



## CHAPTER 7

# Setting Up a Cisco Unified Communications Manager 8.x or 9.x SCCP Integration with Cisco Unity Connection

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For detailed instructions for setting up a Cisco Unified Communications Manager 8.x or 9.x SCCP integration with Cisco Unity Connection, see the following sections in this chapter:

- [Integration Tasks, page 7-1](#)
- [Requirements, page 7-3](#)
- [Programming the Cisco Unified CM Phone System for Integrating with Cisco Unity Connection, page 7-4](#)
- [Creating a New Integration with Cisco Unified Communications Manager, page 7-13](#)

This document applies only when Cisco Unity Connection is installed on a separate server from Cisco Unified CM. This document does not apply to the configuration in which Cisco Unity Connection is installed as Cisco Unified Communications Manager Business Edition (CMBE)—on the same server with Cisco Unified CM.



### Note

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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 Cisco Unity Connection settings.

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### Note

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The integration of Cisco Unity Connection on a standalone server with Cisco Unified Communications Manager in Cisco Unified CMBE is not supported.

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## Integration Tasks

The following task lists describe the process for creating and changing the integration.

## Task List to Create the Integration by SCCP

Before doing the following tasks to integrate Cisco Unity Connection with Cisco Unified CM by Skinny Call Control Protocol (SCCP), confirm that the Cisco Unity Connection server is ready for the integration by completing the applicable tasks in the *Installation Guide for Cisco Unity Connection*.

1. Review the system and equipment requirements to confirm that all phone system and Cisco Unity Connection server requirements have been met. See the “Requirements” section on page 7-3.
2. Plan how the voice messaging ports will be used by Cisco Unity Connection. See Chapter 2, “Planning How the Voice Messaging Ports Will Be Used by Cisco Unity Connection.”



### Note

Beginning with Connection 8.5(1) ES 20 and later, 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 Connection are same as that of Phone DN on call manager.

3. If Cisco Unity Connection will use IPv6 or dual-mode IPv4 and IPv6 to communicate with Cisco Unified CM, do the following subtasks:
  - a. Enable IPv6 on the Cisco Unity Connection server. See the “Ethernet IPv6 Configuration Settings” section in the “Settings” chapter of the *Cisco Unified Communications Operating System Administration Guide for Cisco Unity Connection Release 9.x* at [http://www.cisco.com/en/US/products/ps6509/prod\\_maintenance\\_guides\\_list.html](http://www.cisco.com/en/US/products/ps6509/prod_maintenance_guides_list.html).
  - b. In Cisco Unity Connection Administration, on the System Settings > General Configuration page, select an option for IP Addressing Mode to control where Cisco Unity Connection listens for incoming traffic. You can select IPv4, IPv6, or IPv4 and IPv6. The setting defaults to IPv4.
4. Program Cisco Unified CM. See the “Programming the Cisco Unified CM Phone System for Integrating with Cisco Unity Connection” section on page 7-4.
5. Create the integration. See the “Creating a New Integration with Cisco Unified Communications Manager” section on page 7-13.



### 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.

6. If Cisco Unity Connection will be configured for a Cisco Unity Connection cluster, configure the voice messaging ports for all servers in the cluster. See Chapter 8, “Configuring Voice Messaging Ports for a Cisco Unity Connection Cluster.”
7. Test the integration. See Chapter 9, “Testing the Integration.”
8. If this integration is a second or subsequent integration, add the applicable new user templates for the new phone system. See Chapter 10, “Adding New User Templates for Multiple Integrations.”

## Task List to Change the Number of Voice Messaging Ports

Use the following task list to change the number of voice messaging ports for an integration after it has been created.

1. Change the number of voice messaging ports in Cisco Unified CM Administration and in Cisco Unity Connection Administration. See Chapter 11, “Changing the Number of Voice Messaging Ports.”

## Task List to Add a Cisco Unified CM Express Server to a Cisco Unified CM Cluster

Use the following task list to add a Cisco Unified Communications Manager (CM) Express (formerly known as Cisco Unified CallManager Express) server to a Cisco Unified CM cluster.

1. Confirm that the Cisco Unified CM Express server meets the requirements for integrating with Cisco Unity Connection. See the applicable Cisco Unified CM Express integration guide at [http://www.cisco.com/en/US/products/ps6509/products\\_installation\\_and\\_configuration\\_guides\\_list.html](http://www.cisco.com/en/US/products/ps6509/products_installation_and_configuration_guides_list.html).
2. Add the Cisco Unified CM Express server to the port group for the Cisco Unified CM phone system integration. See [Appendix B, “Adding Cisco Unified Communications Manager Express to a Cisco Unified Communications Manager Integration.”](#)
3. If needed, add voice messaging ports. See [Chapter 11, “Changing the Number of Voice Messaging Ports.”](#)

## Requirements

The Cisco Unified CM SCCP integration supports configurations of the following components:

### Phone System

- Cisco Unified CM 9.x.

For details on compatible versions of Cisco Unified CM, see the *SCCP Compatibility Matrix: Cisco Unity Connection, Cisco Unified Communications Manager, and Cisco Unified Communications Manager Express* at

[http://www.cisco.com/en/US/products/ps6509/products\\_device\\_support\\_tables\\_list.html](http://www.cisco.com/en/US/products/ps6509/products_device_support_tables_list.html).

- The following phones or combinations of phones for the Cisco Unified CM extensions:
  - 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.
  - Both IP phones and SIP phones for the Cisco Unified CM extensions with a media termination point (MTP) on the Cisco Unified CM server.
- A LAN connection in each location where you will 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 having to dial a trunk access code or prefix.

### Cisco Unity Connection Server

- The applicable version of Cisco Unity Connection. For details on compatible versions of Cisco Unity Connection, see the *SCCP Compatibility Matrix: Cisco Unity Connection, Cisco Unified Communications Manager, and Cisco Unified Communications Manager Express* at [http://www.cisco.com/en/US/products/ps6509/products\\_device\\_support\\_tables\\_list.html](http://www.cisco.com/en/US/products/ps6509/products_device_support_tables_list.html).
- Cisco Unity Connection installed and ready for the integration, as described in the *Installation Guide for Cisco Unity Connection* at [http://www.cisco.com/en/US/products/ps6509/prod\\_installation\\_guides\\_list.html](http://www.cisco.com/en/US/products/ps6509/prod_installation_guides_list.html).
- A license that enables the applicable number of voice messaging ports.

### Centralized Voice Messaging

Cisco Unity Connection supports centralized voice messaging through the phone system, which supports various inter-phone system networking protocols including proprietary protocols such as Avaya DCS, Nortel MCDN, or Siemens CorNet, and standards-based protocols such as QSIG or DPNSS. Note that centralized voice messaging is a function of the phone system and its inter-phone system networking, not voicemail. Connection will support centralized voice messaging as long as the phone system and its inter-phone system networking are properly configured. For details, see the “Centralized Voice Messaging” section in the “Integrating Cisco Unity Connection with the Phone System” chapter of the *Design Guide for Cisco Unity Connection Release 9.x* at [http://www.cisco.com/en/US/docs/voice\\_ip\\_comm/connection/9x/design/guide/9xcucdgx.html](http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/design/guide/9xcucdgx.html).

## Programming the Cisco Unified CM Phone System for Integrating with Cisco Unity Connection

After the Cisco Unified CM software is installed, do the following procedures in the order given.

### To Add Partitions and a Calling Search Space to Contain the Voice Mail Ports

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- Step 1** In Cisco Unified CM Administration, select **Call Routing > Class of Control > 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 will contain 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 will contain the hunt pilot, which will be the voice mail pilot number. For example, enter “VMPilotNumberPT, Partition for the voice mail pilot number.”
  - Step 7** Select **Save**.
  - Step 8** Select **Call Routing > Class of Control > 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 will include 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.”



**Caution** If the partition that contains the hunt pilot (which will be the voice mail pilot number) is not in the calling search space that is used by user phones, the phones will not be able to dial the Cisco 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 Cisco Unity Connection.

#### To Add a Device Pool for the Voice Mail Ports

- Step 1** In Cisco Unified CM Administration, select **System > 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 7-1** Settings for the Device Pool Configuration Page

Field	Setting
<b>Device Pool Settings</b>	
Device Pool Name	Enter <b>Cisco Unity Connectionn Voice Mail Ports</b> 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.
<b>Roaming Sensitive Settings</b>	
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**.

In the following procedure, add a voice mail port to Cisco Unified CM for each voice mail port that you will connect to Cisco Unity Connection.

### To Add Voice Mail Ports to Cisco Unified CM

- Step 1** In Cisco Unified CM Administration, select **Advanced Features > Voice Mail > 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 must use a different name, however, the name must have no more than nine characters.
- 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, 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 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 (which must not be more voice mail ports than the Cisco Unity Connection licenses enable), then select **Next**.
- For a Cisco 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 will integrate Cisco 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 Cisco Unity Connection to more than the number of ports enabled by the Cisco Unity Connection licenses.
- Step 6** On the Cisco Voice Mail Device Information page, enter the following voice mail device settings.

**Table 7-2 Settings for the Cisco Voice Mail Device Information Page**

Field	Setting
Description	Enter <b>Cisco Voice Mail Port</b> 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 Cisco 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 <b>None</b> .
Location	Select <b>Hub_None</b> .
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 <a href="#">Appendix A, “Cisco Unified Communications Manager Authentication and Encryption of Cisco Unity Connection Voice Messaging Ports.”</a>
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 7-3 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 <a href="#">Step 9 of the “To Add Partitions and a Calling Search Space to Contain the Voice Mail Ports” procedure on page 7-4</a> . 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.
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 <b>None</b> , no rerouting of blocked calls will be attempted.
Internal Caller ID Display	Accept the default of <b>VoiceMail</b> .  This text appears on the phone when the pilot number is dialed.
Internal Caller ID Display (ASCII Format)	Accept the default of <b>VoiceMail</b> .  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 <b>X</b> 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 Will 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.

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### To Add the Answering Voice Mail Ports to a Line Group

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

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

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

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

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

**Table 7-4 Settings for the Line Group Configuration Page for Answering Ports**

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

**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 will answer calls, and select **Add to Line Group**.



**Caution** The directory numbers in the Selected DN/Route Partition list must appear in numerical sequence with the lowest number on top. Otherwise, the integration will not function correctly.

**Step 7** Repeat [Step 6](#) for all remaining directory numbers of voice mail ports that will answer calls.



**Caution** Do not include directory numbers of voice mail ports that will only dial out (for example, to set MWIs). Otherwise, the integration will not function correctly.

**Step 8** Select **Save**.

#### To Add the Line Group to a Hunt List

**Step 1** In Cisco Unified CM Administration, select **Call Routing > Route/Hunt > 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 7-5 Settings for the Hunt List Configuration Page for Answering Ports**

Field	Setting
Name	Enter <b>Cisco Unity Connection Answering Ports</b> or another unique name for the hunt list.
Description	Enter <b>Cisco Unity Connection ports that answer calls</b> or another description.
Cisco Unified Communications Manager Group	Select <b>Default</b> 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, 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 will answer calls, then select **Save**.



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

#### To Add the Hunt List to a Hunt Pilot Number

- Step 1** In Cisco Unified CM Administration, select **Call Routing > Route/Hunt > 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 7-6 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.
Route Partition	Select the name of the partition that you set up for the voice mail pilot number. For example, select “VMPilotNumberPT.”
Description	Enter <b>Connection Hunt Pilot</b> 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 <b>None</b> , 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 <a href="#">“To Add the Line Group to a Hunt List” procedure on page 7-8</a> .
Route Option	Select <b>Route This Pattern</b> .
Provide Outside Dial Tone	Uncheck the check box.

**Step 4** Select **Save**.

#### To Specify MWI Directory Numbers

- Step 1** In Cisco Unified CM Administration, select **Advanced Features > Voice Mail > 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 7-7 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 <b>DN to turn MWIs on</b> or another description.
Message Waiting Indicator	Select <b>On</b> .
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 7-8 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 <b>DN to turn MWIs off</b> or another description.
Message Waiting Indicator	Select <b>Off</b> .
Calling Search Space	Select a calling search space that is used by user phones.

**Step 7** Select **Save**.

In the following procedure, you will 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.

#### To Add a Voice Mail Pilot Number for the Voice Mail Ports

**Step 1** In Cisco Unified CM Administration, select **Advanced Features > Voice Mail > 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 7-9 Settings for the Voice Mail Pilot Configuration Page**

Field	Setting
Voice Mail Pilot Number	Enter the voice mail pilot number that users will 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 <b>Cisco Unity Connection Pilot</b> 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**.

#### To Set Up the Voice Mail Profile

**Step 1** In Cisco Unified CM Administration, select **Advanced Features > Voice Mail > 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 7-10 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 <b>Cisco Unity Connection Profile</b> or another description.
Voice Mail Pilot	Select one of the following: <ul style="list-style-type: none"> <li>The applicable voice mail pilot number that you defined on the Voice Mail Pilot Configuration page</li> <li><b>Use Default</b></li> </ul>
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**.

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#### To Set Up the Voice Mail Server Service Parameters

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**Step 1** In Cisco Unified CM Administration, select **System > 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**.

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# Creating a New Integration with Cisco Unified Communications Manager

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

## To Create an Integration

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- Step 1** Sign in to Cisco Unity Connection Administration.
- Step 2** In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.
- Step 3** On the Search Phone Systems page, under Display Name, select the name of the default phone system.
- Step 4** On the Phone System Basics page, in the Phone System Name field, enter the descriptive name that you want for the phone system.
- Step 5** 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 Cisco 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 6** Select **Save**.
- Step 7** On the Phone System Basics page, in the Related Links drop-down box, select **Add Port Group** and select **Go**.
- Step 8** On the New Port Group page, enter the following settings and select **Save**.

**Table 7-11 Settings for the New Port Group Page**

Field	Setting
Phone System	Select the name of the phone system that you entered in <a href="#">Step 4</a> .
Create From	Select <b>Port Group Template</b> and select <b>SCCP</b> 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.
MWI Off Extension	Enter the extension that you specified in Cisco Unified CM Administration for turning MWIs off.
IPv4 Address or Host Name ( <i>Connection 9.0</i> )	Enter the IPv4 address (or host name) of the primary Cisco Unified CM server that you are integrating with Cisco Unity Connection.  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.  If you will use Cisco Unified CM authentication and encryption, enter an IP address or host name in this field. The CTL file used for encryption between Connection and Cisco Unified CM requires an IPv4 address or host name, even if you are otherwise using IPv6 addressing.

**Table 7-11 Settings for the New Port Group Page (continued)**

Field	Setting
IPv6 Address or Host Name ( <i>Connection 9.0</i> )	Enter the IPv6 address (or host name) of the primary Cisco Unified CM server that you are integrating with Cisco Unity Connection.  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.  <b>Note</b> IPv6 is supported in Cisco Unified CM 7.1(2) and later.
IP Address or Host Name ( <i>Connection 9.0</i> )	Enter the IP address (or host name) of the primary Cisco Unified CM server that you are integrating with Cisco Unity Connection.
Port	Enter the TCP port of the primary Cisco Unified CM server that you are integrating with Cisco 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 Cisco Unity Connection. We recommend that you use the default setting.

**Step 9** On the Port Group Basics page, in the Related Links drop-down box, select **Add Ports** and select **Go**.

**Step 10** On the New Port page, enter the following settings and select **Save**.

**Table 7-12 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.  <b>Note</b> For a Cisco Unity Connection cluster, you must enter the total number of voice messaging ports that will be used by all Cisco Unity Connection servers. Each port will later be assigned to a specific Cisco Unity Connection server.
Phone System	Select the name of the phone system that you entered in <a href="#">Step 4</a> .
Port Group	Select the name of the port group that you added in <a href="#">Step 8</a> .
Server	Select the name Cisco Unity Connection server.
Security Mode	Select the Cisco Unified CM security mode that you want to use for the voice messaging ports.

**Step 11** 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 12** 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 7-13** 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 Cisco Unity Connection clusters only)</i> Select the name of the Cisco Unity Connection server that you want to handle this port. For details, see <a href="#">Chapter 8, “Configuring Voice Messaging Ports for a Cisco Unity Connection Cluster.”</a>
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.
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 Cisco Unity Connection web applications. Assign Allow TRAP Connections to the least busy ports.

Table 7-13 Settings for the Voice Messaging Ports (continued)

Field	Considerations
Outgoing Hunt Order	Enter the priority order in which Cisco Unity Connection will 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, Cisco Unity Connection will use the port that has been idle the longest.
Security Mode	<p>Select the applicable security mode:</p> <ul style="list-style-type: none"> <li>• <b>Non-secure</b>—The integrity and privacy of call-signaling messages will not be ensured because call-signaling messages will be sent as clear (unencrypted) text and will be connected to Cisco Unified CM through a non-authenticated port rather than an authenticated TLS port. In addition, the media stream will not be encrypted.</li> <li>• <b>Authenticated</b>—The integrity of call-signaling messages will be ensured because they will be connected to Cisco Unified CM through an authenticated TLS port. However, the privacy of call-signaling messages will not be ensured because they will be sent as clear (unencrypted) text. In addition, the media stream will not be encrypted.</li> <li>• <b>Encrypted</b>—The integrity and privacy of call-signaling messages will be ensured on this port because they will be connected to Cisco Unified CM through an authenticated TLS port, and the call-signaling messages will be encrypted. In addition, the media stream will be encrypted.</li> </ul> <p> <b>Caution</b> The Security Mode setting for Cisco Unity Connection voice messaging ports must match the security mode setting for the Cisco Unified CM ports. Otherwise, Cisco Unified CM authentication and encryption will fail.</p> <p>The Cisco 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 will reject the Cisco Unity Connection voice messaging ports until the Cisco Unified CM system clock has passed the time stamp in the Cisco Unity Connection device certificates.</p> <p><b>Note</b> For requirements and additional information about authentication and encryption with Cisco Unified CM and Cisco Unity Connection, see <a href="#">Appendix A, “Cisco Unified Communications Manager Authentication and Encryption of Cisco Unity Connection Voice Messaging Ports.”</a></p>

**Step 13** Select **Save**.

**Step 14** Select **Next**.

**Step 15** Repeat [Step 12](#) through [Step 14](#) for all remaining voice messaging ports for the phone system.

**Step 16** If Cisco Unity Connection does not connect to an AXL server, skip to [Step 29](#). Otherwise, expand **Telephony Integrations**, then select **Phone System**.

**Step 17** On the Search Phone Systems page, select the display name of the phone system that you created in [Step 4](#).

**Step 18** 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.



**Caution** 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 will not find any users to select for importing.

**Step 19** On the Edit AXL Servers page, under AXL Servers, select **Add New**.

**Step 20** Enter the following settings for the AXL server and select **Save**.

**Table 7-14 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 Cisco Unity Connection connects to. This setting must match the port that the AXL server will use.

**Step 21** Repeat [Step 19](#) and [Step 20](#) for all remaining AXL servers.

**Step 22** Under AXL Server Settings, enter the following settings and select **Save**.

**Table 7-15 Settings for the AXL Server Settings**

Field	Setting
Username	Enter the username that Cisco Unity Connection will use to sign in to the AXL server. <b>Note</b> 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 Cisco Unity Connection will use to sign in to the AXL server. <b>Note</b> This password must match the password of the Cisco Unified CM application user entered in the User Name field.
Cisco Unified Communications Manager Version	

**Step 23** To add a corresponding application server to Cisco Unified CM, sign in to Cisco Unified CM Administration.

**Step 24** In Cisco Unified CM Administration, go to the **System > Application Server** page.

**Step 25** On the Find and List Application Servers page, select **Find** to display all application servers.

**Step 26** In the Name column, select the name of the Cisco Unity Connection server.

- Step 27** On the Application Server Configuration page, in the Available Application User field, select the Cisco Unified CM application user that you used in [Step 22](#) and select the **down arrow** to move it to the Selected Application User field.
- Step 28** Select **Save**.
- Step 29** In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.
- Step 30** On the Search Port Groups page, select the display name of the port group that you created with the phone system integration in [Step 8](#).



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

- Step 31** On the Port Group Basics page, on the Edit menu, select **Servers**.
- Step 32** On the Edit Servers page, do the following substeps if the Cisco Unified CM cluster has secondary servers. Otherwise, skip to [Step 33](#).
- Under Cisco Unified Communications Manager Servers, select **Add**.
  - Enter the following settings for the secondary Cisco Unified CM server and select **Save**.

**Table 7-16 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 ( <i>Connection 9.0</i> )	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 ( <i>Connection 9.0</i> )	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.  <b>Note</b> IPv6 is supported in Cisco Unified CM 7.1(2) and later.
IP Address or Host Name ( <i>Connection 9.0</i> )	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 Cisco Unity Connection. We recommend that you use the default setting.
TLS Port	Enter the TLS port of the Cisco Unified CM server that you are integrating with Cisco Unity Connection. We recommend that you use the default setting.
Server Type	Select <b>Cisco Unified Communications Manager</b> .

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

- Step 33** 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 7-17 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 ( <i>Connection 9.0</i> )	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 ( <i>Connection 9.0</i> )	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. <b>Note</b> IPv6 is supported in Cisco Unified CM 7.1(2) and later.
IP Address or Host Name ( <i>Connection 9.0</i> )	Enter the IP address (or host name) of the TFTP server.

- Repeat Step [Step 33a.](#) and [Step 33b.](#) for all remaining TFTP servers in the Cisco Unified CM cluster.
- Step 34** If another phone system integration exists, in Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Trunk**. Otherwise, skip to [Step 38](#).
- Step 35** On the Search Phone System Trunks page, on the Phone System Trunk menu, select **New Phone System Trunk**.
- Step 36** On the New Phone System Trunk page, enter the following settings for the phone system trunk and select **Save**.

**Table 7-18 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 will connect to.
Trunk Access Code	Enter the extra digits that Cisco Unity Connection must dial to transfer calls through the gateway to extensions on the previously existing phone system.

- Step 37** Repeat [Step 35](#) and [Step 36](#) for all remaining phone system trunks that you want to create.
- Step 38** 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 39** In the Task Execution Results window, select **Close**.

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