



CHAPTER 1

Basic Troubleshooting Tasks and Startup Issues

This section describes the basic procedures that users should perform before undertaking a detailed troubleshooting analysis of the Cisco uBR10012 router or logging a case with the Cisco Technical Assistance Center (TAC).

These basic troubleshooting checks are organized as follows:

- [Basic Troubleshooting Checklist, page 1-1](#)
- [Displaying the Cisco IOS Software Version, page 1-2](#)
- [Displaying System Environment Information, page 1-3](#)
- [Hardware Troubleshooting Flowchart, page 1-4](#)
- [Cisco uBR10012 System Startup Sequence, page 1-4](#)

Basic Troubleshooting Checklist

If you encounter a problem after you install the Cisco uBR10012 router, go through the following troubleshooting checklist to check for the most common error conditions before you contact the Cisco Technical Assistance Center (TAC) or before you perform a detailed troubleshooting analysis:

1. Is the power on?
2. Is each Power Entry Module (PEM) securely inserted into the router? Is each PEM connected to a power source that is supplying voltage in the proper AC or DC range? Are all power leads and cables firmly connected at both ends?
3. Is the fan assembly module installed in the chassis and operating? Can you hear the fans operating, and when you put your hand in front of the fan blowers, can you feel the air flow? Are all empty slots covered with blank front panels, to ensure the correct air flow through the chassis for cooling?
4. Is each Performance Routing Engine (PRE) module firmly seated and securely inserted in the chassis?
5. Is at least one Timing, Communication and Control Plus (TCC+) card installed in the router?
6. Are the other line cards firmly seated and securely screwed to the chassis?
7. Are all data cables firmly connected at both ends?
8. Are the ports properly configured?

After going through this checklist, go through the remaining sections in this chapter to verify the installation and to perform basic troubleshooting.

Displaying the Cisco IOS Software Version

Use the **show version** command to confirm that the router is running the proper version of Cisco IOS software and has a sufficient amount of system memory. The command also reports the system uptime and the method by which the system was powered up.

In the following sample of output from the **show version** command, some of the information that may be useful for troubleshooting appears in bold type:

```
Router#show ver
```

```
Cisco IOS Software, 10000 Software (UBR10K4-K9P6U2-M), Version 12.2(32.8.12)SCE  
Copyright (c) 1986-2010 by Cisco Systems, Inc.
```

```
Compiled Sun 21-Nov-10 15:58 by jdkerr
```

```
ROM: System Bootstrap, Version 12.2(20071113:194412) [shalpin-rom-1_2 101], DEVELOPMENT  
SOFTWARE
```

```
Router uptime is 5 hours, 13 minutes  
Uptime for this control processor is 5 hours, 14 minutes  
System returned to ROM by reload at 01:27:43 UTC Thu Nov 25 2010  
System restarted at 20:29:12 SGT Wed Nov 24 2010  
System image file is "disk0:ubr10k4-k9p6u2-mz.122-32.8.12.SCE"  
Last reload type: Normal Reload  
Last reload reason: Reload command
```

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to export@cisco.com.

```
Cisco uBR10000 (PRE4-RP) processor with 2588671K/163839K bytes of memory.  
Processor board ID SPE10310CUH  
SB-1 CPU at 800Mhz, Implementation 0x4110, Rev 5.0, 512KB L2 Cache  
Backplane version 1.1, 8 slot
```

Last reset from software reset

```
PXF processor tmc0 is running.  
PXF processor tmc1 is running.  
PXF processor tmc2 is running.  
PXF processor tmc3 is running.  
1 DTCC card(s)  
1 Jacket card(s): 3 SPA card(s)  
1 FastEthernet interface  
6 Gigabit Ethernet interfaces  
1 Ten Gigabit Ethernet interface  
15 Cable Modem interfaces  
7039K bytes of non-volatile configuration memory.
```

```
125440K bytes of ATA compact flash in bootflash (Sector size 512 bytes).  
500472K bytes of ATA compact flash in disk0 (Sector size 512 bytes).
```

```
Standby is up
Standby has 2752512K bytes of memory
Configuration register is 0x2

Router#
```

Displaying System Environment Information

Use the **show environment** command to display the basic system environment status, to verify the following:

- Make sure that the system operating temperature is always between 41 degrees F or 5 degrees C at the inlet and 104 degrees F or 40 degrees C at the core.
- That the fan assembly module is installed in the chassis and operating properly.
- Report that the operational status of the PEMs and blower is OK.

If the operating temperature is not between 41 degrees F or 5 degrees C and 104 degrees F or 40 degrees C, refer to the [“Fan Assembly Module Faults” section on page 2-6](#).

The following example is sample output from the **show environment** command for a system with PRE4 and two DC PEMs and installed:

```
Router# show environment
Load for five secs: 0%/0%; one minute: 0%; five minutes: 0%
Time source is hardware calendar, *02:43:21.219 EDT Mon May 31 2010

Temperature information:
  Temperature normal: Inlet sensor      measured at 33C/91F
  Temperature normal: Outlet sensor     measured at 46C/114F

Voltage information:
  RP Voltage readings :
  Channel          Margin          ADC Value
  =====
  2.5v             Normal          2.49v
  1.8v             N/A            1.80v
  1.5v             Normal          1.49v
  1.8vFPGA         Normal          1.79v
  1.2v             Normal          1.19v
  3.3v             Normal          3.28v

Fan:
Power Entry Module 0 type DC status:   OK
Power Entry Module 1 type DC status:   Output Disabled
```

The following example is sample output from the **show environment** command for a system with PRE2 and two DC PEMs and installed:

```
Router# show environment
Temperature normal: chassis inlet measured at 34C/93F
Fan: OK
Power Entry Module 0 type DC status: OK
Power Entry Module 0 Power: 432w
Power Entry Module 0 Voltage: 54v
Power Entry Module 1 type DC status: OK
Power Entry Module 1 Power: 486w
Power Entry Module 1 Voltage: 54v

Router#
```

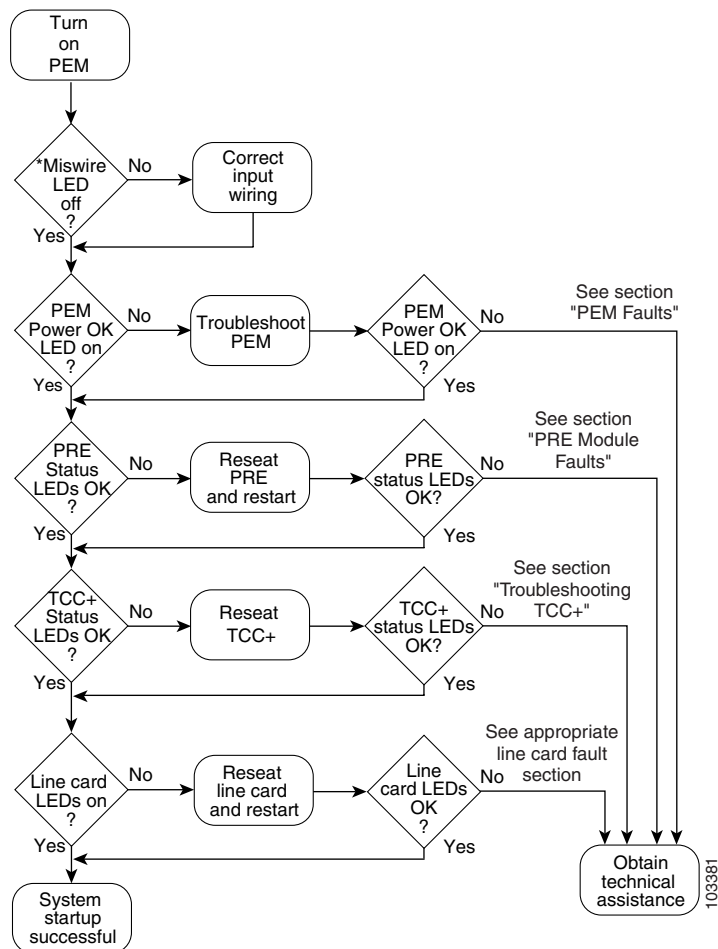
Hardware Troubleshooting Flowchart

Use [Figure 1-1](#) to determine which component of your Cisco uBR10012 router is malfunctioning. [Figure 1-1](#) describes a series of hardware dependent startup events that must take place for a Cisco uBR10012 router to allow the passage of IP traffic. At each main point of the flowchart, there are pointers to the chapters in this guide that describe how to troubleshoot individual pieces of hardware.


Note

This flowchart does not address software configuration problems.

Figure 1-1 Hardware Troubleshooting Flowchart



Cisco uBR10012 System Startup Sequence

[Table 1-1](#) describes the visible sequence of events that occur during a typical Cisco uBR10012 power up.

Table 1-1 Cisco uBR10000 Series System Startup Sequence

Startup Event	Event Description
PEM is powered off	The Fault LED on each PEM is lit yellow to indicate that power is being supplied to the PEM but that the router is not turned on.
Power on the Cisco uBR10012 router	<ol style="list-style-type: none"> The Power LED on each PEM is lit green. The yellow Critical, Major, and Minor alarm and Fail LEDs illuminate for about 2 seconds. The alphanumeric display on the active PRE module counts up through a range of numbers from 1111 to 9999 (1111, 2222, and so on). The alpha numeric display counts up through a sequence of letters from AAA to CCC (AAA, BBB, and CCC). The message ROM DONE appears on the alphanumeric display. <p>Note If the system is not configured to auto boot, it stops at the ROM DONE message. The console displays a <code>rommon></code> prompt.</p> <ol style="list-style-type: none"> The Power LED on each TCC+ card turns green. The Status LED on each TCC+ lights yellow. After a few seconds, the Status LED on the primary TCC+ card lights green, and the Status LED on the backup TCC+ card begins blinking green.
Cisco IOS software loads	<ol style="list-style-type: none"> If the system is set to boot from the slot0: file system, the green slot LED lights. The message BOOT IMG appears on the alphanumeric display on the active PRE module. The console displays a series of pound signs (#) as the IOS software image is decompressed. The following messages appear on the alphanumeric display on the active PRE module. <ul style="list-style-type: none"> IOS STRT IOS EXC IOS FPGA IOS FPOK IOS FILE IOS STBY IOS DRVR IOS LIB IOS MGMT IOS CONF The console displays the bootup screen, followed by the prompt: <pre>Press RETURN to get started!</pre> The message IOS RUN appears in the alphanumeric display on the active PRE module. In a redundant configuration, the message IOS STBY appears on the alphanumeric display of the standby PRE module. <p>If the boot process fails, no console access is available. If you cannot boot the Cisco uBR10012 router, call Cisco TAC.</p>

