Troubleshooting

This chapter provides basic installation troubleshooting information. The chapter includes the following sections:

> ✎
> **Note** This chapter provides only hardware troubleshooting information that does not require access to the router's command-line interface (CLI) or knowledge of CLI commands. For more advanced troubleshooting, refer to the Cisco IOS online document *Troubleshooting Tips for the Cisco uBR925 Cable Access Router.*

Troubleshooting Overview

Installation problems with Cisco uBR925 cable access routers are commonly due to the cable system and its topography. LEDs on the front panel of the Cisco uBR925 cable access router reveal operational status and help you determine problem areas. See Figure 1-5 on page 1-8 for the layout of the LEDs on the router's front panel; see Table 1-1 on page 1-9 for a description of these LEDs.

Initialization and Self-Test Problems

When the Cisco uBR925 cable access router first powers on, it performs the following self-test and initialization routines:

1. The primary ROM monitor in Flash memory tests the secondary ROM monitor. If the secondary ROM monitor is present in Flash memory and passes its verification tests, it assumes control and continues with the initialization process. Otherwise, the primary ROM monitor continues with the initialization process.

2. The system runs its diagnostic procedures, which ensure that all Cisco uBR925 cable access router components are functioning. To complete the diagnostic procedures, the Cisco uBR925 cable access router processor must be able to:

   – Perform a system reset trap.

   – Fetch and execute instructions from the ROM monitor area of the Flash memory.

   – Write several internal registers and reset the control processor successfully.

   – Correctly configure the port registers.

   – Perform conditional branches.

   – Verify that the software-controlled LEDs are functional.

   If all diagnostic procedures are successful, all LEDs except for the four Ethernet and the ACT LEDs briefly blink.

3. The next step of the self-test initializes the memory controller. The US LED comes on if this test succeeds.

4. The console port is initialized and the banner is output to the console port.

5. The Cisco uBR925 cable access router performs a self-test on the low memory area of the DRAM. When this test starts, the LINK, DS, US, and MSG LEDs come on.

6. After testing low memory, the processor clears the LEDs and then tests its memory cache. When this test starts, the DS and MSG LEDs come on.

7. The system tests the BSS uninitialized data area of the DRAM. When this test starts, all LEDs go off and the LINK, DS, and MSG LEDs come on. If this test succeeds, the OK LED begins blinking, the DS and MSG LEDs go off, and the US LED goes on.

8. The final step tests the remaining DRAM. When this test starts, all LEDs go out and then the DS and US LEDs go on. If this test succeeds, the DS and US LEDs go out, and the LINK and DSNR LEDs go on. The OK LED continues blinking until the Cisco uBR925 cable access router has loaded the Cisco IOS image.

   Table 4-1 summarizes the self-test failure codes displayed by the LEDs; these patterns appear only when the OK LED goes off and remains off during boot.

Table 4-1   LED Self-Test Failure Codes

LINK	DS	US	MSG	Error Description
—	—	ON	—	Initialization of the memory controller failed.
ON	ON	ON	ON	The self-test of the low registers of the DRAM failed.
—	ON	—	ON	The self-test of the processor cache failed.
ON	ON	—	ON	A memory or controller problem was detected while clearing the BSS area of the DRAM.
—	ON	ON	—	A memory or controller problem was detected while clearing the remaining DRAM.

9. If all self-tests passed, the Cisco uBR925 cable access router turns off all LEDs except OK and boots the Cisco IOS image stored in the onboard Flash memory. The OK LED blinks during the boot process. If this LED *does not* start to blink, or if it continues blinking for more than ten minutes, see the "Power Subsystem" section on page 4-7.

10. If the Cisco IOS image booted successfully, it takes control from the ROM monitor code and turns the OK LED on solid.

11. The router starts normal operations after it starts up the Cisco IOS image. At this point, the US, DSNR, and LINK LEDs remain on to indicate that the router is operational and is receiving a healthy signal:

   – The OK LED indicates that power is supplied to the router and that it has successfully loaded and is running a Cisco IOS image.

   – The DS LED indicates that the router is locked to a downstream channel.

   – The US LED indicates that the router has established connectivity with the CMTS and is operating within 6 dB of desired power level (generally within 3 dB).

   – The LINK LED indicates that the cable interface is operational and is connected to the proper coaxial cable.

   – The ACT LED blinks to indicate activity on the cable interface.

   – The Ethernet 1, 2, 3, 4 LEDs blink to indicate activity from the PCs and other customer premises devices connected to the corresponding Ethernet ports.

   – The USB LED blinks to indicate activity from the PC connected to the USB port.

   – The V OK LED indicates that the voice system has been enabled and is operational. The V1 and V2 LEDs go on to indicate a call is being made using that particular voice port.

   – The DSNR LED reveals that the router is receiving a quality downstream signal with a low signal-to-noise ratio (SNR) and that the signal is 5 dB above the downstream lock threshold.

Note   Because the signal-to-noise ratio and lock threshold can drift, they are regularly checked and the DSNR LED is updated. Although this might cause the DSNR LED to occasionally blink briefly, under normal conditions the DSNR LED remains on.
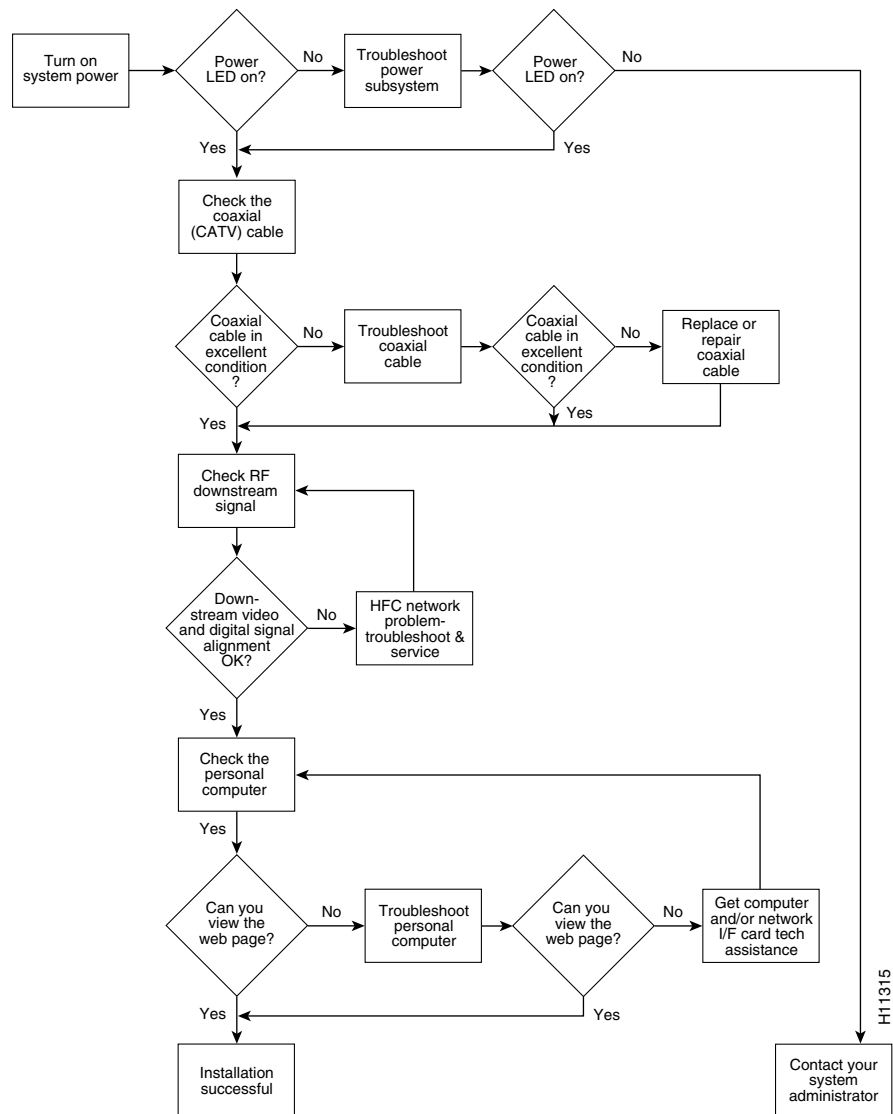
12. When the router and computer have booted successfully, you should be able to access an Internet web site, which will confirm that the router is configured correctly. If you cannot access a web site, proceed to the "PC Subsystem" section on page 4-11.

Troubleshooting Subsystems

The key to troubleshooting is to isolate a problem to a specific subsystem. This section covers the following subsystems:

- Power Subsystem, page 4-7
- Coaxial Cable Subsystem, page 4-7
- RF and Digital Subsystem, page 4-8
- Ethernet Subsystem, page 4-8
- USB Subsystem, page 4-10
- PC Subsystem, page 4-11
- VoIP Subsystem, page 4-13

Figure 4-1 provides a general troubleshooting flowchart. Table 4-2 can help you correlate LED behavior with possible problems, and suggested courses of actions.

Figure 4-1   Basic Troubleshooting Strategy for Startup Problems

Table 4-2   General Troubleshooting Tips

LED	Status	Possible Problem	Suggested Action
OK	System status LED is off.	Power cord not properly seated.	Check power connections.
		Power outlet not operating.	Check the outlet.
		Power supply has failed.	Contact field service dispatch to replace the power supply.
		The router failed its self-test.	See Table 4-1 or contact field service dispatch to replace the unit.
1, 2, 3, or 4	Ethernet LEDs are off when data is transmitted to/from the device.	PC/device not powered on.	Verify that the PC/device is powered on.
		Bad Ethernet connection.	Reseat the Ethernet cable at both ends. Make sure that TCP/IP software is installed and DHCP is enabled.
		Incorrect cable between the router, the hub (if applicable) and the PC.	Replace the cable, and review the hub user guide or Ethernet user guide.
		Faulty Ethernet card.	Notify the subscriber to replace the Ethernet card.
USB	USB LED is off.	USB interface is not in use.	This is normal behavior when the USB interface is not used.
		USB cable is not connected to cable voice adapter and PC.	Verify that the correct cable (host-device cable with type "A" and type "B" connectors, maximum length 5 meters) is being used and is firmly inserted in both connectors.
		USB software drivers are not installed on the PC.	Install the USB software according to the instructions that accompany the Cisco uBR925 USB driver CD.
		PC is running Windows 95 or Windows NT.	Windows 95 and Windows NT do not support USB networking. Install Windows 98/98SE, Windows 2000, or Windows Millennium.

Table 4-2   General Troubleshooting Tips (continued)

LED	Status	Possible Problem	Suggested Action
LINK	Cable RF LED is off.	Router searching for a signal; RF levels wrong.	Check for a DOCSIS system signal and verify that the nearby analog video signal is within the correct range—0 to +15 dBmV for most coaxial cable CATV systems.
		Cable is out.	Check if the cable TV is working if the subscriber also subscribes to broadcast TV services.
	Cable RF LED is blinking.	Router is locked to a signal and connecting to the headend per DOCSIS.	Wait until the router completes initialization. The router can temporarily pause on a digital video signal during installation, but eventually will time out and locate the DOCSIS system signal.
DS	Downstream LED is off.	RF coaxial cable is not properly connected to the router.	Reconnect the cable.
US	Upstream LED is off.	Upstream signal is not reaching the headend; router is unable to communicate with the remote end. Systematic RF noise problem or other outage.	Verify continuity back to the headend using the standard procedures for your system. Temporarily locate the router closer to the ground block, the tap, or another tap closer to the headend—ensuring correct RF input level at all times.
DSNR	Downstream signal-to-noise ratio LED is off.	Systematic RF noise problem or other outage.	Verify correct RF input to the router. Temporarily locate the router closer to the ground block, the tap, or another tap closer to the headend—ensuring correct RF input level at all times.
			Do not install the router unless your system management expressly states that this is the procedure to follow. This is an early indication of low-quality cable signals and indicates a high likelihood of intermittent router operation.

Power Subsystem

To help isolate a problem with the Cisco uBR925 cable access router power subsystem, look at the OK LED. Does the LED remain on when the self-test is finished and a software image booted?

- If yes, the power source is good and the power supply is functional.

- If no, make sure that the power cable is connected at the back of the router, and that the power supply is properly connected to power at the wall outlet.

    - If the OK LED remains off but other LEDs are on, check for possible diagnostic codes.

    - If the OK LED remains off and all other LEDs are also off, check the power source or power supply. Connect the power cord to another power source, if available. If the LED comes on, the problem is the first power source.

    - If the OK LED fails to blink after you connect the power cord to a new power source, the power supply is probably faulty.

> **Note**   If you are unable to resolve the problem or you determine that either a power supply or cable access router connector is faulty, contact your field office for instructions.

Coaxial Cable Subsystem

For proper operation, the Cisco uBR925 cable access router must be able to establish a connection with the service provider's CMTS. There are many conditions inherent to coaxial cable that can inhibit this connection.

Step 1   Verify the cable connection from the router to the HFC plant and headend by checking the video reception. You should test the same coaxial cable that the router is connected to—if necessary, disconnect the router from the coaxial cable and connect a cable-ready TV in its place.

If the TV does not receive any cable channels, contact the service provider to reestablish service to the site. If the TV does receive cable channels, this indicates that the basic infrastructure between the site and the HFC plant and headend is working. However, because data connections are much more sensitive to signal interference than cable TV service, it is still possible that a problem exists that prevents reception of the data signals.

Step 2   If you are using a splitter or coupler to share the coaxial cable between a TV and the router, remove the splitter or coupler, TV, and any other devices connected to the cable (such as video or DVD players) so that the router connects directly to the coaxial cable coming out of the CATV wall outlet. Make sure that the router is the only device on this segment of cable.

If the router functions in this configuration, inspect the splitter and any other devices that were installed on this cable segment. If necessary, upgrade them and their interconnecting cables with cables that have higher-quality connectors—see the "Coaxial Connector and Cable Specifications" section on page B-1 for the recommended cable and connector quality. A high-pass filter might be necessary between the modem and TV to prevent signal interference. If this does not help, you might need to install a separate cable for TV reception.

Step 3   Disconnect the coaxial cable from the back of the router and inspect the cable and its connector. Is the center conductor on the coaxial cable end straight and of the correct length to ensure a good connection?

If the center conductor is not straight or appears to be too long or too short, cut the coaxial cable behind the connector end, and strip the insulation back. Make sure that the newly exposed center conductor is straight. Before replacing the new cable connector end, check the general condition of the cable. Make sure that the new conductor end is securely crimped to the cable.

Note   The center connector should extend 1/8 inch (3.2 mm) beyond the end of the connector.

Step 4   Is the coaxial cable running to the router in excellent condition?

The coaxial cable between the router and the cable tap must be of very high quality. The cable insulation must be at least 80 percent braid with foil. If the existing cable appears to be of lesser quality or in poor condition, replace the cable from the ground block or tap to the cable end.

Step 5   Is the coaxial cable connection to the back of the cable access router secure?

Check that the coaxial cable end is securely screwed onto the F-connector at the back of the cable access router. Hand-tighten the connector, making sure that it is finger tight; then give it a 1/6 turn.

Note   If you are unable to resolve the problem, contact your internal service organization for instructions and assistance.

RF and Digital Subsystem

The use of RF and digital signals on the same cable can lead to interference if the HFC network is not correctly configured.

Step 1   Is the downstream video signal being received at the ground block or at the tap?

Connect a premium services cable converter to the ground block or at the tap and contact field service dispatch. Ask the CMTS system administrator to check if they can locate the box on the network by sending an impulse, or on-demand, video signal to the converter.

If field service can locate the converter at the ground block or at the tap, repeat the test with the cable access router connected to the cable end near the computer.

If field service cannot locate the converter at the cable end, but can locate the converter at the ground block or tap, replace the cable from the ground block or tap to the cable end.

Ethernet Subsystem

Use the following procedure if you cannot communicate with the Internet from a PC that connects to the Cisco uBR925 cable access router using an Ethernet connection.

Step 1   Is the Ethernet LED on the front panel of the Cisco uBR925 cable access router turned on?

If the Ethernet LED does not light, do the following until the LED begins to light:

   a. Verify that the Cisco uBR925 cable access router and computer are both powered on.

   b. Disconnect the Ethernet cable between the cable access router and computer and reconnect it, making sure it is firmly seated in each connector.

   c. Verify that the Ethernet cable is connected to the proper RJ-45 connector on the computer. If the computer has multiple RJ-45 connectors, verify that the one you are using is the connector for the Ethernet card configured for use with the cable access router.

   d. Verify that the Ethernet cable is the proper type for the equipment used. A straight-through cable should be used when connecting the cable access router to a computer. A crossover cable should be used when connecting to an Ethernet hub (although if the Ethernet hub has an uplink port, you might be able to use a straight-through cable).

   e. If you are using an Ethernet hub, verify that the correct Ethernet cables are connecting the computers to the hub. (See the hub's documentation for details on the correct cables that should be used.)

   f. If you are using an Ethernet hub, try connecting the computer directly to the cable access router using a straight-through cable.

Step 2   Does the Ethernet LED blink when you attempt to access a site on the Internet?

If the Ethernet LED does not blink, check that the software drivers for the computer's Ethernet card are installed.

   a. Choose **Start:Settings>Control Panel** to display the Control Panel.

   b. Double-click the **Network** icon.

   c. Click the **Configuration** tab.

   d. Scroll through the network components list and verify that the list contains both a driver for the Ethernet card and a driver for the TCP/IP software for the Ethernet card.

If either driver does not appear, install the proper drivers for your Ethernet card and its TCP/IP software.

Step 3   Is the computer's TCP/IP software configured for dynamic IP addressing (DHCP)?

   a. Display the Network Configuration window, as described in Step 2.

   b. Click on the component for the TCP/IP software for the Ethernet card.

   c. Click the **Properties** button and verify that the IP address is set for **Obtain an IP address automatically**.

   d. Choose **Start>Run** and enter **winipcfg** in the dialog box (Windows 95/98) or **ipconfig** (Windows NT/2000).

   e. In the IP configuration dialog box, select the Ethernet adapter from the pull-down menu, and click the **Renew All** button to force the computer to obtain an IP address from the DHCP server at the headend.

Step 4   Did the computer obtain an IP address from the headend?

If the computer could not obtain an IP address, try removing and reinstalling the Ethernet card, following the directions given in its documentation. In particular, verify that the card does not conflict with any other devices by doing the following:

   a. Choose **Start:Settings>Control Panel** to display the Control Panel.

   b. Double-click the **System** icon.

   c. Click the **Devices** tab and then click on the plus sign (+) next to **Network adapters**.

d. Verify that the display for the Ethernet card does not contain either a red "X" or a yellow exclamation point. If it does, then the Ethernet card has a conflict with some other device in the computer. This conflict must be resolved before proceeding; to identify the conflict, select the Ethernet card, click on **Properties**, and then click on the **Resources** tab.

e. If these steps fail, replace the Ethernet card.

USB Subsystem

Use the following procedure if you cannot communicate with the Internet from a PC that connects to the Cisco uBR925 cable access router using a USB connection.

Step 1 Is the computer running Windows 98, Windows 98SE, Windows Millennium, or Windows 2000?

If not, install Windows 98, Windows 98SE, Windows Millennium, or Windows 2000 on this computer. Windows 95 and Windows NT do not support networking through the USB interface.

Step 2 Is the USB LED on the front panel of the Cisco uBR925 cable access router turned on?

If the USB LED does not light, do the following until the LED begins to light:

a. Verify that the Cisco uBR925 cable access router and computer are both powered on.

b. Verify that the correct cable (host-device cable with type "A" and type "B" connectors, maximum length 5 meters) is being used and is firmly connected to both the cable access router and PC.

c. Disconnect the USB cable between the cable access router and computer and reconnect it, making sure it is firmly seated in each connector.

d. If using a USB hub, try disconnecting all devices and connecting the Cisco uBR925 cable access router directly to the computer using a host-to-device (type "A" to type "B") USB cable.

Step 3 Does the USB LED blink when you attempt to access a site on the Internet?

If the USB LED does not blink, check that the USB software drivers are installed.

a. Choose **Start:Settings>Control Panel** to display the Control Panel.

b. Double-click the **Network** icon.

c. Click the **Configuration** tab.

d. Scroll through the network components list and verify that the list contains both a driver for the Cisco uBR925 cable access router, and a driver for TCP/IP software for the Cisco uBR925 cable access router.

e. If either driver does not appear, install the USB software according to the instructions in the booklet that accompanies the Cisco uBR925 USB driver software CD.

PC Subsystem

To isolate a problem with a PC that is connected to the Cisco uBR925 cable access router:

Step 1   Can you access a web page using the web browser installed on the computer?

If you cannot access a web page, verify that the computer network protocol is configured for TCP/IP and that DHCP services are enabled using the following Windows 95 options:

  a. Turn on your PC and enter your network username and password.

  b. Choose **Start> Settings> Control Panel** to display the Control Panel.

  c. Double-click the **Network** icon. The Network window appears with the Configuration tab in the foreground. If the Configuration tab is not in the foreground, click this tab.

  d. Scroll through the network components list box until the TCP/IP option displays for your network adapter or USB port and double-click the selection. The TCP/IP Properties window appears with the IP Address tab in the foreground. If the IP Address tab is not in the foreground, click this tab.

> **Note**   If there is no TCP/IP entry for an installed Ethernet network adapter, the computer is not configured for IP. Refer to the subscriber's computer and network interface card user guides on how to configure these settings. If no TCP/IP entry exists for the USB interface, reinstall the Cisco uBR925 USB driver software.

  e. Make sure that the button next to **Obtain an IP address automatically** is selected. If this button is not selected, the computer is not configured for DHCP. Select the **Obtain an IP address automatically** radio button now and save the configuration settings.

  f. Close all networking windows and close the Control Panel.

  g. Follow the onscreen instructions and reboot your PC.

Step 2   Is the network interface card operational?

Verify that the network card is installed properly and that necessary software drivers have been installed and are running on the computer. Consult the user guide or other documentation that accompanied the network card. Contact technical support for the network card manufacturer as necessary.

Step 3   Is the computer preconfigured to work with special software such as America Online? Some computers come with dialup adapters preconfigured to work with special software. To ensure that the setup is correct, follow the procedures below.

Setting the Internet Properties

  a. Turn on your PC and enter your network username and password.

  b. Choose **Start> Settings> Control Panel** to display the Control Panel.

  c. Double-click the **Internet** icon. The Internet Properties window appears with the General tab in the foreground.

  d. Click the **Connection** tab. The Internet Properties Connection tab displays. The Connect to the Internet: as needed check box is checked, and the name of the dialup adapter appears in the Dial-Up Networking connection list box.

  e. Click the **Connect to the Internet: as needed** check box to deselect the option.

> **Note** The check box must not be checked. If the checkbox is checked, the computer attempts to open a dialup adapter connection each time a network application is started.

f. Click **OK**.

g. From the Control Panel, double-click the **System** icon. The System Properties window appears with the General tab in the foreground.

h. Click the **Device Manager** tab.

i. Click the **Network adapter** selection. Make sure that the display does not contain either a red "X" or a yellow exclamation point.

j. Click **OK**.

Setting Network Components

a. Turn on your PC and enter your network username and password.

b. Choose **Start> Settings> Control Panel** to display the Control Panel.

c. Double-click the **Network** icon. The Network window appears with the Configuration tab in the foreground.

d. Scroll through the list box until the particular dialup adapter selection appears. If the computer has America Online installed, two network components will be displayed: AOL Dialup Adapter and TCP/IP:AOL Dialup Adapter.

> **Note** The computer might have more than one dialup adapter. Be sure to select the right dialup adapter.

e. If the subscriber does not intend to use America Online, remove both these components from the Network components list box:

- Click **AOL Dialup Adapter** to highlight it. Click **Remove**.
- Click **TCP/IP:AOL Dialup Adapter** to highlight it. Click **Remove**.

f. If the subscriber intends to use America Online, double-click the TCP/IP component associated with the dialup adapter. The TCP/IP Properties window appears with the IP Address tab in the foreground.

g. Click the **Obtain an IP address automatically** button. The IP address for the dialup connection is assigned only when the connection is made. By default, the computer is assigned an IP address by the Cisco uBR925 cable access router using DHCP.

> **Note** When set up correctly, the Cisco uBR925 cable access router is the default Internet connection device. The subscriber might select the dialup adapter as an alternative connection path.

h. Click **OK**. A dialog box appears, informing you that before the change can become effective, the computer must be rebooted.

i. Click **Yes** to reboot the computer.

VoIP Subsystem

If you do not have a dial tone when picking up a telephone or fax device connected to the Cisco uBR925 cable access router's voice ports, verify the following:

Step 1   Has the subscriber has purchased voice services from the service provider?

Voice services must be enabled and configured by the service provider before they can be used. Verify that the subscriber's service contract provides voice services.

Step 2   Have voice services been enabled in the configuration file that is downloaded to the Cisco uBR925 cable access router at system startup?

If necessary, contact your provisioning or billing administrator or customer service department. If the provisioning or billing system is designed to support automatic feature upgrades, and the cable access router's UID (cable MAC address) is already in the billing system and configured for use with voice, ask to have the cable access router refreshed with the correct voice configuration.

Step 3   Is the proper cable connecting the telephone or fax device to the Cisco uBR925 cable access router?

If connecting a single-line telephone, the cable can be either a two-wire or four-wire cable; when connecting a two-line telephone, the cable must be a four-wire cable. In all cases, the cable must have an RJ-11 connector on at least one end; the other connector depends on the device being connected. Disconnect the cable at both ends and reconnect it, making sure the cable makes a firm and secure fit at both ends. If this doesn't help, replace the cable with a known good cable.

Step 4   Is the telephone or fax device a dual-line telephone?

Dual-line telephones must be plugged into the "V1+V2" voice port. Single-line telephones can be plugged into either the "V1+V2" or "V2" voice port.

Step 5   Is the telephone or fax device an analog (FXS) device that uses a tone pushbutton dial set?

The Cisco uBR925 cable access router supports only analog devices that use tone dialing. fax modem cards can be used but only in fax mode; these devices cannot be used in data mode.

Step 6   Is the sum of the Ringer Equivalence Numbers (RENs) of all devices on any one telephone line less than five?

If you have plugged multiple telephone or fax devices into the same telephone line to use as extensions, the sum of their REN cannot exceed five. If this happens, the phones might not ringer properly or at all. See the documentation for each phone for its REN value.

Using the Reset Switch

The Cisco uBR925 cable access router contains a reset switch with three different actions:

- A quick press (less than 10 seconds) initiates a hardware reset, similar to a power cycle or software reload.

- Pressing the reset switch from between 10 and 30 seconds causes the router to clear its saved RF parameters and do a hardware reload. This reload is similar to plugging in the router for the first time.

• Pressing the reset switch for longer than 30 seconds causes the router to erase its system image and download a new system image over the cable interface should the CMTS system administrator have set certain options in the configuration file, in conjunction with field service personnel. The router then reboots with this new image.

See Table 4-3 for additional elaboration.

Table 4-3   Reset Descriptions

Type of Reset	Press Reset Switch...	Result
Warm	Less than 10 seconds	The router reboots, using the downstream frequencies saved in the configuration file.
Cold	10 to 29 seconds	The router reboots the image in Flash memory, ignoring the downstream frequencies saved in the configuration file. The router initiates a downstream frequency search, which can take a few minutes. The new frequencies are saved in the configuration file and are used at the next warm reset.
Cold	More than 30 seconds	The router downloads a new image from the CMTS and reboots, storing this image in Flash memory, assuming coordination between the CMTS system administrator and field personnel.

Note   The reset switch on the back panel of the Cisco uBR925 cable access router is recessed to prevent accidental resets of the router. To press the switch, use a blunt object, such as a pen or pencil point; do not use a sharp object, such as a knife or awl, because this could permanently damage the switch and the router's circuitry.

Further Contacts

If you experience trouble with the startup that is not resolved with the procedures and tips in this chapter, contact field service dispatch for further assistance and instructions. Also see the documentation available in the Broadband Cable section on CCO and the Documentation CD-ROM.

Note   Cisco recommends that a CMTS systems engineer or network administrator be available, or on-call, to assist field service technicians or installers in troubleshooting a Cisco uBR925 cable access router.

If you are a network administrator or systems engineer with a Cisco product covered under warranty or a maintenance contract, contact the Cisco Technical Assistance Center (TAC). See the "Obtaining Technical Assistance" section on page xiv for more details.