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Release Notes for Cisco 7000 Family for Cisco IOS Release 12.0 XE

December 14, 1998

Cisco IOS Release 12.0(1)XE supports only the Cisco 7200VXR with NPE300. No other platforms are supported in 12.0(1)XE. Features currently exclusive to 12.0(1)XE will be available for other Cisco 7200 and 7500 platforms in Release 12.0(3)T.

These release notes describe the features for the Cisco 7000 family of routers that support Cisco IOS Release 12.0(1)XE. Cisco IOS Release 12.0 XE is based on Cisco IOS Release 12.0 T.

Use these release notes in conjunction with the *Release Notes for Cisco IOS Release 12.0* located on Cisco Connection Online (CCO) and the Documentation CD-ROM. All features supported in Release 12.0 and Release 12.0 T are supported in Release 12.0 XE.

In addition to the caveats listed in the "Caveats for Release 12.0 XE" section, the software caveats that apply to Release 12.0 and Release 12.0 T also apply to Release 12.0 XE. For information on other caveats that might apply to Cisco IOS Release 12.0XE, the caveats documents for Release 12.0 and Release 12.0T are located on CCO and on the Documentation CD-ROM.

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Introduction

Cisco Systems provides several software release “trains” based on a single version of Cisco IOS software. Maintenance releases of the Major train software (such as 12.0) deliver fixes to software defects only, thus providing the most stable software for your network, for the features you need. In addition to the Major train, there are Early Deployment (ED) trains. One ED train—Release 12.0 XE—delivers both fixes to software defects and support for new Cisco platforms and new features.

Detailed software configuration information on the new features and Cisco IOS commands supported by Release 12.0 XE are available on the Documentation CD-ROM and on the Web at <http://www.cisco.com>. For more information, refer to the “Related Documentation” section later in this document.

These release notes do not describe features that are available in Release 12.0 or 12.0T. For information about features in Release 12.0, refer to the *Release Notes for Cisco IOS Release 12.0*. For information about features in Release 12.0T, refer to the “Feature Sets Table” section later in this document.

The platform support delivered with this Early Deployment release will be incorporated into the 12.0(3)T release and subsequent 12.0T releases. Any software defects in 12.0XE will be resolved in 12.0(3)T.

System Requirements

This section describes the system requirements for Release 12.0 XE and includes the following sections:

- Memory Requirements, page 2
- Hardware Supported, page 3
- Determining Your Software Release, page 3
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Memory Requirements

Table 1 describes the memory requirements for the feature sets for the Cisco 7000 family of routers supported by Cisco IOS Release 12.0 XE.

Cisco 7200 series routers are shipped with a 16- or 20-MB Flash memory card.

Table 1 Memory Requirements for Cisco 7000 Family of Routers

Feature Set by Router	Image Name	Required Flash Memory	Required DRAM Memory	Release 12.0 XE Runs From
Cisco 7200 Series				
Enterprise/APPN/DBCONN	c7200-aejs-mz	16 MB	32 MB	RAM
Enterprise/APPN/DBCONN 40	c7200-aejs40-mz	16 MB	32 MB	RAM
Enterprise/APPN/DBCONN IPSec 56	c7200-aejs56i-mz	16 MB	32 MB	RAM
Enterprise/APPN	c7200-ajs-mz	16 MB	32 MB	RAM
Enterprise/APPN 40	c7200-ajs40-mz	16 MB	32 MB	RAM
Enterprise/APPN IPSec 56	c7200-ajs56i-mz	16 MB	32 MB	RAM

Table 1 Memory Requirements for Cisco 7000 Family of Routers (continued)

Feature Set by Router	Image Name	Required Flash Memory	Required DRAM Memory	Release 12.0 XE Runs From
Desktop/IBM	c7200-ds-mz	16 MB	32 MB	RAM
Desktop/IBM 40	c7200-ds40-mz	16 MB	32 MB	RAM
Desktop/IBM IPSec 56	c7200-ds56i-mz	16 MB	32 MB	RAM
Network Layer 3 Switching	c7200-inu-mz	16 MB	32 MB	RAM
IP	c7200-is-mz	16 MB	32 MB	RAM
IP 40	c7200-is40-mz	16 MB	32 MB	RAM
IP IPSec 56	c7200-is56i-mz	16 MB	32 MB	RAM
Enterprise	c7200-js-mz	16 MB	32 MB	RAM
Enterprise 40	c7200-js40-mz	16 MB	32 MB	RAM
Enterprise IPSec 56	c7200-js56i-mz	16 MB	32 MB	RAM

Hardware Supported

Cisco IOS Release 12.0 XE supports the following platform:

- Cisco 7200VXR series (including the Cisco 7204 VXR, Cisco 7206 VXR)

Determining Your Software Release

To determine the version of Cisco IOS software currently running on the Cisco 7000 family of routers, log on to the router and use the **show version EXEC** command. The following is sample output from the **show version** command. The version number is indicated on the second line as shown below:

```
Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (C7200-JS-M), Version 12.0(1)XE, RELEASE SOFTWARE
```

Additional command output lines include more information, such as processor revision numbers, memory amounts, hardware IDs, and partition information.

Feature Set Tables

The Cisco IOS software is packaged in feature sets (also called software images) depending on the platform. Each feature set contains a specific set of Cisco IOS features. Table 2 lists the Cisco IOS software feature sets available for the Cisco 7000 family of routers in Cisco IOS Release 12.0XE. Release 12.0XE supports the same feature sets as Release 12.0 and 12.0T, but it might also have new features supported by the Cisco 7200 family of routers. Table 3 and Table 4 list the features supported by each feature set for each platform. For a list of new features supported by Cisco IOS Release 12.0(1)XE, please refer to the “New and Changed Information” section of these release notes.

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 may 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.

Note This feature set table contains only a selected list of features based on Release 12.0 and 12.0T. This table is not a cumulative or complete list of all the features in each image. For a list of new features for Release 12.0(1)XE, refer to the “New and Changed Information” section later in this document.

Note In addition to the feature sets available for the Cisco 7000 family, some features are available through a special license. For example, NetFlow is only available if you purchase a NetFlow Switching license. For information on features that require a special license, refer to the Pricing Tool available on CCO under Products and Ordering.

Table 2 Cisco IOS Release 12.0 XE Supported Feature Sets for Cisco 7200 series routers

Feature Set	Software Image
IP	c7200-is-mz
IP 40	c7200-is40-mz
IP IPSec 56	c7200-is56i-mz
Desktop IBM	c7200-ds-mz
Desktop IBM 40	c7200-ds40-mz
Desktop IBM IPSec 56	c7200-ds56i-mz
Enterprise	c7200-js-mz
Enterprise 40	c7200-js40-mz
Enterprise IPSec 56	c7200-js56i-mz
Enterprise APPN	c7200-ajs-mz
Enterprise APPN 40	c7200-ajs40-mz
Enterprise APPN IPSec 56	c7200-ajs56i-mz
Enterprise APPN DBConn	c7200-aejs-mz
Enterprise APPN DBConn 40	c7200-aejs40-mz
Enterprise APPN DBConn IPSec 56	c7200-aejs56i-mz
Netflow Layer 3 Switching	c7200-inu-mz

Cisco IOS software is available in different feature sets depending on the platform. Table 3 and Table 4 list the feature sets for Cisco 7200 series routers.

The tables use the following conventions to identify feature sets:

- Yes—The feature set is offered for the platform
- No—The feature set is not offered for the platform
- In —The 12.0T maintenance release that first introduces a feature. For example, (2) means a feature is introduced in 12.0(2)T. If a cell is empty in this column, the feature was included in the initial base release. .

Table 3 Cisco IOS Software Feature Sets for the Cisco 7200 Series, Part 1

Features	In ¹	Desktop /IBM	Desktop /IBM 40	Desktop/IBM IPsec 56	IP	IP 40	IP IPsec 56
Connectivity							
Level 2 Tunnel Protocol (L2TP)	(1)	Yes	Yes	Yes	Yes	Yes	Yes
RIP Enhancements	(1)	Yes	Yes	Yes	Yes	Yes	Yes
IBM Support							
Bridging Code Rework		No	No	No	No	No	No
RIF Passthru in DLSw+		Yes	Yes	Yes	Yes	Yes	Yes
Internet							
WCCP		Yes	Yes	Yes	Yes	Yes	Yes
IP Routing							
Easy IP Phase 2-DHCP Server	(1)	Yes	Yes	Yes	Yes	Yes	Yes
Expanded IP Access Lists		Yes	Yes	Yes	Yes	Yes	Yes
MAC Address and Precedence Accounting		Yes	Yes	Yes	Yes	Yes	Yes
OSPF Packet Pacing	(1)	Yes	Yes	Yes	Yes	Yes	Yes
OSPF Point to Multipoint		Yes	Yes	Yes	Yes	Yes	Yes
LAN Support							
Fast EtherChannel I and II		Yes	Yes	Yes	Yes	Yes	Yes
Management							
Cisco IOS File System		Yes	Yes	Yes	Yes	Yes	Yes
Conditionally Triggered Debugging		Yes	Yes	Yes	Yes	Yes	Yes
Entity MIB		Yes	Yes	Yes	Yes	Yes	Yes
Expression MIB		Yes	Yes	Yes	Yes	Yes	Yes
ISDN MIB RFC 2127	(1)	Yes	Yes	Yes	Yes	Yes	Yes

System Requirements

Table 3 Cisco IOS Software Feature Sets for the Cisco 7200 Series, Part 1 (continued)

Features	In ¹	Desktop /IBM	Desktop /IBM 40	Desktop/IBM IPSec 56	IP	IP 40	IP IPSec 56
NetFlow Switching Enhancements		Yes	Yes	Yes	Yes	Yes	Yes
NPE-200 Network Processing Engine		Yes	Yes	Yes	Yes	Yes	Yes
SNMP Inform Request		No	No	No	No	No	No
SNMP Manager		Yes	Yes	Yes	Yes	Yes	Yes
Quality of Service							
CLI Search String	(1)	Yes	Yes	Yes	Yes	Yes	Yes
Committed Access Rate		Yes	Yes	Yes	Yes	Yes	Yes
Distributed Weighted Fair Queuing		Yes	Yes	Yes	Yes	Yes	Yes
Distributed Weighted Random Early Detection		Yes	Yes	Yes	Yes	Yes	Yes
Quality of Service Policy Propagation via BGP		Yes	Yes	Yes	Yes	Yes	Yes
Scalability							
IETF Compliant PPP Over ATM Scalability	(1)	Yes	Yes	Yes	Yes	Yes	Yes
Security							
Additional Vendor-Proprietary RADIUS Attributes		Yes	Yes	Yes	Yes	Yes	Yes
Automated Double Authentication		Yes	Yes	Yes	Yes	Yes	Yes
Certificate Authority Interoperability		No	No	Yes	No	No	Yes
Internet Key Exchange Security Protocol		No	No	Yes	No	No	Yes
IPSec Network Security		No	No	Yes	No	No	Yes
MS-CHAP Support		No	No	No	No	No	No
Named Method Lists for AAA Authentication & Accounting		Yes	Yes	Yes	Yes	Yes	Yes
Switching							
Automatic Protection Switching of Packet-over-SONET Circuits		Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Cisco IOS Software Feature Sets for the Cisco 7200 Series, Part 1 (continued)

Features	In ¹	Feature Set					
		Desktop /IBM	Desktop /IBM 40	Desktop/IBM IPsec 56	IP	IP 40	IP IPsec 56
Cisco Express Forwarding (CEF)		Yes	Yes	Yes	Yes	Yes	Yes
Cisco IOS STP Enhancements	(1)	Yes	Yes	Yes	Yes	Yes	Yes
Multicast Distributed Switching		Yes	Yes	Yes	Yes	Yes	Yes
WAN Services							
Always On Dynamic ISDN		No	No	No	No	No	No
ATM E.164 Auto Conversion		Yes	Yes	Yes	Yes	Yes	Yes
ATM PVC Trap Support	(1)	Yes	Yes	Yes	Yes	Yes	Yes
Cisco IOS IEEE 802.1Q	(1)	Yes	Yes	Yes	Yes	Yes	Yes
Mobile IP	(1)	Yes	Yes	Yes	Yes	Yes	Yes
MPPC -- MS PPP Compression		Yes	Yes	Yes	Yes	Yes	Yes
Multiple ISDN Switch Types		Yes	Yes	Yes	Yes	Yes	Yes
Multiprotocol over ATM		Yes	Yes	Yes	Yes	Yes	Yes
National ISDN Switch Types		Yes	Yes	Yes	Yes	Yes	Yes
Stackable Home Gateway		Yes	Yes	Yes	Yes	Yes	Yes
Time-Based Access Lists	(1)	Yes	Yes	Yes	Yes	Yes	Yes
VPDN MIB Feature		Yes	Yes	Yes	Yes	Yes	Yes

¹ Indicates the 12.0T maintenance release in which the feature was introduced.

Table 4 Cisco IOS Software Feature Sets for the Cisco 7200 Series, Part 2

Features	In ¹	Feature Set							
		Enterprise	Enterprise 40	Enterprise IPsec 56	Enterprise/APPN	Enterprise/APPN 40	Enterprise/APPN IPsec 56	Enterprise/APPN/DBCONN	Enterprise/APPN/DBCONN 40
Connectivity									
Level 2 Tunnel Protocol (L2TP)	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RIP Enhancements	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

System Requirements

Table 4 Cisco IOS Software Feature Sets for the Cisco 7200 Series, Part 2 (continued)

Features	In ¹	Feature Set							
		Enter- prise 40	Enter- prise IPSec 56	Enter- prise/ APPN	Enter- prise/ APPN 40	Enter- prise/ APPN IPSec 56	Enter- prise/ APPN/ DBCONN	Enter- prise/ APPN/ DBCONN 40	
IBM Support									
Bridging Code Rework		No	No	No	No	No	No	Yes	Yes
RIF Passthru in DLSw+		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Internet									
WCCP		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Routing									
Easy IP Phase 2-DHCP Server	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Expanded IP Access Lists		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MAC Address and Precedence Accounting		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF Packet Pacing	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF Point to Multipoint		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAN Support									
Fast EtherChannel I and II		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management									
Cisco IOS File System		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Conditionally Triggered Debugging		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entity MIB		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Expression MIB		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN MIB RFC 2127	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NetFlow Switching Enhancements		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NPE-200 Network Processing Engine		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMP Inform Request		No	No	No	No	No	No	No	Yes
SNMP Manager		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quality of Service									
CLI Search String	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4 Cisco IOS Software Feature Sets for the Cisco 7200 Series, Part 2 (continued)

Features	In ¹	Feature Set							
		Enter- prise 40	Enter- prise IPSec 56	Enter- prise/ APPN	Enter- prise/ APPN 40	Enter- prise/ APPN IPSec 56	Enter- prise/ APPN/ DBCONN	Enter- prise/ APPN/ DBCONN 40	
Committed Access Rate		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distributed Weighted Fair Queuing		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distributed Weighted Random Early Detection		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quality of Service Policy Propagation via BGP		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Scalability									
IETF Compliant PPP Over ATM Scalability	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Security									
Additional Vendor-Proprietary RADIUS Attributes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Automated Double Authentication		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Certificate Authority Interoperability		No	No	Yes	No	No	Yes	No	No
Internet Key Exchange Security Protocol		No	No	Yes	No	No	Yes	No	No
IPSec Network Security		No	No	Yes	No	No	Yes	No	No
MS-CHAP Support		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Named Method Lists for AAA Authentication & Accounting		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Switching									
Automatic Protection Switching of Packet-over-SONET Circuits		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cisco Express Forwarding (CEF)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cisco IOS STP Enhancements	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multicast Distributed Switching		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

New and Changed Information

Table 4 Cisco IOS Software Feature Sets for the Cisco 7200 Series, Part 2 (continued)

Features	In ¹	Feature Set							
		Enterprise	Enterprise 40	Enterprise IPsec 56	Enterprise/APPN	Enterprise/APPN 40	Enterprise/APPN IPsec 56	Enterprise/APPN/DBCONN	Enterprise/APPN/DBCONN 40
WAN Services									
Always On Dynamic ISDN		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATM E.164 Auto Conversion		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATM PVC Trap Support	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cisco IOS IEEE 802.1Q	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mobile IP	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MPPC -- MS PPP Compression		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multiple ISDN Switch Types		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multiprotocol over ATM		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
National ISDN Switch Types		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stackable Home Gateway		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time-Based Access Lists	(1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VPDN MIB Feature		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

¹ Indicates the 12.0T maintenance release in which the feature was introduced.

New and Changed Information

The following section lists the new features supported by the Cisco 7000 family of routers in Cisco IOS Release 12.0 XE.

New Features in Release 12.0(1)XE

The following new features are supported by the Cisco 7000 family of routers in Cisco IOS Release 12.0(1)XE. For easy online access, the feature modules are linked to the applicable Cisco IOS feature module if one exists. Click on the link to open the feature module.

Cisco 7200 VXR Series Router

The Cisco 7200 VXR series routers are the newest, multiservice members of the Cisco 7200 series routers. The Cisco 7200 VXR routers include the Cisco 7204VXR (4-slot router) and the Cisco 7206VXR (6-slot router). The Cisco 7200 VXR routers are designed to support gigabit capabilities and to improve data, voice, and video integration in both service provider and enterprise environments.

The Cisco 7200 VXR routers include a new midplane that incorporates an integrated time division multiplexing (TDM) switch and Multiservice Interchange (MIX) capability to support future voice applications. MIX interconnects on the midplane provide the ability to switch DS-0 time slots between multichannel T1 or E1 interfaces, much like a digital cross-connect or an add-drop multiplexer. This feature enables the Cisco 7200 VXR routers to switch DS-0 voice channels on a T1 or E1 interface from one voice processing port adapter to another voice processing port adapter. It also enables DS-0s to be switched through the Cisco 7200 VXR routers without any processing, a requirement in certain voice configurations.

The new Cisco 7200 VXR midplane also supports a high-speed network processing engine (NPE-300) to provide increased routing and process switching performance. The Cisco 7204VXR and Cisco 7206VXR both support the NPE-300 in addition to supporting all available network processing engines. The Cisco 7200 VXR routers with the NPE-300 installed support both 25-MHz and 50-MHz port adapter operation.

The Cisco 7206VXR supports high-density port adapters allowing up to 48 Ethernet or serial (clear-channel or channelized) ports, 24 Token Ring ports, 12 HSSI ports, or 6 Fast Ethernet or ATM ports. In multichannel networking environments, the Cisco 7200 VXR routers can support up to 48 channelized T1/E1 lines and up to 6 channelized T3/E3 lines.

NPE-300

The network processing engine NPE-300 is the newest and the highest performance processor in the family of network processing engines for the Cisco 7200 series routers. The NPE-300 performs at a rate of approximately 300,000 packets per second (pps) in Fast Switching, a 50 percent increase over the NPE-200 performance.

The NPE-300 uses a high-performance 262.5-MHz R7000 RISC processor and can support up to 256 MB of memory providing superior performance for both enterprise and service provider applications that require processor-intensive services. Network layer services such as traffic management, security, and QoS benefit significantly from the high performance of NPE-300.

A Cisco 7200 VXR router equipped with an NPE-300 can support up to six high-speed port adapters and can also support higher-speed port adapter interfaces including Gigabit Ethernet and OC-12 ATM. The NPE-300 uses SDRAM for storing all packets received or sent from network interfaces. The SDRAM also stores routing tables and network accounting applications. There are two independent SDRAM memory arrays in the system that allow concurrent access by port adapters and the processor. The NPE-300 can be configured with up to 256 MB of processor and packet memory, which is double the 128 MB memory limit on the NPE-200.

Caveats

This section contains the open caveats for the current Cisco IOS maintenance release only. The caveats document is also located on CCO and the Documentation CD-ROM.

If you have an account with CCO, you can use Bug Navigator II to find caveats of any severity for any release. Bug Navigator II is at <http://www.cisco.com/support/bugtools>, or from CCO, select Software & Support:Technical Tools:Bug Toolkit II

The software caveats that apply to Release 12.0 and Release 12.0 T also apply to Release 12.0 XE. There are currently no severity 1 or severity 2 caveats in Cisco IOS Release 12.0(1)XE.

Related Documentation

The following sections describe the documentation available for the Cisco 7000 family of routers. Typically these documents consist of hardware installation guides, Cisco IOS configuration and command references, system error messages, and feature modules, which are updates to the Cisco IOS documentation. Documentation is available as printed manuals or electronic documents, except for feature modules, which are available online only.

The most up-to-date documentation can be found on the Web via Cisco Connection Online (CCO) and on the latest Documentation CD-ROM. These electronic documents might contain updates and modifications made after the paper documents were printed. For information on CCO, refer to the "Cisco Connection Online" section on page 16. For more information on to the CD-ROM, refer to the "Documentation CD-ROM" section on page 18.

Release-Specific Documents

Use these release notes in conjunction with the Release Notes for Cisco IOS Release 12.0 located on Cisco Connection Online (CCO) and the Documentation CD-ROM.

For field notices and other important information relating to a specific software release, refer to the What's Hot for Cisco IOS Software Release 12.0 document located on CCO. On CCO, follow this path:

Software and Support: Software Center: Cisco IOS Software: Cisco IOS 12.0: What's Hot for Cisco IOS Software Release 12.0

For more information about the Cisco IOS software release process, see the *Types of Cisco IOS Software Releases: Product Bulletin #537* located on CCO and on the Documentation CD-ROM. On CCO, follow this path:

Software Center: Cisco Software Products: Cisco IOS Software: Cisco IOS 12.0: Release Process

Feature Modules

Feature modules describe new features supported by Release 12.0 T and are an update to the Cisco IOS documentation set. As updates, the features modules are available online only. The feature module information is included in the next printing of the Cisco IOS documentation set. Feature modules consist of a brief overview of the feature, benefits, configuration tasks, and a command reference.

For easy online access, feature modules are linked in the “New and Changed Information” section earlier in this release note. To open a feature module for a particular feature, click on the link.

To access the feature modules on CCO, follow this path:

Software and Support: Software Center: Cisco IOS Software: Software Configuration: Cisco IOS Release 12.0: New Feature Documentation: New Features in 12.0-Based Limited Lifetime Releases: New Features in Release 12.0XE

To access the feature modules on the documentation CD-ROM, follow this path:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Cisco IOS 12.0XE New Features

Hardware Documents

Hardware documentation for the Cisco 7000 family is listed in Table 5. These documents ship with the Cisco 7000 family.

To access hardware documents on CCO, follow this path:

Products and Ordering: Cisco Product Documentation: Core/High-End Routers

To access hardware documentation on the documentation CD-ROM, follow this path:

Cisco Product Documentation: Core/High-End Routers

Table 5 Hardware Documents for Cisco 7000 Family

Book	Chapter Topics
<i>Cisco 7200 VXR Installation and Configuration Guide</i>	Cisco 7200 VXR Product Overview Preparing for Installation Installing a Cisco 7200 VXR Router Observing System Startup and Performing a Basic Configuration Troubleshooting the Installation
<i>Cisco 7206 Installation and Configuration Guide</i>	Product Overview Preparing for Installation Installing the Cisco 7206 Performing a Basic Configuration of the Cisco 7206 Troubleshooting the Installation Maintaining the Cisco 7206 Industry-Standard Wiring Plans
<i>Cisco 7204 Installation and Configuration Guide</i>	Product Overview Preparing for Installation Installing the Cisco 7204 Performing a Basic Configuration of the Cisco 7204 Troubleshooting the Installation Maintaining the Cisco 7204 Industry-Standard Wiring Plans

Software Documents

Cisco IOS software documentation is listed in Table 6. Software documentation consists of the Cisco IOS configuration guides and command references and also includes several supporting documents. These documents are shipped with the Cisco 7000 family in electronic form on the Documentation CD-ROM, unless you specifically ordered the printed version of the documents.

To access software documents on CCO, follow this path:

Products and Ordering: Cisco Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0

To access software documentation on the documentation CD-ROM, follow this path:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0

Table 6 Software Documents for Cisco 7000 Family

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 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> 	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 and Firewalls IP Security and Encryption Passwords and Privileges Neighbor Router Authentication IP Security Options
<ul style="list-style-type: none"> • <i>Cisco IOS Interface Configuration Guide</i> • <i>Cisco IOS Interface Configuration Guide</i> 	Interface Configurations

Table 6 Software Documents for Cisco 7000 Family (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Dial Solutions Configuration Guide</i> • <i>Dial Solutions Command Reference</i> 	<ul style="list-style-type: none"> Dial-In Port Setup Dial-In Terminal Services Dial-on-Demand Routing (DDR) Dial Backup Dial-Out Modem Pooling Large-Scale Dial Solutions Cost-Control Solutions ISDN X.25 over ISDN VPDN Dial Business Solutions and Examples
<ul style="list-style-type: none"> • <i>Cisco IOS Switching Services Configuration Guide</i> • <i>Cisco IOS Switching Services Command Reference</i> 	<ul style="list-style-type: none"> Switching Paths for IP Networks Virtual LAN (VLAN) Switching and Routing
<ul style="list-style-type: none"> • <i>Bridging and IBM Networking Configuration Guide</i> • <i>Bridging and IBM Networking Command Reference</i> 	<ul style="list-style-type: none"> Transparent Bridging Source-Route Bridging Token Ring Inter-Switch Link 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 Cisco Database Connection NCIA Client/Server Topologies Cisco Mainframe Channel Connection Airline Product Set
<ul style="list-style-type: none"> • <i>Voice, Video, and Home Applications Configuration Guide</i> • <i>Voice, Video, and Home Applications Command Reference</i> 	<ul style="list-style-type: none"> Voice over IP Voice over Frame Relay Voice over ATM Voice over HDLC Video Support Universal Broadband Features
<ul style="list-style-type: none"> • <i>Quality of Service Solutions Configuration Guide</i> • <i>Quality of Service Solutions Command Reference</i> 	<ul style="list-style-type: none"> Classification Scheduling Packet Drop Traffic Shaping ATM QoS SNA QoS Line Protocols
<ul style="list-style-type: none"> • <i>Configuration Guide Master Index</i> • <i>Command Reference Master Index</i> 	
<ul style="list-style-type: none"> • <i>Cisco IOS Software Command Summary</i> • <i>Cisco IOS System Error Messages</i> • <i>Debug Command Reference</i> • <i>Dial Solutions Quick Configuration Guide</i> 	

Service and Support

For service and support for a product purchased from a reseller, contact the reseller. Resellers offer a wide variety of Cisco service and support programs, which are described in the section “Service and Support” in the information packet that shipped with your product.

Note If you purchased your product from a reseller, you can access CCO as a guest. CCO is Cisco Systems’ primary real-time support channel. Your reseller offers programs that include direct access to CCO services.

For service and support for a product purchased directly from Cisco, use CCO.

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

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 650-596-4408.

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.

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](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 listed in the "Related Documentation" section.

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