Configuring Video Conferences

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This chapter describes the video conferencing support on Cisco Unified Communications Manager Express (Cisco Unified CME).

Finding Feature Information

Your Cisco Unified CME version may not support all of the features documented in this module. For a list of the versions in which each feature is supported, see the "Feature Information for Video Conferencing" section on page -1037.

Contents

This chapter contains information on the following topics:

Prerequisites for Configuring Video Conferences

The following section contains information on the supported platforms and the requirements for configuring video conferences.

Platforms

This feature is supported on the following Cisco Integrated Services Routers:

- Cisco 2900 Series
- Cisco 3900 Series

The router with the DSP farm must have a PVDM3 module installed. See Table 2-35 for a list of the supported video service for the different PVDM3 modules.

Table 2-35 **Supported for Video Conference Bridge**

PVDM3 Type	Video Conference Bridge	
	Homogeneous	**Heterogeneous**
PVDM3-16	Supported	Not Supported
PVDM3-32	Supported	Not Supported
PVDM3-64	Supported	Not Supported
PVDM3-128	Supported	Supported
PVDM3-192	Supported	Supported
PVDM3-256	Supported	Supported

Software

- Cisco IOS 15.1(4)M
- Cisco Unified Communications Manager Express 8.6 and later

Information About Video Conferences

This section covers the following topics:

Supported Protocols

This feature supports the following standards and protocol:

- International Telecommunication Union (ITU-T) standards and protocols:
  - H.320
  - H.323
  - H.324
- Internet Engineering Task Force (IETF) and Cisco-proprietary signaling protocol:
  - SCCP
  - SIP
- Video codecs:
  - H.263
  - H.264/AVC
- Audio codecs:
  - G.711alaw
  - G.711ulaw
  - G.722-64
  - G.729 abr8
  - G.729ar8
  - G.729br8
  - G.729r8
  - iLBC
  - iSAC

Supported Video

This feature supports the following:

- Frame rate of 15 and 30 frames per second (f/s).

- Video stream bit rate of 64 kb/s to 2 Mb/s.

- Table 36 lists the supported video resolution.

Table 36   Supported Video Resolution

Resolution	Dimension
CIF[1]	352 x 288 pixels
SIF[2] **Note** If your phone supports SIF, configure your DSP farm profile with the CIF codec.	352 x 240 pixels
W360P	640 x 360 pixels
W448P	768 x 448 pixels
4CIF	704 x 576 pixels
4SIF	704 x 480 pixels
QCIF[3]	176 x 144 pixels
QSIF[4]	176 x 120 pixels
VGA[5]	640 x 480 pixels
High Definition (HD) 720p (decode only)	1280x720 pixels

1. CIF = Common Intermediate Format.

2. SIF = Source Interchange Format.

3. QCIF = One-Quarter Common Intermediate Format.

4. QSIF = One-Quarter Source Interchange Format.

5. VGA = Video Graphic Array.

Supported Telephony Features

Cisco Unified IP Phones support the following supplementary services and softkeys:

- Hold/Resume

- Transfers

- Call Forward

- Call Pickup

In addition, you can configure phones connected to Cisco Unified Communications Manager Express to enable the mute and lecture mode selection by configuring a feature access codes (FAC) DTMF sequence.

Video Terminology

You should be familiar with the terminology in Table 37 before you configure video conferences.

Table 37   Video Conference Terminology

Terminology	Description
Homogeneous Conference (Switching)	A conference in which conferees connect to a video conference bridge with phones that support the same video format attributes (same codec, resolution, frame rate, bit rate, RTP payload protocol and annex). For more information, see the "Homogeneous Video Conferences" section on page -1020.
Heterogeneous Conferences (Switching and Transcoding)	A conference in which conferees connect to a conference bridge with phones that support different video format attributes. For more information, see the "Heterogeneous Video Conferences" section on page -1021.
Transcode	The process of converting one data stream using one codec format to another data stream with a different codec format, for example, coverting H.263 to H.264.
Transrate	The process of converting one data stream using one bit rate to another data stream with a different bit rate, for example, converting from a high-speed data rate of 2 Mbps to a lower-speed data rate of 1 Mbps.
Transsize	The process of converting the resolution of a video transmission to another resolution, for example converting 4CIF to CIF.
Video Conference Bridge	A video conference bridge enables conferees to connect to a video conference. For more information, see the "Overview on Video Conferences" section on page -1019.
Video Conversion	The process of transcoding, transrating, or transsizing a video stream.
Video Format	The attributes of the video stream (video codec, resolution, frame rate, bitrate, RTP payload protocol, and annex).
Video Capability Class	Video Capability Class defines a set of attributes (codec, frame rate, bit rate, resolution, RTP payload protocol, and annex) that comprise the video format of a data stream for a group of endpoints. A video capability class comprises an encoder and decoder pair. For more information, see the "Video Capability Class" section on page -1021.

Overview on Video Conferences

A video conference bridge brings together three or more callers on a variety of video phones in ad hoc or meetme conferences.

In ad hoc conferences, a participant on a phone call initiates a video conference by adding another participant. In an ad hoc conference, you can configure the conference bridge to support up to a maximum of eight conferees.

In meetme conferences, callers dial a designated number that has been designated as a video conference bridge. Callers on supported video phones are connected to the conference bridge as video conferees. In a meetme conference, you can configure the conference bridge to support up to 16 conferees.

Note Meetme conferences on Cisco Unified Communications Manger systems can only be initiated on phones with a meetme button.

On a Cisco Unified Communications Manager Express, you can configure an unlocked meetme conference to allow any phone to dial the configured meetme number to start a new conference or join an active conference.

Note Callers on unsupported phones are connected to the conference bridge as audio conferees.

Display View

Conferees in a video conference may have different display views.

- Voice Activated Switching—(Default Display View) The Display screen switches to the loudest speaker, typically the current active speaker. The screen for the current active speaker displays the previous active speaker.

- Lecture Mode—The display screen focuses on a single participant. You can configure a DTMF sequence in Cisco Unified Communications Manager Express to allow a conferee to become the lecturer. When the caller enters the DTMF sequence, the caller becomes the lecturer and all other conferees see the lecturer. The lecturer sees a round-robin display of all other conferees.

Homogeneous Video Conferences

A homogeneous video conference is a conference in which participants connect to a conference bridge on video phones that support the same video format. Figure 35 illustrates a homogeneous video conference. All the video phones support the same video format and the conference bridge sends the same data stream format to all the video conferees in the conference. If the conference bridge is not configured to support a phone's video format, the caller on the phone connects to the conference as an audio only conferee.

Note In a homogeneous conference, the DSP resource for the video bridge is reserved and homogeneous video service is guaranteed. Conferees use the same video stream that is configured in the video profile.

Figure 35   *Homogeneous Video Conference*
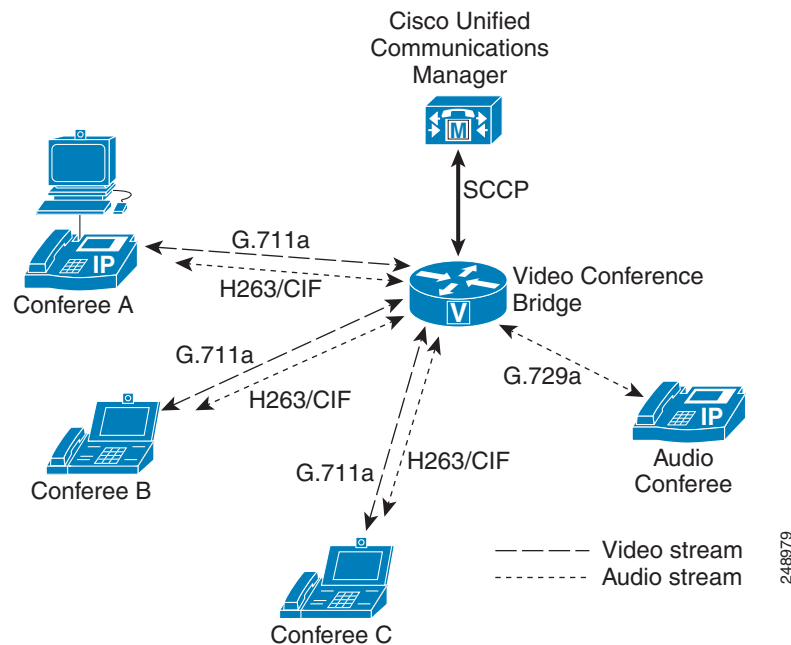
Heterogeneous Video Conferences

A heterogeneous video conference is a conference in which conferees can connect to a conference bridge on video phones that support different video formats. In a heterogeneous conference, you can reserve DSP resources to ensure all phones with different capabilities have video service.

For heterogeneous conferences, callers are connected to the conference as audio conferees under the following condition:

- Insufficient DSP resources.

- The video conference bridge is not configured to support the phone's video capabilities.

Video Capability Class

A video capability class defines the set of attributes (codec, frame rate, bit rate, resolution, RTP payload protocol, and annex) that comprise the video format of a data stream and a video capability class comprises an encoder and decoder pair.

At the start of the conference, the phones negotiate the video format, and phones with the same video format are grouped into the same video capability class. Phones supporting a different video format are grouped into a different video capability class. The router dynamically converts multiple data stream as needed for the different video capability class.

Figure 36 illustrates a heterogeneous video conference with three different video capability class and a phone that is connected by an audio connection.

Figure 36   Heterogeneous Video Conference
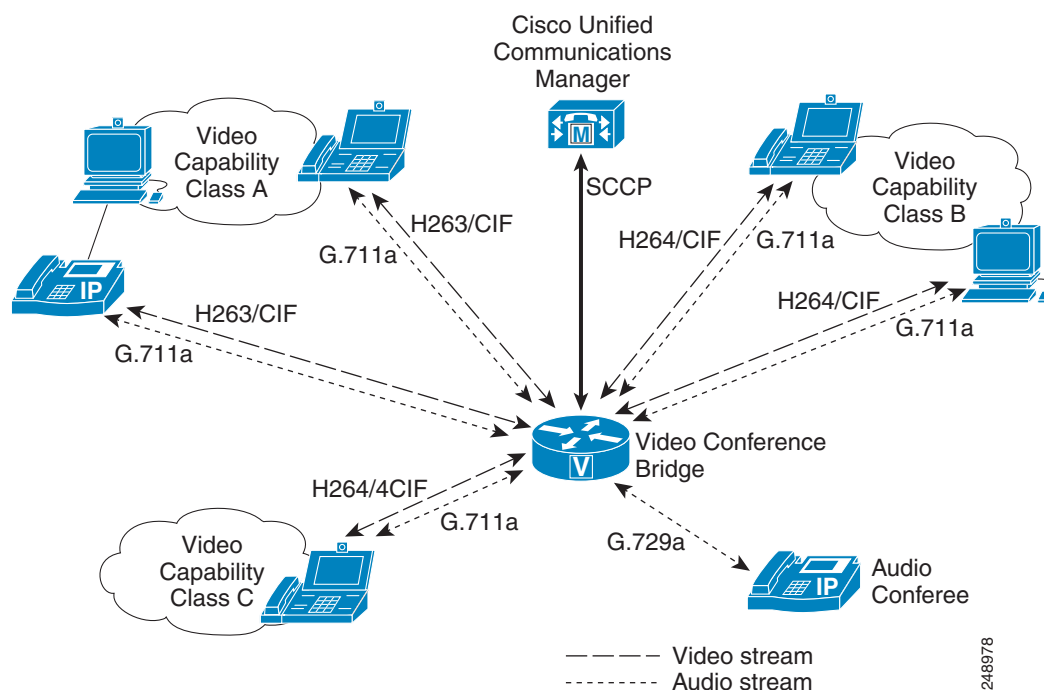
Guaranteed Audio

If you have limited DSP resources, you can reserve DSP resources for just the audio conference bridge. The DSP resources for the audio conference bridge are reserved, but video service is not guaranteed. Callers on video phones may have video service if DSP resources are available at the start of the conference. Otherwise, the callers are connected to the conference as audio conferees.

Homogeneous vs. Heterogeneous vs. Guaranteed-Audio Conferences

Table 38 lists the differences in features between homogeneous, heterogeneous, and guaranteed-audio conferences.

Table 38   Differences between the conferences

Feature	Homogeneous Conferences	Heterogeneous Conferences	Guaranteed Audio
Number of Video Codecs that can be configured	One	Many	Many
Number of Audio Codecs that can be configured	Many	Many	Many
Guaranteed Video Services (DSP Resources Reserved)	Video Switching	Video Switching Video Conversion	Video Switching

Table 38   Differences between the conferences (continued)

Feature	Homogeneous Conferences	Heterogeneous Conferences	Guaranteed Audio
Guaranteed Audio Services (DSP Resources Reserved)	Audio Mixing Audio Transcoding	Audio Mixing Audio Transcoding	Audio Mixing Audio Transcoding
Lecture Mode (Cisco Unified CME only)	Yes	Yes	Yes

DSP Farm Profiles

To allocate DSP resources to support video conferences on a video call, you must create DSP farm profiles and specify the video format that is supported. This ensures that the system has sufficient resources available for video conferences and video stream conversion.

Table 39 and Table 40 list the supported video resolution, frame rate, and bit rate support for H.263 and H.264, respectively, for video conferences on a video call.

Table 39   Support for H.263

Resolution	Frame Rate (frames per second)	Bit Rate (kilobits per second)
QCIF (QSIF)	15 f/s	64 kb/s to 704 kb/s
	30 f/s	64 kb/s to 704 kb/s
CIF (SIF)	15 f/s	64 kb/s to 704 kb/s
	30 f/s	64 kb/s to 704 kb/s

Table 40   Support for H.264

Resolution	Frame Rate (frames per second)	Bit Rate (kilobits per second)
QCIF (QSIF)	15 f/s	64 kb/s to 704 kb/s
	30 f/s	64 kb/s to 704 kb/s
CIF (SIF)	15 f/s	64 kb/s to 704 kb/s
	30 f/s	64 kb/s to 704 kb/s
4CIF (4SIF)	30 f/s	1 Mb/s
VGA	30 f/s	1 Mb/s
w360P	30 f/s	1 Mb/s
w448P	30 f/s	1 Mb/s
720p	30 f/s	2 Mb/s

To support a video conference in which all phones support the same video format, you can configure a homogenous DSP farm profile. The homogenous DSP farm profile has one video format.

To support a video conference in which phones may have different capabilities, you can configure a heterogeneous DSP farm profile. A heterogeneous conference profile reserves the DSP resources for converting the video data stream based on the configured maximum number of conferees, maximum number of conference sessions, and the number of video capability class.

You can also configure the system to support phones with different capabilities without reserving the DSP resources for converting the video data streams. The system supports a conference bridge as long as resources are available at the start of the conference. When there are insufficient resources, conferees have an audio-only connection.

Calculating DSP Requirements

To determine whether you have sufficient PVDM modules, you can use the DSP Calculator at

http://www.cisco.com/web/applicat/dsprecal/dsp_calc.html.

Important Considerations

Before you proceed with configuring video conferences, consider the following requirements and recommendations:

- It is essential that you are familiar with the video capabilities of the phones in your network. Be aware that heterogeneous conference profiles use significantly more DSP resources than either homogeneous conferences or guaranteed audio profiles. If all the phones support the same video format, you should configure a DSP farm profile for a homogeneous conference.

- When provisioning phones in the network, configure the phones to support a wide number of video capabilities.

- You can reduce your DSP resource usage by limiting the video capability class for a heterogeneous video conference. Many endpoints with higher capability can support lower video formats. For example, H.264 4CIF endpoint can support H.264 CIF video. Consider configuring your DSP profile to support lower encoder capabilities to optimize your DSP usage.

- When you configure a codec resolution in your heterogeneous DSP farm profile, you may need to explicitly configure all resolutions for the same codec. For example, if you have phones that support CIF and other phones that support only VGA and you want to ensure that phones with either resolution can join the conference, you must explicitly configure both CIF and VGA in the DSP farm profile. This also applies to point-to-point video transcoding DSP farm profiles.

How to Configure Video Conferences

This section contains the following task:

Configuring DSP Farm Resources for Video Conferences

Perform this procedure to define a DSP farm on the PVDM3 card for supporting video conference.

Prerequisites

Cisco Unified CME 8.6 or a later version.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice-card** *slot*
4. **voice-service dsp-reservation** *number*
5. **exit**
6. **dspfarm profile** *profile-identifier* {**conference [video {homogenous | heterogeneous | guaranteed-audio}]}**
7. **codec** {*codec-type* [*resolution*] | [**frame-rate** *framerate*] | [**bitrate** *bitrate*] | [**rfc-2190**] | **pass-through**}
8. **maximum conference-participants** *max-participants* **video-cap-class** *max-cap-class*
9. **maximum sessions** *number*
10. **associate application sccp**
11. **no shutdown**
12. **end**

DETAILED STEPS

	Command or Action	Purpose

Step 1	`enable`
	
	Example:
	`Router> enable`
		Enables privileged EXEC mode.
		
		Enter your password if prompted.

Step 2	`configure terminal`
	
	Example:
	`Router# configure terminal`
		Enters global configuration mode.

Step 3	`voice-card` `slot`
	
	Example:
	`Router(config)# voice-card`
		Enters voice-card configuration mode for the network module that you will be enabling DSP-farm services.

Step 4	`voice-service dsp-reservation` `number`
	
	Example:
	`Router(config-voicecard)# voice-service dsp-reservation 70`
		Specifies the percentage of DSP resources that will be used for voice services. The remaining DSP resources will be used for video.
		
		Tip DSP can become fragmented when you change the percentage of DSP resources reserved for voice services when there are TDM voice or DSP farm profiles configured. To ensure the best system performance, reload the router when you change the **voice-service-dsp-reservation**.

Step 5	`exit`
	
	Example:
	`Router(config-voicecard)# exit`
		Exits voice-card configuration mode.

	Command or Action	Purpose
Step 6	**dspfarm profile 1 conference [video {homogenous| heterogeneous | guaranteed-audio]}** **Example:** Router(config-voicecard)# dspfarm profile 1 conference video homogeneous	Enters DSP farm profile configuration mode. Defines the video conference support for the profile.
Step 7	**codec** {*codec-type*[*resolution*] | [**frame-rate** framerate] | [**bitrate** bitrate] | [**rfc-2190**] | **pass-through**} **Example:** Router(config)# codec h263 cif frame-rate 30 bitrate 320	Specifies the codecs supported by a DSP farm profile. **Note** A homogeneous conference supports only one video data stream. **Note** The default payload is RFC-2190 with no annex.
Step 8	**maximum conference-participants** {**4**| **8** | **16**} **Example:** Router(config-dspfarm-profile)# maximum conference-participants 4	Configures the maximum number of conference participants allowed. **Note** If you are configuring video transcoding, you must specify the audio codecs also.
Step 9	**maximum session** *number* **Example:** Router(config-dspfarm-profile)# maximum sessions 4	Specifies the maximum number of sessions that are supported by this profile.
Step 10	**associate application sccp** **Example:** Router(config-dspfarm-profile)# associate application sccp	Associates SCCP with the DSP farm profile.
Step 11	**no shutdown** **Example:** Router(config-dspfarm-profile)# no shutdown	Allocates the DSP Farm resources and enables the DSP farm profile.
Step 12	**end** **Example:** Router(config-dspfarm-profile)# end	Returns to privileged EXEC mode.

Configuration Examples for Configuring Video Conferences

This section provides the following configuration examples.

Configuring Homogeneous Conference: Example

The following example configures the DSP to support a homogeneous video conference for H.264 codec on Cisco Unified IP Phone 7985 or Cisco Unified Video Advantage.

```
voice-card 0
voice-service dsp-reservation 50

dspfarm profile 101 conference video homogeneous
 codec h264 cif
 maximum sessions 4
 associate application SCCP
 no shutdown
```

The following example configures the DSP to support a homogeneous video conference for H.263 codec on Cisco Unified IP Phone 7985 or Cisco Unified Video Advantage.

```
voice-card 0
voice-service dsp-reservation 50

dspfarm profile 101 conference video homogeneous
 codec h263 cif
 maximum conference-participants 8
 maximum sessions 4
 associate application SCCP
 no shutdown
```

Configuring Heterogeneous Conference: Example

The following example configures the DSP to support a heterogeneous video conference for Cisco Unified IP Phones 7985, Cisco Unified Video Advantage, Cisco Unified IP Phone 9971, and Cisco Unified IP Phone 9951.

```
voice-card 0
voice-service dsp-reservation 50

dspfarm profile 101 conference video heterogeneous
 codec h264 cif
 codec h264 qcif
 codec h264 vga
 maximum conference-participants 16
 maximum sessions 4
 associate application SCCP
  no shutdown
```

Configuring a Guaranteed-Audio: Example

The following example configures the DSP to support a guaranteed audio conference. The profile includes support for H.263 and H.264 video codec. If the DSP resources are available at the start of the conference, phones that support the video format that is specified in the profile can start a video conference.

Note DSP resources for audio are reserved, but DSP resources for video support are not reserved.

```
voice-card 0
voice-service dsp-reservation 50

dspfarm profile 8 conference video guaranteed-audio
 codec h263 cif
 codec h264 cif
 maximum conference-participants 16
 maximum session 4
 associate application sccp
 no shutdown
```

Configuring Video Conferences on Cisco Unified CME: Example

The following example shows a configuration for one meetme, one unlocked meetme, and one ad hoc conference with in-conference controls.

```
telephony-service
 sdspfarm conference mute-on 111 mute-off 222
 sdspfarm conference lecture-mode on #11 release #22
 sdspfarm units 10
 conference hardware
....

ephone-template  2
 softkeys hold  Join Newcall Resume Select
 softkeys idle  Cfwdall ConfList Dnd Join Newcall Pickup Redial RmLstC
 softkeys seized  Endcall Redial Meetme Cfwdall Pickup
 softkeys connected  ConfList Confrn Endcall Hold Trnsfer Join Park RmLstC Select
!
ephone-dn  57  octo-line
 number 9AAA
 conference ad-hoc video

ephone-dn  55  octo-line
 number 9555
 conference meetme video  ! Locked meetme number
!
ephone-dn  56  octo-line
 number 9445
 conference meetme unlocked video ! Unlocked meetme number

ephone  1
 conference admin
 video
 mac-address 0017.59E7.468B
 ephone-template 2
```

The following example shows the dial peer configuration with SIP trunk DTMF relay internetworking.

```
dial-peer voice 8080 voip
 destination-pattern 8080
 session protocol sipv2
 session target ipv4:1.4.158.127
 incoming called-number ....
 dtmf-relay rtp-nte
 codec g711u
```

The following example shows a video transcoding and video conference configuration where the DSP Farm module is located on a seperate router from the Cisco Unified CME router.

Note Be aware of the following when you are configuring your routers:

- The IP address specified in the **sccp ccm** command is the IP address of the Cisco Unified CME router and should match the ip address that is specified in the **ip source-address** command on the Cisco Unified CME router.

- The CCM identifier specified in the **sccp ccm** command should match the identifier number that is specified in the **associate ccm** command.

- The profile identifier in the **associate profile** command should match the profile identifier DSP farm profile.

- The device name specified in the **associate profile** commandon the router with the DSP farm module should match the device name that is specified in the **sdspfarm tag** command on the Cisco Unified CME router.

Router with the DSP farm module
```
sccp local GigabitEthernet0/1
sccp ccm 1.4.211.35 identifier 2 version 7.0
sccp
!
sccp ccm group 2
associate ccm 2 priority 1
associate profile 345 register 2851VXCODE
associate profile 346 register 2851VCONF
!
dspfarm profile 345 transcode video
 codec g729br8
 codec g729r8
 codec g729abr8
 codec g729ar8
 codec g711alaw
 codec g711ulaw
 codec h264 cif
 codec h264 w360p
 codec h264 vga
 codec h264 w448p
 codec h264 4cif
 codec h264 720p
 maximum sessions 1
 associate application SCCP
!
dspfarm profile 346 conference video heterogenous
 codec g729br8
  codec g729r8
 codec g729abr8
```

```
  codec g729ar8
  codec g711alaw
  codec g711ulaw
  codec h264 cif
  codec h264 w360p
  codec h264 vga
  codec h264 w448p
  codec h264 4cif
  codec h264 720p
maximum sessions 1
associate application SCCP
```

Cisco Unified CME Router

```
telephony-service
sdspfarm conference lecture-mode on 123 release 321
sdspfarm units 5
sdspfarm transcode sessions 10
sdspfarm tag 1 2851VXCODE
sdspfarm tag 2 2851VCONF
ip source-address 1.4.211.35 port 2000
max-conferences 12 gain -6
```

Configuring Video Conferences on a Cisco Unified Communications Manager: Example

If you use Cisco Unified Communications Manager as your call agent, you must perform the following tasks:

Provisioning a Video Conference Bridge on Cisco Unified Communications Manager

To provision a video conference bridge, perform the following tasks on
Cisco Unified Communications Manager Administration.

Step 1 Add a new conference bridge with the following parameters:

   a. In the Conference Bridge Type field, select one of the following from the drop-down list box:

     – Cisco IOS Heterogeneous Video Conference Bridge

     – Cisco IOS Guaranteed Audio Video Conference Bridge

     – Cisco IOS Homogeneous Video Conference Bridge

   b. In the Conference Bridge Name field, enter the device name.

   c. In the Device Pool, select the configured device pool.

> ✎
>
> **Note** Leave all other parameters at their default settings.

Step 2 Apply the configuration and click **Save**.

Step 3   Add a new Media Resource Group if one has not been created.

Step 4   Select the newly added conference bridge in the Media Resource Group.

Step 5   Apply the configuration and click **Save**.

Step 6   Add a new Media Resource Group List if one has not been created.

Step 7   Select the appropriate Media Resource Group in the Media Resource Group List.

Step 8   Apply the configuration and click **Save**.

Provisioning a Video DSP Farm Profile on Gateway

The following example configures a DSP farm profile on the gateway and associates the DSP profile with the Cisco Unified Communications Manager.

```
sccp local GigabitEthernet0/2
sccp ccm 1.3.54.100 identifier 3 version 7.0
sccp
!
sccp ccm group 3
 associate ccm 3 priority 1
 associate profile 50 register VConfHomogens
!
dspfarm profile 50 conference video homogeneous
 codec h264 cif frame-rate 15 bitrate 320kbps
 maximum sessions 2
 associate application SCCP
!
```

✎
Note   The MAC Address portion of the profile name (VCB<MAC Address>) must match the MAC address string that is configured for the Video Conference Bridge on Cisco Unified Communications Manager Administration.

Troubleshooting Video Conferencing

This section provides information on troubleshooting video conferencing issues.

✎
Note   You should have access to a high network topology map with information on the devices that are used in the signal control path and the devices that are in the media path.

Collecting Debug Information

Use the following procedures to collect the necessary logs when you encounter issues with video conferencing:

Step 1   Assemble the following information.

  • Network components in the control signaling path and the components in the media path

- Phone type and expected video format

Step 2   If applicable, enable detail trace on Cisco Unified Serviceability and save the trace log.

Step 3   Ask the caller who is having problems to end the call. Enable detail logging for the debug commands. Have the caller join the conference and collect the applicable information listed in Table 2-41.

Step 4   After the caller has joined the conference, collect the applicable information listed in Table 2-42.

Step 5   Capture a sniffer trace showing the media packets that are sent to and from the video endpoint, video conference bridge, and the Cisco Unified Communications Manager or Cisco Unified CME for 5 seconds.

Step 6   Collect the IOS logs from the designated router.

Table 2-41   Information to be collected when a caller is attempting to join a conference

Designated Router	Information to Be Collected When There Are Issues While a Caller Is Attempting to Join a Conference
Cisco Unified Communications Manager Express	Gather and save the outputs from the following set of debug and show commands on Cisco Unified Communications Manager Express: • debug ccsip err—This applies to SIP calls only. • debug ccsip messages—This applies to SIP calls only. • debug ephone error. • debug ephone hw-c—This applies when there are call setup problems. • debug ephone mtp. • debug ephone state—This applies when there are problems with Cisco Unified CME. • debug ephone video—This applies when there is a video failure. • show telephony-service conference hardware detail.

Table 2-41   Information to be collected when a caller is attempting to join a conference

Designated Router	Information to Be Collected When There Are Issues While a Caller Is Attempting to Join a Conference
Video Conference Bridge	Gather and save the outputs from the following set of debug and show commands on the video conference bridge: • debug dsp-r flex detail • debug dsp-r flex dspfarm • debug dsp-r flex error • debug dsp-r flex function • debug dsp-r flex video all • debug rtpspi error • debug rtpspi session • debug sccp err • debug sccp message • debug voip ccapi inout • debug voip ccapi error • debug voip confmsp • debug voip dsmp all • debug voip dsmp error • debug voip dsmp stat • debug voip event • debug voip hpi error • debug voip rtp error • debug voip rtp session • debug voip vxcmsp • debug vpm dsp • show sccp call-ref • show dspfarm video conference • show rtpspi stat (3 times) **Note** Before you enable the debug commands, disable **DSP KeepAlive** by issuing testvoice driver and selecting **0, 10, 7, 0** to minimize output.

Table 2-42   Information to Be Collected After the Caller has Joined the Conference

Designated Router	Information to Be Collected After the Caller has Joined the Conference
Cisco Unified Communications Manager Express	Gather and save the outputs from the following set of show commands on Cisco Unified Communications Manager Express: • show sdspfarm session active • show sdspfarm unit • show telep conference h detail
Video Bridge	Gather and save the outputs from the following set of show commands on the video conference bridge: • show sccp call-ref • show sccp conn • show sccp conn detail • show sccp conn internal • show rtpspi stat—Repeat the command three times, pausing 2 to 3 seconds between each command. • show dspfarm video conf —Write down the bridge ID for the conferee if possible. • show dspfarm dsp stat <bridge id> • show dsp-group all

Problems with the Video Conference not Displaying

Symptom Phone connects to the conference, but the phone does not display any video.

Possible Cause 1: There may be insufficient DSP resources or negotiation failed.

Recommended Action If all DSP resources for video are in use, you can increase the DSP resources available for video conferencing and video transcoding by decreasing the percentage of DSP resources that is reserved for voice services with the **voice-service dsp-reservation** command.

Possible Cause 2: Limit for video cap-class has been reached.

Recommended Action When the maximum number of video-cap-class is reached, the participant who is using a phone that requires a different video format will connect as an audio participant only. Participants who are using a phone with video format that is supported by a video-cap-class will be connected as video participants.

Possible Cause 3: The endpoint device does not support the configured codec.

Recommended Action Verify that the devices support the configured codec and that the dspfarm profile supports that codec.

Possible Cause 4: Incorrect media payload type.

Recommended Action Verify that you have the correct media payload by checking the media payload on the sniffer trace or by viewing the output from show dspfarm video conference.

Symptom When connected to a videoconference call, the phone displays a distorted video.

Possible Cause CME does not support the level-assymmetry parameter when it sends the SIP messages. This occurs when the user puts the call on hold and resumes with the call and when the third-party caller changes the TIAS value.

Recommended Action Avoid changing the TIAS value in between a call, with lifesize phones.

Phone cannot Join the Conference

Symptom Phone cannot join the conference even though the number of conferees is less than the number of maximum conference participant configured in the DSP farm profile..

Possible Cause : The maximum number of participants that is configured in Cisco Unified Communications Manager is smaller than the maximum number of participants that is configured in the DSP farm profile.

Recommended Action Confirm that the Maximum Ad Hoc Conference and Maximum Meetme Conference Unicast parameters in Cisco Unified Communications Manager Administration (**System > Service Parameters**) is less than or equal to the maximum conference participant value specified in the DSP farm profile and modify the parameters on the Cisco Unified Communications Manager.

Unable to Register a Profile

Symptom Video profile cannot register with a Cisco Unified Communications Manager.

Possible Cause Video Conferencing is not supported on this version of Cisco Unified Communications Manager.

Recommended Action Upgrade to Cisco Unified Communications Manager, version 8.6 or later.

No Line Available

Symptom Phone displays "No Line Available" message.

Possible Cause 1: There are no conference profiles.

Recommended Action Configure a conference profile.

Possible Cause   1: DSP farm has not been registered or configured properly.

Recommended Action   Configure and register the DSPfarm.

Additional References

The following sections provide references related to video conferences.

Related Documents

Related Topic	Document Title
Cisco Unified CME configuration	• *Cisco Unified CME Command Reference*
	• *Cisco Unified CME Documentation Roadmap*
Cisco Unified Communications Manager	• *Cisco Unified Communications Manager Administration Guide*
	• *Cisco Unified Communications Manager System Guide*
Cisco IOS voice configuration	• *Cisco IOS Voice Configuration Library*
	• *Cisco IOS Voice Command Reference*

Standards

Standard	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIB	MIBs Link
CISCO-VIDEO-SESSION-MIB CISCO-VOICE-DIAL-CONTROL-MIB	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at: http://www.cisco.com/go/mibs

RFCs

RFC	Title
RFC-2190 for H.263	*RTP Payload Format for H.263 Video Streams*
RFC-2429 for H.263	*RTP Payload Format for the 1998 Version of ITU-T Rec. H.263 Video (H.263+)*
RFC-3984	*RTP Payload Format for H.264 Video*

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/techsupport

Feature Information for Video Conferencing

To determine the correct Cisco IOS release to support a specific Cisco Unified CME version, see the *Cisco Unified CME and Cisco IOS Software Version Compatibility Matrix* at http://www.cisco.com/en/US/docs/voice_ip_comm/cucme/requirements/guide/33matrix.htm

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

For information about all Cisco IOS commands, use the Command Lookup Tool at http://tools.cisco.com/Support/CLILookup or the *Cisco IOS Master Command List, All Releases*, at http://www.cisco.com/en/US/docs/ios/mcl/allreleasemcl/all_book.htm

Table 43 lists the features in this module and enhancements to the features by version.

Table 43   Feature Information for Video Conferencing

Feature Name	Cisco Unified CME Version	Feature Information
Video Conferencing	8.6	Introduced ad hoc and meetme video conferences.