



Cisco Unified IP Phone Release Notes for Firmware Release 8.5(4) (SCCP and SIP)

Published: December 23, 2009

The information in this release note applies to the following Cisco Unified IP Phones—7975G, 7971G-GE, 7970G, 7965G, 7962G, 7961G/G-GE, 7945G, 7942G, 7941G/G-GE, 7931G, 7911G, and 7906G.

Use these release notes with a Cisco Unified IP Phone running SCCP or SIP firmware release 8.5(4). The following table lists the Cisco Unified Communications Manager release and protocol compatibility for the Cisco Unified IP Phones.

Cisco Unified IP Phone	Protocol	Cisco Unified Communications Manager
Cisco Unified IP Phone 7975G, 7965G, 7962G, 7945G, and 7942G	SCCP	Cisco Unified Communications Manager 6.0 and later, Cisco Unified CallManager 5.1, 4.3, 4.2, and 4.1
Cisco Unified IP Phone 7975G, 7965G, 7962G, 7945G, and 7942G	SIP	Cisco Unified Communications Manager 6.0 and later, Cisco Unified CallManager 5.1
Cisco Unified IP Phone 7971G-GE, 7970G, 7961G-GE, 7961G, 7941G-GE, 7941G, 7911G, and 7906G	SCCP	Cisco Unified Communications Manager 6.0 and later, Cisco Unified CallManager 5.1, 5.0, 4.3, 4.2, 4.1, 4.0, and Cisco CallManager 3.3
Cisco Unified IP Phone 7971G-GE, 7970G, 7961G-GE, 7961G, 7941G-GE, 7941G, 7911G, and 7906G	SIP	Cisco Unified Communications Manager 6.0 and later, Cisco Unified CallManager 5.1 and 5.0
Cisco Unified IP Phone 7931G	SCCP	Cisco Unified Communications Manager 7.1, 7.0, 6.0 and 6.1
Cisco Unified IP Phone 7931G	SIP	Cisco Unified Communications Manager 7.0 and later
Cisco Unified Expansion Module 7916	SCCP and SIP	Cisco Unified Communications Manager 6.1 and later



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

© 2009 Cisco Systems, Inc. All rights reserved.

Cisco Unified IP Phone	Protocol	Cisco Unified Communications Manager
Cisco Unified Expansion Module 7915	SCCP and SIP	Cisco Unified Communications Manager 6.1 and later
Cisco Unified Expansion Module 7914	SCCP and SIP	Cisco Unified Communications Manager 7.1 and earlier



Note

SIP firmware release 8.5(4) is designed and tested to interoperate with Cisco call control, most notably Cisco Unified Communications Manager release 7.1. Although SIP firmware is IETF RFC 3261 compliant, it is not supported by Cisco TAC or Engineering for use with non-Cisco call control systems.

Contents

These release notes provide the following information. You might need to notify your users about some of the information provided in this document.

- [Related Documentation, page 2](#)
- [New and Changed Information, page 3](#)
- [Installation Notes, page 3](#)
- [Caveats, page 10](#)
- [Documentation Updates, page 12](#)
- [Obtaining Documentation and Submitting a Service Request, page 12](#)

Related Documentation

Cisco Unified IP Phone Documentation

Refer to publications that are specific to your language, phone model and Cisco Unified Communications Manager release. Navigate from the following documentation URL:

http://www.cisco.com/en/US/products/hw/phones/ps379/tsd_products_support_series_home.html

Cisco Unified Communications Manager Documentation

Refer to the Cisco Unified Communications Manager Documentation Guide and other publications specific to your Cisco Unified Communications Manager release. Navigate from the following URL:

http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd_products_support_series_home.html

Cisco Unified Communications Manager Business Edition Documentation

Refer to the Cisco Unified Communications Manager Business Edition Documentation Guide and other publications that are specific to your Cisco Unified Communications Manager release. Navigate from the following URL:

http://www.cisco.com/en/US/products/ps7273/tsd_products_support_series_home.html

New and Changed Information

There is no new or changed information for firmware release 8.5(4).

Installation Notes

This section contains these topics:

- [Installing Firmware Release 8.5\(4\) for SCCP, page 3](#)
- [Installing Firmware Release 8.5\(4\) for SIP, page 6](#)
- [Installing Firmware for the Cisco Unified IP Phone Expansion Module, page 7](#)

Installing Firmware Release 8.5(4) for SCCP

This section describes how to install firmware release 8.5(4) for SCCP, and includes these topics:

- [Firmware Upgrade Issues for SCCP, page 3](#)
- [Firmware Installation Procedure for SCCP, page 4](#)

Firmware Upgrade Issues for SCCP

**Note**

For all SCCP firmware upgrades from firmware release versions earlier than 8.3(3) to version 8.5(4) or greater, you must first upgrade your firmware to version 8.5(2). Once you have upgraded to version 8.5(2), you can upgrade your IP Phone to version 8.5(4) or later.

**Note**

This section applies to the Cisco Unified IP Phone 7971G-GE, 7970G, 7961G-GE, 7961G, 7941G-GE, 7941G, 7931G, 7911G, and 7906G.

The following upgrade issues apply:

- If you are currently running firmware earlier than 6.0(2) on a Cisco Unified IP Phone and want to upgrade to 8.x(x), you must first install an intervening 7.0(x) load to prevent upgrade failure. Cisco recommends using the most recent 7.0(3) load as the intervening load to avoid lengthy upgrade times.
- If you are currently running firmware 6.0(2) to 7.0(2) on a Cisco Unified IP Phone and want to upgrade to 8.x(x), you can do so directly. However, expect the upgrade to take twice as long as usual.
- Device packs are required to enable IP Phones in the Cisco Unified Communications Manager database. For Cisco Unified CallManager 4.2 and earlier, these device packs are required. For Cisco Unified CallManager 4.3 and Cisco Unified Communications Manager 6.0 and later, you must run the device pack and reboot the Cisco Unified Communications Manager server.

To access the device packs, follow these steps:

Procedure

- Step 1** Go to the following URL:
<http://tools.cisco.com/support/downloads/pub/Redirect.x?mdfid=278875240>
 - Step 2** Log in to the Tools and Resources Download Software page.
 - Step 3** Choose the **IP Telephony** folder by clicking +.
 - Step 4** Choose **Call Control > Cisco Unified Communications Manager (CallManager)**.
 - Step 5** Choose your Cisco Unified Communications Manager version.
-

Firmware Installation Procedure for SCCP

Before using the Cisco Unified IP Phone with Cisco Unified Communications Manager release, you must install the latest firmware on all Cisco Unified Communications Manager servers in the cluster.

Before You Begin

If you are upgrading from an earlier firmware version, see the [Firmware Upgrade Issues for SCCP, page 3](#).

To download and install the firmware, follow these steps:

Procedure

- Step 1** Go to the following URL:
<http://tools.cisco.com/support/downloads/pub/Redirect.x?mdfid=278875240>
- Step 2** Log in to the Tools and Resources Download Software page.
- Step 3** Choose the **IP Telephony** folder by clicking +.
- Step 4** Choose **IP Phones > Cisco Unified IP Phones 7900 Series**.
- Step 5** Choose your phone type.
- Step 6** Choose **Skiny Client Control Protocol (SCCP) Software**.
- Step 7** Choose **8.5(4)** under the **Latest Releases** folder.
- Step 8** To download the SCCP firmware for the Cisco Unified IP Phone, click the **Download Now** or **Add to cart** button and follow the prompts:
 - For Cisco Unified CallManager 4.2 and earlier (firmware files only):
 - cmterm-7975-sccp.8-5-4.zip**
 - cmterm-7970_7971-sccp.8-5-4.zip**
 - cmterm-7945_7965-sccp.8-5-4.zip**
 - cmterm-7942_7962-sccp.8-5-4.zip**
 - cmterm-7941_7961-sccp.8-5-4.zip**
 - cmterm-7911_7906-sccp.8-5-4.zip**

- For Cisco Unified CallManager 4.3 and earlier:
 - `cmterm-7975-sccp.8-5-4.exe`
 - `cmterm-7970_7971-sccp.8-5-4.exe`
 - `cmterm-7945_7965-sccp.8-5-4.exe`
 - `cmterm-7942_7962-sccp.8-5-4.exe`
 - `cmterm-7941_7961-sccp.8-5-4.exe`
 - `cmterm-7911_7906-sccp.8-5-4.exe`
- For Cisco Unified CallManager 5.0(1), 5.0(2), and 5.0(3):
 - `cmterm-7970_7971-sccp.8-5-4.cop`
 - `cmterm-7941_7961-sccp.8-5-4.cop`
 - `cmterm-7911_7906-sccp.8-5-4.cop`
- For Cisco Unified CallManager 5.0(4) and later:
 - `cmterm-7975-sccp.8-5-4.cop.sgn`
 - `cmterm-7970_7971-sccp.8-5-4.cop.sgn`
 - `cmterm-7945_7965-sccp.8-5-4.cop.sgn`
 - `cmterm-7942_7962-sccp.8-5-4.cop.sgn`
 - `cmterm-7941_7961-sccp.8-5-4.cop.sgn`
 - `cmterm-7911_7906-sccp.8-5-4.cop.sgn`
- For Cisco Unified Communications Manager 6.0 and later:
 - `cmterm-7931-sccp.8-5-4.cop.sgn`

**Note**

If you added the firmware file to the cart, click the **Download Cart** link when you are ready to download the file.

Step 9

Click the + next to the firmware file name in the Download Cart section to access additional information about this file. The hyperlink for the Readme file is in the Additional Information section, which contains installation instructions for the corresponding firmware:

- `cmterm-7975-sccp.8-5-4-readme.html`
- `cmterm-7970_7971-sccp.8-5-4-readme.html`
- `cmterm-7945_7965-sccp.8-5-4-readme.html`
- `cmterm-7942_7962-sccp.8-5-4-readme.html`
- `cmterm-7941_7961-sccp.8-5-4-readme.html`
- `cmterm-7911_7906-sccp.8-5-4-readme.html`
- `cmterm-7931-sccp.8-5-4-readme.html`

Step 10

Follow the instructions in the Readme file to install the firmware.

Installing Firmware Release 8.5(4) for SIP

This section describes how to install firmware release 8.5(4) for SIP, and includes these topics:

- [Firmware Upgrade Issues for SIP, page 6](#)
- [Firmware Installation Procedure for SIP, page 6](#)

Firmware Upgrade Issues for SIP



Note

For all SIP firmware upgrades from firmware release versions earlier than 8.3(3) to version 8.5(4) or greater, you must first upgrade your firmware to version 8.5(2). Once you have upgraded to version 8.5(2), you can upgrade your IP Phone to version 8.5(4) or later.

If you are currently running firmware 6.0(2) to 7.0(2) on a Cisco Unified IP Phone and want to upgrade to 8.x(x), be aware that upgrading will take up to twice as long to complete as usual.

Firmware Installation Procedure for SIP

Before using the Cisco Unified IP Phone with Cisco Unified CallManager 5.0 or later, you must install the latest firmware on all Cisco Unified Communications Manager servers in the cluster.

To download and install the firmware, follow these steps:

Procedure

-
- Step 1** Go to the following URL:
<http://tools.cisco.com/support/downloads/pub/Redirect.x?mdfid=278875240>
- Step 2** Log in to the Tools and Resources Download page.
- Step 3** Choose the **IP Telephony** folder by clicking +.
- Step 4** Choose **IP Phones > Cisco Unified IP Phones 7900 Series**.
- Step 5** Choose your phone type.
- Step 6** Choose **Session Initiation Protocol (SIP) Software**.
- Step 7** Choose **8.5(4)** under the **Latest Releases** folder.
- Step 8** To download the SIP firmware for the Cisco Unified IP Phone, click the **Download Now** or **Add to cart** button and follow the prompts:
- For Cisco Unified CallManager 5.0 and later: (firmware files only)
 - `cmterm-7975-sip.8-5-4.zip`
 - `cmterm-7970_7971-sip.8-5-4.zip`
 - `cmterm-7945_7965-sip.8-5-4.zip`
 - `cmterm-7942_7962-sip.8-5-4.zip`
 - `cmterm-7941_7961-sip.8-5-4.zip`
 - `cmterm-7911_7906-sip.8-5-4.zip`

- For Cisco Unified CallManager 5.0(1), 5.0(2), and 5.0(3):

cmterm-7975-sip.8-5-4.cop

cmterm-7970_7971-sip.8-5-4.cop

cmterm-7945_7965-sip.8-5-4.cop

cmterm-7942_7962-sip.8-5-4.cop

cmterm-7941_7961-sip.8-5-4.cop

- **cmterm-7911_7906-sip.8-5-4.cop**

- For Cisco Unified CallManager 5.0(4) and later:

cmterm-7975-sip.8-5-4.cop.sgn

cmterm-7970_7971-sip.8-5-4.cop.sgn

cmterm-7945_7965-sip.8-5-4.cop.sgn

cmterm-7942_7962-sip.8-5-4.cop.sgn

cmterm-7941_7961-sip.8-5-4.cop.sgn

cmterm-7911_7906-sip.8-5-4.cop.sgn



Note

If you added the firmware file to the cart, click the **Download Cart** link when you are ready to download the file.

Step 9

Click the + next to the firmware file name in the Download Cart section to access additional information about this file. The hyperlink for the Readme file is in the Additional Information section, which contains installation instructions for the corresponding firmware:

cmterm-7975-sip.8-5-4-readme.html

cmterm-7970_7971-sip.8-5-4-readme.html

cmterm-7945_7965-sip.8-5-4-readme.html

cmterm-7942_7962-sip.8-5-4-readme.html

cmterm-7911_7906-sip.8-5-4-readme.html

cmterm-7931-sip.8-5-4-readme.html

Step 10

Follow the instructions in the Readme file to install the firmware.

Installing Firmware for the Cisco Unified IP Phone Expansion Module

This section contains these topics:

- [Installing the Cisco Unified IP Phone Expansion Module 7914, page 8](#)
- [Installing the Cisco Unified IP Phone Expansion Module 7916 and 7915, page 9](#)

Installing the Cisco Unified IP Phone Expansion Module 7914

**Note**

The following Cisco Unified IP Phone models do not support the Cisco Unified IP Phone Expansion Module 7914: 7941G/G-GE, 7931G, 7911G, and 7906G.

**Note**

You can add a maximum of two Expansion Modules to the Cisco Unified IP Phone 7975G, 7965G, and 7962G.

**Note**

The filename for Cisco Unified IP Phone Expansion Module 7914 uses SCCP, however, it supports both SCCP and SIP. This applies to IP Phones using Cisco Unified Communications Manager 7.0.

If you are using the Cisco Unified IP Phone Expansion Module 7914, you must upgrade the expansion module to firmware release **S00105000400** before using the phone to support relevant 8.5(4) features on your expansion module.

To download and install the firmware, follow these steps:

Procedure

-
- Step 1** Go to the following URL:
<http://tools.cisco.com/support/downloads/pub/Redirect.x?mdfid=278875240>
- Step 2** Log in to the Tools and Resources Download page.
- Step 3** Choose the **IP Telephony** folder by clicking +.
- Step 4** Choose **IP Phones > Cisco Unified IP Phones 7900 Series**.
- Step 5** Choose **Cisco Unified IP Phone Expansion Module 7914**.
- Step 6** Choose **Skinnny Client Control Protocol (SCCP) Software**.
- Step 7** Choose **5.0(4)** under the **Latest Releases** folder.
- Step 8** To download the firmware for Cisco Unified IP Phone Expansion Module 7914, click the **Download Now** or **Add to cart** button and follow the prompts:
- For Cisco Unified Communications Manager 4.3 and earlier:
cmterm-7914-sccp.5-0-4.exe
 - For Cisco Unified Communications Manager 5.0(1), 5.0(2), and 5.0(3):
cmterm-7914-sccp.5-0-4.cop
 - For Cisco Unified Communications Manager 5.0(4) and later:
cmterm-7914-sccp.5-0-4.cop.sgn

**Note**

If you added the firmware file to the cart, click the **Download Cart** link when you are ready to download the file.

- Step 9** Click the + next to the firmware file name in the Download Cart section to access additional information about this file. The hyperlink for the Readme file is in the Additional Information section, which contains installation instructions for the corresponding firmware:

cmterm-7914-sccp.5-0-4.readme.html

Installing the Cisco Unified IP Phone Expansion Module 7916 and 7915

Before you use the Cisco Unified IP Phone Expansion Module 7916 or Cisco Unified IP Phone Expansion Module 7915, you must load the expansion module with firmware release **B016-1-0-4** before using the phone to support relevant 8.5(4) features on your expansion module.



Note

The Cisco Unified IP Phones 7975G, 7965G, and 7962G support the Cisco Unified IP Phone Expansion Module 7915 and Cisco Unified IP Phone Expansion Module 7916. You can add a maximum of two expansion modules to these phones.

To download and install the firmware, follow these steps:

Procedure

- Step 1** Go to the following URL:
<http://tools.cisco.com/support/downloads/pub/Redirect.x?mdfid=278875240>
- Step 2** Choose the **IP Telephony** folder by clicking +.
- Step 3** Choose **IP Phones > Cisco Unified IP Phones 7900 Series**.
- Step 4** Choose **Cisco Unified IP Expansion Module 7916** or **Cisco Unified IP Expansion Module 7915**.
- Step 5** Choose **1.0(4)** under the **Latest Releases** folder.
- Step 6** To download the SIP firmware for the Cisco Unified IP Phone, click the **Download Now** or **Add to cart** button and follow the prompts:
- For Cisco Unified CallManager 4.3 and 4.2 (SCCP firmware files only):
- **cmterm-7915.1-0-4.zip**
 - **cmterm-7916.1-0-4.zip**
- For Cisco Unified Communications Manager 5.1 and later:
- **cmterm-7915.1-0-4.cop.sgn**
 - **cmterm-7916.1-0-4.cop.sgn**
- For Cisco Unified CallManager 4.3 and 4.2 (SCCP only):
- **cmterm-7915.1-0-4.exe**
 - **cmterm-7916.1-0-4.exe**



Note

If you added the firmware file to the cart, click the **Download Cart** link when you are ready to download the file.

- Step 7** Click the + next to the firmware file name in the Download Cart section to access additional information about this file. The hyperlink for the Readme file is in the Additional Information section, which contains installation instructions for the corresponding firmware:

cmterm-7915_7916.1-0-4-readme.html

Caveats

This section contains these topics:

- [Using Bug Toolkit, page 10](#)
- [Open Caveats, page 10](#)
- [Resolved Caveats, page 11](#)

Using Bug Toolkit

Known problems (bugs) are graded according to severity level. These release notes contain descriptions of:

- All severity level 1 or 2 bugs.
- Significant severity level 3 bugs.

You can search for problems by using the Cisco Software Bug Toolkit.

To access Bug Toolkit, you need the following items:

- Internet connection
- Web browser
- Cisco.com user ID and password

To use the Software Bug Toolkit, follow these steps:

Procedure

-
- Step 1** To access the Bug Toolkit, go to <http://tools.cisco.com/Support/BugToolKit/action.do?hdnAction=searchBugs>.
- Step 2** Log on with your Cisco.com user ID and password.
- Step 3** To look for information about a specific problem, enter the bug ID number in the “Search for bug ID” field, then click **Go**.
-

Open Caveats

There are no open caveats for firmware release 8.5(4).

Resolved Caveats

[Table 1](#) lists Severity 1, 2 and 3 defects that are resolved for the Cisco Unified IP Phone using firmware release 8.5(4).

For more information about an individual defect, you can access the online record for the defect by clicking the Identifier or going to the URL shown. You must be a registered Cisco.com user to access this online information.

Because defect status continually changes, be aware that [Table 1](#) reflects a snapshot of the defects that were resolved at the time this report was compiled. For an updated view of resolved defects, access Bug Toolkit as described in the [“Using Bug Toolkit”](#) section on page 10.

Table 1 Resolved Caveats for the Cisco Unified IP Phone for Firmware Release 8.5(4)

Identifier	Headline and Bug Toolkit
CSCsz75482	First call fails after Cisco Unified IP Phone resets with Secure Real-Time Transport Protocol (SRTP) media to gateway
CSCta62976	Cisco Unified IP Phone 7941G/G-GE may introduce a one to two second delay between receiving the SCCP ‘OpenReceive Channel’ (ORC) message and transmitting the ‘ORCAck’ message
CSCtb03394	Cisco Unified IP Phone may reload when receiving fragmented packets
CSCtb20613	Java Application does not use full screen width to display ticker text
CSCtb23681	Cisco Unified IP Phone (SIP) Survivable Remote Site Telephony (SRST) phone remains on hold after an unanswered blind transfer
CSCtb32289	Cisco Unified IP Phone incorrectly DiffServ Code Point (DSCP) tags Internet Control Message Protocol (ICMP) version 6
CSCtb43187	Cisco Unified IP Phone (SIP) does not acknowledge ‘Bad Request 400’ and waits a significantly long time for reorder tone
CSCtb48769	DHCP v6 options do not update with Dynamic Host Configuration Protocol (DHCP) v6 renewal
CSCtb72570	Cisco Unified IP Phone does not send ‘HTTP GET’ again after previous one exits
CSCtb72611	Cisco Unified IP Phone (SIP) joins the active line to an inactive one when carrying out Join Across Lines (JAL)
CSCtb72676	Cisco Unified IP Phone (SCCP) Cisco Unified Communications Manager configuration page User Interface (UI) is incorrect when failover or fallback
CSCtb81275	Cisco Unified IP Phone (SIP) fails to pop-up conference list while using non-secure User Datagram Protocol (UDP)
CSCtb82016	Cisco Unified IP Phone 7970G tries to access incorrect TFTP with IPv4 address without registration
CSCtb84466	Cisco Unified IP Phone 7970G shows incorrect maximum jitter after temperature failure
CSCtb87978	Cisco Unified IP Phone (SIP) cannot do Abbreviated Dial after some intercom operation
CSCtc02741	Cisco Unified IP Phone sends ‘DHCP RELEASE’ message after receiving ‘DHCP ACK’
CSCtc04202	Cisco Unified IP Phone (SIP) on SRST does not send ‘BYE’ message at the end a conference call
CSCtc04303	Cisco Unified IP Phone (SCCP) with Chinese locale displays unrecognizable characters
CSCtc09882	Cisco Unified IP Phone Expansion Module cannot be initialized to correct the state when switching between Cisco Unified IP Phones
CSCtc21064	Cisco Unified IP Phone stops sending RTP Control Protocol (RTCP) in rare cases
CSCtc28770	Cisco Unified IP Phone crashes attempting to access malformed URL for internal directory

Table 1 Resolved Caveats for the Cisco Unified IP Phone for Firmware Release 8.5(4) (continued)

Identifier	Headline and Bug Toolkit
CSCtc73094	Video service on Cisco Unified IP Phone crashes, causing a lost Cisco Audio Session Tunneling (CAST) connection, and requiring a reset
CSCtd32967	Cisco Unified IP Phone (SIP) UI gets stuck if inbound call disconnects before answered
CSCtd40204	Repeated ping causes Cisco Unified IP Phone 7931G and 7911G to reset
CSCtd44181	Cisco Unified IP Phone 7975G loses user settings and call history after fourth Extension Mobility (EM) login
CSCtd54651	Fail to launch Visual Voicemail (VVM) on Cisco Unified IP Phone

Documentation Updates

This section describes recent documentation changes that were made available after the last Cisco Unified IP Phone Administration Guide was released.

Cisco Unified IP Phone Administration Guide

This section provides information about changes to the *Cisco Unified IP Phone 7906G and 7911G Administration Guide for Cisco Unified Communications Manager 7.1(SCCP and SIP)*.

Protocol Support for Busy Lamp Field Call Lists and Busy Lamp Field Speed Dial

In the *Feature Support by Protocol for Cisco Unified IP Phone 7906G and 7911G* section, the protocol support in Table B-1 for Busy Lamp Field (BLF) Call Lists and BLF Speed Dial is listed as **Supported**.

The correct protocol support in Table B-1 for these two features should be **Not Supported**.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Any Internet Protocol (IP) addresses used in this document are not intended to be actual addresses. Any examples, command display output, and figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses in illustrative content is unintentional and coincidental.

© 2009 Cisco Systems, Inc. All rights reserved.

