

# Troubleshooting

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Use this information to help isolate problems you might encounter with Cisco 1600 series routers or to rule out the router as the source of the problem.

This appendix contains the following sections:

- Recovering a Lost Enable Password
- Problem Solving
- Front Panel LEDs
- Rear Panel LEDs

For information about the Cisco 1600 series ROM monitor, refer to the “ROM Monitor” appendix in the *Cisco 1600 Series Software Configuration Guide* that came with your router.

If you cannot locate the source of the problem, contact your local reseller for advice. 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 chassis
- Brief description of the problem
- Brief explanation of the steps you have taken to isolate the problem

## Recovering a Lost Enable Password

This section describes how to recover a lost enable password.

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**Note** You can recover a lost enable password, but not an enable secret password. This password is encrypted and must be replaced with a new enable secret password. See the “Hot Tips” section on Cisco Connection Online (CCO) for information on replacing enable secret passwords.

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Follow these steps to recover a lost enable password:

- Step 1** Connect an ASCII terminal or a PC running a terminal-emulation program to the CONSOLE port on the rear panel of the router. Refer to the section “Connecting the Console Port” in the “Installing the Router” chapter.
- Step 2** Configure the terminal to operate at 9600 baud, 8 data bits, no parity, and 1 stop bit.
- Step 3** Reboot the router.
- Step 4** At the user EXEC prompt (Router>), enter the **show version** command to display the existing configuration register value:
- ```
Router> show version
```
- Step 5** Record the setting of the configuration register. It is usually 0x2102 or 0x102.
- Step 6** Record the break setting.
- Break enabled—bit 8 is set to 0.
  - Break disabled (default setting)—bit 8 is set to 1.

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**Note** To enable break, enter the **config-register 0x01** EXEC command.

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- Step 7** Do one of the following:
- If break is enabled, go to Step 8.
  - If break is disabled, turn the router OFF, wait 5 seconds, and turn it ON again. Within 60 seconds, press the **Break** key. The terminal displays the ROM monitor prompt. Go to Step 9.

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**Note** Some terminal keyboards have a key labeled Break. If your keyboard does not have a Break key, refer to the documentation that came with the terminal for instructions on how to send a break.

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- Step 8** Send a break. The terminal displays the following prompt:

```
rommon 2>
```

- Step 9** Enter **confreg 0x142** as follows to reset the configuration register:

```
rommon 2> confreg 0x142
```

- Step 10** Initialize the router by entering the **initialize** command:

```
rommon 2> initialize
```

The router cycles its power, and the configuration register is set to 0x142. The router uses the boot ROM system image, indicated by the system configuration dialog:

```
--- System Configuration Dialog ---
```

- Step 11** Enter **no** in response to the prompts until the following message is displayed:

```
Press RETURN to get started!
```

- Step 12** Press **Return**. The following prompt appears:

```
Router>
```

## Recovering a Lost Enable Password

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**Step 13** Enter the **enable** command to enter enable mode. Configuration changes can be made only in enable mode:

```
Router> enable
```

The prompt changes to the privileged EXEC prompt:

```
Router#
```

**Step 14** Enter the **show startup-config** command to display the enable password in the configuration file:

```
Router# show startup-config
```

**Step 15** Enter the **configure terminal** command to enter configuration mode:

```
Router# configure terminal
```

**Step 16** Enter the **configure register** command to reset the configuration register to the original value that you recorded in Step 5.

**Step 17** Press **Ctrl-Z** to exit configuration mode.

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**Note** To return to the configuration being used before recovering the lost enable password, do not save the configuration changes before rebooting the router.

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**Step 18** Reboot the router, and enter the recovered password.

## Problem Solving

The key to problem solving is to isolate the problem to a specific subsystem by comparing what the router is doing to what it should be doing.

When problem solving, consider the following subsystems of the router:

- WAN interface cards—Refer to the LEDs on the cards and the LEDs on the router front panel to help identify a failure. For information on the front panel LEDs, refer to the “Front Panel LEDs” section later in this appendix.
- Cables—Check all the external cables that connect the router to the network.
- Power system—Consider the external power source, power cable, router power supply, and circuit breaker. Check for inadequate ventilation or air circulation.
- ISDN configuration—Consider ISDN-specific hardware and software configurations (Cisco 1603, Cisco 1604, and ISDN BRI WAN interface cards only).

## Troubleshooting WAN Interface Cards and Cables

Check for the following symptoms to help isolate the problem:

- WAN interface card is not recognized by the router.
  - Make sure that the card is correctly installed in the router. Refer to the “Installing a WAN Interface Card” section in the “Optional Installations” chapter.
  - Check the LEDs on the card and on the front panel of the router.
  - If you are using a Cisco 1603 or Cisco 1604, check that the router does not have a ISDN S/T or an ISDN U card installed.
- WAN interface card is recognized, but interface ports do not initialize.
  - Make sure that the card is correctly installed in the router. Refer to the “Installing a WAN Interface Card” section in the “Optional Installations” chapter.
  - Check the external cable connections to make sure they are secure.
- Router does not boot properly or constantly or intermittently reboots.
  - Make sure that the card is correctly installed in the router. Refer to the “Installing a WAN Interface Card” section in the “Optional Installations” chapter.

## Problem Solving

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- Make sure that the Flash PC card is correctly installed in the router. For more information on installing the card, refer to the “Installing a Flash PC Card” section in the “Optional Installations” chapter.
- Router boots, but the console screen is frozen.
  - Check the external console connection and make sure it is secure.
  - Verify that the parameters for your terminal are set to the following:
    - 9600 baud
    - 8 data bits
    - No parity generated or checked
    - 1 stop bit
- Router powers on and boots only when a particular WAN interface card is removed from the router.
  - Replace the card. Consult your reseller or local Cisco sales office for warranty information.
  - If you are using a Cisco 1603 or Cisco 1604, check that the router does not have a ISDN S/T or an ISDN U card installed.
- Router powers on and boots only when a particular cable is disconnected.
  - There might be a problem with the WAN interface card or card cables. Consult your reseller or local Cisco sales office for warranty information.

## Troubleshooting the Power System

If the router external power supply fails, it should be returned to Cisco. Check the following items to help isolate the problem:

- Router shuts down after being on a short time.
  - Check the environmental site requirements in the “Site Requirements” section in the *Regulatory Compliance and Safety Information for Cisco 1600 and Cisco 1700 Routers* document that came with your router.
  - If the front-panel SYSTEM PWR LED is not on, the power supply has failed.
- If the router partially boots, but all LEDs remain off, the power supply has failed.
- If the router is on, but the front-panel SYSTEM PWR LED is off, the power supply has failed.
- If the front-panel SYSTEM PWR LED is on, the front-panel SYSTEM OK LED is off, and the router does not pass console or EIA data, the power supply has failed.

## Troubleshooting ISDN

This section describes problems related to the ISDN line that might occur.

Two commands are useful when troubleshooting ISDN:

- For routers with an ISDN S/T interface, enter the **clear interface bri0** command to terminate any active ISDN calls and to reset the ISDN BRI interface:

```
Router# clear interface bri0
```

- For routers with an ISDN U interface, enter the **clear controller bri0** command to terminate any active ISDN calls, to reset the ISDN BRI interface, and to reset the ISDN line between the router and the central office switch:

```
Router# clear controller bri0
```

## Troubleshooting ISDN

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Figure A-1 lists troubleshooting methods for ISDN-specific problems that might occur.

**Figure A-1**      **Troubleshooting ISDN**

| <b>Symptom</b>                                                                                          | <b>Checks</b>                                                                                                                                                                                | <b>Causes and Solutions</b>                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Router is on:<br>OK LED (next to ISDN S/T port) is off<br>(Cisco 1603 and ISDN S/T WAN interface card). | <ul style="list-style-type: none"><li>• Is the SYSTEM OK LED on?</li><li>• Are all ISDN cables properly connected?</li><li>• Is the NT1 LED on?</li></ul>                                    | <ul style="list-style-type: none"><li>• Possible router hardware problem.</li><li>• Possible ISDN line problem. Check with ISDN service provider.</li><li>• Possible NT1 problem.</li></ul>                                         |
| Router is on:<br>NT1 LED is off<br>(Cisco 1604 and ISDN U WAN interface card).                          | <ul style="list-style-type: none"><li>• Is the SYSTEM OK LED on?</li><li>• Are all ISDN cables properly connected?</li><li>• Is the ISDN line connected to the router ISDN U port?</li></ul> | <ul style="list-style-type: none"><li>• Possible router hardware problem.</li><li>• Possible ISDN line problem. Check with ISDN service provider.</li><li>• Possible ISDN line problem. Check with ISDN service provider.</li></ul> |

**Figure A-1 Troubleshooting ISDN (Continued)**

| Symptom                                                                                                                 | Checks                                                                                                                                                                                                                          | Causes and Solutions                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NT1 LED is on.<br>OK LED (next to ISDN S/T port) is off<br>(Cisco 1604).                                                | <ul style="list-style-type: none"> <li>• If there is no device connected to the ISDN S/T port, the OK LED should be off.</li> <li>• Is the device connected to the ISDN S/T port turned on and correctly configured?</li> </ul> | <ul style="list-style-type: none"> <li>• Possible router hardware problem.</li> <li>• Possible problem with device connected to the ISDN S/T port.</li> </ul>                                                |
| Cisco 1604 cannot create an ISDN connection to the remote router when an ISDN device is connected to the ISDN S/T port. | <ul style="list-style-type: none"> <li>• Is the ISDN configured for multipoint service?</li> <li>• Is the external ISDN device using both B channels?</li> </ul>                                                                | <ul style="list-style-type: none"> <li>• The service provider should configure the line for multipoint service.</li> <li>• The service provider should configure the line for multipoint service.</li> </ul> |
| ISDN device attached to the Cisco 1604 ISDN S/T port does not operate correctly.                                        | <ul style="list-style-type: none"> <li>• Does the device operate correctly if the interface for the Cisco 1604 ISDN U port (interface bri0) is shut down?</li> <li>• Is the Cisco 1604 using both B channels?</li> </ul>        | <ul style="list-style-type: none"> <li>• The service provider should configure the line for multipoint service.</li> <li>• The service provider should configure the line for multipoint service.</li> </ul> |

## Troubleshooting ISDN

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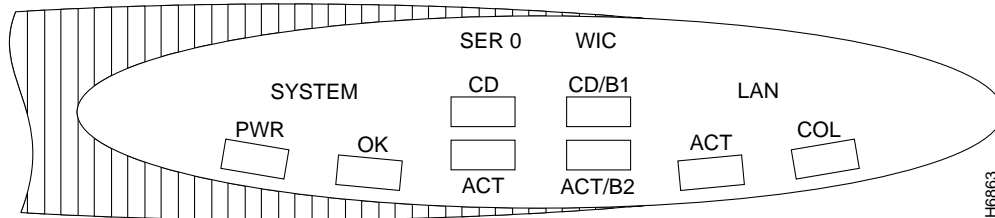
**Figure A-1** Troubleshooting ISDN (Continued)

| Symptom                                                                                             | Checks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Causes and Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cannot make an ISDN connection to remote device (Cisco 1603, Cisco 1604, ISDN WAN interface cards). | <ul style="list-style-type: none"><li>• Use <b>show status</b> command to check the following:<ul style="list-style-type: none"><li>— Does the current ISDN switch type match actual switch type being used?</li></ul></li><li>• Check the following:<ul style="list-style-type: none"><li>— Is Layer 1 status deactivated?</li><li>— If Layer 1 status is active, does Layer 3 status say “2 Active Layer 3 calls”?</li><li>— If Layer 1 status is active, does Layer 3 status say “No Active Layer 3 call(s)”?</li><li>— If Layer 1 status is active, does Layer 3 status say “1 Active Layer 3 call”?</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Use the <b>isdn switch-type</b> command to configure correct switch type.</li><li>• Use the <b>show controller bri0</b> command to check for the messages CO RUNNING LOOPBACK TESTS or CO TESTING. If you receive these messages, contact the service provider.</li><li>• Router might have called itself. Check destination phone number configured with the <b>dialer map</b> command and the <b>dialer string</b> command.</li><li>• Check destination phone number. Check route to the destination.</li><li>• Check router protocol configurations.</li></ul> |

## Front Panel LEDs

You can use the LEDs on the front panel of the router to determine router performance and operation. This section contains information about reading the LEDs and using them to troubleshoot problems.

**Figure A-2 Front Panel LEDs—Cisco 1601 and Cisco 1602**

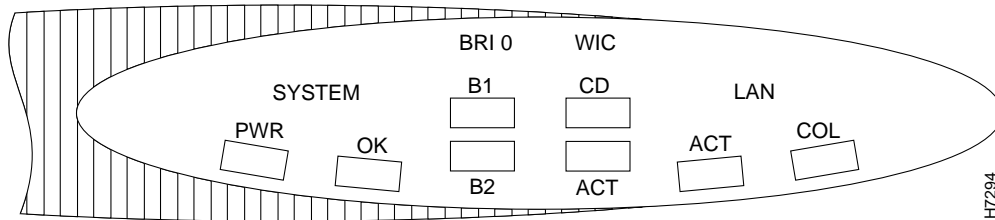


**Table A-1 Front Panel LED Functions—Cisco 1601 and Cisco 1602**

| LED        | Color  | Description                                                                                                                                                                                      |
|------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM PWR | Green  | The router is on, and DC power is being supplied.                                                                                                                                                |
| SYSTEM OK  | Green  | The router has successfully booted. Blinks during the boot cycle.                                                                                                                                |
| LAN ACT    | Green  | Data is being sent to or received from the local Ethernet LAN.                                                                                                                                   |
| LAN COL    | Yellow | Flashing indicates packet collisions on the local Ethernet LAN.                                                                                                                                  |
| SER 0 CD   | Green  | <ul style="list-style-type: none"> <li>Cisco 1601 has an active connection on the serial port.</li> <li>Cisco 1602 has an active connection on the DSU/CSU port.</li> </ul>                      |
| SER 0 ACT  | Green  | <ul style="list-style-type: none"> <li>Cisco 1601 serial port is sending or receiving data.</li> <li>Cisco 1602 DSU/CSU port is sending or receiving data.</li> </ul>                            |
| WIC CD/B1  | Green  | <ul style="list-style-type: none"> <li>Serial WAN interface card has an active connection on the serial port.</li> <li>ISDN WAN interface card has an ISDN connection on B-channel 1.</li> </ul> |
| WIC ACT/B2 | Green  | <ul style="list-style-type: none"> <li>WAN interface card serial port is sending or receiving data.</li> <li>WAN interface card ISDN port has a connection on B-channel 2.</li> </ul>            |

## Front Panel LEDs

**Figure A-3 Front Panel LEDs—Cisco 1603 and Cisco 1604**



**Table A-2 Front Panel LED Functions—Cisco 1603 and Cisco 1604**

| LED        | Color  | Description                                                                                                                                    |
|------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM PWR | Green  | The router is turned on, and DC power is being supplied.                                                                                       |
| SYSTEM OK  | Green  | The router has successfully booted. Blinks during the boot cycle.                                                                              |
| LAN ACT    | Green  | Data is being sent to or received from the local Ethernet LAN.                                                                                 |
| LAN COL    | Yellow | Flashing indicates packet collisions on the local Ethernet LAN.                                                                                |
| BRI 0 B1   | Green  | An ISDN connection on B-channel 1.<br>Cisco 1604 only—If an ISDN device connected to the ISDN S/T port is using B-channel 1, the LED turns on. |
| BRI 0 B2   | Green  | An ISDN connection on B-channel 2.<br>Cisco 1604 only—If an ISDN device connected to the ISDN S/T port is using B-channel 2, the LED turns on. |
| WIC CD     | Green  | Active connection on the WAN interface card serial port.                                                                                       |
| WIC ACT    | Green  | Data is being sent over the WAN interface card serial port.                                                                                    |

Figure A-4 Front Panel LEDs—Cisco 1605

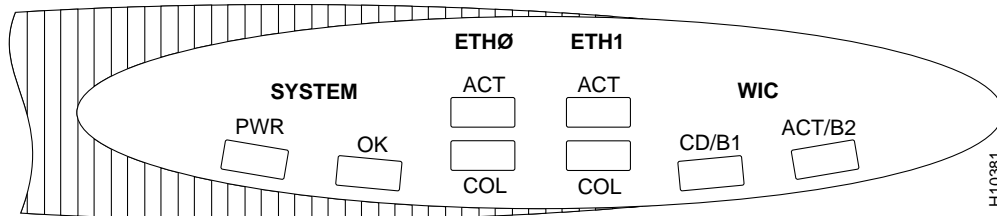


Table A-3 Front Panel LED Functions—Cisco 1605

| LED        | Color  | Description                                                         |
|------------|--------|---------------------------------------------------------------------|
| SYSTEM PWR | Green  | The router is turned on, and DC power is being supplied.            |
| SYSTEM OK  | Green  | The router has successfully booted. Blinks during the boot cycle.   |
| ETH0 ACT   | Green  | Data is being sent to or received from the first Ethernet LAN.      |
| ETH0 COL   | Yellow | Flashing indicates packet collisions on the first Ethernet LAN.     |
| ETH1 ACT   | Green  | Data is being sent to or received from the second Ethernet LAN.     |
| ETH1 COL   | Yellow | Flashing indicates packet collisions on the second Ethernet LAN.    |
| WIC CD/B1  | Green  | Data is being sent to or received from the WAN interface card port. |
| WIC ACT/B2 | Green  | Data is being sent to or received from the WAN interface card port. |

## Rear Panel LEDs

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### Rear Panel LEDs

Table A-4 describes the rear panel LEDs. For illustrations of these LEDs and the rear panel of the routers, refer to Figure 1-2 through Figure 1-5 in the “Overview of the Router” chapter.

**Table A-4 Rear Panel LED Functions**

| LED                                | Color  | Description                                                                                                                                                                                  |
|------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>All Models</b>                  |        |                                                                                                                                                                                              |
| LNK<br>(next to ETHERNETØ 10BASET) | Green  | Indicates 10BaseT link integrity. This LED is not on when connected to an Ethernet network through the AUI port.<br><br>The Cisco 1605 has two LNK LEDs, one for each Ethernet 10BaseT port. |
| OK<br>(next to FLASH PC CARD slot) | Green  | The Flash PC card is correctly installed.                                                                                                                                                    |
| <b>Cisco 1601</b>                  |        |                                                                                                                                                                                              |
| RDY                                | Green  | A serial port cable connection has been made to a modem or DSU/CSU.                                                                                                                          |
| <b>Cisco 1602</b>                  |        |                                                                                                                                                                                              |
| LOOPBACK                           | Yellow | The DSU/CSU is in DSU or CSU loopback mode.                                                                                                                                                  |
| ALARM                              | Yellow | An alarm condition exists on the DSU/CSU port.                                                                                                                                               |
| CARRIER                            | Green  | Indicates line synchronization or connection on the DSU/CSU port.                                                                                                                            |
| <b>Cisco 1603</b>                  |        |                                                                                                                                                                                              |
| OK<br>(next to ISDN BRIØ S/T port) | Green  | A physical connection has been established with the ISDN central office switch.                                                                                                              |

**Table A-4 Rear Panel LED Functions (Continued)**

| LED                                | Color | Description                                                                                                                 |
|------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Cisco 1604</b>                  |       |                                                                                                                             |
| NT1                                | Green | A physical connection has been established from the router internal NT1 to the ISDN central office switch.                  |
| OK (next to ISDN PHONE port)       | Green | The device connected to the router ISDN S/T port has established a physical connection with the ISDN central office switch. |
| <b>Cisco 1605</b>                  |       |                                                                                                                             |
| LNK<br>(next to ETHERNET1 10BASET) | Green | Indicates 10BaseT link integrity for the Ethernet 1 port.                                                                   |
| OK<br>(next to WIC slot)           | Green | The WAN interface card is correctly installed in the router.                                                                |

## Rear Panel LEDs

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