



Text Part Number: 78-5788-07 Rev. C0

Release Notes for Cisco 6400 NSP for Cisco IOS Release 12.0(7)DB

February 18, 2002

Note You can find the most current Cisco IOS documentation on Cisco.com. The electronic documents might contain updates and modifications made after the hardcopy documents were printed.

These release notes for the node switch processor (NSP) of the Cisco 6400 Universal Access Concentrator (UAC) support Cisco IOS Release 12.0 DB, up to and including Cisco IOS Release 12.0(7)DB2. These release notes are updated as needed to describe new features, memory requirements, hardware support, software platform deferrals, and changes to the microcode or modem code and related documents.

For a list of the software caveats that apply to Release 12.0(7)DB2, see the “Software Caveats” section on page 13 and *Caveats for Cisco IOS Release 12.0 T*. The caveats document is updated for every maintenance release and is located on Cisco.com and the Documentation CD-ROM.

Use these release notes in conjunction with the cross-platform *Release Notes for Cisco IOS Release 12.0* located on Cisco.com and the Documentation CD-ROM.

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Corporate Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA

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System Requirements

This section describes the system requirements for Cisco IOS Release 12.0(7)DB2 and includes the following sections:

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Memory Requirements

Table 1 describes the memory requirements for the Cisco 6400 platform supported by Cisco IOS Release 12.0 DB.

Table 1 Memory Requirements for the Cisco 6400 Universal Access Concentrator

Product Name	Image Names	Recommended Main Memory	Recommended Flash Memory	Runs from
Cisco 6400 Series IOS FOR NSP	c6400s-wp-mz c6400s-html.tar	The standard 64 MB DRAM memory configuration supports up to 12K virtual circuits (VCs). 128 MB DRAM is recommended for supporting up to 32K VCs, or for using ATM RMON or ATM Accounting.	20 MB	RAM

When used in a redundant configuration, the primary and backup NSPs should have identical hardware configurations, including DRAM size, Flash memory size, and Flash disk size. To learn about redundancy in the Cisco 6400, see “Configuring System Features” in the *Cisco 6400 UAC Software Configuration Guide*.

Hardware Supported

Cisco IOS Release 12.0(7)DB2 supports the Cisco 6400 NSP as well as the NSP with Stratum 3/BITS (C6400-NSP-S3B). The NSP-S3B is required to use the BITS Network Clocking software feature. For detailed descriptions of the new hardware features, see the “New and Changed Information” section on page 5.

Note All content in this document that refers to the NSP also applies to the NSP-S3B.

Software Compatibility

Cisco recommends that Release 12.0(7)DB2 software is used concurrently with Cisco IOS Release 12.0(7)DC for the Cisco 6400 node route processor (NRP). For information about Release 12.0(7)DC for the NRP, see *Release Notes for Cisco 6400 Node Route Processor (NRP) for Cisco IOS Release 12.0(7)DC*.

Note Use of the combined network management Ethernet (NME) interface requires Cisco IOS Release 12.0(5)DC or later for the NRP. See the “Combined Network Management Ethernet Interface” section on page 7 for more information.

Determining Your Software Release

To determine the version of Cisco IOS software currently running on the Cisco 6400 NSP, log in to the NSP and enter the **show version EXEC** command. The following is sample output from the **show version** command performed on the Cisco 6400. The version number is indicated on the second line as shown below:

```
Cisco Internetwork Operating System Software
IOS (tm) C6400 Software (C6400S-WP-M), 12.0(7) DB
```

The output includes additional information including processor revision numbers, memory amounts, hardware IDs, and partition information. To upgrade to a new software release, see the section below.

Upgrading to a New Software Release

For specific information on upgrading a dual-NSP system to a new software release, see “Configuring System Features” in the *Cisco 6400 UAC Software Configuration Guide*.

For information about upgrading to a new software release, see the product bulletin *Cisco IOS Upgrade Ordering Instructions* located at:
http://www.cisco.com/warp/public/cc/cisco/mkt/ios/prodlit/957_pp.htm

If you do not have an account on Cisco.com and want 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 Cisco.com at:

**Technical Documents: Product Bulletins: Software: Cisco IOS 11.3:
Cisco IOS Software Release 11.3 Upgrade Paths No. 703**

This product bulletin does not contain information specific to Cisco IOS Release 12.0 but provides generic upgrade information that may apply to Cisco IOS Release 12.0.

Feature Table

The Cisco IOS software is packaged in software images that each contain a specific set of Cisco IOS features. Table 2 lists the features supported by the Cisco 6400 NSP image called c6400s-wp-mz.

Note Table 2 contains only a selected list of features. The table is not a cumulative or complete list of all the features in this image. You can find the most current Cisco IOS documentation on Cisco.com. These electronic documents may contain updates and modifications made after the hardcopy documents were printed. If you have a Cisco.com login account, you can find image and release information regarding features prior to Cisco IOS Release 12.0(7)DB2 by using the Feature Navigator tool at: <http://www.cisco.com/go/fn>.

Table 2 Feature List for the Cisco 6400 Node Switch Processor

Supported Features

Access lists on Interim Local Management Interface (ILMI) registration
Asynchronous Transfer Mode (ATM) access lists
ATM accounting
ATM accounting enhancements
ATM Address Resolution Protocol (ARP) client on NSP
ATM ARP server on NSP
ATM remote monitoring (RMON)
ATM soft restart
BITS External Network Clock Source
Closed user groups (CUGs)
Dynamic Host Configuration Protocol (DHCP) client support
Dual leaky bucket policing
E.164 address translation and autoconversion
Hardware redundancy
Interim-Interswitch Signaling Protocol (IISP)
ILMI version 4.0
Internet Protocol (IP)
LANE ¹ client (LEC) and LANE Services (LES ² /BUS ³ /LECS ⁴) on NSP
Left-justified E.164 AFI support
Logical multicast support (up to 254 leaves per output port, per point-to-multipoint virtual circuits [VCs])
Multiprotocol Label Switching (MPLS) Label Switch Router (LSR)
Multiple, weighted, dynamic thresholds for selective packet marking and discard
Multipoint-to-point User-Network Interface (UNI) signaling
Network clocking enhancements for smooth switchover
Network Time Protocol (NTP)
Operation, administration, and maintenance (OAM) F4 and F5
Per-VC or per-virtual path (VP) nondisruptive snooping
Private Network Node Interface (PNNI) hierarchy
Point-to-point and point-to-multipoint permanent virtual channel connections (VCCs) and virtual path connections (VPCs)
Point-to-point and point-to-multipoint switched VCCs and VPCs (UNI 3.0)
Point-to-point and point-to-multipoint switched VCCs and VPCs (UNI 3.1)

Table 2 Feature List for the Cisco 6400 Node Switch Processor (continued)**Supported Features**

Point-to-point and point-to-multipoint switched VCCs and VPCs (UNI 4.0)

Port snooping

Scheduler/Service Class/permanent virtual circuit (PVC) configuration

Shaped VP tunnels for constant bit rate (CBR) traffic

Signaling diagnostics and Management Information Base (MIB)

Simple Network Management Protocol (SNMP)

Soft VCCs and VPCs

Stratum 3 Internal Clock Accuracy

Substitution of other service categories in shaped VP tunnels

Support for nonzero minimum cell rate (MCR) on available bit rate (ABR) connections

Synchronous Optical Network (SONET) automatic protection switching (APS) support

Terminal Access Controller Access Control System Plus (TACACS+)

Telco alarm support

Telnet

Token Ring LANE services

VP tunneling

Virtual path identifier/virtual channel identifier (VPI/VCI) range support in ILMI 4.0

Web-based configuration

1LANE = LAN emulation

2LES = LAN Emulation Server

3BUS = broadcast and unknown server

4LECS = LAN Emulation Configuration Server

New and Changed Information

The following sections list the new features supported by the Cisco 6400 in Cisco IOS Release 12.0 DB.

No New Hardware Feature Supported in Release 12.0(7)DB2

There are no new hardware features supported by the Cisco 6400 NSP in Cisco IOS Release 12.0(7)DB2.

No New Software Features in Release 12.0(7)DB2

There are no new software features supported by the Cisco 6400 NSP in Cisco IOS Release 12.0(7)DB2.

No New Hardware Feature Supported in Release 12.0(7)DB1

There are no new hardware features supported by the Cisco 6400 NSP in Cisco IOS Release 12.0(7)DB1.

New Software Features in Release 12.0(7)DB1

Web Console VP Provisioning Enhancement

The Cisco 6400 NSP web console now supports a graphical user interface (GUI) to provision virtual paths (VPs). This enhancement only affects the http server operation on the Cisco 6400 and does not affect any other operation on the Cisco 6400. The GUI works with Netscape Navigator version 4.51, 4.7, and 6.0 and with Microsoft Internet Explorer version 5.0 and 5.5.

Clicking on the “VP subscriber” graphic button on the graphical navigator menu bar initiates the VP provisioning process. The help files now include a “VP Subscriber” help page.

For information on how to launch the NSP web console application, see the section *NSP Web Console Application* in the chapter *Managing the Cisco 6400 SCM Element Manager Windows* in the *Cisco 6400 Service Connection Manager User Guide*.

New Hardware Feature Supported in Release 12.0(7)DB

Node Switch Processor with Stratum 3/BITS

The Node Switch Processor with Stratum 3/BITS (NSP-S3B) enables the use of the BITS Network Clocking software feature. The NSP-S3B enables the Cisco 6400 to serve as a stratum 3 network clock source for other network devices. When no external clock source is available, the NSP-S3B provides stratum level 3 internal timing on the Cisco 6400. Otherwise the NSP-S3B is identical to the default NSP. For more information about installing the NSP-S3B, see the *Cisco 6400 UAC Hardware Installation and Maintenance Guide*.

New Software Features in Release 12.0(7)DB

BITS Network Clocking

The BITS Network Clocking feature enables the Cisco 6400 to derive network timing from the central office (CO) BITS. This feature requires the NSP with Stratum 3/BITS (NSP-S3B). For more information about this feature, see the *BITS Network Clocking* feature module.

Multiprotocol Label Switching

The NSP can participate in a Multiprotocol Label Switching (MPLS) network as an ATM label switch router (LSR). For more information about MPLS on the Cisco 6400, see the *Configuring Multiprotocol Label Switching on the Cisco 6400 UAC* configuration note.

New Hardware Features Supported in Release 12.0(5)DB

OC12 Node Line Card

The OC12 node line card (NLC) supports bandwidth up to 622 Mbps between the Cisco 6400 Universal Access Concentrators and the network backbone. The OC12 NLC is a full-height card that mounts in the chassis on a full-height carrier module. For more information about installing an OC12 NLC, see the *Cisco 6400 UAC FRU Installation and Replacement Guide*.

AC Power Entry Module

The AC power entry module (PEM) provides power conversion directly from the facility VAC input power to the -48VDC used internally in the Cisco 6400 chassis. AC power comes into the AC PEM through a power cord attached to the front faceplate. An additional AC PEM can be used for redundancy. For more information about installing an AC PEM, see the *Cisco 6400 UAC Hardware Installation Guide*.

New Software Features in Release 12.0(5)DB

ATM Software Enhancements

Release 12.0(5)DB for the Cisco 6400 NSP includes a number of software enhancements, including hierarchical VP tunnels, frame relay network and service interworking, and network clock distribution protocol. For more information about the ATM capabilities of the Cisco 6400 NSP, refer to the following documents:

- *Guide to ATM Technology*
- *ATM Switch Router Quick Configuration Guide*
- *ATM Switch Router Software Configuration Guide*
- *ATM Switch Router Command Reference*

Combined Network Management Ethernet Interface

The combined network management Ethernet (NME) interface allows the entire Cisco 6400 system, including the NSP and all installed NRPs, to be managed through a single Ethernet interface. The NME interface eliminates the need for Ethernet cables and connections on individual NRPs. For more information about using the combined NME interface, see “Configuring the NSP” and “Configuring the NRP” in the *Cisco 6400 UAC Software Configuration Guide*.

Note Use of the combined network management Ethernet (NME) interface requires an NSP of part number 800-03785-03 with Deviation sticker D99-3628, or part number 800-03785-06 or higher. To determine your NSP part number, see “Determining Your NSP Part Number and Hardware Version” section on page 11. For information about removing or installing an NSP, see the *Cisco 6400 UAC FRU Installation and Replacement Guide*.

No New Features in Release 12.0(4)DB

There are no new features supported by the Cisco 6400 NSP in Cisco IOS Release 12.0(4)DB.

New Hardware Features Supported in Release 12.0(3)DB

DS3 Node Line Card

A new DS3 node line card (NLC) has been developed for the Cisco 6400 chassis. The DS3 NLC is a half-height card that mounts in the chassis on a full-height carrier module. Coaxial interface cables are connected to the DS3 using BNC connectors on the back of the Cisco 6400 chassis. For more information about installing a DS3 NLC, see the *Cisco 6400 UAC FRU Installation and Replacement Guide*.

No New Features in Release 12.0(2)DB

There are no new features supported by the Cisco 6400 NSP in Cisco IOS Release 12.0(2)DB.

New Software Features in Cisco IOS Release 12.0(1)DB

Redundancy

Resiliency for both the NSP and NRP is based on extended high system availability (EHSA). If the NRP fails, no virtual circuits (VCs) from the NSP must be reconfigured. The NRP blades also support online insertion and removal (OIR). When operating in non-redundant mode, the NRPs appear as separate network management entities, and can be accessed via individual console ports.

Synchronous Optical Network (SONET) Automatic Protection Switching (APS)

SONET APS provides a mechanism to support redundant transmission circuits, such as single-mode fibers, between SONET devices. Automatic switchover from the primary or working circuit to the backup or protection circuit happens when the working circuit fails or degrades.

The Cisco 6400 supports 1+1, linear, unidirectional, non-reverting APS operation on its redundant OC-3/STM-1 ports.

Telco Alarms

A telco uses system alarms to help monitor equipment and identify the cause of physical system problems within the central office. There are three levels of alarms: minor, major, and critical, and there are many sources of alarm conditions. Temperature thresholds are one source, but alarms can be triggered by card failure, SONET APS failures, NRP failures, and generic alarms.

The Cisco 6400 includes environmental monitoring hardware and a digital thermometer that measures the temperature of the intake air flow and the temperature at the hottest part of the chassis. Temperature thresholds for each alarm type and location are automatically set, based on empirically determined values that vary depending on the number and type of boards inserted in the chassis. In addition to the automatically set thresholds, you can set your own thresholds for minor and major temperature alarms.

The Cisco 6400 supports BellCore standard alarms, and additional commands have been added that allow you to manage the alarms and reset chassis components as needed.

Dynamic Host Configuration Protocol (DHCP) Client

The Cisco 6400 acts as a DHCP client and automatically acquires an IP address, subnet mask, and default route from a DHCP server on the network. This feature allows you to install the Cisco 6400 in the central office using non-technical personnel. The plug-n-play option allows you to configure the Cisco 6400 from a Network Operations Center (NOC), without being physically close to the system.

Web Console

Web Console is a graphical user interface (GUI) lets you set or change the system configuration and monitor system activity. The Web Console application is accessible from any Web browser on the Telco management network. You can configure basic system parameters, Simple Network Management Protocol (SNMP) management parameters, set up subscribers, and monitor the current status of your chassis LEDs from anywhere on the network with Web Console.

Important Notes

This section contains important information about use of your Cisco 6400 UAC NSP.

Web Console Issues

The Web Console application is designed to use JavaScript, which is available with both Netscape Navigator and Microsoft Internet Explorer. However, a number of issues are present when using either application. To date, using Netscape Navigator 4.x has resulted in fewer issues than Microsoft Internet Explorer 4.x.

Before using the Web Console application, verify that your browser is set to use at least 4 MB (4096 KB) of cache memory.

The following sections tell how to deal with some of the browser issues affecting each application.

Microsoft Internet Explorer 4.x

Web Console might not reflect the most current redundancy status and auto synchronization setting because the check box and option buttons are not displayed properly. Therefore, you must verify your configuration by viewing the configuration file.

An empty dialog box might display after you apply new settings in any of the Web Console pages. If an empty dialog box is displayed, click the Internet Explorer **Refresh** button to view your new settings.

The **show interface** command on the Status page fails with Internet Explorer. There is no workaround, so this function is not available.

Netscape Navigator 4.x

If a blank window is displayed after you resize your Navigator window, click the **Reload** button to redisplay the page.

Frequent and rapid clicking on the Web Console Status page can cause syntax and LED errors. This problem is eliminated if the browser cache is set to 4096 KB.

Using Verbose Debug Options

On a dual-NSP system, switchovers can occur if verbose debugging commands, such as **debug all** or **debug oir** commands, are used. To avoid this situation when using verbose **debug** commands, execute the **redundancy keepalive disable** command at the EXEC prompt prior to turning on the **debug** command. After debugging is disabled, enter the **redundancy keepalive enable** command to restore normal system operation.

ATM Generic Flow Control Field

When an ATM cell is received on the NSP, the generic flow control (GFC) field of the ATM cell is passed without modification to the outbound virtual circuit. This is not compliant with the ATM Forum UNI specification, version 3.1, which requires all bits of the GCF field to be reset to zero.

Pre-Existing NSP Hardware Caveats

This section describes possible unexpected behavior by earlier hardware versions of the NSP. To determine your NSP part number (P/N) and hardware version, see the “Determining Your NSP Part Number and Hardware Version” section on page 11.

- CSCdk47837—NRPs reset when you reload or reset a non-redundant NSP in Slot 0A.

Affected Part Number: 800-03785-03

Symptom:

While the NSP is in Slot 0A of a single NSP system, the NRPs reset during NSP reloads or resets.

Workaround:

In a non-redundant system using an NSP of P/N 800-03785-03, place the NSP in Slot 0B.

- CSCdk55268—After a bus error the system does not reboot with autoboot enabled.

Affected Part Number: 800-03785-03

Symptom:

The system remains at the ROMMON prompt after a crash instead of rebooting automatically.

Workaround:

To prevent this problem, set the config register boot field to 0x2.

If the workaround does not work, replace the NSP with P/N 800-03785-04 or higher.

- CSCdm55885—NSPs might experience dropped cells.

A small percentage of NSPs might experience dropped cells. To determine if your NSP is affected, use the **show controllers atm 0/0/0 EXEC** command and check the values in the TPE column. This field counts the number of transmit parity errors and should display all zeros for a good system. If a non-zero value is displayed in the TPE column, replace the NSP with P/N 800-03785-05 or higher.

- CSCdm78716—NME cable consolidation feature hardware requirement.

Affected Part Numbers:

- 800-03785-03 (without Deviation D99-3628)
- 800-03785-04
- 800-03785-05

Symptoms:

- The NSP's network management Ethernet (NME) interface might lock up in such a manner that it will not resume normal operation until it is reset with a "shut" and "no shut" sequence or a complete board reset.
- The NSP might crash with a "Write Exception", "Bus Exception", or "System Reserved Exception" error message.

Since these symptoms might be caused by other problems, use the following table to determine the likelihood of this particular problem:

NME Cable Consolidation is Enabled?	System Uses Redundant NSPs?	Likelihood that CSCdm78716 is the Cause of the Problems
No	No	Not possible—no backplane Ethernet traffic to the NSPs
No	Yes	Possible, but unlikely
Yes	Yes or No	Likely

Workaround:

If you experience this problem, replace your NSP with P/N 800-03785-06 or higher, or with P/N 800-03785-03 with deviation sticker D99-3628 applied.

- CSCdr16154—NRP unrecognized card type.

Affected Part Numbers:

800-03785-01, 800-03785-02, 800-03785-03, 800-03785-04, 800-03785-05, 800-03785-06, 800-03785-07

Symptom:

NSP reports unknown cardtype when the chassis is populated primarily with NRPs.

- Workaround (use one of the following):
- Reduce the number of NRPs in the system
- Make sure all the NRPs are P/N 800-03655-09 or higher
- Make sure the NSP is P/N 800-03785-08 or higher.

Determining Your NSP Part Number and Hardware Version

To determine the part number and hardware version of the NSP, use one of the following methods along with Table 3:

- If you are holding the board, look at the 800- part number label on the back of the NSP.
- If you can only view the faceplate of the NSP, look at the CLEI code label.
- Enter the **show hardware EXEC** command to display the NSP-PC and NSP-SC part numbers and hardware versions.

The following example displays the **show hardware** command output for an NSP:

```
Switch# show hardware

6400 named Switch, Date:17:51:21 UTC Thu Mar 9 2000
Feature Card's FPGA Download Version:0

Slot  Ctrlr-Type  Part No.  Rev  Ser No  Mfg Date  RMA No.  Hw Vrs  Tst  EEP
-----
1/0   NRP          73-3082-08  F0  17827878  Feb 02 00 00-00-00  4.255  0  2
2/0   NRP          73-3082-08  F0  17828272  Feb 02 00 00-00-00  4.255  0  2
3/0   NRP          73-3082-08  F0  17800617  Feb 16 00 00-00-00  4.255  0  2
4/0   NRP          73-3082-08  F0  17801802  Feb 22 00 00-00-00  4.255  0  2
5/0   NRP          73-3082-08  F0  17828075  Feb 06 00 00-00-00  4.255  0  2
7/0   NRP          73-3082-08  F0  17800637  Feb 16 00 00-00-00  4.255  0  2
8/0   622SM NLC    73-3868-02  A0  14327690  Oct 15 99 00-00-00  1.0    0  2
-----
--> 0B/FC NSP-PC    73-2996-06 A0  15794042  Mar 05 00 00-00-00  1.1  0  2
--> 0B/PC FC-PFQ   73-2281-04  B0  17803407  Mar 05 00 00-00-00  4.1    0  2
0B/PC NSP-SC    73-2997-06 A0  17826384  Mar 05 00 00-00-00  1.0  0  2

Primary NSP:Slot 0B

DS1201 Backplane EEPROM:
Model Ver.  Serial  MAC-Address  MAC-Size  RMA  RMA-Number  MFG-Date
-----
C6400  2  17900239  000142C04900  128  0  0  Mar 04 2000

Switch#
```

Note If your **show hardware** output shows the NSP-PC Part No. as 73-2996-03 and the NSP-SC Part No. as 73-2997-02, you have an NSP on which the part numbers were incorrectly programmed. Use the CLEI code to determine your NSP part number. If you cannot physically see the NSP, assume you have P/N 800-03785-03.

Table 3 NSP Part Numbers and Hardware Versions

CLEI Code	800- Part Number	NSP-PC		NSP-SC	
		Part No.	Hw Vrs	Part No.	Hw Vrs
BAC5DD7DAA	800-03785-07	73-2996-06	any	73-2997-07	any
BAC5DDVDAA	800-03785-06	73-2996-06	any	73-2997-06	any
BAC5DDVDAA	800-03785-05	73-2996-05	any	73-2997-05	any
BAC5DD0DAB	800-03785-04	73-2996-05	any	73-2997-04	any
BAC5DD0DAA	800-03785-03 (Deviation D99-3628) (Deviation D99-3178)	73-2996-04	1.1 (Dev. D99-3628 put HW Version to 1.1)	73-2997-03	any
	800-03785-03 (Deviation D99-3628)	73-2996-04	1.1 (Dev. D99-3628 put HW Version to 1.1)	73-2997-03	any
	800-03785-03 (Deviation D99-3178)	73-2996-04	any	73-2997-03	any
	800-03785-03	73-2996-04	any	73-2997-03	any

Note Deviation labels might not be visible. If you cannot verify that your NSP has a particular deviation, assume it does not.

Software Caveats

This section contains open and resolved caveats for the current Cisco 6400 NSP Cisco IOS release only. Caveats describe unexpected behavior in Cisco IOS software releases. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious. Severity 3 caveats are moderate caveats.

Caveats in Cisco IOS Release 12.0(7)T also apply to Release 12.0(7)DB2. For information on caveats in the Cisco IOS Release 12.0(7)T, refer to the “Caveats” sections in the *Cross-Platform Release Notes for Cisco IOS Release 12.0*. This document lists severity 1 and 2 caveats and only selected severity 3 caveats, and is located on Cisco.com and the Documentation CD-ROM.

Note If you have an account with Cisco.com, 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 Cisco.com, select **Technical Assistance Center: Software Bug Toolkit**.

Open Caveats—Release 12.0(7)DB2

There are no open caveats specific to Cisco IOS Release 12.0(7)DB2 that require documentation in the release notes.

Resolved Caveats—Release 12.0(7)DB2

All the caveats listed in this section are resolved in Release 12.0(7)DB2. This section describes severity 1, 2, and selected severity 3 caveats.

- 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>

Open Caveats—Release 12.0(7)DB1

This section describes possibly unexpected behavior by Release 12.0(7)DB. This section describes severity 1, 2, and selected severity 3 caveats.

- CSCdk46692

The **dir disk0:** command shows the disk is still present even after it has been removed. A message is sent to the console log when a PCMCIA disk is removed. Do not attempt any disk operations after the removal notice is displayed because they will not work. There is no workaround.

- CSCdp93303

Using WebConsole, when one clicks the "configure" button for an NRP, one might receive an error message in the browser indicating that the browser "cannot locate the server". There is no workaround.

Resolved Caveats—Release 12.0(7)DB1

All the caveats listed in this section are resolved in Release 12.0(7)DB. This section describes severity 1, 2, and selected severity 3 caveats.

- CSCdp37199

An active redundant NRP in an even slot will not pass some VC RADIUS information correctly. Instead of the ingress VPI/VCI, a RADIUS packet with a zero field is sent. Correct information is passed to the RADIUS server when the active redundant NRP is in an odd slot number.

- CSCdp67178

In the NSP Cisco IOS Release 12.0(5)DB, we can't establish a non-UBR soft-vc from the ATM port going to the NRP. Various workarounds do exist:

- 1) Use 12.0(4)DB
- 2) Use UBR soft-vc

- CSCdp93743

An NSP running Cisco IOS Release 12.0(5)DB will not accept ATM PVC CTTR parameters with certain rx-cttr and tx-cttr values.

Related Documentation

The following sections describe the documentation available for the Cisco 6400 Universal Access Concentrator. The most up-to-date documentation can be found on the web via Cisco.com and on 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
- Feature Modules, page 16
- Cisco IOS Software Document Set, page 17

Release-Specific Documents

The following documents are specific to Release 12.0 T. They are located on Cisco.com and the Documentation CD-ROM:

- *Release Notes for Cisco IOS Release 12.0 T:*

To access the cross-platform *Release Notes for Cisco IOS Release 12.0 T* on Cisco.com, follow this path:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Release Notes: Cross-Platform Release Notes

To access the cross-platform *Release Notes for Cisco IOS Release 12.0* on the Documentation CD-ROM, follow this path:

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

- Product bulletins, field notices, and other release-specific documents:
To access these documents, refer to the Software Center at this path on Cisco.com:

Service and Support: Technical Documentation

- Caveat documents:

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

To access the caveat document on Cisco.com, follow this path:

Service and Support: Technical Documentation: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Caveats: Caveats for Cisco IOS Release 12.0 T

To access the caveat document on the Documentation CD-ROM, follow this path:

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

Note If you have an account with Cisco.com, 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 Cisco.com, select **Software & Support: Tools: Bug Toolkit II**.

Platform-Specific Documents

The documents listed in Table 4 are available for the Cisco 6400 UAC. These documents are also available online at Cisco.com and on the Documentation CD-ROM.

To access Cisco 6400 documentation on Cisco.com, follow this path:

Service and Support: Technical Documents: Documentation Home Page: DSL Products: Cisco 6400

To access Cisco 6400 documentation on the Documentation CD-ROM, follow this path:

DSL Products: Cisco 6400

Table 4 Platform Documents for the Cisco 6400 Universal Access Concentrator

Document Title	Chapter Topics
<i>Cisco 6400 UAC Hardware Installation Guide</i>	About This Manual Hardware Description Preparing for Installation Installing the Cisco 6400 Troubleshooting Maintaining the Cisco 6400 System Specifications Glossary Configuration Worksheets Installing the AC-Input Power Shelf and Power Supply

Table 4 Platform Documents for the Cisco 6400 Universal Access Concentrator (continued)

Document Title	Chapter Topics
<i>Cisco 6400 UAC Site Planning Guide</i>	About This Guide Cisco 6400 Overview Site Planning Considerations System Specifications Cabling Specifications Glossary
<i>Regulatory Compliance and Safety Information for the Cisco 6400</i>	Overview of the Cisco 6400 Universal Access Concentrator General Documentation Information Agency Approvals Translated Safety Warnings Cisco Connection Online
<i>Cisco 6400 UAC Software Configuration Guide and Command Reference</i>	About This Guide Product Overview and Configuration Cisco IOS Software Fundamentals Using the Web Console Configuring the NSP Configuring System Features Configuring the NRP Configuring Interfaces Command Reference MIB Information Resolving Error Messages Glossary
<i>Cisco 6400 FRU Installation and Replacement</i>	Tools and Equipment Required General Safety Precautions and Maintenance Guidelines Replacing the Front Cover Powering Down the System Backing Up the PCMCIA Card Maintaining the Air Filter Replacing an NSP Module Replacing an NRP Module Installing or Replacing a Half-Height NLC Replacing a PEM Replacing the Blower Module and Fans Verifying Plug-In Module and Component Installation

Feature Modules

Feature modules describe new features supported by Release 12.0 DB. Feature modules are available online only. In the next printing of the Cisco IOS documentation set, feature modules will be included as updates to the Cisco IOS Documentation set. Each feature module consists of a brief overview of the feature, benefits, configuration tasks, and a command reference.

To reach the feature modules on the Cisco.com home page, click on this path:

Service & Support: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: New Feature Documentation: New Features in 12.0-Based Limited Lifetime Releases

To reach the feature modules on the Documentation CD-ROM, click on this path:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0: New Feature Documentation: New Features in 12.0-Based Limited Lifetime Releases

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 and Indexes

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.

On Cisco.com and the Documentation CD-ROM, two master hot-linked indexes provide indexing information for the Cisco IOS software documentation set: an index for the configuration guides and an index for the command references. In addition, individual books contain a book-specific index.

To access these indexes on Cisco.com, follow this path:

Service and Support: Technical Documentation: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Cisco IOS Release 12.0 Configuration Guides and Command References: Configuration Guide Master Index or Command Reference Master Index

To access these indexes 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: Configuration Guide Master Index or Command Reference Master Index

To access documentation related to an index entry, click on the page number following the entry.

Release 12.0 Documentation Set

Table 5 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 Cisco.com, follow this path:

Service and Support: Technical Documentation: Documentation Home Page: 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 5 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> 	<ul style="list-style-type: none"> Configuration Fundamentals Overview Cisco IOS User Interfaces File Management System Management
<ul style="list-style-type: none"> • <i>Bridging and IBM Networking Configuration Guide</i> • <i>Bridging and IBM Networking Command Reference</i> 	<ul style="list-style-type: none"> Bridging and IBM Networking Overview Bridging IBM Networking
<ul style="list-style-type: none"> • <i>Dial Solutions Configuration Guide</i> 	<ul style="list-style-type: none"> Overview of Interfaces, Controllers, and Lines Used for Dial Access Configuring Modem Support and Other Asynchronous Devices Managing Modems Configuring Terminal Operating Characteristics for Dial-In Sessions Setting Up ISDN Basic Rate Service Configuring Synchronous Serial Ports Configuring Channelized E1 and T1 Configuring ISDN Special Signaling Configuring X.25 on ISDN Using A0/D1 Configuring AppleTalk Remote Access Preparing for Asynchronous DDR Configuring Asynchronous PP and SLIP Configuring the Bandwidth Allocation Control Protocol Configuring PPP Callback for DDR Configuring ISDN Caller ID Callback Configuring Dial Backup for Dialer Profiles Configuring Dial Backup Using Dialer Watch Configuring Dial Backup for Serial Lines Configuring Peer-to-Peer DDR with Dialer Profiles Configuring DialOut Enterprise Dial Scenarios and Configurations Configuring Easy IP Deciding and Preparing to Configure DDR Configuring Legacy DDR Hubs Configuring Multichassis Multilink PPP Configure Support For NASL Clients to Access Network Resources Dial Networking Business Applications Configuring the Cisco PAD Per-User Configuration Configuring Media-Independent PPP and Multilink PPP Configuring Protocol Translation and Virtual Asynchronous Devices
<ul style="list-style-type: none"> • <i>Dial Solutions Configuration Guide (continued)</i> 	<ul style="list-style-type: none"> Establishing a Reverse Telnet Session to a Modem Configuring Snapshot Routing Telco and ISP Dial Scenarios and Configurations Configuring Legacy DDR Spokes Configuring Dial-In Terminal Services Configuring V.120 Access Configuring Virtual Private Dialup Networks Configuring Virtual Profiles Configuring Virtual Template Interfaces Configuring X.25 on ISDN

Table 5 Cisco IOS Software Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Dial Solutions Command Reference</i> 	Dial-In Port Setup Dial-In Terminal Services and Remote Node Config Dial-on-Demand Routing Dial Backup Dial-Out Modem Pooling Large-Scale Dial Solutions Cost-Control Solutions Virtual Private Dialup Networks Other Network Traffic on ISDN Channels Dial-Related Addressing Services
<ul style="list-style-type: none"> • <i>Cisco IOS Interface Configuration Guide</i> • <i>Cisco IOS Interface Command Reference</i> 	Interface Configuration Overview LAN Interfaces Serial Interfaces 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> 	Network Protocols Overview AppleTalk and Novell IPX Overview 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>Security Configuration Guide</i> • <i>Security Command Reference</i> 	Security Overview Authentication, Authorization, and Accounting (AAA) Security Server Protocols Traffic Filtering and Firewalls IP Security and Encryption Other Security Features
<ul style="list-style-type: none"> • <i>Cisco IOS Switching Services Configuration Guide</i> • <i>Cisco IOS Switching Services Command Reference</i> 	Cisco IOS Switching Services Overview Cisco IOS Switching Paths Cisco Express Forwarding NewFlow Switching Tag Switching Multilayer Switching Multicast Distributed Switching Virtual LANs MPOA Commands
<ul style="list-style-type: none"> • <i>Wide-Area Networking Configuration Guide</i> • <i>Wide-Area Networking Command Reference</i> 	Wide-Area Network Overview 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> 	Using Voice, Video, and Home Applications Voice Video Broadband

Obtaining Documentation

Table 5 Cisco IOS Software Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none">• <i>Quality of Service Solutions Configuration Guide</i>• <i>Quality of Service Solutions Command Reference</i>	Quality of Service Overview Classification Congestion Management Congestion Avoidance Policy and Shaping Overview Signalling Link Efficiency Mechanisms
<ul style="list-style-type: none">• <i>Caveats (Caveat documentation for Cisco IOS Releases 12.0 and 12.0T—includes open and resolved severity 1 and 2 caveats for all platform)</i>• <i>Cisco IOS Release 12.0 Configuration Guide Master Index</i>• <i>Cisco IOS Release 12.0 Command Reference Master Index</i>• <i>Cisco IOS Release 12.0 Master Indexes</i>• <i>Cisco IOS Software Command Summary</i>• <i>Cisco IOS Software System Error Messages</i>• <i>Debug Command Reference</i>• <i>Dial Solutions Quick Configuration Guide</i>• <i>New Features in 12.0-Based Limited Lifetime Releases</i>• <i>New Features in Early Deployment Release 12.0T</i>• Release Notes (Release notes for 12.0-based releases and various platforms)	

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 Cisco.com. From Cisco.com, click on the following path: **Service & Support: Software Center: Network Mgmt Products: Cisco Network Management Toolkit: Cisco MIB.**

Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at <http://www.cisco.com>. Translated documentation can be accessed at http://www.cisco.com/public/countries_languages.shtml.

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:

http://www.cisco.com/cgi-bin/order/order_root.pl

- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:

<http://www.cisco.com/go/subscription>

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, in North America, by calling 800 553-NETS(6387).

Documentation Feedback

If you are reading Cisco product documentation on the World Wide Web, you can submit technical comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco.

You can e-mail your comments to bug-doc@cisco.com.

To submit your comments by mail, for your convenience many documents contain a response card behind the front cover. Otherwise, you can mail your comments to the following address:

Cisco Systems, Inc.
Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

Cisco.com provides a broad range of features and services to help customers and partners streamline business processes and improve productivity. Through Cisco.com, you can find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online technical support, download and test software packages, and order Cisco learning materials and merchandise. Valuable online skill assessment, training, and certification programs are also available.

Customers and partners can self-register on Cisco.com to obtain additional personalized information and services. Registered users can order products, check on the status of an order, access technical support, and view benefits specific to their relationships with Cisco.

To access Cisco.com, go to the following website:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

<http://www.cisco.com/register/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

This document is to be used in conjunction with the documents listed in the “Related Documentation” section.

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