



Release Notes for the Cisco 3600 Series for Cisco IOS Release 11.2 P

March 7, 2002



Note

Cisco IOS Release 11.2(26)P is the last scheduled maintenance release for Cisco IOS 11.2 P. TAC support will continue to be available. These release notes will be the last Release Notes published for Cisco IOS Release 11.2 P.

These release notes for the Cisco 3600 series support Cisco IOS Release 11.2 P, up to and including Release 11.2(26)P. These release notes are updated as needed to describe new memory recommendations, new features, new hardware support, software platform deferrals, and changes to the microcode or modem code and related documents.

For a list of all the software caveats that apply to Cisco IOS Release 11.2(26)P, see *Caveats for Cisco IOS Release 11.2 P* that accompanies these release notes. The caveats document is updated for every maintenance release and is also located on Cisco.com and the Documentation CD-ROM.

Use these release notes with *Cross-Platform Release Notes for Cisco IOS Release 11.2* on Cisco.com and the Documentation CD-ROM.

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Introduction

The Cisco 3600 series includes the Cisco 3620 and Cisco 3640 routers. As modular solutions, the Cisco 3620 and Cisco 3640 enable corporations to increase dial-up intensity and take advantage of current and emerging wide-area network (WAN) technologies and networking capabilities. The Cisco 3600 series routers are fully supported by Cisco IOS software, which includes dial-up connectivity, LAN-to-LAN routing, data and access security, WAN optimization, and multimedia features.

For information on new features and Cisco IOS commands supported by Cisco IOS Release 11.2 P, see the “New and Changed Information” section on page 10 and the “Related Documentation” section on page 16.

System Requirements

This section describes the system requirements for Cisco IOS Release 11.2 P:

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Memory Recommendations

Table 1 Memory Recommendations for the Cisco 3600 Series

Feature Set		Image Name	Recommended Flash Memory	Recommended DRAM Memory	Runs from
Cisco 3620	IP	c3620-i-mz	4 MB	16 MB	RAM
	IP Plus	c3620-is-mz	4 MB	16 MB	RAM
	IP Plus 40	c3620-is40-mz	4 MB	16 MB	RAM
	IP Plus 56	c3620-is56-mz	4 MB	16 MB	RAM
	IP/IPX/AT/DEC	c3620-d-mz	4 MB	24 MB	RAM
	IP/IPX/AT/DEC Plus	c3620-ds-mz	4 MB	24 MB	RAM
	Enterprise Plus	c3620-js-mz	8 MB	24 MB	RAM
	Enterprise Plus 40	c3620-js40-mz	8 MB	24 MB	RAM
	Enterprise Plus 56	c3620-js56-mz	8 MB	24 MB	RAM
	Enterprise APPN Plus 40	c3620-asj40-mz	8 MB	32 MB	RAM
	Enterprise APPN Plus 56	c3620-ajs56-mz	8 MB	32 MB	RAM

Table 1 Memory Recommendations for the Cisco 3600 Series (continued)

Feature Set		Image Name	Recommended Flash Memory	Recommended DRAM Memory	Runs from
Cisco 3640	IP	c3640-i-mz	4 MB	24 MB	RAM
	IP Plus	c3640-is-mz	4 MB	16 MB	RAM
	IP Plus 40	c3640-is40-mz	4 MB	16 MB	RAM
	IP Plus 56	c3640-is56-mz	4 MB	16 MB	RAM
	IP/IPX/IBM/APPN	c3620-ainr-mz	8 MB	32 MB	RAM
	IP/IPX/AT/DEC	c3640-d-mz	4 MB	24 MB	RAM
	IP/IPX/AT/DEC Plus	c3640-ds-mz	4 MB	24 MB	RAM
	IP/IPX/AT/DEC Plus 40	c3640-ds40-mz	4 MB	24 MB	RAM
	Enterprise	c3640-j-mz	8 MB	24 MB	RAM
	Enterprise Plus	c3640-js-mz	8 MB	24 MB	RAM
	Enterprise Plus 40	c3640-js40-mz	8 MB	24 MB	RAM
	Enterprise Plus 56	c3640-js56-mz	8 MB	24 MB	RAM
	Enterprise APPN Plus	c3640-ajs-mz	8 MB	32 MB	RAM
	Enterprise and APPN Plus 40	c3640-ajs40-mz	8 MB	32 MB	RAM
	Enterprise and APPN Plus 56	c3640-ajs56-mz	8 MB	32 MB	RAM

Hardware Supported

Cisco IOS Release 11.2 P supports the Cisco 3600 series:

- Cisco 3620
- Cisco 3640

For detailed descriptions of the new hardware, see “New and Changed Information,” on page 10. Table 2 lists the supported interfaces and network modules.

Table 2 Supported Interfaces for the Cisco 3600 Series

Interface or Network Module		Platforms Supported
Dial Access Network Modules	6- to 30-port Integrated Digital Modem	Cisco 3640 only
Local Area Network (LAN) Interfaces	1- and 4-port Ethernet (AUI ¹ and 10BaseT)	All Cisco 3600 series platforms
	1-port Fast Ethernet (10/100BaseTX only)	All Cisco 3600 series platforms

Table 2 Supported Interfaces for the Cisco 3600 Series (continued)

Interface or Network Module	Platforms Supported	
Mixed Media Network Modules	1-port Ethernet and 2 WAN ² interface card slots	All Cisco 3600 series platforms
	2-port Ethernet and 2 WAN interface card slots	All Cisco 3600 series platforms
	1-port Token Ring, 1-port Ethernet and 2 WAN interface card slots	All Cisco 3600 series platforms
Channelized T1 and E1 Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) Network Modules	1- or 2-port Channelized T1/ISDN PRI	All Cisco 3600 series platforms
	1- or 2-port Channelized T1/ISDN PRI with CSU	All Cisco 3600 series platforms
	1- or 2-port Channelized E1/ISDN PRI unbalanced	All Cisco 3600 series platforms
	1- or 2-port Channelized E1/ISDN PRI balanced	All Cisco 3600 series platforms
WAN Interfaces and Network Modules	1-port Serial WAN	All Cisco 3600 series platforms
	1-port ISDN BRI WAN with S/T interface	All Cisco 3600 series platforms
	1-port ISDN BRI WAN with NT1 interface	All Cisco 3600 series platforms
	1-port Switched 56K DSU ³ WAN	All Cisco 3600 series platforms
	4- and 8-port ISDN BRI with S/T interface	All Cisco 3600 series platforms
	4- and 8-port ISDN BRI with NT1	All Cisco 3600 series platforms
	4- and 8-port Synchronous/Asynchronous	All Cisco 3600 series platforms
	4-port serial	All Cisco 3600 series platforms
	16- and 32-port asynchronous	All Cisco 3600 series platforms
	Compression network module	All Cisco 3600 series platforms

1. AUI = Attachment Unit Interface

2. WAN = Wide Area Network

3. DSU = Data Service Unit

Determining the Software Version

To determine the version of Cisco IOS software currently running on your Cisco 3600 series, log in to the Cisco 3600 series and enter the **show version EXEC** command:

```
Router>show version
Cisco Internetwork Operating System Software
IOS (tm) 3600 Software (C3620-JS-MZ), Version 11.2(26)P, RELEASE SOFTWARE
```

Upgrading to a New Software Release

For information about upgrading to a new software release, see the product bulletin *Cisco IOS Software Release 11.2 Changes in Packaging and Upgrade Paths* on Cisco.com at:

Software Center: Cisco IOS Software: Product Bulletins: Software

Under **Cisco IOS 11.2**, click **Release 11.2 Changes in Packaging and Upgrade Paths - No. 539**.

This product bulletin does not contain information specific to Cisco IOS Release 11.2 P but provides general upgrade information that may apply to Cisco IOS Release 11.2 P.

Feature Set Tables

Cisco IOS software is packaged into feature sets consisting of software images—depending on the platform. Each feature set contains a specific set of Cisco IOS features, as shown in Table 3.

Table 3 *Feature Sets Supported by the Cisco 3600 Series Access Routers*

Standard Feature Sets	Cisco 3600 Series
IP	Basic, Plus, Encrypt
IP/IPX/AT/DEC	Basic, Plus, Encrypt
Enterprise	Basic, Plus, Encrypt
Enterprise APPN	Basic, Plus, Encrypt
IP/IPX/IBM/APPN	Basic ¹

1. IP/IPX/IBM/APPN has no additional options. It offers a low-end APPN solution for the Cisco 3600 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, obtain local import and use authorizations for all encryption strengths. Contact your sales representative or distributor for more information, or send e-mail to export@cisco.com.

Table 4 lists the features and feature sets supported by the Cisco 3600 series in Cisco IOS Release 11.2(26)P, and uses the following conventions:

- No—This feature is not offered in the feature set.
- Basic—This feature is offered in the basic feature set.
- Plus—This feature is offered in the Plus feature set.
- Encrypt—This feature is offered in the encryption feature sets, which consist of 40-bit (Plus 40) or 56-bit (Plus 56) data encryption feature sets.

**Note**

This table 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 can contain updates and modifications made after the hardcopy documents were printed. If you have a Cisco.com login account, you can find image and release information regarding features prior to Cisco IOS 11.2(26)P by using the Feature Navigator tool at: <http://www.cisco.com/go/fn>.

Table 4 Feature Sets Supported by the Cisco 3600 Series

Feature	Feature Sets			
	IP Routing	IP/IPX/IBM/APPN ¹	Desktop (IP/IPX/AppleTalk/DEC)	Enterprise
LAN Support				
Apollo Domain	No	No	No	Basic
AppleTalk 1 and 2	No	No	Basic	Basic
Banyan VINES	No	No	No	Basic
Concurrent routing and bridging	Basic	Basic	Basic	Basic
DECnet IV	No	No	Basic	Basic
DECnet V	No	No	No	Basic
GRE	Basic	Basic	Basic	Basic
Integrated routing and bridging (IRB)	Basic	Basic	Basic	Basic
IP	Basic	Basic	Basic	Basic
LAN extension host	Basic	Basic	Basic	Basic
Multiring	Basic	Basic	Basic	Basic
Novell IPX	No	Basic	Basic	Basic
OSI	No	No	No	Basic
Source-route bridging	Plus	Basic	Plus	Basic
Transparent and translational bridging	Basic	Basic	Basic	Basic
XNS	No	No	No	Basic
WAN Services				
Combinet packet protocol	Basic	Basic	Basic	Basic
Dialer profiles	Basic	Basic	Basic	Basic
Frame Relay	Basic	Basic	Basic	Basic
Frame Relay SVC support (DTE)	No	No	No	Basic
Frame Relay traffic shaping	Basic	Basic	Basic	Basic
Half bridge/half router for CPP and PPP	Basic	Basic	Basic	Basic
Multichassis Multilink PPP (MMP)	Plus	No	Plus	Plus
Virtual Private Dial-Up Network (VPDN)	Plus	No	Plus	Basic
HDLC	Basic	Basic	Basic	Basic
IPXWAN 2.0	No	Basic	Basic	Basic

Table 4 Feature Sets Supported by the Cisco 3600 Series (continued)

Feature	Feature Sets			
	IP Routing	IP/IPX/IBM/APPN ¹	Desktop (IP/IPX/AppleTalk/DEC)	Enterprise
ISDN ²	Basic	Basic	Basic	Basic
PPP ³	Basic	Basic	Basic	Basic
SMDS	Basic	Basic	Basic	Basic
Switched 56	Basic	Basic	Basic	Basic
X.25 ⁴	Basic	Basic	Basic	Basic
WAN Optimization				
Bandwidth-on-demand	Basic	Basic	Basic	Basic
Custom and priority queuing	Basic	Basic	Basic	Basic
Dial backup	Basic	Basic	Basic	Basic
Dial-on-demand	Basic	Basic	Basic	Basic
Header ⁵ , link, and payload compression ⁶	Basic	Basic	Basic	Basic
Snapshot routing	Basic	Basic	Basic	Basic
Weighted fair queuing	Basic	Basic	Basic	Basic
IP Routing				
BGP	Basic	Basic	Basic	Basic
BGP4	Basic	Basic	Basic	Basic
EGP	Basic	Basic	Basic	Basic
Enhanced IGRP	Basic	Basic	Basic	Basic
Enhanced IGRP optimizations	Basic	Basic	Basic	Basic
ES-IS	No	No	No	Basic
IGRP	Basic	Basic	Basic	Basic
IS-IS	No	No	No	Basic
Named IP access control list	Basic	Basic	Basic	Basic
Network Address Translation (NAT)	Plus	No	Plus	Plus
NHRP	Basic	Basic	Basic	Basic
OSPF	Basic	Basic	Basic	Basic
OSPF Not-So-Stubby-Areas (NSSA)	Basic	Basic	Basic	Basic
OSPF On Demand Circuit (RFC 1793)	Basic	Basic	Basic	Basic
PIM	Basic	Basic	Basic	Basic
Policy-based routing	Basic	Basic	Basic	Basic
RIP	Basic	Basic	Basic	Basic
RIP Version 2	Basic	Basic	Basic	Basic
Other Routing				
AURP	No	No	Basic	Basic
IPX RIP	No	Basic	Basic	Basic

Table 4 Feature Sets Supported by the Cisco 3600 Series (continued)

Feature	Feature Sets			
	IP Routing	IP/IPX/IBM/APPN ¹	Desktop (IP/IPX/AppleTalk/DEC)	Enterprise
NLSP	No	Basic	Basic	Basic
RTMP	No	No	Basic	Basic
SMRP	No	No	Basic	Basic
S RTP	No	No	No	Basic
Multimedia and Quality of Service				
Generic traffic shaping	Basic	Basic	Basic	Basic
Random Early Detection (RED)	Basic	Basic	Basic	Basic
Resource Reservation Protocol (RSVP)	Basic	Basic	Basic	Basic
Management				
AutoInstall	Basic	Basic	Basic	Basic
Automatic modem configuration ⁷	Basic	Basic	Basic	Basic
HTTP server	Basic	Basic	Basic	Basic
RMON events and alarms ⁸	Basic	Basic	Basic	Basic
SNMP	Basic	Basic	Basic	Basic
Telnet	Basic	Basic	Basic	Basic
Security				
Access lists	Basic	Basic	Basic	Basic
Access security	Basic	Basic	Basic	Basic
Extended access lists	Basic	Basic	Basic	Basic
Kerberized login	No	No	No	Basic
Kerberos V client support	No	No	No	Basic
Lock and key	No	No	No	Basic
MAC security for hubs	Basic	Basic	Basic	Basic
MD5 routing authentication	Basic	Basic	Basic	Basic
Network layer encryption (40-bit or export controlled 56-bit DES)	Encrypt	No	Encrypt	Encrypt
RADIUS	Basic	Basic	Basic	Basic
Router authentication	Encrypt	No	Encrypt	Encrypt
TACACS+	Basic	Basic	Basic	Basic
IBM Support (Optional)⁹				
APPN	No	Basic	No	Basic
BAN for SNA Frame Relay support	Plus	Basic	Plus	Basic
Bisync ¹⁰	Plus	Basic	Plus	Basic
Caching and filtering	Plus	Basic	Plus	Basic
DLSw+	Plus	Basic	Plus	Basic

Table 4 Feature Sets Supported by the Cisco 3600 Series (continued)

Feature	Feature Sets			
	IP Routing	IP/IPX/IBM/APPN ¹	Desktop (IP/IPX/AppleTalk/DEC)	Enterprise
Downstream PU concentration (DSPU)	Plus	Basic	No	Basic
Frame Relay SNA Support (RFC 1490)	Plus	Basic	Plus	Basic
NetView Native Service Point	Plus	Basic	Plus	Basic
QLLC ¹⁰	Plus	Basic	Plus	Basic
SDLC integration	Plus	Basic	Plus	Basic
SDLC transport (STUN)	Plus	Basic	Plus	Basic
SDLC-to-LAN conversion (SDLLC)	Plus	Basic	Plus	Basic
SNA and NetBIOS WAN optimization through local acknowledgment	Plus	Basic	Plus	Basic
SRB/RSRB	Plus	Basic	Plus	Basic
SRT	Plus	Basic	Plus	Basic
TG/COS	No	No	No	Basic
Protocol Translation				
LAT	No	No	No	Basic
Rlogin	No	No	No	Basic
Remote Node				
ARAP 1.0/2.0 ¹¹	No	No	Basic	Basic
Asynchronous master interfaces	Basic	Basic	Basic	Basic
ATCP	No	No	Basic	Basic
CPPP	Basic	Basic	Basic	Basic
CSLIP	Basic	Basic	Basic	Basic
DHCP	Basic	Basic	Basic	Basic
IP pooling	Basic	Basic	Basic	Basic
IPX and ARAP on virtual async interfaces	No	No	No	Basic
IPXCP	No	Basic	Basic	Basic
MacIP	No	No	Basic	Basic
NASI	No	Basic	No	Basic
NetBEUI over PPP	Basic	Basic	Basic	Basic
PPP	Basic	Basic	Basic	Basic
SLIP	Basic	Basic	Basic	Basic
Terminal Services				
LAT	No	No	No	Basic
Rlogin	Basic	Basic	Basic	Basic
Telnet	Basic	Basic	Basic	Basic
TN3270	No	No	No	Basic

Table 4 Feature Sets Supported by the Cisco 3600 Series (continued)

Feature	Feature Sets			
	IP Routing	IP/IPX/IBM/APPN ¹	Desktop (IP/IPX/AppleTalk/DEC)	Enterprise
X.25 PAD	Basic	Basic	Basic	Basic
Xremote	No	No	No	Basic

1. IP/IPX/IBM/APPN has no additional options. It offers a low-end APPN solution for the Cisco 3600 series routers.
2. ISDN support includes calling line identification (ANI), X.25 over the B channel, ISDN subaddressing, and applicable WAN optimization features.
3. PPP includes support for LAN protocols supported by the feature set, address negotiation, PAP and CHAP authentication, and PPP compression. Multilink PPP is available in Cisco IOS Release 11.0(4) and later releases.
4. This feature includes X.25 switching.
5. IPX header compression (RFC 1553) is available in the feature sets that support IPX in Cisco IOS Release 11.1(1) and later releases.
6. X.25 and Frame Relay payload compression are supported in Cisco IOS Release 11.0(4) and later releases.
7. Automatic modem configuration is available for all feature sets in Cisco IOS Release 11.1(2) and later releases. For the Enterprise feature set, automatic modem configuration is available in Cisco IOS 11.1(1) and later releases.
8. The RMON events and alarms groups are supported on all interfaces in Cisco IOS Release 11.1 and later releases. Enhanced RMON feature sets are also available.
9. "Optional" means a separate Cisco IOS feature set with the IBM base option: IP/IBM base, IP/IPX/IBM/APPN base, Desktop/IBM base, or Enterprise/IBM base.
10. QLLC and Bisync are available in IP/IBM in Cisco IOS Release 11.0(3) and later releases, and in IP/IPX/IBM and Desktop/IBM base in Cisco IOS Release 11.0(2) and later releases.
11. ARAP support is included in all releases since Cisco IOS 11.2(5)P.

New and Changed Information

The following sections list the new hardware and software features supported by the Cisco 3600 series for Cisco IOS Release 11.2 P.

New Features in Cisco IOS Releases 11.2(13)P through 11.2(26)P

No new features are supported by the Cisco 3600 series for Cisco IOS Release 11.2(13) and later P-train releases.

New Hardware Feature in Cisco IOS Release 11.2(12)P

The following new hardware feature is supported by the Cisco 3600 series in Cisco IOS Release 11.2(12)P and later releases.

T1 CSU WIC

The Cisco T1 data service unit/channel service unit (CSU) WAN interface card is an integrated, managed, T1 or fractional T1 WAN interface card. It provides nonchannelized data rates of 1 to 24 times 64 kilobits per second (kbps) or 1 to 24 times 56 kbps and follows ANSI T1.403 and AT&T Publication 62411 standards.

The Cisco T1 CSU WIC interface includes the following management features:

- You can remotely configure the interface using Telnet and the Cisco IOS command line interface (CLI).
- For monitoring purposes, the router and DSU/CSU are manageable as a single Simple Network Management Protocol (SNMP) entity, using CiscoWorks or CiscoView. DSU/CSU statistics are accessed from the CLI.
- The SNMP agent supports the standard Management Information Base II (MIB II), Cisco integrated DSU/CSU MIB, and T1 MIB (RFC 1406).
- Loopbacks (including a manual button for a network line loopback) and bit error rate tester (BERT) tests are provided for troubleshooting.
- Test patterns, alarm counters, and performance reports are accessible using the CLI.
- The module has carrier detect, loopback, and alarm LEDs.

New Features in Cisco IOS Release 11.2(11)P

No new features are supported by the Cisco 3600 series for Cisco IOS Release 11.2(11)P.

New Hardware Feature in Cisco IOS Release 11.2(10)P

The following new hardware feature is supported by the Cisco 3600 series in Cisco IOS Release 11.2(10)P and later releases.

Digital Modem Network Modules

Digital modem network modules for the Cisco 3640 modular routers are supported in Cisco IOS Release 11.2(10)P and later releases. These modules are available in 6-, 12-, 18-, 24-, and 30-port sizes. Cisco 3620 routers support these modules in Cisco IOS Release 11.3(4)T1 and later releases.

These modules contain 6, 12, 18, 24, or 30 V.34+ digital modems for a direct digital connection to an Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) channel, allowing you to mix digital and analog calls to provide remote access to a LAN.

Digital modem network modules do not provide network interfaces of their own, but instead handle analog calls passing through other router interfaces. In addition to the digital modem module, the router must contain a PRI network module to connect to the ISDN channel, and another module, such as Ethernet, to provide connectivity to the LAN. The PRI module concurrently handles digital ISDN data connections and remote voice-channel (analog) modem connections, allowing a dynamic mix of digital and modem connections. The digital modem module acts as a pool of available modems that can be used for both incoming and outgoing calls.



Note

For installation and software configuration information, refer to the Cisco 3600 series *Network Module Hardware Installation Guide* and *Software Configuration Guide*. For instructions on how to reach these publications on Cisco.com or the Documentation CD-ROM, refer to the “Related Documentation” section on page 16.

The following digital modem network module features are not supported in Cisco IOS Release 11.2(10)P for the Cisco 3640:

- Initiation or termination of digital modem calls through channelized T1/E1 interfaces
- Modem calls over BRI interfaces
- Concurrent support of ISDN PRI and BRI interfaces
- 56K modem support
- Fax

The following Cisco IOS commands, which apply to modem functionality, are not supported by the modem modules:

- **modem startup test**
- **test modem back-to-back**
- **modem hold reset**
- **copy {flash | tftp | rcp} modem**
- **modem at-mode-permit**
- **modem at-mode**
- **clear modem at-mode**
- **modem poll time**
- **modem status-poll**

New Software Feature in Cisco IOS Release 11.2(10)P

The following new software enhancement is supported by the Cisco 3600 series in Cisco IOS Release 11.2(10)P and later releases.

Web Cache Control Protocol

The Web Cache Control Protocol (WCCP) feature allows you to use a Cisco Cache Engine to handle web traffic, thus reducing transmission costs and downloading time. This traffic includes user requests to view pages and graphics on World Wide Web servers, whether internal or external to your network, and the replies to those requests.

Web caches reduce transmission costs and the amount of time required to download web files. If a client requests a web page that is already cached, the request and data travel only between the Cisco Cache Engine and the client. Without a web cache, the request and reply must travel over the Internet or wide-area network.

Cisco IOS support of WCCP provides a transparent web cache solution. Users benefit from web proxy caches without having to configure clients to contact a specific proxy server in order to access web resources. Many web proxy caches require clients to access web resources through a specific proxy web server rather than using the originally requested web server URL. With WCCP, the clients send web requests to the desired web server URL. Routers running Cisco IOS software intelligently intercept HTTP requests and transparently redirect them to a Cisco Cache Engine.

**Note**

For step-by-step software configuration information, refer to the online publication *Feature Guide for Cisco IOS Release 11.2 P*. For instructions on how to reach this publication on Cisco.com or the Documentation CD-ROM, refer to the “Related Documentation” section on page 16.

New Features in Cisco IOS Releases 11.2(8)P and 11.2(9)P

No new features are supported by the Cisco 3600 series for Cisco IOS Releases 11.2(8)P and 11.2(9)P.

New Hardware Features in Cisco IOS Release 11.2(7)P

The following new hardware features are supported by the Cisco 3600 series in Cisco IOS Release 11.2(7)P and later releases.

Asynchronous Serial Task List

The 16- and 32-port asynchronous network module is supported in Cisco IOS Release 11.2(7)P and later releases. When used with corresponding octal cables, these modules provide 16 or 32 EIA/TIA-232 data terminal equipment (DTE) serial interfaces. Speeds up to 134.4 kbps are supported.

**Note**

For installation and software configuration information, refer to the Cisco 3600 series *Cisco Network Module Hardware Installation Guide* and *Software Configuration Guide*. For instructions on how to reach these publications on Cisco.com or the Documentation CD-ROM, refer to the “Obtaining Documentation” section on page 20.

Compression Network Module

The compression network module is supported Cisco IOS Release 11.2(7)P and later releases. This module provides hardware assistance to protocols that use compression and decompression, reducing the load on the CPU caused by software compression, while improving router performance.

The compression network module does not provide network interfaces of its own, but instead compresses and decompresses data passing through interfaces on other network modules or WAN interface cards in the router. The following interfaces are supported:

- Channelized T1 ISDN PRI
- Channelized E1 ISDN PRI
- ISDN Basic Rate Interface (BRI)
- Synchronous serial
- Switched 56-Kbps Data Service Unit/Customer Service Unit (DSU/CSU)

Hardware compression is supported only over Point-to-Point Protocol (PPP) links. The compression network module supports only the stacker compression algorithm.

**Note**

For installation and software configuration information, refer to the Cisco 3600 series *Cisco Network Module Hardware Installation Guide* and *Software Configuration Guide*. For instructions on how to reach these publications on Cisco.com or the Documentation CD-ROM, refer to the “Related Documentation” section on page 16.

New Hardware Feature in Cisco IOS Release 11.2(6)P

The following new hardware feature is supported by the Cisco 3600 series in Cisco IOS Release 11.2(6)P and later releases.

Fast Ethernet Network Module

The Fast Ethernet network module provides a single interface that supports 100BaseT and 10BaseT connectivity. There is one RJ-45 10/100 port on the Fast Ethernet network module. This port enables autonegotiation of the peers' capabilities and configures itself to support the highest possible data rate.

**Note**

For step-by-step configuration information, refer to the online publication *Update to Network Module Hardware Installation Guide and Software Configuration Guide*. For instructions on how to reach this publication on Cisco.com or the Documentation CD-ROM refer to the “Related Documentation” section on page 16.

New Software Features in Cisco IOS Release 11.2(5)P

The following new software features are supported by the Cisco 3600 series in Cisco IOS Release 11.2(5)P and later releases.

Modular Design of Cisco 3600 Series Routers

The Cisco 3600 series introduced new and changed Cisco IOS functionality in Cisco IOS Release 11.2(5)P. For a complete description of these enhancements, which also exist in all later versions of Cisco IOS software, refer to the online publication *Feature Guide for Cisco IOS Release 11.2 P*. For instructions on how to reach this publication on Cisco.com or the Documentation CD-ROM refer to the “Related Documentation” section on page 16.

The following information is included in the feature guide:

- Displaying Information about the System Image and Configuration
- Partitioning Flash Memory
- Copying a File from a Server to a Flash Memory Device
- Clearing Configuration Information
- Copying a Configuration File Directly to the Startup or Running Configuration
- Copying Files Between Local Flash Memory Devices
- Configuring the Router to Function as a TFTP Server
- Boot Configuration

- Recovering a System Image Using Xmodem or Ymodem
- Reallocating Processor Memory and I/O Memory

Additional Features Supported

Cisco IOS Release 11.2(5)P also supports features in the following categories:

- Routing Protocols
- Desktop Protocols
- Wide-Area Networking Features
- IBM Functionality
- Security Features
- Network Management

Important Notes

Deferral of Cisco IOS Release 11.2(26)P1, 11.2(26)P2 and 11.2(26)P3 Images

All images in Cisco IOS Release 11.2(26)P1, 11.2(26)P2 and 11.2(26)P3 have been deferred due to the following severe defect:

CSCdw78210-Related to fixes in CSCdw65903 and outlined in

<http://www.cisco.com/warp/public/707/cisco-malformed-snmp-msgs-pub.shtml>.

These releases have been replaced with the following software solution, which is available on CCO:11.2(26)P4.

In order to increase network availability, Cisco recommends that you upgrade affected IOS images with the suggested replacement software images. Cisco will discontinue manufacturing shipment of affected IOS images. Any pending order will be substituted by the replacement software images.



Note

Please be aware that failure to upgrade the affected ios images may result in network downtime.

The terms and conditions that governed your rights and obligations and those of Cisco, with respect to the deferred images will apply to the replacement images.

Product Number Change

Beginning with Cisco IOS Release 12.0(7) XK, Cisco changed the product numbers you use to order a specific Cisco IOS software image. In short, Cisco will remove the periods separating the release train, maintenance release, and build number. The following table provides some examples.

Old Product Number	New Product Number	Release	Image Description
S364AR1K2-12.0.7XK=	S364AR1K2-12007XK=	Cisco IOS Release 12.0(7) XK	Cisco 3640 Series IOS Enterprise/SNA SW PLUS IPSEC 3DES
S26CP-12.0.7XK=	S26CP-12007XK=	Cisco IOS Release 12.0(7) XK	Cisco 2600 Series IOS IP Plus

Caveats

Caveats describe unexpected behavior in Cisco IOS software releases. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious. Severity 3 caveats are moderate caveats, and only select severity 3 caveats are included in the caveats document.

For information on caveats in Cisco IOS Release 11.2 P, refer to the *Caveats for Cisco IOS Release 11.2 P* located on Cisco.com and the Documentation CD-ROM.

All caveats in Cisco IOS Release 11.2 are also in Cisco IOS Release 11.2 P.

For information on caveats in Cisco IOS Release 11.2, refer to the “Caveats” section in the *Cross-Platform Release Notes for Cisco IOS Release 11.2* on Cisco.com and the Documentation CD-ROM. These release notes list severity 1 and 2 caveats affecting all maintenance releases.



Note

If you have an account with Cisco.com, you can use Bug Navigator II to find caveats of any severity for any release. You can reach Bug Navigator II on Cisco.com at **Software & Support: Online Technical Support: Software Bug Toolkit** or at <http://www.cisco.com/support/bugtools>.

Related Documentation

The following sections describe the documentation available for the Cisco 3600 series. 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 only 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, page 17
- Platform-Specific Documents, page 17
- Feature Modules, page 18
- Cisco IOS Software Documentation Set, page 18

Release-Specific Documents

The following documents are specific to Release 11.2. They are located on Cisco.com and the Documentation CD-ROM:

- *Release Notes for Cisco IOS Release 11.2*

On Cisco.com at:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Release Notes for Cisco IOS Release 11.2

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Release Notes for Cisco IOS Release 11.2

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

Technical Documents

- *Caveats for Cisco IOS Release 11.2 P*

On Cisco.com at:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Product Specific Release Notes for Cisco IOS Release 11.2: Caveats for Cisco IOS Release 11.2 P

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Product Specific Release Notes for Cisco IOS Release 11.2: Caveats for Cisco IOS Release 11.2 P

Platform-Specific Documents

The following documents are specific to the Cisco 3600 series:

- *Cisco 3600 Series Hardware Installation Guide*
- *Cisco Network Module Hardware Installation Guide*
- *Update to Cisco Network Module Hardware Installation Guide*
- *Cisco WAN Interface Cards Hardware Installation Guide*
- *Update to WAN Interface Cards Hardware Installation Guide*
- *Cisco 3600 Series Configuration Notes*
- *Regulatory Compliance and Safety Information for the Cisco 3600 Series*
- International Regulatory Compliance Information for Telecommunications Equipment

On Cisco.com at:

Technical Documents: Documentation Home Page: Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 3600 Series

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 3600 Series

Feature Modules

Feature modules describe new features supported by Cisco IOS Release 11.2 P 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, feature modules are available online only. The feature module information is included in the next printing of the Cisco IOS documentation set.

On Cisco.com at:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Feature Guide for Cisco IOS Release 11.2 P

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Feature Guide for Cisco IOS Release 11.2 P

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 the printed versions.

Documentation Modules

Each module in the Cisco IOS documentation set consists of two 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.

On Cisco.com and the Documentation CD-ROM, two master hot-linked documents provide information for the Cisco IOS software documentation set.

On Cisco.com at:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Cisco IOS Release 11.2 Configuration Guides, Command References: Configuration Guide Master Index or Command Reference Master Index

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Cisco IOS Release 11.2 Configuration Guides, Command References: Configuration Guide Master Index or Command Reference Master Index

Cisco IOS Release 11.2 Documentation Set

Table 5 describes the contents of the Cisco IOS Release 11.2 P software documentation set, which is available in electronic form and also in printed form upon request.



Note

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

On Cisco.com at:

Technical Documentation: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Configuration Guide/Command References

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.2: Configuration Guides and Command References

Table 5 Cisco IOS Release 11.2 P Software Documentation Set

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Configuration Fundamentals Configuration Guide</i> • <i>Configuration Fundamentals Command Reference</i> 	Configuration Fundamentals Overview Cisco IOS User Interfaces File Management Interface Configuration System Management
<ul style="list-style-type: none"> • <i>Network Protocols Configuration Guide, Part 1</i> • <i>Network Protocols Command Reference, Part 1</i> 	IP Addressing IP Services IP Routing Protocols
<ul style="list-style-type: none"> • <i>Network Protocols Configuration Guide, Part 2</i> • <i>Network Protocols Command Reference, Part 2</i> 	AppleTalk Novell IPX
<ul style="list-style-type: none"> • <i>Network Protocols Configuration Guide, Part 3</i> • <i>Network Protocols Command Reference, Part 3</i> 	Apollo Domain Banyan VINES DECnet ISO CLNS XNS
<ul style="list-style-type: none"> • <i>Wide-Area Networking Configuration Guide</i> • <i>Wide-Area Networking Command Reference</i> 	Wide-Area Networking Overview ATM Frame Relay SMDS X.25 and LAPB
<ul style="list-style-type: none"> • <i>Security Configuration Guide</i> • <i>Security Command Reference</i> 	AAA Security Services Security Server Protocols Traffic Filtering Network Data Encryption Passwords and Privileges Neighbor Router Authentication IP Security Options

Table 5 Cisco IOS Release 11.2 P Software Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Access Services Configuration Guide</i> • <i>Access Services Command Reference</i> 	Configuring Terminal Lines and Modem Support Making Connections to Network Devices Configuring AppleTalk Remote Access Configuring XRemote Configuring LAT, Telnet, TN3270, SLIP and PPP Configuring Protocol Translation Terminal Line and Modem Support Commands X3 PAD and Regular Expressions
<ul style="list-style-type: none"> • <i>Bridging and IBM Networking Configuration Guide</i> • <i>Bridging and IBM Networking Command Reference</i> 	Transparent Bridging Source-Route Bridging Remote Source-Route Bridging DLSw+ STUN and BSTUN LLC2 and SDLC IBM Network Media Translation DSPU and SNA Service Point Support SNA Frame Relay Access Support APPN NCIA Client/Server Topologies IBM Channel Attach



Note

Cisco Management Information Base (MIB) User Quick Reference is no longer published. For the latest list of MIBs supported by Cisco, see *Cisco Network Management Toolkit* on Cisco.com at: **Software Center: Network Mgmt Products: Cisco Network Management Toolkit: Cisco MIBs.**

Obtaining Documentation

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at <http://www.cisco.com>. Translated documentation can be accessed at http://www.cisco.com/public/countries_languages.shtml.

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. Therefore, it is probably 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.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 web site is available to all customers who need technical assistance with a Cisco product of 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 documents mentioned in the “Related Documentation” section on page 16.

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