

Troubleshooting

This chapter describes problems that could occur with the Cisco 1548M Micro Switch 10/100, possible reasons for the problems, and possible steps to take to solve the problems. The problems are grouped into logical states from startup to a state where the switch is up and running.

Initial Startup Problems

Table 4-1 lists problems that could occur after you connect the power cord for the first time.

Table 4-1 Initial Startup Problems

Symptom	Possible Problem	Possible Solutions
Power cord is connected to switch, but all LEDs, including the PWR LED, are off.	No power to switch.	<ul style="list-style-type: none"> • Check both ends of the power cord are securely connected to the power receptacle on the switch and the power outlet. • Make sure that the power outlet has power. • If both ends of the power cord are properly connected and the problem continues, the switch might have a faulty power supply. Contact your Cisco reseller.

Problems After First Powerup

Table 4-2 lists problems that could occur after the switch powers up for the first time.

Table 4-2 **Problems After Switch Powers Up**

Symptom	Possible Problems	Possible Solutions
No link to a network device. (The front and back panel LEDs for the connecting port are off.)	<ul style="list-style-type: none">• A cable-related problem:<ul style="list-style-type: none">— Cable is not compliant with specifications.— Damaged cable.— Improperly connected cable.• Improperly functioning network interface card (NIC) on PC or workstation.	<p>Perform the following tasks in the following order:</p> <ul style="list-style-type: none">• Make sure the connectors at both ends of the cable are securely seated.• Make sure the cable is not physically damaged. If it is damaged, replace it with a similar cable.• Make sure you are using the right type of cable (straight-through or crossover):<ul style="list-style-type: none">— If you are connecting a compatible router, server, PC, or workstation, use a straight-through Ethernet cable.— If you are connecting a hub or switch without an MDI/MDI-X button, use a crossover Ethernet cable.• Check the cable specifications in the “Ethernet Cable Specifications” on page B-3 to make sure cable you are using complies. If your cable does not comply with the specifications, that is, it is the wrong speed, wrong category, or exceeds maximum length, replace it with a cable that complies. (You can often verify the cable category by checking the marking on the outer sleeve or jacket of the cable.)• To make sure you have cabled the devices correctly, if applicable, see the sections “Connecting a PC, Workstation, Router, or Server,” “Connecting a Hub,” and “Connecting a Switch” in Chapter 2, “Installation and Startup.”• Run the diagnostic supplied by the vendor on the NIC to make sure it is functioning properly. If it is not, replace it.• If the problem continues after these checks, call your Cisco reseller.

Understanding POST Results

As described in the “Using POST to Pretest the Switch Operation” section on page 2-6, the switch runs eight tests each time it is powered up. This section provides information about fatal and nonfatal POST failures and recovery procedures.

If your switch has a fatal failure, the POWER LED is amber, and a port LED is blinking green. The switch is not operational, but the blinking port LED indicates which test failed. Contact your Cisco representative or reseller for support.

If a nonfatal failure occurs, the POWER LED is amber, and the switch is still operational and can forward packets, but it might not operate optimally. A POST failure message on the switch diagnostic console, such as the one in Figure 4-1, is displayed. In this example, the message indicates the second POST test (nonfatal—UART test) failed. Table 4-3 describes the individual tests and their associated LEDs.

For information on displaying POST results from the switch diagnostic console, see the “Starting Up the Switch and Displaying the POST Results” section on page 4-8.

Figure 4-1 Example of a POST Failure Message

```
----- Performing the Power-On Self Test (POST) -----  
EPROM Checksum Test ..... PASS  
UART Channel Int. Loopback Test ..... FAIL  
System SDRAM Test ..... PASS  
CPU Self Test ..... PASS  
GT64111 Internal & DRAM Access Test ..... PASS  
GT48004 Internal & DRAM Access Test ..... PASS  
PHY Access Test ..... PASS  
System Image Checksum Test ..... PASS  
----- Power-On Self Test Completed -----
```

Table 4-3 POST Test Descriptions

Port LEDs	Test
4	Fatal—Boot code test. Checks the integrity of the checksum for the boot code. Switch is not operational. Contact your Cisco representative or reseller for support.
3	Nonfatal—UART test. Checks the internal loop-back function for the UART channel.
2	Fatal—SDRAM test. Checks the functionality of the SDRAM. Switch is not operational. Contact your Cisco representative or reseller for support.
1	Fatal—CPU self test. Checks the functionality of the CPU.
8	Fatal—GT-64111 test. Checks the functionality of the GT-64111 (PCI bridge). Contact your Cisco representative or reseller for support.
7	Fatal—GT-48004A test. Checks the functionality of the GT-48004A (switch IC). Contact your Cisco representative or reseller for support.
6	Fatal—PHY test. Checks the functionality of the PHY (transceiver). Contact your Cisco representative or reseller for support.
5	Fatal—System image test. Checks if the integrity of the system code, which relies on the Flash ROM, is correct or not. Switch is not operational. Contact your Cisco representative or reseller for support.

Problems After Switch Is Running

Table 4-4 lists problems that could occur after the switch has been up and running for a while.

Table 4-4 Problems After Switch Is Running

Symptom	Possible Problems	Possible Solutions
Connection to a network device is lost. (The front and back panel LEDs for the connecting port are off.)	<ul style="list-style-type: none"> A cable-related problem: <ul style="list-style-type: none"> — Disconnected cable. — Damaged cable. Improperly functioning NIC on PC or workstation. 	<ul style="list-style-type: none"> Make sure the connectors at both ends of the cable are securely seated in the desired ports. Make sure the cable is not physically damaged. If it is damaged, replace it with a similar cable. Run the diagnostic supplied by the vendor on the NIC to determine if it is functioning properly. If it is not, replace it. If the problem continues after these checks, call your Cisco reseller.
The throughput of data via the connection is less than what you expected.	<ul style="list-style-type: none"> The switch might be connected to a nonautonegotiating device that is running in full-duplex mode. For more information on autonegotiation and full- and half-duplex mode and an associated problem, refer to Appendix A, “Concepts.” The switch might have exceeded the limit of 4096 MAC addresses in memory. 	<ul style="list-style-type: none"> Set the duplex mode on the nonautonegotiating device to half-duplex mode. Use the Address Table Management Page to remove learned MAC addresses from the address table or refer to the <i>Cisco 1548M Micro Switch 10/100 Command Reference</i> for information about the clear address command.

Recovery Procedures Using the Diagnostic Console

Note Access to the switch diagnostic console requires physical access to the switch.

The diagnostic console is a menu-driven interface that you can use to perform the following tasks:

- Start up the switch and display the POST results
- Recover from corrupted firmware
- Recover from a lost or forgotten password
- Reset the switch to factory defaults
- Reset the switch console port settings to the factory defaults

Accessing the Diagnostic Console

To display the diagnostic console, follow these steps:

- Step 1** Connect a management station with terminal emulation software (such as ProComm or Reflection) supporting the XMODEM Protocol to the switch console port.
- Step 2** Start up your emulation program.
- Step 3** Set the line speed on the emulation software to 9600 baud.

Note The recovery procedure runs at 9600 baud. To display the diagnostic console properly, make sure you set the line speed on the emulation software to 9600 baud.

- Step 4** Unplug the power cord from the back of the switch.
- Step 5** Power up the switch.

Step 6 Within 5 seconds after power up, press **Ctrl-x** three times:

```
^x ^x ^x
```

A display such as the one in Figure 4-2 appears.

Figure 4-2 Diagnostic Console Display

```
Cisco Systems Diagnostic Console
Copyright (c) Cisco Systems, Inc. 1999
All rights reserved.
```

```
Model: 1548 Micro Switch 10/100
```

```
Boot Firmware Version: 1.00.00
Ethernet Address: 00-E0-1E-7E-B4-40
```

```
-----
```

```
Press enter to continue.
```

The firmware version used by the switch is displayed in the Boot firmware version field.

Using the Diagnostic Console - Systems Engineering Menu

The Diagnostic Console - Systems Engineering Menu (Figure 4-3) provides options from which you can troubleshoot firmware problems and then bring up the firmware as usual.

To display this menu, press any key from the Diagnostic Console Display (Figure 4-2).

Figure 4-3 Diagnostic Console - Systems Engineering Menu

```
Diagnostic Console - Systems Engineering
```

```
Boot Firmware Version: 1.00.00
```

```
[C] Continue with standard system start up
[U] Upgrade operation firmware (XMODEM)
[B] Change the baud rate of the main console RS232 interface
[S] System debug interface
```

```
Enter Selection:
```

The firmware version used by the switch is displayed in the Boot firmware version field.

Starting Up the Switch and Displaying the POST Results

To display the POST results, as shown in Figure 4-1, follow these steps:

- Step 1** Enter **C** (the Continue with standard system start up option) from the Diagnostic Console - Systems Engineering Menu.

The following prompt is displayed:

```
Please reset your terminal application's baud rate to (9600, 8, 1, N) now before you leave the recovery procedure.
```

```
Press any key to continue.
```

- Step 2** Reset the line speed on the emulation software to 9600 baud, 8 data bits, 1 stop bit, and no parity.
- Step 3** Press any key to begin POST.

Recovering from Corrupted Firmware

Switch firmware can be corrupted during an upgrade, and it is possible to download the wrong file. In both cases, the switch does not pass POST, and there is no connectivity.

From the diagnostic console, you can download the upgrade file from a management station to the switch via the XMODEM protocol. The procedure for downloading the firmware via XMODEM is largely dependent on the terminal emulation software you are using.

To download the switch firmware via the XMODEM protocol, follow these step:

- Step 1** Copy the switch firmware from Cisco Connection Online (CCO) to a temporary area on your management station.

New firmware releases can be downloaded from CCO, the Cisco Systems' customer web site available at the following URLs: www.cisco.com, www-china.cisco.com, and www-europe.cisco.com.

- Step 2** Connect the management station with terminal emulation software (such as ProComm or Reflection) supporting the XMODEM Protocol to the switch console port.
- Step 3** Start up your emulation program.

Step 4 Set the line speed on the emulation software to 9600 baud.

Note The recovery procedure runs at 9600 baud. To display the diagnostic console properly, make sure you set the line speed on the emulation software to 9600 baud.

Step 5 Display the diagnostic console as described in the “Accessing the Diagnostic Console” section on page 4-6 and “Using the Diagnostic Console - Systems Engineering Menu” section on page 4-7.

Step 6 Enter **B** (the Change the baud rate of main console RS232 interface option) from the Diagnostic Console - Systems Engineering Menu to temporarily change the baud rate of the switch console port.

The following prompt is displayed:

```
Change the baud rate of the main console RS232 interface to one of
the following values. Change the setting of your terminal
application to match the value you selected.
```

```
[1] 9600   bps
[2] 19200  bps
[3] 38400  bps
[4] 57600  bps
```

```
Enter Selection:
```

Note Make sure the console settings of the switch and the management station match.

Step 7 Select a baud rate for the switch console port by entering **1**, **2**, **3**, or **4**.

Step 8 Change the baud rate of the management station to match the baud rate you selected for the switch console port.

Step 9 From your emulation session, locate the switch upgrade file and use the appropriate command to transfer the file to the switch.

- Step 10** Enter **U** (the Upgrade operation firmware (XMODEM) option) from the Diagnostic Console - Systems Engineering Menu.

The following prompt is displayed:

```
The XMODEM protocol will be used to perform this firmware upgrade.
The user must initiate an XMODEM file transfer from the terminal
side using an appropriate terminal application specific command.
```

```
Do you wish to continue with the download process? [Y]es or [N]o:
```

Entering **N** redisplay the Diagnostic Console - Systems Engineering Menu.

- Step 11** Enter **Y**, and press **Return**.

The following prompt is displayed:

```
Starting XMODEM download...
```

Is a prompt displayed when download is completed?

- Step 12** When the download is completed, the follow prompt is displayed:

```
XMODEM download completed.
```

```
Download Buffer Checksum Test.....Pass
Upgrade system image to Flash memory.....Pass
```

```
Press any key to continue.
```

Pressing any key displays the Diagnostic Console - Systems Engineering Menu.

Note When downloading the firmware permanently to Flash memory, the switch does not respond to commands for approximately 1 minute. This is normal and correct. Do not turn off the switch. The switch then resets and begins using the new firmware.



Caution If you interrupt the transfer by turning the switch off and on, the firmware could get corrupted.

Recovering from a Lost or Forgotten Password

If you have forgotten or lost the switch password, you can use the diagnostic console to overwrite the password with a new password.

To recover from a lost or forgotten password, follow these steps:

- Step 1** Connect a management station with terminal emulation software (such as ProComm or Reflection) supporting the XMODEM Protocol to the switch console port.
- Step 2** Start up your emulation program.
- Step 3** Set the line speed on the emulation software to 9600 baud.
- Step 4** You can either:
- (a) Unplug the power cord from the back of the switch and then power up the switch.
- or
- (a) Display the diagnostic console as described in the “Accessing the Diagnostic Console” section on page 4-6 and “Using the Diagnostic Console - Systems Engineering Menu” section on page 4-7.
 - (b) Enter **C** (the Continue with standard system start up option) from the Diagnostic Console - Systems Engineering Menu.

After POST completes, the following prompt is displayed:

If a password has already been assigned, the following prompt is displayed:

Clear passwords? [Y]es or [N]o:

- Entering **Y** deletes the existing password from nonvolatile RAM (NVRAM) and displays prompts for assigning switch IP information. You can then assign a password from the Home Page or from the CLI.
- Entering **N** when a password exists allows that password to remain valid, and the switch opens a CLI session.

After you have selected **Y** or **N**, the following prompt is displayed if no IP information has been assigned to the switch:

Continue with configuration dialog? [Y]es or [N]o:

Using the Diagnostic Console - System Debug Interface Menu

The Diagnostic Console - System Debug Interface Menu (Figure 4-4) provides system options from which you can reset the console port or the entire switch to the factory defaults. You can also use this menu to display the factory-installed management interface password.

To display this menu, enter **S** (the System debug interface option) from the Diagnostic Console - Systems Engineering Menu.

Figure 4-4 Diagnostic Console - System Debug Interface Menu

```
Diagnostic Console - System Debug Interface
```

```
[M] Memory I/O  
[F] Return system to factory defaults  
[R] Reset main console RS232 interface to 9600,8,1,N (NVRAM Setting)
```

```
[X] Exit to Previous Menu
```

```
Enter Selection:
```

Note The [M] Memory I/O option on the Diagnostic Console - System Debug Interface Menu is for Cisco personnel only. The [X] Exit to Previous Menu option displays the Diagnostic Console - Systems Engineering Menu.

Resetting the Switch to the Factory Defaults

There can be times when you need the diagnostic console even though the firmware is valid. This could happen, for example, if the switch configuration prevents the firmware from executing properly and you cannot display the management interfaces.

To reset to the switch to the factory defaults, follow these steps:

Step 1 Enter **F** (the Return system to factory defaults option) from the Diagnostic Console - System Debug Interface Menu.

The following prompt is displayed:

```
Return system to factory defaults? [Y]es or [N]o:
```

Entering **N** redisplay the Diagnostic Console - System Debug Interface Menu.

Step 2 Enter **Y**.

Resetting the Switch Console Port to Factory Defaults

To reset to the switch console port to the factory defaults, follow these steps:

Step 1 Enter **R** (the Reset main console RS232 interface to 9600,8,1,N option) from the Diagnostic Console - System Debug Interface Menu.

The following prompt is displayed:

```
Return system to factory defaults? [Y]es or [N]o:
```

Entering **N** redisplay the Diagnostic Console - System Debug Interface Menu.

Step 2 Enter **Y**.

