



Doc. No. 78-5031-02, Rev. B0

# Release Notes for the Cisco 1600 Series Routers for Cisco IOS Release 11.3

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**March 2, 1998**

These release notes describe the new features and significant software components for Cisco IOS Release 11.3, up to and including Release 11.3(2), for Cisco 1600 series routers. For detailed information about the features and caveats in these release notes, refer to the *Release Notes for Cisco IOS Release 11.3* publication, which contains features and caveats for all 11.3 platforms. This publication is available on the Documentation CD-ROM and on Cisco Connection Online (CCO), which are described in the section "Online Navigation."

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**Note** The Cisco 1600 Series Routers support a subset of the Cisco IOS features described in these release notes. The Cisco IOS features that are available for the Cisco 1600 Series Routers are listed in the section "Cisco IOS Feature Sets for Cisco 1600 Series Routers" on page 7 .

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## Introduction

These release notes discuss the following topics:

- Determining Your Cisco IOS Software Release on page 2
- Cisco 1600 Series Routers on page 2
- Related Documentation on page 3
- Online Navigation on page 6
- New Software Features in Release 11.3(1) on page 7
- Cisco IOS Feature Sets for Cisco 1600 Series Routers on page 7
- Upgrading to a New Software Release on page 12
- Memory Requirements on page 13
- Important Notes on page 13
- Caveats on page 13

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- Cisco Connection Online on page 14
- Documentation CD-ROM on page 15

## Determining Your Cisco IOS Software Release

To determine which Cisco IOS software release is running on your Cisco 1600 series router, login to the router, and enter the **show version** user EXEC command, as shown below:

```
router> show version
```

Output from the command is displayed in the second line, as follows:

```
Cisco Internetwork Operating System Software  
IOS (tm) 1600 Software (C1600-BNR2SY-L), Version 11.3(2), RELEASE SOFTWARE
```

Additional command output lines include more information, such as:

- Processor revision numbers
- Memory amounts
- Hardware IDs
- Partition information

## Cisco 1600 Series Routers

The Cisco 1600 series of access routers deliver the next-generation set of features and benefits for small-office Internet and intranet access: WAN flexibility, end-to-end security, end-to-end quality of service, ease of use, deployment, and management. Cisco 1600 series routers connect small offices with Ethernet LANs to the public Internet and to a company-internal intranet or corporate LAN through several WAN connections such as ISDN, asynchronous serial, and synchronous serial. Cisco 1600 series routers include the following models: the Cisco 1601, Cisco 1602, Cisco 1603, and Cisco 1604.

All Cisco 1600 series models include one Ethernet port, one built-in WAN port, and one WAN interface card expansion slot for additional connectivity and flexibility. The Cisco 1601 includes a built-in serial WAN port; the Cisco 1602 has an onboard 56-kbps four-wire data service unit/channel service unit (DSU/CSU); the Cisco 1603 has an ISDN BRI S/T port; and the Cisco 1604 includes an ISDN BRI U interface with a built-in NT1 device.

The following are 1-port WAN interface cards supported by the Cisco 1600 series routers:

- Serial
- ISDN BRI with S/T interface
- ISDN BRI with NT1 and U interface

## Related Documentation

All documents mentioned in this section are available in printed or electronic format. (See the section “Online Navigation” for more information on accessing electronic documentation.)

The following sections describe the documentation related to these release notes:

- Cisco 1600 Series-Specific Documentation
- Cisco IOS Documentation Set and Related Supporting Documents
- Software Configuration Tips on the Cisco TAC Home Page

## Cisco 1600 Series-Specific Documentation

The following documents are specific to the Cisco 1600 series routers:

- *Cisco 1600 Series Hardware Installation Guide*
- *Cisco 1600 Series Software Configuration Guide*
- *Installing WAN Interface Cards in Cisco 1600 Series Routers*
- *Cisco 1600 Series Router Configuration Notes*
- *Regulatory Compliance and Safety Information for the Cisco 1600*

## Cisco IOS Documentation Set and Related Supporting Documents

The following documents apply to the Cisco 1600 series routers:

- *Release Notes for Cisco IOS Release 11.3*
- *Product-Specific Release Notes*
- *Cisco IOS 11.3 Dial Solutions Quick Configuration Guide*
- Cisco IOS Release 11.3 Configuration Guides, Command References
- Cisco IOS 11.3T New Features
- *Cisco IOS 11.3 Command Summary*
- *Cisco IOS 11.3 System Error Messages*
- *Access Services Quick Configuration Guide*
- *Cisco IOS Software Release 11.3 and 11.3T Caveats*
- *CIP Microcode Release Note and Upgrade Instructions*
- *Cisco IOS 11.3 Debug Command Reference*

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**Note** Due to a production problem, many source-route bridging commands were omitted from the printed version of the *Cisco IOS Software Command Summary* (78-4746-01). For complete documentation of all source-route bridging commands, refer to the *Bridging and IBM Networking Command Reference* (78-4743-01). You can also obtain the most current documentation on the Documentation CD-ROM or Cisco Connection Online (CCO).

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The Cisco IOS configuration guides, command references, and chapter topics are as follows:

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

Books	Chapter Topics
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Switching Services Configuration Guide</i></li> <li>• <i>Cisco IOS Switching Services Command Reference</i></li> </ul>	Switching Paths for IP Networks <ul style="list-style-type: none"> <li>• Fast Switching</li> <li>• Autonomous Switching</li> <li>• NetFlow Switching</li> <li>• Optimum Switching</li> </ul> Virtual LAN (VLAN) Switching and Routing <ul style="list-style-type: none"> <li>• Inter-Switch Link Protocol Encapsulation</li> <li>• IEEE 802.10 Encapsulation</li> <li>• LAN Emulation</li> </ul>
<ul style="list-style-type: none"> <li>• <i>Bridging and IBM Networking Configuration Guide</i></li> <li>• <i>Bridging and IBM Networking Command Reference</i></li> </ul>	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 SNA Frame Relay Access Support APPN NCIA Client/Server Topologies IBM Channel Attach
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Software Command Summary</i></li> <li>• <i>Dial Solutions Quick Configuration Guide</i></li> <li>• <i>System Error Messages</i></li> <li>• <i>Debug Command Reference</i></li> </ul>	

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**Note** The *Cisco Management Information Base (MIB) User Quick Reference* publication is no longer being published. For the latest list of MIBs supported by Cisco, see the *Cisco Network Management Toolkit* on Cisco Connection Online. On CCO, go to *Software and Support*, select *Software Center*, and click *Network Management Products*. Next, select *Cisco Network Management Toolkit*, and click *Cisco MIBs*.

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## Software Configuration Tips on the Cisco TAC Home Page

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

[http://www.cisco.com/kobayashi/serv\\_tips.shtml](http://www.cisco.com/kobayashi/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:

- **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.

## Online Navigation

The Cisco IOS software documentation set is available as printed manuals or electronic documents. You can access Cisco 1600 series-specific documentation and Cisco IOS software documentation at Cisco Connection Online (CCO) on the World Wide Web and on the Cisco Documentation CD-ROM:

- Cisco 1600 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 1600 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 1600 Series Routers*.
- Cisco IOS documentation set and supporting documents:
  - On the Documentation CD-ROM, go to *Cisco Product Documentation*, select *Cisco IOS Software Configuration*, and then select *Cisco IOS Release 11.3*.
  - On CCO, go to *Software and Support*, and select *Documentation*. Next, select *Documentation*, click *Cisco IOS Software Configuration*, and then click *Cisco IOS Release 11.3*.

For additional information about the Documentation CD-ROM and CCO, refer to the sections “Cisco Connection Online” and “Documentation CD-ROM” at the end of these release notes.

## New Software Features in Release 11.3(1)

Release 11.3 supports features in the following categories:

- IBM Support
- Internet
- LAN Support
- Management
- Multimedia
- Quality of Service
- Security
- Switching
- Terminal Services
- WAN Optimization
- WAN Services

Detailed descriptions of the features are available on the Documentation CD-ROM and on CCO:

- On the Documentation CD-ROM, go to *Cisco Product Documentation*, select *Cisco IOS Software Configuration*, click *Cisco IOS Release 11.3*, and then select *Release Notes for Cisco IOS Release 11.3*. From the bulleted list, select *New Features for Release 11.3*.
- From the CCO web page, go to *Cisco Documentation*, click *Cisco IOS Software Configuration*, select *Cisco IOS Release 11.3*, and then select *Release Notes for Cisco IOS Release 11.3*. From the bulleted list, select *New Features for Release 11.3*.

## Cisco IOS Feature Sets for Cisco 1600 Series Routers

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

- Plus: a value-added option that contains a variable set of additional features depending on the hardware platform selected
- Plus 40: a value-added option that contains a variable set of additional features depending on the hardware platform selected, including 40-bit data encryption
- Plus 56: a value-added option that contains a variable set of additional features depending on the hardware platform selected, 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](mailto:export@cisco.com).

The following list shows which feature sets are supported on the Cisco 1600 series routers and access servers. These feature sets only apply to Cisco IOS Release 11.3:

- IP
- IP Plus

- IP Plus 40
- IP Plus 56
- IP/IPX
- IP/IPX Plus
- IP/IPX/AT/IBM
- IP/IPX/AT/IBM Plus
- IP/IPX/AT/IBM Plus 40
- IP/IPX/AT/IBM Plus 56

## Feature Set Tables

To determine what features are available with each feature set (software image), see Table 1. The table summarizes the features you can use when running a specific feature set on the Cisco 1600 series routers for Cisco IOS Release 11.3. The feature set table uses the following symbol conventions to identify features:

- Yes: the feature is offered in the feature set
- No: the feature is not offered in the feature set

**Table 1 Cisco IOS Software Feature Sets for the Cisco 1600 Series Routers**

Feature	Feature Set									
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/IPX	IP/IPX Plus	IP/IPX/AT/IBM	IP/IPX/AT/IBM Plus	IP/IPX/AT/IBM Plus 40	IP/IPX/AT/IBM Plus 56
<b>IBM Support</b>										
APPN High Performance Routing	No	No	No	No	No	No	No	No	No	No
APPN MIB Enhancements	No	No	No	No	No	No	No	No	No	No
APPN over Ethernet LAN Emulation	No	No	No	No	No	No	No	No	No	No
APPN Scalability Enhancements	No	No	No	No	No	No	No	No	No	No
Bisync Enhancements, includes: — Bisync 3780 Support — BSC Extended Addressing — Block Serial Tunneling (BSTUN) over Frame Relay	No	No	No	No	No	No	Yes	Yes	Yes	Yes
Cisco MultiPath Channel (CMPC)	No	No	No	No	No	No	No	No	No	No

**Table 1 Cisco IOS Software Feature Sets for the Cisco 1600 Series Routers (Continued)**

Feature	Feature Set									
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/IPX	IP/IPX Plus	IP/IPX/AT/IBM	IP/IPX/AT/IBM Plus	IP/IPX/AT/IBM Plus 40	IP/IPX/AT/IBM Plus 56
DLSw+ Enhancements, includes: — 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	No	No	No	No	No	No	Yes	Yes	Yes	Yes
FRAS Enhancements, includes: — FRAS Boundary Network Node Enhancement — FRAS Dial Backup over DLSw+ — FRAS DLCI Backup — FRAS Host — FRAS MIB — SRB over Frame Relay	No	No	No	No	No	No	Yes	Yes	Yes	Yes
SRB over FDDI on Cisco 4000, 4500, and 4700 Series Routers	No	No	No	No	No	No	No	No	No	No
TN3270 LU Nailing	No	No	No	No	No	No	No	No	No	No
TN3270 Server Enhancements	No	No	No	No	No	No	No	No	No	No
Token Ring LANE	No	No	No	No	No	No	No	No	No	No
Tunneling of Asynchronous Security Protocols	No	No	No	No	No	No	Yes	Yes	Yes	Yes
<b>Internet</b>										
DRP Server Agent	No	No	No	No	No	No	No	No	No	No
<b>IP Routing</b>										
Easy IP (Phase 1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hot Standby Router Protocol (HSRP) over ISL in Virtual LAN Configurations	No	No	No	No	No	No	No	No	No	No
IP Enhanced IGRP Route Authentication	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

Table 1 Cisco IOS Software Feature Sets for the Cisco 1600 Series Routers (Continued)

Feature	Feature Set									
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/IPX	IP/IPX Plus	IP/IPX/AT/IBM	IP/IPX/AT/IBM Plus	IP/IPX/AT/IBM Plus 40	IP/IPX/AT/IBM Plus 56
<b>LAN Support</b>										
AppleTalk Access List Enhancements	No	No	No	No	No	No	No	Yes	Yes	Yes
DECnet Accounting	No	No	No	No	No	No	No	No	No	No
IPX Named Access Lists	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
IPX SAP-after-RIP	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
NLSP Enhancements	No	No	No	No	No	Yes	No	Yes	Yes	Yes
NLSP Multicast Support	No	No	No	No	No	Yes	No	Yes	Yes	Yes
<b>Management</b>										
Cisco Call History MIB Command Line Interface	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cisco IOS Internationalization	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entity MIB, Phase 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMPv2C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Virtual Profiles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Multimedia</b>										
IP Multicast Load Splitting across Equal-Cost Paths	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
IP Multicast over ATM Point-to-Multipoint Virtual Circuits	No	No	No	No	No	No	No	No	No	No
IP Multicast over Token Ring LANs	No	No	No	No	No	No	No	No	No	No
Stub IP Multicast Routing	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
<b>Quality of Service</b>										
RTP Header Compression	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Security</b>										
Double Authentication	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Encrypted Kerberized Telnet	No	No	No	No	No	No	No	No	No	No
HTTP Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Per-User Configuration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reflexive Access Lists	No	No	No	No	No	No	No	No	No	No
TCP Intercept	No	No	No	No	No	No	No	No	No	No
Vendor-Proprietary RADIUS Attributes	No	No	No	No	No	No	No	No	No	No

Table 1 Cisco IOS Software Feature Sets for the Cisco 1600 Series Routers (Continued)

Feature	Feature Set									
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/IPX	IP/IPX Plus	IP/IPX/AT/IBM	IP/IPX/AT/IBM Plus	IP/IPX/AT/IBM Plus 40	IP/IPX/AT/IBM Plus 56
<b>Switching</b>										
AppleTalk Routing over ISL and IEEE 802.10 in Virtual LANs	No	No	No	No	No	No	No	No	No	No
CLNS and DECnet Fast Switching over PPP	No	No	No	No	No	No	No	No	No	No
DECnet/VINES/XNS over ISL, includes: — Banyan VINES Routing over ISL Virtual LANs — DECnet Routing over ISL Virtual LANs — XNS Routing over ISL Virtual LANs	No	No	No	No	No	No	No	No	No	No
Fast-Switched Policy Routing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX Routing over ISL Virtual LANs	No	No	No	No	No	No	No	No	No	No
VIP Distributed Switching Support for IP Encapsulated in ISL	No	No	No	No	No	No	No	No	No	No
<b>Terminal Services</b>										
Virtual Templates for Protocol Translation	No	No	No	No	No	No	No	No	No	No
<b>WAN Optimization</b>										
ATM MIB Enhancements	No	No	No	No	No	No	No	No	No	No
PAD Enhancements	No	No	No	No	No	No	No	No	No	No
PAD Subaddressing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>WAN Services</b>										
Bandwidth Allocation Control Protocol	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enhanced Local Management Interface (ELMI)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay Enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay MIB Extensions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay Router ForeSight	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN Advice of Charge	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN Caller ID Callback	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN NFAS	No	No	No	No	No	No	No	No	No	No
Layer 2 Forwarding—Fast Switching	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Leased Line ISDN at 128 kbps	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 1 Cisco IOS Software Feature Sets for the Cisco 1600 Series Routers (Continued)**

Feature	Feature Set									
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/IPX	IP/IPX Plus	IP/IPX/AT/IBM	IP/IPX/AT/IBM Plus	IP/IPX/AT/IBM Plus 40	IP/IPX/AT/IBM Plus 56
PPP over ATM	No	No	No	No	No	No	No	No	No	No
Telnet Extensions for Dialout	No	No	No	No	No	No	No	No	No	No
X.25 Enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X.25 on ISDN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X.25 Switching between PVCs and SVCs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X.28 Emulation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

## Upgrading to a New Software Release

If you are upgrading to Cisco IOS Release 11.3 from an earlier Cisco IOS software release, you should save your current configuration file before configuring your access server with the Cisco IOS Release 11.3 software. An unrecoverable error could occur during download or configuration.

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**Note** Before downloading a software upgrade, read Product Bulletin #703, *Cisco IOS Software Release Upgrade Paths and Packaging Simplification*. The information in this bulletin supersedes the following instructions.

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For instructions on downloading a current Cisco IOS release from the CCO Trivial File Transfer Protocol (TFTP) server, go to the following URL. This URL is subject to change without notice.

<http://www.cisco.com/kobayashi/sw-center>

The Software Center window is displayed.

- Step 1** Click **Cisco IOS Software**. The Cisco IOS Software window is displayed.
- Step 2** Click **Cisco IOS 11.3**. The Cisco 11.3 Software Upgrade Planner window is displayed.
- Step 3** Click **Download Cisco IOS 11.3 Software**. The Software Checklist window is displayed.
- Step 4** Select the appropriate information in each section of the Software Checklist window.
  - Hardware
  - Release
  - Software and hardware release
- Step 5** Click **Execute**. The software release is downloaded to your desktop computer.
- Step 6** Transfer the software release to a local TFTP server on your network, using a terminal emulation application such as TCP Connect.
- Step 7** Log onto your router. Copy the software release from your TFTP server to your router, using the **copy tftp** command.

## Memory Requirements

Table 2 describes the memory requirements for the Cisco 1600 series platform feature set supported by Cisco IOS Release 11.3. For Cisco routers to take advantage of the Release 11.3 features, you must upgrade the code or main system memory. Some platforms have specific chip or architecture requirements that affect what can be upgraded and in what increments.

**Table 2 Release 11.3 Memory Requirements**

Platform/Feature Set	Image Name	Minimum Required Code Memory	Required Main Memory	Release 11.3 Runs from
IP	c1600-y-1	4 MB Flash	2 MB DRAM	Flash
IP Plus	c1600-sy-1	6 MB Flash	4 MB DRAM	Flash
IP Plus 40	c1600-sy40-1	6 MB Flash	4 MB DRAM	Flash
IP Plus 56	c1600-sy56-1	6 MB Flash	4 MB DRAM	Flash
IP/IPX	c1600-ny-1	6 MB Flash	2 MB DRAM	Flash
IP/IPX Plus	c1600-nsy-1	6 MB Flash	4 MB DRAM	Flash
IP/IPX/AT/IBM	c1600-bnr2y-1	8 MB Flash	4 MB DRAM	Flash
IP/IPX/AT/IBM Plus	c1600-bnr2sy-1	8 MB Flash	6 MB DRAM	Flash
IP/IPX/AT/IBM Plus 40	c1600-bnr2sy40-1	8 MB Flash	6 MB DRAM	Flash
IP/IPX/AT/IBM Plus 56	c1600-bnr2sy56-1	8 MB Flash	6 MB DRAM	Flash

## Important Notes

This section describes noteworthy issues about using the Cisco IOS Release 11.3 software.

## Missing Source-Route Bridging Commands

Due to a production problem, many source-route bridging commands were omitted from the printed version of the *Cisco IOS Software Command Summary* (78-4746-01). For complete documentation of all source-route bridging commands, refer to the *Bridging and IBM Networking Command Reference* (78-4743-01). You can also obtain the most current documentation on the Documentation CD-ROM or Cisco Connection Online (CCO).

## Caveats

A complete list of the caveats, including descriptions and possible workarounds, is available on the Documentation CD-ROM and on CCO:

- On the Documentation CD-ROM, go to *Cisco Product Documentation*, select *Cisco IOS Software Configuration*, click *Cisco IOS Release 11.3*, then select *Release Notes for Cisco IOS Release 11.3*. From the bulleted list, select *Important Notes and Caveats for Release 11.3*.
- On CCO, go to *Software and Support*, and select *Documentation*. Next, go to *Cisco Documentation*, click *Cisco IOS Software Configuration*, select *Cisco IOS Release 11.3*, and then select *Release Notes for Cisco IOS Release 11.3*. From the bulleted list, click *Important Notes and Caveats for Release 11.3*.

Each of the following sections lists the areas where caveats exist for a specific software release.

## Caveats for Release 11.3(2)

Possibly unexpected behavior in Cisco IOS Release 11.3(2) exists in the following areas:

- Basic System Services
- IBM Connectivity
- Interfaces and Bridging
- IP Routing Protocols
- ISO CLNS
- Novell IPX, XNS, and Apollo Domain
- Wide-Area Networking

## Caveats for Release 11.3(1)

Possibly unexpected behavior in Cisco IOS Release 11.3(1) exists in the following areas:

- AppleTalk
- Basic System Services
- IBM Connectivity
- Interfaces and Bridging
- IP Routing Protocols
- Novell IPX, XNS, and Apollo Domain
- TCP/IP Host-Mode Services
- VINES
- Wide-Area Networking

## Cisco Connection Online

Cisco Connection Online (CCO) is the 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 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.

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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](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 Frequently Asked Questions (FAQ), contact [cco-help@cisco.com](mailto:cco-help@cisco.com). For additional information, contact [cco-team@cisco.com](mailto:cco-team@cisco.com).

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**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 the Cisco Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or [tac@cisco.com](mailto: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](mailto:cs-rep@cisco.com).

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## 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>.

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This document is to be used in conjunction with the Cisco IOS Release 11.3 configuration guides and command references.

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