



Troubleshooting

Use the information in this chapter to help isolate problems you might encounter with the Cisco 1700 router or to rule out the router as the source of the problem.

This chapter contains the following sections:

- [Contacting Cisco or Your Reseller](#)
- [Recovering a Lost Password](#)
- [Problem Solving](#)
- [Troubleshooting ISDN](#)

Contacting Cisco or Your Reseller

If you cannot locate the source of a problem, contact your local reseller for advice. Before you call, you should have the following information ready:

- Chassis type and serial number
- Maintenance agreement or warranty information
- Type and version number of the Cisco IOS installed on your router
- Date you received the router
- Brief description of the problem
- Brief description of the steps you have taken to isolate the problem
- Output from the **show tech-support** command

Recovering a Lost Password

This section describes how to recover a lost enable or enable secret password. The process of recovering a password consists of the following major steps:

- [Change the Configuration Register](#)
- [Reset the Router](#)
- [Reset the Password](#) (for lost enable secret passwords only)
- [Reset the Configuration Register Value](#)

**Note**

See the “Hot Tips” section on Cisco Connection Online (CCO) for additional information on replacing enable secret passwords.

Change the Configuration Register

- 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 a PC”](#) in the [“Installing the Cisco 1700 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 by pressing the power switch to the OFF position, then to the ON (I) position.

Step 4 At the user EXEC prompt (Router>), enter the **show version** command to display the existing configuration register value (shown in bold at the bottom of this example output):

```
Router> show version
Cisco Internetwork Operating System Software
IOS (tm) C1700 Software (C1700-BNOR2SY56I-M),
Experimental Version 12.0(19980725:020859)
[aiyagari-devtest_0724 100]
Copyright (c) 1986-1998 by cisco Systems, Inc.
Compiled Fri 24-Jul-98 19:09 by aiyagari
Image text-base: 0x80008084, data-base:
0x8084356C
```

```
ROM: System Bootstrap, Version
11.3(19980612:045022)
[rochen-v35-rommon-release-devtest 101],
INTERIM SOFTWARE
```

```
Router uptime is 15 minutes
System restarted by power-on
Running default software
```

```
cisco 1720 (MPC860) processor (revision 0x00)
with 22119K/2457K bytes of memory.
Processor board ID 0000 (1314672220), with
hardware revision 0000
M860 processor: part number 0, mask 32
Bridging software.
X.25 software, Version 3.0.0.
1 FastEthernet/IEEE 802.3 interface(s)
1 Serial(sync/async) network interface(s)
32K bytes of non-volatile configuration
memory.
4096K bytes of processor board System flash
(Read/Write)
```

Configuration register is 0x0

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.

**Note**

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

Reset the Router

Step 1 Do one of the following:

- If break is enabled, go to [Step 2](#).
- 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 3](#).

**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. To send a break in Windows HyperTerminal, enter Ctrl-Break.

Step 2 Send a break. The terminal displays the following prompt:

```
rommon 2>
```

Step 3 Enter **confreg 0x142** as follows to reset the configuration register:

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

Step 4 Initialize the router by entering the **reset** command:

```
rommon 2> reset
```

The router resets, and the configuration register is set to 0x142. The router boots the system image in Flash memory, and displays the following:

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

Step 5 Enter **no** in response to the prompts until the following message is displayed:

Press RETURN to get started!

Step 6 Press **Return**. The following prompt appears:

```
Router>
```

Step 7 Enter the **enable** command to enter privileged EXEC mode. Configuration changes can be made only in this mode:

```
Router> enable
```

The prompt changes to the privileged EXEC prompt:

```
Router#
```

Step 8 Enter the **show startup-config** command to display an enable password in the configuration file:

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

If you are recovering an enable password, skip the following “[Reset the Password](#)” section and complete the password recovery process by performing the steps in the next section, “[Reset the Configuration Register Value](#).”

If you are recovering an enable secret password, it is not displayed in the **show startup-config** command output. Complete the password recovery process by performing the steps in the following “[Reset the Password](#)” section.

Reset the Password

Step 1 Enter the **configure terminal** command to enter configuration mode:

```
Router# configure terminal
```

Step 2 Enter the **enable secret** command to reset the enable secret password in the router:

```
Router(config)# enable secret gobbledegook
```

Step 3 Enter the **config-register** command and the original configuration register value that you recorded in [Step 5](#).

Step 4 Press **Ctrl-Z** to exit configuration mode.

```
Router(config)# Ctrl-Z
```

Step 5 Save your configuration changes:

```
Router# copy running-config startup-config
```

Reset the Configuration Register Value

Once you have recovered or reconfigured a password

Step 1 Enter the **configure terminal** command to enter configuration mode:

```
Router# configure terminal
```

Step 2 Enter the **config-register** command and the original configuration register value that you recorded in [Step 5](#).

Step 3 Press **Ctrl-Z** to exit configuration mode:

```
Router(config)# Ctrl-Z
```

Step 4 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 more information on WAN interface cards, refer to the *Cisco WAN Interface Cards Hardware Installation Guide* that comes with each card.
- Cables—Check all the external cables that connect the router to the network.

- Power system—Check the external power source, power cable, router power supply, and circuit breaker. Check for inadequate ventilation or air circulation that might cause overheating.
- ISDN configuration—Consider ISDN-specific hardware and software configurations (ISDN BRI WAN interface cards only).

OK LED Diagnostics

Use the front-panel OK LED to determine any problems with the router. When the router first boots up, it performs a power-on self-test (POST). If the router detects a problem during the POST, the OK LED blinks in a different patterns (described in [Table 3-1](#)) depending on the problem. A pattern consists of a specific number of blinks that is repeated until the router is turned off. If the router experiences any of these problems, contact your Cisco reseller.

Table 3-1 **OK LED Blinking Patterns**

Number of Blinks	Meaning
2	The 860T dual-port random-access memory (DPRAM) failed.
3	The parameter RAM area of the 860T DPRAM failed.
4	The 860T system protection control register has a write failure.
5	The router cannot detect the dynamic random-access memory (DRAM).
6	The user programmable machine has a write failure.
9	The router DRAM failed.

Troubleshooting WAN Interface Cards and Cables

Use the **show diag** command to help determine problems with a card. [Table 3-2](#) lists problems that could occur with the WAN interface cards and the possible causes of these problems.

Table 3-2 Troubleshooting WAN Interface Cards

Symptom	Possible Cause(s)
Router does not recognize WAN interface card	<ul style="list-style-type: none"> Confirm that the Cisco IOS software version installed in the router supports the WAN interface card. The <i>Cisco WAN Interface Cards Hardware Installation Guide</i> lists the software requirements for each card. Make sure that the card is correctly installed in the router. Refer to the “Installing WAN Interface Cards” section in the “Installing the Cisco 1700 Router” chapter. Use the show diag command to display information about the card: <pre>Router# show diag Slot 0: C1700 1FE Mainboard port adapter, 2 ports Port adapter is analyzed Port adapter insertion time unknown Hardware revision 0.0 Board revision UNKNOWN Serial number 1314672220 Part number 00-0000-00 Test history 0x0 RMA number 00-00-00 EEPROM format version 1 EEPROM contents (hex): 0x20: 01 B2 00 00 4E 5C 4E 5C 00 00 00 00 00 00 00 00 0x30: 00 00 00 04 00 00 00 00 00 00 00 00 00 00 00 00 WIC Slot 0: Serial 1T WAN daughter card Hardware revision 1.1 Board revision E0 Serial number 7131279 Part number 73-1775-02 Test history 0x0 RMA number 00-00-00 Connector type Wan Module EEPROM format version 1 EEPROM contents (hex): 0x20: 01 02 01 01 00 6C D0 8F 49 06 EF 02 00 00 00 00 0x30: 70 00 00 00 98 01 23 01 FF FF FF FF FF FF FF FF</pre>
Router recognizes the WAN interface card(s), but the card port(s) do not initialize.	<ul style="list-style-type: none"> Make sure that the card is correctly installed in the router. Refer to the “Installing WAN Interface Cards” section in the “Installing the Cisco 1700 Router” chapter. Check the external cable connections to make sure they are secure.
Router does not boot properly or continuously or intermittently reboots.	Make sure that the WAN interface card is correctly installed in the router. Refer to the “Installing WAN Interface Cards” section in the “Installing the Cisco 1700 Router” chapter.

Table 3-2 ***Troubleshooting WAN Interface Cards (Continued)***

Symptom	Possible Cause(s)
Router boots, but the console screen is frozen.	<ul style="list-style-type: none"> • Make sure the console cable is securely connected to the router and to the PC or terminal. • Verify that the parameters for your terminal are set to the following: <ul style="list-style-type: none"> — 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.	<ul style="list-style-type: none"> • Confirm that the Cisco IOS software version installed in the router supports the WAN interface card. The <i>Cisco WAN Interface Cards Hardware Installation Guide</i> lists the software requirements for each card. • The router might be overheating. Contact your Cisco reseller.
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 Cisco reseller for warranty information.

Troubleshooting the Power System

If the router external power supply fails, it should be returned to your Cisco reseller. [Table 3-3](#) list symptoms and possible causes of power problems.

Table 3-3 ***Troubleshooting the Power System***

Symptom	Possible Cause(s)
Router shuts down after being on a short time.	<ul style="list-style-type: none"> • Make sure that the area in which the router is installed meets the environmental site requirements in the “Technical Specifications” appendix later in this guide and in the “Site Requirements” section in the <i>Regulatory Compliance and Safety Information for the Cisco 1700</i> that came with your router. • If the front-panel PWR LED is not on, the power supply has failed.
The router attempts to boot, but all LEDs remain off.	The power supply has failed.
The router is on, but the front-panel PWR LED is off.	The power supply has failed.

Table 3-3 Troubleshooting the Power System

Symptom	Possible Cause(s)
The front-panel PWR LED is on, the front-panel OK LED is off, and the router does not pass console or EIA data.	The power supply has failed.

Troubleshooting ISDN

Because ISDN uses many variables and supports many different configurations, it sometimes can cause problems for the router. 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 WAN interface card, enter the **clear interface** command to terminate any active ISDN calls and to reset the ISDN BRI interface. Do this for each ISDN port installed in the router:

```
Router# clear interface bri0
Router# clear interface bri1
```

- For routers with an ISDN U WAN interface card(s), use the **clear controller** 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. Do this for each ISDN port installed in the router:

```
Router# clear controller bri0
Router# clear controller bri1
```

Table 3-4 lists troubleshooting methods for ISDN-specific problems that might occur.

Table 3-4 **Troubleshooting ISDN**

WAN Interface Card	Symptom(s)	Check the Following	Possible Causes
ISDN S/T	Router is on, but OK LED on card is off.	• Is the OK LED on the router front panel on?	• If no, the router might be malfunctioning. Contact your Cisco reseller.
		• Are all ISDN cables properly connected?	• If yes, the ISDN line might be malfunctioning. Check with your ISDN service provider.
		• Is the NT1 on?	• If no, the NT1 might be malfunctioning.
ISDN U	Router is on, but the NT1 LED on card is off.	• Is the OK LED on?	• If no, the router might be malfunctioning. Contact your Cisco reseller.
		• Are all ISDN cables properly connected?	• If yes, the ISDN line might be malfunctioning. Check with your ISDN service provider.
		• Is the ISDN line connected to the card ISDN U port?	• If yes, the ISDN line might be malfunctioning. Check with your ISDN service provider.

Table 3-4 Troubleshooting ISDN (Continued)

WAN Interface Card	Symptom(s)	Check the Following	Possible Causes
ISDN S/T or ISDN U	Card cannot make a connection to the remote router.	Use show isdn status command to check the following:	
		<ul style="list-style-type: none"> Does the current ISDN switch type match actual switch type being used? 	<ul style="list-style-type: none"> Use the isdn switch-type command to configure correct switch type.
		<ul style="list-style-type: none"> Is Layer 1 status deactivated? 	<ul style="list-style-type: none"> Use the show controller bri0 command to check for the messages CO RUNNING LOOPBACK TESTS or CO TESTING. If you receive these messages, contact the service provider.
		<ul style="list-style-type: none"> If Layer 1 status is active, does Layer 3 status say “2 Active Layer 3 calls”? 	<ul style="list-style-type: none"> Router might have called itself. Check destination phone number configured with the dialer map command or the dialer string command.
		<ul style="list-style-type: none"> If Layer 1 status is active, does Layer 3 status say “No Active Layer 3 call(s)”? 	<ul style="list-style-type: none"> Check destination phone number and make sure it matches the remote router phone number. Check route to the destination and make sure it matches the remote router network address.
		<ul style="list-style-type: none"> If Layer 1 status is active, does Layer 3 status say “1 Active Layer 3 call”? 	<ul style="list-style-type: none"> Check router protocol configurations.