



# Release Notes for the Cisco 1700 Series Routers for Cisco IOS Release 12.1(3)XT

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March 9, 2001

These release notes for the Cisco 1700 series routers describe the enhancements provided in Cisco IOS Release 12.1(3)XT2. These release notes are updated as needed.

For a list of the software caveats that apply to Cisco IOS Release 12.1(3)XT1, see the “Caveats” section on page 12 and *Caveats for Cisco IOS Release 12.1 T*. The caveats document is updated for every maintenance release and is located on Cisco Connection Online (CCO) and the Documentation CD-ROM.

Use these release notes with *Cross-Platform Release Notes for Cisco IOS Release 12.1* located on CCO and the Documentation CD-ROM.

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# System Requirements

This section describes the system requirements for Release 12.1(3)XT2 and includes the following sections:

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## Memory Requirements

**Table 1** Memory Requirements for the Cisco 1700 Series Routers

Feature Sets	Image Name	Software Image	Recommended Flash Memory	Recommended DRAM Memory
IP Feature Sets	IP	c1700-y-mz	4 MB	24 MB
	IP ADSL	c1700-y7-mz	8 MB	24 MB
	IP Plus ADSL	c1700-sy7-mz	8 MB	24 MB
	IP/Voice Plus ADSL	c1700-sv3y7-mz	8 MB	32 MB
	IP Plus IPsec 56 (DES) ADSL	c1700-sy756i-mz	8 MB	32 MB
	IP/Voice Plus IPsec 56 (DES) ADSL	c1700-sv3y756i-mz	8 MB	32 MB
	IP/FW/IDS	c1700-o3y-mz	4 MB	24 MB
	IP/FW/Voice Plus IPsec 56 (DES) ADSL	c1700-o3sv3y7-mz	8 MB	32 MB
	IP/FW Plus IP Sec 56 (DES) ADSL	c1700-o3sy756i-mz	8 MB	32 MB
	IP/Voice/FW/IDS Plus IPsec 56 ADSL	c1700-o3sv3y756i-mz	8 MB	32 MB
	IP/IPX	c1700-ny-mz	4MB	24 MB
	IP/IPX/FW/IDS Plus ADSL	c1700-no3sy7-mz	8 MB	24 MB
	IP/IPX/Voice/FW/IDS Plus ADSL	c1700-no3sv3y7-mz	8 MB	32 MB
	IP Plus IPsec 3DES ADSL	c1700-k2sy7-mz	8 MB	32 MB
	IP/Voice Plus IPsec 3DES ADSL	c1700-k2sv3y7-mz	8 MB	32 MB
	IP/FW Plus IPsec 3DES ADSL	c1700-k2o3sy7-mz	8 MB	32 MB
	IP/FW/Voice Plus IPsec 3DES ADSL	c1700-k2o3sv3y7-mz	8 MB	32 MB
	IP/IPX/AT/IBM	c1700-bnr2y-mz	8 MB	24 MB
	IP/IPX/AT/IBM Plus ADSL	c1700-bnr2sy7-mz	8 MB	32 MB
	IP/IPX/AT/IBM/FW Plus IPsec 56 (DES) ADSL	c1700-bno3r2sy756i-mz	8 MB	32 MB

**Table 1** Memory Requirements for the Cisco 1700 Series Routers

Feature Sets	Image Name	Software Image	Recommended Flash Memory	Recommended DRAM Memory
IP Feature Sets	IP/IPX/AT/IBM/FW/Voice Plus IPSec 56 (DES) ADSL	c1700-bno3r2sv3y756i-mz	16 MB	48 MB
	IP/IPX/AT IBM/FW Plus IPSec 3DES ADSL	c1700-bk2no3r2sy7-mz	8 MB	32 MB
	IP/IPX/AT/IBM/FW/Voice Plus IPSec 3DES ADSL	c1700-bk2no3r2sv3y7-mz	16 MB	48 MB

## Hardware Supported

Cisco IOS Release 12.1(3)XT2 supports the Cisco 1700 series routers:

- Cisco 1720—Runs data images only.
- Cisco 1750—Runs data and data-plus-voice images.

For detailed descriptions of the new hardware features, see the documents listed in the “Platform-Specific Documents” section on page 14.

### 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 hardware-assisted services such as encryption (up to T1/E1) and, in the future, 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, which are shared with the Cisco 1600, 2600, and 3600 routers:

- 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 slot—Supports a single voice interface card with two ports per card
- Two WAN interface card slots for either WAN interface cards (WICs) or voice interface cards (VICs)
- Synchronous serial interfaces on serial WAN interface cards
- Asynchronous serial interfaces on serial WAN interface cards
- ISDN WAN interface cards—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) and, in the future, compression
- RISC Processor—Motorola MPC860T PowerQUICC at 48 MHz
- One security slot that supports Kensington or similar lockdown equipment
- DRAM memory: 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 WAN interface cards, 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-2E/M: Two port Ear & Mouth (E&M) voice/fax interface card for voice/fax network module

## 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) 12.1 XT Software (c1700-y-mz), Version 12.1(3)XT1, RELEASE SOFTWARE
```

## 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](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 12.1(3)XT2 supports the same feature sets as Releases 12.1 and 12.1 T, but Release 12.1(3)XT2 can include 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 may 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](mailto:export@cisco.com).

Table 2 through Table 5 list the features and feature sets supported by the Cisco 1700 series routers in Cisco IOS Release 12.1(3)XT2. 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.
- In—The number in the “In” column indicates the Cisco IOS release in which the feature was introduced. For example, (2) means a feature was introduced in 12.1(2)T. If a cell in this column is empty, the feature was included in the initial base release.

**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 CCO. These electronic documents may contain updates and modifications made after the hardcopy documents were printed.

**Table 2** Feature List by Feature Set for the Cisco 1700 Series Routers, Part 1 of 4

Features	In	Feature Sets					
		IP	IP/ADSL	IP/Plus/ ADSL	IP/Voice/ Plus/ ADSL	IP/Plus/ IPSec 56 (DES)/ ADSL	IP/Voice/Plus/ IPSec 56 (DES)/ ADSL
<b>IP Multicast</b>							
Bidirectional PIM	(2T)	No	No	Yes	Yes	Yes	Yes
<b>IP Routing Protocols</b>							
OSPF Flooding Reduction	(2T)	Yes	Yes	Yes	Yes	Yes	Yes
<b>Multimedia and Quality of Service</b>							
H.323 V2 Enhancements	(3T)	No	No	No	Yes	No	Yes
Quality of Service Voice Enhancements	(3T)	No	No	No	Yes	No	Yes
<b>Multiservice Applications</b>							
Voice over Frame Relay (Cisco 1750 only)	(2T)	No	No	No	Yes	No	Yes
<b>Security</b>							
Secure Shell Version 1 Integrated Client	(3T)	No	No	No	No	Yes	Yes
SSH Version 1 Server Support		No	No	No	No	Yes	Yes

**Table 2 Feature List by Feature Set for the Cisco 1700 Series Routers, Part 1 of 4 (continued)**

Features	In	Feature Sets					
		IP	IP/ADSL	IP/Plus/ ADSL	IP/Voice/ Plus/ ADSL	IP/Plus/ IPSec 56 (DES)/ ADSL	IP/Voice/Plus/ IPSec 56 (DES)/ ADSL
Virtual Private Network (VPN) Module for the Cisco 1700 Series Routers	(2T)	No	No	No	No	Yes	Yes
<b>WAN</b>							
Frame Relay Switching Enhancements: Shaping and Policing	(2T)	Yes	Yes	Yes	Yes	Yes	Yes
Single Port Ethernet WAN Interface Card for Cisco 1700 Series Routers	(3XT)	Yes	Yes	Yes	Yes	Yes	Yes

**Table 3 Feature List by Feature Set for the Cisco 1700 Series Routers, Part 2 of 4**

Features	Feature Sets					
	IP/FW/IDS	IP/FW/Voice/ Plus/IPSec 56 (DES)/ADSL	IP/FW/Plus/ IP Sec 56 (DES)/ADSL	IP/Voice/FW/ IDS/Plus/ IPSec 56/ ADSL	IP/IPX	IP/IPX/FW/IDS/ Plus/ADSL
<b>IP Multicast</b>						
Bidirectional PIM	No	Yes	Yes	Yes	No	Yes
<b>IP Routing Protocols</b>						
OSPF Flooding Reduction	Yes	Yes	Yes	Yes	Yes	Yes
<b>Multimedia and Quality of Service</b>						
H.323 V2 Enhancements	No	Yes	No	Yes	No	No
Quality of Service Voice Enhancements	No	Yes	No	Yes	No	No
<b>Multiservice Applications</b>						
Voice over Frame Relay (Cisco 1750 only)	No	Yes	No	Yes	No	No
<b>Security</b>						
Secure Shell Version 1 Integrated Client	No	Yes	Yes	Yes	No	No
SSH Version 1 Server Support	No	Yes	Yes	Yes	No	No
Virtual Private Network (VPN) Module for the Cisco 1700 Series Routers	No	Yes	Yes	Yes	No	No

Table 3 Feature List by Feature Set for the Cisco 1700 Series Routers, Part 2 of 4 (continued)

Features	Feature Sets					
	IP/FW/IDS	IP/FW/Voice/ Plus/IPSec 56 (DES)/ADSL	IP/FW/Plus/ IP Sec 56 (DES)/ADSL	IP/Voice/FW/ IDS/Plus/ IPSec 56/ ADSL	IP/IPX	IP/IPX/FW/IDS/ Plus/ADSL
<b>WAN</b>						
Frame Relay Switching Enhancements: Shaping and Policing	Yes	Yes	Yes	Yes	Yes	Yes
Single Port Ethernet WAN Interface Card for Cisco 1700 Series Routers	Yes	Yes	Yes	Yes	Yes	Yes

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

Features	Feature Sets					
	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/IPX/AT/ IBM
<b>IP Multicast</b>						
Bidirectional PIM	Yes	Yes	Yes	No	Yes	No
<b>IP Routing Protocols</b>						
OSPF Flooding Reduction	Yes	Yes	Yes	Yes	Yes	Yes
<b>Multimedia and Quality of Service</b>						
H.323 V2 Enhancements	Yes	No	Yes	No	Yes	No
Quality of Service Voice Enhancements	Yes	No	Yes	Yes	Yes	No
<b>Multiservice Applications</b>				Yes	Yes	
Voice over Frame Relay (Cisco 1750 only)	Yes	No	Yes	Yes	Yes	No
<b>Security</b>						
Secure Shell Version 1 Integrated Client	No	Yes	Yes	Yes	Yes	No
SSH Version 1 Server Support	No	Yes	Yes	Yes	Yes	No
Virtual Private Network (VPN) Module for the Cisco 1700 Series Routers	No	Yes	Yes	Yes	Yes	No

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

Features	Feature Sets					
	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/IPX/AT/ IBM
<b>WAN</b>						
Frame Relay Switching Enhancements: Shaping and Policing	Yes	Yes	Yes	Yes	Yes	Yes
Single Port Ethernet WAN Interface Card for Cisco 1700 Series Routers	Yes	Yes	Yes	Yes	Yes	Yes

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

Features	Feature Sets				
	IP/IPX/AT/ IBM/Plus/ ADSL	IP/IPX/AT/ IBM/FW/Plus/ IPSec 56 (DES)/ ADSL	IP/IPX/AT/ IBM/FW/ Voice/Plus/ IPSec 56 (DES)/ ADSL	IP/IPX/AT/ IBM/FW/Plus/ IPSec 3DES/ ADSL	IP/IPX/AT/ IBM/FW/ Voice/Plus/ IPSec 3DES/ ADSL
<b>IP Multicast</b>					
Bidirectional PIM	Yes	Yes	Yes	Yes	Yes
<b>IP Routing Protocols</b>					
OSPF Flooding Reduction	Yes	Yes	Yes	Yes	Yes
<b>Multimedia and Quality of Service</b>					
H.323 V2 Enhancements	No	No	Yes	No	Yes
Quality of Service Voice Enhancements	No	No	Yes	No	Yes
<b>Multiservice Applications</b>					
Voice over Frame Relay (Cisco 1750 only)	No	No	No	No	No
<b>Security</b>					
Secure Shell Version 1 Integrated Client	No	Yes	Yes	Yes	Yes
SSH Version 1 Server Support	No	Yes	Yes	Yes	Yes
Virtual Private Network (VPN) Module for the Cisco 1700 Series Routers	No	Yes	Yes	Yes	Yes

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

Features	Feature Sets				
	IP/IPX/AT/ IBM/Plus/ ADSL	IP/IPX/AT/ IBM/FW/Plus/ IPSec 56 (DES)/ ADSL	IP/IPX/AT/ IBM/FW/ Voice/Plus/ IPSec 56 (DES)/ ADSL	IP/IPX/AT/ IBM/FW/Plus/ IPSec 3DES/ ADSL	IP/IPX/AT/ IBM/FW/ Voice/Plus/ IPSec 3DES/ ADSL
WAN					
Frame Relay Switching Enhancements: Shaping and Policing	Yes	Yes	Yes	Yes	Yes
Single Port Ethernet WAN Interface Card for Cisco 1700 Series Routers	Yes	Yes	Yes	Yes	Yes

## New and Changed Information

The following sections list the new hardware and software features supported by the Cisco 1700 series routers for Release 12.1(3)XT2.

### New Hardware Features in Release 12.1(3)XT

The following new hardware feature is supported by the Cisco 1700 series routers for Cisco IOS Release 12.1(3)XT:

#### 1-Port 10Base-T Ethernet WAN Interface Card

The 10Base-T Ethernet WAN Interface Card is a 1-port WAN interface card for the Cisco 1700 series of modular access routers. It provides the Cisco 1700 series routers with an optional second Ethernet interface for small and branch office customers deploying a second perimeter local area network (LAN) for public access or to connect a cable/DSL modem for broadband access. It connects to the Cisco 1700 series router platform through a WAN interface card slot, and to a line-side twisted pair connection through an RJ-45 connector.

For configuration instructions, refer to the document *Configuring a Single-Port Ethernet WIC on a Cisco 1700 Series Router*.

## Important Notes

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

### Caveat CSCdr91706 and IOS HTTP Vulnerability

A defect in multiple releases of Cisco IOS software causes a Cisco router or switch to halt and reload if the IOS HTTP service is enabled and you browse to `http://router-ip/anytext?/` and enter the enable password when it is requested. This defect can be exploited to produce a denial of service (DoS) attack. This vulnerability can only be exploited if the enable password is known or not set.

The vulnerability, identified as Cisco bug ID CSCdr91706, affects virtually all mainstream Cisco routers and switches running Cisco IOS software releases 12.0 through 12.1, inclusive. This is not the same defect as CSCdr36952.

The vulnerability has been corrected and Cisco is making fixed releases available for free to replace all affected IOS releases. Cisco urges all customers to upgrade to releases that are not vulnerable to this defect as listed in the complete advisory, which is available at: <http://www.cisco.com/warp/public/707/ioshttpserverquery-pub.shtml>. You are strongly encouraged to read the complete advisory.

### Cisco Express Forwarding

When installed in a Cisco 1720 or 1750 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 displays. To see information for all flash partitions, enter **show flash ?**. This will list 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 severity levels.

All caveats in Cisco IOS Release 12.1 and Cisco IOS Release 12.1 T are also in Cisco IOS Release 12.1(3)XT1.

For information on caveats in Cisco IOS Release 12.1, see *Caveats for Cisco IOS Release 12.1*.

For information on caveats in Cisco IOS Release 12.1 T, see *Caveats for Cisco IOS Release 12.1 T*, which lists severity 1 and 2 caveats and is located on CCO and the Documentation CD-ROM.



### Note

If you have an account with CCO, you can use Bug Navigator II to find caveats of any severity for any release. To reach Bug Navigator II, **Login** to CCO and click **Software Center: Cisco IOS Software: Cisco Bugtool Navigator II**. Another option is to go directly to <http://www.cisco.com/support/bugtools>.

## Caveats for Release 12.1(3)XT2

This section describes possibly unexpected behavior by Release 12.1(3)XT2.

### CSCds04747

Connection setup improvements.

### CSCds32217

D-write community string readable with read-only community, Cisco IOS.

## Caveats for Release 12.1(3)XT1

This section describes possibly unexpected behavior by Release 12.1(3)XT1.

### CSCds46022

If you are using a 1-Port ADSL WAN Interface Card and IOS software Release 12.1(3)XT1, two debug traceback messages appear during boot-up.

```
00:00:19: %ENT_API-4-NOPARENT: Parent physical entity 4294967295 did not exist when trying
to add child physical entity 10.
-Traceback= 80527C2C 80526FAC 80527128 80158808
```

```
00:00:19: %ENT_API-4-NOALIAS: Physical entity not found when adding an alias with physical
index = 10 and logical index = 0 to the Entity MIB
-Traceback= 80528270 8052705C 80527154 80158808
```

## 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 CCO 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 Release 12.1. They are located on CCO and the Documentation CD-ROM.

- *Release Notes for Cisco IOS Release 12.1*

On CCO at:

**Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Release Notes: Cross-Platform Release Notes**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Release Notes: Cross-Platform Release Notes**

- Product bulletins, field notices, and other release-specific documents on CCO at:

**Technical Documents: Product Bulletins**

- Caveats for Cisco IOS Release 12.1 and 12.1 T

As a supplement to the caveats listed in the “Caveats” section on page 12 section in these release notes, see the *Caveats for Cisco IOS Release 12.1* and *Caveats for Cisco IOS Release 12.1 T* documents, which contain caveats applicable to all platforms for all maintenance releases of IOS Releases 12.1 and 12.1 T.

On CCO at:

**Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Caveats**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Caveats**



**Note** If you have an account with CCO, you can use Bug Navigator II to find caveats of any severity for any release. To reach Bug Navigator II, **Login** to CCO and click **Software Center: Cisco IOS Software: Cisco Bugtool Navigator II**. Another option is to go directly to <http://www.cisco.com/support/bugtools>.

## Platform-Specific Documents

### 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 CCO and the Documentation CD-ROM:

- *Cisco 1750 Router Hardware Installation Guide*
- *Voice-over-IP Quick Start Guide*
- *Cisco 1750 Software Configuration Guides*
- *Cisco WAN Interface Cards Hardware Installation Guide*
- Cisco 1700 Series Routers Configuration Notes
- Release Notes for the Cisco 1750 Router
- *Safety Information for Cisco 1600 and 1700 Routers*

On CCO at:

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

On the Documentation CD-ROM at:

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

## Feature Modules

Feature modules describe new features supported by Release 12.1(3)XT2 and 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 CCO at:

**Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: New Feature Documentation: New Features in 12.1-Based Limited Lifetime Releases: New Features in 12.1X Releases**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: New Feature Documentation: New Features in 12.1-Based Limited Lifetime Releases: New Features in 12.1X Releases**

## 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 CCO and on the Documentation CD-ROM.

On CCO at:

**Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Configuration Guides and Command References**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Configuration Guides and Command References**

## Release 12.1 Documentation Set

Table 6 describes the contents of the Cisco IOS Release 12.1 software documentation set, which is available in both electronic and printed form.



### Note

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

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On CCO at:

**Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1**

**Table 6 Cisco IOS Software Release 12.1 Documentation Set**

Books	Chapter Topics
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Configuration Fundamentals Configuration Guide</i></li> <li>• <i>Cisco IOS Configuration Fundamentals Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>Configuration Fundamentals Overview</li> <li>Using the Command-Line Interface (CLI)</li> <li>Using Configuration Tools</li> <li>Configuring Operating Characteristics</li> <li>Managing Connections, Menus, and System Banners</li> <li>Using the Cisco Web Browser</li> <li>Using the Cisco IOS File System</li> <li>Modifying, Downloading, &amp; Maintaining Configuration Files</li> <li>Loading and Maintaining System Images</li> <li>Maintaining Router Memory</li> <li>Rebooting a Router</li> <li>Configuring Additional File Transfer Functions</li> <li>Monitoring the Router and Network</li> <li>Troubleshooting a Router</li> <li>Performing Basic System Management</li> <li>System Management Using System Controllers</li> <li>Web Scaling Using WCCP</li> <li>Managing Dial Shelves</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Configuration Guide</i></li> <li>• <i>Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>Overview of Apollo Domain, Banyan VINES, DECNET, ISO CLNS, and XNS</li> <li>Configuring Apollo Domain</li> <li>Configuring Banyan VINES</li> <li>Configuring DECnet</li> <li>Configuring IOS CLNS</li> <li>Configuring XNS</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS AppleTalk and Novell IPX Configuration Guide</i></li> <li>• <i>Cisco AppleTalk and Novell IPX Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>AppleTalk and Novel IPX Overview</li> <li>Configuring AppleTalk</li> <li>Configuring Novell IPX</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Bridging and IBM Networking Configuration Guide</i></li> <li>• <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume I</i></li> <li>• <i>Cisco Bridging and IBM Networking Command Reference, Volume II</i></li> </ul>	<ul style="list-style-type: none"> <li>Configuring Remote Source-Route Bridging</li> <li>Configuring Data-Link Switching Plus+</li> <li>Configuring Serial Tunnel and Block Serial Tunnel</li> <li>Configuring LLC2 and SDLC Parameters</li> <li>Configuring IBM Network Media Translation</li> <li>Configuring Frame Relay Access Support</li> <li>Configuring NCIA Server</li> <li>Configuring the Airline Product Set</li> <li>Configuring DSPU and SNA Service Point Support</li> <li>Configuring SNA Switching Services</li> <li>Configuring Cisco Transaction Connection</li> <li>Configuring Cisco Mainframe Channel Connection Adapters</li> <li>Configuring CLAW and TCP/IP Offload Support</li> <li>Configuring CMPC and CSNA</li> <li>Configuring CMPC+</li> <li>Configuring the TN3270 Server</li> </ul>

**Table 6** Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Dial Services Configuration Guide: Terminal Services</i></li> <li>• <i>Cisco IOS Dial Services Configuration Guide: Network Services</i></li> <li>• <i>Cisco IOS Dial Services Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>Large-Scale Dial Solutions</li> <li>Cost-Control Solutions</li> <li>Virtual Private Networks</li> <li>X.25 on ISDN Solutions</li> <li>Telco Solutions</li> <li>Dial-Related Addressing Services</li> <li>Internetworking Dial Access Scenarios</li> <li>Preparing for Dial Access</li> <li>Modem Configuration and Management</li> <li>ISDN and Signalling Configuration</li> <li>PPP Configuration</li> <li>Dial-on-Demand Routing Configuration</li> <li>Dial-Backup Configuration</li> <li>Terminal Service Configuration</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Interface Configuration Guide</i></li> <li>• <i>Cisco IOS Interface Command Guide</i></li> </ul>	<ul style="list-style-type: none"> <li>Interface Configuration Overview</li> <li>Configuring LAN Interfaces</li> <li>Configuring Serial Interfaces</li> <li>Configuring Logical Interfaces</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP and IP Routing Configuration Guide</i></li> <li>• <i>Cisco IOS IP and IP Routing Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>IP Overview</li> <li>Configuring IP Addressing</li> <li>Configuring DHCP</li> <li>Configuring IP Services</li> <li>Configuring Mobile IP</li> <li>Configuring On-Demand Routing</li> <li>Configuring RIP</li> <li>Configuring IGRP</li> <li>Configuring OSPF</li> <li>Configuring IP Enhanced IGRP</li> <li>Configuring Integrated IS-IS</li> <li>Configuring BGP</li> <li>Configuring Multicast BGP (MBGP)</li> <li>Configuring IP Routing Protocol-Independent Features</li> <li>Configuring IP Multicast Routing</li> <li>Configuring Multicast Source Discovery Protocol</li> <li>Configuring PGM Router Assist</li> <li>Configuring Unidirectional Link Routing</li> <li>Using IP Multicast Tools</li> </ul>

Table 6 Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Multiservice Applications Configuration Guide</i></li> <li>• <i>Cisco IOS Multiservice Applications Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>Multiservice Applications Overview</li> <li>Configuring Voice over IP</li> <li>Configuring Gatekeepers (Multimedia Conference Manager)</li> <li>Configuring Voice over Frame Relay</li> <li>Configuring Voice over ATM</li> <li>Configuring Voice over HDLC</li> <li>Configuring Voice-Related Support Features</li> <li>Configuring PBX Signaling</li> <li>Configuring Store and Forward Fax</li> <li>Configuring Video Support</li> <li>Configuring Head-End Broadband Access Router Features</li> <li>Configuring Subscriber-End Broadband Access Router Features</li> <li>Configuring Synchronized Clocking</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Cisco Quality of Service Solutions Configuration Guide</i></li> <li>• <i>Cisco IOS Quality of Service Solutions Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>Quality of Service Overview</li> <li>Classification Overview</li> <li>Configuring Policy-Based Routing</li> <li>Configuring QoS Policy Propagation via Border Gateway Protocol</li> <li>Configuring Committed Access Rate</li> <li>Congestion Management Overview</li> <li>Configured Weighted Fair Queueing</li> <li>Configuring Custom Queueing</li> <li>Configuring Priority Queueing</li> <li>Congestion Avoidance Overview</li> <li>Configuring Weighted Random Early Detection</li> <li>Policing and Shaping Overview</li> <li>Configuring Generic Traffic Shaping</li> <li>Configuring Frame Relay and Frame Relay Traffic Shaping</li> <li>Signalling Overview</li> <li>Configuring RSVP</li> <li>Configuring Subnetwork Bandwidth Manager</li> <li>Configuring RSVP-ATM Quality of Service Internetworking</li> <li>Link Efficiency Mechanisms Overview</li> <li>Configuring Link Fragmentation and Interleaving for Multilink PPP</li> <li>Configuring Compressed Real-Time Protocol</li> <li>IP to ATM CoS Overview</li> <li>Configuring IP to ATM CoS</li> <li>QoS Features for Voice Introduction</li> </ul>

**Table 6** Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Security Configuration Guide</i></li> <li>• <i>Cisco IOS Security Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>TACACS+ Commands</li> <li>Access Control Lists: Overview and Guidelines</li> <li>Cisco Secure Integrated Software Firewall Overview</li> <li>Configuring Lock-and-Key Security (Dynamic Access Lists)</li> <li>Configuring IP Session Filtering (Reflexive Access Lists)</li> <li>Configuring TCP Intercept (Prevent Denial-of-Service Attacks)</li> <li>Configuring Context-Based Access Control</li> <li>Configuring Cisco Secure Integrated Software Intrusion Detection System</li> <li>Configuring Authentication Proxy</li> <li>Configuring Port to Application Mapping</li> <li>IP Security and Encryption Overview</li> <li>Configuring IPsec Network Security</li> <li>Configuring Certification Authority Interoperability</li> <li>Configuring Internet Key Exchange Security Protocol</li> <li>Configuring Passwords and Privileges</li> <li>Neighbor Router Authentication: Overview and Guidelines</li> <li>Configuring IP Security Options</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Switching Services Configuration Guide</i></li> <li>• <i>Cisco IOS Switching Services Command Reference</i></li> </ul>	<ul style="list-style-type: none"> <li>Configuring MPLS</li> <li>Configuring IP Multilayer Switching</li> <li>Configuring IP Multicast Multilayer Switching</li> <li>Configuring IPX Multilayer Switching</li> <li>Configuring Multicast Distributed Switching</li> <li>Routing Between VLANs Overview</li> <li>Configuring Routing Between VLANs with ISL Encapsulation</li> <li>Configuring Routing Between VLANs with IEEE 802.10 Encapsulation</li> <li>Configuring Routing Between VLANs with IEEE 802.1Q Encapsulation</li> <li>LAN Emulation Overview</li> <li>Configuring LAN Emulation</li> <li>Configuring Token Ring LANE</li> <li>MPOA Overview</li> <li>Configuring the MPOA Client</li> <li>Configuring the MPOA Server</li> <li>Configuring Token Ring LANE for MPOA</li> </ul>

**Table 6** Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Wide-Area Networking Configuration Guide</i></li> </ul>	Wide-Area Networking Overview Configuring ATM
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Wide-Area Networking Command Reference</i></li> </ul>	Frame Relay Frame Relay-ATM Internetworking Configuring SMDS Configuring X.25 and LAPB
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Configuration Guide Master Index</i></li> </ul>	
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Command Reference Master Index</i></li> </ul>	
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Command Summary</i></li> </ul>	
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Debug Command Reference</i></li> </ul>	
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Dial Services Quick Configuration Guide</i></li> </ul>	
<ul style="list-style-type: none"> <li>• <i>Cisco IOS New Features Index</i> (CCO and Documentation CD only)</li> </ul>	
<ul style="list-style-type: none"> <li>• <i>Cisco IOS System Error Messages</i></li> </ul>	

# 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 may 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](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 CCO 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](mailto: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.

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This document is to be used in conjunction with the documents listed in the “Related Documentation” section.

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