



## **Cisco Unified Communications Manager Express SCCP Integration Guide for Cisco Unity Connection**

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## Preface

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This Preface contains the following sections:

- [Audience and Use, page v](#)
- [Documentation Conventions, page v](#)
- [Cisco Unity Connection Documentation, page vi](#)
- [Obtaining Documentation, Obtaining Support, and Security Guidelines, page vi](#)

## Audience and Use

This document provides instructions for setting up an integration between Cisco Unity Connection and supported versions of Cisco Unified Communications Manager (CM) (formerly known as Cisco Unified CallManager). For a list of supported versions of Cisco Unified CM that are qualified to integrate with Cisco Unity Connection by Skinny Call Control Protocol (SCCP), 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).

## Documentation Conventions

The *Cisco Unified Communications Manager Express SCCP Integration Guide for Cisco Unity Connection Release 2.0* uses the following conventions.

**Table 1** *Cisco Unified Communications Manager Express SCCP Integration Guide for Cisco Unity Connection Release 2.0 Conventions*

Convention	Description
boldfaced text	Boldfaced text is used for: <ul style="list-style-type: none"><li>• Key and button names. (Example: Click <b>OK</b>.)</li><li>• Information that you enter. (Example: Enter <b>Administrator</b> in the User Name box.)</li></ul>
< > (angle brackets)	Angle brackets are used around parameters for which you supply a value. (Example: In the Command Prompt window, enter <b>ping &lt;IP address&gt;</b> .)

**Table 1** *Cisco Unified Communications Manager Express SCCP Integration Guide for Cisco Unity Connection Release 2.0 Conventions (continued)*

Convention	Description
- (hyphen)	Hyphens separate keys that must be pressed simultaneously. (Example: Press <b>Ctrl-Alt-Delete</b> .)
> (right angle bracket)	A right angle bracket is used to separate selections that you make on menus. (Example: On the Windows Start menu, click <b>Programs &gt; Cisco Unified Serviceability &gt; Real-Time Monitoring Tool</b> .)  In the navigation bar of the Cisco Unity Connection Administration. (Example: In the Cisco Unity Connection Administration, expand <b>System Settings &gt; Advanced</b> .)

The *Cisco Unified Communications Manager Express SCCP Integration Guide for Cisco Unity Connection Release 2.0* also uses the following conventions:



**Note**

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the document.



**Caution**

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

## Cisco Unity Connection Documentation

For descriptions and URLs of Cisco Unity Connection documentation on Cisco.com, see the *Documentation Guide for Cisco Unity Connection*. The document is shipped with Cisco Unity Connection and is available at

[http://www.cisco.com/en/US/products/ps6509/products\\_documentation\\_roadmaps\\_list.html](http://www.cisco.com/en/US/products/ps6509/products_documentation_roadmaps_list.html).

## Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>



# CHAPTER 1

## Introduction

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See the following sections in this chapter:

- [Integration Description, page 1-1](#)
- [Call Information, page 1-2](#)
- [Integration Functionality, page 1-2](#)
- [Integrations with Multiple Phone Systems, page 1-3](#)

## Integration Description

The Cisco Unified Communications Manager (CM) Express (formerly known as Cisco Unified CallManager Express) SCCP integration uses a LAN to connect Cisco Unity Connection and the phone system. The Cisco Unified Communications Manager Express router also provides connections to the PSTN. [Figure 1-1](#) shows the connections for a system with a single Cisco Unified CM Express router.

**Figure 1-1** *Connections Between a Single Cisco Unified Communications Manager Express Router and Cisco Unity Connection*

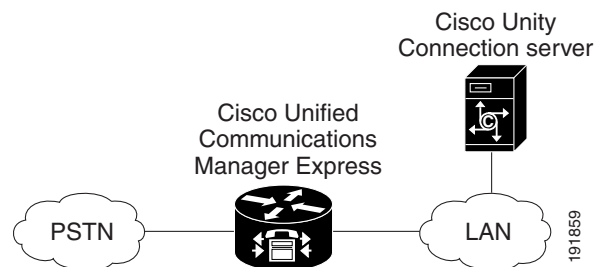
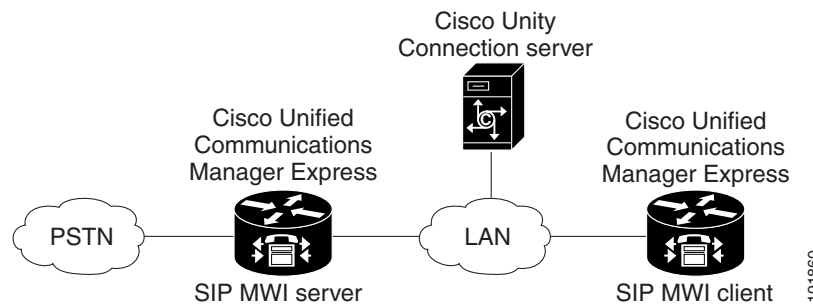


Figure 1-2 shows the connections for a system with multiple Cisco Unified CM Express routers and a single Cisco Unity Connection server. One Cisco Unified CM Express router acts as the SIP MWI server, and the remaining Cisco Unified CM Express routers act as SIP MWI clients. Note that Cisco Unity Connection voice messaging ports register with only the SIP MWI server (the Cisco Unified CM Express router that is on the same LAN as the Cisco Unity Connection server), not with the SIP MWI clients.

**Figure 1-2** Connections Between Multiple Cisco Unified Communications Manager Express Routers and a Single Cisco Unity Connection Server



For a list of supported versions of Cisco Unified CM Express that are qualified to integrate with Cisco Unity Connection by Skinny Call Control Protocol (SCCP), 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).

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.

## Call Information

The phone system sends the following information with forwarded calls:

- The extension of the called party
- The extension of the calling party (for internal calls) or the phone number of the calling party (if it is an external call and the system uses caller ID)
- The reason for the forward (the extension is busy, does not answer, or is set to forward all calls)

Cisco Unity Connection uses this information to answer the call appropriately. For example, a call forwarded to Cisco Unity Connection is answered with the personal greeting of the user. If the phone system routes the call to Cisco Unity Connection without this information, Cisco Unity Connection answers with the opening greeting.

## Integration Functionality

The Cisco Unified CM Express SCCP integration with Cisco Unity Connection provides the following features:

- Call forward to personal greeting
- Call forward to busy greeting

- Caller ID
- Easy message access (a user can retrieve messages without entering an ID; Cisco Unity Connection identifies a user based on the extension from which the call originated; a password may be required)
- Identified user messaging (Cisco Unity Connection automatically identifies a user who leaves a message during a forwarded internal call, based on the extension from which the call originated)
- Message waiting indication (MWI)

These integration features are not available to analog phones connected through FXS ports on the Cisco Unified CM Express phone system. Analog phones connected to ATA, however, support all integration features, except MWIs (MWI lamps will not light, though the stutter dial tone will sound).

## Integrations with Multiple Phone Systems

When Cisco Unity Connection is installed as Cisco Unified Communications Manager Business Edition (CMBE)—on the same server with Cisco Unified Communications Manager—Cisco Unity Connection cannot be integrated with multiple phone systems at one time.

When Cisco Unity Connection is not installed as Cisco Unified CMBE, Cisco Unity Connection can be integrated with two or more phone systems at one time. For information on and instructions for integrating Cisco Unity Connection with multiple phone systems, refer to the *Multiple Phone System Integration Guide for Cisco Unity Connection 2.0* 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).





## CHAPTER 2

# Planning How the Voice Messaging Ports Will Be Used by Cisco Unity Connection

See the following sections in this chapter:

- [Introduction: Issues to Consider When Planning Port Setup, page 2-1](#)
- [Determining How Many Voice Messaging Ports to Install, page 2-2](#)
- [Determining How Many Voice Messaging Ports Will Answer Calls, page 2-2](#)
- [Determining How Many Voice Messaging Ports Will Only Dial Out, and Not Answer Calls, page 2-3](#)

## Introduction: Issues to Consider When Planning Port Setup

Before programming the phone system, you need to plan how the voice messaging ports will be used by Cisco Unity Connection. The following considerations will affect the programming for the phone system (for example, setting up the hunt group or call forwarding for the voice messaging ports):

- The number of voice messaging ports installed.
- The number of voice messaging ports that will answer calls.
- The number of voice messaging ports that will only dial out, for example, to send message notification, to set message waiting indicators (MWIs), and to make telephone record and playback (TRAP) connections.

The following table describes the voice messaging port settings in Cisco Unity Connection that can be set on Telephony Integrations > Port of Cisco Unity Connection Administration.

**Table 2-1** 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.
Extension	Enter the extension for the port as assigned on the phone system.
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.

**Table 2-1 Settings for the Voice Messaging Ports (continued)**

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 Cisco Unity Connection web applications. Assign Allow TRAP Connections to the least busy ports.
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.

## Determining How Many Voice Messaging Ports to Install

The number of voice messaging ports to install depends on numerous factors, including:

- The number of calls Cisco Unity Connection will answer when call traffic is at its peak.
- The expected length of each message that callers will record and that users will listen to.
- The number of users.
- The number of ports that will be set to dial out only.
- The number of calls made for message notification.
- The number of MWIs that will be activated when call traffic is at its peak.
- The number of TRAP connections needed when call traffic is at its peak. (TRAP connections are used by Cisco Unity Connection web applications to play back and record over the phone.)
- The number of calls that will use the automated attendant and call handlers when call traffic is at its peak.

It is best to install only the number of voice messaging ports that are needed so that system resources are not allocated to unused ports.

## Determining How Many Voice Messaging Ports Will Answer Calls

The calls that the voice messaging ports answer can be incoming calls from unidentified callers or from users. Typically, the voice messaging ports that answer calls are the busiest.

You can set voice messaging ports to both answer calls and to dial out (for example, to send message notifications). However, when the voice messaging ports perform more than one function and are very active (for example, answering many calls), the other functions may be delayed until the voice messaging

port is free (for example, message notifications cannot be sent until there are fewer calls to answer). For best performance, dedicate certain voice messaging ports for only answering incoming calls, and dedicate other ports for only dialing out. Separating these port functions eliminates the possibility of a collision, in which an incoming call arrives on a port at the same time that Cisco Unity Connection takes the port off-hook to dial out.

## Determining How Many Voice Messaging Ports Will Only Dial Out, and Not Answer Calls

Ports that will only dial out and will not answer calls can do one or more of the following:

- Notify users by phone, pager, or e-mail of messages that have arrived.
- Turn MWIs on and off for user extensions.
- Make a TRAP connection so that users can use the phone as a recording and playback device in Cisco Unity Connection web applications.

Typically, these voice messaging ports are the least busy ports.



### Caution

---

In programming the phone system, do not send calls to voice messaging ports in Cisco Unity Connection that cannot answer calls (voice messaging ports that are not set to Answer Calls). For example, if a voice messaging port is set only to Send MWI Requests, do not send calls to it.

---





## CHAPTER 3

# Setting Up a Cisco Unified CallManager Express SCCP Integration with Cisco Unity Connection

For detailed instructions for setting up a Cisco Unified CallManager Express Skinny Call Control Protocol (SCCP) integration with Cisco Unity Connection, see the following sections in this chapter:

- [Integration Tasks, page 3-1](#)
- [Requirements, page 3-2](#)
- [Programming the Cisco Unified CallManager Express Phone System for Integrating with Cisco Unity Connection, page 3-3](#)
- [Creating a New Integration with Cisco Unified CallManager Express, page 3-15](#)

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 Communications Manager.

Cisco Unity Connection can integrate with Cisco Unified CM Express in SRST mode. For details, see the *Integrating Cisco Unity Connection with Cisco Unified CME-as-SRST* application note at [http://www.cisco.com/en/US/products/sw/voicesw/ps4625/products\\_installation\\_and\\_configuration\\_guides\\_list.html](http://www.cisco.com/en/US/products/sw/voicesw/ps4625/products_installation_and_configuration_guides_list.html).

## Integration Tasks

Before doing the following tasks to integrate Cisco Unity Connection with Cisco Unified CM Express by 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 3-2.
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.”](#)
3. Program Cisco Unified CM Express. See the “[Programming the Cisco Unified CallManager Express Phone System for Integrating with Cisco Unity Connection](#)” section on page 3-3.
4. Create the integration. See the “[Creating a New Integration with Cisco Unified CallManager Express](#)” section on page 3-15.
5. Test the integration. See [Chapter 4, “Testing the Integration.”](#)
6. If this integration is a second or subsequent integration, add the applicable new user templates for the new phone system. See [Chapter 5, “Adding New User Template for Multiple Integrations.”](#)

# Requirements

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

## Phone System

- Cisco Unified CM Express.

For details on compatible versions of Cisco Unified CM, refer to 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 Express extensions:
  - Only SCCP phones.
  - Both SCCP phones and SIP phones.

For a list of supported Cisco IP phone models, refer to the Specifications document for the applicable version of Cisco Unified CM Express at

[http://www.cisco.com/en/US/products/sw/voicesw/ps4625/products\\_documentation\\_roadmap09186a0080189132.html](http://www.cisco.com/en/US/products/sw/voicesw/ps4625/products_documentation_roadmap09186a0080189132.html).

- A compatible Cisco IOS software version. Refer to the *Cisco Unified CME and Cisco IOS Software Version Compatibility Matrix* at [http://www.cisco.com/en/US/products/sw/voicesw/ps4625/prod\\_installation\\_guide09186a00805acf50.html](http://www.cisco.com/en/US/products/sw/voicesw/ps4625/prod_installation_guide09186a00805acf50.html).
- Cisco Unified CM Express feature license.
- Cisco IP phone feature licenses, and Cisco licenses for other H.323-compliant devices or software (such as Cisco VirtualPhone and Microsoft NetMeeting clients) that will be connected to the network, as well as one license for each Cisco Unity Connection port.
- Analog phones connected to ATA. (For integration limitations with these phones, see [Chapter 1, “Introduction.”](#))
- A LAN connection in each location where you will plug the applicable phone into the network.

## Cisco Unity Connection Server

- The applicable version of Cisco Unity Connection. For details on compatible versions of Cisco Unity Connection, refer to 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.

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

After the Cisco Unified CallManager Express router is installed, do the procedures in the applicable section depending on the number of Cisco Unified CM Express routers that you will integrate with the Cisco Unity Connection server:

- Single Cisco Unified CallManager Express router—see the [“Programming a Single Cisco Unified CallManager Express Router to Integrate with a Single Cisco Unity Connection Server”](#) section on page 3-3.
- Multiple Cisco Unified CallManager Express routers—see the [“Programming Multiple Cisco Unified CallManager Express Routers to Integrate with a Single Cisco Unity Connection Server”](#) section on page 3-7.

## Programming a Single Cisco Unified CallManager Express Router to Integrate with a Single Cisco Unity Connection Server



### Note

Do the procedures in this section only if you are integrating a single Cisco Unified CM Express router with a single Cisco Unity Connection server. If you are integrating multiple Cisco Unified CM Express routers, see the [“Programming Multiple Cisco Unified CallManager Express Routers to Integrate with a Single Cisco Unity Connection Server”](#) section on page 3-7.

### To Configure the Message Button Access to Cisco Unity Connection

This procedure configures the Message button on Cisco IP phones to dial the Cisco Unity Connection pilot number when pressed.

- 
- Step 1** On the Cisco Unified CM Express router, go into the telephony-service configuration mode by entering the following command:
- ```
telephony-service
```
- Step 2** Enter the following command:
- ```
voicemail <Cisco Unity Connection pilot number>
```
- Step 3** To exit the telephony-service configuration mode, enter the following command:
- ```
exit
```
- 

The following is an example of the configuration:

```
telephony-service
voicemail 4001
```

### To Configure the Router for Cisco Unity Connection

- Step 1** Go into the ephone-dn configuration mode and configure the directory number tag for the Cisco IP phone lines by entering the applicable command:
- For ephone-dns that will be used by ports that are dedicated for leaving and retrieving voice messages, enter the following command:  
**ephone-dn <DN tag> dual-line**
  - For ephone-dns that will be used only to dial out, enter the following command:  
**ephone-dn <DN tag>**

- Step 2** To set the extension number for the voice messaging port, enter the following command:  
**number <Voice messaging port extension>**



**Note** The voice message port extension must be the Cisco Unity Connection pilot number (configured by the “voicemail” command in the preceding procedure) for all ports dedicated for leaving and retrieving voice messages. Use an extension that cannot be dialed for all ports that are used to dial out by Cisco Unity Connection (for example, use “A01”).

- Step 3** To set the display name for the port (for example, “Voice Messaging System” or “Dial Out Only”), enter the following command:

**name <Display name of voice messaging port>**

- Step 4** To set the device name for the port (for example, “CUC-VI1” or “CUC-VI1-Dialout”), enter the following command:

**description <Device name of voice messaging port>**

- Step 5** To reserve the second ephone-dn channel for supervised transfers, enter the following command:

**huntstop channel**

- Step 6** To set the dial-peer preference for the extension, enter the following command:

**preference <Preference order>**

- Step 7** Enter the applicable command:

- To disable huntstop, enter the following command:  
**no huntstop**
- To enable huntstop, enter the following command:  
**huntstop**

- Step 8** Repeat [Step 1](#) through [Step 7](#) for all remaining ports.



**Note** The number of voice messaging ports set up to connect to Cisco Unity Connection must be the same as the number of directory number tags for the Cisco IP phone lines set up by the ephone-dn configuration mode.

- Step 9** To exit the ephone-dn configuration mode, enter the following command:

**exit**

The following is an example of the configuration:

```
ephone-dn 32 dual-line
  number 4001
  name "Voice Messaging System"
  description "CUC-VI1"
  huntstop channel
  no huntstop
  preference 1
!
ephone-dn 33 dual-line
  number 4001
  name "Voice Messaging System"
  description "CUC-VI2"
  huntstop channel
  no huntstop
  preference 2
!
ephone-dn 34 dual-line
  number 4001
  name "Voice Messaging System"
  description "CUC-VI3"
  huntstop channel
huntstop
  preference 3
!
ephone-dn 35
  number A01
  name "Dial Out Only"
  description "CUC-Dialout1"
```

In this example, there are four ephone-dns configured to provide four voice messaging ports. Three of the ephone-dns are configured with the same extension number to provide ports dedicated for leaving and retrieving voice messages. These three ephone-dns are also configured with two channels each (the second channel is reserved for supervised transfers). The fourth ephone-dn is provided for use as a dial-out port. The first three ephone-dns are configured with the same extension number (4001), using preferences 1, 2, and 3 to create a hunt group. If the first port is busy, the call goes to the second port, and so on. Port 4 is configured with the extension number A01 and is used to dial out by Cisco Unity Connection (for example, to set MWIs). Separate ports are required for answering calls and dialing out in order to prevent call-collision problems between incoming calls placed by Cisco Unified CM Express to Cisco Unity Connection, and outgoing calls that Cisco Unity Connection places in the opposite direction.

#### To Associate the Voice Messaging Port

To associate the actual voice messaging port (vm-device-id) to the phone number, associate the Cisco IP phone with the voice messaging port.

The vm-device-id name uses the following format:

```
<Cisco Unity Connection device name prefix><Port number>
```

The vm-device-id name must match the Cisco Unity Connection voice messaging port name that you will use to identify the port in Cisco Unity Connection Administration when you create the integration:

- The Cisco Unity Connection device name prefix part (for example, CUC-VI) must match the Device Name Prefix field on the Telephony Integrations > Port Group > Port Group Basics page of Cisco Unity Connection Administration.
- The port number part (for example, "1") must match the number part of the Cisco Unity Connection Administration voice messaging port name used to identify the port on the Telephony Integrations > Port > Port Basics page of Cisco Unity Connection Administration.

To associate a voice messaging port to the Cisco Unified CM Express router, do the following steps, beginning in ephone configuration mode.

**Step 1** Go into the ephone configuration mode and register the Cisco IP phones by entering the following command:

**ephone <DN tag>**

**Step 2** Define the voice messaging port name, by entering the following command:

**vm-device-id <Cisco Unity Connection device name prefix><Port number>**

For example, if the Cisco Unity Connection device name prefix is CUC-VI, enter CUC-VI1 for the first port, CUC-VI2 for the second port, and so on.



**Caution** The vm-device-id name used by Cisco Unified CM Express must be the same as the voice messaging port name used by Cisco Unity Connection. Otherwise, the integration will not work.

**Step 3** Assign buttons to the Cisco IP phone directory numbers created in the [“To Configure the Router for Cisco Unity Connection” procedure on page 3-4](#) by entering the following command:

**button <Button number>:<DN tag>**

For example, you can use the values 1:1, 2:4, or 3:14. In this example, button 1 corresponds to directory number 1 (ephone-dn 1), button 2 corresponds to directory number 4, and button 3 corresponds to directory number 14. The buttons correspond to the phone lines on the Cisco IP phone.

**Step 4** Repeat [Step 1](#) through [Step 3](#) for all remaining voice messaging port names.



**Note** The number of voice messaging port names configured with the vm-device-id command must be the same as the number of Cisco IP phones registered by the ephone configuration mode.

**Step 5** To exit the ephone configuration mode, enter the following command:

**exit**

Following is an example of the configuration. In this example, the vm-device-id command is used within the ephone configuration in place of the mac-address parameter that is used for configuring a regular Cisco IP phone.

```
ephone 5
  vm-device-id CUC-VI1
  button 1:32
!
ephone 6
  vm-device-id CUC-VI2
  button 1:33
!
ephone 7
  vm-device-id CUC-VI3
  button 1:34
!
ephone 8
  vm-device-id CUC-VI4
  button 1:35
```

### To Configure a Directory Number for MWI Notification

MWI configuration on the Cisco Unified CM Express is performed by dedicating Cisco IP phone directory numbers (ephone-DNs) to process MWI status notification calls originating from Cisco Unity Connection. You must allocate a minimum of one MWI processing ephone-dn for each MWI ephone-dn voice messaging port. The MWI processing ephone-dn extensions are configured to match the MWI extensions configured on Cisco Unity Connection.

**Step 1** Go into the ephone-dn configuration mode and configure the directory numbers for the Cisco IP phone lines by entering the following command:

```
ephone-dn <DN tag>
```

**Step 2** Configure two valid directory numbers for the Cisco IP phone to be used for MWIs—the first number will turn MWIs on, and the second number will turn MWIs off—by entering the following command:

```
number <MWI on number> secondary <MWI off number>
```



**Note** The MWI on and off numbers must match the settings of the MWI On Extension and MWI Off Extension fields you enter in Cisco Unity Connection Administration when you create the integration on Cisco Unity Connection.

**Step 3** Configure these two directory numbers to be used for setting MWIs by entering the following command:

```
mwi on-off
```

**Step 4** To exit the ephone-dn configuration mode, enter the following command:

```
exit
```

Following is an example of the configuration.

```
ephone-dn 32
  number 8000 secondary 8001
  mwi on-off
```

In this example, Cisco Unity Connection calls extensions 8000 and 8001 to turn MWIs on and off. The DN triggers an MWI ON event when 8000 is called, and an MWI OFF event when 8001 is called.

For extensions associated with analog telephone adaptors (ATAs), the MWI is a lit function button on the ATA and a stutter dial tone on the connected analog phone.



**Note** After completing the procedures in this section, continue to the [“Creating a New Integration with Cisco Unified CallManager Express”](#) section on page 3-15.

## Programming Multiple Cisco Unified CallManager Express Routers to Integrate with a Single Cisco Unity Connection Server

A single, centralized Cisco Unity Connection server can be used by multiple Cisco Unified CM Express routers. This configuration requires that one Cisco Unified CM Express router be on the same LAN as the Cisco Unity Connection server, and that this Cisco Unified CM Express router register all Cisco Unity Connection voice messaging ports. This Cisco Unified CM Express router (the SIP MWI server) is a proxy server that relays SIP MWI messages between the Cisco Unity Connection server and

all other Cisco Unified CM Express routers (the SIP MWI clients). Note that Cisco Unity Connection voice messaging ports register with only the SIP MWI server (the Cisco Unified CM Express router that is on the same LAN as the Cisco Unity Connection server), not with the SIP MWI clients.

Do the procedures in this section only if you are integrating multiple Cisco Unified CM Express routers with a single Cisco Unity Connection server.

### To Configure the Message Button Access to Cisco Unity Connection

**Step 1** On the Cisco Unified CM Express router, go into the telephony-service configuration mode by entering the following command:

```
telephony-service
```

**Step 2** Enter the following command:

```
voicemail <Cisco Unity Connection pilot number>
```

**Step 3** To exit the telephony-service configuration mode, enter the following command:

```
exit
```

The following is an example of the configuration:

```
telephony-service
  voicemail 4001
```

### To Configure the Router for Cisco Unity Connection

**Step 1** Go into the ephone-dn configuration mode and configure the directory number tag for the Cisco IP phone lines by entering the applicable command:

- For ephone-dns that will be used by ports that are dedicated for leaving and retrieving voice messages, enter the following command:

```
ephone-dn <DN tag> dual-line
```

- For ephone-dns that will be used only to dial out, enter the following command:

```
ephone-dn <DN tag>
```

**Step 2** To set the extension number for the voice messaging port, enter the following command:

```
number <Voice messaging port extension>
```



**Note** The voice message port extension must be the Cisco Unity Connection pilot number (configured by the “voicemail” command in the preceding procedure) for all ports dedicated for leaving and retrieving voice messages. Use an extension that cannot be dialed for all ports that are used to dial out by Cisco Unity Connection (for example, use “A01”).

**Step 3** To set the display name for the port (for example, “Voice Messaging System” or “Dial Out Only”), enter the following command:

```
name <Display name of voice messaging port>
```

**Step 4** To set the device name for the port (for example, “CUC-VI1” or “CUC-Dialout1”), enter the following command:

```
description <Device name of voice messaging port>
```

**Step 5** To reserve the second ephone-dn channel for supervised transfers, enter the following command:

**huntstop channel**

**Step 6** To set the dial-peer preference for the extension, enter the following command:

**preference <Preference order>**

**Step 7** Enter the applicable command:

- To disable huntstop, enter the following command:

**no huntstop**

- To enable huntstop, enter the following command:

**huntstop**

**Step 8** Repeat [Step 1](#) through [Step 7](#) for all remaining ports.



**Note** The number of voice messaging ports set up to connect to Cisco Unity Connection must be the same as the number of directory number tags for the Cisco IP phone lines set up by the ephone-dn configuration mode.

**Step 9** To exit the ephone-dn configuration mode, enter the following command:

**exit**

The following is an example of the configuration:

```
ephone-dn 32 dual-line
 number 4001
 name "Voice Messaging System"
 description "CUC-VI1"
 huntstop channel
 no huntstop
 preference 1
!
ephone-dn 33 dual-line
 number 4001
 name "Voice Messaging System"
 description "CUC-VI2"
 huntstop channel
 no huntstop
 preference 2
!
ephone-dn 34 dual-line
 number 4001
 name "Voice Messaging System"
 description "CUC-VI3"
 huntstop channel
 no huntstop
 preference 3
!
ephone-dn 35
 number A01
 name "Dial Out Only"
 description "CUC-Dialout1"
```

In this example, there are four ephone-dns configured to provide four voice messaging ports. Three of the ephone-dns are configured with the same extension number to provide ports dedicated for leaving and retrieving voice messages. These three ephone-dns are also configured with two channels each (the

second channel is reserved for supervised transfers). The fourth ephone-dn is provided for use as a dial-out port. The first three ephone-dns are configured with the same extension number (4001), using preferences 1, 2, and 3 to create a hunt group. If the first port is busy, the call goes to the second port, and so on. Port 4 is configured with the extension number A01 and is used to dial out by Cisco Unity Connection (for example, to set MWIs). Separate ports are required for answering calls and dialing out in order to prevent call-collision problems between incoming calls placed by Cisco Unified CM Express to Cisco Unity Connection, and outgoing calls that Cisco Unity Connection places in the opposite direction.

#### To Associate the Voice Messaging Port

To associate the actual voice messaging port (vm-device-id) to the phone number, associate the Cisco IP phone with the voice messaging port.

The vm-device-id name uses the following format:

<Cisco Unity Connection device name prefix><Port number>

The vm-device-id name must match the Cisco Unity Connection voice messaging port name you will use to identify the port in Cisco Unity Connection Administration when you create the integration:

- The Cisco Unity Connection device name prefix part (for example, CUC-VI) must match the Device Name Prefix field on the Telephony Integrations > Port Group page.
- The port number part (for example, “1”) must match the number part of the Cisco Unity Connection voice messaging port name used to identify the port on the Telephony Integrations > Port page.

To associate a voice mail device with the Cisco Unified CM Express router, do the following steps, beginning in ephone configuration mode.

---

**Step 1** Go into the ephone configuration mode and register the Cisco IP phones by entering the following command:

**ephone <DN tag>**

**Step 2** Define the voice messaging port name, by entering the following command:

**vm-device-id <Cisco Unity Connection device name prefix><Port number>**

For example, if the Cisco Unity Connection device name prefix is CUC-VI, enter CUC-VI1 for the first port, CUC-VI2 for the second port, and so on.




---

**Caution** The vm-device-id name used by Cisco Unified CM Express must be the same as the voice messaging port name used by Cisco Unity Connection. Otherwise, the integration will not work.

---

**Step 3** Assign buttons to the Cisco IP phone directory numbers created in the [“To Configure the Router for Cisco Unity Connection” procedure on page 3-8](#) by entering the following command:

**button <Button number>:<DN tag>**

For example, you can use the values 1:1, 2:4, or 3:14. In this example, button 1 corresponds to directory number 1 (ephone-dn 1), button 2 corresponds to directory number 4, and button 3 corresponds to directory number 14. The buttons correspond to the phone lines on the Cisco IP phone.

**Step 4** Repeat [Step 1](#) through [Step 3](#) for all remaining voice messaging port names.



**Note** The number of voice messaging port names configured with the `vm-device-id` command must be the same as the number of Cisco IP phones registered by the ephone configuration mode.

**Step 5** To exit the ephone configuration mode, enter the following command:

**exit**

Following is an example of the configuration. In this example, the `vm-device-id` command is used within the ephone configuration in place of the `mac-address` parameter that is used for configuring a regular Cisco IP phone.

```
ephone 5
  vm-device-id CUC-VI1
  button 1:32
!
ephone 6
  vm-device-id CUC-VI2
  button 1:33
!
ephone 7
  vm-device-id CUC-VI3
  button 1:34
!
ephone 8
  vm-device-id CUC-VI4
  button 1:35
```

Do the following procedure.

#### To Configure the SIP MWI Server

**Step 1** Go into the SIP user-agent configuration mode by entering the following command:

**sip-ua**

**Step 2** Configure the IP address (or DNS name) and port for the SIP MWI server by entering the following command:

**mwi-server {ipv4:<MWI server IP address> | dns:<MWI server host-name>} [expires <Seconds>] [port <Port number>] [transport {tcp | udp}] [unsolicited]**

The SIP MWI server must be in the same LAN as Cisco Unity Connection. This IP address is used in conjunction with the “`mwi sip`” command in ephone-dn configuration mode to subscribe individual ephone-dn extension numbers to the MWI server notification list. The SIP MWI client runs TCP by default.

This command uses the following keywords:

- **ipv4:**—Sets the IP address of the SIP MWI server.
- **dns:**—Sets the DNS name of the SIP MWI server.
- **expires**—(*optional*) Subscription expiration time, in seconds. The range is 1 to 999999. The default is 3600.
- **transport tcp**—The default setting.
- **transport udp**—Allows you to integrate with the SIP MWI client.

- **port**—Used to specify the TCP port for the SIP MWI server. The default SIP port number is 5060.
- **unsolicited**—Allows sending SIP NOTIFY for MWIs without the need to send a SUBSCRIBE from the Cisco Unified CM Express router.

**Step 3** To exit the SIP user-agent configuration mode, enter the following command:

**exit**

**Step 4** Go into the telephony-service configuration mode by entering the following command:

**telephony-service**

**Step 5** If you want to keep the default registration with an extension number, continue to [Step 6](#). If you want to register with an E.164 10-digit number, enter the following command:

**mwi reg-e164**

**Step 6** To exit the telephony-service configuration mode, enter the following command:

**exit**

**Step 7** Continue to the next procedure.

---

### To Configure MWIs for Each Directory Number

---

**Step 1** Go into the ephone-dn configuration mode and configure the directory numbers for the Cisco IP phone lines by entering the following command:

**ephone-dn <DN tag>**

**Step 2** Configure a valid directory number for the Cisco IP phone that receives the MWI notification by entering the following command:

**number <Directory number>**

**Step 3** Configure the device name of MWI for the directory number that receives MWI notification by entering the following command:

**name MWI**

**Step 4** Subscribe the extension in a Cisco Unified CM Express to receive MWIs from a SIP MWI server by entering the following command:

**mwi sip**

This command integrates the Cisco Unified CM Express with the MWI service based on SIP protocol.



**Note** The “mwi sip-server” command under telephony-service configuration mode or the “mwi-server” command under SIP user-agent configuration mode must be set before enabling the “mwi sip” command in ephone configuration mode.

---

**Step 5** To exit the ephone-dn configuration mode, enter the following command:

**exit**

---

### To Configure a Directory Number for MWI Notification

MWI configuration on the Cisco Unified CM Express is performed by dedicating Cisco IP phone directory numbers (ephone-DNs) to process MWI status notification calls originating from Cisco Unity Connection. You must allocate a minimum of one MWI processing ephone-dn for each MWI ephone-dn voice messaging port. The MWI processing ephone-dn extensions are configured to match the MWI extensions configured on Cisco Unity Connection.

- 
- Step 1** Go into the ephone-dn configuration mode and configure the directory numbers for the Cisco IP phone lines by entering the following command:

**ephone-dn <DN tag>**

- Step 2** Configure two valid directory numbers for the Cisco IP phone to be used for MWIs—the first number will turn MWIs on, and the second number will turn MWIs off—by entering the following command:

**number <MWI on number> secondary <MWI off number>**



**Note** The MWI on and off numbers must match the settings of the MWI On Extension and MWI Off Extension fields you enter in Cisco Unity Connection Administration when you create the integration on Cisco Unity Connection.

---

- Step 3** Configure these two directory numbers to be used for setting MWIs by entering the following command:

**mwi on-off**

- Step 4** To exit the ephone-dn configuration mode, enter the following command:

**exit**

---

Following is an example of the configuration.

```
ephone-dn 32
 number 8000 secondary 8001
 mwi on-off
```

In this example, Cisco Unity Connection calls extensions 8000 and 8001 to turn MWIs on and off. The DN triggers an MWI ON event when 8000 is called, and an MWI OFF event when 8001 is called.

### To Configure MWI Relay

MWI relay is required when Cisco Unity Connection is integrated with multiple Cisco Unified CM Express routers. The Cisco Unified CM Express routers use the SIP subscriber and notifier mechanism for MWI relay. The Cisco Unified CM Express router that is the SIP MWI relay server acts as the SIP notifier. The other Cisco Unified CM Express routers (the SIP MWI clients) act as the SIP subscribers.

- 
- Step 1** Go into the telephony-service configuration mode by entering the following command:

**telephony-service**

- Step 2** Enable the Cisco Unified CM Express router to relay MWI information to Cisco IP phones on other Cisco Unified CM Express routers by entering the following command:

**mwi relay**

- Step 3** To exit the telephony-service configuration mode, enter the following command:

**exit**

**Step 4** Go into the SIP user-agent configuration mode by entering the following command:

**sip-ua**

**Step 5** Configure the IP address (or DNS name) and port for the SIP MWI server by entering the following command:

**mwi-server {ipv4:<MWI server IP address> | dns:<MWI server host-name>} [expires <Seconds>] [port <Port number>] [transport {tcp | udp}] [unsolicited]**

The SIP MWI server must be in the same LAN as Cisco Unity Connection. This IP address is used in conjunction with the “mwi sip” command in ephone-dn configuration mode to subscribe individual ephone-dn extension numbers to the MWI server notification list. The SIP MWI client runs TCP by default.

This command uses the following keywords:

- **ipv4:**—Sets the IP address of the SIP MWI server.
- **dns:**—Sets the DNS name of the SIP MWI server.
- **expires**—(*optional*) Subscription expiration time, in seconds. The range is 1 to 999999. The default is 3600.
- **transport tcp**—The default setting.
- **transport udp**—Allows you to integrate with the SIP MWI client.
- **port**—Used to specify the TCP port for the SIP MWI server. The default SIP port number is 5060.
- **unsolicited**—Allows sending SIP NOTIFY for MWIs without the need to send a SUBSCRIBE from the Cisco Unified CM Express router.

**Step 6** To exit the SIP user-agent configuration mode, enter the following command:

**exit**

**Step 7** Go into the telephony-service configuration mode by entering the following command:

**telephony-service**

**Step 8** If you want to keep the default registration with an extension number, continue to [Step 9](#). If you want to register with an E.164 10-digit number, enter the following command:

**mwi reg-e164**

**Step 9** To exit the telephony-service configuration mode, enter the following command:

**exit**

### To Enable DTMF Relay

In certain situations, DTMF digits are not recognized when processed through VoIP dial-peer gateways. To avoid this problem, certain gateways must be configured to enable DTMF relay. The DTMF relay feature is available in Cisco IOS software version 12.0(5) and later.

Cisco IOS software-based gateways that use H.245 out-of-band signaling (but not the Cisco Unified CM Express routers with which Cisco Unity Connection is integrated) must be configured to enable DTMF relay.

The Catalyst 6000 T1/PRI and FXS gateways enable DTMF relay by default and do not need additional configuration to enable this feature.

- 
- Step 1** On a VoIP dial-peer that points to a Cisco Unified CM Express router integrated with Cisco Unity Connection (the dial-peer must have a session target of the Cisco Unified CM Express router, not Cisco Unity Connection), enter the following command:
- dtmf-relay h245-signal**
- Step 2** Create a destination pattern that matches the Cisco Unified CM Express voice mail port numbers. For example, if the system has voice mail ports 1001 through 1016, enter the dial-peer destination pattern **10xx**.
- Step 3** Repeat [Step 1](#) and [Step 2](#) for all remaining VoIP dial-peers that point to Cisco Unified CM Express routers integrated with Cisco Unity Connection.
- 

## Creating a New Integration with Cisco Unified CallManager Express

After ensuring that Cisco Unified CallManager Express 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

- 
- Step 1** Log on to Cisco Unity Connection Administration.
- Step 2** In Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Phone System**.
- Step 3** On the Search Phone Systems page, on the Phone System menu, click **New Phone System**. The Phone System Integration Wizard appears.
- Step 4** On the Select Phone System Manufacturer page, in the Manufacturer field, click **Cisco Systems** and click **Next**.
- Step 5** On the Select Phone System Model page, in the Model field, click **Cisco Unified Communications Manager** and click **Next**.
- Step 6** On the Set Up Phone System page, in the Phone System Name field, accept the default name or enter the descriptive name that you want, and click **Next**.
- Step 7** On the Select Port Group Template page, in the Port Group Template field, click **SCCP - Skinny Call Control Protocol** and click **Next**.
- Step 8** On the Set Up Port Group page, enter the following settings and click **Next**.

**Table 3-1** Settings for the Set Up Port Group Page

| Field              | Setting                                                                                                                                                                  |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Port Group 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 Express uses in the vm-device-id name before the port number. This prefix must match the prefix used by Cisco Unified CM Express. |
| MWI On Extension   | Enter the MWI on directory number that you specified in the ephone-dn configuration mode of the Cisco Unified CM Express router.                                         |

**Table 3-1 Settings for the Set Up Port Group Page (continued)**

| Field                   | Setting                                                                                                                                                                                                                                                                                                                                     |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MWI Off Extension       | Enter the MWI off directory number that you specified in the ephone-dn configuration mode of the Cisco Unified CM Express router.                                                                                                                                                                                                           |
| Security Mode           | Click <b>Non-secure</b> .<br>(Cisco Unified Communications Manager authentication and encryption are not available for Cisco Unified CM Express.)                                                                                                                                                                                           |
| Number of Ports         | Enter the number of voice messaging ports that you want to create in this port group.                                                                                                                                                                                                                                                       |
| IP Address or Host Name | Enter the IP address (or host name) of the Cisco Unified CM Express router that you are integrating with Cisco Unity Connection.                                                                                                                                                                                                            |
| Test Address            | Click this button to test the IP address that you entered. The results of the test appear in the field to the right of the button.<br><br><b>Note</b> Even though the integration is successful, the test may fail on networks where the “ping” command is disabled or ignored, or when the Cisco Unified CM Express router is not running. |
| Port                    | Enter the TCP port of the Cisco Unified CM Express router 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 Express router that you are integrating with Cisco Unity Connection. We recommend that you use the default setting.                                                                                                                                                                              |
| Server Type             | Click <b>Cisco Unified Communications Manager Express</b> .                                                                                                                                                                                                                                                                                 |

**Step 9** On the Confirm Phone System Settings page, confirm the settings that you have entered and click **Finish**.

**Step 10** On the Phone System Creation Summary page, click **Close**.

**Step 11** In Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Port Group**.

**Step 12** On the Search Port Groups page, click the display name of the port group that you created for the Cisco Unified CM Express integration in [Step 9](#).



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

**Step 13** On the Port Group Basics page, on the Edit menu, click **Advanced Settings**.

**Step 14** On the Edit Advanced Settings page, in the Delay Before Opening Greeting field, enter **1000** and click **Save**.

**Step 15** In Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Port**.

**Step 16** On the Search Ports page, click the display name of the first voice messaging port that you created for the Cisco Unified CM Express 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 17** 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 3-2 Settings for the Voice Messaging Ports**

| Field                        | Considerations                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Enabled                      | Check this check box to enable the port. The port is enabled during normal operation.<br>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.                                                                                                        |
| Extension                    | Enter the extension for the port as assigned on the phone system.                                                                                                                                                                                                                                                                                                                                       |
| 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.                                                                                                                                                                                                     |
| 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                | Click <b>Non-secure</b> .<br><br>(Cisco Unified Communications Manager authentication and encryption are not available for Cisco Unified CM Express.)                                                                                                                                                                                                                                                   |

- Step 18** Click **Save**.
- Step 19** Click **Next**.
- Step 20** Repeat [Step 17](#) through [Step 19](#) for all remaining voice messaging ports for the phone system.
- Step 21** If another phone system integration exists, in Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Trunk**. Otherwise, skip to [Step 25](#).
- Step 22** On the Search Phone System Trunks page, on the Phone System Trunk menu, click **New Phone System Trunk**.
- Step 23** On the New Phone System Trunk page, enter the following settings for the phone system trunk and click **Save**.

**Table 3-3 Settings for the Phone System Trunk**

| Field             | Setting                                                                       |
|-------------------|-------------------------------------------------------------------------------|
| From Phone System | Click the display name of the phone system that you are creating a trunk for. |

**Table 3-3** Settings for the Phone System Trunk (continued)

| Field             | Setting                                                                                                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| To Phone System   | Click 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 24** Repeat [Step 22](#) and [Step 23](#) for all remaining phone system trunks that you want to create.
- Step 25** If prompted to restart the Connection Conversation Manager service, do the following substeps. Otherwise, continue to [Step 26](#).
- In the Navigation drop-down list, click **Cisco Unity Connection Serviceability** and click **Go**.
  - On the Cisco Unity Connection Serviceability page, on the Tools menu, click **Control Center - Feature Services**.
  - On the Control Center - Feature Services page, in the Server drop-down list, click the name of the Cisco Unity Connection server and click **Go**.
  - Under Cisco Unity Connection Services, click **Connection Conversation Manager**.
  - At the top of the page, click **Restart**.
  - When prompted to confirm restarting the service, click **Yes**.
  - In the Navigation drop-down list, click **Cisco Unity Connection Administration** and click **Go**.
  - In Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Phone System**.
- Step 26** In the Related Links drop-down list, click **Check Telephony Configuration** and click **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 27** In the Task Execution Results window, click **Close**.
- Step 28** Log off Cisco Unity Connection Administration.



# CHAPTER 4

## Testing the Integration

To test whether Cisco Unity Connection and the phone system are integrated correctly, do the following procedures in the order listed.

If any of the steps indicate a failure, see the following documentation as applicable:

- The installation guide for the phone system.
- The setup information earlier in this guide.

### To Set Up the Test Configuration

- Step 1** Set up two test extensions (Phone 1 and Phone 2) on the same phone system that Cisco Unity Connection is connected to.
- Step 2** Set Phone 1 to forward calls to the Cisco Unity Connection pilot number when calls are not answered.



**Caution** The phone system must forward calls to the Cisco Unity Connection pilot number in no fewer than four rings. Otherwise, the test may fail.

- Step 3** To create a test user for testing, in Cisco Unity Connection Administration, expand **Users**, then click **Users**.
- Step 4** On the Search Users page, on the User menu, click **Add New**.
- Step 5** On the New User page, enter the following settings.

**Table 4-1** Settings for the New User Page

| Field             | Setting                                |
|-------------------|----------------------------------------|
| User Type         | Click <b>User with Voice Mailbox</b> . |
| Based on Template | Click the applicable user template.    |
| Alias             | Enter <b>testuser</b> .                |
| First Name        | Enter <b>Test</b> .                    |
| Last Name         | Enter <b>User</b> .                    |
| Display Name      | Enter <b>Test User</b> .               |
| Extension         | Enter the extension of Phone 1.        |

- Step 6** Click **Save**.

- Step 7** On the Edit User Basics page, in the Voice Name field, record a voice name for the test user.
- Step 8** In the Phone System field, confirm that the phone system selected is the phone system that Phone 1 is connected to.
- Step 9** Uncheck the **Set for Self-enrollment at Next Login** check box.
- Step 10** Click **Save**.
- Step 11** On the Edit menu, click **Message Waiting Indicators**.
- Step 12** On the Message Waiting Indicators page, click the message waiting indicator. If no message waiting indication is in the table, click **Add New**.
- Step 13** On the Edit Message Waiting Indicator page, enter the following settings.

**Table 4-2 Settings for the Edit MWI Page**

| Field                    | Setting                                                |
|--------------------------|--------------------------------------------------------|
| Enabled                  | Check this check box to enable MWIs for the test user. |
| Display Name             | Accept the default or enter a different name.          |
| Inherit User's Extension | Check this check box to enable MWIs on Phone 1.        |

- Step 14** Click **Save**.
- Step 15** On the Edit menu, click **Transfer Options**.
- Step 16** On the Transfer Options page, click the active option.
- Step 17** On the Edit Transfer Option page, under Transfer Action, click the **Extension** option and enter the extension of Phone 1.
- Step 18** In the Transfer Type field, click **Release to Switch**.
- Step 19** Click **Save**.
- Step 20** Minimize the Cisco Unity Connection Administration window.  
Do not close the Cisco Unity Connection Administration window because you will use it again in a later procedure.
- Step 21** Log on to the Real-Time Monitoring Tool (RTMT).
- Step 22** On the Unity Connection menu, click **Port Monitor**. The Port Monitor tool appears in the right pane.  
In the right pane, click **Start Polling**. The Port Monitor will display which port is handling the calls that you will make.

---

#### To Test an External Call with Release Transfer

---

- Step 1** From Phone 2, enter the access code necessary to get an outside line, then enter the number outside callers use to dial directly to Cisco Unity Connection.
- Step 2** In the Port Monitor, note which port handles this call.
- Step 3** When you hear the opening greeting, enter the extension for Phone 1. Hearing the opening greeting means that the port is configured correctly.

- Step 4** Confirm that Phone 1 rings and that you hear a ringback tone on Phone 2. Hearing a ringback tone means that Cisco Unity Connection correctly released the call and transferred it to Phone 1.
- Step 5** Leaving Phone 1 unanswered, confirm that the state of the port handling the call changes to “Idle.” This state means that release transfer is successful.
- Step 6** Confirm that, after the number of rings that the phone system is set to wait, the call is forwarded to Cisco Unity Connection and that you hear the greeting for the test user. Hearing the greeting means that the phone system forwarded the unanswered call and the call-forward information to Cisco Unity Connection, which correctly interpreted the information.
- Step 7** On the Port Monitor, note which port handles this call.
- Step 8** Leave a message for the test user and hang up Phone 2.
- Step 9** In the Port Monitor, confirm that the state of the port handling the call changes to “Idle.” This state means that the port was successfully released when the call ended.
- Step 10** Confirm that the MWI on Phone 1 is activated. The activated MWI means that the phone system and Cisco Unity Connection are successfully integrated for turning on MWIs.
- 

#### To Test Listening to Messages

---

- Step 1** From Phone 1, enter the internal pilot number for Cisco Unity Connection.
- Step 2** When asked for your password, enter the password for the test user. Hearing the request for your password means that the phone system sent the necessary call information to Cisco Unity Connection, which correctly interpreted the information.
- Step 3** Confirm that you hear the recorded voice name for the test user (if you did not record a voice name for the test user, you will hear the extension number for Phone 1). Hearing the voice name means that Cisco Unity Connection correctly identified the user by the extension.
- Step 4** Listen to the message.
- Step 5** After listening to the message, delete the message.
- Step 6** Confirm that the MWI on Phone 1 is deactivated. The deactivated MWI means that the phone system and Cisco Unity Connection are successfully integrated for turning off MWIs.
- Step 7** Hang up Phone 1.
- Step 8** On the Port Monitor, confirm that the state of the port handling the call changes to “Idle.” This state means that the port was successfully released when the call ended.
- 

#### To Set Up Supervised Transfer on Cisco Unity Connection

---

- Step 1** In Cisco Unity Connection Administration, on the Edit Transfer Option page for the test user, in the Transfer Type field, click **Supervise Transfer**.
- Step 2** In the Rings to Wait For field, enter 3.
- Step 3** Click **Save**.
- Step 4** Minimize the Cisco Unity Connection Administration window.

Do not close the Cisco Unity Connection Administration window because you will use it again in a later procedure.

---

#### To Test Supervised Transfer

---

- Step 1** From Phone 2, enter the access code necessary to get an outside line, then enter the number outside callers use to dial directly to Cisco Unity Connection.
  - Step 2** On the Port Monitor, note which port handles this call.
  - Step 3** When you hear the opening greeting, enter the extension for Phone 1. Hearing the opening greeting means that the port is configured correctly.
  - Step 4** Confirm that Phone 1 rings and that you do not hear a ringback tone on Phone 2. Instead, you should hear the indication your phone system uses to mean that the call is on hold (for example, music).
  - Step 5** Leaving Phone 1 unanswered, confirm that the state of the port handling the call remains “Busy.” This state and hearing an indication that you are on hold mean that Cisco Unity Connection is supervising the transfer.
  - Step 6** Confirm that, after three rings, you hear the greeting for the test user. Hearing the greeting means that Cisco Unity Connection successfully recalled the supervised-transfer call.
  - Step 7** During the greeting, hang up Phone 2.
  - Step 8** On the Port Monitor, confirm that the state of the port handling the call changes to “Idle.” This state means that the port was successfully released when the call ended.
  - Step 9** Click **Stop Polling**.
  - Step 10** Exit RTMT.
- 

#### To Delete the Test User

---

- Step 1** In Cisco Unity Connection Administration, expand **Users**, then click **Users**.
  - Step 2** On the Search Users page, check the check box to the left of the test user.
  - Step 3** Click **Delete Selected**.
-



## CHAPTER 5

# Adding New User Template for Multiple Integrations

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When you create the first phone system integration, this first phone system is automatically selected in the default user template. The users that you add after creating this phone system integration will be assigned to this phone system by default.

However, for each additional phone system integration that you create, you must add the applicable new user templates that will assign users to the new phone system. You must add the new templates before you add new users who will be assigned to the new phone system.

For details on adding new user templates, refer to the “Adding, Modifying, or Deleting a User Template” chapter in the *User Moves, Adds, and Changes Guide for Cisco Unity Connection* 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).

For details on selecting a user template when adding a new user, refer to the *User Moves, Adds, and Changes Guide for Cisco Unity Connection* 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).





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