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# Release Notes for the Cisco MC3810 for Cisco IOS Release 12.0(5)XK2

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**July 15, 2002**

These release notes for the Cisco MC3810 multiservice access concentrator support Cisco IOS Release 12.0(5)XK2 and describes new features, memory requirements, hardware support, software platform deferrals, and changes to the microcode or modem code and related documents. Cisco IOS Release 12.0(5)XK2 is based on Cisco IOS Release 12.0(5)T.

For a list of software caveats that apply to Release 12.0(5)XK2, refer to the “Caveats” section on page 17.

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

## Contents

These release notes describe the following topics:

- Introduction, page 2
- System Requirements, page 2
- New and Changed Information, page 14
- Important Notes, page 16
- Caveats, page 17
- Related Documentation, page 20
- Service and Support, page 26
- Cisco Connection Online, page 27
- Documentation CD-ROM, page 28

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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. Cisco IOS software fully supports the Cisco MC3810 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 can simultaneously hold two code images for fail-safe upgrades.

You can manage the Cisco MC3810 by using 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, such as HP OpenView.

## System Requirements

- Memory Requirements, page 2
- Hardware Supported, page 3
- Determining the Software Version, page 3
- Upgrading to a New Software Release, page 3
- Feature Set Table, page 3
- Cisco IOS File System, page 13

## Memory Requirements

**Table 1** Memory Requirements for the Cisco MC3810

Feature Set	Image Name	Minimum Flash Memory	Minimum DRAM Memory	Runs From
IP	mc3810-i-mz	4 MB <sup>1</sup>	16 MB <sup>2</sup>	RAM
IP Plus	mc3810-is-mz	8 MB	32 MB	RAM
IP Plus/IP Sec 56	mc3810-is56i-mz	8 MB	32 MB	RAM
IP Plus/ATM/IP Sec 56	mc3810-a2is56i-mz	8 MB	32 MB	RAM
IP Plus/ATM/MCM H323	mc3810-a2isx-mz	8 MB	32 MB	RAM
IP Plus/ATM/MCM H323/IP Sec 56	mc3810-a2isx56i-mz	8 MB	32 MB	RAM
IP/ATM Plus	mc3810-a2is-mz	8 MB	32 MB	RAM
Enterprise Plus	mc3810-js-mz	8 MB	32 MB	RAM

**Table 1** Memory Requirements for the Cisco MC3810

Feature Set	Image Name	Minimum Flash Memory	Minimum DRAM Memory	Runs From
Enterprise/ATM Plus	mc3810-a2js-mz	8 MB	32 MB	RAM
Enterprise Plus/ATM/MCM H323	mc3810-a2jsx-mz	8 MB	32 MB	RAM

- 1 Required flash memory for the IP feature set: The standard configuration includes 8 MB of flash memory.
- 2 Required DRAM for the IP feature set: The standard configuration includes 32 MB of DRAM.

## Hardware Supported

Cisco IOS Release 12.0(5)XK1 supports the Cisco MC3810 multiservice access concentrator.

## Determining the Software Version

To determine the version of Cisco IOS software running on your Cisco MC3810, log in to the router and enter the **show version** user EXEC command:

```
router>show version
Cisco Internetwork Operating System Software
IOS (tm) MC3810 Software (mc3810-js-mz), Version 12.0(5)XK1, RELEASE SOFTWARE
```

## Upgrading to a New Software Release

For general information about upgrading to a new software release, see the product bulletin *Cisco IOS Software Release 11.3 Upgrade Paths and Packaging Simplification (#703: 12/97)* on CCO at:

### Service & Support: Product Bulletins: Software

Under **Cisco IOS 11.3**, click on **Cisco IOS Software Release 11.3 Upgrade Paths (#703: 12/97)**.

This product bulletin does not contain information specific to Cisco IOS Release 12.0(5)XK1 but provides general upgrade information that may apply to Cisco IOS Release 12.0(5)XK1.

## Feature Set Table

Cisco IOS software is packaged in feature sets consisting of software images—depending on the platform. Each feature set contains a specific set of Cisco IOS features.

**Table 2** Feature Sets Supported by the Cisco MC3810 for Release 12.0(5)XK1

Feature Sets	Feature Set Matrix Term	Software Image
IP Standard Feature Sets	IP	mc3810-i-mz
	IP Plus	mc3810-is-mz
	IP Plus/IP Sec 56	mc3810-is56i-mz
	IP/ATM Plus	mc3810-a2is-mz
	IP Plus/ATM/IP Sec 56	mc3810-a2is56i-mz
	IP Plus/ATM/MCM H323	mc3810-a2isx-mz
	IP Plus/ATM/MCM H323/IP Sec 56	mc3810-a2isx56i-mz

**Table 2 Feature Sets Supported by the Cisco MC3810 for Release 12.0(5)XK1**

Feature Sets	Feature Set Matrix Term	Software Image
Enterprise Standard Feature Sets	Enterprise Plus	mc3810-js-mz
	Enterprise ATM Plus	mc3810-a2js-mz
	Enterprise Plus/ATM/MCM H323	mc3810-a2jsx-mz

Table 3 lists the features and feature sets supported by the Cisco MC3810 in Cisco IOS Release 12.0(5)XK1 and uses the following conventions:

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

**Note** This feature set table only contains a selected list of features. This table is not cumulative—nor does it list all the features in each image.

**Table 3 Feature List by Feature Set for the Cisco MC3810**

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
<b>ATM Access</b>										
Frame Relay–ATM Interworking (FRF.5)	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
PPP Over ATM	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
RFC 1483	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
rtVBR, nrtVBR, CBR, UBR	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Structured CES <sup>1</sup>	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Traffic Shaping	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
UNI 3.1	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
UNI 4.0 (with ILM)	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
<b>IBM Support</b>										
APPN	No	No	No	No	No	No	No	No	No	No
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

Table 3 Feature List by Feature Set for the Cisco MC3810 (continued)

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
BAN for SNA Frame Relay Support	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bisync	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bridging-Code Rework	No	No	No	No	No	No	No	No	No	No
Caching and Filtering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DLSw+	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DLSw (RFC 1795)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DLSw+ Enhanced Load Balancing	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DLSw+ Peer Clusters	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DLSw Version 2 (RFC 1266)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DLSw+ RSVP Bandwidth Reservation	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Downstream PU Concentration (DSPU)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay SNA Support (RFC 1490)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NCIA	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NetView Native Service Point	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Polled Async	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
QLLC	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Response Time Reporter	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RIF Passthru in DLSw+	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SDLC Integration	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SDLC Transport (STUN)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SDLC-to-LAN Conversion (SDLLC)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNA and NetBIOS WAN Optimization	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SRB/RSRB	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SRT	No	No	No	No	Yes	Yes	Yes	No	No	Yes
SRTLb	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TG/COS	No	No	No	No	No	No	No	No	No	No
TN3270	No	No	No	No	No	No	No	Yes	Yes	No

**Table 3 Feature List by Feature Set for the Cisco MC3810 (continued)**

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
TN3270 LU Nailing	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TN3270 Server Enhancements	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>IP Routing</b>										
BGP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BGP4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
EGP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enhanced IGRP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enhanced IGRP Optimizations	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ES-IS	No	No	No	No	No	No	No	Yes	Yes	Yes
GRE VPN	No	No	No	No	No	No	No	Yes	Yes	Yes
IGRP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IS-IS	No	No	No	No	No	No	No	Yes	Yes	Yes
Named IP Access Control List	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Address Translation (NAT)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NHRP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
On Demand Routing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF Not-So-Stubby-Areas (NSSA)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF On Demand Circuit (RFC 1793)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Protocol-Independent Multicast (PIM)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PIM Version 2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Policy-Based Routing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RIP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RIP Version 2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>LAN Support</b>										
Apollo Domain	No	No	No	No	No	No	No	Yes	Yes	Yes
AppleTalk Phase 2	No	No	No	No	No	No	No	Yes	Yes	Yes
Banyan VINES	No	No	No	No	No	No	No	Yes	Yes	Yes
Concurrent Routing and Bridging	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DECnet IV	No	No	No	No	No	No	No	Yes	Yes	Yes

Table 3 Feature List by Feature Set for the Cisco MC3810 (continued)

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
DECnet V	No	No	No	No	No	No	No	Yes	Yes	Yes
GRE	No	No	No	No	No	No	No	Yes	Yes	Yes
Integrated Routing and Bridging (IRB)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAN Extension Host	No	No	No	No	No	No	No	No	No	No
Multiring	No	No	No	No	No	No	No	No	No	No
Novell IPX	No	No	No	No	No	No	No	Yes	Yes	Yes
OSI	No	No	No	No	No	No	No	Yes	Yes	Yes
Source-Route Bridging	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Transparent and Translational Bridging	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VLANs (ISL & IEEE 802.10)	No	No	No	No	No	No	No	No	No	No
XNS	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
<b>Management</b>										
AutoInstall	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Automatic Modem Configuration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HTTP Server	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cisco IOS File System	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Response Time Reporter Enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RMON Events and Alarms	No	No	No	No	No	No	No	No	No	No
RMON Full	No	No	No	No	No	No	No	No	No	No
SNMP version 3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMP Inform Request	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Telnet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Multimedia and Quality of Service</b>										
Application Specific Routing	No	No	No	No	No	No	No	No	No	No
Generic Traffic Shaping	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H.323 Hot Standby Routing Protocol (HSRP)	No	No	No	No	Yes	No	No	No	No	Yes
Multimedia Conference Manager (H.323)	No	No	No	No	Yes	No	No	No	No	Yes
Process MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Feature List by Feature Set for the Cisco MC3810 (continued)

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
Random Early Detection (RED)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Response Time Reporter Enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RSVP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Other Routing</b>										
AURP	No	No	No	No	No	No	No	Yes	Yes	Yes
IPX RIP	No	No	No	No	No	No	No	Yes	Yes	Yes
NLSP	No	No	No	No	No	No	No	Yes	Yes	Yes
RTMP	No	No	No	No	No	No	No	Yes	Yes	Yes
SMRP	No	No	No	No	No	No	No	Yes	Yes	Yes
S RTP	No	No	No	No	No	No	No	Yes	Yes	Yes
<b>Protocol Translation</b>										
LAT	No	No	No	No	No	No	No	Yes	Yes	Yes
PPP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rlogin	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Telnet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TN3270	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Remote Node</b>										
ARAP 1.0/2.0	No	No	No	No	No	No	No	Yes	Yes	Yes
Asynchronous Master Interfaces	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ATCP	No	No	No	No	No	No	Yes	Yes	Yes	Yes
CPPP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CSLIP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DHCP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Pooling	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX and ARAP on Virtual Async Interfaces	No	No	No	No	No	No	Yes	Yes	Yes	Yes
IPXCP	No	No	No	No	No	No	Yes	Yes	Yes	Yes
MacIP	No	No	No	No	No	No	Yes	Yes	Yes	Yes
NASI	No	No	No	No	No	No	Yes	Yes	Yes	Yes
NetBEUI over PPP	No	No	No	No	No	No	Yes	Yes	Yes	Yes
PPP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Feature List by Feature Set for the Cisco MC3810 (continued)

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
SLIP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Scalability</b>										
Airline Product Set (ALPS)	No	No	No	No	No	No	No	No	No	No
Cisco IOS File System	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cisco MC3810 – IGX 8400 Interworking	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entity MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Expression MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF Point to Multipoint	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Per Port Debugging (Conditionally Triggered Debugging)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Priority Queuing Support Enhancement for Cisco MC3810-IGX Interworking	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMP Manager	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Security</b>										
Access Lists	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Access Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Vendor-Proprietary RADIUS Attributes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Authenticating ACLs	No	No	No	No	No	No	No	No	No	No
Automated Double Authentication	No	No	No	No	No	No	No	Yes	Yes	Yes
Certificate Authority Interoperability	No	No	No	No	No	No	No	No	No	No
Context-Based Access Control (CBAC)	No	No	No	No	No	No	No	No	No	No
Extended Access Lists	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Internet Key Exchange Security Protocol	No	No	No	No	No	No	No	No	No	No
IPSec Network Security	No	No	Yes	No	No	Yes	Yes	No	No	No
Kerberos Login	No	No	No	No	No	No	No	Yes	Yes	Yes
Kerberos V Client Support	No	No	No	No	No	No	No	Yes	Yes	Yes
Lock and Key	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mac Security for Hubs	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes

**Table 3 Feature List by Feature Set for the Cisco MC3810 (continued)**

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
Md5 Routing Authentication	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MS-CHAP Support	No	No	No	No	No	No	No	Yes	Yes	Yes
Named Method Lists for AAA Authentication & Accounting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Network Layer Encryption (40-bit or Export Controlled 56-bit DES)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
RADIUS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Router Authentication	No	No	No	No	No	No	No	No	No	No
Sublock Phase 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TACACS+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Switching</b>										
Enhanced ATM VC Configuration and Management	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Multiple ISDN Switch Types	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Terminal Services</b>										
LAT	No	No	No	No	No	No	No	Yes	Yes	Yes
Rlogin	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Telnet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TN3270	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X.25 Pad	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Xremote	No	No	No	No	No	No	No	Yes	Yes	Yes
<b>Voice and Multimedia</b>										
Analog Signaling	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Call Detail Records (CDR)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
E1 CAS Signaling <sup>2</sup>	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fancy Queuing on Frame Relay or Cisco HDLC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
G.726 (ADPCM)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gain Control	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN PRI QSIG Voice Signaling <sup>3</sup>	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Local Dialing	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Local Voice Busy Out	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multiple Ring Tones	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN BRI Voice <sup>3</sup>	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3 Feature List by Feature Set for the Cisco MC3810 (continued)

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
Facility Data Link on Multiflex Trunk	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multi-length Dial Patterns	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Off-Net Dialing	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
On-Net/Off-Net Call Rerouting	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OPX Ring-Through	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pass-Through Voice	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Permanent Connection	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PLAR	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Preference-based Hunt Groups	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Remote Dialing	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
T1 CAS Signaling	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Transparent CCS	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice Activity Detection	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice over ATM	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Voice over Frame Relay	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice over Frame Relay Using FRF.11 and FRF.12	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice over HDLC	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice over IP	No	No	No	No	No	No	No	No	No	No
<b>WAN Optimization</b>										
Bandwidth-on-Demand	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Custom and Priority Queuing <sup>4</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dial Backup	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dial-on-Demand	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DRP Server Agent	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Header, Link and Payload Compression	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Snapshot Routing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weighted Fair Queuing <sup>4</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>WAN Services</b>										
Always On/Direct ISDN	No	No	No	No	No	No	No	No	No	No

**Table 3 Feature List by Feature Set for the Cisco MC3810 (continued)**

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
ATM LAN Emulation: Decnet Routing and Banyan Vines Support	No	No	No	Yes	Yes	No	Yes	No	Yes	Yes
ATM LAN Emulation: (HSRP and SSRP)	No	No	No	Yes	Yes	No	Yes	No	Yes	Yes
ATM: Rate Queues for SVC per Subinterface	No	No	No	Yes	Yes	No	Yes	No	Yes	Yes
ATM: UNI 3.1 Signaling for ATM	No	No	No	Yes	Yes	No	Yes	No	Yes	
ATM: UNI 4.0	No	No	No	Yes	Yes	No	Yes			
ATM SVCs for Voice, Video and Data	No	No	No	Yes	Yes	No	Yes	No	Yes	Yes
Combinet Packet Protocol (CPP)	No	No	No	No	Yes	No	Yes	No	No	Yes
Dialer Profiles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dialer Watch	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Facility Data Link Capabilities on Multiflex Trunk	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay Compression (FRF.9)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay/ATM Internetworking Services (FRF.8)	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Frame Relay SVCs Support (DTE)	No	No	No	No	No	No	No	No	No	No
Frame Relay Traffic Shaping	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay Switching	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay UNI	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frame Relay-ATM Interworking (FRF.5)	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Half Bridge/Half Router For CPP And PPP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HDLC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Integrated BRI Backup <sup>3</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPXwan 2.0	No	No	No	No	No	No	No	Yes	Yes	Yes
ISDN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN Advise 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	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 3 Feature List by Feature Set for the Cisco MC3810 (continued)**

Features	Feature Set									
	IP	IP Plus	IP Plus/IP Sec 56	IP Plus/ATM	IP Plus/ATM/MCM H323	IP Plus/ATM/IP Sec 56	IP Plus/ATM/MCM H323/IP Sec 56	Enterprise Plus	Enterprise ATM Plus	Enterprise Plus/ATM/MCM H323
Leased Line ISDN at 128 kbps	No	No	No	No	No	No	No	No	No	No
MPPC-MS PPP Compression	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MS Callback	No	No	No	No	No	No	No	No	No	No
Multichassis Multilink PPP (MMP)	No	No	No	No	No	No	No	Yes	Yes	Yes
National ISDN Switch Type	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PPP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SMDS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stackable Home Gateway	No	No	No	No	No	No	No	No	No	No
Switched 56	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Virtual Private Dialup Network (VPDN)	No	No	No	No	No	No	No	Yes	Yes	No
Voice over Frame Relay Using FRF.11 and FRF.12	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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 over Frame Relay (Annex G)	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

1 Voice signaling on CES is not available.

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

3 When the older motherboard (SCB 6.06) is used with this feature, serial port 1 cannot be used. When the new motherboard (SCB 6.07 and later versions) is used, serial port 1 can be used in DCE mode only.

4 Applicable to data-only interfaces.

## Cisco IOS File System

To make file management easy, 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 can simultaneously hold two code images for fail-safe upgrades.

## New and Changed Information

The following sections list new information about the Cisco MC3810 in Cisco IOS Release 12.0(5)XK1.

### New Features in Release 12.0(5)XK1

The following hardware and software enhancements are available for the Cisco MC3810 in Cisco IOS Release 12.0(5)XK1.

#### Video over ATM SVCs and PVCs

Video over ATM switched virtual circuits (SVCs) expands the capabilities of the Cisco MC3810 multiservice access concentrator to provide cost-effective, dynamic, and flexible video conferencing system support. By using a plug-in video dialing module (VDM) to provide an RS-366 dialing interface to an H.320 video codec, the Cisco MC3810 automatically accepts dial-out requests from the video system. The codec connects to either of the Cisco MC3810 serial ports and also to the Cisco MC3810 RS-366 dial-up port.

The current feature also improves permanent virtual circuit (PVC) support by permitting PVC connections with automatic connection through a serial port. Each codec must place a call to the other video conferencing system before the expiration of the video codec time-out period (set on the codec, usually one minute). By using a video dial map, each system reconciles the dialed number with a PVC that has already been configured, allowing fast connectivity.

#### FRF.5 Enhancement for the Cisco MC3810

The Frame Relay-ATM Network Interworking (FRF.5) feature that was first introduced in 11.3(1)MA has been enhanced to allow setting the mode of the Discard Eligibility and Cell Loss Priority fields as defined in the FRF.5 implementation agreement.

Network Interworking (FRF.5) allows the transparent tunneling of Frame Relay user traffic and PVCs over ATM. This function is often used to link Frame Relay networks over an ATM backbone. The most distant nodes must be configured to interoperate with one another—in contrast to Service Interworking—because intact Frame Relay frames are sent over the ATM network. The ATM backbone is used as an alternative to a leased line and provides cost savings over leased lines. There can be a one-to-one relationship between Frame Relay and ATM PVCs, or multiple Frame Relay PVCs can be multiplexed into a single ATM PVC.

#### FRF.8 for the Cisco MC3810

FRF.8 Frame Relay to Asynchronous Transfer Mode (ATM) Service Interworking allows connection of Frame Relay traffic across high-speed ATM trunks using ATM standard Network and Service Interworking. Cisco IOS Release 12.0(5)XK1 introduces Frame Relay-to-ATM Service Interworking for data transfer, outlined in Frame Relay Forum implementation agreement FRF.8 and designed for the Cisco MC3810 multiservice access concentrator.

Service Interworking connects a Frame Relay network to an ATM network while the networks function independently, allows bidirectional PVC protocol conversion functions, and provides a standards-based solution for service providers, enterprises, and end users.

This feature supports two modes of operation of the interworking function (IWF) for upper-layer user protocol encapsulation—transparent mode and translation mode:

- In Service Interworking translation mode, Frame Relay PVCs are mapped to ATM PVCs without the necessity for symmetric topologies—the paths can terminate on the ATM side. The ATM-connected Cisco MC3810 need not be directly linked to a Frame Relay network, and some network devices in a Frame Relay network can evolve to ATM without all the network devices doing so.
- Transparent mode does not map encapsulations but sends them unaltered. This mode is used when translation is not practical because encapsulation methods do not conform to the supported standards for Service Interworking.

### Multimedia Conference Manager (MCM H323)

Use the Multimedia Conference Manager to enable your current internetwork to route bit-intensive data, such as audio telephony, video and audio telephony, and data conferencing by using existing telephone and ISDN links—without degrading the network's current level of service. The Multimedia Conference Manager feature provides H.323 application options previously unavailable. By using Multimedia Conference Manager, you can implement H.323-compliant applications on existing networks in an incremental fashion without upgrades. This feature also provides a rich list of networking capability, including:

- A means to implement Quality of Service (QoS), which is required for the successful deployment of H.323 applications.
- Inter-zone routing in the E.164 address space. When using H.323-ID format addresses, inter-zone routing is done through domain names.

The Multimedia Conference Manager feature provides network administration mechanisms to support H.323 applications without impacting the mission critical applications running on today's networks. Multimedia Conference Manager is implemented on Cisco IOS software. Multimedia Conference Manager provides the network administrator with these abilities:

- Identify H.323 traffic and apply appropriate policies
- Limit H.323 traffic on the local-area network (LAN) and wide-area network (WAN)
- Provide user accounting for records based on service utilization
- Insert QoS for the H.323 traffic generated by applications, such as Voice over IP (VoIP), data conferencing, and video conferencing
- Implement security for H.323 communications

Multimedia Conference Manager has two principal functions: gatekeeper and proxy. These functions are unique to Multimedia Conference Manager. Similar robust features are currently not available in other vendor solutions.

Gatekeeper subsystems provide:

- User authorization where authorization, authentication, and accounting (AAA) account holders are permitted to register and use the services of Multimedia Conference Manager
- Accounting using AAA call detail records
- Zone bandwidth management to limit the number of active sessions
- H.323 call routing
- Address resolution

Starting with Cisco IOS Releases 11.3(6)Q and 11.3(7)NA and later releases, you can configure Cisco gatekeepers to use the Cisco Hot Standby Routing Protocol (HSRP), so that when one gatekeeper fails, the standby gatekeeper assumes its role.

## Important Notes

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Proxy subsystems provide:

- H.323 traffic consolidation
- Tight bandwidth controls
- QoS mechanisms, such as IP Precedence and RSVP
- Secure communication over extranets

### Voice and Data over ATM Switched Virtual Circuits

VoATM SVCs allow the Cisco MC3810 to transfer voice and data dynamically and as needed—without tying up the resources required for static, manually provisioned permanent virtual circuits (PVCs). An SVC connection is initiated for each call, and each request includes bandwidth and quality-of-service (QoS) information required for the connection. SVCs are ideal for networks that are highly interconnected, where scalability is essential, and in situations where traffic is sporadic. In addition, service providers often proffer more advantageous, use-based pricing options for SVCs.

VoATM (voice over ATM) using SVCs on the Cisco MC3810 includes all of the voice features that the Cisco MC3810 supports for PVCs and for Frame Relay transport. Like other Cisco voice implementations, VoATM is based on dial peers and uses ATM Adaptation Layer 5 (AAL5). ATM SVC service operates much like X.25 SVC service, although ATM allows much higher throughput. It requires a signaling protocol between a router or multiservice access concentrator and ATM switch. The ATM signaling software provides a method of dynamically establishing, maintaining, and clearing ATM connections at the User-Network Interface (UNI). In UNI, the router serves as the user and the ATM switch is considered the network. The router does not perform call-level routing. Instead, the ATM switch does the ATM call routing, and the router directs packets through the resulting circuit.

## Important Notes

This section contains important information about the use of your Cisco IOS Release 12.0(5)XK1 software.

Cisco IOS release 12.0(5)XK1 is supported on all Cisco 2600, 3600, and MC3810 platforms and incorporates a number of bug fixes and enhancements. These include improvements to the echo canceller located within the DSP firmware. These improvements result in better performance during off-net calls and within noisy environments.

Refer to the Caveats section for details on individual bug fixes found within this release.

## Using the Cisco MC3810 with QSIG or BRI

Serial port 1 is restricted to DCE operation when the following occurs:

- QSIG is enabled.
- BRI voice module (BVM) is installed and BRI is enabled.
- BRI S/T backup port is installed and enabled on the MFT.

## 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 a 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. Using the Cisco MC3810 as a phone switch, you can configure the access concentrator to switch the user to any location in that network, even to 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, you should 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 that prevents 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 a single location specified by the network administrator. For example, you might use a pass-through connection to pass a trunk from a PBX to the PSTN. In this case, the trunk on the PBX always passes straight through the Cisco MC3810 to the PSTN. As a result, the necessary security is provided by the PBX.

## Caveats

Caveats describe unexpected behavior or defects in Cisco IOS software releases. Severity 1 caveats are the most serious caveats; severity 2 are less serious.

This section only contains open and resolved caveats for the current Cisco IOS maintenance release.

All caveats in Release 12.0 and Release 12.0 T are also in Release 12.0(5)XK1.

For information on caveats in Cisco IOS Release 12.0, see *Caveats for Cisco IOS Release 12.0* that describes caveats affecting all maintenance releases.

For information on other caveats that also apply to this release, see *Caveats for Cisco IOS Release 12.0 T* which lists severity 1 and 2 caveats, and is located on CCO and the Documentation CD-ROM

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**Note** If you have an account with CCO, you can use Bug Navigator II to find caveats of any severity for any release. You can reach Bug Navigator II on CCO at **Service & Support: Online Technical Support: Software Bug Toolkit** or at <http://www.cisco.com/support/bugtools>.

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## Caveats for Release 12.0(5)XK2

This section describes possibly unexpected behavior by Cisco IOS Release 12.0(5)XK2.

- CSCdw65903

An error can occur with management protocol processing. Please use the following URL for further information:

<http://www.cisco.com/cgi-bin/bugtool/onebug.pl?bugid=CSCdw65903>

## Caveats for Release 12.0(5)XK1

This section describes possibly unexpected behavior by Release 12.0(5)XK1. Unless otherwise noted, these caveats apply to all 12.0 releases up to and including 12.0(5)XK1.

### Basic System Services

- CSCdj54850

Brings IOS up to RFC 2217 spec. Adds in extra flow control for faxing through IOS. Corrects [now ignores] software flow control issue.

- CSCdk75315

Error messages are generated by RSP routers with VIP cards in some cases. The error messages are generally benign, indicating temporarily out of memory situations, which are then recovered from.

- CSCdm11467

SegV Exception in peer\_list\_sum, NTP related

When utilizing ntp private mode and control type messages for remote query, it is possible to see a router crash or traceback messages.

- CSCdm44772

If **sh run** or **wr t** are issued at exactly the same time from two different VTY, one session may finish before the other and trash a variable that still need to be used by the 1st session which causes a router crash.

Workaround: Don't do **sh run** at the same time from 2 VTY's.

- CSCdm78286

If you have a Vip2-50 with a ESA module for hardware encryption, you might be seeing this problem. Execute **show version** and look for 12.0.5, if rsp-dsv56i-mz.120-5 show interface stat and look for...

```
Router # sh int stat FastEthernet4/0/0 Switching path Pkts In Chars In Pkts Out Chars
Out Processor 169 17028 5866912 2018892867 Route cache 5866778 2019797528 0 0 ^^notice
no route cache^^ Distributed cache 0 0 0 0 Total 5866948 2019815576 5866912 2018892867
Serial5/0/0 Switching path Pkts In Chars In Pkts Out Chars Out Processor 5964672
1993916338 530 37168 Route cache 0 0 5958298 1967889708 ^^notice no route cache^^
Distributed cache 0 0 0 0 Total 5964672 1993916338 5958828 1967926876
```

- CSCdm80864

The use of the command **backup interface bri 0** breaks the tdm-group command under the T1/E1 controllers in Cisco IOS 12.0(5)XK. Removing the command, saving the config to nvram, and reloading doesn't resolve the problem. The user must either:

write erase and reload

-or-

boot the router ignoring vram

Reconfigure the router without the faulty command. The work-around is to disable ISDN backup.

## IBM Connectivity

- CSCdm55118

A Cisco router using Advanced Peer-to-Peer Networking (APPN) may consume excessive CPU while issuing messages during a Locate storm. In particular, message: XXXTPD02\_LOGMSG\_01 can be issued repetitively.

- CSCdm71190

APPN Network Node router fails to allocate the conwinner session of its dual CP-CP session with an adjacent End Node. The conloser session will be setup correctly, but the conwinner sessions fails with sense 80140003 as indicated in the **debug appn ss**. The problem results after changing an adjacent Network Node to an End Node. The workaround is to cycle the link for this End Node.

- CSCdp00456

Router may crash when creating a circuit history for a DLSw lite circuit.

Workaround is to disable circuit history logging by configuring **no dlsw history-log**.

## Interfaces and Bridging

- CSCdj54192

If an interface on a HSSI 1 port (PA-H or H1T+) card goes down/down and you see the following error message, you may be experiencing this problem:

```
%MUSELIX-1-STOPFAIL: XXXX: Stop Failed at disable port (XXXX = the interface affected)
%MUSELIX-1-STARTFAIL: XXXX: Start Failed at enable port MUESLIX-1-FAILURE_CAUSE:
SerialX/X:
```

This problem is caused by several factors.

Once it falls into this state, execute the following (undocumented) test commands -- (<CR> is a carriage return):

```
term len 0<CR> sh cont h 1/0<CR> test tpu b<CR> 1/0<CR> g<CR> x<CR> y<CR>
r<CR> s<CR> 3<CR> q<CR> test tpu b<CR> 1/1<CR> g<CR> x<CR> y<CR> r<CR>
s<CR> 3<CR> q<CR> test len 24<CR>
```

An example of this process can be obtained by using Bug Navigator II.

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**Note** If you have an account with CCO, you can use Bug Navigator II to find caveats of any severity for any release. You can reach Bug Navigator II on CCO at **Service & Support: Online Technical Support: Software Bug Toolkit** or at <http://www.cisco.com/support/bugtools>.

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## Resolved Caveats for Release 12.0(5)XK1

All caveats listed in this section are resolved in Release 12.0(5)XK1. This section only describes severity 1 and severity 2 caveats.

- CSCdm66420

Crashed happened on routing\_svc, switching\_svc, and bridging\_svc HAWK testing after the configuration is done. It is in version 12.0(5.1)PI6.

The same problem is also seen on 12.0(19990715:065145) [BLD-v120\_5\_xk\_throttle.990714 109] where is stack trace is the same.

- CSCdm67215

Regression of BVM (qsig) failed to pass the SETUP to the PBX (i.e., making an outgoing call). Apparently, some code changes for other boxes introduced the problem. A new field called bchan\_reassigned is added to the isdn\_bri structure. This structure is used to make calls to routines such as process\_bri\_call. For the MC3810, we have an api (ccsapi.c) to translate ccs api messages to isdn host messages, the person(s) who add this field forgot to initialize the field for this api, and thus contains garbage.

This is causing the "UNKNOWN BCHANNEL" problem shown by the regression.

- CSCdm70244

Clocking configuration information may be over written if the hw work-around software is running while a clocking config change is made.

- CSCdm70913

Cannot configure more than one channel-group on E1.

- CSCdm72687

In FRF8, the IWF is setting the DE bit of the FR frame only if the last cell of a AAL5 pack has the CLP bit set. According to the FRF.8 spec, the DE bit should be set if any of the cells of a fragmented AAL5 packet has the CLP bit set.

- CSCdm72696

FRF.8 ATM PVCs cannot be removed if the corresponding FR VCs are not configured on the IWF.

## Related Documentation

The following sections describe the documentation available for the Cisco MC3810. These documents consist of hardware and software installation guides, Cisco IOS configuration and command references, system error messages, feature modules, and other documents.

Documentation is available as printed manuals or electronic documents, except for feature modules, which are available online on CCO and the Documentation CD-ROM.

Use these release notes with these documents:

- Release-Specific Documents, page 21
- Platform-Specific Documents, page 22
- Feature Modules, page 22
- Cisco IOS Software Document Set, page 23

## Release-Specific Documents

The following documents are specific to Cisco IOS Releases 12.0 T and 12.0, on which Release 12.0(5)XK is based and are located on CCO and the Documentation CD-ROM:

- *Cross-Platform Release Notes for Cisco IOS Release 12.0*

On CCO:

**Service & Support: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Release Notes: Cross-Platform Release Notes**

On the Documentation CD-ROM:

**Cisco IOS Software Configuration: Cisco IOS Release 12.0: Release Notes: Cross-Platform Release Notes**

- Product bulletins, field notices, and other release-specific documents on CCO at:

Service & Support: **Technical Documents**

- Caveat documents

As a supplement to the caveats listed in the “Caveats” section in these release notes, see *Caveats for Cisco IOS Release 12.0 T* which contains caveats applicable to all platforms for all maintenance releases of Release 12.0 T. Caveats for Release 12.0(5)T apply to Release 12.0(5)XK.

On CCO:

**Service & Support: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Caveats: Caveats for Cisco IOS Release 12.0 T**

On the Documentation CD-ROM:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS 12.0: Caveats: Caveats for Cisco IOS Release 12.0 T**

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## Platform-Specific Documents

These documents are available for the Cisco MC3810 on CCO and on the Documentation CD-ROM.

- *Cisco MC3810 Series Multiservice Access Concentrator Hardware Installation Guide*
- *Quick Start Guide: Cisco MC3810 Series Multiservice Access Concentrator Installation and Startup*
- *Cisco MC3810 Multiservice Access Concentrator Regulatory Compliance and Safety Information*
- *Installing and Removing Field-Replaceable Units in Cisco MC3810 Series Multiservice Access Concentrators*
- *Cisco Redundant Power System Hardware Installation Guide*
- *Cisco MC3810 Multiservice Access Concentrator Software Configuration Guide*

On CCO:

**Service & Support: Documentation Home Page: Access Servers and Access Routers: Multiservice Access Concentrators**

On the Documentation CD-ROM:

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

## Feature Modules

Feature modules describe new features supported by Cisco IOS Release 12.0 T, 12.0(5)XK, and other ED releases and are updates to the Cisco IOS documentation set. A feature module consists of a brief overview of the feature, benefits, configuration tasks, and a command reference. As updates, the feature modules are available online only. Feature module information is incorporated in the next printing of the Cisco IOS documentation set.

On CCO:

**Service & Support: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: New Feature Documentation**

On the Documentation CD-ROM:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0: New Feature Documentation**

## 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, which 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, Cisco IOS software functionality, and contain comprehensive configuration examples. Chapters in a command reference provide complete command syntax information. Use each configuration guide with its corresponding command reference.

On CCO:

**Service & Support: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Configuration Guides and Command References**

On the Documentation CD-ROM:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Configuration Guides and Command References**

### Cisco IOS Release 12.0 Documentation Set

Table 4 describes the contents of the Cisco IOS Release 12.0 software documentation set which is available in electronic form and in printed form upon request.

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**Note** You can find the most current Cisco IOS documentation on CCO and the Documentation CD-ROM. These electronic documents may contain updates and modifications made after the paper documents were printed.

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On CCO:

**Service & Support: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0**

On the Documentation CD-ROM:

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

**Table 4 Cisco IOS Software Release 12.0 Documentation Set**

Books	Chapter Topics
<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 System Management

**Table 4 Cisco IOS Software Release 12.0 Documentation Set (continued)**

Books	Chapter Topics
<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 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"> <li>• <i>Dial Solutions Configuration Guide</i></li> <li>• <i>Dial Solutions Command Reference</i></li> </ul>	X.25 over ISDN Appletalk Remote Access Asynchronous Callback, DDR, PPP, SLIP Bandwidth Allocation Control Protocol ISDN Basic Rate Service ISDN Caller ID Callback PPP Callback for DDR Channelized E1 & T1 Dial Backup for Dialer Profiles Dial Backup Using Dialer Watch Dial Backup for Serial Lines Peer-to-Peer DDR with Dialer Profiles DialOut Dial-In Terminal Services Dial-on-Demand Routing (DDR) Dial Backup Dial-Out Modem Pooling Large-Scale Dial Solutions Cost-Control Solutions Virtual Private Dialup Networks Dial Business Solutions and Examples
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Interface Configuration Guide</i></li> <li>• <i>Cisco IOS Interface Command Reference</i></li> </ul>	Interface Configuration Overview LAN Interfaces Logical Interfaces Serial Interfaces
<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 Overview IP Addressing and 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>	Network Protocols Overview Apollo Domain Banyan VINES DECnet ISO CLNS XNS

**Table 4 Cisco IOS Software Release 12.0 Documentation Set (continued)**

Books	Chapter Topics
<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 and Firewalls IP Security and Encryption Passwords and Privileges Neighbor Router Authentication IP Security Options
<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 Services Switching Paths for IP Networks Virtual LAN (VLAN) Switching and Routing
<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>	Wide-Area Network Overview ATM Frame Relay SMDS X.25 and LAPB
<ul style="list-style-type: none"> <li>• <i>Voice, Video, and Home Applications Configuration Guide</i></li> <li>• <i>Voice, Video, and Home Applications Command Reference</i></li> </ul>	Voice over IP Voice over Frame Relay Voice over ATM Voice over HDLC Frame Relay-ATM Internetworking Synchronized Clocks Video Support Universal Broadband Features
<ul style="list-style-type: none"> <li>• <i>Quality of Service Solutions Configuration Guide</i></li> <li>• <i>Quality of Service Solutions Command Reference</i></li> </ul>	Policy-Based Routing QoS Policy Propagation via BGP Committed Access Rate Weighted Fair Queueing Custom Queueing Priority Queueing Weighted Random Early Detection Scheduling Signaling RSVP Packet Drop Frame Relay Traffic Shaping Link Fragmentation RTP Header Compression
<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** *Cisco Management Information Base (MIB) User Quick Reference* is no longer published. For the latest list of MIBs supported by Cisco, see *Cisco Network Management Toolkit* on CCO at **Service & Support: Software Center: Network Mgmt Products: Cisco Network Management Toolkit: Cisco MIB**.

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## Service and Support

For service and support for a product purchased from a reseller, contact the reseller, who offers a wide variety of Cisco service and support programs described in “Service and Support” in *Cisco Information Packet* shipped with your product.

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**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.

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

## Software Configuration Tips on the Cisco Technical Assistance Center Home Page

If you have a CCO login account, you can access the following URL, which contains links and 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 CCO and click on this path: **Products & Technologies: Products: Technical Tips.**

The following sections are provided from the Technical Tips page:

- Access Dial Cookbook—Contains common configurations or recipes for configuring various access routes and dial technologies.
- Field Notices—Notifies you of any critical issues regarding Cisco products and includes problem descriptions, safety or security issues, and hardware defects.
- Frequently Asked Questions—Describes the most frequently asked technical questions about Cisco hardware and software.
- Hardware—Provides technical tips related to specific hardware platforms.
- Hot Tips—Describes 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 reach Fax-on-demand and receive documents at your fax machine from the United States, call 888-50-CISCO (888-502-4726). From other areas, call 650-596-4408.
- Internetworking Features—Lists tips on using Cisco IOS software features and services.
- Sample Configurations—Provides actual configuration examples that are complete with topology and annotations.
- Software Products—Contains Cisco IOS Software Bulletins, Cisco TCP/IP Suite 100, General Cisco IOS, Internet/Intranet Applications and Software, Network Management, Network Protection Software Tips, and WAN Switching Products and Software.
- Special Collections—Lists other helpful documents, including Case Studies, References & Request for Comments (RFCs), and Security Advisories.

## 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](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 Cisco's 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 that 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 documents listed in the "Related Documentation" section on page 20.

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