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Release Notes for Cisco IOS Release 11.3(4)T Feature Packs for Cisco 3600 Series Routers

August 17, 1998

These release notes describe the Cisco IOS Release 11.3(4)T feature packs for Cisco 3600 series routers.

These release notes contain the following topics:

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Introduction

This section explains how to use this document, describes feature pack components, and has tables that define the aspects of a feature pack.

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How to Use These Release Notes

The tables in these release notes contain details about the Cisco feature packs. Use these tables to perform the following tasks before loading a software image onto a router:

- 1 Use Table 1, “Feature Pack Product Numbers Quick-Reference List,” to identify the software image you want to load.
- 2 Use Table 2, “Cisco Feature Pack Image Filenames and Memory Requirements,” to identify your feature pack and the memory required for your feature set, based on the image you load.
- 3 Use Table 3, “Cisco IOS Software Feature Sets for the Cisco 3600 Series,” to identify which features are supported in a feature set image.
- 4 Use Table 4, “Cisco 3600 Series Default Memory and Upgrade Options,” to check the memory required for your feature set, and determine the factory-default memory on the router and the available memory upgrades.

What Is a Feature Pack?

This section describes:

- Feature Pack Components
- Product Numbers Quick-Reference List
- Feature Pack Overview Table
- Feature Set Table

Feature Pack Components

A feature pack is a small box that contains the following items:

- CD-ROM with the following software:
 - Cisco IOS feature set software images that can include bundled modem firmware
 - Router Software Loader (RSL) program (a Windows 95 application)
 - Trivial File Transfer Protocol (TFTP) server application (for Windows 95 only)
- *Getting Started with the Router Software Loader* CD booklet
- Release notes that include alternatives to using the RSL for loading software images onto a router
- Software license for using Cisco software in object code form on a single access server or router
- Cisco Documentation CD-ROM that contains all Cisco documentation

The heart of a feature pack is the CD-ROM that contains software images and the Router Software Loader (RSL), which is a Windows 95 application that loads an image onto an access server or router. Each feature pack CD-ROM contains at least one Cisco IOS feature set. The CD booklet, *Getting Started with the Router Software Loader*, explains how to use the RSL to install the router image. If you cannot use the RSL to load images, you can follow the instructions in the “Alternatives to the RSL” section on page 15.

Before running the RSL, read the “Installing Software Images Using the RSL” section on page 13. If you are loading software on a preconfigured router, you should save the router configuration file on your PC before beginning the image download process, as described in *Getting Started with the Router Software Loader*.

Product Numbers Quick-Reference List

Table 1 lists the Cisco product numbers of the feature packs supported in this release.

Table 1 Feature Pack Product Numbers Quick-Reference List

Product Number	Feature Pack Description
CD36-C-11.3=	Cisco 3600 IP Feature Pack
CD36-CP-11.3=	Cisco 3600 IP Plus Feature Pack
CD36-CW-11.3=	Cisco 3600 IP Plus 40 Feature Pack ¹
CD36-CY-11.3=	Cisco 3600 IP Plus 56 Feature Pack ¹
CD36-B-11.3=	Cisco 3600 IP/IPX/AT/DEC Feature Pack
CD36-BP-11.3=	Cisco 3600 IP/IPX/AT/DEC Plus Feature Pack
CD36-AP-11.3=	Cisco 3600 Enterprise Plus Feature Pack
CD36-AW-11.3=	Cisco 3600 Enterprise Plus 40 Plus Feature Pack ¹
CD36-AY-11.3=	Cisco 3600 Enterprise 56 Feature Pack ¹
CD36-CL-11.3=	Cisco 3600 IP Plus IPSEC 56 Feature Pack ¹
CD36-AL-11.3=	Cisco 3600 Enterprise Plus IPSEC 56 Feature Pack ¹

¹ This feature pack contains encryption images.

Feature Pack Overview Table

Table 2 identifies each feature pack as specified on the router software CD-ROM label, describes the feature sets in each feature pack, and lists the following: UNIX and DOS filenames of the images, memory requirements, and the RSL installer description.

Table 2 Cisco Feature Pack Image Filenames and Memory Requirements

Model Number	CD-ROM Title	UNIX Image Name	DOS Image Name	Flash Memory Req'd	Main Memory Req'd	Software Description
CD36-C-11.3=	Cisco 3600 IP Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-i-mz.113-4.T1	80235904	4 MB	16 MB	Cisco 3640 IP Feature Set, Release 11.3(4)T
		c3620-i-mz-113-4.T1	80236404	4 MB	16 MB	Cisco 3620 IP Feature Set, Release 11.3(4)T
CD36-CP-11.3=	Cisco 3600 IP Plus Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-is-mz.113-4.T1	80235804	8 MB	24 MB	Cisco 3640 IP Plus Feature Set, Release 11.3(4)T
		c3620-is-mz.113-4.T1	80236304	8 MB	24 MB	Cisco 3620 IP Plus Feature Set, Release 11.3(4)T
CD36-CW-11.3=	Cisco 3600 IP Plus 40 Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-is40-mz.113-4.T1	80264004	8 MB	24 MB	Cisco 3640 IP Plus 40 Feature Set, Release 11.3(4)T
		c3620-is40-mz.113-4.T1	80263904	8 MB	24 MB	Cisco 3620 IP Plus 40 Feature Set, Release 11.3(4)T
CD36-CY-11.3=	Cisco 3600 IP Plus 56 Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-is56i-mz.113-4.T1	80263804	8 MB	32 MB	Cisco 3640 IP Plus 56 Feature Set, Release 11.3(4)T
		c3620-is56i-mz.113-4.T1	80263704	8 MB	32 MB	Cisco 3620 IP Plus 56 Feature Set, Release 11.3(4)T

Table 2 Cisco Feature Pack Image Filenames and Memory Requirements (continued)

Model Number	CD-ROM Title	UNIX Image Name	DOS Image Name	Flash Memory Req'd	Main Memory Req'd	Software Description
CD36-B-11.3=	Cisco 3600 IP/IPX/AT/DEC Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-d-mz.113-4.T1	80236104	4 MB	24 MB	Cisco 3640 IP/IPX/AppleTalk/DECnet Feature Set, Release 11.3(4)T
		c3620-d-mz-113-4.T1	80236604	4 MB	24 MB	Cisco 3620 IP/IPX/AppleTalk/DECnet Feature Set, Release 11.3(4)T
CD36-BP-11.3=	Cisco 3600 IP/IPX/AT/DEC Plus Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-ds-mz.113-4.T1	80236004	8 MB	24 MB	Cisco 3640 IP/IPX/AppleTalk/DECnet Plus Feature Set, Release 11.3(4)T
		c3620-ds-mz-113-4.T1	80236504	8 MB	24 MB	Cisco 3620 IP/IPX/AppleTalk/DECnet Plus Feature Set, Release 11.3(4)T
CD36-AP-11.3=	Cisco 3600 Enterprise Plus Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-js-mz.113-4.T1	80263604	8 MB	32 MB	Cisco 3640 Enterprise Plus Feature Set, Release 11.3(4)T
		c3620-js-mz.113-4.T1	80263504	8 MB	32 MB	Cisco 3620 Enterprise Plus Feature Set, Release 11.3(4)T
CD36-AW-11.3=	Cisco 3600 Enterprise Plus 40 Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-js40-mz.113-4.T1	80263404	8 MB	32 MB	Cisco 3640 Enterprise Plus 40 Feature Set, Release 11.3(4)T
		c3620-js40-mz.113-4.T1	80263304	8 MB	32 MB	Cisco 3620 Enterprise Plus 40 Feature Set, Release 11.3(4)T
CD36-AY-11.3=	Cisco 3600 Enterprise Plus 56 Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-js56i-mz.113-4.T1	80263204	8 MB	32 MB	Cisco 3640 Enterprise Plus 56 Feature Set, Release 11.3(4)T
		c3620-js56i-mz.113-4.T1	80263104	8 MB	32 MB	Cisco 3620 Enterprise Plus 56 Feature Set, Release 11.3(4)T
CD36-CL-11.3=	Cisco 3600 IP Plus IPSEC 56 Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-is56i-mz.113-4.T1	80285304	8 MB	32 MB	Cisco 3640 IP Plus IPSEC 56 Feature Set, Release 11.3(4)T
		c3620-is56i-mz.113-4.T1	80286504	8 MB	32 MB	Cisco 3620 IP Plus IPSEC 56 Feature Set, Release 11.3(4)T
CD36-AL-11.3=	Cisco 3600 Enterprise Plus IPSEC 56 Feature Pack Release 11.3(4)T RSL Version 7.0	c3640-js56i-mz.113-4.T1	80284904	8 MB	32 MB	Cisco 3640 Enterprise Plus IPSEC 56 Feature Set, Release 11.3(4)T
		c3620-js56i-mz.113-4.T1	80286104	8 MB	32 MB	Cisco 3620 Enterprise Plus IPSEC 56 Feature Set, Release 11.3(4)T

Feature Set Table

The Cisco IOS software is packaged into “feature sets” (also called “images”). Many different feature sets are available, and each feature set contains a specific subset of Cisco IOS features. The following conventions are used to identify feature sets:

- Plus—Value-added feature set with additional features.
- Plus 40—Value-added feature set with additional features, including 40-bit data encryption.
- Plus 56—Value-added feature set with additional features, including 56-bit data encryption.

Cisco IOS images with strong encryption (including, but not limited to, 56-bit DES) are subject to U.S. government export controls and have a limited distribution. Images to be installed outside the U.S. require an export license. Customer orders might be denied or subject to delay due to U.S. government regulations. Contact your sales representative or distributor for more information, or send e-mail to export@cisco.com.

The following list shows which feature sets are supported on the Cisco 3600 series routers and access servers. These feature sets only apply to Cisco IOS Release 11.3 T:

- IP
- IP Plus
- IP Plus 40
- IP Plus 56
- IP/IPX/AT/DEC
- IP/IPX/AT/DEC Plus
- Enterprise Plus
- Enterprise Plus 40
- Enterprise Plus 56
- IP Plus IPSEC 56
- Enterprise Plus IPSEC 56

Note The Plus 40 and Plus 56 encryption images listed above are not available in Releases 11.3(1)T and 11.3(2)T; they are available in Release 11.3(4)T and later 11.3 T releases.

To determine what features are available with each feature set (software image), see Table 3. The table summarizes the features you can use when running a specific feature set on the Cisco 3600 series routers for Cisco IOS Release 11.3 T. Table 3 uses these terms:

Feature Set Matrix Term	Description
Yes	This feature is offered.
No	This feature is not offered.
In	The “In” column lists the Cisco IOS release that first introduces a feature. For example, (2) means a feature is introduced in 11.3(2)T. If a cell is empty in this column, the feature was included in the initial, base release.

Introduction

Table 3 Cisco IOS Software Feature Sets for the Cisco 3600 Series

Feature	Feature Set											
	IP	IP Plus	IP Plus 40	IP Plus IPsec 56	IPX/ AT/ DEC	IP/ IPX/ AT/ DEC Plus	Enterprise Plus	Enterprise Plus 40	Enterprise Plus IPsec 56	Enterprise/ APPN Plus	Enterprise/ APPN Plus 40	Enterprise/ APPN Plus IPsec 56
IBM Support												
APPN High Performance Routing	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
APPN MIB Enhancements	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
APPN over Ethernet LAN Emulation	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
APPN Scalability Enhancements	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Bisync Enhancements, includes:	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
— Bisync 3780 Support												
— BSC Extended Addressing												
— Block Serial Tunneling (BSTUN) over Frame Relay												
Cisco MultiPath Channel (CMPC)	No											
DLSw+ Enhancements, includes:	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
— Backup Peer Extensions for Encapsulation Types												
— DLSw+ Border Peer Caching												
— DLSw+ MIB Enhancements												
— DLSw+ SNA Type of Service												
— LLC2-to-SDLC Conversion between PU4 Devices												
— NetBIOS Dial-on-Demand Routing												
— UDP Unicast Enhancement												
FRAS Enhancements, includes:	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
— FRAS Boundary Network Node Enhancement												
— FRAS Dial Backup over DLSw+												
— FRAS DLCI Backup												
— FRAS Host												
— FRAS MIB												
— SRB over Frame Relay												
RIF Passthrough in DLSw+	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Cisco IOS Software Feature Sets for the Cisco 3600 Series (continued)

Feature	Feature Set											
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/ IPX/ AT/ DEC	IP/ IPX/ AT/ DEC Plus	Enterprise Plus	Enterprise Plus 40	Enterprise Plus 56	Enterprise/ APPN Plus	Enterprise/ APPN Plus 40	Enterprise/ APPN Plus 56
SRB over FDDI on Cisco 4000, 4500, and 4700 Series Routers	No for all feature sets											
TN3270 LU Nailing	No for all feature sets											
TN3270 Server Enhancements	No for all feature sets											
Token Ring LANE	No for all feature sets											
Tunneling of Asynchronous Security Protocols	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Internet												
DRP Server Agent	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DRP Server Agent Enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Routing												
Easy IP (Phase 1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hot Standby Router Protocol (HSRP) over ISL in Virtual LAN Configurations	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Enhanced IGRP Route Authentication	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Type of Service and Precedence for GRE Tunnels (CSCdj88415) ¹	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TCP Enhancements, includes: — TCP Selective Acknowledgment — TCP Timestamp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAN Support												
AppleTalk Access List Enhancements	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DECnet Accounting	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX Named Access Lists	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX SAP-after-RIP	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NLSP Enhancements	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
NLSP Multicast Support	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management												
Cisco Call History MIB Command Line Interface	No for all feature sets											
Cisco IOS Internationalization	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Cisco IOS Software Feature Sets for the Cisco 3600 Series (continued)

Feature	Feature Set											
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/ IPX/ AT/ DEC	IP/ IPX/ AT/ DEC Plus	Enterprise Plus	Enterprise Plus 40	Enterprise Plus 56	Enterprise/ APPN Plus	Enterprise/ APPN Plus 40	Enterprise/ APPN Plus 56
Entity MIB, Phase 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMPv2C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMP Inform Requests	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Virtual Profiles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VPDN MIB and Syslog Facility	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia												
IP Multicast Load Splitting across Equal-Cost Paths	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Multicast over ATM Point-to-Multipoint Virtual Circuits	No for all feature sets											
IP Multicast over Token Ring LANs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PIM Version 2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stub IP Multicast Routing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice over IP	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quality of Service												
RTP Header Compression	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Security												
Additional Vendor-Proprietary RADIUS Attributes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Automated Double Authentication	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Certificate Authority Interoperability	No	No	No	Yes	No	No	No	No	Yes	No	No	Yes
Double Authentication	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Encrypted Kerberized Telnet	No	No	No	No	No	No	No	No	Yes	No	No	Yes
HTTP Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Internet Key Exchange Security Protocol	No	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes
IPSec Network Security	No	No	No	Yes	No	No	No	No	Yes	No	No	Yes
MS-CHAP Support	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Named Method Lists for AAA Authorization & Accounting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Per-User Configuration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reflexive Access Lists	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Cisco IOS Software Feature Sets for the Cisco 3600 Series (continued)

Feature	Feature Set											
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/ IPX/ AT/ DEC	IP/ IPX/ AT/ DEC Plus	Enterprise Plus	Enterprise Plus 40	Enterprise Plus 56	Enterprise/ APPN Plus	Enterprise/ APPN Plus 40	Enterprise/ APPN Plus 56
TCP Intercept	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Vendor-Proprietary RADIUS Attributes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Switching												
AppleTalk Routing over ISL and IEEE 802.10 in Virtual LANs	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CLNS and DECnet Fast Switching over PPP	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
DECnet/VINES/XNS over ISL, includes:	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
— Banyan VINES Routing over ISL Virtual LANs												
— DECnet Routing over ISL Virtual LANs												
— XNS Routing over ISL Virtual LANs												
Fast-Switched Policy Routing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX Routing over ISL Virtual LANs	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VIP Distributed Switching Support for IP Encapsulated in ISL	No for all feature sets											
Terminal Services												
Virtual Templates for Protocol Translation	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
WAN Optimization												
ATM MIB Enhancements	No for all feature sets											
PAD Enhancements	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
PAD Subaddressing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAN Services												
Always On/Dynamic ISDN (AO/DI)							Yes	Yes	Yes	Yes	Yes	Yes
Bandwidth Allocation Control Protocol	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dialer Watch	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Cisco IOS Software Feature Sets for the Cisco 3600 Series (continued)

Feature	Feature Set											
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/ IPX/ AT/ DEC	IP/ IPX/ AT/ DEC Plus	Enterprise Plus	Enterprise Plus 40	Enterprise Plus 56	Enterprise/ APPN Plus	Enterprise/ APPN Plus 40	Enterprise/ APPN Plus 56
Enhanced Local Management Interface (ELMI)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay Enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay MIB Extensions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay Router ForeSight	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN Advice of Charge	No	No	No	No	No	No	No	No	No	No	No	No
ISDN Caller ID Callback	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN NFAS	No for all feature sets											
Layer 2 Forwarding—Fast Switching	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Leased Line ISDN at 128 kbps	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MPPC (Microsoft Point-to-point Compression)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MS Callback	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multiple ISDN Switch Types	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
National ISDN Switch Types for BRI and PRI Interfaces (NI2)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PPP over ATM	No for all feature sets											
Stackable Home Gateway		Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Telnet Extensions for Dialout	No	No	No	No	No	No	No	No	No	No	No	No
X.25 Enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X.25 on ISDN	No for all feature sets											
X.25 Switching between PVCs and SVCs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X.28 Emulation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

1 This feature was introduced in Cisco IOS Release 11.3(4)T. It is not available in previous releases.

System Requirements

This section describes the following:

- Memory Requirements
- Hardware Supported
- Software Compatibility
- Determining Your Software Release

Memory Requirements

Table 4 lists the memory delivered by default and the available memory upgrades.

Table 4 Cisco 3600 Series Default Memory and Upgrade Options

Memory Type	Cisco 3600	
	Series Defaults	Upgrade Options
Flash	4 MB	4-MB upgrade: MEM3600-4FS= 8-MB upgrade: MEM3600-8FS= 16-MB upgrade: MEM3600-16FS= 4-MB upgrade: MEM3600-4FC= 8-MB upgrade: MEM3600-8FC=
DRAM SIMM	16 MB	For the 3620: 4-MB upgrade: MEM3620-4D= 8-MB upgrade: MEM3620-8D= 16-MB upgrade: MEM3620-16D= For the 3640: 8-MB upgrade: MEM3640-2X4D= (2x4 MB DRAM SIMMs) 16-MB upgrade: MEM3640-2X8D= (2x16 MB DRAM SIMMs) 32-MB upgrade: MEM3640-2X16D= (2x16 MB DRAM SIMMs) 64-MB upgrade: MEM3640-2X32D= (2x32MB DRAM SIMMs)

Hardware Supported

The Router Software Loader (RSL) Version 7.0 supports many Cisco routers. Specific to the Cisco 3600 series routers, the RSL 7.0 supports:

- CiscoPro CPA3620 and CPA3640
- Cisco 3620 and 3640

Software Compatibility

The feature packs described in these release notes contain Cisco IOS Release 11.3(4)T software images, some earlier images, and the Router Software Loader (RSL) Version 7.0. Before running the RSL, read the “Installing Software Images Using the RSL” section on page 13.

Determining Your Software Release

To view the version of Cisco IOS software that is running on your Cisco 3600 series router, log in to the router, and enter the **show version** user EXEC command:

```
router> show version
```

An output begins similar to the following. The Cisco IOS version appears in the second line.

```
Cisco Internetwork Operating System Software  
IOS (tm) 3600 Software (C3600-BNR2SY-L), Version 11.3(4)T, RELEASE SOFTWARE
```

The output includes more information including processor revision numbers, memory amounts, hardware IDs, and partition information.

Modem Code Alert

By default, the MICA modems installed on the Cisco 3600 series routers use the modem portware that is bundled with the Cisco IOS software image. Unless you are familiar with the Cisco MICA portware, we recommend that you use the default firmware and do not attempt to download another version.

If you do choose to override the firmware and portware selected by Cisco IOS software, the Flash memory of your router might contain modem code files that should be saved and restored before downloading the new image. Before the image download begins, the Router Software Loader (RSL) will display the Flash Copy Options dialog box, which will allow you to select which files to back up and restore. By default, RSL will back up all files in the selected Flash memory partition, and restore the files you select.

If you want to verify that you are running the latest modem code, use the **show modem version** command to display the current version. Then compare that version to the modem code files available on the feature pack CD-ROM and on Cisco Connection Online (CCO).

Modem Code Information

If you are running Microsoft Windows 95 on a PC, we recommend using the RSL to download modem code. For detailed steps, refer to the RSL online help topic, "Downloading Modem Files." If you are running Windows NT, UNIX, or Macintosh, use TFTP or rcp (remote copy protocol) to download modem code. TFTP server instructions are in the online document titled, *Another Way to Download Modem Code*.

Both RSL and TFTP instructions are available from the Software Center at the following URL:

```
http://www.cisco.com/public/sw-center/sw-access.shtml
```

Click on the link, **Router Software Loader (RSL)**. Follow the steps to download the new modem code.

See the "Cisco Connection Online" section on page 23 and the "Documentation CD-ROM" section on page 24 for information on accessing customer documentation.

Installation Notes

This section provides solutions to problems you might encounter when using the RSL to load Cisco IOS software on a router. It also describes special cases that might require you to load Cisco IOS software on a CiscoPro router or to use an alternative to the RSL.

Installing Software Images Using the RSL

This section describes some solutions to problems you might encounter when using the RSL. These solutions are additions to the RSL online help.

Recovering from a Connection Error

This installation tip provides a possible recovery solution if you are unable to connect to your access server or router. You can skip this section unless you are experiencing a connection error.

In some cases, you might receive the following error message while connecting to the target router:

```
"Failed to configure the router to enable the Cisco IOS software image and configuration file upload and download operations. You may want to check the router to make sure that the selected interface exists."
```

If you encounter this message, try increasing the Short Timeout value, which is set to 25 seconds, in the Options dialog box, especially if one of the following situations applies:

Note Increasing the Short Timeout value might increase the time it takes for the RSL to connect to the target router.

- You are connecting to a router that has a large configuration file.
- You are connecting to a Cisco AS5200 access server. A Cisco AS5200 requires up to 45 seconds to write a configuration to nonvolatile random-access memory (NVRAM), due to the amount of interfaces that must be checked during this process. Increase the Short Timeout value to 60 seconds.

Restoring the Startup Configuration

In some cases, the RSL is unable to restore the startup configuration. If this happens, take the following steps:

- Step 1** Ensure that all cables are properly attached to both the router and the PC.
- Step 2** Restart the RSL, and connect by using the **Preconfigured router** option.
- Step 3** When asked if you want to overwrite the existing startup configuration file, choose **no**.
- Step 4** When asked if you want to continue, choose **yes**.
- Step 5** When the router is connected, select **Download Router Configuration** in the Router Software Loader dialog box.
- Step 6** Select the appropriate file, and click the radio button beside **Copy configuration to the router nonvolatile memory**.

The router should now contain the startup configuration it had before the initial RSL connection. You can now exit the RSL.

Note In the previous situation, the router configuration register (**config-register 0xnnnn**) is not restored.

Note If you press **Ctrl-Alt-Delete** to terminate the RSL, the router configuration and configuration register are not restored. However, in this case the configuration file is not deleted from the PC, so you can restore it using the previous steps, beginning with Step 2.

Helpful Hints

The following information about RSL operations can help you with the installation process:

- If you have added any static entries to the PC Address Resolution Protocol (ARP) table, one or more of them might be deleted by the RSL. You need to manually reenter any deleted entries in the PC ARP table.
- If the router's running configuration at connection time is not the same as its startup configuration, the exact configuration is not restored. Any changes that you have made since the last time a **copy running-config startup-config** or **write memory** command was entered are lost.
- The RSL restores the router's startup configuration, but some running configuration commands are not restored. To restore the exact running configuration, reboot the router. The following interface configuration commands are not restored to the running configuration: **no shutdown**, **no ringspeed**, and **media-type aui**.

Loading Cisco IOS Release 11.3 Software on CiscoPro Routers

The RSL has an upgrade utility to permanently modify a CiscoPro router so that it accepts Cisco IOS Release 11.3 software images. The utility changes the router SysObjectID Simple Network Management Protocol (SNMP) MIB value (used for network management) to that of a Cisco router. The software banner also changes and no longer identifies the router as a CiscoPro product.

Note After this upgrade, CiscoVision cannot recognize your router. If you choose the permanent upgrade, CiscoWorks for Windows is a recommended replacement for network management purposes. To upgrade your CiscoVision software to CiscoWorks Windows 2.1, order one of the following: CPW-CVCW-U to Upgrade CiscoVision to CiscoWorks Windows (managing up to 50 nodes) or CPW-CVCW-ENT-U to Upgrade CiscoVision to CiscoWorks Windows (managing up to 500 nodes). For general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

If you select a Cisco IOS Release 11.3 image from the image list and are connected to a CiscoPro CPA3600 series router, a message box tells you that the router requires a permanent upgrade to load this image. You can either select **yes** to have the RSL upgrade the router and continue loading the selected image or select **no** to cancel the load operation.

After you select **yes**, the RSL downloads, performs the upgrade, reboots the router, and issues a message to confirm the upgrade. Confirm this message. The RSL then downloads the selected image.

The upgrade utility must be located in the Images directory. If it is not, the upgrade utility informs you that the image is not present.

The Cisco 3600 series upgrade utility filename is cpa3600-upgrade-1.112-3.P. The upgrade utility is a special file, not a Cisco IOS run-time image. The RSL only installs valid software releases on Cisco 3600 series routers.

Alternatives to the RSL

The RSL is designed to work with a PC running Microsoft Windows 95 and is the recommended method for downloading software to the router. The booklet included with the CD-ROM explains how to perform this simple install process. However, two alternatives are available for installing router software:

- Using the console or auxiliary port
- Using a TFTP server application

Installing the Router Software Using the Console or Auxiliary Port

This section explains how to use the **copy xmodem flash** command to install the router software from the CD-ROM onto the router.

Note The transfer takes place only on the port at which you issue the command. If you download via the console, all console output is discarded for the duration of the transfer. You can only download files to the router; you cannot copy files from the router. Cisco recommends using the auxiliary port for this type of software download. The auxiliary port has hardware flow control and full modem control. In addition, the transfer does not occupy the system console so it is free for other uses.

The following example shows how to use the **copy xmodem flash** command on a Cisco 3600 series router:

```
Router# copy xmodem flash
**** WARNING ****
x/ymodem is a slow transfer protocol limited to the current speed
settings of the auxiliary/console ports. The use of the auxiliary
port for this download is strongly recommended.
During the course of the download no exec input/output will be
available.
-----
Proceed? [confirm] yes
Use crc block checksumming? [confirm] yes
Max Retry Count [10]:
Perform image validation checks? [confirm] yes
Xmodem download using crc checksumming with image validation
Continue? [confirm] yes
Partition  Size  Used      Free      Bank-Size  State      Copy Mode
1          4096K  3259K    836K      4096K      Read/Write Direct
2          4096K   0K      4095K    4096K      Read/Write Direct

[Type ?<no> for partition directory; ? for full directory; q to abort]
Which partition? [default = 1] 2

System flash directory, partition 2:
File Length Name/status
1 68 TESTFILE
[132 bytes used, 4194172 available, 4194304 total]
Destination file name? c3620-i-mz.0918
```

```
Erase flash device before writing? [confirm] yes
Flash contains files. Are you sure you want to erase? [confirm] yes

Copy '' from server
  as 'c3620-i-mz.0918' into Flash WITH erase? [yes/no] yes
Erasing device... eeeeeeeeeeeeeeeeeee ...erased
Ready to receive file.....C
Verifying checksum... OK (0x5DE8)
Flash device copy took 00:12:06 [hh:mm:ss]
```

Installing the Router Software Using a TFTP Server Application

This section explains how to use a TFTP server application as an alternative to using the RSL to install the router software from the CD-ROM. You can perform this procedure using a PC (running Microsoft Windows 95 or Microsoft Windows 3.1), a Macintosh, or a UNIX system. You can use either the **copy tftp flash** or **copy rcp flash** command to download the software to the router.

First, obtain a TFTP application or a remote copy protocol (rcp) application to set up your computer as a TFTP server or an rcp server. You can use the RSL or the TFTP server included on the feature pack CD-ROM to install the software only if you are using a PC running Windows 95. For other operating systems, a number of TFTP or rcp applications are available from independent software vendors or as shareware from public sources on the World Wide Web.

Note To use an rcp application, follow this same procedure, but substitute rcp for TFTP in the instructions; for example, use the **copy rcp flash** command instead of the **copy tftp flash** command.

- Step 1** Install any TFTP server application on the PC. (The PC application included on the feature pack CD-ROM is for Microsoft Windows 95 only.)
- Step 2** Launch the TFTP server application on the PC, usually by double-clicking the application icon or its .exe filename.
- Step 3** Set up the PC as a TFTP server by using the TFTP server application setup or configuration facility.

Most TFTP server applications include a setup facility that allows you to specify the PC as a server. For example, from the TFTP menu of one application, you can select **Settings** to display a panel that includes a checkbox beside the word **Server**. To configure the local PC as a server, click this checkbox.

The TFTP server also allows the selection of a “root” directory. You must select the directory in which the Cisco IOS files reside (for example, d:\cpswinst\images).



Caution Make sure you set up your local PC as a TFTP server. If you overlook this step, you cannot perform the copy procedure. This reminder also applies if you are using rcp instead of TFTP.

- Step 4** Establish a console session from your local PC (which is now configured as a TFTP server) to the router by using one of these methods:
 - Connect the PC com port to the router console port.

This is the recommended method. When you reload the router with the new image in Step 12, you remain connected to the router. (If you use Telnet, you lose connection to the router.)

- Establish a Telnet session from the PC to the router.

Step 5 Connect your PC Ethernet port to the router Ethernet port. Use an Ethernet crossover cable.

Note Use straight-through cables if you are connecting via a 10BaseT hub or a 100BaseT hub.

For systems without a LAN interface, make sure that the router and the PC have IP connectivity through the available interface (that is, the router and PC can ping each other with IP traffic).

Note We recommend that you back up the router configuration before upgrading the router software.

Step 6 Enter the following commands to enter enable mode and copy the new software image from the PC (set up as a TFTP server) to the router:

```
(boot)> enable
Password: <password>
(boot)#
(boot)# copy tftp flash
```

In the next series of steps, you download the Cisco IOS Release 11.3 images that you want installed on your router.

Step 7 When prompted, enter the IP address of your PC, as in the following example:

```
Address or name of remote host [255.255.255.255]? 172.16.1.1
```

This is the IP address of your local PC, not that of the router.

Step 8 When prompted, enter the filename of the Cisco IOS Release 11.3 image to be copied to the router, as in the following example:

```
Source file name? 80235904.bin
```

This example specifies the DOS image name of the IP feature set for a Cisco 3600 series router, as listed in Table 2.

Step 9 In response to the prompt, enter the destination UNIX image filename, and press **Enter**.

This is the name of the image file on the router, not the full path name of the image on the CD-ROM attached to the PC. Refer to Table 2 in the “Cisco Feature Pack Image Filenames and Memory Requirements” section on page 3 for the UNIX image filename.

```
Destination file name [80235904.bin]? c3640-i-mz.113-4.T1
```

Step 10 Enter **yes** in response to the prompt asking if you want to erase the existing image copy resident in the router Flash memory before copying the new one:

```
Erase flash device before writing? [confirm] yes
```

The entire copying process takes several minutes and differs from network to network.

During the transfer process, the software displays messages indicating that it has accessed the file you have specified and is loading it.

The exclamation point (!) indicates that the copy process is taking place. Each exclamation point (!) indicates that ten packets have been transferred successfully. A checksum verification of the image occurs after the image is written to Flash memory.

- Step 11** Enter the following commands to change the configuration register to 0x2102. This will force the router to reload to the image running from Flash memory.

```
(boot)# configure terminal
config-reg 0x2102
(boot)(config)#
(boot)(config)# end
(boot)#
```

- Step 12** Enter the **reload** command to reload the router:

```
(boot)# reload
```

After reload is complete, the router should be running the desired Cisco IOS image. Use the **show version** command to verify.

Documentation Updates

Due to a production problem, many source-route bridging commands were omitted from the printed version of the *Cisco IOS Software Command Summary* (78-4746-xx, DOC-CIOSCS11.3=). For complete documentation of all source-route bridging commands, refer to the *Bridging and IBM Networking Command Reference* (78-4743-xx). You can also obtain the most current documentation on the Documentation CD-ROM or Cisco Connection Online (CCO).

Related Documentation

These release notes should be used in conjunction with the documents listed in this section:

- Cisco 3600 Series-Specific Documentation
- New Feature Documentation
- Cisco IOS Documentation Set
- Other Supporting Documents
- Online Navigation

The documents listed in this section are available in printed or electronic format. See the “Online Navigation” section on page 21 for more information on accessing electronic documentation.

Cisco 3600 Series-Specific Documentation

The following documents are specific to the Cisco 3600 series routers:

- *Cisco 3620 Router Installation and Configuration Guide*
- *Cisco 3640 Router Installation and Configuration Guide*
- *Software Configuration Guide for Cisco 3600 Series and Cisco 2600 Series Routers*
- *Network Modules Hardware Installation Guide*
- *WAN Interface Cards Hardware Installation Guide*

- Cisco 3600 series configuration notes
- *Regulatory Compliance and Safety Information for the Cisco 3600 Series*

New Feature Documentation

New feature documentation is first published online only, and is eventually added to the books in the Cisco IOS documentation set. New feature documentation includes configuration tasks and new and changed command reference information; it supplements the Cisco IOS Release 11.3 configuration guide and command reference books. The new feature documentation for Release 11.3 T is available online on CCO and on the Documentation CD-ROM. Refer to the “Online Navigation” section on page 21 for details.

Cisco IOS Documentation Set

The Cisco IOS software documentation is divided into nine modules and two master indexes. There are also four supporting documents.

Note The most current Cisco IOS documentation can be found on the latest Documentation CD-ROM and on the Web. These electronic documents contain updates and modifications made after the paper documents were printed. See the “Online Navigation” section on page 21 for details.

Documentation Modules

Each module consists of two books: a configuration guide and a corresponding command reference. Chapters in a configuration guide describe protocols, configuration tasks, and Cisco IOS software functionality and contain comprehensive configuration examples. Chapters in a command reference provide complete command syntax information. Each configuration guide can be used in conjunction with its corresponding command reference.

Master Indexes

Two master indexes provide indexing information for the Cisco IOS software documentation set: an index for the configuration guides and an index for the command references. In addition, individual books contain a book-specific index.

The Cisco IOS documentation set consists of the following books and chapter topics:

Books	Chapter Topics
• <i>Configuration Fundamentals Configuration Guide</i>	Configuration Fundamentals Overview
• <i>Configuration Fundamentals Command Reference</i>	Cisco IOS User Interfaces
	File Management
	Interface Configuration
	System Management
• <i>Network Protocols Configuration Guide, Part 1</i>	IP Addressing
• <i>Network Protocols Command Reference, Part 1</i>	IP Services
	IP Routing Protocols
• <i>Network Protocols Configuration Guide, Part 2</i>	AppleTalk
• <i>Network Protocols Command Reference, Part 2</i>	Novell IPX

Related Documentation

Books	Chapter Topics
<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>	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
<ul style="list-style-type: none">• <i>Dial Solutions Configuration Guide</i>• <i>Dial Solutions Command Reference</i>	Dial Business Solutions and Examples Dial-In Port Setup DDR and Dial Backup Remote Node and Terminal Service Cost-Control and Large-Scale Dial Solutions VPDN
<ul style="list-style-type: none">• <i>Cisco IOS Switching Services Configuration Guide</i>• <i>Cisco IOS Switching Services Command Reference</i>	Switching Paths for IP Networks Fast Switching Autonomous Switching NetFlow Switching Optimum Switching Virtual LAN (VLAN) Switching and Routing Inter-Switch Link Protocol Encapsulation IEEE 802.10 Encapsulation LAN Emulation

Books	Chapter Topics
• <i>Bridging and IBM Networking Configuration Guide</i>	Transparent Bridging
• <i>Bridging and IBM Networking Command Reference</i>	Source-Route Bridging
	Remote Source-Route Bridging
	DLSw+
	STUN and BSTUN
	LLC2 and SDLC
	IBM Network Media Translation
	DSPU and SNA Service Point
	SNA Frame Relay Access Support
	APPN
	NCIA Client/Server Topologies
	IBM Channel Attach
• <i>Cisco IOS Software Command Summary</i>	
• <i>Dial Solutions Quick Configuration Guide</i>	
• <i>System Error Messages</i>	
• <i>Debug Command Reference</i>	
<p>Note The <i>Cisco Management Information Base (MIB) User Quick Reference</i> publication is no longer being published. For the latest list of MIBs supported by Cisco, see the <i>Cisco Network Management Toolkit</i> on Cisco Connection Online. On CCO, go to Software and Support: Software Center: Network Management Products: Cisco Network Management Toolkit: Cisco MIBs.</p>	

Other Supporting Documents

The following documents also relate to the Cisco 3600 series routers:

- Release Notes for Cisco IOS Release 11.3
- Product-specific Cisco IOS release notes for the Cisco 3600 series routers
- *Access Services Quick Configuration Guide*
- *Cisco IOS Software Release 11.3 and 11.3 T Caveats*
- *CIP Microcode Release Note and Upgrade Instructions*

Online Navigation

The Cisco IOS software documentation set is available as printed manuals or electronic documents. You can access Cisco documentation at Cisco Connection Online (CCO) on the World Wide Web and on the Cisco Documentation CD-ROM:

- Cisco 3600 series manuals and configuration notes:
 - Using a web browser, go to <http://www.cisco.com/>, click **Products & Ordering**, select **Cisco Documentation**, go to **Access Servers and Access Routers**, select **Modular Access Routers**, and click **Cisco 3600 Series Routers**.

- On the Documentation CD-ROM, go to **Cisco Product Documentation**, select **Access Servers and Access Routers**, go to **Modular Access Routers**, and click **Cisco 3600 Series Routers**.
- Cisco IOS documentation set and supporting documents:
 - On Cisco Connection Online (CCO), the path is **Products and Ordering: Documentation: Cisco Documentation: Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.3**.
 - On the Documentation CD, the path is **Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.3**.
- New feature documentation for Cisco IOS 11.3 T features:
 - On Cisco Connection Online (CCO), the path is **Products and Ordering: Documentation: Cisco Documentation: Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.3: Cisco IOS 11.3T New Features**.
 - On the Documentation CD, the path is **Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.3: Cisco IOS 11.3T New Features**.

For additional information about the Documentation CD-ROM and CCO, refer to the “Cisco Connection Online” section on page 23 and the “Documentation CD-ROM” section on page 24.

Service and Support

The following URL contains links to access helpful tips on configuring your Cisco products:

http://www.cisco.com/public/serv_tips.shtml

This URL is subject to change without notice. If it changes, point your web browser to **<http://www.cisco.com/>**, and follow this path: **Software & Support: Technical Tips** (button on left margin).

“Hot Tips” are popular tips and hints gathered from the Cisco Technical Assistance Center (TAC). Most of these documents are available from the TAC FAX-on-demand service. To access FAX-on-demand and receive documents at your FAX machine, from the USA, call 888-50-CISCO (888-502-4726). From other areas, call 415-596-4408.

The following sections are provided from the Technical Tips page:

- Access Dial Cookbook—Offers easy-to-follow “recipes” for sample router configurations. The first cookbook contains network diagrams, sample configurations, and troubleshooting commands for helping you set up and use dial technologies on Cisco access routers.
- Field Notices—Designed to provide notification of any critical issues regarding Cisco products. These include problem descriptions, safety or security issues, and hardware defects.
- Hardware—Technical Tips related to specific hardware platforms.
- Internetworking Features—Tips on using and deploying Cisco IOS software features and services.
- Sample Configurations—Actual configuration examples complete with topology and annotations.
- Software Products—MultiNet & Cisco Suite 100, Network Management, Cisco IOS Software Bulletins, and CiscoPro Configurations.
- Special Collections—Other Helpful Documents, Frequently Asked Questions, Security Advisories, References & RFCs, Case Studies, and the CiscoPro Documentation CD-ROM.

Cisco Connection Online

Cisco Connection Online (CCO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional information and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: <http://www.cisco.com>
- WWW: <http://www-europe.cisco.com>
- WWW: <http://www-china.cisco.com>
- Telnet: cco.cisco.com
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@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, a member of the Cisco Connection Family, is updated monthly. Therefore, it might be more current than printed documentation. To order additional copies of the Documentation CD-ROM, contact your local sales representative or call customer service. The CD-ROM package is available as a single package or as an annual subscription. You can also access Cisco documentation on the World Wide Web at <http://www.cisco.com>, <http://www-china.cisco.com>, or <http://www-europe.cisco.com>.

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

This document is to be used in conjunction with the documents in the "Related Documentation" section on page 18.

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