



Overview of Cisco Interface Cards

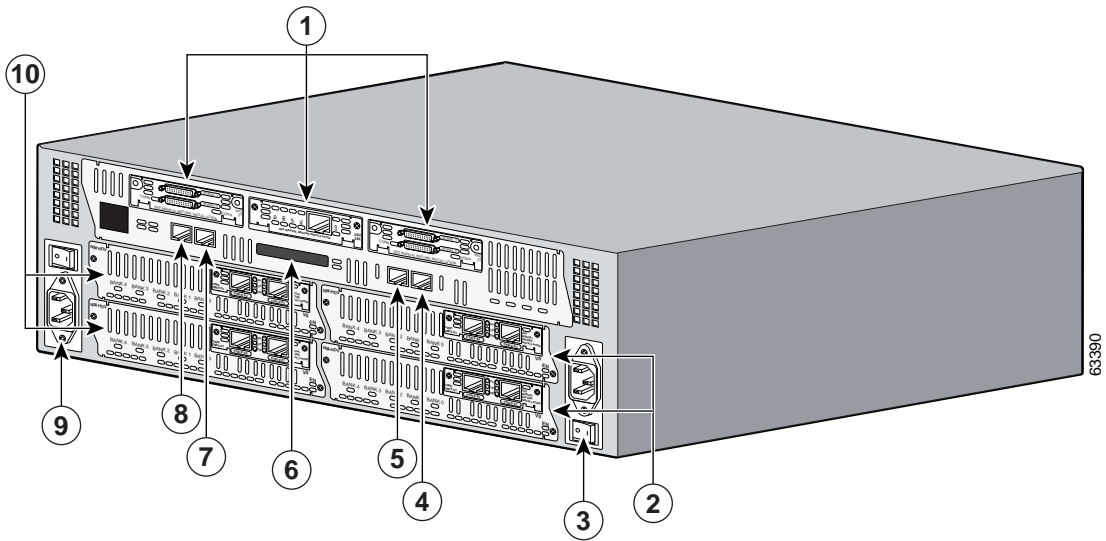
This chapter provides an overview of Cisco interface cards used in modular routers, and includes these sections:

- [Cisco 3700 Series Routers, page 1-1](#)
- [Cisco 3600 Series Routers, page 1-8](#)
- [Cisco 2600 Series Routers, page 1-22](#)
- [Cisco 1700 Series Routers, page 1-29](#)
- [Cisco 1600 Series Routers, page 1-35](#)
- [Cisco ICS 7750, page 1-39](#)
- [Cisco MWR 1941-DC Router, page 1-42](#)
- [Regulatory Compliance Information and Safety, page 1-46](#)

Cisco 3700 Series Routers

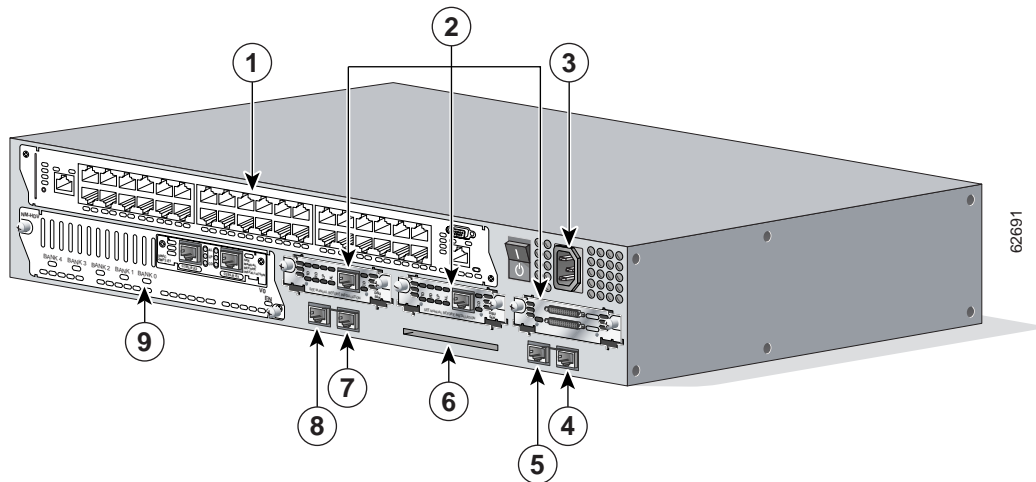
The Cisco 3700 series is a multifunction, modular platform that combines dial access, routing, LAN-to-LAN services, and multiservice integration of voice, video, and data in the same device. The Cisco 3700 series includes Cisco 3745 (see [Figure 1-4](#)) and Cisco 3725 routers (see [Figure 1-5](#)). Each router in the Cisco 3700 series has three built-in slots for interface cards.

Figure 1-1 Rear Panel of the Cisco 3745 Router



1	Interface card slots	6	Cisco 3700 Compact Flash slot
2	Network modules	7	Auxiliary port
3	Power supply	8	Console port
4	Fast Ethernet 0/0	9	Power supply
5	Fast Ethernet 0/1	10	Network modules

Figure 1-2 Rear Panel of the Cisco 3725 Router



1	Double-width network module slot	6	Compact Flash slot
2	Interface card slots	7	Fast Ethernet 0/0
3	Power supply	8	Fast Ethernet 0/1
4	Auxiliary port	9	Single-width network module slot
5	Console port		

Cisco 3700 Series Interface Numbering

Each network interface on a Cisco 3700 series router is identified by a slot number and a port number.

Slot Numbering

A Cisco 3725 router includes two slots in which you can install network modules. The upper slot can accommodate either a single-width or double-width network module. The slot numbers are as follows:

- 1 for interfaces in the lower network module slot
- 2 for interfaces in the upper network module slot

A Cisco 3745 router includes four slots in which you can install network modules. Each pair of slots can be combined to accommodate a double-width network module. The slot numbers are as follows:

- 1 for interfaces in the lower-right network module slot
- 2 for interfaces in the lower-left network module slot
- 3 for interfaces in the upper-right network module slot
- 4 for interfaces in the upper-left network module slot
- 2 for interfaces in the lower double-width slot
- 4 for interfaces in the upper double-width slot

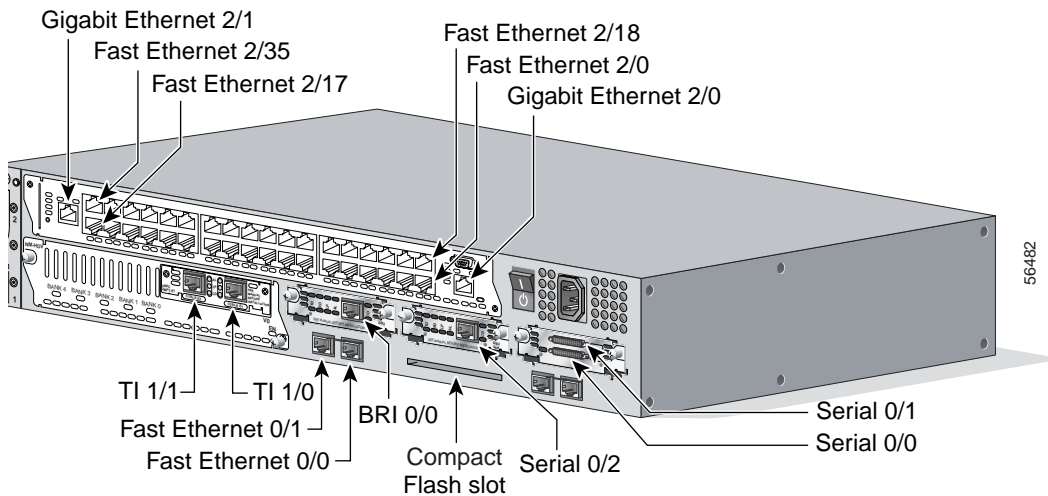
Port Numbering

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

[Figure 1-3](#) shows an example of interface numbering on a Cisco 3725 router with the following configuration:

- A WAN interface card (WIC) in each WIC slot
- A 2-port T1 network module in slot 1 (containing the following ports: T1 1/0 and T1 1/1)
- A 36-port Ethernet switch network module in slot 2 (containing the following ports: Fast Ethernet 2/0 through 2/35, and Gigabit Ethernet 2/0 and 2/1)
- Two built-in Ethernet 10/100 interfaces—Fast Ethernet 0/0 and Fast Ethernet 0/1

Figure 1-3 Cisco 3700 Series Port Numbers



Voice Interface Numbering in Cisco 3700 Series Routers

Voice interfaces are numbered differently from the WAN interfaces described in the “[Port Numbering](#)” section on page 1-4. Voice interfaces are numbered as follows:

network module slot/voice module slot/voice interface

If a 4-channel voice network module is installed in network module slot 1, the voice interfaces are:

- 1/0/0—Network module slot 1/voice module slot 0/voice interface 0
- 1/0/1—Network module slot 1/voice module slot 0/voice interface 1
- 1/1/0—Network module slot 1/voice module slot 1/voice interface 0
- 1/1/1—Network module slot 1/voice module slot 1/voice interface 1

Interface Card Options for Cisco 3700 Series Routers

Table 1-1 lists the interface cards and their Cisco IOS release requirements for Cisco 3700 series routers. Voice interface cards (VICs) cannot be installed in the built-in interface card slots in a Cisco 3700 series router. They can be installed only in voice network modules (NM-1V, NM-2V, NM-HD-1V, NM-HD-2V, or NM-HD-2VE). Restrictions on the use of interface cards are indicated in the footnotes.

The earliest supported release is not necessarily the recommended release. Refer to the applicable release notes for release information specific to your interface cards.

Table Conventions:

- Limited lifetime releases—Only the listed releases support the interface card.
- T-train releases and mainline releases—The earliest release that supports the interface card is listed. Unless otherwise indicated, all later releases support the interface card.

Table 1-1 Supported Interface Cards for Cisco 3700 Series Routers

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2-Port ISDN BRI Voice (VIC-2BRI-S/T-TE) ¹	–	12.2(8)T	12.3(1)
2-Port ISDN BRI Voice (VIC2-2BRI-NT/TE) ²	12.2(15)ZJ	12.3(4)T	–
2-Port E&M Voice/Fax (VIC-2E/M) ¹	–	12.2(8)T	12.3(1)
2-Port E&M Voice/Fax (VIC2-2E/M) ²	12.2(15)ZJ	12.3(4)T	–
2-Port FXO Voice/Fax (VIC-2FXO-EU) ¹	–	12.2(8)T	12.3(1)
Note For use in Europe.			
2-Port E&M Voice/Fax (VIC-2FXO-M1) ¹	–	12.2(8)T	12.3(1)
2-Port FXO Voice/Fax (VIC-2FXO-M2) ¹	–	12.2(8)T	12.3(1)
2-Port E&M Voice/Fax (VIC-2FXO-M3) ¹	–	12.2(8)T	12.3(1)
2-Port FXO Voice/Fax (VIC-2FXO) ¹	–	12.2(8)T	12.3(1)

Table 1-1 Supported Interface Cards for Cisco 3700 Series Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2-Port FXO Voice/Fax (VIC2-2FXO) ²	12.2(15)ZJ	–	–
4-Port FXO Voice/Fax (VIC2-4FXO) ²	12.2(15)ZJ	12.3(4)T	–
2-Port FXS Voice/Fax (VIC-2FXS) ¹	–	12.2(8)T	12.3(1)
2-Port FXS Voice/Fax (VIC2-2FXS) ²	12.2(15)ZJ	–	–
1-Port E1 Multiflex Trunk (VWIC-1MFT-E1)	–	12.2(8)T	12.3(1)
1-Port E1 Multiflex Trunk with G.703 Support (VWIC-1MFT-G703)	–	12.2(8)T	12.3(1)
1-Port T1 Multiflex Trunk (VWIC-1MFT-T1)	–	12.2(8)T	12.3(1)
2-Port T1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-T1-DI)	–	12.2(8)T	12.3(1)
2-Port E1 Multiflex Trunk (VWIC-2MFT-E1)	–	12.2(8)T	12.3(1)
2-Port E1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-E1-DI)	–	12.2(8)T	12.3(1)
2-Port E1 Multiflex Trunk with G.703 Support (VWIC-2MFT-G703)	–	12.2(8)T	12.3(1)
2-Port T1 Multiflex Trunk (VWIC-2MFT-T1)	–	12.2(8)T	12.3(1)
1-Port ADSL (WIC-1-ADSL)	–	12.2(8)T	12.3(1)
1-Port Analog Modem WAN (WIC-1AM)	–	12.2(8)T	12.3(1)
2-Port Analog Modem WAN (WIC-2AM)	–	12.2(8)T	12.3(1)
1-Port ISDN BRI S/T ³ (WIC-1B-S/T)	–	12.2(8)T	12.3(1)
1-Port ISDN BRI S/T ³ (WIC-1B-S/T-V2)	–	12.3(1)T	12.3(1)
1-Port ISDN BRI U ⁴ (WIC-1B-U)	–	12.2(8)T	12.3(1)
1-Port ISDN BRI U ⁴ (WIC-1B-U-V2)	–	12.2(11)T3	12.3(1)
1-Port 54- or 64-kbps DSU/CSU (WIC-1DSU-56K4)	–	12.2(8)T	12.3(1)
2-Port Asynchronous/Synchronous (WIC-2A/S)	–	12.2(8)T	12.3(1)

Table 1-1 Supported Interface Cards for Cisco 3700 Series Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2-Port Serial (WIC-2T)	–	12.2(8)T	12.3(1)
1-Port Serial (WIC-1T)	12.2(11)YT	12.2(13)T	12.3(1)
1-Port T1 (WIC-1DSU-T1)	12.2(11)YT	12.2(13)T	12.3(1)
1-Port T1, version 2 (WIC-1DSU-T1-V2)	–	12.3(1)T	12.3(1)
1-Port G.SHDSL WAN (WIC-1-SHDSL)	12.2(11)YT	12.2(13)T	12.3(1)
1-Port G.SHDSL WAN (WIC-1SHDSL-V2)	12.3(4)XD	–	–
1-Port ADSL over ISDN with Dying Gasp (WIC-1ADSL-I-DG)	12.2.(15)ZJ	–	–
1-Port ADSL over POTS with Dying Gasp (WIC-1ADSL-DG)	12.3(4)XD	–	–

1. Cannot be installed in built-in interface card slots. Requires voice network module (NM-1V or NM-2V).
2. Cannot be installed in built-in interface card slots. Requires voice network modules (NM-HD-1V, NM-HD-2V, or NM-HD-2VE).
3. Some ISDN service providers require an external Network Termination 1 (NT1) device to connect an ISDN S/T port to the ISDN line. If your service provider requires this, you must provide the NT1.
4. The BRI U module does not require an external NT1.

Cisco 3600 Series Routers

The Cisco 3600 series is a multifunction, modular platform that combines dial access, routing, LAN-to-LAN services, and multiservice integration of voice, video, and data in the same device. The Cisco 3600 series includes Cisco 3660 (see [Figure 1-4](#)), Cisco 3640 (see [Figure 1-5](#)), and Cisco 3620 routers (see [Figure 1-6](#)).

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

Figure 1-4 Cisco 3660 Router Rear View

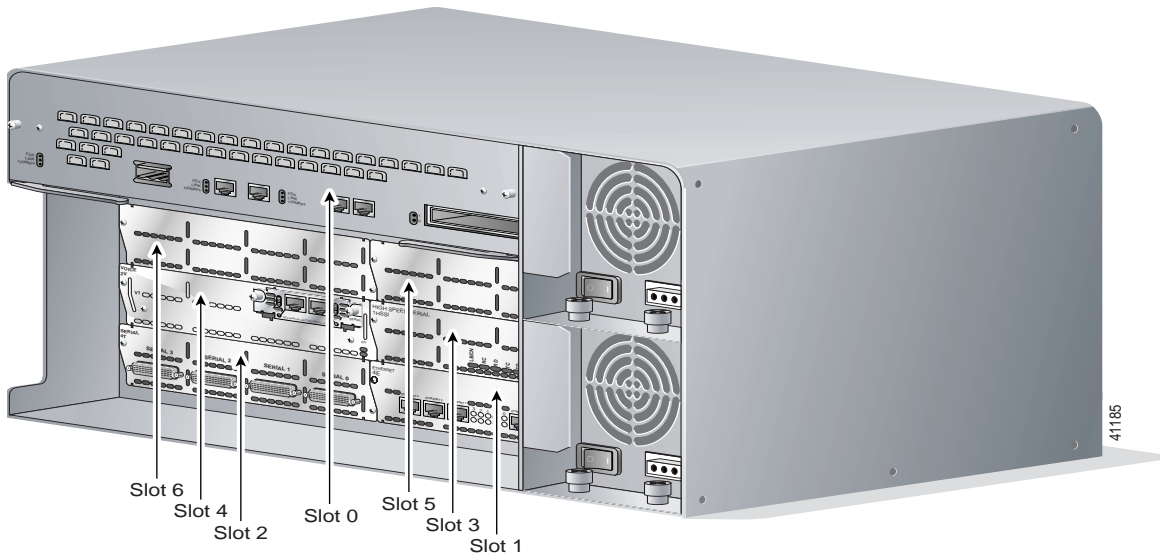


Figure 1-5 Cisco 3640 Router Rear View

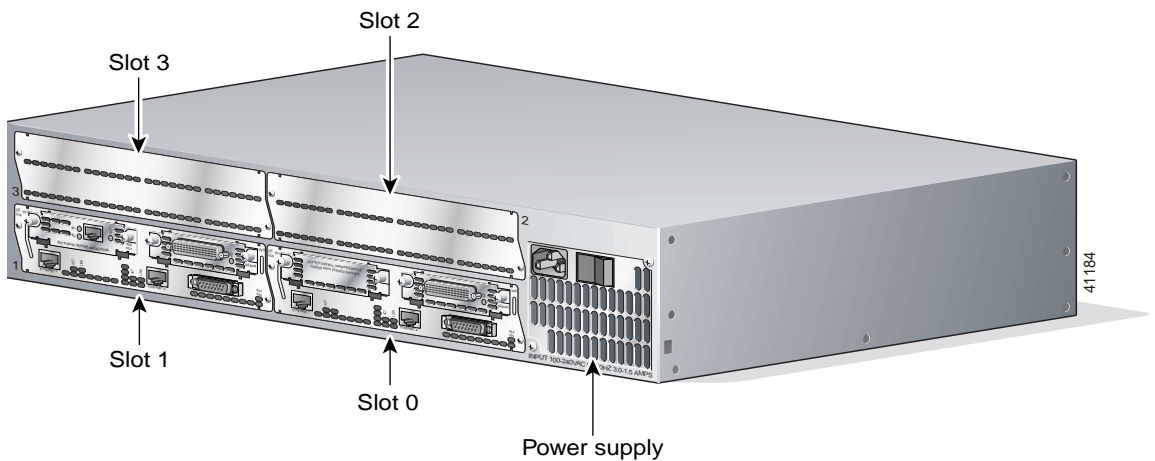
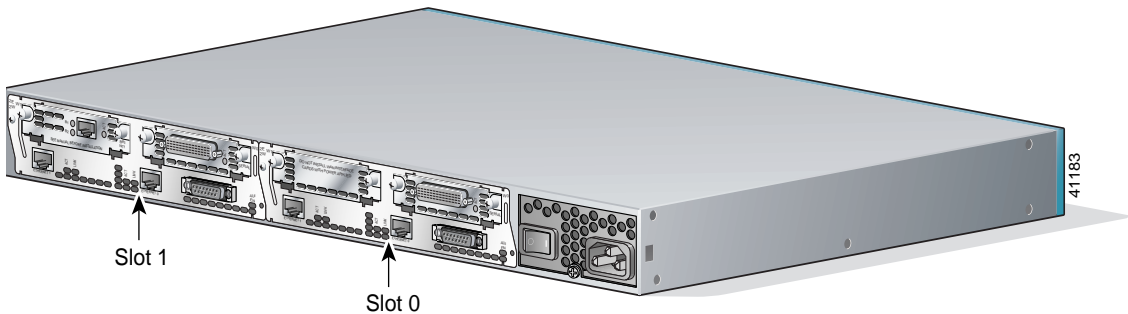


Figure 1-6 Cisco 3620 Router Rear View



Cisco 3600 Series Interface Numbering

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

Slot Numbering

The 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 3660 router (see [Figure 1-4](#)), the slots are numbered as follows:

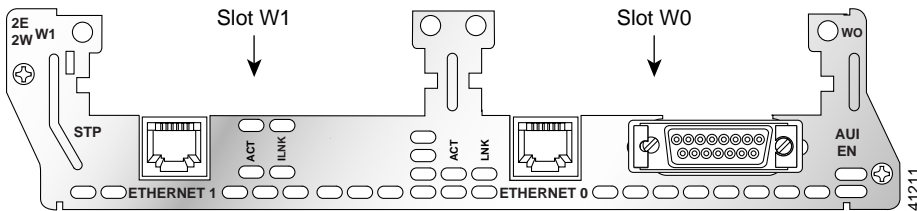
- Slot 0 contains fixed Fast Ethernet ports and is located at the top of the chassis.
- Slot 1 is at the bottom right (as viewed from the rear of the chassis), near the power supply.
- Slot 2 is at the bottom left.
- Slot 3 is at the right, above slot 1.
- Slot 4 is at the left, above slot 2.
- Slot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

For the Cisco 3620 and Cisco 3640 routers shown in [Figure 1-5](#) and [Figure 1-6](#), 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.
- Slot 2 is at the top right, above slot 0.
- Slot 3 is at the top left, above slot 1.

Some modules have two small slots, labeled W0 and W1, for interface cards. [Figure 1-7](#) shows the W0 and W1 slots of the 2-Ethernet 2-card slot (2E 2-slot) module. You can install interface cards into the small module slots, and serial interface cards can be installed into either slot W0 or W1.

Figure 1-7 Interface Card Slots



Unit Numbering

Cisco 3600 series routers have unit numbers that identify the interfaces on the modules and interface cards installed in the router. Unit numbers begin at 0 for each interface type, and continue from right to left and (if necessary) from bottom to top. Modules and interface cards are identified by interface type, slot number, followed by a forward slash (/), and then the unit number; for example, Ethernet 0/0.



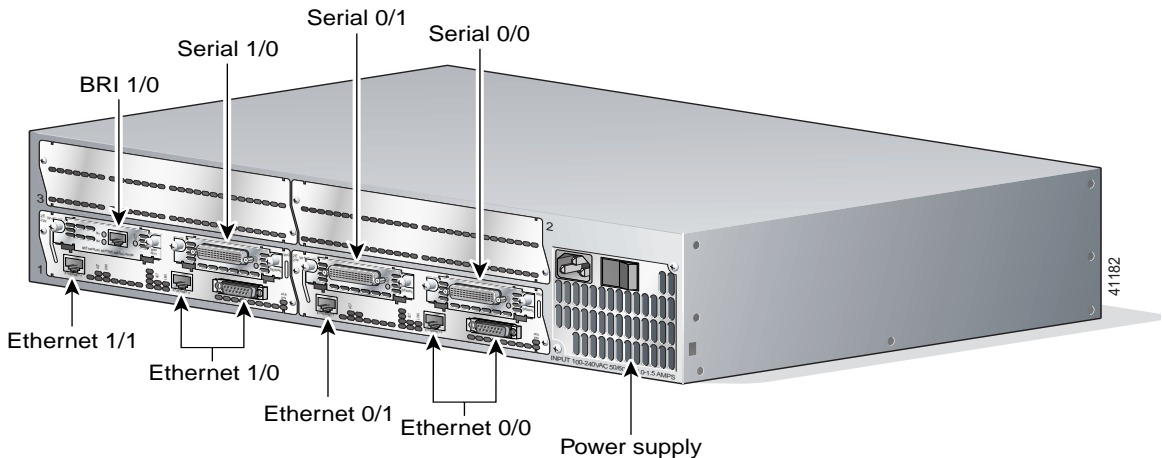
Note

In the Cisco 3660 router, the fixed Fast Ethernet ports are located in chassis slot 0 and are identified by *interface type chassis slot/unit number*; for example, Fast Ethernet 0/0.

Figure 1-8 shows a router with a 2E 2-slot module 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.

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

Figure 1-8 Cisco 3600 Series Unit Numbers



Voice Interface Numbering in Cisco 3600 Series Routers

Voice interfaces are numbered differently from WAN interfaces described in the “Unit Numbering” section on page 1-11. Voice interfaces are shown as follows:

interface type chassis slot/voice module slot/voice interface

For example, Slot 1, voice network module slot 0, is referred to as *voice 1/0/0* (closest to chassis slot 0).

Interface Card Options for Cisco 3600 Series Routers

See the following sections for interface card options:

- [Cisco 3620 and Cisco 3640 Series Routers](#)
- [Cisco 3660 Series Routers](#)

Cisco 3620 and Cisco 3640 Series Routers

[Table 1-2](#) lists the interface cards and their Cisco IOS release requirements for Cisco 3620 and Cisco 3640 routers. Voice interface cards (VICs) can be used in voice network modules only (NM-1V, NM-2V, NM-HD-1V, NM-HD-2V, or NM-HD-2VE). Restrictions on the use of interface cards are indicated in the footnotes.



Note

The earliest supported release is not necessarily the recommended release. Refer to the applicable release notes for release information specific to your interface cards.

Table Conventions:

- Limited lifetime releases—Only the listed releases support the interface card.
- T-train releases and mainline releases—The earliest release that supports the interface card is listed. Unless otherwise indicated, all later releases support the interface card.

Table 1-2 Cisco IOS Releases Required for Interface Cards in Cisco 3620 and Cisco 3640 Routers

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port Serial (WIC-1T)	11.1(7)AA 11.2(4)XA 11.2(5)P 12.2(0)XC 12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(1)T	11.3(1)
2-Port Serial (WIC-2T)	12.0(7)XK 12.1(5)YB	12.1(1)T	12.2(1)
2-Port Asynchronous/Synchronous (WIC-2A/S)	12.0(7)XK 12.1(5)YB	12.1(1)T	12.2(1)
1-Port ISDN BRI S/T ¹ (WIC-1B-S/T)	11.2(4)XA 11.2(5)P 12.0(2)XC 12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(3)T	11.3(1)
1-Port ISDN BRI S/T ¹ (WIC-1B-S/T-V2)	–	12.3(1)T	12.0(25) 12.1(19) 12.2(16) 12.3(1)
1-Port ISDN BRI U ² (WIC-1B-U)	11.2(4)XA 11.2(5)P 12.0(2)XC 12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(1)T	11.3(1)T

Table 1-2 Cisco IOS Releases Required for Interface Cards in Cisco 3620 and Cisco 3640 Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port ISDN BRI U ² (WIC-1B-U-V2)	–	12.2(11)T3	12.0(23) 12.1(18) 12.2(13) 12.3(1)
1-Port 54- or 64-kbps DSU/CSU (WIC 1DSU-56K4)	11.2(4)XA 11.2(5)P 11.2(12)P 12.0(2)XC 12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(1)T	11.3(1)
1-Port T1 (WIC-1DSU-T1)	11.1(7)AA 11.2(12)P 12.0(2)XC 12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(3)T	12.0(1)
2-Port FXS Voice/Fax (VIC-2FXS) ³	12.0(2)XC 12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(1)T	12.0(1)
2-Port FXS Voice/Fax (VIC2-2FXS) ⁴ Note Not supported by Cisco 3620 series routers.	12.2(15)ZJ	–	–
2-Port FXO Voice/Fax (VIC-2FXO) ³	12.0(2)XC 12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(1)T	12.0(1)

Table 1-2 Cisco IOS Releases Required for Interface Cards in Cisco 3620 and Cisco 3640 Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2-Port FXO Voice/Fax (VIC2-2FXO) ⁴ Note Not supported by Cisco 3620 series routers.	12.2(15)ZJ	–	–
2-Port E&M Voice/Fax (VIC-2E/M) ³	12.0(2)XC 12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(1)T	12.0(1)
2-Port E&M Voice/Fax (VIC2-2E/M) ⁴ Note Not supported by Cisco 3620 series routers.	12.2(15)ZJ	12.3(4)T	–
2-Port FXO Voice/Fax (VIC-2FXO-EU) ³ Note For use in Europe.	12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(6)T to 11.3(11)T 12.0(2)T	12.0(2)
2-Port E&M Voice/Fax (VIC-2FXO-M1) ³	12.0(7)XK	–	12.2(1)
2-Port FXO Voice/Fax (VIC-2FXO-M2) ³	12.0(7)XK	–	12.2(1)
2-Port E&M Voice/Fax (VIC-2FXO-M3) ³	12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(6)T to 11.3(11)T 12.0(2)T	12.0(2)
4-Port FXO Voice/Fax (VIC2-4FXO) ⁴ Note Not supported by Cisco 3620 series routers.	12.2(15)ZJ	12.3(4)T	–
2-Port ISDN BRI Voice (VIC-2BRI-S/T-TE) ³	12.0(2)XD 12.0(2)XD 12.1(5)YB	12.0(3)T	12.1(1)

Table 1-2 Cisco IOS Releases Required for Interface Cards in Cisco 3620 and Cisco 3640 Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2Port ISDN BRI Voice (VIC2-2BRI-NT/TE) ⁴ Note Not supported by Cisco 3620 series routers.	12.2(15)ZJ	12.3(4)T	—
2-Port CAMA Voice (VIC-2CAMA) ³	—	12.2(11)T	12.3(1)
1-Port T1 Multiflex Trunk (VWIC-1MFT-T1) ³	12.0(5)XK ⁵ 12.0(7)XK ⁶ 12.1(5)YB	12.0(7)T ⁵ 12.1(1)T ⁶	12.1(1) ⁵
2-Port T1 Multiflex Trunk (VWIC-2MFT-T1)	12.0(5)XK ⁷ 12.0(7)XK ⁶ 12.1(5)YB	12.0(7)T ⁷ 12.1(1)T ⁶	12.1(1) ⁷
2-Port T1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-T1-DI)	12.0(5)XK ⁵ 12.0(7)XK ⁶ 12.1(5)YB	12.0(7)T ⁵ 12.1(1)T ⁶	12.1(1) ⁵
2-Port E1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-E1-DI)	12.0(5)XK ⁸ 12.0(7)XK ^{6, 7} 12.1(5)YB	12.0(7)T ⁸ 12.1(1)T ⁶ 12.1(2)T ⁷	12.1(1) ⁸
1-Port E1 Multiflex Trunk (VWIC-1MFT-E1)	12.0(5)XK ⁸ 12.0(7)XK ^{6, 7} 12.1(5)YB	12.0(7)T ⁸ 12.1(1)T ⁶ 12.1(2)T ⁷	12.1(1) ⁸
2-Port E1 Multiflex Trunk (VWIC-2MFT-E1)	12.0(5)XK 12.0(7)XK ^{6, 7} 12.1(5)YB	12.0(7)T ⁸ 12.1(1)T ⁶ 12.1(2)T ⁷	12.1(1) ⁸
1-Port E1 Multiflex Trunk with G.703 Support (VWIC-1MFT-G703)	12.1(5)YB	12.1(1)T ^{6, 8}	12.2(1)
2-Port E1 Multiflex Trunk with G.703 Support (VWIC-2MFT-G703)	12.1(5)YB	12.1(1)T	12.2(1)
1-Port ADSL (WIC-1-ADSL)	12.1(5)YB 12.2(4)XL 12.2(8)YN	12.2(4)T	12.3(1)

Table 1-2 Cisco IOS Releases Required for Interface Cards in Cisco 3620 and Cisco 3640 Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port G.SHDSL WAN (WIC-1-SHDSL)	12.2(4)XL2 12.2(8)YN	12.2(8)T	12.3(1)
2-Port DID Voice/Fax (VIC-2DID)	12.1(5)XM	–	–
1-Port Analog Modem WAN (WIC-1AM)	12.2(2)XB	12.2(8)T	12.3(1)
2-Port Analog Modem WAN (WIC-2AM)	12.2(2)XB	12.2(8)T	12.3(1)

1. Some ISDN service providers require an external Network Termination 1 (NT1) device to connect an ISDN S/T port to the ISDN line. If your service provider requires this, you must provide the NT1.
2. The BRI U module does not require an external NT1.
3. Cannot be installed in built-in interface card slots. Requires voice network module (NM-1V or NM-2V).
4. Cannot be installed in built-in interface card slots. Requires voice network modules (NM-HD-1V, NM-HD-2V, or NM-HD-2VE).
5. In network modules NM-1E2W, NM-1E1R-2W, NM-2E2W, and NM-HDV.
6. In network modules NM-1FE2W, NM-1FE1R2W, NM-2FE2W, and NM-2W.
7. In network module 2NM-HDV.
8. In network modules NM-1E2W, NM-1E1R-2W, and NM-2E2W.

Cisco 3660 Series Routers

[Table 1-3](#) lists the interface cards and their Cisco IOS release requirements for Cisco 3660 series routers. Voice interface cards (VICs) can be used only in voice network modules (NM-1V, NM-2V, NM-HD-1V, NM-HD-2V, or NM-HD-2VE). Restrictions on the use of interface cards are indicated in the footnotes.



Note

The earliest supported release is not necessarily the recommended release. Refer to the applicable release notes for release information specific to your interface cards.

Table Conventions:

- Limited lifetime releases—Only the listed releases support the interface card.
- T-train releases and mainline releases—The earliest release that supports the interface card is listed. Unless otherwise indicated, all later releases support the interface card.

Table 1-3 Cisco IOS Releases Required for WICs and VICs in Cisco 3660 Routers

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port Serial (WIC-1T)	12.0(5)XK 12.0(7)KX 12.1(5)YB	12.0(5)T	12.1(1)
2-Port Serial (WIC-2T)	12.0(7)XK 12.1(5)YB	12.1(1)T	12.2(1)
2-Port Asynchronous/Synchronous (WIC-2A/S)	12.0(7)XK 12.1(5)YB	12.1(1)T	12.2(1)
1-Port ISDN BRI S/T ¹ (WIC-1B-S/T)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(5)T	12.1(1)
1-Port ISDN BRI S/T ¹ (WIC-1B-S/T-V2)	–	12.3(1)T	12.0(25) 12.1(19) 12.2(16) 12.3(1)
1-Port ISDN BRI U ² (WIC-1B-U)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(5)T	12.1(1)
1-Port ISDN BRI U ² (WIC-1B-U-V2)	–	12.2(11)T3	12.0(23) 12.1(18) 12.2(13)
1-Port 54- or 64-kbps DSU/CSU (WIC 1DSU-56K4)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(5)T	12.1(1)
1-Port T1 (WIC-1DSU-T1)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(5)T	12.1(1)

Table 1-3 Cisco IOS Releases Required for WICs and VICs in Cisco 3660 Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2-Port FXS Voice/Fax (VIC-2FXS) ³	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(5)T	12.1(1)
2-Port FXS Voice/Fax (VIC2-2FXS) ⁴	12.2(15)ZJ	–	–
2-Port FXO Voice/Fax (VIC-2FXO) ³	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(5)T	12.1(1)
2-Port FXO Voice/Fax (VIC2-2FXO) ⁴	12.2(15)ZJ	–	–
2-Port E&M Voice/Fax (VIC-2E/M) ³	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(5)T	12.1(1)
2-Port E&M Voice/Fax (VIC2-2E/M) ⁴	12.2(15)ZJ	12.3(4)T	–
2-Port FXO Voice/Fax (VIC-2FXO-EU) ³ Note For use in Europe.	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(5)T	12.1(1)
2-Port E&M Voice/Fax (VIC-2FXO-M1) ³	12.0(7)XK 12.1(5)YB	12.1(1)T	12.2(1)
2-Port FXO Voice/Fax (VIC-2FXO-M2) ³	12.0(7)XK 12.1(5)YB	12.1(1)T	12.2(1)
2-Port E&M Voice/Fax (VIC-2FXO-M3) ³	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(5)T	12.1(1)
4-Port FXO Voice/Fax (VIC2-4FXO) ⁴	12.2(15)ZJ	12.3(4)T	–
2-Port ISDN BRI Voice (VIC-2BRI-S/T-TE) ³	12.0(7)XK 12.1(5)YB	12.1(1)T	12.2(1)
2Port ISDN BRI Voice (VIC2-2BRI-NT/TE) ⁴	12.2(15)ZJ	12.3(4)T	–
2-Port CAMA Voice (VIC-2CAMA) ³	–	12.2(11)T	12.3(1)

Table 1-3 Cisco IOS Releases Required for WICs and VICs in Cisco 3660 Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port T1 Multiflex Trunk (VWIC-1MFT-T1)	12.0(5)XK ⁵ 12.0(7)XK ⁶ 12.1(5)YB	12.0(7)T ⁵ 12.1(1)T ⁶	12.1(1) ⁷ 12.2(1) ⁶
2-Port T1 Multiflex Trunk (VWIC-2MFT-T1)	12.0(5)XK ⁷ 12.0(7)XK ⁶	12.0(7)T ⁷ 12.1(1)T ⁶	12.1(1) ⁷ 12.2(1) ⁶
2-Port T1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-T1-DI)	12.0(5)XK ⁵ 12.0(7)XK ⁶ 12.1(5)YB	12.0(7)T ⁵ 12.1(1)T ⁶	12.1(1) ⁵
2-Port E1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-E1-DI)	12.0(5)XK ⁸ 12.0(7)XK ^{6, 7}	12.0(7)T ⁸ 12.1(1)T ⁶ 12.1(2)T ⁷	12.1(1) ⁸
1-Port E1 Multiflex Trunk (VWIC-1MFT-E1)	12.0(5)XK ⁸ 12.0(7)XK ^{6, 7} 12.1(5)YB	12.0(7)T ⁸ 12.1(1)T ⁶ 12.1(2)T ⁷	12.1(1) ⁸
2-Port E1 Multiflex Trunk (VWIC-2MFT-E1)	12.0(5)XK ⁸ 12.0(7)XK ^{6, 5} 12.1(5)YB	12.1(1)T ⁶ 12.1(2)T ⁷	12.1(1) ⁸
1-Port E1 Multiflex Trunk with G.703 Support (VWIC-1MFT-G703)	12.1(5)YB	12.1(1)T ^{6, 8}	12.2(1)
2-Port E1 Multiflex Trunk with G.703 Support (VWIC-2MFT-G703)	12.1(5)YB	12.1(1)T ^{6, 8}	12.2(1)
1-Port ADSL (WIC-1-ADSL)	12.1(5)YB 12.2(4)XL 12.2(8)YN	12.2(4)T	12.3(1)
1-Port G.SHDSL WAN (WIC-1-SHDSL)	12.2(4)XL ² 12.2(8)YN	12.2(8)T	12.3(1)
2-Port DID Voice/Fax (VIC-2DID)	12.1(5)XM	–	–
1-Port Analog Modem WAN (WIC-1AM)	12.2(2)XB	12.2(8)T	12.3(1)
2-Port Analog Modem WAN (WIC-2AM)	12.2(2)XB	12.2(8)T	12.3(1)

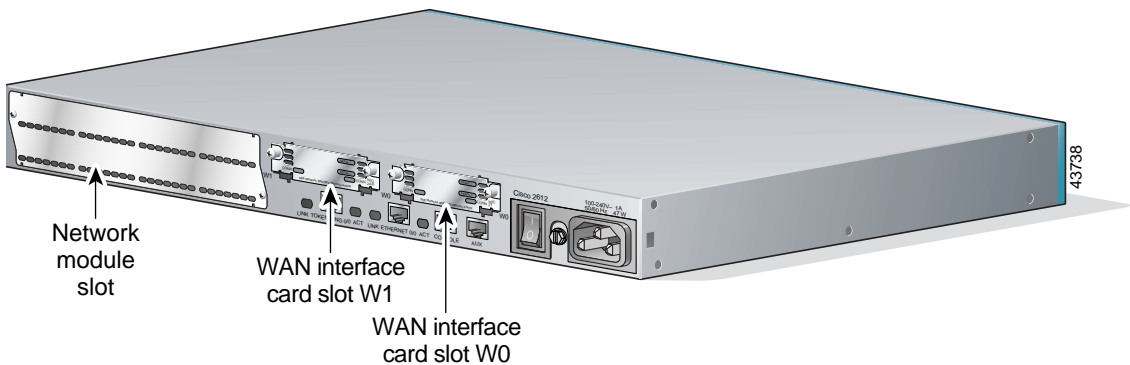
1. Some ISDN service providers require an external Network Termination 1 (NT1) device to connect an ISDN S/T port to the ISDN line. If your service provider requires this, you must provide the NT1.

2. The BRI U module does not require an external NT1.
3. Cannot be installed in built-in interface card slots. Requires voice network module (NM-1V or NM-2V).
4. Cannot be installed in built-in interface card slots. Requires voice network module (NM-HD-1V, NM-HD-2V, or NM-HD-2VE).
5. In network modules NM-1E2W, NM-1E1R-2W, NM-2E2W, and NM-HDV.
6. In network modules NM-1FE2W, NM-1FE1R2W, NM-2FE2W, and NM-2W.
7. In network module 2NM-HDV.
8. In network modules NM-1E2W, NM-1E1R-2W, and NM-2E2W.

Cisco 2600 Series Routers

The Cisco 2600 series router is a multifunction platform that combines dial access, routing, LAN-to-LAN services, and multiservice integration of voice, video, and data in the same device. The Cisco 2600 series has built-in LAN connections that provide a single or dual Ethernet port (depending on the model), one Ethernet, and one Token Ring port. Cisco 2600 series routers also include one network module slot and two slots that accept a variety of network modules and interface cards. [Figure 1-9](#) illustrates a Cisco 2612 router showing the network module slot and interface card slots.

Figure 1-9 Cisco 2612 Router Rear View



Cisco 2600 Series Interface Numbering

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

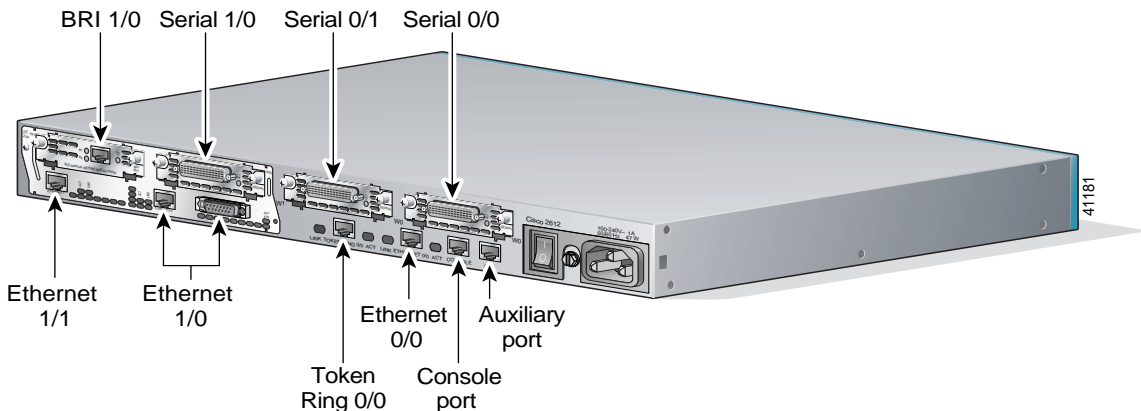
Slot and Unit Numbering

The Cisco 2600 series router chassis contains one slot in which you can install a network module. This slot is always slot 1.

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

Figure 1-10 shows a Cisco 2612 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 1-10 Cisco 2612 Router Unit Numbers



Note

Interface card slots (built into the chassis) are always numbered as slot 0, even if the interface card is installed in the slot labeled W1.

[Figure 1-10](#) refers to the unit numbers by the interface type chassis slot followed by a forward slash and the unit number. For example, first Ethernet interface, is referred to as *Ethernet 0/0*.

Voice Interface Numbering in Cisco 2600 Series Routers

Voice interfaces are numbered differently from WAN interfaces described in the [“Slot and Unit Numbering”](#) section on page 1-23. Voice interfaces are numbered as follows:

interface type chassis slot/voice module slot/voice interface

For example, slot 1, voice network module slot 0, voice interface 0, is referred to as *voice 1/0/0* (closest to the chassis interface card slots).

Interface Card Options for Cisco 2600 Series Routers

[Table 1-4](#) lists the interface cards and their IOS release requirements. Voice interface cards (VICs) can be used only in voice network modules (NM-1V, NM-2V, NM-HD-1V, NM-HD-2V, or NM-HD-2VE). Restrictions on the use of interface cards are indicated in the footnotes.



Note

The earliest supported release is not necessarily the recommended release. Refer to the applicable release notes and hardware documentation for release information specific to your interface cards.

Table Conventions:

- Limited lifetime releases—Only the listed releases support the interface card.
- T-train releases and mainline releases—The earliest release that supports the interface card is listed. Unless otherwise indicated, all later releases support the interface card.

Table 1-4 Cisco IOS Releases Required for WICs and VICs in Cisco 2600 Series Routers

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port Serial (WIC-1T)	11.3(2)XA 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(3)T	12.0(1)
2-Port Serial (WIC-2T)	11.3(2)XA 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(3)T	12.0(1)
2-Port Asynchronous/Synchronous (WIC-2A/S)	11.3(2)XA 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(3)T	12.0(1)
1-Port ISDN BRI S/T ¹ (WIC-1B-S/T)	11.3(2)XA 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(3)T	12.0(1)
1-Port ISDN BRI S/T ¹ (WIC-1B-S/T-V2)	–	12.3(1)T	12.0(25) 12.1(19) 12.2(16) 12.3(1)
1-Port ISDN BRI U ² (WIC-1B-U)	11.3(2)XA 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(3)T	12.0(1)
1-Port ISDN BRI U ² (WIC-1B-U-V2)	–	12.2(11)T3	12.0(23) 12.1(18) 12.2(13) 12.3(1)
1-Port 54- or 64-kbps DSU/CSU (WIC 1DSU-56K4)	11.3(2)XA 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(3)T	12.0(1)

Table 1-4 Cisco IOS Releases Required for WICs and VICs in Cisco 2600 Series Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port T1 (WIC-1DSU-T1)	12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(4)T	12.0(1)
1-Port T1, version 2 (WIC-1DSU-T1-V2)	–	12.3(1)T	12.2(16)
2-Port FXS Voice/Fax (VIC-2FXS) ³	11.3(2)XA 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(1)T	12.0(1)
2-Port FXS Voice/Fax (VIC2-2FXS) ⁴ Note Supported only by Cisco 2600XM series routers.	12.2(15)ZJ	–	–
2-Port FXO Voice/Fax (VIC-2FXO) ³	11.3(2)XA 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(1)T	12.0(1)
2-Port FXO Voice/Fax (VIC2-2FXO) ⁴ Note Supported only by Cisco 2600XM series routers.	12.2(15)ZJ	–	–
2-Port E&M Voice/Fax (VIC-2E/M) ³	11.3(2)XA 12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(1)T	12.0(1)
2-Port E&M Voice/Fax (VIC2-2E&M) ⁴ Note Supported only by Cisco 2600XM series routers.	12.2(15)ZJ	–	–
2-Port FXO Voice/Fax (VIC-2FXO-EU) ³ Note For use in Europe.	12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(6)T	12.0(2)
2-Port E&M Voice/Fax (VIC-2FXO-M1) ³	12.0(7)XK 12.1(5)YB	12.1(2)T	12.2(1)

Table 1-4 Cisco IOS Releases Required for WICs and VICs in Cisco 2600 Series Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2-Port FXO Voice/Fax (VIC-2FXO-M2) ³	12.0(7)XK 12.1(5)YB	12.1(2)T	12.2(1)
2-Port E&M Voice/Fax(VIC-2FXO-M3) ³	12.0(5)XK 12.0(7)XK 12.1(5)YB	11.3(6)T to 11.3(11)T 12.0(2)T	12.0(2)
4-Port FXO Voice/Fax(VIC2-4FXO) ⁴ Note Supported only by Cisco 2600XM series routers.	12.2(15)ZJ	12.3(4)T	–
2-Port ISDN BRI voice interface (VIC-2BRI-S/T-TE) ³	12.0(2)XD 12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(3)T	12.1(1)
2Port ISDN BRI Voice (VIC2-2BRI-NT/TE) ⁴ Note Supported only by Cisco 2600XM series routers.	12.2(15)ZJ	12.3(4)T	–
2-Port CAMA Voice (VIC-2CAMA) ³	–	12.2(11)T	12.3(1)
1-Port T1 Multiflex Trunk (VWIC-1MFT-T1)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(7)T	12.1(1)
2-Port T1 Multiflex Trunk (VWIC-2MFT-T1)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(7)T	12.1(1)
2-Port T1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-T1-DI)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(7)T	12.1(1)
2-Port E1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-E1-DI)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(7)T	12.1(1)

Table 1-4 Cisco IOS Releases Required for WICs and VICs in Cisco 2600 Series Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port E1 Multiflex Trunk (VWIC-1MFT-E1)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(7)T	12.1(1)
2-Port E1 Multiflex Trunk (VWIC-2MFT-E1)	12.0(5)XK 12.0(7)XK 12.1(5)YB	12.0(7)T	12.1(1)
1-Port E1 Multiflex Trunk with G.703 Support (VWIC-1MFT-G703)	12.1(5)YB	12.1(1)T ^{5, 6}	12.2(1)
2-Port E1 Multiflex Trunk with G.703 Support (VWIC-2MFT-G703)	12.1(5)YB	12.1(1)T ^{5, 6}	12.2(1)
1-Port ADSL (WIC-1-ADSL)	12.1(5)YB 12.2(4)XL 12.2(8)YN	12.2(4)T	12.3(1)
1-Port G.SHDSL WAN (WIC-1-SHDSL)	12.2(4)X 12.2(8)YN	12.2(8)T	12.3(1)
1-Port G.SHDSL WAN (WIC-1SHDSL-V2)	12.3(4)XD	–	–
2-Port DID Voice/Fax (VIC-2DID)	12.1(5)XM	–	–
1-Port Analog Modem WAN (WIC-1AM)	12.2(2)XB	12.2(8)T	12.3(1)
2-Port Analog Modem WAN (WIC-2AM)	12.2(2)XB	12.2(8)T	12.3(1)
1-Port ADSL over ISDN with Dying Gasp (WIC-1ADSL-I-DG)	12.2(15)ZJ	–	–
1-Port ADSL over POTS with Dying Gasp (WIC-1ADSL-DG)	12.3(4)XD	–	–

1. Some ISDN service providers require an external Network Termination 1 (NT1) device to connect an ISDN S/T port to the ISDN line. If your service provider requires this, you must provide the NT1.
2. The BRI U module does not require an external NT1.
3. Cannot be installed in built-in interface card slots. Requires voice network module (NM-1V or NM-2V).
4. Cannot be installed in built-in interface card slots. Requires voice network module (NM-HD-1V, NM-HD-2V, or NM-HD-2VE).
5. In network modules NM-1FE2W, NM-1FE1R2W, NM-2FE2W, and NM-2W.

6. In network modules NM-1E2W, NM-1EIR-2W, and NM-2E2W.

Cisco 1700 Series Routers

Cisco 1700 series routers are small, modular routers that link small to medium-size remote Ethernet and Fast Ethernet LANs to regional and central offices over one to four WAN connections. These routers are desktop models, except for the Cisco 1760 router, which is rack-mounted.

Cisco 1700 series routers include one Fast Ethernet port and two WAN interface card slots. In addition, the Cisco 1750 and Cisco 1751 routers include one voice interface card (VIC) slot that can be used only for a voice interface card, and the Cisco 1760 router includes two VIC-only slots.

Figure 1-11 illustrates a Cisco 1720 router, showing the WAN interface card slots.

Figure 1-11 Cisco 1720 Router Rear View

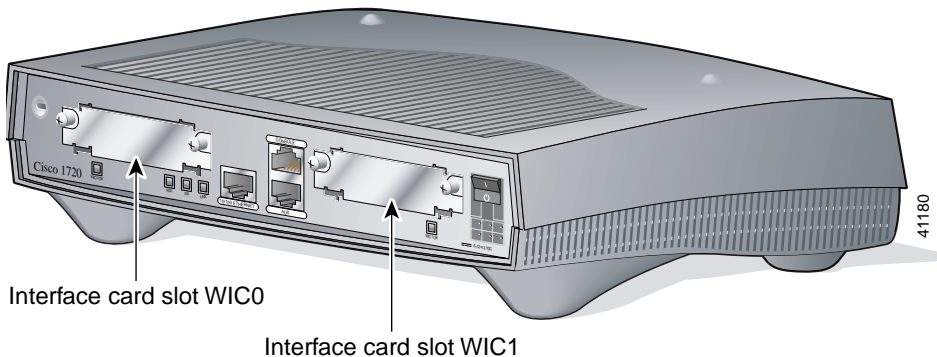


Figure 1-12 illustrates a Cisco 1721 router, showing the WAN interface card slots.

Figure 1-12 Cisco 1721 Router Rear View

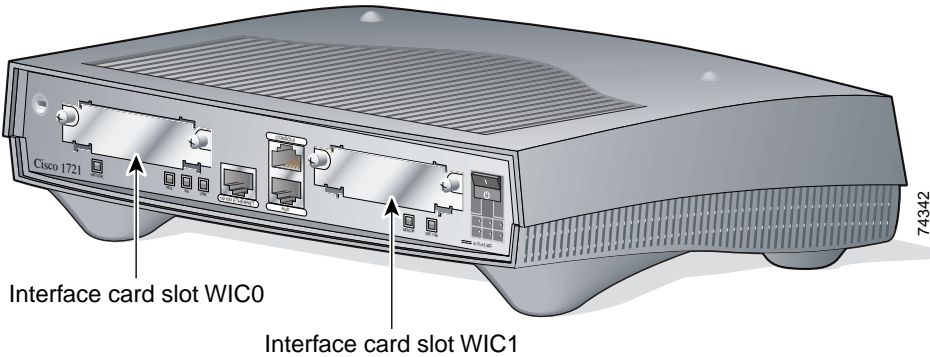


Figure 1-13 illustrates a Cisco 1750 router, showing the WAN interface card slots and the voice interface card slot.

Figure 1-13 Cisco 1750 Router Rear View

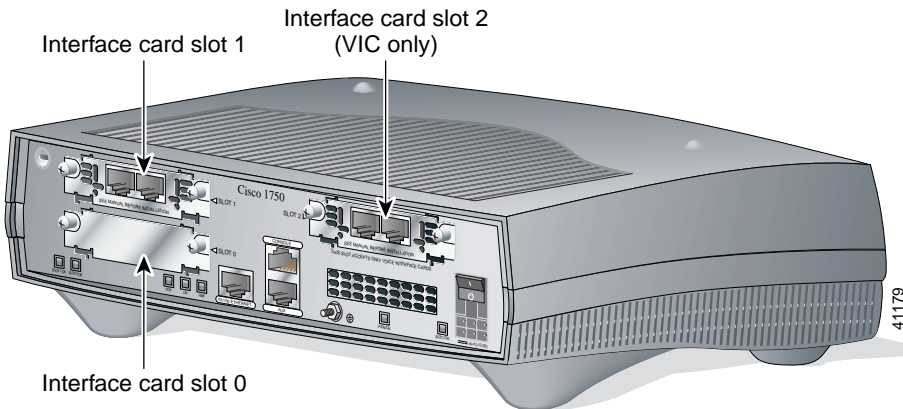


Figure 1-14 illustrates a Cisco 1751 router, showing the WAN interface card slots and the voice interface card slot.

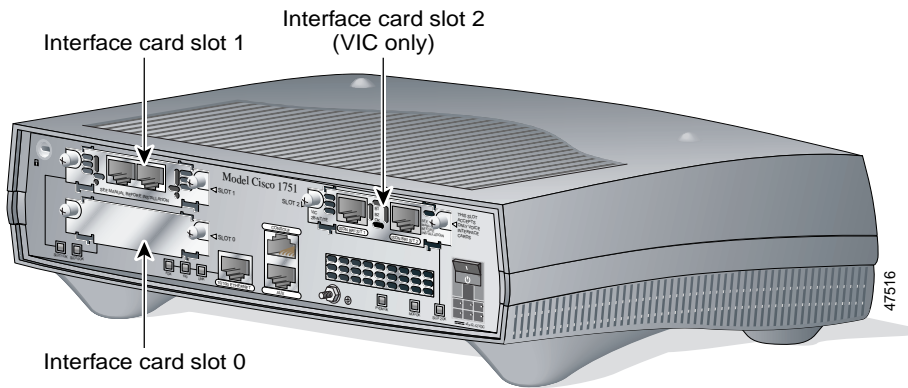
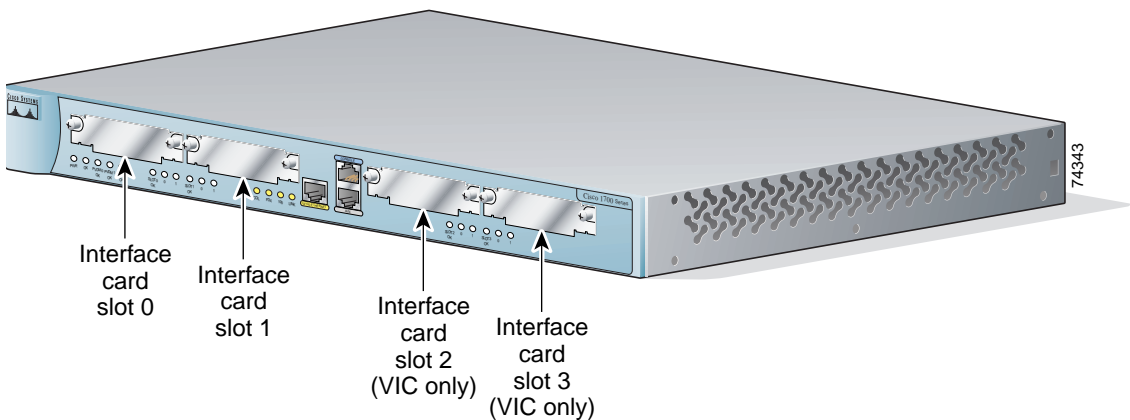
Figure 1-14 Cisco 1751 Router Rear View

Figure 1-15 illustrates a Cisco 1760 router, showing the WAN interface card slots and the voice interface card slots.

Figure 1-15 Cisco 1760 Router Front View

Interface Card Options for Cisco 1700 Series Routers

Table 1-5 lists the interface cards and their Cisco IOS release requirements.



Note

The earliest supported release is not necessarily the recommended release. Refer to the applicable release notes and hardware documentation for release information specific to your interface cards.

Table Conventions:

- Limited lifetime releases—Only the listed releases support the interface card.
- T-train releases and mainline releases—The earliest release that supports the interface card is listed. Unless otherwise indicated, all later releases support the interface card.

Table 1-5 Cisco IOS Releases Required for Interface Cards in Cisco 1700 Series Routers

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port Serial (WIC-1T)	12.0(1)XA3 ¹ 12.0(5)XQ ²	12.0(2)T ¹ 12.0(7)T ²	12.1(1)
2-Port Serial (WIC-2T)	12.0(1)XA3 ¹ 12.0(5)XQ ²	12.0(2)T ¹ 12.0(7)T ²	12.1(1)
2-Port Asynchronous/Synchronous (WIC-2A/S)	12.0(1)XA3 ¹ 12.0(5)XQ ²	12.0(2)T ¹ 12.0(7)T ²	12.1(1)
1-Port ISDN BRI S/T ³ (WIC-1B-S/T)	12.0(1)XA3 ¹ 12.0(5)XQ ²	12.0(2)T ¹ 12.0(7)T ²	12.1(1)
1-Port ISDN BRI S/T ³ (WIC-1B-S/T-V2)	—	12.3(1)T	12.0(25) 12.1(19) 12.2(16) 12.3(1)
1-Port ISDN BRI U ⁴ (WIC-1B-U)	12.0(1)XA3 ¹ 12.0(5)XQ ²	12.0(2)T ¹ 12.0(7)T ²	12.1(1)
1-Port ISDN BRI U ⁴ (WIC-1B-U-V2)	—	12.2(11)T3	12.0(23) 12.1(18) 12.2(13)

Table 1-5 Cisco IOS Releases Required for Interface Cards in Cisco 1700 Series Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port 54- or 64-kbps DSU/CSU (WIC 1DSU-56K4)	12.0(1)XA3 ¹ 12.0(5)XQ ²	12.0(2)T ¹ 12.0(7)T ²	12.1(1)
1-Port T1/F1 (WIC-1DSU-T1)	12.0(1)XA3 ¹ 12.0(5)XQ ²	12.0(2)T ¹ 12.0(7)T ²	12.1(1)
1-Port T1, version 2 (WIC-1DSU-T1-V2)	12.2(15)ZL	12.3(1)T	12.2(10) ⁵ 12.3(1)
2-Port FXS Voice/Fax (VIC-2FXS)	12.0(5)XQ ²	12.0(7)T ²	12.1(1)
2-Port FXS Voice/Fax (VIC2-2FXS) ⁷	12.2(15)ZL	–	–
2-Port FXO Voice/Fax (VIC-2FXO)	12.0(5)XQ ²	12.0(7)T ²	12.1(1)
2-Port FXO Voice/Fax (VIC2-2FXO) ⁷	12.2(15)ZL	–	–
Note Universal FXO, for the United States, Europe, and Australia.			
4-Port FXO Voice/Fax (VIC2-4FXO) ⁷	12.2(15)ZL	–	–
Note Universal FXO, for the United States, Europe, and Australia.			
2-Port E&M Voice/Fax (VIC-2E/M)	12.0(5)XQ ²	12.0(7)T ² 12.1(5)T	12.1(1)
2-Port E&M Voice/Fax (VIC2-2E/M) ⁷	12.2(15)ZL	–	–
2-Port FXO Voice/Fax (VIC-2FXO-EU)	12.0(5)XQ ²	12.0(7)T ²	12.1(1)
Note For use in Europe.			
2-Port FXO Voice/Fax (VIC-2FXO-M3)	–	12.1(5)T	–
Note For use in Australia.			
2-Port ISDN BRI NT/TE Voice (VIC-2BRI-NT/TE)	12.1(3)YB	12.2(4)T	12.3(1)
2-Port ISDN BRI Voice/Fax (VIC2-2BRI-NT/TE) ⁷	12.2(15)ZL	–	–

Table 1-5 Cisco IOS Releases Required for Interface Cards in Cisco 1700 Series Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
WIC-1ENET	12.1(3)XP 12.1(3)XT ⁶ 12.1(5)YB ⁷	12.2(4)T ⁶ 12.2(8)T ⁷	12.3(1)
1-Port ADSL (WIC-1-ADSL)	12.1(3)XJ 12.1(3)XP 12.1(5)YB	12.2(1)T	12.3(1)
1-Port G.SHDSL (WIC-1-SHDSL)	12.2(4)XL	12.2(13)T	12.3(1)
1-Port G.SHDSL WAN (WIC-1SHDSL-V2)	12.3(4)XG	–	–
2-Port FXO Voice/Fax (VIC-2FXO-M1)	12.2.(2)XJ	12.2(15)T	12.3(1)
2-Port FXO Voice/Fax (VIC-2FXO-M2)	12.2.(2)XJ	12.2(15)T	12.3(1)
2-Port DID Voice/Fax (VIC-2DID) ⁸	12.2.(2)XJ	12.2(15)T	12.3(1)
4-Port Analog FXS/DID Voice/Fax (VIC-4FXS/DID)	12.2(8)YN	12.3T	–
1-Port Analog Modem WAN (WIC-1AM)	12.2(4)YB	12.2(15)T	12.3(1)
1-Port ADSL over ISDN with Dying Gasp (WIC-1ADSL-I-DG) ⁷	12.2(13)ZH	–	–
1-Port ADSL over POTS with Dying Gasp (WIC-1ADSL-DG) ⁷	12.2(15)ZL	–	–
1-Port T1 Multiflex Trunk (VWIC-1MFT-T1)	12.2(4)YB	12.2(15)T	12.3(1)
2-Port T1 Multiflex Trunk (VWIC-2MFT-T1)	12.2(4)YB	12.2(15)T	12.3(1)
2-Port T1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-T1-DI)	12.2(4)YB	12.2(15)T	12.3(1)
2-Port E1 Multiflex Trunk with Drop-and-insert (VWIC-2MFT-E1-DI)	12.2(4)YB	12.2(15)T	12.3(1)
1-Port E1 Multiflex Trunk (VWIC-1MFT-E1)	12.2(4)YB	12.2(15)T	12.3(1)

Table 1-5 Cisco IOS Releases Required for Interface Cards in Cisco 1700 Series Routers (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2-Port E1 Multiflex Trunk (VWIC-2MFT-E1)	12.2(4)YB	12.2(15)T	12.3(1)
1-Port E1 Multiflex Trunk with G.703 Support (VWIC-1MFT-G703)	12.2(4)YB	12.2(15)T	12.3(1)
2-Port E1 Multiflex Trunk with G.703 Support (VWIC-2MFT-G703)	12.2(4)YB	12.2(15)T	12.3(1)

1. First release available for Cisco 1720 router for data only.
2. First release available for Cisco 1750 router for voice and data.
3. Some ISDN service providers require an external Network Termination 1 (NT1) device to connect an ISDN S/T port to the ISDN line. If your service provider requires this, you must provide the NT1.
4. The BRI U module does not require an external NT1.
5. This release supports the Cisco 1720 only.
6. Support for single WIC-1ENET.
7. Support for dual WIC-1ENET.
8. Supported on the Cisco 1751 router and the Cisco 1760 router only.

Cisco 1600 Series Routers

Cisco 1600 series routers connect small offices with Ethernet LANs to the Internet and to a company's internal intranet. Cisco 1600 series routers include the following models: the Cisco 1601, Cisco 1602, Cisco 1603, Cisco 1604, and Cisco 1605-R (see [Figure 1-16](#) through [Figure 1-20](#)).

All Cisco 1600 series models include one Ethernet port, one built-in WAN port, and one interface card expansion slot for additional connectivity and flexibility.

Figure 1-16 Cisco 1601 Rear View

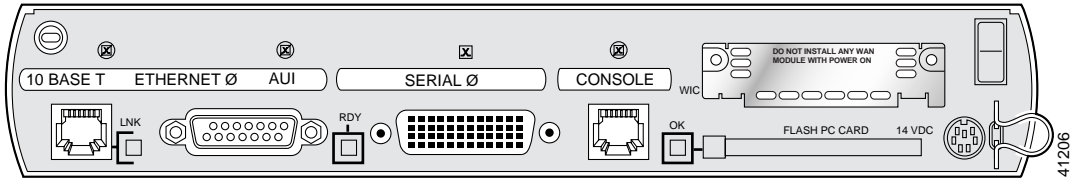


Figure 1-17 Cisco 1602 Rear View

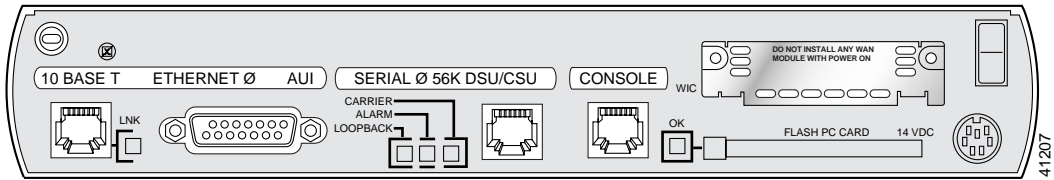


Figure 1-18 Cisco 1603 Rear View

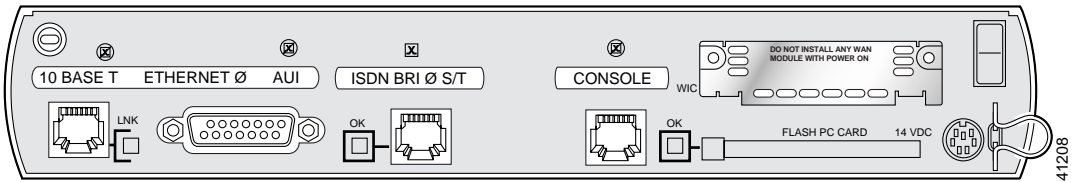


Figure 1-19 Cisco 1604 Rear View

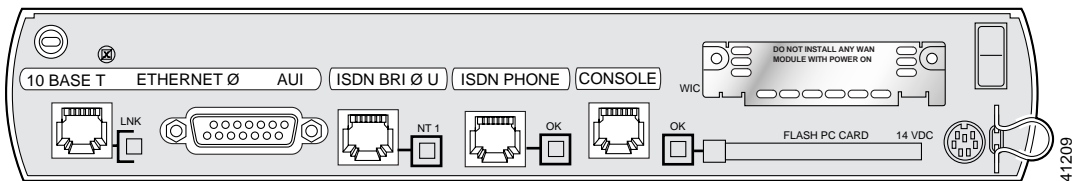


Figure 1-20 Cisco 1605-R Rear View

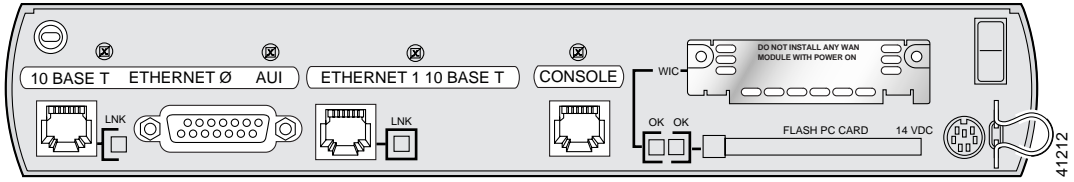


Table 1-6 lists the interface cards and their Cisco IOS release requirements.

**Note**

The earliest supported release is not necessarily the recommended release. Refer to the applicable release notes and hardware documentation for release information specific to your interface cards.

Table Conventions:

- Limited lifetime releases—Only the listed releases support the interface card.
- T-train releases and mainline releases—The earliest release that supports the interface card is listed. Unless otherwise indicated, all later releases support the interface card.

Table 1-6 Cisco IOS Releases Required for Interface Cards in Cisco 1600 Series Routers

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port Serial (WIC-1T)	11.1(7)AA 11.2(4)XA 11.2(5)P	11.3(1)T	11.3(1)
1-Port ISDN BRI U ¹ (WIC-1B-U)	11.1(7)AA 11.2(4)XA 11.2(5)P	11.3(1)T	11.3(1)
1-Port ISDN BRI S/T ² (WIC-1B-S/T)	11.1(7)AA 11.2(4)XA 11.2(5)P	11.3(1)T	11.3(1)
1-Port ISDN BRI S/T ³ Leased Line (WIC-1B-S/T-LL)	11.2(9)P	11.3(1)T	11.3(1)
1-Port 54- or 64-kbps DSU/CSU (WIC 1DSU-56K4)	11.2(9)P	11.3(3)T	12.0(1)
1-Port T1/F1 (WIC-1DSU-T1)	11.2(12)P	11.3(3)T	12.0(1)

- 1-Port ISDN BRI U card is not available with Cisco 1603 or Cisco 1604 routers. The BRI U module does not require an external Network Termination 1 (NT1) device.
- 1-Port ISDN BRI S/T card is not available with Cisco 1603 or Cisco 1604 routers. Some ISDN service providers require an external Network Termination 1 (NT1) device to connect an ISDN S/T port to the ISDN line. If your service provider requires this, you must provide the NT1.

3. 1-Port ISDN BRI S/T Leased-line card is available only with Cisco 1603 or Cisco 1604 routers. Some ISDN service providers require an external Network Termination 1 (NT1) device to connect an ISDN S/T port to the ISDN line. If your service provider requires this, you must provide the NT1.

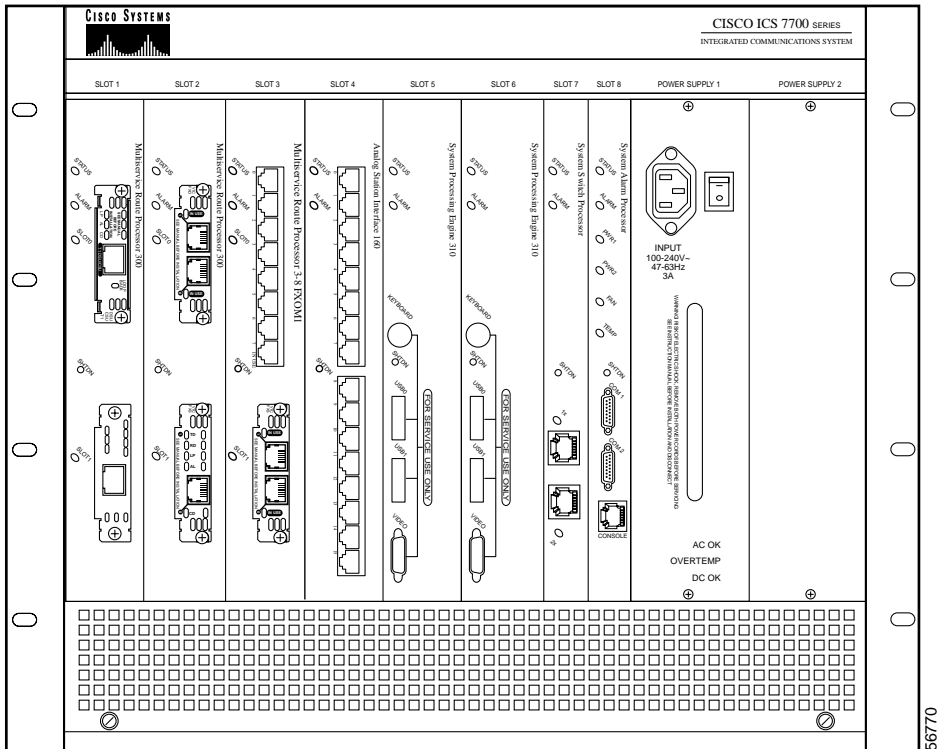
Cisco ICS 7750

The Cisco Integrated Communications System (ICS) 7750 integrates the functionality of the following voice and data network components:

- Switched Ethernet LAN (the system switch processor [SSP] card and the Ethernet switches to which it is connected).
- Voice-enabled router and gateway (multiservice route processor [MRP] and analog station interface [ASI] cards).
- Call processing, computer telephony, unified messaging, customer care, and system management software (Cisco CallManager, Cisco Unity, Cisco Customer Response Solutions, and ICS System Manager).
- VICs, WICs, and VWICs can be installed into the interface card slots of the MRP300, MRP3-8FXS, MRP3-8FXOM1, or ASI 81 cards.

[Figure 1-21](#) shows a Cisco ICS 7750 chassis with an MRP in slot 1 and slot 2 and an MRP3-8FXOM1 in slot 3 (from the left).

Figure 1-21 Cisco ICS 7750 Chassis



Interface Card Options for the Cisco ICS 7750

Table 1-7 lists the Cisco IOS releases that support the interface cards available for the Cisco ICS 7750.



Note

The earliest supported release is not necessarily the recommended release. Refer to the applicable release notes and hardware documentation for release information specific to your interface cards.

Table Conventions:

- Limited lifetime releases—Only the listed releases support the interface card.
- T-train releases and mainline releases—The earliest release that supports the interface card is listed. Unless otherwise indicated, all later releases support the interface card.

Table 1-7 Cisco IOS Releases Required for the Interface Cards in the Cisco ICS 7750

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
1-Port Serial (WIC-1T)	12.1(3)XI	12.1(5)T7	12.2(1)
2-Port Serial (WIC-2T)	12.1(3)XI	12.1(5)T7	12.2(1)
2-Port Asynchronous/Synchronous (WIC-2A/S)	12.1(3)XI	12.1(5)T7	12.2(1)
1-Port ISDN BRI S/T (WIC-1B-ST)	12.1(3)XI	12.1(5)T7	12.2(1)
1-Port ISDN BRI U (WIC-1B-U)	12.1(3)XI	12.1(5)T7	12.2(1)
1-Port 54- or 64-kbps DSU/CSU (WIC-1DSU-56K4)	12.1(3)XI	12.1(5)T7	12.2(1)
1-Port T1 (WIC-1DSU-T1)	12.1(3)XI	12.1(5)T7	12.2(1)
1-Port T1, version 2 (WIC-1DSU-T1-V2)	12.2(15)ZL	12.3(1)T	12.3(1)
2-Port FXS Voice/Fax (VIC-2FXS)	12.1(3)XI	12.1(5)T7	12.2(1)
2-Port FXO Voice/Fax (VIC-2FXO)	12.1(3)XI	12.1(5)T7	12.2(1)
4-Port FXO Voice/Fax (VIC2-4FXO)	12.2(15)ZL	–	–
Note Universal FXO, for the United States, Europe, and Australia.			
2-Port FXO Voice/Fax (VIC-2FXO-M1)	12.2(4)XL	12.2(7)T	12.3(1)
Note For the United States.			
4-Port FXO Voice/Fax (VIC-4FXO-M1)	12.2(4)XL2	12.2(7)T	12.3(1)
Note For the United States.			
2-Port FXO Voice/Fax (VIC-2FXO-M2)	12.2(4)XL	12.2(7)T	12.3(1)
Note For Europe.			

Table 1-7 Cisco IOS Releases Required for the Interface Cards in the Cisco ICS 7750 (continued)

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2-Port FXO Voice/Fax (VIC-2FXO-M3) Note For Australia.	12.2(4)XL	12.2(7)T	12.3(1)
2-Port E&M Voice/Fax(VIC2-2E/M)	12.2(15)ZL	–	–
2-Port E&M Voice/Fax(VIC-2E/M)	12.1(3)XI	12.1(5)T7	12.2(1)
2-Port DID Voice/Fax(VIC-2DID)	12.2(4)XL	12.2(7)T	12.3(1)
4-Port Analog FXS/DID Voice/Fax (VIC-4FXS/DID)	12.2(4)XL2	12.2(7)T	12.3(1)
2-Port ISDN BRI Voice/Fax (VIC2-2BRI-NT/TE)	12.2(15)ZL	–	–
2-Port ISDN BRI Voice/Fax (VIC-2BRI-NT/TE)	12.2(4)XD	12.2(7)T	12.3(1)
1-Port T1 or Fractional T1 Multiflex Trunk with CSU/DSU (VWIC-1MFT-T1)	12.1(3)XI	12.1(5)T7	12.2(1)
2-Port T1 or Fractional T1 Multiflex Trunk with CSU/DSU (VWIC-2MFT-T1)	12.1(3)XI	12.1(5)T7	12.2(1)
1-Port E1 or Fractional E1 Multiflex Trunk with CSU/DSU (VWIC-1MFT-E1)	12.2(4)XL	12.2(7)T	12.3(1)
2-Port E1 or Fractional E1 Multiflex Trunk with CSU/DSU (VWIC-2MFT-E1)	12.2(4)XL	12.2(7)T	12.3(1)

Cisco MWR 1941-DC Router

The MWR 1941-DC Mobile Wireless Edge Router is a networking platform optimized for use in mobile wireless networks; specifically designed to be use at the cell site edge as a part of an IP Radio Access Network (IP-RAN) or Cell Site Data Communications Network (DCN).

The MWR 1941-DC router offers high performance at a low cost while meeting the critical requirements for deployment in cell sites, including small size, high availability, and DC input power flexibility.

The Cisco MWR 1941-DC router include two built-in Fast Ethernet ports, and for additional connectivity and flexibility, three Voice/WAN interface card slots and one network module slot.

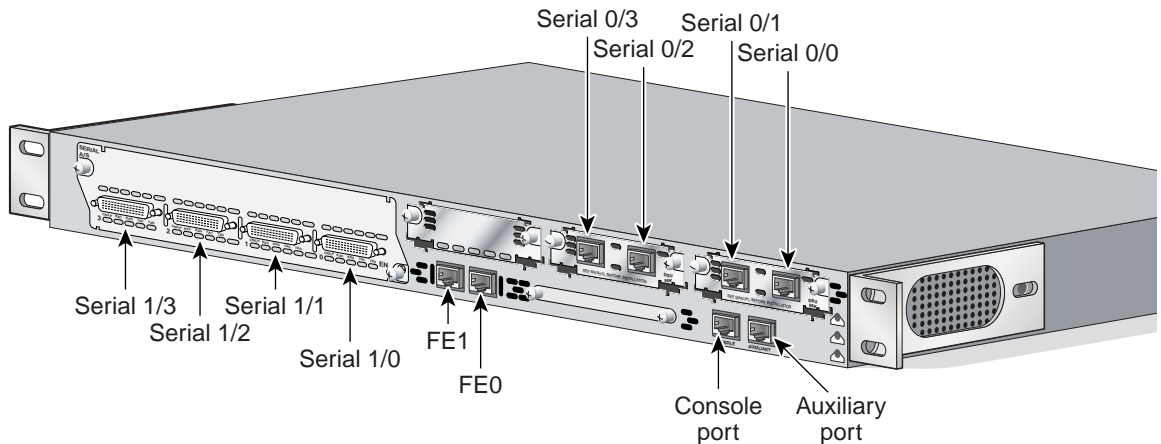
Cisco MWR 1941-DC Router Interface Numbering

Each network interface on a Cisco MWR 1941-DC router is identified by a slot number and a port number.

Figure 1-22 shows an example of interface numbering on a Cisco MWR 1941-DC router with the following configuration:

- A VWIC in two of the three VWIC slots
- A 4-port asynchronous/synchronous serial network module in slot 1
- Two built-in Fast Ethernet interfaces

Figure 1-22 Cisco MWR 1941-DC Router Port Numbers



Slot and Port Numbering

The Cisco MWR 1941-DC router chassis contains the following LAN and WAN interface types:

- Two built-in Fast Ethernet LAN interfaces
- Three slots in which you can install Voice/WAN interface cards (VWICs)
- One slot in which you can install a network module

The slot numbers are as follows:

- 0 for all built-in interfaces
- 0 for all built-in VWIC slots
- 1 for the network module slot

The numbering format is:

```
Interface type Slot number/Interface number
```

Interface (port) numbers begin at 0 for each interface type, and continue from right to left.

- The two built-in Ethernet 10/100 interfaces are Fast Ethernet 0/0 and Fast Ethernet 0/1.
- The slot number for all VWIC interfaces in the built-in VWIC slot is always 0. (The W0, W1, and W2 slot designations are for physical slot identification only.) Interfaces in the VWICs are numbered from right to left, starting with 0/0 for each interface type, regardless of the physical VWIC slot in which the VWICs are installed.

For example, if you have a VWIC in two of the VWIC slots (W0 and W1), then the interfaces are:

- Serial 0/0 and Serial 0/1 in physical slot W0
- Serial 0/2 and Serial 0/3 in physical slot W1

However, if you install a VWIC in physical slot W1 (leaving slot W0 empty), the interfaces in slot W1 are Serial 0/0 and Serial 0/1. If you then add a VWIC to slot W0, the interface numbering will shift. The configuration that you created for interfaces Serial 0/0 and Serial 0/1 will now be applied to the VWIC in slot W0 and you will need to create a new configuration for the interfaces that you previously configured on W1 (which will now be Serial 0/2 and Serial 0/3).

- The slot number of WIC/VWIC interfaces installed in slot 1 using a WAN network module is always 1 and the interfaces are always numbered from the right to left.
- The slot number for all network module interfaces is always 1 and the interfaces are always numbered from right to left starting with 1/0.

Interface Card Options for the Cisco MWR 1941-DC Router

Table 1-4 lists the interface cards supported for the Cisco MWR 1941-DC router and their IOS release requirements. Restrictions on the use of interface cards are indicated in the footnotes.

The earliest supported release is not necessarily the recommended release. Refer to the applicable release notes and hardware documentation for release information specific to your interface cards.

Table Conventions:

- Limited lifetime releases—Only the listed releases support the interface card.
- T-train releases and mainline releases—The earliest release that supports the interface card is listed. Unless otherwise indicated, all later releases support the interface card.

Table 1-8 Cisco IOS Releases Required for WICs and VICs in Cisco MWR 1941-DC Routers

Interface Card	Cisco IOS Limited Lifetime Releases	First Cisco IOS T-Train Release	First Cisco IOS Mainline Release
2-port, T1/Fractional T1 or E1/Fractional E1, Drop and Insert Multiplexers with integrated T1 CSU/DSUs or E1 DSUs ¹ (VWIC-2MFT-T1-DIR) (VWIC-2MFT-T1-DIR)	12.2(8)MC2	—	—
2-Port Asynchronous/Synchronous (WIC-2A/S)	12.2(15)MC1a	—	—

1. The details of this VWIC are not covered in this document. For installation information on the VWIC-2MFT-T1-DR and VWIC-2MFT-E1-DIR, see the *VWIC-2MFT-T1-DIR, VWIC-2MFT-E1-DIR Installation Instructions*. For information on configuring the VWIC-2MFT-T1-DR and VWIC-2MFT-E1-DIR, see the *Cisco MWR 1941-DC Mobile Wireless Edge Router Software Configuration Guide*.

Regulatory Compliance Information and Safety

This section lists safety warnings that you should be aware of before installing a network module or interface card in the router. To see translated versions of the safety warnings in this guide, refer to the *Regulatory Compliance and Safety Information* publication that accompanied your router.

This section includes:

- [Safety Recommendations, page 1-46](#)
- [Safety with Electricity, page 1-47](#)
- [Preventing Electrostatic Discharge Damage, page 1-48](#)
- [FCC Class B Compliance, page 1-49](#)
- [FCC Part 68, page 1-50](#)
- [Industry Canada CS-03, page 1-52](#)
- [Australian Communications Authority Technical Standard 031, page 1-53](#)
- [European Commission, page 1-53](#)
- [Call Progress Tone Settings, page 1-53](#)
- [Pulse Dialing, page 1-54](#)

Safety Recommendations

Follow these guidelines to ensure general safety:

- Keep the chassis area clear and dust-free during and after installation.
- Put the removed chassis cover in a safe place.
- Keep tools away from walk areas where you or others could fall over them.
- Do not wear loose clothing that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- Wear safety glasses when working under any conditions that might be hazardous to your eyes.
- Do not perform any action that creates a potential hazard to people or makes equipment unsafe.

To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied your router.

Safety with Electricity



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.



Warning

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Both LAN and WAN ports may use RJ-45 connectors. Use caution when connecting cables.



Warning

Hazardous network voltages are present in WAN ports regardless of whether power to the router is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the router first.



Warning

Before opening the chassis, disconnect the telephone-network cables to avoid contact with telephone-network voltages.



Warning

Do not work on the system or connect or disconnect cables during periods of lightning activity.

**Warning**

Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is OFF and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected.

Follow these guidelines when working on equipment powered by electricity:

- Locate the emergency power-off switch in the room in which you are working. Then, if an electrical accident occurs, you can quickly shut the power off.
- Before working on the router, turn off the power and unplug the power cord.
- Disconnect all power before doing the following:
 - Installing or removing a router chassis
 - Working near power supplies
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit. Always check.
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety grounds.
- If an electrical accident occurs, proceed as follows:
 - Use caution; do not become a victim yourself.
 - Turn off power to the router.
 - If possible, send another person to get medical aid. Otherwise, determine the condition of the victim and then call for help.
 - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It occurs when electronic printed circuit cards are improperly handled and can result in complete or intermittent failures. Always follow ESD prevention procedures when removing and replacing cards. Ensure that the router chassis is

electrically connected to earth ground. Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to safely channel unwanted ESD voltages to ground. To properly guard against ESD damage and shocks, the wrist strap and cord must operate effectively. If no wrist strap is available, ground yourself by touching the metal part of the chassis.

**Caution**

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

FCC Class B Compliance

**Note**

FCC Class B compliance applies only to the Cisco 1600 and Cisco 1700 series routers, and to the Cisco ICS 7750. The Cisco 2600, Cisco 3600, and Cisco 3700 series routers are Class A compliant. See the platform regulatory compliance and safety information documents for more information.

The equipment described in this document generates and may radiate radio-frequency energy. If it is not installed in accordance with Cisco installation instructions, it may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in part 15 of the FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Cisco equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the equipment to one side or the other of the television or radio.

- Move the equipment farther away from the television or radio.
- Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio are on circuits controlled by different circuit breakers or fuses.)

Modifications to this product not authorized by Cisco Systems, Inc. could void the FCC approval and negate your authority to operate the product.

FCC Part 68

This equipment complies with Part 68 of the FCC rules. On the front panel of this equipment is a label that contains, among other information, the FCC registration number. If requested, you must provide this information to the telephone company.

An FCC-compliant cord and modular plug is provided with this equipment. This equipment is designed for connection to the telephone network or premises wiring using a compatible modular jack that is Part 68 compliant. See the installation instructions for details.

This equipment cannot be used on telephone company-provided coin service. Connection to party line service is subject to state tariffs.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that it may be necessary to temporarily discontinue service. If advance notice is not practical, the telephone company will notify you as soon as possible. Also, you will be advised of your right to file a complaint with the FCC.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of this equipment. If this happens, the telephone company will provide advance notice for you to make the necessary modifications to maintain uninterrupted service.

This device does not include any upgradeable parts.

This equipment uses Universal Service Order Code (USOC) jacks as listed in [Table 1-9](#).

Table 1-9 Cisco Interface Card Facility Interface and Service Order Codes

Interface Type	Facility Interface Code (FIC)	Service Order Code (SOC)	Jack Type (USOC)
ADSL ¹	Metallic	–	RJ-11C
SHDSL	Metallic	–	RJ-11C
BRI-S/T	02IS5	6.0N	RJ-49C via NT1
BRI-U	02IS5	6.0N	RJ-49C
T1 data	04DU9-BN 04DU9-DN 04DU9-1KN 04DU9-1SN,	6.0N	RJ-48C
T1 voice	04DU9-BN 04DU9-DN 04DU9-1KN 04DU9-1SN, 04DU9-1ZN	6.0Y	RJ-48C
FXO ¹	02LS2 02GS2	–	RJ-11C RJ-21X
CAMA ¹	02RV2-0	–	RJ-11C
DID (Reverse battery)	02RV2-T	AS.2	RJ-11C
E&M tie trunk	TL11E TL12E TL31E TL32E	9.0F	RJ-2EX RJ-2FX RJ-2GX RJ-2HX
Analog modem ¹	–	–	RJ-11C
DSU 56K	04DU5-24 04DU5-48 04DU5-96 04DU5-19 04DU5-38 04DU5-56 04DU5-64 04DU5-56B	6.0F	RJ-48S

1. REN is 1.0B or less.

Industry Canada CS-03

The following information applies to models used in Canada.

Ringer Equivalence Number

The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices, subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

Equipment Attachment Limitations

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirement Documents. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.



Caution

Users should not attempt to make connections themselves but should contact the appropriate electric inspection authority or electrician as appropriate.

Australian Communications Authority Technical Standard 031

The following warning applies to voice interface cards.



Warning

This equipment will be inoperable when main power fails.

European Commission

FXO voice interface cards have been approved to Common Technical Regulation (CTR) 21 for pan-European single-terminal connection to the PSTN. However, because of differences among the PSTNs in different countries, this approval does not in itself give unconditional assurance of successful operation on every PSTN network termination point. DTMF dialing is the default setting and is required for compliance to CTR21. Where pulse dialing is required for network compatibility, see the [Pulse Dialing](#) section for details.

In the event of problems, you should first contact your equipment supplier.

Call Progress Tone Settings

FXO voice interface cards are available in several versions with interfaces intended for different geographical regions.

There are no hardware settings for connecting these voice interface cards to the public switched telephone network. To comply with national regulatory requirements, you must set call progress tones with the Cisco IOS **cptone** command to the values shown in [Table 1-10](#).

To set call progress tones for a voice port, enter the following commands in global configuration mode:

```
Router(config)# voice-port slot-number/subunit-number/port  
Router(config-voice-port)# cptone setting
```

Table 1-10 Call Progress Tone Settings

Country	Setting
Australia	australia
Canada	northamerica
Denmark	dk
Germany	de
Great Britain	gb
Hong Kong	hk
Luxembourg	lu
Mexico	northamerica
Sweden	se
Switzerland	ch
Thailand	th
United States	northamerica

Pulse Dialing

When it is necessary to switch the FXO port from DTMF to pulse dialing, enter the following commands in global configuration mode:

```
Router(config)# voice-port slot-number/subunit-number/port
Router(config-voice-port)# dial-type pulse
```