



APPENDIX **A**

Troubleshooting

The Cisco MWR 2941 router undergoes extensive testing before it leaves the factory. If you encounter problems, use the information in this appendix to help isolate problems or to eliminate the router as the source of the problem.

This appendix contains the following sections:

- [Problem Solving, page A-2](#)
- [Reading the LEDs, page A-5](#)

If you cannot locate the source of the problem, contact a customer service representative for information on how to proceed. For technical support information, see the *Cisco Information Packet* publication that shipped with your router. Before you call, have the following information ready:

- Chassis type and serial number
- Maintenance agreement or warranty information
- Type of software and version number
- Date you received the new chassis
- Brief description of the problem
- Brief explanation of the steps you have taken to isolate the problem



Note Ensure you provide the customer service representative with any upgrade or maintenance information that was performed on the Cisco MWR 2941 router after your initial installation (see [Appendix C, “Site Log”](#) for Site Log information.)

Problem Solving

To problem solve, isolate the problem to a specific subsystem by comparing current router activity to expected router activity.

The LEDs on the front panel of the router enable you to determine router performance and operation. For a description of these LEDs, see [“Reading the LEDs” section on page A-5](#).

When problem solving, check the following router subsystems:

- Power and cooling systems—External power source, power cable, router power supply and circuit breaker, and router fans. Also check for inadequate ventilation or air circulation.
- Modules—Checking the LEDs on the modules can help you to identify a failure.
- Cables—Ensure that the external cables connecting the router to the network are all secure.

Troubleshooting the Power and Cooling Systems

Both the power LED and the fans can help you troubleshoot a power problem. See [Table A-1](#) for information to help you isolate the problem.

Table A-1 *Troubleshooting the Power and Cooling Systems*

| Symptom | Possible Cause | Corrective Action |
|---|--|---|
| The power (labeled POWER) LED on the front panel is not on. | The power source is not connected properly. | Check the DC input. Check the DC source. |
| The router shut down after being on for only a short time. | The cause is environmental. | Check for an environmentally induced shutdown. (See “Environmental Reporting Features” section on page A-3). |
| | The fans are not working; the router overheats and shuts down. | Check the fans. |
| | The chassis intake and exhaust vents are obstructed. | Check the chassis intake and exhaust vents for obstructions. Clear any obstructions. |
| | Installation does not meet environmental site requirements. | Check the environmental site requirements in the “System Specifications” section on page 1-8 . |
| The router partially boots, but the LEDs do not light. | There is a possible power supply failure. | Check the power LED on the front panel of the router. If the LED is on, the power supply is functional. If the LED is off, refer to the <i>Cisco Information Packet</i> for warranty information or contact customer service. |

Environmental Reporting Features

The Cisco MWR 2941 router has a temperature sensor to detect over-temperature conditions inside the chassis. The over-temperature detection trips at 70°C +/- 5%. This condition is reported to the processor as an interrupt; software acts on this interrupt, generating the appropriate alarm. If the router reaches a temperature of 90°C, the power supply will cycle to prevent the router from exceeding that temperature in a powered-up state. See [Table A-2](#) for help in interpreting environmental reporting features.

Table A-2 *Interpreting Environmental Reporting Features*

| Symptom | Possible Cause | Corrective Action |
|---|---|---|
| <p>The router is operating at an abnormally high temperature. The following message appears on the console screen:</p> <pre>%SYS-1-OVERTEMP: System detected OVERTEMPERATURE condition. Please resolve cooling problem immediately!</pre> | <p>There is a fan failure.</p> <p>There is an air conditioner failure in the room.</p> <p>The air flow to cooling vents is blocked.</p> | <p>Take steps to correct the problem. For information about environmental operating conditions, see the “System Specifications” section on page 1-8).</p> |

Troubleshooting Modules, Cables, and Connections

Network problems can be caused by a module, cable or cable connection, or external device such as a modem, transceiver, hub, wall jack, WAN interface, or terminal. See [Table A-3](#) for information to help you isolate the problem.

Table A-3 *Troubleshooting Modules, Cables, and Connections*

| Symptom | Possible Cause | Corrective Action |
|--|---|---|
| The router is experiencing network problems. | The router does not recognize the module. | Make sure that the module is firmly seated in its slot. |
| | | Check the LEDs on the module. Each module has its own set of LEDs. For information on these LEDs (see the “ Reading the LEDs ” section on page A-5). |
| | | Make sure you have a version of Cisco IOS software that supports the module. |
| | The router recognizes the module but the interface ports do not initialize. | Make sure that the module is firmly seated in its slot. |
| Check external cable connections. | | |
| Make sure you have a version of Cisco IOS software that supports the module. | | |

Table A-3 Troubleshooting Modules, Cables, and Connections

| Symptom | Possible Cause | Corrective Action |
|---------|--|--|
| | The router does not boot properly. | Make sure the module is firmly seated in its slot. |
| | The router constantly or intermittently reboots. | Check the router chassis or software. For warranty information, refer to the <i>Cisco Information Packet</i> publication that shipped with your router or contact customer service. |
| | The router boots, but the console screen is frozen. | Check the external console connection. Verify that the parameters for your terminal are set as follows: <ul style="list-style-type: none"> (a) The terminal should have the same data rate as the router (9600 bps is the default). (b) 8 data bits. (c) No parity generated or checked. (d) 2 stop bits. |
| | The router powers on and boots only when a particular module is removed. | Check the module. For warranty information, refer to the <i>Cisco Information Packet</i> publication that shipped with your order or contact customer service. |
| | The router powers on and boots only when a particular cable is disconnected. | There may be a problem with the module or cable. For warranty information, refer to the <i>Cisco Information Packet</i> publication that shipped with your order or contact customer service. |

Reading the LEDs

Tables [A-4](#), [A-5](#), [A-6](#), [A-7](#), and [A-8](#) describe the Cisco MWR 2941 LEDs located on the front panel.

T1/E1 Port LEDs

[Table A-4](#) explains how to interpret the T1/E1 port LEDs for onboard T1/E1 ports and those within HWICs. Each connection has 2 dedicated LEDs, one tracking carrier activity and the other tracking alarms.

Table A-4 T1/E1 Port LEDs

| LED | Color/State | Description (two LEDs for each T1/E1 port) |
|-----------------------|-------------|---|
| Active (labeled C) | Green | Carrier condition—operating without problem |
| | Amber | Loop condition |
| | Off | Out of service or not configured |
| Alarm (labeled AL) | Amber | Alarm condition |
| | Off | No alarm |

100/1000 Ethernet Port LEDs

Each Ethernet interface has 2 dedicated LEDs to track link activity and RJ-45 speed. [Table A-5](#) explains how to interpret the Ethernet port LEDs.

Table A-5 100/1000 Ethernet Port LEDs

| LED | Color/State | Description (two LEDs for each 100/1000 Ethernet port) |
|--|-------------|--|
| 100/1000 RJ-45 link (labeled L) | Solid Green | Link with no activity |
| | Flash Green | Link with activity |
| | Off | No link detected |
| 100/1000 RJ-45 speed (labeled S) | Green | Speed 1000 |
| | Amber | Speed 100 |
| | Off | Off |

Compact Flash LED

The compact flash slot has a single dedicated LED associated with it to track activity. [Table A-6](#) explains how to interpret the compact flash LED.

Table A-6 Compact Flash LED

| LED | Color/State | Description |
|--|-------------|--------------------|
| Compact flash (labeled ACT FLASH MEMORY) | Flash Green | Indicates activity |
| | Off | No activity |

SFP LEDs

Each SFP link has a single dedicated LED associated with it to indicate whether or not the link is active. [Table A-7](#) explains how to interpret the SFP LEDs.

Table A-7 SFP LEDs

| LED | Color/State | Description |
|-------------------------------------|-------------|---------------------------|
| SFP0 Link/Active (labeled LINK ACT) | Green | Link and active indicator |
| | Off | Link not enabled |
| SFP1 Link/Active (labeled LINK ACT) | Green | Link and active indicator |
| | Off | Link not enabled |

Chassis LEDs

[Table A-8](#) explains how to interpret the chassis LEDs.

Table A-8 Chassis LEDs

| LED | Color/State | Description |
|-----------------------------------|-------------|--|
| Power (labeled POWER) | Green | All power rails are within spec |
| | Red | Internal power module failure The reserve power supply (RPS) is providing power. |
| Operating status (labeled STATUS) | Green | All OK System is operational |
| | Amber | An over or under temperature condition |
| | Off | Default state is at Power On Reset (POR) The router is not yet booted, or an error condition is detected in the boot process. |

Table A-8 Chassis LEDs

| LED | Color/State | Description |
|-----------------------------------|--------------------|--|
| Activity (labeled ACTIVITY) | Green | IOS has booted and packets are being transferred |
| | Amber | BootRom has successfully loaded |
| | Off | Default state is at POR No activity occurring |
| BITS I/F (labeled BITS ACT) | Green | Port is up and working properly |
| | Amber | Port is disabled, not connected, or not in use |
| | Off | Port is faulty or out of service |

