



# Release Notes for the Cisco 1700 Series Routers for Cisco IOS Release 12.2(4)YH

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These release notes describe new features and significant software components for the Cisco 1700 series routers that support Cisco IOS Release 12.2 T, up to and including Release 12.2(4)YH. These release notes are updated as needed to describe new memory requirements, new features, new hardware support, software platform deferrals, microcode or modem code changes, related document changes, and any other important changes. Use these release notes with the [Cross-Platform Release Notes for Cisco IOS Release 12.2 T](#) located on Cisco.com and the Documentation CD.

For a list of the software caveats that apply to Release 12.2(4)YH, refer to the section “Caveats” and to the online [Caveats for Cisco IOS Release 12.2 T](#) document. The caveats document is updated for every 12.2 T maintenance release and is located on Cisco.com and the Documentation CD.

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# System Requirements

This section describes the system requirements for Release 12.2(4)YH and includes the following sections:

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## Memory Requirements

This section describes the memory requirements for the Cisco IOS feature sets supported by Cisco IOS Release 12.2(4)YH on the Cisco 1700 series routers.

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

Platform	Image Name	Feature Set	Image	Flash Memory	DRAM Memory	Runs from
Cisco 1720, 1721, 1750, 1751, and 1760 Routers	Cisco 1700 IOS IP Plus ADSL/IPX/AT/IBM	IP Plus ADSL/IPX/AT/IBM	c1700-bnr2sy7-mz	16 MB	48 MB	RAM
	Cisco 1700 IOS IP Plus IPX/AT/IBM	IP Plus IPX/AT/IBM	c1700-bnr2y-mz	8 MB	32 MB	RAM
	Cisco 1700 IOS IP Plus ADSL/IPX/FW/IDS	IP Plus ADSL/IPX/FW/IDS	c1700-no3sy7-mz	16 MB	48 MB	RAM
	Cisco 1700 IOS IP/IPX	IP/IPX	c1700-ny-mz	8 MB	32 MB	RAM
	Cisco 1700 IOS IP/FW/IDS	IP/FW/IDS	c1700-o3y-mz	8 MB	32 MB	RAM
	Cisco 1700 IOS IP Plus	IP Plus	c1700-sy-mz	16 MB	32 MB	RAM
	Cisco 1700 IOS IP Plus ADSL	IP Plus ADSL	c1700-sy7-mz	16 MB	48 MB	RAM
	Cisco 1700 IOS IP	IP	c1700-y-mz	8 MB	32 MB	RAM
	Cisco 1700 IOS IP/ADSL	IP/ADSL	c1700-y7-mz	8 MB	32 MB	RAM
Cisco 1750, Cisco 1751, and Cisco 1760 Routers	Cisco 1700 IOS IP Plus Voice	IP Plus Voice	c1700-sv3y-mz	16 MB	48 MB	RAM
Cisco 1751 and Cisco 1760 Routers	Cisco 1700 IOS IP Plus ADSL/IPX/Voice/FW/IDS	IP Plus ADSL/IPX/Voice/FW/IDS	c1700-no3sv3y7-mz	16 MB	64 MB	
	Cisco 1700 IOS IP Plus ADSL/IPX/VOX/FW/IDS	IP Plus ADSL/IPX/VOX/FW/IDS	c1700-no3sv8y7-mz	16 MB	64 MB	RAM
	Cisco 1700 IOS IP Plus ADSL/Voice/FW/IDS	IP Plus ADSL/Voice/FW/IDS	c1700-o3sv3y7-mz	16 MB	64 MB	RAM
	Cisco 1700 IOS IP/ADSL/VOX/FW/IDS	IP/ADSL/VOX/FW/IDS	c1700-o3sv8y7-mz	16 MB	64 MB	RAM

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

Platform	Image Name	Feature Set	Image	Flash Memory	DRAM Memory	Runs from
Cisco 1751 and Cisco 1760 Routers (Continued)	Cisco 1700 IOS IP Plus ADSL/Voice	IP Plus ADSL/Voice	c1700-sv3y7-mz	16 MB	64 MB	RAM
	Cisco 1700 IOS IP Plus VOX	IP Plus VOX	c1700-sv8y-mz	16 MB	64 MB	RAM
	Cisco 1700 IOS IP Plus ADSL/VOX	IP Plus ADSL/VOX	c1700-sv8y7-mz	16 MB	64 MB	RAM

## Hardware Supported

Cisco IOS Release 12.2(4)YH supports the following Cisco 1700 series routers:

- Cisco 1720 Routers
- Cisco 1721 Router
- Cisco 1750, 1750-2V, and 1750-4V Routers
- Cisco 1751 and 1751-V Routers
- Cisco 1760 and 1760-V Routers

The Cisco 1720, and 1721 routers run data images only. The Cisco 1750, 1750-2V, and 1750-4V routers run data or data-and-voice images, providing analog voice support. Cisco 1751, 1751-V, 1760, and 1760-V routers run data or data-and-voice images, providing digital and analog voice support.

For detailed descriptions of new hardware features and which features are supported on each router, see the “[New and Changed Information](#)” section on page 6. For descriptions of existing hardware features and supported modules, see the hardware installation guides, configuration and command reference guides, and additional documents specific to Cisco 1700 series routers, which are available on Cisco.com and the Documentation CD at the following location:

[http://www.cisco.com/univercd/cc/td/doc/product/access/acs\\_mod/1700/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/1700/index.htm)

This URL is subject to change without notice. If it changes, point your web browser to Cisco.com, and click the following path:

[Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1700 Series Routers: <platform\\_name>](#)

## Determining Your Software Release

To determine the version of Cisco IOS software currently running on your Cisco 1700 series router, log in to the router and enter the **show version EXEC** command. The following sample output from the **show version** command indicates the version number on the second output line:

```
router> show version
Cisco Internetwork Operating System Software
IOS (tm) C1700 Software (C1700-Y-MZ), Version 12.2(4)YH, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
Synched to technology version 12.2(5.4)T
```

## 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 Sets

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(4)YH supports the same feature sets as Releases 12.2 and 12.2 T, but Release 12.2(4)YH 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 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](mailto:export@cisco.com).

Table 2 through Table 4 list the features and feature sets supported in Cisco IOS Release 12.2(4)YH:

- Table 2—Cisco 1720, 1721, 1750, 1751, and 1760 routers
- Table 3—Cisco 1750, 1751, and 1760 routers
- Table 4—Cisco 1751 and 1760 routers

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, “12.2(4)YH” means the feature was introduced in 12.2(4)YH. If a cell in this column is empty, the feature was included in a previous release or the initial base release.



### Note

These feature set tables only contain a selected list of features, which are cumulative for Release 12.2(4)*nn* early deployment releases only (*nn* identifies each early deployment release). The tables do not list all features in each image—additional features are listed in the *Cross-Platform Release Notes for Cisco IOS Release 12.2 T* and Release 12.2 T Cisco IOS documentation.

**Table 2** Feature List by Feature Set for Cisco 1720, 1721, 1750, 1751, and 1760 Routers

Feature	In	Feature Set								
		IP Plus ADSL/ IPX/ AT/IBM	IP Plus IPX/ AT/IBM	IP Plus ADSL/ IPX/FW/IDS	IP/ IPX	IP/FW/ IDS	IP Plus	IP Plus ADSL	IP	IP/ ADSL
<b>Voice</b>										
QSIG Protocol Support		No	No	No	No	No	No	No	No	No

**Table 2** Feature List by Feature Set for Cisco 1720, 1721, 1750, 1751, and 1760 Routers

Feature	In	Feature Set								
		IP Plus ADSL/ IPX/ AT/IBM	IP Plus IPX/ AT/IBM	IP Plus ADSL/ IPX/FW/IDS	IP/ IPX	IP/FW/ IDS	IP Plus	IP Plus ADSL	IP	IP/ ADSL
<b>WAN</b>										
Terminal Line Security for PAD Connections	12.2(4)YH	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 3** Feature List by Feature Set for Cisco 1750, 1751, and 1760 Routers

Feature	In	Feature Set
		IP Plus Voice
<b>Voice</b>		
QSIG Protocol Support	12.2(4)YH	Yes
<b>WAN</b>		
Terminal Line Security for PAD Connections	12.2(4)YH	Yes

**Table 4** Feature List by Feature Set for Cisco 1751 and 1760 Routers

Feature	In	Feature Set						
		IP Plus ADSL/IPX/ Voice/FW/ IDS	IP Plus ADSL/IPX/ VOX/FW/ IDS	IP Plus ADSL/ Voice/FW/ IDS	IP ADSL/ VOX/FW/ IDS	IP Plus ADSL/ Voice	IP Plus VOX	IP Plus ADSL/VOX
<b>Voice</b>								
QSIG Protocol Support	12.2(4)YH	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>WAN</b>								
Terminal Line Security for PAD Connections	12.2(4)YH	Yes	Yes	Yes	Yes	Yes	Yes	Yes

## New and Changed Information

The following sections list the new features supported by the Cisco 1700 series routers for Release 12.2(4)YH.

### New Software Features in Release 12.2(4)YH

The following sections describe the new software features supported by the Cisco 1700 series routers for Release 12.2(4)YH.

#### QSIG Protocol Support

QSIG protocol support allows Cisco voice switching services to connect private branch exchanges (PBXs), key systems (KTs), and central office switches (COs) that communicate by using the QSIG protocol. The QSIG protocol is becoming the standard for PBX interoperability in Europe and North America.

#### Terminal Line Security for PAD Connections

The X.25 standard defines a Closed User Groups (CUG) as an available network security feature. The Terminal Line CUG Security feature extends existing X.25 CUG capabilities that allow PAD access devices (TTY, VTY, CON, and Aux) to be configured for CUG security enforcement. Using the Cisco implementation of CUGs, you can configure access parameters at the X.25 network POP (DCE interface) boundary.

### New Software Features in Release 12.2(4)T

For information regarding the features supported in Cisco IOS Release 12.2 T, refer to the Cross-Platform Release Notes and New Feature Documentation links at the following location on Cisco.com:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122relnt/xprn122t/index.htm>

This URL is subject to change without notice. If it changes, point your web browser to Cisco.com, and click the following path:

**Service & Support: Technical Documents: Cisco IOS Software: Release 12.2: Release Notes: Cross-Platform Release Notes (Cisco IOS Release 12.2T)**

## Important Notes

The following sections contain important notes about Cisco IOS Release 12.2(4)YH that can apply to the Cisco 1700 series routers. (Also, see the “[Caveats](#)” section on page 7.)

### Fan Operation in Cisco 1700 Series Routers

Cisco 1760 and 1760-V router fans are always on. However, the fans in Cisco 1720, 1721, 1750, and 1751 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 or defects 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.

Caveats in Release 12.2 T are also in Release 12.2(4)YH. For information on caveats in Cisco IOS Release 12.2 T, refer to the *Caveats for Cisco IOS Release 12.2 T* document. For information on caveats in Cisco IOS Release 12.2, refer to the *Caveats for Cisco IOS Release 12.2* document. These documents list severity 1 and 2 caveats, and are located on Cisco.com and the Documentation CD.



### 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](http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl).

## Caveats for Release 12.2(4)YH

This section describes possibly unexpected behavior by Release 12.2(4)YH. Only severity 1 through 3 caveats are included.

### Basic System Services

#### CSCdx47760

On Cisco 1700 series routers, an IP address is not assigned to a Fast Ethernet interface after the command **ip address a.b.c.d mask** is executed for the interface. To work around this problem, perform the following steps:

- 
- Step 1** In interface configuration mode for the Fast Ethernet interface, enter the command **ip address a.b.c.d mask**.
  - Step 2** Enter the command **no shut**.
  - Step 3** Enter the command **enable** to enter privileged mode and then enter the command **write memory**.
  - Step 4** Reload the router.
- 

### Voice

#### CSCdx05734

After entering the command **shut** or **no shut**, a voice path is not opened for voice ports to establish a connection trunk to a multicast address with signaling timeout for out-of-service-disabled). To work around this problem, use the command **signal sequence oos no-action** in the following configuration:

```
voice class permanent 1
  signal sequence oos no-action
  signal timing oos timeout disabled
```

## 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.



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

- [Release-Specific Documents](#)
- [Platform-Specific Documents](#)
- [Software Configuration](#)

## Release-Specific Documents

The following documents are specific to Release 12.2 and apply to Release 12.2(4)YH. They are located on Cisco.com and the Documentation CD (under the heading **Service & Support**):

- To reach the *Release Notes for the Cisco 1700 Series Routers for Cisco IOS Release 12.2(4)YH*, click this path:

**Technical Documents: Cisco IOS Software: Release 12.2: Release Notes: Cisco 1700 Series Routers: Cisco 1700 Series - Release Notes for Release 12.2(4)YH**

- To reach the *Cross-Platform Release Notes for Cisco IOS Release 12.2 T*, click this path:

**Technical Documents: Cisco IOS Software: Release 12.2: Release Notes: Cisco IOS Release 12.2 T**

- To reach product bulletins, field notices, and other release-specific documents, click this path:

**Technical Documents: Product Bulletins**

- To reach 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 Release 12.2, click this path:

**Technical Documents: Cisco IOS Software: 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](http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl).

## Platform-Specific Documents

Hardware installation guides, configuration and command reference guides, and additional documents specific to Cisco 1700 series routers are available on Cisco.com and the Documentation CD at the following location:

[http://www.cisco.com/univercd/cc/td/doc/product/access/acs\\_mod/1700/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/1700/index.htm)

This URL is subject to change without notice. If it changes, point your web browser to Cisco.com, and click the following path:

**Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1700 Series Routers: <platform\_name>**

## Software Configuration

The document *Cisco Router Web Setup User Guide* is available for the Cisco 1700 series routers at the following location:

<http://www.cisco.com/univercd/cc/td/doc/cckstr/crws/ugcrws30.htm>

This URL is subject to change without notice. If it changes, point your web browser to Cisco.com or the Documentation CD, and click the following path:

**Technical Documents: Router Configuration Tools: Cisco Router Web Setup**

## Obtaining Documentation and Technical Assistance

The *Cross-Platform Release Notes for Cisco IOS Release 12.2 T* contains the latest descriptions and locations of the following sources for obtaining documentation and technical assistance from Cisco Systems. See the section “Release-Specific Documents” for the location of the *Cross-Platform Release Notes for Cisco IOS Release 12.2 T*.

Additional sources of documentation and technical assistance are listed below:

- World Wide Web, Cisco.com—Cisco Systems website: <http://www.cisco.com>.
- Documentation CD—Cisco documentation and additional literature are available in a CD package, which ships with your product.
- Ordering documentation—Methods for ordering documentation include Networking Products MarketPlace, the online Subscription Store, and calling a local account representative using the Cisco corporate headquarters or North America phone numbers.
- Documentation feedback—When using the World Wide Web, you can submit technical comments electronically. You can also send e-mail, mail in the response card that is behind the front cover of many documents, or send correspondence to Cisco Systems. We appreciate your comments.
- Technical Assistance Center (TAC)—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. You can contact the TAC using Cisco.com or by phone. Toll-free numbers are available for many countries.

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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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