



Cisco IP Phone 8800 Series Multiplatform Phones Release Notes for Firmware Release 11.3(3)

First Published: 2021-02-01

Release Notes

Use these release notes with the Cisco IP Phone 8800 Series Multiplatform Phones running SIP Firmware Release 11.3(3).

The following table describes the individual phone requirements.

Phone	Support Requirements
Cisco IP Phone 8800 Series Multiplatform Phones	Cisco BroadWorks 24.0 MetaSphere CFS version 9.5 Asterisk 13.0

Related Documentation

Use the following sections to obtain related information.

Cisco IP Phone 8800 Series Documentation

See the publications that are specific to your language, phone model, and multiplatform firmware release. Navigate from the following Uniform Resource Locator (URL):

<https://www.cisco.com/c/en/us/products/collaboration-endpoints/ip-phone-8800-series-multiplatform-firmware/index.html>

New and Changed Features

Contacts Management of the BroadSoft Personal Directory on the Phone

You can set the BroadSoft Personal directory as the target directory to store the newly added contacts. When this feature is enabled, your users can select the new option **Add contact** to add contacts to the target directory on the phone.

To enable this feature, use the field **Add Contacts to Directory Personal** under the section **XSI Phone Service** from **Voice > Phone**.

The phone now supports the users to add, edit, and delete the contacts in the BroadSoft Personal directory. It also supports the users to add contacts from recent calls or any types of directories (if enabled), including:

- All directories

- Personal address book
- BroadSoft directory, including the following subdirectories:
 - Enterprise
 - Group
 - Personal
 - Enterprise Common
 - Group Common
- LDAP directory
- Bluetooth-paired phone

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*
- *Cisco IP Phone 8800 Series Multiplatform Phones User Guide*

DNS SRV Support for XMPP

You can use Domain Name System Service (DNS SRV) records to establish connection between the BroadSoft XMPP server and the phone. The phone looks for the IP address of the XMPP server, it first sends DNS SRV query on the given domain name. If there is no A record in the DNS SRV response, then it tries A record lookup for the same domain.

To enable this feature, you can use the **Port** field under the **Broadsoft XMPP** section from **Voice > Phone**. The port number must be set to **0**.

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*

Enable Preconditions

You can enable or disable precondition signaling separately.

As in the previous release, precondition is combined with the 100REL SIP extension. When you enable the 100REL SIP feature, the precondition signaling is enabled at the same time.

Precondition signaling defers incoming call notifications until the phone receives the message that preconditions are satisfied to establish the call.

To enable this feature, you can use the **Precondition Support** field under the **SIP Settings** section from **Voice > Ext (n)**.

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*

Executive-Assistant Setting Enhancements

You can show or hide the **Call filter** menu item on the phone for the users of the assistant role. To enable this menu item, you can use the **Assistant Call Filter** field under the **Menu Visibility** section from **Voice > Phone**.

Besides, the phone provides the following enhancements for the executive and assistant respectively:

- **Executive:**
 - **Call filter mode** and **Call filter type** options: New options in which the executive specifies for the call filtering criteria.
 - **Assistant List** screen: A new phone screen that shows all the associated assistants for the executive.
- **Assistant:**
 - **Executive List** screen: A new phone screen that shows all the associated executives for the assistant.
 - **Opt-in** and **Opt-out** options: New options for the assistant to opt in to or opt out of the associated executive's assistants pool.
 - **Divert** screen: A new phone screen in which the assistant can activate or deactivate for call diversion. And the assistant can enter the divert number in the screen.
 - **Call filter** screen: A new phone screen in which the assistant can activate or deactivate call filtering for an executive.



Note To enable the enhancements of the Executive-Assistant setting on the phone, you must connect the phone extension to the XSI BroadWorks server.

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*
- *Cisco IP Phone 8800 Series Multiplatform Phones User Guide*

HTTP Header Specification for PRT

You can specify the HTTP header for the URL that is used for the PRT upload script.

Only the PRT log collector uses the feature.

To enable this feature, you can use the **PRT HTTP Header** and **PRT HTTP Header Value** fields under the **Problem Report Tool** section from **Voice > Provisioning**.

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*

Show Product Configuration Version

You can customize the product configuration version that shows as the menu item **Configuration version** on the phone screen **Product information**.

To enable this feature, set the value for the element `<Device_Config_Version>` in the phone configuration file (cfg.xml).



Note This is the only method to configure the element.

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*
- *Cisco IP Phone 8800 Series Multiplatform Phones User Guide*

Softkeys Configuration to Calls History List

You can configure the **Option**, **Call**, **Edit call**, and **Filter**, softkeys on the screen for All, Placed, Received, and Missed calls list. When you press the **Recents** softkey on the phone, you can directly access the **All calls** screen and see the list of all types of recents calls.

To implement this feature, a new parameter **Broadsoft Call History Key List** is added. In the phone web interface, access this new parameter in the **Programmable Softkeys** section from **Voice > Phone** tab. The **Broadsoft Call History Key List** parameter defines the values for the softkeys **Option**, **Call**, **Edit call**, and **Filter** for All, Placed, Received, and Missed calls list.

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*
- *Cisco IP Phone 8800 Series Multiplatform Phones User Guide*

Support Both Executive and Assistant Roles for a User

You can set the preference for the executive-assistant role that the phone selects. The preference setting on the phone and the role relationship setting on the BroadWorks can finally determine the actual role for the phone.

The phone can determine its role even when it retrieves both roles from the BroadWorks server.

To enable this feature, you can use the **Executive Assistant Role** field under the **Executive Assistant** section from **Voice > Phone**.

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*
- *Cisco IP Phone 8800 Series Multiplatform Phones User Guide*

Support for Hardware Revision V15 and later of 8800 Series Audio Phones in Migration

With the release 11.3(3), support to convert V15 and later hardware revisions of Cisco IP 8800 series audio phones is added. However, older hardware revisions of 8800 series audio phones are still supported for migrating to multiplatform phones.

This release also introduces a new transition firmware to migrate a phone. When an enterprise phone migrates to a multiplatform (MPP) phone using this new transition firmware, the migrated MPP phone can be migrated back to the enterprise phone without using any further license. A new parameter **Transition Authorization Type** is introduced to indicate the type of license that your user uses in the migration process. On the phone web interface, navigate **Info > Product Information** to access this parameter. The parameter has the following values.

- Blank - the MPP phone requires a license to migrate to enterprise firmware.
- Classic - the MPP phone can be migrated to enterprise firmware without using a license but it still needs to follow the regular process to complete its migration.
- WxC - the MPP phone can be migrated to enterprise firmware without using a license but it still needs to follow the regular process to complete its migration.

Cisco IP Multiplatform Phone 7800 Series and Cisco IP Multiplatform Phone 8800 Series support this feature.

The new transition firmware adds support to convert V15 and later hardware revisions of Cisco IP 8800 series audio phones. After the phone completes the MPP Firmware conversion, they need to meet the minimum requirements of the MPP Firmware version 11.3.3.

- CP-8811-K9= *(V15 or later)
- CP-8841-K9= *(V15 or later)
- CP-8851-K9= *(V15 or later)
- CP-8861-K9= *(V15 or later)

Synchronization of Call Waiting and Anonymous Call Rejection

You can enable synchronization of the Call Waiting and Anonymous Call Rejection functions between a specific line and a BroadSoft server. When enabled, the line gets the latest status of the functions from the BroadSoft server, and the line can put the setting of the functions to the BroadSoft server. For example, if the functions are disabled on the BroadSoft server, the functions don't work on the line. If the user enables or disables the functions on the line, the setting modifies the status of the functions on the BroadSoft server.

The setting of the synchronization is only available for specific lines. The priority of the synchronized functions is higher than the local call waiting (**CW Setting**) and anonymous call blocking (**Block ANC Setting**) functions. The settings of the local functions are under the **Supplementary Services** section from **Voice > User** of the phone administration web page.

To enable synchronization of Call Waiting between a line and an XSI service, use the **Call Waiting Enable** field under the **XSI Line Service** section from **Voice > Ext (n)** of the phone administration web page.

To enable synchronization of Anonymous Call Rejection between a line and an XSI service, use the **Block Anonymous Call Enable** field under the **XSI Line Service** section from **Voice > Ext (n)** of the phone administration web page.

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*
- *Cisco IP Phone 8800 Series Multiplatform Phones User Guide*

Unavailable Text Box of Agent Status Control

This feature enables you to control the availability of the **Unavailable** menu text box of the agent status on the phone. To control the display of this text box for each line, use the **Unavailable Reason Code Enable** parameter on the **Voice > Ext(n)** tab of the phone administration web page. Set the parameter to **No** to hide the **Unavailable** menu text box.

Where to Find More Information

- *Cisco IP Phone 8800 Series Multiplatform Phones Administration Guide*
- *Cisco IP Phone 8800 Series Multiplatform Phones User Guide*

Upgrade the Firmware

You can upgrade the phone firmware with TFTP, HTTP, or HTTPS. After the upgrade completes, the phone reboots automatically.

Procedure

-
- Step 1** Click this link:
<https://software.cisco.com/download/home/286318380>
- On the **Software Download** web page that is displayed, ensure that **IP Phone 8800 Series with Multiplatform Firmware** is selected in the middle pane.
- Step 2** Select your phone model in the right pane.
- Step 3** On the next page that is displayed, select **Multiplatform Firmware**.
- Step 4** On the next page that is displayed, select **11.3.3** in the **All Releases > MPPv11** folder.
- Step 5** (Optional) Place your mouse pointer on the file name to see the file details and checksum values.
- Step 6** Download the corresponding file.
- 8845 and 8865: `cmterm-8845_65.11-3-3MPP0001-377_REL.zip`
 - Other phones in 8800 series: `cmterm-88xx.11-3-3MPP0001-377_REL.zip`
- Step 7** Click **Accept License Agreement**.
- Step 8** Unzip the file and place the files in the appropriate location on your upgrade server.
- The appropriate location is the TFTP, HTTP, or HTTPS download folder, depending on the protocol that you want to use for the upgrade.
- Step 9** Upgrade the phone firmware with one of these methods.
- Upgrade the phone firmware from the phone administration web page:

- a. On the phone administration web page, go to **Admin Login > Advanced, Voice > Provisioning > Firmware Upgrade**.

- b. In the **Upgrade Rule** field, enter the load file URL as described below.

Load file URL format:

```
<upgrade protocol>://<upgrade server ip address>[:<port>]>/<path>/<file name>.loads
```

Examples:

- 8845 and 8865:

```
http://10.73.10.223/firmware/sip8845_65.11-3-3MPP0001-377.loads
```

```
https://server.domain.com/firmware/sip8845_65.11-3-3MPP0001-377.loads
```

- Other phones in 8800 series:

```
http://10.73.10.223/firmware/sip88xx.11-3-3MPP0001-377.loads
```

```
https://server.domain.com/firmware/sip88xx.11-3-3MPP0001-377.loads
```

- c. Click **Submit All Changes**.

- Upgrade the phone firmware directly from your web browser:

In the address bar of your web browser, enter the phone upgrade URL as described below.

Phone upgrade URL format:

```
<phone protocol>://<phone ip address[:port]>/admin/upgrade?<load file URL>
```

Load file URL format:

```
<upgrade protocol>://<upgrade server ip address>[:<port>]>/<path>/<file name>.loads
```

Examples:

- 8845 and 8865:

```
https://10.74.10.225/admin/upgrade?http://10.73.10.223/firmware/sip8845_65.1-3-3MPP0001-377.loads
```

```
https://10.74.10.225/admin/upgrade?https://server.domain.com/firmware/sip8845_65.1-3-3MPP0001-377.loads
```

- Other phones in 8800 series:

```
https://10.74.10.225/admin/upgrade?http://10.73.10.223/firmware/sip88xx.1-3-3MPP0001-377.loads
```

```
https://10.74.10.225/admin/upgrade?https://server.domain.com/firmware/sip88xx.1-3-3MPP0001-377.loads
```

Note Specify the <file name>.loads file in the URL. The <file name>.zip file contains other files.

Limitations and Restrictions

Phone Behavior During Times of Network Congestion

- Administrative tasks, such as an internal port scan or security scan
- Attacks that occur on your network, such as a Denial of Service attack

Caveats

View Caveats

You can search for caveats (bugs) with the Cisco Bug Search tool.

Known caveats are graded according to severity level, and are either open or resolved.

Before you begin

You have your Cisco.com user ID and password.

Procedure

Step 1

Click one of the following links:

- To view all caveats that affect this release:

[https://bst.cloudapps.cisco.com/bugsearch/search?kw=&pf=prdNm&pfVal=286311392&rls=11.3\(3\)&sb=anfr&bt=custV](https://bst.cloudapps.cisco.com/bugsearch/search?kw=&pf=prdNm&pfVal=286311392&rls=11.3(3)&sb=anfr&bt=custV)

- To view open caveats that affect this release:

[https://bst.cloudapps.cisco.com/bugsearch/search?kw=&pf=prdNm&pfVal=286311392&rls=11.3\(3\)&sb= afr&bt=custV](https://bst.cloudapps.cisco.com/bugsearch/search?kw=&pf=prdNm&pfVal=286311392&rls=11.3(3)&sb= afr&bt=custV)

- To view resolved caveats that affect this release:

[https://bst.cloudapps.cisco.com/bugsearch/search?kw=&pf=prdNm&pfVal=286311392&rls=11.3\(3\)&sb=fr&bt=custV](https://bst.cloudapps.cisco.com/bugsearch/search?kw=&pf=prdNm&pfVal=286311392&rls=11.3(3)&sb=fr&bt=custV)

Step 2

When prompted, log in with your Cisco.com user ID and password.

Step 3

(Optional) For information about a specific caveat, enter the bug ID number (*CSCxxxxnnnn*) in the **Search for** field, and press **Enter**.

Open Caveats

The following list contains the severity 1, 2, and 3 defects that are open for the Cisco IP Phone 8800 Series Multiplatform Phones that use Firmware Release 11.3(3).

For more information about an individual defect, you can access the online history for the defect by accessing the Bug Search tool and entering the Identifier (*CSCxxxxnnnn*). You must be a registered Cisco.com user to access this defect information.

Because the defect status continually changes, the list reflects a snapshot of the defects that were resolved at the time this report was compiled. For an updated view of the resolved defects or to view specific bugs, access the Bug Search Toolkit as described in the [View Caveats, on page 8](#).

- CSCvv20301 POR: Not all characters are shown in the character preview pop-up
- CSCvv51309 MPP software is not completing the ICE procedures when placing a call to L2SIP
- CSCvw21396 ICE, Offer not having ICE candidates should be handled
- CSCvw42896 Phone can scan out the hidden SSID and appears in the scan list as a messy code
- CSCvw56643 Will not get the new IP address after changing the VLAN of the switch port
- CSCvw72979 Phone will show the call center softkey after answer executive or call forward call
- CSCvw82717 MPP phones - SBC is rejecting a specific line-seize SIP SUBSCRIBE
- CSCvw87814 Dropped Media from ICE enabled Device on Non ICE Call Path
- CSCvx05369 Add directories shortcut key to kem, it will work slowly after reboot
- CSCvx05499 Two "Anonymous" were shown on LCD when shareline receiving anonymous calls
- CSCvx08073 BS DIR - can't search name containing the non ASCII char like ä
- CSCvx13295 xmpp ping error will not trigger failover

Resolved Caveats

The following list contains the severity 1, 2, and 3 defects that are resolved for the Cisco IP Phone 8800 Series Multiplatform Phones that use Firmware Release 11.3(3).

For more information about an individual defect, you can access the online history for the defect by accessing the Bug Search tool and entering the Identifier (*CSCxxxxnnnn*). You must be a registered `Cisco.com` user to access this defect information.

Because the defect status continually changes, the list reflects a snapshot of the defects that were resolved at the time this report was compiled. For an updated view of the resolved defects or to view specific bugs, access the Bug Search Toolkit as described in the [View Caveats, on page 8](#).

- CSCvr61497 Upgrade libpcap to 1.9.1 and tcpdump to 4.9.3
- CSCvr70049 Wifi display abnormally when switch to another wifi connection under IPv6 only
- CSCvr85659 "Wi-Fi Scan" softkey was missing if del profile to disconnect wifi and back to home screen from scan
- CSCvr86301 Remote SDK: WebSocket Control Server URL waits 10 seconds after HTTP 401 Challenge
- CSCvs01888 CP-88xx-3PCC When Answer confirmation is set to ON there is one-way audio
- CSCvs31198 480 timeout value in Cadence tag is hardcoded to 60 seconds when infinite value is set
- CSCvs31786 Multiple Vulnerabilities in linux_kernel
- CSCvs31788 Linux Kernel drivers/net/wireless/ath/ath9k/htc_hst.c Memory Leak Denial of Service Vulnerability
- CSCvs31890 Multiple Vulnerabilities in linux_kernel

- CSCvs35092 Multiple Vulnerabilities in linux_kernel
- CSCvs35094 Linux Kernel i2400m_op_rfkill_sw_toggle() Function Memory Leak Denial of Service Vulnerability
- CSCvs35119 Multiple Vulnerabilities in linux_kernel
- CSCvs35121 Linux Kernel ath9k_wmi_cmd() Function Memory Leak Denial of Service Vulnerability
- CSCvs44645 Multiple Vulnerabilities in linux_kernel
- CSCvs44650 Linux Kernel vcs_write Write Access Prevention Vulnerability
- CSCvs54500 Error prompt during Profile Account Setup and default input alphanumeric
- CSCvs54502 3pcc-8800: phone restarts when an incoming call arrive at second line
- CSCvs59424 3pcc-88xx: Phone is not uploading the config when Report To Server is set to On Local Change
- CSCvs62320 Multiple Vulnerabilities in linux_kernel
- CSCvs66815 Cisco IP Phone TCP Packet Flood Denial of Service Vulnerability
- CSCvs70834 LDAP reverse lookup not pulling info from LDAP server on incoming INVITE
- CSCvs88350 MPP phones Multicast Paging Ended By Itself
- CSCvt06292 Linux Kernel vc_do_resize Function Use-After-Free Vulnerability
- CSCvt06489 CP-8865-3PCC-K9= No Video During Consult Transfer Between MPP video phones
- CSCvt13644 88xx Voice Feedback Disables After Reboot if UI-User-Mode is Enabled
- CSCvt26123 Evaluation of 8800 for expired certificates
- CSCvt50003 MPP phones listen to multicast paging group '800' by default
- CSCvt52122 MPP phones - Transferor hears busy signal during consultative transfer
- CSCvt52323 Different select behaviour between softkey + circular select button - using XSI recents from server
- CSCvt79137 Multiple Vulnerabilities in linux_kernel
- CSCvt84030 BLF Updates Not Displaying Correctly
- CSCvu20649 MPP phones - unable to activate via device activation code
- CSCvu29263 Multiple Vulnerabilities in linux_kernel
- CSCvu29265 Multiple Vulnerabilities in linux_kernel
- CSCvu31850 Set_Local_Date and Set_Local_Time not Taking Effect
- CSCvu33942 Language Reverts to English After Reboot if Locale Server Connection is Lost
- CSCvu50856 libcurl curl_easy_unescape Heap Overflow Remote Code Execution Vulnerability
- CSCvu57297 Multiple Vulnerabilities in linux_kernel
- CSCvu88718 Call Filter In Settings Always Be Off

- CSCvv03397 MPP phones - when callee pauses recording caller can hear callee but callee does not hear caller
- CSCvv13254 lcr plk does not work if off-hook firstly
- CSCvv15106 bwks anywhere char encoding mismatch
- CSCvv15154 When phone playing hold remind and have an incoming call, both hold remind and ringer not played
- CSCvv19782 Phone can't send publish if Voice Quality Report Address is "proxy domain"+port
- CSCvv20465 MPP sends '183' even when '100rel' is disabled
- CSCvv29937 Incoming Display ID shows incorrect value if PAB entry is deleted
- CSCvv32982 LDAP sign-in window is not popped up when using plk or psk in legacy mode
- CSCvv33336 Reverse name lookup against BS Dir failed if more than 1 results are received
- CSCvw20222 88xx crash when using microphone test and tune speaker functions
- CSCvw59243 MPP phones - Yealink UH36 USB Headset does not work with CP-8851-3PCC
- CSCvw73648 "Custom LED Type" settings do not take effect after first time configuration from the phone's web UI

Cisco IP Phone Firmware Support Policy

For information on the support policy for phones, see <https://cisco.com/go/phonefirmwaresupport>.

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The following information is for FCC compliance of Class A devices: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to correct the interference at their own expense.

The following information is for FCC compliance of Class B devices: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If the equipment causes interference to radio or television reception, which can be determined by turning the equipment off and on, users are encouraged to try to correct the interference by using one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications to this product not authorized by Cisco could void the FCC approval and negate your authority to operate the product.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

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

All printed copies and duplicate soft copies of this document are considered uncontrolled. See the current online version for the latest version.

Cisco has more than 200 offices worldwide. Addresses and phone numbers are listed on the Cisco website at www.cisco.com/go/offices.

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: <https://www.cisco.com/c/en/us/about/legal/trademarks.html>. 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. (1721R)

© 2021 Cisco Systems, Inc. All rights reserved.