



Cisco Unified CallManager Express 4.0 SCCP Integration Guide for Cisco Unity Connection 1.2

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This document provides instructions for integrating the Cisco Unified CallManager Express phone system with Cisco Unity Connection when the Cisco Unified CallManager Express phone system has only Skinny Call Control Protocol (SCCP) phones or has both SCCP and SIP phones.



Note

The G.729a codec is not supported.

Integration Tasks

Before doing the following tasks to integrate Cisco Unity Connection with the Cisco Unified CallManager Express phone system, confirm that the Cisco Unity Connection server is ready for the integration by completing the applicable tasks in the *Cisco Unity Connection Installation Guide*.

The following task lists describe the process for creating an integration and changing the number of voice messaging ports.

Task List to Create the Integration

Use the following task list to set up a new integration with the Cisco Unified CallManager Express phone system. If you are installing a new Cisco Unity Connection server by using the *Cisco Unity Connection Installation Guide*, you may have already completed some of the following tasks.

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 2](#).
2. Plan how the voice messaging ports will be used by Cisco Unity Connection. See the [“Planning How the Voice Messaging Ports Will Be Used by Cisco Unity Connection” section on page 5](#).
3. Program Cisco Unified CallManager Express. See the [“Programming the Cisco Unified CallManager Express Phone System” section on page 7](#).



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4. Create the integration. See the “Creating a New Integration with the Cisco Unified CallManager Express Phone System” section on page 18.



Note An additional Cisco Unified CallManager cluster can be added by creating a new phone system integration through the Phone System Integration Wizard. Each Cisco Unified CallManager cluster is a separate phone system integration.

5. Test the integration. See the “Testing the Integration” section on page 21.
6. If this integration is a second or subsequent integration, add the applicable new user templates for the new phone system. See the (Multiple Integrations Only) Adding New User Templates, page 25.

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 CallManager Express and in Cisco Unity Connection Administration. See the “Changing the Number of Voice Messaging Ports” section on page 25.

Requirements

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

Phone System

- Cisco Unified CallManager Express 4.0.
- A compatible Cisco IOS software version. Refer to the *Cisco Unified CallManager Express and Cisco IOS Software Version Compatibility Matrix* at http://www.cisco.com/en/US/products/sw/voicesw/ps4625/prod_installation_guide09186a00805acf50.html.
- Cisco Unified CallManager 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.
- For a list of supported Cisco IP phone models, refer to the Specifications document for the applicable version of Cisco Unified CallManager Express at http://www.cisco.com/en/US/products/sw/voicesw/ps4625/products_documentation_roadmap09186a0080189132.html.
- Analog phones connected to ATA. (For integration limitations with these phones, see the “Integration Functionality” section on page 4.)
- A LAN connection in each location where you will plug an IP phone into the network.

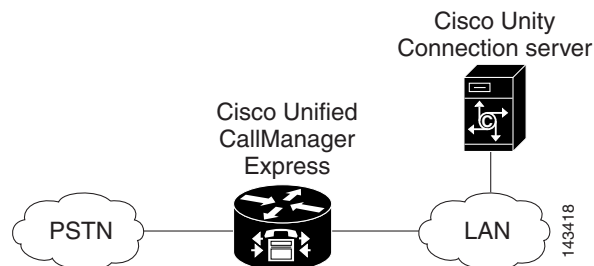
Cisco Unity Connection Server

- The applicable version of Cisco Unity Connection. For details on compatible versions of Cisco Unity Connection, refer to the *Compatibility Matrix: Cisco Unity Connection, the Cisco Unity-CM TSP, Cisco Unified CallManager, and Cisco Unified CallManager Express* at 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 *Cisco Unity Connection Installation Guide* at http://www.cisco.com/en/US/products/ps6509/prod_installation_guides_list.html.
- The applicable Cisco Unity-CM TSP, installed. For details on compatible versions of the TSP, refer to the *Compatibility Matrix: Cisco Unity Connection, the Cisco Unity-CM TSP, Cisco Unified CallManager, and Cisco Unified CallManager Express* at http://www.cisco.com/en/US/products/ps6509/products_device_support_tables_list.html.
- A license that enables the appropriate number of voice messaging ports.

Integration Description

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

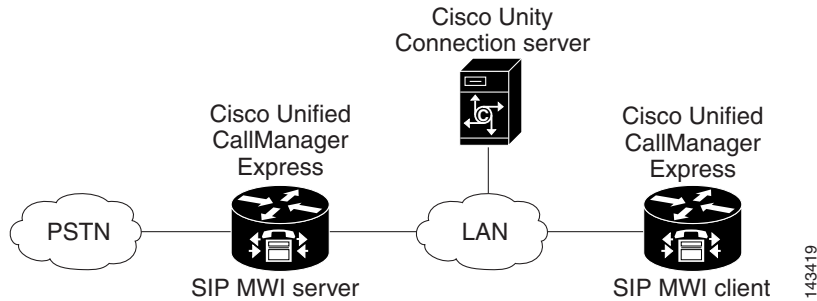
Figure 1 Connections Between the Phone System and Cisco Unity Connection



[Figure 2](#) shows the connections for a system with multiple Cisco Unified CallManager Express routers and a single Cisco Unity Connection server. One Cisco Unified CallManager Express router acts as the SIP MWI server, and the remaining Cisco Unified CallManager 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 CallManager Express router that is on the same LAN as the Cisco Unity Connection server), not with the SIP MWI clients.

Figure 2 *Connections Between Multiple Cisco Unified CallManager Express Routers and a Single Cisco Unity Connection Server*



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 CallManager Express 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 subscriber can retrieve messages without entering an ID because Cisco Unity Connection identifies the subscriber based on the extension from which the call originated; a password may be required)
- Identified subscriber messaging (Cisco Unity Connection identifies the subscriber 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 CallManager 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

Cisco Unity Connection can be integrated with multiple 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* at http://www.cisco.com/en/US/products/ps6509/products_installation_and_configuration_guides_list.html.

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

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 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.
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.

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

Field	Considerations
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.

The Number of 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.

The Number of Voice Messaging Ports That 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.

The Number of Voice Messaging Ports That 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.

Preparing for Programming the Phone System

Record your decisions about the voice messaging ports to guide you in programming the phone system.

Programming the Cisco Unified CallManager Express Phone System

After the Cisco Unified CallManager Express router is installed, do the procedures in the applicable section depending on the number of Cisco Unified CallManager Express routers 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 7
- 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 11

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 CallManager Express router with a single Cisco Unity Connection server. If you are integrating 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 11.

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 CallManager 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 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 set MWIs by Cisco Unity Connection (for example, use “A01”).

---

**Step 3** To set the user name for the port (for example, “Voice Port 1” or “MWI Only”), enter the following command:

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

**Step 4** To disable huntstop, enter the following command:

**no huntstop**

**Step 5** To set the dial-peer preference for the extension, enter the following command:

**preference <preference order>**

**Step 6** Repeat [Step 1](#) through [Step 5](#) 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 7** To exit the ephone-dn configuration mode, enter the following command:

**exit**

---

The following is an example of the configuration:

```
ephone-dn 32
 number 4001
 name "Voice Messaging Port 1"
 no huntstop
!
ephone-dn 33
 number 4001
 name "Voice Messaging Port 2"
```

```

no huntstop
preference 1
!
ephone-dn 34
number 4001
name "Voice Messaging Port 3"
no huntstop
preference 2
!
ephone-dn 35
number A01
name "MWI Only"

```

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. The fourth ephone-dn is provided for use as an MWI-only port. The first three ephone-dns are configured with the same extension number (4001), using preferences 0, 1, and 2 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 set MWIs by Cisco Unity Connection. Separate ports are required for answering calls and setting MWIs in order to prevent call-collision problems between incoming calls placed by Cisco Unified CallManager Express to Cisco Unity Connection, and MWI calls that Cisco Unity Connection places in the opposite direction.

#### To Associate the Voice Messaging Port Device

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

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

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

The default vm-device-id name is CiscoUM-VI1. 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, CiscoUM-VI) must match the Device Name Prefix field on 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 mail device to the Cisco Unified CallManager 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 device 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 CiscoUM-VI, enter CiscoUM-VI1 for the first port and CiscoUM-VI2 for the second port, and so on.




---

**Note** The vm-device-id name used by Cisco Unified CallManager 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 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 device names.




---

**Note** The number of voice messaging port device 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 CiscoUM-VI1
 button 1:32
!
ephone 6
 vm-device-id CiscoUM-VI2
 button 1:33
!
ephone 7
 vm-device-id CiscoUM-VI3
 button 1:34
!
ephone 8
 vm-device-id CiscoUM-VI4
 button 1:35
```

#### To Configure a Directory Number for MWI Notification

MWI configuration on the Cisco Unified CallManager 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 when you create the integration.

- 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 with the [“Creating a New Integration with the Cisco Unified CallManager Express Phone System”](#) section on page 18.

## 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 CallManager Express routers. This configuration requires that one Cisco Unified CallManager Express router be on the same LAN as the Cisco Unity Connection server, and that this Cisco Unified CallManager Express router register all Cisco Unity Connection voice messaging ports. This Cisco Unified CallManager Express router (the SIP MWI server) is a proxy server that relays SIP MWI messages between the Cisco Unity Connection and all other Cisco Unified CallManager Express routers (the SIP MWI clients). Note that Cisco Unity Connection voice messaging ports register with only the SIP MWI server (the Cisco Unified CallManager 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 CallManager Express routers with a single Cisco Unity Connection server.

### 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 CallManager 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 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 set MWIs by Cisco Unity Connection (for example, use “A01”).

---

- Step 3** To set the user name for the port (for example, “Voice Port 1” or “MWI Only”), enter the following command:
- name <user name of voice messaging port>**
- Step 4** To disable huntstop, enter the following command:
- no huntstop**
- Step 5** To set the dial-peer preference for the extension, enter the following command:
- preference <preference order>**
- Step 6** Repeat [Step 1](#) through [Step 5](#) 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 7** To exit the ephone-dn configuration mode, enter the following command:

**exit**

---

The following is an example of the configuration:

```
ephone-dn 32
 number 4001
 name "Voice Messaging Port 1"
 no huntstop
!
ephone-dn 33
 number 4001
 name "Voice Messaging Port 2"
 no huntstop
 preference 1
!
ephone-dn 34
 number 4001
 name "Voice Messaging Port 3"
 no huntstop
 preference 2
!
ephone-dn 35
 number A01
 name "MWI Only"
```

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. The fourth ephone-dn is provided for use as an MWI-only port. The first three ephone-dns are configured with the same extension number (4001), using preferences 0, 1, and 2 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 set MWIs by Cisco Unity Connection. Separate ports are required for answering calls and setting MWIs in order to prevent call-collision problems between incoming calls placed by Cisco Unified CallManager Express to Cisco Unity Connection, and MWI calls that Cisco Unity Connection places in the opposite direction.

#### **To Associate the Voice Messaging Port Device**

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

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

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

The default vm-device-id name is CiscoUM-VI1. 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, CiscoUM-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 CallManager 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 device 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 CiscoUM-VI, enter CiscoUM-VII for the first port and CiscoUM-VI2 for the second port, and so on.




---

**Note** The vm-device-id name used by Cisco Unified CallManager 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 12](#) 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 device names.




---

**Note** The number of voice messaging port device 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 CiscoUM-VI1
 button 1:32
!
ephone 6
 vm-device-id CiscoUM-VI2
 button 1:33
!
ephone 7
 vm-device-id CiscoUM-VI3
 button 1:34
!
ephone 8
 vm-device-id CiscoUM-VI4
 button 1:35
```

### 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 CallManager 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 user 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 CallManager Express to receive MWIs from a SIP MWI server by entering the following command:

mwi sip

This command integrates the Cisco Unified CallManager 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 CallManager 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 CallManager Express routers. The Cisco Unified CallManager Express routers use the SIP subscriber and notifier mechanism for MWI relay. The Cisco Unified CallManager Express router that is the SIP MWI relay server acts as the SIP notifier. The other Cisco Unified CallManager 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 CallManager Express router to relay MWI information to Cisco IP phones on other Cisco Unified CallManager 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 CallManager 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
```

Step 10 Continue to the next procedure.

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 CallManager 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 CallManager Express router integrated with Cisco Unity Connection (the dial-peer must have a session target of the Cisco Unified CallManager 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 CallManager 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 CallManager Express routers integrated with Cisco Unity Connection.

Creating a New Integration with the Cisco Unified CallManager Express Phone System


After ensuring that the Cisco Unified CallManager Express phone system and Cisco Unity Connection are ready for the integration, do the following procedures 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 **CallManager** 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 Client Control Protocol** and click **Next**.
- Step 8** On the Set Up Port Group page, enter the following settings and click **Next**.

Table 2 Settings for the Set Up Port Group Page

Field	Setting
Port Group Name	<the display name for the port group; accept the default name, which is composed of the phone system display name followed by an incrementing number, or enter another descriptive name>
Device Name Prefix	<the prefix that Cisco Unified CallManager Express uses in the vm-device-id name before the port number; this prefix must match the prefix used by Cisco Unified CallManager Express>
MWI On Extension	<the MWI on directory number that you specified in the ephone-dn configuration mode of the Cisco Unified CallManager Express phone system>
MWI Off Extension	<the MWI off directory number that you specified in the ephone-dn configuration mode of the Cisco Unified CallManager Express phone system>
Security Mode	Non-secure (Cisco Unified CallManager authentication and encryption are not available for Cisco Unified CallManager Express.)
Number of Ports	<the number of voice messaging ports that you want to create in this port group>
IP Address or Host Name	<the IP address (or host name) of the Cisco Unified CallManager 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. 
	Note 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 CallManager Express router is not running.
Port	<the TCP port of the Cisco Unified CallManager Express router that you are integrating with Cisco Unity Connection; we recommend that you use the default setting>
TLS Port	<the TLS port of the Cisco Unified CallManager Express router that you are integrating with Cisco Unity Connection; we recommend that you use the default setting>
Server Type	Cisco Unified CallManager Express

- 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 CallManager Express integration in [Step 8](#).
- 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 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 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 *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.
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 Non-secure . (Cisco Unified CallManager authentication and encryption are not available.)

- 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 4 *Settings for the Phone System Trunk*

Field	Setting
From Phone System	<the display name of the phone system that you are creating a trunk for>
To Phone System	<the display name of the previously existing phone system that the trunk will connect to>
Trunk Access Code	<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 Cisco Unity Connection, in the Windows task bar, right-click the **Cisco Unity Connection** icon and click **Restart > Voice Processing Server Role**.
- Step 26** When prompted to confirm stopping the Voice Processing server role, click **Yes**.
- Step 27** In Cisco Unity Connection Administration, 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 28** In the Task Execution Results window, click **Close**.
- Step 29** Log off Cisco Unity Connection Administration.

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, refer to 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 **New User**.
- Step 5** On the New User page, enter the following settings.

Table 5 *Settings for the New User Page*

Field	Setting
User Type	User with Voice Mailbox
Based on Template	<the applicable user template>
Alias	testuser
First Name	Test
Last Name	User
Display Name	Test User
Extension	<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 6 *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** On the Cisco Unity Connection desktop, double-click the **Tools Depot** icon.
- Step 22** In the left pane of the Tools Depot window, expand **Switch Integration Tools**, then double-click **Port Status Monitor**. The Port Status Monitor window appears.
- Step 23** On the Ports menu, click **Start All**, and arrange the port monitors so that you can notice which port will handle 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 Status 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 Status 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 Status 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 Status 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 Status 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 Status 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** Exit the Port Status Monitor.
-

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**.
-

(Multiple Integrations Only) Adding New User Templates

When you create the first phone system integration, this 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, Changing, or Deleting an Account Template” chapter in the *Cisco Unity Connection User Moves, Adds, and Changes Guide* at 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 applicable chapter for adding user accounts in the *Cisco Unity Connection User Moves, Adds, and Changes Guide* at http://www.cisco.com/en/US/products/ps6509/prod_maintenance_guides_list.html.

Changing the Number of Voice Messaging Ports

To change the number of voice messaging ports in Cisco Unified CallManager Express and in Cisco Unity Connection for an existing integration, do the following procedures.

To Change the Number of Voice Messaging Ports in Cisco Unified CallManager Express

-
- Step 1** Reprogram the Cisco Unified CallManager Express router for the number of voice messaging ports you want. Each voice messaging port will use one ephone-dn and one e-phone. For details, see the “Programming the Cisco Unified CallManager Express Phone System” section on page 7.
 - Step 2** If you are removing voice messaging ports, skip the remaining steps in this procedure and continue on to the “To Delete Voice Messaging Ports in Cisco Unity Connection Administration” procedure on page 26.
If you are not removing voice messaging ports, continue on to [Step 3](#).
 - Step 3** If you are adding voice messaging ports and the Cisco Unity Connection license does not enable the additional voice messaging ports you added, see your sales representative to request the applicable license file.
-

If you are adding voice messaging ports, do the “To Add Voice Messaging Ports in Cisco Unity Connection Administration” procedure on page 26.

If you are deleting voice messaging ports, do the [“To Delete Voice Messaging Ports in Cisco Unity Connection Administration” procedure on page 26](#).

To Add Voice Messaging Ports in Cisco Unity Connection Administration

-
- Step 1** If the Cisco Unity Connection license does not enable the additional voice messaging ports you added, see your sales representative to request the applicable license.
- Step 2** When you have the license, log on to Cisco Unity Connection Administration.
- Step 3** In Cisco Unity Connection Administration, expand **System Settings**, then click **Licenses**.
- Step 4** On the License page, on the License menu, click **Add New License**.
- Step 5** On the Add New License page, click **Browse**.
- Step 6** In the Choose File dialog box, browse to license file and click **Open**.
- Step 7** On the Add New License page, click **Add**.
- Step 8** On the Licenses page, check the check box for the license file that you added in [Step 7](#) and click **Install Selected**.
- Step 9** In Cisco Unity Connection Administration, expand **Telephony Integrations**, then click **Port**.
- Step 10** On the Search Ports page, under Port Search Results, click **Add New**.
- Step 11** On the New Port page, enter the applicable settings and click **Save**.



Caution Make sure that there are an appropriate number of ports set to answer calls and an appropriate number of ports set to dial out. Otherwise, the integration will not function correctly. For details, see to the “Planning How the Voice Messaging Ports Will be Used by Cisco Unity Connection” section.

- Step 12** If prompted to restart Cisco Unity Connection, in the Windows task bar, right-click the **Cisco Unity Connection** icon and click **Restart > Voice Processing Server Role**.
- Step 13** When prompted to confirm stopping the Voice Processing server role, click **Yes**.
- Step 14** In Cisco Unity Connection Administration, 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 15** In the Task Execution Results window, click **Close**.
- Step 16** Log off Cisco Unity Connection Administration.

To Delete Voice Messaging Ports in Cisco Unity Connection Administration

-
- Step 1** Log on to the Cisco Unity Connection Administration.
- Step 2** Go to the **Telephony Integrations > Port** page.
- Step 3** Under Port Search Results, check the check boxes next to the voice messaging ports that you want to delete.
- Step 4** Click **Delete Selected**.

- Step 5** For the remaining voice messaging ports in the port group, change the settings as necessary so that there are an appropriate number of voice messaging ports set to answer calls and an appropriate number of voice messaging ports set to dial out.
- Step 6** In the Windows task bar, right-click the **Cisco Unity Connection** icon and click **Restart > Voice Processing Server Role**.
- Step 7** When prompted to confirm stopping the Voice Processing server role, click **Yes**.
- Step 8** In Cisco Unity Connection Administration, 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 9** In the Task Execution Results window, click **Close**.
- Step 10** Log off the Cisco Unity Connection Administration.

Appendix: Documentation and Technical Assistance

Conventions

The *Cisco Unified CallManager Express 4.0 SCCP Integration Guide for Cisco Unity Connection 1.2* uses the following conventions.

Table 7 *Cisco Unified CallManager Express 4.0 SCCP Integration Guide for Cisco Unity Connection 1.2 Conventions*

Convention	Description
boldfaced text	Boldfaced text is used for: <ul style="list-style-type: none"> Key and button names. (Example: Click OK.) Information that you enter. (Example: Enter Administrator in the User Name box.)
< > (angle brackets)	Angle brackets are used around parameters for which you supply a value. (Example: In the Command Prompt window, enter ping <IP address> .)
- (hyphen)	Hyphens separate keys that must be pressed simultaneously. (Example: Press Ctrl-Alt-Delete .)

Table 7 *Cisco Unified CallManager Express 4.0 SCCP Integration Guide for Cisco Unity Connection 1.2 Conventions (continued)*

Convention	Description
> (right angle bracket)	A right angle bracket is used to separate selections that you make: <ul style="list-style-type: none"> On menus. (Example: On the Windows Start menu, click Settings > Control Panel > Phone and Modem Options.) In the navigation bar of Cisco Unity Connection Administration. (Example: In Cisco Unity Connection Administration, expand System Settings > Advanced.)
[x] (square brackets)	Square brackets enclose an optional element (keyword or argument). (Example: [reg-e164])
[x y] (vertical line)	Square brackets enclosing keywords or arguments separated by a vertical line indicate an optional choice. (Example: [transport tcp transport udp])
{x y} (braces)	Braces enclosing keywords or arguments separated by a vertical line indicate a required choice. (Example: {tcp udp})

The *Cisco Unified CallManager Express 4.0 SCCP Integration Guide for Cisco Unity Connection 1.2* 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.

For descriptions and URLs of Cisco Unity Connection documentation on Cisco.com, see the *About Cisco Unity Documentation*. 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.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/techsupport>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

The Product Documentation DVD is a comprehensive library of technical product documentation on a portable medium. The DVD enables you to access multiple versions of installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the same HTML documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .PDF versions of the documentation available.

The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

Ordering Documentation

Registered Cisco.com users may order Cisco documentation at the Product Documentation Store in the Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

Nonregistered Cisco.com users can order technical documentation from 8:00 a.m. to 5:00 p.m. (0800 to 1700) PDT by calling 1 866 463-3487 in the United States and Canada, or elsewhere by calling 011 408 519-5055. You can also order documentation by e-mail at tech-doc-store-mkpl@external.cisco.com or by fax at 1 408 519-5001 in the United States and Canada, or elsewhere at 011 408 519-5001.

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You can submit comments about Cisco documentation by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For Emergencies only—security-alert@cisco.com

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For Nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT at the aforementioned e-mail addresses or phone numbers before sending any sensitive material to find other means of encrypting the data.

Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

**Note**

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is down, or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired, while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco offerings. To order and find out more about the Cisco Product Quick Reference Guide, go to this URL:

<http://www.cisco.com/go/guide>

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

<http://www.cisco.com/go/marketplace/>

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

or view the digital edition at this URL:

<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>

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