



Release Notes for System Software Release 2.4.0 on the Cisco ICS 7750

Current Release:

2.4.0—June 21, 2002

Previous Releases:

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2.2.0—March 27, 2002

2.1.0—December 21, 2001

These release notes describe the features, modifications, and caveats for Cisco Integrated Communications System 7750 (Cisco ICS 7750) release 2.4.0.

Use these release notes with the documents listed in the [“Related Documentation”](#) section on page 14.

**Caution**

We strongly recommend that you read these release notes before using your Cisco ICS 7750.

Contents

This document discusses the following topics:

- [System Requirements, page 2](#)
- [New and Changed Information, page 4](#)
- [Limitations and Restrictions, page 5](#)
- [Important Notes, page 8](#)
- [Open Caveats in Release 2.4.0, page 9](#)
- [Related Documentation, page 14](#)
- [Obtaining Documentation, page 15](#)
- [Obtaining Technical Assistance, page 16](#)



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System Requirements

This section describes the Cisco ICS 7750 requirements and has the following sections:

- [Hardware Summary](#)
- [Software Summary](#)
- [PC Requirements](#)

Hardware Summary

The Cisco ICS 7750 chassis has six universal slots that can contain system processing engine (SPE), multiservice route processor (MRP), and analog station interface (ASI) cards, making customization possible at the factory or in the field by a technician who is IP Telephony certified for the Cisco ICS 7750.

[Table 1](#) lists the number of cards and power supply modules that the Cisco ICS 7750 supports.

Table 1 *Number of Cards Supported*

Card	Chassis Slot	Min. Required	Max. Allowed
ASI81, ASI160, MRP3-8FXS, MRP3-16FXS ¹	1 through 6	0	5
MRP200 or MRP300 ²	1 through 6	0	5
SPE310 ³	1 through 6 ⁴	1	5
System switch processor (SSP)	7	1	1
System alarm processor (SAP)	8	1	1
Power-supply module	POWER SUPPLY 1 or POWER SUPPLY 2	1	2

1. The MRP3-8FXS and the MRP3-16FXS are flash-based versions of the ASI81 and the ASI160, respectively.
2. The MRP300 is a flash-based version of the MRP200.
3. SPE310s are required in order to run system software release 2.1.0 or later.
4. The SPE running System Manager is installed in Slot 6 by default.

Software Summary

Table 2 shows the software that is pre-installed on system cards when you receive a factory-configured chassis.

Table 2 Pre-Installed Software

Software Type	Cards				
	ASIs and MRPs	SPE running System Manager	Other SPEs	SSP	SAP
Firmware					SAP software AC 1_0_6
Operating system		Microsoft Windows 2000 Server	Microsoft Windows 2000 Server		
Router/gateway/switch configuration and management	Cisco IOS Release 12.2(4)YH			Cisco IOS Release 12.0(5)WC5	
System management		ICS System Software ¹	ICS Core Software ²		

1. ICS System Software includes ICS System Manager, Cisco Network Registrar (CNR) 3.5(3), Fault Management Module (FMM), Java Runtime Environment (JRE) version 1.3.1, and Microsoft SQL Server 7.0 Service Pack 2.
2. ICS Core Software includes the following components: FMM, ICSSD, and ICSRshSvc.



ICS System Manager software must be installed on one SPE310 in a Cisco ICS 7750 chassis. ICS Core Software must be installed on all SPEs in the chassis other than the SPE running System Manager.



Software approved for use on the SPE310 in the Cisco ICS 7750, such as Cisco CallManager, can be installed on any SPE310 in the chassis.

SPE Support

Release 2.x.x and later is supported only on SPE310s. The SPE310 offers a keyboard port, a video port, and two universal serial bus (USB) ports supporting standard USB devices such as mice, keyboards, and CD-ROM drives.

The SPE310 also features a 700-MHz Pentium III processor, a 20.4-GB hard disk drive, and 512 MB of onboard memory. You can upgrade SPE310 memory to a maximum of 1536 MB by installing 256-MB or 512-MB dual in-line memory modules (DIMMs) in one or both of the SPE DIMM slots.

For instructions on how to upgrade the memory on SPE310s, refer to [Installing Memory, PVD, and VPN Modules in ASI Cards, MRP Cards, and SPE Cards in the Cisco ICS 7750](#).



Note

A “Y” splitter cable is shipped with SPE310s to support the connection of a keyboard and a PS/2 mouse for software installation and upgrades. To install or upgrade ICS System Manager, ICS Core Software, or IOS software, a PC that meets the specifications in [“PC Requirements”](#) is required.

MRP and ASI Memory Upgrades

MRPs and ASIs ship with 64 MB of RAM. You can upgrade MRP and ASI memory to 80 MB, 96 MB, or 128MB by installing a dual in-line memory module (DIMM) in the DIMM slot on the card.

Refer to *Installing Memory, PVDM, and VPN Modules in ASI Cards, MRP Cards, and SPE Cards in the Cisco ICS 7750* for instructions on how to upgrade the memory on these cards.

PC Requirements

You need a PC to complete initial system configuration and to perform system management tasks. Ensure that the PC meets the following requirements:

- CPU: Pentium-class 233 Mhz or faster
- Memory: At least 64 MB of RAM
- Hardware:
 - CD-ROM drive
 - Network Interface Card
 - Available COM port
- Display: Enhanced VGA monitor with at least a 800 x 600 pixel display and at least 256 colors (a 1024 x 768 pixel display is recommended)
- Operating system: Microsoft Windows 98, Windows NT 4.0, Windows 2000, Windows Me, or Windows XP
- Web browser and plug-ins: Netscape Communicator 4.7 or later or Internet Explorer 5.5 or later (including Java 1.3.1 or later)
- Communication software: Microsoft Terminal Services Client and terminal emulation software (such as HyperTerminal)



Note Refer to the *Cisco ICS 7750 Installation and Configuration Guide* for information about initial hardware installation and software configuration.

New and Changed Information

This section describes new features and changes in functionality in release 2.4.0.

New Software Features and Software Changes in Release 2.4.0

[Table 3](#) shows new software features and changes in software functionality introduced in system software release 2.4.0.

Table 3 *New Software Features and Software Modifications in System Software Release 2.4.0*

Module/Feature	Description of Change
Improved software installation and upgrade	<p>Release 2.4.0 features the following changes to software installation and upgrade:</p> <ul style="list-style-type: none"> • The installation program runs exclusively on the SPE (it does not require a separate PC). As a result, the installation program can be accessed remotely through Terminal Services Client. (If you attempt to run the installation program on a PC, it will not work, and an error message will be displayed.) • The installation program presents a progress bar and dialog boxes so that users can monitor its status. • Remote upgrade of multiple cards in the chassis is supported. For example, the installation program can be remotely accessed to upgrade ICS System Manager on the SPE running System Manager and ICS Core Software on another SPE. • The installation program can be run from a USB CD-ROM attached to an SPE or can be downloaded from CCO and run directly from the SPE. • The installation program does not place any restrictions on SPE IP addresses. • The installation program does not require that the chassis be disconnected from the network. • The installation program supports the installation of bundled service packs and hot fixes. • The installation program makes it possible to change the host name or the date and time on SPEs. • The installation program makes it possible to convert an SPE with ICS Core Software installed to an SPE running System Manager.

Limitations and Restrictions

This section describes known issues with the Cisco ICS 7750 and products that you are likely to use with the Cisco ICS 7750. This section provides information on these topics:

- [Installing Software on SPEs, page 6](#)
- [Changing the Host Name of the SPE Running System Manager, page 6](#)
- [SSP Error Messages, page 6](#)
- [Removing SPEs, page 7](#)
- [Backing Up MRPs Which Have Flash Memory, page 7](#)
- [Configuring Cisco ICS 7750 Gateways in Cisco CallManager, page 7](#)
- [Cisco IP Phone Reconfiguration Following SPE Replacement or Change in SPE IP Address, page 7](#)
- [Providing Backup Power, page 8](#)
- [Connecting to the Catalyst 3524-PWR XL 10/100 Inline-Power Ports, page 8](#)

Installing Software on SPEs

Do not install Cisco Unity Voice Messaging on the SPE running System Manager, and do not install ICS System Manager on an SPE on which Cisco Unity Voice Messaging is installed. The Cisco ICS 7750 does not support the use of both Cisco Unity Voice Messaging and ICS System Manager on the same SPE.

In addition, if you intend to install or upgrade software on an SPE where Cisco Unity Voice Messaging is running, be sure to first stop Unity services running on that SPE.

The following text will be displayed if you attempt to upgrade or install software on an SPE on which Cisco Unity Voice Messaging is running:

Perform the following steps to stop the services on any SPE running Cisco Unity Voice Messaging before continuing with the installation.

1. Right mouse-click on the Cisco Unity Voice Messaging icon in the system tray, and select Stop Unity in the pop-up menu.
2. To open Service Control Manager, click Start, point to Programs, and point to Administrative Tools and click Services.
3. In the Services window, right mouse-click on Microsoft Exchange Information Store service, and select Stop from the pop-up menu.
4. Click Yes to confirm and close the Stop Other Services window.

WARNING: Failure to stop the above services on an SPE running Cisco Unity Voice Messaging can cause installation errors.

Do you want to continue with the installation?

Changing the Host Name of the SPE Running System Manager

The computer name (also known as the *host name*) of an SPE running System Manager can be changed only if no applications have been installed on the SPE since it left the factory. For example, if you install Cisco CallManager on the SPE running System Manager, the only way to change its host name is to reimage it.

To change the host name of an SPE running System Manager, follow the practices and procedures in the “Operating the Cisco ICS 7750” chapter of the [Cisco ICS 7750 Installation and Configuration Guide](#).

SSP Error Messages

If you are using Cisco IOS 12.0(5)WC2b or 12.0(5)WC5 on the SSP, and if you are monitoring the system through a console connection to the SAP, error messages similar to the following might be generated as the SSP boots:

```
% error opening tftp://255.255.255.255/cisconet.cfg (Time out)
% error opening tftp://255.255.255.255/router-config (Time out)
% error opening tftp://255.255.255.255/ciscortr.cfg (Time out)
```

This is an expected condition. The system will continue to operate normally without any external intervention.

Removing SPEs

Before removing an operational SPE from the chassis, be sure to use ICSCfg or the Windows interface to shut it down (by clicking **Start > Shutdown**). This step is strongly recommended for the following reason: if Microsoft SQL Server was running on the SPE when it was removed from the chassis, at the next startup of that SPE, Microsoft SQL Server will require a long recovery period, during which certain Cisco ICS 7750 services and applications might have difficulty connecting to their respective databases.



Note

For additional complete card removal instructions, refer to [Cisco ICS 7750 FRU Installation and Replacement](#).

Backing Up MRPs Which Have Flash Memory

MRPs with onboard flash memory (the MRP300, MRP3-8FXS, and MRP3-16FXS) cannot be backed up using the ICS System Manager Backup utility. You must back up the configuration files for these cards manually.

Configuring Cisco ICS 7750 Gateways in Cisco CallManager

When configuring gateways in Cisco CallManager, the MRP300, MRP3-8FXS, and the MRP3-16FXS will not be available on the CallManager Gateway page. However, until this problem is corrected in Cisco CallManager, you can still add and configure these gateways in Cisco CallManager by substituting a known gateway for the gateway which is missing, as follows:

- When configuring ICS77XX-MRP3xx, choose ICS77XX-MRP2xx
- When configuring ICS77XX-MRP3-8FXS, choose ICS77XX-ASI81
- When configuring ICS77XX-MRP3-16FXS, choose ICS77XX-ASI160

Cisco IP Phone Reconfiguration Following SPE Replacement or Change in SPE IP Address

If you remove and replace the SPE that is running Cisco CallManager or change its IP address, Cisco IP Phones connected to the Cisco ICS 7750 do not automatically register with the SPE, because the SPE has a different IP address.

Complete the following steps to update connected Cisco IP Phones:

-
- Step 1** Access Cisco CallManager. (Refer to the “Accessing the System” section in the “Operating the Cisco ICS 7750” chapter of the [Cisco ICS 7750 Installation and Configuration Guide](#) for instructions.)
- Step 2** Choose **System > Cisco CallManager Group**.
The Cisco CallManager Group Configuration page opens.
- Step 3** In the pane on the left side of the window, click **Default**.
The screen refreshes, displaying the Default Cisco CallManager Group.



Caution

Restarting devices causes them to drop calls.

Step 4

Click **Reset Devices**.

Providing Backup Power

If there is a commercial power failure and if data is being written to the SPE hard disk when power is lost, that data might be unrecoverable. In addition, all calls being processed by the system are dropped, and records associated with those calls are lost.



Caution

We strongly recommend that you purchase an uninterruptible power supply (UPS) to provide backup power to the Cisco ICS 7750.

Connecting to the Catalyst 3524-PWR XL 10/100 Inline-Power Ports

For instructions on how to properly configure the Catalyst 3524-PWR XL for inline power, refer to the “Connecting IP Phones” chapter in the [Cisco IP Telephony QoS Design Guide](#).



Caution

A Catalyst 3524-PWR XL 10/100 port needs up to 10 seconds to initially detect, power, and link to a Cisco IP Phone. If you disconnect the Cisco IP Phone before the link has been established, you must wait 10 seconds before connecting another network device (other than another Cisco IP Phone) to that switch port. Failure to do so can result in damage to that network device.

Important Notes

This section describes issues related to sending voice traffic over an IP network.

Voice Over IP

Voice over IP (VoIP) enables a Cisco ICS 7750 to carry voice traffic (for example, telephone calls and faxes) over an IP network. VoIP is primarily a software feature; however, to support this feature, a Cisco ICS 7750 must be equipped with an MRP containing at least one VIC or VWIC, or the Cisco ICS 7750 must be connected to a voice-capable router or gateway. The LAN/WAN multiservice routing capabilities available on these cards provides analog and digital (T1/E1) VoIP gateway capabilities for packetized voice traffic.

In VoIP, the DSP segments the voice signal into frames, which are then coupled in groups of two and stored in voice packets. On the Cisco ICS 7750, these voice packets are transported by using IP in compliance with ITU-T specification H.323 and the Skinny Station Protocol. Because voice packets sent over an IP network are sensitive to delay, you need to have a well-engineered network end-to-end to successfully use VoIP.

Using the Cisco ICS 7750 with the PSTN

When connecting switched voice ports on the Cisco ICS 7750 directly to the Public Switched Telephone Network (PSTN), use the configuration described in this section so that you do not expose your network to telephone fraud.

PSTN to MRP Connectivity Using FXO Connections

The Cisco ICS 7750 can connect a user placing a call from the PSTN directly to your telephone network. You can configure the Cisco ICS 7750 as a phone switch that can switch a user to any location in that network, even to remote locations that are connected again to another PSTN. If your Cisco ICS 7750 has Foreign Exchange Office (FXO) ports (on an MRP) that connect the PSTN to analog lines in your telephone network, configure those FXO ports by using a private line auto ringdown (PLAR) connection, as follows:

Step	Command	Purpose
Step 1	<code>MRP(config)# voice-port slot/port</code>	Enter voice-port configuration mode. The voice-port configuration commands are nested so that all subsequent commands affect only the specified voice port.
Step 2	<code>MRP(config-voiceport)# connection {plar plar-opx} string</code>	Configure the voice-port connection mode type (where <i>string</i> is the telephone number) by using the plar option, or if the connection is for a PLAR Off-Premises eXtension (OPX), use the plar-opx option. (Using the plar-opx option causes the FXO interface that you are configuring to not answer until the called side answers.)

IP Provisioning

The Cisco ICS 7750 is not currently designed to support IP provisioning of Cisco IP Phones across more than one subnet. The Cisco ICS 7750 is intended to be deployed in networks where the default gateway (typically an MRP), TFTP server (Cisco CallManager), and Cisco IP Phones are all located on the same subnet, to take advantage of the DHCP services that CNR provides for Cisco IP Phones.

Open Caveats in Release 2.4.0

This section describes open caveats in system software release 2.4.0, as follows:

- [Open Caveats in ICS System Manager in Release 2.4.0](#)
- [Open Caveats in the Fault Management Module in Release 2.4.0](#)



Note

For caveats for Cisco IOS on ASIs and MRPs, refer to the [Release Notes for the Cisco ICS 7750 for Cisco IOS Release 12.2\(4\)YH](#). For caveats for Cisco IOS on the SSP, refer to the [Release Notes for the Catalyst 2900 LRE XL Switches, Cisco IOS Release 12.0\(5\)WC5](#).

Open Caveats in ICS System Manager in Release 2.4.0

This section describes open caveats in ICS System Manager and related software components for release 2.4.0:

- [Software Installation and Upgrade Problems](#)
- [Login Problems](#)
- [Discovery Problems](#)

Software Installation and Upgrade Problems

This section describes problems related to software installation and upgrade.

CSCdx53154

If you are installing release 2.4.0 with an attached CD-ROM drive, it is possible that after the SPE reboots, a message box might be displayed with a message similar to the following:

```
D:\ not accessible.
```

or

```
Semaphore timeout.
```

Workaround—Restart the SPE. After the SPE restarts, the setup program will resume.

CSCdx06175

If you uninstall ICS System Manager, after rebooting the SPE, a message box will be displayed which says the following:

```
Cannot find the file C:\winnt\system32\cmd (or one of its components). Make sure the path and filename are correct and that ll required libraries are available.
```

This message box has no impact on system functionality.

Workaround—Close the message box. No further action is required.

Login Problems

This section describes a problem with ICS System Manager logins and passwords.

CSCdx68320

When you enter a User ID or password in the ICS System Manager Security page, characters other than alphanumeric characters (the uppercase and lowercase letters a through z, and the numbers 0 through 9) will be allowed. However, you cannot enter User IDs or passwords containing non-alphanumeric characters when logging in to ICS System Manager. If you attempt to log in to ICS System Manager with a User ID or password which contains a non-alphanumeric character, login will fail.

Workaround—Do not enter any non-alphanumeric characters when creating User IDs or passwords through the Security page in ICS System Manager.

Discovery Problems

This section describes a problem where ICSCConfig does not properly discover the SSP.

CSCdx77824

It is possible that in rare situations ICS System Manager will report a duplicate IP address for the SSP. If this situation occurs, ICSCConfig will generate the following error message:

```
Error Code: 102
Cannot discover SSP. SSP <IP Address> is not reachable from SPE running
System Manager <IP Address, Subnet Mask>.
```

Even if the duplicate IP address is resolved, ICSCConfig might fail to recognize that the problem has been corrected and will continue to report a duplicate IP address for the SSP.

Workaround—Complete the following steps to restart the card discovery process:

-
- Step 1** Access the SPE running System Manager. (Refer to the “Accessing the System” section in the “Operating the Cisco ICS 7750” chapter of the *Cisco ICS 7750 Installation and Configuration Guide* for instructions.)
- Step 2** Enter the following commands:
- ```
net stop FMMServer
net start FMMServer
```
- Step 3** Run ICSCConfig. It should properly discover all cards in the chassis.
- 

## Open Caveats in the Fault Management Module in Release 2.4.0

This section describes open caveats in the Fault Management Module, as follows:

- [Software Installation Problems, page 11](#)
- [SPE Problems, page 12](#)
- [SAP Problems, page 12](#)
- [CDP Problems, page 13](#)

## Software Installation Problems

This section describes a problem related to software installation.

### CSCdv74876

After installing Cisco CallManager on an SPE, if the SPE is rebooted, it might not complete its boot sequence successfully.

You might be experiencing this problem if you are attempting to access the SPE through the SAP menu and it fails to give you access, or if Cisco IP Phones are not working properly (because the CallManager service might not have started on the SPE if it did not finish booting).

**Workaround**—To solve this problem, complete the following steps:

- 
- Step 1** Access the SPE Windows interface. (Refer to the “Accessing the System” section in the “Operating the Cisco ICS 7750” chapter of the *Cisco ICS 7750 Installation and Configuration Guide* for instructions.)
- Step 2** Log in as an administrator (User ID *administrator*) and enter your password (the default is *changeme*). Logging in should allow the MMC, STI1, and STI2 processes to complete. When these software configuration processes are complete, the SPE should be functioning normally.
- 

## SPE Problems

This section describes a problem related to SPEs.

### CSCdv19549

After shutting down and rebooting an SPE, it is possible that the SPE might reboot a second time. It is also possible that after installing hot fixes, when the Setup program attempts to restart the SPE, the Setup program will not be able to resume successfully. In the latter case, if a monitor is connected, its display might change to a blue screen or the remote connection (such as Terminal Services Client) might time out.

This problem, though rare, can occur during initialization of a device driver. The second reboot of the SPE might take slightly longer than normal, because Microsoft SQL Server checks the integrity of its database tables due to the unexpected SPE reboot. The SPE should return to normal operation after the second reboot.

**Workaround**—If this problem occurred after hot fix installation, run the Setup program again after the SPE finishes its boot sequence.

## SAP Problems

This section describes problems related to the SAP.

### CSCdv90365

If you change the IOS login passwords of MRP, ASIs, or the SSP with ICSConfig, an error message similar to Failed to set alarm card password might be displayed.

**Workaround**—To solve this problem, complete the following steps:

- 
- Step 1** Open a Telnet session with the SPE.
- Step 2** Enter the following commands:
- ```
net stop "Cisco Systems Console Server"
net stop FMMServer
net start "Cisco Systems Console Server"
net start FMMServer
```
-

CSCdv49147

If you are using the AC1_0_5 image on the SAP and you install an MRP in an empty chassis slot, the system might report zero degrees as the minimum and maximum operating temperature of the newly installed MRP, causing the SPE ALARM LED to turn on.

(The correct minimum and maximum operating temperature of the MRP is –55 and +125 degrees, respectively.)

Workaround—Reseat the SAP.

CSCds06164

If you move an SPE to a different chassis slot, if you establish a connection with the SAP, the menu might show the SPE in its original slot.

Workaround—Reboot the SAP.

CSCdu65741

Some events related to SAP functionality might not be logged, and LEDs on the SPE might stay on when they should turn off.

There is no workaround.

CDP Problems

This section describes problems related to the Cisco Discovery Protocol (CDP).

CSCdx12810

In rare situations it is possible that when you run ICSCconfig, the SPE running System Manager might not be discovered. Even after trying the suggestions given in the corresponding error code, the problem will persist. Furthermore, if a new SPE or MRP is installed in the same chassis, the new card will not receive an IP address. If this error condition occurs, no log messages will be generated and the status of LEDs on the SPE will not change.

Workaround—Reboot the SPE running System Manager.

CSCdv81891

If ICSCconfig assigns the same IP address to an SPE running Cisco Call Manager and another card, it might be because the necessary Cisco Discovery Protocol (CDP) driver is not running on the SPE, causing ICSCconfig to generate an error message (error code 400).

The workaround provided with error code 400 is incorrect. Follow these steps to solve this problem:

-
- Step 1** Connect a Monitor, Keyboard and Mouse to the SPE in the slot indicated by error message.
 - Step 2** On the SPE, choose **Start > Settings > Control Panel > Administrative Tools > Event Viewer**.
The Event Viewer window appears.
 - Step 3** In the left pane, click **System Log**.
 - Step 4** In the right pane, click **Type**.
This sorts the log messages by type.

Step 5 Scroll until Error log messages are visible in the Type column.

Step 6 Double-click the first Error message that you see that has tcpip in the Source column.

The Event Properties dialog for that error appears.

If the error is a duplicate IP address error, the error description will show something similar to the following:

```
The system detected an address conflict for IP address <IP Address> with the system having network hardware address <MAC Address>. Network operations on this system may be disrupted as a result.
```

The MAC address in the error description is the MAC address of the other device that is using the same IP address as the SPE.

Step 7 Locate the device with that MAC address and either change its IP address, temporarily disconnect that device from the network, or change the SPE IP address.

Step 8 Reboot the SPE.

Related Documentation

The following sections describe the documentation available for the Cisco ICS 7750. These documents consist of hardware and software installation guides, Cisco IOS configuration and command references, system error messages, feature modules, and other documents.

Cisco ICS 7750 Documents

The documents described in this section are available on CCO and on CD:

On Cisco.com, beginning under the **Service & Support** heading:

Technical Documents: Voice/Telephony: Cisco ICS 7750

On the Documentation CD-ROM (order number DOC-CONDOCCD=) at:

Cisco Product Documentation: Voice/Telephony: Cisco ICS 7750

Release 2.4.0 Documents

The following documents were updated or created for system software release 2.4.0, and can be found in this location:

<http://www.cisco.com/univercd/cc/td/doc/product/voice/ics/ics24/index.htm>

- *Cisco ICS 7750 Documentation Locator*
- *Installing System Software Release 2.4.0 on the Cisco ICS 7750*
- *Cisco ICS 7750 Installation and Configuration Guide*
- *Release Notes for System Software Release 2.4.0 on the Cisco ICS 7750* (this document)
- *Cisco ICS 7750 Troubleshooting Guide*
- *Cisco ICS 7750 FRU Installation and Replacement*

Documentation Set

Printed versions of the manuals that are not shipped with the product can be ordered as a boxed set (customer order number DOCS-7750=).

Obtaining Documentation

The following sections explain how to obtain documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following URL:

<http://www.cisco.com>

Translated documentation is available at the following URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped 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 through 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, elsewhere in North America, by calling 800 553-NETS (6387).

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Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available through the Cisco TAC: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Inquiries to Cisco TAC are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.

- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

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

All customers, partners, and resellers who have a valid Cisco services contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to the following URL to register:

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

If you cannot resolve your technical issues by using the Cisco TAC Web Site, and you are a Cisco.com registered user, you can open a case online by using the TAC Case Open tool at the following URL:

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

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; these classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following URL:

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

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled; for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.

This document is to be used with the documents listed in the [“Related Documentation”](#) section.

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