chassis.
  - The “Input/Output Voltage Fault” message indicates that the output voltage from one of the DC PEMs is not within the correct range. This can occur when the input DC voltage to the DC PEM is either too low or too high. Measure the input DC voltage, and if it is correct, the DC PEM has failed and should be replaced.
  - An “External AC Supply Fault” message indicates that one of the power modules in the external power supply is reporting either a fault, an over-temperature condition, or is missing. Check the LEDs on the front panels of the power modules on the external power supply to discover which module has the fault.



**Note** The **show environment** command shows status information about the external 2400 WAC-input power supply only you have the newer model of the DC PEM (PEM) installed and when the Cisco uBR10012 router is running Cisco IOS Release 12.2(4)XF or later release.

- Step 2** Verify that the power LED on each DC PEM is green.
- a. If yes, the PEM is connected to an active DC power source and is supplying power to the chassis.
  - b. If the Power LED is not on, and if no other LEDs are on, check the power source.
    - DC power source—verify that the plug is securely inserted into the DC socket.
    - AC power source—check that the AC-input power supply is on. If the LEDs on the AC power supply is not on, troubleshoot the AC-input power shelf. See [“Troubleshooting the AC-Input Power Shelf”](#) section on page 4-9.

- c. If the DC PEM LED is still off, turn off the DC power source and then verify that the DC power source is correctly wired to the terminal blocks underneath each DC PEM. See the [“Connecting DC Power to the Cisco uBR10012 Router”](#) section on page 3-28 for details. If that does not correct the problem, try connecting the DC power source to another wall outlet or power supply.
- Step 3** Check to see if the PEM Fault LED is yellow.
- a. If yes, it indicates that the PEM is connected to an active DC power source but is not providing power to the chassis. Check that the DC PEM is properly inserted into the chassis and that its power switch is on.
  - b. If no, continue with the next step.
- Step 4** Check to see if the Miswire LED yellow?
- a. If yes, it indicates that the wires from the DC power source to this DC PEM are reversed. Turn off the DC power source and reverse the two wires so that the –48 VDC lead goes to the bottom terminal and the RTN lead goes to the top terminal in the terminal block. See the [“Connecting DC Power to the Cisco uBR10012 Router”](#) section on page 3-28 for details.
  - b. If no, continue with the next step.
- Step 5** Check to see if the DC power source supplying the proper power to the DC PEMs? (If you are using the 2400W AC-input power shelf, look to verify that the AC OK and DC OK LEDs are lighted for each of the AC power supplies.)
- a. If no, and if the DC power source is connected to a valid power outlet, troubleshoot the DC power source.
  - b. If yes, turn off the DC power source and remove the DC PEM from the chassis. Verify that the DC power source is correctly wired to the terminal blocks underneath each PEM. See the [“Connecting DC Power to the Cisco uBR10012 Router”](#) section on page 3-28 for details.
- Step 6** If none of the above suggestions correct the problem, the DC PEM could be faulty. Contact a service representative for further instructions. See the [“Obtaining Documentation and Submitting a Service Request”](#) section on page xi.

## Troubleshooting the AC-Input Power Shelf

Check the following to isolate a problem to the AC-input power shelf.

- Step 1** Check to see which version of the PEM you have in the chassis.
- a. If you are using the newer model of DC PEM that has the power supply monitoring connector on the front panel, and if the Cisco uBR10012 router is running Cisco IOS Release 12.2(4)XF or a later release, you can also use the **show environment** command to monitor the AC-input power shelf.
 

```
Router# show environment
Temperature normal: chassis inlet measured at 29C/84F
Temperature normal: chassis core measured at 42C/107F
Fan: OK
Power Entry Module 0 type DC status: OK
Power Entry Module 1 type DC status: OK
Router#
```
  - b. If the DC PEM status is either “External AC Supply Fault” or “Input/Output Voltage Fault,” a problem exists with the AC-input power shelf.

- The “External AC Supply Fault” message indicates that one of the power modules is reporting either a fault, an over-temperature condition, or is missing. Check the LEDs on the front panels of the power modules on the external power supply to discover which module has the fault.
  - c. If the “Input/Output Voltage Fault” message indicates that one of the power modules is not receiving AC-input power then, check the LEDs on each power module, check that each power module is plugged into an AC-input power outlet, and that those outlets are providing power.
- Step 2** If you are using an older version of the PEM, verify that the DC and AC OK LEDs are on.
- a. If yes, then the power shelf is operational.
  - b. If no, do the following:
    - Make sure that the AC power cord is correctly plugged in to both the AC-output wall outlet and in to the back of the AC-input power shelf. (A separate power cord is used for each power supply.)
    - Make sure that the AC power supply is properly inserted, seated, and locked. If necessary, remove the AC power supply and reinsert it.
    - Check the external AC power source.
    - Swap the AC power supply with one of the others. If the failure follows the power supply, replace the power supply. If the failure remains in that particular power bay, double-check the external AC power source and the power cord connections; if they are correct, contact the Cisco TAC for additional troubleshooting information.
  - c. If only DC OK LED is not on, then double-check the wiring to the Cisco uBR10012 router DC-input terminal blocks.
- Step 3** Check to see if the Fault LED is yellow, if it is then:
- Check that the external AC power source is supplying consistent AC voltage at the proper levels, without spikes or brownouts.
  - Flip the circuit-breaker for the external AC power source.
  - Replace the power supply with a known good replacement.
- Step 4** If none of these measures work, contact a service representative for instructions. See the [“Obtaining Documentation and Submitting a Service Request”](#) section on page xi.
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## Troubleshooting the Processor Subsystem

The processor subsystem on the Cisco uBR10012 router consists of the performance routing engine (PRE) modules and the timing, communication, and control plus (TCC+) cards. At system startup, the following sequence should appear on the primary PRE.

1. The FAIL LED briefly comes on (yellow), turn off, and the STATUS LED starts flashing (yellow).
2. A series of messages appear on the PRE alphanumeric display indicating the progress of the boot-up sequence.
3. Upon successful completion of the boot-up sequence, the message IOS RUN appears on the alphanumeric display.
4. The STATUS LED comes on (green) to indicate this is the primary PRE.

The sequence on the redundant PRE is similar, except that the STATUS LED remains OFF and the messages on the alphanumeric display are slightly different. The final message upon a successful boot-up sequence is IOS STBY to indicate that this is the redundant PRE operating in stand-by mode.

Use the following procedure to troubleshoot the PRE modules.

- 
- Step 1** Check the following if a problem appears on one of the PRE modules.
- Did the STATUS LED on the primary PRE light solid (green) at the end of the boot-up sequence?
  - If no, check the other LEDs on other modules in the chassis. If no other LEDs are lit, check for a problem in the power subsystem, as described in the [“Troubleshooting the Power Subsystem” section on page 4-7](#).
  - If no, and no other LEDs on the PRE are lit but LEDs on other modules are lit, remove the PRE from the slot, check for any bent or broken pins on the backplane connectors, and reinsert it, ensuring it makes solid contact with the backplane and is securely locked in by firmly closing both locking levers.
  - If no, but the FAIL LED is lit (yellow), remove the PRE and reinsert it. If that fails, insert a new PRE. If that fails, contact TAC for assistance.
- Step 2** Repeat the above steps for the redundant PRE, except that its STATUS LED should be OFF and its alphanumeric display should read IOS STBY if it is operating correctly.
- If both PREs are operating correctly, check the Power LEDs on each TCC+ card. Are the POWER LEDs on each TCC+ card lighted (green)?
  - If no, remove the TCC+ card and reinsert it, making it sure it firmly connects to the backplane and that both captive screws are tightly connected.
  - If yes, proceed to the next step.
- Step 3** Verify the Status LEDs on the TCC+ card.
- Is the STATUS LED on the primary TCC+ on (solid green) indicating that it is the primary card?
  - Is the STATUS LED on the secondary TCC+ flashing (green) indicating that it is the redundant card?
  - If no, verify that the version of Cisco IOS on the router supports the TCC+ card.
- Step 4** Contact TAC for assistance if necessary. See the [“Obtaining Documentation and Submitting a Service Request” section on page xi](#).
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## Troubleshooting the Cooling Subsystem

Check the following to help isolate a problem with the cooling system.

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- Step 1** Do the fans start operating when you start up the system?
- When the fans are operating, you can hear them. You can also feel air being drawn in at the bottom front and expelled at the top rear of the chassis.
- If no, there is a problem with the fan or power. (See the [“Troubleshooting the Power Subsystem” section on page 4-7](#).)
  - If yes, continue with the next step.

- Step 2** Is the System OK LED on the fan assembly module green and the other two LEDs (Single Fan Failure and Multiple Fan Failure) off?
- If yes, the system is operating normally.
  - If no, remove the fan assembly module and reinsert it. If this does not help, check to see which LED that is on. The Single Fan Failure LED indicates that one fan of the four has failed, but that the system is still able to adequately cool the chassis; however, the fan assembly module must be repaired or replaced as soon as possible. The Multiple Fan Failure LED indicates that more than one fan has failed, and that the fan assembly module is no longer able to adequately cool the Cisco uBR10012 chassis. Replace the fan assembly module immediately.
  - If the following messages are displayed on the console, then the system has detected a critical overtemperature condition or out-of-tolerance power inside the chassis.

Queued messages:

```
00:01:19:%ENVM-4-ENVWARN:+2.5 V measured at +2.59
00:01:19:%ENVM-4-ENVWARN:+5.15 V measured at +5.31

00:00:19:%ENVM-2-ENVCRIT:chassis core measured at 41C/106F
00:00:19:%ENVM-2-ENVCRIT:chassis inlet measured at 37C/99F
00:00:19:%ENVM-2-ENVCRIT:chassis outlet 1 measured at 50C/122F
00:00:19:%ENVM-2-ENVCRIT:chassis outlet 2 measured at 50C/122F
```

Although an overtemperature condition is unlikely at initial startup, ensure that heated exhaust air from other equipment is not entering the router's inlet vent, and that there is sufficient clearance around the sides of the chassis to allow cooling air to flow.

The message could also indicate a faulty component or temperature sensor. Use the **show environment** or **show environment table** command to display the internal chassis environment.

If you experience trouble with the startup that is not resolved with these procedures, manually power off the router and contact a service representative for assistance and further instructions. See the [“Obtaining Documentation and Submitting a Service Request”](#) section on page xi.

## Troubleshooting the Line Cards

Check the following to help isolate a problem to a line card.

- Step 1** Verify that *all* the “Enabled” LEDs are on.
- If yes, the system is operational.
- Step 2** Check to see if *any* “Enabled” LEDs are off.
- If the enabled LED on a line card is off, first verify that the line card has been enabled and configured for operations. The enabled LED remains off when a line card has not been configured and enabled.
  - If a port has been enabled but its corresponding enabled LED is still off, reseat the line card in its slot (you do not have to turn off the system power when removing or replacing line card). After the system reinitializes the interfaces, the enabled LED on the line card should go on.
  - If the enabled LED remains off after the above checks, it is likely that the system has detected a processor hardware failure. Contact a service representative for instructions. See the [“Obtaining Documentation and Submitting a Service Request”](#) section on page xi.

- Step 3** For all fiber optic connections, verify that the connections are clean. See *Cleaning and Checking the Bulkhead Optical Connectors* and *Cleaning and Inspecting the Fiber Optic Connections* at the following URL:

[http://www.cisco.com/univercd/cc/td/doc/product/cable/ubr10k/ubr10012/frus/ub\\_oc48.pdf](http://www.cisco.com/univercd/cc/td/doc/product/cable/ubr10k/ubr10012/frus/ub_oc48.pdf)

**Note**

Refer to the FRU documentation for the different cards at the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/cable/ubr10k/ubr10012/frus/index.htm>

## Troubleshooting the HHGE Installation

To troubleshoot the HHGE installation, follow the instructions in [Table 4-2](#). Refer to [Figure 1-28](#) for the port LED layout on the line card faceplate. The FAIL LED indicates line card status only.

**Table 4-2** Line Card Installation Troubleshooting

Symptom	Possible Cause	Corrective Action
Error message appears on the console every time the line card requests an image download. The error message is echoed and the PRE2 will not load the line card image.	<ol style="list-style-type: none"> <li>1. HHGE card is inserted in slot 1 or slot 2.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove the HHGE from the illegal slot and place the card in any of the following slots: <ul style="list-style-type: none"> <li>• 3/0/0 or 3/1/0</li> <li>• 4/0/0 or 4/1/0.</li> </ul> </li> </ol>
The PRE2 software shuts down the card. The reset line is asserted and the running configuration is updated with this slot in the shutdown state.	<ol style="list-style-type: none"> <li>1. HHGE card is inserted in slot 1 or slot 2, subslot 1.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove the line card from the illegal slot and place it in slot 3 or slot 4.</li> <li>2. Use the <b>no hardware module shut</b> command to reset the slot <code>no hardware 2/0/0 shut</code></li> </ol>
Power entry modules (PEMs), fans, and other line cards do not operate	<ol style="list-style-type: none"> <li>1. Disconnected power cord.</li> <li>2. Power switch is in the Off position.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check that all power cords are properly connected to both the Cisco uBR10012 system and at the power connection end.</li> <li>2. Set the PEM power switches to the On position.</li> </ol>
The yellow FAIL LED does not light during portions of the POST	<ol style="list-style-type: none"> <li>1. The line card is not properly seated.</li> <li>2. Bad line card slot or backplane connector.</li> </ol>	<ol style="list-style-type: none"> <li>1. Be sure the ejector levers are fully closed and that the captive screws have been tightened.</li> <li>2. Remove the line card and install it in another chassis slot.</li> </ol>

**Table 4-2** *Line Card Installation Troubleshooting (continued)*

Symptom	Possible Cause	Corrective Action
The yellow FAIL LED blinks	<ol style="list-style-type: none"> <li>The SFP GBIC has been rejected because: <ul style="list-style-type: none"> <li>An internal fault is detected.</li> <li>Not a Gigabit Ethernet SFP.</li> <li>Not a Cisco SFP.</li> <li>Two SFPs with identical serial numbers are present in the system.</li> <li>There is a hardware shut down</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>Replace with a Cisco SFP GBIC.</li> </ol>
The green LINK LED does not light when you plug in the Ethernet cable	<ol style="list-style-type: none"> <li>No Ethernet connection to upstream device.</li> <li>The SFP GBIC was not fully inserted or seated properly.</li> <li>Negotiation is not configured properly.</li> <li>Hardware shut down for that port.</li> <li>Improper SFP GBIC (FAIL LED should blink).</li> <li>Bad cable.</li> </ol>	<ol style="list-style-type: none"> <li>Make sure the upstream device has an active Ethernet connection.</li> <li>Reinstall the SFP GBIC.</li> <li>Reconfigure negotiation.</li> <li>Enable the port.</li> <li>Replace with a Cisco SFP GBIC.</li> <li>Replace the cable.</li> </ol>
The green LINK LED is on, but does not pass traffic	<ol style="list-style-type: none"> <li>Negotiation is off, but set to on at the remote end.</li> <li>Internal loopback is enabled.</li> </ol>	<ol style="list-style-type: none"> <li>Set local and remote negotiation settings to the same value.</li> <li>Disable loopback.</li> <li>ARP incomplete</li> <li>IP address not configured</li> </ol>