CHAPTER 4

Using WAN Interface Cards

Cisco 1600 series routers can support one additional WAN port on a one-port WAN interface card that is installed in the slot provided on the router. This chapter describes the WAN interface cards supported by Cisco 1600 series routers and describes the general procedure for installing any WAN interface card into any Cisco 1600 series router.

This chapter contains the following sections:

- WAN Interface Card Overview
- Safety Information
- Installing a WAN Interface Card in the Router
- Making WAN Interface Card Network Connections

WAN Interface Card Overview

The Cisco 1600 series routers support the following WAN interface cards:

- Serial WAN Interface Card
- ISDN BRI S/T WAN Interface Card
- ISDN BRI U WAN Interface Card

Serial WAN Interface Card

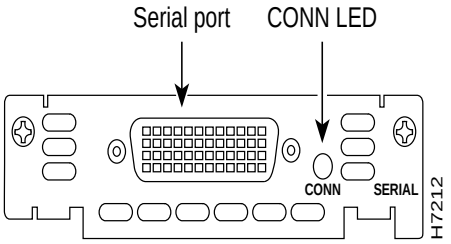
Table 4-1 lists the features of the WAN interface card.

Table 4-1 Features—Serial WAN Interface Card

Feature	Description
Serial port type	DB-60
Interfaces supported	EIA/TIA-232, EIA/TIA-449, V.35, X.21, NRZ/NRZI, DTE/DCE, EIA-530 DTE, G.703
LED	CONN (green) For a detailed description of the LED's function, refer to Table A-5 in the appendix "Troubleshooting."

Figure 4-1 shows the front panel of the serial WAN interface card.

Figure 4-1 Serial WAN Interface Card—Front Panel



ISDN BRI S/T WAN Interface Card

Table 4-2 lists the features of the ISDN BRI S/T WAN interface card.

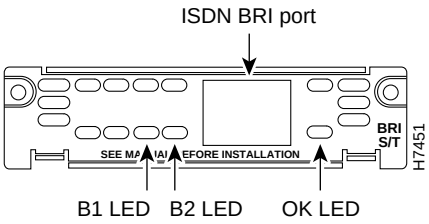
Note The ISDN BRI S/T card cannot be installed in a Cisco 1603 and Cisco 1604.

Table 4-2 Features—ISDN BRI S/T WAN Interface Card

Feature	Description
ISDN BRI port type	RJ-45
Interfaces supported	ISDN BRI (two 64-kbps B channels, one 16-kbps D channel)
LEDs	• B1 (green) • B2 (green) • OK (green) For a detailed description of the LEDs' function, refer to Table A-5 in the appendix "Troubleshooting."
NT1	Requires external NT1 for connection to an ISDN BRI line in North America

Figure 4-2 shows the front panel of the ISDN BRI S/T WAN interface card.

Figure 4-2 ISDN BRI S/T WAN Interface Card—Front Panel



ISDN BRI U WAN Interface Card

Table 4-3 lists the features of the ISDN BRI U WAN interface card.

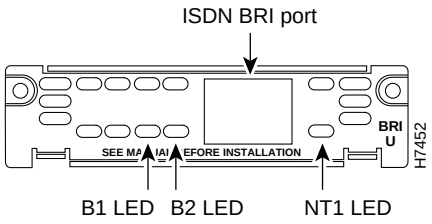
Note The ISDN BRI U card cannot be installed in a Cisco 1603 or Cisco 1604.

Table 4-3 Features—ISDN BRI U WAN Interface Card

Feature	Description
ISDN BRI port type	RJ-45
Interfaces supported	ISDN BRI (Two 64-kbps B channels, one 16-kbps D channel)
LEDs	• B1 (green) • B2 (green) • OK (green) For a detailed description of the LEDs' function, refer to Table A-5 in the appendix "Troubleshooting."
NT1	Integrated NT1

Figure 4-3 shows the front panel of the ISDN BRI U WAN interface card.

Figure 4-3 ISDN BRI U WAN Interface Card—Front Panel



Safety Information

This section lists safety warnings that you should be aware of before installing a WAN interface card in the router.

Warning Only trained and qualified personnel should be allowed to install or replace this equipment. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information for Cisco 1600 Series Routers* document that accompanied the router.)

Warning Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information for Cisco 1600 Series Routers* document that accompanied the router.)

Warning Before opening the chassis, disconnect the telephone-network cables (from the card) to avoid contact with telephone-network voltages. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information for Cisco 1600 Series Routers* document that accompanied the router.)

Warning Do not work on the system or connect or disconnect cables during periods of lightning activity. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information for Cisco 1600 Series Routers* document that accompanied the router.)

Installing a WAN Interface Card in the Router

The procedure in the chapter is an example of how to install a WAN interface card in a Cisco 1600 series router. In this example, an ISDN BRI U card is installed in a Cisco 1601 router; however, the same procedure is used to install any of the Cisco 1600-compatible cards in any Cisco 1600 series router.

Required Tools and Parts

Following are the tools and parts required to install a WAN interface card in a Cisco 1600 series router:

- Number 1 Phillips screwdriver
- Cisco 1600 router
- WAN interface card

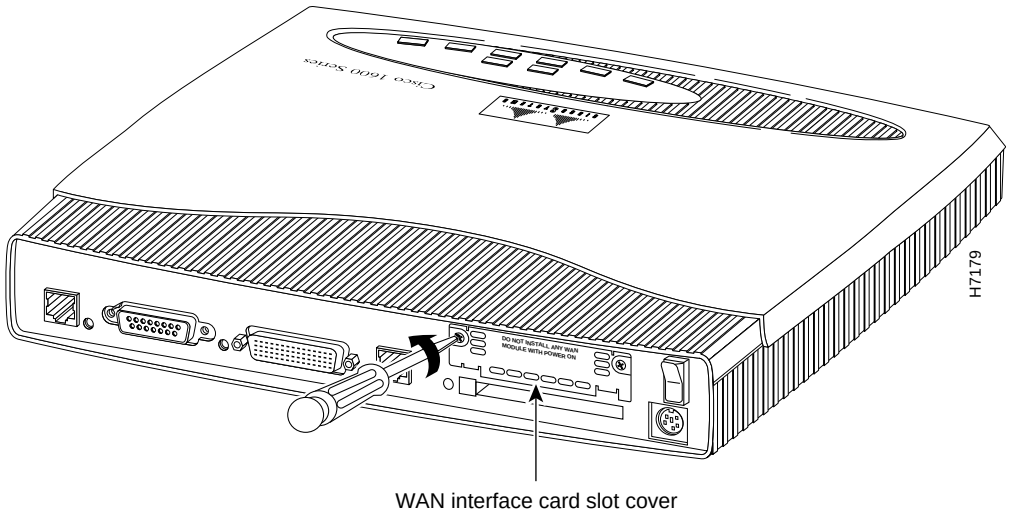
Installing the WAN Interface Card in the Router

Take the following steps to install the card in a Cisco 1600 series router:

Step 1 Turn the router OFF, and disconnect the cable from the port labeled POWER on the rear panel of the router.

Step 2 Use the Phillips screwdriver to remove the screws that hold the metal WAN interface card slot cover in place on the rear panel of the router. (See Figure 4-4.) Put the screws in a safe place because you will need them later in this procedure.

Figure 4-4 Removing the Slot Cover (Cisco 1601 Shown)

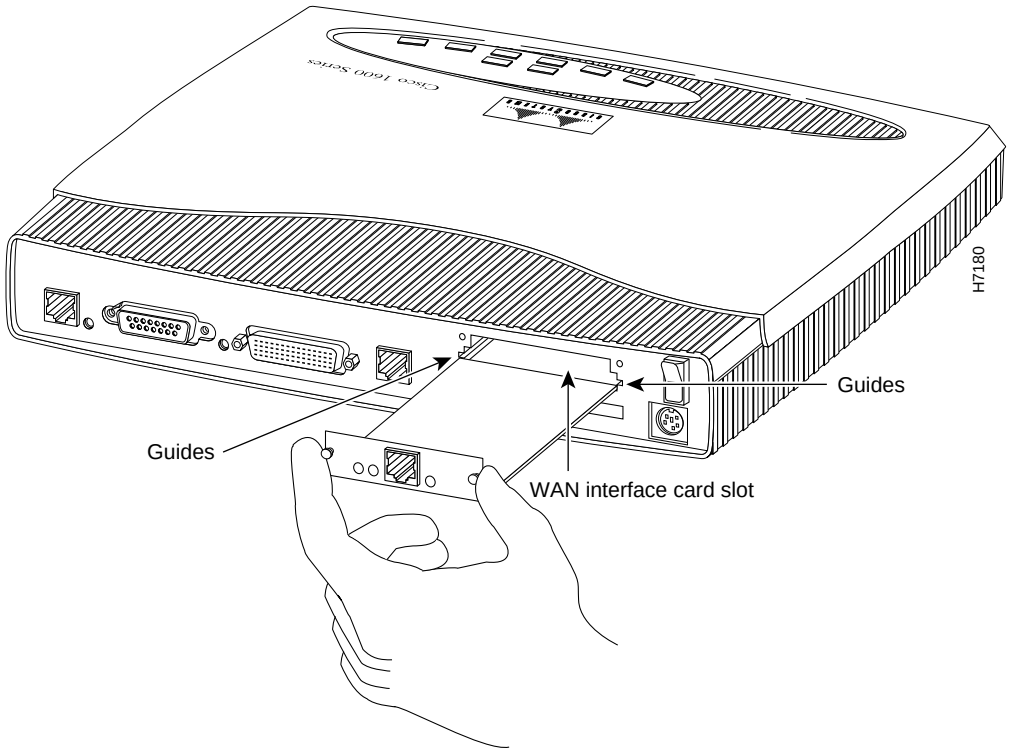


Step 3 Remove the metal plate that covers the WAN interface card slot.

Step 4 Hold the card by the edges on either side the front panel, and line up the edges of the card with the guides. (See Figure 4-5.)

Caution Do not connect a WAN cable to the card until you have completed the installation procedure.

Figure 4-5 Installing the Card in the Router (Cisco 1601 and ISDN BRI U Card Shown)



Step 5 Insert the card in the slot and push it towards the front of the router, until it is firmly seated in the connector (inside the router), and the front panel of the card is flush with the rear panel of the router.

Step 6 Use the Phillips screwdriver to replace the screws removed in Step 2 of this procedure.

Making WAN Interface Card Network Connections

After you install the WAN interface card in the router, you need to connect the card to the WAN. This section describes how to connect the cards' WAN cables.

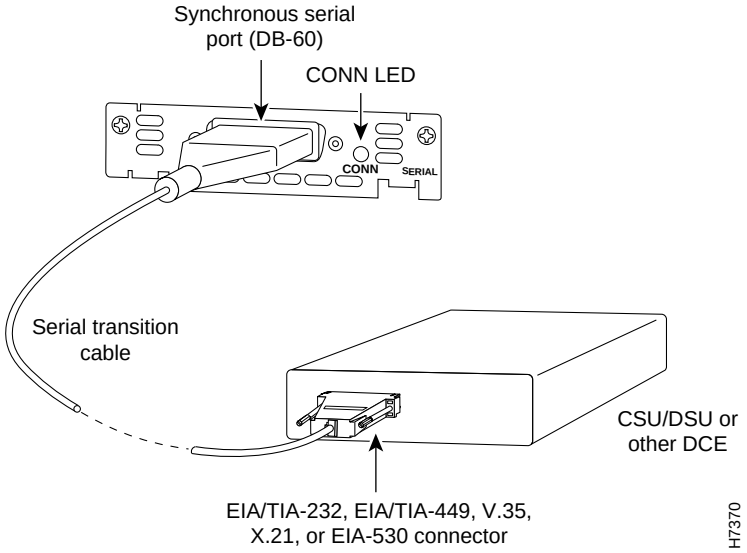
Caution The router should be turned off before making cable connections to the WAN interface card ports.

Serial WAN Interface Card

Use a serial transition cable (RS-232, X.21, EIA-449, EIA-530, V.35) to connect the card's serial port (DB-60) to one of the following (see Figure 4-6):

- Asynchronous modem, if connecting to an analog telephone line
- Synchronous modem, CSU/DSU, or other data circuit-terminating equipment (DCE) if connecting to a digital WAN line.

Figure 4-6 Serial WAN Interface Card—WAN Cabling

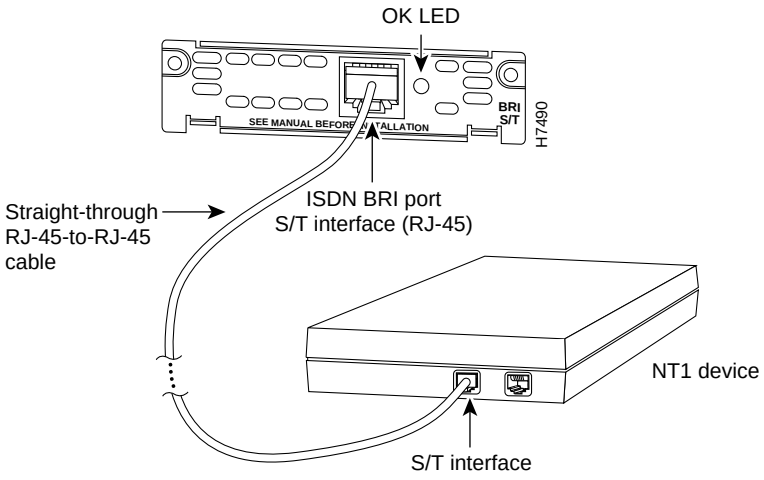


ISDN BRI S/T WAN Interface Card

Use an RJ-45-to-RJ-45 cable (not included) to connect the card's ISDN BRI S/T port to the NT1. (See Figure 4-7.) Refer to the documentation that came with the NT1 for instructions on how to connect the NT1 to ISDN BRI services.

Check the OK LED, which lights when the WAN interface card's ISDN S/T port has synchronized with the central office switch.

Figure 4-7 ISDN BRI S/T WAN Interface Card to NT1—WAN Cabling



ISDN BRI U WAN Interface Card

Use an RJ-45-to-RJ-45 cable (not included) to connect the card's ISDN BRI U port to the ISDN wall jack. (See Figure 4-8.)

Check the NT1 LED, which goes on when the WAN interface card's integrated NT1 has synchronized with the central office switch.

Figure 4-8 ISDN BRI U WAN Interface Card—WAN Cabling