Optimized Conferencing for Cisco Unified Communications Manager and Cisco VCS

Deployment Guide

Release 3.0

Cisco TelePresence Conductor XC2.3
Cisco TelePresence Management Suite 14.4
Cisco TelePresence Server 4.0
Cisco TelePresence MCU Series 4.5

Contents

Introduction

About this Document

This document helps you to implement the Optimized Conferencing for Cisco Unified CM and Cisco VCS solution (Optimized Conferencing) across your video network. It summarizes the required processes, and refers to the associated product guides for step-by-step details.

This document and the related guides are written for partners and technical sales people who have a good technical understanding of Cisco video infrastructure products and their place in a video architecture. We assume that you are familiar with installing and configuring the associated products.

Product Names

For clarity the following short versions of Cisco product/solution names are used:

Table 1: Product names used in this document

Product	Short name
Optimized Conferencing for Cisco Unified CM and Cisco VCS	Optimized Conferencing
Cisco Unified Communications Manager	Unified CM
Cisco TelePresence Conductor	TelePresence Conductor
Cisco TelePresence Server	TelePresence Server
Cisco TelePresence MCU Series	MCU
Cisco TelePresence Management Suite	Cisco TMS
Cisco TelePresence Management Suite Provisioning Extension	Cisco TMSPE
Cisco TelePresence Management Suite Extension for Microsoft Exchange	Cisco TMSXE
Cisco TelePresence Video Communication Server	Cisco VCS
Cisco Business Edition 6000	BE6000
Cisco Unified Communications Manager Session Management Edition	Unified CM SME

Fundamentals of Optimized Conferencing

This section describes some basic points to be aware of when deploying Optimized Conferencing.

Core Architecture

The core elements of Optimized Conferencing are present in all deployments:

- TelePresence Server and/or MCU conference bridges
- TelePresence Conductor
- Cisco TMS

The TelePresence Conductor manages conference bridges that are used for non-scheduled conferences. SIP trunks connect the bridges to the TelePresence Conductor, which in turn is trunked to one or more call controllers. All XML RPC connections also go via the TelePresence Conductor. Conference bridges used for scheduled conferences are trunked direct to the call controller. The Cisco TMS is linked by XML RPC connections to the TelePresence Conductor for provisioning and monitoring of non-scheduled conferences, and direct to the bridges for scheduled conference management.

The architecture is exclusively SIP. Conferencing with H.323 endpoints requires interworking by a Cisco VCS Control or Cisco Expressway-C.

Note: The solution is IPv4 based.

Figure 1: High-level view of the architecture
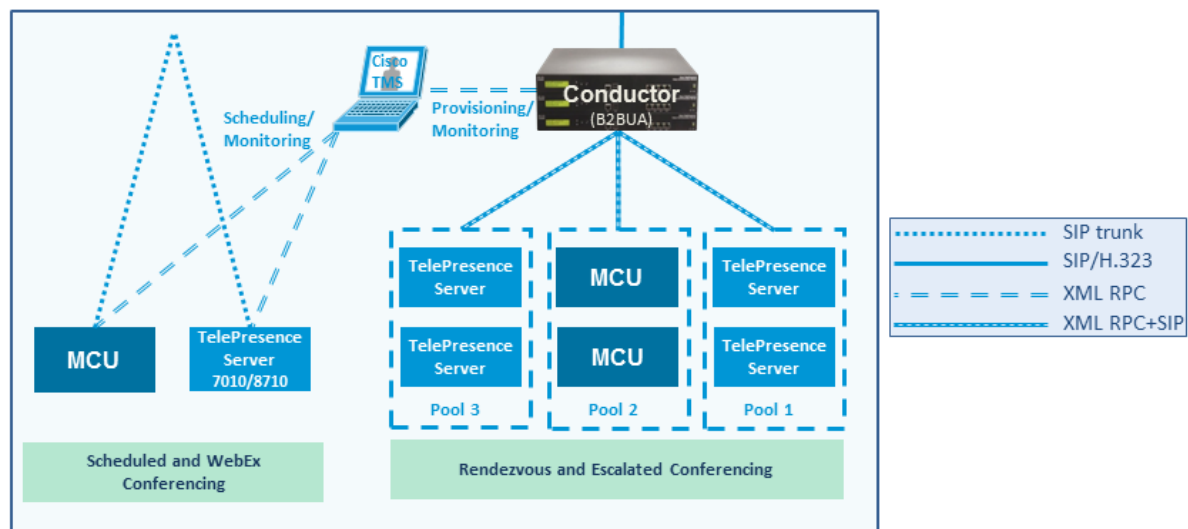
Deployment models

The solution supports two separate models based on the call controller that is used:

- Unified CM-Centric deployments use Cisco Unified Communications Manager.
- Cisco VCS-Centric deployments use Cisco VCS.

Unified CM is recommended.

Solution Components and Required Versions

This section lists the products used in Optimized Conferencing and their required software/firmware versions. Your organization may not use all the products but those that are used must be running the specified version.

- Infrastructure [p.7]
- Endpoints, Soft Clients and Peripherals [p.8]

Note: In networks with multiple Unified CM or Cisco VCS installations, for full Optimized Conferencing functionality every installed Unified CM or Cisco VCS must be at the required version.

Infrastructure

Table 2: Required software versions for infrastructure products

Product	Required Version	Role
TelePresence Conductor	XC2.3	Conference resource allocation
Cisco TMS	14.4	Conference management & scheduling
TelePresence Server 7010 and MSE 8710, TelePresence Server on Multiparty Media 310/320, TelePresence Server on Virtual Machine	4.0	Conference bridge resource
MCU 5300 Series, 4500 Series, 4501 Series, 4200 Series, MCU MSE Series 8420 and 8510	4.5	Conference bridge resource
Unified CM	9.1(2)SU2 or 10.5(1)	Call control
Cisco Expressway-C	X8.1.1 or later X8.2 recommended—required for Microsoft Lync interoperability.	Remote endpoint registration, business-to-business connectivity, and Microsoft Lync interworking.
Cisco Expressway-E	X8.1.1 or later X8.2 recommended	Secure firewall traversal
Cisco VCS Control	X8.1.1 or later (except X7.2.3 can be used for H.323 registration). X8.2 recommended—required for Microsoft Lync interoperability.	Call control (Cisco VCS-Centric deployments). H.323 interworking. Microsoft Lync interworking.
Cisco VCS Expressway	X8.1.1 or later X8.2 recommended	Secure firewall traversal. Registration of standards-based endpoints across the Internet.
Cisco TMSPE	1.2	Conference provisioning

Table 2: Required software versions for infrastructure products (continued)

Cisco TMSXE	4.0 or later	[Optional] Conference management & scheduling for Microsoft environments
Cisco WebEx	T28.12 or later	Participation by WebEx users (WebEx Enabled Conferencing)

Endpoints, Soft Clients and Peripherals

Table 3: Required software versions for endpoints, soft clients and peripherals

Product	Required Version	Supported in deployments...
Cisco TelePresence EX Series (EX60, EX90)	TC7.1.3 or later	Unified CM-Centric Cisco VCS-Centric
Cisco TelePresence Quick Set C20, SX10, SX20		
Cisco TelePresence SX80 Codec		
Cisco TelePresence Codec C Series (C40, C60, C90)		
Cisco TelePresence Profile Series		
Cisco TelePresence MX200 and MX300		
Cisco Desktop Collaboration Experience DX650	10.1(2.33) or later	Unified CM-Centric
Cisco TelePresence Systems CTS 3010, CTS 3210, CTS 1100 and CTS 1300	CTS 1.10.5 or later	Unified CM-Centric
Cisco TelePresence System CTS 500-32	TX6.1.2 or later	Unified CM-Centric
Cisco TelePresence TX9000 Series (TX9000 and TX9200 immersive systems)	TX6.1.2 or later	Unified CM-Centric
Cisco IP Video Phone E20	TE4.1.3 or later	Unified CM-Centric Cisco VCS-Centric
Cisco Unified IP Phone 9900 Series and 8900 Series	9.4(1) or later	Unified CM-Centric
Cisco Jabber for Android	9.6 or later	Unified CM-Centric
Cisco Jabber for iPad	9.6.1 or later	Unified CM-Centric
Cisco Jabber for iPhone	9.6.1 or later	Unified CM-Centric
Cisco Jabber for Mac	9.6 or later	Unified CM-Centric
Cisco Jabber for Windows	9.7 or later	Unified CM-Centric
Cisco Jabber Video for TelePresence	4.7 or later	Cisco VCS-Centric
Microsoft Lync Client	Lync 2013 Client	Unified CM-Centric Cisco VCS-Centric

Note: The video conference network may also include other endpoints that support H.323 or SIP, and are registered to the Cisco VCS or call into it.

Deployment Requirements

TelePresence Server bridges that are trunked to the TelePresence Conductor must be configured in remotely managed mode. The TelePresence Server on Multiparty Media 310/320 and Cisco TelePresence Server on Virtual Machine do not need configuring as they are always in remotely managed mode.

TelePresence Server bridges that are trunked to the call controller (for scheduled conferencing) must be configured in locally managed mode. These include the TelePresence Server 7010 and TelePresence Server 8710.

The TelePresence Conductor must be deployed using its back-to-back user agent (B2BUA). The external policy server interface is not supported.

The following limitations apply in Unified CM-Centric deployments:

- The MCU auto attendant is not supported.
- If your deployment uses a Cisco VCS Expressway or Cisco Expressway, note that these products do not support Early Media. In this case, callers receive media only after the call has connected. Pre-answer messages and far-end ring tones will not be heard.

Deployment Best Practices

This section describes some recommended best practices for Optimized Conferencing deployments.

Resilience and clustering

A full capacity standard TelePresence Conductor can be part of a cluster of up to three Conductors. Clustering does not increase the maximum number of conference bridges / concurrent calls that can be supported, which remains at 30 bridges / 2400 calls for full capacity Conductors.

Note: The TelePresence Conductor Select (small to medium-sized deployments) supports two Conductors in a cluster. The TelePresence Conductor Essentials does not support clustering.

For details about Conductor clustering see the appropriate clustering deployment guide (*Cisco TelePresence Conductor Clustering with Cisco Unified Communications Manager Deployment Guide* or *Cisco TelePresence Conductor Clustering with Cisco VCS (B2BUA) Deployment Guide*).

SIP Early Offer Messaging in Unified CM-Centric Deployments

Early Offer messaging is strongly recommended for all Unified CM-connected SIP trunks that carry TelePresence calls, and is required for CMR Hybrid conferences and some third-party services. Cisco VCS-Centric deployments always run in Early Offer mode, except for H.323 to SIP interworked calls. (Because H.323 uses Slow Start signaling mode on Cisco VCS and Cisco Expressway, SIP messaging for interworked calls is done using Delayed Offer.)

Bridge Pools and Service Preferences

At least one Service Preference is required in TelePresence Conductor. You can optionally place all conference bridge pools into a single Service Preference.

All conference bridges that are managed by TelePresence Conductor (which is all bridges except those used for scheduling), must be assigned to a conference bridge pool in Conductor. Each conference bridge can belong to only one pool.

All conference bridges in a TelePresence Conductor pool must be in the same physical location and of the same type (MCU or TelePresence Server).

All conference bridges in a TelePresence Conductor Service Preference must be in the same physical location and of the same type (MCU or TelePresence Server).

Bridges Used for Scheduling

Scheduled conferencing, including WebEx Enabled TelePresence meetings for participation by Cisco WebEx users, is supported on MCU and TelePresence Server 7010 and 8710 conference bridges.

Bridges used for scheduling must be:

- Connected directly to the call controller and not via TelePresence Conductor.
- Configured in locally managed mode in the case of TelePresence Server bridges.

Content Channel

Most TelePresence endpoints support the use of a second video channel known as the content channel. Typically this is used for presentations running alongside live video.

Configuration Information for MCU Conference Bridges

- For MCU bridges managed by TelePresence Conductor, set the **Content mode** for the Conference template in Conductor to *Transcoded* (**Advanced parameters**).
- For directly managed MCU bridges, set the **Content mode** to *Hybrid* (recommended) or *Transcoded* (optional).

Note: The content mode is only relevant for MCU bridges. When this mode is selected in a TelePresence Conductor template, a dedicated content port or video port will be allocated depending on the MCU model and configuration. TelePresence Server content mode is always Transcoded and is not configurable.

H.323 Interworking

The Optimized Conferencing network is SIP-based. If you want to connect H.323 endpoints to conferences within the Optimized Conferencing network, the call must be interworked before reaching the TelePresence Conductor. This can be done by configuring the Cisco VCS Control or Cisco Expressway-C to perform the necessary SIP/H.323 interworking.

To perform interworking only for locally registered endpoints, set the **H.323 <-> SIP interworking mode** to *Registered only* (accessed from **VCS configuration > Protocols > Interworking**).

If you want to allow interworking of business-to-business H.323 calling between external networks and your conferences, set the **H.323 <-> SIP interworking mode** to *On*. This will interwork all incoming calls.

Escalated Conferencing Methods

We do not recommend using ad hoc conferencing (the Unified CM method of escalated conferencing) in Cisco VCS-Centric deployments, or Multiway (the Cisco VCS method) in Unified CM-Centric deployments.

Cisco Validated Design Guides

For Unified CM-Centric deployments, more information on recommended best practices is provided in the appropriate Cisco Validated Design Guides. Separate guides are available for enterprise and for midmarket organizations. Topics covered in the guides include conferencing architecture, sizing considerations, availability and redundancy, and licensing.

Upgrading an Existing Deployment

This section describes how to upgrade an existing Optimized Conferencing Release 2.0 deployment to Release 3.0. Skip this section if you are installing Optimized Conferencing for the first time.

This section does not cover Cisco Business Edition 6000 deployments (see Deploying Optimized Conferencing in BE 6000 Environments [p.25] instead).

CAUTION: To ensure operational continuity in the network we recommend that the solution components are upgraded in the recommended sequence.

Recommended Implementation Sequence

Follow the sequence in the table below to implement Optimized Conferencing in your video network. This sequence applies to upgrades from the previous Optimized Conferencing Release 2.0 or to first-time deployments of Optimized Conferencing, and to Unified CM-Centric and Cisco VCS-Centric deployments. It has been tested by Cisco and verified to interoperate at all stages.

The software can be downloaded from http://www.cisco.com/cisco/software/navigator.html. See the associated product documentation for instructions on how to upgrade each software component.

Note: This sequence differs from the previous Optimized Conferencing release.

Table 4: Recommended upgrade / install sequence for Optimized Conferencing components

Order	Component	Software version
1	Unified CM	9.1(2)SU2 or 10.5(1) (if not already on a supported release). Version 10.5(1) is required for Microsoft Lync interoperability. This component is not relevant to Cisco VCS-Centric deployments unless a Unified CM exists in the VCS enterprise.
2	Cisco VCS	X8.1.1 or later. **X8.2 is recommended**—and required for Microsoft Lync interoperability. X7.2.3 or later is supported for H.323 registration. Not relevant to Unified CM-Centric deployments unless a Cisco VCS exists in the Unified CM enterprise.
3	Cisco Expressway	X8.1.1 or later. **X8.2 is recommended**—and required for Microsoft Lync interoperability. Not relevant to Cisco VCS-Centric deployments unless a Unified CM exists in the enterprise.
4	Cisco TMS	14.4
5	MCU	4.5
6	TelePresence Server	4.0
7	TelePresence Conductor	XC2.3
8	Cisco TMSPE	1.2
9	Endpoints	Endpoints can be upgraded in any order except the newly introduced Cisco TelePresence MX 300 G2, SX10 and SX80, which should be upgraded after other endpoints in the deployment.

Configuration Prerequisites for Upgrades

Make sure the following items are in place before you upgrade your Optimized Conferencing configuration to Release 3.0.

- For TelePresence Server bridges the operation mode must be configured as follows:
  - Remotely managed for bridges pooled behind TelePresence Conductor.
  - Locally managed for bridges used for scheduling, which must be directly connected to the call control device.
- Endpoints must be registered to Unified CM or to Cisco VCS as appropriate.
- All devices must be running the required software and firmware versions.

Configuration Checklist for Upgrades

This topic summarizes the Optimized Conferencing configuration process to upgrade an existing Optimized Conferencing deployment to Release 3.0. Appendix 2: Migration Paths to Optimized Conferencing Release 3.0 [p.71] provides detailed upgrade paths.

Task 1: Upgrade Product Versions

Upgrade / install each product in your solution deployment to the required version for Release 3.0. Follow the sequence specified in Recommended Implementation Sequence [p.20].

At this stage, do *not* update your configuration for Release 3.0 functionality.

Task 2: Verify New Versions in Existing Configuration

Verify that the new software runs satisfactorily on your existing Release 2.0 configuration and the network is functioning as expected.

Task 3: Check Solution Prerequisites are Complete

Check that all Release 3.0 configuration prerequisites are complete.

Task 4: Check Solution Release Notes

Check the release-specific configuration considerations described in the latest solution release notes for Optimized Conferencing Release 3.0 on Cisco.com.

Task 5: Configure the TelePresence Conductor

Configure the TelePresence Conductor for Optimized Conferencing. Note that TelePresence Conductor settings for Optimized Conferencing have changed in this release.

- For Unified CM-Centric deployments, see Connecting TelePresence Conductor to the Unified CM [p.29]
- For Cisco VCS-Centric deployments, see Connecting TelePresence Conductor to the Cisco VCS [p.30].

Task 6: Add Latest Normalization Scripts to Unified CM (Unified CM-Centric Deployments)

Skip this step for Cisco VCS-Centric deployments, unless a Unified CM exists in the enterprise. Unified CM-Centric deployments that use encryption and TLS on SIP trunks for TelePresence must install the latest TelePresence normalization scripts on the trunks. See Appendix 1: Adding the Unified CM Normalization Scripts [p.70] for instructions.

Verify that the system is working as expected before you continue to the next step.

Task 7: Convert to SIP Early Offer (Unified CM-Centric Deployments)

Skip this step for Cisco VCS-Centric deployments. This step is recommended, and required for WebEx Enabled TelePresence conferences and some third party services. See Configuring Early Offer (and fallback to Delayed Offer) for SIP trunks [p.28] for instructions.

Task 8: Trunk Scheduling Bridges to Unified CM (Unified CM-Centric Deployments)

Skip this step for Cisco VCS-Centric deployments. In the previous Optimized Conferencing release, bridges used to host scheduled conferences were registered to a Cisco VCS. In this release, bridges for scheduled conferencing should be trunked to the Unified CM.

We recommend keeping the conference bridge aliases the same when you relocate them to Unified CM. Otherwise the aliases for all existing scheduled meetings will need to be updated.

Task 9: Set Up Resource Optimization (Optional)

To set up automatic resource allocation and optimization for TelePresence Server resources, see Setting up TelePresence Server Resource Optimization (Optional) [p.56].

Task 10: Configure the Cisco Expressway / Cisco VCS for Microsoft Lync (Optional)

If your deployment requires interoperability with Microsoft Lync, see Configuring Microsoft Lync 2103 Interoperability [p.58].

Task 11: Configure iX Protocol for ActiveControl Support (Optional)

To use ActiveControl in the Optimized Conferencing network, see Setting up the ActiveControl Feature [p.59].

CAUTION: If your Optimized Conferencing network connects to Unified CM systems running Version 8.*x* or earlier, or to third-party networks, before you enable ActiveControl you *must* first disable the iX protocol on all relevant trunks to isolate iX traffic from systems that do not support it. If you do not do this, the consequences may be unpredictable and include dropped calls.

Task 12: Configure Cisco TMS for Scheduled Conferencing

To set up scheduled conferencing directly on the MCU and TelePresence Server bridges using Cisco TMS, see Enabling Scheduled Conferencing [p.38]

Task 13: Set up Cisco Collaboration Meeting Rooms Hybrid (Optional)

To set up an integration with Cisco Collaboration Meeting Rooms Hybrid, see Enabling Scheduled Cisco Collaboration Meeting Rooms Hybrid Conferencing [p.40].

Task 14: Check External Endpoints Are Registered to the Enterprise Unified CM (Unified CM-Centric Deployments)

Skip this step for Cisco VCS-Centric deployments. In the previous Optimized Conferencing release, endpoints that were external from the local enterprise needed to be registered to a Cisco VCS Expressway. In this release they can be registered to Unified CM, through Cisco Expressway.

First-Time Deployments

This section describes how to implement Optimized Conferencing Release 3.0 as a first-time deployment. Skip this section if you are upgrading from an earlier Optimized Conferencing release.

This section does not cover Cisco Business Edition 6000 deployments (see Deploying Optimized Conferencing in BE 6000 Environments [p.25] instead).

CAUTION: To ensure operational continuity in the network we recommend that the solution components are installed in the recommended sequence.

Recommended Implementation Sequence

Follow the sequence in the table below to implement Optimized Conferencing in your video network. This sequence applies to upgrades from the previous Optimized Conferencing Release 2.0 or to first-time deployments of Optimized Conferencing, and to Unified CM-Centric and Cisco VCS-Centric deployments. It has been tested by Cisco and verified to interoperate at all stages.

The software can be downloaded from http://www.cisco.com/cisco/software/navigator.html. See the associated product documentation for instructions on how to upgrade each software component.

Note: This sequence differs from the previous Optimized Conferencing release.

Table 5: Recommended upgrade / install sequence for Optimized Conferencing components

Order	Component	Software version
1	Unified CM	9.1(2)SU2 or 10.5(1) (if not already on a supported release). Version 10.5(1) is required for Microsoft Lync interoperability.
		This component is not relevant to Cisco VCS-Centric deployments unless a Unified CM exists in the VCS enterprise.
2	Cisco VCS	X8.1.1 or later. **X8.2 is recommended**—and required for Microsoft Lync interoperability. X7.2.3 or later is supported for H.323 registration.
		Not relevant to Unified CM-Centric deployments unless a Cisco VCS exists in the Unified CM enterprise.
3	Cisco Expressway	X8.1.1 or later. **X8.2 is recommended**—and required for Microsoft Lync interoperability. Not relevant to Cisco VCS-Centric deployments unless a Unified CM exists in the enterprise.
4	Cisco TMS	14.4
5	MCU	4.5
6	TelePresence Server	4.0
7	TelePresence Conductor	XC2.3
8	Cisco TMSPE	1.2
9	Endpoints	Endpoints can be upgraded in any order except the newly introduced Cisco TelePresence MX 300 G2, SX10 and SX80, which should be upgraded after other endpoints in the deployment.

Configuration Prerequisites for First-Time Deployments

Make sure the following items are in place before you configure Optimized Conferencing Release 3.0.

- You need access to the administration web interfaces of the following devices on your network:
  - A Unified CM is required for Unified CM-Centric deployments, already configured with a base configuration. Ensure connectivity by registering at least three endpoints to Unified CM, and make sure they are all capable of calling each other with voice and video communications. For Unified CM-related information, see the Cisco Unified Communications Manager documentation on Cisco.com.
  - A Cisco VCS is required for Cisco VCS-Centric deployments. For Cisco VCS-related information, see the Cisco TelePresence Video Communication Server documentation on Cisco.com.
  - Cisco TMS is required for scheduled conferencing, and for conference provisioning and monitoring. For Cisco TMS-related information, see the Cisco TelePresence Management Suite documentation on Cisco.com.
  - A TelePresence Conductor, deployed using its back-to-back user agent (B2BUA). For Conductor-related information, see the Cisco TelePresence Conductor documentation on Cisco.com.
  - One or more conference bridges, either TelePresence Servers or MCUs. Basic configuration for each conference bridge must be complete, as described in the relevant Installation Guide or Getting Started Guide:
    - TelePresence Server 7010
    - TelePresence Server MSE 8710
    - TelePresence Server on Virtual Machine
    - TelePresence Server on Multiparty Media 310/320
    - MCU 5300 Series
    - MCU 4500 Series
    - MCU 4200 Series
    - MCU MSE 8420
    - MCU MSE 8510
- For TelePresence Server bridges the operation mode must be configured as follows:
  - Remotely managed for bridges pooled behind TelePresence Conductor.
  - Locally managed for bridges used for scheduling, which must be directly connected to the call control device.
- Endpoints must be registered to Unified CM or to Cisco VCS as appropriate.
- All devices must be running the required software and firmware versions.

Configuration Checklist for First-Time Deployments

This topic summarizes the Optimized Conferencing configuration process to deploy Optimized Conferencing for the first time. Appendix 2: Migration Paths to Optimized Conferencing Release 3.0 [p.71] provides detailed migration paths.

Task 1: Install Required Product Versions

Install each product in your solution deployment at the required version for Release 3.0. Follow the sequence specified in Recommended Implementation Sequence [p.20].

Task 2: Check Solution Prerequisites are Complete

Check that all Release 3.0 configuration prerequisites are complete.

Task 3: Check Solution Release Notes

Check the release-specific configuration considerations described in the latest solution release notes for Optimized Conferencing Release 3.0 on Cisco.com.

Task 4: Configure the TelePresence Conductor

Configure the TelePresence Conductor for Optimized Conferencing.

- For Unified CM-Centric deployments, see Connecting TelePresence Conductor to the Unified CM [p.29]
- For Cisco VCS-Centric deployments, see Connecting TelePresence Conductor to the Cisco VCS [p.30].

Task 5: Add Normalization Scripts to Unified CM (Unified CM-Centric Deployments)

Skip this step for Cisco VCS-Centric deployments, unless a Unified CM exists in the enterprise. Unified CM-Centric deployments that use encryption and TLS on SIP trunks for TelePresence must install the latest TelePresence normalization scripts on the trunks. See Appendix 1: Adding the Unified CM Normalization Scripts [p.70] for instructions.

Verify that the system is working as expected before you continue to the next step.

Task 6: Convert to SIP Early Offer (Unified CM-Centric Deployments)

Skip this step for Cisco VCS-Centric deployments. This step is recommended, and required for WebEx Enabled TelePresence conferences and some third party services. See Configuring Early Offer (and fallback to Delayed Offer) for SIP trunks [p.28] for instructions.

Task 7: Trunk Scheduling Bridges to Unified CM (Unified CM-Centric Deployments)

Skip this step for Cisco VCS-Centric deployments. Bridges you intend to use for scheduled conferencing should be trunked to the Unified CM.

Task 8: Set Up Resource Optimization (Optional)

To set up automatic resource allocation and optimization for TelePresence Server resources, see Setting up TelePresence Server Resource Optimization (Optional) [p.56].

Task 9: Configure the Cisco Expressway / Cisco VCS for Microsoft Lync (Optional)

If your deployment requires interoperability with Microsoft Lync, see Configuring Microsoft Lync 2103 Interoperability [p.58].

Task 10: Configure iX Protocol for ActiveControl Support (Optional)

To use ActiveControl in the Optimized Conferencing network, see Setting up the ActiveControl Feature [p.59].

CAUTION: If your Optimized Conferencing network connects to Unified CM systems running Version 8.*x* or earlier, or to third-party networks, before you enable ActiveControl you *must* first disable the iX protocol on all relevant trunks to isolate iX traffic from systems that do not support it. If you do not do this, the consequences may be unpredictable and include dropped calls.

Task 11: Configure Cisco TMS for Scheduled Conferencing

To set up scheduled conferencing directly on the MCU and TelePresence Server bridges using Cisco TMS, see Enabling Scheduled Conferencing [p.38]

Task 12: Set up Cisco Collaboration Meeting Rooms Hybrid (Optional)

To set up an integration with Cisco Collaboration Meeting Rooms Hybrid, see Enabling Scheduled Cisco Collaboration Meeting Rooms Hybrid Conferencing [p.40].

Configuring and Connecting the Solution Components

By the end of this section, you should have Optimized Conferencing installed on all of the solution components, and the components should be configured to talk to each other.

Deploying Optimized Conferencing in BE 6000 Environments

The Cisco Business Edition 6000 allows you to run virtual editions of the Optimized Conferencing solution components combined in a flexible way on a single platform, for deployments of up to 1,000 users and 2,500 registered endpoints.

OVAs for the following Optimized Conferencing solution components are preloaded on the BE 6000:

- Cisco Unified Communications Manager
- Cisco VCS Control
- Cisco Expressway-C
- Cisco Expressway-E
- TelePresence Conductor
- TelePresence Server
- Cisco TMS/Cisco TMSPE/Cisco TMSXE

Cisco TMS Sizing for BE 6000 Deployments

The recommended BE 6000 configuration for Optimized Conferencing, as documented in Optimized Conferencing for Cisco Unified CM and Cisco VCS Solution Guide 3.0, specifies a 2-core virtualized Cisco TMS. Additional virtual machines are typically required for Cisco TMSXE and for the database that is used by Cisco TMS. However, for Unified CM-Centric deployments, you may have the option of a smaller profile installation, depending on the size of your deployment. The following sizing options are based on the categories in the "*Estimating your deployment size*" section of the Cisco TMS Installation Guide:

Standard deployment	A single 1-core virtual machine installed with all of the following:: - Cisco TMS - Cisco TMSPE - Cisco TMSXE - embedded SQL server **Note:** This option should only be used for Unified CM-Centric BE 6000 deployments. All other deployments should use the guidelines in the Cisco TMS Installation Guide, which specify a 2-core virtual machine for both standard and large deployments.
Large deployment	Separate virtual machines for each of the following: - Cisco TMS/Cisco TMSPE (2 cores) - Cisco TMSXE (2 cores) - external SQL database (4 cores)

Before You Start

- Check the recommended configuration and conferencing architecture in the Optimized Conferencing for Cisco Unified CM and Cisco VCS Solution Guide 3.0.
- Determine the required size for your Cisco TMS deployment based on the categories in the "Estimating your deployment size" section of the Cisco TMS Installation Guide.

- Determine which applications you will install on the BE 6000.
- Create virtual machines.

Process for Unified CM-Centric Deployments

For deployment instructions, see the Midmarket Cisco Validated Design Guide (CVD) for Video Conferencing Using Cisco Business Edition 6000 at http://www.cisco.com/c/en/us/solutions/enterprise/design-zone-branch-wan/cisco_validated.html. These instructions walk you through:

- installing Cisco TelePresence Server on Virtual Machine
- installing Cisco TelePresence Conductor
- installing Cisco TMS and Cisco TMSPE (with embedded Microsoft SQL Server 2012 64-bit)
- configuring Cisco TelePresence Conductor to communicate with Cisco TelePresence Server on Virtual Machine
- configuring SIP dial-out on Cisco TelePresence Server on Virtual Machine
- creating a user on the TelePresence Conductor for Unified CM access
- creating a user on the TelePresence Conductor for Cisco TMS access
- setting up DNS, service preferences, and conference bridge pools on TelePresence Conductor
- configuring TelePresence Conductor for ad hoc conferencing and personal CMRs
- configuring Unified CM for ad hoc conferencing and personal CMRs
- configuring endpoints on Unified CM

Configuring the Unified CM for Early Offer

For the Optimized Conferencing solution we recommend that all SIP trunks which carry TelePresence calls are configured for Early Offer. With Early Offer the session initiator sends its capabilities in the SIP Invite and the called device chooses the preferred codec.

Additionally, Early Offer is *required* from any direct scheduled bridges to Cisco Expressway or Cisco VCS to support WebEx Enabled TelePresence calls, and from Unified CM endpoints to Cisco Expressway for any other services that require Early Offer, such as Cisco WebEx and some third party conferencing services. The entire path from the calling device to the service must be configured to support Early Offer.

Cisco VCS-Centric deployments always run in Early Offer mode (except for H.323 to SIP interworked calls) and this section is only relevant to Unified CM-Centric deployments. It provides the recommended approach for configuring outbound trunks as Early Offer.

Note: The default configuration for Unified CM trunks is **Delayed Offer**.

All trunks between the following Optimized Conferencing elements should be enabled for Early Offer. No media termination point (MTP) resources should be made available to these trunks, directly or indirectly:

- Unified CM to Cisco Expressway-C
- Unified CM to Cisco VCS Control
- Unified CM to TelePresence Conductor
- Unified CM to TelePresence Server
- Unified CM to MCU
- Unified CM to Unified CM trunks which carry traffic originating from a TelePresence endpoint and any of the network elements listed above should also be enabled for Early Offer, with no media termination point (MTP) resources. For example, in a call flow scenario of EX90 >> UCM1 >> UCM2 >> Conductor >> TelePresence Server, the trunk between UCM1 >> UCM2 and the trunk between UCM2 >> Conductor should be enabled for Early Offer.

To restrict the use of MTPs, all MTP resources should be removed from all Cisco Unified Communications Manager Session Management Edition (Unified CM SME) clusters, and all MTP resources on Unified CM clusters should be placed in Media Resource Groups that are inaccessible both to TelePresence endpoints and to SIP trunks carrying TelePresence traffic.

Some specific points apply in various deployment scenarios:

Scenario 1. Configuring Early Offer in a single Unified CM system

TelePresence Conductor and conference bridges are connected to the Unified CM, with Unified CM trunked to the Cisco Expressway. Endpoints are registered to the Unified CM. In this scenario the following trunks must be configured for Early Offer:

- Unified CM to Cisco Expressway-C.
- Unified CM to the TelePresence Conductor.

Scenario 2. Configuring Early Offer in a multi-cluster system (TelePresence Conductor connected to Unified CM SME)

One or more Unified CM SME clusters with connected leaf Unified CM clusters. The TelePresence Conductor and conference bridges are connected to the Unified CM SME. The Unified CM SME is trunked to the Cisco Expressway-C. In this scenario the following trunks must be configured for Early Offer:

- Unified CM SME to Cisco Expressway-C.
- Unified CM SME to the TelePresence Conductor.

Note: In multi-cluster systems with three or more clusters, where one Unified CM cluster is a dedicated Unified CM SME, endpoints never register to the Unified CM SME but always to a leaf Unified CM cluster.

Scenario 3. Configuring Early Offer in a multi-cluster system (TelePresence Conductor connected to leaf clusters)

One or more Unified CM SME clusters with connected leaf Unified CM clusters. The TelePresence Conductor and conference bridges are connected to the leaf cluster(s). A single trunk connects the Unified CM SME to the Cisco Expressway-C. In this scenario the following trunks must be configured for Early Offer:

- Unified CM SME to Cisco Expressway-C.
- Leaf Unified CM clusters to the TelePresence Conductor.
- Leaf Unified CM clusters to the Unified CM SME.

Configuring Early Offer (and fallback to Delayed Offer) for SIP trunks

1. Configure the following setting in the SIP profile (**Device > Device Settings > SIP Profile**), depending on your Unified CM version, and then apply that SIP profile to each SIP trunk. The setting is in the **Trunk Specific Configuration** area of the **SIP Profile** page:
   - For Unified CM Version 9.1(2) systems, enable the **Early Offer support for voice and video calls (insert MTP if needed)**.
   - For Unified CM Version 10.5(1) systems, in the **Early Offer support for voice and video calls** dropdown, select *Best Effort (no MTP inserted)*.

2. Remove all MTP resources from the following elements:
   a. Unified CM SME clusters (in the case of Unified CM SME deployments).
   b. All TelePresence endpoints and SIP trunks on all Unified CM clusters.

3. Set **SIP Trunk DTMF Signaling Method** to *RFC 2833*.

4. Enable the **Accept Audio Codec Preference in Received Offer** option on the following elements:
   a. All Unified CM SME SIP trunks (in the case of Unified CM SME deployments).
   b. All SIP trunks that carry TelePresence calls on all Unified CM clusters.

Fallback to Delayed Offer

For outgoing calls, the default settings provide for automatic fallback to Delayed Offer in cases where no MTP resource exists. Without fallback, issues may arise in areas of the network that are not configured for the solution. For incoming calls, Early Offer is supported with no requirement for MTP resources.

Connecting TelePresence Conductor to the Unified CM

Note: In Optimized Conferencing, the TelePresence Conductor is deployed using its B2BUA. The external policy service interface is not supported.

Before You Start

- Cisco TelePresence Conductor must be installed according to the instructions in Cisco TelePresence Conductor Getting Started or Cisco TelePresence Conductor Virtual Machine Installation Guide.
- Cisco Unified Communications Manager must be installed and configured with a base configuration. Ensure connectivity by registering at least three endpoints, and make sure they are all capable of calling each other with voice and video communications.
- One or more conference bridges must be powered on and accessible to the Cisco TelePresence Conductor over HTTP/HTTPS and SIP TLS.

Process

To configure the TelePresence Conductor for Optimized Conferencing in Unified CM-Centric deployments, follow the step-by-step instructions in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)* (D14998). These instructions walk you through:

- configuring the Cisco TelePresence MCU Series
- configuring the TelePresence Server
- creating a user on the TelePresence Conductor for Unified CM access
- configuring the TelePresence Conductor for ad hoc and rendezvous conferences using its B2BUA
- configuring Unified CM for ad hoc and rendezvous conferences

You may choose to skip the rendezvous conference configuration steps (the tasks that set up conference templates, conference aliases and auto-dialed participants on the TelePresence Conductor) and instead deploy personal CMRs as described in Enabling Personal CMRs [p.34] later in this document.

Connecting TelePresence Conductor to the Cisco VCS

Before You Start

- Cisco TelePresence Conductor must be installed according to the instructions in Cisco TelePresence Conductor Getting Started or Cisco TelePresence Conductor Virtual Machine Installation Guide. (Or according to the BE 6000 deployment instructions.)
- Cisco TelePresence Video Communication Server must be installed and configured to act as a SIP registrar and proxy.
- One or more conference bridges must be powered on and accessible to the TelePresence Conductor over HTTP/HTTPS and SIP TLS.

Process

To configure the TelePresence Conductor for Optimized Conferencing in Cisco VCS-Centric deployments, follow the step-by-step instructions in the *Cisco TelePresence Conductor with Cisco VCS (B2BUA) Deployment Guide (XC2.3)* (D15014), with the following caveat:

- The VCS **Zone profile** for the trunk between Cisco VCS Control and TelePresence Conductor should be set to *Custom* with **Automatically respond to SIP searches** set to *On*. For details, see *Adding the TelePresence Conductor as a neighbor zone* in *Cisco TelePresence Conductor with Cisco TelePresence VCS (B2BUA) Deployment Guide*.

The instructions walk you through:

- designing a dial plan.
- configuring the Cisco TelePresence MCU Series.
- configuring the TelePresence Server.
- configuring Cisco VCS with a neighbor zone and search rule for TelePresence Conductor.
- configuring the TelePresence Conductor in B2BUA mode (deployments using the Cisco VCS external policy service are not supported)

You may choose to skip the rendezvous conference configuration steps (the tasks that set up conference templates, conference aliases and auto-dialed participants on the TelePresence Conductor) and instead deploy personal CMRs as described in Enabling Personal CMRs [p.34] later in this document.

Connecting the Unified CM and the Cisco Expressway or Cisco VCS

For Unified CM-Centric deployments beyond the standard deployment model (external, with Microsoft Lync 2013, or legacy deployments) your deployment must include either the Cisco Expressway Series or Cisco TelePresence Video Communication Server. (For an overview of the deployment types, see the Optimized Conferencing for Cisco Unified CM and Cisco VCS Solution Guide 3.0.)

Before You Start

- Cisco Unified Communications Manager must be installed and configured with a base configuration. Ensure connectivity by registering at least three endpoints, and make sure they are all capable of calling each other with voice and video communications.
- The Cisco Expressway-C or Cisco VCS Control must be configured with IP address, DNS and NTP information, and be accessible for management via its web interface.
- If you are using the Cisco Expressway Series, rich media licenses must be installed.

Process for Cisco Expressway Series

To connect the Unified CM and Cisco Expressway Series, follow the step-by-step instructions in the Cisco Unified Communications Manager with Cisco Expressway via SIP Trunk Deployment Guide. These instructions walk you through:

- Configuring Unified CM for a Cisco Expressway trunk
- Configuring Cisco Expressway routing
- Connecting Cisco Expressway to Unified CM using TLS

Process for Cisco VCS

To connect the Unified CM and Cisco VCS, follow the step-by-step instructions in the Cisco Unified Communications Manager with Cisco VCS (SIP Trunk) Deployment Guide. These instructions walk you through:

- Enabling calls between endpoints registered on the Cisco VCS Control
- Enabling calls between endpoints registered on Unified CM
- Enabilng endpoints registered on Unified CM to call endpoints registered on Cisco VCS Control
- Connecting Cisco VCS to Unified CM using TLS

Adding the MCU, TelePresence Server and TelePresence Conductor to Cisco TMS

Cisco TMS can provide the following services within an Optimized Conferencing deployment:

- Allows administrators to control non-scheduled conferences by using the Cisco TMS Conference Control Center.
- Enables the provisioning and monitoring of personal Collaboration Meeting Rooms (CMRs) (in conjunction with TelePresence Conductor).
  For configuration tasks, see Enabling Personal CMRs [p.34].)
- Performs scheduling and conference control functions (for scheduled conferences) directly on the bridges.
  For configuration tasks, see Enabling Scheduled Conferencing [p.38]
- Manages and allocates resources for Cisco Collaboration Meeting Rooms Hybrid.
  For configuration tasks, see Enabling Scheduled Cisco Collaboration Meeting Rooms Hybrid Conferencing [p.40].

Process

Task 1: Add the MCU and TelePresence Server bridges used for scheduled conferences to Cisco TMS.

To allow Cisco TMS to perform scheduling and conference control for scheduled conferences or CMR Hybrid, add the bridges that are trunked directly to the call control server to the Cisco TMS. (Do not add bridges that are managed by TelePresence Conductor.)

For details, see the context-sensitive help or the *Cisco TMS Administrator Guide* (search for "Adding systems").

Task 2: Add the TelePresence Conductor to Cisco TMS.

To control non-scheduled conferences and monitor personal CMRs, add the TelePresence Conductor to the Cisco TMS. Because you do not add the bridges that are managed by TelePresence Conductor directly, Cisco TMS will not schedule conferences on these bridges.

For details, see the context-sensitive help or the *Cisco TMS Administrator Guide* (search for "Adding systems").

Configuring Conferencing Services

Enabling Personal CMRs

Personal Collaboration Meeting Rooms (CMRs) provide rendezvous-type permanent conference aliases that individual users can create for themselves through the Cisco TMSPE User Portal.

To enable personal CMRs, the administrator creates a new user with API access on each TelePresence Conductor or cluster. Then, in Cisco TMSPE, the administrator adds the TelePresence Conductor user, creates one or more CMR templates to specify the base dial plan for CMR URIs and numeric aliases, and applies the templates to user groups. This allows end users to create and personalize their own CMRs.

When an end user creates a personal CMR, Cisco TMSPE applies the settings defined by the administrator in the CMR template associated with the user's group, and makes a provisioning API call to create the conference on TelePresence Conductor. No further interaction is needed from the administrator.

The CMR template corresponds to a conference template and a conference alias on TelePresence Conductor. CMRs created by using Cisco TMSPE cannot be modified through the TelePresence Conductor web user interface. Conference templates and aliases created by using TelePresence Conductor cannot be modified through Cisco TMSPE.

Before You Start

- The TelePresence Conductor must have at least one populated bridge pool and Service Preference.
- Cisco TMSPE must be installed and enabled in Cisco TMS.
- Cisco TMSPE is accessed from the **Systems > Provisioning** menu in Cisco TMS.
- A user base must exist for Cisco TMSPE.

Process

Task 1: Create a TelePresence Conductor User with API Access

In TelePresence Conductor, go to **Users > Administrator accounts** and create a User with the following attributes:

- **Access level**: *Read-write*
- **Web access**: *No*
- **API access**: *Yes*
- **State**: *Enabled*

Task 2: Add the TelePresence Conductor API User to Cisco TMSPE

1. In Cisco TMS, go to **Systems > Provisioning > Users**.
2. Click **TelePresence Conductor Settings**.
3. Click **Add New**.
4. In the **TelePresence Conductor Configuration** dialog add the TelePresence Conductor details and the credentials of the new user with API access:
   - **Hostname/IP**: Hostname or IP address of the TelePresence Conductor.
   - **Port**: Port to connect on (default is HTTPS on port 443).
   - **Username / Password**: The credentials for the new user with API access.

  ○ **Domain**: TelePresence Conductor will append this domain for all numeric aliases created through Cisco TMSPE.

5. Click **Save**.

Task 3: Create One or More CMR Templates

In Cisco TMS, go to **Systems > Provisioning > Users > Collaboration Meeting Room Templates** and create one or more templates as required.

Task 4: Apply the CMR Templates to Groups

In Cisco TMS, go to **Systems > Provisioning > Users**. Choose the relevant group, then select the button for the required template in the **Active** column.

Task 5: Enable Monitoring for Personal CMRs

If you want to enable monitoring, add the TelePresence Conductor to Cisco TMS. You must do this even though TelePresence Conductor has been added to Cisco TMSPE.

For details, see the context-sensitive help or the *Cisco TMS Administrator Guide* (search for "Adding systems").

More Information

For details about the TelePresence Conductor Provisioning API, see *Cisco TelePresence Conductor Product Programming Reference Guide XC2.3*

For details about CMR configuration settings, see the section "*Deploying Collaboration Meeting Rooms*" in the appropriate deployment guide:

- *Cisco TelePresence Management Suite Provisioning Extension with Cisco Unified CM Deployment Guide*
- *Cisco TelePresence Management Suite Provisioning Extension with Cisco VCS Deployment Guide*

Managing Changes to Personal CMRs

This section explains how to make changes that affect the Collaboration Meeting Rooms (CMR) deployment.

Before You Start

CAUTION: Some changes will impact CMRs and may cause disruption to users.

We strongly recommend that administrators fine-tune templates as much as possible before applying them to groups and allowing users to create their CMR.

If you need to make changes to templates after making CMRs available to users, we recommend using maintenance windows or advising users in advance when they should avoid creating or changing CMRs. Where appropriate notify users about the likely impact of the changes.

Process

Task	Instructions
Modifying template settings	You can change the settings for a template that has already been assigned to a group. The changes will impact the available CMR settings in the affected group(s). 1. In Cisco TMS, go to **Systems > Provisioning > Users > Collaboration Meeting Room Templates**. 2. In the template list, click the pencil icon next to the required template, make the changes and click **Save**. Repeat as necessary for any other templates that need modifying. 3. The counter next to **Check sync status** indicates how many CMRs are out of sync with the modified templates. Click **Regenerate CMRs** to synchronize the change on TelePresence Conductor. The **SIP Alias Pattern** will always regenerate. The **Numeric Alias Pattern** never regenerates once it is set on a CMR. If the template changes make the PIN policy stricter, Cisco TMSPE generates a new PIN for any non-compliant CMRs when the changes are synchronized (PINs are generated for all CMRs that do not meet the new criteria).
Removing CMR entitlement	Set the CMR template for the group to *None*. This removes CMR capabilities from the users in that group.
Selecting a different template for group	1. In Cisco TMS, go to **Systems > Provisioning > Users** 2. For the relevant group, select the button for the required template in the **Active** column.
Deleting templates	1. In Cisco TMS, go to **Systems > Provisioning > Users > Collaboration Meeting Room Templates** 2. Click the red deletion icon next to the template name in the list. You cannot delete a template that is associated with an existing CMR.
Deleting users	If you delete a user from the user base, the user's CMR is automatically deleted.

Moving users between groups	If a user's group changes in the user base (normally due to changes in Active Directory) their assigned CMR template will also change if the new group has a different template.
	Cisco TMSPE will register the change during the next health check (or a **Run Health Check** can also be initiated manually from the **Provisioning Extension Diagnostics** page).
	The user's CMR will be displayed as out of sync. To synchronize, click **Regenerate CMRs** to have the change reflected on TelePresence Conductor.

More Information

- For details about the TelePresence Conductor Provisioning API, see *Cisco TelePresence Conductor Product Programming Reference Guide XC2.3*

- For details about CMR configuration settings, see the section "*Deploying Collaboration Meeting Rooms*" in:
  - *Cisco TelePresence Management Suite Provisioning Extension with Cisco Unified CM Deployment Guide* (Unified CM-Centric deployments)
  - *Cisco TelePresence Management Suite Provisioning Extension with Cisco VCS Deployment Guide* (Cisco VCS-Centric deployments)

Enabling Scheduled Conferencing

In this release, Optimized Conferencing supports scheduling of conferences directly onto the MCU or TelePresence Server conference bridges, rather than via TelePresence Conductor.

Cisco TMS is used to schedule conferences.

Note: This guide describes the **Booking > New Conference** method to schedule conferences in Cisco TMS. Other methods are available, as described in the Cisco TMS documents.

Before You Start

- Cisco TMS is required. It manages bookings and allocates resources for scheduled conferencing.
- Dedicated conference bridges must be used for scheduled conferences.
- The bridges must be connected directly to the call controller and not via TelePresence Conductor (TelePresence Server bridges must be configured in locally managed mode).
- Scheduling is not supported on the TelePresence Server on Multiparty Media 310/320 and Cisco TelePresence Server on Virtual Machine.
- [Unified CM-Centric deployments] The **telepresence-mcu-ts-direct-interop** normalization script must be added to Unified CM if encryption is required for communication between endpoints and scheduled conference bridges.
- We do not recommend ad hoc escalation by a participant in a scheduled conference. This will cause a 'chained' conference, where the escalation creates a new three-party conference with one of the participants being the scheduled meeting. The result is a degraded conference experience for the participants.
- Third-party endpoints from other equipment providers can participate in scheduled conferences.

Process

Task 1: Define IP Zones in Cisco TMS

In multi-location deployments, if you have not already done so, in Cisco TMS go to **Administrative Tools > Locations > IP Zones** and define IP zones. (As well as providing network gateway and dialing information, zones allow Cisco TMS to determine locality—which systems can be considered as local or close to each other.)

Task 2: Add Conference Bridges to Cisco TMS (as Systems)

If you have not already done so, in Cisco TMS add each scheduling bridge as a system, and associate each system (bridge) with the appropriate zone. For details, see the context-sensitive help or the *Cisco TMS Administrator Guide* (search for "Adding systems").

Task 3: Book the Conferences

To schedule a conference, in Cisco TMS go to **Booking > New Conference** and define appropriate settings for the conference. Use the **Basic Settings** to define a conference title, connection method, conference owner, start and end time, Cisco WebEx options, and options for recurrence. Further options are available in the **Advanced Settings** area. Use the **Participants** tab to add users and endpoints to the conference, and

optionally to allocate a specific conference bridge. Adding a conference bridge is optional as Cisco TMS can auto-allocate the bridge.

If you add a conference bridge, the **MCU Settings** tab appears on the booking page, which depending on the bridge type (MCU or TelePresence Server) and model allows you to define various extended settings.

Note: When you save a conference, dial-in numbers for the conference are distributed via email to the organizer and/or participants. Updated numbers are distributed if you subsequently update a conference.

Controlling Conference Bridge Selection

In Cisco TMS the "Main participant" is the system that hosts the conference. For scheduled conferences, the Main participant is always a conference bridge.

You do not have to manage the bridge selection, as Cisco TMS does this automatically. By default Cisco TMS selects a bridge based on which zone the conference participants belong to, and the capability set of the systems in the conference. Optionally you can manage the bridge selection process to some extent, as follows:

- Manually add a specific bridge to a conference booking (**Booking > New Conference / List Conferences > Participants**). If you do so, Cisco TMS always uses that bridge.
- If no bridge is added to the booking, in **Administrative Tools > Configuration > Conference Settings** you can control some of the weighting criteria used by Cisco TMS to choose a bridge:
  - Use **External MCU Usage in Routing** to specify when embedded multisite or an external bridge should be used for routing.
  - Use **Preferred MCU Type in Routing** to specify a specific bridge model type. When booking Immersive TelePresence conferences, a TelePresence Server will always be preferred by Cisco TMS (if enough resource is available) regardless of the setting here.

More Information

For detailed information about Cisco TMS settings and tasks see the context-sensitive help or the *Cisco TMS Administrator Guide*.

Enabling Scheduled Cisco Collaboration Meeting Rooms Hybrid Conferencing

This section describes how to allow Cisco WebEx and TelePresence users to participate jointly in scheduled meetings in an Optimized Conferencing deployment.

Before You Start

- The standard requirements for enabling scheduled conferences apply.
- In Unified CM-Centric deployments, SIP Early Offer messaging is required as described in the Early Offer section.
- In Cisco VCS-Centric deployments, SIP Early Offer messaging is the default. However, if you have a Unified CM in the network and it is required to support WebEx, you must ensure that Early Offer messaging is configured on the SIP trunks between the following elements:
  - Bridges used for calls between Early Offer-based services and the Cisco Expressway.
  - Any third-party call controller and the Cisco VCS Control.
  - Any Unified CM-managed endpoints and the Cisco Expressway. The entire path from the calling device to the service must be configured to support Early Offer.
    If you do not need external Early Offer-based services in an Cisco VCS-Centric deployment, then any Unified CMs may be configured for either Delayed Offer or Early Offer.

Process

Task 1: Configure TelePresence Applications for Cisco WebEx Support

If not already done, complete the first-time configuration steps in Cisco Collaboration Meeting Rooms (CMR) Hybrid Configuration Guide so that your Cisco TelePresence applications are enabled for Cisco WebEx-to-Cisco TelePresence interoperability. Detailed instructions and a first-time configuration checklist are provided in that guide.

Task 2: Configure Cisco WebEx Site Administration

If not already done, after the first-time configuration steps in Task 1 are complete you need to set up Cisco WebEx site administration, as described in Cisco Collaboration Meeting Rooms (CMR) Hybrid Configuration Guide.

Task 3: Book the Conferences

In Cisco TMS, go to **Booking > New Conference** and complete the relevant fields on the **Basic Settings** tab. In particular, make sure **Include WebEx Conference** is checked and optionally create a **WebEx Meeting Password**. Detailed information is in the chapter about scheduling WebEx Enabled TelePresence meetings in Cisco TMS in Cisco Collaboration Meeting Rooms (CMR) Hybrid Configuration Guide.

Task 4: Cisco TMS calculates the route and issues email confirmation

This task is done by the Cisco TMS. When you save the conference, Cisco TMS calculates the route for the meeting and emails the meeting details (including WebEx and TelePresence dial-in information) to the

conference booker. Depending on your WebEx site configuration, you may also receive additional emails from WebEx.

Task 5: Forward the meeting details

Forward the meeting emails issued in the previous step to the conference participants.

More Information

For detailed information about Cisco TMS settings, see the context-sensitive help or Cisco TMS Administrator Guide.

For detailed configuration steps to enable this feature, see Cisco Collaboration Meeting Rooms (CMR) Hybrid Configuration Guide.

Enabling Ad Hoc (Instant) Conferencing

This section does not apply to Cisco VCS-Centric deployments.

Ad hoc conferencing in Optimized Conferencing Release 3.0 requires conference bridges to be managed by TelePresence Conductor as media resources. TelePresence Conductor acts as a conference controller and manager between Unified CM and the bridges, through SIP trunks and registered media resource conference bridges.

TelePresence Conductor conference templates are referenced by multiple virtual IP addresses. These addresses register with Unified CM as ad hoc conference bridges and are used in media resource group lists (MRGLs) and media resource groups (MRGs). Unified CM uses MRGLs and MRGs to prioritize and allocate media resources, including conference bridges.

Note: A single TelePresence Conductor or cluster can have multiple conference templates configured to support a variety of service levels and user experiences.

Before You Start

- Ensure that the prerequisites and configuration process for the solution are complete. In particular:
  - Ad hoc conferences are controlled by their originating Unified CM, which routes ad hoc calls directly to TelePresence Conductor. An API/SIP trunk pair is required between the TelePresence Conductor and every Unified CM that supports ad hoc conferencing.
  - The SIP trunks should be configured for Early Offer messaging.
  - The TelePresence Conductor needs at least one populated conference bridge pool and Service Preference.
  - The TelePresence Conductor needs a network IP address defined for ad hoc handling for each Location and/or Conference template that is to support ad hoc calls.
  - TelePresence Server conference bridges must be configured to use the TelePresence Conductor for remote management.

- Ad hoc call flows cannot be used to add participants to other types of conference. Other call flows cannot be used to add participants to ad hoc conferences.

- We do not recommend ad hoc escalations by participants in a rendezvous, Multiway, or scheduled conference. This will cause a "chained" conference. Clicking the conference button on the endpoint causes the endpoint to try to create a new ad hoc conference escalation rather than extending the existing conference. The ad hoc conference will be chained with the existing conference. The endpoints will be across the two chained conferences, causing a degraded conference experience for participants.

- Similarly, participants of ad hoc conferences should not be added to rendezvous, Multiway or scheduled conferences. Attempting to add a whole conference as a participant to an existing conference will also lead to a chained conference.

- Some limitations exist for the audio-only quality setting with ad hoc conferencing on TelePresence Servers. These are described in Audio-Only Quality Setting in Ad Hoc Conferencing with TelePresence Servers [p.44].

- Unified CM delivers ad hoc and rendezvous conferences to different IP addresses on TelePresence Conductor.

Process

Task 1: Configure General Settings on TelePresence Conductor

Various TelePresence Conductor settings are needed to support integration with Unified CM. The settings are described in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)*, section "*Configuring general settings on TelePresence Conductor*".

Task 2: Create a Conference Template for Ad Hoc on TelePresence Conductor

In TelePresence Conductor, go to **Conference configuration > Conference templates** and create a template for ad hoc. Set **Conference type** to *Meeting* and assign a Service Preference. For TelePresence Server bridges, also specify a **Participant quality** value. For MCU bridges, cascade port reservation must be disabled (set **Number of cascade ports** to reserve to '*0*').

Task 3: Create a Location on TelePresence Conductor

In TelePresence Conductor, go to **Conference configuration > Locations** and create a Location for ad hoc (or you can optionally use the same Location for rendezvous calls):

1. Set **Conference type** to *Ad hoc* (or to *Both* to use the same Location for rendezvous calls).
2. Set **Ad hoc IP address** to the TelePresence Conductor IP address for ad hoc calls in this location.
3. In **Ad hoc template** assign a template. TelePresence Conductor should be configured so that endpoints use Service Preferences with conference bridges that are local to the endpoints.

Task 4: Add the Location to a Conference Bridge Pool on TelePresence Conductor

In TelePresence Conductor, go to **Conference configuration > Conference bridge pools**. Select the appropriate pool and in the **Location** dropdown, select the Location defined in the previous step.

Task 5: Configure General Settings on Unified CM

To support integration with TelePresence Conductor, configure the settings described in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)*, section "*Configuring general settings on Unified CM*".

Task 6: Configure a SIP trunk to TelePresence Conductor (Unified CM Version 10.0 and later)

From Unified CM Version 10.0, a SIP trunk between Unified CM and TelePresence Conductor must be explicitly configured on Unified CM for ad hoc conferences. In Unified CM, go to **Device > Trunk** and create a trunk with the TelePresence Conductor's Location-specific ad hoc IP address.

Details are in "*Adding a SIP trunk connecting to TelePresence Conductor*" in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)* or refer to the context-sensitive help.

Task 7: Add TelePresence Conductor as a Conference Bridge

In Unified CM, go to **Media Resources > Conference Bridge** and create a Conference Bridge for the TelePresence Conductor.

Details are in "*Adding the TelePresence Conductor as a Conference bridge to Unified CM*" in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)* or refer to the context-sensitive help.

Task 8: Add TelePresence Conductor to an MRG and MRGL

In Unified CM, go to **Media Resources > Media Resource Group** and **Media Resources > Media Resource Group List** respectively and create a Media Resource Group and a Media Resource Group List. Configure them with the Conference Bridge defined for TelePresence Conductor in the previous step.

Details are in "*Adding the TelePresence Conductor to an MRG and MRGL*" in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)* or refer to the context-sensitive help.

Task 9: Add the MRGL to a Device Pool (or Endpoints)

Depending on the implementation, you can configure a Device Pool to apply to all endpoints, or assign individual endpoints to a specific Media Resource Group List (MRGL). If an MRGL is applied to both a Device Pool and an endpoint, the endpoint setting will be used.

To configure a Device Pool, in Unified CM, go to **System > Device Pool** and select the appropriate device profile for video.

More details are in "*Adding an MRGL to a Device Pool or Device*" in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)* or refer to the context-sensitive help.

Task 10: Create an ad hoc call to test the deployment

For instructions on setting up an ad hoc call, see "*Creating an ad hoc meeting*" in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)*.

Third-party Endpoints

Endpoints from other equipment providers can participate in ad hoc conferences using standard SIP:

- The endpoints must be registered to Unified CM.
- Endpoints must have a conference button (or a join button or similar soft key) to initiate ad hoc conferences. Endpoints without a conference button can still be participants, but they must be added to the conference by an endpoint that has a conference button.

Troubleshooting

If an ad hoc call fails, review the *Troubleshooting* section in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)*. The topic "*Ad hoc call does not connect*" suggests various device settings to check.

Audio-Only Quality Setting in Ad Hoc Conferencing with TelePresence Servers

TelePresence Conductor Version XC2.3 supports audio-only as a quality setting (service level) for TelePresence Server conference bridges. A default audio-only option is provided (**Conference**

configuration > Quality settings) which like other quality settings is applied through the conference template, auto-dialed participant, or pre-configured endpoint codec values.

This section describes some limitations and recommendations to be aware of when using the audio-only quality setting with ad hoc conferencing in Unified CM deployments. System behavior may not be as you expect.

Note: The issues described in this section apply to ad hoc conferences only and are not relevant to rendezvous and CMR conferences.

Limitations for ad hoc conferencing

- For Intelligent Bridge Selection purposes, in ad hoc conferences Unified CM always treats TelePresence Conductor as a video resource regardless of the Conductor template settings. It does not differentiate between audio and video templates. The implications of this are described in the example below.
- TelePresence Conductor does not support the audio-only quality setting for MCU bridges.

Example: Audio-Only Handling for Ad Hoc Conferences

Assume a single-TelePresence Conductor configuration with these templates defined for Unified CM Media Resource Group 1:

- Cond-Video (*HD* specified for **Participant quality**)
- Cond-Audio (*Audio-only* specified for **Participant quality**)

The Conductor is added to Unified CM as two separate conference bridges, using separate IP addresses. One address is linked to the Cond-Video template and the other to Cond-Audio.

Unified CM's Intelligent Bridge Selection does not favor the Cond-Video resource for ad hoc conferences involving two or more video endpoints, and the Cond-Audio resource for ad hoc conferences involving audio-only endpoints. Instead, because Unified CM believes all Conductor resources to be video resources, load balancing is performed between Cond-Video and Cond-Audio. This may result in a group of video endpoints being allocated to the Cond-Audio resource and having no video (because audio and video templates are not differentiated).

Recommendations for Audio-Only in Ad Hoc Conferences

1. In Unified CM, use a dedicated Media Resource Group (MRG) for TelePresence Conductor conference bridges with an audio-only template.
2. Do not add any other type of audio conference bridge (such as PVDMs) to the MRG.
3. Assign the MRG to a Media Resource Group List (MRGL) and assign this MRGL to your audio-only endpoints.

Enabling Multiway (Instant) Conferencing

This section does not apply to Unified CM-Centric deployments.

Cisco TelePresence Multiway™ (Multiway) conference requests are routed from Cisco VCS direct to the TelePresence Conductor. The Multiway conference is hosted on a bridge connected to TelePresence Conductor.

Before You Start

- TelePresence Conductor and Cisco VCS must be configured for Optimized Conferencing.
- Cisco VCS needs the following option keys applied:
  - H323-SIP interworking:
  - Non-traversal calls
- TelePresence Server conference bridges must be configured to use the TelePresence Conductor for remote management (the TelePresence Server on Multiparty Media 310/320 and Cisco TelePresence Server on Virtual Machine do not need configuring as they are always in remotely managed mode).
- If you will be using Cisco TMS to provision endpoints with unique Multiway URIs, the supported method is to use Cisco TelePresence Management Suite Provisioning Extension (Cisco TMSPE) in conjunction with a Cisco VCS running in Provisioning Extension mode.

Process

Complete these configuration steps to route Multiway calls through the Cisco VCS Control:

1. Configure a zone for the SIP trunk between Cisco VCS Control and the TelePresence Conductor.
2. Define a search rule in the Cisco VCS to point to the appropriate zone.
3. Configure a Multiway conference alias on the TelePresence Conductor.
4. Configure Multiway on the relevant endpoints. You can do this manually or using Cisco TMSPE.

The *Cisco TelePresence Multiway™ Deployment Guide* provides detailed configuration information about each step.

Third-Party Endpoints

Endpoints from other equipment providers can participate in Multiway conferences using standard SIP, if they meet these requirements:

- The endpoints must support the SIP REFER message.
- Endpoints initiating a Multiway conference must have Multiway support.
- Endpoints joining a Multiway conference must have call hold and call forward functionality.

Enabling Rendezvous Conferencing

You can enable rendezvous conferencing, if you decide not to use the new personal Collaboration Meeting Room feature. In Optimized Conferencing, rendezvous conferences are configured on the TelePresence Conductor.

Before You Start

- Ensure that the prerequisites and configuration process for the solution are complete. In particular:
  - A SIP trunk is required between the call controller and TelePresence Conductor.
    In Unified CM-Centric deployments, Unified CM routes rendezvous participants to the IP address of this SIP trunk.
  - The SIP trunks should be configured for Early Offer messaging.
  - The TelePresence Conductor must be deployed using its back-to-back user agent (B2BUA). The external policy server interface is not supported.
  - The TelePresence Conductor needs at least one populated conference bridge pool and one Service Preference.
  - TelePresence Server conference bridges must be configured to use the TelePresence Conductor for remote management (the TelePresence Server on Multiparty Media 310/320 and Cisco TelePresence Server on Virtual Machine do not need configuring as they are always in remotely managed mode).
- Rendezvous call flows cannot be used to add participants to ad hoc or other conference types. Ad hoc call flows cannot be used to add participants to rendezvous or other conference types.
- Unified CM delivers ad hoc and rendezvous conferences to different IP addresses on TelePresence Conductor.

Process for Unified CM-Centric Deployments

These are the configuration steps to enable Rendezvous calls in Unified CM-Centric deployments:

Task 1: Configure General Settings on TelePresence Conductor

Various TelePresence Conductor settings are needed to support integration with Unified CM. The settings are described in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)*, section "*Configuring general settings on TelePresence Conductor*".

Task 2: Create a Conference Template for Rendezvous on TelePresence Conductor

In TelePresence Conductor, go to **Conference configuration > Conference templates** and create a template for rendezvous. Set **Conference type** to *Meeting* and assign a Service Preference. For TelePresence Server bridges, also specify a **Participant quality** value. For MCU bridges, cascade port reservation must be disabled (set **Number of cascade ports** to reserve to '*0*').

Task 3: Create Conference Aliases for Rendezvous on TelePresence Conductor

In TelePresence Conductor, go to **Conference configuration > Conference aliases** and create an alias. An alias can be for a specific user, or it can contain wildcards to allow a wide range of users to create conferences with the same conference settings applied.

Task 4: Create a Location on TelePresence Conductor

In TelePresence Conductor, go to **Conference configuration > Locations** and create a Location for rendezvous (or you can optionally use the same Location for ad hoc calls):

1. Set **Conference type** to *Rendezvous* (or to *Both* to use the same Location for ad hoc calls).
2. Set **Rendezvous IP address** to the TelePresence Conductor IP address for rendezvous calls in this location.
3. In **Rendezvous template** assign a template which uses a Service Preference that contains pools of conference bridges sited only in this location.

Task 5: Add the Location to a Conference Bridge Pool on TelePresence Conductor

In TelePresence Conductor, go to **Conference configuration > Conference bridge pools**. Select the appropriate pool and in the **Location** dropdown, select the Location defined in the previous step.

Task 6: Configure General Settings on Unified CM

Various Unified CM settings are needed to support integration with TelePresence Conductor. The settings are described in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)*, section "*Configuring general settings on Unified CM*".

Task 7: Configure a SIP trunk to TelePresence Conductor

A SIP trunk between Unified CM and TelePresence Conductor must be configured on Unified CM. In Unified CM, go to **Device > Trunk** and create a trunk with the TelePresence Conductor's Location-specific rendezvous IP address.

Details are in "*Adding a SIP trunk connecting to TelePresence Conductor*" in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)* or refer to the context-sensitive help.

Task 8: Configure a Unified CM Route Pattern

In Unified CM, go to **Call Routing> Route/Hunt > Route Pattern** and create a route pattern to match the number plan used for TelePresence Conductor aliases to send the call over the SIP trunk to TelePresence Conductor for rendezvous conferences.

Task 9: Create a rendezvous call to test the deployment

For instructions on setting up a rendezvous call, see "*Creating a rendezvous meeting*" in *Cisco TelePresence Conductor with Unified CM Deployment Guide (XC2.3)*.

Process for Cisco VCS-Centric Deployments

These are the configuration steps to enable Rendezvous calls in Unified CM-Centric deployments:

1. On TelePresence Conductor, go to **System > IP** and add an IP address for Cisco VCS rendezvous conferences. The address must be on the same subnet as the primary TelePresence Conductor IP interface, and must be reserved for use by this TelePresence Conductor alone.
2. On TelePresence Conductor, go to **Conference configuration > Locations** and add a Location for

Cisco VCS.

3. On TelePresence Conductor, go to **Conference configuration > Conference aliases** and create an alias for rendezvous conferencing

4. On the Cisco VCS:
   a. Configure a zone for the SIP trunk between Cisco VCS Control and the TelePresence Conductor.
   b. Define a search rule in the Cisco VCS to point to the appropriate zone.

The steps are described in detail in *Cisco TelePresenceConductor with Cisco VCS (B2BUA) Deployment Guide*.

Third-Party Endpoints

Endpoints from other equipment providers can participate in rendezvous conferences using standard SIP.

Provisioning Display Names Across the Solution

Display names are used across endpoints such as TelePresence to identify a user to other participants. For example, this is the name displayed to other participants in a video conference call, see Figure 2: Inconsistent Display Names Example [p.50].

Figure 2: Inconsistent Display Names Example
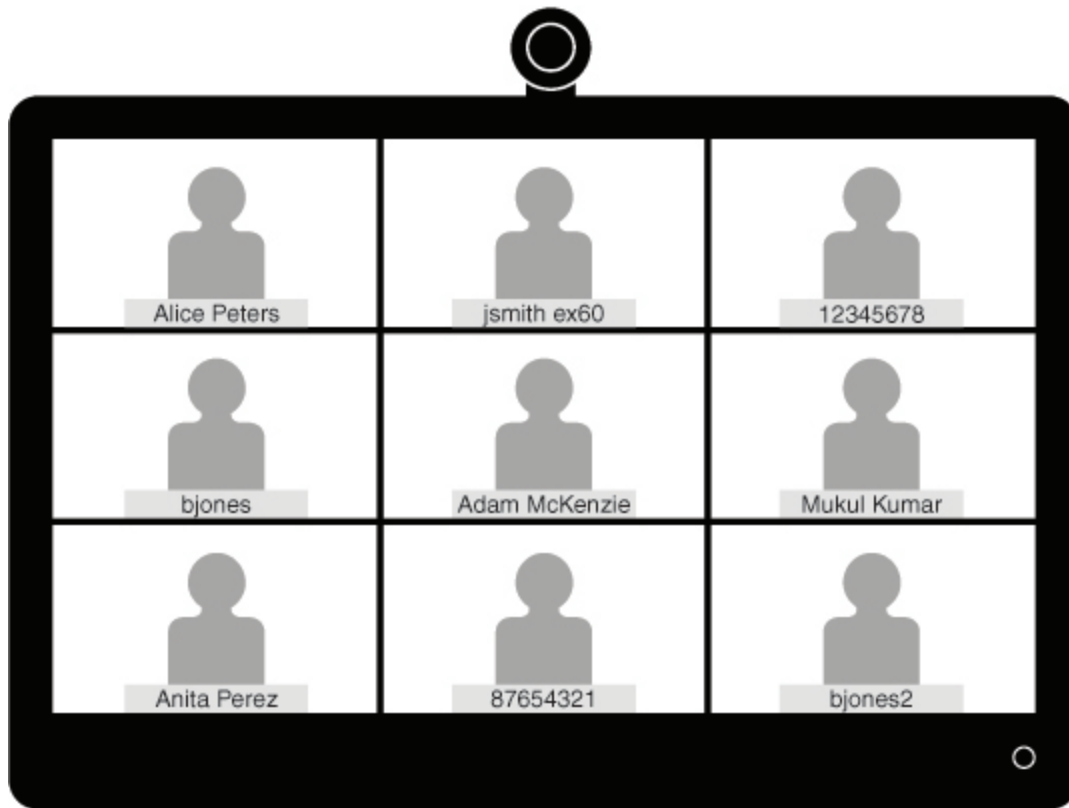
The preferred format for this name is to use the first name and last name of the user, for example Alice Peters, or the canonical name of the conference room where the endpoint is installed, such as MDR21-3-#120 (room 120 on the 3rd floor of building 21 in Madrid). However if this name is not explicitly provisioned then the system will choose the display name based on the SIP URI or device number of the endpoint. The result that is displayed will depend on how the particular users and rooms have been provisioned. This can lead to inconsistencies in the names displayed on a conference call, with the individual user information being displayed in different formats, as shown in the Figure 1 example.

To ensure that names display consistently, these settings need to be provisioned in Unified CM and/or in Cisco TelePresence Management Suite Provisioning Extension (Cisco TMSPE) for Cisco VCS registered endpoints.

If the endpoints you want to provision are Unified CM registered see Provisioning Display Names on Unified CM [p.51]. If the endpoints you want to provision are Cisco VCS registered see Provisioning Display Names on Cisco VCS [p.52].

Provisioning Display Names on Unified CM

This section describes how to update display names in the Cisco Unified CM Administration user interface. It describes how users, devices, and lines are configured in order to allow an administrator to identify the correct fields and locations in which to make those updates, so that the names display correctly. The section titled Trunks [p.52] describes some optional advanced settings that may be useful to some users.

Users and Devices

On the Cisco Unified CM Administration user interface new users are configured in the **User Management > End User** window. It is possible to both create new users or to import them through Active Directory (AD) or LDAP.

New devices are configured in the **Device > Phone** window. Users are then associated to a device. The details supplied during this configuration will not be used for display name purposes. The display name must be manually configured on the line under **Call routing > Directory Number**, or by selecting the line configured on the endpoint under **Device > Phone > Line#**.

Line

Display names are configured on the line that is associated with the device. In this way, the display name is set for a particular device to which that user is associated. In the case of shared lines, it is possible to set different display names on each appearance of the shared line. However, it is recommended that the same display name be used across all devices using the first name and the last name of the user or the name of the conference room.

Setting Display Names for Unified CM Registered Endpoints using Bulk Administration

Bulk Administration can be used to set the display names for Unified CM registered endpoints for large numbers of users.

Before You Start

Ensure that you have users configured and associated to devices. For more information on provisioning users, see *Cisco Unified Communications Manager Administration Guide, Release 10.0(1)*.

Process

1. To export user records, see Export User Records in *Cisco Unified Communications Manager Administration Guide, Release 10.0(1)*.
2. In the CSV file you have downloaded copy the first name and last name columns into a new CSV file.
3. To upload this CSV file to the correct device, see Update phones using custom file in *Cisco Unified Communications Manager Administration Guide, Release 10.0(1)*.

Manually Setting Display Names for Unified CM Registered Endpoints

This procedure explains how to configure the display name for a device that is registered to Unified CM, whether the device is assigned to a user who is associated with a device, or the device is a shared

conference room device.

Before You Start

Ensure that you have users configured and associated to devices. For more information on provisioning users, see *Cisco Unified Communications Manager Administration Guide, Release 10.0(1)*.

Process

1. Log in to the Cisco Unified CM Administration user interface and choose **Device > Phone** to go to the **Find and List Phone** window.
2. Choose the **Device Name(Line)** for the device you want to configure to get to the **Phone Configuration** window for that device.
3. Choose the line for the device from the **Association** area on the left hand side of the window. This brings you to the **Directory Number Configuration** window.
4. In the **Directory Number Information** area, enter the display name in the **Alerting name** and **ASCII Alerting name** fields. **Note:** This will be used to display the user's name when communicating with devices that are not in the Cisco Unified CM cluster.
5. In the **Line 1 on Device** area, enter the display name in the **Display (Caller ID)** and **ASCII Display (Caller ID)** fields. **Note:** This will appear on devices which are on the same cluster as the Cisco Unified CM.
6. If this is a shared line, to ensure changes appear on all devices, check the **Update Shared Device Settings** check box, and click **Propagate selected**. **Note:** We recommend that the display name set in the Alerting Name, ASCII Alerting Name, Display (Caller ID) and ASCII Display (Caller ID) field be the user's full name (for example First Name Last Name), for devices that are associated with a user, or the name of the conference room for endpoints that are in shared conference room spaces.
7. Click **Save**.

The changes are automatically propagated and will take effect immediately, unless the endpoint is on an active call, in which case they will take effect immediately after the active call has ended.

Trunks

If required, the following features can also be configured to further control the behavior of display names. These settings are on the **Trunk Configuration** window.

- In the **Device Information** area, checking the **Transmit UTF-8 for Calling Party Name** check box will transmit the ASCII Alerting Name on devices that support UTF-8.
- It is possible to hide display names on a per-trunk basis. This is done in the **Inbound Calls** area by selecting *Restricted* from the **Connected Name Presentation** drop-down list.
- In the **Caller Information** area, individual device display names can also be overridden by setting the **Caller Name** field.

Provisioning Display Names on Cisco VCS

On Cisco VCS there are two methods which can be used to provision display names.

In the first method, Display Names are provisioned using FindMe templates. This method is used to provision individual users. Each template contains the details for each individual user, including their Display Name.

In the second method, Display Names are provisioned using the Direct Manage method. This method is used to provision Conference Room endpoints. This means that each Display Name is individually provisioned for each Conference Room endpoint on the endpoint itself.

FindMe

FindMe is a Cisco TMSPE feature which allows users to specify which video and audio devices should ring when someone calls their ID. As a result, a single ID can be used to reach multiple devices which are associated with that ID.

In FindMe the administrator provisions users with FindMe accounts and provisioning templates that contain attributes, including the display name. Users can be newly added or imported using AD or LDAP.

For more information on FindMe, see *Deploying FindMe* in *Cisco TelePresence Management Suite Provisioning Extension with Cisco VCS Deployment Guide*.

Note: In Cisco VCS release X8.1, the source device URI is rewritten into the user's FindMe URI, the display name is also rewritten by FindMe to match the username. For example, a call such as:

```
From: "John Smith" <sip:jsmith.home.ex90@domain.com>
```

is rewritten to:

```
From: "jsmith" <sip:jsmith@domain.com>
```

This is incorrect and has been fixed in VCS release X8.2.

From Cisco VCS release X8.2 onwards, the URI and Display Name fields are rewritten correctly. For example:

```
From: "John Smith" <sip:jsmith.home.ex90@domain.com>
```

is rewritten to:

```
From: "John Smith" <sip:jsmith@domain.com>
```

Setting Caller ID Display Names for Cisco VCS FindMe Users

This section describes how to manually set display names for Cisco VCS FindMe users.

Note: If you are dealing with large numbers of users it is recommended to import their details using Active Directory or LDAP. Using this method, user display names are imported and set automatically .

Before You Start

Ensure that you have installed and provisioned Cisco TMSPE. See *Configuring Cisco VCS for provisioning*, *Installing Cisco TMSPE*, and *Setting up users and provisioning* in *Cisco TelePresence Management Suite Provisioning Extension with Cisco VCS Deployment Guide*.

Process

1. Log in to Cisco TMS, go to **Systems > Provisioning > Users**.
2. In the **User Settings** pane, click **Edit**. The **User Settings** dialog box opens.
3. In the **Display Name** field, enter the first name and last name of the user. **Note:** If the user has been imported using LDAP, the Display Name will be already associated with the user.
4. Click **OK**.

Setting Caller ID Display Names for Conference Rooms

This section explains how to set Display Names for Conference Rooms using the Direct Manage method.

1. Log in to Cisco TMS, go to **Systems > Provisioning > Users**.
2. In the Navigator, choose the conference room you want to update from the pane on the left side of the window.
3. Choose the **Address** of the endpoint that you want to configure. This will bring you to the user interface of the endpoint that you have chosen. If you are prompted for authentication, enter your CEC credentials.
4. Choose **Configuration > System Configuration**, and search for the word 'display' using the search field on the left side of the window.
5. Enter the Display Name in the **Profile 1 DisplayName** field. **Note:** Steps 4 and 5 may vary depending on the endpoint model you have chosen.
6. Click **Save**.

Configuring Conferencing Features and Options

The tasks in this section assume that the basic configuration requirements for Optimized Conferencing are complete. Typically you will already have completed some or all of the tasks in this section during initial implementation for the solution. The tasks are summarized here for administrator convenience, from the perspective of enabling specific elements of Optimized Conferencing rather than the overall solution.

Setting up TelePresence Server Resource Optimization (Optional)

If you want to take advantage of automatic resource allocation and optimization of TelePresence Server resources, the Conference template in TelePresence Conductor must define appropriate maximum screen and quality settings, and enable the **Optimize resources** setting. For details about Conductor template settings, see the *Cisco TelePresence Conductor Administrator Guide*.

Note that if you provision conferences through Cisco TMSPE these settings are configured through the Cisco TMSPE.

■ For details about Cisco TMSPE settings in Unified CM-Centric deployments, see *Cisco TelePresence Management Suite Provisioning Extension with Cisco Unified CM Deployment Guide*

■ For details about Cisco TMSPE settings in Cisco VCS-Centric deployments, see *Cisco TelePresence Management Suite Provisioning Extension with Cisco VCS Deployment Guide*

Changing the Switching Mode on the TelePresence Server

The TelePresence Server now defaults to 'segment-switched' mode (may also be called 'panel-switched') for displaying speakers from telepresence rooms. In this mode, the TelePresence Server independently switches the display of individual cameras from a multiple camera system.

This is a change in display switching behavior; previously, the TelePresence Server would simultaneously switch all of the streams from that room into the display on another multiscreen endpoint. The older behavior is now called 'room-switched' mode.

In segment-switched mode, grouped endpoints (and multi-camera endpoints that cannot reveal which camera is associated with the loudest speaker) are now composed into a single pane so as not to disrupt segment-switching. Segment-switching is not possible with these endpoints because the TelePresence Server doesn't know which of the segments actually shows the speaker. The benefit of this approach is that single-screen endpoints are no longer forced into the Equal layout (NxN grid) when the group is in the conference; they will see the group in a row, and in the correct order.

If the display of grouped endpoints on multi-screen systems is more important for your environment than segment-switching or the single-screen experience, use the room-switching display mode to have the conference layouts for groups behave as they did in the previous release.

Process

Changing the Mode on Cisco TMS-Managed Conferences

If you use Cisco TMS to provision conferences on Conductor, set the following option in the Cisco TMS Custom Parameters for the conference template, using the following JSON command:

"callAttributes: {"displayLayoutSwitchingMode": <******>}" where <******> should be specified as switchingRoomSwitched or switchingSegmentSwitched

Changing the Mode on the TelePresence Conductor

On the TelePresence Conductor conference template, the **Segment switching** field determines whether segment or room switching is used. *Yes* (the default) indicates segment switching, *No* indicates room switching.

Changing the Mode on Endpoints

Conference participants with Cisco CTS or TX Series endpoints can manually choose between segment-switched or room-switched mode during a live conference.

Configuring Microsoft Lync 2103 Interoperability

Optimized Conferencing supports interoperability with Microsoft Lync 2013 environments via interworking by the Cisco Expressway-C or Cisco VCS Control, which interworks as follows:

- Between Microsoft H.264 SVC (Scalable Video Coding) and standard H.264 SVC.
- Between Microsoft H.264 SVC and standard H.264 AVC (Advanced Video Coding).

Lync users can call into ad hoc, rendezvous and scheduled conferences.

Before You Start

- Familiarize yourself with the requirements for Lync 2013 interoperability in the Optimized Conferencing for Cisco Unified CM and Cisco VCS Solution Guide 3.0.
- In Unified CM-Centric deployments:
  - The Cisco Unified Communications Manager must be configured for Early Offer as described in Configuring the Unified CM for Early Offer [p.27]
  - The Unified CM must be connected to either Cisco Expressway-C or Cisco VCS Control (version X8.2 required) as described in Connecting the Unified CM and the Cisco Expressway or Cisco VCS [p.31].

Process for Unified CM-Centric Deployments

In Unified CM-Centric deployments, the Unified CM connects to the Lync server via the Cisco VCS, which acts as a SIP back-to-back user agent and media helper. For configuration instructions, see *Cisco Expressway and Microsoft Lync Deployment Guide (X8.2)*. When you have completed the steps in the guide, you will have configured:

- Static routes to route calls from Lync to a "Lync gateway" Expressway.
- The Expressway B2BUA to route calls to Lync.
- A SIP trunk between the "Lync gateway" Expressway and Unified CM.

Process for Cisco VCS-Centric Deployments

In Cisco VCS-Centric deployments, the Cisco VCS and Lync are peers. For configuration instructions, see *Cisco VCS and Microsoft Lync Deployment Guide (X8.2)*. When you have completed the steps in the guide, you will have configured:

- A SIP trunk to connect a Lync deployment and Cisco VCS Control across an IP network.
- Static routes from Lync to the "Lync gateway" Cisco VCS.
- (Optional) FindMe to provide a more integrated environment.

Setting up the ActiveControl Feature

ActiveControl allows conference participants to administer a conference on TelePresence Server from an endpoint by using the video system interface (not available from the TRC5 remote control and on-screen display). With ActiveControl, users can see a list of participants and other information during a conference. On certain endpoints they can change the conference layout displayed locally, and disconnect other participants.

ActiveControl is available for conferences hosted on TelePresence Server bridges that are running in remotely managed operation mode. In Optimized Conferencing deployments, this means that it is available for rendezvous/personal Collaboration Meeting Room, ad hoc and Multiway conferences that are hosted on TelePresence Server bridges, but is not available for scheduled conferencing, including Cisco Collaboration Meeting Rooms Hybrid meetings.

Limitations

- If an ActiveControl enabled call traverses a Unified CM trunk with a Unified CM version lower than 9.1(2), the call may fail. ActiveControl should not be enabled on older Unified CM trunks (Unified CM 8.x or earlier).
- ActiveControl is not available for conferences that are hosted on an MCU bridge or on a TelePresence Server in locally managed mode (directly registered to Cisco VCS or Unified CM).
Because of this limitation, in Optimized Conferencing deployments, ActiveControl is not available for scheduled conferencing, including Cisco Collaboration Meeting Rooms Hybrid meetings.
- ActiveControl is a SIP only feature. H.323 interworking scenarios are not supported.
- ActiveControl/iX protocol traffic is not encrypted.

Overview of Configuring the iX Protocol

ActiveControl uses the iX protocol, which is advertised as an application line in the SIP Session Description Protocol (SDP). Extensions to the SIP SDP are not fully supported in some older systems, which has implications for Optimized Conferencing networks that connect to external networks or to older Unified CMs (Unified CM 8.x or earlier). No issues occur with iX in Unified CM 9.1(2) or later, or with iX in Cisco VCS systems. However, if you are enabling ActiveControl in Optimized Conferencing networks which interface to older Unified CMs (8.x and earlier) or to third-party networks (business-to-business), you must follow the instructions in this document carefully to isolate the iX protocol traffic from systems that do not support it. Failure to do so may lead to unpredictable consequences, including call failures.

The iX protocol is disabled by default in TelePresence Server 4.0. In situations where the far end network is not known or is known to have devices that do not support iX, it may be safest to leave iX disabled, or to disable iX on connections leaving the known environment:

- Unified CM-Centric deployments that connect to Unified CM 8.x or earlier systems. In these cases the older Unified CM systems will reject calls from ActiveControl-enabled devices. To avoid these calls failing, leave iX disabled on any trunk towards the Unified CM 8.x device in the Optimized Conferencing network. In cases where the 8.x device is reached via a SIP proxy, ensure that iX is disabled on the trunk towards that proxy.
- Unified CM-Centric deployments that connect to third-party networks. In these cases there is no way to know how the third-party network will handle calls from ActiveControl-enabled devices, but in some

instances the handling mechanism may be to reject them. To avoid such calls failing, leave iX disabled on all trunks in the Optimized Conferencing network towards third-party networks.

- Cisco VCS-Centric deployments which connect to external networks or connect internally to older Unified CM versions.
    - Starting in Cisco VCS X8.1, you can turn on a zone filter to disable iX for INVITE requests sent to external networks or older Unified CM systems. (By default, the filter is off.)
    - With version X7.2.3, we recommend that you leave iX disabled throughout the Optimized Conferencing network. (In some situations it is possible to enable iX in X7.2.3 with workarounds, but this should only be done with guidance from Cisco Technical Support.)

Table 6: Summary of iX configuration requirements in the Optimized Conferencing network

Network connection from...	Network connections to…	Can you enable iX (ActiveControl)?
Unified CM 9.1(2) or later	Unified CM 9.x or later	Can be enabled on this trunk. May require disabling on trunks from this second Unified CM.
	Unified CM 8.x or earlier	Disable on this trunk from the first Unified CM.
	Third-party networks	Disable on this trunk from the Unified CM.
	Cisco VCS versions prior to X8.1	Disable on this trunk from the Unified CM if this route is used for trunks to third-party networks or to Unified CM 8.x or earlier systems. Can be enabled if only Unified CM 9.x or Cisco VCS systems can be reached via this trunk.
	Cisco VCS X8.1 and later	Can be enabled on this trunk if you turn on the iX filter in Cisco VCS to neighbor zones connected to the third-party networks or Unified CM 8.x or earlier systems.
Cisco VCS X8.1.1 or later	Unified CM 9.x / Cisco VCS systems only	Yes. Enable as you wish.
	Any other devices, including Unified CM 8.x or earlier	Turn on the iX filter on the neighbor zones between the Cisco VCS and these devices to remove the iX protocol line. (Filters were introduced in Cisco VCS X8.1.)
Cisco VCS X7.2.3	Unified CM 9.x / Cisco VCS systems only	Yes. Enable as you wish.
	Any other devices, including Unified CM 8.x or earlier	No. Disable throughout the network (default).

Illustrations of iX configuration settings

Figure 3: Where to enable/disable iX in outward connections from Unified CM-managed systems
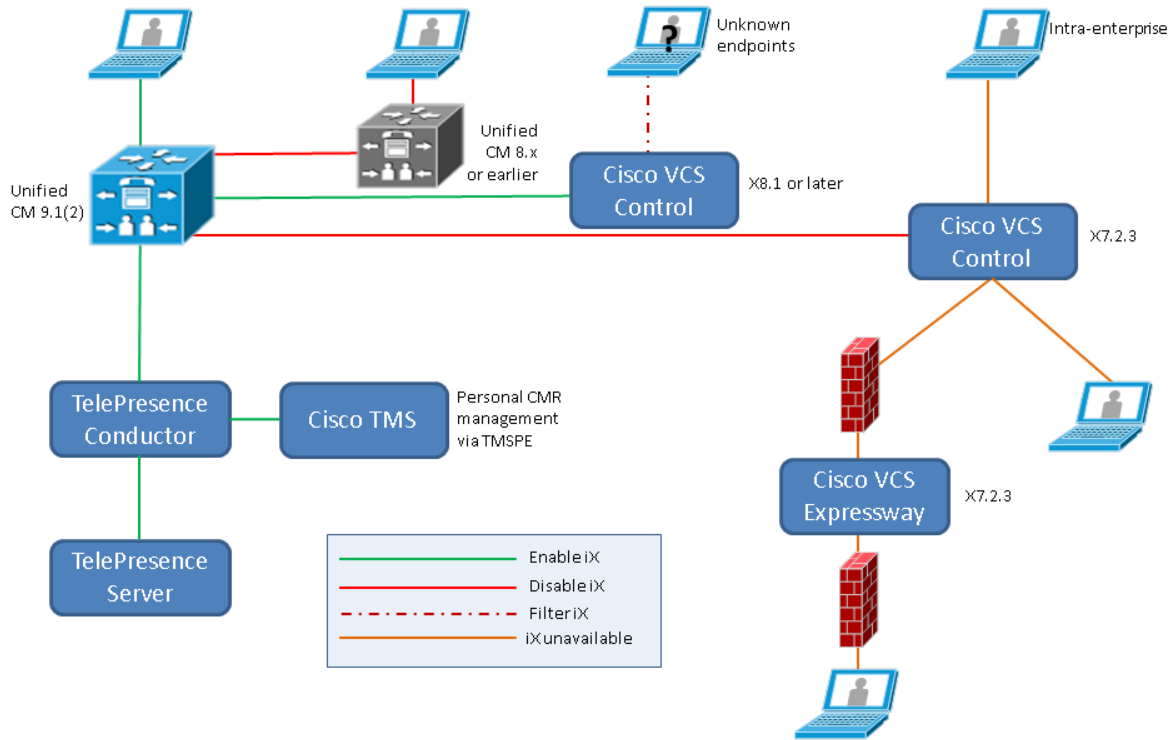
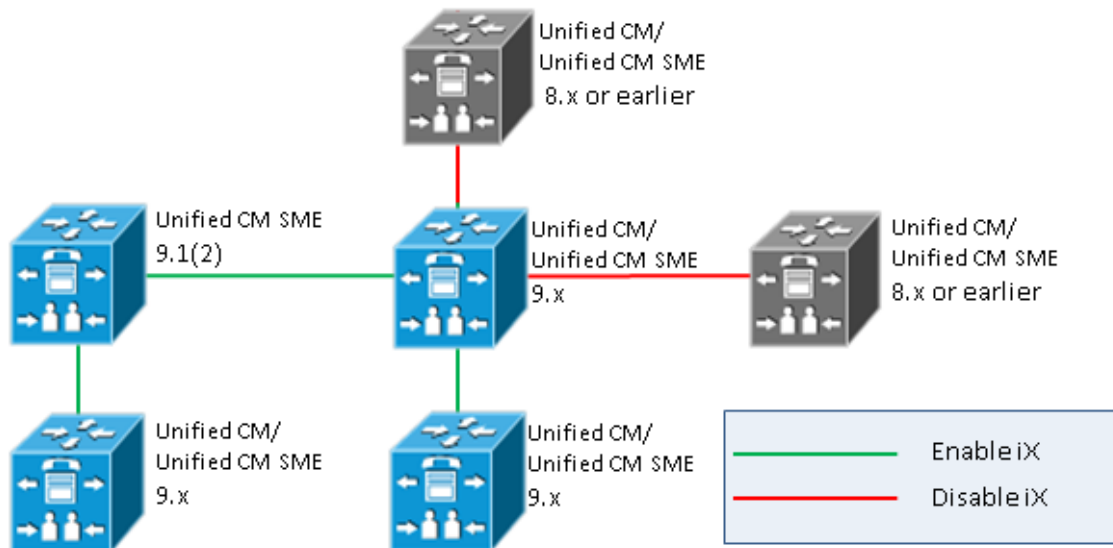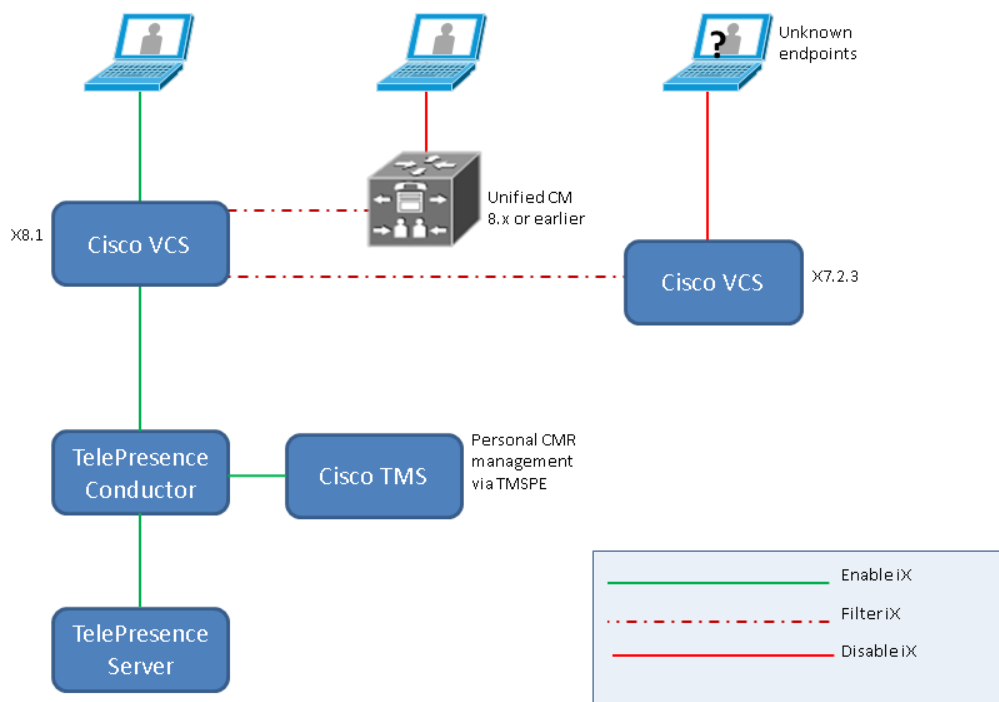Figure 4: Example iX configuration in a Unified CM Session Management Edition deployment

Figure 5: Where to filter iX in outward connections from Cisco VCS-managed systems (Cisco VCS X8.1 and later)

Enabling/disabling iX (ActiveControl) in Optimized Conferencing networks

Table 7: iX configuration settings for Optimized Conferencing devices

Device	IX setting...
TC7.1 endpoints	Default is Auto. (ActiveControl is enabled if the call control system to which the endpoint is registered supports the iX protocol and disabled otherwise.) You do not need to change this.
TelePresence Conductor	Default is not to change the iX defaults on TelePresence Server. For Conductor templates, enable iX by enabling the **iX protocol** field on the Advanced template parameter page for TelePresence Servers. See Process [p.63]
Cisco TMSPE	Default is not to change the iX defaults on TelePresence Server. For personal Collaboration Meeting Rooms, enable iX by setting advanced parameters for the CMR template to `{"callAttributes": {"iXEnabled": true}}`. See Task 2: Enabling ActiveControl for personal CMRs in Cisco TMSPE [p.63].
Unified CM (per trunk)	Set in the Trunk Specific Configuration section of the SIP Profile Configuration window, using the **Allow iX Application Media** checkbox. See Task 3: Enabling iX Support in Cisco Unified Communications Manager [p.64]
Cisco VCS (per neighbor zone)	Disable iX pass-through by turning on SIP UDP/IX filter mode in the custom zone profile for any neighbor zone that connects to an external network or connects internally to an older Unified CM version. See Task 4: Filtering iX in Cisco VCS [p.64].

Note: On the TelePresence Server, the iX configuration setting is available through the API (via the iXEnabled parameter in Participant/Conference calls). However we do not recommend using direct API calls to bridges that are managed by TelePresence Conductor.

Process

Task 1: Enabling iX Support in Cisco TelePresence Conductor Templates

To enable iX in a Cisco TelePresence Conductor template, you must set an advanced template parameter on the conference bridge template used by the Cisco TelePresence Server.

To create or edit advanced template parameter settings:

1. Create a new conference template or select an existing conference template (**Conference configuration > Conference templates**).
2. In the Advanced parameters section click **Edit**.
   The Advanced template parameters page displays.
3. Check the check box for **Enable iX protocol**.
4. From the **primary** drop-down list next to the **Enable iX protocol** check box, choose *True* to enable the protocol.
5. Click **Save**.

Task 2: Enabling ActiveControl for personal CMRs in Cisco TMSPE

To enable ActiveControl for personal Collaboration Meeting Rooms (CMRs), you must set an advanced template parameter on the CMR template in Cisco TMSPE.

To create or edit advanced template parameter settings:

1. Create a new CMR template or select an existing template (**Systems > Provisioning > Users**).

2. On the **Edit CMR Template** page, check the check box for **Custom Parameters**.

3. In the **Advanced parameters** field, enter `{"callAttributes": {"iXEnabled": true}}`.

4. Click **Save**.

Task 3: Enabling iX Support in Cisco Unified Communications Manager

Support for the iX protocol is disabled by default. To enable iX support in Unified CM , you must first configure support in the SIP profile and then apply that SIP profile to the SIP trunk.

Configuring iX support in a SIP profile

1. Choose **Device > Device Settings > SIP Profile**.
   The Find and List SIP Profiles window displays.

2. Do one of the following:
   - To add a new SIP profile, click **Add New**.
   - To modify an existing SIP profile, enter the search criteria and click **Find**. Click the name of the SIP profile that you want to update.
   The SIP Profile Configuration window displays.

3. Check the check box for **Allow iX Application Media**.

4. Make any additional configuration changes.

5. Click **Save**.

Applying the SIP profile to a SIP trunk

1. Choose **Device > Trunk**.
   The Find and List Trunks window displays.

2. Do one of the following:
   - To add a new trunk, click **Add New**.
   - To modify a trunk, enter the search criteria and click **Find**. Click the name of the trunk that you want to update.
   The Trunk Configuration window displays.

3. From the SIP Profile drop-down list, choose the appropriate SIP profile.

4. Click **Save**.

5. To update an existing trunk, click **Apply Config** to apply the new settings.

Task 4: Filtering iX in Cisco VCS

To configure the Cisco VCS to filter out the iX application line for a neighbor zone that does not support the protocol, the zone must be configured with a custom zone profile that has the **SIP UDP/IX filter mode** advanced configuration option set to *On*.

To update advanced zone profile option settings:

1. Create a new neighbor zone or select an existing zone (**Configuration > Zones > Zones**).

2. In the Advanced parameters section, for **Zone profile**, choose *Custom* if it is not already selected.
   The zone profile advanced configuration options display.

3. From the **SIP UDP/IX filter mode** drop-down list, choose `On`.

4. Click **Save**.

Troubleshooting

Table 8: Call handling summary for calls that contain an iX header

Scenario	Outcome
Unified CM 8.x or earlier	Calls fail
Unified CM 9.x earlier than 9.1(2)	Calls handled normally but no ActiveControl
Unified CM 9.1(2)	Calls handled normally plus ActiveControl
Endpoint - no support for iX and no SDP implementation	Endpoint may reboot or calls may fail

Setting up Cisco ClearPath

The Cisco ClearPath video quality technology is enabled by default in all Optimized Conferencing devices. No action is required to enable it.

Related Documentation

Title	Reference	Link
Optimized Conferencing for Cisco Unified Communications Manager and Cisco VCS Solution Guide 3.0	D15027	http://www.cisco.com/c/en/us/support/conferencing/telepresence-conductor/products-installation-and-configuration-guides-list.html
Optimized Conferencing for Cisco Unified Communications Manager and Cisco VCS Solution Release Notes 3.0	D15028	http://www.cisco.com/c/en/us/support/conferencing/telepresence-conductor/products-release-notes-list.html
Cisco TelePresence Conductor with Cisco Unified Communications Manager Deployment Guide XC2.3, CUCM 10.0 [see Appendix for 9.*x*]	D14998	http://www.cisco.com/c/en/us/support/conferencing/telepresence-conductor/products-installation-and-configuration-guides-list.html
Cisco TelePresence Management Suite Provisioning Extension with Cisco Unified CM Deployment Guide	D15110	http://www.cisco.com/c/en/us/support/conferencing/telepresence-management-suite-extensions/products-installation-guides-list.html
Cisco TelePresence Conductor with Cisco TelePresence VCS (B2BUA) Deployment Guide XC2.3, X8.1	D15014	http://www.cisco.com/c/en/us/support/conferencing/telepresence-conductor/products-installation-and-configuration-guides-list.html
Cisco TelePresence Management Suite Provisioning Extension with Cisco VCS Deployment Guide	D14941	http://www.cisco.com/c/en/us/support/conferencing/telepresence-management-suite-extensions/products-installation-guides-list.html
Cisco TelePresence Conductor Administrator Guide XC2.3	D14826	http://www.cisco.com/c/en/us/support/conferencing/telepresence-conductor/products-maintenance-guides-list.html
Cisco Unified Communications Manager Administration Guide, Release 9.1*n*	OL-27945	http://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/products-maintenance-guides-list.html
Cisco Unified Communications Manager Administration Guide, Release 10.0(1)	OL-29000	http://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/products-maintenance-guides-list.html
Cisco Unified Communications Manager with Cisco Expressway (SIP Trunk) Deployment Guide, Cisco Expressway X8.2	D15062	http://www.cisco.com/c/en/us/support/unified-communications/expressway-series/products-installation-and-configuration-guides-list.html
Cisco Unified Communications Manager with Cisco VCS (SIP Trunk) Deployment Guide, Cisco VCS X8.2	D14602	http://www.cisco.com/c/en/us/support/unified-communications/telepresence-video-communication-server-vcs/products-installation-and-configuration-guides-list.html
Cisco TelePresence Multiway™ Deployment Guide, Cisco VCS, MCU, Conductor	D14366	http://www.cisco.com/c/en/us/support/conferencing/telepresence-conductor/products-installation-and-configuration-guides-list.html

Title	Reference	Link
Cisco Expressway Basic Configuration Deployment Guide X8.2	D15060	http://www.cisco.com/c/en/us/support/unified-communications/expressway-series/products-installation-and-configuration-guides-list.html
Cisco TelePresence Video Communication Server Basic Configuration (Control with Expressway) Deployment Guide Cisco VCS X8.2	D14651	http://www.cisco.com/c/en/us/support/unified-communications/telepresence-video-communication-server-vcs/products-installation-and-configuration-guides-list.html
Cisco TelePresence Management Suite Administrator Guide Version 14.4	D13741	http://www.cisco.com/c/en/us/support/conferencing/telepresence-management-suite-tms/products-maintenance-guides-list.html
Cisco Collaboration Meeting rooms (CMR) Hybrid Configuration Guide (formerly Cisco WebEx Enabled TelePresence Configuration Guide)	OL-21352	http://www.cisco.com/c/en/us/support/conferencing/telepresence-management-suite-tms/products-installation-and-configuration-guides-list.html
Cisco TelePresence Conductor Product Programming Reference Guide XC2.3 (includes Conductor Provisioning API reference)	D14948	http://www.cisco.com/c/en/us/support/conferencing/telepresence-conductor/products-programming-reference-guides-list.html
Cisco Expressway Administrator Guide X8.2	D15058	http://www.cisco.com/c/en/us/support/unified-communications/expressway-series/products-maintenance-guides-list.html
Cisco TelePresence Video Communication Server Administrator Guide X8.2	D14049	http://www.cisco.com/c/en/us/support/unified-communications/telepresence-video-communication-server-vcs/products-maintenance-guides-list.html

More product documentation on Cisco.com

Product	Link
TelePresence Conductor	http://www.cisco.com/c/en/us/support/conferencing/telepresence-conductor/tsd-products-support-series-home.html
Unified CM	http://www.cisco.com/c/en/us/support/unified-communications/unified-communications-manager-callmanager/tsd-products-support-series-home.html
MCU 5300 Series	http://www.cisco.com/c/en/us/support/conferencing/telepresence-mcu-5300-series/tsd-products-support-series-home.html
MCU 4500 Series	http://www.cisco.com/c/en/us/support/conferencing/telepresence-mcu-4500-series/tsd-products-support-series-home.html
MCU MSE Series	http://www.cisco.com/c/en/us/support/conferencing/telepresence-mcu-mse-series/tsd-products-support-series-home.html
TelePresence Server	http://www.cisco.com/c/en/us/support/conferencing/telepresence-server/tsd-products-support-series-home.html
Cisco Expressway	http://www.cisco.com/c/en/us/support/unified-communications/expressway-series/products-installation-and-configuration-guides-list.html
Cisco VCS	http://www.cisco.com/c/en/us/support/unified-communications/telepresence-video-communication-server-vcs/tsd-products-support-series-home.html

Appendix 1: Adding the Unified CM Normalization Scripts

If your deployment uses encryption and TLS on SIP trunks used for TelePresence, you must add one or more of the normalization scripts to Unified CM, as follows:

Table 9: Normalization scripts for Unified CM

Script	Install on ...
telepresence-conductor-interop	SIP trunks that directly interface with a TelePresence Conductor as the next hop peer.
vcs-interop	SIP trunks that directly interface with a Cisco VCS Control or Cisco Expressway-C as the next hop peer.
telepresence-mcu-ts-direct-interop	SIP trunks that directly interface with a TelePresence Server or MCU as the next hop peer.

To add the scripts:

1. Download the scripts that you need from the Cisco website (go to the relevant Unified CM software version and select **SIP Normalization and Transparency Scripts > Scripts**).
2. On Unified CM, go to **Device > Device Settings > SIP Normalization Script**.
3. Click **Add new**.
4. Click **Import File**.
5. Select the script that you downloaded.
6. Click **Import File**.
7. Enter or change the following details:

Name	Enter the script name. For example, `telepresence-conductor-interop`
Description	Enter a description. For example, `Provides interoperability for calls through the TelePresence Conductor`
Memory Threshold	Enter `1000`
Lua Instruction Threshold	Enter `2000`

8. Click **Save**.
9. Repeat these steps until all the scripts you need are added.
10. To install the scripts onto the SIP trunks:
    a. On the Unified CM go to **Device > Trunk** [or **Media Resources > Conference Bridge** for ad hoc conference bridges in Unified CM Version 9.1(2)SU2] and select the relevant trunk / bridge.
    b. In the **Normalization script** area of the **SIP Information** section, from the drop-down list select the appropriate script for the trunk / bridge.
    c. Click **Save**.
    d. Click **Reset**.

Appendix 2: Migration Paths to Optimized Conferencing Release 3.0

This appendix describes how to migrate previous Optimized Conferencing deployments, and non-Optimized Conferencing deployments, to the Release 3.0 preferred architecture. This release of Optimized Conferencing has two recommended deployment architectures for deploying conferencing infrastructure:

- Conferencing infrastructure connected to Unified CM. This is the preferred architecture.
- Conferencing infrastructure connected to Cisco VCS.

For new (first-time) deployments the Unified CM-connected deployment should be implemented.

For existing audio and video deployments which do not match either of the two scenarios, we recommend that deployments are migrated to the Optimized Conferencing Release 3.0 deployment using the Release 3.0 recommended code levels, as this is the tested architecture on top of which new feature developments are being planned.

To move to the Optimized Conferencing Release 3.0 deployment ("Release 3.0"):

1. Start by moving the infrastructure to the Release 3.0 standard.
2. Then, if endpoints are currently registered to the Cisco VCS, move the endpoints that can register to Unified CM to Unified CM.

Prerequisites

Release 3.0 makes use of endpoint caller IDs, displaying them in Roster lists and, if enabled, on-screen in conferences in TS Active presence mode. We recommended reviewing the dial plan to ensure that displayed caller IDs are meaningful.

Release 3.0 software versions

Table 10: Required software versions

Product	Recommended	Minimum	Notes
TelePresence Server	4.0	4.0	When connected to TelePresence Conductor, TelePresence Server must be configured in remotely managed mode. When connected to call control for assured scheduling TelePresence Server must be configured in locally managed mode.
TelePresence Conductor	XC2.3	XC2.3	
MCU	4.5	4.5	

Table 10: Required software versions (continued)

Cisco VCS	X8.2	X8.1.1 (X8.2 required for Microsoft Lync)
Cisco VCS—for H.323 registration	X8.2	X7.2.3
Cisco Expressway	X8.2	X8.1.1 (X8.2 required for Microsoft Lync)
Cisco TMS	14.4	14.4
Cisco TMSPE	1.2	1.2
Unified CM	10.5(1)	9.1(2)SU2

Unified CM only system to Release 3.0

1. Upgrade Unified CM to the recommended version for Optimized Conferencing Release 3.0.
2. Add TelePresence Conductor to Unified CM and deploy bridges trunked to TelePresence Conductor—these components support ad hoc (telephone button) conferences and CMR conferences.
3. Upgrade endpoint software to the version supplied with Unified CM.
4. Only if assured scheduling is required, deploy bridges directly trunked to Unified CM and control them using Cisco TMS.
5. If WebEx participants are to be included in calls, ensure that Unified CM is running at least code version 9.1(2)SU2 and update Unified CM configuration to support Early Offer.
6. To allow participants external to the company network to join conferences, deploy Cisco Expressway-C and Cisco Expressway-E for the firewall traversal.
7. If Lync interop is required add a Cisco Expressway-C / Cisco VCS Control to be the gateway to the Microsoft Lync infrastructure. Version X8.2 or later is required. (See the Cisco VCS / Cisco Expressway deployment guides to identify whether Cisco VCS Control or Cisco Expressway-C is most appropriate for your needs.)
8. In the unlikely event you wish to add Legacy and H.323 endpoints to the solution, add a Cisco VCS Control onto which those endpoints can register.

Separate audio-only endpoint Unified CM and video endpoint Unified CM to Release 3.0

Some Unified CM deployments use a Unified CM for audio-only endpoints and a separate Unified CM for video endpoints. The ideal solution is to run both systems at the same Unified CM version, and in that case you should follow the instructions above.

If there are reasons why audio and video endpoints need to register to separate Unified CMs and they need to run different versions, then, before proceeding, verify with your account manager that the two Unified CM versions are acceptable in the deployment. In this case follow the instructions above on the video Unified CM.

Cisco VCS only to Cisco VCS and Unified CM Release 3.0

1. Upgrade Cisco VCS to the recommended version for Optimized Conferencing Release 3.0.
2. Neighbor (SIP trunk) the Cisco VCS to a new Unified CM running code version 9.1(2) or 10.5(1) and configure it to support Early Offer.
3. Move the TelePresence Conductor to connect to Unified CM, and ensure that the search rules used to send calls to the TelePresence Conductor under Cisco VCS now send the calls to Unified CM, and that the Unified CM forwards these calls to TelePresence Conductor.

4. Only if assured scheduling is required, move or deploy bridges directly trunked to Unified CM and control them using Cisco TMS.

5. Migrate endpoints that can register to Unified CM to Unified CM, upgrading software to the required versions for this Optimized Conferencing release.

Unified CM and Cisco VCS to Release 3.0

1. Upgrade Cisco VCS to the recommended version for Optimized Conferencing Release 3.0.

2. Upgrade Unified CM to the recommended version for Optimized Conferencing Release 3.0.

3. Move / keep TelePresence Conductor connected to Unified CM with bridges (that are used to support ad hoc conferences and CMR conferences) trunked to TelePresence Conductor.

4. If the TelePresence Conductor is moved from Cisco VCS, ensure that the search rules that used to send calls to the TelePresence Conductor under Cisco VCS now send the calls to Unified CM and that the Unified CM forwards these calls to TelePresence Conductor.

5. Only if assured scheduling is required, deploy bridges directly trunked to Unified CM and control them using Cisco TMS—remove any bridges registering or trunked to Cisco VCS.

6. Cisco VCS architecture can remain as configured for firewall traversal, Lync interop and Legacy / H.323 endpoint registration.

7. Migrate endpoints that can register to Unified CM to Unified CM, upgrading software to the required versions for this Optimized Conferencing release.

Comparison of capabilities of endpoints registered to Unified CM and endpoints registered to Cisco VCS

Table 11: Comparison of capabilities of endpoints registered to Unified CM and endpoints registered to Cisco VCS

Capability	Registered to Unified CM	Registered to Cisco VCS
Phone books	User Data Services (UDS) phonebooks Non-hierarchical	TMS phone books Hierarchical directory
Management	Managed by Unified CM & Prime Collaboration suite Provisioned by Unified CM	Managed by Cisco TMS Provisioned by Cisco TMS
Conference scheduling	Managed by Cisco TMS	Managed by Cisco TMS
Firewall traversal	Using Cisco Expressway-C and Cisco Expressway-E	Using Cisco VCS Expressway
Conference escalation	Ad hoc	Multiway

Release 3.0 features and version dependencies

Table 12: Release 3.0 features and version dependencies

Feature	Versions required
Segment switching	TS 4.0 and XC2.3, TMS 14.4, TMSPE 1.2
BE6000	XC2.3, vTS 4.0, TMS 14.4, TMSPE 1.2
MS Lync interoperability	VCS X8.2, Expressway-C 8.1.1, Unified CM 9.1 (2)SU2 or 10.5(1) Early Offer configuration
Increased TelePresence Server call limit (200)	TS 4.0 and XC2.3
CMR provisioning and user portal	XC2.3, TMS 14.4, TMSPE 1.2

Table 12: Release 3.0 features and version dependencies (continued)

Cisco TMS direct scheduling	TMS 14.4, TS 4.0, MCU 4.5
New TelePresence Server optimization	TS 4.0, TMS 14.4, TMSPE 1.2, Conductor XC2.3
	Optimization configured in JSON on TMS for provisioned conferences, or in JSON in the TelePresence Conductor template.
The iX protocol (XCCP) can be enabled in the local Unified CM and Cisco VCS network and can be configured to be blocked from transmission at network boundaries	Unified CM 9.1(2)SU2 or 10.5(1), VCS X8.1.1, Expressway X8.1.1

Associated products, versions and features

Table 13: Associated products, versions and features

Product	Version	Features
MCU	4.5	Minimum version for Release 3.0 operation. Adds: ■ ClearPath (Flux 1) ■ Separate content channel for encrypted SIP participants ■ Domain added for out dial requests without a domain—needed for WebEx out dial (for TSP conferenced audio) when the MCU is trunked to Unified CM.
Unified CM	Unified CM 9.1(2)SU2	Minimum version for Release 3.0 operation
	10.5(1)	Ad hoc bridge now configured as data connection and explicit SIP trunk
Cisco VCS	X8.1.1	Minimum version for Release 3.0 operation (X7.2.3 for H.323 registration)
	X8.2	Minimum version for Lync gateway operation in Release 3.0
Cisco Expressway	X8.1.1	Minimum version for Release 3.0 operation