# cisco...

# Cisco Meeting Server web app

Important Information

Version 3.7.1

June 15, 2023

# Contents

Revision history	3
1 Introduction	1
1.1 Important note for Expressway users	1
2 What's new in Cisco Meeting Server web app	2
2.1 Default resolution for web app presentation	
2.2 Display logo on participant's screen during a meeting	
2.3 Display network information for the content shared in a meeting	
2.4 Auto prioritization of audio and content share over video during web app me	
2.5 Default method to join web app meeting	
2.6 Enhancements to virtual background and blur	
2.7 Accessibility improvements	7
3 Using the web app	8
4 Browser versions tested	9
Important note for users using iOS 13 or later and macOS 10.15 or later	9
Important note about screen sharing on Chrome on macOS 10.15 or later	10
Important note about accessibility settings in Safari browsers	10
Important note about group policy settings in Microsoft Edge	10
5 Bug search tool	11
5.1 Resolved issues	11
5.2 Open issues	12
6 Product documentation	13
Appendix A: Apps feature comparison	14
Accessibility Notice	19
Cisco Legal Information	20
Cisco Trademark	23

# Revision history

Listed below are the recent changes done to the document:

Table 1:Summary of changes

Date of revision	Change
June 13, 2023	Maintenance Release 3.7.1
March 16, 2023	First release of 3.7

### 1 Introduction

Cisco Meeting Server web app (web app) is a browser-based client for Cisco Meeting Server that lets users join meetings (audio and video) and share what is on their screen.

Cisco Meeting App for WebRTC is removed in Cisco Meeting Server version 3.0 and later. You need to use Cisco Meeting Server web app instead of Cisco Meeting App for WebRTC. For more information, refer to Release Notes for Cisco Meeting Server.

**Note:** Cisco Meeting App for desktop, iOS and WebRTC are no longer supported in Cisco Meeting Server since version 3.0.

This document describe the new features, changes, resolved issues, and open issues in this release of the Cisco Meeting Server web app. For more information about Cisco Meeting Server, refer to Cisco Meeting Server Release Notes.

#### 1.1 Important note for Expressway users

Cisco Meeting Server web app version 3.0 and later is supported with Expressway version X12.6. Previous versions of Expressway are not supported.

**Note:** Refer to the Cisco Meeting Server Release Notes for more information about call capacities.

## 2 What's new in Cisco Meeting Server web app

This version of the web app software introduces the following new features and changes:

- Default resolution for web app presentation
- Display logo on participant's screen during a meeting
- Display network information for the content shared in a meeting
- Auto prioritization of audio and content share over video during web app meeting
- Default join method to web app
- Enhancements to virtual background and blur
- Accessibility improvements

#### 2.1 Default resolution for web app presentation

From version 3.7.1, the maximum resolution for screen sharing is restricted to 720p. This implies that any participant, sharing presentation in a web app meeting will be restricted to 720p and cannot be modified. This will not affect the video resolution but only the content sharing.

Note: This change is not applicable for Safari browser.

#### 2.2 Display logo on participant's screen during a meeting

From version 3.7, web app displays logos on the participants' screen. Organizations can use this feature for branding purposes by displaying their logos on the participants' screen during the meeting.

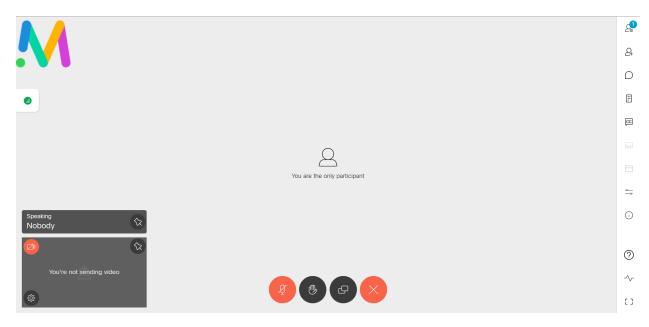
Logos are uploaded and configured in the Meeting Server. The administrators configure the logos to be displayed in certain positions on the participant's screen and web app renders them accordingly. Web app does not support adding or modifying logos. Depending on the position defined in the Meeting Server, logo is displayed in any of the following positions of the participants' screen:

- Left top
- Left bottom
- Right top
- Right bottom

Choose the Left top or Left bottom positions to prevent the logo from covering the participant count or the recording icon on the right-hand side of the web app or SIP screens.

#### Note:

- If the logo image is not uploaded in Meeting Server or the customization license is not activated, the logo will not be rendered in the layout.
- This feature is supported on web app and SIP endpoints.



Logos can be rendered on custom and standard layouts. The logo position rendered will remain the same even if the user switches screen layouts.

Resizing the web app window will not affect the resolution of the logo. Web app renders the logo in its original size and position, as uploaded and configured on the Meeting Server. However, the size and resolution of the logo are determined by the screen resolution of the participant/endpoint.

#### Note:

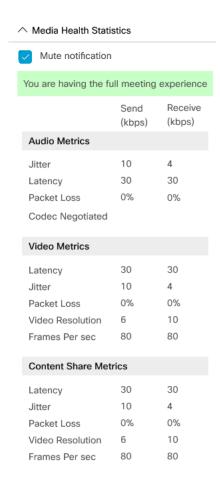
- Logo will not appear on popped-out presentation window.
- While sharing content, the logo position on web app will remain as configured on Meeting Server. However, the logo will be displayed in the video pane on SIP endpoints.

### 2.3 Display network information for the content shared in a meeting

Version 3.6 introduced the display of network statistics, during a web app meeting. Network statistics enables the web app participants to gauge whether they are experiencing a network, audio, or video issue during the meeting.

In version 3.7, this functionality is enhanced to improve its feature capabilities. Web app now shows network statistics for the content shared during the meeting. The audio, video, and

content share metrics of an ongoing meeting is displayed in Call information > Media Health Statistics.



**Note:** Network health indicator, media and content share statistics are visible to web app participants only. SIP participants cannot view this.

# 2.4 Auto prioritization of audio and content share over video during web app meeting

Version 3.6 introduced the network indicator icons that notifies the web app participants about the network performance during a meeting. From version 3.7, web app monitors the network health and takes automatic actions to turn off/on the video and content share ensuring the best user experience in all scenarios of an unstable network.

Web app prioritizes audio over content share and video in all scenarios of unstable network. For example, if the network connection during a meeting is poor, web app automatically turns off the video. If the network continues to deteriorate, content sharing is turned off. Web app will

always prioritize audio over content share over video and therefore, turns off the video, followed by content share, while retaining audio in all scenarios.

The network health is based on the jitter and packet loss metric values as shown below:

Statistics icon	Metric values	Health	Health messages/notifications
	Jitter value is less than 30 ms and	Good	You are having the full meeting experience.
	Packet loss is less than 5%	From Poor/Bad to Good	You are having the full meeting experience. You may turn on the video.
11	Jitter value ranging from 30 ms to 100 ms or Packet loss ranging from	Poor	Issues may be limiting your meeting experience.
	5% to 15%		
1	Jitter value is greater than 100 ms or	Bad	Meeting experience is being limited. The video has been disabled and currently in
	Packet loss is greater than 15%		audio only mode.

As the network improves, web app restores content share and video in the same order of priority. Before taking any action of turning off/ on the video, web app monitors the network health status to ensure that it is in a steady state of good, poor, or bad for 45 seconds.

However, due to privacy considerations, web app does not turn on the participant's video (send video) automatically, but notifies them to turn on their video. The participants can enable their video back when the network is good.

Web app does not take any action if the meeting is in Audio Only or Presentation Only mode. However, web app will notify the participants regularly about the network health. If participants do not wish to see the network health status notifications, they can mute the notifications by selecting the **Mute notifications** check box in Call information > Media Health Statistics.

**Note:** Auto prioritizing is supported on web app only and is enabled by default. To disable this feature, contact the Cisco Meeting Server Administrator.

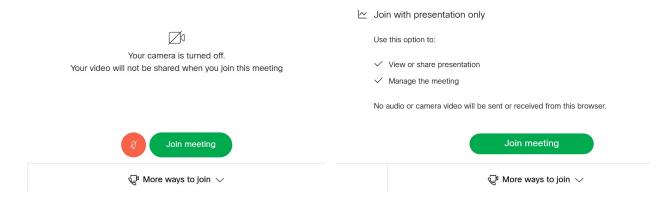
#### 2.5 Default method to join web app meeting

In earlier versions of web app, the default method for the users to join a meeting was with audio and video mode. From version 3.7, the default joining method can be configured to **Audio and video** or **Presentation only** mode.

The system administrators configure the default join method in the Meeting Server for each user who may join the meeting, as a guest user using the meeting link or as space members using the **Join** button. Accordingly, the web app joining page for the participant defaults to

**Audio and video** or **Presentation only** mode. If the default joining method is not configured in the Meeting Server, it defaults to **Join with audio and video**. Web app does not support configuring or modifying the configuration.

The default joining method can be set for each participant at various access levels. However, the participants can override the configured joining method by selecting the options listed under **More ways to join** in the web app joining options screen. The participants can change the joining method before joining the meeting and not during the meeting.



**Note:** The default join method can be configured for web app participants only. Dial-in options are not configurable.

Any configuration changes in the API made during the meeting will not take effect on the participants who have already joined the web app meeting.

#### 2.6 Enhancements to virtual background and blur

The virtual background feature enables web app participants to change their background with one of the available preset backgrounds, during a meeting. Version 3.7 gives administrators the ability to upload custom background images to the Meeting Server. Participants in the meeting can apply the custom backgrounds uploaded by the administrator.

#### Note:

- Custom backgrounds will appear in the meeting if the feature is enabled in the Meeting Serverr and the administrator has uploaded the images in the Meeting Server.
- Web app participants cannot upload their own custom background images from/to web app.

Additionally, version 3.7 introduces support for blur and virtual background features on Microsoft Edge browser.

Operating System	Browser
Windows	Google Chrome, Mozilla Firefox, Microsoft Edge
macOS	Google Chrome, Mozilla Firefox, Microsoft Edge

## 2.7 Accessibility improvements

In version 3.7, web app supports the following accessibility improvements:

• Users can now use up or down arrow keys in the keyboard to navigate through chats in chat panel.

## 3 Using the web app

Web app allows you to join meetings with audio and video in a space. You can also share a screen or presentation in your meeting.

You can add or remove members to a space. You can also invite people both inside and outside of your organization to meetings.

**Note:** A space is a persistent virtual meeting room that a group of users can use at any time for a meeting. For more details refer to the Online Help or User Guide for web app.

You can use the web app on desktop, mobile or tablet from any of the supported browsers . See list of browsers for details.

Refer to the online help or User Guide for Cisco Meeting Serverweb app for detailed instructions on how to use the web app.

You can choose from the following options based on what you want to do:

- Sign in to the web app You can sign in to web app, join meetings, view a list of all spaces
  you are a member of and view joining methods and copy the invitation details to invite
  someone to your meeting. You can create a space using pre-configured templates, edit
  or delete a space if you have appropriate permissions.
- Join a meeting Use this option if you have been invited to a meeting. The invitation should include some details such as a meeting ID, passcode (optional), or a video address (URI).
- Schedule a meeting To schedule a meeting, click Schedule meeting on the home page.
  Type a name and the select the space you want to use for the meeting. The meeting can
  be scheduled for one instance or to recur daily, weekly or monthly. You can add all the
  members of the selected space or add selected participants and configure their roles for
  the meeting.

### 4 Browser versions tested

Table 1 lists the browsers tested for web app at the time of release of a specific version of web app.

We always recommend using the latest version of browsers.

**Note:** Please note certain browsers such as Google Chrome and Mozilla Firefox automatically update to the latest version. The following table shows the version of browsers tested at the time of the official release of a version of Cisco Meeting Server. This means we have not tested this particular release with previous versions of those browsers.

We endeavor to test the latest maintenance release of each major release of Cisco Meeting Server against the latest public versions of all the browsers to keep them compatible and if we detect any issues we will endeavor to fix them as soon as possible.

Table 2:Cisco Meeting Server web app tested on browsers and versions

Browsers	Versions
Google Chrome (Windows, macOS, and Android)	111.0.5563.65
Mozilla Firefox (Windows)	110.0.1
Chromium-based Microsoft Edge (Windows)	110.0.1587.69
Apple Safari for macOS	16.3 (18614.4.6.1.6)
Apple Safari for iOS	16.3.1
Yandex (Windows)	23.1.5.708

Note: Web app is not supported on the legacy Microsoft Edge.

Note: Web app is not supported on virtual machines (VMs) running these supported browsers.

#### Important note for users using iOS 13 or later and macOS 10.15 or later

In order for users to be able to use web app on Safari on iOS 13 or later and macOS 10.15 or later, webbridge3 needs to be properly configured to comply with requirements stated here: <a href="https://support.apple.com/en-us/HT210176">https://support.apple.com/en-us/HT210176</a>.

Users will not be able to open the app on Safari if these requirements are not met.

#### Important note about screen sharing on Chrome on macOS 10.15 or later

From macOS version 10.15 (Catalina) or later, to share the screen or application from the apprunning on Chrome, users need to enable permissions. Follow these steps:

- 1. From the Apple menu, open System Preferences.
- 2. Click on Security & Privacy.
- 3. Click on the **Privacy** tab at the top.
- 4. In the column on the left hand side, scroll down and click on Screen Recording.
- 5. Make sure Chrome is selected. Restart Chrome.

#### Important note about accessibility settings in Safari browsers

By default, Safari browsers do not allow navigation of UI elements via the 'Tab' key but via Option + Tab instead. This can be configured in Safari's Preferences as follows:

From your Safari browser menu, go to Safari > Preferences > Advanced > Accessibility > Press Tab to highlight each item on a web page to change your preference.

#### Important note about group policy settings in Microsoft Edge

If webrtclocalhostipHandling - Restrict exposure of local IP address by WebRTC group policy is applied to Microsoft Edge browser, make sure to only use one of the following policy options:

- AllowAllInterfaces (default) or
- AllowPublicAndPrivateInterfaces (default\_public\_and\_private\_interfaces)

Any other option could cause connection issues.

# 5 Bug search tool

You can now use the Cisco Bug Search Tool to find information on open and resolved issues for the Cisco Meeting Server, including descriptions of the problems and available workarounds. The identifiers listed in these release notes will take you directly to a description of each issue.

- 1. Using a web browser, go to the Bug Search Tool.
- 2. Sign in with a cisco.com registered username and password.

To look for information about a specific problem mentioned in this document:

1. Enter the bug identifier in the **Search** field and click **Search**.

#### 5.1 Resolved issues

Listed below are issues resolved in web app.

Table 3:List of resolved issues in 3.7.1

Cisco Identifier	Summary
CSCwf59540	In a web app meeting, when a participant shares their screen, the presentation is displayed (send and receive) at a maximum resolution of 720p.
	Note: This change is not applicable for Safari browser.

#### Table 4:List of resolved issues in 3.7

Cisco Identifier	Summary
CSCwd68381	When scheduling a weekly recurring meeting for a selected day, web app schedules the meeting a day after the intended date.
CSCwd35273	When searching for participant(s) to be added in a scheduled meeting, if the participant's name is typed incorrectly first and then corrected, web app doesn't show the participant's name in the search result.
	If an external user's email is typed in the participant's list of a scheduled meeting, the meeting is not created.
CSCwc76768	In a web app meeting, Audio and Video Statistics shows incorrect video frame rate in Firefox browser.
CSCwb60392	In a cospace meeting, if the presenter is moved to lobby while content is being shared, other participants in the meeting continue to see the content shared from the participant in lobby.

## 5.2 Open issues

#### Table 5:List of open issues in 3.7

Cisco Identifier	Summary
CSCwc84546	After a presenter stops sharing their content and all participants in the meeting are inactive for a while but are still in the meeting, the participants are unable to see the content, even if the presenter resumes sharing the content.
CSCwe26144	When scheduling a meeting through the web app scheduler, if the participant's role is selected as "Role 1" (default), the participant cannot join the meeting using <b>Join</b> button.
CSCwc23841	In a web app meeting, if a participant whose video is on and has applied blurred background, turns off the camera and switches it on later, a black background is displayed in place of the virtual background intermittently.
CSCwc76769	In Google Chrome browser, when a participant applies blur to their video and leaves the web app meeting, the camera is still on and does not close.
CSCwa17363	In web app, the participants who are moved to lobby from Meeting Management can see still the list of participants in the meeting even if they are waiting in the lobby.
CSCvz01888	If the role of a member was changed in the space before the meeting, a role change notification appears when the member joins the meeting.
CSCvu98805	Whilst in a meeting from web app on Firefox browser, if you open the presentation received in a second window, occasionally the content becomes non-responsive if the presenter stops and restarts the sharing or if another participant in the meeting starts sharing content at the same time. This is an issue with Firefox browser, for details see https://bugzilla.mozilla.org/show_bug.cgi?id=1652042.  Work around: Maximize the second window or alternatively, close the presentation
CSC).#71060	window and reopen it.
CSCvt71069	If the video layout 'speaker large' is selected, window does not re size correctly.

# 6 Product documentation

The end-user guides such as User Guide, and visual 'How to' guides for web app are available in the following location:

https://www.cisco.com/c/en/us/support/conferencing/cisco-meeting-app/products-user-guide-list.html

# Appendix A: Apps feature comparison

Feature comparison between Cisco Meeting Server web app and Cisco Meeting App for WebRTC.

Table 6:Feature comparison between Cisco Meeting Server web app and Cisco Meeting App for WebRTC

		l							
Feature	Web app 3.7	Web app 3.6	Web app 3.5	Web app 3.4	Web app 3.3	Web app 3.2	Web app 3.1	Web app 3.0	
General									
Cisco Meeting Server version	3.7	3.6	3.5	3.4	3.3	3.2	3.1	3.0	
Managing access for members	Yes	Yes	Yes	Yes	Yes	Yes	No	No	
User-level per- missions (e.g. can create space)	Yes								
Support for loc- alization	Yes	No							
Branding	Yes								
Online help	Yes								
Encryption	Yes								
Single sign on	Yes	No							
Arabic lan- guage support	Yes	Yes	No	No	No	No	No	No	
Join using video address (URI)	Yes								
Schedule a meet	ing								
View list of scheduled meeting	Yes	Yes	Yes	Yes	Yes	No	No	No	
Schedule a meeting	Yes	Yes	Yes	Yes	Yes	No	No	No	
Modify a sched- uled meeting	Yes	Yes	Yes	Yes	Yes	No	No	No	

Feature	Web app 3.7	Web app 3.6	Web app 3.5	Web app 3.4	Web app 3.3	Web app 3.2	Web app 3.1	Web app 3.0		
Delete a sched- uled meeting	Yes	Yes	Yes	Yes	Yes	No	No	No		
Space Management										
Space member roles	Yes	Yes	Yes	Yes	Yes	Yes	No	No		
Create / edit space	Yes									
Activate newly provisioned spaces	Yes	No								
Add / edit / delete space members	Yes									
Directory look up for Add Members feature	Yes									
View inform- ation for space	Yes									
Send invitation	Yes									
Audio and video										
Audio	OPUS									
Video	H.264, VP8									
Mic/camera configuration controls	Yes									
Blur your back- ground	Yes	Yes	Yes	Yes	No	No	No	No		
Virtual back- ground	Yes	Yes	No	No	No	No	No	No		
Far end camera control	Yes	Yes	Yes	Yes	No	No	No	No		
Auto pri- oritization of audio and video	Yes	No								

Feature	Web app 3.7	Web app 3.6	Web app 3.5	Web app 3.4	Web app 3.3	Web app 3.2	Web app 3.1	Web app 3.0	
Screen share									
Content magnification	Yes	Yes	Yes	Yes	Yes	Yes	No	No	
Reset content zoom	Yes	Yes	Yes	Yes	Yes	No	No	No	
View screen share	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Desktop sharing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Application sharing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
View screen share in a new window	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Re-size the video pane	Yes	Yes	Yes	Yes	Yes	No	No	No	
Share content audio	Yes	Yes	Yes	No	No	No	No	No	
Chat		•		•		•	,		
Chat	Yes, in call only	No	No						
In-call						•			
On-screen messages	Yes	Yes	Yes	Yes	Yes	Yes	No	No	
Full-screen view	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Layout control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Name labels	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recording	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Streaming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Active speaker label (Beta sup- port)	Yes	Yes	Yes	Yes	Yes	No	No	No	
Self-view	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Feature	Web app 3.7	Web app 3.6	Web app 3.5	Web app 3.4	Web app 3.3	Web app 3.2	Web app 3.1	Web app 3.0
Pin self-view	Yes							
Mirror self-view	Yes							
Move self-view	Yes							
HD/SD selectio- n	Yes							
Pin presentatio- n preview	Yes							
Move present- ation preview	Yes							
Meeting notes	Yes	Yes	Yes	Yes	No	No	No	No
Closed cap- tioning	Yes	Yes	Yes	Yes	No	No	No	No
Share files	Yes	Yes	Yes	No	No	No	No	No
Network health indicator and media statistics	Yes	Yes	No	No	No	No	No	No
Content share metrics	Yes	No						
Logo support	Yes	No						
Participants								
Move participant	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Add participant	Yes (SIP only)							
Remove participants	Yes							
Admit par- ticipants to a locked meeting	Yes	No						
Change a par- ticipant's role	Yes	Yes	Yes	Yes	Yes	No	No	No
Make par- ticipant import- ant	Yes							

Feature	Web app 3.7	Web app 3.6	Web app 3.5	Web app 3.4	Web app 3.3	Web app 3.2	Web app 3.1	Web app 3.0
Mute/Unmute other par- ticipants' audio and video indi- vidually	Yes							
Mute/Unmute all participants' audio and video	Yes							
Send dia- gnostics during a meeting	Yes							
Send invite	Yes	No						
View call info	Yes	No						
Mic / Camera controls during call	Yes							
Raise hand	Yes	Yes	Yes	Yes	Yes	No	No	No
Move call				•			•	
Use this device for screen share and call management only (while another device is used for audio and video)	Yes							

**Note:** You cannot move a call to an external endpoint or move the audio to a regular phone during a call.

# **Accessibility Notice**

Cisco is committed to designing and delivering accessible products and technologies.

The Voluntary Product Accessibility Template (VPAT) for Cisco Meeting Server web app is available here:

http://www.cisco.com/web/about/responsibility/accessibility/legal\_regulatory/vpats.html#telepresence

You can find more information about accessibility here:

www.cisco.com/web/about/responsibility/accessibility/index.html

# Cisco Legal Information

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 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 NONINFRINGEMENT 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.

© 2023 Cisco Systems, Inc. All rights reserved.

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 NONINFRINGEMENT 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.

© 2023 Cisco Systems, Inc. All rights reserved.

#### Cisco Trademark

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: <a href="www.cisco.com/go/trademarks">www.cisco.com/go/trademarks</a>. 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)