



Installing and Configuring External Flash Memory Cards in Cisco 3600 Series Routers

Product Numbers: MEM3600-4FC=, MEM3600-8FC=, MEM3600-16FC=, MEM3600-20FC=

This document describes how to install external Flash memory cards in Cisco 3600 series routers, how to partition the cards, and how to copy files.



Note

In this document, the term “Cisco 3600 series” refers to the Cisco 3620 router, the Cisco 3640 router, and the Cisco 3660 router.

This document is intended for the Flash memory card installer, who should be familiar with electronic circuitry and wiring practices and have experience as an electronic or electromechanical technician. Use this document in conjunction with the *Cisco 3600 Series Hardware Installation Guide* and the *Regulatory Compliance and Safety Information* document for your router.

If you have questions or need help, refer to the “Obtaining Technical Assistance” section on page 12.

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Installing a Flash Memory Card

The router includes two Personal Computer Memory Card International Association (PCMCIA) slots. You can install 4-, 8-, 16-, or 20-MB Flash memory cards in these slots.



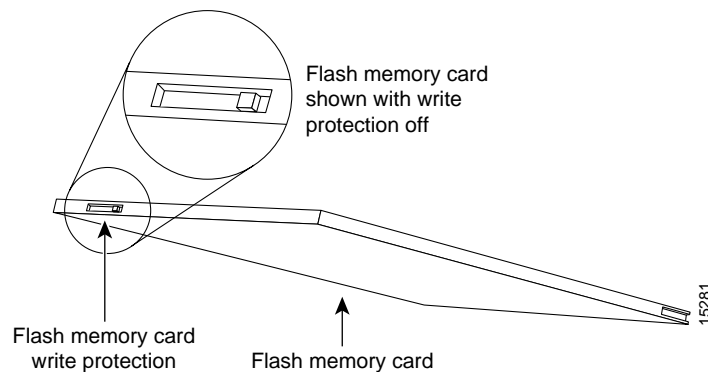
Note

The PCMCIA slots are also compatible with Cisco 1000 series Fast Flash memory cards.

To install an external Flash memory card, follow these steps:

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

Figure 1 *Setting the Write-Protect Switch*



- Step 2** Locate the PCMCIA slots, labeled 1 and 0, at the bottom right corner of the front panel of the chassis. (See Figure 2 and Figure 3.)



Note

You can install a Flash memory card in either slot. It is not necessary to populate slot 0 before slot 1.

- Step 3** If you have a Cisco 3620 or Cisco 3640 router, insert the connector end of the Flash memory card, label side up, into one of the PCMCIA slots until the card is seated in the connector. (See Figure 2.)

If you have a Cisco 3660 router, move the slot button to the front of the router and then insert the connector end of the Flash memory card, label side up, into the PCMCIA slot until the card is seated in the connector. (See Figure 3.)



Note

(Cisco 3660 routers only) After you install the PCMCIA card, the slot button can be moved to the side to prevent accidental ejection of the card.



Note

The card does not fit completely into the Cisco 3620 and Cisco 3640 routers; part of the card projects from the slot.

Figure 2 Installing a Flash Memory Card in the Cisco 3620 or Cisco 3640 Router

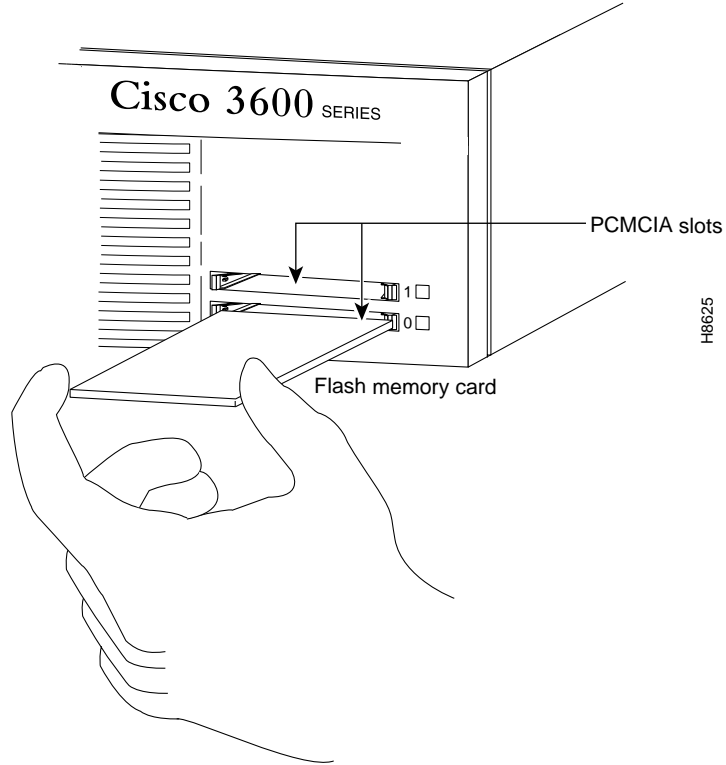
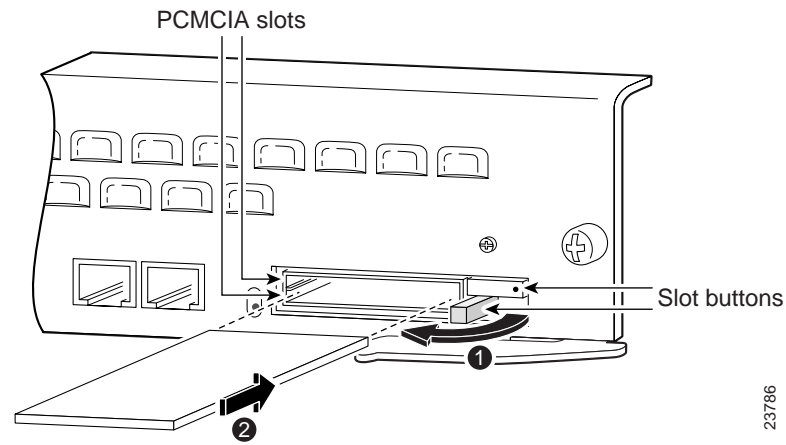


Figure 3 Installing a Flash Memory Card in the Cisco 3660 Router



Removing a Flash Memory Card

To remove a Flash memory card, follow these steps:

Step 1 On a Cisco 3620 or Cisco 3640 router, grasp the card near the slot and pull it free from the connector. (See Figure 4.)

On a Cisco 3660 router, press the button next to the PCMCIA slot to be evacuated. (See Figure 5.)


Caution

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

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

Figure 4 Removing a Flash Memory Card from the Cisco 3620 or Cisco 3640 Router

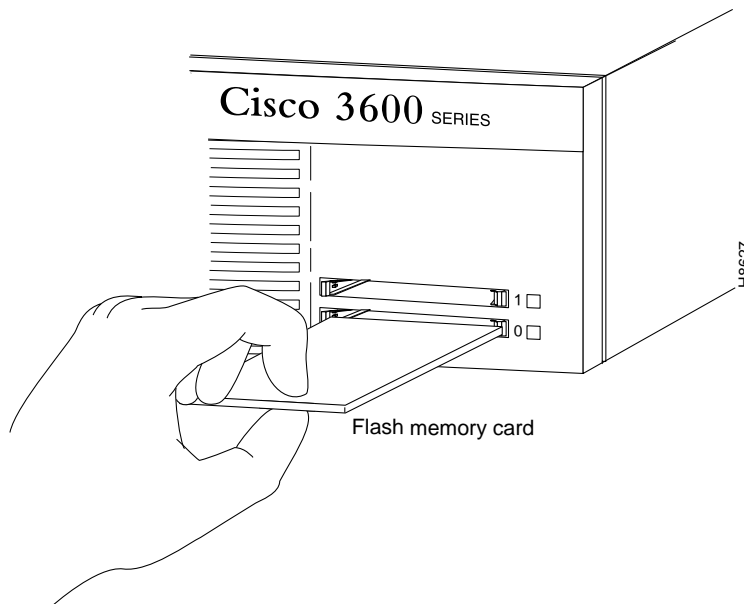
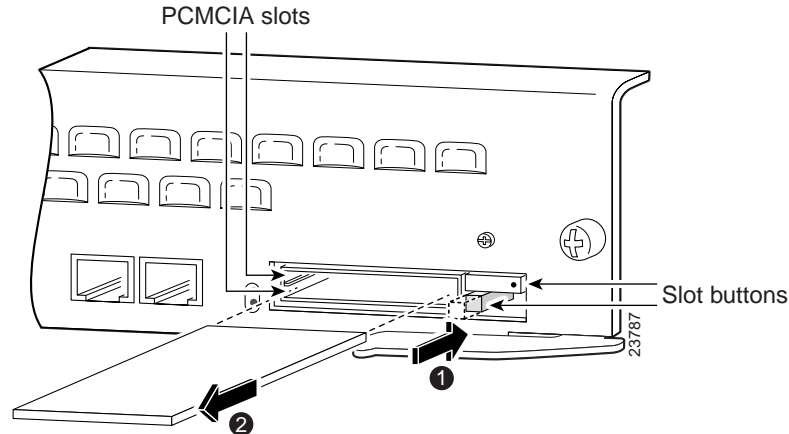


Figure 5 Removing a Flash Memory Card from the Cisco 3660 Router



Partitioning a Flash Memory Card

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

To partition a Flash memory card, follow these steps:

Step 1 Enter privileged EXEC mode:

```
Router> enable
```

```
Password: <password>
```

```
Router#
```

Step 2 Enter global configuration mode:

```
Router# configure terminal
```

```
Router(config)#
```

Step 3 Enter the **partition {slot0: | slot1:} [partition-number] [partition1-size] [partition2-size]** command:

```
Router(config)# partition slot1: 1 2 4
```

The partition size is expressed in megabytes (MB).



Note

If only one partition size is specified, or if the sizes are out of acceptable range, the following error messages are displayed:

```
%Error: Too few partition size parameters
```

```
%Error: Requested partitions not valid
```

Displaying the Contents of a Flash Memory Card

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

```
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 system (onboard) Flash memory by entering the **show flash:** command.

Copying a File from System Flash Memory to a Flash Memory Card

You can use a Flash memory card to store a backup copy of a Cisco IOS image or other file. To copy a file from system (onboard) Flash memory to a Flash memory card, follow these steps:

Step 1 Enter privileged EXEC mode:

```
Router> enable

Password: <password>
Router#
```

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

```
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 you omit the *partition* and *filename* arguments, you are prompted for them.

Step 3 Press **Return** or enter **y** to erase the current 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 Running Configuration File to a Flash Memory Card

You can also use a Flash memory card to store a backup copy of a configuration file. To copy a configuration file to a Flash memory card, follow these steps:

Step 1 Enter privileged EXEC mode:

```
Router> enable

Password: <password>
Router#
```

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

```
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 you omit the *partition* and *filename* arguments, you are prompted for them.

Step 3 Press **Return** or enter **y** to erase the current 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 from a Flash Memory Card to System Flash Memory

You can copy files from a Flash memory card to system (onboard) Flash memory (for instance, when restoring a backup). To copy a file from a Flash memory card to system Flash memory, follow these steps:

Step 1 Enter privileged EXEC mode:

```
Router> enable

Password: <password>
Router#
```

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

```
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 you omit the *partition* and *filename* arguments, you are prompted for them.

Step 3 Press **Return** or enter **y** to erase the current 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 Between Slots

This section describes how to copy a file from one Flash memory card to another Flash memory card in the other slot.



Note

The source and destination slots cannot be the same. For example, if the source file is on the card in slot 0, you cannot copy the file to the same card in slot 0.

To copy a file between two slots, follow these steps:

Step 1 Enter privileged EXEC mode as follows:

```
Router> enable
Password: <password>
Router#
```

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

Step 3 Insert a second Flash memory card into the slot labeled 1. This card does not have to be partitioned.

Step 4 Enter the **copy {slot0: | slot1:}[partition:filename]{slot0: | slot1:} [partition:filename]** command to copy a file from one slot to the other. 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 you omit the *partition* and *filename* arguments, you are prompted for them.

Step 5 Press **Return** or enter **y** to erase the current contents of the destination partition (if any), 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, rather than from system Flash memory. The router boots the image on the Flash memory card, copies the image to onboard DRAM, and then executes the image from DRAM. The router does not execute the image directly from the Flash memory card.

To specify the image on the Flash memory card as the boot image, follow these steps:

Step 1 Enter privileged EXEC mode:

```
Router> enable
Password: password
Router#
```

Step 2 Enter global configuration mode:

```
Router# configure terminal

Router(config)#
```

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

```
Router(config)# no boot system

Router(config)# boot system flash slot0:3:new.image
```



Note

If you omit the *partition* and *filename* arguments, you are 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 router reloads, it will boot the image new.image from the Flash memory card in slot 0.

Erasing the Contents of a Flash Memory Card

To erase a partition or the entire contents of a Flash memory card, enter the command **erase {slot0: | slot1:} [partition:]**. Replace *partition* with the partition number. You cannot specify a filename. The following example erases the contents of partition 2 of the card in slot 1.



Note

Cisco recommends first displaying the contents of the partition that you plan to erase.

```
Router# show slot1:

PCMCIA Slot1 flash directory, partition 1:
File           Length  Name/status
1               1583    test1
[1648 bytes used, 4192656 available, 4194304 total]
4096K bytes of processor board PCMCIA Slot1 flash (Read/Write)

PCMCIA Slot1 flash directory, partition 2:
File           Length  Name/status
1               1611    running-config
2               1583    configfile
[3324 bytes used, 4190980 available, 4194304 total]
```

```

4096K bytes of processor board PCMCIA Slot1 flash (Read/Write)

Router# erase slot1:2:

Erasing the slot1:2 filesystem will remove all files! Continue? [confirm]
Erasing device... eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee ..erased
Erase of slot1:2: complete

Router#

```

**Note**

If you omit the *partition* argument, you are prompted for it.

Obtaining Documentation

Cisco provides several ways to obtain documentation, technical assistance, and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation on the World Wide Web at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

International Cisco websites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which may have shipped with your product. The Documentation CD-ROM is updated regularly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual or quarterly subscription.

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http://www.cisco.com/en/US/partner/ordering/ordering_place_order_ordering_tool_launch.html

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<http://www.cisco.com/go/subscription>

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You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm

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- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:

<http://www.cisco.com/en/US/partner/ordering/index.shtml>

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

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Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

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Cisco provides Cisco.com, which includes the Cisco Technical Assistance Center (TAC) website, as a starting point for all technical assistance. Customers and partners can obtain online documentation, troubleshooting tips, and sample configurations from the Cisco TAC website. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC website, including TAC tools and utilities.

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The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available: the Cisco TAC website and the Cisco TAC Escalation Center. The type of support that you choose depends on the priority of the problem and the conditions stated in service contracts, when applicable.

We categorize Cisco TAC inquiries according to urgency:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration. There is little or no impact to your business operations.
- Priority level 3 (P3)—Operational performance of the network is impaired, but most business operations remain functional. You and Cisco are willing to commit resources during normal business hours to restore service to satisfactory levels.
- Priority level 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively impacted by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.
- Priority level 1 (P1)—An existing network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

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<http://tools.cisco.com/RPF/register/register.do>

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC website, you can open a case online at this URL:

<http://www.cisco.com/tac/caseopen>

If you have Internet access, we recommend that you open P3 and P4 cases online so that you can fully describe the situation and attach any necessary files.

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To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to this URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

Before calling, please check with your network operations center to determine the Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.

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Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the *Cisco Product Catalog* at this URL:

http://www.cisco.com/en/US/products/products_catalog_links_launch.html

- Cisco Press publishes a wide range of networking publications. Cisco suggests these titles for new and experienced users: *Internetworking Terms and Acronyms Dictionary*, *Internetworking Technology Handbook*, *Internetworking Troubleshooting Guide*, and the *Internetworking Design Guide*. For current Cisco Press titles and other information, go to Cisco Press online at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access *Packet* magazine at this URL:

<http://www.cisco.com/go/packet>

- iQ Magazine is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

- Internet Protocol Journal is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

http://www.cisco.com/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html

- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:

http://www.cisco.com/en/US/learning/le31/learning_recommended_training_list.html

This document is to be used in conjunction with your router's software configuration guide, the *Regulatory Compliance and Safety Information* document for your router, and the Cisco IOS configuration guides and command references for your Cisco IOS release.

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