



Text Part Number: 78-6004-03

Release Notes for Cisco MC3810 for Cisco IOS Release 12.0

December 7, 1998

These release notes describe new features for the Cisco MC3810 multiservice access concentrator that support Cisco IOS Release 12.0, up to and including Release 12.0(2). Cisco IOS Release 12.0(2) is based on Cisco IOS Release 12.0(1). These release notes are updated with each maintenance release of the Cisco IOS software, which is typically every 6 weeks.

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 a list of software caveats that apply to Release 12.0(2), see the “Caveats” section on page 13.

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Introduction

As part of an enterprise backbone or as customer premises equipment (CPE) to service provider-managed network services, the Cisco MC3810 multiservice access concentrator reduces operating costs and complexity and increases network throughput and performance. Interoperable with the broad Cisco networking portfolio, the Cisco MC3810 is a practical investment in today's networking requirements and a strategic investment in converging data, voice, and video applications. The MC3810 is fully supported by Cisco IOS software for multiprotocol routing, bridging, and Systems Network Architecture (SNA).

To make file management easier, the Cisco MC3810 provides a complete file system for software images, message files, and reports. The standard Flash memory size is 8 MB, and a 16-MB upgrade option is available. The 16-MB version can hold two code images simultaneously for fail-safe upgrades.

Management and configuration of the Cisco MC3810 should be familiar to the Cisco IOS user and compatible with existing management systems. As such, it provides a superset of the Cisco command-line interface (CLI). The Cisco MC3810 can be managed by standard Cisco management platforms and facilities such as CiscoView and the native remote log-in facilities provided by Telnet and rlogin. Three types of configuration interfaces are provided:

- Cisco CLI
- HTTP-based configuration server
- SNMP-based Management Information Base (MIB)

The HTTP-based interface allows configuration from any Web browser such as Netscape Navigator or Microsoft Explorer. The SNMP MIB allows management of the Cisco MC3810 from SNMP managers (for example, HP OpenView).

System Requirements

This section describes the system requirements for Release 12.0(2) and includes the following sections:

- Memory Requirements, page 3
- Hardware Supported, page 3
- Determining Your Cisco IOS Software Release, page 3
- Updating to a New Release, page 3
- Feature Set Table, page 3

Memory Requirements

Table 1 lists the memory requirements for the Cisco MC3810 multiservice concentrator for Cisco IOS Release 12.0(2).

Table 1 Memory Requirements for the Cisco MC3810

Feature Set	Image Name	Required Flash Memory	Required DRAM Memory	Runs From
IP/IPX/AT/IBM/Voice	mc3810-binr3v2-mz	8 MB	32 MB	RAM
IP/IPX/IBM/ATM	mc3810-a2inr3-mz	8 MB	32 MB	RAM
IP/IPX/AT/IBM/ATM/Voice	mc3810-a2binr3v2	8 MB	32 MB	RAM

Hardware Supported

Cisco IOS Release 12.0(2) supports the Cisco MC3810 multiservice access concentrator platform.

Determining Your Cisco IOS Software Release

To determine the version of Cisco IOS software currently running on the Cisco MC3810 multiservice access concentrator, log into the platform 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) MC3810 Software (mc3810-binr3v2-mz), Version 12.0(2), RELEASE SOFTWARE
```

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

Updating to a New Release

At the time of printing, no product bulletins were available for upgrading to Cisco IOS Release 12.0. For general information on updating to a new software release, refer to the *Cisco IOS Software Release Upgrade Paths and Packaging Simplification product bulletin* located on CCO. On CCO, follow this path:

Products and Ordering: More Information: Product Bulletins. Scroll to **Software**. Under **Cisco IOS 11.3**, click the **Upgrade Paths** bulletin.

This bulletin does not contain information specific to Release 12.0, but it does provide updating information that might apply to Release 12.0.

Feature Set Table

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. The following section lists the feature set matrix and the features supported by each feature set.

The feature set matrix (see Table 2) shows the feature set organization and lists which feature sets are available on the MC3810 for Release 12.0(2), including the feature set name, the feature set matrix term, the software image name, and the platforms supported.

Table 2 lists the features and feature sets supported by the Cisco IOS Release 12.0 for the MC3810 platform. This table uses the following conventions to identify features:

- Yes—The feature is supported in the feature set.
- No—The feature is not supported in the feature set.

Note This feature set table contains only a selected list of features. This table is not a cumulative or complete list of all the features in each image.

Table 2 Cisco IOS Feature Set for the Cisco MC3810

Features	Feature Set		
	IP/IPX/AT/ IBM/Voice	IP/IPX/IBM/ ATM	IP/IPX/AT/ IBM/ATM/ Voice
ATM Access			
Frame Relay—ATM Interworking	No	Yes	Yes
RFC 1483	No	Yes	Yes
rtVBR, nrtVBR, CBR, UBR	No	Yes	Yes
Structured CES ¹	No	Yes	Yes
Traffic Shaping	No	Yes	Yes
UNI 3.1 ²	No	Yes	Yes
Voice over ATM	No	No	Yes
IBM Support			
APPN	No	No	No
APPN High- Performance Routing	No	No	No
APPN MIB Enhancements	No	No	No
APPN over Ethernet LAN Emulation	No	No	No
APPN Scalability Enhancements	No	No	No
BAN for SNA Frame Relay Support	Yes	Yes	Yes
Bridging Code Rework	Yes	Yes	Yes
Caching and Filtering	Yes	Yes	Yes
DLSw+	Yes	Yes	Yes
DLSw (RFC 1795)	Yes	Yes	Yes
DLSw Version 2 (RFC 1266)	Yes	Yes	Yes
Downstream PU Concentration (DSPU)	Yes	Yes	Yes
Frame Relay SNA Support (RFC 1490)	Yes	Yes	Yes

Table 2 Cisco IOS Feature Set for the Cisco MC3810 (continued)

Features	Feature Set		
	IP/IPX/AT/ IBM/Voice	IP/IPX/IBM/ ATM	IP/IPX/AT/ IBM/ATM/ Voice
NCIA	No	No	No
NetView Native Service Point	Yes	Yes	Yes
QLLC	No	No	No
Response Time Reporter	No	No	No
RIF Passthru in DLSw+	Yes	Yes	Yes
SDLC Integration	Yes	Yes	Yes
SDLC Transport (STUN)	Yes	Yes	Yes
SDLC-to-LAN Conversion (SDLLC)	Yes	Yes	Yes
SNA and NetBIOS WAN Optimization	Yes	Yes	Yes
SRB/RSRB	Yes	Yes	Yes
SRT	No	No	No
SRTL B	Yes	Yes	Yes
TG/COS	No	No	No
TN3270	No	No	No
TN3270 LU Nailing	No	No	No
TN3270 Server Enhancements	No	No	No
IP Routing			
BGP	Yes	Yes	Yes
BGP4	Yes	Yes	Yes
EGP	Yes	Yes	Yes
Enhanced IGRP	Yes	Yes	Yes
Enhanced IGRP Optimizations	Yes	Yes	Yes
ES-IS	No	No	No
GRE VPN	Yes	Yes	Yes
IGRP	Yes	Yes	Yes
IS-IS	No	No	No
Named IP Access Control List	Yes	Yes	Yes
Network Address Translation (NAT)	Yes	Yes	Yes
NHRP	Yes	Yes	Yes
OSPF	Yes	Yes	Yes
OSPF Not-So-Stubby-Areas (NSSA)	Yes	Yes	Yes
OSPF On Demand Circuit (RFC 1793)	Yes	Yes	Yes

Table 2 Cisco IOS Feature Set for the Cisco MC3810 (continued)

Features	Feature Set		
	IP/IPX/AT/ IBM/Voice	IP/IPX/IBM/ ATM	IP/IPX/AT/ IBM/ATM/ Voice
Protocol-Independent Multicast (PIM)	Yes	Yes	Yes
PIM Version 2	Yes	Yes	Yes
Policy-Based Routing	Yes	Yes	Yes
RIP	Yes	Yes	Yes
RIP Version 2	Yes	Yes	Yes
LAN Support			
Apollo Domain	No	No	No
AppleTalk Phase 2	Yes	No	Yes
Banyan VINES	No	No	No
Concurrent Routing and Bridging	Yes	Yes	Yes
DECnet IV	No	No	No
DECnet V	No	No	No
GRE	Yes	Yes	Yes
Integrated Routing and Bridging (IRB)	Yes	Yes	Yes
IP	Yes	Yes	Yes
LAN Extension Host	No	No	No
Multiring	No	No	No
Novell IPX	Yes	Yes	Yes
OSI	No	No	No
Source-Route Bridging	Yes	Yes	Yes
Transparent and Translational Bridging	Yes	Yes	Yes
VLANs (ISL & IEEE 802.10)	No	No	No
XNS	No	No	No
Management			
AutoInstall	Yes	Yes	Yes
Automatic Modem Configuration	Yes	Yes	Yes
HTTP Server	Yes	Yes	Yes
Cisco IOS File System	Yes	Yes	Yes
RMON Events and Alarms	Yes	Yes	Yes
RMON Full	No	No	No
SNMP	Yes	Yes	Yes
SNMP Inform Request	Yes	Yes	Yes

Table 2 Cisco IOS Feature Set for the Cisco MC3810 (continued)

Features	Feature Set		
	IP/IPX/AT/ IBM/Voice	IP/IPX/IBM/ ATM	IP/IPX/AT/ IBM/ATM/ Voice
Telnet	Yes	Yes	Yes
VPDN MIB Feature	Yes	Yes	Yes
Multimedia and Quality of Service			
Generic Traffic Shaping	Yes	Yes	Yes
Random Early Detection (RED)	No	No	No
RSVP	No	No	No
Other Routing			
AURP	Yes	No	Yes
IPX RIP	Yes	Yes	Yes
NLSP	Yes	Yes	Yes
RTMP	Yes	No	Yes
SMRP	Yes	No	Yes
S RTP	No	No	No
Protocol Translation			
LAT	No	No	No
PPP	No	No	No
Rlogin	No	No	No
Telnet	No	No	No
TN3270	No	No	No
X.25	No	No	No
Remote Node			
ARAP 1.0/2.0	Yes	No	Yes
Asynchronous Master Interfaces	No	No	No
ATCP	No	No	No
CPPP	No	No	No
CSLIP	No	No	No
DHCP	No	No	No
IP Pooling	No	No	No
IPX and ARAP on Virtual Async Interfaces	No	No	No
IPXCP	No	No	No
MacIP	No	No	No
NASI	No	No	No
NetBEUI over PPP	No	No	No
PPP	Yes	Yes	Yes
SLIP	Yes	Yes	Yes

Table 2 Cisco IOS Feature Set for the Cisco MC3810 (continued)

Features	Feature Set		
	IP/IPX/AT/ IBM/Voice	IP/IPX/IBM/ ATM	IP/IPX/AT/ IBM/ATM/ Voice
Scalability			
Airline Product Set (ALPS)	No	No	No
Cisco IOS File System	Yes	Yes	Yes
Entity MIB	Yes	Yes	Yes
Expression MIB	Yes	Yes	Yes
OSPF Point to Multipoint	Yes	Yes	Yes
Per Port Debugging (Conditionally Triggered Debugging)	Yes	Yes	Yes
SNMP Manager	Yes	Yes	Yes
Security			
Access Lists	Yes	Yes	Yes
Access Security	Yes	Yes	Yes
Additional Vendor-Proprietary RADIUS Attributes	Yes	Yes	Yes
Authenticating ACLs	No	No	No
Automated Double Authentication	No	No	No
Certificate Authority Interoperability	No	No	No
Context-Based Access Control (CBAC)	No	No	No
Extended Access Lists	Yes	Yes	Yes
Internet Key Exchange Security Protocol	No	No	No
IPSec Network Security	No	No	No
Kerberized Login	No	No	No
Kerberos V Client Support	No	No	No
Lock and Key	No	No	No
Mac Security for Hubs	Yes	Yes	Yes
Md5 Routing Authentication	No	No	No
MS-CHAP Support	Yes	No	Yes
Named Method Lists for AAA Authentication & Accounting	Yes	Yes	Yes
Network Layer Encryption (40-bit or Export Controlled 56-bit DES)	No	No	No
RADIUS	No	No	No
Router Authentication	No	No	No

Table 2 Cisco IOS Feature Set for the Cisco MC3810 (continued)

Features	Feature Set		
	IP/IPX/AT/ IBM/Voice	IP/IPX/IBM/ ATM	IP/IPX/AT/ IBM/ATM/ Voice
Sublock Phase 1	Yes	Yes	Yes
TACACS+	Yes	Yes	Yes
Switching			
Enhanced ATM VC Configuration and Management	No	Yes	Yes
Multiple ISDN Switch Types	No	No	No
Terminal Services			
LAT	No	No	No
Rlogin	No	No	No
Telnet	No	No	No
TN3270	No	No	No
X.25 Pad	No	No	No
Xremote	No	No	No
Voice/Multimedia			
Analog Signaling	Yes	No	Yes
E1 CAS Signaling ³	Yes	No	Yes
Gain Control	Yes	No	Yes
Local Dialing	Yes	No	Yes
Multiflex Trunk	Yes	Yes	Yes
Multiple Ring Tones	Yes	No	Yes
Off-net Dialing	Yes	No	Yes
On-net/Off-net Call Rerouting	Yes	No	Yes
Pass-Through Voice	Yes	Yes	Yes
PLAR	Yes	No	Yes
Remote Dialing	Yes	No	Yes
T1 CAS Signaling	Yes	No	Yes
Voice Activity Detection	Yes	No	Yes
Voice over ATM	Yes	No	Yes
Voice over Frame Relay	Yes	No	Yes
Voice over HDLC	Yes	No	Yes
Voice over IP	No	No	No
WAN Optimization			
Bandwidth-on- Demand	No	No	No
Custom and Priority Queuing ⁴	Yes	Yes	Yes
Dial Backup	No	No	No

Table 2 Cisco IOS Feature Set for the Cisco MC3810 (continued)

Features	Feature Set		
	IP/IPX/AT/IBM/Voice	IP/IPX/IBM/ATM	IP/IPX/AT/IBM/ATM/Voice
Dial-on-Demand	No	No	No
DRP Server Agent	Yes	Yes	Yes
Header, Link and Payload Compression	Yes	Yes	Yes
Snapshot Routing	Yes	Yes	Yes
Weighted Fair Queuing ⁵	Yes	Yes	Yes
WAN Services			
Always On/Direct ISDN	No	No	No
ATM LAN Emulation: Decnet Routing and Banyan Vines Support	No	No	No
ATM LAN Emulation: (HSRP and SSRP)	No	No	No
ATM: Rate Queues for SVC per Subinterface	No	No	No
Combinet Packet Protocol (CPP)	No	No	No
Dialer Profiles	No	No	No
Dialer Watch	Yes	Yes	Yes
Frame Relay Compression (FRF.9)	Yes	Yes	Yes
Frame Relay SVCs Support (DTE)	No	No	No
Frame Relay Traffic Shaping	Yes	Yes	Yes
Frame Relay Switching	Yes	Yes	Yes
Frame Relay UNI	Yes	Yes	Yes
Half Bridge/Half Router for CPP and PPP	No	No	No
HDLC	Yes	Yes	Yes
IPXwan 2.0	Yes	Yes	Yes
ISDN	No	No	No
ISDN Advise of Charge	No	No	No
ISDN Caller ID Callback	No	No	No
ISDN NFAS	No	No	No
Leased Line ISDN at 128 kbps	No	No	No
MPPC-MS PPP Compression	Yes	Yes	Yes
MS Callback	Yes	Yes	Yes
Multichassis Multilink PPP (MMP)	No	No	No

Table 2 Cisco IOS Feature Set for the Cisco MC3810 (continued)

Features	Feature Set		
	IP/IPX/AT/ IBM/Voice	IP/IPX/IBM/ ATM	IP/IPX/AT/ IBM/ATM/ Voice
National ISDN Switch Type	No	No	No
PPP	Yes	Yes	Yes
SMDS	No	No	No
Stackable Home Gateway	No	No	No
Switched 56	No	No	No
Virtual Private Dialup Network (VPDN)	No	No	No
X.25	No	No	No
X.25 Enhancements	No	No	No
X.25 on ISDN	No	No	No
X.25 Switching between PVCs and SVCs	No	No	No

1 Voice signaling on CES is not available.

2 ATM PVCs only. SVCs are not supported.

3 Includes T1 CAS protocols, plus UK Standard CAS (Mercury protocol) and CEPT standard E&M.

4 Applicable to data-only interfaces.

5 See Note ⁴.



Caution Cisco IOS images with strong encryption (including, but not limited to, 56-bit data encryption feature sets) 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.

Important Notes

This section contains important information about use of your Cisco IOS release 12.0 software.

Serial Interface Command Change in Release 12.0(1)

Beginning with Cisco IOS Release 12.0(1), the **interface serial 2** designation on the Cisco MC3810 is no longer valid. Depending on the application, you enter different designations for this interface as follows:

- If configuring Voice over Frame Relay or Voice over HDLC, enter **interface serial 0:x**, where *x* represents the channel group number configured with the **channel-group** controller configuration command.
- If configuring Voice over ATM, first enter the **mode atm** command in controller configuration mode, which creates logical interface ATM0. Then, enter **interface atm0** to configure the interface.

Deprecated MIBs

Because the older Cisco Management Information Bases (MIBs) do not scale well across Cisco products, they will be replaced in a future release. As an initial step toward this, the OLD-CISCO-* MIBs are being deprecated now. This has no immediate impact on any Cisco existing Cisco IOS product or network management system (NMS) application. Application developers need to be aware that the following MIBs are being discontinued and should update their applications accordingly. Table 3 lists the deprecated MIBs.

Table 3 **Deprecated MIBs**

Deprecated MIB	Replacement
OLD-CISCO-APPLETALK-MIB	RFC1243-MIB
OLD-CISCO-CHASSIS-MIB	ENTITY-MIB
OLD-CISCO-CPUK-MIB	In Development
OLD-CISCO-DECNET-MIB	
OLD-CISCO-ENV-MIB	CISCO-ENVMON-MIB
OLD-CISCO-FLASH-MIB	CISCO-FLASH-MIB
OLD-CISCO-INTERFACES-MIB	IF-MIB CISCO-QUEUE-MIB
OLD-CISCO-IP-MIB	
OLD-CISCO-MEMORY-MIB	CISCO-MEMORY-POOL-MIB
OLD-CISCO-NOVELL-MIB	NOVELL-IPX-MIB
OLD-CISCO-SYS-MIB	(Compilation of other OLD* MIBS)
OLD-CISCO-SYSTEM-MIB	CISCO-CONFIG-COPY-MIB
OLD-CISCO-TCP-MIB	CISCO-TCP-MIB
OLD-CISCO-TS-MIB	
OLD-CISCO-VINES-MIB	CISCO-VINES-MIB
OLD-CISCO-XNS-MIB	

Using the Cisco MC3810 with the PSTN

This section describes important notes regarding use of the Cisco MC3810 with the Public Switched Telephone Network (PSTN).

Connections to the PSTN

Be careful when connecting switched voice ports on the Cisco MC3810 directly to the PSTN because improper configurations can expose the corporate network to telephone fraud.

Switched Access from the PSTN

The Cisco MC3810 has the capability to connect a user from the PSTN directly to the corporate wide-area telephone network. As a phone switch, the Cisco MC3810 can be configured to switch the user to any location in that network, even remote locations that are connected again to another PSTN. However, the Cisco MC3810 does not provide any mechanism to restrict users from calling after they are connected. Without proper network design, this condition could result in the unauthorized use of the corporate network for making calls at the corporation's expense. To prevent this from

occurring, Cisco recommends that companies do not connect a switched voice interface on the Cisco MC3810 directly to the PSTN. Instead, connect the interface to a PBX that implements a security scheme designed to prevent unauthorized use.

Non-Switched Calls

The same opportunity for illicit use does not exist for non-switched call types such as pass-through connections (although the possibility for fraud does exist at the direct contact point). Pass-through calls create a path to only a single location specified by the network administrator. For example, a pass-through connection might be used to pass a trunk from a PBX to the PSTN. In this case, the trunk on the PBX will always pass straight through the Cisco MC3810 to the PSTN. As a result, the necessary security is provided by the PBX.

Caveats

This section contains open and resolved caveats for the Cisco IOS Software Release 12.0(2) maintenance release as it applies to the Cisco MC3810 product. This is a partial list. For the complete list of caveats in the Cisco IOS Release 12.0, refer to the "Caveats" section in the cross-platform *Release Notes for Cisco IOS Release 12.0* document located on CCO and the Documentation CD-ROM. This section contains caveats affecting all maintenance releases.

Note 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 can be found at <http://www.cisco.com/support/bugtools>, or from CCO, select **Software & Support: Tools: Bug Toolkit II**.

Open Caveats—Release 12.0(2)

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

Basic System Services

- CSCdk66827
When configuring a Cisco MC3810 for common-channel signaling (CCS) cross-connect, calls may stop being connected after a period of time.

Resolved Caveats—Release 12.0(2)

All the caveats listed in this section are resolved in Release 12.0(2). This section describes only severity 1 and 2 caveats.

Basic System Services

- CSCdk40393
A Cisco MC3810 with both a Multi-Flex Trunk (MFT) and a Digital Voice Module (DVM) installed may see T1 clock slips on the T1 controllers under certain circumstances. Clock slips are reported when viewing the T1 controller statistics with the **exec** command **show controller t1**.

- CSCdk45166
There appears to be a problem with signaling on timeslot 1 of a tdm-group configuration.
- CSCdk47382
Network Time Protocol (NTP) on the Cisco 2600 series and MC3810 platforms does not stay synchronized. After approximately five minutes, the clock wanders and NTP unsynchronizes. Removing the NTP configuration and adding it back causes the router to synchronize again, but later it becomes unsynchronized.

IP Routing Protocols

- CSCdk45874
In some network configurations, a Cisco MC3810 reloads with a CPU exception error, `reason = FORCE_CRASH (959fd4)`.

Related Documentation

The following sections describe the documentation available for the Cisco MC3810 multiservice access concentrator. Typically, these documents consist of hardware installation guides, software 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 the Documentation CD-ROM. These electronic documents might contain updates and modifications made after the hard-copy documents were printed.

These release notes should be used in conjunction with the documents listed in the following sections:

- Release-Specific Documents, page 14
- Platform-Specific Documents, page 15
- Cisco IOS Software Document Set, page 15

Release-Specific Documents

CCO and the Documentation CD-ROM contain documents specific to Release 12.0.

- *Release Notes for Cisco IOS Release 12.0*

To navigate to *Release Notes for Cisco IOS Release 12.0*, follow this path on CCO:

Products & Ordering: Documentation: Cisco Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Release Notes

To navigate to the same document on the Documentation CD-ROM, follow this path:

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

- For more information including product bulletins, field notices, and other information relating to a specific software release, refer to the Software Center located on CCO.

To navigate to the Software Center, follow this path on CCO:

Software & Support: Software Center

Platform-Specific Documents

These documents are also available online at Cisco Connection Online (CCO) and on the Documentation CD-ROM. Documentation for spare parts can be found at the same location.

- Cisco MC3810 Multiservice Concentrator Hardware Installation Guide
- Cisco Redundant Power System Hardware Installation Guide
- Cisco MC3810 Multiservice Concentrator Software Configuration Guide
- Cisco MC3810 Multiservice Concentrator Software Command Reference Guide

To access platform documents on CCO, follow this path:

Products and Ordering: Cisco Documentation: Access Servers and Access Routers: Multiservice Access Concentrators

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

Cisco Product Documentation: Access Servers and Access Routers: Multiservice Access Concentrators

Cisco IOS Software Document Set

The Cisco IOS software documentation set consists of the Cisco IOS configuration guides, Cisco IOS command references, and several other supporting documents. These documents are shipped with your order in electronic form on the Documentation CD-ROM, unless you specifically ordered the printed versions.

Documentation Modules

Each module in the Cisco IOS documentation set consists of two books: a configuration guide and a corresponding command reference. Chapters in a configuration guide describe protocols, configuration tasks, 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.

To access these documentation modules on CCO, follow this path:

Products & Ordering: Cisco Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Cisco IOS Release 12.0 Configuration Guides and Command References

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

Cisco IOS Software Configuration: Cisco IOS Release 12.0: Cisco IOS Release 12.0 Configuration Guides and Command References

Related Documentation

Release 12.0 Documentation Set

Table 4 details the contents of the Cisco IOS Release 12.0 software documentation set. The document set is available in electronic form, and also in printed form upon request.

Note The most current Cisco IOS documentation can be found on the latest Documentation CD-ROM and on the Web. These electronic documents might contain updates and modifications made after the paper documents were printed.

To access the Cisco IOS documentation set on CCO, follow this path:

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

To access the Cisco IOS documentation set on the Documentation CD-ROM, follow this path:

Cisco IOS Software Configuration: Cisco IOS Release 12.0

Table 4 Cisco IOS Software Documentation Set

Books	Chapter Topics
<ul style="list-style-type: none">• <i>Configuration Fundamentals Configuration Guide</i>• <i>Configuration Fundamentals Command Reference</i>	Configuration Fundamentals Overview Cisco IOS User Interfaces File Management Interface Configuration System Management
<ul style="list-style-type: none">• <i>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>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 Interface Configuration Guide</i>• <i>Cisco IOS Interface Command Reference</i>	About the Cisco IOS Software Documentation Using Cisco IOS Software Interface Configuration Overview Configuring LAN Interfaces Configuring Serial Interfaces Configuring Logical Interfaces
<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

Table 4 Cisco IOS Software Documentation Set (continued)

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>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>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>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>Voice, Video, and Home Applications Configuration Guide</i> • <i>Voice, Video, and Home Applications Command Reference</i> 	About the Cisco IOS Documentation About Voice, Video, and Home Applications Voice Video Broadband Using Cisco IOS Software
<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> 	

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

For helpful tips on configuring Cisco products, follow this path on CCO:

Software & Support: Technical Tips (button on left margin)

“Hot Tips” are popular tips and hints gathered from Cisco's Technical Assistance Center (TAC). Most of these documents are also available from the TAC's Fax-on-Demand service. To access Fax-on-Demand and receive documents at your fax machine, call 888-50-CISCO (888-502-4726). From international areas, call 650-596-4408.

The following sections are provided from the Technical Tips page:

- **Field Notices**—Designed to provide notification of 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, CiscoPro Configurations.
- **Special Collections**—Other Helpful Documents: Frequently Asked Questions, Security Advisories, References & RFCs, Case Studies, 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 documents mentioned in the "Related Documentation" section on page 14.

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