



Release Notes for the Cisco 1700 Series Routers for Cisco IOS Release 12.2(2)XH

February 20, 2002

These release notes for the Cisco 1700 series routers describe the enhancements provided in Cisco IOS Release 12.2(2)XH2 up to and including Release 12.2(2)XH2. Use these release notes with [Cross-Platform Release Notes for Cisco IOS Release 12.2](#) located on [Cisco.com](#) and the Documentation CD-ROM.

For a list of the software caveats that apply to Release 12.2(2)XH2, see the “[Caveats](#)” section on [page 15](#) and [Caveats for Cisco IOS Release 12.2 T](#). The caveats document is updated for every maintenance release and is on [Cisco.com](#) and the Documentation CD-ROM.

Contents

These release notes discuss the following topics:

- [System Requirements, page 2](#)
- [New and Changed Information, page 13](#)
- [Important Notes, page 14](#)
- [Caveats, page 15](#)
- [Related Documentation, page 16](#)
- [Obtaining Documentation, page 23](#)
- [Obtaining Technical Assistance, page 24](#)



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System Requirements

This section describes the system requirements for Release 12.2(2)XH2 and includes the following sections:

- [Memory Requirements](#)
- [Hardware Supported, page 3](#)
- [Determining Your Software Release, page 8](#)
- [Upgrading to a New Software Release, page 8](#)
- [Feature Set Tables, page 8](#)

Memory Requirements

Table 1 Memory Requirements for the Cisco 1700 Series Routers

Feature Sets	Image Name	Software Image	Recommended Flash Memory ¹	Recommended DRAM Memory
IP Feature Sets	IP	c1700-y-mz	8 MB	32 MB
	IP ADSL	c1700-y7-mz	8 MB	32 MB
	IP/ADSL Plus	c1700-sy7-mz	8 MB	32 MB
	IP/ADSL/Voice Plus	c1700-sv3y7-mz	16 MB	48 MB
	IP/Voice Plus	c1700-sv3y-mz	16 MB	48 MB
	IP/FW/IDS	c1700-o3y-mz	8 MB	32 MB
	IP/ADSL/Voice/FW/IDS Plus	c1700-o3sv3y7-mz	16 MB	48 MB
	IP/IPX	c1700-ny-mz	8 MB	32 MB
	IP/ADSL/IPX/FW/IDS Plus	c1700-no3sy7-mz	8 MB	32 MB
	IP/ADSL/IPX/Voice/FW/IDS Plus	c1700-no3sv3y7-mz	16 MB	48 MB
	IP/ADSL Plus IPsec 3DES	c1700-k9sy7-mz	8 MB	32 MB
	IP/ADSL/Voice Plus IPsec 3DES	c1700-k9sv3y7-mz	16 MB	48 MB
	IP/ADSL/FW/IDS Plus IPsec 3DES	c1700-k9o3sy7-mz	8 MB	32 MB
	IP/ADSL/Voice/FW/IDS Plus IPsec 3DES	c1700-k9o3sv3y7-mz	16 MB	48 MB
	IP/ADSL Plus IPsec 56	c1700-k8sy7-mz	8 MB	32 MB
	IP/ADSL/Voice Plus IPsec 56	c1700-k8sv3y7-mz	16 MB	48 MB
	IP/ADSL/FW/IDS Plus IPsec 56	c1700-k8o3sy7-mz	8 MB	32 MB
	IP/ADSL/Voice/FW/IDS Plus IPsec 56	c1700-k8o3sv3y7-mz	16 MB	48 MB
	IP/IPX/AT/IBM	c1700-bnr2y-mz	8 MB	32 MB
	IP/ADSL/IPX/AT/IBM Plus	c1700-bnr2sy7-mz	16 MB	48 MB
	IP/ADSL/IPX/AT/IBM/FW/IDS Plus IPsec 3DES	c1700-bk9no3r2sy7-mz	16 MB	48 MB

Table 1 *Memory Requirements for the Cisco 1700 Series Routers (continued)*

Feature Sets	Image Name	Software Image	Recommended Flash Memory ¹	Recommended DRAM Memory
IP Feature Sets	IP/ADSL/IPX/AT/IBM/Voice/FW/IDS Plus IPSec 3DES	c1700-bk9no3r2sv3y7-mz	16 MB	48 MB
	IP/ADSL/IPX/AT/IBM/FW/IDS Plus IPSec 56	c1700-bk8no3r2sy7-mz	16 MB	48 MB
	IP/ADSL/IPX/AT/IBM/Voice/FW/IDS Plus IPSec 56	c1700-bk8no3r2sv3y7-mz	16 MB	48 MB
	IP/IPX/AT/IBM/FW/IDS Plus IPSec 3DES	c1710-bk9no3r2sy-mz	16 MB	48 MB
	IP/FW/IDS Plus IPSec 3DES	c1710-k9o3sy-mz	8 MB	32 MB

1. Flash Memory recommendations are for the Cisco 1750 only. The Cisco 1751 has 16 MB and the 1751-V has 32 MB of on-board Flash Memory, which are not upgradeable.

Hardware Supported

Cisco IOS Release 12.2(2)XH2 supports the following Cisco 1700 series routers:

- Cisco 1710—Includes Virtual Private Network (VPN) module.
- Cisco 1720—Runs data images only
- Cisco 1750—Runs data and data-plus-voice images
- Cisco 1751—Runs data and data-plus-voice images, providing digital and analog voice support
- Cisco 1751-V—Includes all the features needed for immediate integration of data and voice services with support for up to two voice channels

For detailed descriptions of the new hardware features, see the documents listed in the [“Platform-Specific Documents”](#) section on page 17.

Cisco 1710

Cisco 1710 Security Access Router is an integrated VPN, Firewall, and security router providing customers with data privacy and protection while accessing information across the public IP networks. The router is equipped with a VPN module that provides hardware Triple DES (3DES) encryption and can provide the following benefits:

- Secure site-to-site connections between remote offices, small branch offices, and corporate offices.
- Secure remote access to mobile workers, telecommuters, and day-extenders.
- Secure extranet access for customers and partners.

Table 2 lists the key features of the Cisco 1710 Security Access router.

Table 2 Key Features of the Cisco 1710 Security Access Router

Feature	Description
One Fast Ethernet (10/100BASE-TX) port	- Operates in full- or half-duplex mode (with manual override available). - Supports autosensing for 10- or 100-Mbps operation. - Supports IEEE 802.1Q VLAN.
One Ethernet (10BASE-T) port	Operates in full- or half-duplex mode and set by default to half-duplex mode. (Needs manual configuration for full-duplex support.)
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.
VPN hardware-assisted 3DES encryption module	Provides IPSEC 3DES hardware encryption.
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.
Support for 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 (NAT), and the Cisco IOS Firewall Feature Set.

Cisco 1720

The 1720 router provides Internet and intranet access and includes the following:

- Support for virtual private networking
- Modular architecture
- Network device integration

The Cisco 1720 router has the following hardware components:

- One autosensing 10/100 Fast Ethernet port
- Two WAN interface card slots
- One auxiliary (AUX) port (up to 115.2 kbps asynchronous serial)
- One console port
- RISC Processor for high performance encryption
- One internal expansion slot for support of future hardware-assisted services such as encryption (up to T1/E1) and compression
- DRAM memory: 16 MB default, expandable to 48 MB

- Flash memory: 4 MB default, expandable to 16 MB
- Desktop form factor

The Cisco 1720 router supports any combination of one or two of the following WAN interface cards:

- WIC-1T: One port high speed serial (sync/async)
- WIC-2T: Two port high speed serial (sync/async)
- WIC-2A/S: Two port low speed serial (sync/async) (up to 128 kbps)
- WIC-1B-S/T: One port ISDN BRI S/T
- WIC-1B-U: One port ISDN BRI U
- WIC-1DSU-56K4: One port integrated 56/64 kbps 4-wire DSU/CSU
- WIC-1DSU-T1: One port integrated T1 / Fractional T1 DSU/CSU
- WIC-1ADSL—One-port asymmetric digital subscriber line (supported on the Cisco 1700, 2600, and 3600 series routers only)
- WIC-1ENET—One-port 10Base-T Ethernet interface

Cisco 1750

The voice-and-data capable Cisco 1750 router provides global Internet and company intranet access and includes the following:

- Voice-over-IP (VoIP) voice-and-data functionality; the router can carry voice traffic (for example, telephone calls and faxes) over an IP network
- Support for virtual private networking
- Modular architecture
- Network device integration

The Cisco 1750 router has the following hardware components:

- One autosensing 10/100 Fast Ethernet port, which operates in full- or half-duplex mode (with manual override available)
- One voice interface card (VIC) slot—Supports a single voice interface card with two ports per card
- Two WAN interface card (WIC) slots for either WICs or VICs
- Synchronous serial interfaces on serial WICs
- Asynchronous serial interfaces on serial WICs
- ISDN WICs—ISDN dialup and ISDN leased line (IDSL) at 144 kbps; encapsulation over ISDN leased line: Frame Relay and PPP
- One auxiliary (AUX) port (up to 115.2 kbps asynchronous serial)
- One console port
- One internal expansion slot—Supports hardware-assisted services such as encryption (up to T1/E1 speeds)
- RISC Processor—Motorola MPC860T PowerQUICC at 48 MHz
- One security slot that supports Kensington or similar lockdown equipment
- DRAM: 16 MB default, expandable to 48 MB

- Flash memory: 4 MB default, expandable to 16 MB
- Desktop form factor

The Cisco 1750 router supports any combination of one or two of the following WICs, which are shared with the Cisco 1600, 1720, 2600, and 3600 routers:

- WIC-1T—One-port high speed serial (sync/async)(T1/E1)
- WIC-2T—Two-port high speed serial (sync/async) (T1/E1)
- WIC-2A/S—Two-port low speed serial (sync/async) (up to 128 kbps)
- WIC-1B-S/T—One-port ISDN BRI S/T
- WIC-1B-U—One-port ISDN BRI U with integrated NT1
- WIC-1DSU-56K4—One-port integrated 56/64 kbps 4-wire DSU/CSU
- WIC-1DSU-T1—One-port integrated T1 / Fractional T1 DSU/CSU
- WIC-1ADSL—One-port asymmetric digital subscriber line (supported on the Cisco 1700, 2600, and 3600 series routers only)
- WIC-1ENET—One-port 10Base-T Ethernet interface

The Cisco 1750 router supports any combination of one or two of the following voice interface cards, which are shared with the Cisco 2600 and 3600 routers:

- VIC-2FXS—Two-port Foreign Exchange Station (FXS) voice/fax interface card for voice/fax network module
- VIC-2FXO—Two-port Foreign Exchange Office (FXO) voice/fax interface card for voice/fax network module
- VIC-2FXO-EU—Two-port FXO voice/fax interface card for Europe
- VIC-2FXO-M3—Two-port Ear & Mouth (E&M) voice/fax interface for Australia
- VIC-2E/M—Two-port E&M voice/fax interface card for voice/fax network module

Cisco 1751 and 1751-V

The voice-and-data capable Cisco 1751 and 1751-V routers provide global Internet and company intranet access and includes the following:

- Voice-over-IP (VoIP) voice-and-data functionality; the router can provide support for digital and analog voice traffic (for example, telephone calls and faxes) over an IP network.
- Support for virtual private networking
- Modular architecture
- Network device integration

The Cisco 1751 and 1751-V routers have the following hardware components:

- One autosensing 10/100 Fast Ethernet port, which operates in full- or half-duplex mode (with manual override available)
- IEEE 802.1Q VLAN support
- One VIC slot—Supports a single voice interface card with two ports per card
- Two WIC slots for either WICs or VICs
- Synchronous serial interfaces on serial WICs
- Asynchronous serial interfaces on serial WICs

- ISDN WICs—ISDN dialup and ISDN leased line (IDSL) at 144 kbps; encapsulation over ISDN leased line: Frame Relay and PPP
- One auxiliary (AUX) port (up to 115.2 kbps asynchronous serial)
- One console port
- One internal expansion slot—Supports hardware-assisted services such as encryption (up to T1/E1 speeds)
- RISC Processor—Motorola MPC860P PowerQUICC at 48.384 MHz
- One security slot that supports Kensington or similar lockdown equipment
- DRAM:
 - 1751: 32 MB default, expandable to 96 MB
 - 1751-V: 64 MB default, expandable to 128 MB
- Flash memory:
 - 1751: 16 MB
 - 1751-V: 32 MB
- Desktop form factor

The Cisco 1751 and 1751-V routers support any combination of one or two of the following WICs, which are shared with the Cisco 1600, 1720, 1750, 2600, and 3600 routers:

- WIC-1T—One-port high speed serial (sync/async)(T1/E1)
- WIC-2T—Two-port high speed serial (sync/async) (T1/E1)
- WIC-2A/S—Two-port low speed serial (sync/async) (up to 128 kbps)
- WIC-1B-S/T—One-port ISDN BRI S/T
- WIC-1B-U—One-port ISDN BRI U with integrated NT1
- WIC-1DSU-56K4—One-port integrated 56/64 kbps 4-wire DSU/CSU
- WIC-1DSU-T1—One-port integrated T1 / Fractional T1 DSU/CSU
- WIC-1ADSL—One-port asymmetric digital subscriber line (supported on the Cisco 1700, 2600, and 3600 series routers only)
- WIC-1ENET—One-port 10Base-T Ethernet interface

The Cisco 1751 and 1751-V routers support any combination of one, two or three of the following VICs, which are shared with the Cisco 2600 and 3600 routers:

- VIC-2FXS—Two-port Foreign Exchange Station (FXS) voice/fax interface card for voice/fax network module
- VIC-2FXO—Two-port Foreign Exchange Office (FXO) voice/fax interface card for voice/fax network module
- VIC-2FXO-EU—Two-port FXO voice/fax interface card for Europe
- VIC-2E/M—Two-port Ear & Mouth (E&M) voice/fax interface card for voice/fax network module
- VIC-2FXO-M3—Two-port E&M voice/fax interface for Australia
- VIC-2BRI-NT/TE—Two-port ISDN interface (supported only on the Cisco 1751 and 1751-V routers)

Determining Your Software Release

To determine the version of Cisco IOS software running on your Cisco 1700 series router, log in to the platform, and enter the **show version EXEC** command:

```
Router# show version
Cisco Internetwork Operating System Software
IOS (tm) 1700 Software (c1700-y-mz), Version 12.2(2)XH2, RELEASE SOFTWARE
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2002 by Cisco Systems, Inc.
```

Upgrading to a New Software Release

For general information about upgrading to a new software release, see *Software Installation and Upgrade Procedures* located at: http://www.cisco.com/warp/public/130/upgrade_index.shtml.

Feature Set Tables

The Cisco IOS software is packaged in feature sets consisting of software images—depending on the platform. Each feature set contains a specific set of Cisco IOS features. Release 12.2(2)XH2 supports the same feature sets as Releases 12.2 and 12.2 T, but Release 12.2(2)XH2 includes new features supported by the Cisco 1700 series routers.



Caution

Cisco IOS images with strong encryption (including, but not limited to 168-bit (3DES) data encryption feature sets) are subject to United States government export controls and have limited distribution. Strong encryption images to be installed outside the United States are likely to require an export license. Customer orders can be denied or subject to delay due to United States government regulations. When applicable, the purchaser/user must obtain local import and use authorizations for all encryption strengths. Please contact your sales representative or distributor for more information, or send an e-mail to export@cisco.com.

[Table 3](#) through [Table 6](#) list the features and feature sets supported by the Cisco 1700 series routers in Cisco IOS Release 12.2(2)XH2. The tables use the following conventions:

- Yes—The feature is supported in the software image.
- No—The feature is not supported in the software image.



Note

These tables might not be cumulative or list all the features in each image. You can find the most current Cisco IOS documentation on Cisco.com. These electronic documents may contain updates and modifications made after the hardcopy documents were printed.

Table 3 Feature List by Feature Set for the Cisco 1700 Series Routers, Part 1 of 4

Features	Feature Sets					
	IP	IP/ADSL	IP/Plus/ ADSL	IP/Plus/ Voice	IP/Plus/ Voice/ ADSL	IP/Plus/ IPSec 56 / ADSL
IP Multicast						
Bidirectional PIM	No	No	Yes	Yes	Yes	Yes
IP Routing Protocols						
OSPF flooding reduction	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia and Quality of Service						
H.323 V2 enhancements	No	No	No	Yes	Yes	No
Quality-of-service voice enhancements	No	No	No	Yes	Yes	No
H.323 version 2 phase 2 enhancements	No	No	No	No	No	No
NBAR	No	No	Yes	Yes	Yes	Yes
QDM	No	No	Yes	Yes	Yes	Yes
Multiservice Applications						
Voice-over-Frame Relay (Cisco 175x only)	No	No	No	Yes	Yes	No
Security						
Secure Shell version 1 integrated client	No	No	No	No	No	Yes
SSH version 1 server support	Yes	Yes	Yes	Yes	Yes	Yes
Virtual Private Network (VPN) Module for the Cisco 1700 series routers	No	No	No	No	No	Yes
WAN/Voice						
Frame Relay switching enhancements: shaping and policing	Yes	Yes	Yes	Yes	Yes	Yes
Single port ethernet WIC for Cisco 1700 Series Routers	Yes	Yes	Yes	Yes	Yes	Yes
Two-port ISDN VIC for Cisco 1751 Routers	No	No	No	Yes	Yes	No

Table 4 Feature List by Feature Set for the Cisco 1700 Series Routers, Part 2 of 4

Features	Feature Sets					
	IP/Voice/Plus/ IPSec 56 / ADSL	IP/FW/IDS	IP/FW/Voice/ Plus/IPSec 56 /ADSL	IP/FW/Plus/ IP Sec 56 /ADSL	IP/Voice/FW/ IDS/Plus/ IPSec 56/ ADSL	IP/IPX
IP Multicast						
Bidirectional PIM	Yes	No	Yes	Yes	Yes	No
IP Routing Protocols						
OSPF flooding reduction	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia and Quality of Service						
H.323 V2 enhancements	Yes	No	Yes	No	Yes	No
Quality-of-service voice enhancements	Yes	No	Yes	No	Yes	No
H.323 version 2 phase 2 enhancements	Yes	No	Yes	No	Yes	No
NBAR	Yes	No	Yes	Yes	Yes	No
QDM	Yes	No	Yes	Yes	Yes	No
Multiservice Applications						
Voice-over-Frame Relay (Cisco 175x only)	Yes	No	Yes	No	Yes	No
Security						
Secure Shell version 1 integrated client	Yes	No	Yes	Yes	Yes	No
SSH version 1 server support	Yes	Yes	Yes	Yes	Yes	Yes
Virtual Private Network (VPN) Module for the Cisco 1700 series routers	Yes	No	Yes	Yes	Yes	No
WAN/Voice						
Frame Relay switching enhancements: shaping and policing	Yes	Yes	Yes	Yes	Yes	Yes
Single port ethernet WIC for Cisco 1700 Series Routers	Yes	Yes	Yes	Yes	Yes	Yes
Two-port ISDN VIC for Cisco 1751 Routers	Yes	No	Yes	No	Yes	No

Table 5 Feature List by Feature Set for the Cisco 1700 Series Routers, Part 3 of 4

Features	Feature Sets					
	IP/IPX/ FW/IDS/Plus/ ADSL	IP/IPX/ Voice/FW/ IDS/Plus/ ADSL	IP/Plus/ IPSec 3DES/ ADSL	IP/Voice/Plus/ IPSec 3DES/ ADSL	IP/FW/Plus/ IPSec 3DES/ ADSL	IP/FW/ Voice/Plus/ IPSec 3DES/ ADSL
IP Multicast						
Bidirectional PIM	Yes	Yes	Yes	Yes	No	Yes
IP Routing Protocols						
OSPF flooding reduction	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia and Quality of Service						
H.323 V2 enhancements	No	Yes	No	Yes	No	Yes
Quality-of-service voice enhancements	No	Yes	No	Yes	Yes	Yes
H.323 version 2 phase 2 enhancements	No	Yes	No	Yes	No	Yes
NBAR	Yes	Yes	Yes	Yes	Yes	Yes
QDM	Yes	Yes	Yes	Yes	Yes	Yes
Multiservice Applications					Yes	Yes
Voice-over-Frame Relay (Cisco 175x only)	No	Yes	No	Yes	Yes	Yes
Security						
Secure Shell version 1 integrated client	No	No	Yes	Yes	Yes	Yes
SSH version 1 server support	Yes	Yes	Yes	Yes	Yes	Yes
Virtual Private Network (VPN) Module for the Cisco 1700 series routers	No	No	Yes	Yes	Yes	Yes
WAN/Voice						
Frame Relay switching enhancements: shaping and policing	Yes	Yes	Yes	Yes	Yes	Yes
Single port ethernet WIC for Cisco 1700 Series Routers	Yes	Yes	Yes	Yes	Yes	Yes
Two-port ISDN VIC for Cisco 1751 Routers	No	Yes	No	Yes	No	Yes

Table 6 Feature List by Feature Set for the Cisco 1700 Series Routers, Part 4 of 4

Features	Feature Sets							
	IP/IPX/AT/ IBM	IP/IPX/AT/ IBM/Plus/ ADSL	IP/IPX/AT/ IBM/FW/ Plus/ IPSec 56/ ADSL	IP/IPX/AT/ IBM/FW/ Voice/Plus IPSec 56/ ADSL	IP/IPX/AT/ IBM/FW/ Plus/ IPSec 3DES/ ADSL	IP/IPX/AT/ IBM/FW/ Voice/Plus IPSec 3DES/ ADSL	IP/IPX/AT/ IBM/FW/ IDS/Plus/ IPSec 3DES	IP/FW/IDS/ Plus/ IPSec 3DES
IP Multicast								
Bidirectional PIM	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Routing Protocols								
OSPF flooding reduction	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia and Quality of Service								
H.323 V2 enhancements	No	No	No	Yes	No	Yes	No	No
Quality-of-service voice enhancements	No	No	No	Yes	No	Yes	No	No
H.323 version 2 phase 2 enhancements	No	No	No	Yes	No	Yes	No	No
NBAR	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
QDM	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multiservice Applications								
Voice-over-Frame Relay (Cisco 175x only)	No	No	No	No	No	No	No	No
Security								
Secure Shell version 1 integrated client	No	No	Yes	Yes	Yes	Yes	Yes	Yes
SSH version 1 server support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Virtual Private Network (VPN) Module for the Cisco 1700 series routers	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Table 6 Feature List by Feature Set for the Cisco 1700 Series Routers, Part 4 of 4 (continued)

Features	Feature Sets							
	IP/IPX/AT/ IBM	IP/IPX/AT/ IBM/Plus/ ADSL	IP/IPX/AT/ IBM/FW/ Plus/ IPSec 56/ ADSL	IP/IPX/AT/ IBM/FW/ Voice/Plus IPSec 56/ ADSL	IP/IPX/AT/ IBM/FW/ Plus/ IPSec 3DES/ ADSL	IP/IPX/AT/ IBM/FW/ Voice/Plus IPSec 3DES/ ADSL	IP/IPX/AT/ IBM/FW/ IDS/Plus/ IPSec 3DES	IP/FW/IDS/ Plus/ IPSec 3DES
WAN/Voice								
Frame Relay switching enhancements: shaping and policing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Single port ethernet WIC for Cisco 1700 Series Routers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Two-port ISDN VIC for Cisco 1751 Routers	No	No	No	Yes	No	Yes	No	No

New and Changed Information

The following sections list the new hardware and software features supported by the Cisco 1700 routers for Release 12.2(2)XH2.

New Hardware Features Supported in Release 12.2(2)XH

The following new hardware platform is supported by the Cisco 1710 Security Access routers for Cisco IOS Release 12.2(2)XH.

Cisco 1710 Security Access Router

The Cisco 1710 Security Access Router is equipped with a VPN module that provides hardware Triple DES (3DES) encryption.

New Software Features in Release 12.2(2)XH

Cisco IOS Release 12.2(2)XH supports these new software features for the Cisco 1700 series routers.

Cisco Hoot and Holler over IP

Cisco 1750, Cisco 1751, and Cisco 1751-V routers now support the Cisco Hoot and Holler over IP feature. The Hoot and Holler network is a multi-point four-wire audio conference network that is always up so that communication is enabled with the push of a button when needed. Hoot and Holler networks

are typically used throughout the brokerage industry to communicate morning reports and to advise traders within a firm on market movements and trading activities. In addition, this type of network is used in industries that require collaboration on a regular basis.

Hoot and Holler networks are usually spread over four to eight sites but some businesses (such as retail) may have as many as 500 interconnected sites. Within a site, bridging is done locally with a standard audio or digital bridge circuit that may be part of a trading turret system. Bridging between the sites are often provided by the carrier, who provides dedicated (either analog or digital) four-wire connections into a central N1 bridge.

Cisco Hoot and Holler over IP supports the following features:

- Single source with multicast
- Multiple sources with multicast
- Codecs G.711, G.726, and G.729
- Cisco IOS command-line interface (CLI) to configure the feature
- Support of existing turret system
- E&M interface
- FXS interface

The following features are not yet supported:

- Channelized T1/E1
- G.723.1 codec
- Using a telephone to dial into a hoot session
- Digital interfaces such as BRI NT/TE
- PRI interface
- FXO interface

Important Notes

The following sections contain important notes that can apply to the Cisco 1700 series routers.

Cisco Express Forwarding

When installed in a Cisco 1700 series router, the Cisco Virtual Private Network (VPN) module does not support Cisco express forwarding (CEF).

Fan Operation in Cisco 1700 Series Routers

The fans in Cisco 1700 series routers stay off until thermally activated.

Flash Defaults to Flash:1 on Multipartition Flash

When using a multipartition Flash card, the various Flash partitions are referred to as flash:1:, flash:2:, etc. If you specify only flash in a multipartition Flash, the parser assumes flash:1:. For example, if you enter **show flash all**, the parser defaults to show flash:1: all, and only the Flash information for the first partition appears. To see information for all Flash partitions, enter **show flash ?**. This lists all of the valid partitions. Then enter **show flash:xx: all** on each valid partition.

Peak Cell Rate and Sustainable Cell Rate Values

On Cisco 1700 routers, specify the Peak Cell Rate (PCR) and Sustainable Cell Rate (SCR) as multiples of 32 Kbps. Other rates are treated as the next lower value of a multiple of 32. For example, an entered PCR value of 150 is considered 128.

Using the boot flash Command

Booting a Cisco 1700 series router with the commands **boot flash** or **boot system flash** results in unpredictable behavior. To work around this problem, be sure to enter a colon (:) following both commands (for example, **boot flash:** or **boot system flash:**).

Caveats

Caveats describe unexpected behavior in Cisco IOS software releases. Severity 1 caveats are the most serious caveats, severity 2 caveats are less serious, and severity 3 caveats are the least serious of these three levels. All caveats in Cisco IOS Release 12.2 and Cisco IOS Release 12.2 T are also in Cisco IOS Release 12.2(2)XH2.

For information on caveats in Cisco IOS Release 12.2, see *Caveats for Cisco IOS Release 12.2*. For information on caveats in Cisco IOS Release 12.2 T, see *Caveats for Cisco IOS Release 12.2 T*, which lists severity 1 and 2 caveats and is on [Cisco.com](http://www.cisco.com) and the Documentation CD-ROM.



Note

If you have an account with Cisco.com, you can also use the Bug Toolkit to find select caveats of any severity. To reach the Bug Toolkit, log in to Cisco.com and click **Service & Support: Technical Assistance Center: Tool Index: Bug Toolkit**. Another option is to go to http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl.

Resolved Caveats - Release 12.2(2)XH2

This section describes unexpected behavior that is fixed in Release 12.2(2)XH2.

Management

CSCdw65903

An error can occur with management protocol processing. Please use the following URL for further information:

<http://www.cisco.com/cgi-bin/bugtool/onebug.pl?bugid=CSCdw65903>

Resolved Caveats for Release 12.2(2)XH

This section describes possibly unexpected behavior that are resolved in Release 12.2(2)XH.

CSCds69577

The PPPoE standard sets the maximum transmission unit (MTU) of an Ethernet packet to 1492 bytes. If a host PC uses the default MTU of 1500 bytes, the router between the server and the host would drop those packets. Even though an ICMP message is sent to the website notifying it of the problem, some websites are programmed to ignore ICMP messages and would continue to send 1500-byte packets that will get dropped.

Starting with Release 12.2(2)XH, you can resolve this problem by changing the value of the maximum segment size (MSS) contained in the MTU to 1492 or less. Use the following IOS command:

ip tcp adjust-mss *mss*

where *mss* is 1492 or less.

This command does not require NAT to be configured.

Related Documentation

The following sections describe the documentation available for the Cisco 1700 series routers. Typically, these documents consist of hardware and software installation guides, Cisco IOS configuration and command references, system error messages, feature modules, and other documents.

Documentation is available as printed manuals or electronic documents, except for feature modules, which are available online on Cisco.com and the Documentation CD-ROM.

Use these release notes with the documents listed in the following sections:

- [Release-Specific Documents](#)
- [Platform-Specific Documents](#)
- [Feature Modules](#)
- [Cisco IOS Software Documentation Set](#)

Release-Specific Documents

The following documents are specific to 12.2. They are on Cisco.com and the Documentation CD-ROM.

- *Release Notes for Cisco IOS 12.2*

On Cisco.com:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Release Notes: Cross-Platform Release Notes

On the Documentation CD-ROM:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Release Notes: Cross-Platform Release Notes

- Product bulletins, field notices, and other release-specific documents on Cisco.com:

Technical Documents: Product Bulletins

- Caveats for Cisco IOS Release 12.2

As a supplement to the caveats listed in the “[Caveats](#)” section on page 15 section in these release notes, see the *Caveats for Cisco IOS Release 12.2* and *Caveats for Cisco IOS Release 12.2 T* documents, which contain caveats applicable to all platforms for all maintenance releases of IOS Releases 12.2 and 12.2 T.

On Cisco.com:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Caveats

On the Documentation CD-ROM:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Caveats



Note

If you have an account with Cisco.com, you can also use the Bug Toolkit to find select caveats of any severity. To reach the Bug Toolkit, log in to Cisco.com and click **Service & Support: Technical Assistance Center: Tool Index: Bug Toolkit**. Another option is to go to http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl.

Platform-Specific Documents

Cisco 1710

These documents are available for the Cisco 1710 router on Cisco.com and the Documentation CD-ROM:

- *Quick Start Guide - Installing Your Cisco 1710 Security Router*
- *Cisco 1710 Security Router Software Configuration Guide*
- *Cisco 1710 Security Router Hardware Installation Guide*
- *Regulatory Compliance and Safety Information for Cisco 1700 Routers*

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Modular Access Routers: Cisco 1710 Router

On the Documentation CD-ROM:

Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1710 Router

Cisco 1720

These documents are available for the Cisco 1720 router on CCO and the Documentation CD-ROM:

- *Installing Your Cisco 1720*
- *Cisco 1720 Router Hardware Installation Guide*
- *Cisco 1700 Router Software Configuration Guide*
- *Regulatory Compliance and Safety Information*
- Configuration Notes
- Release Notes for the Cisco 1720 Router
- *WAN Interface Cards Hardware Installation Guide*

On CCO at:

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Modular Access Routers: Cisco 1720 Router

On the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1720 Router

Cisco 1750

These documents are available for the Cisco 1750 router on Cisco.com and the Documentation CD-ROM:

- *Cisco 1750 Router Hardware Installation Guide*
- *Voice-over-IP Quick Start Guide*
- *Cisco 1750 Software Configuration Guide*
- *Cisco WAN Interface Cards Hardware Installation Guide*
- *Cisco 1700 Series Routers Configuration Notes*
- *Release Notes for the Cisco 1750 Router*
- *Regulatory Compliance and Safety Information for Cisco 1700 Routers*

On Cisco.com:

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Modular Access Routers: Cisco 1750 Router

On the Documentation CD-ROM:

Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1750 Router

Cisco 1751

These documents are available for the Cisco 1751 routers on Cisco.com and the Documentation CD-ROM:

- *Cisco 1751 Router Hardware Installation Guide*
- *Cisco 1751 Router Voice over IP Quick Start Guide*
- *Cisco 1751 Router Software Configuration Guide*
- *Update to Cisco WAN Interface Cards Hardware Installation Guide*
- *Configuring the Voice Interface Card for the Cisco 1751 Router*

On Cisco.com:

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Modular Access Routers: Cisco 1751 Router

On the Documentation CD-ROM:

Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1751 Router

Feature Modules

Feature modules describe new features supported by Release 12.2(2)XH2 and above are updates to the Cisco IOS documentation set. A feature module consists of a brief overview of the feature, benefits, configuration tasks, and a command reference. As updates, the feature modules are available online only. Feature module information is incorporated in the next printing of the Cisco IOS documentation set.

On Cisco.com:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2: New Feature Documentation: New Features in 12.2-Based Limited Lifetime Releases: New Features in 12.2X Releases

On the Documentation CD-ROM:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.2: New Feature Documentation: New Features in 12.2-Based Limited Lifetime Releases: New Features in 12.2X Releases

Feature Navigator

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a particular set of features and which features are supported in a particular Cisco IOS image. Feature Navigator is available 24 hours a day, 7 days a week.

To access Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, e-mail the Contact Database Administration group at cdbadmin@cisco.com. If you do not have an account on Cisco.com, go to <http://www.cisco.com/register> and follow the directions to set up an account.

To use Feature Navigator, you must have a JavaScript-enabled web browser such as Netscape 3.0 or later, or Internet Explorer 4.0 or later. Internet Explorer 4.0 always has JavaScript enabled. To enable JavaScript for Netscape 3.x or Netscape 4.x, follow the instructions provided with the web browser. For JavaScript support and enabling instructions for other browsers, check with the browser vendor.

Feature Navigator is updated when major Cisco IOS software releases and technology releases occur. You can access Feature Navigator at the following URL:

<http://www.cisco.com/go/fn>

Cisco IOS Software Documentation Set

The Cisco IOS software documentation set consists of the Cisco IOS configuration guides, Cisco IOS command references, and several other supporting documents that are shipped with your order in electronic form on the Documentation CD-ROM—unless you specifically ordered printed versions.

Documentation Modules

Each module in the Cisco IOS documentation set consists of two types of books: a configuration guide and a corresponding command reference. Chapters in a configuration guide describe protocols, configuration tasks, Cisco IOS software functionality, and contain comprehensive configuration examples. Chapters in a command reference provide complete command syntax information. Use each configuration guide with its corresponding command reference.

The Cisco IOS software documentation set is available on Cisco.com and on the Documentation CD-ROM.

On Cisco.com:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Configuration Guides and Command References

On the Documentation CD-ROM:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Configuration Guides and Command References

Release 12.2 Documentation Set

[Table 6](#) describes the contents of the Cisco IOS Release 12.2 software documentation set, which is available in both electronic and printed form.



Note

You can find the most current Cisco IOS documentation on Cisco.com and the Documentation CD-ROM. These electronic documents might contain updates and modifications made after the hard-copy documents were printed.

On Cisco.com:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2

On the Documentation CD-ROM:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.2

Table 7 Cisco IOS Release 12.2 Documentation Set

Books	Major Topics
<i>Cisco IOS Configuration Fundamentals Configuration Guide</i> <i>Cisco IOS Configuration Fundamentals Command Reference</i>	Cisco IOS User Interfaces File Management System Management
<i>Cisco IOS Bridging and IBM Networking Configuration Guide</i> <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume 1 of 2</i> <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume 2 of 2</i>	Transparent Bridging SRB Token Ring Inter-Switch Link Token Ring Route Switch Module RSRB DLSw+ Serial Tunnel and Block Serial Tunnel LLC2 and SDLC IBM Network Media Translation SNA Frame Relay Access NCIA Client/Server Airline Product Set DSPU and SNA Service Point SNA Switching Services Cisco Transaction Connection Cisco Mainframe Channel Connection CLAW and TCP/IP Offload CSNA, CMPC, and CMPC+ TN3270 Server
<i>Cisco IOS Dial Technologies Configuration Guide</i> <i>Cisco IOS Dial Technologies Command Reference</i>	Preparing for Dial Access Modem and Dial Shelf Configuration and Management ISDN Configuration Signaling Configuration Dial-on-Demand Routing Configuration Dial Backup Configuration Dial Related Addressing Service Virtual Templates, Profiles, and Networks PPP Configuration Callback and Bandwidth Allocation Configuration Dial Access Specialized Features Dial Access Scenarios
<i>Cisco IOS Interface Configuration Guide</i> <i>Cisco IOS Interface Command Reference</i>	LAN Interfaces Serial Interfaces Logical Interfaces
<i>Cisco IOS IP Configuration Guide</i> <i>Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services</i> <i>Cisco IOS IP Command Reference, Volume 2 of 3: Routing Protocols</i> <i>Cisco IOS IP Command Reference, Volume 3 of 3: Multicast</i>	IP Addressing and Services IP Routing Protocols IP Multicast
<i>Cisco IOS AppleTalk and Novell IPX Configuration Guide</i> <i>Cisco IOS AppleTalk and Novell IPX Command Reference</i>	AppleTalk Novell IPX

Table 7 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
<i>Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Configuration Guide</i> <i>Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Command Reference</i>	Apollo Domain Banyan VINES DECnet ISO CLNS XNS
<i>Cisco IOS Voice, Video, and Fax Configuration Guide</i> <i>Cisco IOS Voice, Video, and Fax Command Reference</i>	Voice over IP Call Control Signaling Voice over Frame Relay Voice over ATM Telephony Applications Trunk Management Fax, Video, and Modem Support
<i>Cisco IOS Quality of Service Solutions Configuration Guide</i> <i>Cisco IOS Quality of Service Solutions Command Reference</i>	Packet Classification Congestion Management Congestion Avoidance Policing and Shaping Signaling Link Efficiency Mechanisms
<i>Cisco IOS Security Configuration Guide</i> <i>Cisco IOS Security Command Reference</i>	AAA Security Services Security Server Protocols Traffic Filtering and Firewalls IP Security and Encryption Passwords and Privileges Neighbor Router Authentication IP Security Options Supported AV Pairs
<i>Cisco IOS Switching Services Configuration Guide</i> <i>Cisco IOS Switching Services Command Reference</i>	Cisco IOS Switching Paths NetFlow Switching Multiprotocol Label Switching Multilayer Switching Multicast Distributed Switching Virtual LANs LAN Emulation
<i>Cisco IOS Wide-Area Networking Configuration Guide</i> <i>Cisco IOS Wide-Area Networking Command Reference</i>	ATM Broadband Access Frame Relay SMDS X.25 and LAPB
<i>Cisco IOS Mobile Wireless Configuration Guide</i> <i>Cisco IOS Mobile Wireless Command Reference</i>	General Packet Radio Service

Table 7 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
• <i>Cisco IOS Terminal Services Configuration Guide</i> • <i>Cisco IOS Terminal Services Command Reference</i>	ARA LAT NASI Telnet TN3270 XRemote X.28 PAD Protocol Translation
• <i>Cisco IOS Configuration Guide Master Index</i> • <i>Cisco IOS Command Reference Master Index</i> • <i>Cisco IOS Debug Command Reference</i> • <i>Cisco IOS Software System Error Messages</i> • New Features in 12.2-Based Limited Lifetime Releases • New Features in Release 12.2 T • Release Notes (Release note and caveat documentation for 12.2-based releases and various platforms)	

Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and might be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products Marketplace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, in North America, by calling 800 553-NETS(6387).

Documentation Feedback

If you are reading Cisco product documentation on the World Wide Web, you can submit technical comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco.

You can e-mail your comments to bug-doc@cisco.com.

To submit your comments by mail, for your convenience many documents contain a response card behind the front cover. Otherwise, you can mail your comments to the following address:

Cisco Systems, Inc.
Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

Cisco.com provides a broad range of features and services to help customers and partners streamline business processes and improve productivity. Through Cisco.com, you can find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online technical support, download and test software packages, and order Cisco learning materials and merchandise. Valuable online skill assessment, training, and certification programs are also available.

Customers and partners can self-register on Cisco.com to obtain additional personalized information and services. Registered users can order products, check on the status of an order, access technical support, and view benefits specific to their relationships with Cisco.

To access Cisco.com, go to the following website:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

<http://www.cisco.com/register/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

This document is to be used in conjunction with the documents listed in the [“Related Documentation”](#) section.

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