



Setting Up a Cisco Unified Communications Manager SCCP Integration

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Introduction

This chapter provides instructions for setting up SCCP Integration between Cisco Unified Communications Manager and Cisco Unity Connection.



Note If you are configuring MWI relay across trunks in a distributed phone system, you must see the Cisco Unified CM documentation for requirements and instructions. Configuring MWI relay across trunks does not involve Unity Connection settings.

Pre-requisites

Before starting the SCCP integration between Cisco Unified CM and Unity Connection, you need to understand the tasks to be done and the components required for the integration. Below [Table 3-1](#) contains a list of pre-requisites that you must consider to ensure a successful integration.

Pre-requisites	Important Notes
Install the applicable version of Cisco Unified CM.	<ul style="list-style-type: none">• For compatible version of Cisco Unified CM, see the <i>Compatibility Matrix: Cisco Unity Connection</i> Cisco Unified Communications Manager SCCP Integration, on page 1.

<p>Install the applicable version of Unity Connection with a license that enables the applicable number of voice messaging ports.</p>	<ul style="list-style-type: none"> • For details on compatible versions of Unity Connection, see the Compatibility Matrix for Cisco Unity Connection, available at http://www.cisco.com/c/en/us/support/unified-communications/unity-connection/products-device-support.html • For details on installation tasks, see the “Installing Cisco Unity Connection” chapter of the <i>Install, Upgrade, and Maintenance Guide for Cisco Unity Connection</i>, Release 14, available at https://www.cisco.com/c/en/us/techdocs/voice_ip_comm/connection/14/install_upgrade/guide/b_14cuciumg.html
<p>The supported Phone system for SCCP integration are:</p> <ul style="list-style-type: none"> • Only IP phones for the Cisco Unified CM extensions. • Both IP phones and SIP phones for the Cisco Unified CM extensions without a media termination point (MTP) on the Cisco Unified CM server. 	<ul style="list-style-type: none"> • A LAN connection in each location is required where you plug the applicable phone into the network. • For multiple Cisco Unified CM clusters, the capability for users to dial an extension on another Cisco Unified CM cluster without dialing a trunk access code or prefix.

<p>If Unity Connection uses IPv6 or dual-mode (IPv4 and IPv6) to communicate with Cisco Unified CM, do the following subtasks:</p> <ol style="list-style-type: none">1. Enable IPv6 on the Unity Connection server.2. In Cisco Unity Connection Administration, on the System Settings > General Configuration page, select an option for IP Addressing Mode to control where Unity Connection listens for incoming traffic. You can select IPv4, IPv6, or IPv4 and IPv6. The setting defaults to IPv4.	<p>See the “Ethernet IPv6 Configuration Settings” section in the “Security” chapter of the Cisco Unified Operating System Administration Guide for Cisco Unity Connection at http://www.cisco.com/c/en/us/support/unified-communications/unity-connection/products-maintenance.html</p>
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Integration Tasks

The following task list describes the process for creating and changing the integration.

1. Review the system and hardware requirements to confirm that all phone system and Unity Connection server requirements have been met. See the “[Pre-requisites](#)” section on page 3-1
2. Plan and configure how the voice messaging ports are used by Unity Connection. See [Planning the Voice Messaging Ports](#)



Note All the forwarded calls are routed to opening greeting instead of subscriber greeting when Voice mail port, Voice mail pilot, and CTI route point used for routing calls to Unity Connection are same as that of Phone DN on call manager.

3. Program Cisco Unified CM. See the [Programming the Cisco Unified CallManager Phone System](#).
4. Create the integration. See the “[Creating a New Integration with Cisco Unified CM](#).”



Note An additional Cisco Unified CM cluster can be added by adding a new phone system, port group, and ports. Each Cisco Unified CM cluster is a separate phone system integration.

5. Test the integration. See [Testing the Integration](#) chapter.



Note If this is the first integration, the first phone system is automatically selected in the default user template. The users that you add after creating this phone system integration are assigned to this phone system by default. However, for each subsequent integration add the applicable new user templates for the new phone system. For details on adding new user templates, or on selecting a user template when adding a new user, see the “User Templates” section in “User Attributes” chapter of the System Administration Guide for Cisco Unity Connection, Release 14 available at https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/14/administration/guide/b_14cucsag.html.

Programming the Cisco Unified CallManager Phone System

Do the following procedures for programming the Cisco Unified Communications Manager phone system integration with Unity Connection:

Adding Partitions and a Calling Search Space for Voice Mail Ports

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- Step 1** In Cisco Unified CM Administration, expand **Call Routing** > **Class of Control** > **and select** > **Partition**.
- Step 2** On the Find and List Partitions page, select **Add New**.

- Step 3** On the Partition Configuration page, enter the name and description you want for the partition that contains all voice mail port directory numbers. For example, enter “VMRestrictedPT, Partition for voice mail port directory numbers.”
- Step 4** Select **Save**.
- Step 5** Select **Add New**.
- Step 6** Enter the name and description you want for the partition that contains the hunt pilot, which is the voice mail pilot number. For example, enter “VMPilotNumberPT, Partition for the voice mail pilot number.”
- Step 7** Select **Save**.
- Step 8** Expand **Call Routing > Class of Control > and select > Calling Search Space**.
- Step 9** On the Find and List Calling Search Spaces page, select **Add New**.
- Step 10** On the Calling Search Space Configuration page, in the Name field, enter a name for the calling search space that includes the partition created in [Step 2](#) through [Step 4](#). For example, enter “VMRestrictedCSS.”
- Step 11** Optionally, in the Description field, enter a description of the calling search space. For example, enter “Voice mail port directory numbers.”
- Step 12** In the Available Partitions list, select the name of the partition created in [Step 2](#) through [Step 4](#). For example, select “VMRestrictedPT.”
- Step 13** Select the down arrow below the Available Partitions list.
The name of the partition appears in the Selected Partitions list.
- Step 14** Select **Save**.
- Step 15** In the Related Links field, select **Back to Find/List** and select **Go**.
- Step 16** On the Find and List Calling Search Spaces page, select **Find**.
- Step 17** Select the name of the calling search space that is used by user phones.
- Step 18** On the Calling Search Space Configuration page, in the Available Partitions list, select the name of the partition created in [Step 5](#) through [Step 7](#). For example, select “VMPilotNumberPT.”
If the partition that contains the hunt pilot (which is the voice mail pilot number) is not in the calling search space that is used by user phones, the phones are not able to dial the Unity Connection server.
- Step 19** Select the down arrow below the Available Partition list.
The name of the partition appears in the Selected Partitions list.
- Step 20** Select **Save**.
- Step 21** Repeat [Step 17](#) through [Step 20](#) for each remaining calling search space that needs to access Unity Connection.

Adding a Device Pool for the Voice Mail Ports

- Step 1** In Cisco Unified CM Administration, select **System > and then select > Device Pool**.
- Step 2** On the Find and List Device Pools page, select **Add New**.
- Step 3** On the Device Pool Configuration page, enter the following device pool settings.

Table 1: Settings for the Device Pool Configuration Page

Field	Setting
Device Pool Settings	

Field	Setting
Device Pool Name	Enter Unity Connection Voice Mail Ports or other description for this device pool.
Cisco Unified Communications Manager Group	Select the Cisco Unified Communications Manager group to assign to the voice mail ports in this device pool.
Roaming Sensitive Settings	
Date/Time Group	Select the date/time group to assign to the voice mail ports in this device pool.
Region	Select the Cisco Unified CM region to assign to the voice mail ports in this device pool.
SRST Reference	If applicable, select the survivable remote site telephony (SRST) reference to assign to the voice mail ports in this device pool.

Step 4 Select **Save**.

Adding the Voice Mail Ports on Cisco Unified CM

Step 1 In Cisco Unified CM Administration, expand **Advanced Features > Voice Mail > and select > Cisco Voice Mail Port Wizard**.

Step 2 On the What Would You Like to Do page, select **Create a New Cisco Voice Mail Server and Add Ports to It**, then select **Next**.

Step 3 On the Cisco Voice Mail Server page, the name of the voice mail server appears. We recommend that you accept the default name for the voice mail server. If you need to use a different name, however, the name must have no more than nine characters.

Note The voice mail server name must match the Device Name Prefix field in Cisco Unity Connection on the Port Group Basics page for the voice messaging ports.

The voice mail server name must match the Device Name Prefix field in Unity Connection on the Port Group Basics page for the voice messaging ports, with -VI appended to the end of the name. For example, if the Device Name Prefix in Cisco Unified CM is CiscoUM, the voice mail server name in Unity Connection should be CiscoUM-VI.

Step 4 Select **Next**.

Step 5 On the Cisco Voice Mail Ports page, select the number of voice mail ports that you want to add (it should not be more voice mail ports than the Unity Connection licenses enable), then select **Next**.

For a Unity Connection cluster, first enter the number of voice mail ports for the publisher and then for the subscriber, selecting the appropriate server for each creation process.

If you integrate Unity Connection with multiple Cisco Unified CM clusters, the number you enter here cannot bring the total number of ports on all Cisco Unified CM clusters integrated with Unity Connection to more than the number of ports enabled by the Unity Connection licenses.

Step 6 On the Cisco Voice Mail Device Information page, enter the following voice mail device settings.

Table 2: Settings for the Cisco Voice Mail Device Information Page

Field	Setting
Description	Enter Cisco Voice Mail Port or another description for the voice mail device.
Device Pool	Select the name of the device pool you created for the voice mail ports. For example, select Unity Connection Voice Mail Ports.
Calling Search Space	Select the name of a calling search space that allows calls to the user phones and any required network devices. This calling search space must include partitions that contain all devices Cisco Unity Connection needs to access (for example, during call transfers, message notifications, and MWI activations).
AAR Calling Search Space	Accept the default of None .
Location	Select Hub_None .
Device Security Mode	Select the security mode that you want to use for the voice mail ports. For details on the settings for Cisco Unified CM authentication and encryption of the voice mail ports, see Cisco Unified Communications Manager Authentication and Encryption of Cisco Unity Connection Voice Messaging Ports .
Use Trusted Relay Point	Accept the default setting, or select another setting.

Step 7 Select **Next**.

Step 8 On the Cisco Voice Mail Directory Numbers page, enter the following voice mail directory number settings.

Table 3: Settings for the Cisco Voice Mail Directory Numbers Page

Field	Setting
Beginning Directory Number	Enter the extension number of the first voice mail port.
Partition	Select the name of the partition that you set up for all voice mail port directory numbers. For example, select “VMRestrictedPT.”
Calling Search Space	Select the name of a calling search space that you set up to contain the partition with all voice mail port directory numbers, as set in Step 9 of the “ Adding Partitions and a Calling Search Space for Voice Mail Ports ” procedure on page 3-3. For example, select “VMRestrictedCSS.” Because this calling search space is not used by user phones, users are not able to dial the voice mail ports. However, users can dial the voice mail pilot number.

Field	Setting
AAR Group	Select the automated alternate routing (AAR) group for the voice mail ports. The AAR group provides the prefix digits that are used to route calls that are otherwise blocked due to insufficient bandwidth. If you select None , no rerouting of blocked calls attempted.
Internal Caller ID Display	Accept the default of VoiceMail . This text appears on the phone when the pilot number is dialed.
Internal Caller ID Display (ASCII Format)	Accept the default of VoiceMail . This text appears on the phone when the pilot number is dialed.
External Number Mask	Leave this field blank, or specify the mask used to format caller ID information for external (outbound) calls. The mask can contain up to 50 characters. Enter the literal digits that you want to appear in the caller ID information, and enter X for each digit in the directory number of the device.

Step 9 Select **Next**.

Step 10 On the Do You Want to Add These Directory Numbers to a Line Group page, select **No, I Add Them Later**, and select **Next**.

Step 11 On the Ready to Add Cisco Voice Mail Ports page, confirm that the settings for the voice mail ports are correct, and select **Finish**.

If the settings are not correct, select **Back** and enter the correct settings.

Adding the Answering Voice Mail Ports to a Line Group

Step 1 In Cisco Unified CM Administration, expand **Call Routing** > **Route/Hunt** > **and select** > **Line Group**.

Step 2 On the Find and List Line Groups page, select **Add New**.

This line group contain directory numbers for voice mail ports that answers calls. Directory numbers for voice mail ports that only dial out (for example, to set MWIs) must not be included in this line group.

For a Unity Connection cluster, the line group contains directory numbers for voice mail ports that answer calls on all servers in the Unity Connection cluster. Directory numbers for voice mail ports that only dial out (for example, to set MWIs) on all servers in the Unity Connection cluster must not be included in this line group.

Step 3 On the Line Group Configuration page, enter the following settings.

Table 4: Settings for the Line Group Configuration Page for Answering Ports

Field	Setting
Line Group Name	Enter Unity Connection Answering Ports or another unique name for line groups.
RNA Reversion Timeout	Accept the default of 10 .
Distribution Algorithm	<i>(Without a Unity Connection cluster)</i> Select Longest Idle Time . <i>(With a Unity Connection cluster configured)</i> Select Top Down .
No Answer	Accept the default of Try Next Member; Then, Try Next Group in Hunt List .
Busy	Accept the default of Try Next Member; Then, Try Next Group in Hunt List .
Not Available	Accept the default of Try Next Member; Then, Try Next Group in Hunt List .

- Step 4** Under Line Group Member Information, in the Partition list, select the name of the partition that you set up for all voice mail port directory numbers. For example, select “VMRestrictedPT.”
- Step 5** Select **Find**.
- Step 6** In the Available DN/Route Partition list, select the first directory number of a voice mail port that answer calls, and select **Add to Line Group**.
- The directory numbers in the Selected DN/Route Partition list must appear in numerical sequence with the lowest number on top. Otherwise, the integration does not function correctly.
- Step 7** Repeat [Step 6](#) for all remaining directory numbers of voice mail ports that answers calls.
- Do not include directory numbers of voice mail ports that only dial out (for example, to set MWIs). Otherwise, the integration does not function correctly.
- Step 8** Select **Save**.

Adding the Line Group to a Hunt List

- Step 1** In Cisco Unified CM Administration, expand **Call Routing** > **Route/Hunt** > **and select** > **Hunt List**.
- Step 2** On the Find and List Hunt Lists page, select **Add New**.
- Step 3** On the Hunt List Configuration page, enter the following settings for the hunt list.

Table 5: Settings for the Hunt List Configuration Page for Answering Ports

Field	Setting
Name	Enter Unity Connection Answering Ports or another unique name for the hunt list.
Description	Enter Unity Connection ports that answer calls or another description.
Cisco Unified Communications Manager Group	Select Default or the name of the Cisco Unified Communications Manager group that you are using.
Enable This Hunt List	Check this check box.
For Voice Mail Usage	Check this check box.

Step 4 Select **Save**.

Step 5 Under Hunt List Member Information page, select **Add Line Group**.

Step 6 On the Hunt List Detail Configuration page, in the Line Group list, select the line group you created for the directory numbers of voice mail ports that answers calls, then select **Save**.

In the hunt list, do not include line groups with voice mail ports that Unity Connection use to dial out. Otherwise, the integration not function correctly.

Step 7 When alerted that the line group has been inserted, select **OK**.

Step 8 On the Hunt List Configuration page, select **Reset**.

Step 9 When asked to confirm resetting the hunt list, select **Reset**.

Step 10 When alerted that the hunt list has been reset, select **Close**.

Adding the Hunt List to a Hunt Pilot Number

Step 1 In Cisco Unified CM Administration, expand **Call Routing** > **Route/Hunt** > and select > **Hunt Pilot**.

Step 2 On the Find and List Hunt Pilots page, select **Add New**.

Step 3 On the Hunt Pilot Configuration page, enter the following settings for the hunt pilot.

Table 6: Settings for Hunt Pilot Configuration Page

Field	Setting
Hunt Pilot	Enter the hunt pilot number for the voice mail ports. The hunt pilot number must be different from the extension numbers of the voice mail ports. The hunt pilot number is the extension number that users enter to listen to their voice messages.

Field	Setting
Route Partition	Select the name of the partition that you set up for the voice mail pilot number. For example, select “VMPilotNumberPT.”
Description	Enter Unity Connection Hunt Pilot or another description.
Numbering Plan	Accept the default setting, or select the numbering plan that you have set up for your system.
Route Filter	Select None , or select the name of the route filter that you set up for your system.
MLPP Precedence	Accept the default setting, or select another setting.
Hunt List	Select the hunt list of voice mail ports that answer calls, which you set up in the Adding the Line Group to a Hunt List .
Route Option	Select Route This Pattern .
Provide Outside Dial Tone	Uncheck the check box.

Step 4 Select **Save**.

Specifying the MWI Directory Numbers

Step 1 In Cisco Unified CM Administration, expand **Advanced Features** > **Voice Mail** > **and select** > **Message Waiting**.

Step 2 On the Find and List Message Waiting Numbers page, select **Add New**.

Step 3 On the Message Waiting Configuration page, enter the following settings for turning MWIs on.

Table 7: Settings for Turning MWIs On

Field	Setting
Message Waiting Number	Enter the unique extension that turns MWIs on.
Partition	Select the name of the partition that you set up for the voice mail pilot number. For example, select “VMPilotNumberPT.”
Description	Enter DN to turn MWIs on or another description.
Message Waiting Indicator	Select On .
Calling Search Space	Select a calling search space that is used by user phones.

Step 4 Select **Save**.

Step 5 Select **Add New**.

Step 6 Enter the following settings for turning MWIs off.

Table 8: Settings for Turning MWIs Off

Field	Setting
Message Waiting Number	Enter the unique extension that turns MWIs off.
Partition	Select the name of the partition that you set up for the voice mail pilot number. For example, select “VMPilotNumberPT.”
Description	Enter DN to turn MWIs off or another description.
Message Waiting Indicator	Select Off .
Calling Search Space	Select a calling search space that is used by user phones.

Step 7 Select **Save**.

Add a Voice Mail Pilot Number for the Voice Mail Ports

In the following procedure, you add the voice mail pilot number, which is the extension that you dial to listen to your voice messages. Your Cisco IP phone automatically dials the voice mail pilot number when you press the Messages button.

Step 1 In Cisco Unified CM Administration, expand **Advanced Features > Voice Mail > and select > Voice Mail Pilot**.

Step 2 On the Find and List Voice Mail Pilots page, select **Add New**.

Step 3 On the Voice Mail Pilot Configuration page, enter the following voice mail pilot number settings.

Table 9: Settings for the Voice Mail Pilot Configuration Page

Field	Setting
Voice Mail Pilot Number	Enter the voice mail pilot number that users dial to listen to their voice messages. This number must be the same as the hunt pilot number that you entered when adding voice mail ports earlier.
Calling Search Space	Select the calling search space that includes partitions containing the user phones and the partition you set up for the voice mail pilot number.
Description	Enter Cisco Unity Connection Pilot or another description.
Make This the Default Voice Mail Pilot for the System	Check this check box. When this check box is checked, this voice mail pilot number replaces the current default pilot number.

Step 4 Select **Save**.

Setting Up the Voice Mail Profile

Step 1 In Cisco Unified CM Administration, expand **Advanced Features** > **Voice Mail** > **and select** > **Voice Mail Profile**.

Step 2 On the Find and List Voice Mail Profiles page, select **Add New**.

Step 3 On the Voice Mail Profile Configuration page, enter the following voice mail profile settings.

Table 10: Settings for the Voice Mail Profile Configuration Page

Field	Setting
Voice Mail Profile Name	Enter a name to identify the voice mail profile.
Description	Enter Unity Connection Profile or another description.
Voice Mail Pilot	Select one of the following: <ul style="list-style-type: none"> The applicable voice mail pilot number that you defined on the Voice Mail Pilot Configuration page Use Default
Voice Mail Box Mask	When multitenant services are not enabled on Cisco Unified CM, leave this field blank. When multitenant services are enabled, each tenant uses its own voice mail profile and must create a mask to identify the extensions (directory numbers) in each partition that is shared with other tenants. For example, one tenant can use a mask 972813XXXX, while another tenant can use the mask 214333XXXX. Each tenant also uses its own translation patterns for MWIs.
Make This the Default Voice Mail Profile for the System	Check this check box to make this voice mail profile the default. When this check box is checked, this voice mail profile replaces the current default voice mail profile.

Step 4 Select **Save**.

Setting Up the Voice Mail Server Service Parameters

Step 1 In Cisco Unified CM Administration, select **System** > **and then select** > **Service Parameters**.

Step 2 On the Service Parameters Configuration page, in the Server field, select the name of the Cisco Unified CM server.

Step 3 In the Service list, select **Cisco CallManager**. The list of parameters appears.

- Step 4** Under Clusterwide Parameters (Feature - General), locate the Multiple Tenant MWI Modes parameter.
- Step 5** If you use multiple tenant MWI notification, select **True**.
When this parameter is set to True, Cisco Unified CM uses any configured translation patterns to convert voice mail extensions into directory numbers when turning on or off an MWI.
- Step 6** If you changed any settings, select **Save**. Otherwise, skip the remaining steps in this procedure.
- Step 7** In the Navigation drop-down box, select **Cisco Unified Serviceability** and select **Go**.
- Step 8** In Cisco Unified Serviceability, on the Tools menu, select **Control Center - Feature Services**.
- Step 9** Under CM Services, select **Cisco CallManager** and select **Restart**.

Creating a New Integration with Cisco Unified CM

After ensuring that Cisco Unified Communications Manager and Unity Connection are ready for the integration, do the following procedure to set up the integration and to enter the port settings.

- Step 1** In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.
- Step 2** On the Search Phone Systems page, under Display Name, select the name of the default phone system.
- Step 3** On the Phone System Basics page, in the Phone System Name field, enter the descriptive name that you want for the phone system.
- Step 4** If you want to use this phone system as the default for TRaP connections so that administrators and users without voicemail boxes can record and playback through the phone in Unity Connection web applications, check the **Default TRAP Switch** check box. If you want to use another phone system as the default for TRaP connections, uncheck this check box.
- Step 5** Select **Save**.
- Step 6** On the Phone System Basics page, in the Related Links drop-down box, select **Add Port Group** and select **Go**.
- Step 7** On the New Port Group page, enter the following settings and select **Save**.

Table 11: Settings for the New Port Group Page

Field	Setting
Phone System	Select the name of the phone system that you entered in Step 3 .
Create From	Select Port Group Template and select SCCP in the drop-down box.
Display Name	Enter a descriptive name for the port group. You can accept the default name or enter the name that you want.
Device Name Prefix	Enter the prefix that Cisco Unified CM adds to the device name for voice ports. This prefix must match the prefix used by Cisco Unified CM.
MWI On Extension	Enter the extension that you specified in Cisco Unified CM Administration for turning MWIs on.

Field	Setting
MWI Off Extension	Enter the extension that you specified in Cisco Unified CM Administration for turning MWIs off.
IPv4 Address or Host Name	<p>Enter the IPv4 address (or host name) of the primary Cisco Unified CM server that you are integrating with Unity Connection.</p> <p>You must enter an IP address or host name in this field, or an IP address or host name in the IPv6 Address or Host Name field (or, if applicable, enter information in both fields). You cannot leave both fields blank.</p> <p>If you use Cisco Unified CM authentication and encryption, enter an IP address or host name in this field. The CTL file used for encryption between Unity Connection and Cisco Unified CM requires an IPv4 address or host name, even if you are otherwise using IPv6 addressing.</p>
IPv6 Address or Host Name	<p>Enter the IPv6 address (or host name) of the primary Cisco Unified CM server that you are integrating with Unity Connection</p> <p>You must enter an IP address or host name in this field, or an IP address or host name in the IPv4 Address or Host Name field (or, if applicable, enter information in both fields). You cannot leave both fields blank.</p> <p>The IPv6 address should be in canonical textual representation formats proposed by Internet Engineering Task Force in RFC5952 standard for rendering IPv6 addresses in text. For more details on IPv6 formats, please refer the link https://tools.ietf.org/html/rfc5952#section-4</p> <p>Note IPv6 is supported in Cisco Unified CM 7.1(2) and later.</p>
IP Address or Host Name	Enter the IP address (or host name) of the primary Cisco Unified CM server that you are integrating with Unity Connection.
Port	Enter the TCP port of the primary Cisco Unified CM server that you are integrating with Unity Connection. We recommend that you use the default setting.
TLS Port	Enter the TLS port of the primary Cisco Unified CM server that you are integrating with Unity Connection. We recommend that you use the default setting.

Step 8 On the Port Group Basics page, in the Related Links drop-down box, select **Add Ports** and select **Go**.

Step 9 On the New Port page, enter the following settings and select **Save**.

Table 12: Settings for the New Port Page

Field	Setting
Enabled	Check this check box.
Number of Ports	Enter the number of voice messaging ports that you want to create in this port group. Note For a Unity Connection cluster, you must enter the total number of voice messaging ports that is used by all Unity Connection servers. Later, each port is assigned to a specific Unity Connection server.
Phone System	Select the name of the phone system that you entered in Step 3 .
Port Group	Select the name of the port group that you added in Step 7 .
Server	Select the name Unity Connection server.
Security Mode	Select the Cisco Unified CM security mode that you want to use for the voice messaging ports.

Step 10 On the Search Ports page, select the display name of the first voice messaging port that you created for this phone system integration.

Note By default, the display names for the voice messaging ports are composed of the port group display name followed by incrementing numbers.

Step 11 On the Port Basics page, set the voice messaging port settings as applicable. The fields in the following table are the ones that you can change.

Table 13: Settings for the Voice Messaging Ports

Field	Considerations
Enabled	Check this check box to enable the port. The port is enabled during normal operation. Uncheck this check box to disable the port. When the port is disabled, calls to the port get a ringing tone but are not answered. Typically, the port is disabled only by the installer during testing.
Server	<i>(For Unity Connection clusters only)</i> Select the name of the Unity Connection server that you want to handle this port. For details, see Planning the Voice Messaging Ports
Answer Calls	Check this check box to designate the port for answering calls. These calls can be incoming calls from unidentified callers or from users.

Field	Considerations
Perform Message Notification	Check this check box to designate the port for notifying users of messages. Assign Perform Message Notification to the least busy ports.
Send MWI Requests	Check this check box to designate the port for turning MWIs on and off. Assign Send MWI Requests to the least busy ports.
Allow TRAP Connections	Check this check box so that users can use the port for recording and playback through the phone in Unity Connection web applications. Assign Allow TRAP Connections to the least busy ports.
Outgoing Hunt Order	Enter the priority order in which Unity Connection use the ports when dialing out (for example, if the Perform Message Notification, Send MWI Requests, or Allow TRAP Connections check box is checked). The highest numbers are used first. However, when multiple ports have the same Outgoing Hunt Order number, Unity Connection use the port that has been idle the longest.

Field	Considerations
Security Mode	<p>Select the applicable security mode:</p> <ul style="list-style-type: none"> • Non-secure—The integrity and privacy of call-signaling messages is not ensured because call-signaling messages are sent as clear (unencrypted) text and connected to Cisco Unified CM through a non-authenticated port rather than an authenticated TLS port. In addition, the media stream is not encrypted. • Authenticated—The integrity of call-signaling messages is ensured because they are connected to Cisco Unified CM through an authenticated TLS port. However, the privacy of call-signaling messages is not ensured because they are sent as clear (unencrypted) text. In addition, the media stream is not encrypted. • Encrypted—The integrity and privacy of call-signaling messages is ensured on this port because they are connected to Cisco Unified CM through an authenticated TLS port, and the call-signaling messages are encrypted. In addition, the media stream is encrypted. <p>Caution The Security Mode setting for Unity Connection voice messaging ports must match the security mode setting for the Cisco Unified CM ports. Otherwise, Cisco Unified CM authentication and encryption fail.</p> <p>The Unity Connection system clock must be synchronized with the Cisco Unified CM system clock for Cisco Unified CM authentication to function immediately. Otherwise, Cisco Unified CM reject the Unity Connection voice messaging ports until the Cisco Unified CM system clock has passed the time stamp in the Unity Connection device certificates.</p> <p>Note For requirements and additional information about authentication and encryption with Cisco Unified CM and Unity Connection, see Cisco Unified Communications Manager Authentication and Encryption</p>

Step 12 Select **Save**.

- Step 13** Select **Next**.
- Step 14** Repeat [Step 11](#) through [Step 13](#) for all remaining voice messaging ports for the phone system.
- Step 15** If Cisco Unity Connection does not connect to an AXL server, skip to [Step 28](#). Otherwise, expand **Telephony Integrations**, then select **Phone System**.
- Step 16** On the Search Phone Systems page, select the display name of the phone system that you created in [Step 3](#).
- Step 17** On the Phone System Basics page, in the Edit menu, select **Cisco Unified Communications Manager AXL Servers**.

Connecting to an AXL server is needed when Cisco Unity Connection must have access to the Cisco Unified CM database for importing Cisco Unified CM users and for changing certain phone settings for users of Cisco Unity Connection personal call transfer rules.

Note If you plan to import Cisco Unified CM users, confirm that the Primary Extension field on the End User Configuration page for each user is filled in. Otherwise, the search does not find any users to select for importing.

- Step 18** On the Edit AXL Servers page, under AXL Servers, select **Add New**.
- Step 19** Enter the following settings for the AXL server and select **Save**.

Table 14: Settings for the AXL Servers

Field	Setting
Order	Enter the order of priority for the AXL server. The lowest number is the primary AXL server, the higher numbers are the secondary servers.
IP Address	Enter the IP address of the AXL server.
Port	Enter the AXL server port that Unity Connection connects to. This setting must match the port that the AXL server uses.

- Step 20** Repeat [Step 18](#) and [Step 19](#) for all remaining AXL servers.
- Step 21** Under AXL Server Settings, enter the following settings and select **Save**.

Table 15: Settings for the AXL Server Settings

Field	Setting
Username	Enter the username that Unity Connection uses to sign in to the AXL server. Note This user must match the user name of a Cisco Unified CM application user who is assigned to the “Standard AXL API Access” role.
Password	Enter the password for the user that Unity Connection uses to sign in to the AXL server. Note This password must match the password of the Cisco Unified CM application user entered in the User Name field.

Field	Setting
Cisco Unified Communications Manager Version	<p>Select the applicable setting that accurately describes the following:</p> <ul style="list-style-type: none"> • The version of Cisco Unified CM that you are integrating with Unity Connection. • Whether the AXL port is enabled for SSL. <p>If you select the non-SSL version, the AXL port must be a non-SSL port (typically port 80). If you select the SSL-enabled version, the AXL port must be an SSL-enabled port (typically port 443 or port 8443).</p>
Enable End User PIN Synchronization for Primary AXL Server	<p>Check this check box to enable PIN synchronization between Unity Connection and Cisco Unified CM for the users having same user ID (alias in Unity Connection).</p> <p>After enabling the feature whenever user updates the PIN on Cisco Unity Connection, the PIN gets synchronized with Cisco Unified CM and vice-versa.</p> <p>Default setting: Check box is not checked.</p> <p>For more information on PIN Synchronization, see the "PIN Synchronization between Unity Connection and Cisco Unified CM" section of the "User Settings" chapter of the <i>System Administration Guide for Cisco Unity Connection Release 12.x</i> available at https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/12/administration/guide/b_12cucosagx.html.</p>
Ignore Certificate Errors	<p>Check the check box to ignore certificate validation errors for AXL Servers. When the check box is unchecked, Unity Connection validates the certificate for the AXL servers. However, before checking the checkbox make sure that the tomcat root certificate of Cisco Unified CM must be uploaded to tomcat trust of Unity Connection server.</p> <p>Default setting: Check box is checked.</p> <p>For more information on certificates, see "Security" chapter of Cisco Unified Communications Operating System Administration Guide for Cisco Unity Connection Release 14 at https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/connection/14/os_administration/guide/b_14cucosagx.html.</p>

Step 22 To add a corresponding application server to Cisco Unified CM, sign in to Cisco Unified CM Administration.

Step 23 In Cisco Unified CM Administration, navigate to System > Application Server page.

Step 24 On the Find and List Application Servers page, select **Find** to display all application servers.

Step 25 In the Name column, select the name of the Cisco Unity Connection server.

Step 26 On the Application Server Configuration page, in the Available Application User field, select the Cisco Unified CM application user that you used in [Step 21](#) and select the **down arrow** to move it to the Selected Application User field.

Step 27 Select Save.

Step 28 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 29 On the Search Port Groups page, select the display name of the port group that you created with the phone system integration in [Step 7](#).

Note By default, the display name for a port group is composed of the phone system display name followed by an incrementing number.

Step 30 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 31 On the Edit Servers page, do the following substeps if the Cisco Unified CM cluster has secondary servers. Otherwise, skip to [Step 32](#).

- a) Under Cisco Unified Communications Manager Servers, select **Add**.
- b) Enter the following settings for the secondary Cisco Unified CM server and select **Save**.

Table 16: Settings for the Cisco Unified Communications Manager Servers

Field	Setting
Order	Enter the order of priority for the Cisco Unified CM server. The lowest number is the primary Cisco Unified CM server, the higher numbers are the secondary servers.
IPv4 Address or Host Name	Enter the IPv4 address (or host name) of the secondary Cisco Unified CM server. You must enter an IP address or host name in this field, or an IP address or host name in the IPv6 Address or Host Name field (or, if applicable, enter information in both fields). You cannot leave both fields blank.
IPv6 Address or Host Name	Enter the IPv6 address (or host name) of the secondary Cisco Unified CM server. You must enter an IP address or host name in this field, or an IP address or host name in the IPv4 Address or Host Name field (or, if applicable, enter information in both fields). You cannot leave both fields blank. Note IPv6 is supported in Cisco Unified CM 7.1(2) and later.
IP Address or Host Name	Enter the IP address (or host name) of the secondary Cisco Unified CM server.
Port	Enter the TCP port of the Cisco Unified CM server that you are integrating with Unity Connection. We recommend that you use the default setting.

Field	Setting
TLS Port	Enter the TLS port of the Cisco Unified CM server that you are integrating with Unity Connection. We recommend that you use the default setting.
Server Type	Select Cisco Unified Communications Manager .

- c) Repeat [Step 31](#) for all remaining Cisco Unified CM servers in the cluster.

Step 32

Do the following substeps if the Cisco Unified CM cluster uses authentication or encryption for the voice messaging ports.

- Under TFTP Servers, select **Add**.
- Enter the following settings for the TFTP server and select **Save**.

Table 17: Settings for the TFTP Server

Field	Setting
Order	Enter the order of priority for the TFTP server. The lowest number is the primary TFTP server, the higher numbers are the secondary servers.
IPv4 Address or Host Name	Enter the IPv4 address (or host name) of the TFTP server. You must enter an IP address or host name in this field, or an IP address or host name in the IPv6 Address or Host Name field (or, if applicable, enter information in both fields). You cannot leave both fields blank.
IPv6 Address or Host Name	Enter the IPv6 address (or host name) of the TFTP server. You must enter an IP address or host name in this field, or an IP address or host name in the IPv4 Address or Host Name field (or, if applicable, enter information in both fields). You cannot leave both fields blank. Note IPv6 is supported in Cisco Unified CM 7.1(2) and later.
IP Address or Host Name	Enter the IP address (or host name) of the TFTP server.

- c) Repeat [Step 32](#) for all remaining TFTP servers in the Cisco Unified CM cluster.

Step 33

If another phone system integration exists, in Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Trunk**. Otherwise, skip to [Step 37](#).

Step 34

On the Search Phone System Trunks page, on the Phone System Trunk menu, select **New Phone System Trunk**.

Step 35

On the New Phone System Trunk page, enter the following settings for the phone system trunk and select **Save**.

Table 18: Settings for the Phone System Trunk

Field	Setting
From Phone System	Select the display name of the phone system that you are creating a trunk for.
To Phone System	Select the display name of the previously existing phone system that the trunk connects to.
Trunk Access Code	Enter the extra digits that Unity Connection must dial to transfer calls through the gateway to extensions on the previously existing phone system.

Step 36 Repeat [Step 34](#) and [Step 35](#) for all remaining phone system trunks that you want to create.

Step 37 In the Related Links drop-down list, select **Check Telephony Configuration** and select **Go** to confirm the phone system integration settings.

If the test is not successful, the Task Execution Results displays one or more messages with troubleshooting steps. After correcting the problems, test the connection again.

Step 38 In the Task Execution Results window, select **Close**.
