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Installing and Configuring Flash Memory Cards in Cisco 3600 Series Routers

Product Numbers: MEM3600-4FC, MEM3600-8FC, CPAMEM3600-4FC, CPAMEM3600-8FC

This document describes how to install Flash memory cards in Cisco 3600 series routers and includes selected configuration examples for common procedures. Additional configuration examples and complete command syntax can be found in the command summary and command reference publications for Cisco IOS software. These publications are available on the documentation CD that accompanied your original chassis order or on the World Wide Web at <http://www.cisco.com>.

This document contains the following sections:

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- Copying a File between Slots
- Booting from a Flash Memory Card
- Erasing the Contents of a Flash Memory Card
- Obtaining Service and Support
- Cisco Connection Online

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Preventing Electrostatic Discharge Damage

Flash memory cards are sensitive to electrostatic discharge (ESD) damage. ESD damage, which can occur when electronic cards or components are handled improperly, results in complete or intermittent failures.

Follow these guidelines to prevent ESD damage:

- Always use an ESD wrist or ankle strap and ensure that it makes good skin contact.
- Connect the equipment end of the strap to an unfinished chassis surface.
- Place a removed Flash memory card on an antistatic surface or in a static shielding bag. If the card will be returned to the factory, immediately place it in a static shielding bag.
- Avoid contact between the card and clothing. The wrist strap protects the card from ESD voltages on the body only; ESD voltages on clothing can still cause damage.
- Do not remove the wrist strap until the installation is complete.



Caution For safety, periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 megohms (Mohms).

Installing a Flash Memory Card

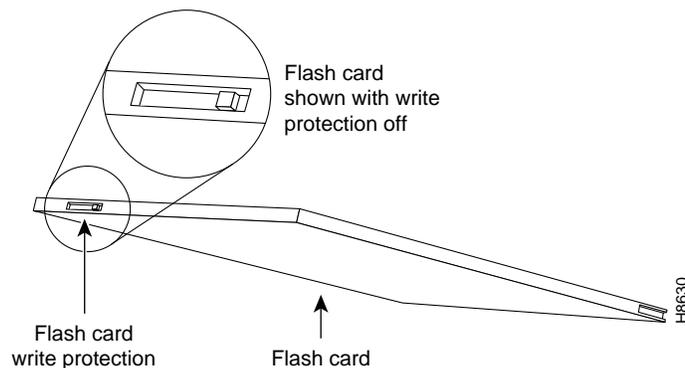
The router includes two Personal Computer Memory Card International Association (PCMCIA) slots. In these slots, you can install 4-, 8-, or 16-MB Flash memory cards.

Note The PCMCIA slots are also compatible with the Cisco 1000 series fast Flash cards.

Take the following steps to install a Flash memory card:

- Step 1** Verify that the Flash memory card is set with write-protect off. The write-protect switch is at the top left edge of the card, when viewed with the label side toward you. (See Figure 1.)

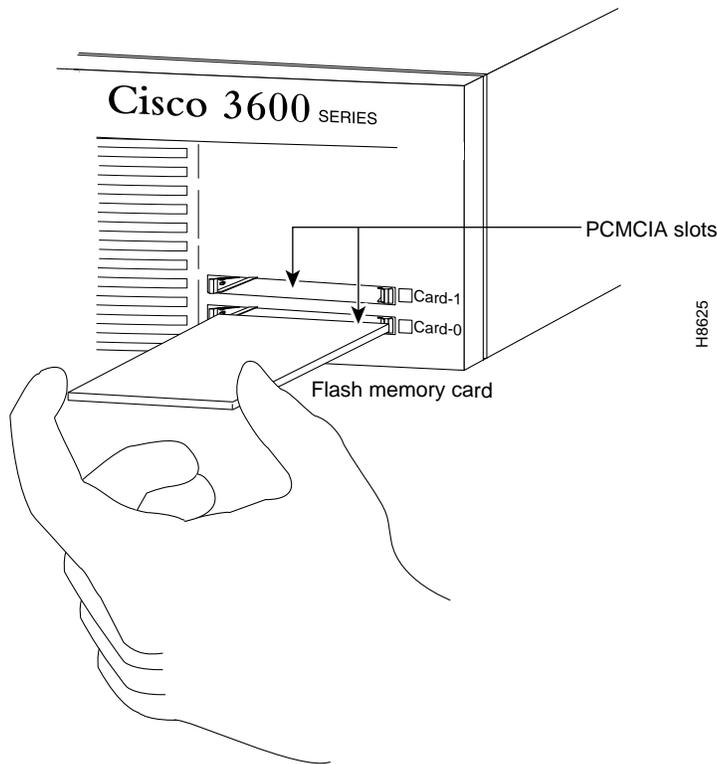
Figure 1 Setting the Write-Protect Switch



- Step 2** Locate the PCMCIA slots, labeled Card-0 and Card-1, at the bottom right corner on the front panel of the chassis. (See Figure 2.)
- Step 3** Insert the connector end of the Flash memory card label side up into one of the PCMCIA slots until the card is seated completely in the connector (inside the router). Note that the card does not insert all the way inside the router; part of the card remains outside of the slot. (See Figure 2.)

Note You can install Flash memory cards into either the slot labeled Card-0 or Card-1. It is not necessary to populate the Card-0 slot before the Card-1 slot.

Figure 2 Installing a Flash Memory Card



Removing a Flash Memory Card

Take the following steps to remove a Flash memory card:

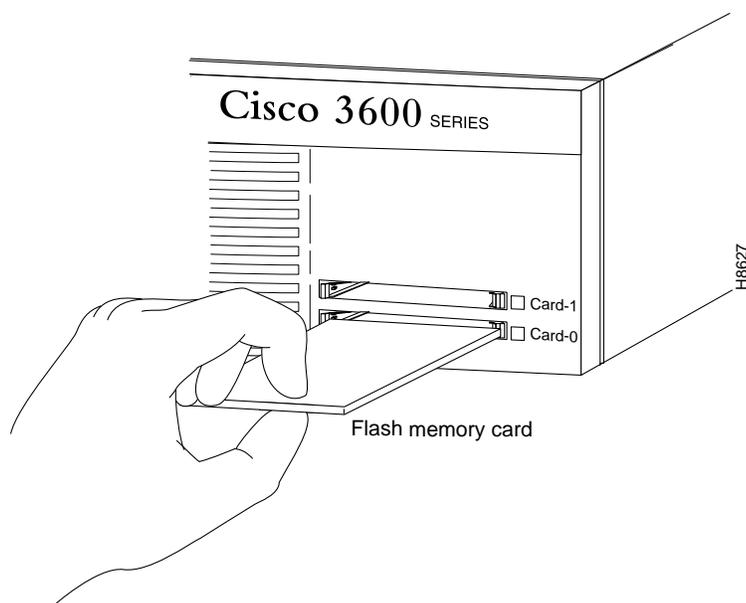
- Step 1** Grasp the card near the slot and pull the card free from the connector at the back of the slot. (See Figure 3.)



Caution Do not remove the Flash memory card while it is performing a read or write operation because the router will halt.

- Step 2** Place the removed Flash memory card on an antistatic surface or in a static shielding bag.

Figure 3 Removing a Flash Memory Card



Partitioning a Flash Memory Card

Flash memory cards ordered from us ship blank (without software installed). Before copying files to a Flash memory card you might want to partition it.

Take the following steps to partition a Flash memory card:

- Step 1** Enter privileged EXEC mode:

```
Router> enable
Password: enablepassword
Router#
```

- Step 2** Enter global configuration mode:

```
Router# config terminal
Router(config)#
```

- Step 3** Enter the **partition {slot0: | slot1:} [partition-number] [partition-size]** command:

```
Router(config)#partition slot1: 2 2
```

Displaying the Contents of a Flash Memory Card

To display the contents of a Flash memory card, enter the **show {slot0: | slot1:}** command. An example follows:

```
Router#show slot1:

PCMCIA Slot1 flash directory, partition 1:
File Length Name/status
  1 1933052 c3640-i-mz.111-6.3.AA
[1933116 bytes used, 6455492 available, 8388608 total]
8192K bytes of processor board PCMCIA Slot1 flash (Read/Write)

PCMCIA Slot1 flash directory, partition 2:
File Length Name/status
  1 3399444 c3640-j-mz.111-7.AA
[3399508 bytes used, 794796 available, 4194304 total]
4096K bytes of processor board PCMCIA Slot1 flash (Read/Write)

PCMCIA Slot1 flash directory, partition 3:
File Length Name/status
  1 2359 running-config
[2424 bytes used, 4191880 available, 4194304 total]
4096K bytes of processor board PCMCIA Slot1 flash (Read/Write)
```

Similarly, you can display the contents of the system (onboard) Flash by entering the **show flash:** command.

Copying a File from a Flash Memory Card

Flash memory cards can be used to store backup copies of your Cisco IOS image or configuration file. You can copy a file from a Flash memory card to the system (onboard) Flash memory.

Take the following steps to copy a file from a Flash memory card to the system Flash memory:

Step 1 Enter privileged EXEC mode:

```
Router> enable
Password: enablepassword
Router#
```

Step 2 Enter the **copy {slot0: | slot1:}[partition:filename] flash:[partition:filename]** command. Substitute *partition* with the partition number and *filename* with the name of the file. An example follows:

```
Router#copy slot0:3:TESTFILE flash:2:TESTFILE2

System flash directory, partition 2:
File Length Name/status
  1 68 TESTFILE
  2 3399444 myfile
[3399640 bytes used, 794664 available, 4194304 total]
Verifying checksum for 'TESTFILE' (file # 1)... OK
Erase flash device before writing? [confirm]n
```

Note If the *partition* and *filename* variables are omitted, you will be prompted for them.

Copying a File from System Flash Memory

- Step 3** Press **Return** to erase the contents of the partition or enter **n** to save the contents. Then confirm your selection:

```
Copy 'TESTFILE' from slot0: device
  as 'TESTFILE2' into flash: device WITHOUT erase? [yes/no]y
!
[OK - 68/794664 bytes]

Flash device copy took 00:00:04 [hh:mm:ss]
Verifying checksum... OK (0x4ACD)
Router#
```

Copying a File from System Flash Memory

Take the following steps to copy a file from system (onboard) Flash memory to a Flash memory card for backup:

- Step 1** Enter privileged EXEC mode:

```
Router> enable
Password: enablepassword
Router#
```

- Step 2** Enter the **copy flash:[partition:filename] {slot0: | slot1:}[partition:filename]** command. Substitute *partition* with the partition number and *filename* with the name of the file. An example follows:

```
Router#copy flash:2:TESTFILE slot0:3:TESTFILE

PCMCIA Slot0 flash directory, partition 3:
No files in PCMCIA Slot0 flash
[0 bytes used, 4194304 available, 4194304 total]
Verifying checksum for 'TESTFILE' (file # 1)... OK
Erase flash device before writing? [confirm]n
```

Note If the *partition* and *filename* variables are omitted, you will be prompted for them.

- Step 3** Press **Return** to erase the contents of the partition or enter **n** to save the contents. Then confirm your selection:

```
Copy 'TESTFILE' from flash: device
  as 'TESTFILE' into slot0: device WITHOUT erase? [yes/no]y
!
[OK - 68/4194304 bytes]

Flash device copy took 00:00:05 [hh:mm:ss]
Verifying checksum... OK (0x4ACD)
```

Copying a Configuration File to a Flash Memory Card

Take the following steps to copy a configuration file to a Flash memory card for backup:

Step 1 Enter privileged EXEC mode:

```
Router> enable
Password: enablepassword
Router#
```

Step 2 Enter the **copy running-config {slot0: | slot1:}[partition:filename]** command. Substitute *partition* with the partition number and *filename* with the name of the file. An example follows:

```
Router#copy running-config slot0:3:myconfig

PCMCIA Slot0 flash directory, partition 3:
File Length Name/status
  1 68 TESTFILE
[132 bytes used, 4194172 available, 4194304 total]
Building configuration...

Erase flash device before writing? [confirm]n
```

Note If the *partition* and *filename* variables are omitted, you will be prompted for them.

Step 3 Press **Return** to erase the contents of the partition or enter **n** to save the contents. Then confirm your selection:

```
Copy 'running-config'
  as 'myconfig' into flash device WITHOUT erase? [yes/no]y
!
[OK - 922/4194172 bytes]

Verifying checksum... OK (0xC4D4)
Flash device copy took 00:00:00 [hh:mm:ss]
Router#
```

Copying a File between Slots

The router includes two PCMCIA slots, labeled Card-0 and Card-1. This section describes how to copy a file from a Flash memory card in the Card-0 slot to a Flash memory card in the Card-1 slot.

Note When copying a file, the source and destination slots cannot be the same. For example, if the source file is on the Flash memory card in the Card-0 slot, you cannot copy the file to the same slot (Card-0).

Take the following steps to copy a file between two slots:

Step 1 Enter privileged EXEC mode as follows:

```
Router> enable
Password: enablepassword
Router#
```

Step 2 Insert the Flash memory card that contains the source file into the slot labeled Card-0.

Step 3 Insert a new Flash memory card into the slot labeled Card-1.

Step 4 Enter the **copy {slot0: | slot1:}[partition:filename]{slot0: | slot1:}[partition:filename]** command to copy a file from one slot to another. In the following example, there are no partitions on the destination Flash memory card:

```
Router#copy slot0:3:TESTFILE slot1:

PCMCIA Slot1 flash directory:
File Length Name/status
  1 1783471 FILE1
[1783536 bytes used, 313616 available, 2097152 total]
Destination file name [TESTFILE]?
Verifying checksum for 'TESTFILE' (file # 1)... OK
Erase flash device before writing? [confirm]n
```

Note If the *partition* and *filename* variables are omitted, you will be prompted for them.

Step 5 Press **Return** to erase the contents or enter **n** to save the contents. Then confirm your selection:

```
Copy 'TESTFILE' from slot0: device
  as 'TESTFILE' into slot1: device WITHOUT erase? [yes/no]y
!
[OK - 68/313616 bytes]

Flash device copy took 00:00:05 [hh:mm:ss]
Verifying checksum... OK (0x4ACD)
Router#
```

Booting from a Flash Memory Card

You can configure the router to boot from a Cisco IOS image on the Flash memory card. The router boots the image on the Flash memory card, copies the image to onboard DRAM, and executes the image from DRAM. The router does not execute the image from the Flash memory card.

Take the following steps to specify the image on the Flash memory card as the boot image:

Step 1 Enter privileged EXEC mode:

```
Router> enable
Password: enablepassword
Router#
```

Step 2 Enter global configuration mode:

```
Router# config terminal
Router(config)#
```

- Step 3** Enter the **boot system flash {slot0: | slot1:}[partition:filename]** command to specify the location of the boot image location. In the following example, the boot image is located on the Flash memory card in the Card-0 slot, partition 3, and the file name is new.image:

```
Router(config)# no boot system
Router(config)# boot system flash slot0:3:new.image
```

Note If the *partition* and *filename* variables are omitted, you will be prompted for them.

- Step 4** Set the configuration register to 0x2102 (the default setting), which indicates that the router should attempt to boot a Cisco IOS image from Flash memory:

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

- Step 5** Exit global configuration mode:

```
Router(config)# exit
Router#
```

- Step 6** Enter the **copy running-config startup-config** command to save the configuration changes to NVRAM.

- Step 7** Enter the **reload** command to reload the router. When the system reloads it will boot the image new.image from the Flash memory card in the Card-0 slot.

Erasing the Contents of a Flash Memory Card

Enter the **erase {slot0: | slot1:}[partition:]** command to erase a partition or the entire contents of a Flash memory card. Substitute *partition* with the partition number. You cannot specify a filename. An example follows:

```
Router#erase slot0:
Partition  Size    Used    Free    Bank-Size  State    Copy Mode
1           8192K   5147K   3044K   4096K      Read/Write  Direct
2           4096K   3319K   776K    4096K      Read/Write  Direct
3           4096K    3K     4092K   4096K      Read/Write  Direct
```

```
[Type ?<no> for partition directory; ? for full directory; q to abort]
Which partition? [default = 1] 3
```

```
PCMCIA Slot0 flash directory, partition 3:
File Length Name/status
1 2359 running-config [invalid checksum]
2 922 configfile
[3412 bytes used, 4190892 available, 4194304 total]
```

```
Erase flash device, partition 3? [confirm]
Are you sure? [yes/no]: y
Erasing device... eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee ...erased
Router#
```

Note If the *partition* variable is omitted, you will be prompted for it.

Obtaining Service and Support

For service and support for a product purchased from a reseller, contact the reseller. Resellers offer a wide variety of Cisco service and support programs, which are described in the section “Service and Support” in the information packet that shipped with your chassis.

Note If you purchased your product from a reseller, you can access Cisco Connection Online (CCO) as a guest. CCO is Cisco Systems’ primary, real-time support channel. Your reseller offers programs that include direct access to CCO’s services.

For service and support for a product purchased directly from Cisco, use CCO.

Cisco Connection Online

CCO is Cisco Systems’ primary, real-time support channel. SMARTnet customers and partners can self-register on CCO to obtain additional content and services.

Note If you purchased your product from a reseller, you can access CCO as a guest. Your reseller offers programs that include direct access to CCO’s services.

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You can access CCO in the following ways:

- WWW: <http://www.cisco.com>.
- WWW: <http://www-europe.cisco.com>.
- WWW: <http://www-china.cisco.com>.
- Telnet: cco.cisco.com.
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and baud rates up to 14.4 kbps.

For a copy of CCO’s Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note If you need technical assistance with a Cisco product that is under warranty or covered by a Cisco maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com.

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Use this document with the router installation and configuration guide publication that accompanied your router.

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