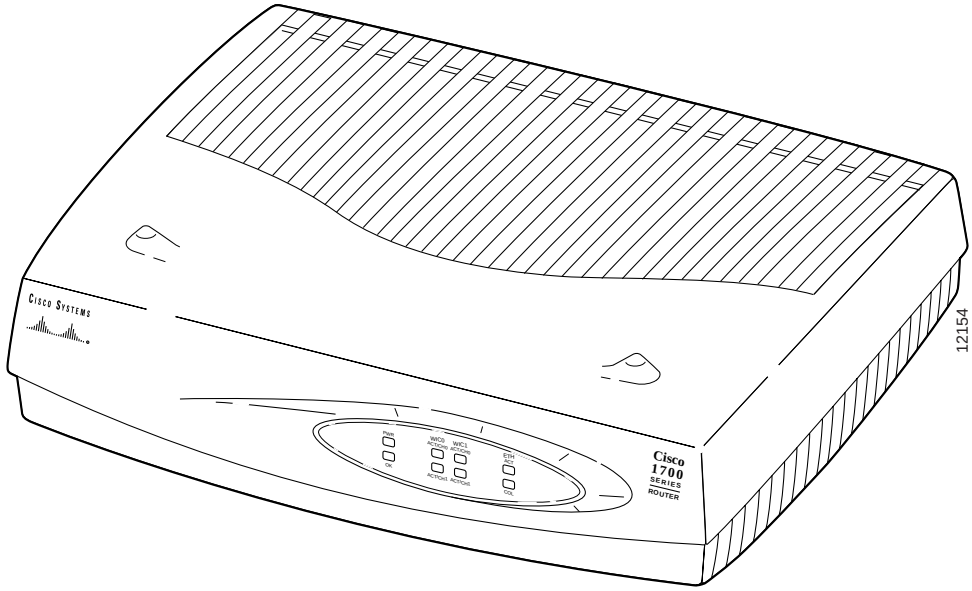
CHAPTER 1

Cisco 1700 Router Overview

This chapter introduces the Cisco 1700 router, also referred to in this guide as the router, and covers the following topics:

- Key Features
- Rear-Panel Ports and LEDs
- Front-Panel LEDs
- Router Memory
- Unpacking the Router
- Additional Required Equipment

Figure 1-1 Cisco 1700 Router



Key Features

The Cisco 1700 router is a small, modular desktop router that links small- to medium-size remote Ethernet and FastEthernet LANs over one to four WAN connections to regional and central offices. Table 1-1 lists the router key features.

Table 1-1 Key Features

Feature	Description
One FastEthernet (10/100BaseTX) port	• Operates in full- or half-duplex mode (with manual override available). • Supports autosensing for 10- or 100-Mbps operation.
Two Cisco WAN interface card slots	• Supports a combination of any two of the following WAN interface cards: ISDN BRI, 56-kbps DSU/CSU, FT1/T1 DSU/CSU, high-speed serial, and dual-serial. • The WAN interface configuration can be changed as your network requirements change.
Console port	Supports router configuration and management with a directly-connected terminal or PC. Supports up to 115.2 kbps.
Auxiliary port	Supports modem connection to the router, which can be configured and managed from a remote location. Supports up to 115.2 kbps.
SNMP support	Router can be managed over a network using Simple Network Management Protocol (SNMP).
AutoInstall support	Configuration files can be easily downloaded to the router over a WAN connection.
Kensington security slot	Router can be secured to a desktop or other surface using Kensington lockdown equipment.
Cisco ConfigMaker support	You can set up networks that include the Cisco 1700 router using the Cisco ConfigMaker application, a wizards-based software tool that helps you easily configure and address Cisco routers, access servers, hubs, switches, and networks.
Compatible with Cisco Networked Office stack	Can be stacked and operated with other members of the Cisco Networked Office stack product line.
Support for Cisco IOS software features	Supports IP, IPX, AppleTalk, IBM, Open Shortest Path First (OSPF), NetWare Link Services Protocol (NLSP), Resource Reservation Protocol (RSVP), encryption, network address translation, and the Cisco IOS Firewall Feature Set.

Rear-Panel Ports and LEDs

This section describes the router rear panel ports and LEDs, which are shown in Figure 1-2 and described in Table 1-2 and Table 1-3.

Figure 1-2 Rear-Panel Ports and LEDs

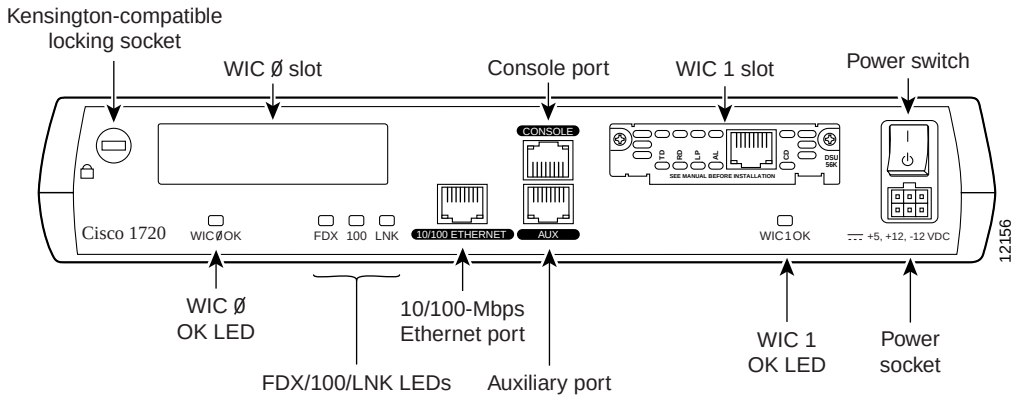


Table 1-2 Rear-Panel Connectors

Connector/Slot	Label/Color	Description
Ethernet port	10/100 ETHERNET (yellow)	Connects the router to the local Ethernet network through this port. This port autosenses the speed (10 Mbps or 100 Mbps) and duplex mode (full- or half-) of the device to which it is connected and then operates at the same speed and in the same duplex mode.
Auxiliary port	AUX (black)	Connects to a modem for remote configuration with Cisco IOS software.
Console port	CONSOLE (blue)	Connects to a terminal or PC for local configuration using Cisco IOS software.
WAN interface card slot (WICØ)	No label	Supports one Cisco WAN interface card. For detailed information, refer to the *Cisco WAN Interface Cards Hardware Installation Guide* that comes with every card.

Table 1-2 Rear-Panel Connectors (Continued)

Connector/Slot	Label/Color	Description
WAN interface card slot (WIC1)	No label	Supports one Cisco WAN interface card. For detailed information, refer to the *Cisco WAN Interface Cards Hardware Installation Guide* that comes with every card.
Power socket	+5, +12, -12 VDC	Connects the router to the external power supply.

Use the rear-panel LEDs during router installation to confirm that you have correctly connected all cables to the router.

Table 1-3 Rear-Panel LEDs

LED Label	Color	Description
WICØ OK	Green	On when a WAN interface card is correctly inserted in the card slot.
FDX	Green	On solid—Ethernet port is operating in full-duplex mode. Off—Ethernet port is operating in half-duplex mode.
100	Green	On solid—Ethernet port is operating at 100 Mbps. Off—Ethernet port is operating at 10 Mbps.
LNK	Green	On when the Ethernet link is up.
WIC1 OK	Green	On when a WAN interface card is correctly inserted in the card slot.

Front-Panel LEDs

Use the router front-panel LEDs to determine network activity and status on the Ethernet port and on the WAN interface card ports. The front-panel LEDs are illustrated in Figure 1-3 and described in Table 1-4.

Figure 1-3 Front-Panel LEDs

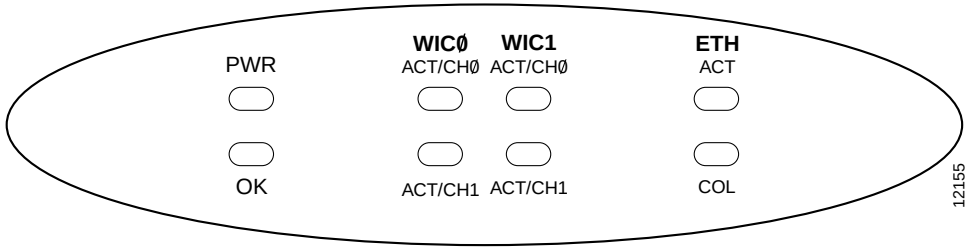


Table 1-4 Front-Panel LEDs

LED Label	Color	Description
PWR	Green	On means that DC power is being supplied to the router.
OK	Green	On means that the router has successfully booted up and the software is functional. This LED blinks during the power-on self-test (POST). Refer to Table 3-1 in the "Troubleshooting" chapter for information on how to use this LED for router diagnostics.
ETH		
ACT	Green	Blinks when there is network activity on the Ethernet port.
COL	Yellow	Blinks when there are packet collisions on the local Ethernet network.

Table 1-4 Front-Panel LEDs (Continued)

LED Label	Color	Description
WICØ		
ACT/CHØ	Green	Serial and DSU/CSU cards—Blinks when data is being sent to or received from the port on the card in the WICØ slot.
		ISDN cards—On solid when the first ISDN B channel is up for the card in the WICØ slot.
		2-port serial cards—Blinks when there is data being sent to or received from the first port on the 2-port card in the WICØ slot.
ACT/CH1	Green	Serial and CSU/DSU cards—Remains off.
		ISDN cards—On solid when the second ISDN B channel is up for the card in the WICØ slot
		2-port serial cards—Blinks when there is data being sent to or received from the second port on the 2-port card in the WICØ slot.
WIC1		
ACT/CHØ	Green	Serial and DSU/CSU cards—Blinks when data is being sent to or received from the port on the card in the WIC1 slot.
		ISDN cards—On solid when the first ISDN B channel is up for the card in the WIC1 slot.
		2-port serial cards—Blinks when there is data being sent to or received from the first port on the 2-port card in the WIC1 slot.
ACT/CH1	Green	Serial and DSU/CSU cards—Remains off.
		ISDN cards—On solid when the second ISDN B channel is up for the card in the WIC1 slot.
		2-port serial cards—Blinks when there is data being sent to or received from the second port on the 2-port card in the WIC1 slot.

Router Memory

This section describes the types of memory stored in the router and how to find out how much of each type of memory is stored in the router.

For instruction on how to upgrade memory in the router, refer to the "Installing and Upgrading Router Memory" appendix later in this guide.

Types of Memory

The Cisco 1700 router has the following types of memory:

- Dynamic random-access memory (DRAM)—This is the main storage memory for the router. DRAM is also called working storage and contains the dynamic configuration information. The Cisco 1700 router stores a working copy of Cisco IOS software, dynamic configuration information, and routing table information in DRAM.
- Nonvolatile random-access memory (NVRAM)—This type of memory contains a backup copy of your configuration. If the power is lost or the router is turned off, this backup copy enables the router to return to operation without reconfiguration.
- Flash memory—This special kind of erasable, programmable memory contains a copy of the Cisco IOS software. The Flash memory structure can store multiple copies of the Cisco IOS software. You can load a new level of the operating system in every router in your network and then, when convenient, upgrade the whole network to the new level. The Flash memory on the Cisco 1700 router is stored on mini-Flash modules.

Amounts of Memory

Use the **show version** command to view the amount of DRAM, NVRAM, and Flash memory stored in your router. The following example of the **show version** command output in bold text displays the amount of memory stored in this router.

```
1700# show version
Cisco Internetwork Operating System Software
IOS (tm) C1700 Software (C1700-Y-M), Version 12.X(XX)T
[cisco-ferrari2 121]
Copyright (c) 1986-1998 by cisco Systems, Inc.
Compiled Tue 26-May-98 19:58 by . . .
.
.
.
cisco 1700 (MPC860) processor (revision 0x00) with 12288K/4096K bytes of
memory.
Processor board ID 0000 (1314672220), with hardware revision 0000
M860 processor: part number 0, mask 32
Bridging software.
X.25 software, Version 3.0.0.
1 Serial network interface(s)
32K bytes of non-volatile configuration memory.
4096K bytes of processor board System flash (Read/Write)
Configuration register is 0x0
.
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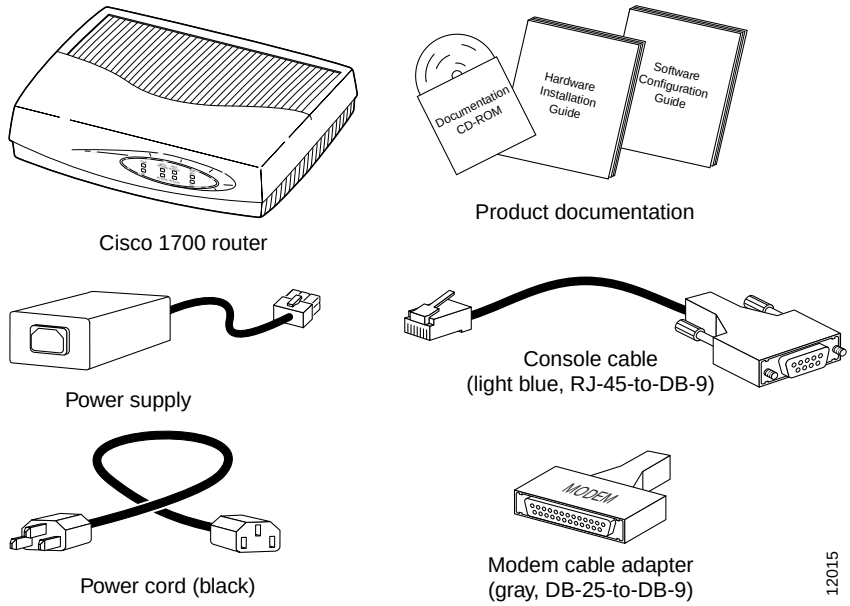
Unpacking the Router

Figure 1-4 shows the items that come with your router. All of these are in the accessory kit that is inside the box that your router came in.

Figure 1-4 Router Box Contents



Additional Required Equipment

Depending on your local network and which Cisco WAN interface cards you install in your router, you will require other items, listed in Table 1-5, to complete your router installation.

Table 1-5 Additional Required Equipment

Equipment	When You Use It
Ethernet hub	A hub connects pieces of network equipment (including the Cisco 1700 router) to create a network. You can use a 10-, 100-, or 10/100-Mbps hub with the Cisco 1700 router.
Ethernet switch	A switch connects pieces of network equipment (including the Cisco 1700 router) to create a network. You can use a 10-, 100-, or 10/100-Mbps switch with the Cisco 1700 router.
Phillips screwdriver	Although the WAN interface cards use thumbscrews, you might need a Phillips screwdriver to loosen the WAN interface card slot cover.
Cisco WAN interface card	In order to make a WAN connection, the Cisco 1700 router must have a supported WAN interface card installed. The router supports up to two cards. You can order the cards when ordering the router, and they will be installed for you. You can order the cards separately, after receiving the router, and install them yourself.
Straight-through RJ-45-to-RJ-45 cable	This cable connects the router to the Ethernet LAN and the WAN interface cards to various WAN services, including ISDN, T1/FT1, and 56-kbps services. You will need one cable for each connection that requires this cable type.
Serial cable	This cable connects a serial card to serial services. You must order this cable from Cisco. For detailed information about serial cable types, refer to the *Cisco WAN Interface Cards Hardware Installation Guide* that comes with every card.
NT1	Some ISDN service providers require a Network Termination 1 device to connect an ISDN S/T port to the ISDN line.
Asynchronous modem	Connect a modem to the AUX port on the router when you want to configure the router from a remote location.