



CHAPTER 5

Troubleshooting Initial Startup Problems

Your Cisco 7201 router went through extensive testing before leaving the factory. However, if you encounter problems starting the router, use the information in this chapter to help isolate the cause of the problems. This chapter contains the following sections:

- [Troubleshooting Overview, page 5-1](#)
- [Online Troubleshooting Resources, page 5-2](#)
- [Problem Solving Using a Subsystems Approach, page 5-3](#)
- [Upgrading the Boot Helper \(Boot Loader\) Image, page 5-8](#)
- [Boot Prompt: \(boot\)#, page 5-9](#)
- [ROMmon Prompt: rommon >, page 5-10](#)
- [Cleaning the Fiber-Optic Connections, page 5-14](#)

The procedures in this chapter assume that you are troubleshooting the initial system startup, and that your router is in the original factory configuration. If you have removed or replaced components or changed any default settings, the recommendations in this chapter might not apply. Make sure to review the safety warnings listed in the *Regulatory Compliance and Safety Information for Cisco 7200 Series Routers* publication that accompanied your Cisco 7201 router before using the troubleshooting procedures in this chapter.

Troubleshooting Overview

This section describes the troubleshooting methods used in this chapter and describes how the Cisco 7201 router is divided into subsystems for more efficient problem solving. If you are unable to easily solve the problem, contact a customer service representative for assistance and further instructions.

Provide the representative with the following information:

- Date you received the router
- Chassis serial number
- Type of software and release number
- Brief description of the problem you are having
- Brief explanation of the steps you have taken to isolate and resolve the problem
- Maintenance agreement or warranty information

The following table shows the general troubleshooting strategy described in this chapter. Refer to this table, as necessary, to follow the steps to isolate problems to a specific subsystem; resolve the problem if possible.

	Action	Yes	No
Step 1	Turn power on. Go to Step 2.	—	—
Step 2	Green STATUS LED on?	Go to Step 4.	Troubleshoot power system, and go to Step 3.
Step 3	Green STATUS LED on?	Go to Step 4.	Obtain technical assistance.
Step 4	Fans operating?	Go to Step 6.	Troubleshoot cooling subsystem, and go to Step 5.
Step 5	Fans operating?	Go to Step 6.	Obtain technical assistance.
Step 6	RJ-45 EN LEDs on?	Go to Step 8.	Check all cable connections. Clean optical fiber connectors; see the “ Cleaning the Fiber-Optic Connections ” section on page 5-14 . Check that the SFP module is fully seated. Restart the system. Go to Step 7.
Step 7	RJ-45 EN LEDs on?	Go to Step 8.	Obtain technical assistance
Step 8	Port adapter ENABLED LEDs on?	Go to Step 10.	Reseat port adapter and restart system. Go to Step 9.
Step 9	Port adapter ENABLED LEDs on?	Go to Step 10.	Obtain technical assistance.
Step 10	System startup successful.	—	—

Online Troubleshooting Resources

In addition to following the subsystems approach to troubleshooting, a variety of online troubleshooting resources are available:

- The *Cisco 7201 Troubleshooting Documentation Roadmap* document contains a link to the *Cisco 7201 Router Troubleshooting Module*, which provides information to help you troubleshoot problems with the Cisco 7201 router.
http://www.cisco.com/en/US/docs/routers/7200/roadmaps/7201_trblshoot_doc_roadmap/11367tr.html
- Cisco.com registered users can access various troubleshooting tools such as Software Advisor, Cisco IOS Error Message Decoder Tool, and Output Interpreter Tool from the [Tools and Resources](#) menu after logging in at http://www.cisco.com/en/US/support/tsd_most_requested_tools.html.
- *Inspection and Cleaning Procedures for Fiber-Optic Connections* provides information about cleaning fiber-optic connections.
http://www.cisco.com/en/US/tech/tk482/tk876/technologies_white_paper09186a0080254eba.shtml
- *Compressed Air Cleaning Issues for Fiber-Optic Connections* provides information about fiber-optic connections compressed air cleaning.
http://www.cisco.com/en/US/tech/tk482/tk611/technologies_white_paper09186a00801b08da.shtml

Problem Solving Using a Subsystems Approach

The key to solving problems with the system is isolating the problem to a specific subsystem. The first step in solving startup problems is to compare what the system *is doing* to what it *should be doing*. Because a startup problem is usually caused by a single component, it is more efficient to first isolate the problem to a subsystem rather than troubleshoot each component in the system. For these troubleshooting procedures, consider the following subsystems:

- Power subsystem—This subsystem comprises the power supply, the external power cable, and the system board.
- Cooling subsystem—The fans should be operating whenever system power is on. Contact your customer service representative if you determine a fan is not functioning properly.
- Processor subsystem—This subsystem includes the processing and input/output functions, the port adapter or service adapter, and system memory and management functions. The ENABLE LED on the port adapter indicates if the port adapter is initialized. A port adapter that is partially installed can cause the system to pause indefinitely and reload.

The following sections help you isolate a problem to one of these subsystems and direct you to the appropriate troubleshooting section.

Identifying Startup Problems

Startup problems are commonly due to the source power or to a port adapter or service adapter that is dislodged from the system board. Although an overtemperature condition is unlikely at initial startup, the environmental monitoring functions are included in this chapter because they also monitor internal voltages.

When you start up the router for the first time, you should observe the startup sequence described in the [“Starting the System and Observing Initial Conditions” section on page 3-8 in Chapter 3, “Starting and Configuring the Router.”](#) This section contains a more detailed description of the normal startup sequence and describes the steps to take if the system does *not* perform that sequence as expected.

LEDs indicate all system states in the startup sequence. By checking the state of the LEDs, you can determine when and where the system failed in the startup sequence. Use the following descriptions to isolate the problem to a subsystem, and then proceed to the appropriate sections to try to resolve the problem.

When you start up the system by turning on the power supply switch, the following should occur:

- You should immediately hear the fans operating. If not, proceed to the [“Troubleshooting the Cooling Subsystem” section on page 5-6](#). If you determine that the power supply is functioning normally and that a fan is faulty, contact a customer service representative. If a fan does not function properly at initial startup, there are no installation adjustments that you should make.
- The STATUS LED should come on. As the system boots to the ROM monitor state, the STATUS LED blinks amber. The STATUS LED turns green when the system boots to the Cisco IOS state. If the system does not boot properly, call your local service representative.
- The EN (Enable) LED comes on and indicates that a RJ-45 port (0/0 and 0/1) is initialized and enabled for operation by the system. This LED comes on during a successful router boot and remains on during normal operation of the router. If this LED remains off when you start the router, it is probably a problem with the RJ-45 port. Consult [Step 6](#) in the troubleshooting table on page 5-2.
- The native LINK/ACTV LED is solid green when a Gigabit Ethernet SFP port (0/0, 0/1, 0/2, or 0/3) is up with no activity. When it is receiving a carrier signal from the network, it flashes green.

- The PWR OK (power ok) LED is green when the system has powered on and is attempting to boot the software, or has booted the software.
- The ENABLED LED on the port adapter or service adapter comes on when the processor completes its initialization of the adapter for operation. An ENABLED LED indicates that the adapter is receiving power and has been recognized by the processor; it does not indicate the state of the individual interfaces on the adapters. If an ENABLED LED fails to come on, proceed to the [“Upgrading the Boot Helper \(Boot Loader\) Image”](#) section on page 5-8.
- When all LEDs come on to indicate that the system has booted successfully, the initial system banner should be displayed on the console screen. If it is not displayed, see [Appendix A, “Specifications”](#) to verify that the terminal is set correctly and that it is properly connected to the console port. If the ALARM LED is on, check the STATUS LED and PWR OK LED.

Troubleshooting the Power Subsystem

Check the following to help isolate a problem with the power subsystem:



Note

If the system powers off, wait at least one minute before manually rebooting the system, or it will pause indefinitely.

Table 5-1 Troubleshooting the Power Subsystem

Symptom	Possible Cause	Possible Solution
System begins power on, amber STATUS LED comes on.	System has failed to boot Cisco IOS.	Power off, and reboot the system. Check to be sure you are using the correct Cisco IOS release. If Cisco IOS does not boot, and the green STATUS LED is not displayed, contact a service representative.
System does not power on.	AC power cable not fully seated at system or at the wall outlet (power source).	Turn the router power switch to the standby position (I) and reseal the AC power cable at the system or at the wall outlet (power source).
	DC power cable not turned on at the panel board of the circuit breaker.	Turn the router power switch to the standby position (I) and locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the on position.
	AC internal power cables are not fully seated; from the power supply to the system board, from the power supply to the power switch, and the power supply to the power connector.	Turn the router power switch to the standby position (I) and unplug the router power cable. Open the cover and check the power supply cable connections. Reseat the cables if necessary. Replace the cover, plug in the power cable, and power on the router.

Table 5-1 *Troubleshooting the Power Subsystem (continued)*

Symptom	Possible Cause	Possible Solution
System does not power on.	DC internal power cables are not fully seated; from the power supply to the system board, from the power supply to the power switch, and the power supply to the power connector.	Turn the router power switch to the standby position (I) and unplug the router power cable. Open the cover and check the power supply cable connections. Reseat the cables if necessary. Replace the cover, plug in the power cable, and power on the router.
	Power source is faulty.	Turn the power source switch off, connect the power cable to another power source, if available, and turn the router power switch back on.
	Faulty power cable.	Turn the router power switch to the standby position (I), (for DC power, also turn the circuit breaker to the off position and tape it in that position), remove the cable and replace it.
	Faulty power supply.	If the system still fails to come up when the power supply is connected to a different power source with a new power cable, the power supply is probably faulty. Contact a service representative.
System powers off, no STATUS LED, and no operating fans.	Power supply failure.	Contact a service representative.

Troubleshooting the Cooling Subsystem

Check the following to help isolate a problem with the cooling subsystem:

Table 5-2 Troubleshooting the Cooling Subsystem

Symptom	Possible Cause	Possible Solution
System displays the following message: Router: 00:03:46:%ENVM-3-BLOWER:Fan 2 may have failed	One or more fans are not operating.	Contact a service representative
System shuts down, some fans may or may not continue to rotate, and the following error message is displayed: Queued messages: %ENVM-1-SHUTDOWN: Environmental Monitor initiated shutdown	This error message indicates that the system has detected an overtemperature condition or out-of-tolerance power condition inside the chassis. <ul style="list-style-type: none"> One or more fans are not operating. The fans are operating too slowly. The power supply is not operating. To determine if the fans are operating, listen for them. In noisy environments, place your hand on the rear of the chassis to feel if air is being forced out the vents.	Contact a service representative.
	Heated exhaust air from other equipment is entering the router's inlet vents.	Move other equipment or the router to ensure proper airflow.
System shuts down and the following error message is displayed: Queued messages: %ENVM-1-SHUTDOWN: Environmental Monitor initiated shutdown	The error message could indicate a faulty component or temperature sensor. Before the system shuts down, use the show environment or show environment table command to display the internal chassis environment. See Chapter 3, "Starting and Configuring the Router," the "Reporting Functions" section on page 3-5 for descriptions of the show environment and show environment table commands.)	Contact a service representative.
This error message indicates that the system has detected an overtemperature condition or out-of-tolerance power condition inside the chassis. Note The system fans may continue to operate although the system shuts down.	If an environmental shutdown results from an out-of-tolerance power condition, the system shuts down.	If the system still fails to come up when the power supply is connected to a different power source with a new power cable, the power supply is probably faulty. Contact a service representative.

Troubleshooting the I/O Subsystem

The procedures in this section assume that you have not made changes to your configuration file.

If the Cisco 7201 router I/O LEDs (LINK/ACTV, EN, USB, FE 0/0, CF ACTV) do not go on as expected (see the [“Identifying Startup Problems”](#) section on page 5-3), check the following items to help isolate the problem:

Table 5-3 *Troubleshooting the I/O Subsystem*

Symptom	Possible Cause	Possible Solution
LEDs remain off when the system power switch is turned on.	Power supply or cooling subsystem is faulty.	If the LEDs stay off, first see the “Troubleshooting the Power Subsystem” section on page 5-4 and the “Troubleshooting the Cooling Subsystem” section on page 5-6 to ensure that both the fans and the power supply are functioning properly.
Power supply and fans appear operational, but none of the I/O LEDs are on.	The improperly connected port adapter has indefinitely paused the system.	Reseat the port adapter, make sure the port adapter lever is in the locked position, and then restart the system.
The prior configuration—native Gigabit Ethernet—LEDs remain on after configuring the ports to change the configuration from one media type to the other.	The media-type command was not used when changing the configuration of these ports.	See Chapter 3, “Starting and Configuring the Router,” the “Configuring the Native Gigabit Ethernet Interfaces” section on page 3-15.

Troubleshooting the Processor Subsystem

The processor subsystem comprises the system board and the port adapter. A port adapter that is partially connected to the system board sends incomplete signals to the processor, which faults the PCI bus and causes the system to pause indefinitely. Therefore, first ensure that the system software has initialized successfully and then check to see if the port adapter is fully connected.

Troubleshooting the Port Adapter or Service Adapter

Check the following to help isolate a problem with the port adapter or service adapter:

Table 5-4 Troubleshooting the Port Adapter or Service Adapter

Symptom	Possible Cause	Possible Solution
Port adapter or service adapter ENABLED LED is off.	The port adapter or service adapter might have pulled away from the system board.	Reseat the adapter in its slot (you do not have to turn off the system power when removing or replacing port adapters and service adapters). After the system reinitializes the interfaces, the ENABLED LED on the port adapter or service adapter should go on. If the ENABLED LED remains off, the system detected a processor hardware failure. (This LED should be on in normal operation.) Contact a service representative for instructions.

Upgrading the Boot Helper (Boot Loader) Image

The boot helper (boot loader) image resides in flash memory and contains a subset of the Cisco IOS software. This image is used to boot your router from the network or to load Cisco IOS images onto the router. This image is also used if the system cannot find a valid system image.

Your boot helper (boot loader) image should correspond to the Cisco IOS release that is running on your router.



Note

The Cisco 7201 router requires the c7200p-kboot-mz boot helper image.

To upgrade your boot helper (boot loader) image, obtain the most current boot helper image through Cisco.com and copy the new boot helper image to flash memory on your router. Access Cisco.com on the web and, if you are a registered Cisco.com user, click **Login** at the top right of the page. If you are not a registered Cisco.com user, you can register by clicking **Register** at the top right side of the Cisco.com page. After you have logged in, click **Support**. Click Download Software and choose the appropriate link.

To obtain a boot helper (boot loader) image from Cisco.com and upgrade your bootflash, do the following:

Step 1 Download the boot helper (boot loader) image from Cisco.com to a Trivial File Transfer Protocol (TFTP) server.

Step 2 Reformat the flash memory on your router as follows:

```
Router# format bootflash:
Format operation may take a while. Continue? [confirm]
Format operation will destroy all data in "bootflash:". Continue? [confirm]
Formatting sector ...
Format of bootflash:complete
```



Note

Reformatting flash memory erases the current flash memory contents.

Step 3 Copy the boot helper (boot loader) image from the TFTP server to flash memory as follows:

```
Router# copy tftp bootflash:
Address or name of remote host []? 10.7.0.99
Source filename []? c7201-boot-mz.122-4.BW
Destination filename [c7201-boot-mz.122-4.BW]?
Loading c7201-boot-mz.122-4.BW from 10.7.0.99 (via GigabitEthernet0/3):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

[OK - 5137928/10275840 bytes]

5137928 bytes copied in 45.420 secs (114176 bytes/sec)
```

This completes the procedure for upgrading your boot helper (boot loader) image. For more detailed instructions on loading and maintaining system images and microcode, including boot helper images, refer to the *Cisco IOS Configuration Fundamentals Configuration Guide*, which is available on Cisco.com.

Boot Prompt: (boot)#

Use this procedure to recover a router stuck at the boot prompt:

Step 1 Ensure you have connectivity to the TFTP host that is storing the Cisco IOS image by using the **ping** command to ping the TFTP host.

```
7201(boot)# ping 2.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2.0.0.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
```

Step 2 Copy the valid Cisco IOS image on the TFTP server to the CompactFlash Disk using the **copy tftp destination-flash-file-system** command and follow the prompts.

```
7201(boot)# copy tftp disk0:
Address or name of remote host [2.0.0.2]?
Source filename []? path/path/c7200p-js-mz
Destination filename [c7200p-js-mz]?
Accessing tftp://2.0.0.2/path/path/c7200p-imagename...
Loading path/path/c7200p-imagename from 2.0.0.2 (via FastEthernet0/0):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!! ...
[OK - 22174032 bytes]

22174032 bytes copied in 44.188 secs (501811 bytes/sec)
```

Step 3 Set the configuration register to 0x0 using the **config-register 0x0** command so the router will reboot in ROMmon mode.

```
7201(boot)# configure terminal
7201(boot)(config)# config-register 0x0
```

Step 4 Reload the router using the **reload** command. Do not save the configuration.

```
7201(boot)# reload

System configuration has been modified. Save? [yes/no]: no
[confirm]

System Bootstrap, Version 12.4(12.2r)T, RELEASE SOFTWARE (fc1) Technical Support:
http://www.cisco.com/techsupport Copyright (c) 2006 by cisco Systems, Inc.
Socket jumper: not present Failsafe jumper: present = normal FPGA revision 0x00000015
C7200 platform with 1046528 Kbytes of main memory

Readonly ROMMON initialized
rommon 1 >
```

The router should now be in ROMmon mode (rommon >). Follow the instructions in the “ROMmon Prompt: rommon >” section on page 5-10 to boot the router from ROMmon.

For an example of this complete process, see the “Complete Boot Prompt and ROMmon Prompt Example” section on page 5-11.

ROMmon Prompt: rommon >

Use this procedure to recover a router stuck in ROMmon mode at the: rommon > prompt.

Step 1 Check the contents of the flash file system by entering the **dir file-system:** command:

```
rommon 1> dir disk0:
2    22132744 Jan 22 2007 18:29:48 +00:00 c7200p-js-mz
6a

234317816 bytes available (22132744 bytes used)
```

Step 2 If the flash file system has a valid Cisco IOS image, follow the instructions in step a. If the flash file system does not have a valid Cisco IOS image, follow the instructions in step b.

- a. If a flash file system has a valid Cisco IOS image, boot the router using the **boot file-system:image-name** command.

```
rommon 2 > boot disk0:c7200p-js-mz

Self decompressing the image :
#####
#####
#####
#####
#####
##### [OK]

<some output removed for brevity>

Cisco 7201 (c7201) processor (revision B) with 917504K/65536K bytes of memory.
Processor board ID 74832279
MPC7448 CPU at 1666Mhz, Implementation 0, Rev 2.2
1 slot midplane, Version 2.0
```

```

Last reset from power-on
1 FastEthernet interface
4 Gigabit Ethernet interfaces
2045K bytes of NVRAM.

250880K bytes of ATA PCMCIA card at slot 0 (Sector size 512 bytes).
65536K bytes of Flash internal SIMM (Sector size 512K).
Uncompressed configuration from 1000 bytes to 1703 bytes

```

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

```
7201>
```

- b. If the flash file system does not have a valid Cisco IOS image, enter **confreg 0x1**, followed by **reset**.

```
rommon 2 > confreg 0x1
```

```
You must reset or power cycle for new config to take effect
rommon 3 > reset
```

```
System Bootstrap, Version 12.4(12.2r)T, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2006 by cisco Systems, Inc.

```

```
<startup boot messages removed for brevity>
7201_devtest2(boot)>
```

After entering these commands, follow the instructions in the “ROMmon Prompt: rommon >” section on page 5-10 to download a valid Cisco IOS image.

- Step 3** (Optional) Set the configuration register using the **config-register** command. If you want the router to be in ROMmon mode after a reboot, this step is not necessary. To set the configuration register to reboot to the router prompt, enter the **config-register 0x2** command.

```
7201# configure terminal
7201(config)# config-register 0x2
```

See [Appendix C, “Configuration Register Information,”](#) for additional information regarding configuration register settings.

- Step 4** (Optional) Save the configuration using the **copy running-config startup-config** command. This step is especially important if you wish to save the configuration register settings.

Complete Boot Prompt and ROMmon Prompt Example

In the following example, a Cisco 7201 router starting in boot mode downloads a Cisco IOS image to Flash memory, reboots into ROMmon mode, and boots the Cisco IOS image from ROMmon mode to enter the Cisco IOS CLI.

```
7201(boot)# ping 2.0.0.2
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2.0.0.2, timeout is 2 seconds:
```

```

!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms

7201(boot)# copy tftp disk0:
Address or name of remote host [2.0.0.2]?
Source filename []? path/path/c7200p-js-mz
Destination filename [c7200p-js-mz]?
Accessing tftp://2.0.0.2/path/path/c7200p-imagename...
Loading path/path/c7200p-imagename from 2.0.0.2 (via FastEthernet0/0):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!! ...
[OK - 22174032 bytes]

22174032 bytes copied in 44.188 secs (501811 bytes/sec) Configuring from terminal, memory,
or network [terminal]? t Enter configuration commands, one per line. End with CNTL/Z.

7201(boot) (config)# config-register 0x0
7201(boot) (config)# ^Z
7201(boot)# reload

System configuration has been modified. Save? [yes/no]: no
[confirm]

System Bootstrap, Version 12.4(12.2r)T, RELEASE SOFTWARE (fc1) Technical Support:
http://www.cisco.com/techsupport Copyright (c) 2006 by cisco Systems, Inc.
Socket jumper: not present Failsafe jumper: present = normal FPGA revision 0x00000015
C7200 platform with 1046528 Kbytes of main memory

Readonly ROMMON initialized
rommon 1 > boot disk0:c7200p-js-mz

Self decompressing the image :
#####
#####
#####
#####
#####
#####
##### [OK]

Restricted Rights Legend

Use, duplication, or disclosure by the Government is subject to restrictions as set forth
in subparagraph
(c) of the Commercial Computer Software - Restricted Rights clause at FAR sec. 52.227-19
and subparagraph
(c) (1) (ii) of the Rights in Technical Data and Computer Software clause at DFARS sec.
252.227-7013.

cisco Systems, Inc.
170 West Tasman Drive
San Jose, California 95134-1706

Cisco IOS Software, 7200 Software (C7200P-ADVENTERPRISEK9-M), Version 12.4(4)XD7, RELEASE
SOFTWARE (fc2) Technical Support: http://www.cisco.com/techsupport Copyright (c) 1986-2007
by Cisco Systems, Inc.
Compiled Fri 23-Mar-07 16:00 by kellythw Image text-base: 0x0000A3B8, data-base:
0x0327C000

```

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at: <http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to export@cisco.com.

Cisco 7201 (c7201) processor (revision B) with 917504K/65536K bytes of memory.
Processor board ID 74832279
MPC7448 CPU at 1666Mhz, Implementation 0, Rev 2.2
1 slot midplane, Version 2.0

Last reset from power-on
1 FastEthernet interface
4 Gigabit Ethernet interfaces
2045K bytes of NVRAM.

250880K bytes of ATA PCMCIA card at slot 0 (Sector size 512 bytes).
65536K bytes of Flash internal SIMM (Sector size 512K).
Uncompressed configuration from 1000 bytes to 1703 bytes

Press RETURN to get started!

```
7201> en
Password: ****
7201# show version
Cisco IOS Software, 7200 Software (C7200P-ADVENTERPRISEK9-M), Version
12.4(4)XD7, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Fri 23-Mar-07 16:00 by kellythw

ROM: System Bootstrap, Version 12.4(12.2r)T, RELEASE SOFTWARE (fc1)

7201_devtest3 uptime is 0 minutes
System returned to ROM by reload at 18:34:50 UTC Tue Mar 27 2007
System image file is "disk0:imagenam     <<<<<<<<
Last reload reason: Reload Command
```

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

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```
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1 slot midplane, Version 2.0
```

```
Last reset from power-on  
1 FastEthernet interface  
4 Gigabit Ethernet interfaces  
2045K bytes of NVRAM.
```

```
250880K bytes of ATA PCMCIA card at slot 0 (Sector size 512 bytes).  
65536K bytes of Flash internal SIMM (Sector size 512K).  
Configuration register is 0x0
```

Cleaning the Fiber-Optic Connections

For information about cleaning fiber-optic cable connectors and receptacles, see the *Inspection and Cleaning Procedures for Fiber-Optic Connections* document at http://www.cisco.com/en/US/tech/tk482/tk876/technologies_white_paper09186a0080254eba.shtml

It provides detailed illustrations and photos of procedures and equipment required to properly clean fiber-optic connections.

Also see the *Compressed Air Cleaning Issues for Fiber-Optic Connections* document at http://www.cisco.com/en/US/tech/tk482/tk611/technologies_white_paper09186a00801b08da.shtml