6

Maintaining the Cisco 7202 Router

This chapter describes basic maintenance procedures for the Cisco 7202. The procedures are presented in the following sections:

Note For procedures that explain the use of the PCMCIA Flash Disk, refer to the *Using the Flash Disk* document.

For procedures that explain how to replace main, Flash, and ROM monitor memory in Cisco 7200 series routers, refer to the *Memory Replacement Instructions for the Network Processing Engine and Input/Output Controller* document.

The preceding documents are available on Cisco.com.

Viewing Your System Configuration

the **show diag**display the system hardware (the network processing engine and number of interfaces installed), the software version, the names and sources of configuration files, and the boot images. The following example shows the output from the **show version** command:

```
router> sh version
Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (C7200-J-M), ISP Version 11.1(19)CC1
MFIB_branch Synced to mainline version: 11.1(19)CC1
Copyright (c) 1986-1998 by cisco Systems, Inc.
Compiled Wed 06-May-98 09:33 by soma
Image text-base: 0x600088E0, data-base: 0x60846000

ROM: System Bootstrap, Version 11.1(19), RELEASE SOFTWARE (fc1)
```

```
ROM: 7200 Software (C7200-J-M), ISP Version 11.1(19)CC1

c7202-1 uptime is 22 minutes
System restarted by reload
System image file is "slot0:c7200-j-mz.111-19.CC", booted via

cisco 7202 (NPE150) processor with 26624K/6144K bytes of memory.
R4700 processor, Implementation 33, Revision 1.0 (512KB Level 2 Cache)
Last reset from power-on
Bridging software.
SuperLAT software copyright 1990 by Meridian Technology Corp).
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
TN3270 Emulation software (copyright 1994 by TGV Inc).
1 FastEthernet/IEEE 802.3 interface.
1 ATM network interface.
125K bytes of non-volatile configuration memory.
1024K bytes of packet SRAM memory.

8192K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).
4096K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x0
```

Use the **show diag** command to determine what type of port adapters and I/O controller (with or without the Fast Ethernet port) are installed in slot 1 and slot 2 of your Cisco 7202. You can also use the **show diag** *slot* command to display information about a specific port adapter slot.

The following example shows the output from the **show diag** command.

> **Note** The text `Port adapter disabled` in the sample output for slot 0 indicates that the Fast Ethernet interface on the I/O controller is disabled. For information on the use of the I/O controller's Fast Ethernet interface in a Cisco 7202, refer to the "Input/Output Controller" section on page 1-10 in Chapter 1, "Product Overview" earlier in this guide.

```
router> sh diag
Slot 0:
        Fast-ethernet on C7200 I/O card port adapter, 0 ports
        Port adapter is disabled
        Port adapter insertion time unknown
        Hardware revision 1.2          Board revision C0
        Serial number    4389312       Part number    73-1537-02
        Test history      0x0          RMA number     00-00-00
        EEPROM format version 1
        EEPROM contents (hex):
          0x20: 01 14 01 02 00 42 F9 C0 49 06 01 02 00 00 00 00
          0x30: 60 00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF

Slot 1:
        ATM WAN OC3 (SMI) port adapter, 1 port
        Port adapter is analyzed
        Port adapter insertion time 00:22:04 ago
        Hardware revision 1.0          Board revision UNKNOWN
        Serial number    8241337       Part number    73-2427-03
        Test history      0x0          RMA number     00-00-00
        EEPROM format version 1
        EEPROM contents (hex):
          0x20: 01 56 01 00 00 7D C0 B9 49 09 7B 03 00 00 00 00
          0x30: 02 00 00 00 98 04 09 00 FF FF FF FF FF FF FF FF

Slot 2:
        Fast-ethernet (TX-ISL) port adapter, 1 port
        Port adapter is analyzed
```

```
Port adapter insertion time 00:21:51 ago
Hardware revision 1.0          Board revision A0
Serial number     13001300     Part number     73-1688-03
Test history      0x0          RMA number      00-00-00
EEPROM format version 1
EEPROM contents (hex):
  0x20: 01 11 01 00 00 C6 62 54 49 06 98 03 00 00 00 00
  0x30: 50 00 00 00 96 12 28 00 FF FF FF FF FF FF FF FF
```

For specific information on the **show diag**, and other software commands, refer to the publications listed in the "Related Documentation" section on page xiii in the Preface.

Removing and Replacing a Port Adapter

At some point, you might want or need to replace a port adapter in your Cisco 7202. The following procedures explain how to remove and install a port adapter. For software commands that display information about a specific port adapter or for all port adapters installed in your Cisco 7202, refer to the section "Port Adapter Slot and Logical Interface Numbering" section on page 1-20 in Chapter 1, "Product Overview."

Complete the following steps to remove a port adapter from the Cisco 7202 router:

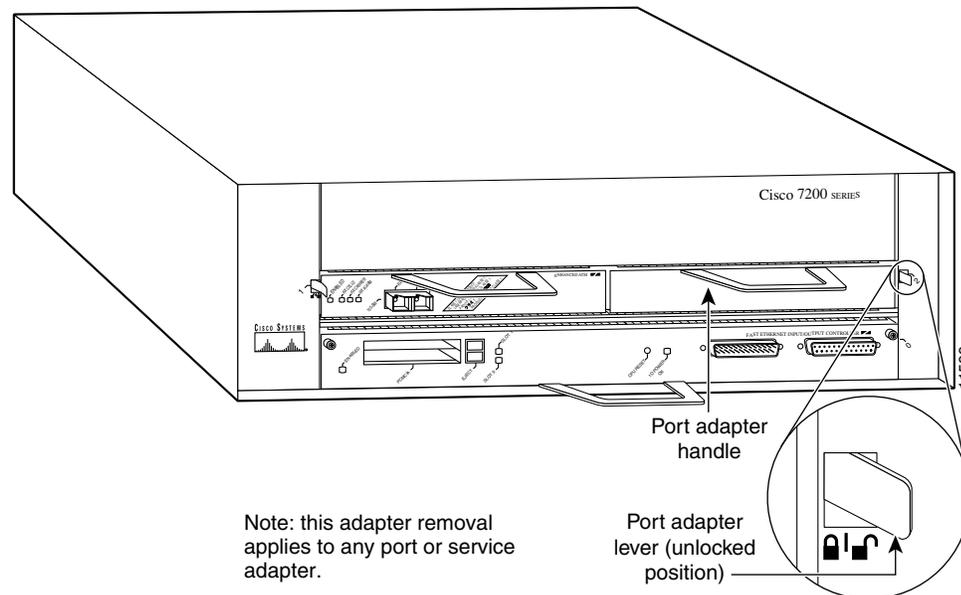**Step 1**   Attach an ESD-preventative wrist strap between you and an unfinished chassis surface.

Warning   **During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.**

Step 2   Place the port adapter lever for the desired port adapter slot in the unlocked position. The lever remains in the unlocked position. (Refer to Figure 6-1.)

Figure 6-1   Placing the Port Adapter Lever in the Unlocked Position

Port adapter handle

Note: this adapter removal applies to any port or service adapter.

Port adapter lever (unlocked position)

Step 3   Grasp the handle on the port adapter and carefully pull the port adapter from the midplane, about half way out of its slot. If you are removing a blank port adapter, pull the blank port adapter all the way out of the chassis slot.

> ✎
>
> **Note**   As you pull the port adapter from the midplane, OIR administratively shuts down all active interfaces on the port adapter. For a complete description of OIR, refer to the "Online Insertion and Removal" section on page 1-22 in the chapter Chapter 1, "Product Overview."

Step 4   With the port adapter half way out of the slot, disconnect all cables from the port adapter.

Step 5   After disconnecting the cables, pull the port adapter from its chassis slot.

> ⚠
>
> **Caution**   Always handle the port adapter by the carrier edges and handle; never touch the port adapter's components or connector pins. (Refer to Figure 6-2.)

Figure 6-2   Port Adapter Handling—Side View
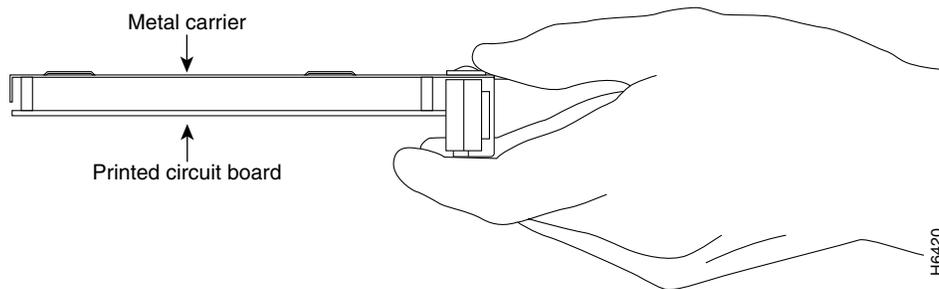
Step 6   Place the port adapter on an antistatic surface with its components facing upward, or in a static shielding bag. If the port adapter will be returned to the factory, immediately place it in a static shielding bag.

This completes the procedure for removing a port adapter from the Cisco 7202 router.

Complete the following steps to install a port adapter in the Cisco 7202 router:

Step 1   Attach an ESD-preventative wrist strap between you and an unfinished chassis surface.

> ⚠
>
> **Warning**   **During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.**

Step 2   Use both hands to grasp the port adapter by its metal carrier edges and position the port adapter so that its components are facing downward. (Refer to Figure 6-2.)

Step 3   Align the left and right edge of the port adapter metal carrier between the guides in the port adapter slot. (Refer to Figure 6-3.)

Figure 6-3   Aligning the Port Adapter Metal Carrier Between the Slot Guides
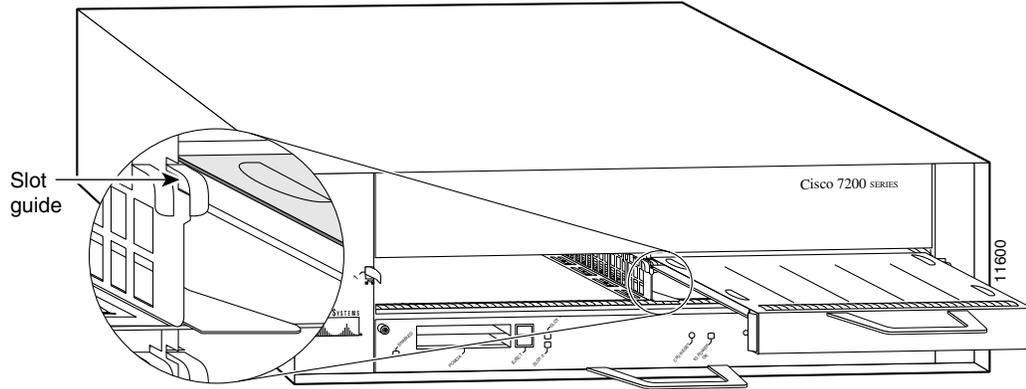
Note: this adapter alignment
applies to any port or service
adapter.

Step 4   With the metal carrier aligned in the slot guides, gently slide the port adapter half way into the port adapter slot.

Caution   Do not slide the port adapter all the way into the slot until you have connected all required cables. Trying to do so will disrupt normal operation of the router.
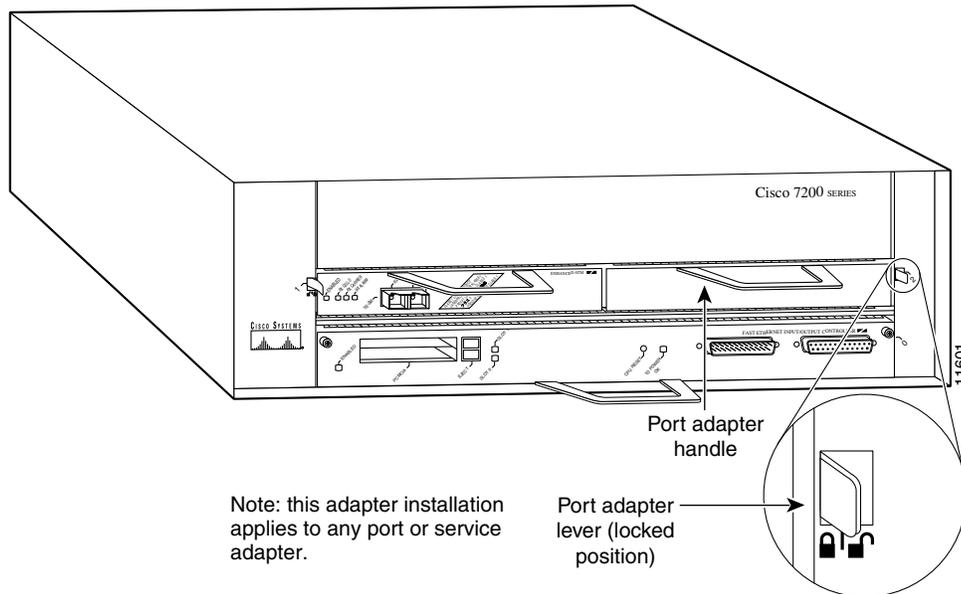
Step 5   With the port adapter half way in the slot, connect all required cables to the port adapter.

Note   For connection equipment, signaling, and pinout information for a specific port adapter type, refer to the configuration note for the port adapter. For example, connection equipment, signaling, and pinout information for the Fast Ethernet port adapter is contained in the configuration note *PA-FE-TX and PA-FE-FX Fast Ethernet 100BASE-T Port Adapter Installation and Configuration*.

Step 6   After connecting the cables, carefully slide the port adapter all the way into the slot until the port adapter is seated in the router midplane.

Figure 6-4   Placing the Port Adapter Lever in the Locked Position

Port adapter
handle

Note: this adapter installation
applies to any port or service
adapter.

Port adapter
lever (locked
position)

Step 7   Move the port adapter lever to the locked position. (Refer to Figure 6-4.)

✎

Note   If the lever does not move to the locked position, the port adapter is not completely seated in the
midplane. Carefully pull the port adapter half way out of the slot, reinsert it, and move the port adapter
lever to the locked position.

This completes the procedure for installing a port adapter in the Cisco 7202 router.

Installing and Removing a Flash Memory Card

The I/O controller has two PCMCIA slots for Flash memory cards: slot 0 (lower) and slot 1 (upper).
Complete the following steps to insert a Flash memory card in either PCMCIA slot:

✎

Note   To avoid potential problems when inserting spare Flash memory cards in your Cisco 7202, we
recommend that you reformat all of your Flash memory cards on a Cisco 7202 running one of the
recommended Cisco IOS software releases. The "Reformatting a Flash Memory Card" section on
page 6-12, contains instructions that explain how to reformat a Flash memory card.

Step 1   Orient the Flash memory card so that its connector end faces the appropriate slot. (Refer to Figure 6-5a.)

Step 2   Carefully guide the card into the slot until the card seats in the slot's connector and the eject button for
the slot pops out toward you. (Refer to Figure 6-5b.)

Note Flash memory cards do not insert all the way into the PCMCIA slots; the end of the card protrudes from the I/O controller faceplate. Do *not* attempt to force the card past this point.

Complete the following steps to remove a Flash memory card from either PCMCIA slot:

Step 1 Press the ejector button on the slot. (Refer to Figure 6-5c.)

Step 2 Grasp the card and pull it from the slot.

Step 3 Place the card in an antistatic bag.

This completes the steps for inserting and removing a Flash memory card.

Figure 6-5   Inserting and Removing a Flash Memory Card
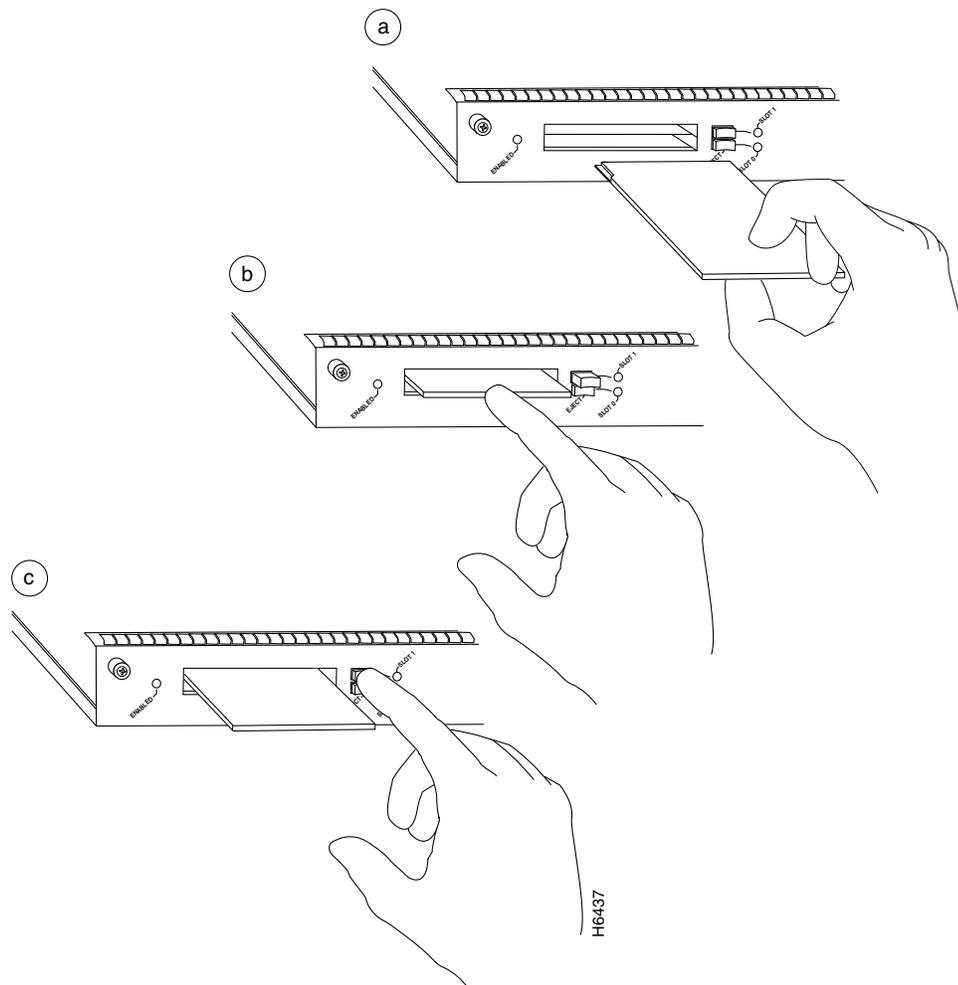
Formatting a New Flash Memory Card

The Flash memory card that shipped with your Cisco 7202 contains the Cisco IOS software image you need to boot your router. In some cases, you might need to insert a new Flash memory card and copy images or backup configuration files onto it. Before you can use a new Flash memory card, you must format it. (Use only Intel Series 2+ Flash memory cards.)

Note   To avoid potential problems when inserting spare Flash memory cards in your Cisco 7202, we recommend that you reformat all of your Flash memory cards on a Cisco 7202 running one of the recommended Cisco IOS software releases listed in Software Advisor." (Flash memory disks should be reformatted with a 12.0 T Cisco IOS software image.) The "Reformatting a Flash Memory Card" section on page 6-12, later in this chapter, contains instructions that explain how to reformat a Flash memory card.

Caution   The following formatting procedure erases all information on the Flash memory card. To prevent the loss of important data that might be stored on a Flash memory card, proceed carefully. If you want to save the data on a Flash memory card, copy the data to a server before you format the card.

Note   The following procedure assumes you have already booted your Cisco 7202.

Use the following procedure to format a new Flash memory card:

Step 1   Using the procedure in the "Installing and Removing a Flash Memory Card" section on page 6-6, insert the Flash memory card into slot 0. (If slot 0 is not available, use slot 1.)

Step 2   Format the Flash memory card using the **format slot0:** (or **format slot1:**) command as follows:

```
Router# format slot0:
All sectors will be erased, proceed? [confirm]
Enter volume id (up to 30 characters): MyNewCard
Formatting sector 1
Format device slot0 completed
Router#
```

The new Flash memory card is now formatted and ready to use.

Note   For this example, an 8-MB Flash memory card was used, and at the line "Formatting sector," the system counted the card's sectors backwards from 64 to 1 as it formatted them. For 16-MB Flash memory cards, the system counts backwards from 128 to 1, and for 20-MB Flash memory cards, the system counts backwards from 160 to 1.

Note   For configuration information and descriptions of the commands used in this chapter, refer to the *Configuration Fundamentals Configuration Guide* and the *Configuration Fundamentals Command Reference*.

Copying a Bootable Image onto a Flash Memory Card

Once you have formatted a new Flash memory card, you can copy a bootable image onto it. The copying procedure assumes the following:

- You have an I/O controller with a good image in the onboard Flash SIMM so you can start the Cisco 7202.
- The bootable image you want to copy to the Flash memory card exists on a TFTP server to which you have access (meaning you know its name and have connectivity to it), and at least one interface is available over which you can access this server.

Note To ensure access to a TFTP sever, you will need to configure at least one network interface using the setup command facility. For instructions on using this procedure, refer to Chapter 4, "Performing a Basic Configuration of the Cisco 7202."

- You know the filename of the image you want you want to copy onto the Flash memory card.

Following is the procedure for copying a bootable file (called *new.image* in the examples) onto the Flash memory card:

Step 1 Boot the Cisco 7202 and allow it to initialize.

Step 2 Insert an unformatted Flash memory card into slot 0 (use slot 1 if slot 0 is not available) and format the card using the procedure in the "Formatting a New Flash Memory Card" section on page 6-8 earlier in this chapter. Then proceed to Step 3.

Note If you have already formatted a Flash memory card, you can use it instead; however, you cannot boot from a Flash memory card that was formatted on another type of system. You must reformat the card to use it as a boot source. To avoid potential problems when inserting spare Flash memory cards in your Cisco 7202, we recommend that you reformat all of your Flash memory cards on a Cisco 7202 running one of the recommended Cisco IOS software releases listed in Table 1-1 in Chapter 1, "Product Overview." The "Reformatting a Flash Memory Card" section on page 6-12, later in this chapter, contains instructions that explain how to reformat a Flash memory card.

Step 3 Copy the new image (*new.image* in the following example) to the Flash memory card and make this image the default boot image. Then reboot the router using the following series of commands:

```
Router> en
Password:
Router# copy tftp:new.image slot0:new.image
20575008 bytes available on device slot0, proceed? [confirm]
address or name of remote host [1.1.1.1]?
loading new.image from 1.1.1.1 (via Ethernet1/0):!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

[OK - 7799951/15599616 bytes]
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Router#
```

> **Note** In the preceding example, the exclamation points (!!!) appear as the file is downloaded, and the "C" characters signify calculation of the checksum, which is a verification that the file has been correctly downloaded to the Flash memory card.

Step 4 Use the following series of commands to designate the file *new.image* (in the Flash memory card in slot 0) as the default boot image:

```
Router# config terminal
Router(config)# no boot system
Router(config)# boot system flash slot0:new.image
Router(config)# ^z
Router# copy running-config startup-config
Router# reload
```

When the system reloads, it will boot the *new.image* file from the Flash memory card.

This completes the procedure for copying a bootable image onto a Flash memory card.

Copying Bootable Images between Flash Memory Cards

As future releases of Cisco IOS images become available, you will receive these images either as a file booted from a network server, a file on floppy disk, or a file on a Flash memory card.

The following scenario describes how to use a newly released image on a Flash memory card in a system that has an older image on a Flash memory card in slot 0 and a default boot image in the onboard Flash SIMM.

For this scenario, the filenames are as follows:

- The new image on the new Flash memory card is *new.image*.
- The old image on the Flash memory card in slot 0 is *old.image*.
- The bootable image in onboard Flash memory is *boot.image*.

You will copy the new image from the new Flash memory card onto the Flash memory card that contains the old image.

> **Note** The scenario assumes that the new image will fit on the Flash memory card in slot 0, alongside the old image. If there is not enough available space, use the **delete** command to delete files from the Flash memory card to make sufficient room for the new image; however, do *not* delete the *old.image* file. Then use the **squeeze** command to remove these deleted files from the Flash memory card. If, after you have deleted files and used the **squeeze** command, the two files cannot coexist on the Flash memory card in slot 0, remove this card (place it in an antistatic bag and store it in a safe place), then insert the new Flash memory card (with the file *new.image*) in slot 0. Proceed to Step 5 and use the command **boot system flash slot0:new.image** to designate the file *new.image* as the default boot image.

Step 1 Boot the Cisco 7202. By default, the file *boot.image* is used.

Step 2 Enable the router as follows:

```
Router> en
Password:
```

```
Router#
```

Step 3   Insert the new Flash memory card in slot 1.

Step 4   Use the following command to copy the file *new.image* in slot 1 to the Flash memory card in slot 0, *only if* there is enough memory space for the two images to coexist. If there is not enough memory space, proceed to Step 5.

```
Router# copy slot1:new.image slot0:new.image
```

Note   You can also enter the preceding command as **copy slot1:new.image slot0:**

Step 5   Use the following series of commands to designate the file *new.image* (which is on the Flash memory card in slot 0) as the default boot image:

```
Router# config t
Router(config)# no boot system
Router(config)# boot system flash slot0:new.image
Router(config)# ^z
Router# copy running-config startup-config
Router# reload
```

When the system reloads, it will boot the file *new.image* from the Flash memory card in slot 0.

This completes the procedure for copying bootable images between Flash memory cards.

Reformatting a Flash Memory Card

Depending on the circumstances, you might need to use a Flash memory card from another system to copy images or backup configuration files; however, you cannot boot from a Flash memory card that was formatted on another type of system. You must reformat the card before you can use it as a boot source.

Note   To avoid potential problems when inserting spare Flash memory cards in your Cisco 7202, we recommend that you reformat all of your Flash memory cards on a Cisco 7202 running one of the recommended Cisco IOS software releases . See Software Advisor.

Caution   The following formatting procedure erases all information on the Flash memory card. To prevent the loss of important data that might be stored on a Flash memory card, proceed carefully. If you want to save the data on a Flash memory card, copy the data to a server before you format the card.

The reformatting procedure assumes the following:

- You have already booted your Cisco 7202.
- You have access to a TFTP server (meaning you know its name and have connectivity to it) and at least one interface is available over which you can access this server, or a secondary Flash memory card available in slot 0 or slot 1 onto which you can copy files.

Note   To ensure access to a TFTP sever, you will need to configure at least one network interface using the setup command facility. For instructions on using this procedure, refer to Chapter 4, "Performing a Basic Configuration of the Cisco 7202."

- You know the filename of the image you want you want to copy to the TFTP server or onto the secondary Flash memory card.

Use the following procedure to reformat a Flash memory card:

Step 1   Insert the Flash memory card into slot 0. (If slot 0 is not available, use slot 1.) (Refer to the "Installing and Removing a Flash Memory Card" section on page 6-6.)

Step 2 Copy all the files on the Flash memory card to a TFTP server or a secondary Flash memory card. The following example is for copying files to a TFTP server. Refer to the "Copying a Bootable Image onto a Flash Memory Card" section on page 6-9 for Flash memory card examples.

```
Router> en
Password:
Router# copy slot0:image.name tftp
Enter destination file name [image.name]: image.name
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Address or name of remote host [tftp.server.name]? tftp.server.name
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Router#
```

Step 3 Reformat the Flash memory card using the **format slot0:** (or **format slot1:**) command as follows.

```
Router# format slot0:
All sectors will be erased, proceed? [confirm]
Enter volume id (up to 30 characters): MyNewCard
Formatting sector 1
Format device slot0 completed
Router#
```

Step 4 Copy the files you saved to the TFTP server back to the Flash memory card as follows.

```
Router# copy tftp slot0
Enter source filename: image.name
20575008 bytes available on device slot0, proceed? [confirm]
address or name of remote host [tftp.server.name]? tftp.server.name
loading new.image from tftp.server.name (via Ethernet1/0):!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 7799951/15599616 bytes]
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
Router#
```

The Flash memory card is now reformatted and ready to use.

Replacing or Recovering a Lost Password

This section describes how to recover a lost enable or console login password, and how to replace a lost enable secret password on your Cisco 7202 router.

Note It is possible to recover the enable or console login password. The enable secret password is encrypted, however, and must be replaced with a new enable secret password.

Overview of the Password Recovery Procedure

Following is an overview of the steps in the password recovery procedure:

- If you can log in to the router, enter the **show version** command to determine the existing configuration register value.

- Press the **Break** key to get to the bootstrap program prompt (ROM monitor). You might need to reload the system image by power cycling the router.

- Change the configuration register so the following functions are enabled: Break; ignore startup configuration; boot from Flash memory.

> **Note**   The key to recovering a lost password is to set the configuration register bit 6 (0x0040) so that the startup configuration (usually in NVRAM) is ignored. This will allow you to log in without using a password and to display the startup configuration passwords.

- Power cycle the router by turning power off and then back on.

- Log in to the router and enter the privileged EXEC mode.

- Enter the **show startup-config** command to display the passwords.

- Recover or replace the displayed passwords.

- Change the configuration register back to its original setting.

> **Note**   To recover a lost password if Break is disabled on the router, you must have physical access to the router.

Details of the Password Recovery Procedure

Complete the following steps to recover or replace a lost enable, enable secret, or console login password:

Step 1   Attach an ASCII terminal to the console port on your Cisco 7202.

Step 2   Configure the terminal to operate at 9600 baud, 8 data bits, no parity, and 2 stop bits.

Step 3   If you can log in to the router as a nonprivileged user, enter the **show version** command to display the existing configuration register value. Note the value for use later and proceed to Step 6. If you cannot log in to the router at all, go to the next step.

Step 4   Press the **Break** key or send a Break from the console terminal. If Break is enabled, the router enters the ROM monitor, indicated by the ROM monitor prompt (rommon1>). Proceed to Step 6. If Break is disabled, power cycle the router (turn the router off or unplug the power cord, and then restore power). Then proceed to Step 5.

Step 5   Within 60 seconds of restoring the power to the router, press the **Break** key or send a Break. This action causes the router to enter the ROM monitor and display the ROM monitor prompt (rommon1>).

Step 6   Set the configuration register using the configuration register utility—enter the **confreg** command at the ROM monitor prompt as follows:

```
rommon1> confreg
```

Answer **yes** to the enable "ignore system config info"? question and note the current configuration register settings.

Step 7   Initialize the router by entering the **reset** command as follows:

```
rommon2> reset
```

The router will initialize, the configuration register will be set to 0x142, and the router will boot the system image from Flash memory and enter the system configuration dialog (setup) as follows:

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

Step 8   Enter **no** in response to the system configuration dialog prompts until the following message is displayed:

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

Step 9   Press **Return.** The user EXEC prompt is displayed as follows:

```
Router>
```

Step 10   Enter the **enable** command to enter privileged EXEC mode. Then enter the **show startup-config** command to display the passwords in the configuration file as follows:

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

Step 11   Scan the configuration file display looking for the passwords (the enable passwords are usually near the beginning of the file, and the console login or user EXEC password is near the end). The passwords displayed will look something like this:

```
enable secret 5 $1$ORPP$s9syZt4uKn3SnpuLDrhuei
enable password 23skiddoo
.
.
line con 0
 password onramp
```

The enable secret password is encrypted and cannot be recovered; it must be replaced. The enable and console passwords may be encrypted or clear text. Proceed to the next step to replace an enable secret, console login, or enable password. If there is no enable secret password, note the enable and console login passwords, if they are not encrypted, and proceed to Step 16.

⚠
Caution   *Do not* execute the next step unless you have determined you must change or replace the enable, enable secret, or console login passwords. Failure to follow the steps as shown may cause you to erase your router configuration.

Step 12   Enter the **configure memory** command to load the startup configuration file into running memory. This action allows you to modify or replace passwords in the configuration.

```
Router# configure memory
```

Step 13   Enter the privileged EXEC command **configure terminal** to enter configuration mode:

```
Hostname# configure terminal
```

Step 14   Change all three passwords using the following commands:

```
Hostname(config)# enable secret newpassword1
Hostname(config)# enable password newpassword2
Hostname(config)# line con 0
Hostname(config-line)# password newpassword3
```

Change only the passwords necessary for your configuration. You can remove individual passwords by using the **no** form of the above commands. For example, entering the **no enable secret** command removes the enable secret password.

Step 15   You must configure all interfaces to be *not* administratively shutdown as follows:

```
Hostname(config)# interface fastethernet 0/0
Hostname(config-int)# no shutdown
```

Enter the equivalent commands for all interfaces that were originally configured. If you omit this step, all interfaces will be administratively shutdown and unavailable when the router is restarted.

Step 16   Use the **config-registe**r command to set the configuration register to the original value noted in Step 3 or Step 7, or to the factory default value 0x2102 as follows:

```
Hostname(config)# config-register 0x2102
```

Step 17   Press **Ctrl-Z** (hold down the **Control** key while you press **Z**) or enter **end** to exit configuration mode and return to the EXEC command interpreter.

⚠
Caution   *Do not* execute the next step unless you have changed or replaced a password. If you skipped Step 12 through Step 15, skip to Step 19. Failure to observe this caution will cause you to erase your router configuration file.

Step 18   Enter the **copy running-config startup-config** command to save the new configuration to nonvolatile memory.

Step 19   Enter the **reload** command to reboot the router.

Step 20   Log in to the router with the new or recovered passwords.

This completes the steps for recovering or replacing a lost enable, enable secret, or console login password.