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Release Notes for the Cisco 1700 Series Routers for Cisco IOS Release 12.0(1)XA

November 2, 1998

These release notes describe the new features and significant software components for Cisco IOS Release 12.0(1)XA for Cisco 1700 series routers.

Note The Cisco 1700 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 1700 series routers are listed in the section “Cisco IOS Feature Sets for Cisco 1700 Series Routers” on page 3.

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System Requirements

This section describes the system requirements for Release 12.0(1)XA and includes the following sections:

- Memory Requirements, page 2
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Memory Requirements

Table 1 describes the memory requirements for the Cisco IOS feature sets supported by Cisco IOS Release 12.0(1)XA on Cisco 1700 series routers.

Table 1 Release 12.0 Memory Requirements for Cisco 1700 Routers

Platform/Feature Set	Image Name	Minimum Required Code Memory	Required Main Memory	Release 12.0 Runs from
IP	c1700-y-mz	4 MB Flash	16 MB DRAM	RAM
IP Plus	c1700-sy-mz	4 MB Flash	16 MB DRAM	RAM
IP Plus 40	c1700-sy40-mz	4 MB Flash	20 MB DRAM	RAM
IP Plus 56	c1700-sy56-mz	4 MB Flash	20 MB DRAM	RAM
IP/IPX	c1700-ny-mz	4 MB Flash	16 MB DRAM	RAM
IP/IPX/AT/IBM	c1700-bnr2y-mz	4 MB Flash	20 MB DRAM	RAM
IP Plus/IPX/AT/IBM	c1700-bnr2sy-mz	4 MB Flash	20 MB DRAM	RAM
IP/Firewall	c1700-oy-mz	4 MB Flash	16 MB DRAM	RAM
IP/Firewall Plus IPSEC 56	c1700-osy56i-mz	4 MB Flash	20 MB DRAM	RAM
IP/IPX/Firewall Plus	c1700-nosy-mz	4 MB Flash	20 MB DRAM	RAM
IP/IPX/AT/IBM/Firewall Plus IPSEC 56	c1700-bnor2sy56i-mz	8 MB Flash	24 MB DRAM	RAM
IP Plus IPSEC 3DES	c1700-k2sy-mz	4 MB Flash	20 MB DRAM	RAM
IP/Firewall Plus IPSEC 3DES	c1700-k2osy-mz	4 MB Flash	20 MB DRAM	RAM
IP/IPX/AT/IBM/Firewall Plus IPSEC 3DES	c1700-bk2nor2sy-mz	8 MB Flash	24 MB DRAM	RAM

Cisco 1720 Router

The Cisco 1720 router extends the leadership established by Cisco's 1700 series routers for small businesses and small branch offices, offering more functionality and flexibility for higher-end applications. In addition to meeting the needs of Internet and intranet access, the Cisco 1720 router offers the following key advantages:

- Support for virtual private networking
- Flexibility through modular architecture
- Network device integration

The Cisco 1720 router offers the following key components:

- One autosensing 10/100 Fast Ethernet port

- Two WAN interface card slots
- One auxiliary (AUX) port (up to 115.2 kbps asynchronous serial)
- One console port
- RISC Processor for high performance encryption
- One internal expansion slot for support of future hardware-assisted services such as encryption (up to T1/E1) and compression
- DRAM memory: 16 MB default, expandable to 48 MB
- Flash memory: 4 MB default, expandable to 16 MB
- Desktop form factor

The flexible Cisco 1720 router supports any combination of one or two of the following WAN interface cards:

- WIC-1T: One port high speed serial (sync/async)
- WIC-2T: Two port high speed serial (sync/async)
- WIC-2A/S: Two port low speed serial (sync/async) (up to 128 kbps)
- WIC-1B-S/T: One port ISDN BRI S/T
- WIC-1B-U: One port ISDN BRI U
- WIC-1DSU-56K4: One port integrated 56/64 kbps 4-wire DSU/CSU
- WIC-1DSU-T1: One port integrated T1 / Fractional T1 DSU/CSU

These WAN interface cards are shared with the Cisco 1600, 2600, and 3600 routers.

Cisco IOS Feature Sets for Cisco 1700 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 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 12.0(1)XA:

- IP
- IP Plus
- IP Plus 40
- IP Plus 56
- IP/IPX
- IP/IPX/ AT/IBM
- IP/Firewall
- IP/Firewall Plus IPSEC 56
- IP/IPX/Firewall Plus
- IP/IPX/AT/IBM/Firewall Plus IPSEC 56
- IP Plus IPSEC 3DES
- IP/Firewall Plus IPSEC 3DES
- IP/IPX/AT/IBM/Firewall Plus IPSEC 3DES

Feature Set Tables

To determine what features are available with each feature set (software image), see Table 2. The table summarizes the features you can use when running a specific feature set on the Cisco 1700 series routers for Cisco IOS Release 12.0(1)XA. 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.

Note This feature set table lists only new features. This table is not a cumulative or complete representation of all the features in each image. For a full list of all the features available in each image, refer to the Cisco Product Catalog.

Table 2 Cisco IOS Software Feature Sets for the Cisco 1700 Routers, Part 1

Features	Feature Set					
	IP	IP Plus	IP Plus 40	IP Plus 56	IP/FW	IP/FW Plus IPSec 56
IBM Support						
Bridging Code Rework	Yes	Yes	Yes	Yes	Yes	Yes
IP Routing						
IP Type of Service and Precedence for GRE Tunnels	Yes	Yes	Yes	Yes	Yes	No
OSPF Point to Multipoint	Yes	Yes	Yes	Yes	Yes	Yes
Management						
Cisco IOS File System	Yes	Yes	Yes	Yes	Yes	Yes
Entity MIB	Yes	Yes	Yes	Yes	Yes	Yes
Expression MIB	Yes	Yes	Yes	Yes	Yes	Yes
Conditionally Triggered Debugging	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia						
Protocol-Independent Multicasts Version 2	Yes	Yes	Yes	Yes	Yes	Yes
WAN Services						
Always On/Direct ISDN	Yes	Yes	Yes	Yes	Yes	Yes
Dialer Watch	Yes	Yes	Yes	Yes	Yes	Yes
MPPC-MS PPP Compression	Yes	Yes	Yes	Yes	Yes	Yes
MS Callback	Yes	Yes	Yes	Yes	Yes	Yes
VPDN MIB Feature	No	Yes	Yes	Yes	No	Yes

Table 3 Cisco IOS Software Feature Sets for the Cisco 1700 Routers, Part 2

Features	Feature Set							
	IP/IPX	IP/IPX/ FW Plus	IP/IPX/ AT/IBM	IP/IPX/ AT/IBM Plus	IP/IPX/ AT/IBM/ FW Plus IPSec 56	IP Plus IPSec 3DES	IP/FW Plus IPSec 3DES	IP/IPX/ AT/IBM/ FW Plus IPSec 3DES
IBM Support								
Bridging Code Rework	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Routing								
IP Type of Service and Precedence for GRE Tunnels	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF Point to Multipoint	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management								
Cisco IOS File System	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
Conditionally Triggered Debugging	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia								
Protocol-Independent Multicasts Version 2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAN Services								
Always On/Direct ISDN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dialer Watch	Yes	Yes	Yes		Yes	Yes	Yes	Yes
MPPC-MS PPP Compression	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MS Callback	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VPDN MIB Feature	No	Yes	No	Yes	Yes	Yes	Yes	Yes

New and Changed Information

The following sections list the new features supported by the Cisco 1700 series routers in Cisco IOS Release 12.0(1)XA.

New Features in Release 12.0(1)XA

The following new features in Cisco IOS Release 12.0(1)XA are available for the Cisco 1700 series. Release 12.0(1)XA also supports the features in Cisco IOS Release 12.0(1)T, which are described in the *Release Notes for Cisco IOS Release 12.0 T*. To access this document, see the section, “Related Documentation.”

Support for Cisco 1720

This is the first Cisco IOS release to include support for the Cisco 1720.

Triple DES Encryption

IPSec supports the Triple DES encryption algorithm (168-bit) in addition to 56-bit encryption. Triple DES (3DES) is a strong form of encryption that allows sensitive information to be transmitted over untrusted networks. It enables customers, particularly in the finance industry, to utilize network layer encryption.

Open Caveats—Release 12.0(1)XA

This section describes possibly unexpected behavior by Release 12.0(1)XA. This section describes only severity 1 and 2 caveats.

In addition, some caveats in Cisco IOS Releases 12.0(1) T apply to Release 12.0(1)XA. For descriptions of Cisco IOS Release 12.0 T caveats, see the *Cisco IOS Software Release 12.0 T Caveats*. To access this document, see the section, “Related Documentation.”

Dialer Interface

- CSCdk46346

If a crypto map is applied to a dialer interface, dialer pools are used, and a dialup interface (e.g., BRI) is used as the physical interface, when that dialup interface is unbound from the dialer it may cause a system reload or mis-alignments. A workaround is to not use dialer pools.

BiSYNC/BSTUN

- CSCdk29115
- When BiSYNC/BSTUN is configured for passing ASCII data on 1T and 2T serial WICs, data transfer either fails or data gets corrupted. The only exception is when the data length is exactly 50 bytes. Passing EBCDIC data works fine.

Related Documentation

The following sections describe the documentation available for the Cisco 1700 series routers. Typically these documents consist of hardware installation guides, software installation guide 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 later in this document. For more information on to the CD-ROM, refer to the “Documentation CD-ROM” section later in this document.

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

- Cisco IOS Software Documentation
- Hardware Documents
- Software Documents

Cisco IOS Software Documentation

Release 12.0(1)XA release notes should be used in conjunction with the *Release Notes for Cisco IOS Release 12.0 T*. This document describes the release from which the current special release is derived.

Additional documentation for Cisco IOS Release 12.0 T is listed below.

To access release-specific documents on CCO, follow this path:

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

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

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

The following documents apply to Cisco IOS Release 12.0(1)T:

- *Cisco IOS 12.0 Configuration Guides, Command References*
- *Cisco IOS 12.0 Dial Solutions Quick Configuration Guide*
- *Cisco IOS 12.0 System Error Messages*
- *Cisco IOS 12.0 Debug Command Reference*
- *Cisco IOS 12.0 Command Summary*
- *Cisco IOS 12.0 New Features*
- *Release Notes for Cisco IOS Release 12.0*
- *Product Specific Release Notes for Cisco IOS Release 12.0*
- *Cisco IOS Software Release 12.0 and 12.0 T Caveats*
- *Cisco IOS 12.0 T New Features*
- *CIP Microcode Release Note and Upgrade Instructions*
- *Feature Pack Information*

Hardware Documents

Hardware documentation for the Cisco 1700 series routers is listed below. These documents ship with the Cisco 1700 series routers.

To access hardware documents on CCO, follow this path:

Products and Ordering: Cisco Documentation: Cisco Product Documentation/Access Servers and Access Routers/Modular Access Routers/Cisco 1700

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

Cisco Product Documentation: Cisco Product Documentation/Access Servers and Access Routers/Modular Access Routers/Cisco 1700

The following documents are specific to the Cisco 1700 series routers:

- *Quick Start Guide*
- *Cisco 1700 Router Hardware Installation Guide*
- *Cisco 1700 Router Software Configuration Guide*
- *Upgrading Memory in Cisco 1700 Routers*

Software Documents

Cisco IOS software documentation is listed in Table 4. 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 1700 series routers 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 4 Software Documents for Cisco 1700 Series Routers

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

Table 4 Software Documents for Cisco 1700 Series Routers (*continued*)

Books	Chapter Topics
<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 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> 	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"> • <i>Cisco IOS Software Command Summary</i> • <i>Dial Solutions Quick Configuration Guide</i> • <i>System Error Messages</i> • <i>Debug Command Reference</i> 	

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*.

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 415-596-4408.

The following sections are provided from the Technical Tips page:

- Access Dial Cookbook—Cisco Configuration Cookbooks offer easy-to-follow “recipes” for sample router configurations. The first cookbook in this new series contains network diagrams, sample configurations, and troubleshooting commands designed to help you set up and use various 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](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>.

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