

# Installing WAN and Voice Interface Cards in a Cisco Modular Router

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This chapter describes how to install WAN and voice interface cards in Cisco 3600 series, 2600 series, 1600 series, and Cisco 1720 modular routers, and contains the following sections:

- Required Tools and Equipment on page 2-1
- Installing a Network Module in a Cisco 3600 Series or Cisco 2600 Series Router on page 2-2
- Before Installing a Voice Interface Card on page 2-5
- Installing a WAN or Voice Interface Card in a Network Module or Chassis Slot on page 2-6
- Installing a WAN Interface Card in a Cisco 1720 Router or Cisco 1600 Series Router on page 2-9

## Required Tools and Equipment

In addition to the WAN interface card and the router, you need the following items to install and connect your card:

- Number 2 Phillips screwdriver.
- Appropriate connecting cable—The cable type required for each card is described in the section for that card. For more information on the types of cables that can be used with the cards, See the online document *Cisco Modular Router Cable Specifications* on the Documentation CD-ROM that accompanied your router package, or on Cisco Connection Online.

- Asynchronous modem (serial card only)—Used to connect the WAN interface card to an analog telephone line.
- Synchronous modem, channel service unit/data service unit (DSU/CSU), or other data circuit-terminating equipment (DCE) (serial card only)—Used to connect the WAN interface card to a digital WAN line.
- External NT1 (ISDN BRI S/T and ISDN BRI S/T Leased-Line cards only)—Used to connect the WAN interface card to an ISDN interface.

## Installing a Network Module in a Cisco 3600 Series or Cisco 2600 Series Router

This section describes how to install a network module (for WAN or voice interface cards) in a Cisco 3600 series or Cisco 2600 series router.

To install a WAN or voice interface card in a network module or to install a WAN interface card in a Cisco 2600 series chassis slot, see the “Before Installing a Voice Interface Card” section on page 2-5.

To install a WAN interface card in a Cisco 1720 router or Cisco 1600 series router, see the “Installing a WAN Interface Card in a Cisco 1720 Router or Cisco 1600 Series Router” section on page 2-9.



**Warning** Only trained and qualified personnel should be allowed to install or replace this equipment.



**Warning** Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.

## Installing a Network Module in a Cisco 3600 Series or Cisco 2600 Series Router

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**Warning** You can install modules in the chassis either before or after mounting the router. If possible, install the modules with the router in the position that provides the best access to the rear panel. You can install any module into any available slot in the chassis.



**Caution** Do not insert a module into a slot when power is ON or network cables are connected.

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**Note** Do not install an ISDN BRI WAN interface card or an ISDN BRI network module in the same chassis as an ISDN PRI network module. This configuration is not supported.

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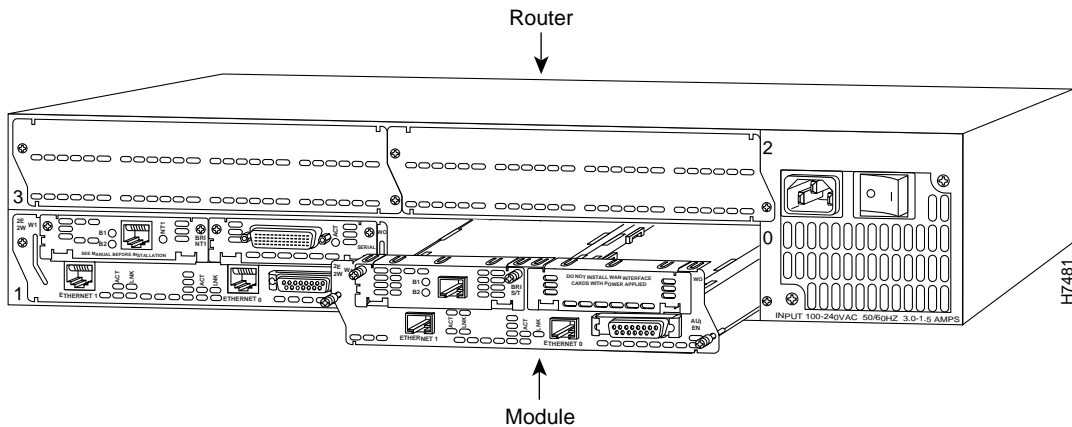
To install a network module in a Cisco 3600 series or Cisco 2600 series router:

- Step 1** Power OFF the router. However, to channel ESD voltages to ground, do not unplug the power cable. Remove all network interface cables, including telephone cables, from the rear panel.
- Step 2** Use a Phillips or flat-blade screwdriver to remove the blank filler panel from the slot where you plan to install the module. Save the filler panel for possible future use.
- Step 3** Align the module with the guides in the chassis and slide it gently into the slot. (See Figure 2-1.)

## Installing a Network Module in a Cisco 3600 Series or Cisco 2600 Series Router

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**Figure 2-1** Installing a Network Module in a Modular Router (typical)

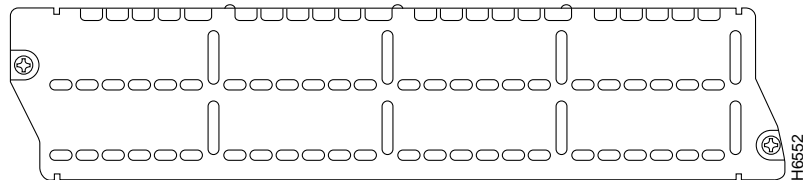


- Step 4** Push the module into place until the edge connector is securely seated in the connector on the motherboard. Ensure that each of the module's captive screws lines up with its corresponding hole in the chassis.
- Step 5** Secure the captive mounting screws into the holes of the chassis using a Phillips or flat-blade screwdriver.

## Network Module Filler Panels

If you are installing a network module in a Cisco 3600 series router, and the router is not fully configured with modules, you must fill the open slots with slot filler panels (see Figure 2-2) to ensure proper airflow.

**Figure 2-2 Network Module Slot Filler Panel**



## Before Installing a Voice Interface Card

This section contains additional information that you need before installing a voice interface card in a voice network module installed in a Cisco 3600 series or Cisco 2600 series router.

A voice connection requires both a voice network module and a voice interface card. Voice interface cards are installed in voice network modules only, and do not install directly into the router chassis. At least one other network module or WAN interface card must be installed in the router to provide the connection to the IP LAN or WAN. For instructions on how to install a network module, see the “Installing a Network Module in a Cisco 3600 Series or Cisco 2600 Series Router” section on page 2-2.



**Caution** Although voice interface cards physically resemble WAN interface cards, voice and WAN interface cards are not interchangeable. Voice interface cards cannot be installed in a WAN interface card slot or a two-slot network module, and WAN interface cards cannot be installed in a voice network module.

For instructions on inserting a voice interface card into a voice network module, see the “Installing a WAN or Voice Interface Card in a Network Module or Chassis Slot” section on page 2-6.

## Installing a WAN or Voice Interface Card in a Network Module or Chassis Slot

This section describes how to install a WAN or voice interface card in a two-slot network module (used in Cisco 3600 series and Cisco 2600 series routers), or how to install a WAN interface card in a Cisco 2600 series chassis slot (see Figure 2-3).

If you need to install the network module, see the “Installing a Network Module in a Cisco 3600 Series or Cisco 2600 Series Router” section on page 2-2.

You can install WAN interface cards either before or after mounting the router, whichever is more convenient. Similarly, you can install WAN or voice interface cards in the network module either before or after installing the network module in the router chassis.



**Caution** WAN and voice interface cards do not support online insertion and removal (hot swapping). Before inserting a card into the network module or router chassis, you must turn OFF electrical power and disconnect network cables.



**Caution** Although voice interface cards physically resemble WAN interface cards, voice and WAN interface cards are not interchangeable. Voice interface cards cannot be installed in a WAN interface card slot or a two-slot network module, and WAN interface cards cannot be installed in a voice network module.

Follow this procedure to install cards in a network module or a Cisco 2600 series WAN interface card chassis slot:

**Step 1** Turn OFF power to the router. However, to channel ESD voltages to ground, do not unplug the power cable. Remove all network interface cables, including telephone cables, from the rear panel.

## Installing a WAN or Voice Interface Card in a Network Module or Chassis Slot

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The following warning applies to routers that use a DC power supply.



**Warning** Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.

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**Note** If you are installing a single WAN interface card in a Cisco 2600 series router, use slot W0 first. (See Figure 2-3.)

The Cisco 2600 series router first checks slot W0 before it checks slot W1. If you fill slot W1 while leaving slot W0 vacant, your router configuration could be affected.

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**Step 2** Using either a number 2 Phillips screwdriver or a small flat-blade screwdriver to remove the blank filler panel from the network module slot or chassis card slot where you plan to install the card. Save the filler panel for future use.

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**Note** The voice network module slots are numbered V0, on the right, and V1, on the left.

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**Step 3** Align the card with the guides in the two-slot network module or WAN interface card slot and slide it gently into the slot. (Figure 2-4 shows a 1-port serial WAN interface card.)

**Step 4** Push the card into place until you feel its edge connector mate securely with the connector in the two-slot network module or WAN interface card slot.

**Step 5** Fasten the card's captive mounting screws into the holes in the network module faceplate or WAN interface card slot, using the Phillips or flat-blade screwdriver.

**Step 6** If the router was previously running, reinstall the network interface cables and turn ON power to the router.

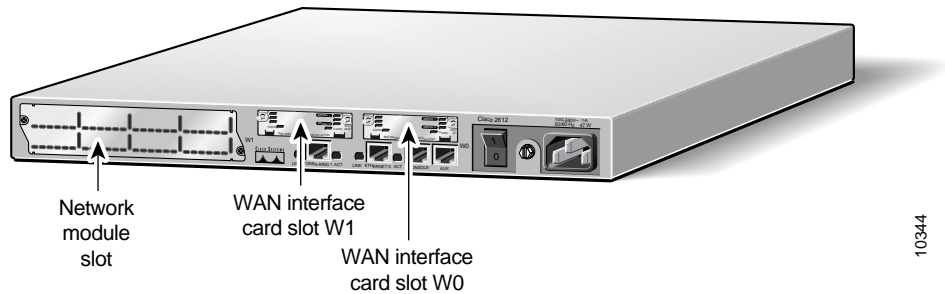
## Installing a WAN or Voice Interface Card in a Network Module or Chassis Slot

The following warning applies to routers that use a DC power supply:



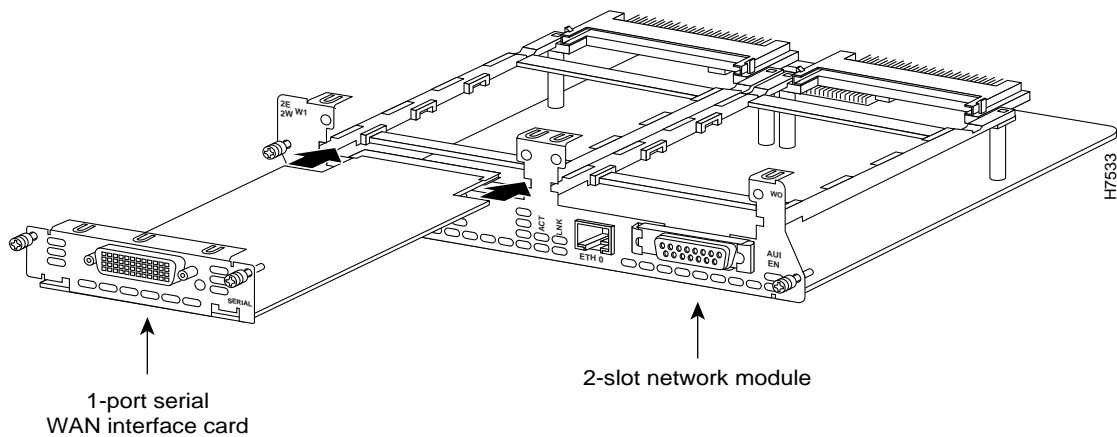
**Warning** After wiring the DC power supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position.

**Figure 2-3 Cisco 2600 Series WAN Interface Card Chassis Slot Locations**



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**Figure 2-4 Installing a Serial WAN Interface Card in a Two-Slot Network Module**



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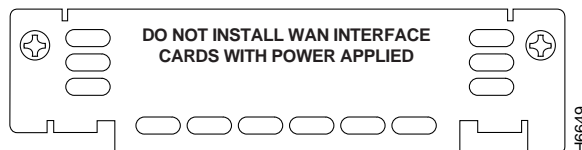


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## WAN Interface Card Filler Panels

If any interface card slot (on the network module or chassis) is unoccupied, install a filler panel to enable proper airflow. (See Figure 2-5.)

**Figure 2-5** WAN or Voice Interface Card Slot Filler Panel



When you have finished installing interface cards in the network module or chassis slots, proceed to Chapter 3, “Connecting WAN and Voice Interface Cards to a Network.”

## Installing a WAN Interface Card in a Cisco 1720 Router or Cisco 1600 Series Router

This section describes how to install a WAN interface card in a Cisco 1720 router or Cisco 1600 series router.

To install a WAN interface card in a Cisco 3600 series or Cisco 2600 series router, see the “Installing a Network Module in a Cisco 3600 Series or Cisco 2600 Series Router” section on page 2-2, or the “Before Installing a Voice Interface Card” section on page 2-5.

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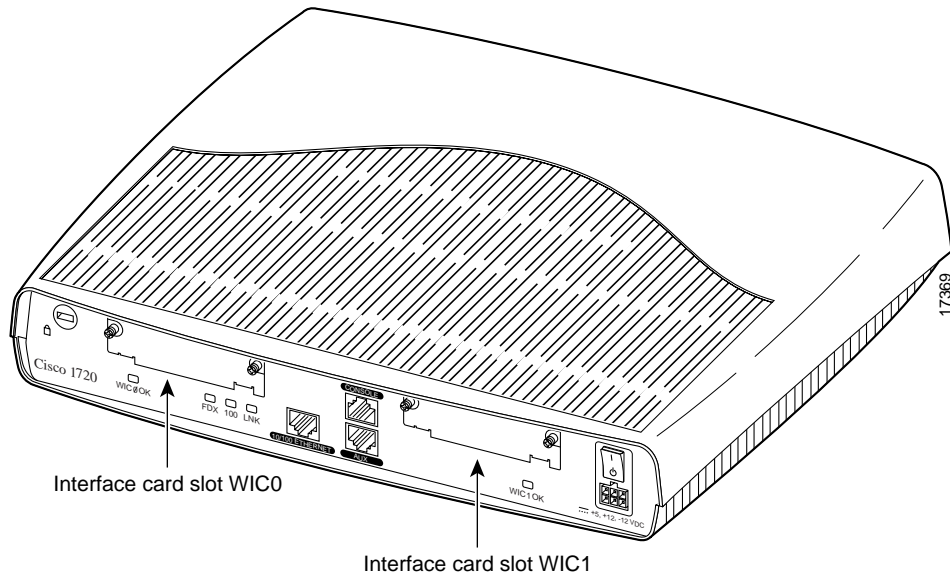
**Note** The Cisco 1720 router contains two WAN interface card slots, WIC0 and WIC1. (See Figure 2-6.)

The router first checks slot WIC0 before it checks slot WIC1. A single card installed in WIC1 could affect your router configuration.

If you are installing a single WAN interface card in the router, install the card in the WIC0 slot.

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Figure 2-6 WAN Interface Card Slots in the Cisco 1720 Router



You can install WAN interface cards either before or after mounting the router, whichever is more convenient.



**Caution** WAN interface cards do not support online insertion and removal (hot swapping). Before inserting a WAN interface card into the router chassis, you must turn OFF electrical power and disconnect network cables.

## Inserting the Card in the Router

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**Note** The figures in this section show a Cisco 1600 series router, but the installation sequence described applies to the Cisco 1720 router as well as Cisco 1600 series routers.

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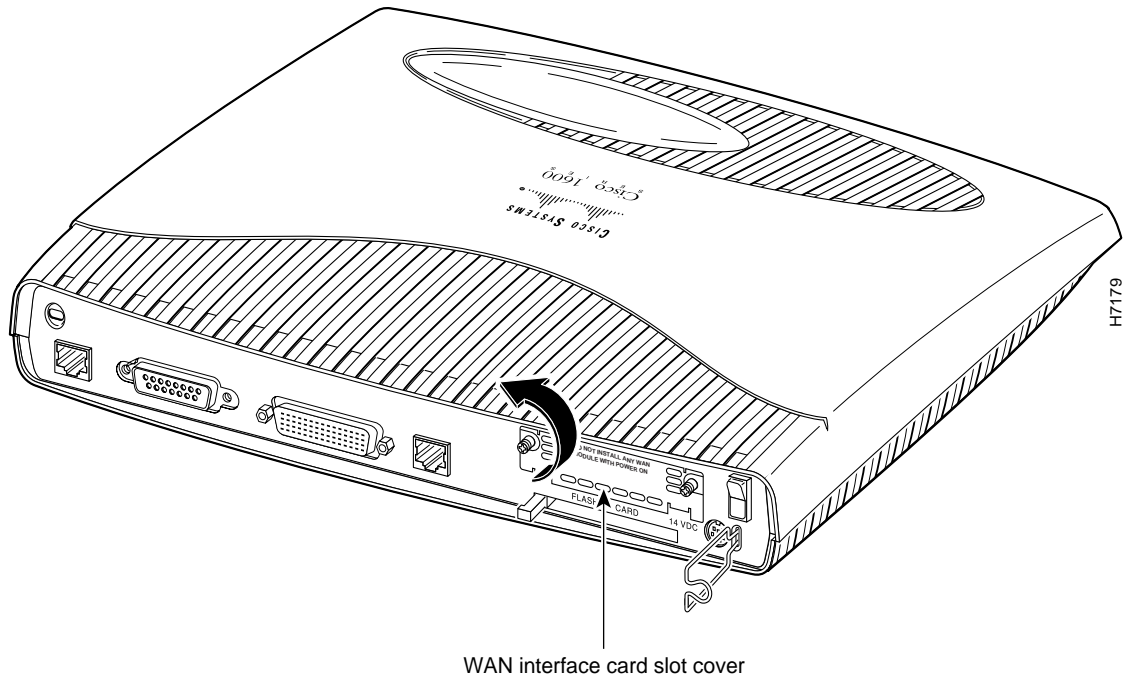
Follow this procedure to install the WAN interface card in the router:

- Step 1** On the Cisco 1720 router, turn the power switch to the STANDBY position, and disconnect the power cable from the power socket on the rear panel.
- On a Cisco 1600 series router, turn OFF power to the router. However, to channel ESD voltages to ground, do not unplug the power cable.
- Step 2** Remove all network interface cables, including telephone cables, from the rear panel.
- Step 3** Use either a number 2 Phillips screwdriver or a small flat-blade screwdriver to remove the filler panel from the WAN interface card slot. (See Figure 2-7.) Save the filler panel for future use.

## Installing a WAN Interface Card in a Cisco 1720 Router or Cisco 1600 Series Router

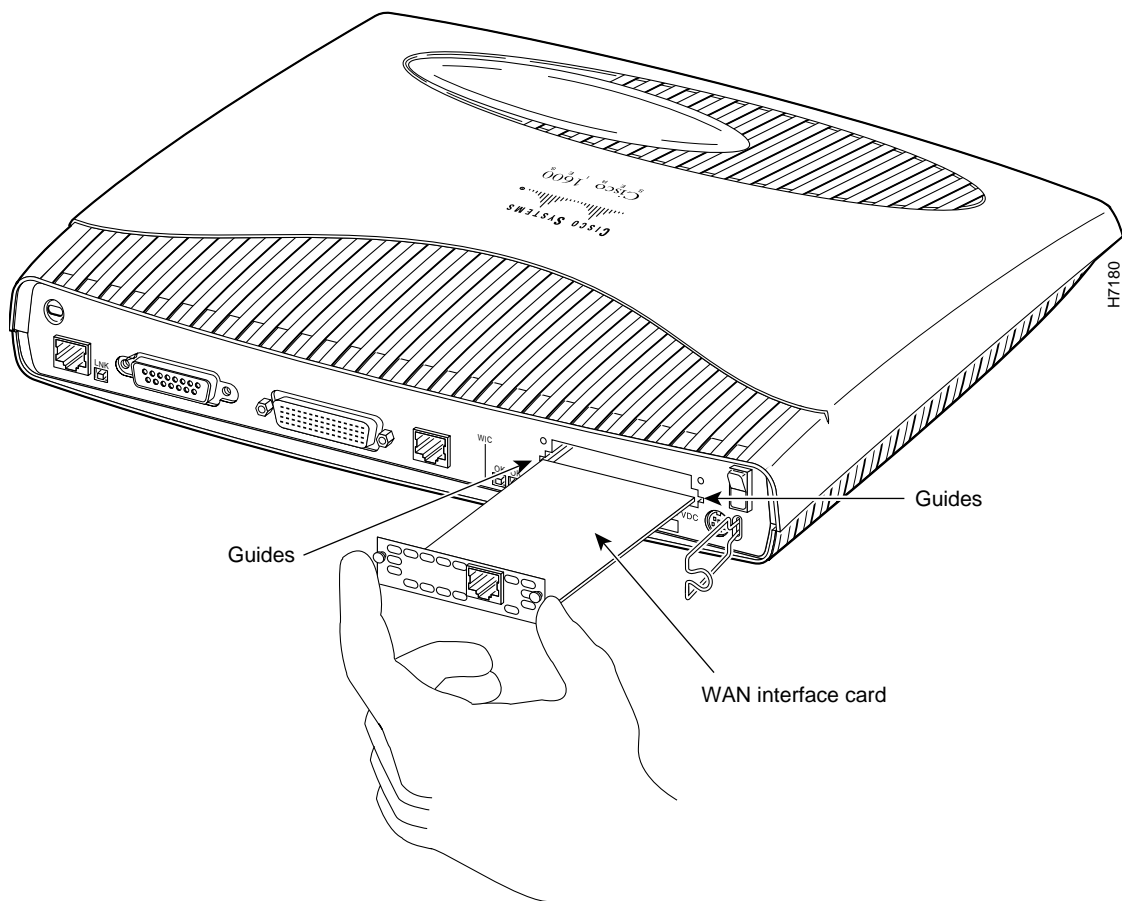
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Figure 2-7 Removing the Slot Cover



- Step 4** Align the card with the guides and slide it gently into the WAN interface card slot. (See Figure 2-8.)

Figure 2-8 Inserting a WAN Interface Card



- Step 5** Push the card into place until you feel its edge connector mate securely with the connector in the router chassis.
- Step 6** Fasten the card's captive mounting screws into the chassis using the Phillips or flat-blade screwdriver.

## Installing a WAN Interface Card in a Cisco 1720 Router or Cisco 1600 Series Router

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**Note** If any WAN interface card slot on the chassis is unoccupied, install a filler panel to enable proper airflow.

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**Step 7** If the router was previously running, reinstall the network interface cables and turn ON power to the router.

After installing the WAN interface card into the router, proceed to Chapter 3, “Connecting WAN and Voice Interface Cards to a Network.”