



Overview of Cisco Network Modules

This chapter provides an overview of Cisco network modules used in Cisco modular access routers. It is organized by router:

- Cisco 2600 Series Routers, page 1-1
- Cisco 3600 Series Routers, page 1-7

Cisco 2600 Series Routers

Table 1-1 lists network module options available for Cisco 2600 series routers, with minimum software requirements for Cisco IOS Releases 11.3, 11.3 T, 12.0, and 12.0 T.



Note

References to the Cisco 2600 series include the Cisco 2610, Cisco 2611, Cisco 2612, Cisco 2613, Cisco 2620, and Cisco 2621 models.



Note

Product numbers without an equals sign (=) identify products installed in a router at the factory. Product numbers followed by an equals sign identify the same products sold as spares (separately). The information in this guide applies to both factory-installed products and spares, whether or not the equals sign is shown.

Table 1-1 Network Module Options for Cisco 2600 Series Routers

Network Module	Cisco Product Number	Cisco IOS Release 11.3 T	Cisco IOS Release 12.0	Cisco IOS Release 12.0 T
1-Port Ethernet	NM-1E	11.3(4)T	12.0(1)	12.0(1) T
4-Port Ethernet	NM-4E	11.3(4)T	12.0(1)	12.0(1) T
4-Port/8-Port Asynchronous/ Synchronous Serial	NM-4A/S NM-8A/S	11.3(3)T, 11.3(2) XA	12.0(1)	12.0(1) T
16-Port/32-Port Asynchronous Serial	NM-16A NM-32A	11.3(3)T, 11.3(2) XA	12.0(1)	12.0(1) T
1-Port/2-Port Voice	NM-1V NM-2V	11.3(3)T, 11.3(2) XA	12.0(1)	12.0(1) T
4-Port/8-Port ISDN BRI S/T	NM-4B-S/T NM-8B-S/T	11.3(4)T	12.0(1)	12.0(1) T
4-Port/8-Port ISDN BRI with NT1	NM-4B-U NM-8B-U	11.3(4)T	12.0(1)	12.0(1) T
1-Port/2-Port Channelized T1/ISDN PRI	NM-1CT1 NM-2CT1	11.3(4)T	12.0(1)	12.0(1) T
1-Port/2-Port Channelized T1/ISDN PRI with CSU	NM-1CT1-CSU NM-2CT1-CSU	11.3(4)T	12.0(1)	12.0(1) T
1-Port/2Port Channelized E1/ISDN PRI Unbalanced	NM-1CE1U NM-2CE1U	11.3(4)T	12.0(1)	12.0(1) T
1-Port/2-Port Channelized E1/ISDN PRI Balanced	NM-1CE1B NM-2CE1B	11.3(4)T	12.0(1)	12.0(1) T
8-Port and 16-Port Analog Modem	NM-8AM NM-16AM	11.3(4)T	12.0(1)	12.0(1) T
1-Port ATM-25	NM-1ATM-25	11.3(4)T	12.0(1)	12.0(1) T
1-Port ATM T3/E3	NM-1A-T3 NM-1A-E3	–	–	12.1(2)T
4-Port/8-Port T1/E1 IMA	NM-4T1-IMA NM-8T1-IMA NM-4E1-IMA NM-8E1-IMA	–	–	12.0(5)T

Table 1-1 Network Module Options for Cisco 2600 Series Routers (continued)

Network Module	Cisco Product Number	Cisco IOS Release 11.3 T	Cisco IOS Release 12.0	Cisco IOS Release 12.0 T
High-Density Voice	NM-HDV	–	–	12.0(6)T
2-WAN Card Slots	NM-2W	–	12.0(7)XK	–

Cisco 2600 Series 2-Slot Network Module Hardware Compatibility

Some network modules have two small slots, labeled W0 and W1, for WAN interface cards. Cisco 2600 series routers can use the zero-LAN 2-slot network module (NM-2W) only. This module is compatible with the following WAN interface cards:

- WIC-1T
- WIC-2T
- WIC-1B-S/T
- WIC-1B-U
- WIC-1DSU-56K
- WIC-1DSU-T1
- WIC-2A/S

This module is not compatible with the following voice interface cards:

- VIC-2FXS
- VIC-2BRI-S/T-TE)
- VIC-2FXO-EU
- VIC-2FXO-M3
- VIC-2E/M

The following interface cards are supported in data mode only (not voice):

- VWIC-1MFT-E1
- VWIC-1MFT-T1
- VWIC-2MFT-E1
- VWIC-2MFT-T1
- VWIC-2MFT-E1-DI
- VWIC-2MFT-T1-DI

For more information about these WAN interface cards, refer to the *WAN Interface Cards Hardware Installation Guide*. To obtain this publication, see the “Obtaining Documentation” section on page xx.

Cisco 2600 Series Interface Numbering

Each network interface on a Cisco 2600 series router is identified by a slot number and a port number.

Slot and Port Numbering

The Cisco 2600 series router chassis contains one slot in which you can install a network module. This slot is always numbered 1. Both WAN interface card slots built into the chassis, W0 and W1, are always numbered slot 0.

Port numbers identify the interfaces on the modules and WAN interface cards installed in the router. Port numbers begin at 0 for each slot, and continue from right to left and (if necessary) from bottom to top. Modules and WAN interface cards are identified by interface type, slot number, a forward slash (/), and the port number, for example Ethernet 0/0.

Figure 1-1 shows a router with a 2E 2-slot module in slot 1. One serial and one ISDN BRI WAN interface card are installed in the module.

Figure 1-1 Cisco 2600 Series Port Numbers

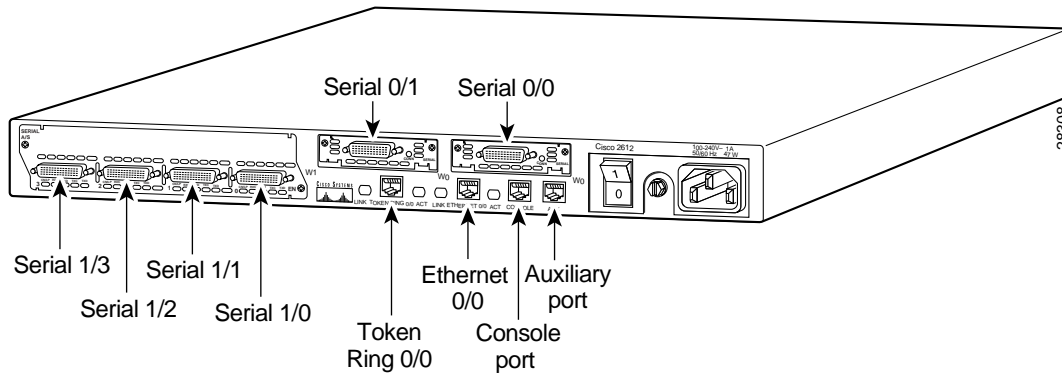


Figure 1-1 shows the following interface numbers:

- First Ethernet interface—Ethernet 0/0
- Token ring interface—Token Ring 0/0
- Slot W0, serial interface 0—Serial 0/0
- Slot W1, serial interface 1—Serial 0/1
- Slot 1, asynchronous/synchronous serial port 0—Serial 1/0
- Slot 1, asynchronous/synchronous serial port 1—Serial 1/1
- Slot 1, asynchronous/synchronous serial port 2—Serial 1/2
- Slot 1, asynchronous/synchronous serial port 3—Serial 1/3

Voice Interface Numbering in Cisco 2600 Series Routers

Voice interfaces are numbered differently from WAN interfaces. Voice interfaces are numbered as follows:

interface-type chassis-slot/voice module slot/voice port

If you have a four-channel voice network module installed in slot 1 of your router, the voice interfaces are:

- Slot 1, voice network module slot 0, voice port 0—Voice 1/0/0 (closest to the chassis WAN interface card slots)
- Slot 1, voice network module slot 0, voice port 1—Voice 1/0/1
- Slot 1, voice network module slot 1, voice port 0—Voice 1/1/0
- Slot 1, voice network module slot 1, voice port 1—Voice 1/1/1 (farthest from the chassis WAN interface card slots)

Cisco 3600 Series Routers

The Cisco 3600 series includes the Cisco 3620 router (see Figure 1-2), Cisco 3640 (see Figure 1-3), and Cisco 3660 (see Figure 1-4).

**Note**

References to the Cisco 3660 router include the Cisco 3661 and Cisco 3662 models.

The Cisco 3620 has two network module slots, the Cisco 3640 has four slots, and the Cisco 3660 has six slots. Each network module slot accepts a variety of network module interface cards, supporting a variety of LAN and WAN technologies.

Figure 1-2 Cisco 3620 Router Rear View

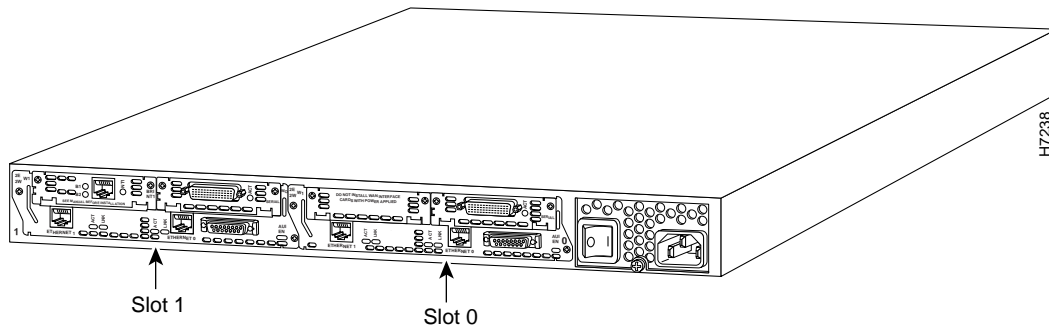


Figure 1-3 Cisco 3640 Router Rear View

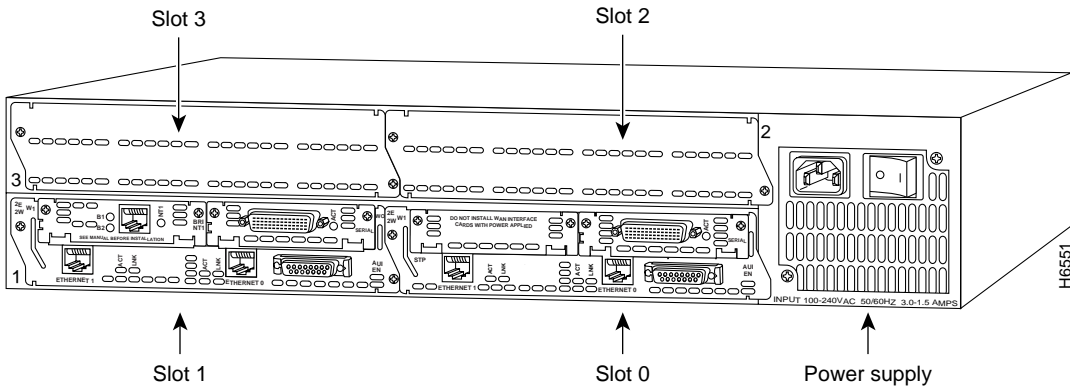


Figure 1-4 Cisco 3660 Router Rear View

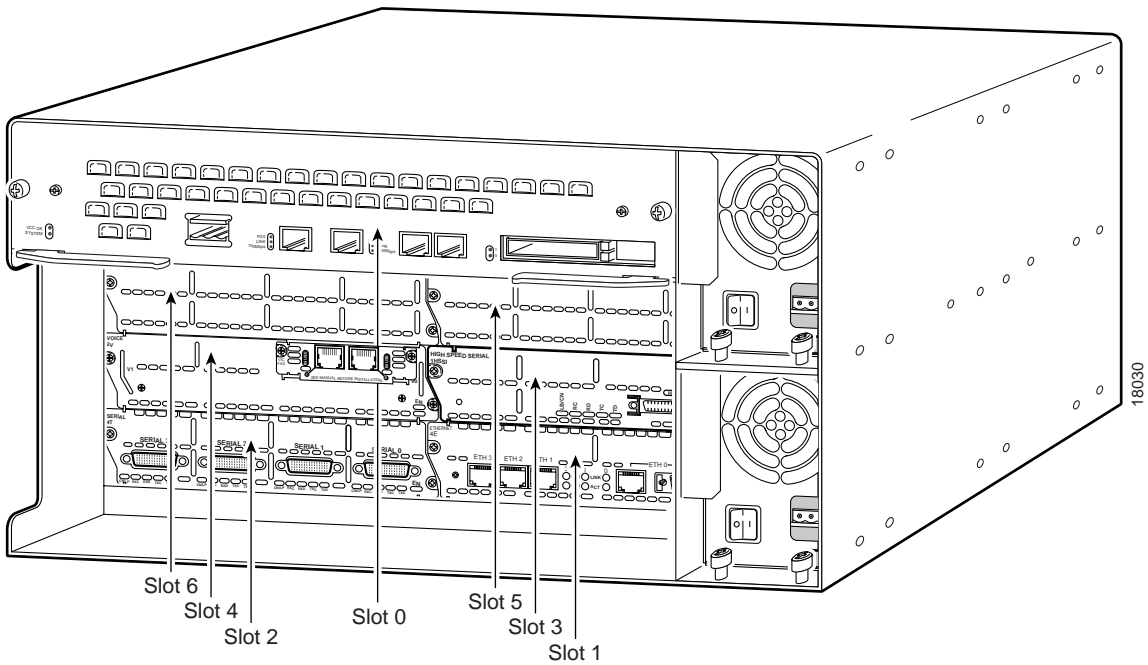


Table 1-2 lists network module options for Cisco 3600 series routers, with minimum software requirements for Cisco IOS Releases 11.1, 11.2, 11.3, and 11.3 T. Table 1-3 lists network module options for Cisco 3600 series routers, with minimum software requirements for Cisco IOS Releases 12.0 and 12.0 T.



Note Part numbers without an equals sign (=) identify products installed in a router at the factory. Part numbers followed by an equals sign identify the same products sold as spares (separately). The information in this guide applies to both factory-installed products and spares, whether or not the equals sign is shown.



Note Some network modules appear in both Table 1-2 and Table 1-3. The Cisco 3620 and Cisco 3640 routers, which are earlier platforms, support these network modules with the earlier Cisco IOS software releases shown in Table 1-2. All network modules listed in Table 1-2 are also supported in Cisco IOS Release 12.0 or higher. The Cisco 3660 router, a newer platform, supports the same network modules with more recent IOS releases shown in Table 1-3.

Table 1-2 Network Module Options for Cisco 3600 Series Routers, Cisco IOS Releases up to 11.3 T

Network Module	Cisco Product Number	Cisco IOS Release 11.1	Cisco IOS Release 11.2	Cisco IOS Release 11.3	Cisco IOS Release 11.3 T
1-Port Ethernet	NM-1E	–	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
1-Port Fast Ethernet TX	NM-1FE-TX	–	11.2(6)P	11.3(1)	11.3(1)T
1-Port Fast Ethernet FX	NM-1FE-FX	–	–	–	11.3(1)T
1-Port Fast Ethernet 1-Port or 2-Port T1/ISDN PRI	NM-1FE1CT1 NM-1FE1CT1-CSU NM-1FE2CT1 NM-1FE2CT1-CSU	–	–	–	11.3(4)T1

Table 1-2 Network Module Options for Cisco 3600 Series Routers, Cisco IOS Releases up to 11.3 T (continued)

Network Module	Cisco Product Number	Cisco IOS Release 11.1	Cisco IOS Release 11.2	Cisco IOS Release 11.3	Cisco IOS Release 11.3 T
1-Port Fast Ethernet 1-Port or 2-Port E1/ISDN PRI	NM-1FE1CE1B NM-1FE1CE1U NM-1FE2CE1B NM-1FE2CE1U	–	–	–	11.3(4)T1
4-Port Ethernet	NM-4E	–	11.2(6)P	11.3(1)	11.3(1)T
1-Port Ethernet 2-WAN Card Slot	NM-1E2W	11.1(7)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
2-Port Ethernet 2-WAN Card Slot	NM-2E2W	11.1(7)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
1-Port Ethernet 1-Port Token Ring 2-WAN Card Slot	NM-1E1R2W	11.1(8)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
4-Port Serial	NM-4T	–	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
4-Port/8-Port Asynchronous/ Synchronous Serial	NM-4A/S NM-8A/S	11.1(7)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
16-Port/32-Port Asynchronous Serial	NM-16A NM-32A	–	11.2(7a)P	11.3(1)	11.3(1)T
4-Port/8-Port ISDN BRI S/T	NM-4B-S/T NM-8B-S/T	11.1(7)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
4-Port/8-Port ISDN BRI with NT1	NM-4B-U NM-8B-U	11.1(7)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
1-Port/2-Port Channelized T1/ ISDN PRI	NM-1CT1 NM-2CT1	11.1(7)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
1-Port/2-Port Channelized T1/ ISDN PRI with CSU	NM-1CT1-CSU NM-2CT1-CSU	11.1(7)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T

Table 1-2 Network Module Options for Cisco 3600 Series Routers, Cisco IOS Releases up to 11.3 T (continued)

Network Module	Cisco Product Number	Cisco IOS Release 11.1	Cisco IOS Release 11.2	Cisco IOS Release 11.3	Cisco IOS Release 11.3 T
1-Port/2-Port Channelized E1/ISDN PRI Unbalanced	NM-1CE1U NM-2CE1U	11.1(7)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
1-Port/2-Port Channelized E1/ISDN PRI Balanced	NM-1CE1B NM-2CE1B	11.1(7)AA	11.2(4)XA, 11.2(5)P	11.3(1)	11.3(1)T
1-Port/2-Port Voice	NM-1V NM-2V	–	–	–	11.3(1)T
6-Port/12-Port/18-Port/24-Port/30-Port Digital Modem	NM-6DM NM-12DM NM-18DM NM-24DM NM-30DM	–	11.2(9)XA 11.2(10)P	–	11.3(2)T
8-Port and 16-Port Analog Modem	NM-8AM NM-16AM	–	–	–	11.3(4)T
1-Port ATM-25	NM-ATM-25	–	–	–	11.3(3a)T
1-Port HSSI	NM-1HSSI	–	–	–	11.3(3)T
Compression	NM-COMPR	–	11.2(7a)P	11.3(1)	11.3(1)T

Table 1-3 Network Module Options for Cisco 3600 Series Routers
Cisco IOS Releases 12.0 and 12.0 T

Network Module	Cisco Product Number	Cisco IOS Release 12.0	Cisco IOS Release 12.0 T	Cisco IOS Release 12.1 T
1-Port Fast Ethernet 1-Port or 2-Port T1/ISDN PRI	NM-1FE1CT1 NM-1FE1CT1-CSU NM-1FE2CT1 NM-1FE2CT1-CSU	–	12.0(1)T	12.1(1)T
1-Port Fast Ethernet 1-Port or 2-Port E1/ISDN PRI	NM-1FE1CE1B NM-1FE1CE1U NM-1FE2CE1B NM-1FE2CE1U	–	12.0(1)T	12.1(1)T
High-Density Voice	NM-HDV	–	12.0(6)T	12.1(1)T
4-Port/8-Port ISDN BRI S/T	NM-4B-S/T NM-8B-S/T	12.0(7)XK	–	12.1(1)T
4-Port/8-Port ISDN BRI with NT1	NM-4B-U NM-8B-U	12.0(7)XK	–	12.1(1)T
1-Port/2-Port Channelized T1/ISDN PRI	NM-1CT1 NM-2CT1	12.0(7)XK	–	12.1(1)T
1-Port/2-Port Channelized T1/ISDN PRI with CSU	NM-1CT1-CSU NM-2CT1-CSU	12.0(7)XK	–	12.1(1)T
1-Port/2-Port Channelized E1/ISDN PRI Unbalanced	NM-1CE1U NM-2CEIU	12.0(7)XK	–	12.1(1)T
1-Port/2-Port Channelized E1/ISDN PRI Balanced	NM-1CE1B NM-2CE1B	12.0(7)XK	–	12.1(1)T
6-Port/12-Port/18-Port/ 24-Port/ 30-Port Digital Modem ¹	NM-6DM NM-12DM NM-18DM NM-24DM NM-30DM	12.0(7)XK	–	12.1(1)T
8-Port and 16-Port Analog Modem ²	NM-8AM NM-16AM	12.0(7)XK	–	12.1(1)T
1-Port ATM-25	NM-1ATM-25	12.0(7)XK	–	12.1(1)T

Table 1-3 Network Module Options for Cisco 3600 Series Routers
Cisco IOS Releases 12.0 and 12.0 T (continued)

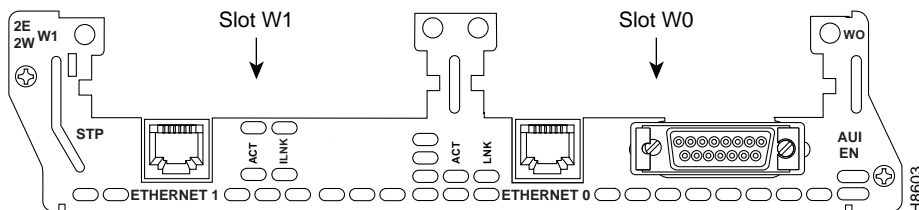
Network Module	Cisco Product Number	Cisco IOS Release 12.0	Cisco IOS Release 12.0 T	Cisco IOS Release 12.1 T
1-Port ATM T3/E3	NM-1A-T3 NM-1A-E3	–	–	12.1(2)T
1-Port ATM OC-3	NM-1A-OC3MM NM-1A-OC3SMI NM-1A-OC3SML	–	12.0(3)T	12.1(1)T
1-Port OC-3/STM-1 ATM Circuit Emulation Service	NM-1A-OC3MM-1V NM-1A-OC3SMI-1V NM-1A-OC3SML-1V	–	–	12.1(2)T
4-Port/8-Port T1/E1 IMA	NM-8T1-IMA NM-4T1-IMA NM-8E1-IMA NM-4E1-IMA	–	12.0(5)T	12.1(1)T
1-Port Fast Ethernet 1-Port or 2-Port T1/ISDN PRI	NM-IFE1CT1 NM-IFE1CT1-CSU NM-IFE2CT1 NM-IFE2CT1-CSU	12.0(7)XK	–	12.1(1)T
1-Port Fast Ethernet 1-Port or 2-Port E1/ISDN PRI	NM-1FE1CE1B NM-1FE1CE1U NM-1FE2CE1B NM-1FE2CE1U	12.0(7)XK	–	12.1(1)T
0-Port/1-Port/2-Port Fast Ethernet 2-WAN Card Slots	NM-2W NM-1FE2W NM-2FE2W	12.0(7)XK	–	12.1(1)T
1-Port Fast Ethernet 1-Port Token Ring 2-WAN Card Slots	NM-1FE1R2W	12.0(7)XK	–	12.1(1)T

1. Digital modem network modules do not have online insertion and removal (OIR) functionality implemented in this Cisco IOS release.
2. Analog modem network modules do not have OIR functionality implemented in this Cisco IOS release.

Cisco 3600 Series 2-Slot Network Module Hardware Compatibility

Some network modules have two small slots, labeled W0 and W1, for WAN interface cards. Figure 1-5 shows the W0 and W1 slots of the 2-Ethernet 2-WAN card slot module.

Figure 1-5 WAN Interface Card Slots



All 2-slot network modules are compatible with the following WAN interface cards:

- WIC-1T
- WIC-2T
- WIC-1B-S/T
- WIC-1B-U
- WIC-1DSU-56K
- WIC-1DSU-T1
- WIC-2A/S

These modules are not compatible with the following voice interface cards:

- VIC-2FXS
- VIC-2BRI-S/T-TE)
- VIC-2FXO-EU
- VIC-2FXO-M3
- VIC-2E/M

The following interface cards are supported in data mode only (not voice):

- VWIC-1MFT-E1
- VWIC-1MFT-T1
- VWIC-2MFT-E1
- VWIC-2MFT-T1
- VWIC-2MFT-E1-DI
- VWIC-2MFT-T1-DI

For more information about these WAN interface cards, refer to the *WAN Interface Cards Hardware Installation Guide*. To obtain this publication, see the “Obtaining Documentation” section on page xx.

Cisco 3600 Series Interface Numbering

Each network interface on a Cisco 3600 series router is identified by a slot number and a port number.

Slot Numbering

A Cisco 3600 series router chassis contains two, four, or six slots in which you can install modules. You can install any module into any available slot in the chassis.

For the Cisco 3620 router, shown in Figure 1-2, the slots are numbered as follows:

- Slot 0 is at the bottom right (as viewed from the rear of the chassis), near the power supply.
- Slot 1 is at the bottom left.

The Cisco 3640 router, shown in Figure 1-3, adds the following slots:

- Slot 2 is at the top right, above slot 0.
- Slot 3 is at the top left, above slot 1.

The Cisco 3660 router, shown in Figure 1-4, uses a different numbering system:

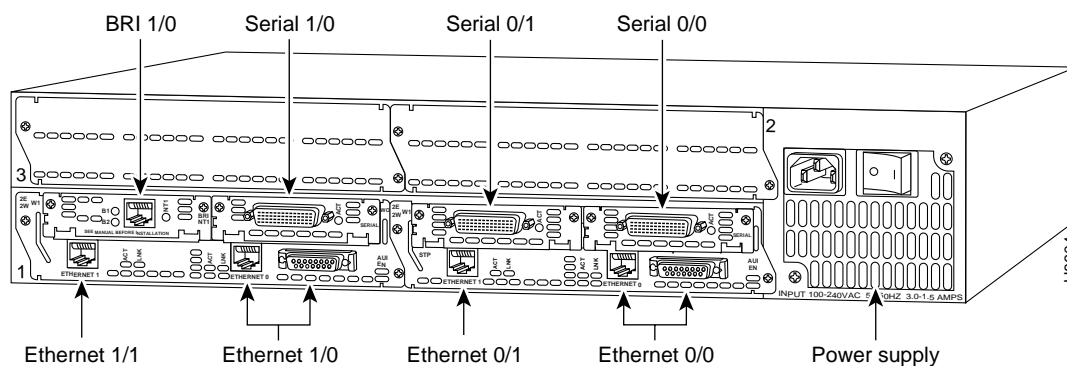
- Slot 0 contains fixed Fast Ethernet ports and is located at the top of the chassis.
- Slot 1 is at the bottom right (as viewed from the rear of the chassis), near the power supply.
- Slot 2 is at the bottom left.
- Slot 3 is at the right, above slot 1.
- Slot 4 is at the left, above slot 2.
- Slot 5 is at the right, above slot 3.
- Slot 6 is at the left, above slot 4.

Port Numbering

Port numbers begin at 0 for each slot, and continue from right to left and (if necessary) from bottom to top. Modules and WAN interface cards are identified by interface type, slot number, a forward slash (/), and the port number, for example Ethernet 0/0.

Figure 1-6 shows a router with 2-Ethernet 2-slot modules in slots 0 and 1. Two serial WAN interface cards are installed in the module in slot 0. One serial and one ISDN BRI WAN interface card are installed in the module in slot 1.

Figure 1-6 Cisco 3660 Series Port Numbers



As shown in Figure 1-6, the port numbers for this router are:

- Slot 0, Ethernet interface 0—Ethernet 0/0
- Slot 0, Ethernet interface 1—Ethernet 0/1
- Slot 0, serial interface 0—Serial 0/0
- Slot 0, serial interface 1—Serial 0/1
- Slot 1, Ethernet interface 0—Ethernet 1/0
- Slot 1, Ethernet interface 1—Ethernet 1/1
- Slot 1, serial interface 0—Serial 1/0
- Slot 1, BRI interface 0—BRI 1/0

**Note**

The 2-Ethernet 2-slot module described in this example provides both an attachment unit interface (AUI) and a 10BaseT connector for port 0. Only one of these connectors can be used at a time.

Voice Interface Numbering in Cisco 3600 Series Routers

Voice interfaces are numbered differently from WAN interfaces. Voice interfaces are numbered as follows:

interface-type chassis-slot/voice module slot/voice port

If you have a four-channel voice network module installed in slot 1 of your router, the voice interfaces are:

- Slot 1, voice network module slot 0, voice port 0—Voice 1/0/0 (closest to chassis slot 0)
- Slot 1, voice network module slot 0, voice port 1—Voice 1/0/1
- Slot 1, voice network module slot 1, voice port 0—Voice 1/1/0
- Slot 1, voice network module slot 1, voice port 1—Voice 1/1/1 (farthest from chassis slot 0)

