System Administration Guide for Cisco Unity Connection

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Preface

Audience and Use

The *System Administration Guide for Cisco Unity Connection* contains information and instructions for creating a call management plan by using call routing, restriction tables, and call handlers; for customizing the Cisco Unity Connection conversation; for handling messages and distribution lists; for managing audio formats; for managing user passwords and PINs; for managing the phone system integration; for setting up system transfers; for configuring IMAP settings; for managing partitions and search spaces; and for creating a Cisco Fax Server integration.

Note With Cisco Unity Connection 8.6(1) and later, the single sign-on feature is enabled for Cisco Unity Connection Administration. For more information, see the "Single Sign-On in Cisco Unity Connection" chapter in Security Guide for Cisco Unity Connection 9.x http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/security/guide/9xcucsec061.html.

For a detailed listing of all settings in Cisco Unity Connection Administration, see the *Interface Reference Guide for Cisco Unity Connection Administration*.

For information and instructions for creating, modifying, and deleting user accounts and templates, see the *User Moves, Adds, and Changes Guide for Cisco Unity Connection*.

For information and instructions for setting up user workstations, see the *User Workstation Setup Guide for Cisco Unity Connection*.

For information and instructions for setting up networking, including VPIM networking, see the *Networking Guide for Cisco Unity Connection*.

These guides are all available at http://www.cisco.com/en/US/products/ps6509/prod_maintenance_guides_list.html.

Documentation Conventions

Table 1 Conventions in the System Administration Guide for Cisco Unity Connection

Convention	Description
boldfaced text	Boldfaced text is used for: • Key and button names. (Example: Select **OK**.) • Information that you enter. (Example: Enter **Administrator** in the Username box.)
< > (angle brackets)	Angle brackets are used around parameters for which you supply a value. (Example: In your browser, go to **https://<Cisco Unity Connection server IP address>/cuadmin**.)
- (hyphen)	Hyphens separate keys that must be pressed simultaneously. (Example: Press **Ctrl-Alt-Delete**.)
> (right angle bracket)	A right angle bracket is used to separate selections that you make in the navigation bar of Cisco Unity Connection Administration. (Example: In Cisco Unity Connection Administration, expand **Contacts > System Contacts**.)

The *System Administration Guide for Cisco Unity Connection* also uses the following conventions:

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

Tip Means the following information may help you solve a problem.

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 Connection and is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/roadmap/9xcucdg.html.

Documentation References to Cisco Unified Communications Manager Business Edition

The name of the product known as Cisco Unified Communications Manager Business Edition in versions 8.0 and earlier has been changed to Cisco Unified Communications Manager Business Edition 5000 in versions 8.5 and later.

In the Cisco Unity Connection 9.x documentation set, references to "Cisco Unified Communications Manager Business Edition" and "Cisco Unified CMBE" apply to both Business Edition version 8.0 and to Business Edition 5000 versions 8.5 and later. The references do not apply to Business Edition 6000.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, 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

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

Cisco Product Security Overview

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

Further information regarding U.S. export regulations can be found at http://www.access.gpo.gov/bis/ear/ear_data.html.

CHAPTER 1

Configuring the Browser on a Cisco Unity Connection 9.x Administrator Workstation

To access Cisco Unity Connection Administration, Cisco Unified Serviceability, Cisco Unity Connection Serviceability, Disaster Recovery System, and other web applications on the Connection server, the browsers must be set up correctly on an administrator workstation.

See the applicable section, depending on the browsers installed on the computer:

See the applicable section, depending on the browsers installed on the computer:

- Configuring Firefox on a Cisco Unity Connection 9.x Administrator Workstation, page 1-1
- Configuring Microsoft Internet Explorer on a Cisco Unity Connection 9.x Administrator Workstation, page 1-2

Note the following:

- Make sure to run trusted sites while opening Cisco Unity Connection Administration, Cisco Personal Communications Assistant, and Web Inbox.
- We recommend that you use the hostname for accessing Cisco Unity Connection.

Configuring Firefox on a Cisco Unity Connection 9.x Administrator Workstation

Do the following tasks to set up Firefox for accessing the Cisco Unity Connection web applications.

1. Confirm that the software required for correct browser configuration is installed. See the "Software Requirements—Administrator Workstations" section of the applicable System Requirements document:
   - *System Requirements for Cisco Unity Connection Release 9.x*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html
   - *System Requirements for Cisco Unity Connection in Cisco Unified CMBE Release 9.x*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucmbesysreqs.html
2. Configure Firefox:
   a. Enable Java.

b. Enable Java Script > Enable Change Images in Java Script Advanced.

c. Allow sites to set cookies. (For security purposes, we recommend that you set this to Allow Sites to Set Cookies for the Originating Web Site Only.)

Configuring Microsoft Internet Explorer on a Cisco Unity Connection 9.x Administrator Workstation

Do the following tasks to set up Internet Explorer for accessing the Cisco Unity Connection web applications.

1. Confirm that the software required for correct browser configuration is installed. See the "Software Requirements—Administrator Workstations" section of the applicable System Requirements document:
   - *System Requirements for Cisco Unity Connection Release 9.x*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html
   - *System Requirements for Cisco Unity Connection in Cisco Unified CMBE Release 9.x*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucmbesysreqs.html
2. Configure Internet Explorer:
   a. Enable Active scripting.
   b. Download and run ActiveX controls.
   c. Enable Java scripting.
   d. Accept all cookies.
   e. Automatically check for newer versions of temporary Internet files.
   f. Enable Medium-High privacy.
   g. If you are running Microsoft Windows Server 2003 and using Internet Explorer version 6.0 to access the Cisco PCA, add the Connection server to the Trusted Sites list by doing the following procedure.

Note Microsoft Internet Explorer 7.0, 8.0, and 9.0 versions support both the IPv4 and IPv6 addresses on Windows XP, Windows Vista, and Windows 7 operating systems. However, the IPv6 address works only when Connection platform is configured in Dual (IPv4/IPv6) mode. For more information on Configuring IPv6 settings, see Adding or Changing the IPv6 Addresses of Cisco Unity Connection chapter of *Reconfiguration and Upgrade Guide for Cisco Unity Connection* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrug051.html.

To Add the Cisco Unity Connection Server to the List of Trusted Sites (Windows Server 2003 with Internet Explorer 6.0 Only)

Step 1 Open the Cisco Personal Communications Assistant Sign-in page. It is not necessary to sign in to the Cisco PCA.

Step 2 On the Internet Explorer File menu, select **Add This Site To > Trusted Sites Zone**.

Step 3 In the Trusted Sites dialog box, select **Add**.

Step 4 Select **Close** to close the Trusted Sites dialog box.

Step 5 Restart Internet Explorer.

CHAPTER 2

Accessing and Using Cisco Unity Connection Administration 9.x

Cisco Unity Connection Administration is a web application that you use to do most administrative tasks, including specifying settings for users, and implementing a call management plan.

See the following sections:

- Accessing and Exiting Cisco Unity Connection Administration 9.x, page 2-1
- Cisco Unity Connection Administration 9.x User Interface, page 2-2
- Using Cisco Unity Connection Administration 9.x Help, page 2-3
- Finding Records in Cisco Unity Connection Administration 9.x, page 2-3
- Accessing Other Cisco Unity Connection Administration 9.x Locations in the Network, page 2-4

For information on configuring the browser on the administrator workstation, see the "Configuring the Browser on a Cisco Unity Connection 9.x Administrator Workstation" chapter.

Note Cisco Unity Connection Administration supports both the IPv4 and IPv6 addresses. However, the IPv6 address works only when Connection platform is configured in Dual (IPv4/IPv6) mode. For more information on Configuring IPv6 settings, see Adding or Changing the IPv6 Addresses of Cisco Unity Connection chapter of *Reconfiguration and Upgrade Guide for Cisco Unity Connection* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrug051.html.

Accessing and Exiting Cisco Unity Connection Administration 9.x

The first time that you sign in to Cisco Unity Connection Administration, you use the username and password for the default administrator account that the installer specified for the account during installation. Later, you can use the username and password for any additional administrator accounts that you create.

By default, a Connection Administration session is set to time out after twenty minutes. You can change the Administration Session Timeout setting on the System Settings > Advanced > Connection Administration page.

Note that you can also administer accounts on other Connection servers in the network. See the "Accessing Other Cisco Unity Connection Administration 9.x Locations in the Network" section on page 2-4.

To Sign In to Cisco Unity Connection Administration

Step 1 On an administrator workstation, open a browser session.

Step 2 Go to **https://<Cisco Unity Connection server IP address>/cuadmin**.

Note We recommend that you bookmark Connection Administration. If a Connection cluster is configured, we recommend that you bookmark this page for both Connection servers so that you can sign in to Connection Administration on the functional server when the other Connection server is not functioning.

Step 3 Enter an applicable username and password, and select **Sign-In**.

To Exit Cisco Unity Connection Administration

Step 1 In the Cisco Unity Connection Administration title pane, select **Sign Out**.

Step 2 Exit the web browser.

Cisco Unity Connection Administration 9.x User Interface

The Cisco Unity Connection Administration interface is divided into four areas.

Navigation pane	Located along the left side of the interface; contains links to the Connection Administration pages. Select the name of the page to display it.
Title pane	Located across top of the interface; contains an About link and the Sign Out link. The title pane also offers a Navigation menu that you can use to browse to other Cisco applications. Select the name of the application from the Navigation list, and then select Go. Depending on the application, you may be required to sign in.
Title bar	Displays the name of the page and, if applicable, the name of the record displayed on the page. For example, on the Edit User Basics page for a user with the alias GreetingsAdmin, the title bar reads “Edit User Basics (GreetingsAdmin).” The right side of the title bar also shows the navigation path of the page, as it relates to other pages in the category. You can select a page in the navigation path to go that page.
Page	Where Connection data is entered and displayed. The page name appears in the title bar at the top of the page.

Using Cisco Unity Connection Administration 9.x Help

To access Help, select the Help menu at the top of a page in Cisco Unity Connection Administration, and select one of the following:

Contents	Opens a new browser window, and displays the home page for the Cisco Unity Connection Administration Help system. The links in the left pane of the Help window allow you to access all topics in the Help system.
This Page	Opens a new browser window for the Cisco Unity Connection Administration Help system. The right pane of the window contains definitions for each field on the current page in Connection Administration. In most cases there are cross-references to additional topics related to the current page. The left pane of the Help system provides a table of contents for all of the product guides included in Help. The table of contents expands to show the location within the hierarchy of the Help topic that is displayed on the right.

To learn more about the Connection Help system—including instructions on how to search Help, select the Using Help link at the top of any Help page.

Finding Records in Cisco Unity Connection Administration 9.x

A record is the group of settings or collection of data for an individual user, class of service, call handler, or other Cisco Unity Connection entity. For example, a user record contains the user account data.

Cisco Unity Connection Administration lets you find records based on search criteria that you enter. As a best practice, do not use wildcards such as * in search strings. When you want to find a user or contact, use Begins With, Contains, or Ends With to match part of a string, or leave the search string blank to return all results. Connection attempts to match wildcard characters within the field you are searching; if no objects contain such characters in that field, no results are returned.

You can use the navigation buttons at the bottom of the search results table to move between pages, and the Rows Per Page setting to display 25, 50, 100, 150, 200, or 250 rows per page. Connection saves your Rows Per Page setting, so that on subsequent sign-ins you receive the same number of results per page for this search page.

To Find a User Account

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **Users**.

Step 2 On the Search Users page, in the Search Results table, select the user alias to display the user account.

If you do not see the user alias listed in the Search Results table, continue with Step 3.

Step 3 In the Find Users Where search fields, indicate whether to search by Alias, DTMF Access ID, First Name, Last Name, or Display Name. You can further refine your search by setting additional parameters such as Begins With or Ends With. Enter the applicable characters to search for, and select **Find**.

Step 4 In the Search Results table, select the user alias to display the user account.

To Find Other Types of Cisco Unity Connection Data

Step 1 In Cisco Unity Connection Administration, go to the applicable **Search** page.

Step 2 If the applicable record is listed in the Search Results table, select the record name to display the record.

If you do not see the record listed in the Search Results table, continue with Step 3.

Step 3 In the search fields, indicate the search parameters, and enter the applicable characters to search for. Select **Find**.

Step 4 In the Search Results table, select the record name to display the record.

Accessing Other Cisco Unity Connection Administration 9.x Locations in the Network

From the local server in your network, you can access other networked servers, and can edit the following types of information on the remote servers:

- User Accounts
- Contacts
- Distribution lists
- Locations
- Partitions
- Search spaces

On your local server, any remote objects in the network are identified on the page by the color of the icon next to the object name. When you select a remote object, the Status message at the top of the page tells you that the object is homed on a remote server, and includes a link to the remote server. Select the link, and sign in with the applicable administrative credentials. When you have signed in, the object that you selected opens in a separate browser window and you can edit the object as usual.

When you edit objects on remote servers, the updates replicate to other servers in the network, depending on the synchronization settings for your network; updates may not occur until the next scheduled task run. If you want to immediately synchronize the data, do the following procedure.

To Immediately Begin a Directory Synchronization

Step 1 In Cisco Unity Connection Administration, expand **Networking > Links**, and select **Intersite Links**.

Step 2 On the Search Intersite Links page, locate the applicable server in the network.

Step 3 Under Directory Synchronization, select **Sync**.

CHAPTER 3

Administrative Tools in Cisco Unity Connection 9.x

This chapter provides brief descriptions of and procedures for accessing a selection of tools and utilities for administering Cisco Unity Connection. (To configure a browser to access Connection web applications, see the "Configuring the Browser on a Cisco Unity Connection 9.x Administrator Workstation" chapter.)

See the following sections:

- Application Plug-ins in Cisco Unity Connection 9.x, page 3-2
- Cisco Unified Backup and Restore Application Suite (COBRAS) in Cisco Unity Connection 9.x, page 3-2
- Cisco Unity Connection Administration 9.x, page 3-2
- Cisco Unity Connection 9.x Bulk Administration Tool, page 3-3
- Cisco Unity Connection 9.x Custom Keypad Mapping Tool, page 3-3
- Cisco Unity Connection 9.x Grammar Statistics Tool, page 3-4
- Cisco Unity Connection 9.x Import and Synch Users Tools, page 3-4
- Cisco Unity Connection 9.x Migrate Messages Utility, page 3-5
- Cisco Unity Connection 9.x Migrate Users Utility, page 3-5
- Cisco Unity Connection Serviceability 9.x, page 3-6
- Cisco Unity Connection 9.x Show Dependency Results, page 3-6
- Cisco Unity Connection 9.x Task Management Tool, page 3-7
- Disaster Recovery System in Cisco Unity Connection 9.x, page 3-7
- Cisco Voice Technology Group Subscription Tool in Cisco Unity Connection 9.x, page 3-8
- Real-Time Monitoring Tool in Cisco Unity Connection 9.x, page 3-8
- Cisco Unified Serviceability in Cisco Unity Connection 9.x, page 3-8
- Remote Database Administration Tools in Cisco Unity Connection 9.x, page 3-9
- Cisco Utilities Database Link for Informix (CUDLI) in Cisco Unity Connection 9.x, page 3-10
- Connection User Data Dump (CUDD) in Cisco Unity Connection 9.x, page 3-10
- Wallet Card Wizard in Cisco Unity Connection 9.x, page 3-11

Application Plug-ins in Cisco Unity Connection 9.x

Application plug-ins extend the functionality of Cisco Unity Connection. For example, the Real-Time Monitoring Tool (RTMT) plug-in allows an administrator to monitor system performance.

For Cisco Unity Connection configurations, see the "Installing Plugins in Cisco Unity Connection 9.x" chapter for detailed information.

For Cisco Unified Communications Manager Business Edition (CMBE) configurations, see the *Cisco Unified Communications Manager Administration Guide* at http://www.cisco.com/en/US/products/ps7273/prod_maintenance_guides_list.html for detailed information.

Cisco Unified Backup and Restore Application Suite (COBRAS) in Cisco Unity Connection 9.x

Note The information in this section is not applicable to Cisco Unified Communications Manager Business Edition.

Cisco Unified Backup and Restore Application Suite (COBRAS) is the application you use to migrate data and messages from Cisco Unity 4.0(5) or later or from Cisco Unity Connection 1.2 to Connection 9.x. Download the latest version, and view training videos and Help at http://www.ciscounitytools.com/Applications/General/COBRAS/COBRAS.html.

Alternatively, you can use the Cisco Unity Connection Migrate Messages and Migrate Users utilities to migrate messages and user data when you are migrating from Cisco Unity 4.0(4) and earlier and you cannot upgrade to Cisco Unity 4.0(5) or later for some reason. COBRAS migrates significantly more data than the Migrate Users utility, and it does not require that you configure a secure shell (SSH) server application. For more information, see the "Cisco Unity Connection 9.x Migrate Messages Utility" section on page 3-5 and the "Cisco Unity Connection 9.x Migrate Users Utility" section on page 3-5.

For a task list that enumerates the steps for migrating from Cisco Unity or from Connection 1.x to Connection 9.x either by using COBRAS or by using the Migrate Messages and Migrate Users utilities, see the applicable chapter of the *Reconfiguration and Upgrade Guide for Cisco Unity Connection Release 9.x*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrugx.html.

Cisco Unity Connection Administration 9.x

Cisco Unity Connection Administration is a web application that you use to do most administrative tasks, including specifying settings for users and implementing a call management plan. Many of the tools listed in this section are available from Connection Administration.

For information on accessing and using Cisco Unity Connection Administration, see the "Accessing and Using Cisco Unity Connection Administration 9.x" chapter.

Cisco Unity Connection 9.x Bulk Administration Tool

The Cisco Unity Connection Bulk Administration Tool (BAT) can be used as follows:

- In Cisco Unity Connection configurations, the BAT allows you to create, update, and delete multiple user accounts, administrator-defined contacts, system distribution lists, or system distribution list members at the same time by importing information contained in a comma separated value (CSV) file. In addition, it allows you to export information about users, administrator-defined contacts, system distribution lists, system distribution list members, or LDAP users from Cisco Unity Connection to a CSV file.
- In Cisco Unified Communications Manager Business Edition (CMBE) configurations, the BAT allows you to create and delete multiple administrator-defined contacts at the same time by importing information contained in a comma separated value (CSV) file. (To update multiple user accounts at once, you must use the BAT available in the Cisco Unified CM Administration.) In addition, it allows you to export information about users or contacts from Cisco Unity Connection to a CSV file.
- In both Cisco Unity Connection and Cisco Unified Communications Manager Business Edition configurations in which Connection data is synchronized with data in an LDAP directory, the BAT allows you to create large numbers of user accounts at the same time by importing information contained in a comma separated value (CSV) file.

  For small numbers of users—up to a few hundred—it may be faster and easier to use the Import Users tool to create Connection users from users in an LDAP directory. See the "Cisco Unity Connection 9.x Import and Synch Users Tools" section on page 3-4.

To Access the Cisco Unity Connection Bulk Administration Tool

Step 1 In Cisco Unity Connection Administration, expand **Tools**.

Step 2 Select **Bulk Administration Tool**.

For information on using the Connection BAT, see the "Using the Cisco Unity Connection 9.x Bulk Administration Tool" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

For information on using the BAT in Cisco Unified Communications Manager, see the *Cisco Unified Communications Manager Bulk Administration Guide*, available at http://www.cisco.com/en/US/products/ps7273/prod_maintenance_guides_list.html.

Cisco Unity Connection 9.x Custom Keypad Mapping Tool

The Custom Keypad Mapping tool allows you to edit the key mappings that are associated with the Custom Keypad Mapping conversation, which can be assigned to users or user templates on the Phone Menu page in Cisco Unity Connection Administration. You are allowed to assign any one-, two-, or three-key sequence to any defined option for the main menu, the message playback menu (the message header, body, and footer can be mapped separately), the after message menu, and the settings menu. You can customize which options are voiced in each menu and the order in which they are offered. The Custom Keypad Mapping tool is accessed in the Tools section of Connection Administration.

To Access the Custom Keypad Mapping Tool

Step 1 In Cisco Unity Connection Administration, expand **Tools**.

Step 2 Select **Custom Keypad Mapping**.

For information on using the tool, see the "Custom Keypad Mapping Tool in Cisco Unity Connection 9.x" chapter.

Cisco Unity Connection 9.x Grammar Statistics Tool

The Grammar Statistics tool shows information about all of the dynamic name grammars that are used by the Cisco Unity Connection voice-recognition conversation to match caller utterances to the names of objects on the system (for example, usernames and alternate names, distribution list names, and so on). When administrators add or change names on the Connection system, the names are not recognized by the voice-recognition conversation until they are compiled in the grammars.

For each name grammar, the tool displays information such as the finish time of the last grammar recompilation, the total number of unique items in the grammar, whether there are updates pending to the grammar, and whether the grammar is currently in the process of being recompiled.

By default, Connection recompiles grammars when administrators add named objects or change object names on the system (unless a bulk operation is in progress, in which case Connection waits ten minutes for the operation to complete before recompiling the grammars), or when there are more than five changes requested in the space of a minute. If the grammars have grown to the point where the name grammar recompilation process is affecting the performance of your Connection server during busy periods, you can modify the default Voice Recognition Update Schedule (under System Settings > Schedules in Cisco Unity Connection Administration) to limit the times and days when the Connection voice-recognition transport utility can automatically rebuild the voice-recognition name grammars. By default, all days and times are active for this schedule; if you modify the schedule but want to override the schedule while it is inactive and force an immediate recompilation of all grammars, or if you want to force recompilation during the ten minute wait period after a bulk operation has been initiated, you can select the Rebuild Grammars button on the Grammar Statistics tool.

Cisco Unity Connection 9.x Import and Synch Users Tools

When the Cisco Unity Connection server is integrated with a Cisco Unified Communications Manager phone system, you can use the Import Users tool to automatically create multiple users with voicemail accounts from existing Cisco Unified Communications Manager users.

You can also use the Import Users tool to create small numbers of users—up to a few hundred—from users in an LDAP directory. (This is not a question of technical limitations; you can create many thousands of users by using the Import Users tool, but the process is less efficient than other methods.)

In Cisco Unity Connection configurations, the Synchronize Users tool allows you to manually refresh the information you imported from Cisco Unified Communications Manager when you created voicemail users.

In Cisco Unified Communications Manager Business Edition (CMBE) configurations, synchronization happens automatically. There should be no need to manually synchronize users.

To Access the Import and Synch Users Tools

Step 1 In Cisco Unity Connection Administration, expand **Users**.

Step 2 Select **Import Users** or **Synch Users**, as applicable.

For information on using both tools, see the "Creating Multiple Cisco Unity Connection 9.x User Accounts from Cisco Unified Communications Manager Users" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Cisco Unity Connection 9.x Migrate Messages Utility

Note The information in this section is not applicable to Cisco Unified Communications Manager Business Edition.

To migrate messages and data from Cisco Unity 4.0(5) or later to Connection 9.x, we recommend that you use the Cisco Unified Backup and Restore Application Suite (COBRAS) tool instead of the Migrate Messages and Migrate Users utilities. COBRAS migrates significantly more data than the Migrate Users utility, and it does not require that you configure a secure shell (SSH) server application. Download the latest version, and view training videos and Help at http://www.ciscounitytools.com/Applications/General/COBRAS/COBRAS.html.

For a task list that enumerates the steps for migrating from Cisco Unity to Connection 9.x either by using COBRAS or by using the Migrate Messages and Migrate Users utilities, see the "Migrating from Cisco Unity 4.x or Later to Cisco Unity Connection 9.x" chapter of the *Reconfiguration and Upgrade Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrugx.html.

The Cisco Unity Connection Migrate Messages utility allows you to migrate messages from Cisco Unity to Cisco Unity Connection 9.x. You can only migrate messages if you have first migrated user data by using the Migrate Users utility.

To Access the Migrate Messages Utility (Cisco Unity Connection Configurations Only)

Step 1 In Cisco Unity Connection Administration, expand **Tools**.

Step 2 Expand **Migration Utilities**, then select **Migrate Users**.

Cisco Unity Connection 9.x Migrate Users Utility

Note The information in this section is not applicable to Cisco Unified Communications Manager Business Edition.

To migrate messages and data from Cisco Unity 4.0(5) or later to Connection 9.x, we recommend that you use the Cisco Unified Backup and Restore Application Suite (COBRAS) instead of the Migrate Messages and Migrate Users utilities. COBRAS migrates significantly more data than the Migrate Users utility, and it does not require that you configure a secure shell (SSH) server application. Download the latest version, and view training videos and Help at http://www.ciscounitytools.com/Applications/General/COBRAS/COBRAS.html.

For a task list that enumerates the steps for migrating from Cisco Unity to Connection 9.x either by using COBRAS or by using the Migrate Messages and Migrate Users utilities, see the "Migrating from Cisco Unity 4.x or Later to Cisco Unity Connection 9.x" chapter of the *Reconfiguration and Upgrade Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrugx.html.

To Access the Migrate Users Utility (Cisco Unity Connection Configurations Only)

Step 1 In Cisco Unity Connection Administration, expand **Tools**.

Step 2 Expand **Migration Utilities**, then select **Migrate Users**.

Cisco Unity Connection Serviceability 9.x

Cisco Unity Connection Serviceability, a web-based troubleshooting tool for Cisco Unity Connection, provides the following functionality:

- Displaying Connection alarm definitions, which you can use for troubleshooting.
- Enabling Connection traces. You can collect and view trace information in the Real-Time Monitoring Tool (RTMT) or in the command line interface (CLI).
- Configuring the logs to which Connection trace information is saved.
- Viewing and changing the server status of the Connection servers when a Connection cluster is configured.
- Viewing the status of the Connection feature services.
- Activating, deactivating, starting, and stopping the Connection services.
- Generating reports that can be viewed in different file formats.

Depending on the service and component involved, you may perform serviceability-related tasks in both Cisco Unity Connection Serviceability and Cisco Unified Serviceability. For example, you may need to start and stop services, view alarms, and configure traces in both applications to troubleshoot a problem.

For more information, see the *Administration Guide for Cisco Unity Connection Serviceability Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/serv_administration/guide/9xcucservagx.html.

Cisco Unity Connection 9.x Show Dependency Results

The Show Dependency Results page provides a way to view the results of the most recent dependency search.

When database objects such as user accounts are referenced by other objects in Cisco Unity Connection (for example, if a user is set to be a recipient of messages left in an interview handler, or if a call handler is set to transfer incoming calls to a user phone), you cannot delete the referenced objects until you have changed settings on the dependent objects.

To determine the dependencies of an object that you want to delete, select the Show Dependencies option on the search page for the object type. The option initiates a search for database objects that are dependent on the object you want to delete. From the dependency search results, follow links to the dependent objects and reassign the dependencies. When all dependencies have been reassigned, you can delete the object.

Some dependency searches can take several minutes, depending on the object being searched. While a search is in progress, if you browse to another page, or your browser session times out, navigate to Tools > Show Dependency Results to view the dependency search results.

Cisco Unity Connection 9.x Task Management Tool

The Task Management pages list a variety of system maintenance and troubleshooting tasks that Cisco Unity Connection automatically runs on a regular schedule. Tasks can be run at the same time as backups and anti-virus scans.

The default settings and schedules for each task are optimized for functionality and performance. We recommend that you not change the default settings and schedules.

Caution Some tasks are critical to Connection functionality. Disabling or changing the frequency of critical tasks may adversely affect performance or cause Connection to stop functioning.

To Access the Task Management Tool

Step 1 In Cisco Unity Connection Administration, expand **Tools**.

Step 2 Select **Task Management**.

Disaster Recovery System in Cisco Unity Connection 9.x

Disaster Recovery System lets you back up and, if necessary, restore data and voice messages on a Cisco Unity Connection or Cisco Unified Communications Manager Business Edition system. For more information, see the *Disaster Recovery System Administration Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/drs_administration/guide/9xcucdrsag.html.

Cisco Voice Technology Group Subscription Tool in Cisco Unity Connection 9.x

You can use the Cisco Voice Technology Group Subscription tool to be notified by email of any Cisco Unity Connection software updates. To subscribe, go to the Cisco Voice Technology Group Subscription Tool page at http://www.cisco.com/cgi-bin/Software/Newsbuilder/Builder/VOICE.cgi.

Real-Time Monitoring Tool in Cisco Unity Connection 9.x

The Real-Time Monitoring Tool (RTMT), which runs as a client-side application, uses HTTPS and TCP to monitor system performance, device status, device discovery, and CTI applications for Cisco Unity Connection. RTMT can connect directly to devices via HTTPS to troubleshoot system problems. RTMT can also monitor the voice messaging ports on Connection.

RTMT allows you to do the following tasks:

- Monitor a set of predefined management objects that focus on the health of the system.
- Generate various alerts, in the form of emails, for objects when values go over or below user-configured thresholds.
- Collect and view traces in various default viewers that exist in RTMT.
- View syslog messages and alarm definitions in SysLog Viewer.
- Work with performance-monitoring counters.
- Monitor the voice messaging ports on Connection. When a Connection cluster is configured, you can open multiple instances of RTMT to monitor voice messaging ports on each server in the Connection cluster.

For more information, see the *Cisco Unified Real-Time Monitoring Tool Administration Guide* at http://www.cisco.com/en/US/products/ps6509/prod_maintenance_guides_list.html.

Cisco Unified Serviceability in Cisco Unity Connection 9.x

Cisco Unified Serviceability, a web-based troubleshooting tool for Cisco Unity Connection, provides the following functionality:

- Saving alarms and events for troubleshooting and providing alarm message definitions.
- Saving trace information to various log files for troubleshooting.
- Providing feature services that you can turn on, turn off, and view through the Service Activation window.
- Providing an interface for starting and stopping feature and network services.
- Generating and archiving daily reports; for example, alert summary or server statistic reports.
- Monitoring the number of threads and processes in the system; uses cache to enhance the performance.

Depending on the service and component involved, you may perform serviceability-related tasks in both Cisco Unified Serviceability and Cisco Unity Connection Serviceability. For example, you may need to start and stop services, view alarms, and configure traces in both applications to troubleshoot a problem.

For more information, see the *Cisco Unified Serviceability Administration Guide* at http://www.cisco.com/en/US/products/ps6509/prod_maintenance_guides_list.html.

Remote Database Administration Tools in Cisco Unity Connection 9.x

A database proxy can be enabled to allow the use of some Windows-based remote database administration tools that are available on the Cisco Unity Tools website (http://ciscounitytools.com), where updates to utilities are frequently posted between Cisco Unity Connection releases.

See the following sections for detailed information:

- Enabling Database Access for Remote Administration Tools, page 3-9
- Cisco Utilities Database Link for Informix (CUDLI) in Cisco Unity Connection 9.x, page 3-10
- Connection User Data Dump (CUDD) in Cisco Unity Connection 9.x, page 3-10
- Wallet Card Wizard in Cisco Unity Connection 9.x, page 3-11

Note You can sign up to be notified when the utilities posted on the Cisco Unity Tools website are updated. Go to http://ciscounitytools.com and select Sign Up Here.

Enabling Database Access for Remote Administration Tools

In order to use the remote tools, you must first enable remote database access. Because opening up database access for remote administration tools can introduce a security risk to your system, several layers of security are involved with enabling access:

- The username and password of a user with the Remote Administrator role is required to run remote tools.
- The Connection Database Proxy service is disabled by default.
- A built-in shutdown timer disables the Connection Database Proxy service after a configurable number of days.

To enable remote database access, do the following three procedures in the order presented:

- To Assign the Remote Administrator Role to One or More Users, page 3-9
- To Change the Database Proxy Service Shutdown Timer, page 3-10
- To Start the Database Proxy Service, page 3-10

To Assign the Remote Administrator Role to One or More Users

Step 1 In Cisco Unity Connection Administration, select **Users**.

Step 2 On the Search Users page, find the applicable user account.

Note As a best practice, do not use the default system administrator user account for remote access. Instead, use a different administrative user account to avoid having the default system administrator account become locked due to too many failed authentication attempts.

Step 3 On the Edit User Basics page, on the Edit menu, select **Roles**.

Step 4 On the Edit Roles page, in the Available Roles field, select **Remote Administrator**, then select the Up arrow to move it into the Assigned Roles field.

Step 5 Select **Save**.

Step 6 Repeat Step 2 through Step 5 for each user who needs access to remote administration tools.

To Change the Database Proxy Service Shutdown Timer

Step 1 In Cisco Unity Connection Administration, select **System Settings > Advanced > Connection Administration**.

Step 2 In the Database Proxy: Service Shutdown Timer field, enter a value between 1 and 999 days.

A value of zero disables the Database Proxy Service.

Step 3 Select **Save**.

To Start the Database Proxy Service

Step 1 In Cisco Unity Connection Serviceability, select **Tools > Service Management**.

Step 2 In the Optional Services section, find the Connection Database Proxy row and select **Activate**.

Cisco Utilities Database Link for Informix (CUDLI) in Cisco Unity Connection 9.x

The Cisco Utilities Database Link for Informix (CUDLI) tool allows you to navigate the Cisco Unity Connection database, learn about the purpose of data in a particular table or column, and jump between referenced objects in the database. It also shows stored procedures and includes a custom query builder.

Download the tool and view training videos and Help at http://www.ciscounitytools.com/Applications/CxN/CUDLI/CUDLI.html.

Connection User Data Dump (CUDD) in Cisco Unity Connection 9.x

The Connection User Data Dump (CUDD) allows you to export specific information about users to a file that can then be viewed or imported into another application such as a database utility or Excel. When the data is exported, the tool automatically creates a header row that lists the data type found in each column of the output, for ease of import into other programs.

Download the tool and view training videos and Help at http://www.ciscounitytools.com/Applications/CxN/UserDataDump/UserDataDump.html.

Wallet Card Wizard in Cisco Unity Connection 9.x

The Wallet Card wizard is available for producing a PDF file of a wallet card based on any of the Connection conversations, including custom keypad mappings. The templates in the wizard list frequently used menu options and shortcuts for managing Connection messages and user preferences by phone; the wizard fills in the applicable keys based on the conversation that you specify. The resulting PDF is formatted as a wallet card that can be printed, then cut out and folded by users.

The wizard also allows you to customize technical support information and instructions for signing in to Connection. The Wallet Card wizard is a Windows-based remote database administration tool. Download the tool and view Help at http://www.ciscounitytools.com/Applications/CxN/WalletCardWizard/WalletCardWizard.html.

CHAPTER 4

Call Management Overview in Cisco Unity Connection 9.x

Cisco Unity Connection provides a number of different call management elements that you can combine to customize how your system handles calls and collects input from callers.

See the following sections:

- Overview of Call Management Concepts in Cisco Unity Connection 9.x, page 4-1
- Call Handlers in Cisco Unity Connection 9.x, page 4-2
- Directory Handlers in Cisco Unity Connection 9.x, page 4-3
- Interview Handlers in Cisco Unity Connection 9.x, page 4-3
- Call Routing Tables in Cisco Unity Connection 9.x, page 4-4
- Restriction Tables in Cisco Unity Connection 9.x, page 4-6
- Schedules and Holidays in Cisco Unity Connection 9.x, page 4-8
- Default Cisco Unity Connection 9.x Automated Attendant Behavior, page 4-9

After reading about call management concepts, see the "Creating a Call Management Plan in Cisco Unity Connection 9.x" chapter for instructions on developing a plan.

Overview of Call Management Concepts in Cisco Unity Connection 9.x

Cisco Unity Connection provides the following elements for managing incoming and outgoing calls:

Call Handlers	Answer calls and can take messages; provide menus of options (for example, "For customer service press 1, for sales press 2..."); route calls to users and to other call handlers; and play audiotext (prerecorded information).
Directory Handlers	Provide access to a corporate directory by playing an audio list that users and outside callers use to reach users and to leave messages.
Interview Handlers	Collect information from callers by playing a series of questions and then recording the answers.

Call Routing Tables	Allow you to define how calls are initially routed, based on criteria such as the phone number of the caller and the schedule. When you have set up call handlers, interview handlers, and directory handlers, as well as extensions for users, you can route calls to the applicable person or handler by modifying the call routing tables.
Restriction Tables	Control outgoing calls by allowing you to specify the numbers that Connection can dial for transferring calls, for notifying users of messages, and for delivering faxes.
Schedules and Holidays	Define business/nonbusiness and holiday hours for the organization, for the purpose of controlling which set of call routing rules, greetings, or transfer options is currently active.

All of these elements can be used as building blocks; you can use or customize the default objects in Connection, or add new objects and combine them to create the caller experience.

Call Handlers in Cisco Unity Connection 9.x

Call handlers answer calls, greet callers with recorded prompts, provide callers with information and options, route calls, and take messages. They are a basic component of Cisco Unity Connection. Your plan for call handlers can be simple, using only the predefined call handlers, or you can create up to 40,000 new call handlers. You may want to use call handlers in the following ways:

- As an automated attendant—A call handler can be used in place of a human operator to answer and direct calls by playing greetings and responding to key presses. The automated attendant can provide a menu of options (for example, “For Sales, press 1; for Service, press 2; for our business hours, press 3.”).
- To offer prerecorded audiotext—A call handler can be used to provide information that customers request frequently (for example, “Our normal business hours are Monday through Friday, 8 a.m. to 5 p.m.”), or to play a prerecorded message that all callers hear before they can interact with the system.
- As a message recipient—A call handler can be used to take messages for the organization (for example, “All of our customer service representatives are busy. Please state your name, phone number, and account number, and we will return your call as soon as possible.”).
- To transfer calls—A call handler can be used to route callers to a user (for example, after hours, you could transfer calls that come to a technical support call handler directly to the mobile phone of the person who is on call), or to another call handler.

Note Cisco Unity Connection supports 40,000 system call handlers.

To learn how to create and customize call handlers, see the “Managing Call Handlers in Cisco Unity Connection 9.x” chapter.

Directory Handlers in Cisco Unity Connection 9.x

Directory handlers provide access to a corporate directory that callers can use to reach Cisco Unity Connection users who have mailboxes and who are listed in the directory. When a caller searches for a username or part of a name, a directory handler looks up the extension and routes the call to the appropriate user. Callers can also enter an extension to place a call from a directory handler; the extension is checked against the applicable outcalling restriction table if the caller is a user, or against the Default Outdial restriction table if the caller is an outside caller.

There are two types of directory handlers:

Phone Keypad	Callers enter search information or extensions by using the phone keypad. For this type of directory handler, you can specify how it searches for names, what it does when it finds one or more matches, and what it does when it detects no caller input.
Voice Enabled	*(For Cisco Unity Connection systems with the voice-recognition option only).* For this type of directory handler, callers say the first name and last name of the Connection user that they want to reach, or enter an extension by saying the individual digits in the extension. In addition to searching by first and last name, the voice directory handler includes alternate names in searches. Callers can narrow down the search by saying the name and city or department of the user (or both) if these fields are defined on the Edit User Basics page in the user profile. Connection users who are listed in the directory are available to outside callers as names that can be reached. Administrator-defined contacts are only available to Connection users who are signed in to Connection, and user-defined contacts are only available to the Connection users who defined them. Note that for this type of directory handler, users cannot be accessed by using directory handlers unless they have a display name specified and the List in Directory check box is checked for them on the User Basics page.

To learn how to create and customize directory handlers, see the "Managing Directory Handlers in Cisco Unity Connection 9.x" chapter.

Interview Handlers in Cisco Unity Connection 9.x

Interview handlers collect information from callers by playing a series of questions that you have recorded, and then recording the answers offered by callers. For example, you might use an interview handler to take sales orders or to gather information for a product support line.

When a call is routed to an interview handler, the interview handler plays the first recorded question, then plays a beep, then records the answer. Cisco Unity Connection stops recording either when the response reaches the maximum recording time that you have specified, or when the caller stops speaking. Connection then plays the second question, and so on. When all the answers have been recorded, they are forwarded as a single voice message, with beeps separating the answers, to the recipient that you designate.

To learn how to create and customize interview handlers, see the "Managing Interview Handlers in Cisco Unity Connection 9.x" chapter.

Call Routing Tables in Cisco Unity Connection 9.x

Call routing tables are used to route incoming calls to the operator or to specific users, call handlers, directory handlers, or interview handlers. In addition, call routing tables are used to route users to the user sign-in conversation.

Cisco Unity Connection has two call routing tables—one for direct calls and one for forwarded calls—that handle calls from users and from outside callers. Each table contains predefined routing rules, and you can create additional rules to route calls as needed. Set up your directory handlers, call handlers, and interview handlers first, and then modify or create call routing rules for each table as needed to route incoming calls correctly.

Direct Rules	Direct rules handle calls from users and outside callers that are dialed directly to Connection. The predefined direct routing rules are: • Attempt Sign-In—Calls from users are routed to the user sign-in conversation. • Opening Greeting—Calls from outside callers are routed to the Opening Greeting.
Forwarded Rules	Forwarded rules handle calls that are forwarded to Connection from either a user extension or from an extension that is not associated with a user account (such as a conference room). The predefined forwarded routing rules are: • Attempt Forward—All calls forwarded from a user extension are routed to the user greeting. • Opening Greeting—Calls forwarded from an extension that is not associated with a user account are routed to the Opening Greeting.

You can add new rules and change the order of the rules in the respective routing tables. You can change the order of the Attempt Sign-In and Attempt Forward rules relative to additional rules that you add in the respective routing tables, but the Opening Greeting rule is always the last entry for both tables. You cannot delete the predefined rules.

Review the following "How Call Routing Rules Work" section and the "Using Routing Rules with the Route from Next Call Routing Rule Action" section on page 4-5 to learn more about routing rules. When you are ready to create and customize them, see the "Managing Call Routing Tables in Cisco Unity Connection 9.x" chapter.

How Call Routing Rules Work

Call routing tables consist of a series of rules that let you route incoming calls based on the information that Cisco Unity Connection may have about a call, such as the calling phone number (ANI or caller ID), the trunk or port on which the call comes in, the dialed phone number (DNIS), the forwarding station, and the schedule.

When Connection receives a call, it first determines if it is a direct or forwarded call based on the call information that is sent by the phone system, and then applies the applicable call routing table. If the call information matches all of the conditions for the first rule, the call is routed as specified in the rule. If any of the conditions specified in the first rule are not met, the call information is then compared to the conditions of the second rule, and so on, until a rule is found that matches all the characteristics of the call.

The integration between the phone system and Connection determines the information that is provided about a call (for example, call type, port, trunk, calling number, and dialed number). The schedule is determined by the date and time that the call is received.

To set up routing rules correctly, you need to know what information your integration provides. See the Call Information section in the Cisco Unity Connection integration guide for your phone system for this information (Connection integration guides are available at http://www.cisco.com/en/US/products/ps6509/products_installation_and_configuration_guides_list.html).

The following examples show how call routing tables are used in Connection to route calls.

Example 1

In Table 4-1, calls that meet the criteria specified in the Operator rule settings—any direct external call received while the Weekdays schedule is active—are transferred to the operator. Calls that do not meet this criteria are routed as specified by one of the other call routing rules in the table. In this case, any direct external calls received on the weekends are routed to the Opening Greeting, according to the Opening Greeting call routing rule.

Table 4-1 Direct Calls Call Routing Table

Rule	Status	Dialed Number	Calling Number	Phone System	Port	Schedule	Send Call To
Operator	Active	Any	Any	Any	Any	Weekdays	Attempt transfer for operator
Attempt Sign-In	Active	Any	Any	Any	Any	Always	Attempt Sign-In
Opening Greeting	Active	Any	Any	Any	Any	Always	Attempt transfer for Opening Greeting

Example 2

In Table 4-2, calls forwarded from specific extensions—1234 and 5678—are routed according to the Product Info and Customer Service rules, respectively. Calls that do not match the extension (or forwarding station) in either of the first two rules are routed according to the two remaining rules.

Table 4-2 Forwarded Calls Call Routing Table

Rule	Status	Dialed Number	Calling Number	Forwarding Station	Phone System	Port	Schedule	Send Call To
Customer Service	Active	Any	Any	5678	Any	Any	Always	Attempt transfer for Customer Service
Product Info	Active	Any	Any	1234	Any	Any	Always	Send to greeting for Product Info
Attempt Forward	Active	Any	Any	Any	Any	Any	Always	Attempt Forward
Opening Greeting	Active	Any	Any	Any	Any	Any	Always	Attempt transfer for Opening Greeting

Using Routing Rules with the Route from Next Call Routing Rule Action

In a user profile or call handler, you can configure the After Greeting action, the After Message action, or the action of a caller input key to apply the Route from Next Call Routing Rule action to calls. This action causes Cisco Unity Connection to continue processing the call according to the applicable call

routing table (direct or forwarded, depending on how the call was received from the phone system) starting at the rule immediately after the rule that Connection previously applied to the call. If the call was already processed according to the final rule in the table, the final rule is applied again.

For example, you might want to have Connection always play a standard greeting or legal disclaimer to all callers, whether they call Connection directly or are forwarded by an extension. The greeting plays before callers can take any other action—for example, leaving a message or signing in. To do so, you do the following tasks:

1. Create a new call handler and record the message as the alternate greeting.
2. Enable the alternate greeting, configure it to ignore caller input during the greeting, and then configure the After Greeting action with the Route from Next Call Routing Rule call action.
3. Add a new direct call routing rule to send all direct calls to the new call handler (with Go Directly to Greetings selected) and verify that the rule appears at the top of the direct call routing table.
4. Add a new forwarded call routing rule to send all forwarded calls to the same new call handler (again with Go Directly to Greetings selected) and verify that the rule appears at the top of the forwarded call routing table.

Once the system is configured in this way, all calls—no matter where they come from or how they get to the system—hear this greeting in its entirety and then proceed directly to their original destination.

Restriction Tables in Cisco Unity Connection 9.x

Restriction tables allow you to control which phone numbers users and administrators can use for:

- Transferring calls—including both the numbers users can enter for transferring their calls, and the numbers that outside callers can enter when using Caller system transfers. (For more information on Caller system transfers, see the "System Transfer Overview in Cisco Unity Connection 9.x" section on page 15-1.)
- Recording and playback by phone from Cisco Unity Connection applications, when the phone is the designated recording and playback device in the Media Master.
- Delivering faxes to a fax machine.
- Sending message notifications.
- Creating user-defined alternate extensions—including the extensions that Connection offers to add automatically on behalf of users.

For example, you can specify that users have calls transferred only to internal extensions or that faxes are delivered only to local phone numbers. (Restriction tables do not affect the phone numbers that users can dial directly from their phones when they are not interacting with Connection.)

Each class of service specifies for its members a restriction table for call transfers, one for message notification, and one for fax deliveries. The restriction table can be the same for all three, or different for each.

Review the following "How Restriction Tables Work" section to learn more about restriction tables. When you are ready to create and customize them, see the "Managing Restriction Tables in Cisco Unity Connection 9.x" chapter.

How Restriction Tables Work

When a user uses the Cisco Unity Connection Messaging Assistant or the Connection conversation to attempt to change a phone number that is used for call transfer, message notification, or fax delivery, or when signed-in users use the Connection conversation to perform User system transfers to a number that they specify, Connection applies the restriction table associated with the class of service of the user to verify that the phone number entered is allowed.

For example, if a user uses the Connection Messaging Assistant to enter a phone number to set up a message notification device, Connection applies the restriction table that is associated with the class of service of that user, and displays an error message if the phone number is not allowed. But when an administrator changes a message notification number for a user by using Cisco Unity Connection Administration, Connection does not apply any restriction table to the number. Therefore, an administrator can, when necessary, override the limitations of the class of service of a particular user.

The User-Defined and Automatically-Added Alternate Extensions restriction table functions similarly to other restriction tables in that it restricts the numbers the users can use to create alternate extensions for themselves through interfaces such as the Cisco Personal Communications Assistant or via an API call. It can also restrict a number from being offered as an alternate extension when a user frequently calls Connection and signs in from the number. (The table is named Excluded Extensions for Automatically-Added Alternate Extensions, and does not apply to alternate extensions that users create for themselves in Cisco PCA.) Unlike other restriction tables, this restriction table applies to all users and therefore is not associated with a class of service. It also applies when administrators use Connection Administration to change user-defined alternate extensions, but does not apply when administrators enter or change administrator-defined alternate extensions.

Each row of a restriction table is made up of a dial string. Each dial string consists of a call pattern and a setting that specifies whether numbers that match the call pattern can be called. In most cases, the restriction table is applied when a user attempts to change a number that is controlled by a restriction table, not when Connection tries to complete a transfer or delivery. In the case of Caller system transfers, which allow unauthenticated callers to transfer to a number that they specify, Connection checks the specified number against the Default System Transfer table. By default, this table blocks all numbers, in order to protect against toll fraud and unauthorized use.

When a restriction table is applied to a number (such as a pager number for a message notification), Connection compares the number with the call pattern of the first dial string in the restriction table. If the number does not match the call pattern, Connection then compares the number with the call pattern in the second dial string, and so on, until it finds a match. When Connection finds a match, it either permits or restricts calling the number as specified in the dial string.

Restriction tables are commonly used to permit or restrict calls to the following:

- Specific numbers, such as an extension.
- Numbers that are greater than or less than a specific length.
- Numbers that contain a specific digit or pattern of digits, such as an external access code followed by a long-distance access code.

For example, the restriction table in Table 4-3 restricts most long distance phone numbers, but permits extensions starting with “91.” In this case, if a user enters “9123” as a transfer number, Connection first compares the number to the call pattern in Dial String 0, which restricts all numbers that begin with “91” and are followed by at least seven digits. Because the number entered does not match the call pattern, Connection then compares the number to Dial String 1, which restricts all numbers that begin with “9011” and are followed by at least seven digits. Finally, Connection compares the number to the last dial string, which contains the wildcard character that matches all numbers of any length. Because the Allow This String field is set to Yes for this dial string, Connection permits this number to be used.

Table 4-3 Example 1

Dial String	Call Pattern	Allow This String
0	91???????*	No
1	9011???????*	No
2	*	Yes

The restriction table in Table 4-4 restricts long distance phone numbers and numbers with fewer than four digits. In this example, "9" is the external access code for the phone system, and "1" is the long-distance access code. Dial String 0 restricts any number beginning with "91," while numbers fewer than four digits in length are restricted by Dial String 2. Thus, the only numbers permitted by this restriction table have at least four digits, and are not long distance phone numbers.

Table 4-4 Example 2

Dial String	Call Pattern	Allow This String
0	91*	No
1	????*	Yes
2	*	No

Schedules and Holidays in Cisco Unity Connection 9.x

Schedules (and associated sets of holidays) are one of the variables that Cisco Unity Connection uses to manage calls: call handler transfer rules can be varied based on a schedule and schedules can be applied to routing rules to change call routing patterns for different time periods. Schedules also affect when some user and call handler greetings play.

Connection offers two predefined schedules: All Hours, and Weekdays, both of which can be modified. (By default, the Weekdays schedule is configured to observe standard hours from 8 a.m. through 5 p.m. Monday through Friday, and to observe the predefined Holidays schedule, which does not contain any dates or times.)

For each schedule that you create or modify, you can identify multiple ranges of hours and days that make up the standard and closed hours, and associate a holiday schedule that defines specific holiday dates and times:

Standard hours	The hours and days that make up the normal business hours, when the organization is open. Standard hours can include multiple time ranges and different time ranges on different days. (For example, standard hours for an organization might be Monday through Friday from 8 a.m. to 12 p.m. and 1 p.m. to 5 p.m., to accommodate a lunch break, and Saturday from 9 a.m. to 1 p.m.) Standard transfer rules are in effect during the days and time ranges you add to the standard schedule; standard user and call handler greetings play during standard hours.

Closed hours	The hours and days not identified as standard hours are considered nonbusiness hours, when the organization is closed. Closed user and call handler transfer rules operate at all times not specified by the standard schedule—including holidays; closed user and call handler greetings play according to the closed schedule.
Holidays	When a Holiday setting is in effect, Connection plays holiday greetings (if enabled) and observes closed hours transfer rules. You can set up several years of holidays at a time. Because many holidays occur on different dates each year, confirm that the holiday schedule remains accurate annually. Closed user and call handler transfer rules operate at all times not specified by the standard schedule—including holidays; holiday greetings for users and call handlers also play during this time period.

To modify predefined schedules or to create your own, see the "Managing Schedules and Holidays in Cisco Unity Connection 9.x" chapter.

Default Cisco Unity Connection 9.x Automated Attendant Behavior

The following example uses the default Cisco Unity Connection automated attendant configuration to illustrate a call flow through various call management elements. It illustrates some of the default behavior you can expect if you have not changed the call management configuration after installing Connection.

An Outside Caller Calls Cisco Unity Connection During Business Hours

A caller who does not have a Connection mailbox dials the main Connection phone number at 9:00 a.m. on a Monday morning.

1. Information from the phone system indicates that the call is a direct call from an outside caller. Connection checks the call routing rules for a rule that matches the call. The Direct routing rules table contains two entries: Attempt Sign In and Opening Greeting. For the Attempt Sign-In rule, Connection attempts to match the caller phone number with the extension or alternate extension of a Connection user. When this fails, Connection tries the next routing rule, the Opening Greeting rule.
2. The Opening Greeting call routing rule matches any incoming call at any time of day. It is configured to attempt to route the call to the Opening Greeting call handler.
3. Connection checks the transfer option settings for the Opening Greeting call handler. Because the call came in during the Weekdays active schedule, the standard transfer options apply. These specify to send the call to the greeting for this call handler. (Note that if the Opening Greeting call routing rule had been configured to send the call to the greeting for the Opening Greeting call handler rather than attempting to transfer to it, this step would be skipped).
4. Because the call came in during the Weekdays active schedule from a phone number that did not match an internal Connection user, Connection plays the standard greeting for the call handler: "Hello: Cisco Unity Connection Messaging System. From a touchtone phone you may dial an extension at any time. For a directory of extensions, press 4. Otherwise, please hold for an operator."

5. While the greeting plays, as the greeting indicates, the caller can enter digits to reach a user extension. The caller input settings on the Opening Greeting call handler also define several one-key dialing actions that can be taken—for example, when the caller presses key 4, Connection is configured to send the call to the System Directory Handler if no other keys are pressed within the time configured to wait for additional digits.
6. If no digits are entered, Connection proceeds with the after greeting action for the Standard greeting on this call handler, which is configured to attempt to transfer the call to the Operator call handler.
7. The Operator call handler is also configured for the Weekdays active schedule, and once again, Connection checks the standard transfer options for the call handler, which specify to transfer to the call handler greeting. The greeting plays: “Sorry, the operator is not available.”
8. The after greeting action for this greeting directs Connection to take a message. The message settings for this call handler specify that the Operator user receives the message, and that after the caller leaves the message, Connection should hang up.

CHAPTER 5

Creating a Call Management Plan in Cisco Unity Connection 9.x

Note Careful planning for your system components—call handlers, interview handlers, directory handlers, and call routing tables—is key to setting them up efficiently. Creating a call management map is a way to document your plan.

Note Before beginning the steps in this chapter, make sure you understand each of the system components and call routing elements as described in the "Call Management Overview in Cisco Unity Connection 9.x" chapter.

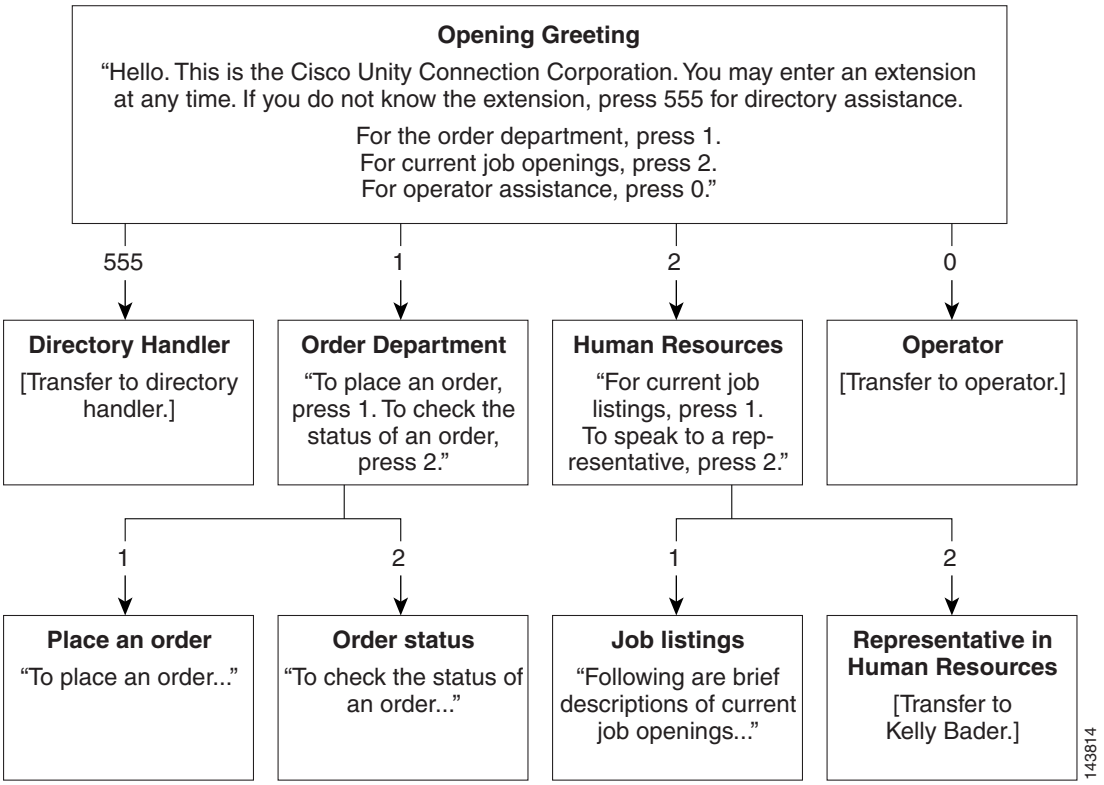
See the following sections:

- Creating a Call Management Map in Cisco Unity Connection 9.x, page 5-1
- Implementing a Call Management Plan in Cisco Unity Connection 9.x, page 5-2

Creating a Call Management Map in Cisco Unity Connection 9.x

When you have considered how your call management plan ought to work, you can create a sketch that shows specifically how the handlers connect to one another. Include a menu of one-key dialing options and all possible navigation choices (such as reaching a call handler by dialing an extension or via a routing rule). You can also include the predefined Cisco Unity Connection call handlers in your plan. See Figure 5-1 for a sample call management map that makes use of the automated attendant.

Figure 5-1 Sample Automated Attendant Call Management Map



Implementing a Call Management Plan in Cisco Unity Connection 9.x

After you have mapped your plan, write detailed scripts for the greeting of each call handler to use during the recording session.

When you are ready to set up your system of call handlers, start from the bottom up. First create the call handlers to which calls are routed. You select these "destination" call handlers when you create the call handlers that route calls to them. You also need to create accounts for the users to which call handlers transfer before creating those call handlers.

Using Figure 5-1 as an example, you first create a user account for Kelly Bader, and the handlers for Place an Order, Order Status, and Job Listings. Then you create the handlers for the Order Department and Human Resources.

In addition to mapping call handlers, you also need to plan call routing tables. In Figure 5-1, for example, all new call handlers are reached through the Opening Greeting. Another alternative is to assign extensions to some of your call handlers and to route incoming calls to those extensions by using a call routing table.

CHAPTER 6

Managing Call Handlers in Cisco Unity Connection 9.x

See the following sections:

- Overview of Default Call Handlers in Cisco Unity Connection 9.x, page 6-1
- Creating, Modifying, and Deleting Call Handler Templates in Cisco Unity Connection 9.x, page 6-2
- Creating Call Handlers in Cisco Unity Connection 9.x, page 6-4
- Modifying Call Handlers in Cisco Unity Connection 9.x, page 6-5
- Overview of Call Handler Greetings in Cisco Unity Connection 9.x, page 6-6
- Managing Call Handler Greetings in Cisco Unity Connection 9.x, page 6-7
- Managing Caller Input During Greetings in Cisco Unity Connection 9.x, page 6-9
- Changing Phone Language Settings in Cisco Unity Connection 9.x, page 6-12
- Taking Messages in Cisco Unity Connection 9.x, page 6-14
- Transferring Calls in Cisco Unity Connection 9.x, page 6-14
- Deleting Call Handlers in Cisco Unity Connection 9.x, page 6-15

Overview of Default Call Handlers in Cisco Unity Connection 9.x

Cisco Unity Connection comes with the following predefined call handlers, which you can modify but not delete. Note that you should at least modify the greetings for these call handlers.

Opening Greeting	Acts as an automated attendant, playing the greeting that callers first hear when they call your organization, and performing the actions you specify. The Opening Greeting Call Routing rule transfers all incoming calls to the Opening Greeting call handler. By default, the Opening Greeting call handler allows callers to press * to reach the Sign-In conversation, or press # to reach the Operator call handler. Messages left in the Opening Greeting call handler are sent to the Undeliverable Messages distribution list.

Operator	Calls are routed to this call handler when callers press “0” or do not press any key (the default setting). You can configure the Operator call handler so that callers can leave a message or be transferred to a live operator. By default, the Operator call handler allows callers to press * to reach the Sign-In conversation, or press # to reach the Opening Greeting call handler. Messages left in the Operator call handler are sent to the mailbox for the Operator user.
Goodbye	Plays a brief goodbye message and then hangs up if there is no caller input. By default, the Goodbye call handler allows callers to press * to reach the Sign-In conversation, or press # to reach the Opening Greeting call handler. If you change the After Greeting action from Hang Up to Take Message, messages left in the Goodbye call handler are sent to the Undeliverable Messages distribution list.

Creating, Modifying, and Deleting Call Handler Templates in Cisco Unity Connection 9.x

Each call handler that you add in Cisco Unity Connection is based on a template. Settings from the template are applied as the call handler is created. Unity Connection comes with one default call handler template, which has settings that are suitable for most call handlers.

You can also create new templates.

Before you create call handlers, review the settings in the template that you plan to use and determine whether you need to make changes or create new templates. For each template, you should consider enabling the transfer, caller input, greetings, and message settings that will be needed for the call handlers that you plan to create. Note that if you change settings on a call handler template, the new settings are in effect only for new call handlers that are created by using that template. Changes to template settings do not affect existing call handlers.

Deleting a call handler template does not affect any call handlers that were based on that template when they were created. Note that you cannot delete the default template.

See the following procedures:

- To Create a Call Handler Template, page 6-2
- To Modify a Call Handler Template, page 6-3
- To Delete a Call Handler Template, page 6-4

To Create a Call Handler Template

Step 1 In Cisco Unity Connection Administration, expand **Templates**, then select **Call Handler Templates**.

Step 2 On the Search Call Handler Templates page, select **Add New**.

Step 3 On the New Call Handler Template page, enter basic settings, as applicable. (For field information, on the Help menu, select **This Page**.)

Note Fields marked with * (an asterisk) are required.

Step 4 Select **Save**.

Step 5 On the Edit Call Handler Template page, continue entering applicable settings.

Step 6 When you have finished entering settings on the Edit Call Handler Template page, select **Save**.

Step 7 On the Edit menu, select any (or all) of the following related pages, to continue adding applicable settings to the new call handler template:

- Transfer Rules (see the "Transferring Calls in Cisco Unity Connection 9.x" section on page 6-14 for details)
- Caller Input (see the "Managing Caller Input During Greetings in Cisco Unity Connection 9.x" section on page 6-9 for details)
- Greetings (see the "Overview of Call Handler Greetings in Cisco Unity Connection 9.x" section on page 6-6 for details)
- Message Settings (see the "Taking Messages in Cisco Unity Connection 9.x" section on page 6-14 for details)

Step 8 If you change any of the default settings on any of the pages listed in Step 7, select **Save** before leaving the page.

To Modify a Call Handler Template

Step 1 In Cisco Unity Connection Administration, expand **Templates**, then select **Call Handler Templates**.

Step 2 On the Search Call Handler Templates page, select the display name of the call handler template that you want to modify.

Note If the call handler template that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Call Handler Template, change settings, as applicable. (For field information, on the Help menu, select **This Page**.)

Step 4 When you have finished changing settings on the Edit Call Handler Template page, select **Save**.

Step 5 You may also want to change settings on any (or all) of the following related pages, as applicable:

- Transfer Rules (see the "Transferring Calls in Cisco Unity Connection 9.x" section on page 6-14 for details)
- Caller Input (see the "Managing Caller Input During Greetings in Cisco Unity Connection 9.x" section on page 6-9 for details)
- Greetings (see the "Overview of Call Handler Greetings in Cisco Unity Connection 9.x" section on page 6-6 for details)
- Message Settings (see the "Taking Messages in Cisco Unity Connection 9.x" section on page 6-14 for details)

Step 6 If you change any of the settings on a page listed in Step 5, select **Save** before leaving the page.

To Delete a Call Handler Template

Step 1 In Cisco Unity Connection Administration, expand **Templates**, then select **Call Handler Templates**.

Step 2 On the Search Call Handler Templates page, check the check box adjacent to the call handler template that you want to delete.

Note If the call handler template that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Delete Selected**.

Step 4 Select **OK**.

Creating Call Handlers in Cisco Unity Connection 9.x

After you have created or updated the templates that you plan to use, you are ready to create call handlers.

To Create a Call Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handlers page, select **Add New**.

Step 3 On the New Call Handler page, enter basic settings, as applicable. (For field information, on the Help menu, select **This Page**.)

Note Fields marked with * (an asterisk) are required.

Step 4 Select **Save**.

Step 5 On the Edit Call Handler page, continue entering settings for the call handler.

Step 6 When you have finished entering settings on the Edit Call Handler page, select **Save**.

Step 7 On the Edit menu, select any (or all) of the following related pages, to continue adding applicable settings to the new call handler:

- Transfer Rules (see the "Transferring Calls in Cisco Unity Connection 9.x" section on page 6-14 for details)
- Caller Input (see the "Managing Caller Input During Greetings in Cisco Unity Connection 9.x" section on page 6-9 for details)
- Greetings (see the "Overview of Call Handler Greetings in Cisco Unity Connection 9.x" section on page 6-6 for details)
- Message Settings (see the "Taking Messages in Cisco Unity Connection 9.x" section on page 6-14 for details)
- Call Handler Owners

Note Depending on how you set up the call handler template on which this new call handler is based, you may not need to change any settings on these additional pages. At a minimum, however, you should record a name and one or more greetings for the call handler.

Step 8 If you change any of the settings on a page listed in Step 7, select **Save** before leaving the page.

Modifying Call Handlers in Cisco Unity Connection 9.x

After a call handler has been created, you may need to adjust settings. The tools in Cisco Unity Connection Administration allow you to modify a single call handler at a time, or make changes to multiple call handlers at once. Do the applicable procedure:

- To Modify a Single Call Handler, page 6-5
- To Modify Call Handler Settings in Bulk Edit Mode, page 6-6

To Modify a Single Call Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handlers page, select the display name of the call handler that you want to modify.

Note If the call handler that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Call Handler page, change settings as applicable. (For field information, on the Help menu, select **This Page**.)

Note Do remember to take backup of the report data before renaming the Call Handler display name as you will be unable to view the prior data set for calls in the report after renaming it.

Step 4 When you have finished changing settings on the Edit Call Handler page, select **Save**.

Step 5 You may also want to change settings on any (or all) of the following related pages, as applicable:

- Transfer Rules (see the "Transferring Calls in Cisco Unity Connection 9.x" section on page 6-14 for details)
- Caller Input (see the "Managing Caller Input During Greetings in Cisco Unity Connection 9.x" section on page 6-9 for details)
- Greetings (see the "Overview of Call Handler Greetings in Cisco Unity Connection 9.x" section on page 6-6 for details)
- Message Settings (see the "Taking Messages in Cisco Unity Connection 9.x" section on page 6-14 for details)
- Call Handler Owners

Step 6 If you change any of the settings on a page listed in Step 5, select **Save** before leaving the page.

To Modify Call Handler Settings in Bulk Edit Mode

Step 1 On the Search Call Handlers page, check the applicable call handler check boxes, and select **Bulk Edit**.

If the call handlers that you want to edit in bulk do not all appear on one Search page, check all applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all applicable call handlers. Then select **Bulk Edit**.

Step 2 To make a change to a setting, check the check box to the left of the field name to select it, and then set the field as usual. Select **Help > This Page** to see descriptions of each setting.

Note The Status message at the top of the Edit Call Handler Basics page tells you how many call handlers are being edited. Also note that the page is populated only with the fields that you are allowed to edit in bulk mode.

Step 3 If applicable, set the Bulk Edit Task Scheduling Fields to schedule the Bulk Edit operation for a later date and/or time.

Step 4 Select **Submit**.

Overview of Call Handler Greetings in Cisco Unity Connection 9.x

Each call handler can have up to seven greetings. The greeting settings specify which greetings are enabled, how long they are enabled, the greeting source, and the actions that Cisco Unity Connection takes during and after each greeting. When a greeting is enabled, Unity Connection plays the greeting in the applicable situation until the specified date and time arrives, and then the greeting is automatically disabled. A greeting can also be enabled to play indefinitely.

Note that Call Handler greetings can be recorded in multiple languages. See the "Changing Phone Language Settings in Cisco Unity Connection 9.x" section on page 6-12 for instructions.

You can customize how Unity Connection handles calls to call handlers that have the alternate greeting enabled. For example, you can specify that for as long as the alternate greeting is enabled, Unity Connection:

- Transfers callers directly to the greeting without ringing the extension that is assigned to the call handler (as applicable) whenever calls are transferred from the automated attendant or a directory handler to the user extension. (The phone rings if an outside caller or another Unity Connection user dials a user extension directly.)
- Prevents all callers from skipping the greeting.
- Prevents all callers from leaving messages (when the call handler is set up to take message).

Note that Unity Connection plays the greetings that you enable for the applicable situation; however, some greetings override other greetings when they are enabled:

Standard	Plays at all times unless overridden by another greeting. You cannot disable the standard greeting.
Closed	Plays during the closed (nonbusiness) hours defined for the active schedule. A closed greeting overrides the standard greeting, and thus limits the standard greeting to the open hours defined for the active schedule.
Holiday	Plays during the specific dates and times specified in the schedule of holidays associated with the active schedule. A holiday greeting overrides the standard and closed greetings.
Internal	Plays to internal callers only. It can provide information that only coworkers need to know. (For example, "I will be in the lab all afternoon.") An internal greeting overrides the standard, closed, and holiday greetings. Not all phone system integrations provide the support necessary for an internal greeting.
Busy	Plays when the extension is busy. (For example, "All of our operators are with other customers.") A busy greeting overrides the standard, closed, internal, and holiday greetings. Not all phone system integrations provide the support necessary for a busy greeting.
Alternate	Can be used for a variety of special situations, such as vacations or a leave of absence. (For example, "I will be out of the office until....") An alternate greeting overrides all other greetings.
Error	Plays if the caller enters invalid digits. This can happen if the digits do not match an extension, the extension is not found in the search scope, or the caller is otherwise restricted from dialing the digits. You cannot disable the error greeting. The system default error recording is, "I did not recognize that as a valid entry." By default, after the error greeting plays, Unity Connection replays the greeting that was playing when the caller entered the invalid digits.

Call handler owners can select a different call handler greeting or record the call handler greetings from the System Call Handlers > Greetings page in Cisco Unity Connection Administration, or they can use the Cisco Unity Greetings Administrator to do so by phone. (For more information on recording greetings and using the Cisco Unity Greetings Administrator, see the "Managing Recorded Greetings and Recorded Names in Cisco Unity Connection 9.x" chapter.)

See the following "Managing Call Handler Greetings in Cisco Unity Connection 9.x" section for instructions on changing call handler greeting settings.

Managing Call Handler Greetings in Cisco Unity Connection 9.x

You can modify call handlers greetings by using Cisco Unity Connection Administration, or by calling Cisco Unity Connection by phone. When you use Connection Administration to modify greetings, you can do so for a single call handler, or you can modify the greetings for multiple call handlers at once.

Do the applicable procedure:

- To Set Up Call Handler Greetings for a Single Call Handler, page 6-8

- To Set Up Call Handler Greetings for Multiple Call Handlers in Bulk Edit Mode, page 6-8

To manage call handler greetings when you—or the call handler owners that you assign—cannot access Cisco Unity Connection Administration, you can use the Cisco Unity Greetings Administrator by phone. For more information, see the "Setting Up the 9.x Cisco Unity Greetings Administrator" section on page 18-4 and the "Using the 9.x Cisco Unity Greetings Administrator to Record or Rerecord Call Handler Greetings" section on page 18-2.

To Set Up Call Handler Greetings for a Single Call Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handlers page, select the display name of the applicable call handler.

Note If the call handler does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit menu, select **Greetings**.

Step 4 On the Greetings page, select the display name of the greeting that you want to set up.

Step 5 On the Edit Greeting page, enter settings as applicable.

Step 6 Select **Save**.

Step 7 To set up another greeting for the call handler, repeat Step 3 through Step 6.

To Set Up Call Handler Greetings for Multiple Call Handlers in Bulk Edit Mode

Step 1 On the Search Call Handlers page, check the applicable call handler check boxes, and select **Bulk Edit**.

If the call handlers that you want to edit in bulk do not all appear on one Search page, check all applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all applicable call handlers. Then select **Bulk Edit**.

Note The Status message at the top of the Edit Call Handler Basics page tells you how many call handlers are being edited. Also note that each page is populated only with the fields that you are allowed to edit in bulk mode.

Step 2 On the Edit menu, select **Greetings**.

Step 3 On the Greetings page, select the display name of the greeting that you want to set up.

Step 4 On the Edit Greeting page, change settings as applicable by checking the check box to the left of a field name to select it, and then setting the field as usual. (Select **Help > This Page** to see descriptions of each setting.)

Step 5 If applicable, set the Bulk Edit Task Scheduling Fields to schedule the Bulk Edit operation for a later date and/or time.

Step 6 Select **Submit**.

Managing Caller Input During Greetings in Cisco Unity Connection 9.x

Caller input settings define actions that Cisco Unity Connection takes in response to phone keys pressed by callers during a call handler greeting. By using the settings on the Edit Greeting page for each individual greeting, you can specify on a per-greeting basis whether the greeting allows caller input and whether callers can perform transfers. Or, you can define caller input keys and options that apply to all of the call handler greetings by using the Caller Input page for the call handler.

See the following sections for details:

- Offering One-Key Dialing During Call Handler Greetings, page 6-9
- Offering System Transfers, page 6-10
- Abbreviated Extensions: Prepending Digits to Extensions That Callers Enter, page 6-10

Offering One-Key Dialing During Call Handler Greetings

One-key dialing enables you to designate a single digit to represent a user extension, alternate contact number, call handler, interview handler, or directory handler. Instead of entering the full extension, the caller presses a single key during a call handler greeting and Cisco Unity Connection responds accordingly. By specifying several different keys as caller input options, you can offer callers a menu of choices in the call handler greeting.

Configuring the transfer to alternate contact number action on one or more keys of a call handler allows you to quickly set up a simple audiotext tree that callers can use to transfer to specific non-user extensions on the phone system or to specific external numbers, without having to create separate call handlers for each number. When transferring a caller to an alternate contact number, Unity Connection can either supervise the transfer or release the call to the phone system.

Callers can also bypass one-key dialing. You set the system to pause a certain number of seconds for additional key presses before routing the call according to the one-key dialing menu you have set up. These pauses allow callers to press full extension IDs to bypass one-key dialing menus, even during the handler greeting.

Further, you can lock certain keys to take the caller directly to the action programmed for that key without waiting for an additional key press. Note that you should not lock any key that matches the first digit of user extensions; otherwise, callers are not able to enter an extension to reach a user.

To Offer One-Key Dialing During a Call Handler Greeting

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handler page, in the Search Results table, select the display name of the applicable call handler.

Note If the call handler does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Call Handler page, on the Edit menu, select **Caller Input**.

Step 4 In the Single Key Settings table, select the applicable phone keypad key.

Step 5 On the Edit Caller Input page for the key that you selected, check the **Ignore Additional Input (Locked)** check box to instruct Unity Connection to immediately process the key without waiting for the caller to enter additional digits.

Step 6 Under Action, select an option and change settings as applicable.

Step 7 Select **Save**.

Step 8 Optionally, you can rerecord the call handler greetings to mention the key that callers can press while listening to the greetings:

a. On the Edit menu, select **Greetings**.

b. On the Greetings page, select the display name of the greeting that you want to modify.

c. On the Edit Greeting page, select **Play/Record**, and record a greeting.

d. Select **Save**.

Offering System Transfers

System transfers allow callers to dial numbers that are not associated with a user, contact, call handler, or other entity. For example, users and outside callers may find it convenient to be able to call Cisco Unity Connection and transfer from a call handler to a lobby extension, conference room extension, or an extension that is assigned to someone in the organization who is not a Unity Connection user, such as an employee who is visiting from another site and is using a guest office.

You can configure individual call handler greetings to allow callers to transfer to numbers that are not associated with Unity Connection users or call handlers while the greeting is playing.

For more information see the "Setting Up System Transfers in Cisco Unity Connection 9.x" chapter.

Abbreviated Extensions: Prepending Digits to Extensions That Callers Enter

You can simulate abbreviated extensions by using prepended digits for call handlers and user mailboxes. When such digits are defined, they are prepended to any extension that a caller dials while listening to the greeting for the call handler or user mailbox.

Cisco Unity Connection first attempts to route the call to the prepended extension. If the prepended extension is not valid, Unity Connection attempts to route the call to the dialed extension. In the following example, the call handler named Sales is configured with the prepended digits 123. When a caller dials 1000 while listening to the greeting for the Sales call handler, Unity Connection attempts to route the call to extension 1231000; if the prepended extension is not valid, Unity Connection attempts to route the call to extension 1000. (Note that if extension 1000 is not a valid extension and the greeting for the Sales call handler is configured to allow transfers to numbers not associated with users or call handlers, Unity Connection performs a release transfer to 1231000.)

Abbreviated extensions can be used as a way for an organization to segment users into different groups. For example, suppose a company has two departments: Engineering and Marketing. The company uses six digit extensions, and all extensions in Engineering begin with 10 and all extensions in Marketing

begin with 11. Call handlers could be created for Engineering and for Marketing, and each call handler could be configured to prepend a 10 or a 11, as applicable, to any extension dialed from that call handler. When set up this way, users would only have to enter the last four digits of a user extension.

Do one of the following procedures:

- To Configure Prepended Digits for Individual User or Call Handler Accounts, page 6-11
- To Configure Prepended Digits for Multiple User or Call Handler Accounts in Bulk Edit Mode, page 6-11

To Configure Prepended Digits for Individual User or Call Handler Accounts

Step 1 In Cisco Unity Connection Administration, go to the Caller Input page for the applicable user, user template, call handler, or call handler template.

Step 2 In the Prepend Digits to Dialed Extensions section, check the **Enable** check box.

Step 3 In the Digits to Prepend field, enter the applicable digits.

Step 4 Select **Save**.

To Configure Prepended Digits for Multiple User or Call Handler Accounts in Bulk Edit Mode

Step 1 On the applicable Search page, check the applicable user or call handler check boxes, and select **Bulk Edit**.

If the users or call handlers that you want to edit in bulk do not all appear on one Search page, check all applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all applicable users or call handlers. Then select **Bulk Edit**.

Note The Status message at the top of the page tells you how many users or call handlers are being edited. Also note that each page is populated only with the fields that you are allowed to edit in bulk mode.

Step 2 On the Edit menu, select **Caller Input**.

Step 3 On the Caller Input page, in the Prepend Digits to Dialed Extensions section, check the left-most check box to select the **Enable** field, and then check the **Enable** check box.

Step 4 In the Digits to Prepend field, enter the applicable digits.

Step 5 If applicable, set the Bulk Edit Task Scheduling Fields to schedule the Bulk Edit operation for a later date and/or time.

Step 6 Select **Submit**.

Changing Phone Language Settings in Cisco Unity Connection 9.x

Call handler greetings can be recorded in multiple languages when the language for the call handler is inherited from the caller. For example, if Cisco Unity Connection is configured to provide prompts in French and Spanish, it is possible to record the standard greeting in both languages so that Spanish- and French-speaking callers can hear the greeting in their own language.

To Change Phone Language Settings for a Call Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handler page, in the Search Results table, select the display name of the applicable call handler.

Note If the call handler does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Call Handler page, select **Use System Default Language** or **Inherit Language from Caller**, or select one of the languages in the Language list.

Step 4 Select **Save**.

Step 5 On the Edit menu, select **Greetings**.

Step 6 On the Greetings page, select the applicable greeting.

Step 7 On the Edit Greetings page, rerecord greetings in the new language.

Step 8 Select **Save**.

TTY Overview

Revised June 21, 2013

A TTY prompt set, available in U.S. English (ENX) only, can be installed and used just like any other supported phone language. When the TTY prompt set is installed, subscribers and outside callers who use TTY can call in to Unity Connection and use the same features that a hearing caller can use. However, note the following limitations:

- G.711 MuLaw must be selected as the message recording and storage codec. The Unity Connection TTY prompt set is not compatible with G.729a or other message recording and storage codecs.
- A dedicated phone number must be set up for use by outside callers with TTY. All greetings, prompts, and subscriber names accessible from this number must be created with the TTY prompt set.
- TTY is a TUI language only. At the present time, there is no compatible Text to Speech (TTS) language for TTY. The TTY prompt set is also not suitable for use as a GUI language.
- TTY tones are not available for use in navigating through the Unity Connection conversation. Some TTY phones do not have the capability to send DTMF tones. In this case, TTY users may need to use the phone keypad for system navigation.

- Due to recording and playback limitations, the TTY prompt set cannot be used in interview handlers.
- TTY phones do not display the voice names but simply playback the voice names.
- Use TTY angel to display voice name as text and replace them in Unity Connection.

See the following sections for information on setting up and using the Unity Connection TTY prompt set:

- Setting Up Cisco Unity Connection to Use the TTY Prompt Set
- Using the TTY Angel
- Using NTS for Advanced TTY Features

Setting Up Cisco Unity Connection to Use the TTY Prompt Set

To set up Unity Connection for TTY, do the following tasks.

Step 1 Obtain a dial-in number that will be used exclusively for outside callers with TTY to call in to Unity Connection. Set up the phone system and integration as required.

Step 2 Install TTY devices for subscribers, as needed.

Step 3 Install the ENX language on the Unity Connection server.

Step 4 Confirm that G.711 is selected as the Unity Connection message recording and storage code.

Step 5 Disable Unity Connection comfort noise. See the "Disabling Unity Connection Comfort Noise" section.

Step 6 Create a TTY subscriber template. This template will be used when creating subscriber accounts for all subscriber who will use TTY. You may also want to create a TTY class of service, on which you disable Text to Speech for these subscribers.

Step 7 Create a routing rule for the TTY dial-in number.

Step 8 Create an opening greeting call handler for the TTY dial-in number.

Step 9 Set up additional TTY call handlers as needed.

Step 10 Record greetings in TTY by using the TTY Angel, or by using the Media Master and a TTY phone as a recording and playback device. You will need to record the following greetings, as applicable: the opening greeting, additional call handler greetings, and subscriber greetings. See the Using the TTY Angel section.

Step 11 Test the TTY dial-in number, opening greeting, call handlers, and all subscriber devices to confirm correct operation for both incoming and outgoing TTY calls.

Using the TTY Angel

The TTY prompt set includes all system prompts needed to use TTY with Unity Connection. The TTY Angel application, available in Tools Depot, is used to create custom call handler and subscriber greetings, and subscriber recorded names, in TTY.

You can also create a CSV file containing a list of greetings and subscriber names to be converted to TTY all at once. See TTY Angel Help for more information about this option.

To Use the TTY Angel to Create Greetings and Recorded Names

Step 1 On the Unity Connection desktop, double-click the Unity Connection Tools Depot icon.

Step 2 In the left pane, expand Administrative Tools, and double-click TTY Angel. The TTY Angel window appears.

Step 3 To create a new greeting or subscriber voice name, in the Output File Name window, enter a location and file name for the new TTY file.

```
For example, enter C:\TTY Greetings\Opening Greeting.
```

Step 4 In the Text to Convert to TTY/TDD WAV File window, enter the greeting, subscriber name, or other text as applicable, and click Create WAV File.

The text is converted, displayed in the Diagnostic Output window, and stored in the designated output file and in the clipboard.

Step 5 To paste the TTY WAV file into a call handler or subscriber record, in the Unity Connection Administrator, browse to the applicable subscriber or call handler page.

Step 6 On the Media Master Control Bar, click the Options menu, and click Paste or Paste From File as applicable. The WAV file is pasted into the record.

Using NTS for Advanced TTY Features

NTS version 4.0 and later, available from NXi Communications, is compatible with Unity Connection and Cisco Unified CM. NTS offers advanced TTY features for business and individual use.

Taking Messages in Cisco Unity Connection 9.x

By using the settings for a particular call handler greeting, you can configure the call handler to take a message after playing the greeting. You can specify who receives messages for the call handler, whether messages are marked for dispatch delivery, the maximum recording length for messages from outside callers, what callers can do when leaving messages and whether their messages are automatically marked secure, and what action to take next on a call after a message is left.

Note that for some integrations, you can set up Cisco Unity Connection so that as a caller records a message, a warning prompt is played before the caller reaches the maximum allowable message length. See the "Configuring the Termination Warning Prompt for the End of Recording" section on page 20-6 for details.

For details on configuring dispatch messages, see the "Dispatch Messages in Cisco Unity Connection 9.x" section on page 20-8.

Transferring Calls in Cisco Unity Connection 9.x

Revised June 11, 2013

The call transfer settings for a call handler specify how Cisco Unity Connection transfers calls that reach the call handler from the automated attendant. Each call handler has three transfer rules that you can customize: one for standard hours and one for closed (nonbusiness and holiday) hours of the active schedule, and an alternate transfer rule that, when enabled, overrides the standard and closed transfer rules and is in effect at all times. When a call is transferred to the call handler, Unity Connection first checks the applicable transfer rule to determine where to transfer the call—either to the call handler greeting, or to an extension.

When transferring to the call handler greeting, Unity Connection plays the applicable greeting (standard, closed, holiday, internal, busy, or alternate) based on the situation and which greetings are enabled. You configure a transfer rule to transfer to the greeting if you want to use the call handler to provide the caller with a prerecorded menu of options or an informational message.

To route callers to a specific user or to another call handler, you configure the transfer rule to transfer to the extension of the user or call handler. When transferring a call to a user extension, Unity Connection can either release the call to the phone system, or it can supervise the transfer. When Unity Connection is set to supervise transfers, it can provide call screening and call holding options on indirect calls:

- With call screening, Unity Connection can ask for the name of the caller before connecting to a user. The user can then hear who is calling and, when a phone is shared by more than one user, who the call is for. The user can then accept or refuse the call.
- With call holding, when the phone is busy, Unity Connection can ask callers to hold. Each caller on hold uses a Unity Connection port and a phone system port, and therefore the total number of callers that can be holding in the queue at any one time is limited by the number of available ports.

  The default wait time in the call holding queue for the first caller in the queue is 25 seconds. If the caller is still on hold after this amount of time, Unity Connection asks whether the caller wants to continue holding, leave a message, or try another extension. In case of callers put on hold without asking, these options are available for the users after the first timeout of the default wait time. If the caller does not press a key on the phone keypad or say a voice command to indicate that he or she wants to continue holding, leave a message, or dial another extension, the caller is transferred back to the Opening Greeting. Subsequent callers in the holding queue are told how many other callers are in the queue ahead of them, in addition to these options. (See the "Call Holding Wait Time in Cisco Unity Connection 9.x" section on page 14-5 for more information on call holding.)

  If call holding is not selected, callers are sent to the user or handler greeting that is enabled: the standard, closed, holiday, busy, or alternate greeting.

Deleting Call Handlers in Cisco Unity Connection 9.x

If a call handler is referenced by other objects in Connection (for example, a routing rule or other call handler is set to route calls to the call handler), you are not allowed to delete the call handler until you have changed settings on the other objects to remove references to the call handler you want to delete. If you try to delete a call handler without first changing settings on objects that reference the call handler, the delete operation fails

If you delete call handlers that are referenced by other call handlers, be sure to rerecord the greetings so that callers hear the correct information about input options.

To Delete a Call Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handlers page, check the check box adjacent to the display name of the call handler that you want to delete.

Note If the call handler that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Show Dependencies** to search for database objects that have dependencies on the call handler you want to delete.

Step 4 From the dependencies search results, follow links to the affected objects and reassign the dependency to another call handler.

Step 5 Select **Tools > Show Dependency Results**.

Step 6 On the Show Dependency Results page, select **Display Previous Results**.

Step 7 Repeat Step 4 through Step 6 until all dependencies have been reassigned.

Step 8 Select **Call Management > System Call Handlers**.

Step 9 On the Search Call Handlers page, check the check box adjacent to the display name of the call handler that you want to delete.

Step 10 Select **Delete Selected**.

Note If you are concerned that you might delete the wrong call handler from the search page, you can select the display name to navigate to the Edit Call Handler Basics page. Use the detailed data on that page to confirm that it is the call handler you want to delete.

Step 11 In the dialog box that asks you to confirm the deletion, select **OK**.

CHAPTER 7

Managing Directory Handlers in Cisco Unity Connection 9.x

Note Directory handlers provide access to a corporate directory that callers can use to reach Cisco Unity Connection users with mailboxes. When a caller searches for a username or part of a name, a directory handler looks up the extension and routes the call to the appropriate user.

Each directory handler contains settings that specify how it searches for names, what it does when it finds one or more matches, and what it does when it detects no caller input.

See the following sections:

- Overview of the Default Directory Handler in Cisco Unity Connection 9.x, page 7-1
- Creating a Directory Handler in Cisco Unity Connection 9.x, page 7-2
- Modifying a Directory Handler in Cisco Unity Connection 9.x, page 7-2
- Changing Phone Language Settings in Cisco Unity Connection 9.x, page 7-3
- Routing Calls to a Voice Directory Handler in Cisco Unity Connection 9.x, page 7-4
- Deleting a Directory Handler in Cisco Unity Connection 9.x, page 7-5

Overview of the Default Directory Handler in Cisco Unity Connection 9.x

Cisco Unity Connection includes one default directory handler, the System Directory Handler, which you can modify but not delete. By default, this directory handler is configured to search all users who have mailboxes on the system, in last name, first name order. Callers use the phone keypad to interact with the default System Directory Handler. There is no default voice-enabled directory handler. (For additional discussion of the types of directory handlers, see the "Directory Handlers in Cisco Unity Connection 9.x" section on page 4-3.)

In the default configuration, the default directory handler is accessed when callers press 4 during the Opening Greeting call handler greeting.

Creating a Directory Handler in Cisco Unity Connection 9.x

You can create as many directory handlers as needed to route calls to users by using available filters such as location and search space. You can create both phone-keypad and voice-enabled directory handlers on the same system, and users can be listed in more than one directory handler.

Note that the voice-recognition option is required in order to create voice-enabled directory handlers.

Because directory handlers do not have greetings, we recommend that you use call handlers or one-key dialing to route callers to a directory handler, and use the call handler greeting to explain caller options for each directory handler.

By creating more than one directory handler, you can provide efficient and secure directory searches for systems with hundreds or thousands of users. Multiple directory handlers can also be used for call routing in headquarters and branch office deployments where Cisco Unity Connection provides centralized call processing. Users can be listed in more than one directory handler, and you can create as many directory handlers as needed to manage caller searches for users.

To Create a Directory Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Directory Handlers**.

Step 2 On the Search Directory Handlers page, select **Add New**.

Step 3 On the New Directory Handler page, enter a display name and, optionally, an extension for the directory handler.

Note Fields marked with * (an asterisk) are required.

Step 4 To create a voice-enabled directory handler, check the **Voice Enabled** check box.

Step 5 Select **Save**.

Step 6 On the Edit Directory Handler Basics page, continue entering settings for the directory handler. (For field information, on the Help menu, select **This Page**.)

Step 7 When you have finished entering settings on the Edit Directory Handler page, select **Save**.

Step 8 On the Edit menu, select **Caller Input** to continue adding applicable settings to the new directory handler.

Step 9 If you change any of the settings on the Caller Input page, select **Save** before leaving the page.

Modifying a Directory Handler in Cisco Unity Connection 9.x

Do the applicable procedure:

- To Modify a Directory Handler, page 7-2
- To Modify Directory Handler Settings in Bulk Edit Mode, page 7-3

To Modify a Directory Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Directory Handlers**.

Step 2 On the Search Directory Handlers page, select the display name of the directory handler that you want to modify.

Note If the directory handler that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Directory Handler Basics page, change settings as applicable. (For field information, on the Help menu, select **This Page**.)

Step 4 When you have finished changing settings on the Edit Directory Handler page, select **Save**.

Step 5 To change the settings on the Caller Input page, on the Edit menu, select **Caller Input**.

Step 6 If you change any of the settings on the Caller Input page, select **Save** before leaving the page.

To Modify Directory Handler Settings in Bulk Edit Mode

Step 1 On the Search Directory Handlers page, check the applicable directory handler check boxes, and select **Bulk Edit**.

If the directory handlers that you want to edit in bulk do not all appear on one Search page, check all applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all applicable directory handlers. Then select **Bulk Edit**.

Step 2 To make a change to a setting, check the check box to the left of the field name to select it, and then set the field as usual. Select **Help > This Page** to see descriptions of each setting.

Note The Status message at the top of the Edit Directory Handler Basics page tells you how many directory handlers are being edited. Also note that the page is populated only with the fields that you are allowed to edit in bulk mode.

Step 3 If applicable, set the Bulk Edit Task Scheduling Fields to schedule the Bulk Edit operation for a later date and/or time.

Step 4 Select **Submit**.

Changing Phone Language Settings in Cisco Unity Connection 9.x

For each phone directory handler, you can specify whether to use the language that was applied by a previous call handler or by a routing rule.

Do the applicable procedure:

- To Change Phone Language Settings for a Directory Handler, page 7-3
- To Change Phone Language Settings for Multiple Directory Handlers in Bulk Edit Mode, page 7-4

To Change Phone Language Settings for a Directory Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Directory Handlers**.

Step 2 On the Search Directory Handlers page, select the directory handler display name.

Note If the directory handler does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Directory Handler Basics page, select **Use System Default Language** or **Inherit Language from Caller**, or select one of the languages in the list.

Step 4 Select **Save**.

To Change Phone Language Settings for Multiple Directory Handlers in Bulk Edit Mode

Step 1 On the Search Directory Handlers page, check the applicable directory handler check boxes, and select **Bulk Edit**.

If the directory handlers that you want to edit in bulk do not all appear on one Search page, check all applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all applicable directory handlers. Then select **Bulk Edit**.

Step 2 On the Edit Directory Handler Basics page, check the **Language** check box to select it, and then select **Use System Default Language** or **Inherit Language from Caller**, or select one of the languages in the list.

Step 3 If applicable, set the Bulk Edit Task Scheduling Fields to schedule the Bulk Edit operation for a later date and/or time.

Step 4 Select **Submit**.

For information on TTY configuration, see the "TTY Overview" section on page 6-12.

Routing Calls to a Voice Directory Handler in Cisco Unity Connection 9.x

Because directory handlers do not have greetings, we recommend that you use call handlers or one-key dialing to route callers to a directory handler, and use the call handler greeting to explain caller options for each directory handler.

If you are setting up a voice directory handler, see the following task list for configuring Cisco Unified Communications Manager to route a phone number from Cisco Unified CM to the Cisco Unity Connection voice directory.

Task List for Routing Calls to the Voice Directory Handler

1. In Cisco Unified CM Administration, add the ports that you want to use for the voice-type directory handler to a new line group.
2. Add the line group to a new hunt list.
3. Add the hunt list to a new hunt pilot to which calls for the voice-type directory handler will be routed.

4. In Cisco Unity Connection Administration, configure the ports to route calls to the voice-type directory handler.

For details on configuring Cisco Unified CM, see the Cisco Unified CM documentation at http://www.cisco.com/en/US/products/sw/voicesw/ps556/tsd_products_support_series_home.html.

Deleting a Directory Handler in Cisco Unity Connection 9.x

If a directory handler is referenced by other objects in Connection (for example, a routing rule or a system call handler is set to route calls to the directory handler), you are not allowed to delete the directory handler until you have changed settings on the other objects to remove references to the directory handler you want to delete. If you try to delete a directory handler without first changing settings on objects that reference the directory handler, the delete operation fails

If you delete a directory handler that was referenced by one or more call handlers, be sure to rerecord the call handler greetings so that callers hear the appropriate information about input options.

To Delete a Directory Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Directory Handlers**.

Step 2 On the Search Directory Handlers page, select the check box adjacent to the display name of the directory handler that you want to delete.

Note If the directory handler that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Show Dependencies** to search for database objects that have dependencies on the directory handler you want to delete.

Step 4 From the dependencies search results, follow links to the affected objects and reassign the dependency to another directory handler.

Step 5 Select **Tools > Show Dependency Results**.

Step 6 On the Show Dependency Results page, select **Display Previous Results**.

Step 7 Repeat Step 4 through Step 6 until all dependencies have been reassigned.

Step 8 Select **Call Management > Directory Handlers**.

Step 9 On the Search Directory Handlers page, check the check box adjacent to the display name of the directory handler that you want to delete.

Step 10 Select **Delete Selected**.

Note If you are concerned that you might delete the wrong directory handler from the search page, select the display name to navigate to the Edit Directory Handler Basics page. Use the data on that page to confirm that it is the directory handler you want to delete.

Step 11 In the dialog box that asks you to confirm the deletion, select **OK**.

CHAPTER 8

Managing Interview Handlers in Cisco Unity Connection 9.x

Interview handlers collect information from callers by playing a series of questions that you have recorded, and then recording the answers offered by callers. For example, you might use an interview handler to take sales orders or to gather information for a product support line.

You can specify who receives the messages for the interview handler, whether the message is marked for dispatch delivery, whether the message is marked urgent, and what action to take next on the call after a message is left.

See the following sections:

- Creating Interview Handlers in Cisco Unity Connection 9.x, page 8-1
- Modifying Interview Handlers in Cisco Unity Connection 9.x, page 8-2
- Changing Phone Language Settings in Cisco Unity Connection 9.x, page 8-3
- Deleting Interview Handlers in Cisco Unity Connection 9.x, page 8-4

Creating Interview Handlers in Cisco Unity Connection 9.x

To Create an Interview Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Interview Handlers**.

Step 2 On the Search Interview Handlers page, select **Add New**.

Step 3 On the New Interview Handler page, enter basic settings, as applicable. (For field information, on the Help menu, select **This Page**.)

Note Fields marked with * (an asterisk) are required.

Step 4 Select **Save**.

Step 5 On the Edit Interview Handler page, on the Edit menu, select **Interview Questions**.

Step 6 On the Interview Questions page, select a question number to configure settings and record audio for each question.

Step 7 If you change any of the default settings on any of the questions, select **Save** before leaving the page.

Modifying Interview Handlers in Cisco Unity Connection 9.x

Do the applicable procedure:

- To Modify an Interview Handler, page 8-2
- To Modify Interview Handler Settings in Bulk Edit Mode, page 8-2

To Modify an Interview Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Interview Handlers**.

Step 2 On the Search Interview Handlers page, select the display name of the interview handler that you want to modify.

Note If the interview handler that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Interview Handler page, change settings, as applicable. (For field information, on the Help menu, select **This Page**.)

Step 4 When you have finished changing settings on the Edit Interview Handler page, select **Save**.

Step 5 On the Edit menu, select **Interview Questions**.

Step 6 On the Interview Questions page, select a question number to change settings for each question, as applicable.

Step 7 If you change any of the default settings on any of the question pages, select **Save** before leaving the page.

To Modify Interview Handler Settings in Bulk Edit Mode

Step 1 On the Search Interview Handlers page, check the applicable interview handler check boxes, and select **Bulk Edit**.

If the interview handlers that you want to edit in bulk do not all appear on one Search page, check all applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all applicable interview handlers. Then select **Bulk Edit**.

Step 2 To make a change to a setting, check the check box to the left of the field name to select it, and then set the field as usual. Select **Help > This Page** to see descriptions of each setting.

Note The Status message at the top of the Edit Interview Handler Basics page tells you how many interview handlers are being edited. Also note that the page is populated only with the fields that you are allowed to edit in bulk mode.

Step 3 If applicable, set the Bulk Edit Task Scheduling Fields to schedule the Bulk Edit operation for a later date and/or time.

Step 4 Select **Submit**.

Changing Phone Language Settings in Cisco Unity Connection 9.x

Do the applicable procedure:

- To Change Phone Language Settings for an Interview Handler, page 8-3
- To Change Phone Language Settings for Multiple Interview Handlers in Bulk Edit Mode, page 8-3

To Change Phone Language Settings for an Interview Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Interview Handlers**.

Step 2 On the Search Interview Handlers page, select the interview handler display name.

Note If the interview handler does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Interview Handler Basics page, select **Use System Default Language** or **Inherit Language from Caller**, or select one of the languages in the list.

Step 4 If applicable, rerecord questions in the new language:

a. On the Edit menu, select **Interview Questions**.

b. On the Interview Questions page, select a question number.

c. On the Edit Interview Question page, rerecord the question.

Step 5 As you make changes on the pages, select **Save** before leaving a page.

To Change Phone Language Settings for Multiple Interview Handlers in Bulk Edit Mode

Step 1 On the Search Interview Handlers page, check the applicable interview handler check boxes, and select **Bulk Edit**.

If the interview handlers that you want to edit in bulk do not all appear on one Search page, check all applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all applicable interview handlers. Then select **Bulk Edit**.

Step 2 On the Edit Interview Handler Basics page, check the Language check box to select it, and then select **Use System Default Language** or **Inherit Language from Caller**, or select one of the languages in the list.

Step 3 If applicable, set the Bulk Edit Task Scheduling Fields to schedule the Bulk Edit operation for a later date and/or time.

Step 4 Select **Submit**.

For information on TTY configuration, see the "TTY Overview" section on page 6-12.

Deleting Interview Handlers in Cisco Unity Connection 9.x

If an interview handler is referenced by other objects in Connection (for example, a caller input key on a call handler sends calls to the interview handler), you are not allowed to delete the interview handler until you have changed settings on the other objects to remove references to the interview handler you want to delete. If you try to delete a interview handler without first changing settings on objects that reference the interview handler, the delete operation fails

If you delete an interview handler that was referenced by one or more call handlers, be sure to rerecord the call handler greetings so that callers hear the appropriate information about input options.

To Delete an Interview Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Interview Handlers**.

Step 2 On the Search Interview Handlers page, check the check box adjacent to the display name of the interview handler that you want to delete.

Note If the interview handler that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Show Dependencies** to search for database objects that have dependencies on the interview handler you want to delete.

Step 4 From the dependencies search results, follow links to the affected objects and reassign the dependency to another interview handler.

Step 5 Select **Tools > Show Dependency Results**.

Step 6 On the Show Dependency Results page, select **Display Previous Results**.

Step 7 Repeat Step 4 through Step 6 until all dependencies have been reassigned.

Step 8 Select **Call Management > Interview Handlers**.

Step 9 On the Search Interview Handlers page, check the check box adjacent to the display name of the interview handler that you want to delete.

Step 10 Select **Delete Selected**.

Note If you are concerned that you might delete the wrong interview handler from the search page, select the display name to navigate to the Edit Interview Handler Basics page. Use the data on the page to confirm that it is the interview handler you want to delete.

Step 11 In the dialog box that asks you to confirm the deletion, select **OK**.

CHAPTER 9

Managing Custom Recordings in Cisco Unity Connection 9.x

See the following sections:

- Overview of the Custom Recordings in Cisco Unity Connection 9.x, page 9-1
- Adding a New Custom Recording in Cisco Unity Connection 9.x, page 9-2
- Modifying a Custom Recording in Cisco Unity Connection 9.x, page 9-2
- Setting After Message Sent Custom Recording in Cisco Unity Connection 9.x, page 9-3
- Deleting a Custom Recording in Cisco Unity Connection 9.x, page 9-5

Overview of the Custom Recordings in Cisco Unity Connection 9.x

Cisco Unity Connection allows you to play the customized recordings after a message is sent. You can also play the custom recordings after a greeting is played. A greeting is played before the callers are allowed to leave a message for a user or a call handler.

Note In Cisco Unity Connection 9.0, the **Post Greeting Recordings** option is changed to the **Custom Recordings** option.

In Cisco Unity Connection Administration, after the message is sent, you have the options to play: no recording, default system recording, or custom recordings. Connection allows you to add a new custom recording, modify the existing recording, and delete the existing recording. In addition, you can record multiple custom recordings in various languages that can be played after a message is sent and after a greeting is played.

To record each custom recording, you need to use the Media Master on the Edit Custom Recording page. The custom recordings are configured on the Call Management > Custom Recordings page in Cisco Unity Connection Administration. The **Play After Message Recording** and **Post Greeting Recording** options can be set for the following:

- Users
- User Templates
- Call Handlers

- Call Handler Templates

Adding a New Custom Recording in Cisco Unity Connection 9.x

To Add a new Custom Recording

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Custom Recordings**.

Step 2 On the Search Custom Recordings page, select **Add New**.

Step 3 On the New Custom Recording page, enter a display name for the custom recording.

Note Fields marked with * (an asterisk) are required.

Step 4 Select **Save**.

Step 5 On the Edit Custom Recording page, continue entering settings for the custom recording. (For field information, on the Help menu, select **This Page**.)

Step 6 Select the language in which you want to record and select **Play/Record**.

Step 7 When you are finished with the recording on the Edit Custom Recordings page, select **Save**.

See Also

- New Custom Recording

Modifying a Custom Recording in Cisco Unity Connection 9.x

To Modify a Custom Recording

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Custom Recordings**.

Step 2 On the Search Custom Recordings page, select the display name of the custom recording that you want to modify.

Note If the custom recording that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Custom Recording page, change settings as applicable. (For field information, on the Help menu, select **This Page**.)

Step 4 When you finished changing settings on the Edit Custom Recording page, select **Save**.

See Also

- Edit Custom Recording

Setting After Message Sent Custom Recording in Cisco Unity Connection 9.x

Do the applicable procedure:

- To Set After Message Sent Custom Recording for a User, page 9-3
- To Set After Message Set Custom Recording for a User Template, page 9-3
- To Set After Message Sent Custom Recording for a Call Handler Template, page 9-4
- To Set After Message Sent Custom Recording for a System Call Handler, page 9-4
- To Set After Message Sent Custom Recording for a User in Bulk Edit Mode, page 9-5

Note By default, **System Default Recording** option is selected for users, user templates, call handler templates, and system call handlers on the Edit Message Settings page.

To Set After Message Sent Custom Recording for a User

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **users**.

Step 2 On the Search Users page, select the user display name.

Note If the user does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Users Basics page, select **Message Settings** from the Edit menu.

Step 4 On the Edit Message Settings page, select the **Play Recording** option, and then select the required recording from the **Recording Selection** drop-down list.

Step 5 Select **Save**.

See Also

- Edit Message Settings

To Set After Message Set Custom Recording for a User Template

Step 1 In Cisco Unity Connection Administration, expand **Templates**, then select **User Templates**.

Step 2 On the Search User Templates page, select the user template display name.

Note If the user template does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit User Templates Basics page, select **Message Settings** from the Edit menu.

Step 4 On the Edit Message Settings page, select the **Play Recording** option and then select the required recording from the **Recording Selection** drop-down list.

Step 5 Select **Save**.

See Also

- User Templates Message Settings

To Set After Message Sent Custom Recording for a Call Handler Template

Step 1 In Cisco Unity Connection Administration, expand **Templates**, then select **Call Handler Templates**.

Step 2 On the Search Call Handler Templates page, select the call handler template display name.

Note If the call handler template does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Call Handler Templates Basics page, select **Message Settings** from the Edit menu.

Step 4 On the Edit Message Settings page, select the **Play Recording** option and then select the required recording from the **Recording Selection** drop-down list.

Step 5 Select **Save**.

See Also

- Call Handler Templates Message Settings

To Set After Message Sent Custom Recording for a System Call Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handlers Templates page, select the call handlers display name.

Note If the call handler template does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Call Handler Basics page, select **Message Settings** from the Edit menu.

Step 4 On the Edit Message Settings page, select the **Play Recording** option and then select the required recording from the **Recording Selection** drop-down list.

Step 5 Select **Save**.

See Also

- Call Handler Message Settings

To Set After Message Sent Custom Recording for a User in Bulk Edit Mode

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **users**.

Step 2 On the Search Users page, check the applicable user check boxes, and select **Bulk Edit**.

If the users that you want to edit in bulk do not appear on one Search page, check all the applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all the applicable call handlers. Then select **Bulk Edit**.

Step 3 On the Edit User Basics page, select **Message Settings** from the Edit menu.

Step 4 On the Edit Message Settings page, check the check box to the left of the field name (Play After Message Recording) to select it, and then select the required recording from the **Recording Selection** drop-down list. Select **Help > This Page** to see descriptions of each setting.

Note The Status message at the top of the Edit User Basics page tells you how many users are being edited. Also note that the page is populated only with the fields that you are allowed to edit in bulk mode.

Step 5 Select **Submit**.

Step 6 Repeat Step 1 to Step 5 to set the custom recordings for system call handlers in Bulk Edit mode.

See Also

- Custom Recordings in Cisco Unity Connection 9.x

Deleting a Custom Recording in Cisco Unity Connection 9.x

To Delete a Custom Recording

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Custom Recordings**.

Step 2 On the Search Custom Recordings page, select the check box adjacent to the display name of the custom recording that you want to delete.

Note If the custom recording that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Delete Selected**.

Step 4 In the dialog box that asks you to confirm the deletion, select **OK**.

Note

- If you have deleted the recording, which is selected in the **Play After Message Recording** option, then on the Edit Message Settings page, the **Recording Selection** option will be disabled and the **System Default Recording** option will be selected.
- If you have deleted the recording, which is selected in the **Post Greeting Recording** option, then on the Edit Post Greeting Recording Settings page, the **Recording Selection** will be changed to **None** and the **Do Not Play Recording** option will be selected.

CHAPTER 10

Managing Call Routing Tables in Cisco Unity Connection 9.x

See the following sections:

- Overview of Default Call Routing Rules in Cisco Unity Connection 9.x, page 10-1
- Adding Call Routing Rules in Cisco Unity Connection 9.x, page 10-2
- Modifying Call Routing Rules in Cisco Unity Connection 9.x, page 10-2
- Changing Phone Language Settings in Cisco Unity Connection 9.x, page 10-3
- Changing the Order of Call Routing Rules in Cisco Unity Connection 9.x, page 10-3
- Deleting Call Routing Rules in Cisco Unity Connection 9.x, page 10-3

Overview of Default Call Routing Rules in Cisco Unity Connection 9.x

Cisco Unity Connection has two call routing tables—one for direct calls and one for forwarded calls—that handle calls from users and from unidentified callers.

Direct rules handle calls from users and unidentified callers that are dialed directly to Connection. The predefined direct routing rules are:

- Attempt Sign-In—Calls from users are routed to the user sign-in conversation.
- Opening Greeting—Calls from unidentified callers are routed to the Opening Greeting.

Forwarded rules handle calls that are forwarded to Connection from either a user extension or from an extension that is not associated with a user account (such as a conference room). The predefined forwarded routing rules are:

- Attempt Forward—All calls forwarded from a user extension are routed to the user greeting.
- Opening Greeting—Calls forwarded from an extension that is not associated with a user account are routed to the Opening Greeting.

You can change the order of the Attempt Sign-In and Attempt Forward rules relative to additional rules that you add in the respective routing tables, but the Opening Greeting rule is always the last entry for both tables. You cannot delete the predefined rules.

When you create a new rule, you need to specify only the criteria that are used to route the call, and can leave the other fields on the page blank. A blank field matches everything. For example, if you leave the Ports field blank, the rule applies to calls from all ports.

Adding Call Routing Rules in Cisco Unity Connection 9.x

To Add a Call Routing Rule

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then expand **Call Routing**. For direct calls, select **Direct Routing Rules**. For forwarded calls, select **Forwarded Routing Rules**.

Step 2 On the Direct Routing Rules or Forwarded Routing Rules page, select **Add New**.

Step 3 On the New Direct Rule or New Forwarded Rule page, enter the name of the new rule in the Display Name field.

Step 4 Select **Save**.

Step 5 On the Edit Direct Rule or Edit Forwarded Rule page, continue entering applicable settings. (For field information, on the Help menu, select **This Page**.)

Note When you create a new rule, you need to specify only the criteria that are used to route the call, and can leave the other fields on the page blank. A blank field matches everything. For example, if you leave the Ports field blank, the rule applies to calls from all ports.

Step 6 When you have finished entering settings, select **Save**.

Modifying Call Routing Rules in Cisco Unity Connection 9.x

To Modify a Call Routing Rule

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then expand **Call Routing**. For direct calls, select **Direct Routing Rules**. For forwarded calls, select **Forwarded Routing Rules**.

Step 2 On the Direct Routing Rules or Forwarded Routing Rules page, select the display name of the call routing rule that you want to modify.

Step 3 On the Edit Direct Routing Rule or Edit Forwarded Routing Rule page, change settings as applicable. (For field information, on the Help menu, select **This Page**.)

Note A blank field matches everything. For example, if you leave the Ports field blank, the rule applies to calls from all ports.

Step 4 When you have finished entering settings on the page, select **Save**.

Note Default Call Routing Rule when set to be inactive can cause a call to loop.Verify all calls are routed correctly while modifying Routing Rule.

Changing Phone Language Settings in Cisco Unity Connection 9.x

To Change Phone Language Settings for a Routing Rule

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then expand **Call Routing**. For direct calls, select **Direct Routing Rules**. For forwarded calls, select **Forwarded Routing Rules**.

Step 2 On the Direct Routing Rules or Forwarded Routing Rules page, select the display name of the call routing rule that you want to modify.

Step 3 On the Edit Direct Routing Rule or Edit Forwarded Routing Rule page, select **Use System Default Language** or **Inherit Language from Caller**, or select one of the languages in the list.

Step 4 Select **Save**.

Changing the Order of Call Routing Rules in Cisco Unity Connection 9.x

To Change the Order of Call Routing Rules

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then expand **Call Routing**. For direct calls, select **Direct Routing Rules**. For forwarded calls, select **Forwarded Routing Rules**.

Step 2 On the Direct Routing Rules or Forwarded Routing Rules page, select **Change Order**.

Step 3 On the Edit Direct Routing Rule Order or Edit Forwarded Routing Rule Order page, in the Reorganization list, select the name of a rule that you want to move, then select the down or up arrow as applicable.

Step 4 When you have finished reordering the rules, select **Save**.

Deleting Call Routing Rules in Cisco Unity Connection 9.x

To Delete a Call Routing Rule

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then expand **Call Routing**. For direct calls, select **Direct Routing Rules**. For forwarded calls, select **Forwarded Routing Rules**.

Step 2 On the Direct Routing Rules or Forwarded Routing Rules page, check the check box adjacent to the display name of the rule that you want to delete.

Step 3 Select **Delete Selected**.

Step 4 In the dialog box that asks you to confirm the deletion, select **OK**.

CHAPTER 11

Managing Schedules and Holidays in Cisco Unity Connection 9.x

See the following sections:

- Overview of Default Schedules in Cisco Unity Connection 9.x, page 11-1
- Designating Holidays in Cisco Unity Connection 9.x, page 11-1
- Creating Schedules in Cisco Unity Connection 9.x, page 11-2
- Modifying Schedules in Cisco Unity Connection 9.x, page 11-2
- Deleting Schedules in Cisco Unity Connection 9.x, page 11-3

Overview of Default Schedules in Cisco Unity Connection 9.x

Cisco Unity Connection has three predefined schedules: All Hours, Weekdays, and Voice Recognition Update Schedule. You can modify but not delete the predefined schedules.

By default, the All Hours schedule is configured to be active 24 hours a day, 7 days a week, with no holidays; routing rules that follow this schedule are always active, and call handlers that use this schedule never use closed hour transfer settings or play closed greetings.

The Weekdays schedule is configured to be active from 8 a.m. to 5 p.m. (in the time zone of the Connection server) from Monday through Friday. It is also configured to observe any days and times that are set in the default Holidays schedule. Note however that by default the Holidays schedule is not preconfigured for any days or times. At a minimum you may want to update the Holidays schedule to add days and times when your organization is closed.

The Voice Recognition Update schedule dictates the times and days when the Connection voice-recognition transport utility can automatically rebuild the voice-recognition name grammars if there are pending changes. By default, all days and times are active for this schedule; however, because of the potential system performance impact associated with rebuilding large name grammars, you may want to edit this schedule to create blackout times and days during periods of heavy system usage.

Designating Holidays in Cisco Unity Connection 9.x

When a Holiday setting is in effect, Cisco Unity Connection plays holiday greetings (if enabled) and observes closed hours transfer rules. You can set up several years of holidays at a time. Because many holidays occur on different dates each year, confirm that the holiday schedule remains accurate annually.

To Add a Holiday Schedule

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Holiday Schedules**.

Step 2 On the Search Holiday Schedules page, select **Add New**.

Step 3 On the New Holiday Schedule page, enter a display name for the holiday schedule, and select **Save**.

Step 4 To add a new holiday to the schedule, on the Edit Holiday Schedule Basics page, select **Add New**.

Step 5 On the New Holiday page, enter settings as applicable. (For field information, on the Help menu, select **This Page**.)

Step 6 Select **Save**.

Step 7 To return to the Edit Holiday Schedule page, on the Edit menu, select **Holiday Schedule Basics**.

Creating Schedules in Cisco Unity Connection 9.x

To Create a New Schedule

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Schedules**.

Step 2 On the Search Schedules page, select **Add New**.

Step 3 On the New Schedule page, enter a display name, and select a holiday schedule to apply to this schedule.

Note Fields marked with * (an asterisk) are required.

Step 4 Select **Save**.

Step 5 To add time frames when the schedule is active, on the Edit Schedule Basics page, in the Schedule Details box, select **Add New**.

Step 6 On the New Schedule Detail page, enter settings as applicable. (For field information, on the Help menu, select **This Page**.)

Step 7 Select **Save**.

Step 8 To return to the Edit Schedule page, on the Edit menu, select **Schedule Basics**.

Modifying Schedules in Cisco Unity Connection 9.x

To Modify a Schedule

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Schedules**.

Step 2 On the Search Schedules page, select the display name of the schedule that you want to modify.

Note If the schedule that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Schedule Basics page, change the display name or holiday schedule settings, as applicable.

Step 4 When you have finished changing settings on the Edit Schedule page, select **Save**.

Step 5 To add time frames when the schedule is active, in the Schedule Details box, select **Add New**.

Step 6 If you change any settings on the New Schedule Detail page, select **Save**. To return to the Edit Schedule page, on the Edit menu, select **Edit Schedule**.

Step 7 To remove time frames, check the check box next to the schedule detail that you want to remove, and select **Delete Selected**.

Note If you remove all schedule details from a schedule, the schedule is never active. Call handlers and users that use this schedule as-is will always use the closed hours transfer settings, and the closed greeting always plays (if enabled) except when it is overridden by the holiday, internal, busy, or alternate greeting.

Deleting Schedules in Cisco Unity Connection 9.x

To Delete a Schedule

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Schedules**.

Step 2 On the Search Schedules page, check the check box adjacent to the display name of the schedule that you want to delete.

Note If the schedule that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Delete Selected**.

Note If the schedule that you are attempting to delete is referenced by a call routing table or call handler, you receive an error message and are not able to delete the schedule until you find and remove the reference.

Step 4 In the dialog box that asks you to confirm the deletion, select **OK**.

CHAPTER 12

Managing Restriction Tables in Cisco Unity Connection 9.x

See the following sections:

- Overview of Default Restriction Tables in Cisco Unity Connection 9.x, page 12-1
- Creating Restriction Tables in Cisco Unity Connection 9.x, page 12-2
- Modifying Restriction Tables in Cisco Unity Connection 9.x, page 12-3
- Deleting Restriction Tables in Cisco Unity Connection 9.x, page 12-4

Overview of Default Restriction Tables in Cisco Unity Connection 9.x

Cisco Unity Connection comes with the following predefined restriction tables, which you can modify (including changing their names) but not delete. By default, each of these restriction tables prevents access to long distance phone numbers.

Default Fax	Restricts numbers for fax delivery.
Default Outdial	Restricts numbers for message notifications. Also restricts the user extensions that Connection dials when the phone is selected as the recording and playback device in the Media Master.
Default System Transfer	Restricts numbers that can be used for Caller system transfers, which allow unidentified callers to transfer to a number that they specify. For example, callers may want to dial a lobby or conference room phone that is not associated with a Connection user. By default, the table does not allow Connection to dial any numbers.
Default Transfer	Restricts numbers for call transfers.
User-Defined and Automatically-Added Alternate Extensions	Restricts the numbers the users can use to create alternate extensions for themselves through interfaces such as the Cisco Personal Communications Assistant or via an API call. Also restricts numbers from being offered as alternate extensions. For example, you might block a lobby or conference room extension so that users who frequently call Connection from those shared phones are not automatically prompted to add the number as an alternate extension.

Excluded Extensions for Automatically Added Alternate Extensions	Restricts numbers from being offered as alternate extensions. For example, you might add a lobby or conference room extension so that users who frequently call Connection from those shared phones are not automatically prompted to add the number as an alternate extension.

See the "How Restriction Tables Work" section on page 4-7 for a detailed discussion of how restriction tables function.

Creating Restriction Tables in Cisco Unity Connection 9.x

Revised March 5, 2013

You can modify the predefined restriction tables, and you can create up to 100 new ones. You can also add up to 100 dial strings to a table. New dial strings are automatically inserted into the restriction table as Dial String 0. Note that the order of the dial strings is very important because Cisco Unity Connection sequentially compares a phone number to the call patterns in the restriction table, starting with Dial String 0. If a number matches more than one call pattern, the number is handled according to the first call pattern it matches.

Note When user dials "0", by default Unity Connection treats it as an operator call and does not block "0" by any restriction table configuration. Only the operator can modify transfer extension associated with operator call.

You can indicate call patterns by entering specific numbers or by using the following special characters as wildcards:

*	Matches zero or more digits.
?	Matches exactly one digit. Use? as a placeholder for a single digit.
#	Corresponds to the # key on the phone.

By default, all restriction tables have * as the call pattern in the last dial string of the table. You cannot modify this call pattern setting, as it prevents a case in which the entered number does not match any call pattern in the table. However, you can change the Blocked field setting for this dial string to either permit or restrict a number.

To Create a New Restriction Table

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Restriction Tables**.

Step 2 On the Search Restriction Tables page, select **Add New**.

Step 3 On the New Restriction Table page, enter basic settings as applicable. (For field information, on the Help menu, select **This Page**.)

Note Fields marked with * (an asterisk) are required.

Step 4 Select **Save**.

Step 5 To add patterns to the restriction table, on the Edit Restriction Table Basics page, in the Restriction Patterns box, select **Add New**.

Step 6 If you change any settings on the pattern, select **Save**.

Step 7 Repeat Step 5 and Step 6 until you have added each pattern that you want to allow or restrict.

Step 8 To change the order of the patterns, select **Change Order**, and then do the following sub-steps:

a. To move a pattern within the list, on the Change Restriction Pattern Order page, select the pattern, then select the down or up arrows as applicable.

b. When you have finished reordering the patterns, select **Save**.

c. To return to the Edit Restriction Table page, on the Edit menu, select **Restriction Table Basics**.

Step 9 To delete a pattern in the list, check the check box to the left of the pattern, select **Delete Selected**, then select **OK** to confirm the deletion.

Modifying Restriction Tables in Cisco Unity Connection 9.x

To Modify a Restriction Table

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Restriction Tables**.

Step 2 On the Search Restriction Tables page, select the display name of the restriction table that you want to modify.

Note If the restriction table that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 To add patterns to the restriction table, on the Edit Restriction Table Basics page, in the Restriction Patterns box, select **Add New**.

Step 4 If you change any settings on the pattern, select **Save**.

Step 5 Repeat Step 3 and Step 4 until you have added each pattern that you want to allow or restrict.

Step 6 To delete a pattern in the list, check the check box to the left of the pattern, and select **Delete Selected**, then select **OK** to confirm the deletion.

Step 7 To change the order of the patterns, select **Change Order**, and then do the following sub-steps:

a. To move a pattern within the list, on the Change Restriction Pattern Order page, select the pattern, then select the down or up arrows as applicable.

b. When you have finished reordering the patterns, select **Save**.

c. To return to the Edit Restriction Table page, on the Edit menu, select **Restriction Table Basics**.

Deleting Restriction Tables in Cisco Unity Connection 9.x

To Delete a Restriction Table

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Restriction Tables**.

Step 2 On the Search Restriction Tables page, check the check box adjacent to the display name of the restriction table that you want to delete.

Note If the restriction table that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Delete Selected**.

Note If the restriction table you are attempting to delete is referenced by a class of service, you receive an error message and are not able to delete the table until you find and remove the reference.

Step 4 In the dialog box that asks you to confirm the deletion, select **OK**.

CHAPTER 13

Cisco Unity Connection 9.x Conversation

A Cisco Unity Connection conversation is a set of prerecorded prompts and menu options that callers hear as they interact with Connection by phone. It is organized into two main conversations—one for outside callers and one for Connection users. This chapter summarizes the Connection conversation and the ways that you can customize it.

See the following sections:

- How Outside Callers Interact With Cisco Unity Connection 9.x by Phone, page 13-1
- How Users Interact With Cisco Unity Connection 9.x by Phone, page 13-1
- How Administrators Can Customize the User Conversation in Cisco Unity Connection 9.x, page 13-2
- How Users Can Customize the User Conversation in Cisco Unity Connection 9.x, page 13-5

How Outside Callers Interact With Cisco Unity Connection 9.x by Phone

When outside callers access Cisco Unity Connection by phone, they hear a set of prerecorded instructions and options known as the outside caller conversation. The outside caller conversation enables callers to access the Connection automated attendant, conduct user searches by using the corporate directory, use call routing options, and play audiotext messages.

How Users Interact With Cisco Unity Connection 9.x by Phone

When users sign in to Cisco Unity Connection by phone, they hear the user conversation. Its collection of prompts enables users to sign in to Connection, enroll as new Connection users, send and receive messages, record greetings, and change their personal settings.

There are two ways in which users can interact with Connection by phone:

- Phone keypad keys—Users press keys on any touchtone phone to respond to prompts, or select menu options.
- Voice commands—Users speak into the phone handset, headset, or speakerphone, and Connection responds to their voice commands. Users have the option to press keys on the phone keypad for a primary set of commands rather than say a voice command.

You specify whether users are prompted to use phone keypad keys or voice commands when they sign in to Connection.

How Administrators Can Customize the User Conversation in Cisco Unity Connection 9.x

There are a number of ways administrators can customize the conversations that callers and users hear as they interact with Cisco Unity Connection.

See the following sections:

- Advanced Conversation Configuration Settings, page 13-2
- Customizing the Language of System Prompts, page 13-2
- Class of Service Settings, page 13-3
- User Account and Template Settings, page 13-3
- Using the Custom Keypad Mapping Tool, page 13-5

Advanced Conversation Configuration Settings

From the Advanced Conversation Configuration page in Connection Administration, some of the systemwide conversation customizations that you can make for all users include:

- Changing the order in which Connection prompts users to address and record messages.
- Changing how users confirm message addressing.
- Changing what users hear when they manage deleted messages.

See the "Changing Conversation Settings for All Users in Cisco Unity Connection 9.x" chapter for information and procedures for customizing the Connection conversation from the Advanced Conversation Configuration page.

For information on all available advanced conversation configuration settings, see the "Conversation Configuration" section in the "Cisco Unity Connection 9.x Advanced Settings" chapter of the *Interface Reference Guide for Cisco Unity Connection Administration Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/gui_reference/guide/9xcucgrgx.html .

Customizing the Language of System Prompts

The prompts that come with the Cisco Unity Connection system are played in different combinations in multiple places in the phone conversation.

While changing, replacing, and deleting prompts is not supported and can cause system errors, you can specify the default language in which system prompts are played to all Connection users and callers. For steps on changing the default language that Connection uses to play system prompts, see the "Language of System Prompts in Cisco Unity Connection 9.x" section on page 14-8.

Note that all system prompts are automatically deleted and replaced when you upgrade Connection (including maintenance upgrades).

Class of Service Settings

From the Class of Service settings page in Cisco Unity Connection Administration, conversation customizations that you can make for users include:

- Specifying call transfer and holding options.
- Enabling deleted message access.
- Determining the length of recorded names, greetings, and messages.
- Enabling features such as live reply, voice recognition, and access to external messages.
- Choosing the type of message security applied to user messages.

For detailed information on conversation-related settings that can be changed for a class of service, see the "Setting Up Features and Functionality That Are Controlled by Class of Service in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

User Account and Template Settings

Some of the conversation customizations that you can make for a user or for a template that you use to create users include:

Caller Input Settings

- Selecting the actions that Connection takes when callers enter digits during user greetings.
- Specifying keys that transfer to alternate contact numbers for a user, and optionally specifying the alternate contact numbers. (When an administrator configures a key to transfer to an alternate contact number, the user can edit the alternate contact number for the key by using the Connection personal settings conversation.)
- Specifying digits that can be prepended to any number that a caller dials while listening to the greeting for the user mailbox. This option simulates shorter extensions.

Phone Menu Settings

- Selecting the language.
- Setting the speed and volume level of prompts, recorded names, and user greetings.
- Specifying whether Connection asks a user for a PIN if the user is calling from the primary extension or an alternate extension.
- Specifying how long Connection waits for a user to respond to a menu, and how many times Connection repeats the menu when the user does not respond.
- Choosing whether users can use the phone keypad or voice-recognition conversation when they listen to and manage their messages by phone. Note the following:
  - There are several versions of the phone keypad conversation to choose from. Each version offers menus with a unique keypad mapping. You can also specify whether users hear full or brief menus.

  - The voice-recognition conversation is a licensed feature. To use it, users must belong to a class of service that offers the license and have the feature enabled for them. Note that the touchtone conversation setting is used as a backup if the voice-recognition services are unavailable, and at any time that users choose to use the keypad rather than voice commands to interact with Connection.

- Selecting the actions that Connection performs when the user calls Connection, including greeting the user by name, playing new messages automatically, and announcing an alternate greeting notification.
- Determining what users hear when they exit the user conversation.

Playback Message Settings

- Specifying the speed and volume of messages that are played by phone.
- Specifying whether Connection plays the Message Type menu and message counts.
- Specifying message playback order.
- Changing the time format used for message time stamps.
- Selecting the action that Connection performs when messages are played, including announcing the name and number of the sender who left a message, and whether the time stamp is played before or after the message.
- Specifying that messages are marked saved upon hang-up or disconnect.
- Specifying the length of time to skip back or ahead when rewinding or fast-forwarding messages.
- Specifying whether Connection allow users to quickly listen to the messages without responding the After Message Menu options.
- Specifying whether Connection asks to confirm deletions of new and saved messages.

Send Message Settings

- Determining whether a user can send broadcast messages to other users, or update broadcast messages.
- Specifying that Connection prompts to confirm message recipients by name.
- Specifying that Connection prompts to continue adding names after each recipient.
- Specifying that Connection sends messages when a user hangs up or a call is disconnected.
- Determining whether users address messages to other users by entering extensions, by spelling first names, or by spelling last names.
- Enabling usage-based updates to the addressing priority list, which influences the order in which multiple matches are presented when the user addresses a message by saying a name or spelling part of a name.

For detailed information on conversation-related settings that can be changed per user, see the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Using the Custom Keypad Mapping Tool

The Custom Keypad Mapping tool allows you to edit the key mappings that are associated with the Custom Keypad Mapping conversations. Within each of these conversations—which are assigned to individual users or user templates on the Phone Menu page in Cisco Unity Connection Administration—there are eight different menus that can be customized. Changing key mappings by using this tool does not affect any of the other Cisco Unity Connection conversation versions.

You can assign any one-, two-, or three-key sequence to any defined option for the Main menu, the Message Playback menu (the message header, body and footer can be mapped separately), the After Message menu, the Settings menu, the Message Settings menu, and the Personal Settings menu. You can customize which options are voiced in each menu and the order in which they are offered. The Custom Keypad Mapping tool is accessed in the Tools section of Connection Administration.

For more information and procedures, see the "Custom Keypad Mapping Tool in Cisco Unity Connection 9.x" chapter.

How Users Can Customize the User Conversation in Cisco Unity Connection 9.x

Cisco Unity Connection users can customize the conversation that they hear in a number of ways. See Table 13-1 for a summary.

Table 13-1 Settings That Users Can Change By Using the Cisco Unity Connection Messaging Assistant and the Phone Menus

Settings That Can Be Changed by Using the Connection Messaging Assistant	Settings That Can Be Changed by Using the Phone Menus
Call Holding and Screening[1]: • Select how Connection handles indirect calls when the user phone is busy, including placing the caller on hold, prompting the caller to hold or leave a message, and sending the caller directly to the greeting • Select how Connection handles indirect calls, including telling the user who the call is for, announcing that Connection is transferring the call, prompting the user to accept or refuse a call, and prompting callers to say their names	Call Holding and Screening[1]: • None

Table 13-1 Settings That Users Can Change By Using the Cisco Unity Connection Messaging Assistant and the Phone Menus (continued)

Settings That Can Be Changed by Using the Connection Messaging Assistant	Settings That Can Be Changed by Using the Phone Menus
Call Transfers[2]: • Configure the three basic transfer rules: standard, alternate, and closed hours • Enable or disable personal call transfer rules for each of the basic transfer rules • Transfer indirect calls to an extension or send them to the user greeting • Change extensions	Call Transfers[2]: • Configure the three basic transfer rules: standard, alternate, and closed hours • Enable or disable personal call transfer rules for each of the basic transfer rules • Transfer indirect calls to an extension or send them to the user greeting • Change extensions • Configure alternate contact numbers for caller input keys that are assigned to the Transfer to Alternate Contact Number action
Caller Options: • Allow callers to edit messages • Allow callers to mark messages urgent	Caller Options: • None
Phone Menu Options: • Set language for Connection prompts • Specify whether users use the phone keypad or voice-recognition input style • Set speed and volume of prompts, recorded names, and user greetings • Select full or brief Connection conversation menus • Select the action that Connection performs when the user calls Connection, including greeting the user by name, and announcing the number of new messages by type • Change the time format used for message time stamps • Specify alternate extensions	Phone Menu Options: • Select full or brief Connection conversation menus
Greetings: • Record a personal greeting • Enable or disable greeting • Specify an expiration date for an enabled greeting • Switch between system prompt and personal greeting	Greetings: • Record a personal greeting • Enable or disable greeting • Specify an expiration date for an enabled greeting

Table 13-1 Settings That Users Can Change By Using the Cisco Unity Connection Messaging Assistant and the Phone Menus (continued)

Settings That Can Be Changed by Using the Connection Messaging Assistant	Settings That Can Be Changed by Using the Phone Menus
Message Notification: • Enable or disable a notification device • Specify dialing or recipient options • Select the types of messages and message urgency for which Connection generates a notification • Specify a list of message senders (by username or calling phone number) for which Connection generates a notification • Set up a notification schedule, and specify what happens when a device does not answer, is busy, or fails	Message Notification: • Enable or disable a notification device, and change its number
Message Playback: • Specify the speed and volume of messages that are played by phone • Specify message playback order • Specify whether Connection plays the Message Type menu • Select the action that Connection performs when messages are played, including announcing the name and number of the sender who left a message, and whether the time stamp is played before or after the message • Specify that messages are marked saved upon hang-up or disconnect • Specify whether Connection asks to confirm deletions of new and saved messages	Message Playback: • Speed and volume of message as it is played
Message Sending and Addressing: • Specify that Connection prompts to confirm message recipients by name • Specify that Connection prompts to continue adding names after each recipient • Specify that Connection sends messages when users hang up or a call is disconnected • Switch between addressing messages to other users by name, or by extension • Specify order for addressing messages by name (last name then first name, or vice versa)	Message Addressing: • Switch between addressing to other users by name or by extension (by pressing ##)[3] • Review, add, or remove names in the addressing priority list[4]

Table 13-1 Settings That Users Can Change By Using the Cisco Unity Connection Messaging Assistant and the Phone Menus (continued)

Settings That Can Be Changed by Using the Connection Messaging Assistant	Settings That Can Be Changed by Using the Phone Menus
Personal Settings: • Record a name • Specify alternate names • Change directory listing status • Change password or PIN • Add user-defined alternate extensions[5]	Personal Settings: • Record a name • Change directory listing status • Change password or PIN • Add user-defined alternate extensions[5] • Edit alternate contact numbers, if an administrator has configured one or more caller input keys to transfer to an alternate contact number during the user greeting
Private Lists: • Enter a display name • Record a list name • Add and delete members	Private Lists: • Record a list name • Add and delete members
Contacts: • Set up contacts to use for both name dialing and call transfer rules	Contacts: • None

1. Call holding and screening options apply only to incoming calls that were routed to the user from the automated attendant or a directory handler, and not on direct calls. Holding and screening options do not apply when an outside caller or another user dials a user extension directly. In addition, holding and screening options are only available when supervised transfers are enabled. These settings apply if the user does not have personal call transfer rules enabled.
2. Call transfer options apply only to incoming calls that were routed to the user from the automated attendant or a directory handler, and not on direct calls. Transfer options do not apply when an outside caller or another user dials a user extension directly.
3. Note that this depends on whether you have enabled spelled name addressing.
4. To enable users to access the setup conversation that allows them to review, add, or remove names in the addressing priority list, the users must be assigned to a custom conversation, and you must use the Custom Keypad Mapping tool to map the Addressing Priority List conversation to a key in the Message Settings menu for that conversation.
5. Users must belong to a class of service with the Allow Users to Manage Their User-Defined Alternate Extensions option enabled. To enable users to access the phone menu conversation that allows them to review, add, or remove alternate extensions, the users must be assigned to a custom conversation, and you must use the Custom Keypad Mapping tool to map the Edit User-Defined Alternate Extensions option to a key in the Preferences Menu for that conversation.

CHAPTER 14

Changing Conversation Settings for All Users in Cisco Unity Connection 9.x

From the Advanced Conversation Configuration page in Cisco Unity Connection Administration, you can make several systemwide conversation customizations that affect all users.

See the following sections for details:

- Accessibility Settings in Effect During the PIN Entry Conversation in Cisco Unity Connection 9.x, page 14-2
- Addressing Priority Lists in Cisco Unity Connection 9.x, page 14-2
- Addressing and Recording Order in Cisco Unity Connection 9.x, page 14-3
- Announcing to Users When Messages Are Marked Secure, page 14-3
- Announcing When a Message Has Been Sent to Multiple Recipients, and Listing Message Recipients, page 14-4
- Automatically Adding Alternate Extensions in Cisco Unity Connection 9.x, page 14-4
- Call Holding Wait Time in Cisco Unity Connection 9.x, page 14-5
- Warning users on Reply-All when Number of Recipients Exceeds Maximum in Cisco Unity Connection, page 14-6
- Caller Information in Cisco Unity Connection 9.x, page 14-6
- Dial Prefix Settings for Live Reply to Unidentified Callers in Cisco Unity Connection 9.x, page 14-7
- Deleting Messages in Cisco Unity Connection 9.x, page 14-8
- Language of System Prompts in Cisco Unity Connection 9.x, page 14-8
- Routing Users to the Voice-Recognition or Touchtone Conversation Style, page 14-10
- Signing In to Cisco Unity Connection 9.x from a User Greeting, page 14-11
- Requesting Users Re-Enter Only the PIN After a Failed PIN Entry in Cisco Unity Connection 9.x, page 14-12
- Saving Speed and Volume Changes Made by Users in Cisco Unity Connection 9.x, page 14-13
- Skipping Messages: Saving New Messages in Cisco Unity Connection 9.x, page 14-13
- Voice Recognition: Allowing Users to Say Their Voicemail PINs in Cisco Unity Connection 9.x, page 14-14
- Voice Recognition: Confirmation Confidence Threshold in Cisco Unity Connection 9.x, page 14-15
- Voice Recognition: Global Nickname List in Cisco Unity Connection 9.x, page 14-16

- Additional Advanced Conversation Configuration Settings in Cisco Unity Connection 9.x, page 14-17

Accessibility Settings in Effect During the PIN Entry Conversation in Cisco Unity Connection 9.x

By default, individual user phone menu accessibility settings do not take effect until after the user is authenticated by entering the voicemail PIN. You can configure Cisco Unity Connection to apply individual user accessibility settings during the PIN collection conversation when users call from a known extension (their primary or an alternate extension) by doing the following "To Enable Accessibility Settings During the PIN Entry Conversation" procedure.

When enabled, the following accessibility settings are applied during the PIN collection conversation:

- Conversation Speed
- Conversation Volume
- Language
- Time to Wait for First Touchtone or Voice Command
- Time to Wait for Additional Key Presses When Entering Names, Extensions, and PINs

To Enable Accessibility Settings During the PIN Entry Conversation

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, check the **Apply User Accessibility Settings for Voicemail PIN Entry Conversation** check box.

Step 3 Select **Save**.

Addressing Priority Lists in Cisco Unity Connection 9.x

When a user attempts to address a message to a recipient by saying a name or spelling part of a name, Cisco Unity Connection may find multiple matching names. You can configure two mechanisms that direct Connection to prioritize certain recipients, sorting the results and offering the names with higher weights first in the search results. Both mechanisms—a user-configurable "buddy list," and an automatic weighting of names based on usage—contribute to a single addressing priority list for the user.

You can customize how names are stored in addressing priority lists, and how long the names are stored.

To Change How Names Are Stored in User Addressing Priority Lists

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, in the Maximum Age of Names in Addressing Priority Lists field, enter the number of days that a name can remain on the addressing priority list for a user before being automatically removed if the user has not recently addressed a message to the name. (The default setting is 90 days.)

Step 3 In the Maximum Number of Names in a User's Addressing Priority List field, enter the number of names that are stored in the addressing priority list for each user. (The default setting is 100 names.)

Step 4 Select **Save**.

Addressing and Recording Order in Cisco Unity Connection 9.x

The Cisco Unity Connection standard conversation can be customized to change the order in which Connection prompts users to address and record when they send or forward messages to other users or distribution lists. By default, when a user sends or forwards a message, Connection first prompts the user to record the message or to record an introduction for a forwarded message, and then prompts the user to address the message.

You can customize the user conversation so that Connection prompts users to address a message before recording the message or an introduction. This setting change is applied systemwide to all users. You cannot make the change for an individual user or a specific group of users. Finally, note that you cannot change the order in which Connection prompts users to address and record when they reply to messages; Connection always prompts users to record a reply before allowing them to add additional recipients.

To Change the Order of Addressing and Recording When Users Send Messages

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, check or uncheck the **Address Message Before Recording** check box, depending on how you want to change this setting:

- **Check box checked**—When users send or forward messages to other users or distribution lists, Connection prompts them to address the message first and then record it.
- **Check box not checked**—When users send or forward messages to other users or distribution lists, Connection prompts them to record the message first and then address it. (This is the default setting.)

Step 3 Select **Save**.

Announcing to Users When Messages Are Marked Secure

When the Announce Secure Status in Message Header check box is checked on the System Settings > Advanced Settings > Conversation Configuration page, Cisco Unity Connection plays a prompt to the user before playing a secure message, announcing that it is a secure message. When this check box is not checked, Connection does not announce the secure status of a message to users. By default, the check box is checked.

If you have configured Connection such that all messages left by both users and outside callers are configured to be secure, consider unchecking this check box so that users do not hear the secure message prompt before every message that they listen to.

Announcing When a Message Has Been Sent to Multiple Recipients, and Listing Message Recipients

Announcing When a Message Had Been Sent to Multiple Recipients

The Cisco Unity Connection conversation can be customized so that when a message has been sent to multiple recipients, Connection will announce that fact to the user before playing the message.

By default, this setting is not enabled. To enable the setting for users of both the voice-recognition and touchtone conversations, check the Announce in Message Header Whether Message Has Multiple Recipients check box on the System Settings > Advanced > Conversation Configuration page.

Listing Recipients While Listening to Messages

Connection can also be customized so that users can hear a list of all of the recipients of a message. By default, users who are enabled for voice-recognition can hear a list of message recipients by saying “list recipients” while listening to the message header, body, footer, or after-message prompts. By default, this functionality is not enabled for the touchtone conversation, and must be configured by using the Custom Keypad Mapping tool. Depending on how you configure the key mapping, users can hear the list of message recipients when they press the applicable key while listening to the message header, body, footer, or after-message prompts. For detailed information on using the Custom Keypad Mapping tool, see the “Custom Keypad Mapping Tool in Cisco Unity Connection 9.x” chapter.

Automatically Adding Alternate Extensions in Cisco Unity Connection 9.x

When a user signs in from a phone number other than a primary extension or alternate extension, Cisco Unity Connection adds the number to the calling party ID (CPID) history of the user. If the user signs in from the number five times within 30 days, Connection offers the option of adding it as an alternate extension. When a number is added as an alternate extension, the user can sign in to Connection from the number without having to enter a user ID (the primary extension). If the user chooses not to add the number as an alternate extension, Connection does not offer the option again for that number.

This functionality is available to users who belong to a class of service with the Allow Users to Manage Their User-Defined Alternate Extensions option enabled.

The restriction table named User-Defined and Automatically-Added Alternate Extensions, the restriction tables is named Excluded Extensions for Automatically Added Alternate Extensions) restricts numbers from being offered as alternate extensions. For example, you might block a lobby or conference room extension in the restriction table so that users who frequently sign in to Connection from such shared phones are not offered the alternate extension option. The same restriction table also restricts the numbers that users can use to create alternate extensions for themselves through interfaces such as the Cisco Personal Communications Assistant or via an API call.

You can adjust the number of times a user must sign in from a phone number before Connection offers the option to add the number as an alternate extension. You can also change the number of consecutive days within which Connection considers the sign-in count before offering the alternate extension option.

To Adjust Settings to Automatically Add Alternate Extensions

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, in the Sign-in Count for a Number Before It Is Offered as an Alternate Extension field, enter a number between 2 and 60.

Step 3 In the Consecutive Days to Count Sign-in for a Number, enter a number between 7 and 60 days.

Step 4 Select **Save**.

Call Holding Wait Time in Cisco Unity Connection 9.x

With call holding, when the phone is busy, Cisco Unity Connection can ask callers to hold. Connection manages each caller in the queue according to the settings that you configure.

You can change the setting for the wait time between call transfer attempts (the default value is 5 seconds), and for the maximum number of call transfer attempts that are allowed (the default value is 5 attempts). To obtain the call holding queue wait time for the first caller in the queue, Connection multiplies the values of the two settings. For example, if both keys were set to a value of 10, the call holding queue wait time would be 100 seconds (a wait time of 10 seconds x 10 call transfer attempts). The first caller on hold in the call holding queue hears a series of holding tones approximately every five seconds. Subsequent callers in the queue for the same extension will hear music on hold that is generated by Cisco Unity Connection system prompts.

To Add or Change Call Holding Wait Time

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, in the Maximum Call Transfer Attempts Allowed field, enter a number between 0 (zero) and 30. We recommend a value between 2 and 10, as increasing this setting decreases the frequency at which Connection asks whether the caller wants to continue to hold. (The default setting is 5 attempts.)

Step 3 In the Wait Time in Seconds Between Call Transfer Attempts field, enter a number between 1 and 60 seconds. We recommend a value between 5 and 15 seconds, as a value outside of this range could prevent Connection from functioning as designed. (The default setting is 5 seconds.)

Step 4 Select **Save**.

Warning users on Reply-All when Number of Recipients Exceeds Maximum in Cisco Unity Connection

When a message is sent to multiple recipients and/or distribution lists, recipients have the option to reply-all. Cisco Unity Connection warns users when they reply-all to a message whose number of recipients is equal to or exceeds the number specified in the Maximum Number of Recipients Before Reply-all Warning field.

By default, when a user replies to all recipients of a message, Connection will not issue any warnings on reply-all.

Note The setting for reply-all recipients of a message can be configured for both touchtone and voice-recognition conversation users.

To set the maximum number of recipients

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, in the Maximum Number of Recipients Before Reply-all Warning field, enter the maximum number of recipients and/or distribution lists. (The default setting is 0 recipients)

Step 3 Select **Save**.

Caller Information in Cisco Unity Connection 9.x

The Cisco Unity Connection user conversation can be customized so that it provides users with additional information about each caller who left a message, before it plays the message. See Table 14-1.

Table 14-1 Caller Information That Cisco Unity Connection Can Offer Before Message Playback

For Messages Left by This Type of Caller	Message Type	Cisco Unity Connection Plays This by Default	Cisco Unity Connection Plays This When Additional Caller Information Is Offered
Identified user (including call handlers)	Voice, receipts	The recorded name of the user (or call handler). If the user (or call handler) does not have a recorded name, Connection uses Text to Speech to play the display name. If the user does not have a display name, Connection plays the primary extension instead.	Both the recorded name (if available) and the primary extension (if available) before playing the message. If the user (or call handler) does not have a recorded name, Connection uses Text to Speech to play the display name of the user (or call handler) instead.
Outside caller	Voice	The message, without announcing who it is from or playing the phone number of the caller first.	The phone number (if available) of the caller before playing the message.

If you choose to provide Connection users with additional caller information before message playback, consider the following requirements:

- Users hear sender information before Connection plays each message only if their accounts are configured to play it. Either a Connection administrator or a user can specify message playback preferences. (Connection administrators specify whether users hear sender information before message playback on the Edit Playback Message Settings page for a user or user template in Cisco Unity Connection Administration, while users can specify their own message playback preferences in the Connection Messaging Assistant.)
- In addition, to allow Connection to provide the phone number (ANI or caller ID) information for outside callers, your phone system must support sending such information to Connection. (See your phone system documentation for more information.) When Connection receives ANI information on a caller, it makes use of the valid numbers only, and ignores any other characters that the phone system sends.

For instructions on changing these settings for individual users or a specific group of users, see the "What Cisco Unity Connection Plays Before and After Each Message" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Dial Prefix Settings for Live Reply to Unidentified Callers in Cisco Unity Connection 9.x

When live reply is enabled, users who are listening to messages by phone can reply to a message by having Cisco Unity Connection call the sender. In the user class of service settings, you can specify whether users can return calls to senders of messages only if they are also Connection users, or if they can return calls to messages from both users and unidentified callers (outside callers or users who are forwarded to Connection but who cannot be identified by the calling extension).

When a user attempts to reply by calling an unidentified caller, Connection checks the calling number provided by the phone system in the Automatic Number Identification (ANI) string against the transfer restriction table that is associated with the user class of service. If the number is allowed, Connection returns the call by performing a release transfer to the ANI.

To configure a prefix that Connection applies to all ANI strings of sufficient length before performing live replies to unidentified callers, do the following procedure.

To Change Dial Prefix Settings for Live Reply to Unidentified Callers

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, in the Dial Prefix for Live Reply to Unidentified Callers field, enter a trunk access code or other identifying ID that the phone system requires to process the number correctly.

This setting specifies a prefix that Connection applies to the ANI when performing a live reply to an unidentified caller, if the caller ANI is at least as long as the Minimum Number of Digits Required for Prepending Live Reply Dial Prefix setting.

Step 3 In the Minimum Number of Digits Required for Prepending Live Reply Dial Prefix field, enter the minimum number of digits in the ANI string required for Connection to prepend the value specified in the Dial Prefix for Live Reply to Unidentified Callers setting to the ANI when performing a live reply to an unidentified caller. A value of 0 means that Connection never prepends digits when performing live reply to unidentified callers. (The default setting is 0 digits.)

Step 4 Select **Save**.

Deleting Messages in Cisco Unity Connection 9.x

From the System Settings > Advanced > Conversations page, you can customize the standard conversation to change what users hear when they manage their deleted messages in the following ways:

- Change how Cisco Unity Connection permanently deletes multiple deleted messages. By default, when users press keys from the Main menu to permanently delete multiple deleted messages at once, Connection allows them to choose which messages they want to delete; users can either delete their deleted voice messages or delete all of their deleted messages.

  As alternatives to the default, you can specify that Connection does not prompt users to choose, and instead permanently deletes the type of messages that you specify: either deleted voice messages or all deleted messages (voice and email, as applicable). To set up either alternative, change the Multiple Message Delete Mode setting by entering one of the following values:

  - **1**—Users choose which messages are deleted; Connection prompts them: "To delete only your voice messages, press 1. To delete all messages, press 2." (Default setting)
  - **2**—Connection does not prompt users to choose which messages to delete; instead, Connection deletes all of their deleted voice messages.
  - **3**—Connection does not prompt users to choose which messages to delete; instead, Connection deletes all of their deleted messages (voice messages, receipts, and email messages, as applicable).
- Enable Connection to request confirmation from users before proceeding with a permanent deletion of a single deleted message. (To permanently delete a deleted message, users must belong to a class of service that allows them to retain and review deleted messages.) By default, when users permanently delete a deleted message as they review deleted messages by phone, Connection does not ask them to confirm the deletion.

  You can enable Connection to request confirmation from users before proceeding with the deletion. To do so, check the Confirm Deletion of Deleted Messages check box.

Language of System Prompts in Cisco Unity Connection 9.x

Phone languages are the languages in which Cisco Unity Connection can play system prompts to users and callers. You specify a system default phone language, and you can also customize the language setting for individual Connection components without changing the default language settings for the rest of the system.

The phone language setting is available for the following Connection components: user accounts, routing rules, call handlers, interview handlers, and directory handlers. For each of these entities, you specify a phone language in Cisco Unity Connection Administration, or you can set the entities to inherit language from the caller.

Note The phone language setting does not apply to the prompts that Connection plays when callers are using the voice-recognition conversation. Voice-recognition prompts are always played in English-United States, regardless of the installed languages or the system configuration.

With the Inherit Language from Caller setting, Connection determines the phone language to use on a per-call basis, depending on how the call is processed. For example, you can set up a call handler with the Inherit setting, and also set it up to receive calls from two different routing rules, each with a different language setting. (For example, one routing rule could be set up with a French language setting, while the second routing rule could be set to German.) In this situation, the language in which Connection plays the call handler system prompts depends on which rule routed the call. However, note that if every component in your system that processes a call has been set with Inherit Language from Caller, Connection plays the system prompts in the default phone language, because in effect none of the components have been set to a specific language.

For multilingual systems, it is possible to enable users to record greetings in each language installed on the Connection server, independent of the system default language, by setting the Inherit Language from Caller setting. In general, the language in which recorded greetings are played depends on what is selected for the Language That Callers Hear setting on the Message Settings page for the user:

Use System Default Language	Greetings are played and recorded in the language selected as the system default.
Inherit Language From Caller	Connection users are able to record greetings in each language installed on the Connection server.
A specific language	Greetings are played and recorded in the language selected from this menu.

For information on changing message settings for a user or template, see the "Phone Language That Users and Callers Hear" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

To Change the Default Language for System Prompts

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **General Configuration**.

Step 2 On the General Configuration page, in the System Default Language list, select the language that Connection uses as the default language for playing system prompts.

Step 3 Select **Save**.

Step 4 Restart the Voice Processing server role for your changes to take effect.

Routing Users to the Voice-Recognition or Touchtone Conversation Style

There are multiple ways to route users to either the touchtone or voice-recognition conversation style:

- Set up separate phone numbers for each of the conversation styles, and then distribute the different call-in numbers to users, and/or set the user devices to automatically dial the applicable phone number. Depending on which number the user calls to sign in to Cisco Unity Connection, the user will be routed either to the touchtone or voice-recognition conversation. This approach is particularly useful in cases where users prefer different conversation styles based on the device with which they place the call. For example, when calling in from a mobile phone, the user may prefer the touchtone conversation because background noise picked up on the mobile phone interferes with the voice-recognition conversation. But when calling in from an office phone, the user prefers the voice-recognition conversation.

  To do this, set routing rule conditions that are associated with the phone number by entering the applicable information on the routing rule condition page. Then in the Send Call To field on the routing rule page, specify that when the conditions are met, the call launches the applicable conversation. When the conditions for this routing rule are met, and the user subsequently signs in on that call, the user hears the selected conversation.

Note You can send the call to other conversations in addition to the voice-recognition and touchtone conversation styles. For more information, see the "Edit Direct Routing Rule" or "Edit Forwarded Routing Rule" section in the "Cisco Unity Connection 9.x Call Management Settings" chapter of the *Interface Reference Guide for Cisco Unity Connection Administration Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/gui_reference/guide/9xcucgrgx.html.

- Make use of the functionality that allows users to toggle between the touchtone and voice-recognition conversations at any time from the main menu:
  - Notify users that while listening to the voice-recognition conversation, they can press "9" to switch immediately to the touchtone conversation. Likewise, while listening to the touchtone conversation, users can press "9" to switch immediately to the voice-recognition conversation.

Tip When users press "9" to switch conversations, they are asked to confirm the switch. If they prefer to bypass being asked to confirm, they can press "91," effectively answering the confirmation request before it is asked.

In addition, at any time while signed in to Connection, users who are assigned to the voice-recognition conversation can say "touchtone conversation" to immediately switch to the touchtone conversation.

  - If you prefer a key setting different from "9," use the Custom Keypad Mapping tool to change the key presses that toggle users from the touchtone and voice-recognition conversations, and then notify users of the key presses you have set. The option to change is the "Toggle between touchtone and voice-recognition conversations" option on the Main Menu tab. (For information on using the Custom Keypad Mapping tool, see the "Custom Keypad Mapping Tool in Cisco Unity Connection 9.x" chapter.)

Signing In to Cisco Unity Connection 9.x from a User Greeting

Caller input settings allow you to specify how users sign in to Cisco Unity Connection when they are listening to a user greeting. By using the caller input settings you can specify which keys users can press to interrupt a user greeting so that they can sign in to Connection, and what users hear after Connection prompts them to sign in.

You specify caller input settings on the user template and on individual user pages in Cisco Unity Connection Administration. Caller input settings work for a particular greeting only when the Ignore Additional Input check box is not checked on the applicable Greetings page for the user template or individual user in Connection Administration.

By default, Connection is set up so that users hear the Connection Sign-In conversation, which prompts them for their ID and PIN when they press * during any user greeting—either their own or another user greeting. As an alternative, you can accommodate users who want an easier way to sign in from their own greeting by offering the Easy Sign-In conversation, which prompts users only for a PIN.

Table 14-2 summarizes the options available to you for specifying how users sign in to Connection from their own greeting or from another user greeting.

Table 14-2 Summary of Caller Input Options Available for Specifying How Users Sign In to Cisco Unity Connection from User Greetings

Conversation	Description	Use	Best Practice
Sign-In	Prompts users to enter an ID and PIN when they press * during any user greeting. Enabled by default.	To avoid leaving a message as an unidentified caller, users can sign in to Connection from another user greeting when they call the user from a phone that is not associated with their account. (Connection users cannot reply to messages from unidentified callers.)	Continue to offer the Sign-In conversation. If you are considering reassigning the key used to access the Sign-In conversation, consider that users also access the Sign-In conversation by pressing * from the Opening Greeting.

Table 14-2 Summary of Caller Input Options Available for Specifying How Users Sign In to Cisco Unity Connection from User Greetings (continued)

Conversation	Description	Use	Best Practice
Easy Sign-In	Prompts users to enter a PIN when they press a key during any user greeting. Disabled by default. (No key is mapped to the Easy Sign-In conversation.)	Users can dial their extensions and sign in quickly without having to remember the pilot number to access Connection by phone. Users may prefer Easy Sign-In to the Sign-In conversation because it saves them from having to re-enter an extension during the sign-in process. Note that Connection uses the calling extension (rather than the dialed extension) to determine which mailbox the user is trying to sign in to.	Provide Easy Sign-In to users who want a faster way to sign in from their own greeting or to accommodate users who are accustomed to another voice messaging system. Keys 1–9 are unmapped, and are therefore good choices for assigning to the Easy Sign-In conversation. Consider the following if you are thinking of using the *, 0, or # key instead: • Avoid reassigning the * key so that you can continue to offer the Sign-In conversation. • The # key is already set up to skip greetings. It is also the key that users use to skip ahead throughout the Connection conversation. • The 0 key is already set up to send callers to the Operator call handler.

Requesting Users Re-Enter Only the PIN After a Failed PIN Entry in Cisco Unity Connection 9.x

When users call Cisco Unity Connection from their extensions or alternate extensions, Connection asks only for a PIN to authenticate the user. By default, if a user enters an incorrect PIN, Connection asks for both the user ID and PIN on subsequent attempts to sign in. Alternatively, you can configure Connection to ask for only the user PIN on subsequent attempts to sign in.

Note that the default behavior has been set for security reasons; asking for only the user PIN gives hackers confirmation that the user ID was legitimate.

To Configure Cisco Unity Connection to Ask Only for the User PIN After a Failed PIN Entry

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, uncheck the **Request Entry of User ID After Failed PIN Entry from Known Extension** check box.

Note that this setting applies only to calls from extensions that are associated with a user. It does not apply when users attempt to sign in manually from an unknown number.

Step 3 Select **Save**.

Saving Speed and Volume Changes Made by Users in Cisco Unity Connection 9.x

Speed and volume changes that users make while listening to messages or to the Cisco Unity Connection conversation can be saved as new default settings for the user. (Note that the voice-recognition conversation is the only conversation that allows users to change the Connection conversation speed or volume by phone.)

Do the following procedure to specify whether speed and volume changes made by users are saved by Connection.

To Specify Whether Cisco Unity Connection Saves Speed and Volume Changes Made by Users

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, check or uncheck the **Save Speed and Volume Changes Made by User** check box:

- When this check box is checked, speed and volume changes that the user makes while listening to messages or to the Connection conversation will be saved as new default settings for the user.
- When this check box is not checked, any speed and volume changes that the user makes while listening to messages are in effect for all the messages in that phone session. Any speed and volume changes that the user makes while listening to the Connection conversation are in effect only for the duration of that phone session.

Step 3 Select **Save**.

Skipping Messages: Saving New Messages in Cisco Unity Connection 9.x

You can customize how Cisco Unity Connection handles new messages that users skip during message playback. By default, when users press # to skip a new message during message playback, Connection saves the message as new. This means that when users call Connection to check messages, the skipped message remains in the list of new messages that Connection plays. In addition, message waiting indicators (MWI) on user phones remain lit as long as there are new messages.

Alternatively, you can configure Connection to save new messages that users skip by pressing # during message playback as saved messages rather than as new messages. Users in your organization may prefer this so that when they call Connection to check for new messages, they hear only newly-arrived messages, and not the messages that they skipped earlier. Users can then rely on their MWIs to determine when a new message arrives.

A change to the message playback setting is applied systemwide to all users. You cannot make the change for an individual user or a specific group of users.

To Change How Cisco Unity Connection Handles Messages That Users Skip by Pressing # During Message Playback

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, check the **Treat Skipped Messages as Saved** check box to specify that messages that users skip by pressing # during message playback are kept as saved messages.

Step 3 Select **Save**.

Voice Recognition: Allowing Users to Say Their Voicemail PINs in Cisco Unity Connection 9.x

You can customize the Cisco Unity Connection sign-in process so that voice recognition users can say the digits in their voicemail PINs to sign in when calling Connection from their primary or alternate extensions. Connection attempts to match the spoken digits to the user voicemail PIN as an alternative to entering the digits on the phone keypad; it does not attempt to recognize the individual voice print of the user or otherwise apply biometrics to the sign-in process.

In order to use the voicemail PIN feature, a user must be calling from the primary extension or an alternate extension, the extension must be configured to use the voice-recognition input style, and the language of the call must be set to English (United States) when the user reaches the Attempt Sign-In conversation.

Caution The spoken digits are transmitted as unencrypted text by the Connection Voice Recognizer to be authenticated by Connection, and can appear as plain text in diagnostic log files.

If desired for security reasons, users can continue to use the phone keypad to enter the PIN rather than saying the digits, even when this feature is enabled. However, users cannot mix voice and phone keypad keys for PIN entry—if the user starts to use the keypad to enter the PIN, voice recognition is disabled until the user signs in successfully. Also, after a single unsuccessful attempt to say the voicemail PIN, the user must use the keypad to retry the PIN entry.

To Allow Voice Recognition Users to Say Their Voicemail PINs

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, check or uncheck the **Allow Voice Recognition Users to Speak Their Voicemail PINs** check box, depending on how you want to change the setting:

- **Check box checked**—Voice recognition users can enter their voicemail PINs either by saying the digits in the PIN, or by using the phone keypad. Connection allows users to say their PINs only when they are calling from their primary extension or one of their alternate extensions.
- **Check box not checked**—Voice recognition users must enter their voicemail PINs by using the phone keypad. (This is the default setting.)

Step 3 Select **Save**.

Voice Recognition: Confirmation Confidence Threshold in Cisco Unity Connection 9.x

When voice-recognition users choose to exit the system, send a message, delete a message, or cancel an action, Cisco Unity Connection may or may not prompt them to confirm that they want to perform this task ("Are you sure that you want to exit?"), depending on whether or not their voice command was clearly recognized by the system.

There are a variety of factors that may influence how well the voice-recognition system "hears" a voice command: phone line quality, background noise, or how quickly or slowly a user speaks.

You use the Voice Recognition Confirmation Confidence Threshold setting to adjust the likelihood that Connection prompts voice recognition users to confirm their intentions. The range of valid entries for the Voice Recognition Confirmation Confidence Threshold is 0 to 100; the default value is 60, which should reliably filter out most errors and provide confirmation when necessary for most systems. For example, if users complain that the system mistakenly hears them say "cancel" or "hang up," you may want to try increasing this setting to a value of 75 to prevent users from accidentally committing actions that they did not intend. Alternatively, if users complain that the system prompts for confirmation too frequently, try lowering this setting to 55.

A realistic range of values for this setting is 30 to 90, as setting this value to 0 always disables confirmation and setting it to 100 always enables it. If this value is set too low, the system may improperly recognize and act on commands, resulting in the accidental deletion of messages or exiting users from the system before they are ready to hang up.

It is important to note that for some tasks—for example, emptying the Deleted Items folder—Connection always prompts for confirmation regardless of the Voice Recognition Confirmation Confidence Threshold setting. Likewise, Connection never prompts for confirmation for tasks—such as playing messages—that do not result in user issues if the command is misunderstood by the system.

To Set the Confirmation Confidence Threshold

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Conversations**.

Step 2 On the Conversation Configuration page, in the Voice Recognition Confirmation Confidence Threshold field, enter a new value.

You can enter a value from 0 to 100; the default value is 60.

Step 3 Select **Save**.

Voice Recognition: Global Nickname List in Cisco Unity Connection 9.x

The Global Nickname list is a comprehensive list of common nicknames that Cisco Unity Connection considers when a caller uses voice recognition to place a call or to address messages. For example, Connection considers “Bill,” “Billy,” and “Will” to be nicknames for the name “William.”

If a user has an uncommon name or if others know the user by a different name (for example, a maiden name) consider adding these alternate names for the user. Alternate names improve the likelihood of Connection placing a call when callers ask for the user by name. You can add and remove nicknames from this list by using Cisco Unity Connection Administration.

To Add Nicknames to the Global Nickname List

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Global Nicknames**.

Step 2 On the Search Global Nicknames page, select **Add New**.

Step 3 On the New Global Nickname page, in the Proper Name field, enter the name that you want to appear in the Global Nickname list.

Step 4 In the Nickname field, enter the nickname for this name.

Step 5 Select **Save**.

Step 6 If there is more than one nickname, select **Add New**, replace the Must-Be-Unique-Nick-Name text in the new field with the next nickname and select **Save**.

Step 7 Repeat Step 6 until all information has been added.

To Edit the Global Nicknames List

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Global Nicknames**.

Step 2 On the Search Global Nicknames page, find the nickname you want to edit.

Note If the nickname does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 To delete a proper name and its associated nicknames, check the check box next to the name in the Global Nickname list, and select **Delete Selected**.

Step 4 Select the proper name to edit the nicknames that are associated with it. Do any of the following:

- In the Proper Name field, enter changes to the name.
- If you want to delete a nickname, check the check box next to the name, and select **Delete Selected**.
- Select **Add New** to add a new nickname, and enter the applicable information.

Step 5 Select **Save**.

Additional Advanced Conversation Configuration Settings in Cisco Unity Connection 9.x

The following customizations and features are also available on the Advanced Conversation Configuration page in Cisco Unity Connection Administration. For configuration information, see the "Conversation Configuration" section in the "Cisco Unity Connection 9.x Advanced Settings" chapter of the *Interface Reference Guide for Cisco Unity Connection Administration Release 9.x* (unless otherwise indicated), at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/gui_reference/guide/9xcucgrgx.html.

- Remote Port Status Monitor settings
- Disable Identified User Messaging Systemwide
- Enable Go to Message
- Deactivate Notification Device settings
- Disable Message Summary on Replay
- Disable Spelled Name Searches
- Play Receipt Reason Code
- System Transfers: Confirm Number Before Transfer
- Prompt User to Record an Introduction when Forwarding Messages
- Skip Recording of Greeting During Enrollment
- Time to Wait Between Spoken Words (in Milliseconds)
- Maximum Call Transfer Attempts Allowed
- Maximum number of recipients Before Reply-All Warning.
- Wait Time in Seconds Between Call Transfer Attempts
- Require Users to Record Names at Enrollment
- System Broadcast Message settings (see the "Changing Broadcast Message Administrator Defaults in Cisco Unity Connection 9.x" section on page 27-7)
- Use Last (Rather than First) Redirecting Number for Routing Incoming Call
- Cross-Server settings

CHAPTER 15

Setting Up System Transfers in Cisco Unity Connection 9.x

See the following sections:

- System Transfer Overview in Cisco Unity Connection 9.x, page 15-1
- Task List: Offering Caller System Transfers in Cisco Unity Connection 9.x, page 15-2
- Task List: Offering User System Transfers in Cisco Unity Connection 9.x, page 15-4

System Transfer Overview in Cisco Unity Connection 9.x

In your organization, you may find that callers want to be able to dial numbers that are not typically listed in the corporate directory. For example, users and outside callers may find it convenient to be able to call Cisco Unity Connection and transfer from the Opening Greeting or another call handler to a lobby extension, conference room extension, or an extension assigned to someone in the organization who is not a Connection user, such as an employee who is visiting from another site and is using a guest office. In addition, some users may want to be able to call Connection and then transfer to phone numbers outside of the organization—such as frequently called customers or vendors—so that they do not have to hang up after checking messages to place another call, or so that they do not incur long-distance charges while on business travel.

You can configure individual user or call handler greetings to allow callers to transfer to numbers that are not associated with Connection users or call handlers. Alternatively, you can route callers to one of two "system transfer" conversations, both of which offer callers the ability to transfer to numbers that are not associated with Connection users:

Caller System Transfer	This conversation prompts callers to enter the number that they want to transfer to. To help protect your organization from toll fraud and unauthorized use, Connection performs the transfer only when the Default System Transfer restriction table permits it.
User System Transfer	This conversation prompts callers to sign in to Connection. After callers enter their Connection IDs and PINs, Connection prompts them to enter the number that they want to transfer to. To help protect your organization from toll fraud and unauthorized use, Connection performs the transfer only when permitted by the transfer restriction table that is associated with the class of service for the user who signed in.

You can route callers to either system transfer conversation in several ways, including:

- By creating a new phone number (on your phone system) and a corresponding routing rule to send callers to either system transfer conversation. When callers dial the number, Connection sends calls to the system transfer conversation that you specify.
- By offering a system transfer as a "one-key dialing" option. You can specify either system transfer (on the Caller Input page for any call handler or user greeting) as the action that Connection performs when a caller presses a particular key during the greeting.

  For example, to allow all callers to transfer to a lobby phone, guest office, or a conference room from the Opening Greeting, you could set Connection to offer Caller System Transfers when callers press 3. To offer system transfers to a particular user, you could set Connection to offer User System Transfers when the user presses a particular key during the Opening Greeting or even while listening to his or her own greeting.

Regardless of how you offer callers either type of system transfer, as long as the number entered by the caller is allowed by the Default System Transfer restriction table, Connection releases calls to the phone system, which handles the transfer to the specified number. This means that users and outside callers cannot return to the Connection phone menus after the transfer takes place.

Follow the instructions in the applicable task list to set up Caller and User System Transfers:

- Task List: Offering Caller System Transfers in Cisco Unity Connection 9.x, page 15-2
- Task List: Offering User System Transfers in Cisco Unity Connection 9.x, page 15-4

When using either the Caller System Transfer or User System Transfer conversation, Connection prompts users and callers to confirm the number that they enter before performing the transfer. To disable the confirmation prompt, change the System Transfers: Confirm Number Before Transfer setting on the System Settings > Advanced > Conversations page in Cisco Unity Connection Administration. For details, see the "Conversation Configuration" section in the "Cisco Unity Connection 9.x Advanced Settings" chapter of the *Interface Reference Guide for Cisco Unity Connection Administration Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/gui_reference/guide/9xcucgrgx.html .

Task List: Offering Caller System Transfers in Cisco Unity Connection 9.x

1. Modify the Default System Transfer restriction table so that callers can dial numbers that you want to allow. See the "Managing Restriction Tables in Cisco Unity Connection 9.x" chapter for details on how restriction tables work and how to modify them.
2. Configure one of the following methods for callers to access system transfers:
   - Configure a greeting—Each user and call handler greeting can be enabled to allow system transfers. See the "Configuring a Greeting to Allow System Transfers" section on page 15-3.
   - Set up a one-key dialing option—Use caller input settings for a call handler to send callers to the Caller System Transfer conversation when they press the key that you specify during a call handler greeting. Then, enable caller input for the applicable greeting and rerecord the greeting to mention the key that callers can press in the call handler greeting (for example, "...to reach a conference room, press 3.").

– Set up a “system transfers” phone number—See the documentation for the phone system to set up a new phone number. Then, on the Call Management > Call Routing > Direct Routing Rules page in Cisco Unity Connection Administration, create a routing rule that sends any call that arrives for the new number to the Caller System Transfer conversation. Distribute the new number to callers who will find Caller System Transfers convenient.

Configuring a Greeting to Allow System Transfers

The easiest way to offer system transfers in your organization is to configure user and call handler greetings to allow system transfers. Do one of the following procedures:

- To Configure an Individual Greeting to Allow System Transfers, page 15-3
- To Configure Multiple Greetings to Allow System Transfers in Bulk Edit Mode, page 15-3

To Configure an Individual Greeting to Allow System Transfers

Step 1 In Cisco Unity Connection Administration, go to the Greetings page for the applicable user, user template, call handler, or call handler template.

Step 2 Select the applicable greeting.

Step 3 On the Edit Greeting page, check the **Allow Transfers to Numbers Not Associated with Users or Call Handlers** check box.

Step 4 Select **Save**.

To Configure Multiple Greetings to Allow System Transfers in Bulk Edit Mode

Step 1 On the Search Call Handlers or Search Users page, check the applicable call handler or user check boxes, and select **Bulk Edit**.

If the call handlers or users that you want to edit in bulk do not all appear on one Search page, check all applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all applicable call handlers or users. Then select **Bulk Edit**.

Note The Status message at the top of the page tells you how many call handlers or users are being edited. Also note that each page is populated only with the fields that you are allowed to edit in bulk mode.

Step 2 On the Edit menu, select **Greetings**.

Step 3 On the Greetings page, select the display name of the greeting that you want to modify.

Step 4 On the Edit Greeting page, check the left-most check box to select the **Allow Transfers to Numbers Not Associated with Users or Call Handlers** field, and then check the check box.

Step 5 If applicable, set the Bulk Edit Task Scheduling Fields to schedule the Bulk Edit operation for a later date and/or time.

Step 6 Select **Submit**.

Task List: Offering User System Transfers in Cisco Unity Connection 9.x

1. For the users who will use User System Transfers, modify the transfer restriction table that is associated with the user class of service so that the users can dial numbers that are not associated with Connection entities. See the "Managing Restriction Tables in Cisco Unity Connection 9.x" chapter for details on how transfer restriction tables work and how to modify them to allow the numbers you want.

Tip If you are not offering system transfers to all users in a single class of service, reassign applicable users to a new class of service that has a transfer restriction table that allows them to dial the applicable numbers.

2. Configure one of the following methods for callers to access system transfers:
   - Configure a Custom Keypad Mapping conversation—Use the Custom Keypad Mapping tool to map a key to the User System Transfer Conversation so that it is offered to users from the main menu. See the "Custom Keypad Mapping Tool in Cisco Unity Connection 9.x" chapter for details.
   - Set up a one-key dialing option—Use caller input settings for a call handler or a user greeting to send callers to the User System Transfer conversation when they press the key that you specify during the greeting. Then, enable caller input for the applicable greeting. Tell users which key to press to access the User System Transfer conversation when they listen to the greeting, or if you are not concerned about other callers hearing the option and not being able to use it, rerecord the greeting to mention the key. (For example, "...to reach a conference room, press 3.")
   - Set up a "system transfers" phone number—See the documentation for the phone system to set up a new phone number. Then, on the Call Management > Call Routing > Direct Routing Rules page in Cisco Unity Connection Administration, create a routing rule that sends any calls for the new number to the User System Transfer conversation. Distribute the new number only to the users who will use User System Transfers.

CHAPTER 16

Custom Keypad Mapping Tool in Cisco Unity Connection 9.x

The Custom Keypad Mapping tool allows you to edit the key mappings that are associated with the Custom Keypad Mapping conversations. Within each of these conversations—which are assigned to individual users or user templates on the Phone Menu page in Cisco Unity Connection Administration—there are eight different menus that can be customized. Changing key mappings by using this tool does not affect any of the other Cisco Unity Connection conversation versions.

You can assign any one-, two-, or three-key sequence to any defined option for the Main menu, the Message Playback menu (the message header, body and footer can be mapped separately), the After Message menu, the Settings menu, the Message Settings menu, and the Preferences menu. You can customize which options are voiced in each menu and the order in which they are offered.

See the following sections for details:

- Using the Custom Keypad Mapping Tool in Cisco Unity Connection 9.x, page 16-1
- Conversation Menus That Can Be Customized in Cisco Unity Connection 9.x, page 16-3
- Documenting Your Keymap in Cisco Unity Connection 9.x, page 16-12

Using the Custom Keypad Mapping Tool in Cisco Unity Connection 9.x

Revised September 27, 2012

The Custom Keypad Mapping tool is divided into eight tabs that represent eight different conversation menus that can be customized. On each of these menu tabs you can:

- Customize which key or keys are assigned to each menu option. Leaving a key assignment blank disables that option for the menu.
- Configure whether the option is voiced in the menu. This allows you to assign a key or keys to an option but not have it presented verbally in the menu. The option would still be enabled for that menu and Connection would respond appropriately if the assigned key is pressed, but the user would not hear the option in the menu.
- Configure the order in which the menu items are offered to users. This is done by selecting the radio button of the row that you want to reorder and then using either the Up or Down arrows or the Move To button to arrange the menu items. The order in which the options appear in the tool is the order in which they are presented to the user by phone regardless of which keys are mapped to the options

To Use the Custom Keypad Mapping Tool to Make Changes to a Custom Keypad Map

Step 1 In Cisco Unity Connection Administration, expand **Tools**, then select **Custom Keypad Mapping**.

Step 2 On the Search Custom Keypad Mappings page, select the applicable custom keypad mapping conversation.

Note Connection supports 6 Custom Keypad Mappings.

Step 3 On the Edit Custom Keypad Mapping page, select the applicable tab to select the menu for which you would like to change key assignments.

Step 4 Change key assignments as applicable. (For guidelines on allowed entries, see the "Guidelines for Assigning Keys to Menu Options" section on page 16-2.)

Step 5 Select **Save**.

When changes are saved, all new calls that use this conversation follow the new key mapping settings.

Step 6 Repeat Step 3 through Step 5 for each menu that you want to customize.

Guidelines for Assigning Keys to Menu Options

- The only characters allowed are: 0 – 9, *, # or blank.
- A maximum of 3 digits is allowed for each menu option.
- Duplicate key entries are not allowed for any unique menu. (For example, you cannot map the "1" key to both Hear New Messages and Send a Message in the Main menu. However, you can map the "1" key to Hear New Messages in the Main menu and also to Greetings in the Settings menu.)
- Leaving a key assignment blank disables that option for the menu.
- When you leave a key assignment black, uncheck the Option Voiced in Menu check box.
- When changes are saved, all new calls that use the conversation follow the new key mapping settings.

Setting a Keypad Mapping to Match an Existing Conversation Mapping

You can change the key mappings for all menus to match that of an existing conversation. For example, you can have all of the key mappings for a selected custom keypad mapping replaced with the mappings of Optional Conversation 1. This can be useful if you want to make a small number of changes to an existing conversation and do not want to manually remap every option.

To Set Key Mappings to an Existing Conversation

Step 1 In Cisco Unity Connection Administration, expand **Tools**, then select **Custom Keypad Mapping**.

Step 2 On the Search Custom Keypad Mappings page, select the applicable custom keypad mapping conversation.

Step 3 On any tab of the Edit Custom Keypad Mapping page, in the **Reset Mappings on All Tabs To** list, select the conversation that you want to use and select **Reset**.

Step 4 When asked to confirm that you want to replace all key mappings with those of the selected conversation before continuing, select **OK**.

Conversation Menus That Can Be Customized in Cisco Unity Connection 9.x

The Custom Keypad Mapping tool is divided into eight tabs that represent eight different conversation menus that can be customized. The Message Playback menu is represented on three tabs because messages contain three distinct parts: the message header, the message body, and the message footer. The options on these three tabs are identical, but you may want to map different options to different keys for certain parts.

The following menus can be customized:

- Main Menu Tab, page 16-3
- Message Playback Menu Tabs (Message Header Tab, Message Body Tab, and Message Footer Tab), page 16-5
- After Message Menu Tab, page 16-8
- Settings Menu Tab, page 16-10
- Message Settings Menu Tab, page 16-11
- Preferences Menu Tab, page 16-11

Main Menu Tab

The Main menu is what users hear immediately after they sign in and hear their message counts (if applicable).

See Table 16-1 for a list of options that can be mapped.

Table 16-1 Main Menu Tab

Option	Description
Play New Messages	Takes users to the new (unread) message stack.
Send a Message	Takes users to the Send Message menu.
Review Old Messages	Takes users to the saved message stack. If applicable, users are also offered an opportunity to review deleted messages.
Change Setup Options	Takes users to the Settings menu where they can configure settings for greetings, transfer rules, and alternate contact numbers, and access their message settings and preferences.
Find Messages	Takes users to the Message Locator feature where they can search for new messages by the calling number or name of the sender. This option is offered only when the Finding Messages With Message Locator feature is enabled for each user on the Phone Menu page.

Table 16-1 Main Menu Tab (continued)

Option	Description
List Meetings	Lists the time, meeting organizer, and subject for all current and upcoming meetings. For Cisco Unified MeetingPlace and Cisco Unified MeetingPlace Express meetings, the user is offered the option to join current meetings. **Note** Integrations with Cisco Unified MeetingPlace Express are not supported in Cisco Unity Connection.
Play External Messages	Provides the count of messages that are stored on an external message store. The user is offered the option to listen to these messages.
Manage Call Handler Greetings	Allows users to access the Greetings Administrator conversation to change greetings for call handlers that have been assigned an extension. Users who are assigned to the Greetings Administrator role on the Edit Roles page can change the greetings for any system call handler. Users who are not assigned to the Greetings Administrator role can change the greetings only for call handlers that they own.
Call a Number	Allows users to access the User System Transfer conversation and dial any number that is allowed by their transfer restriction table.
Manage Broadcast Messages	Allows users to access the Broadcast Message Administration conversation. This option is offered only when the Send or Update Broadcast Messages setting is configured for each user on the Send Message Settings page.
Repeat Menu Options	Plays the Main menu again.
Help	Plays the Main menu Help.
Cancel or Back Up	Exits the user mailbox. By default, when users exit their mailboxes they are sent to the Opening Greeting call handler. However, you can customize the exit behavior by changing the When Exiting the Conversation setting on the Phone Menu page for each user.
Switch Between Using the Phone Keypad and Using Voice Commands	Allows users to toggle between the touchtone and voice-recognition conversations: • When users are listening to the touchtone conversation, and press the applicable keys, they are immediately switched to the voice-recognition conversation. • When users are listening to the voice-recognition conversation, and press the applicable keys, they are immediately switched to the touchtone conversation. Note that the toggle persists until the user toggles back, or until the end of the call.

Message Playback Menu Tabs (Message Header Tab, Message Body Tab, and Message Footer Tab)

When a message is played in the Cisco Unity Connection user conversation, there are three separate parts: the header, the body, and the footer. By default, the message header contains the message number and the sender information. The message body is the actual recording of the message. The message footer is the time stamp.

The contents of the header and footer sections can be modified on the Playback Message Settings page. For example, the message number, the sender information, the sender extension, and the time stamp can be added or removed from the header. These settings are controlled by the check boxes under the "Before Playing Each Message, Play" section on the Playback Message Settings page. For the message footer, you have the option of playing the time stamp after the message; you can exclude it altogether or have it played as part of the header. This option is controlled with the check box under the "After Playing Each Message, Play" section on the Playback Message Settings page. If you choose not to play the time stamp after the message, the effect is to have no footer to the message. In Cisco Unity Connection, the "After Playing Each Message, Play" section now includes the sender information, extension or ANI, and the message number, in addition to the time the message was sent and message duration.

The Custom Keypad Mapping tool includes separate tabs for each part of the message. As a best practice, we recommend that you map the same keys to each option for all three parts. However, in some cases it may be useful to map the same key to different actions. For example, during the message header you might want to press the "1" key to skip to the start of the message body, and during the message body press the "1" key to skip to the message footer.

The same message playback key mappings are used when listening to new messages, saved messages, and deleted messages, rather than separate mappings for each message stack. Keep this in mind as you are deciding on key mapping preferences, particularly for options such as marking messages as new (unread) or saved (read).

Message playback options are not voiced in a menu format by phone, but they are listed if the user presses the key that is mapped to the Help option. The Custom Keypad Mapping tool allows you to configure which items are voiced in the Help.

See Table 16-2 for a list of options that can be mapped.

Table 16-2 Message Playback Menu Tabs

Option	Description
Repeat Message	Jumps to the beginning of the header portion of the message.
Save	Skips to the next message and marks the current message as saved.
Delete	Deletes the message that is currently being played. The user class of service determines whether the message is moved to the deleted items folder or is deleted permanently.
Slow Playback	Slows down the message that is currently being played. Pressing the mapped key slows the message playback by 50 percent. **Note** If the Save Speed and Volume Changes Made by User setting is enabled on the System Settings > Advanced > Conversation Configuration page, the last change made to playback speed is saved as the default playback speed for the user.

Table 16-2 Message Playback Menu Tabs (continued)

Option	Description
Fast Playback	Speeds up the message that is currently being played. Pressing the mapped key speeds the message playback by 50 percent. Pressing the key again speeds the message playback by 100 percent. **Note** If the Save Speed and Volume Changes Made by User setting is enabled on the System Settings > Advanced > Conversation Configuration page, the last change made to playback speed is saved as the default playback speed for the user.
Reset Speed to Default	Resets the speed of the message that is currently being played to the default message playback speed setting for the user. **Note** If the Save Speed and Volume Changes Made by User setting is enabled on the System Settings > Advanced > Conversation Configuration page, the last change made to playback speed is saved as the default playback speed for the user.
Change Volume	Cycles the volume of the message that is currently being played through three volume levels: normal, loud, and quiet.If the Save Speed and Volume Changes Made by User setting is enabled on the System Settings > Advanced > Conversation Configuration page, the last change made to playback volume is saved as the default playback volume for the user.
Reset Volume to Default	Resets the volume of the message that is currently being played to the default message playback volume setting for the user. **Note** If the Save Speed and Volume Changes Made by User setting is enabled on the System Settings > Advanced > Conversation Configuration page, the last change made to playback volume is saved as the default playback volume for the user.
Quieter Playback	Decreases the volume of the message that is currently being played. **Note** If the Save Speed and Volume Changes Made by User setting is enabled on the System Settings > Advanced > Conversation Configuration page, the last change made to playback volume is saved as the default playback volume for the user.
Louder Playback	Increases the volume of the message that is currently being played. **Note** If the Save Speed and Volume Changes Made by User setting is enabled on the System Settings > Advanced > Conversation Configuration page, the last change made to playback volume is saved as the default playback volume for the user.
Pause/Resume	Pauses playback of the message, or resumes playback when the message is already paused.
Rewind	Jumps backward in the message that is currently being played. By default, the message rewinds five seconds. You can adjust the rewind time on the Playback Message Settings page.
Fast-Forward	Jumps forward in the message that is currently being played. By default, the message fast-forwards five seconds. You can adjust the fast-forward time on the Playback Message Settings page.

Table 16-2 Message Playback Menu Tabs (continued)

Option	Description
Skip to After Message Menu	Jumps directly to the After Message menu.
Skip Message, Save As Is	Skips to the next message in the stack and leaves the message in the state it was in. When a new message is skipped, it is saved as unread; when a saved message is skipped, it remains saved; and when a deleted message is skipped, it remains deleted.
Save as New	Skips to the next message in the stack and marks the message as new. When this option is selected, if a user skips messages when listening to saved or deleted messages, the messages are marked as unread and are moved to the new message stack.
Play Message By Number	Asks the user to enter the number of a message in the current stack (new, saved, or deleted messages) and then takes the user directly to that message. For users who have large numbers of messages, this is a useful way to jump ahead or back in the stacks. This option is offered only when the Enable Go to Message setting is enabled on the System Settings > Advanced > Conversation page.
Go to Previous Message	Takes the user to the previous message in the stack.
Go to Next Message	Takes the user to the next message in the stack. The message the user was listening to is left in the state it was in (new, saved, or deleted). Go to Next Message functions the same as the Skip Message, Save As Is option.
Cancel or Back Up	Terminates message playback and goes up a menu level. Users who are listening to new or saved messages go to the Main menu. Users who are listening to deleted messages go to the Deleted Message Option menu.
Reply	Replies to the sender of the message. Only the sender receives the reply. Other recipients of the original message do not receive the reply. This option is available only when the message is from another user; users cannot reply to outside caller messages.
Reply to All	Replies to all recipients of the message.
Call the Sender	Terminates message playback, signs users out of their mailboxes, and transfers users to the person who left the message. This feature is also known as Live Reply. This key option is used to return calls to both users and unidentified callers. This option is available only when the user is assigned to a class of service that has enabled either the Users Can Reply to Messages from Other Users by Calling Them or the Users Can Reply to Messages from Unidentified Callers by Calling Them setting.
Forward Message	Allows the user to forward the message to another user or distribution list.
Forward Original Message	Forwards the original voice message and removes any forwarded introductions that may have been added to the message by previous forwards.

Table 16-2 Message Playback Menu Tabs (continued)

Option	Description
Skip to End	Jumps to the beginning of the message footer. When the After Playing Each Message, Play options are not enabled for the user on the Playback Message Settings page, these options effectively skips to the end of the message and goes directly to the After Message menu.
Replay Message	Jumps to the beginning of the message body, effectively repeating the message. If you assign a key to this option for the message header, it allows users to skip the header and jump right to the message.
Play Message Properties	Plays the properties of the message that is currently being played. This includes the sender information (including ANI if it is provided for outside callers) and the time that the message was sent.
Operator	Signs users out of their mailboxes and sends them to the Operator call handler. The message is left in the state that it was in.
Go to First Message	Jumps to the first message of the message stack. Connection plays the "First message" prompt as an audible cue to the user.
Go to Last Message	Jumps to the last message of the message stack. Connection plays the "Last message" prompt as an audible cue to the user.
List Message Recipients	Lists all recipients of the current message.
Toggle Urgency Flag	Toggles the priority flag on a received message between urgent and normal. Users who want to identify the high-priority messages among all of their received messages may be interested in this functionality. By default, Connection plays messages that are marked urgent first.
Send to Fax Machine for Printing	Sends the message to a fax machine. This option is available for fax messages and any message that has an attachment that can be sent to a fax machine. This option is available only when fax is configured as an external service for the user.
Help	Plays Help for all of the options that are mapped to a key, and for which the Option Voiced in Help check box is checked.
Play Message Attachments	Describes the files that are attached to the message. Files in compatible formats are played or read.

After Message Menu Tab

The After Message menu plays after the user has listened to a message.

See Table 16-3 for a list of options that can be mapped.

Table 16-3 After Message Menu Tab

Option	Description
Repeat Message	Plays the message again, starting with the header.

Table 16-3 After Message Menu Tab (continued)

Option	Description
Save	Marks the message as saved (read) and moves to the next message in the stack. When the user is listening to a deleted message, this option moves the message to the saved message stack.
Delete	Deletes the message that is currently being played. The user class of service determines whether the message is moved to the deleted items folder or is deleted permanently.
Reply	Replies to the sender of the message. Only the sender receives the reply; other recipients of the original message do not receive the reply. This option is available only when the message is from another user; users cannot reply to outside caller messages.
Forward Message	Allows the user to forward the message to another user or distribution list.
Forward Original Message	Forwards the original voice message and removes any forwarded introductions that may have been added to the message by previous forwards.
Save as New	Marks the message as new (unread) and moves to the next message in the stack. When the user is listening to a saved or deleted message, this option moves the message to the new message stack.
Rewind	Jumps backward into the message. By default, the message rewinds five seconds. You can adjust the rewind time on the Playback Message Settings page.
Send to Fax Machine for Printing	Sends the message to a fax machine. This option is available for fax messages and any message that has an attachment that can be sent to a fax machine. This option is available only when fax is configured as an external service for the user.
Play Message Properties	Plays the properties of the current message. This includes the sender information (including ANI if it is provided for outside callers) and the time that the message was sent.
Cancel or Back Up	Exits the After Message menu and goes up a menu level. Users who are listening to new or saved messages go to the Main menu. Users who are listening to deleted messages go to the Deleted Message Option menu.
Help	Plays the After Message menu Help.
Operator	Signs users out of their mailboxes and sends them to the operator call handler. The message is left in the state it was in.
Play Message Attachments	Describes the files that are attached to the message. Files in compatible formats are played or read.

Table 16-3 After Message Menu Tab (continued)

Option	Description
Play Message By Number	Asks the user to enter the number of a message in the current stack (new, saved, or deleted messages) and then takes the user directly to that message. For users who have large numbers of messages, this is a useful way to jump ahead or back in the stacks. This option is available only when the Enable Go to Message setting is enabled on the System Settings > Advanced > Conversations page.
Go to Previous Message	Takes the user to the previous message in the stack.
Go to Next Message	Takes the user to the next message in the stack. The message the user was listening to is left in the state that it was in (new, saved, or deleted). Go to Next Message functions the same as the Skip Message, Save As Is option.
Save As Is	Goes to the next message in the stack and leaves the message in the state that it was in. New messages are saved as unread; saved messages remain saved; and deleted messages remain deleted.
Go to First Message	Jumps to the first message of the message stack. Connection plays the "First message" prompt as an audible cue to the user.
Go to Last Message	Jumps to the last message of the message stack. Connection plays the "Last message" prompt as an audible cue to the user.
Toggle Urgency Flag	Toggles the priority flag on a received message between urgent and normal. Users who want to identify the high-priority messages among all of their received messages may be interested in this functionality. By default, Connection plays messages that are marked urgent first.
Call the Sender	Terminates message playback, signs users out of their mailboxes, and transfers users to the person who left the message. This feature is also known as Live Reply. This key option is used to return calls to both other users and unidentified callers. This option is available only when the user is assigned to a class of service that has enabled either the Users Can Reply to Messages from Other Users by Calling Them or the Users Can Reply to Messages from Unidentified Callers by Calling Them setting.
Skip Message, Save As Is	Skips to the next message in the stack and leaves the message in the state it was in. When a new message is skipped, it is saved as unread; when a saved message is skipped, it remains saved; and when a deleted message is skipped, it remains deleted.
List Message Recipients	Lists all recipients of the current message.
Reply to All	Replies to all recipients of the message.

Settings Menu Tab

The Settings menu is what users hear when they choose Change Setup Options from the Main menu.

See Table 16-4 for a list of options that can be mapped.

Table 16-4 Settings Menu Tab

Option	Description
Greetings	Allows users to modify their greetings.
Message Settings	Takes users to the Message Settings menu.
Preferences	Takes users to the Preferences menu.
Transfer Settings	Allows users to modify their transfer rules.
Alternate Contact Numbers	Allows users to change their alternate contact phone numbers. This option is available for a user only when an administrator has configured one or more caller input keys to transfer to an alternate contact number on the user Edit Caller Input page.
Repeat Menu	Plays the Settings menu again.
Help	Plays the Settings menu Help.
Cancel or Back Up	Exits the Settings menu and goes up a menu level to the Main menu.

Message Settings Menu Tab

The Message Settings menu is what users hear when they choose Message Settings from the Settings menu.

See Table 16-5 for a list of options that can be mapped.

Table 16-5 Message Settings Menu Tab

Option	Description
Message Notification	Allows users to modify the settings for their message notification devices.
Fax Delivery	Allows users to change the phone number of the fax machine to which they can send faxes for printing.
Menu Style	Allows users to switch between the full or brief menu styles.
Private Lists	Allows users to modify their private lists.
Addressing Priority List	Allows users to review and add or remove names from their addressing priority list.
Repeat Menu	Plays the Message Settings menu again.
Help	Plays the Message Settings menu Help.
Cancel or Back Up	Exits the Message Settings menu and goes up a menu level to the Settings menu.

Preferences Menu Tab

The Preferences menu is what users hear when they choose Preferences from the Settings menu.

See Table 16-6 for a list of options that can be mapped.

Table 16-6 Preferences Menu Tab

Option	Description
Change Phone Password	Allows users to modify their phone PINs. This option is not available for a user when the User Cannot Change check box is checked on the user Edit Password Settings page.
Change Recorded Name	Allows users to record names. This option is available only when the user is assigned to a class of service that has enabled the Allow Recording of Name option.
Change Directory Listing	Allows users to choose whether or not they want to be listed in the directory. This option is available only when the user is assigned to a class of service that has enabled the Allow Users to Choose to Be Listed in the Directory option.
Edit User-Defined Alternate Extensions	Allows users to list and delete their alternate extensions. Also allows users to add the current number they are calling from as an alternate extension (if it is not already an alternate extension and does not match a blocked pattern in the User-Defined or Automatically-Added Alternate Extensions restriction table).
Repeat Menu	Plays the Preferences menu again.
Help	Plays the Preferences menu Help.
Cancel or Back Up	Exits the Preferences menu and goes up a menu level to the Settings menu.

Documenting Your Keymap in Cisco Unity Connection 9.x

The Wallet Card wizard is available for producing a PDF file of a wallet card based on your custom keypad mappings. For details, see the "Wallet Card Wizard in Cisco Unity Connection 9.x" section on page 3-11.

CHAPTER 17

Changing the Audio Format of Recordings and Media Streams in Cisco Unity Connection 9.x

See the following sections:

- Changing the Audio Format That Cisco Unity Connection 9.x Uses for Calls, page 17-1
- Changing the Audio Format for Recordings in Cisco Unity Connection 9.x, page 17-2

Changing the Audio Format That Cisco Unity Connection 9.x Uses for Calls

For calls, Cisco Unity Connection advertises the audio format (or codec) that is preferred for the media stream with the phone system. You should consider the following when setting the audio format:

- When Connection advertises a different audio format than the one used by the phone system, the phone system transcodes the media stream.
- Connection should use the same audio format for the media stream that the phone system uses for the following reasons:
  - To reduce the need for transcoding the media stream from one audio format to another.
  - To minimize the performance impact on the Connection server and on the phone system.
  - To preserve the audio quality of calls.

For more information on audio format codecs, see the "Audio Codecs" section in the "Sizing and Scaling Cisco Unity Connection 9.x Servers" chapter of the *Design Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/design/guide/9xcucdgx.html.

To Change the Audio Format That Cisco Unity Connection Uses for Calls

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the port group that belongs to the phone system integration for which you want to change the audio format of the media stream.

Step 3 On the Port Group Basics page, on the Edit menu, select **Codec Advertising**.

Step 4 On the Edit Codec Advertising page, select the Up and Down arrows to change the order of the codecs or to move codecs between the Advertised Codec box and the Unadvertised Codecs box.

If only one codec is in the Advertised Codecs box, Cisco Unity Connection sends the media stream in that audio format. The phone system transcodes if it does not use this audio format.

If two or more codecs are in the Advertised Codecs box, Connection advertises its preference for the first codec in the list but sends the media stream in the audio format from the list that the phone system selects.

Step 5 Select **Save**.

Step 6 *(All integrations except SCCP)* If you want to change the packet size that is used by the advertised codecs, on the Port Group Basics page, under Advertised Codec Settings, select the applicable packet setting for each codec in the Packet Size list, and select **Save**.

Step 7 On the Port Group menu, select **Search Port Groups**.

Step 8 Repeat Step 2 through Step 7 for all remaining port groups that belong to the phone system integration for which you want to change the audio format of the media stream.

Changing the Audio Format for Recordings in Cisco Unity Connection 9.x

Typically, you configure Cisco Unity Connection to use the same audio format (or codec) for recording a message that the playback device uses. For example, if users listen to messages primarily on a phone system extension, you should configure Connection to record messages in the same audio format that the phone system uses. If users listen to messages on Personal Digital Assistants (PDAs), however, you should configure Connection to record messages in the audio format that the PDAs use (such as GSM 6.10).

Consider the following when setting the audio format for recording messages:

- Setting the audio format for recordings affects all messages, greetings, and names systemwide for all users.
- The audio format that you choose affects only recordings made by phone, either by using the TUI or by using the Media Master and TRAP. Recordings made by using the Media Master and a microphone are always stored in G.711 mu-law.
- Minimizing the number of different audio formats in use by Connection for recording and playing recorded messages, greetings, and names reduces transcoding between audio formats that Connection must perform, and thus reduces the effect on the performance of the Connection server.
- When a message, greeting, or name is recorded in a lower quality audio format and later transcoded to a higher quality audio format during playback, the sound quality is not improved. Usually, the sound quality of a recording suffers during transcoding, especially when the sampling rate is changed.

  For example, sound quality suffers when messages that are recorded in the G.729a audio format are played on devices that use the G.711 Mu-Law audio format. However, sound quality is preserved when messages that are recorded in the G.711 Mu-Law audio format are played on devices that use the same audio format.
- Changing the audio format for recordings affects only messages, greetings, and names that are recorded after the setting is changed. Existing messages, greetings, and names that were recorded in a different audio format are not affected by the new setting.

For more information on audio format codecs, see the "Audio Codecs" section in the "Sizing and Scaling Cisco Unity Connection 9.x Servers" chapter of the *Design Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/design/guide/9xcucdgx.html.

To Change the Audio Format for Recording Messages By Using the Phone

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **General Configuration**.

Step 2 On the Edit General Configuration page, in the Recording Format list, select the applicable setting.

Note If the playback device uses a different audio format, Connection must transcode the messages, greetings, and names into the applicable audio format or the playback device is not able to play them.

Step 3 Select **Save**.

CHAPTER 18

Managing Recorded Greetings and Recorded Names in Cisco Unity Connection 9.x

You can record names for users, system distribution lists, and call handlers (including interview handlers and directory handlers), and greetings for users and call handlers, by using the Media Master on the pages within Cisco Unity Connection Administration. In circumstances when you cannot access Connection Administration, you can access the Cisco Unity Greetings Administrator from any phone to manage greetings for call handlers.

Note that users can record their own names and personal greetings by accessing the Cisco Unity Connection conversation by phone, or by using the Media Master in the Connection Messaging Assistant web tool. For end-user instructions and information about using the Media Master, see the *User Guide for the Cisco Unity Connection Messaging Assistant Web Tool*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/assistant/b_9xcucugasst.html.

See the following sections for details:

- Using the Media Master to Record Greetings and Names in Cisco Unity Connection 9.x, page 18-1
- Using the 9.x Cisco Unity Greetings Administrator to Record or Rerecord Call Handler Greetings, page 18-2
- Setting Up the 9.x Cisco Unity Greetings Administrator, page 18-4
- Changing the Audio Format for Recording Greetings and Names in Cisco Unity Connection 9.x, page 18-5

Using the Media Master to Record Greetings and Names in Cisco Unity Connection 9.x

The Media Master appears on each page of Cisco Unity Connection Administration on which recordings can be made. It allows you to make and play recordings, either with a phone or with your computer microphone and speakers, by selecting the Media Master controls. In addition, the Options menu on the Media Master allows you to use other sound (WAV) files in your recordings.

When determining the recording and playback device that you want to use with the Media Master in Connection Administration, consider the following points:

- The phone serves as the default recording and playback device for the Media Master.

- The phone offers the best sound quality for recordings.

  In order to use the phone as a recording and playback device, Connection must have at least one voice messaging port designated to allow users to use the phone as a recording and playback device. Alternatively, when you make and play recordings by using a computer microphone and speakers, no ports are used, which decreases the load on the Connection server and leaves ports open for other functions.

Use the following procedure to select the recording and playback device used by the Media Master. Updates to the Media Master are saved per user, per computer. If you plan to use additional computers to access Cisco Unity Connection Administration, the Media Master needs to be set up on each.

To Select a Recording and Playback Device

Step 1 In Cisco Unity Connection Administration, go to a page on which the Media Master appears.

Step 2 On the Media Master Options menu, select **Playback & Recording**.

Step 3 In the Playback & Recording Settings dialog box, select a playback device and a recording device.

Step 4 If you chose the phone as the recording and playback device in Step 3, the Active Phone Number is set by default to your primary extension. To specify a different phone number, enter it in the Other Number field.

Note After changing the timeout value in telephone record and playback (TRAP), you need to restart the Conversation Manager and Tomcat services to reflect the changes.

Step 5 Select **OK**.

Using the 9.x Cisco Unity Greetings Administrator to Record or Rerecord Call Handler Greetings

The Cisco Unity Greetings Administrator allows you—or the call handler owners that you assign—to manage call handler greetings from any phone. The owner of the call handler can be any user

By using the Cisco Unity Greetings Administrator, you can do the following tasks without having to access the Media Master in Cisco Unity Connection Administration:

- Rerecord a call handler greeting.
- Toggle between the alternate and standard greetings.
- Determine which greeting is currently active for a call handler.
- Listen to and record busy, closed, internal, and holiday greetings.

For example, if your office is unexpectedly closed because of bad weather, you can call Connection from home to enable the alternate Opening Greeting, or rerecord a call handler greeting to state that the office is closed.

With a multilingual system, if the call handler greetings language is inherited, you have the option of providing call handler greetings in multiple languages. For example, if Cisco Unity Connection is set up to provide prompts in French and Spanish, you might record the call handler greeting in both languages so that Spanish- and French-speaking callers can hear your greeting in their own language.

If you do not record a greeting in a language your system provides, Connection plays the system default greeting for calls that are associated with that greeting. For example, if you recorded the standard greeting in French, but not in Spanish, Spanish-speaking callers would hear the system default greeting for the call handler while French-speaking callers would hear the French greeting you recorded.

To access the Cisco Unity Greetings Administrator, the owner of the call handler requires the following information:

- The phone number to dial for access to the Cisco Unity Greetings Administrator

  Alternatively, if you set up one-key dialing access to the Cisco Unity Greetings Administrator from the Opening Greeting, the owner of the call handler needs to know which key to press while listening to the Opening Greeting.
- The ID of the call handler owner
- The password of the call handler owner
- The extension of the call handler

To prevent unauthorized access to Connection, make sure that the call handler owner understands that the above information should be kept confidential.

To Use the Cisco Unity Greetings Administrator to Manage Call Handler Greetings

Step 1 On the phone, dial the phone number for access to the Cisco Unity Greetings Administrator.

Step 2 At the prompt, enter the ID of the call handler owner, and press **#**.

Step 3 At the prompt, enter the password of the call handler owner, and press **#**.

Step 4 At the prompt, enter the extension of the call handler, and press **#**.

Step 5 If the call handler you selected in Step 4 is configured to inherit the caller language and there is more than one language installed on your Connection system, at the prompt, press the number of the language in which to edit greetings for the call handler. (Connection plays the Greetings menu options in the same language.)

Step 6 Follow the Cisco Unity Greetings Administrator conversation to toggle between the alternate and standard call handler greetings, or to record the call handler greeting.

To toggle between standard and alternate greetings	Press 1.
To change the standard greeting	Press 2.
To change the alternate greeting	Press 6.

Step 7 You can also use the Cisco Unity Greetings Administrator to record or listen to additional greetings.

To change the busy greeting	Press 3.
To change the closed greeting	Press 4.
To change the internal greeting	Press 5.
To change the holiday greeting	Press 7.

Setting Up the 9.x Cisco Unity Greetings Administrator

To set up the Cisco Unity Greetings Administrator, do the following tasks:

1. Set up a phone number so that you or another user can call the Cisco Unity Greetings Administrator. For information on how to set up the phone number, see the documentation for your phone system.

   Alternatively, you can set a one-key dialing option from the Opening Greeting that takes callers to the Cisco Unity Greetings Administrator. Do the "To Set Up a One-Key Dialing Option From the Opening Greeting for Accessing the Cisco Unity Greetings Administrator" procedure on page 18-4. (If you choose this option, skip Task 2.)
2. If applicable, add a routing rule to forward calls to the Cisco Unity Greetings Administrator from the phone number that you set up in Task 1. Do the "To Add a Routing Rule to Forward Calls to the Cisco Unity Greetings Administrator" procedure on page 18-4.
3. Assign a unique extension to each call handler that you want to access by using the Cisco Unity Greetings Administrator. Do the "To Assign a Unique Extension to a Call Handler" procedure on page 18-5.
4. As needed, tell call handler owners how to use the Cisco Unity Greetings Administrator. For an overview and procedure, see the "Using the 9.x Cisco Unity Greetings Administrator to Record or Rerecord Call Handler Greetings" section on page 18-2.

To Set Up a One-Key Dialing Option From the Opening Greeting for Accessing the Cisco Unity Greetings Administrator

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handler page, in the Search Results table, select the **Opening Greeting** call handler.

Step 3 On the Edit Call Handler Basics page, on the Edit menu, select **Caller Input**.

Step 4 On the Caller Input page, in the Caller Input Keys table, select the applicable phone keypad key.

Step 5 On the Edit Caller Input page for the key that you selected, check the **Ignore Additional Input (Locked)** check box, if applicable.

Make sure that you did not select a phone keypad key in Step 4 that represents the first digit of the extensions on your phone system. If you lock that key, callers are not able to dial a user extension from the opening greeting.

Step 6 Select **Conversation**, and then select **Greetings Administrator** in the list.

Step 7 Select **Save**.

To Add a Routing Rule to Forward Calls to the Cisco Unity Greetings Administrator

Step 1 In Cisco Unity Connection Administration, expand **Call Management > Call Routing**, then select **Direct Routing Rules**.

Step 2 On the Direct Routing Rules page, select **Add New**.

Step 3 On the New Direct Routing Rule page, enter a display name for the new routing rule, and select **Save**.

Step 4 On the Edit Direct Routing Rule page, confirm that the Status is set to **Active**.

Step 5 In the Routing Rule Conditions table, select **Add New**.

Step 6 On the New Direct Routing Rule Condition page, select **Dialed Number**, set a parameter in the list, and enter the phone number that has been set up for access to the Cisco Unity Greetings Administrator.

Step 7 Select **Save**.

Step 8 On the Edit menu, select **Edit Direct Routing Rule**.

Step 9 On the Edit Direct Routing Rule page, in the Send Call To field, select **Conversation**, then select **Greetings Administrator**.

Step 10 Select **Save**.

Step 11 On the Direct Routing Rule menu, select **Direct Routing Rules**. Verify that the new routing rule is in an appropriate position with the other routing rules in the table. If you want to change the rule order, continue with Step 12.

Step 12 Select **Change Order**.

Step 13 On the Edit Direct Routing Rule Order page, select the name of the rule that you want to reorder, and select the Up or Down arrow until the rules appear in the correct order.

Step 14 Select **Save**.

To Assign a Unique Extension to a Call Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handlers page, in the System Call Handlers table, select the display name of the call handler that you want to access with the Cisco Unity Greetings Administrator.

Step 3 On the Edit Call Handler Basics page, in the Extension field, enter a unique extension for the call handler.

Step 4 Select **Save**.

Changing the Audio Format for Recording Greetings and Names in Cisco Unity Connection 9.x

Typically, Cisco Unity Connection uses the same audio format (or codec) for recording a greeting or name that the playback device uses. For example, if users listen to recorded greetings and recorded names on a phone system extension, Connection should record greetings and names in the same audio format that the phone system uses.

You should consider the following when setting the audio format for recording greetings and names:

- Setting the audio format for recordings affects all messages, greetings, and names systemwide for all users.
- Minimizing the number of different audio formats in use for recording and playing recorded messages, greetings, and names reduces transcoding between audio formats that Connection must perform, and reduces the effect on the performance of the Connection server.

- When a message, greeting, or name is recorded in a lower quality audio format and later transcoded to a higher quality audio format during playback, the sound quality is not improved. Usually, the sound quality of a recording suffers during transcoding, especially when the sampling rate is changed.

  For example, sound quality suffers when greetings that are recorded in the G.729a audio format are played on devices that use the G.711 Mu-Law audio format. However, sound quality is preserved when greetings that are recorded in the G.711 Mu-Law audio format are played on devices that use the same audio format.
- Changing the audio format for recordings affects only messages, greetings, and names that are recorded after the setting is changed. Existing messages, greetings, and names that were recorded in a different audio format are not affected by the new setting.

To Change the Audio Format for Recording Greetings and Names

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **General Configuration**.

Step 2 On the Edit General Configuration page, in the Recording Format list, select the applicable setting. Connection records all messages, greetings, and names in the audio format that you select.

Note If the playback device uses a different audio format, Connection must transcode the messages, greetings, and names into the applicable audio format or the playback device is not able to play them.

Step 3 Select **Save**.

CHAPTER 19

Specifying Password, PIN, Sign-In, and Lockout Policies in Cisco Unity Connection 9.x

See the applicable sections, depending on your configuration:

- Cisco Unified Communications Manager Business Edition (CMBE) Only, page 19-1
- Cisco Unity Connection 9.x Only, page 19-1

Cisco Unified Communications Manager Business Edition (CMBE) Only

In Cisco Unified Communications Manager Business Edition (CMBE), you use Cisco Unified Communications Manager Administration to specify password, PIN, and account lockout policies for phone and web-tool access, and to specify the sign-in policy for web-tool access for all users who access Cisco Unity Connection voice messages.

The policies are specified on the User Management > Credential pages in Cisco Unified CM Administration. See the online Help, or the *Cisco Unified Communications Manager Administration Guide* for details and related topics. (Administration documentation for Cisco Unified Communications Manager is available at http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html.)

Note that although you cannot set password, PIN, sign-in, and lockout policies in Cisco Unity Connection Administration, you can change a Connection user password or PIN on the user account page. See the "Passwords and PINs in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html. Alternatively, users can change their own passwords and PINs in the Connection Messaging Assistant.

Cisco Unity Connection 9.x Only

In Cisco Unity Connection, you use authentication rules to determine the password, PIN, and account lockout policies for phone and web-tool access, and to specify the sign-in policy for web-tool access for all users who access Cisco Unity Connection voice messages.

See the following sections:

- Specifying Password, PIN, Sign-In, and Lockout Policies by Using Authentication Rules (Cisco Unity Connection Only), page 19-2
- Creating and Modifying Authentication Rules, and Assigning Rules to Users (Cisco Unity Connection Only), page 19-2

Specifying Password, PIN, Sign-In, and Lockout Policies by Using Authentication Rules (Cisco Unity Connection Only)

In Cisco Unity Connection, authentication rules govern user passwords, PINs, and account lockouts for all user accounts. You use authentication rules to secure how users access Connection by phone, and how users access Cisco Unity Connection Administration and the Cisco Personal Communications Assistant (PCA).

For example, an authentication rule determines:

- The number of failed sign-in attempts that are allowed before an account is locked
- The number of minutes an account remains locked before it is reset
- Whether a locked account must be unlocked manually by an administrator
- The minimum length allowed for passwords and PINs
- The number of days before a password or PIN expires

Creating and Modifying Authentication Rules, and Assigning Rules to Users (Cisco Unity Connection Only)

Authentication rules are specified on the System Settings > Authentication Rules page in Cisco Unity Connection Administration. Connection includes the following predefined authentication rules:

Recommended Voicemail Authentication Rule	By default, Connection applies this rule to the voicemail PIN on the Password Settings page of each user account and user template for which you set up user access to Connection by phone.
Recommended Web Application Authentication Rule	By default, Connection applies this rule to the Web Application password on the Password Settings page of each user account and user template for which you set up user access to Cisco Unity Connection Administration, or to the Cisco Personal Communications Assistant.

You can change these defaults, and can create an unlimited number of additional authentication rules.

For user accounts and templates, you specify the authentication rule that governs user access to Connection. For information on specifying an authentication rule for a user account or template, see the "Passwords and PINs in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

CHAPTER 20

Messaging in Cisco Unity Connection 9.x

After you have implemented a call management plan and have determined conversation versions and options, you are ready to focus on how Cisco Unity Connection collects, handles, and stores messages. This chapter outlines the types of messages that are available in Connection, and discusses how Connection handles the recording, delivery, and storage of messages.

See the following sections:

- Types of Messages in Cisco Unity Connection 9.x, page 20-1
- Message Recording in Cisco Unity Connection 9.x, page 20-5
- Default Recipient Accounts in Cisco Unity Connection 9.x, page 20-7
- Dispatch Messages in Cisco Unity Connection 9.x, page 20-8
- Message Delivery in Cisco Unity Connection 9.x, page 20-10
- Message Delivery and Sensitivity Options in Cisco Unity Connection 9.x, page 20-14
- Message Actions in Cisco Unity Connection 9.x, page 20-15
- Message Subject Line Formats in Cisco Unity Connection 9.x, page 20-16
- Message Storage and Disk Capacity in Cisco Unity Connection 9.x, page 20-20
- Deleting Messages in Cisco Unity Connection 9.x, page 20-20
- Message Access in Cisco Unity Connection 9.x, page 20-22
- Configuring Live Record in Cisco Unity Connection 9.x, page 20-22
- Configuring Access to RSS Feeds of Voice Messages in Cisco Unity Connection 9.x, page 20-25

For information on securing user messages, see the "Securing User Messages in Cisco Unity Connection 9.x" chapter of the *Security Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/security/guide/9xcucsecx.html.

Types of Messages in Cisco Unity Connection 9.x

Cisco Unity Connection supports a number of different types of messages that can be used depending on the needs of the organization.

Unidentified (Outside Caller) Voice Messages

Callers who are not Cisco Unity Connection users—and those who have not signed in to Connection—can reach user mailboxes to leave messages in a number of different ways, depending on the Connection configuration. A caller can call the main phone number for the Connection server and

spell by name or enter an extension to reach the user by using a directory handler, or can be directed to the user mailbox (or to a distribution list) through a call handler. Or, the caller can call the user extension and be forwarded to Connection when the user does not answer, and then leave a message.

Connection identifies the senders of these messages as unidentified callers. When an unidentified caller leaves a message, the From field of the message displays "UnityConnection@<servername>" in the Connection Web Inbox or in an email client or an RSS reader, if applicable. Depending on whether the Subject line has been customized, it displays the phone number of the caller if it is available.

Messages from outside callers can be forwarded to other users, but cannot be replied to. However, depending on their class of service, users can "live reply" to a message from an unidentified caller by calling the sender after message playback.

User to User Voice Messages

Users can call Cisco Unity Connection and sign in, then send a message to one or more other Connection users or to a distribution list. Connection identifies the sender of the message as a user; when the called user later listens to the message, Connection plays the recorded name of the user (or displays the username when the called user views the message in a Cisco web application such as the Connection Web Inbox or from an IMAP client).

Alternatively, a user can call the extension of another user and be forwarded to Connection when the called user does not answer, and then leave a message. In this case, if Identified User Messaging is enabled and supported by the phone system, and the user is calling from his or her primary extension or an alternate device, Connection recognizes that the calling extension is associated with a user and identifies that user as the sender of the message.

Note Cisco Unity Connection does not perform any caller authentication or verification when a message is left by a caller who is identified as a user via Identified User Messaging.

Identified User Messaging is enabled by default. You can disable it for all users by using the Disable Identified User Messaging Systemwide setting on the System Settings > Advanced > Conversations page.

Users can reply to or forward messages from other users. Depending on their class of service, users can also "live reply" to a message from another user by calling the sender after message playback.

Email Messages in Exchange

Cisco Unity Connection can access email messages that are stored in user mailboxes in Microsoft Exchange and then the messages can be played by using text to speech (TTS).

System Broadcast Messages

System broadcast messages are recorded announcements that are sent to everyone in an organization. System broadcast messages are played immediately after users sign in to Cisco Unity Connection by phone—even before they hear message counts for new and saved messages. Users must listen to each system broadcast message in its entirety before Connection allows them to hear new and saved messages or to change setup options. They cannot fast-forward or skip a system broadcast message.

Note By design, system broadcast messages do not trigger message waiting indicators (MWIs) on user phones. System broadcast messages also do not trigger message notifications for alternative devices, such as a pager or another phone.

See the "Setting Up Broadcast Messaging in Cisco Unity Connection 9.x" chapter for more information on setting up and using system broadcast messages.

Text Notifications

Cisco Unity Connection can send message notifications in the form of text messages to email addresses, and also to text pagers and text-compatible mobile phones. When a message arrives that matches the criteria selected in the message notification settings, the Connection Messaging System sends a text message entered by you or the user, such as "Urgent message for Technical Support." Connection can also dial a phone number to alert the user of a new message and allow the user to enter credentials to sign in and listen to the message.

By default, if Connection sends a notification of a new message to a device (such as a mobile phone) and the device forwards the call back to Connection because the device did not answer, Connection rejects the forwarded message notification call. As a result, the user mailbox is not filled with forwarded message notification announcements. Because Connection rejects the forwarded message notification call, the call does not create a new message for the user and does not trigger a new message notification call.

See the "Notification Devices in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x* for more information on setting up various types of notifications. The guide is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

HTML Notifications

Cisco Unity Connection allows you to deliver the SMTP-based HTML notifications for a new voice message to the end users. These notifications can be sent via SMTP as an HTML format embedded in the email. The users get the flexibility to receive the HTML notifications that can include customized icons, header, and footer along with the link to access Cisco Unity Connection Mini Web Inbox. Connection Mini Web Inbox is a player that allows the user to play the notified messages over computer or mobile devices. The HTML notifications on the computer support both Web email clients (for example, Gmail) and desktop email clients (for example, Microsoft Outlook and IBM Lotus Notes). However, the HTML notifications on the mobile support only the Web email clients.

For more information on compatibility of Connection Mini Web Inbox with operating systems and browsers, refer to *Compatibility Matrix: Cisco Unity Connection and the Software on User Workstations* available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/compatibility/matrix/cucclientmtx.html .

The content and format of the HTML notifications received via email can be customized through a notification template, custom variables, and custom graphics. Only the administrator has the rights to create and modify the notification templates, custom variables, and custom graphics. Cisco Unity Connection Administration and the Cisco Unity Connection Provisioning Interface (CUPI) APIs can be used to create, update, and delete the customized notification templates.

For more information on how to manage notification templates through Connection Administration, refer to the "Adding, Modifying, or Deleting a Notification Template in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

For more information on how to manage notification templates using CUPI APIs, refer to the "HTML Notification Templates" section of the Cisco Unity Connection APIs.

To use the HTML notification templates, you must enable the HTML notification device and assign a notification template. Cisco Unity Connection Administration and the CUPI APIs are used to create, update, and delete an HTML notification device. The HTML notification devices can be managed for an individual user, or for multiple users by using the Bulk Edit utility in Cisco Unity Connection Administration.

For more information on how to manage notification devices through Connection Administration, refer to the "Notification Devices in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x* available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

The Connection users can also set up an HTML notification device and configure other settings through the Connection Messaging Assistant Web Tool of Cisco Personal Communications Assistant (PCA). The users also have a choice of using an outdial number to check the voice messages using the telephone record and playback functionality. This facilitates the users to provide their extension or mobile number that gets auto-populated in the Cisco Unity Connection Mini Web Inbox.

The user can access the notified voice message by clicking the hyperlink given in the email for launching the Connection Mini Web Inbox. With Connection Mini Web Inbox, the user can play, reply, reply all, forward, or delete the voice messages using a phone or a computer. On mobile, the Connection Mini Web Inbox is supported via telephone record and playback (TRAP) connections on all native browsers for IPhone.

For more information on Cisco Unity Connection Mini Web Inbox, refer to the *Quick Start Guide for the Cisco Unity Connection Mini Web Inbox* available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/quick_start/guide/b_9xcucqsgminiinbox.html.

Note To access the Connection Mini Web Inbox, you must be on the corporate network or connected via VPN to the corporate network. The email notification content including the MWI status, message status, and custom graphics, will be visible through the authentication and/or non-authentication mode when the user is on the corporate network or connected to it using the VPN.

To troubleshoot any issue while creating templates or launching the Connection Mini Web Inbox, refer to the "Troubleshooting the HTML Notifications in Cisco Unity Connection" chapter of the *Troubleshooting Guide for Cisco Unity Connection* available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/troubleshooting/guide/9xcuctsgx.html.

Receipts

Users can request a read receipt when sending a message. As soon as the recipient listens to the message, the receipt is sent to the message sender. New receipts turn on the message waiting indicator on the user phone and can trigger message notifications.

When a voice message cannot be delivered, if the sender is a user and is configured to accept receipts, Cisco Unity Connection alerts the sender with a nondelivery receipt (NDR). The NDR contains a copy of the original message, which the user can use to resend the message at a later time or to a different recipient.

Interview Handler Messages

By using interview handlers in your call management plan, you can have Cisco Unity Connection collect information from callers by playing a series of questions that you have recorded, and then recording the answers offered by callers. For example, you might use an interview handler to take sales orders or to gather information for a product support line.

When all the answers have been recorded, they are forwarded as a single voice message, with beeps separating the answers, to the recipient (user or distribution list) that you designate in the interview handler configuration.

See the "Managing Interview Handlers in Cisco Unity Connection 9.x" chapter for more information.

Dispatch Messages

You can use the dispatch message feature to send a message to a distribution list, with the message configured in such a way that only one user in the group needs to act on the message. When listening to a dispatch message, users are given the option to accept the message, postpone the message, or decline the message. When the message has been accepted by one of the members of the distribution list, the copies in the mailboxes of the remaining recipients are removed.

Dispatch messaging is useful in situations where a team is available to respond to issues, but only one member of the team needs to respond. For example, an IT department may want to set up a call handler to take messages from employees who need assistance, and then send the messages as dispatch messages to a distribution list comprised of IT department staff. All of the members of the distribution list receive a copy of each message. Team members can then decide whether to accept or decline a message.

See the "Dispatch Messages in Cisco Unity Connection 9.x" section on page 20-8 for details.

Live Record Messages

Live record allows users to record conversations while they talk to callers. The recorded conversation is stored as a message in the user mailbox, and the user can review it later or redirect it to another user or group of users. Operators in your organization may find live record particularly useful.

Live record is supported only when Cisco Unity Connection is integrated with a Cisco Unified Communications Manager phone system.

See the "Configuring Live Record in Cisco Unity Connection 9.x" section on page 20-22 for information on configuring live record.

Message Recording in Cisco Unity Connection 9.x

Typically, Cisco Unity Connection uses the same audio format (or codec) for recording a message that the playback device uses. For example, if users listen to messages primarily on a phone system extension, Connection should record messages in the same audio format that the phone system uses. If the users listen to messages on Personal Digital Assistants (PDAs), however, Connection should record messages in the audio format that the PDAs use (such as GSM 6.10).

You should consider the following when setting the audio format for recording messages:

- Setting the audio format for recordings affects all messages, greetings, and names systemwide for all users.
- Minimizing the number of different audio formats in use for recording and playing recorded messages, greetings, and names reduces transcoding between audio formats that Connection must perform, and reduces the effect on the performance of the Connection server.

- When a message, greeting, or name is recorded in a lower quality audio format and later transcoded to a higher quality audio format during playback, the sound quality is not improved. Usually, the sound quality of a recording suffers during transcoding, especially when the sampling rate is changed.

  For example, sound quality suffers when messages that are recorded in the G.729a audio format are played on devices that use the G.711 Mu-Law audio format. However, sound quality is preserved when messages that are recorded in the G.711 Mu-Law audio format are played on devices that use the same audio format.
- Changing the audio format for recordings affects only messages, greetings, and names that are recorded after the setting is changed. Existing messages, greetings, and names that were recorded in a different audio format are not affected by the new setting.

To Change the Audio Format for Recording Messages

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **General Configuration**.

Step 2 On the Edit General Configuration page, in the Recording Format list, select the applicable setting.

Note If the playback device uses a different audio format, Connection must transcode the messages, greetings, and names into the applicable audio format or the playback device is not able to play them.

Step 3 Select **Save**.

Configuring the Termination Warning Prompt for the End of Recording

By default, Cisco Unity Connection plays a termination warning prompt before reaching the maximum allowable message length while callers record their messages. (When a recording reaches the maximum allowable message length, the recording session is terminated.) By default, the warning plays 15 seconds before the end of a recording, provided that the recording is not restricted to less than 30 seconds in length. There are two settings that can be customized:

Minimum Recording Duration in Milliseconds for Termination Warning	The maximum recording length, in milliseconds, before Connection monitors the recording length to determine whether to play the termination warning prompt. This setting prevents the warning from sounding for shorter recordings, for example for interview handlers that are configured to accept only brief responses.
Recording Termination Warning Time in Milliseconds	The number of milliseconds before reaching the maximum message length when the termination warning prompt is played. A setting of 0 disables the warning.

For example, if the maximum message length is set for 300 seconds and the Recording Termination Warning Time in Milliseconds field is set for 10 seconds, the termination warning prompt is played after 290 seconds of recording—10 seconds before the recording limit is reached and the recording session is

terminated. If the Minimum Recording Duration in Milliseconds for Termination Warning field is set for 60 seconds, and a call handler is configured with a maximum message length of 30 seconds, callers who reach the call handler and record a message do not hear the warning.

To Configure the Termination Warning Prompt for the End of Recording

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Telephony**.

Step 2 On the Telephony Configuration page, in the Minimum Recording Duration in Milliseconds for Termination Warning field, enter the minimum length of recordings, in milliseconds, before Connection monitors the recording length to determine whether to play a termination warning prompt.

Note that recordings that are not allowed to exceed this length are not monitored by Connection to determine whether to play the warning.

Step 3 In the Recording Termination Warning Time in Milliseconds field, enter the length of time, in milliseconds, before reaching the maximum allowed recording time at which Connection plays a termination warning prompt. When the warning is played during a recording session, Connection continues recording for the amount of time indicated in this field before terminating the recording session.

Step 4 Select **Save**.

Default Recipient Accounts in Cisco Unity Connection 9.x

The default Cisco Unity Connection configuration includes several accounts that play a role in message delivery or that receive messages when callers are routed to one of the default system call management objects.

Operator

When a caller to Cisco Unity Connection dials the operator and no operator is available, the caller can leave a message, depending on the call transfer settings for the Operator call handler. By default, messages left in the Operator call handler are sent to the voice mailbox of the Operator user. We recommend that you assign someone to monitor this mailbox, or reconfigure the Operator call handler to send messages to a different user or to a distribution list.

During installation, the Operator account is assigned randomly-generated voicemail and web application passwords. To sign in to the account, you must change the passwords by using Cisco Unity Connection Administration.

UndeliverableMessagesMailbox

By default, this mailbox is the only member of the Undeliverable Messages distribution list. We recommend that you assign someone to monitor this mailbox, or add a user to the Undeliverable Messages distribution list to monitor and reroute (as appropriate) any messages that are delivered to the list. If another user will monitor the distribution list, remove the UndeliverableMessagesMailbox account from the distribution list to prevent the mailbox from filling up with messages.

During installation, the UndeliverableMessagesMailbox account is assigned randomly-generated voicemail and web application passwords. To sign in to the account, you must change the passwords by using Cisco Unity Connection Administration.

Unity Connection Messaging System

This account acts as a surrogate sender for messages from unidentified callers. Thus, user messages from unidentified callers are identified as coming from the Unity Connection Messaging System mailbox (UnityConnection@<servername>).

The alias for this account is UnityConnection. This account can be viewed in Cisco Unity Connection Administration, but cannot be modified or deleted.

Dispatch Messages in Cisco Unity Connection 9.x

You can use the dispatch message feature to send a message to a distribution list (from either a call handler or interview handler). The message is configured such that only one user in the group needs to act on the message. When listening to a dispatch message, users are given the option to accept, postpone, or decline the message.

Dispatch messages are handled as follows:

- If a user chooses to accept the message, all other copies of the message are removed from the mailboxes of the other members of the distribution list, regardless of whether the other users have listened to and postponed the message.
- If a user chooses to postpone the message, it remains as an unread message in the mailbox of that user and in the mailboxes of the other members of the distribution list.
- If the user chooses to decline the message, it is removed from the mailbox of that user, but copies of the message remain as unread in the mailboxes of the other members of the distribution list.
- If there is only one copy of the dispatch message remaining, and no user has yet chosen to accept the message, the final user whose mailbox it is in must accept it. That user is not given the option to decline the message.

Dispatch messaging is useful in situations where a team is available to respond to issues, but only one member of the team needs to respond. For example, an IT department may want to set up a call handler to take messages from employees who need assistance, and then send the messages as dispatch messages to a distribution list comprised of IT department staff. All of the members of the distribution list receive a copy of each message. Team members can then decide whether to accept or decline a message; declined messages are then picked up by other team members.

Do one of the following procedures to set up dispatch messaging:

- To Configure Dispatch Messaging for Messages Left for a Call Handler, page 20-8
- To Configure Dispatch Messaging for Messages Left for an Interview Handler, page 20-9

Also see the "Dispatch Messaging Limitations and Behavioral Notes" section on page 20-9.

To Configure Dispatch Messaging for Messages Left for a Call Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handlers page, in the System Call Handlers table, select the display name of the applicable call handler.

Step 3 On the Edit Call Handler Basics page, on the Edit menu, select **Message Settings**.

Step 4 On the Edit Message Settings page, under Message Recipient, select a distribution list as the recipient and check the **Mark for Dispatch Delivery** check box.

Step 5 Select **Save**.

To Configure Dispatch Messaging for Messages Left for an Interview Handler

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **Interview Handlers**.

Step 2 On the Search Interview Handlers page, in the Interview Handlers table, select the display name of the applicable interview handler.

Step 3 On the Edit Interview Handler Basics page, under Recipient, select a distribution list as the recipient and check the **Mark for Dispatch Delivery** check box.

Step 4 Select **Save**.

Dispatch Messaging Limitations and Behavioral Notes

- Only voice messages can be flagged for dispatch. Email and fax messages cannot be flagged for dispatch.
- The handling of dispatch messages is supported only in the phone interface. If a user opens a dispatch message when using the Connection Web Inbox, Cisco Unified Personal Communicator, Cisco Mobile, Cisco Unified Messaging with IBM Lotus Sametime, an IMAP client, or an RSS client, the user is not forced to postpone, decline, or accept the message.Those clients treat dispatch messages as normal voice messages. It is important to make users aware that they must use the phone interface for dispatch messaging to be effective. When using clients other than the phone interface, the only indication that a message is marked for dispatch is when the subject line of the message has been configured to display special text. (For details on configuring subject line formats, see the "Message Subject Line Formats in Cisco Unity Connection 9.x" section on page 20-16.) We recommend that you configure subject line formats to indicate that a message is a dispatch message, as this helps to remind users that they need to access the messages by using the phone interface.
- When single inbox is configured, dispatch messages are not synchronized between Connection and Exchange.
- Dispatch messages are never transcribed, even when the recipients belong to a class of service for which the SpeechView feature is enabled.
- When using an IMAP client to play dispatch messages, it is not possible to delete or mark the messages as read. At first it may appear that a user can successfully delete or save a dispatch message, but the next time the IMAP client refreshes the message list, the dispatch message displays as a new message. This is true even if the user is using Microsoft Outlook or IBM Lotus Notes with ViewMail. The message is removed only if the user uses the phone interface to decline the message or if another user uses the phone interface to accept the message.
- If there is only one copy of a dispatch message left, it is possible for the user with that last copy to delete it when using the Connection Web Inbox or Cisco Unified Personal Communicator. It is important to make users aware that they must use the phone interface for dispatch messaging to be effective.
- During playback of a dispatch message, if a user presses the phone keypad key that is mapped to the "skip" or "delete" menu options, Connection interprets the "skip" key press as "postpone," and the "delete" key press as "decline."

- Dispatch messages are not sorted separately from normal voice messages. If you want users to hear their dispatch messages first, the call handler or interview handler that is configured to mark the message for dispatch delivery should also be configured to mark the message as urgent. By default, urgent messages are presented to users first.
- If a user declines a dispatch message, a copy of the dispatch message is not kept in the deleted items folder of that user.
- When a user accepts the message, that user is the only person who has a copy of the message in his or her mailbox.
- When a dispatch message is accepted by a user, the dispatch property is removed and it is treated as a normal voicemail message. If the user subsequently saves the message as new, the message is presented in the phone interface just like any other new message and is not announced to the user as a dispatch message. (Note that the subject line is not altered, so depending on the subject line format used, it may contain a string indicating that the message was originally flagged for dispatch. However, the subject line is not played in the phone interface.)
- It is not possible to forward a dispatch message. A user must first accept the message, which removes the dispatch property. Then the user can forward it as a normal voicemail message.
- When configuring message notification rules to include dispatch messages, make users aware that by the time users receive the notification and call in to retrieve the message, it may be gone from their mailboxes because another user has already accepted the message.
- Networked dispatch messages are not supported. Dispatch messaging is not supported across locations. Dispatch messages addressed to recipients at other locations within a site are delivered to remote users as regular messages. Dispatch messages addressed to remote site recipients are not delivered. We recommend that you configure dispatch messaging only when the message recipient is a system distribution list that does not include users on other networked locations.
- If Connection is configured as a cluster, it is possible for two different users to call into the different servers and accept the same dispatch message when more than one server has the Primary status (known as a “split brain” condition). After the split brain condition has been resolved, the user who last accepted the dispatch message becomes the final recipient and the message is removed from the mailbox of the other user.

Message Delivery in Cisco Unity Connection 9.x

In most cases, Cisco Unity Connection delivers messages from callers by using a standard process—Connection signs in to the sender account (either the Unity Connection Messaging System account for unidentified caller messages, or the user voice mailbox), composes and addresses the message to the recipient or to the members of the recipient distribution list, and delivers the message.

See the following sections for detailed information on message delivery issues:

- How Cisco Unity Connection Handles Messages That Cannot Be Delivered, page 20-11
- How Cisco Unity Connection Handles Messages When System Components Are Unavailable, page 20-11
- How Cisco Unity Connection Handles Messages That Are Interrupted by Disconnected Calls, page 20-12
- How Cisco Unity Connection Handles Messages When Mailbox Quotas are Exceeded, page 20-13
- How Cisco Unity Connection Handles Messages When Maximum Mailbox Store Size Is Exceeded, page 20-13

How Cisco Unity Connection Handles Messages That Cannot Be Delivered

Occasionally, messages cannot be delivered to the recipient that the caller intended to reach. The system behavior in this case depends on the type of sender and the reason that the message could not be delivered.

In general, if Cisco Unity Connection cannot deliver the message because of issues that are not likely to be resolved (for example, the caller was disconnected before addressing the message, or the recipient mailbox has been deleted), the message is sent to the Undeliverable Messages distribution list, and Connection sends a nondelivery receipt (NDR) to the sender.

Note that the sender does not receive a nondelivery receipt in the following cases:

- When the sender of the original message is an unidentified caller
- When the sender is a user, but the user account is configured not to accept NDRs
- While the mailstore of the user is offline (in this case, the NDR is delivered when the database becomes available)

However, if the original message is malformed, instead of sending the message to the Undeliverable Messages list, Connection places the message in the MTA bad mail folder (UmssMtaBadMail). This folder is automatically checked nightly by the Monitor Bad Mail Folders task, and if messages are found, an error is written to the application event log indicating troubleshooting steps.

How Cisco Unity Connection Handles Messages When System Components Are Unavailable

During temporary outages, the system behavior depends on the nature of the outage.

Message Delivery Components

If the components involved in message delivery on the Cisco Unity Connection server are unavailable (if the mailbox store is disabled because it is being backed up, for example), Connection queues any messages that are recorded by users or outside callers, and delivers them when the component becomes available.

When single inbox is configured, messages queued for delivery are not synchronized with Exchange mailboxes while components are unavailable. After the messages are delivered, they are also synchronized with Exchange mailboxes.

Exchange Is Unavailable

If Connection is configured to allow users access to email messages in Exchange, and network or other conditions slow or prevent responses when Connection attempts to retrieve messages from Exchange, Connection announces to users that email is unavailable when they attempt to access email messages. The time period that Connection waits for a response from Exchange defaults to four seconds, and is configurable in Cisco Unity Connection Administration.

When single inbox is configured, Connection messages are not synchronized with Exchange, but users are not notified. When Exchange is available again, synchronization resumes.

Do the applicable procedure to change the length of the timeout:

- To Change the Timeout Period That Cisco Unity Connection Waits for a Response from Exchange
- To Change the Timeout Period That Cisco Unity Connection Waits for a Response from Exchange

To Change the Timeout Period That Cisco Unity Connection Waits for a Response from Exchange

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **Unified Messaging Services**.

Step 2 On the Unified Messaging Services Configuration page, change the **TTS and Calendars: Time to Wait for a Response (In Seconds)** setting to the desired value. The setting default is 4 seconds.

Step 3 Select **Save**.

The change takes effect immediately.

To Change the Timeout Period That Cisco Unity Connection Waits for a Response from Exchange

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **External Services**.

Step 2 On the External Services Configuration page, change the **Maximum External Service Response Time (in Seconds)** setting to the desired value. The setting default is 4 seconds.

Step 3 Select **Save**.

The change takes effect immediately.

How Cisco Unity Connection Handles Messages That Are Interrupted by Disconnected Calls

You can change how Cisco Unity Connection handles messages that are interrupted by disconnected calls while users are in the process of sending, replying to, or forwarding messages. Calls can be intentionally or unintentionally disconnected—for example, when a user hangs up or when a mobile phone loses its charge or signal.

By default, Connection sends a message when the call is disconnected in the following circumstances:

When a user is replying to or sending a message	As long as the message has at least one recipient and the recording is more than one second (1,000 milliseconds) in length. This means that Connection sends the message even though the user may not have finished recording or addressing the message.
When a user is forwarding a message	As long as the message has at least one recipient. This means that Connection sends the message even though the user may not have recorded an introduction or completely addressed the message.

You can configure Connection to delete interrupted messages unless users have pressed the # key to send their messages. Thus, if a call is disconnected before a user has a chance to press #, Connection deletes the message rather than sending it. Note that the setting can be configured per user. For details, see the "Specifying Whether Messages Are Sent Upon Hang-Up" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

How Cisco Unity Connection Handles Messages When Mailbox Quotas are Exceeded

Message handling when send or send/receive quotas have been exceeded depends on whether the sender is an outside caller or a user.

Quota Handling for Outside Caller Messages

By default, if an outside caller attempts to send a message to a user whose send/receive quota has been exceeded, Cisco Unity Connection allows the caller to record a message for the recipient. You can change this behavior by checking the Full Mailbox Check for Outside Caller Messages check box on the System Settings > Advanced > Conversation page.

If the recipient mailbox has not yet exceeded the send/receive quota at the time an outside caller records a message, but the quota is exceeded in the act of delivering the message, Connection delivers the message regardless of the quota or the setting of the Full Mailbox Check for Outside Caller Messages check box.

Quota Handling for User-to-User Messages

If a user whose voice mailbox has exceeded the send quota signs in to Connection and attempts to send a message to another user, Connection indicates that the send quota has been exceeded, and does not allow the sender to record the message. If the user calls another user and is forwarded to a voice mailbox, the user is able to leave a message, but the message is sent as an outside caller message.

If a user attempts to send a message to another user whose mailbox has exceeded the send/receive quota, or if the quota is exceeded in the act of delivering the message, Connection sends a nondelivery receipt to the message sender.

Connection delivers read receipts and nondelivery receipts to users regardless of whether their quotas have been exceeded.

How Cisco Unity Connection Handles Messages When Maximum Mailbox Store Size Is Exceeded

When you create a mailbox store, you specify a maximum size for the store, which is a sum of the sizes of all of the mailboxes in that store. If a mailbox store reaches 90 percent of the maximum size, Cisco Unity Connection logs a warning. If a mailbox store reaches 100 percent of the maximum size, Connection logs an error. (The warning and error messages can be viewed in the Real-Time Monitoring Tool.) However, Connection functionality is not affected. You can continue to add or move mailboxes to a mailbox store that has reached the maximum size, and Connection continues to take messages for users whose mailboxes are in a mailbox store that has reached the maximum size.

For more information on managing mailbox stores, see the "Managing Mailbox Stores in Cisco Unity Connection 9.x" chapter.

Message Delivery and Sensitivity Options in Cisco Unity Connection 9.x

Message delivery and sensitivity options allows administrators and users to control when a message is delivered, who can access it, and whether it can be redistributed to others. In some cases, message sensitivity can also prevent users from saving a voice message to their hard drives or other locations outside the Cisco Unity Connection server.

Connection offers the following message delivery and sensitivity options for users and outside callers:

Urgent	Urgent messages are delivered before normal messages. Users who are signed in to their mailboxes can always mark a message urgent. When unidentified callers and users who have not explicitly signed in to their mailboxes leave messages for users or call handlers, they can mark the message urgent only if the user account or call handler is set up to allow them to do so on the Edit >Message Settings page.
Private	A private message can be sent to anyone, but the message cannot be forwarded by a recipient listening to it by using the following interfaces: • Phone • Connection Web Inbox • Connection Messaging Inbox • ViewMail for Outlook • ViewMail for Notes Recipients who listen to a private message via an IMAP client (including Microsoft Outlook when ViewMail for Outlook is not installed) can forward the message, and can save it as a .wav file. (See the "Message Security Options for IMAP Client Access in Cisco Unity Connection 9.x" section in the "Securing User Messages in Cisco Unity Connection 9.x" chapter of the *Security Guide for Cisco Unity Connection Release 9.x* to learn how to prevent this. The guide is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/security/guide/9xcucsecx.html.) User-to-user messages can be marked private. Outside callers and users who have not explicitly signed in to their mailboxes cannot mark a message private. When outside callers and users who have not explicitly signed into their mailboxes leave messages for users or call handlers, they can mark the message private if the user account or call handler is set up to allow them to do so.

Secure	Only Connection users can receive a secure message. The message can be played and forwarded by using the following interfaces: • Phone • The Connection Web Inbox • The Messaging Inbox • Cisco Unity Connection ViewMail for Microsoft Outlook 8.5 The message can be played but not forwarded by using the following methods: • Cisco Unity Connection ViewMail for Microsoft Outlook 8.0 • Cisco Unity Connection ViewMail for IBM Lotus Notes The message cannot be accessed by using an IMAP client other than Microsoft Outlook with ViewMail or Lotus Notes with ViewMail. The message cannot be saved locally as a WAV file. User-to-user messages can be marked secure only when the user class of service settings allow it. Outside callers and users who are not explicitly signed in to their mailboxes cannot mark a message secure. Instead, the Mark Secure check box on the Edit > Message Settings page for a user account or call handler determines whether Connection automatically marks messages from outside callers secure, or delivers them with normal sensitivity.
Future Delivery	After addressing and recording a message by using the touchtone conversation or the voice-recognition conversation, a user can mark the message for future delivery so that Connection waits to send the message on the day and time that the user specifies. Once future delivery is set on the message, the user can cancel the future delivery as long as the user has not yet chosen the option to send the message. In the event of an urgent need, administrators can cancel all pending messages that are set for future delivery by using the "delete cuc futuredelivery" CLI command. Note, however, that there is no administrative option to cancel any specific messages after they have been sent by the user.

The "How Cisco Unity Connection 9.x Handles Messages That Are Marked Private or Secure" section in the "Securing User Messages in Cisco Unity Connection 9.x" chapter of the *Security Guide for Cisco Unity Connection Release 9.x* details how Connection handles private and secure messages. (The guide is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/security/guide/9xcucsecx.html.)

Message Actions in Cisco Unity Connection 9.x

Cisco Unity Connection uses the message action settings for a user to determine how to handle the different types of messages that it receives for the user. The message action setting for a particular type of message (voice, email, fax, or delivery receipt) affects all messages of that type that are sent to or created on the Connection server from any client (for example, by using the phone interface, the Connection Messaging Assistant, or an IMAP client).

By default, Connection is configured to accept each type of message, an action that causes Connection to place the message in the user mailbox in the applicable Connection mailbox store.

You can use the relay action to instruct Connection to send all messages of a certain type to a different messaging system, such as a corporate email server, for storage and user access. (This is sometimes referred to as message forwarding.) If you choose this option, users are no longer able to access these types of messages from the Connection phone interface, from the Messaging Assistant, or from other clients such as Phone View or Cisco Unified Personal Communicator. (The exception is relaying email messages to an external message store to which Connection is configured to connect so that users can hear their emails read to them when they sign in to Connection by phone.) You configure one or more message actions to relay messages to a single SMTP relay address for the user, which you define on the Message Actions page for the user. (You can also configure Message Actions for user templates, or for multiple users at once in Bulk Edit mode; in these cases, you can use a combination of text and replaceable tokens to define a template for the SMTP address, from which Connection creates a relay address for each individual user.) Note that Connection relays messages through an SMTP smart host, and you must have the smart host configured on the Connection server before you can configure this action for a user or user template.

You can use the accept and relay action to instruct Connection to both deliver each message of a certain type to the user mailbox and forward a copy of the message to the relay address. (This is sometimes referred to as "accept and forward.") This option may be useful for users who regularly use a device that accesses a separate server for messages, such as a handheld wireless device, and want easy access to voice messages both on the alternative device and through the Connection user interfaces. If you choose this option, the user receives two copies of each message. The copies are stored in different message stores, and any actions the user takes on the relayed copy are not reflected on the copy stored in the Connection message store. Note that if the user does not regularly manage new messages in the Connection message store, the user mailbox may quickly exceed the mailbox quota because new messages are not subject to message aging policies.

Note The email address mentioned in the Accept and Relay option should not be the same with the email address mentioned in the SMTP Proxy Address of any other user.

You can use the reject action to instruct Connection to discard all messages of a particular type that a user receives and send a non-delivery receipt to the message sender.

Message Subject Line Formats in Cisco Unity Connection 9.x

Message subject lines are visible when users view and listen to messages in the Cisco Unity Connection Web Inbox, Connection Messaging Inbox, an IMAP client, an RSS client, or any other visual client that displays the message subject. Subject lines are not presented to users when they listen to voice messages by phone.

You can configure both the wording and the information that is included in the subject line of voice messages, including localizing the subject line according to the language of the recipient.

The subject lines of the following message types can be defined:

- Outside Caller Messages—Messages from callers who are not Cisco Unity Connection users, and also from Connection users who send messages without first signing in to Connection or who have not been automatically identified as Connection users by the Identified User Messaging feature. This includes messages that are left for a system call handler.
- User to User Messages—Messages from callers who have either signed in to Connection, or have been automatically identified as Connection users because Identified User Messaging is enabled. This includes messages that are left from users for a system call handler.
- Interview Handler Messages—Messages that are left for interview handlers.

- Live Record Messages—Messages containing conversations that users recorded while they talked to callers.

Note Subject lines for call handler messages use the definition of outside caller messages or user to user messages, depending on whether the call handler message is from an outside caller or a user.

See the following sections for additional information:

- Subject Line Parameters, page 20-17
- Subject Line Format Examples, page 20-19
- Subject Line Format Configuration, page 20-19

Subject Line Parameters

Table 20-1 describes the parameters that can be used to define message subject lines.

Table 20-1 Parameters Used to Define Message Subject Lines

Parameter	Description
%CALLERID%	When the %CALLERID% parameter is used in a subject line format, it is automatically replaced with the ANI Caller ID of the sender of the message. If the ANI Caller ID is not available, the text entered in the %CALLERID% (When Unknown) field is inserted into the subject line instead.
%CALLEDID%	When the %CALLEDID% parameter is used in a subject line format, it is automatically replaced with the ID of the number called by the sender of the message. If the Called ID is not available, the text entered in the %CALLEDID% (When Unknown) field is inserted into the subject line instead. You might find this field useful in cases where more than one organization shares a single Cisco Unity Connection system, and there are multiple inbound numbers defined so that callers can be routed to different opening greetings. In this case it might be helpful if messages left in a general help voice mailbox include the number that the sender of the message used when calling the system.

Table 20-1 Parameters Used to Define Message Subject Lines (continued)

Parameter	Description
%NAME%	When the %NAME% parameter is used in the subject line format of an outside caller message, it is automatically replaced with the ANI Caller Name of the sender of the message. If the ANI Caller Name is not available, Cisco Unity Connection inserts the value specified in the %NAME% (When Unknown) field. When the %NAME% parameter is used in the subject line format of a user to user message, it is automatically replaced with the display name of the sender of the message. If the display name is not available, Connection inserts the ANI Caller Name. If the ANI Caller Name is not available, Connection inserts the value specified in the %NAME% (When Unknown) field. When the %NAME% parameter is used in the subject line format of an interview handler message, it is automatically replaced with the ANI Caller Name of the sender of the message. If the ANI Caller Name is not available, Connection inserts the display name of the interview handler. If the display name is not available, Connection inserts the value specified in the %NAME% (When Unknown) field. When %NAME% is used in the Live Record Messages field, it is automatically replaced with the display name of the user who initiated the live record message. If the display name is not available, Connection inserts the ANI Caller Name. If the ANI Caller Name is not available, Connection inserts the value specified in the %NAME% (When Unknown) field.
%EXTENSION%	When the %EXTENSION% parameter is used in a subject line format, it is automatically replaced with the extension of the sender of the message, or for messages recorded by call handlers or interview handlers, with the extension of the handler. If the extension is not available, the value entered in the %EXTENSION% (When Unknown) field is inserted into the subject line instead. **Note** When %EXTENSION% is used in the Live Record Messages field, it is replaced with the extension of the user who initiated the live record message.
%U%	When the %U% parameter is used in a subject line format, it is automatically replaced with the text that you enter in the %U% field if the message is flagged as urgent. If the message is not urgent, this parameter is omitted.
%P%	When the %P% parameter is used in a subject line format, it is automatically replaced with the text that you enter in the %P% field if the message is flagged as private. If the message is not private, this parameter is omitted.
%S%	When the %S% parameter is used in a subject line format, it is automatically replaced with the text that you enter in the %S% field if the message is flagged as a secure message. If the message is not a secure message, this parameter is omitted.
%D%	When the %D% parameter is used in a subject line format, it is automatically replaced with the text that you enter in the %D% field if the message is flagged as a dispatch message. If the message is not a dispatch message, this parameter is omitted.

Subject Line Format Examples

Table 20-2 Subject Line Format Examples

Type of Message	Subject Line Format	Message Details	Subject Line of the Message Received
Outside caller message	%U% %D% Voice message from %CALLERID%	An outside caller with the ANI Caller ID 2065551212	"Voice message from 2065551212"
User to user message	%U% %P% %S% Message from %NAME% [%CALLERID%]	John Jones, at extension 4133—an urgent message	"Urgent Message from John Jones [4133]"
Interview handler message	Message from %NAME% [%CALLERID%]	"Sales Survey" interview handler, no ANI caller ID available	"Message from Sales Survey [Unknown caller ID]"
Live Record message	Live Record message from %CALLERID%	User recording of a phone call from a caller with the ANI caller ID 4085551212	"Live Record message from 4085551212"

Subject Line Format Configuration

You should consider the following when defining subject line formats:

- You must include a % before and after the parameter.
- You can define a separate subject line format for each language that is installed on the system.
- When a subject line format is not defined for the preferred language of the user, the subject line format definition for the system default language is used instead.
- When a message is sent to a distribution list, the subject line format for the system default language is used for all recipients on the distribution list. This means that the subject line is not necessarily in the preferred language of each recipient.
- There is no parameter with which to indicate that a message is being sent to a distribution list.
- Subject line formats are applied to voice messages when the messages are saved to the database. Messages that are already in user mailboxes are not altered if the subject line format definitions are subsequently changed. Only voice messages that are recorded after the changes have been saved reflect the new subject line definition.

Do the following procedure to configure subject line formats.

To Configure Subject Line Formats

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Subject Line Formats**.

Step 2 On the Edit Subject Line Formats page, select the applicable language.

Step 3 Enter text and parameters in the Subject Line Formats fields, as applicable. For descriptions of the available parameters, see Table 20-1.

Step 4 Enter text in the Parameter Definitions fields, as applicable.

Step 5 Select **Save**.

The information you enter affects the subject lines of any new voice messages. The subject line formats are not applied to messages that are already in user mailboxes.

Step 6 Repeat Step 2 through Step 5 as needed for additional languages.

Message Storage and Disk Capacity in Cisco Unity Connection 9.x

Cisco Unity Connection stores message content as files on the Connection server, and stores information about the messages in a database.

Depending on the number of Connection users, the number and duration of messages they receive, and the settings that you specify for the message aging policy and for quotas, it may be possible for the hard disk on which messages and greetings are stored to fill up. This would cause Connection to stop functioning. As the hard disk approaches maximum capacity, you may also encounter unexpected behavior.

On the Disk Capacity page (System Settings > Advanced > Disk Capacity in Cisco Unity Connection Administration), you can specify a maximum capacity for the hard disk on which messages and greetings are stored. When the hard disk fills to the specified percentage limit, neither Connection users nor outside callers are allowed to leave voice messages. Connection also logs an error, which can be viewed on the Tools > SysLog Viewer page in the Real-Time Monitoring Tool. Note that you can still send a broadcast message even when the hard disk exceeds the specified limit.

We recommend that you specify a value no greater than 95 percent. If you change the disk-capacity setting, use Cisco Unity Connection Serviceability to restart the Connection Message Transfer Agent service.

If the hard disk exceeds the value that you specify, instruct Connection users to immediately delete unneeded voice messages. In addition, to prevent a recurrence, you may want to reevaluate message-aging policy and mailbox quotas. For more information, see the "Controlling the Size of Mailboxes in Cisco Unity Connection 9.x" chapter.

Note For ways to prevent users from saving messages as WAV files to their hard drives or other locations outside of the Connection server, see the "Securing User Messages in Cisco Unity Connection 9.x" chapter of the *Security Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/security/guide/9xcucsecx.html.

Deleting Messages in Cisco Unity Connection 9.x

In Cisco Unity Connection, there are multiple methods that users can use to delete messages. In addition, there are configuration settings that system administrators can use to manage the deletion of messages to meet the disk capacity needs and security needs of an organization. See the following sections:

- Soft Deletes and Hard Deletes, page 20-21
- Deleting Messages by Way of Message Aging Policies, page 20-21
- Message File Shredding for Secure Deletes, page 20-22

Soft Deletes and Hard Deletes

In Cisco Unity Connection, messages can be either “soft” or “hard” deleted. Depending on how you choose to set the Delete Messages Without Saving to Deleted Items Folder class of service setting, user actions to delete messages will result in the messages being moved to a deleted items folder (“soft” deletes), or being permanently deleted (“hard” deletes).

When messages are soft deleted, for example when a user deletes a message after listening to the message by phone, or deletes it in the Connection Web Inbox or Messaging Inbox, the message is marked as deleted in the Connection database, and is moved to the Deleted Items folder. As long as the message is still in the Deleted Items folder, it is still recoverable by the user. The user can listen to deleted voice messages; retrieve the deleted messages to reply to them or forward them; restore them to the Inbox; or delete them permanently by hard deleting them.

When the Delete Messages Without Saving to Deleted Items Folder check box is checked to enable it, all user deletes will be hard deletes.

When the Delete Messages Without Saving to Deleted Items Folder setting is not enabled, the user needs to use one of the following methods to hard delete a message:

- The user signs in to Connection by phone. From the Main menu, the user selects the option to Review Old Messages, then selects Deleted Messages, and then follows the prompts to permanently delete individual messages or all old messages.
- To hard delete a message in the Web Inbox or Messaging Inbox, the user clears the deleted items folder.
- To hard delete a message in an IMAP client application, the user expunges deleted messages.

For more information about the Delete Messages Without Saving to Deleted Items Folder class of service setting, see the “Deleted Message Access in Cisco Unity Connection 9.x” section in the “Setting Up Features and Functionality That Are Controlled by Class of Service in Cisco Unity Connection 9.x” chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Note Make sure that the “Hard” delete option is enabled to delete files permanently from the system. If the "Hard" delete option is not enabled, the files that you delete are moved to the deleted items folder. The files are not deleted from the deleted items folder until they are explicitly deleted, or deleted through aging rules.

Deleting Messages by Way of Message Aging Policies

To permanently delete messages without any action required from the users who received them, you can configure message aging policies. For example, you can configure a message aging policy to automatically move read messages to the deleted items folder a specified number of days after they are read, and configure another message aging policy to permanently delete messages that are in a deleted items folder a specified number of days after they are moved to the folder. (Note that the default voicemail user template is assigned to a default system message aging policy that automatically cleans up the Deleted Items folder after 15 days.) For detailed information on configuring message aging policies, see the “Managing Message Aging Policies in Cisco Unity Connection 9.x” section on page 24-3.

Message File Shredding for Secure Deletes

The Message File Shredding Level setting on the Advanced Settings > Messaging Configuration page in Cisco Unity Connection Administration is a systemwide setting that ensures copies of messages are securely deleted, by shredding the messages the specified number of times when they are deleted. The shredding is done by way of a standard Linux shred tool: the actual bits that make up the message are overwritten with random bits of data the specified number of times. Note that messages are shredded only when they have been hard deleted.

Cisco Unity Connection uses RAID technology to provide disk redundancy on the server. The RAID technology covers all the disk faults by working from a healthy disk until the faulty disk is rebuilt. As the RAID technology hides the disk errors from the operating system and performs optimizations, the shredding might not work properly in some potential scenarios. The following are some of the instances where shredding does not work properly:

- Disk mirroring during normal operation: Based on the RAID hardware, the RAID technology optimizes the mirroring and waits for the data to be finalized before committing it to the mirror drive. As per the RAID 1 specification, the **Write** command must be sent to all the disks. However, some manufacturers do not follow the RAID 1 specification and the **Write** command is not sent to all the disks. For example, if shred performs 25 overwrites on some data on disk 1, it is not necessary that all the overwrites are performed on disk 2 also. In such cases, the RAID controller might wait for the completion of writes on disk 1, and then it mirrors over the final data on disk 2.
- Disk mirroring during a disk rebuild: If disk 1 gets corrupted, it can be rebuilt with the information stored on disk 2. In such case, the areas shredded on disk 2 will only be recovered instead of the data shredded on disk 1.

For detailed information on secure deletes, see the "Shredding Message Files for Secure Delete in Cisco Unity Connection 9.x" section in the "Securing User Messages in Cisco Unity Connection 9.x" chapter of the *Security Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/security/guide/9xcucsecx.html.

Message Access in Cisco Unity Connection 9.x

Connection users can always access their new and saved voice messages by phone by using a touchtone or voice-recognition conversation. You specify whether users can access their deleted messages.

Depending on their class of service settings, users may also gain access to voice messages from other applications, such as the Cisco Unity Connection Web Inbox, Connection Messaging Inbox, the Cisco Personal Communicator, or an RSS reader. When set up to do so, users can access Connection voice messages from an IMAP client, Cisco Unified Messaging with IBM Lotus Sametime, or an RSS reader.

Finally, depending on their external service or unified messaging service accounts, users may access email messages in an external message store by phone.

Configuring Live Record in Cisco Unity Connection 9.x

Live record allows users to record conversations while they talk to callers. The recorded conversation is stored as a message in the user mailbox, and the user can review it later or redirect it to another user or group of users. Operators in your organization may find live record particularly useful.

Live record is supported only for Cisco Unified Communications Manager integrations.

While there is no class of service or user account setting required to enable the feature, note that the maximum duration of a live record message is controlled by the maximum message length for the class of service of the user. In addition, live record does not work for users who have full mailboxes. When a user who has a full mailbox tries to record a call, the feature seems to work normally, but the recorded conversation is not stored as a message in the user mailbox.

Do the following procedures in the order given.

To Add a Live Record Pilot Number to Cisco Unified Communications Manager

Step 1 In Cisco Unified CM Administration, on the Call Routing menu, select **Directory Number**.

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

Step 3 On the Directory Number Configuration page, in the Directory Number field, enter the directory number of the live record pilot number. For example, enter "5110."

Step 4 In the Route Partition field, select the partition that contains all voicemail port directory numbers.

Step 5 In the Description field, enter **Live Record** or another description.

Step 6 In the Voice Mail Profile field, accept the default of **None**.

Step 7 In the Calling Search Space field, select the calling search space that includes the partition that you selected in Step 4.

Step 8 In the Forward All field, under Destination, enter the voicemail pilot number for the Cisco Unity Connection voice messaging ports.

Step 9 In the Forward All field, under Calling Search Space, select the calling search space that includes the partition that you selected in Step 4.

Step 10 Select **Save**.

The following procedure is optional. It configures Cisco Unified CM so that all parties in a conference call are disconnected when the initiator hangs up. Otherwise, Cisco Unity Connection remains connected until the last party on the call hangs up.

To Configure Cisco Unified Communications Manager Conference Settings (Optional)

Step 1 In Cisco Unified CM Administration, on the System menu, select **Service Parameters**.

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

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

Step 4 Under Clusterwide Parameters (Feature - Conference), in the Drop Ad Hoc Conference field, select **When Conference Controller Leaves**.

Step 5 Select **Save**.

To Create a Call Routing Rule for Live Record in Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand Call Management, then select **Call Routing > Forwarded Routing Rules**.

Step 2 On the Forwarded Routing Rules page, select **Add New**.

Step 3 On the New Forwarded Routing Rule page, in the Description field, enter **Live Record** or another descriptive name and select **Save**.

Step 4 On the Edit Forwarded Routing Rule page, in the Status field, select **Active**.

Step 5 Under Send Call To, select **Conversation**.

Step 6 In the Conversation list, select **Start Live Record**.

Step 7 Select **Save**.

Step 8 Under Routing Rule Condition, select **Add New**.

Step 9 On the New Forwarded Routing Rule Condition page, select **Forwarding Station**.

Step 10 To the right of the Forwarding Station option, select **Equals** and enter the live record pilot number that you created in the "To Add a Live Record Pilot Number to Cisco Unified Communications Manager" procedure on page 20-23. For example, enter "5110."

Step 11 Select **Save**.

The following procedure is optional. It adjusts the interval between beeps while Cisco Unity Connection is recording a phone conversation.

To Adjust the Live Record Beep Interval (Optional)

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Advanced > Telephony**.

Step 2 On the Telephony Configuration page, in the Live Record Beep Interval in Milliseconds field, enter the interval (in milliseconds) between beeps when a phone conversation is being recorded by using the live record feature.

If the setting is blank, the interval is 15,000 milliseconds. If the setting is 0, the beep is disabled.

Step 3 Select **Save**.

To Test Live Record

Step 1 From a user phone, dial an extension.

Step 2 After the dialed extension is answered, on the user phone, press the **Confrn** softkey to start a conference call.

Step 3 Dial the live record pilot number that you created in the "To Add a Live Record Pilot Number to Cisco Unified Communications Manager" procedure on page 20-23. For example, dial "5110."

Step 4 To join the Connection live recorder with the conference call, press the **Confrn** softkey.

Step 5 After recording the phone conversation, hang up the user phone.

Step 6 On the user phone, sign in to the voice mailbox for the user.

Step 7 Listen to the recorded phone conversation.

Configuring Access to RSS Feeds of Voice Messages in Cisco Unity Connection 9.x

As an alternative to checking messages by phone or using the Cisco Unity Connection Web Inbox, Connection Messaging Inbox, or an IMAP client, users can retrieve voice messages by using an RSS reader. In order to use the RSS Feed feature, users must be assigned to a class of service that is configured to allow them to use the Messaging Inbox and RSS Feeds, and the Connection Inbox RSS Feed service must be turned on and started. Do the following procedure.

Note RSS feeds support both the IPv4 and IPv6 addresses. However, the IPv6 address works only when Connection platform is configured in Dual (IPv4/IPv6) mode. For more information on Configuring IPv6 settings, see Adding or Changing the IPv6 Addresses of Cisco Unity Connection chapter of *Reconfiguration and Upgrade Guide for Cisco Unity Connection* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrug051.html.

To Confirm That the Inbox RSS Feed Service Is Turned On and Started

Step 1 In Cisco Unity Connection Serviceability, select **Tools > Service Management**.

Step 2 In the Optional Services section, confirm that the Connection Inbox RSS Feed service is turned on and started.

See the following sections for additional details on configuring access to RSS Feeds:

- Allowing Insecure Connections to RSS Feeds, page 20-25
- Configuring an RSS Reader to View Voice Messages, page 20-26
- RSS Feed Limitations and Behavioral Notes, page 20-26

Allowing Insecure Connections to RSS Feeds

By default, Cisco Unity Connection only supports secure connections to the RSS feed, using SSL. Some RSS readers, such as Apple iTunes, do not support secure connections.

If you want to allow users to be able to use RSS readers that do not support secure connections, do the following procedure.

To Allow Insecure RSS Connections

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced > RSS**.

Step 2 On the RSS Configuration page, check the **Allow Insecure RSS Connections** check box.

Note that when you use an RSS reader that does not support secure connections, if this check box is checked, the username and password are transmitted unencrypted over the network.

Step 3 Select **Save**.

Configuring an RSS Reader to View Voice Messages

Users can configure an RSS reader to view voice messages. For instructions on how to set up the RSS reader, refer to the documentation for your reader.

Note these general guidelines:

- Use the following URL in the RSS Reader:
  - https://<Connection server name>/cisco-unity-rss/rss.do

Note The Connection server name can be either the Hostname, IPv4 address, or IPv6 address of the Connection server. However, the IPv6 address works only when Connection platform is configured in Dual (IPv4/IPv6) mode. For more information on Configuring IPv6 settings, see Adding or Changing the IPv6 Addresses of Cisco Unity Connection chapter of *Reconfiguration and Upgrade Guide for Cisco Unity Connection* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrug051.html.

- When users connect to the RSS feed, they are required to provide the following:
  - User Name—Enter the user alias.
  - Password—Enter the Cisco PCA password of the user (also known as the web-application password).

RSS Feed Limitations and Behavioral Notes

- Only the 20 most recent unread messages are presented in the RSS feed.
- If the message is secure or private, a decoy message plays instead of the actual message. The decoy message indicates that the message is secure or private and that the user must retrieve the message by calling in by phone.
- Broadcast messages are not included in the RSS feed.
- Messages cannot be deleted. Messages can only be marked read.
- Marking a message read removes it from the RSS feed.
- US English is the only language supported at this time.
- Dispatch messages cannot be accepted, declined or postponed. Dispatch messages cannot be marked as read. A dispatch message remains in the RSS feed until it is handled via another interface or accepted by another recipient.
- Some RSS readers, such as Apple iTunes, do not allow the description of the message to contain hyperlinks. For those readers, the feed does not offer the option to mark the message as read.
- For messages with multiple parts (for example a forwarded message with an introduction), not all parts of the message can be played. Only the first part (for example, the introduction) is played and the subject line indicates that there are more attachments. Users must retrieve the remaining message parts by calling in by phone.

CHAPTER 21

Configuring IMAP Settings in Cisco Unity Connection 9.x

This chapter contains information on setting up Cisco Unity Connection so that users can use IMAP clients to send, forward, or reply to messages through the Connection server.

See the following sections:

- Overview of SMTP Message Handling in Cisco Unity Connection 9.x, page 21-1
- Example Using IMAP and Cisco Unity Connection ViewMail for Microsoft Outlook 9.x, page 21-2
- Recommendations for Deploying IMAP Access in Cisco Unity Connection 9.x, page 21-3
- Task List for Configuring IMAP Access in Cisco Unity Connection 9.x, page 21-3
- Procedures for Configuring IMAP Access in Cisco Unity Connection 9.x, page 21-5

Overview of SMTP Message Handling in Cisco Unity Connection 9.x

Cisco Unity Connection can receive and process SMTP messages that are generated by IMAP clients, for example, a voice message recorded in a Microsoft Outlook email client by using ViewMail for Outlook.

When an authorized IMAP client tries to send a message to Connection through SMTP, Connection attempts to categorize the message as a voicemail, email, fax, or delivery receipt. Connection also attempts to map the sender to a user and the message recipients to users or contacts by comparing the SMTP addresses in the message header to its list of SMTP proxy addresses.

If SMTP authentication is configured for the IMAP client and the SMTP address of the sender matches a proxy address or the primary SMTP address for the authenticated user, or if SMTP authentication is not configured for the IMAP client and the SMTP address of the sender matches a proxy address or primary SMTP address for any Connection user, Connection processes the message for each individual recipient based on the type of recipient:

- If the recipient maps to a VPIM contact, Connection converts the message into a VPIM message, removing any attachment that is not allowed by the VPIM standard. Then, Connection either delivers the message to the specified VPIM location if the VPIM location is homed on the local server, or forwards it to another digitally networked Connection server for delivery if the VPIM location is homed on that server.

- If the recipient maps to a user homed on the local server, Connection performs the action specified on the Message Actions page of the profile for the user in Cisco Unity Connection Administration. For each type of message (voice, email, fax, or delivery receipt) you can configure whether Connection accepts the message and places it in the user mailbox on the Connection server, relays the message to the user at an alternate SMTP address, or rejects the message and generates a non-delivery receipt (NDR).
- If the recipient maps to a user homed on a remote Connection server, Connection relays the message to the home server of the user, which then performs the action specified on the Message Actions page of the user profile.
- If the recipient does not map to any of the above, Connection either relays the message to the SMTP smart host, or sends an NDR to the sender, depending on the option selected for the When a Recipient Cannot be Found setting on the System Settings > General Configuration page in Connection Administration. By default, Connection sends an NDR.

If SMTP authentication is configured for the IMAP client and the SMTP address of the sender does not match a proxy address or the primary SMTP address for the authenticated user, the Connection server returns an SMTP error, which in most cases causes the message to remain in the client outbox. If SMTP authentication is not configured for the IMAP client and the SMTP address of the sender does not match any known user proxy address or primary SMTP address, Connection puts the message into the MTA bad mail folder (UmssMtaBadMail).

Note that Connection marks an incoming SMTP message as secure if the message includes the secure header, or if the message sender is a user who is in a class of service that is configured to always send secure messages. See the "How Cisco Unity Connection 9.x Handles Messages That Are Marked Private or Secure" section in the "Securing User Messages in Cisco Unity Connection 9.x" chapter of the *Security Guide for Cisco Unity Connection Release 9.x at* http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/security/guide/9xcucsecx.html.)

Example Using IMAP and Cisco Unity Connection ViewMail for Microsoft Outlook 9.x

The employees at ExampleCo use Microsoft Outlook to access a Microsoft Exchange server for email. Each employee at the company receives corporate email at an address that follows the pattern firstname.lastname@example.com. ExampleCo wants employees to be able to use Outlook to access voice messages stored on the Cisco Unity Connection server. To allow employees to send, forward, or reply to voice messages in the Outlook client, ExampleCo deploys the Cisco Unity Connection ViewMail for Microsoft Outlook plug-in. The Outlook client for each employee is configured to access the Connection user account via IMAP.

When Robin Smith at ExampleCo wants to send an email message to a coworker, Chris Jones, Robin composes a new email message to chris.jones@example.com. By default, Outlook is configured to route new email messages to the Microsoft Exchange server for delivery. Next, Robin wants to send Chris a voice message, and selects the New Voice Message icon, which opens the ViewMail for Outlook form. Robin again addresses the message to chris.jones@example.com, records audio for the message, and selects the Send button. In this case, because ViewMail is configured to use the Connection IMAP account to send messages, the voice message is routed to the Connection server for delivery.

When Connection receives the voice message, it searches the list of SMTP proxy addresses for robin.smith@example.com (the sender) and chris.jones@example.com (the recipient). Because these addresses are defined as SMTP proxy addresses for the user profiles of Robin Smith and Chris Jones respectively, Connection delivers the message as a voice message from Robin Smith to Chris Jones.

When Chris opens Outlook, the email message from Robin shows up as a new message in the Microsoft Exchange Inbox. The voice message from Robin, on the other hand, shows up as a new message in the Inbox of the Connection account that Chris accesses via IMAP. If Chris replies to either message, the Outlook client will automatically route the reply by using the account in which Chris received the original message.

Note that because Connection is configured to be able to match the corporate email addresses in use at ExampleCo to Connection user accounts (via the SMTP proxy address that is defined for each user), users can use the existing Outlook address book to address both email and voice messages. In addition, users do not need to think about which account to use to compose, reply to, or forward messages—this is all handled automatically by the Outlook and ViewMail configuration.

Recommendations for Deploying IMAP Access in Cisco Unity Connection 9.x

When deploying IMAP clients to access and send Cisco Unity Connection messages, we recommend the following:

- Use a firewall to protect the Connection SMTP port from unauthorized access. The SMTP port and domain are listed on the System Settings > SMTP Configuration > Server page in Cisco Unity Connection Administration.
- Configure Transport Layer Security for IMAP client connections in order to protect user passwords.
- Configure the corporate email address of each user as an SMTP proxy address for the user. When setting up the Connection IMAP account on user workstations, use the corporate email address of the user, rather than the Connection-specific email address, in the IMAP settings. In this way, users do not need to know an extra set of email addresses for addressing voice messages in the email client, and are insulated from changes to the Connection-specific addresses if the Connection SMTP domain is changed.

Note The corporate email address mentioned in the SMTP Proxy Address should not be the same with the email address mentioned in the Accept and Relay option of any other user.

- ViewMail for Outlook limits the message recipients that a user can reach to objects that are in the search space of the user, and sends a non-delivery receipt (NDR) for messages that are sent to recipients that do not appear in the search space. If you are using search spaces to limit the objects that users can reach and do not want users to receive NDRs for unreachable objects, consider creating a separate Outlook address book for ViewMail users that is limited to the objects in the user search space.

Task List for Configuring IMAP Access in Cisco Unity Connection 9.x

1. *If you plan to configure Cisco Unity Connection to relay messages for users to another SMTP server,* do the following subtasks:
   a. Configure the SMTP smart host to accept messages from the Connection server. See the documentation for the SMTP server application that you are using.

   b. Configure the Connection server to relay messages to the smart host. See the "Configuring the Cisco Unity Connection Server to Relay Messages to a Smart Host" section on page 21-5.
   c. Review the settings that control whether private or secure messages can be relayed. See the "Configuring Message Relay Settings" section on page 21-5.

2. Configure message actions for Connection users or user templates. See the "Message Actions in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.
3. Configure SMTP proxy addresses for users who will send or receive messages from IMAP clients.See the "SMTP Proxy Addresses in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Note At a minimum, we recommend that you configure the corporate email address of each user as an SMTP proxy address for the user.

4. Associate users with a class of service that offers a license to use an IMAP client to access voice messages. See the "IMAP Client Access to Voice Messages in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by Class of Service Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.
5. Configure SMTP proxy addresses for VPIM contacts who may receive messages from IMAP clients. See the "SMTP Proxy Addresses in Cisco Unity Connection 9.x" section in the "Managing Contacts in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.
6. Configure the Connection server to allow SMTP connections from IMAP clients. See the "Configuring the Cisco Unity Connection Server for IMAP Client Access and Authentication" section on page 21-6.
7. *If you configured Transport Layer Security to be required or optional in the procedure in Task 6.*: Configure the Connection server to provide a secure IMAP connection, as described in the "Securing Cisco Unity Connection Administration, Cisco PCA, and IMAP Email Client Access to Cisco Unity Connection 9.x" section on page 26-2.
8. Optionally, modify the settings that determine the characteristics of SMTP messages that Connection accepts. See the "Configuring SMTP Message Parameters" section on page 21-7.
9. For each user workstation, configure a supported IMAP client to access a Connection mailbox.See the "Configuring an Email Account to Access Cisco Unity Connection 9.x Voice Messages" chapter of the *User Workstation Setup Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_setup/guide/9xcucuwsx.html.

Procedures for Configuring IMAP Access in Cisco Unity Connection 9.x

See the following sections:

- Configuring the Cisco Unity Connection Server for IMAP Client Access and Authentication, page 21-6
- Configuring Message Relay Settings, page 21-5
- Configuring the Cisco Unity Connection Server for IMAP Client Access and Authentication, page 21-6
- Configuring SMTP Message Parameters, page 21-7

Configuring the Cisco Unity Connection Server to Relay Messages to a Smart Host

To enable Cisco Unity Connection to relay any type of message to the SMTP address for a user, your Connection server must be configured to relay messages through a smart host.

To Configure the Cisco Unity Connection Server to Relay Messages to a Smart Host

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, expand **SMTP Configuration**, then select **Smart Host**.

Step 2 On the Smart Host page, in the **Smart Host** field, enter the IP address or fully qualified domain name of the SMTP smart host server. (Enter the fully qualified domain name of the server only if DNS is configured.)

Step 3 Select **Save**.

Configuring Message Relay Settings

You can choose whether Cisco Unity Connection relays messages that are marked private or secure.

To Configure Message Relay Settings

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, expand **Advanced**, then select **Messaging**.

Step 2 To have Cisco Unity Connection relay messages that are marked private, check the **Allow Relaying of Private Messages** check box. (This check box is checked by default.) Connection sets the private flag on the message when relaying a private message.

To prevent Connection from relaying private messages, uncheck the check box. Connection sends an NDR to the message sender when it receives a message that it cannot relay because the message is marked private.

Step 3 To have Connection relay secure messages, check the **Allow Relaying of Secure Messages** check box. (This check box is unchecked by default.) Connection relays secure messages as regular messages.

To prevent Connection from relaying secure messages, uncheck the check box. Connection sends an NDR to the message sender when it receives a message that it cannot relay because the message is marked secure.

Step 4 Select **Save**.

Configuring the Cisco Unity Connection Server for IMAP Client Access and Authentication

You have a number of options for controlling which clients can initiate SMTP connections with Cisco Unity Connection. You can create an access list, which allows you to configure specific IP addresses or IP address patterns that correspond with clients that you wish to allow or deny access. You can also choose to allow all clients to connect, regardless of IP address; if you do so, you can specify whether those clients (known as untrusted IP addresses) must authenticate, and whether Transport Layer Security is required or allowed for clients with untrusted IP addresses.

If you choose to require clients with untrusted IP addresses to authenticate with Connection, users enter their Connection alias and Cisco PCApassword (also known as the web-application password) in the IMAP client to authenticate. Make sure that users understand that whenever they change their Cisco PCA password in the Connection Messaging Assistant, they also must update the password in their IMAP client. If users have trouble receiving voice messages in an IMAP client after having updated their Cisco PCA password in both applications, see the "Troubleshooting IMAP Client Sign-In Problems in Cisco Unity Connection 9.x" section in the "Configuring an Email Account to Access Cisco Unity Connection 9.x Voice Messages" chapter of the *User Workstation Setup Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_setup/guide/9xcucuwsx.html.

Do one or both of the following procedures, as applicable.

- To Configure the Cisco Unity Connection IP Address Access List, page 21-6
- To Configure Access and Authentication for Untrusted IP Addresses, page 21-7

To Configure the Cisco Unity Connection IP Address Access List

Step 1 In Cisco Unity Connection Administration, expand **System Settings > SMTP Configuration**, then select **Server**.

Step 2 On the SMTP Server Configuration page, on the Edit menu, select **Search IP Address Access List**.

Step 3 On the Search IP Address Access List page, select **Add New** to add a new IP address to the list.

Step 4 On the New Access IP Address page, enter an IP address; or, you can enter a single * (asterisk) to match all possible IP addresses.

Step 5 Select **Save**.

Step 6 On the Access IP Address page, to allow connections from the IP address that you entered in Step 4, check the **Allow Connection** check box. To reject connections from this IP address, uncheck the check box.

Step 7 If you have made any changes on the Access IP Address page, select **Save**.

Step 8 Repeat Step 2 through Step 7 for each additional IP address that you want to add to the access list.

To Configure Access and Authentication for Untrusted IP Addresses

Step 1 In Cisco Unity Connection Administration, expand **System Settings > SMTP Configuration**, then select **Server**.

Step 2 On the SMTP Server Configuration page, check the **Allow Connections From Untrusted IP Addresses** check box to allow all clients to connect by using SMTP, regardless of whether Connection is configured to specifically allow connections from their IP addresses.

Step 3 If you checked the check box in Step 2, check the **Require Authentication From Untrusted IP Addresses** check box to configure authentication for these types of clients. Then, select how Connection handles Transport Layer Security for untrusted IP addresses:

- Disabled—Connection does not offer TLS as an option for SMTP sessions that are initiated by clients or servers with untrusted IP addresses. In most cases, if the client is configured to use TLS, but Connection does not offer it, the connection fails and the client notifies the user.
- Required—Clients or servers connecting from untrusted IP addresses must use TLS to initiate SMTP sessions with the Connection server.
- Optional—Clients or servers connecting from untrusted IP addresses can use TLS to initiate SMTP sessions with the Connection server, but are not required to do so.

Note To protect user passwords, we recommend that you require authentication from untrusted IP addresses and configure Transport Layer Security as either Required or Optional.

Step 4 If you chose Required or Optional for the Transport Layer Security setting in Step 3, to configure TLS on the Connection server, see the "Securing Cisco Unity Connection Administration, Cisco PCA, and IMAP Email Client Access to Cisco Unity Connection 9.x" section on page 26-2.

Configuring SMTP Message Parameters

You can configure Connection to reject any incoming SMTP messages that are larger than a configurable total size or have more than a configurable number of recipients. By default, Connection accepts messages that are larger than 10 MB or have more than 15,000 recipients.

To Configure SMTP Message Parameters

Step 1 In Cisco Unity Connection Administration, expand **System Settings > SMTP Configuration**, then select **Server**.

Step 2 On the SMTP Server Configuration page, in the Limit Size of Message field, enter a number in kilobytes to limit the size of an individual message sent by an SMTP client.

Step 3 In the Limit Number of Recipients per Message field, enter the number of recipients allowed per message.

Step 4 Select **Save**.

CHAPTER 22

Configuring Transcription (SpeechView) in Cisco Unity Connection 9.x

Note This chapter contains information on setting up Cisco Unity Connection so that users can view transcriptions of their voice messages.

See the following sections:

- Overview of SpeechView in Cisco Unity Connection 9.x, page 22-1
- SpeechView Security Considerations, page 22-3
- Recommendations for Deploying SpeechView, page 22-3
- Task List for Configuring SpeechView in Cisco Unity Connection 9.x, page 22-4
- Procedures for Configuring SpeechView in Cisco Unity Connection 9.x, page 22-5
- SpeechView Reports in Cisco Unity Connection 9.x, page 22-8

Overview of SpeechView in Cisco Unity Connection 9.x

SpeechView feature allows you to receive voice messages in your mail box in the form of text. When a voice message arrives, it is delivered to the mailbox of the recipient with a blank text attachment. When the completed transcription is returned by the transcription service, the text attachment is updated with the text of the transcription, or with an error message if there was a problem with the transcription. Only the first 500 characters of a message transcription are provided, so longer messages are truncated. However, users have access to the original recording in its entirety.

SpeechView is a feature of the Connection unified messaging solution, therefore, the original audio version of each voice message remains available to you anywhere, anytime.

Note When a voice message is sent from WebInbox to VMO, the voice message is delivered to the mailbox of the recipient along with the transcribed text in the both in the transcript view box and in the mail body.

When the SpeechView feature is enabled, Cisco Unity Connection uses a third-party external transcription service to convert voice messages to text. The SpeechView feature provides the following types of transcription services:

- Standard Transcription Service: Works as a fully automated non human assisted transcription service. In the standard transcription service, the transcription service automatically converts the voice message to text and then the transcription received from Connection is sent to the recipient through e-mail.
- Professional Transcription Service: Involves automated transcription and human intervention, if required, to convert voice messages to text. In the professional transcription service, the transcription service first converts the voice message to text automatically and confirms the accuracy of the transcription. If the accuracy is low in any part of transcription, the particular part of transcription is sent to a human operator who reviews the audio and improves the quality of the transcription. As the professional transcription service involves both automatic transcription and human intervention, the accuracy of text message is more as compared to the standard transcription service. The professional transcription service is also known as SpeechView Pro service.

Note Connection supports only standard transcription service that involves automatic conversion of voice message to text without any human intervention.

Connection sends the audio portion of a voice message to the transcription service, without details about the sender or recipients of the message. Communication between Connection and the external transcription service is secured by using S/MIME over SMTP.

To use SpeechView, users must belong to a class of service that enables transcriptions of voice messages. The class of service specifies the type of transcription service, either Standard or Professional, for which the user is subscribed. Members of the class of service can view the transcriptions of their messages by using an IMAP client that is configured to access their Connection messages. The original voice message remains attached to the transcribed text message.

For more information on enabling class of service, see the "SpeechView Transcriptions of Voice Messages in Cisco Unity Connection 9.x" section of the "Setting Up Features and Functionality That Are Controlled by Class of Service in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

You can also configure an SMS or SMTP notification device for users so that Connection sends transcriptions to an SMS-compatible phone or an external email address; users can configure SMS or SMTP notification devices for themselves if they have access to the Connection Messaging Assistant web tool. The original voice message is not attached to transcription messages sent to notification devices, but the device can be configured to include the phone number that users call to reach Connection, so after viewing the transcription they can call Connection to listen to the voice message.

The following messages are never transcribed:

- Private messages
- Broadcast messages
- Dispatch messages
- Secure messages (configurable)
- Messages with no recipients in an enabled class of service

Note Messages with no recipients in an enabled COS includes those messages that are sent to a group of recipients and no recipient from the group is subscribed for the SpeechView transcription service. In such cases, the voice message is not transcribed for any of the recipients.

Secure messages are transcribed only if the user belongs to a class of service for which the Allow Transcriptions of Secure Messages option is enabled.

Note Connection supports only the UTF-8 character set encoding for transcription.

SpeechView Security Considerations

All transcriptions are handled by a third party transcription service outside of the customer environment. Communication between the customer Cisco Unity Connection server and the transcription service is handled through the use of S/MIME. The S/MIME public and private key negotiation happens transparently when registering with the transcription service. A new key pair is created each time a system registers.

When messages are sent to the transcription service, customer information is not passed with the message. The transcription service is unaware of the specific user the message belongs to. If human involvement is required in the transcription, the person working on the transcription is not able to determine the user or company from which the message originated. All audio stays on the conversion system and is never stored on the workstation of the person who processes the transcription. After the transcribed message is sent to the Connection server, the copy at the transcription service is purged.

Recommendations for Deploying SpeechView

Advantages to Forwarding Personal Phones to Connection

To take full advantage of SpeechView, encourage users to configure their mobile phones to forward to Connection so that all of their voice messages are available in one mailbox and are all transcribed. To do this, users would configure the mobile phone to forward to their work phone number, which should correspond to their primary extension on Connection. To configure the mobile phone for call forwarding, obtain specific instructions from the mobile phone carrier. A generic procedure is provided in the "Task List for Consolidating Your Voicemail from Multiple Phones into One Mailbox" section of the "Changing Your User Preferences" chapter of the *User Guide for the Cisco Unity Connection Messaging Assistant Web Tool*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/assistant/b_9xcucugasst.html. Note that due to the call going to the mobile phone first and then to the work phone, callers may hear a lot of rings before reaching the mailbox of the user. To avoid this problem, you can instead forward the mobile phone to a special DID number that does not ring a phone and forwards directly to the mailbox of the user. This can be accomplished by adding the DID number as an alternate extension for the user.

Using SpeechView with Networked Cisco Unity Connection Servers

To consolidate the interface between the customer and the third-party transcription service, configure one of your Cisco Unity Connection servers (or clusters) to act as a proxy for the other Connection servers in the network. In this configuration, only the proxy server registers with the transcription service. This can make it easier to troubleshoot any problems with transcriptions, track your transcription usage and monitor the load it introduces to your network.

If one of your Connection servers has a lower call volume than others in the network, consider designating it as the proxy server for transcriptions.

If you do not use a proxy server for transcriptions, you need a separate external-facing SMTP address for each server (or cluster) in the network.

See the "Task List for Configuring SpeechView in Cisco Unity Connection 9.x" section on page 22-4 for detailed instructions.

Using SpeechView with Relay or Accept and Relay Message Actions

If user accounts are configured to relay voice messages to an alternate SMTP address, their voice messages cannot be transcribed. If users want transcriptions as well as the relay feature, you can instead configure user accounts to accept and relay voice messages. This allows the copy of the message that is stored on the Connection server to be transcribed. Configure SMTP notification devices for users so that the transcription is sent to their SMTP address. This means that users will receive two emails at their SMTP address. The first one is the relayed copy of the message WAV file. The second is the notification that includes the transcription. If users do not want two emails for each message, consider setting their account to accept messages so that they receive only the email with the transcription. If they need to access the original recording, users can call to Connection or use an IMAP client to access their Connection account.

For more information on message actions such as relay and accept and relay, see the "Message Actions in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Task List for Configuring SpeechView in Cisco Unity Connection 9.x

1. Confirm that you have installed a license file that enables the SpeechView feature. For more information on managing and installing license file, see Managing Licenses in Cisco Unity Connection 9.x.
2. Associate users with a class of service that provides SpeechView transcriptions of voice messages. See the "SpeechView Transcriptions of Voice Messages in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by Class of Service in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.
3. Configure an SMTP smart host to accept messages from the Connection server. See the documentation for the SMTP server application that you are using.
4. Configure the Connection server to relay messages to the smart host. See the "Configuring the Cisco Unity Connection Server to Relay Messages to a Smart Host" section on page 22-5.
5. *(When Connection is configured to refuse connections from untrusted IP addresses)* Configure the Connection server to receive messages from your email system. See the "Configuring the Cisco Unity Connection Server to Accept Messages From Your Email System" section on page 22-5.
6. Configure your email infrastructure system to route incoming SpeechView traffic to the Cisco Unity Connection server. See the "Configuring Your Email System to Route Incoming SpeechView Traffic to the Cisco Unity Connection Server" section on page 22-6.

7. Configure the SpeechView transcription service. See the "Configuring the SpeechView Transcription Service" section on page 22-7.
8. Configure SMS or SMTP notification devices for Connection users or user templates. See the "Transcription Delivery with SpeechView in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Procedures for Configuring SpeechView in Cisco Unity Connection 9.x

See the following sections:

- Configuring the Cisco Unity Connection Server to Relay Messages to a Smart Host, page 22-5
- Configuring the Cisco Unity Connection Server to Accept Messages From Your Email System, page 22-5
- Configuring Your Email System to Route Incoming SpeechView Traffic to the Cisco Unity Connection Server, page 22-6
- Configuring the SpeechView Transcription Service, page 22-7

Configuring the Cisco Unity Connection Server to Relay Messages to a Smart Host

To enable Cisco Unity Connection to send messages to the external transcription service, you must configure the Connection server to relay messages through a smart host.

To Configure the Cisco Unity Connection Server to Relay Messages to a Smart Host

Step 1 In Cisco Unity Connection Administration, expand **System Settings > SMTP Configuration**, then select **Smart Host**.

Step 2 On the Smart Host page, in the Smart Host field, enter the IP address or fully qualified domain name of the SMTP smart host server. (Enter the fully qualified domain name of the server only if DNS is configured.)

Step 3 Select **Save**.

Configuring the Cisco Unity Connection Server to Accept Messages From Your Email System

Do the following procedure.

To Configure the Cisco Unity Connection Server to Accept Messages From Your Email System

Step 1 In Cisco Unity Connection Administration, expand **System Settings > SMTP Configuration**, then select **Server**.

Step 2 On the SMTP Server Configuration page, on the Edit menu, select **Search IP Address Access List**.

Step 3 On the Search IP Address Access List page, select **Add New** to add a new IP address to the list.

Step 4 On the New Access IP Address page, enter the IP address of your email server.

Step 5 Select **Save**.

Step 6 To allow connections from the IP address that you entered in Step 4, on the Access IP Address page, check the **Allow Connection** check box.

Step 7 If you have made any changes on the Access IP Address page, select **Save**.

Step 8 If you have more than one email server in your organization, repeat Step 2 through Step 7 to add each additional IP address to the access list.

Configuring Your Email System to Route Incoming SpeechView Traffic to the Cisco Unity Connection Server

Do the following procedure.

To Configure Your Email System to Route Incoming SpeechView Traffic to the Cisco Unity Connection Server

Step 1 Select an external-facing SMTP address that the third party transcription service will use to send transcriptions to the Cisco Unity Connection server. For example, select "transcriptions@<yourdomain.com>"

If you have more than one Connection server, you need a separate external-facing SMTP address for each server, unless the servers are part of a Connection cluster. Alternatively, you can configure one Connection server or cluster to act as a proxy for the remaining servers or clusters in the digital network.

Step 2 For each external-facing SMTP Address that you selected in Step 1, configure your email infrastructure to route messages that are sent the SMTP address to the "stt-service" alias on the Connection server. For example, if the SMTP domain for the Connection server is "connectionserver1.cisco.com," the email infrastructure must be configured to route "transcriptions@cisco.com" to "stt-service@connectionserver1.cisco.com."

If you are configuring SpeechView on a Connection cluster, configure the smart host to resolve the SMTP domain of the cluster to both the publisher and subscriber servers in order for incoming transcriptions to reach the cluster subscriber server in the event that the publisher server is down.

Step 3 Add "nuancevm.com" to the "safe senders" list in the email infrastructure so that incoming transcriptions do not get filtered out as spam.

Note In Cisco Unity Connection, to avoid timeout or failure of the registration request with the Nuance server, make sure to:

- Remove the email disclaimers from the inbound and outbound email messages between Connection and the Nuance server.

- Maintain SpeechView registration messages in the S/MIME format.

Configuring the SpeechView Transcription Service

Do the following procedure.

To Configure the SpeechView Transcription Service

Step 1 In Cisco Unity Connection Administration, expand **Unified Messaging > SpeechView Transcription Service**.

In Cisco Unity Connection Administration, expand **System Settings > External Services**, and then select **Transcription for SpeechView**.

Step 2 On the SpeechView Transcription Service page, check the **Enabled** check box.

Step 3 If this server will access transcription services through another Connection location that is digitally networked, do the following sub-steps:

a. Select **Access Transcription Services Through Connection Proxy Location**.

b. Select the name of the Connection location from the list.

c. Select **Save**.

d. Skip to Step 9.

Otherwise, if this server is going to access transcription services directly, select **Access Transcription Service Directly**.

Step 4 In the Incoming SMTP Address field, enter the email address that will be recognized by your email infrastructure and routed to the "stt-service" alias on the Connection server. (This is the email address that you chose in Step 1 of the "To Configure Your Email System to Route Incoming SpeechView Traffic to the Cisco Unity Connection Server" procedure on page 22-6.

Step 5 In the Registration Name field, enter a name that will uniquely identify the Connection server within your organization. This name is used by the third-party transcription service to identify this server for registration and subsequent transcription requests.

Step 6 If you want this server to offer transcription proxy services to other Connection locations in a digital network, check the **Advertise Transcription Proxy Services to Other Connection Locations** check box.

Step 7 Select **Save**.

Step 8 Select **Register**.

Another window displaying the results will open. The registration process normally takes several minutes. Wait for the registration process to complete successfully before going on to the next step.

If registration does not complete within 5 minutes, there may be a configuration issue. The registration process will timeout after 30 minutes.

Step 9 Select **Test**.

Another window displaying the results will open. The test will usually take several minutes, but can take up to 30 minutes.

SpeechView Reports in Cisco Unity Connection 9.x

Cisco Unity Connection can generate the following reports about SpeechView usage:

- **SpeechView Activity Report by User** —Shows the total number of transcribed messages, failed transcriptions, and truncated transcriptions for a given user during a given time period. If the report is run for all users, then the output is broken out by user.
- **SpeechView Activity Summary Report**—Shows the total number of transcribed messages, failed transcriptions, and truncated transcriptions for the entire system during a given time period. Note that when messages are sent to multiple recipients, the message is transcribed only once, so the transcription activity is counted only once.

For details on generating reports, see the "Reports in Cisco Unity Connection 9.x" chapter.

CHAPTER 23

Managing Mailbox Stores in Cisco Unity Connection 9.x

See the following sections:

- How Multiple Mailbox Stores Work in Cisco Unity Connection 9.x, page 23-1
- Creating a Mailbox Store in Cisco Unity Connection 9.x, page 23-4
- Moving Mailboxes Between Mailbox Stores in Cisco Unity Connection 9.x, page 23-5
- Changing the Maximum Size a Mailbox Store Can Reach Before Warnings Are Logged in Cisco Unity Connection 9.x, page 23-6
- Deleting a Mailbox Store in Cisco Unity Connection 9.x, page 23-6
- Disabling and Re-Enabling a Mailbox Store in Cisco Unity Connection 9.x, page 23-7

How Multiple Mailbox Stores Work in Cisco Unity Connection 9.x

During installation, Cisco Unity Connection automatically creates:

- A directory database for system configuration information (user data, templates, classes of service, and so on).
- A mailbox store database for information on voice messages (who each message was sent to, when it was sent, the location of the WAV file on the hard disk, and so on).
- An operating-system directory for voice message WAV files.

An administrator with the required permissions can create up to four additional mailbox stores. Each additional mailbox store includes:

- Another mailbox-store database for information on voice messages that are saved in that mailbox store. The database is presized for an average of approximately 40 messages each for 10,000 users, or about 1.25 GB. (The database application currently being used for Connection cannot dynamically resize a database after it is created.)
- Another operating-system directory for the voice message WAV files and other message attachments saved in that mailbox store.

Although there is one mailbox-store database for each mailbox store, there is only one directory database for the entire system. If you create an additional mailbox store and move the mailboxes for selected users to the new store, the directory information for the users remains in the directory database that was created when Connection was installed.

Creating additional mailbox stores is primarily useful for ensuring that backups will complete during non-business hours. For more information, see the "Backups with Multiple Mailbox Stores" section on page 23-3.

After you create a new mailbox store, you can either move existing mailboxes into the new store or you can create new mailboxes in the new store. For information on moving existing mailboxes into the new store, see the "Moving Mailboxes Between Mailbox Stores in Cisco Unity Connection 9.x" section on page 23-5.

See the following sections for additional details:

- Replication, page 23-2
- User Templates, page 23-2
- Maximum Size of a Mailbox Store Before Warnings Are Logged, page 23-3
- Backups with Multiple Mailbox Stores, page 23-3

Replication

When you install two or more Cisco Unity Connection servers in a cluster, all mailbox stores are replicated to all servers in the cluster.

User Templates

When you create a new user account, you select the template whose settings are used as the default values for the new user account. One of the template settings specifies the mailbox store in which the mailbox is created. All default templates specify that mailboxes be created in the default mailbox store. If you create new mailbox stores, you can change this setting in the default templates and in any new templates that you create.

When you create a new template or edit a template to change the mailbox store in which new mailboxes are created, Cisco Unity Connection Administration allows you to select a mailbox store that is currently disabled. However, when you create a user account by using the template, if the store is still disabled, creating the user account fails.

If a mailbox store is the default mailbox store for one or more templates, you cannot delete that mailbox store until the template setting is changed or the template is deleted.

For more information on templates, see the "Adding, Modifying, or Deleting a User Template in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Maximum Size of a Mailbox Store Before Warnings Are Logged

When you create a new mailbox store, you specify the maximum amount of disk space that the voice messages for the mailbox store can occupy. The maximum size is not an absolute maximum. When a mailbox store reaches the specified value:

- Connection still saves new messages in the mailbox store.
- You can still create new mailboxes in the mailbox store.
- You can still move mailboxes into the mailbox store.

When the size of the store reaches 90 percent of the specified maximum size, a warning is logged in the system log.

When the size of the store reaches 100 percent of the specified maximum size, an error is logged in the system log. In addition, in Cisco Unity Connection Administration, an error appears in the status bar on the Edit Mailbox Store page.

If you want to keep the mailbox store under 100 percent of the specified maximum size, you can:

- Increase the maximum size of the mailbox store, if there is additional space available on the hard disk. See the "Changing the Maximum Size a Mailbox Store Can Reach Before Warnings Are Logged in Cisco Unity Connection 9.x" section on page 23-6. Do not use this option if the mailbox store is already at the maximum size that can be backed up during non-business hours.
- Have users delete messages to reduce the size of their mailboxes, which also reduces the total size of the mailbox store.

Note When users delete messages, the deleted messages are not removed from the mailbox store until the next time that the Clean Deleted Messages task runs. This task runs every 30 minutes; the schedule cannot be edited.

- Revise the message aging policy or mailbox size quotas to reduce the size of individual mailboxes and, therefore, the size of the mailbox store. We recommend that you have users delete messages from their mailboxes first, so that users who are not currently over the quota are not forced over the quota by the new values. For more information on message aging policy and on mailbox size quotas, see the "Controlling the Size of Mailboxes in Cisco Unity Connection 9.x" chapter.
- Create another mailbox store and move some mailboxes into the new mailbox store.

Backups with Multiple Mailbox Stores

When deciding on the maximum size for a mailbox store, consider the duration of backups. The Disaster Recovery System must back up an entire mailbox store and the corresponding database during a single backup session. Because the Disaster Recovery System has a significant impact on system performance, each mailbox store must be a size that can be backed up during non-business hours. We chose the default size of 15 GB (approximately 30 minutes of recordings for each of 1,000 users when the codec is G.711)

because a mailbox store of that size can be backed up in about six hours at 3 GB per hour. (The maximum size of a mailbox store does not include the 1.25 GB for the database that contains information on the messages in the mailbox store.)

Caution For tape backups, the Disaster Recovery System can only save one backup session on a tape. If you create multiple mailbox stores and back up the stores in separate sessions, you must change tapes between sessions or the second backup overwrites the first backup.

For more information on how to back up multiple mailbox stores, see the applicable document:

- For Cisco Unity Connection, see the *Disaster Recovery System Administration Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/drs_administration/guide/9xcucdrsag.html.
- For Cisco Unified CMBE, see the *Disaster Recovery System Administration Guide for Cisco Unified CMBE* at http://www.cisco.com/en/US/products/ps7273/prod_maintenance_guides_list.html.

Creating a Mailbox Store in Cisco Unity Connection 9.x

To Create a Mailbox Store

Step 1 Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

Note A user account that does not have the System Administrator role cannot create a new mailbox store.

Step 2 Expand **Message Storage**, then select **Mailbox Stores**.

Step 3 On the Search Mailbox Store page, select **Add New**.

Step 4 On the New Mailbox Store page, enter settings as applicable.

Note Fields marked with an * (asterisk) are required.

Step 5 Select **Save**.

Note Creating the database for the new mailbox store requires several minutes.

When the new mailbox store has been created, it appears in the table on the Search Mailbox Stores page, the value of the Access Enabled column changes to **Yes**, and the value of the Status column changes from Creating Mailbox Store to **OK**.

Note It is recommended to configure a maximum of 5000 user mailboxes in a single mailstore for optimal performance.

Moving Mailboxes Between Mailbox Stores in Cisco Unity Connection 9.x

When moving mailboxes between mailbox stores, note the following:

- When a mailbox is moved to another message store, the MWI status is retained.
- When clustering is configured, you must sign in to the server whose server status is primary to move mailboxes.
- Moving a mailbox fails if:
  - The administrator currently signed in to Cisco Unity Connection Administration is not authorized to move a mailbox.
  - The source or target mailbox store is disabled because, for example, the mailbox store is being backed up.
  - The mailbox is disabled.
  - The user whose mailbox you are moving is a system user. System mailboxes cannot be moved out of the default mailbox store, UnityMbxDb1.

To Move Mailboxes from One Mailbox Store to Another

Step 1 Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

Note A user account that does not have the System Administrator role cannot move mailboxes between mailbox stores.

Step 2 In Cisco Unity Connection Administration, expand **Message Storage**, then select **Mailbox Stores Membership**.

Step 3 On the Search Mailbox Stores Membership page, in the Choose Membership Type list, select **User Mailbox**.

Step 4 Under User Mailbox Search Results, specify the mailbox store from which you want to move mailboxes.

Step 5 Specify search criteria to further identify the users whose mailboxes you want to move, and select **Find**.

The specified users appear in the table at the bottom of the page.

Step 6 Select the mailbox store to which you want to move mailboxes.

Step 7 Check the applicable check boxes to select the users whose mailboxes you want to move.

Step 8 Select **Move Selected Mailboxes**.

Changing the Maximum Size a Mailbox Store Can Reach Before Warnings Are Logged in Cisco Unity Connection 9.x

To Change the Maximum Size a Mailbox Store Can Reach Before Warnings Are Logged

Step 1 Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

Note A user account that does not have the System Administrator role cannot change the size of a mailbox store.

Step 2 In Cisco Unity Connection Administration, expand **Message Storage**, then select **Mailbox Stores**.

Step 3 On the Search Mailbox Store page, select the name of the mailbox store.

Step 4 On the Edit Mailbox Store page, change the value of the **Maximum Size Before Warning** field.

Step 5 Select **Save**.

Deleting a Mailbox Store in Cisco Unity Connection 9.x

Cisco Unity Connection Administration does not allow an administrator to delete a mailbox store when any of the following are true:

- The mailbox store still contains one or more mailboxes.
- The mailbox store is still referenced by one or more templates.
- The administrator who is trying to delete the mailbox store does not have permission to delete a mailbox store.
- The administrator is trying to delete the default mailbox store, UnityMbxDb1.

To Delete a Mailbox Store

Step 1 Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

Note A user account that does not have the System Administrator role cannot delete a mailbox store.

Step 2 If you know the mailbox store does not contain any mailboxes, skip to Step 3. If you do not know, do the following steps to find mailboxes, if any, and to move them to other mailbox stores:

a. In Cisco Unity Connection Administration, expand **Message Storage**, then select **Mailbox Stores Membership**.

b. In the Choose Membership Type list, select **User Mailbox**.

c. Under User Mailbox Search Results, specify the mailbox store from which you want to move mailboxes.

d. Specify search criteria to further identify the users whose mailboxes you want to move, and select **Find**.

The specified users appear in the table at the bottom of the page.

e. Select the mailbox store to which you want to move mailboxes.

f. Check the applicable check boxes to select the users whose mailboxes you want to move.

g. Select **Move Selected Mailboxes**.

Step 3 If you know that no user templates reference the mailbox store that you want to delete, skip to Step 4. If you do not know, do the following steps to find templates, if any, and to reassign the templates to other mailbox stores:

a. On the Search Mailbox Stores Membership page, in the Choose Membership Type list, select **User Template**.

b. Under User Mailbox Search Results, select the options to find the user templates that reference the mailbox store that you want to delete, and select **Find**.

c. If any templates are found, check the applicable check boxes to select them, select the mailbox store that you want the templates to reference instead, and select **Assign Selected Templates**.

Step 4 In Cisco Unity Connection Administration, expand **Message Storage**, then select **Mailbox Stores**.

Step 5 On the Search Mailbox Store page, check the check box for the mailbox store that you want to delete.

Step 6 Select **Delete Selected**.

Step 7 Select **OK** to confirm.

Disabling and Re-Enabling a Mailbox Store in Cisco Unity Connection 9.x

Each mailbox store is disabled automatically while it is being backed up by the Disaster Recovery System. When a mailbox store is disabled:

- You cannot create a new mailbox in the store.
- You cannot move existing mailboxes into or out of the store.
- New messages for users whose mailboxes are in the disabled store are queued for delivery when the store is re-enabled.

Although Cisco Unity Connection Administration includes an option to manually disable a mailbox store, there is currently no reason to do so.

CHAPTER 24

Controlling the Size of Mailboxes in Cisco Unity Connection 9.x

Note To help control the size of user voice mailboxes, you can use Cisco Unity Connection Administration to specify mailbox size quotas and to change the message aging policy. See the following sections:

- Specifying Mailbox Size Quotas in Cisco Unity Connection 9.x, page 24-1
- Managing Message Aging Policies in Cisco Unity Connection 9.x, page 24-3
- Message Recording Expiration, page 24-8

Specifying Mailbox Size Quotas in Cisco Unity Connection 9.x

To help control the size of user voice mailboxes, Cisco Unity Connection lets you specify quotas, or limits, on the maximum size of voice mailboxes. By default, Connection is configured with the systemwide mailbox size quotas listed in Table 24-1. To change systemwide quotas, do the "To Change the Default Systemwide Quotas" procedure on page 24-2.

Caution Quotas are not enforced for messages left by outside callers if the "Full Mailbox Check for Outside Caller Messages" check box is not checked. This check box appears on the Message Storage > Mailbox Quotas page. For more information, see Help for that page.

You can override systemwide quotas by specifying custom quotas for users and for templates. For a procedure, see the "Mailbox-Size Quotas in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Caution Quotas alone are only practical for controlling the size of mailboxes for users who regularly check Connection voice messages by using the telephone user interface. Web Inbox and ViewMail for Outlook do not inform users that their mailbox has reached its quota. If users check messages primarily or exclusively by using Web Inbox or ViewMail for Outlook, configure message aging, too, so old messages are automatically deleted. See the "Managing Message Aging Policies in Cisco Unity Connection 9.x" section on page 24-3.

When single inbox is configured, messages that users delete by using Outlook are only moved to the Deleted Items folder in Outlook, not permanently deleted. When Connection synchronizes with Exchange, messages that have been deleted in Outlook are moved to the Connection Deleted Items folder; the messages are not permanently deleted from Connection. If you configure message quotas in this configuration, we recommend that you also configure message aging. For more information on message aging, see the "Managing Message Aging Policies in Cisco Unity Connection 9.x" section on page 24-3.

Table 24-1 Mailbox-Size Quotas by Codec

Quota Level	Mailbox Size That Triggers Quota Action	Action When Quota Is Reached	Recording Time Before Quota Is Reached/ Disk Space Used					
			G.711 Mu-Law	G.711 A-Law	G.726	PCM 8 kHz	G.729a	GSM 6.10
Warning	12 MB	The user is warned that the mailbox is reaching the maximum size allowed.	18 min./ 11 KB/sec	18 min./ 11 KB/sec	37 min./ 5.53 KB/sec	9 min./ 22 KB/sec	122 min./ 1.67 KB/sec	91 min./ 2.25 KB/sec
Send	13 MB	The user is prevented from sending any more voice messages.	20 min./ 11 KB/sec	20 min./ 11 KB/sec	40 min./ 5.53 KB/sec	10 min./ 22 KB/sec	132 min./ 1.67 KB/sec	98 min./ 2.25 KB/sec
Send/ Receive	14 MB	The user is prevented from sending or receiving any more voice messages.	21 min./ 11 KB/sec	21 min./ 11 KB/sec	43 min./ 5.53 KB/sec	10 min./ 22 KB/sec	143 min./ 1.67 KB/sec	106 min./ 2.25 KB/sec

To Change the Default Systemwide Quotas

Step 1 In Cisco Unity Connection Administration, expand **Message Storage**, then select **Mailbox Quotas**.

Step 2 Set values for the following quotas, as applicable, by selecting **Custom** and then entering a value (in megabytes) in the adjacent field:

- Warning Quota
- Send Quota
- Send/Receive Quota

Note that the value for Warning Quota must be smaller than or equal to the value for Send Quota, and that the value for Send Quota must be smaller than or equal to the value for Send/Receive Quota.

Step 3 If you want Connection to determine whether a user mailbox is full before allowing an outside caller to leave a message for the user, check the **Full Mailbox Check for Outside Caller Messages** check box.

Step 4 Select **Save**.

Managing Message Aging Policies in Cisco Unity Connection 9.x

Message aging policies can help ensure that the hard disk where voice messages are stored does not fill up. Each policy allows you to specify message aging rules to automatically:

- Move new messages to the Saved Items folder after a specified number of days.

  This option is primarily useful for users whose message action is Accept and Relay the Message, which causes Connection to relay copies of voice messages to an external mail account while also saving the messages to the Connection message store. You can use this option to prevent users who only check voice messages by using the external mail account from exceeding their mailbox quota.

  For more information, see the "Message Actions in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

- Move read messages to the Deleted Items folder after a specified number of days.
- Permanently delete messages in the Deleted Items folder after a specified number of days. In the Default System Policy message aging policy, this is the only rule that is enabled.
- Based on the age of the messages, permanently delete secure messages that have been touched in any way (for example by saving, deleting, or opening but then saving messages as new).
- Based on the age of the messages, permanently delete all secure messages regardless of whether users have listened to or touched the messages in any way.

If you only need one set of message aging rules, you can change the specifications for the default message aging policy and assign that one policy to all users and all templates. If you need to allow some users to retain messages longer than other users, you can create additional policies and assign different policies to user templates and to individual users. If you want to send message aging alerts to some users and not to others, you can create additional policies that include aging alerts.

For each policy, you can enable or disable each message aging rule, and you can specify a different number of days for each rule. For each message aging rule, you can also specify whether Connection sends an email alert to users prior to aging the message.

You can also enable or disable an entire message aging policy; disabling a policy means that the rules in that policy are not enforced regardless of their settings. Connection includes a default policy, Do Not Age Messages, that is disabled and for which all of the rules are disabled.

Some of the message aging rules are based on when a message was last modified. To modify a message, a user must do one of the following:

- In the Connection Web Inbox or Messaging Inbox, mark the message as new, mark the message as deleted, or change the message subject, and select Save.
- From the phone interface, select the option to mark the message as new, resave the message, delete the message, or restore a deleted message as saved.

Simply listening to the message, without choosing one of these options, does not change the modification time of the message.

Note that the schedule for message aging is controlled by the message aging task under Task Management in Cisco Unity Connection Administration.

See the following sections for additional details:

- About Message Aging Alerts, page 24-4
- Adding a Message Aging Policy, page 24-4
- Changing a Message Aging Policy, page 24-5
- Deleting a Message Aging Policy, page 24-5
- Configuring a Smart Host for Message Aging Alerts, page 24-6
- Configuring Message Aging Alert Text, page 24-6
- "Configuring Message Aging When Single Inbox is Configured" section on page 24-7
- The "Message Aging in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

About Message Aging Alerts

For each message aging rule, you can specify whether Connection sends email alerts to users prior to taking the aging action that is associated with the rule. This gives users time to review and act on the applicable messages. You specify the number of days between the time that Connection sends the alert and the time that the message aging action takes place.

Alerts cannot be sent to users unless the Corporate Email Address field for each user on the Users > Users > Edit User Basics page contains a valid email address. Connection must also be configured to relay messages through an SMTP smart host.

You can customize the text in the email alerts or you can use the default text. The default subject line and body text are different for the alerts related to each aging rule, and they can be customized separately. Note that because all message aging policies use the same five rules, if you customize the alert text for a rule, the text will be the same for any policy that uses that rule. (For example, if you customize the email subject line and body text for the Move Saved Messages to the Deleted Items Folder rule, that text is used for all alerts that are sent to users who are assigned to any message aging policy for which that rule is enabled with alerts.)

Message aging alerts can be customized for multiple languages.

Adding a Message Aging Policy

Cisco Unity Connection includes a Default System Policy and a Do Not Age Messages policy, which is the policy that you assign to users whose messages should never be automatically deleted. If you want more than these two policies, do the following procedure.

To Add a Message Aging Policy

Step 1 In Cisco Unity Connection Administration, expand **Message Storage**, then expand **Message Aging**, then select **Aging Policies**.

In Cisco Unity Connection Administration, expand **Message Storage**, then select **Message Aging Policy**.

Step 2 Select **Add New**.

Step 3 Enter a name for the new policy, and select **Save**.

Step 4 Check the **Enabled** check box.

Step 5 Check the check box for each aging rule that you want to enable and specify the number of days after which the aging action will take place. See Help for information on individual aging rules.

Step 6 For each aging rule that you enabled in Step 5, indicate whether you want users to be alerted by email before the aging action takes place. Then specify the number of days prior to the message aging action that users will be alerted.

Step 7 Select **Save**.

For information on configuring which message aging policy is assigned to individual users and to templates, see the "Message Aging in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Changing a Message Aging Policy

To change settings in the Default System Policy or in any message aging policies that you have added, do the following procedure.

Caution Do not change settings in the Do Not Age Messages policy.

To Change a Message Aging Policy

Step 1 In Cisco Unity Connection Administration, expand **Message Storage**, then expand **Message Aging**, then select **Aging Policies**.

In Cisco Unity Connection Administration, expand **Message Storage**, then select **Message Aging Policy**.

Step 2 Select the name of the policy that you want to change.

Step 3 Change settings as applicable. See Help for information on individual fields.

Step 4 Select **Save**.

For information on changing which message aging policy is assigned to individual users and to templates, see the "Message Aging in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Deleting a Message Aging Policy

If you want to delete a message aging policy, do the following procedure.

We recommend that you do not delete either the Default System Policy or the Do Not Age Messages policy. If you do not want to age messages, disable the Default System Policy instead of deleting it.

To Delete a Message Aging Policy

Step 1 In Cisco Unity Connection Administration, expand **Message Storage**, then expand **Message Aging**, then select **Aging Policies**.

In Cisco Unity Connection Administration, expand **Message Storage**, then select **Message Aging Policy**.

Step 2 Check the check box next to the name of the policy that you want to delete.

Step 3 Select **Delete Selected**.

Step 4 Select **OK** to confirm.

Configuring a Smart Host for Message Aging Alerts

To enable Cisco Unity Connection to send message aging alert emails to users, you must configure the Connection server to relay messages through an SMTP smart host.

To Configure the Cisco Unity Connection Server to Relay Messages to a Smart Host

Step 1 In Cisco Unity Connection Administration, expand **System Settings > SMTP Configuration**, then select **Smart Host**.

Step 2 On the Smart Host page, in the Smart Host field, enter the IP address or fully qualified domain name of the SMTP smart host server. (Enter the fully qualified domain name of the server only if DNS is configured.)

Step 3 Select **Save**.

Step 4 On your SMTP server application, configure an SMTP smart host to accept messages from the Connection server. For instructions, see the documentation for the SMTP server application that you are using.

Configuring Message Aging Alert Text

If you want to customize the Subject Line or Body Text of the message aging alert emails that are sent to users, do the following procedure.

To Customize the Message Aging Alert Text

Step 1 In Cisco Unity Connection Administration, expand **Message Storage**, then expand **Message Aging**, then select **Aging Alert Text**.

Step 2 On the Edit Message Aging Alert Text page, in the Language list, select the applicable language.

Step 3 For each of the five message aging rules, determine whether you want to use the default text for the email Subject Line and Body Text. If you decide to customize a rule, continue with Step 4.

Step 4 To customize text for a message aging rule, do the following sub-steps:

a. Uncheck the **Use Default Text** check box.

b. Enter text in the Subject Line and Body Text fields as applicable. See Table 24-2 for a list of available parameters.

c. Repeat a. through b. for each aging rule that you want to customize.

Step 5 Select **Save**.

Step 6 Repeat Step 2 through Step 5 for each language installed on the system.

Table 24-2 Message Aging Alert Text Parameters

Parameter	Description
%ARRIVALTIME%	When the %ARRIVALTIME% parameter is used, it is replaced with the date and time the message was received.
%DAYSUNTIL%	When the %DAYSUNTIL% parameter is used, it is replaced with the number of days until the applicable message aging action will be applied to the message.
%MODIFICATIONTIME%	When the %MODIFICATIONTIME% parameter is used, it is replaced with the date and time that the message was last touched by the recipient or the system. (For example, the recipient touches the message by saving, deleting, or opening and then saving the messages as new. The system touches the message when a message aging rule moves a new message to the saved messages folder or moves a saved message to the deleted items folder.)
%RECIPIENT%	When the %RECIPIENT% parameter is used, it is replaced with the display name of the message recipient.
%RECIPIENT_EXTENSION%	When the %RECIPIENT_EXTENSION% parameter is used, it is replaced with the extension number of the mailbox of the message recipient. This parameter might be useful if some users monitor multiple mailboxes.
%SENDER%	When the %SENDER% parameter is used, it is replaced with the display name of the sender of the message.

Configuring Message Aging When Single Inbox is Configured

When single inbox is configured, messages that users delete by using Outlook are only moved to the Deleted Items folder in Outlook, not permanently deleted. When Connection synchronizes with Exchange, messages that have been deleted in Outlook are moved to the Connection Deleted Items folder. The messages are not permanently deleted from Connection. We recommend that you configure message aging to permanently delete messages in the Deleted Items folder.

You can also configure message quotas, so that the Connection conversation prompts users to delete messages when their mailboxes approach a specified size. See the "Specifying Mailbox Size Quotas in Cisco Unity Connection 9.x" section on page 24-1.

Message Recording Expiration

The Message Recording Expiration feature guarantees that a voice message that is stored on the Cisco Unity Connection server cannot be listened to after it reaches a set expiration date, regardless of whether the message has been forwarded to another Connection recipient. Message Recording Expiration is a systemwide setting, and thus cannot be applied only to a subset of users.

You set the number of days after which messages arrive that they will expire. At expiration, message recordings are automatically replaced with a decoy recording that says, “The message has expired.”

Typically, message aging rules are sufficient for enforcing message-retention policies. Note, however, that when a message is forwarded, the forwarded message is considered a new message and its age is reset. If you are concerned that users may forward messages in an attempt to circumvent the message-retention policy, consider enabling the Message Recording Expiration feature. The message recording and transcription (if any) expire based on the date that the original copy of the message arrived, regardless of user forwarding.

By default, the Message Recording Expiration feature is not enabled. You can enable and configure the feature on the Message Storage Settings > Message Aging > Message Recording Expiration page in Cisco Unity Connection Administration.

If you enable the Message Recording Expiration feature, we recommend that you configure the expiration time frame to be two to three times longer than the message aging time frame. (For example, if all of your messages are marked secure by default and you have a message aging policy set to permanently delete all secure messages older than 60 days, configure message recordings to expire in 180 days.)

Note that the Message Recording Expiration feature does not apply to messages that have been forwarded to personal email addresses or to message recordings that have been saved locally to user workstations. To prevent users from saving local copies or forwarding voice messages to personal email addresses, consider configuring Connection to mark all messages as secure.Connection applies the Message Recording Expiration feature to messages in the mailboxes of recipients that are homed on the Connection server. For example, if User A homed on Connection server A sends a message to User B homed on Connection server B, the message will be subject to message expiration only if the Message Recording Expiration feature is enabled on server B.

CHAPTER 25

Setting Up HTML, SMTP, and SMS (SMPP) Message Notifications in Cisco Unity Connection 9.x

Cisco Unity Connection can notify a user of new messages by calling a phone or pager. Additionally, you can set up Connection to send message and calendar event notifications in the form of text messages to text pagers and text-compatible mobile phones by using SMTP.

Connection configured with the SMTP smart host settings can also be used to send the HTML notifications from Cisco Unity Connection Administration.

You can also set up Connection to send message and calendar event notifications in the form of SMS messages to wireless devices by using SMPP.

See the following sections:

- Setting Up HTML or SMTP Message Notifications in Cisco Unity Connection 9.x, page 25-1
- Setting Up SMS (SMPP) Message Notifications in Cisco Unity Connection 9.x, page 25-2

(For information on setting up message notifications to a phone or pager, see the "Phone and Pager Notification Devices" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.)

Setting Up HTML or SMTP Message Notifications in Cisco Unity Connection 9.x

By using SMTP, Cisco Unity Connection can send an HTML or text notification to notify users that they have received a new message. The HTML notification use SMTP to notify the users that they have received a new voice message via email. The HTML notifications are used only for voice messages. In case of the text notifications, the users are also notified for the calendar events. In addition, the text notifications can be sent to any device or email client that supports SMTP, for example, email addresses, mobile phones, and text pagers.

To enable Connection to send notifications by using SMTP, the Connection server must be configured to relay messages through a smart host. If Connection is configured to deliver the HTML or text notifications but has not been configured to relay messages to a smart host, the notification attempt fails and the notification is put in the Connection SMTP Server badmail folder.

When a Connection user receives a new message, Connection can send an HTML or text notification to an email address.

Note If your site includes a Connection cluster, make sure that the SMTP Domain Address resolves to IP addresses of both the publisher and subscriber servers. The SMTP Domain Address facilitates to reach the cluster subscriber server when the publisher is down or vice versa. To configure the SMTP domain, go to the **System Settings > SMTP Configuration > Server** page.

To enable HTML or SMTP notifications, do the following tasks:

1. Configure the SMTP smart host to accept messages from the Connection server. See the documentation for the SMTP server application that you are using.
2. Configure the Connection server. See the "To Configure the Cisco Unity Connection Server to Relay Messages to a Smart Host" procedure on page 25-2.
3. Configure Connection users or templates. See the "SMTP-Compatible Notification Devices" and "HTML-Compatible Notification Devices" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

   Alternatively, the users can set up their own HTML or SMTP-compatible devices by using the Connection Messaging Assistant. See the "Managing Message Notification" chapter of the *User Guide for the Cisco Unity Connection Messaging Assistant Web Tool Release 9.x*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/assistant/b_9xcucugasst.html.

To Configure the Cisco Unity Connection Server to Relay Messages to a Smart Host

Step 1 In Cisco Unity Connection Administration, expand **System Settings > SMTP Configuration**, then select **Smart Host**.

Step 2 On the Smart Host page, in the **Smart Host** field, enter the IP address or fully qualified domain name of the SMTP smarthost server, for example, https://ucbu-cisco-vmxyz.cisco.com. (Enter the fully qualified domain name of the server only if DNS is configured.)

Step 3 Select **Save**.

Setting Up SMS (SMPP) Message Notifications in Cisco Unity Connection 9.x

With the services and information provided by a wireless carrier, mobile messaging service provider or similar company, Cisco Unity Connection can use the Short Message Peer-to-Peer (SMPP) protocol to send message notifications in the Short Message Service (SMS) format to mobile phones and other SMS-compatible devices when users receive new messages. SMS is a "store and forward service," which means that messages are not sent directly to the device used by the message recipient. Instead, an application like Connection—known as an External Short Message Entity (ESME)—submits a message to the SMS Center (SMSC). The SMSC then forwards the message to the device.

Advantages Over SMTP Message Notifications

An advantage of using SMS is that the user device often receives message notifications much faster than when using SMTP. The user device does not have to be on the wireless network at the time that Connection sends the message to the SMSC, nor when the SMSC forwards it. The wireless network holds the SMS messages until the device is available; when the device is available, the delivery of the queued messages to the device takes just a few seconds. In addition, you can configure Connection so that each notification message replaces the previous one. Note that this functionality may not be supported by all mobile service providers.

SMS Message Length Limitations

An SMS message is a short text message. The acceptable message length for an SMS message varies depending on the service provider, the character set used to compose the message text, and the specific characters used in the message text. The message count (assuming that users choose to include the message count) is not included in the total message length.

Character sets available include:

- Default Alphabet (GSM 3.38), 7-bit characters
- IA5/ASCII, 7-bit characters
- Latin 1 (ISO-8859-1), 8-bit characters
- Japanese (JIS), multi-byte characters
- Cyrillic (ISO-8859-5), 8-bit characters
- Latin/Hebrew (ISO-8859-8), 8-bit characters
- Unicode (USC-2), 16-bit characters
- Korean (KS C 5601), multi-byte characters

For 7-bit character sets, a maximum of 160 characters can fit into an SMS message; for 8-bit character sets, the limit is 140 characters; for 16-bit character sets, the limit is 70 characters; for multi-byte character sets, the limit is somewhere between 70 and 140 characters, depending on which characters make up the text of the message. (For multi-byte character sets, most characters are 16 bits; some of the more common characters are eight bits.)

Note Not all mobile phones support all character sets; most support the GSM 3.38 default alphabet.

Cost Considerations

When setting up SMS (SMPP) message notifications, consider that service providers typically charge for each SMS message or group of messages sent. Thus, the more SMS (SMPP) message notifications that Connection sends to user devices, the higher the costs to your organization. For this reason, you may want to restrict the use of this feature to a group of users (you can do so by assigning owners to the SMPP providers that you create), or you may want to ask users to limit the number of message notifications that they receive by message type or urgency. For example, users can specify in the Connection Messaging Assistant that Connection sends message notifications only when new urgent voice messages arrive.

Task List for Setting Up SMS (SMPP) Message Notifications

To enable SMS (SMPP) message notifications for users with SMS-compatible devices, do the following tasks:

1. Set up an account with a mobile messaging service provider that offers SMS messaging. Connection works with any service provider that supports the SMPP version 3.3 or SMPP version 3.4 protocols.
2. Gather the information needed to allow Connection to communicate with the SMPP server at the SMSC affiliated with your contracted service provider, and enter the information on the SMPP Provider page. See the "To Set Up an SMPP Provider" procedure on page 25-4.
3. When the Connection server is set up behind a firewall, configure the TCP port that is used by the SMPP server when connecting to Connection to allow incoming and outgoing communication between Connection and the SMPP server.
4. Enable SMS (SMPP) message notification and set up an SMS-compatible device to receive notifications for a user account, and then test to see if the device receives the SMS (SMPP) notification as expected. If notifications are not working, confirm that you entered the settings on the SMPP Provider page as indicated in the documentation that your service provider gave you. Contact your service provider for assistance, as needed.

   Procedures for setting up a device and enabling SMS (SMPP) notifications are in the "SMS-Compatible Notification Devices" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.
5. Repeat the previous task for additional users.

To Set Up an SMPP Provider

Step 1 In Cisco Unity Connection Administration, expand **System Settings > Advanced**, then select **SMPP Providers**.

Step 2 On the Search SMPP Providers page, select **Add New**.

Step 3 On the New SMPP Provider page, verify that the **Enable** check box is checked.

Step 4 Enter a Name for the provider.

Step 5 Enter the System ID given to you by your service provider.

Step 6 Enter a Host Name/Address, which is the SMSC Host name or IP address given to you by your service provider.

Step 7 If applicable, enter the Source Address given to you by the service provider. If your provider did not specify a value, leave the field blank.

Step 8 Set the Owner, as follows:

- To restrict provider use, select a user as owner of the selected SMPP provider. Select **User** and then select the applicable user in the list.
- To allow the SMPP provider to be used by all users with associated SMS (SMPP) notification devices at a location, select **System** as owner of the selected SMPP provider.

Step 9 Select **Save**.

Step 10 On the Edit SMPP Provider page, enter the Port, which is the port number that is used by the SMSC to listen for incoming connections.

Note The port number used by SMSC to listen for incoming connections should be in range of >100 and <=99999.

Step 11 Enter the Password given to you by your service provider.

Step 12 If applicable, enter the System Type, Address TONs, and Address NPIs given to you by the service provider. If your provider did not specify values, leave the fields blank.

Step 13 If applicable, in the Data Coding list, select the character set that you want each SMS message converted to when the messages are sent to the SMS device. (If your provider did not specify a value, select **Default Alphabet**.) For multilingual systems, consider creating a separate SMPP provider for each character set that you want to offer to users.

Step 14 Enter additional settings, as applicable.

Step 15 Select **Save**.

CHAPTER 26

Configuring SSL in Cisco Unity Connection 9.x

This chapter contains information on creating a certificate signing request, issuing an SSL certificate (or having it issued by an external certification authority), and installing the certificate on the Cisco Unity Connection server to secure Cisco Unity Connection Administration, Cisco Personal Communications Assistant (Cisco PCA) and IMAP email client access to Cisco Unity Connection.

The Cisco PCA website provides access to the web tools that users use to manage messages and personal preferences with Connection. Note that IMAP client access to Connection voice messages is a licensed feature.

See the following sections:

- Deciding Whether to Create and Install an SSL Certificate in Cisco Unity Connection 9.x, page 26-1
- Securing Cisco Unity Connection Administration, Cisco PCA, and IMAP Email Client Access to Cisco Unity Connection 9.x, page 26-2
- Installing Microsoft Certificate Services (Windows Server 2003 Only) in Cisco Unity Connection 9.x, page 26-5

Deciding Whether to Create and Install an SSL Certificate in Cisco Unity Connection 9.x

When you install Cisco Unity Connection, a local certificate is automatically created and installed to secure communication between the Cisco PCA and Connection, and between IMAP email clients and Connection. This means that all network traffic (including usernames, passwords, other text data, and voice messages) between the Cisco PCA and Connection is automatically encrypted, and network traffic between IMAP email clients and Connection is automatically encrypted if you enable encryption in the IMAP clients. However, if you want to reduce the risk of man-in-the-middle attacks, do the procedures in this chapter.

If you decide to install an SSL certificate, we recommend that you also consider adding the trust certificate of the certification authority to the Trusted Root Store on user workstations. Without the addition, the web browser displays security alerts for users who access the Cisco PCA and for users who access Connection voice messages with some IMAP email clients.

(For information on managing security alerts, see the "Managing Security Alerts When Using Self-Signed Certificates with SSL Connections in Cisco Unity Connection 9.x" section in the "Setting Up Access to the Cisco Personal Communications Assistant in Cisco Unity Connection 9.x" chapter of the *User Workstation Setup Guide for Cisco Unity Connection Release 9.x*. For information on

configuring supported IMAP email clients, see the "Configuring an Email Account to Access Cisco Unity Connection 9.x Voice Messages" chapter of the same guide. The guide is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_setup/guide/9xcucuwsx.html.)

Securing Cisco Unity Connection Administration, Cisco PCA, and IMAP Email Client Access to Cisco Unity Connection 9.x

Do the following tasks to create and install an SSL server certificate to secure Cisco Unity Connection Administration, Cisco Personal Communications Assistant, and IMAP email client access to Cisco Unity Connection:

1. If you are using Microsoft Certificate Services to issue certificates, install Microsoft Certificate Services. For information on installing Microsoft Certificate Services on a server running Windows Server 2003, see the "Installing Microsoft Certificate Services (Windows Server 2003 Only) in Cisco Unity Connection 9.x" section on page 26-5. For information on installing Microsoft Certificate Services on a server running a later version of Windows Server, refer to Microsoft documentation.

   If you are using another application to issue certificates, install the application. See the manufacturer documentation for installation instructions. Then skip to Task 2.

   If you are using an external certification authority to issue certificates, skip to Task 2.

Note If you already have installed Microsoft Certificate Services or another application that can create certificate signing requests, skip to Task 2.

2. If a Connection cluster is configured, run the `set web-security` CLI command on both Connection servers in the cluster and assign both servers the same alternate name. The alternate name will automatically be included in the certificate signing request and in the certificate. For information on the `set web-security` CLI command, see the applicable *Command Line Interface Reference Guide for Cisco Unified Communications Solutions* at http://www.cisco.com/en/US/products/ps6509/prod_maintenance_guides_list.html.
3. If a Connection cluster is configured, configure a DNS A record that contains the alternate name that you assigned in Task 2. List the publisher server first. This allows all IMAP email applications and the Cisco Personal Communications Assistant to access Connection voice messages by using the same Connection server name.
4. Create a certificate signing request. Then download the certificate signing request to the server on which you installed Microsoft Certificate Services or another application that issues certificates, or download the request to a server that you can use to send the certificate signing request to an external CA. Do the "To Create and Download a Certificate Signing Request" procedure on page 26-3.

   If a Connection cluster is configured, do this task for both servers in the Connection cluster.
5. If you are using Microsoft Certificate Services to export the issuer certificate and to issue the server certificate, do the procedure in the "Exporting the Issuer Certificate and Issuing the Server Certificate (Microsoft Certificate Services Only) in Cisco Unity Connection 9.x" section on page 26-6.

   If you are using another application to issue the certificate, see the documentation for the application for information on issuing certificates.

   If you are using an external CA to issue the certificate, send the certificate signing request to the external CA. When the external CA returns the certificate, continue with Task 6.

If a Connection cluster is configured, do this task for both servers in the Connection cluster.

6. Upload the issuer certificate and the server certificate to the Connection server. Do the "To Upload the Issuer and Server Certificates to the Cisco Unity Connection Server" procedure on page 26-3.

   If a Connection cluster is configured, do this task for both servers in the Connection cluster.

7. Restart the Connection IMAP Server service so that Connection and the IMAP email clients use the new SSL certificates. Do the "To Restart the Connection IMAP Server Service" procedure on page 26-5.

   If a Connection cluster is configured, do this task for both servers in the Connection cluster.

8. To prevent users from seeing a security alert whenever they access Connection by using Connection Administration, the Cisco PCA, or an IMAP email client, do the following tasks on all computers from which users will access Connection:
   - Import the server certificate that you uploaded to the Connection server in Task 6. into the certificate store. The procedure differs based on the browser or IMAP email client. For more information, see the documentation for the browser or IMAP email client.
   - Import the server certificate that you uploaded to the Connection server in Task 6. into the Java store. The procedure differs based on the operating system running on the client computer. For more information, see the operating system documentation and the Java Runtime Environment documentation.

To Create and Download a Certificate Signing Request

Step 1 On the Cisco Unity Connection server, sign in to Cisco Unified Operating System Administration.

Step 2 On the Security menu, select **Certificate Management**.

Step 3 On the Certificate List page, select **Generate CSR**.

Step 4 On the Generate Certificate Signing Request page, in the **Certificate Name** list, select **tomcat**.

Step 5 Select **Generate CSR**.

Step 6 When the Status area displays a message that the CSR was successfully generated, select **Close**.

Step 7 On the Certificate List page, select **Download CSR**.

Step 8 On the Download Certificate Signing Request page, in the **Certificate Name** list, select **tomcat**.

Step 9 Select **Download CSR**.

Step 10 In the File Download dialog box, select **Save**.

Step 11 In the Save As dialog box, in the **Save As Type** list, select **All Files**.

Step 12 Save the file **tomcat.csr** to a location on the server on which you installed Microsoft Certificate Services or on a server that you can use to send the CSR to an external certification authority.

Step 13 On the Download Certificate Signing Request page, select **Close**.

To Upload the Issuer and Server Certificates to the Cisco Unity Connection Server

Step 1 On the Cisco Unity Connection server on which you created the certificate signing request, sign in to Cisco Unified Operating System Administration.

Step 2 On the Security menu, select **Certificate Management**.

Note If you select **Find** and display a list of the certificates currently installed on the server, you will see an existing, automatically generated, self-signed certificate for Tomcat. That certificate is unrelated to the Tomcat certificates that you upload in this procedure.

Step 3 Upload the issuer certificate:

a. On the Certificate List page, select **Upload Certificate**.

b. On the Upload Certificate page, in the Certificate Name list, select **tomcat-trust**.

c. Leave the Root Certificate field blank.

d. Select **Browse**, and browse to the location of the issuer CA certificate.

If you used Microsoft Certificate Services to issue the certificate, this is the location of the issuer certificate that you exported in the "To Export the Issuer Certificate and to Issue the Server Certificate" procedure on page 26-6.

If you used an external certification authority to issue the certificate, this is the location of the issuer CA certificate that you received from the external certification authority.

e. Select the name of the file.

f. Select **Open**.

g. On the Upload Certificate page, select **Upload File**.

h. When the Status area reports that the upload succeeded, select **Close**.

Step 4 Upload the server certificate:

a. On the Certificate List page, select **Upload Certificate**.

b. On the Upload Certificate page, in the Certificate Name list, select **tomcat**.

c. In the Root Certificate field, enter the filename of the issuer certificate that you uploaded in Step 3.

d. Select **Browse**, and browse to the location of the server certificate.

If you used Microsoft Certificate Services to issue the certificate, this is the location of the server certificate that you issued in the "To Export the Issuer Certificate and to Issue the Server Certificate" procedure on page 26-6.

If you used an external certification authority to issue the certificate, this is the location of the server certificate that you received from the external certification authority.

e. Select the name of the file.

f. Select **Open**.

g. On the Upload Certificate page, select **Upload File**.

h. When the Status area reports that the upload succeeded, select **Close**.

Step 5 Restart the Tomcat service (the service cannot be restarted from Cisco Unified Serviceability):

a. Sign in to the Connection server by using an SSH application.

b. Run the following CLI command to restart the Tomcat service:

```
utils service restart Cisco Tomcat
```

To Restart the Connection IMAP Server Service

Step 1 Sign in to Cisco Unity Connection Serviceability.

Step 2 On the Tools menu, select **Service Management**.

Step 3 In the Optional Services section, for the Connection IMAP Server service, select **Stop**.

Step 4 When the Status area displays a message that the Connection IMAP Server service was successfully stopped, select **Start** for the service.

Installing Microsoft Certificate Services (Windows Server 2003 Only) in Cisco Unity Connection 9.x

If you want to use a third-party certificate authority to issue SSL certificates, or if Microsoft Certificate Services is already installed, skip this section.

Do the procedure in this section if you want to use Microsoft Certificate Services to issue your own certificate and if you want to install the application on a server running Windows Server 2003.

If you want to install a root certification authority (the generic term for Microsoft Certificate Services) on a Windows Server 2008 server, refer to the Windows Server 2008 online help.

To Install the Microsoft Certificate Services Component

Step 1 On any server whose DNS name (FQDN) or IP address can be resolved by all client computers that will use the Cisco PCA or that will use an IMAP client to access Cisco Unity Connection voice messages, sign in to Windows by using an account that is a member of the local Administrators group.

Step 2 On the Windows Start menu, select **Settings > Control Panel > Add or Remove Programs**.

Step 3 In the left pane of the Add or Remove Programs control panel, select **Add/Remove Windows Components**.

Step 4 In the Windows Components dialog box, check the **Certificate Services** check box. Do not change any other items.

Step 5 When the warning appears about not being able to rename the computer or to change domain membership, select **Yes**.

Step 6 Select **Next**.

Step 7 On the CA Type page, select **Stand-alone Root CA**, and select **Next**. (A stand-alone certification authority (CA) is a CA that does not require Active Directory.)

Step 8 On the CA Identifying Information page, in the Common Name for This CA field, enter a name for the certification authority.

Step 9 Accept the default value in the Distinguished Name Suffix field.

Step 10 For Validity Period, accept the default value of **5 Years**.

Step 11 Select **Next**.

Step 12 On the Certificate Database Settings page, select **Next** to accept the default values.

If a message appears indicating that Internet Information Services is running on the computer and must be stopped before proceeding, select **Yes** to stop the services.

Step 13 If you are prompted to insert the Windows Server 2003 disc into the drive, do so.

Step 14 In the Completing the Windows Components Wizard dialog box, select **Finish**.

Step 15 Close the Add or Remove Programs dialog box.

Exporting the Issuer Certificate and Issuing the Server Certificate (Microsoft Certificate Services Only) in Cisco Unity Connection 9.x

Do the following procedure only when you are using Microsoft Certificate Services to issue the certificate.

To Export the Issuer Certificate and to Issue the Server Certificate

Step 1 On the server on which you installed Microsoft Certificate Services, sign in to Windows by using an account that is a member of the Domain Admins group.

Step 2 On the Windows Start menu, select **Programs > Administrative Tools > Certification Authority**.

Step 3 In the left pane, expand **Certification Authority (Local) > <Certification authority name>**, where <Certification authority name> is the name that you gave to the certification authority when you installed Microsoft Certificate Services in the "To Install the Microsoft Certificate Services Component" procedure on page 26-5.

Step 4 Export the issuer certificate:

a. Right-click the name of the certification authority, and select **Properties**.

b. On the General tab, select **View Certificate**.

c. Select the **Details** tab.

d. Select **Copy to File**.

e. On the Welcome to the Certificate Export Wizard page, select **Next**.

f. On the Export File Format page, select **Next** to accept the default value of **DER Encoded Binary X.509 (.CER)**.

g. On the File to Export page, enter a path and filename for the .cer file. Select a network location that you can access from the Connection server.

Write down the path and filename. You will need it in a later procedure.

h. Follow the onscreen prompts until the wizard has finished the export.

i. Select **OK** to close the Certificate dialog box, and select **OK** again to close the Properties dialog box.

Step 5 Issue the server certificate:

a. Right-click the name of the certification authority, and select **All Tasks > Submit New Request**.

b. Browse to the location of the certificate signing request file that you created in the "To Create and Download a Certificate Signing Request" procedure on page 26-3, and double-click the file.

c. In the left pane of Certification Authority, select **Pending Requests**.

d. Right-click the pending request that you submitted in b., and select **All Tasks > Issue**.

e. In the left pane of Certification Authority, select **Issued Certificates**.

f. Right-click the new certificate, and select **All Tasks > Export Binary Data**.

g. In the Export Binary Data dialog box, in the Columns that Contain Binary Data list, select **Binary Certificate**.

h. Select **Save Binary Data to a File**.

i. Select **OK**.

j. In the Save Binary Data dialog box, enter a path and filename. Select a network location that you can access from the Cisco Unity Connection server.

   Write down the path and filename. You will need it in a later procedure.

k. Select **OK**.

Step 6 Close Certification Authority.

CHAPTER 27

Setting Up Broadcast Messaging in Cisco Unity Connection 9.x

System broadcast messages are recorded announcements that are sent to everyone in an organization. You determine whether users can send and/or update broadcast messages, and set up a way for them to do so by using the Cisco Unity Connection Broadcast Message Administrator. (By default, Cisco Unity Connection users are not enabled to send broadcast messages.)

See the following sections:

- How System Broadcast Messages Work in Cisco Unity Connection 9.x, page 27-1
- Task List for Offering Broadcast Messaging to Users in Cisco Unity Connection 9.x, page 27-2
- Enabling Phone Access to the Broadcast Message Administrator in Cisco Unity Connection 9.x, page 27-2
- Using the Broadcast Message Administrator in Cisco Unity Connection 9.x, page 27-6
- Changing Broadcast Message Administrator Defaults in Cisco Unity Connection 9.x, page 27-7

How System Broadcast Messages Work in Cisco Unity Connection 9.x

Although system broadcast messages sound similar to regular voice messages, they are not simply voice messages that are sent to a large distribution list. They are unique in the following ways:

- System broadcast messages are played immediately after users sign in to Cisco Unity Connection by phone—even before they hear message counts for new and saved messages. After signing in, users hear how many system broadcast messages they have and Connection begins playing them.
- For each system broadcast message, the sender specifies how long Connection broadcasts the message. The sender can specify that a system broadcast message is “active” for a day, a week, a month—even indefinitely. A user hears the system broadcast message the first time that he or she signs in to Connection during the period that the message is active.
- Users must listen to a system broadcast message in its entirety before Connection allows them to hear new and saved messages or to change setup options. Users cannot fast-forward or skip a system broadcast message.
- If a user hangs up before playing the entire system broadcast message, the message plays again the next time that the user signs in to Connection by phone (assuming that the message is still active).

- When a user has finished playing a system broadcast message, the message can either be replayed or permanently deleted. Users cannot respond to, forward, or save system broadcast messages.
- Users can receive an unlimited number of system broadcast messages.
- Users receive system broadcast messages even when they exceed their mailbox size limits and are no longer able to receive other messages. Because of the way that the messages are stored on the Connection server, they are not included in the total mailbox size for each user.
- New users hear all active system broadcast messages immediately after they enroll as Connection users.
- By design, system broadcast messages do not trigger message waiting indicators (MWIs) on user phones. They also do not trigger message notifications for alternative devices, such as a pager or another phone.
- Users hear broadcast messages only when listening to messages by phone. Users do not receive system broadcast messages when listening to messages in the Cisco Unity Connection Web Inbox, Messaging Inbox, an RSS reader, IMAP clients, Cisco Unified Personal Communicator, or Cisco Unified Messaging with IBM Lotus Sametime.
- When single inbox is configured, broadcast messages are excluded from synchronization between Connection and Exchange.
- Connection does not respond to voice commands while playing broadcast messages. When using the voice-recognition input style, users will need to use key presses to either replay or delete the broadcast message.

Task List for Offering Broadcast Messaging to Users in Cisco Unity Connection 9.x

To allow users to send and/or update broadcast messages, do the following tasks in the order presented:

1. Set up a way for users to access the Broadcast Message Administrator. See the "Enabling Phone Access to the Broadcast Message Administrator in Cisco Unity Connection 9.x" section on page 27-2.
2. Enable user accounts or a template to send and update system broadcast messages. See the "Broadcast Messages" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Enabling Phone Access to the Broadcast Message Administrator in Cisco Unity Connection 9.x

To send a system broadcast message, Cisco Unity Connection users sign in to the Broadcast Message Administrator, which is a special conversation that allows them to send and update system broadcast messages.

You can give users access to the Broadcast Message Administrator in one of the following ways:

- Configure a Custom Keypad Mapping conversation—Use the Custom Keypad Mapping tool to map a key to the Broadcast Message Administrator Conversation so that it is offered to users from the main menu. See the "Custom Keypad Mapping Tool in Cisco Unity Connection 9.x" chapter for details.
- Create a call handler—See the "Creating a Call Handler to Send Users to the Broadcast Message Administrator" section on page 27-3.
- Set up a one-key dialing option—See the "Setting Up a One-Key Dialing Option to Send Users to the Broadcast Message Administrator" section on page 27-4.
- Set up a phone number and routing rule—See the "Setting Up a Special Phone Number and Routing Rule to Send Users to the Broadcast Message Administrator" section on page 27-5.

Creating a Call Handler to Send Users to the Broadcast Message Administrator

You can create a new call handler, assign a unique extension to it, and specify the Broadcast Message Administrator as the destination to which Cisco Unity Connection sends the user after hearing the greeting. To make the transfer quick and seamless to users, select a blank greeting for the call handler.

To Create a Call Handler to Send Users to the Broadcast Message Administrator

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handlers page, select **Add New**.

Step 3 On the New Call Handler page, enter a display name and the extension that users can dial to reach the call handler.

Step 4 Select the call handler template on which to base the new call handler.

Step 5 Select **Save**.

Step 6 On the Edit Call Handler Basics page, on the Edit menu, select **Greetings**.

Step 7 On the Greetings page, select the **Standard** greeting.

Step 8 On the Edit Greeting page, in the Callers Hear section, select **Nothing**. (Alternatively, you can select **My Personal Recording** and record a greeting that introduces the caller to the Broadcast Message Administrator conversation.)

Step 9 In the After Greeting section, select **Conversation** and then select **Broadcast Message Administrator**.

Step 10 Select **Save**.

Step 11 If you want to set up a one-key dialing option for the call handler, so that callers can reach the Broadcast Message Administrator by pressing a key while listening to the greeting, continue with the "To Set Up a One-Key Dialing Option from a Call Handler for Accessing the Broadcast Message Administrator" procedure on page 27-4.

Setting Up a One-Key Dialing Option to Send Users to the Broadcast Message Administrator

You can specify that Cisco Unity Connection sends a caller to the Broadcast Message Administrator (on the Caller Input page for any call handler or user greeting) when a caller presses a particular key during the greeting.

To set up a one-key dialing option for accessing the Broadcast Message Administrator, use one of the following procedures:

- To Set Up a One-Key Dialing Option from a Call Handler for Accessing the Broadcast Message Administrator, page 27-4
- To Set Up a One-Key Dialing Option from a User Greeting for Accessing the Broadcast Message Administrator, page 27-5

To Set Up a One-Key Dialing Option from a Call Handler for Accessing the Broadcast Message Administrator

Step 1 In Cisco Unity Connection Administration, expand **Call Management**, then select **System Call Handlers**.

Step 2 On the Search Call Handlers page, in the Search Results table, select the display name of the applicable call handler.

If you want to set up access to the Broadcast Message Administrator from the opening greeting, select the **Opening Greeting** call handler. Or select the display name of another call handler that you have created for this purpose.

Note If the call handler that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Call Handler Basics page, on the Edit menu, select **Caller Input**.

Step 4 On the Caller Input page, in the Caller Input Keys table, select the applicable phone keypad key.

Step 5 On the Edit Caller Input page for the key that you have selected, check the **Ignore Additional Input (Locked)** check box.

Note If you are setting up one-key dialing from the Opening Greeting, ensure that the phone keypad key that you select to lock is not the first digit of any of the extensions in your system. If it is, locking the key prevents callers from dialing an extension while listening to the Opening Greeting. Instead, select a key that is not the first digit of any extension.

Step 6 Select **Conversation**, and then select **Broadcast Message Administrator**.

Step 7 Optionally, you can rerecord the greeting to mention the key that callers can press in the call handler greeting. (For example, "...for the Cisco Unity Connection Broadcast Message Administrator, press 3.")

Step 8 Select **Save**.

To Set Up a One-Key Dialing Option from a User Greeting for Accessing the Broadcast Message Administrator

Step 1 In Cisco Unity Connection Administration, select **Users**.

Step 2 On the Search Users page, in the Search Results table, select the alias of the applicable user.

Note If the user alias does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Search**.

Step 3 On the Edit User Basics page, on the Edit menu, select **Caller Input**.

Step 4 On the Caller Input page, in the Caller Input Keys table, select the applicable phone keypad key.

Step 5 On the Edit Caller Input page for the key that you have selected, check the **Ignore Additional Input (Locked)** check box.

Step 6 Select **Conversation**, and then select **Broadcast Message Administrator**.

Step 7 Optionally, you can rerecord the greeting to mention the key that callers can press while listening to the user greeting. (For example, "...for the Cisco Unity Connection Broadcast Message Administrator, press 3.")

Step 8 Select **Save**.

Setting Up a Special Phone Number and Routing Rule to Send Users to the Broadcast Message Administrator

See the documentation for the phone system to set up a new phone number. Then use the following procedure to create a routing rule that sends any call that arrives for the new number to the Broadcast Message Administrator conversation.

To Add a Routing Rule to Send Callers to the Broadcast Message Administrator

Step 1 In Cisco Unity Connection Administration, expand **Call Management > Call Routing**, then select **Direct Routing Rules**.

Step 2 On the Direct Routing Rules page, select **Add New**.

Step 3 On the New Direct Routing Rule page, enter a display name for the new routing rule, and select **Save**.

Step 4 On the Edit Direct Routing Rule page, confirm that the Status is set to **Active**.

Step 5 In the Send Call To field, select **Conversation**, and then select **Broadcast Message Administrator**.

Step 6 Select **Save**.

Step 7 In the Routing Rule Conditions table, select **Add New**.

Step 8 On the New Direct Routing Rule Condition page, select **Dialed Number**, select **Equals**, and then enter the phone number that has been set up for access to the Broadcast Message Administrator.

Step 9 Select **Save**.

Step 10 On the Direct Routing Rule menu, select **Direct Routing Rules**.

Step 11 On the Direct Routing Rules page, verify that the new routing rule is in an appropriate position with the other routing rules in the table. If you want to change the rule order, continue with Step 12.

Step 12 Select **Change Order**.

Step 13 On the Edit Direct Routing Rule Order page, select the name of the rule you want to reorder, and select the Up or Down arrow until the rules appear in the correct order. Select **Save**.

Step 14 Distribute the new number to callers who are enabled to send and/or update system broadcast messages.

Using the Broadcast Message Administrator in Cisco Unity Connection 9.x

Users whose account settings allow them to send and update system broadcast messages can use the Broadcast Message Administrator to do the following tasks:

- Record and send one or more system broadcast messages.
- Define when a system broadcast message becomes active and for how long. Unless otherwise specified by the sender, each message is set by default to broadcast immediately and to remain active for 30 days. Senders can set a future date and time for the message to be broadcast, and can specify that a system broadcast message is “active” for a day, a week, a month—even indefinitely.

Note Date and times reflect the time zone for the user who sends the message, not those who receive it.

To change default behavior for the Broadcast Message Administrator, see the “Changing Broadcast Message Administrator Defaults in Cisco Unity Connection 9.x” section on page 27-7.

Note that if a sender hangs up or is disconnected while creating a broadcast message, but before sending it, Cisco Unity Connection deletes the recording.

Users who are able to update system broadcast messages can use the Broadcast Message Administrator to do the following tasks on the local Connection server:

- Review active messages. (If there is more than one active message, the Broadcast Message Administrator presents them in order based on the start date and time, starting with the newest messages.)
- Change the end date and time for active messages.
- Change or add to a recording for future messages. (Note that Connection enforces the total message length limit even when material is added to a message.)
- Change the start date and time or the end date and time for future messages. (Note that the end date and time does not adjust automatically if senders change the start date and time but do not change the end date and time.)
- Delete active and future messages. (Note that Connection does not report which users have already played an active message.)

Changing Broadcast Message Administrator Defaults in Cisco Unity Connection 9.x

Default behavior for the Broadcast Message Administrator is controlled by settings on the System Settings > Advanced > Conversations page in Cisco Unity Connection Administration. Optionally, you can make changes to the system defaults, as follows:

- **Retention Period**—Indicates how long Connection retains expired system broadcast messages on the server. By default, Connection purges the WAV file and any data associated with a message 30 days after its end date and time. To change the retention period for expired broadcast messages, enter a number from 1 to 60 days.
- **Default Active Days**—Indicates the number of days that a system broadcast message remains active when the sender does not specify an end date and time. The default is 30 days. To change how long a message without an end date and time remains active, enter a number from zero (0) to 365 days. A value of zero (0) days means that messages that are sent without a specified end date and time remain active indefinitely.
- **Maximum Recording Length**—Indicates the maximum length allowed for system broadcast messages. By default, senders can record messages up to 300,000 milliseconds (5 minutes) in length. To change the maximum recording length, enter a number from 60,000 (1 minute) to 36,000,000 (60 minutes) milliseconds.
- **Play Oldest Message First**—Indicates the order in which Connection presents system broadcast messages to users. By default, the check box is checked, which sets Connection to play the oldest message first. To have the newest message played first, uncheck the check box.

CHAPTER 28

Managing System Distribution Lists in Cisco Unity Connection 9.x

Note System distribution lists are used to send voice messages to multiple users. The users that are members of a system distribution list typically are users who need the same information on a regular basis, such as employees in a department or members of a team.

The class of service of a user dictates whether the user can send messages to system distribution lists in Cisco Unity Connection.

See the following sections:

- Predefined System Distribution Lists in Cisco Unity Connection 9.x, page 28-1
- Creating System Distribution Lists in Cisco Unity Connection 9.x, page 28-2
- Modifying System Distribution Lists in Cisco Unity Connection 9.x, page 28-3
- Managing System Distribution List Members in Cisco Unity Connection 9.x, page 28-4
- Adding Alternate Names for a System Distribution List in Cisco Unity Connection 9.x, page 28-5
- Using Advanced Settings to Enable System Distribution List Access Lists in Cisco Unity Connection 9.x, page 28-6

Predefined System Distribution Lists in Cisco Unity Connection 9.x

Cisco Unity Connection includes the following predefined system distribution lists, which you can modify but not delete:

All Voicemail Users	When users with mailboxes are created, they are automatically added to the All Voicemail Users list. When user accounts are deleted, they are automatically removed from this distribution list. **Note** Default user accounts are not members of this list.

Undeliverable Messages	Users who are assigned to the Undeliverable Messages list receive messages left by outside callers for recipients whose mailboxes are not found or have been deleted, or non-delivery receipts (NDRs) that cannot be delivered to the original sender of a message. By default, the UndeliverableMessagesMailbox user account is the only member of the Undeliverable Messages distribution list. We recommend that you add a user to the list, to monitor and reroute (as appropriate) any messages that are delivered to the list.
All Voicemail-Enabled Contacts	By default, the All Voicemail-Enabled Contacts list has no members. You may choose to add all VPIM contacts on the system as members of this list in order to address messages to the entire group. Also add any contact templates that are used to create (or automatically create) VPIM contacts, so that new VPIM contacts are automatically added as list members.

Creating System Distribution Lists in Cisco Unity Connection 9.x

Do the following procedure to create a single system distribution list in Cisco Unity Connection Administration.

Tip The Unity Connection Distribution List Builder tool can be used to bulk add users to a new or existing system distribution list based on a number of search criteria or by importing from a comma-separated value (CSV) file. Download the latest version, and view training videos and Help at http://www.ciscounitytools.com/Applications/CxN/PublicDistributionListBuilder/PublicDistributionListBuilder.html.

To Create a System Distribution List

Step 1 In Cisco Unity Connection Administration, expand **Distribution Lists**, then select **System Distribution Lists**.

Step 2 On the **Search Distribution Lists** page, select **Add New**.

Step 3 On the **New Distribution List** page, enter an alias and display name for the list.

Step 4 Select **Save**.

Step 5 On the **Edit Distribution List Basics** page, use the Media Master to record a name for the list. Users hear this recording as confirmation when they address messages to the list.

Step 6 Optionally, enter an extension for the list.

Step 7 Select **Save**.

Step 8 On the **Edit** Menu, select **Distribution List Members**.

Step 9 On the **Distribution List Members** page, select **Add User**.

Step 10 In the **Available Users Search Results** table, check the check boxes next to the display names of the users to add to the list, then select **Add Selected**.

Note If the display names of the users that you want to add to the list do not appear in the search results table, you can increase the number of rows displayed on the page by changing the value specified in the Rows Per Page field. You can also set applicable parameters in the search fields at the top of the page, then select **Find** to display additional names in the table.

Step 11 When you have added all members to the list, select **Close**.

Note You may need to select **Refresh** on the menu bar to see an updated list of distribution list members in the table.

Modifying System Distribution Lists in Cisco Unity Connection 9.x

Do the applicable procedure:

- To Modify a System Distribution List, page 28-3
- To Modify System Distribution Lists in Bulk Edit Mode, page 28-3

You can also use the Bulk Administration Tool to modify system distribution lists. See the "Using the Cisco Unity Connection 9.x Bulk Administration Tool" appendix of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x* for instructions (the guide is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html).

To Modify a System Distribution List

Step 1 In Cisco Unity Connection Administration, expand **Distribution Lists**, then select **System Distribution Lists**.

Step 2 On the **Search Distribution Lists** page, select the alias of the list you want to modify.

Note If the distribution list that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the **Edit Distribution List Basics** page, change settings as applicable.

Step 4 Select **Save**.

Step 5 If you want to add or delete members from the distribution list, continue with the "To Add or Remove Users from a System Distribution List" procedure.

To Modify System Distribution Lists in Bulk Edit Mode

Step 1 On the **Search Distribution Lists** page, check the applicable distribution list check boxes, and select **Bulk Edit**.

If the distribution lists that you want to edit in bulk do not all appear on one **Search** page, check all applicable check boxes on the first page, then go to the next page and check all applicable check boxes, and so on, until you have selected all applicable distribution lists. Then select **Bulk Edit**.

Step 2 To make a change to a setting, check the check box to the left of the field name to select it, and then set the field as usual. Select **Help > This Page** to see descriptions of each setting.

Note The **Status** message at the top of the **Edit Distribution List Basics** page tells you how many distribution lists are being edited. Also note that the page is populated only with the fields that you are allowed to edit in bulk mode.

Step 3 If applicable, set the **Bulk Edit Task Scheduling Fields** to schedule the **Bulk Edit** operation for a later date and/or time.

Step 4 Select **Submit**.

Step 5 If you want to add or delete members from a distribution list, continue with the "To Add or Remove Users from a System Distribution List" procedure.

Managing System Distribution List Members in Cisco Unity Connection 9.x

You can add individual users directly to system distribution lists. When you delete a user account, Unity Connection automatically removes the user from any system distribution list of which the user is a member.

Tip The Unity Connection Distribution List Builder tool can be used to bulk add users to a new or existing system distribution list based on a number of search criteria or by importing from a comma-separated value (CSV) file. Download the latest version, and view training videos and Help at http://www.ciscounitytools.com/Applications/CxN/PublicDistributionListBuilder/PublicDistributionListBuilder.html.

You can also use the Bulk Administration Tool to modify system distribution list members. See the "Using the Cisco Unity Connection 9.x Bulk Administration Tool" appendix of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x* for instructions (the guide is available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html).

To Add or Remove Users from a System Distribution List

Step 1 In Cisco Unity Connection Administration, expand **Distribution Lists**, then select **System Distribution Lists**.

Step 2 On the **Search Distribution Lists** page, select the alias of the list whose members you want to change.

Note If the distribution list does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the **Edit Distribution List Basics** page, on the **Edit** menu, select **Distribution List Members**.

Step 4 To add members to the list, continue with Step 5.

To remove members from the list, skip to Step 9.

Step 5 To add members to the list, on the Distribution List Members page, select **Add User**.

Note You can also add other distribution lists as members of a distribution list. To add a distribution list, select **Add Distribution List**.

Step 6 In the **Available Users Search Results** table, check the check boxes next to the display names of the users that you want to add to the list, then select **Add Selected**.

Step 7 Select **Close**.

Step 8 To see the updated list of members, on the menu bar, select **Refresh**.

Step 9 To remove members from the list, on the **Distribution List Members** page, check the check boxes next to the display names of the users that you want to remove from the list, then select **Remove Selected**.

Adding Alternate Names for a System Distribution List in Cisco Unity Connection 9.x

If the Cisco Unity Connection system uses the voice-recognition option, you can also specify alternate names for the display name that you give a system distribution list. Users say the display name when they use voice commands to address a message to the system distribution list by phone. Consider specifying alternate names if the display name is not pronounced the way it would be read, as may be the case with acronyms and abbreviations, or if some users are likely to try a different name to access a list. (For example, your list name for the Technical Support department is IT. You would add the pronunciation spelling “Eye Tea” as an alternate name. You could also add “Help Desk” as an alternate name.)

To Add or Modify Alternate Names for System Distribution Lists

Step 1 In Cisco Unity Connection Administration, expand **Distribution Lists**, then select **System Distribution Lists**.

Step 2 On the **Search Distribution Lists** page, select the alias of the list for which you want to add alternate names.

Note If the distribution list does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the **Edit Distribution List Basics** page, on the **Edit** menu, select **Alternate Names**.

Step 4 On the **Edit Alternate Names** page, do any of the following:

- To add a new alternate name, in the **Add New Alternate Name** area, enter an alternate name in the **Display Name** field, then select **Add New**. When you have finished adding new alternate names, select **Save**.
- To modify an existing alternate name, in the **Edit Alternate Names** table, change the display name, then select **Save**.

- To delete an alternate name, check the check box next to the name, select **Delete Selected**, then select **OK** to verify that you want to delete the name.

Using Advanced Settings to Enable System Distribution List Access Lists in Cisco Unity Connection 9.x

You can use search spaces and partitions to control who can send messages to system distribution lists—for example, you create a new partition called "Distribution Lists Partition," configure the lists that you want to control to use this partition, and assign a search space that includes this partition to users who have permission to send to the lists. However, if you have a large number of lists that each have a specific subset of users who are authorized to send messages to them, the search space approach may not scale well, and you may reach the limit on the number of partitions and search spaces that you can create on the server. As an alternative approach, you can configure advanced settings that allow you to set up individual access lists for each system distribution list that you want to control.

Note Only users and no other distribution lists in Unity Connection can be added as members of a system distribution list access list.

When you enable the access list feature, for each system distribution list that receives messages, you create a second system distribution list with an alias that is created from the alias of the original list plus a suffix that identifies the list as an access list. For example, to set up an access list for a system distribution list that has the alias allvoicemailusers, if the suffix is -accesslist, you create a second system distribution list with the alias allvoicemailusers-accesslist, and add as members of the access list any users who need to be able to send messages to allvoicemailusers. Note that users who are members of the access list must also have their search scope set to a search space that includes the partition of the system distribution list in order to address messages to the list.

Use the following task list to set up system distribution list access lists:

1. Configure the advanced settings that enable and control the access lists. Do the "To Enable and Configure System Distribution List Access Lists" procedure on page 28-6. If you are using Digital Networking to connect multiple Unity Connection servers, do this task on all of the servers.

Caution In a digital network, the values for the advanced settings that enable and control access lists must be configured identically on each location in the network in order for access lists to function properly.

2. For each system distribution list that you want to control with an access list, create a new system distribution list with an alias that is created from the alias of the original list plus a suffix that is defined in the System Distribution List Alias Suffix for Access Lists field. See the "Creating System Distribution Lists in Cisco Unity Connection 9.x" section on page 28-2.

To Enable and Configure System Distribution List Access Lists

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, expand **Advanced**, then select **Messaging**.

Step 2 To enable system distribution list access lists, check the **Use Access Lists to Control Who Can Send to System Distribution Lists** check box. (This check box is unchecked by default.)

Step 3 To have Cisco Unity Connection continue to allow messages to be sent to system distribution lists that do not have access lists created for them, check the **Allow Delivery of Messages to System Distribution Lists That Have No Access Lis**t check box. Uncheck this check box to have Unity Connection reject all messages sent to system distribution lists that do not have an access list, and send a non-delivery receipt (NDR) to the message sender.

Step 4 To specify the suffix that is used to distinguish access lists, enter a suffix in the **System Distribution List Alias Suffix for Access Lists** field. The default suffix is -accesslist.

Step 5 Select **Save**.

CHAPTER 29

Managing Partitions and Search Spaces in Cisco Unity Connection 9.x

Partitions and search spaces provide a way to segregate the global dial and message addressing space within Cisco Unity Connection. A partition comprises a logical grouping of objects that are identifiable by extension, name or SMTP address (such as users, call handlers, and contacts). A search space contains an ordered list of partitions.

See the following sections:

- Overview of Partitions in Cisco Unity Connection 9.x, page 29-1
- Overview of Search Spaces in Cisco Unity Connection 9.x, page 29-2
- Default Partition and Search Space in Cisco Unity Connection 9.x, page 29-3
- Search Space Examples in Cisco Unity Connection 9.x, page 29-3
- How Search Spaces Work in Cisco Unity Connection 9.x, page 29-5
- Managing Partitions in Cisco Unity Connection 9.x, page 29-9
- Managing Search Spaces in Cisco Unity Connection 9.x, page 29-10
- Changing the System Default Partition and Search Space in Cisco Unity Connection 9.x, page 29-11
- Finding Objects that Belong to a Partition or Search Space in Cisco Unity Connection 9.x, page 29-11

Overview of Partitions in Cisco Unity Connection 9.x

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In Cisco Unity Connection, you create partitions as a way to group together objects to which callers and users can address messages or place calls while interacting with Connection. One or more partitions can be grouped together as members of a search space, and a partition can be a member of more than one search space. The following types of objects belong to a partition:

- Users with mailboxes (primary extension)
- User alternate extensions
- Contacts (including VPIM contacts)
- System distribution lists
- System call handlers
- Directory handlers

- Interview handlers
- VPIM locations

In addition, you can use user templates, contact templates, and system call handler templates to set the partition membership for new objects of these types.

Extensions must be unique within a partition, although partitions can contain objects that do not have an associated extension (for example, some contacts and system distribution lists). The names of objects do not have to be unique within a partition. Administrator-defined contact phone numbers also do not need to be unique within a partition.

In general, objects can only be a member of a single partition, although a user can have a primary extension in one partition and an alternate extension in a different partition.

If there are alternate names defined for the user, the alternate names are available in each partition where the user has an extension.

Note When you change partition of an alternate extension in a bulk edit mode, the primary extension of the user is taken as an alternate extension. If primary extension already exist in the changed partition then it throws an error message with the duplicate extension.

Overview of Search Spaces in Cisco Unity Connection 9.x

Search spaces are used to define the search scope of objects (users, distribution lists, and so on) that a user or outside caller can reach while interacting with Cisco Unity Connection. For example, the search scope that is applied to a user identifies which users, distribution lists, or VPIM contacts the user can address messages to. The search scope that is applied to a user also identifies which users and contacts the user can call by name dialing when using the voice-recognition conversation.

The following types of objects can use a search space for their search scope:

- Users with mailboxes
- Routing rules (both direct and forwarded)
- System call handlers
- Phone directory handlers
- Voice-enabled directory handlers
- VPIM locations

In addition, you can use user templates, contact templates, and system call handler templates to set the search scope for new objects of these types.

A search space is comprised of one or more ordered partitions. When Connection searches for an object on behalf of a caller, it searches the partitions in the order in which they are arranged in the search space. While extensions must be unique within a partition, they do not need to be unique within a search space, so you can use search spaces to handle dial plans that have overlapping extensions.

For example, if there are two partitions, Regional_Office and Headquarters, each containing a Help Desk user with extension 4000, and a user at the regional office belongs to a search space that is assigned the two partitions in that order, when the user addresses to extension 4000, Connection returns the Help Desk user from the Regional_Office partition. If another user at headquarters belongs to a second search space that is assigned the partitions in reverse order (Headquarters, then Regional_Office), this user hears the information for the Help Desk user in the Headquarters partition when addressing to extension 4000.

Default Partition and Search Space in Cisco Unity Connection 9.x

When you install or upgrade to Cisco Unity Connection release 9.x, all objects that belong to a partition are placed in a partition named <Server Name> Partition, and all objects that are configured to use search spaces use a search space named <Server Name> Search Space (which includes <Server Name> Partition as its sole member). In addition, all templates are configured to use this partition and search space where applicable. Thus, by default, Connection uses only one server-wide partition and search space. You can rename or delete the default partition and search space, and you can modify the default search space by changing the description or partition membership. (See the "Changing the System Default Partition and Search Space in Cisco Unity Connection 9.x" section on page 29-11.)

Search Space Examples in Cisco Unity Connection 9.x

See the following sections:

- Single Site Automated Attendant Search Space Example, page 29-3
- Multiple Site Search Space Example, page 29-4

Single Site Automated Attendant Search Space Example

CompanyA has a single Cisco Unity Connection server that is set up as an automated attendant to handle calls to the customer service department as well as handling user to user voice messages. All employees at CompanyA have a primary extension in the Employee partition. Employees who work in the customer service department also have alternate extensions in the Customer Service partition.

The Connection server is configured with the following search spaces and associated partition membership:

Search Space	Partition Membership (in Order)
Employees-SS	Employee, Customer Service
Customer-Service-SS	Customer Service

In addition, the routing rules that outside callers reach are configured to use the Customer-Service-SS search space as their search scope. The system call handlers and directory handlers that outside callers interact with are configured to inherit their search scope from the call. All users use the Employees-SS as their search scope, and the routing rules that users reach when they call Connection are configured to use the Employees-SS as their search space.

In this example, when users call and sign in to Connection, they can address messages or place calls to any other user at the company. However, when outside callers call Connection and reach the automated attendant, they can reach only those employees who have alternate extensions in the Customer Service partition.

To extend the example, CompanyA might have two operators who share the same extension: an internal operator with extension 411 in the Employee partition, and an external operator with extension 411 in the Customer Service partition. When outside callers attempt to reach extension 411, Connection routes them to the external operator, because that is the only operator who appears in a partition in the

Customer-Service-SS search space. When employees call and sign in to Connection and attempt to reach extension 411, Connection routes them to the internal operator, because the Employee partition in which this operator extension appears is listed earlier in the partition membership of the Employees-SS search space than the Customer Service partition in which the external operator extension appears.

Multiple Site Search Space Example

CompanyB has three digitally networked Cisco Unity Connection locations serving three sites: Headquarters, Regional-East, and Regional-West.

The configuration is as follows:

- Connection is configured with the following search spaces and associated partitions:

Search Space	Partition Membership (in Order)
Headquarters-SS	HQ, Primary, RE, RW
Regional-East-SS	RE, Primary
Regional-West-SS	RW, Primary

- The following user accounts are set up:

User	Home Server	Search Space of User	Primary Extension and Partition	Alternate Extension and Partition
Alex Abade	Headquarters	Headquarters-SS	85553001, Primary	3001, HQ
Chris Brown	Headquarters	Headquarters-SS	85553002, Primary	3002, HQ
Pat Smith	Regional-East	Regional-East-SS	82223001, Primary	3001, RE
Shannon Johnson	Regional-East	Regional-East-SS	82223002, Primary	3002, RE
Robin Smith	Regional-West	Regional-West-SS	87773001, Primary	3001, RW
Terry Jones	Regional-West	Regional-West-SS	87773333, Primary	3333, RW

- There is a VPIM server that is configured as a VPIM location on the Headquarters server: VPIM-South. This VPIM location has a Dial ID of 8468 and is configured to allow blind addressing, to belong to the Primary partition, and to use the Headquarters-SS search space.
- The Attempt Sign In direct routing rule and the Attempt Forward forwarded routing rule on each server are configured to use the same search space as the users on that server. (For example, the rules on the Headquarters server use the Headquarters-SS search space.)

In this example, Connection users can address other Connection users at their own site by using 4-digit extensions; users can address anyone at the company by using 8 plus a 7-digit extension. Users can blind address messages to a VPIM mailbox by entering 8468 plus the mailbox number on the remote system. Messages sent by users at the VPIM-South VPIM location can be delivered to any CompanyB user in the HQ, Primary, RE, or RW partitions.

For example, if Alex Abade addresses a message by entering extension 3002 on the phone keypad, Connection returns Chris Brown as the match. If Alex addresses a message by spelling SMITHR on the phone keypad (764847), Connection returns both Pat Smith and Robin Smith, because both names match the 764847 spelling. If Alex addresses a message by saying "Robin Smith," Connection returns Robin Smith.

The phone system can be set up to identify internal callers either by their 4-digit extension or the 8 plus 7-digit extension. Each caller must call their home server to sign in to ConnectionFor information about setting up cross-server sign-in and transfers, see the "Cross-Server Sign-In, Transfers, and Live Reply in Cisco Unity Connection 9.x" chapter of the *Networking Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/networking/guide/9xcucnetx.html.)

How Search Spaces Work in Cisco Unity Connection 9.x

See the following sections for details on the interactions between search spaces and various Connection concepts:

- Search Spaces and Users, page 29-5
- .Search Spaces and Call Routing Rules, page 29-6
- Search Spaces and System Distribution Lists, page 29-7
- Search Spaces and System Call Handlers, page 29-7
- Search Spaces and Directory Handlers, page 29-7
- Search Spaces and Interview Handlers, page 29-7
- Search Spaces and Digital Networking, page 29-8
- Search Spaces and VPIM Locations, page 29-8
- Search Spaces and Administrator-Defined Contacts, page 29-8

Search Spaces and Users

When a user has signed in to Cisco Unity Connection, the search scope of the user defines the objects that the user can reach when:

- Addressing a message by extension
- Addressing a message by name
- Adding members to a private distribution list
- Adding names to an addressing priority list
- Placing a call to another user by saying the name
- Addressing a message to a VPIM contact
- Blind addressing a message to a VPIM location

Users can reach only those objects that are in a partition that is part of the search space that is defined as the search scope for the user. This search space need not include any partitions that contain the primary or alternate extensions of the user. Connection applies the search scope of the user whether the user is interacting with Connection by phone (by using phone keypad keys), by using voice commands, or by using a visual client such as the Cisco Personal Communications Assistant (PCA).

If a user addresses a message by extension, and there are overlapping extensions in different partitions in the search space, Connection searches the partitions in the search space in the order that they appear in the Assigned Partitions list in Cisco Unity Connection Administration, and returns the first result found.

Note that if a user receives a message from a sender whose partition is not in the search space of the receiving user, the recipient cannot reply to the sender. If the message is sent to multiple recipients, and the user replies-all, the user receives non-delivery receipts for any recipients who are not in partitions in the search space of the user (if Connection is configured to send receipts)

.Search Spaces and Call Routing Rules

When a call comes in to Cisco Unity Connection, it is first checked against the applicable routing rules table, depending on whether the caller dialed directly into Connection or was forwarded from an extension. When Connection matches the call to a routing rule in the applicable table based on the parameters of the call, the configuration of the routing rule determines the initial search scope of the call. Other objects, such as system call handlers, may later change the search scope of the call when the call is routed to them, but the initial scope is set by the call routing rules.

To facilitate setting the correct search scope on a call routing rule, you can set up routing rule conditions to select a rule based on the port of the incoming call, the phone system, the dialed number, or other criteria. If you are setting up multiple partitions and multiple search spaces, you must carefully consider the impact of the search scope that is configured for each call routing rule. Note the following considerations related to setting the search scope with call routing rules:

- Connection uses the search space defined as the initial scope of the call to identify whether the call is from a user, and if so, which user. If a user calls from an extension that is in a partition that is not a member of the search space set as the initial search scope for the call, the call is not identified as coming from the user. If the extension of the user overlaps with an extension in another partition that also appears in this search space, the call is identified as coming from the first object that Connection finds when searching the partitions in the order that they appear in the search space.
- Users who call to sign in to Connection do not have their search scope set to the search space defined for their user profile until they have successfully completed the sign-in process.

If users are segmented into different partitions, and extensions overlap between partitions, you must consider how Connection recognizes users by extension when they call Connection and attempt to sign in. For example, if Kelly Bader in Kansas City and Chris Jones in Chicago both use extension 3001, you must set up your call management plan such that when Kelly calls Connection from extension 3001, Connection recognizes the extension as belonging to Kelly and checks the password against the appropriate user profile; likewise when Chris calls from extension 3001. There are multiple ways to set up the routing rules to handle this. For example, you can set up a direct routing rule based on a call coming from a particular phone system, so that calls from the phone system in Kansas City match one routing rule, setting the scope of the call to a search space in which the partition that Kelly is in appears before the one that Chris is in (or the partition that Chris is in does not appear at all), and then set a similar direct routing rule for calls from Chicago. You can also set up different pilot numbers for Kansas City and Chicago, and use the Dialed Number routing rule condition to distinguish between two different routing rules that are set to use the two different search spaces.

Search Spaces and System Distribution Lists

Because each system distribution list belongs to a partition, you can use search spaces to limit user access to send messages to lists. By placing a distribution list in a partition that is not part of the search scope of a particular group of users, these users are not able to find the distribution list to address messages to it. For example, you can create a new partition called “Distribution Lists Partition” and configure the allvoicemailusers, allvoicemailenabledcontacts, and undeliverablemessages to use this partition. To grant certain users access to send to these lists, you can create a new search space that includes both the default partition and the “Distribution Lists Partition,” and assign this search space as the search scope for those users.

Search Spaces and System Call Handlers

Cisco Unity Connection uses the call handler search scope to match extensions that are dialed from the call handler to users, administrator-defined contacts, and remote contacts at VPIM locations. You can choose to set the scope of the handler to either inherit the search scope that is already set on the call (from a previous handler or from a call routing rule), or to use the particular search scope that you specify.

You can use call handlers to change the search scope of a call based on caller input. For example, you can set up a multiple-site automated attendant by using an introductory call handler that offers callers a menu of site choices (“Press 1 for Chicago; Press 2 for New York”). One-key dialing rules configured for this call handler send callers to either of two call handlers, which set the search scope of the call to the appropriate search space for the site (Chicago or New York) and send the call directly to the shared opening greeting call handler. After the caller makes a selection, if the caller reaches any call handlers or directory handlers that are configured to inherit the search scope of the call, these handlers are scoped correctly to reach only the users and other objects at the appropriate site.

Search Spaces and Directory Handlers

You can configure the scope of a directory handler to define the objects that callers who reach the directory handler can find or hear. For phone directory handlers, you can set the scope to the entire server, to a particular class of service, to a system distribution list, or to a search space (either inherited from the call or specified for the directory handler). For voice-enabled directory handlers, you can set the scope to the entire server or to a search space (either inherited from the call or specified for the directory handler).

When callers search a directory handler for a particular name, if the scope of the directory handler is set to a search space, Cisco Unity Connection searches each partition in the search space and returns a list of all of the objects that match the name.

Search Spaces and Interview Handlers

Each interview handler is associated with a partition, so that it can be included in a search space and callers can reach it from other parts of the conversation. Because interview handlers do not involve dialing or addressing to users or other objects, they do not have a search scope defined.

Search Spaces and Digital Networking

When you network a Cisco Unity Connection server with other Connection locations, the partitions and search spaces that are configured on the server replicate to all other Connection locations on the network. A Connection network supports up to 50 partitions and 50 search spaces shared among all of the locations in the network.

If you plan to use digital networking to connect multiple Connection servers, it is important to note that when you initially set up digital networking between the servers, users on one server are not able to address messages to users on other servers, because the users on each server are in separate partitions and use search spaces that do not contain partitions with users on the other server. At a minimum, to allow users to address to users on other servers, you must add the partition of the remote Connection server to the search space that local users are using.

Search Spaces and VPIM Locations

Each VPIM location belongs to a single partition. If a VPIM location allows blind addressing, and the partition to which the location belongs is in the search space for a user, the user can blind address to a user on the remote VPIM system. To blind address, the user addresses the message to the Dial ID of the VPIM location followed by the remote user mailbox number. For example, to reach mailbox 1000 at VPIM location 555, the user would address the message to 5551000.

The partition of the VPIM location is used as the partition of automatically-created VPIM contacts if the VPIM location is configured for automatic contact creation. However, you can change the partition of VPIM contacts independent of the associated VPIM location in Cisco Unity Connection Administration. A Connection user can address a message to a VPIM contact by spelling or saying the contact name or by saying "<Name> at <Location>" provided that the contact belongs to a partition that is in the search space of the Connection user.

Each VPIM location also has a search scope. When Connection receives a message from a sender at a VPIM location, Connection searches the search space that is defined as the search scope for the location to determine the message recipient by matching the extension in the To: address field with a Connection user.

Note that when users address messages to a VPIM mailbox by entering a VPIM location Dial ID plus a remote user mailbox number, or when voice-recognition users say a name and location (for example, "John Smith in Seattle"), the action is allowed or denied based on the partition of the VPIM location. However, when users address to a VPIM contact by using spell-by-name or by entering the local extension of the contact, or when voice-recognition users say the name of a contact without the location (for example, "John Smith"), the action is allowed or denied based on the partition of the VPIM contact, regardless of whether the partition of the VPIM location is out of scope for the user.

Search Spaces and Administrator-Defined Contacts

Each administrator-defined contact belongs to a partition. When a contact is configured with phone numbers that callers can use to call the contact by using voice commands, voice-recognition users whose search space includes the partition of the contact are able to call the contact; users whose search space does not include this partition are not able to call the contact. In addition, the contact is reachable by callers who reach any voice-enabled directory handler whose search scope uses or inherits a search space that includes this partition (or if the directory handler search scope is set to the entire server).

Managing Partitions in Cisco Unity Connection 9.x

You create a partition in Cisco Unity Connection Administration by naming the partition and saving it. When you have created the partition, you populate it by configuring individual objects or templates as partition members.

To Create a Partition

Step 1 In Cisco Unity Connection Administration, expand **Dial Plan**, then select **Partitions**.

Step 2 On the Search Partitions page, select **Add New**.

Step 3 On the New Partition page, enter a name for the partition.

Step 4 Select **Save**.

Step 5 On the Edit Partition page, you can add a description for the partition to describe its use or to distinguish it from other partitions. To do so, enter text in the Description field and select **Save**.

You can change the name or description of a partition. To change the partition membership, you must edit the individual member objects.

To Modify a Partition

Step 1 In Cisco Unity Connection Administration, expand **Dial Plan**, then select **Partitions**.

Step 2 On the Search Partitions page, select the display name of the partition that you want to modify.

Note If the partition that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Partition page, change the name or description, as applicable.

Step 4 When you have finished changing settings on the Edit Partition page, select **Save**.

You can delete a partition when the partition is empty (there are no objects that are members of the partition) and when the partition is not configured as the system default partition. If you attempt to delete a partition that is not empty, Cisco Unity Connection warns you that the partition is in use, and does not allow the deletion.

To Delete a Partition

Step 1 In Cisco Unity Connection Administration, expand **Dial Plan**, then select **Partitions**.

Step 2 On the Search Partitions page, check the check box next to the display name of the partition that you want to delete.

Note If the partition that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Delete Selected**, and select **OK** to confirm the deletion.

Managing Search Spaces in Cisco Unity Connection 9.x

To Create a Search Space

Step 1 In Cisco Unity Connection Administration, expand **Dial Plan**, then select **Search Spaces**.

Step 2 On the Search Spaces page, select **Add New**.

Step 3 On the New Search Space page, enter a name for the search space.

Step 4 Select **Save**.

Step 5 On the Edit Search Space page, enter a description for the search space.

Step 6 To add a partition to the list of partitions that are assigned to the search space, select the name of the partition in the Unassigned Partitions list, then select the Up arrow above the list.

Step 7 To change the order of partitions in the Assigned Partitions list, select the name of the partition to move, then select the Up or Down arrow to the right of the list.

Step 8 When you are done modifying the partition membership, select **Save**.

To Modify a Search Space

Step 1 In Cisco Unity Connection Administration, expand **Dial Plan**, then select **Search Spaces**.

Step 2 On the Search Spaces page, select the display name of the search space that you want to modify.

Step 3 On the Edit Search Space page, change settings as applicable.

Step 4 To add a partition to the list of partitions that are assigned to the search space, select the name of the partition in the Unassigned Partitions list, then select the Up arrow above the list.

Step 5 To change the order of partitions in the Assigned Partitions list, select the name of the partition to move, then select the Up or Down arrow to the right of the list.

Step 6 When you have finished changing settings on the Edit Search Space page, select **Save**.

You can delete a search space even when there are objects using it; however, in this case you must choose a replacement search space. Objects that had a search scope set to the deleted search space are changed to use the replacement search space instead.

To Delete a Search Space

Step 1 In Cisco Unity Connection Administration, expand **Dial Plan**, then select **Search Spaces**.

Step 2 On the Search Spaces page, check the check box next to the display name of the search space that you want to delete.

Note If the search space that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Delete Selected**, and select **OK** to confirm the deletion.

Changing the System Default Partition and Search Space in Cisco Unity Connection 9.x

The system default partition and search space are used when you create new objects that are not based on templates (for example, a new call handler template, directory handler, or interview handler; or a new routing rule). The system default partition is displayed by default in any Partition list for such new objects in Cisco Unity Connection Administration, and the system default search space is displayed by default in any Search Scope list; these values are used when the object is created unless the administrator selects a different value from the list before saving the page. They can also be changed later by editing the object.

Note that changing the system default partition and search space does not affect any objects or templates that have already been created.

To Change the System Default Partition and Search Space

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **General Configuration**.

Step 2 On the Edit General Configuration page, in the Default Partition field, select the name of the new default partition.

Step 3 In the Default Search Scope field, select the name of the new default search space.

Step 4 Select **Save**.

Finding Objects that Belong to a Partition or Search Space in Cisco Unity Connection 9.x

There are several methods available for locating objects based on the partition or search space to which they belong. See the following sections:

- Finding Objects Based on Partition in Cisco Unity Connection Administration, page 29-12
- Finding Users Based on Partition in Cisco Unity Connection Serviceability, page 29-12

Finding Objects Based on Partition in Cisco Unity Connection Administration

In Cisco Unity Connection Administration, you can use the Search Limits fields on the search pages for the objects that have partition membership to locate the objects of that type that belong to a particular partition.

Use the following procedure to limit a search by partition.

To Limit a Search by Partition

Step 1 In Cisco Unity Connection Administration, go to the applicable **Search** page.

Step 2 In the Limit Search To list, select **Partition**.

Step 3 In the Where Name Is list, select the name of the partition in which to find objects.

Note When searching for users, you can also select whether to display only the primary extension in the partition, or both the primary extension and any alternate extensions that appear in the partition. If you select to display both the primary extension and any alternate extensions, multiple records may display for a single user in the search results.

Step 4 Optionally, to further limit the search, in the search fields, indicate the search parameters, and enter the applicable characters to search for. Select **Find**.

Finding Users Based on Partition in Cisco Unity Connection Serviceability

You can use the Dial Search Scope report in Cisco Unity Connection Serviceability to get a list of all users who are members of each search space in the Cisco Unity Connection directory. For each search space, the report lists each partition in the search space, and for each partition, the report lists each user and the corresponding user extension (primary or alternate) that is in the partition.

For more information on generating and viewing reports, see the *Administration Guide for Cisco Unity Connection Serviceability Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/serv_administration/guide/9xcucservagx.html.

CHAPTER 30

Managing the Phone System Integrations in Cisco Unity Connection 9.x

Note You can manage the phone system integrations by adding or deleting phone systems, port groups, ports, phone system trunks, and servers. You can also change the settings for existing phone systems, port groups, ports, phone system trunks, and servers.

See the following sections:

- Managing Phone Systems in Cisco Unity Connection 9.x, page 30-1
- Managing Port Groups in Cisco Unity Connection 9.x, page 30-7
- Managing Ports in Cisco Unity Connection 9.x, page 30-17
- Managing Speech Connect Port in Cisco Unity Connection 9.x, page 30-20
- Managing Phone System Trunks in Cisco Unity Connection 9.x, page 30-21
- Security in Cisco Unity Connection 9.x (Cisco Unified Communications Manager Integrations Only), page 30-22
- IPv6 in Cisco Unity Connection (Cisco Unified Communications Manager Integrations Only), page 30-26

Managing Phone Systems in Cisco Unity Connection 9.x

The phone system pages in Cisco Unity Connection Administration identify the phone systems that Cisco Unity Connection integrates with. In Connection Administration, a phone system has one or more port groups, which in turn have voice messaging ports. You can manage the phone systems to meet the changing needs of your system.

See the following sections:

- Adding a New Phone System Integration, page 30-2
- Deleting a Phone System Integration, page 30-2
- Changing Phone System Settings, page 30-3
- Listing the Users Who Are Associated with the Phone System, page 30-3
- Disabling the Use of the Same Port for Turning On and Off an MWI, page 30-4
- Synchronizing MWIs for the Phone System, page 30-4

- Configuring Phone View Settings (Cisco Unified Communications Manager Integrations Only), page 30-4
- Changing Call Loop Detection Settings, page 30-5
- Managing AXL Servers, page 30-5

Adding a New Phone System Integration

You can integrate multiple phone systems with Cisco Unity Connection. For a matrix of supported combinations, see the *Multiple Integration Guide for Cisco Unity Connection* at http://www.cisco.com/en/US/products/ps6509/products_installation_and_configuration_guides_list.html.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support adding new phone system integrations.

To Add a New Phone System Integration

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, under Phone System Search Results, select **Add New**. The New Phone System page appears.

Step 3 On the New Phone System page, in the Phone System Name field, enter a descriptive name for the phone system and select **Save**.

Step 4 On the Phone System Basics page, enter the applicable settings and select **Save**.

Deleting a Phone System Integration

You can delete a phone system when the phone system is no longer used by Cisco Unity Connection. Before you can delete a phone system, you must delete or reassign to another phone system all of the following objects that are associated with the phone system that you want to delete:

- All users (including MWI devices and notification devices)
- All user templates
- All system call handlers
- All call handler templates

Note You can see a list of all users who are associated with the phone system on the Phone System Associations page. For instructions, see the "Listing the Users Who Are Associated with the Phone System" section on page 30-3.

Cisco Unified Communications Manager Business Edition (CMBE) does not support deleting a phone system integration.

To Delete a Phone System Integration

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, under Phone System Search Results, check the check box next to the name of the phone systems that you want to delete.

Step 3 Select **Delete Selected**.

Step 4 When prompted to confirm that you want to delete the phone systems, select **OK**.

Changing Phone System Settings

You can change the settings for a phone system after it is integrated with Cisco Unity Connection. The phone system settings identify the phone system that Connection integrates with and regulate certain phone system features. (Integration configuration settings are located in the port groups that belong to the phone system.)

To Change Phone System Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, select the display name of the phone system for which you want to change the settings.

Step 3 On the Phone System Basics page, change the applicable settings and select **Save**.

Listing the Users Who Are Associated with the Phone System

You can view a list of all of the Cisco Unity Connection users who are associated with the phone system.

To List the Users Who Are Associated with the Phone System

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, select the display name of the phone system.

Step 3 On the Phone System Basics page, on the Edit menu, select **Phone System Associations**.

Step 4 On the Phone System Associations page, the list of users who are associated with the phone system is displayed.

Disabling the Use of the Same Port for Turning On and Off an MWI

If you created the phone system integration to use the same voice messaging port to turn on and off an MWI (the Use Same Port for Enabling and Disabling MWIs field was checked), you can do the following procedure to disable this configuration without leaving MWIs on when there are no voice messages for the user.

To Disable the Use of the Same Port for Turning On and Off an MWI

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, select the display name of the phone system.

Step 3 On the Phone System Basics page, check the **Force All MWIs Off for This Phone System** check box and select **Save**.

Step 4 Uncheck the **Use Same Port for Enabling and Disabling MWIs** and the **Force All MWIs Off for This Phone System** check boxes, then select **Save**.

Step 5 Select **Run** in front of Synchronize All MWIs on This Phone System.

Synchronizing MWIs for the Phone System

You can synchronize all message waiting indicators (MWIs) for a phone system without affecting MWIs on other phone systems.

To Synchronize MWIs for the Phone System

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, select the display name of the phone system.

Step 3 On the Phone System Basics page, select **Run** in front of Synchronize All MWIs on This Phone System.

Configuring Phone View Settings (Cisco Unified Communications Manager Integrations Only)

For Cisco Unified Communications Manager integrations, Phone View allows users to see search results on the LCD screens of their Cisco IP phones when they use the Find Message or the Display Message menu. Phone View requires that Cisco Unified CM also be configured. For details, see the "Setting Up Phone View in Cisco Unity Connection 9.x" chapter.

To Configure Phone View Settings (Cisco Unified Communications Manager Integrations Only)

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, select the display name of the phone system.

Step 3 On the Phone System Basics page, under Phone View Settings, enter the applicable settings and select **Save**.

Changing Call Loop Detection Settings

Calls that Cisco Unity Connection forwards (for example, to notify a user that a message has been received) are sometimes forwarded back to Connection. When call loop detection is enabled, Connection detects when a call loop has occurred and rejects the call.

You can change the call loop detection settings to enable or disable the types of calls that are checked, to set the fourth-column DTMF tone that Connection uses, and to set the guard time.

The call loop detection settings should not be changed without understanding the effect that they have on calls that Connection forwards.

To Change Call Loop Detection Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, select the display name of the phone system.

Step 3 On the Phone System Basics page, under Call Loop Detection by Using DTMF, enter applicable settings and select **Save**.

Managing AXL Servers

AXL servers are supported only for Cisco Unified Communications Manager phone systems and are needed when Cisco Unity Connection must have access to the Cisco Unified CM database for importing Cisco Unified CM users and for changing certain phone settings for users of Connection personal call transfer rules.

AXL servers are not supported for Cisco Unified Communications Manager Express integrations.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support adding AXL servers. Adding AXL servers is not needed for Cisco Unified CMBE.

When a Connection cluster is configured, you must be signed in to the publisher server of the Connection cluster to import Cisco Unified CM user data.

See the following procedures:

- To Add AXL Servers, page 30-5
- To Delete an AXL Server, page 30-7
- To Change AXL Server Settings, page 30-7

To Add AXL Servers

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, select the display name of the Cisco Unified CM phone system.

Step 3 On the Phone System Basics page, on the Edit menu, select **Cisco Unified Communications Manager AXL Servers**.

Step 4 On the Edit AXL Servers page, under AXL Servers, select **Add New**.

Step 5 Enter the following settings for the AXL server and select **Save**.

Table 30-1 Settings for the AXL Servers

Field	Setting
Order	Enter the order of priority for the AXL server. The lowest number is the primary AXL server, the higher numbers are the secondary servers.
IP Address	Enter the IP address of the AXL server.
Port	Enter the AXL server port that Connection connects to. This setting must match the port that the AXL server uses. For Cisco Unified Communications Manager version 4.1(x), the port number is typically 443. For Cisco Unified Communications Manager version 5.x or later, the port number is typically 8443.

Step 6 Repeat Step 4 and Step 5 for all remaining AXL servers that you want to add.

Step 7 Under AXL Server Settings, enter the following settings and select **Save**.

Table 30-2 Settings for the AXL Server Settings

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

Step 8 To add a corresponding application server to Cisco Unified CM, sign in to Cisco Unified CM Administration.

Step 9 In Cisco Unified CM Administration, go to the **System > Application Server** page.

Step 10 On the Find and List Application Servers page, select **Find** to display all application servers.

Step 11 In the Name column, select the name of the Cisco Unity Connection server.

Step 12 On the Application Server Configuration page, in the Available Application User field, select the Cisco Unified CM application user that you used in Step 7 and select the **Down** arrow to move it to the Selected Application User field.

Step 13 Select **Save**.

To Delete an AXL Server

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, select the display name of the Cisco Unified CM phone system.

Step 3 On the Phone System Basics page, on the Edit menu, select **Cisco Unified Communications Manager AXL Servers**.

Step 4 On the Edit AXL Servers page, under AXL Servers, check the check box next to the AXL server that you want to delete.

Step 5 Select **Delete Selected**.

Step 6 When prompted to confirm that you want to delete the AXL server, select **OK**.

To Change AXL Server Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 On the Search Phone Systems page, select the display name of the Cisco Unified CM phone system.

Step 3 On the Phone System Basics page, on the Edit menu, select **Cisco Unified Communications Manager AXL Servers**.

Step 4 On the Edit AXL Servers page, change the applicable settings and select **Save**.

Managing Port Groups in Cisco Unity Connection 9.x

Port groups hold most of the integration configuration settings and some or all of the voice messaging ports for Cisco Unity Connection.

While most phone system integrations need only one port group, multiple port groups may be needed in the following circumstances:

- For integrations with phone systems through PIMG/TIMG units, each PIMG/TIMG unit is connected to one port group with the applicable voice messaging ports. For example, a system that uses five PIMG units requires five port groups, one port group for each PIMG unit.
- For integrations with other phone systems, an additional port group with its own voice messaging ports may be used for testing a new configuration or for troubleshooting.

Connection port groups provide flexibility for integration configuration settings that apply to different sets of ports.

See the following sections:

- Adding a Port Group, page 30-8
- Deleting a Port Group, page 30-8
- Changing Port Group Settings, page 30-9
- Changing the Audio Format That Cisco Unity Connection Uses for Calls, page 30-9
- Changing MWI Settings, page 30-10
- Adding Secondary Cisco Unified Communications Manager Servers, page 30-10

- Deleting Cisco Unified Communications Manager Servers, page 30-11
- Changing Cisco Unified Communications Manager Server Settings, page 30-11
- Adding a TFTP Server, page 30-12
- Deleting a TFTP Server, page 30-12
- Changing TFTP Server Settings, page 30-13
- Adding a SIP Server, page 30-13
- Deleting a SIP Server, page 30-14
- Changing SIP Server Settings, page 30-14
- Managing PIMG/TIMG Units, page 30-15
- Changing Session Initiation Protocol (SIP) Settings, page 30-16
- Changing Port Group Advanced Settings, page 30-16
- Enabling or Disabling Normalization, page 30-16

Adding a Port Group

Revised 5th August, 2013

You can add multiple port groups, each with its own integration configuration settings and its own voice messaging ports.

Cisco Unified Communications Manager Business Edition (CMBE) only: Before you can add a port group, you must have existing voice messaging ports in Cisco Unified CM Administration that do not belong to a port group.

Other configurations: For integrations with phone systems through PIMG/TIMG units, one port group is required for each PIMG/TIMG unit. For example, a system that uses five PIMG units requires five port groups, one port group for each PIMG unit.

Note Cisco Unity Connection enables you to create a maximum of 90 port groups if you are using only TUI (touchtone conversation) and VUI (voice-recognition) features. However, if you are using all the features of Connection, you are allowed to create a maximum of 60 port groups.

To Add a Port Group

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, under Port Group Search Results, select **Add New**.

Step 3 On the New Port Group page, enter the applicable settings and select **Save**.

Deleting a Port Group

When you delete a port group, any voice messaging ports that belong to it are deleted at the same time, but the phone system that the port group belongs to is not deleted.

To Delete a Port Group

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, under Port Group Search Results, check the check box next to the port group name of the port groups that you want to delete.

Step 3 Select **Delete Selected**.

Step 4 When prompted to confirm that you want to delete the port group, select **OK**.

Changing Port Group Settings

You can change the settings for a port group after it has been added. Changes to the settings affect only the voice messaging ports that belong to the port group.

To Change Port Group Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to change the settings.

Step 3 On the Port Group Basics page, change the applicable settings and select **Save**.

Changing the Audio Format That Cisco Unity Connection Uses for Calls

For calls, Cisco Unity Connection advertises the audio format (or codec) that is preferred for the media stream with the phone system. You should consider the following when setting the audio format:

- For the following reasons, Connection should use the same audio format for the media stream that the phone system uses:
  - To reduce the need for transcoding the media stream from one audio format to another.
  - To minimize the performance impact on the Connection server and on the phone system.
  - To preserve the audio quality of calls.
- When Connection advertises a different audio format than the one used by the phone system, the phone system transcodes the media stream.

To Change the Audio Format That Cisco Unity Connection Uses for Calls

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the first port group that belongs to the phone system integration for which you want to change the audio format of the media stream.

Step 3 On the Port Group Basics page, on the Edit menu, select **Codec Advertising**.

Step 4 On the Edit Codec Advertising page, select the **Up** and **Down** arrows to change the order of the codecs or to move codecs between the Advertised Codec box and the Unadvertised Codecs box.

If only one codec is in the Advertised Codecs box, Cisco Unity Connection sends the media stream in that audio format. The phone system transcodes if it does not use this audio format.

If two or more codecs are in the Advertised Codecs box, Connection advertises its preference for the first codec in the list but sends the media stream in the audio format from the list that the phone system selects.

Step 5 Select **Save**.

Step 6 *(All integrations except SCCP)* If you want to change the packet size that is used by the advertised codecs, on the Port Group Basics page, under Advertised Codec Settings, select the applicable packet setting for each codec and select **Save**.

Step 7 Select **Next**.

Step 8 Repeat Step 3 through Step 7 for all remaining port groups that belong to the phone system integration for which you want to change the audio format of the media stream.

Changing MWI Settings

Messaging waiting indicators (MWIs) control whether Cisco Unity Connection sets MWIs for users and how retries for MWI requests are handled.

To Change MWI Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to change the MWI settings.

Step 3 On the Port Group Basics page, under Message Waiting Indicator Settings, change the applicable settings and select **Save**.

Adding Secondary Cisco Unified Communications Manager Servers

For Cisco Unified Communications Manager integrations, Related Links helps you create the integration only with one Cisco Unified CM server. The secondary Cisco Unified CM servers in the cluster must be added after the integration is created.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support secondary Cisco Unified CM servers.

To Add Secondary Cisco Unified Communications Manager Servers

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to add secondary Cisco Unified CM servers.

Step 3 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 4 On the Edit Servers page, under Cisco Unified Communications Manager Servers, select **Add**.

Step 5 Enter the settings for the secondary Cisco Unified CM server and select **Save**.

Step 6 Repeat Step 4 and Step 5 for all remaining secondary Cisco Unified CM servers that you want to add.

Note You can select **Ping** to verify the IP address (or host name) of the Cisco Unified CM server.

Deleting Cisco Unified Communications Manager Servers

You can delete a Cisco Unified Communications Manager server when it is no longer used by the phone system integration.

If you want to move a Cisco Unified CM server to another port group, you must delete the Cisco Unified CM server from one port group and add it to the second port group.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support deleting Cisco Unified CM servers.

To Delete a Cisco Unified Communications Manager Server

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to delete Cisco Unified CM servers.

Step 3 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 4 On the Edit Servers page, under Cisco Unified Communications Manager Servers, check the check box next to the Cisco Unified CM servers that you want to delete.

Step 5 Select **Delete Selected**.

Step 6 When prompted to confirm that you want to delete the Cisco Unified CM servers, select **OK**.

Changing Cisco Unified Communications Manager Server Settings

You can change the Cisco Unified CM server settings after the server has been added.

To Change Cisco Unified Communications Manager Server Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to change Cisco Unified CM server settings.

Step 3 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 4 On the Edit Servers page, under Cisco Unified Communications Manager Servers, change the applicable settings and select **Save**.

Note You can select **Ping** to verify the IP address (or host name) of the Cisco Unified CM server.

Adding a TFTP Server

For Cisco Unified Communications Manager integrations, TFTP servers are required only when the Cisco Unified CM cluster uses authentication and encryption for the Cisco Unity Connection voice messaging ports.

If your system uses authentication and encryption for the Connection voice messaging ports, you must add a TFTP server after you create the Cisco Unified CM phone system integration.

To Add a TFTP Server

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to add a TFTP server.

Step 3 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 4 On the Edit Servers page, under TFTP Servers, select **Add**.

Step 5 Enter the settings for the TFTP server and select **Save**.

Step 6 Repeat Step 4 and Step 5 for all remaining TFTP servers that you want to add.

Note You can select **Ping** to verify the IP address (or host name) of the TFTP server.

Deleting a TFTP Server

You can delete a TFTP server when it is no longer used by the port group.

For Cisco Unified Communications Manager integrations, TFTP servers are required only when the Cisco Unified CM cluster uses authentication and encryption for the Cisco Unity Connection voice messaging ports.

To Delete a TFTP Server

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to delete a TFTP server.

Step 3 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 4 On the Edit Servers page, under TFTP Servers, check the check box next to the TFTP server that you want to delete.

Step 5 Select **Delete Selected**.

Step 6 When prompted to confirm that you want to delete the TFTP server, select **OK**.

Changing TFTP Server Settings

You can change the TFTP server settings after the server has been added.

For Cisco Unified Communications Manager integrations, TFTP servers are required only when the Cisco Unified CM cluster uses authentication and encryption for the Cisco Unity Connection voice messaging ports.

To Change TFTP Server Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to change TFTP server settings.

Step 3 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 4 On the Edit Servers page, under TFTP Servers, change the applicable settings and select **Save**.

Note You can select **Ping** to verify the IP address (or host name) of the TFTP server.

Adding a SIP Server

For a phone system integration with Cisco Unified Communications Manager through a SIP trunk or with another SIP server, you can add another SIP server after the phone system has been created.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support SIP servers.

To Add a SIP Server

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to add SIP servers.

Step 3 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 4 On the Edit Servers page, under SIP Servers, select **Add**.

Step 5 Enter the settings for the SIP server and select **Save**.

Step 6 Repeat Step 4 and Step 5 for all remaining SIP servers that you want to add.

Note You can select **Ping** to verify the IP address (or host name) of the SIP server.

Deleting a SIP Server

For a phone system integration with Cisco Unified Communications Manager through a SIP trunk or with another SIP server, you can delete a SIP server when it is no longer used by the port group.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support SIP servers.

To Delete a SIP Server

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to delete SIP servers.

Step 3 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 4 On the Edit Servers page, under SIP Servers, check the check box next to the SIP server that you want to delete.

Step 5 Select **Delete Selected**.

Step 6 When prompted to confirm that you want to delete the SIP server, select **OK**.

Changing SIP Server Settings

For a phone system integration with Cisco Unified Communications Manager through a SIP trunk or with another SIP server, you can change the SIP server settings after the server has been added.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support SIP servers.

To Change SIP Server Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to change SIP server settings.

Step 3 On the Port Group Basics page, on the Edit menu, select **Servers**.

Step 4 On the Edit Servers page, under SIP Servers, change the applicable settings and select **Save**.

Note You can select **Ping** to verify the IP address (or host name) of the SIP server.

Managing PIMG/TIMG Units

For integrations with phone systems through PIMG/TIMG units, each PIMG/TIMG unit is in a separate port group. For example, a system that uses five PIMG units requires five port groups, one port group for each PIMG unit. You can add, change, or delete PIMG/TIMG units after the phone system integration has been created.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support integrations with PIMG/TIMG units.

See the following procedures:

- To Add PIMG/TIMG Units, page 30-15
- To Delete PIMG/TIMG Units, page 30-15
- To Change PIMG/TIMG Settings, page 30-15

To Add PIMG/TIMG Units

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, under Port Group Search Results, select **Add New**.

Step 3 On the New Port Group page, in the Phone System field, select the phone system for which you want to add a PIMG/TIMG unit.

Step 4 Enter the applicable settings and select **Save**.

To Delete PIMG/TIMG Units

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, under Port Group Search Results, check the check box next to the port group for the PIMG/TIMG unit that you want to delete.

Step 3 Select **Delete Selected**.

To Change PIMG/TIMG Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to change PIMG/TIMG settings.

Step 3 On the Port Group Basics page, under PIMG Settings, change the applicable settings and select **Save**.

Changing Session Initiation Protocol (SIP) Settings

For integrations that use session initiation protocol (SIP), you can change the SIP settings after the phone system integration has been created.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support integrations that use SIP.

To Change Session Initiation Protocol (SIP) Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to change SIP settings.

Step 3 On the Port Group Basics page, under Session Initiation Protocol (SIP) Settings, change the applicable settings and select **Save**.

Changing Port Group Advanced Settings

The port group advanced settings control infrequently used settings such as delays and MWI usage. We recommend that port group advanced settings be left at their default values.

To Change Port Group Advanced Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to change the advanced settings.

Step 3 On the Port Group Basics page, on the Edit menu, select **Advanced Settings**.

Step 4 On the Edit Advanced Settings page, under Port Group Advanced Settings, change the applicable settings and select **Save**.

Enabling or Disabling Normalization

Normalization controls automatic volume adjustments for recording messages. We recommend that you leave normalization enabled and that you not change the value of the Target Decibel Level for Recordings and Messages field on the System Settings > General Configuration page.

To Enable or Disable Normalization

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port Group**.

Step 2 On the Search Port Groups page, select the display name of the port group for which you want to change the advanced settings.

Step 3 On the Port Group Basics page, on the Edit menu, select **Advanced Settings**.

Step 4 On the Edit Advanced Settings page, under Audio Normalization for Recordings and Messages, change the applicable settings and select **Save**.

Managing Ports in Cisco Unity Connection 9.x

The voice messaging ports let Cisco Unity Connection receive calls (for example, to record a message) and let Connection make calls (for example to send message notifications or to set MWIs).

Each voice messaging port can belong to only one port group. Port groups, when there are several, each have their own voice messaging ports. The total voice messaging ports belonging to all port groups must not exceed the maximum number of voice messaging ports that are enabled by the Connection license files.

See the following sections:

- Adding a Port, page 30-17
- Deleting a Port, page 30-18
- Changing Port Settings, page 30-18
- Viewing the Port Certificate, page 30-20

Adding a Port

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Voice messaging ports provide the connections for calls between Cisco Unity Connection and the phone system. You can add voice messaging ports after the phone system has been created. The number of voice messaging ports that you add cannot bring the total number of voice messaging ports for all port groups to more than the maximum number of voice messaging ports that are enabled by the Connection license files.

Cisco Unified Communications Manager Business Edition (CMBE) only: Before you can add ports, you must have existing voice messaging ports in Cisco Unified CM Administration that do not belong to a port group.

Note We recommend you to create a maximum of 90 port groups if you are using only TUI (touchtone conversation) and VUI (voice-recognition) features of Cisco Unity Connection. However, if you are using all the features of Connection, you are allowed to create a maximum of 60 port groups.

To Add a New Port

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port**.

Step 2 On the Search Ports page, under Port Search Results, select **Add New**.

Step 3 On the New Port page, enter the applicable settings and select **Save**.

Caution Verify 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 may not function correctly. See the "Planning How the Voice Messaging Ports Will Be Used by Cisco Unity Connection" section of the applicable Cisco Unity Connection integration guide at http://www.cisco.com/en/US/products/ps6509/products_installation_and_configuration_guides_list.html.

Step 4 In Cisco Unity Connection Administration, in the Related Links list, select **Check Telephony Configuration** and select **Go** to confirm the phone system integration settings.

Step 5 If the test is not successful, the Task Execution Results list displays one or more messages with troubleshooting steps. After correcting the problems, check the configuration again.

Deleting a Port

Voice messaging ports provide the connections for calls between Cisco Unity Connection and the phone system.

To Delete a Port

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port**.

Step 2 On the Search Ports page, under Port Search Results, check the check box next to the voice messaging ports that you want to delete.

Step 3 Select **Delete Selected**.

Step 4 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.

Changing Port Settings

Voice messaging ports provide the connections for calls between Cisco Unity Connection and the phone system. You can change the voice messaging port settings after the phone system integration has been created.

To Change Port Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port**.

Step 2 On the Search Ports page, select the display name of the voice messaging port for which you want to change the settings.

Step 3 On the Port Basics page, enter the applicable settings and select **Save**.

Depending on the phone system integration, some or all of the fields in Table 30-3 appear.

Table 30-3 Port Basics Page Settings

Field	Considerations
Enabled	Check this check box to enable the port. The port is enabled during normal operation. Uncheck this check box to disable the port. When the port is disabled, calls to the port get a ringing tone but are not answered. Typically, the port is disabled only by the installer during testing.
Server Name *(not available for PIMG/TIMG integrations)*	*(For Cisco Unity Connection redundancy only)* Select the name of the Cisco Unity Connection server that you want to handle this port. Assign an equal number of answering and dial-out voice messaging ports to the Connection servers so that they equally share the voice messaging traffic.
Extension *(available for PIMG/TIMG integrations only)*	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 outside 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 *(not used by serial integrations)*	Check this check box to designate the port for turning MWIs on and off. Assign Send MWI Requests to the least busy ports. For serial integrations, uncheck this check box. Otherwise, the integration may not function correctly.
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 *(not available for SIP integrations)*	Enter the priority order in which Cisco Unity Connection uses 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, Connection uses the port that has been idle the longest.
Security Mode *(available for Cisco Unified CM SCCP integrations only)*	Select the applicable security mode: • **Non-secure**—The integrity and privacy of call-signaling messages are not ensured because call-signaling messages are sent as clear (unencrypted) text and are connected to Cisco Unified Communications Manager through a non-authenticated port rather than an authenticated TLS port. In addition, the media stream is not encrypted. • **Authenticated**—The integrity of call-signaling messages are ensured because they are connected to Cisco Unified CM through an authenticated TLS port. However, the privacy of call-signaling messages are not ensured because they are sent as clear (unencrypted) text. In addition, the media stream are not encrypted. • **Encrypted**—The integrity and privacy of call-signaling messages are ensured on this port because they are connected to Cisco Unified CM through an authenticated TLS port, and the call-signaling messages are encrypted. In addition, the media stream is encrypted.

Step 4 If there are no more voice messaging ports for which you want to change the settings, skip to Step 6. Otherwise, select **Next**.

Step 5 Repeat Step 3 and Step 4 for all remaining voice messaging ports for which you want to change the settings.

Step 6 On the Port menu, select **Search Ports**.

Step 7 On the Search Ports page, confirm 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. If necessary, adjust the number of voice messaging ports set to answer calls and an appropriate number of voice messaging ports set to dial out.

Viewing the Port Certificate

Port certificates for voice messaging ports are used only by SCCP integrations with Cisco Unified Communications Manager 4.1 and later, and are required for authentication of the Cisco Unity Connection voice messaging ports. You can view the port certificate to help in troubleshooting authentication and encryption problems.

To View the Port Certificate

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Port**.

Step 2 On the Search Ports page, select the display name of the voice messaging port for which you want to see the device certificate.

Step 3 On the Port Basics page, select **View Certificate**.

Step 4 In the View Port Certificate window, the information from the port device certificate is displayed.

Managing Speech Connect Port in Cisco Unity Connection 9.x

Speech Connect uses voice-enabled directory handlers that allow both employees and outside callers to speak the name of an employee and instantly get connected, without having to navigate an audio-text tree, and without knowing the extension of the employee. For easy access, you can configure a Speech Connect speed dial on user phones.

See the following sections:

- Configuring a Speech Connect Port, page 30-20

Configuring a Speech Connect Port

To Configure a New Speech Connect Port

Step 1 In Cisco Unity Connection Administration, expand Telephony Integrations, then select **Speech Connect Port**.

Step 2 On the Speech Connect Port page, under New Speech Connect Port, select the Connection server from the **Connection Server** drop down list.

Step 3 In the **Number of Ports** field, enter the number of Speech Connect ports that you want to configure.

Step 4 Click on the **Save** option to apply the specified settings.

Managing Phone System Trunks in Cisco Unity Connection 9.x

When multiple phone systems are integrated with Cisco Unity Connection, you may want to set up a phone system trunk so that calls on one phone system can be transferred to extensions on another phone system. Phone system trunks are accessed by dialing extra digits (for example, dialing 9) before dialing the extension.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support phone system trunks.

See the following sections:

- Adding a Phone System Trunk, page 30-21
- Deleting a Phone System Trunk, page 30-21
- Changing Phone System Trunk Settings, page 30-22

Adding a Phone System Trunk

If another phone system integration exists, you can add a phone system trunk to provide access from calls on one phone system to extensions on the other phone system. You can add phone system trunks after the phone system integration has been created.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support phone system trunks.

To Add a Phone System Trunk

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Trunk**.

Step 2 On the Search Phone System Trunks page, under Phone System Trunk Search Results, select **Add New**.

Step 3 On the New Phone System Trunk page, enter the applicable settings and select **Save**.

Deleting a Phone System Trunk

You can delete a phone system trunk when it is no longer used by a phone system integration.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support phone system trunks.

To Delete a Phone System Trunk

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Trunk**.

Step 2 On the Search Phone System Trunks page, under Phone System Trunk Search Results, check the check box next to the phone system trunk that you want to delete.

Step 3 Select **Delete Selected**.

Step 4 When prompted to confirm that you want to delete the phone system trunk, select **OK**.

Changing Phone System Trunk Settings

Phone system trunk settings cannot be changed. However, you can delete the phone system trunk that you want to change and add a new phone system trunk with the settings that you want.

Note Cisco Unified Communications Manager Business Edition (CMBE) does not support phone system trunks.

To Change Phone System Trunk Settings

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Trunk**.

Step 2 On the Search Phone System Trunks page, check the check box next to the phone system trunk that you want to delete.

Step 3 Select **Delete Selected**.

Step 4 When prompted to confirm that you want to delete the phone system trunk, select **OK**.

Step 5 Select **Add New**.

Step 6 On the New Phone System Trunk page, enter the applicable settings and select **Save**.

Security in Cisco Unity Connection 9.x (Cisco Unified Communications Manager Integrations Only)

When Cisco Unified Communications Manager authentication and encryption is configured for Cisco Unity Connection voice messaging ports, you can manage certifications and the security profile.

See the following sections:

- Viewing the Cisco Unity Connection Root Certificate, page 30-23
- Saving the Cisco Unity Connection Root Certificate as a File, page 30-23
- Adding a SIP Certificate (Cisco Unified Communications Manager SIP Trunk Integrations Only), page 30-24
- Deleting a SIP Certificate (Cisco Unified Communications Manager SIP Trunk Integrations Only), page 30-24

- Changing a SIP Certificate (Cisco Unified Communications Manager SIP Trunk Integrations Only), page 30-25
- Adding a SIP Security Profile (Cisco Unified Communications Manager SIP Trunk Integrations Only), page 30-25
- Deleting a SIP Security Profile (Cisco Unified Communications Manager SIP Trunk Integrations Only), page 30-25
- Changing a SIP Security Profile (Cisco Unified Communications Manager SIP Trunk Integrations Only), page 30-26

Viewing the Cisco Unity Connection Root Certificate

The root certificate is used by SCCP integrations with Cisco Unified Communications Manager 4.1 and later and SIP trunk integrations with Cisco Unified CM 7.0 and later, and is required for authentication of the Cisco Unity Connection voice messaging ports. You can view the root certificate to help troubleshoot authentication and encryption problems.

To View the Cisco Unity Connection Root Certificate

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations > Security**, then select **Root Certificate**.

Step 2 On the View Root Certificate page, the information from the root certificate is displayed.

Saving the Cisco Unity Connection Root Certificate as a File

The root certificate is used by SCCP integrations with Cisco Unified CM 4.1 and later and SIP trunk integrations with Cisco Unified CM 7.0 and later, and is required for authentication of the Cisco Unity Connection voice messaging ports.

To Save the Cisco Unity Connection Root Certificate as a File

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations > Security**, then select **Root Certificate**.

Step 2 On the View Root Certificate page, right-click the **Right-Click to Save the Certificate as a File** link, and select **Save Target As**.

Step 3 In the Save As dialog box, browse to the location where you want to save the Connection root certificate as a file.

Step 4 In the File Name field, confirm that the filename has the correct extension, depending on the version of Cisco Unified CM:

- For Cisco Unified CM 5.x or later, confirm that the extension is .pem (rather than .htm).
- For Cisco Unified CM 4.x, confirm that the extension is .0 (rather than .htm).

Caution The certificate must be saved as a file with the correct extension or Cisco Unified CM will not recognize the certificate.

Step 5 Select **Save**.

Step 6 In the Download Complete dialog box, select **Close**.

Step 7 The Connection root certificate file is ready to be copied to all Cisco Unified CM servers in this Cisco Unified CM phone system integration. For instructions, see the applicable Cisco Unified CM integration guide at http://www.cisco.com/en/US/products/ps6509/products_installation_and_configuration_guides_list.html.

Adding a SIP Certificate (Cisco Unified Communications Manager SIP Trunk Integrations Only)

The SIP certificate is used only by SIP trunk integrations with Cisco Unified CM 7.0 and later, and is required for authentication of the Cisco Unity Connection voice messaging ports.

To Add a SIP Certificate (Cisco Unified Communications Manager SIP Trunk Integrations Only)

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations > Security**, then select **SIP Certificate**.

Step 2 On the Search SIP Certificates page, select **Add New**.

Step 3 On the New SIP Certificate page, in the Display Name field, enter a display name for the SIP certificate.

Step 4 In the Subject Name field, enter a subject name that matches the X.509 subject name of the SIP security profile for the SIP trunk in Cisco Unified CM Administration.

Caution This subject name must match the X.509 subject name of the SIP security profile used by Cisco Unified CM. Otherwise, Cisco Unified CM authentication and encryption fail.

Step 5 Select **Save**.

Deleting a SIP Certificate (Cisco Unified Communications Manager SIP Trunk Integrations Only)

You can delete a SIP certificate when the Cisco Unified CM server is no longer configured for authentication of the Cisco Unity Connection voice messaging ports.

To Delete a SIP Certificate (Cisco Unified Communications Manager SIP Trunk Integrations Only)

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations > Security**, then select **SIP Certificate**.

Step 2 On the Search SIP Certificates page, check the check box next to the display name of the SIP certificate that you want to delete.

Step 3 Select **Delete Selected**.

Step 4 When prompted to confirm that you want to delete the SIP certificate, select **OK**.

Changing a SIP Certificate (Cisco Unified Communications Manager SIP Trunk Integrations Only)

You can change a SIP certificate after it is created.

To Change a SIP Certificate (Cisco Unified Communications Manager SIP Trunk Integrations Only)

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations > Security**, then select **SIP Certificate**.

Step 2 On the Search SIP Certificates page, select the name of the SIP certificate that you want to change.

Step 3 On the Edit SIP Certificate page, enter the applicable settings and select **Save**.

Adding a SIP Security Profile (Cisco Unified Communications Manager SIP Trunk Integrations Only)

The SIP security profile is used only by SIP trunk integrations with Cisco Unified CM 7.0 and later, and is required for authentication of the Cisco Unity Connection voice messaging ports.

To Add a SIP Security Profile (Cisco Unified Communications Manager SIP Trunk Integrations Only)

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations > Security**, then select **SIP Security Profile**.

Step 2 On the Search SIP Security Profiles page, select **Add New**.

Step 3 On the New SIP Security Profile page, in the Port field, enter the port number that the Cisco Unified CM server uses for SIP trunk authentication and encryption of the voice messaging ports.

Step 4 To encrypt the call signaling messages, check the **Do TLS** check box.

Step 5 Select **Save**.

Deleting a SIP Security Profile (Cisco Unified Communications Manager SIP Trunk Integrations Only)

You can delete a SIP security profile when the Cisco Unified CM server is no longer configured for authentication of the Cisco Unity Connection voice messaging ports.

To Delete a SIP Security Profile (Cisco Unified Communications Manager SIP Trunk Integrations Only)

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations > Security**, then select **SIP Security Profile**.

Step 2 On the Search SIP Security Profiles page, check the check box next to the display name of the SIP security profile that you want to delete.

Step 3 Select **Delete Selected**.

Step 4 When prompted to confirm that you want to delete the SIP security profile, select **OK**.

Changing a SIP Security Profile (Cisco Unified Communications Manager SIP Trunk Integrations Only)

You can change a SIP security profile after it is created.

To Change a SIP Security Profile (Cisco Unified Communications Manager SIP Trunk Integrations Only)

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations > Security**, then select **SIP Security Profile**.

Step 2 On the Search SIP Certificates page, select the name of the SIP security profile that you want to change.

Step 3 On the Edit SIP Security Profile page, enter the applicable settings and select **Save**.

IPv6 in Cisco Unity Connection (Cisco Unified Communications Manager Integrations Only)

Cisco Unity Connection supports IPv6 addressing with Cisco Unified Communications Manager phone system integrations using SCCP or SIP.

IPv6 support is disabled by default. When you enable IPv6, you can configure Connection to obtain an IPv6 address either through router advertisement, through DHCP, or by manually configuring an address. You can also configure the mode in which Connection listens for incoming traffic—IPv4, IPv6, or both IPv4 and IPv6.

For SCCP integrations with Cisco Unified CM, if Connection is configured to listen for incoming IPv4 and IPv6 traffic, you can configure the addressing mode that Connection uses for call control signaling for each port group to use either IPv4 or IPv6. (This mode is also used when connecting to a TFTP server.)

For SIP integrations with Cisco Unified CM, if Connection is configured to listen for incoming IPv4 and IPv6 traffic, you can configure the addressing mode that Connection uses for call control signaling for each port group to use either IPv4 or IPv6. (This mode is also used when connecting to a TFTP server.) In addition, you can configure the addressing mode that Connection uses for media for each port group to use either IPv4 or IPv6.

Note the following considerations when deploying IPv6 for Cisco Unified CM integrations:

- IPv6 is supported in Cisco Unified CM release 7.1(2) and later.
- The CTL file required for security features (authentication and encryption) for SCCP integrations uses IPv4 addressing. Therefore, in order to use authentication and encryption with SCCP secure ports, you must retain the IPv4 address or host name for the Cisco Unified CM server(s) on the port group in Connection.
- Some versions of Cisco Adaptive Security Appliance (ASA) do not support application inspection for IPv6 traffic for Unified Communications application servers and endpoints. We recommend not using IPv6 for Unified Communications if you are using a Cisco ASA version that does not provide this support. See the documentation for your version of Cisco ASA to determine whether application inspection is supported in your deployment.

For instructions on enabling and configuring IPv6 for an existing Cisco Unified CM integration, see the "Adding or Changing the IPv6 Addresses of Cisco Unity Connection Servers" chapter of the *Reconfiguration and Upgrade Guide for Cisco Unity Connection Release 9.x*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrugx.html. For instructions on enabling and configuring IPv6 while setting up a new Cisco Unified CM integration, see the applicable Cisco Unified CM integration guide at http://www.cisco.com/en/US/products/ps6509/products_installation_and_configuration_guides_list.html.

CHAPTER 31

Creating a Cisco Unified Mobility Advantage Integration in Cisco Unity Connection 9.x

See the following sections:

- About the Cisco Unified Mobility Advantage Integration in Cisco Unity Connection 9.x, page 31-1
- Task List for Creating an Integration of Cisco Unity Connection 9.x with Cisco Unified Mobility Advantage, page 31-1
- Configuring Cisco Unity Connection 9.x for a Cisco Unified Mobility Advantage Integration, page 31-2
- Testing the Integration of Cisco Unity Connection 9.x with Cisco Unified Mobility Advantage, page 31-3

About the Cisco Unified Mobility Advantage Integration in Cisco Unity Connection 9.x

The Cisco Unified Mobility Advantage integration provides Cisco Unified Mobile Communicator users with access to their Cisco Unity Connection voice messages through Cisco Unified Mobile Communicator on their phones. This allows users to do the following:

- Hear an alert when new voice messages arrive.
- View a list of voice messages.
- Listen to voice messages.
- Delete voice messages.

Task List for Creating an Integration of Cisco Unity Connection 9.x with Cisco Unified Mobility Advantage

1. Review the system requirements to confirm that all requirements for Cisco Unified Mobility Advantage and the Cisco Unity Connection server have been met. See the "Requirements" section on page 31-2.

2. Configure Cisco Unified Mobility Advantage. See the "Configuring Cisco Unified Mobility Advantage" chapter of the *Installation and Upgrade Guide for Cisco Unified Mobility Advantage, Release 7.0* at http://cisco.com/en/US/products/ps7270/prod_installation_guides_list.html.
3. Provision Cisco Unified Mobility Advantage. See the *Cisco Unified Mobility Advantage 7.0 Provisioning Guide* at http://cisco.com/en/US/products/ps7270/prod_installation_guides_list.html.

Note Cisco Unified Mobility Advantage must have an end user for each Cisco Unity Connection user that accesses Cisco Unity Connection voice messages through Cisco Unified Mobile Communicator.

4. Configure Cisco Unity Connection. See the "Configuring Cisco Unity Connection 9.x for a Cisco Unified Mobility Advantage Integration" section on page 31-2.
5. Test the integration with Cisco Unified Mobility Advantage. See the "Testing the Integration of Cisco Unity Connection 9.x with Cisco Unified Mobility Advantage" section on page 31-3.

Requirements

The integration with Cisco Unified Mobility Advantage has the following requirements:

- Cisco Unified Mobility Advantage 7.0 or later is installed according to the "Installing Cisco Unified Mobility Advantage" chapter of the *Installation and Upgrade Guide for Cisco Unified Mobility Advantage, Release 7.0* at http://cisco.com/en/US/products/ps7270/prod_installation_guides_list.html.
- Cisco Unity Connection is installed as described in the *Installation Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/installation/guide/9xcucigx.html .

Configuring Cisco Unity Connection 9.x for a Cisco Unified Mobility Advantage Integration

Do the following procedure.

To Configure Cisco Unity Connection for a Cisco Unified Mobility Advantage Integration

Step 1 Sign in to Cisco Unity Connection Administration as a user that is assigned to the Remote Administration role.

Step 2 Expand **Class of Service**, then select **Class of Service**.

Step 3 On the Search Class of Service page, select the class of service for the Cisco Unified Mobile Communicator end users who will have access to voice messages in Connection.

Step 4 On the Edit Class of Service page, under Licensed Features, check the **Allow Users to Access Voicemail Using an IMAP Client and/or Single Inbox** check box and select one of the following options:

- Allow IMAP Users to Access Message Bodies
- Allow IMAP Users to Access Message Bodies Except on Private Messages

- Allow IMAP Users to Access Message Headers Only

On the Edit Class of Service page, under Licensed Features, check the **Allow Users to Access Voicemail Using an IMAP Client** check box and select one of the following options:

- Allow Users to Access Message Bodies
- Allow Users to Access Message Bodies Except on Private Messages
- Allow Users to Access Message Headers Only

Step 5 Select **Save**.

Step 6 Repeat Step 3 through Step 5 for all remaining classes of service for the Cisco Unified Mobile Communicator end users who will have access to voice messages in Connection.

Testing the Integration of Cisco Unity Connection 9.x with Cisco Unified Mobility Advantage

Do the following procedure.

To Test the Configuration

Step 1 From a phone, leave a message at the Cisco Unity Connection extension for a Cisco Unified Mobile Communicator user.

Step 2 By using Cisco Unified Mobile Communicator on the phone of the Cisco Unified Mobile Communicator user, confirm that the new voice message appears in the list of voice messages.

Step 3 Confirm that you can listen to the new voice message in Cisco Unified Mobile Communicator.

Step 4 Delete the new voice message in Cisco Unified Mobile Communicator.

CHAPTER 32

Setting Up Phone View in Cisco Unity Connection 9.x

The Phone View feature allows users to see search results on the LCD screens of their Cisco IP phones when they use the Find Message or the Display Message menu. When Phone View is enabled, Cisco Unity Connection users can search for the following types of voice messages:

- All new messages
- All messages
- Messages from a particular user
- Messages from all outside callers
- Messages from a particular outside caller

Phone View works only with Cisco Unified Communications Manager phone systems, and only with certain Cisco IP phones. See the applicable requirements documentation for detailed information:

- *System Requirements for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html .
- *System Requirements for Cisco Unity Connection in Cisco Unified CMBE Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucmbesysreqs.html.

Phone View can be used with either the touchtone or the voice-recognition version of the phone conversation.

To set up Phone View, complete the following tasks in the order presented:

1. Create a CTI application user in Cisco Unified CM, and associate the applicable user devices with this user. See the applicable procedure for your version of Cisco Unified CM:
   - To Configure Cisco Unified Communications Manager for Phone View (Cisco Unified CM 6.x and Later), page 32-2
   - To Configure Cisco Unified Communications Manager for Phone View (Cisco Unified CM 5.x), page 32-2
2. Enable Phone View for a phone system integration on Cisco Unity Connection. See the "To Enable Phone View for a Phone System (Cisco Unified Communications Manager Only)" procedure on page 32-3.
3. Enable Phone View for users. See the "Phone View in Cisco Unity Connection 9.x" section in the "Setting Up Features and Functionality That Are Controlled by User Account Settings in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity*

Connection Release 9.x, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

To Configure Cisco Unified Communications Manager for Phone View (Cisco Unified CM 6.x and Later)

Step 1 In Cisco Unified CM Administration, select **User Management > Application User**.

Step 2 On the Find and List Application Users page, select **Add New**.

Step 3 On the Application User Configuration page, do the following substeps to create a CTI user account that has access to all user phones for Phone View:

a. In the User ID field, enter a unique name for the application user. For example, enter "PhoneViewUser."

b. In the password field, enter a password for the application user.

c. In the Confirm Password field, re-enter the password that you entered in Step 3b.

d. Under Device Information, to the right of the Available Devices field, select **Find More Phones**.

e. On the Find and List Phones page, select the phones on which you want to enable Phone View and select **Add Selected**.

f. On the Application User Configuration page, confirm that the phones on which you want to enable Phone View appear in the Controlled Devices field so that the phones are associated with the application user.

For any phones that you selected in Step 3e. and that appear in the Available Devices field, select the applicable phones and select the **Down** arrow below the field to move the phones to the Controlled Devices field.

g. Under Permissions Information, select **Add to User Group**.

h. On the Find and List User Groups page, check the **Standard CCM Admin Users** check box and select **Add Selected**.

i. On the Application User Configuration page, select **Save**.

j. Under Application User Information, select **Edit Credential**.

k. On the Credential Configuration page, confirm that the **User Must Change at Next Sign-In** check box is not checked and select **Save**.

Step 4 Continue with the "To Enable Phone View for a Phone System (Cisco Unified Communications Manager Only)" section on page 32-3.

To Configure Cisco Unified Communications Manager for Phone View (Cisco Unified CM 5.x)

Step 1 In Cisco Unified Communications Manager Administration, select **User Management > Application User**.

Step 2 On the Find and List Application Users page, select **Add New**.

Step 3 On the Application User Configuration page, do the following sub-steps to create an application user account that has access to all subscriber phones for Phone View:

a. In the User ID field, enter the name of the a unique name for the application user. For example, enter "PhoneViewUser."

b. In the password field, enter a password for the application user.

c. In the Confirm Password field, re-enter the password that you entered in Step 3b.

d. Under Device Information, to the right of the Available Devices field, select **Find More Phones**.

e. On the Find and List Phones page, select the phones on which you want to enable Phone View and select **Add Selected**.

f. On the Application User Configuration page, confirm that the phones on which you want to enable Phone View appear in the Controlled Devices field so that the phones are associated with the application user.

   For any phones that you selected in Step 3e. and that appear in the Available Devices field, select the applicable phones and select the **Down** arrow below the field to move the phones to the Controlled Devices field.

g. On the Application User Configuration page, select **Save**.

h. Select **User Management > User Group**.

i. On the Find and List User Groups, select **Standard CCM Admin Users**.

j. On the User Group Configuration page, select **Add Application Users to Group**.

k. On the Find and List Application User page, check the check box for the application user that you created in Step Step 3g.

l. Select **Add Selected**.

Step 4 Continue with the "To Enable Phone View for a Phone System (Cisco Unified Communications Manager Only)" section on page 32-3.

To Enable Phone View for a Phone System (Cisco Unified Communications Manager Only)

Step 1 In Cisco Unity Connection Administration, expand **Telephony Integrations**, then select **Phone System**.

Step 2 Find the Cisco Unified Communications Manager phone system that you want to change.

Step 3 Under Phone View Settings, check the **Enable Phone View** check box.

Step 4 In the CTI Phone Access User Name field, enter the name of the application user that you created in Cisco Unified Communications Manager for the Phone View features. Note that the username is case-sensitive.

Step 5 In the CTI Phone Access Password field, enter the password for the application user.

Step 6 Select **Save**.

CHAPTER 33

Creating a Cisco Fax Server Integration in Cisco Unity Connection 9.x

See the following sections:

- About the Cisco Fax Server Integration in Cisco Unity Connection 9.x, page 33-1
- Task List for Creating a Cisco Fax Server Integration in Cisco Unity Connection 9.x, page 33-2
- Configuring the Cisco Fax Server in Cisco Unity Connection 9.x, page 33-2
- Configuring Cisco Unity Connection 9.x for the Cisco Fax Server Integration, page 33-6
- Configuring Cisco Unity Connection 9.x Users for the Cisco Fax Server Integration, page 33-7
- Testing the Cisco Fax Server Integration in Cisco Unity Connection 9.x, page 33-7
- Changing the Cisco Unity Connection 9.x Configuration for the Cisco Fax Server Integration, page 33-8
- Changing the Cisco Unity Connection 9.x User Configuration for the Cisco Fax Server Integration, page 33-9
- Configuring a Single Number to Receive Both Voice Calls and Faxes in Cisco Unity Connection 9.x, page 33-9

About the Cisco Fax Server Integration in Cisco Unity Connection 9.x

Cisco Unity Connection can integrate with the Cisco Fax Server so that users can do the following while on the phone or while using the Connection Web Inbox or Messaging Inbox:

- Receive faxes that are sent to the fax extension for the user. Depending on the system configuration, faxes will be available in the user mailboxes or in the user IMAP clients.
- Forward the faxes that they receive to a fax machine for printing.
- Forward the faxes that they receive to another user.

Inbound faxes are sent to the fax extension for the user. The Cisco Fax Server uses its email gateway to route the fax through SMTP to the user mailbox on the Connection server. The Text to Speech (TTS) feature cannot read faxes.

Note that you must manage and configure the Cisco Fax Server on the Cisco Fax Server, not in Cisco Unity Connection Administration.

The Cisco Fax Server handles the following functions:

- Routing inbound faxes to user mailboxes.
- Managing inbound and outbound faxes.
- Writing logs for inbound and outbound faxes.
- Generating reports for monitoring Cisco Fax Server statistics.
- Sending alerts to the administrator.
- Providing cover pages.
- Providing least-cost routing.

Task List for Creating a Cisco Fax Server Integration in Cisco Unity Connection 9.x

1. Review the system requirements to confirm that all requirements for the Cisco Fax Server and the Cisco Unity Connection server have been met. See the "Requirements" section on page 33-2.
2. Configure the Cisco Fax Server. See the "Configuring the Cisco Fax Server in Cisco Unity Connection 9.x" section on page 33-2.
3. Configure Cisco Unity Connection. See the "Configuring Cisco Unity Connection 9.x for the Cisco Fax Server Integration" section on page 33-6.
4. Configure the Connection user accounts. See the "Configuring Cisco Unity Connection 9.x Users for the Cisco Fax Server Integration" section on page 33-7.
5. Test the Cisco Fax Server integration. See the "Testing the Cisco Fax Server Integration in Cisco Unity Connection 9.x" section on page 33-7.

Note You can change the Cisco Unity Connection configuration and the user configuration after the Cisco Fax Server integration is created. See the "Changing the Cisco Unity Connection 9.x Configuration for the Cisco Fax Server Integration" section on page 33-8 and the "Changing the Cisco Unity Connection 9.x User Configuration for the Cisco Fax Server Integration" section on page 33-9.

Requirements

The Cisco Fax Server integration has the following requirements:

- Cisco Fax Server 9.0 or later installed as described in the *Cisco Fax Server Installation Guide* at http://www.cisco.com/en/US/products/ps6178/prod_installation_guides_list.html.
- Cisco Unity Connection installed as described in the *Installation Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/installation/guide/9xcucigx.html .

Configuring the Cisco Fax Server in Cisco Unity Connection 9.x

Do the following four procedures in the order given.

Note The Cisco Fax Server documentation is available at http://www.cisco.com/en/US/products/ps6178/tsd_products_support_series_home.html.

To Configure SMTP on the Cisco Fax Server

Step 1 To sign in to the Cisco Fax Server, on the Start menu, select **All Programs > RightFax Enterprise Fax Manager**.

Step 2 In the left pane of the RightFax Enterprise Fax Manager window, select the name of the Cisco Fax Server.

Step 3 In the right pane, under Service Name, scroll down to RightFax eTransport Module.

Step 4 Right-click **RightFax eTransport Module** and select **Configure Services**.

Step 5 Select the **eTransport** tab.

Step 6 In the SMTP Hostname field, enter the IP address of the Connection server.

Step 7 Select the **Custom Messages** tab.

Step 8 In the applicable fields, enter **[Fax Failure]** for the fax failure prefix before the beginning word of the text. The following fields are recommended for entering the fax failure prefix:

- Imaging Error
- Bad Form Type
- Bad Fax Phone Number
- Too Many Retries
- Sending Error
- Incomplete Fax
- Invalid Billing Code
- Fax Needs Approval
- Fax Number Blocked
- Human Answered Fax
- Fax Block by Do Not Dial

When the text at the beginning of the field matches the value for the Subject Prefix for Notification of a Failed Fax field on the System Settings > Advanced > Fax page of Cisco Unity Connection Administration, Connection notifies the user of the failed fax.

Step 9 In the Successful Send field, enter **[Fax Success]** for the fax success prefix before the beginning word of the text.

When the text at the beginning of the field matches the value for the Subject Prefix for Notification of a Successful Fax field on the System Settings > Advanced > Fax page of Connection Administration, Connection notifies the user of the successful fax.

Step 10 Select **OK**.

To Set Up the Windows Email Service for POP3

Step 1 On the Cisco Fax Server, on the Windows Start menu, select **Control Panel > Add or Remove Programs**.

Step 2 In the Add or Remove Programs window, in the left pane, select **Add/Remove Windows Components**.

Step 3 In the Windows Components wizard, on the Windows Components page, check the **E-mail Services** check box and select **Next**.

Step 4 On the Completing the Windows components Wizard page, select **Finish**.

Step 5 Close the Add or Remove Programs window.

Step 6 On the Windows Start menu, select **All Programs > Administrative Tools > POP3 Service**.

Step 7 In the POP3 Service window, in the left pane, expand the Cisco Fax Server and select the Cisco Fax Server node.

Step 8 In the right pane, select **Add Mailbox**.

Caution A domain for the POP3mailbox must be configured on the Cisco Fax Server. Otherwise, this option will not be available.

Step 9 In the Add Mailbox dialog box, in the Mailbox Name field, enter a name for the mailbox that receives faxes on the Cisco Fax Server.

Step 10 In the Password field, enter a password for this mailbox.

Note Make a note of this password because you will enter it in the "To Configure the POP3 Mailbox on the Cisco Fax Server" procedure on page 33-4.

Step 11 In the Confirm Password field, re-enter the password and select **OK**.

To Configure the POP3 Mailbox on the Cisco Fax Server

Step 1 In the RightFax Enterprise Fax Manager window, in the right pane, under Service Name, scroll down to RightFax E-mail Gateway Module.

Step 2 Right-click **RightFax E-mail Gateway Module** and select **Configure Service**.

Step 3 In the E-mail configuration dialog box, select **Add Gateway**.

Step 4 In the E-mail Gateway Selection dialog box, select **SMTP/POP3** and select **Select**.

Step 5 On the General tab, in the Server Address field, enter the IP address of the Cisco Fax Server.

Step 6 In the POP3 Mailbox Name field, enter **<POP3 mailbox name>@<Cisco Fax Server name>**.

Step 7 In the Mailbox Password field, enter the password for the POP3 mailbox that you entered in the "To Set Up the Windows Email Service for POP3" procedure on page 33-4.

Step 8 Uncheck the **Use IETF Fax Addressing** check box.

Step 9 Confirm that the **Send Through Default User When E-mail Sender Is Unknown** check box is checked.

Step 10 In the Email Delivery Direction field, confirm that **Both** is selected.

Step 11 Select **OK**.

To Configure IIS Relay for the POP3 Mailbox on the Cisco Fax Server

Step 1 On the Windows Start menu, select **Programs > Administrative Tool > Internet Information Services (IIS) Manger**.

Step 2 In the Internet Information Services (IIS) Manager window, in the left pane, under the RightFax node, right-click **Default SMTP Virtual Server** and select **Properties**.

Step 3 In the Default SMTP Virtual Server Properties dialog box, select the **Access** tab.

Step 4 Under Relay Restrictions, select **Relay**.

Step 5 In the Relay Restrictions dialog box, confirm that **Only the List Below** is selected.

Step 6 Under Computers, select **Add**.

Step 7 In the Computer dialog box, select Single Computer and enter the IP address of the Cisco Fax Server.

Step 8 Select **OK**.

Step 9 In the Relay Restrictions dialog box, select **OK**.

Step 10 In the Default SMTP Virtual Server Properties dialog box, select **OK**.

Step 11 Close the Internet Information Services (IIS) Manager window.

To Add Connection Users to the Cisco Fax Server

Step 1 In the RightFax Enterprise Fax Manager window, in the right pane, right-click **Users** and select **New**.

Step 2 In the User Edit dialog box, in the User ID field, enter the alias for the Connection user.

Step 3 In the User Name field, enter the name of the Connection user.

Step 4 In the Group ID field, confirm that **Everyone** is selected.

Step 5 In the Voicemail Subscriber ID field, enter the extension for the Connection user.

Step 6 In the E-mail Address field, enter **<Connection user alias>@<fully qualified DNS name of the Connection server>**.

Step 7 Select the **Inbound Routing** tab.

Step 8 In the Routing Code (DID/DNIS Number) field, enter the extension of the Connection user.

Step 9 In the Routing Type field, select **SMTP**.

Step 10 Select the **Notification** tab.

Step 11 In the Method field, select **SMTP**.

Step 12 In the Notification Address/Info field, enter **<Connection user alias>@<Connection server name>**.

Step 13 Select **OK**.

Step 14 Repeat Step 1 through Step 13 for all remaining users who will receive faxes.

Step 15 Close the RightFax Enterprise Fax Manager window.

Configuring Cisco Unity Connection 9.x for the Cisco Fax Server Integration

Do the following procedures.

To Allow Cisco Unity Connection to Access the IP Address Access of the Cisco Fax Server

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **SMTP Configuration > Server**.

Step 2 On the SMTP Server Configuration page, in the Edit menu, select **Search IP Address Access List**.

Step 3 On the Search IP Address Access List page, select **Add New**.

Step 4 On the New Access IP Address page, in the IP Address field, enter the IP address of the Cisco Fax Server.

Step 5 Select **Save**.

Step 6 Check the **Allow Connection** check box and select **Save**.

To Enable the Cisco Fax Server Integration on Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Fax Server**.

Step 2 On the Edit Fax Server page, check the **Enabled** check box.

Step 3 In the Fax Server Name field, enter a descriptive name for the Cisco Fax Server.

Step 4 In the SMTP Address field, enter the fully qualified SMTP address of the SMTP server on the Cisco Fax Server.

Caution This fully qualified SMTP address must match the server address and domain that are configured for the POP3 mailbox on the Cisco Fax Server. Otherwise, the integration will not function correctly.

Step 5 In the IP Address field, enter the IP address of the Cisco Fax Server.

Step 6 If you use a smart host SMTP server to deliver faxes from the Cisco Fax Server to Cisco Unity Connection, check the **Use Smart SMTP Host** check box. Otherwise, uncheck this check box.

Step 7 Select **Save**.

To Customize the Cisco Fax Server Integration on Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Advanced > Fax**.

Step 2 In the Fax Configuration page, in the Faxable File Types field, enter the file extensions (separated by a comma) that Connection keeps in messages that are delivered to the Cisco Fax Server. Connection removes all files with other file extensions before delivering the message to the Cisco Fax Server.

Step 3 In the Subject Prefix for Notification of a Successful Fax field, enter the prefix that the Cisco Fax Server adds to the Subject field of fax reports. When Connection detects this prefix, it generates a delivery receipt and places it in the user mailbox.

Step 4 In the Subject Prefix for Notification of a Failed Fax field, enter the prefix that the Cisco Fax Server adds to the Subject field of fax reports. When Connection detects this prefix, it generates a non-delivery receipt and places it in the user mailbox.

Step 5 Select **Save**.

Configuring Cisco Unity Connection 9.x Users for the Cisco Fax Server Integration

Do the following procedure.

Note The Cisco Fax Server must have a subscriber for each Connection user that you are configuring.

While on the phone, users can add or change the number for the fax machine that they send faxes to for printing.

To Configure Users

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **Users**.

Step 2 On the Search Users page, select the alias of a user.

Note If the user alias does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Search**.

Step 3 On the Edit User Basics page, in the Outgoing Fax Number field, enter the number for the fax machine that users send faxes to for printing.

Step 4 In the Outgoing Fax Server field, select the name of the Cisco Fax Server.

Step 5 Select **Save**.

Step 6 Repeat Step 2 through Step 5 for all remaining users.

Note You can use Bulk Edit mode to add or change fax extensions for multiple users at once.

Testing the Cisco Fax Server Integration in Cisco Unity Connection 9.x

Do the following procedure.

To Test the Cisco Fax Server Integration

Step 1 Send a fax to the fax extension of a user who has been configured for the Cisco Fax Server integration.

Step 2 Sign in to the Cisco Unity Connection mailbox of the user to whom you sent the fax.

Step 3 If the user account is configured for speech access, say **Play Messages**.

If the user account is not configured for speech access, press **1**, and then follow the prompts to list messages.

Step 4 When you hear the system announce the fax that you just sent, either say **Fax**, or press the applicable keys on the phone keypad to print the fax.

Changing the Cisco Unity Connection 9.x Configuration for the Cisco Fax Server Integration

You can change the Cisco Unity Connection configuration after the Cisco Fax Server integration was created. Do the applicable procedures.

To Change the Cisco Fax Server Integration on Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Fax Server**.

Step 2 On the Edit Fax Server Configuration page, check the **Enabled** check box to enable the integration with the Cisco Fax Server. Otherwise, uncheck this check box.

Step 3 In the Fax Server Name, enter a descriptive name for the Cisco Fax Server.

Step 4 In the SMTP Address field, enter the fully qualified SMTP address of the SMTP server on the Cisco Fax Server.

Step 5 In the IP Address field, enter the IP address of the Cisco Fax Server.

Step 6 If you use a smart host SMTP server to deliver faxes from the Cisco Fax Server to Cisco Unity Connection, check the **Use Smart SMTP Host** check box. Otherwise, uncheck this check box.

Step 7 Select **Save**.

To Change the Customized Settings for the Cisco Fax Server Integration on Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Advanced > Fax**.

Step 2 In the Fax Configuration page, in the Faxable File Types field, enter the file extensions (separated by a comma) that Connection keeps in messages that are delivered to the Cisco Fax Server. Connection removes all files with other file extensions before delivering the message to the Cisco Fax Server.

Step 3 In the Subject Prefix for Notification of a Successful Fax field, enter the prefix that the Cisco Fax Server adds to the Subject field of fax reports. When Connection detects this prefix, it generates a delivery receipt and places it in the user mailbox.

Step 4 In the Subject Prefix for Notification of a Failed Fax field, enter the prefix that the Cisco Fax Server adds to the Subject field of fax reports. When Connection detects this prefix, it generates a non-delivery receipt and places it in the user mailbox.

Step 5 Select **Save**.

Changing the Cisco Unity Connection 9.x User Configuration for the Cisco Fax Server Integration

You can change the user configuration after the Cisco Fax Server integration was created. Do the following procedure.

Note While on the phone, users can add or change the number for the fax machine that they send faxes to for printing.

To Change the User Configuration for the Cisco Fax Server Integration

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **Users**.

Step 2 On the Search Users page, select the alias of a user.

Note If the user alias does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Search**.

Step 3 On the Edit User Basics page, in the Outgoing Fax Number field, enter the number for the fax machine that users send faxes to for printing.

Step 4 In the Outgoing Fax Server field, select the name of the Cisco Fax Server.

Step 5 Select **Save**.

Step 6 Repeat Step 2 through Step 5 for all remaining users.

Note You can use Bulk Edit mode to change fax extensions for multiple users at once.

Configuring a Single Number to Receive Both Voice Calls and Faxes in Cisco Unity Connection 9.x

Cisco Unity Connection can use a single number to receive both voice calls and fax calls. In this configuration, incoming calls are directed to a Cisco gateway that can detect a CNG (fax) tone. When a CNG tone is detected, the gateway forwards the fax call to the Cisco Fax Server. When no CNG tone is detected, the gateway forwards the voice call to Connection.

Task List

1. Download the TCL script file app_fax_detect.2.1.2.3.tcl or later. See the "Configuring Fax Detection" chapter of the applicable *Cisco IOS Fax and Modem Services over IP Application Guide* at http://www.cisco.com/cisco/web/psa/default.html?mode=prod.
2. Configure the Cisco IOS gateway for fax detection. See the "Configuring T.38 Fax Relay" chapter of the applicable *Cisco IOS Fax and Modem Services over IP Application Guide* at http://www.cisco.com/cisco/web/psa/default.html?mode=prod.

Requirements

- Cisco Fax Server 9.0 or later installed as described in the *Cisco Fax Server Installation Guide* at http://www.cisco.com/en/US/products/ps6178/prod_installation_guides_list.html.
- Cisco Unity Connection installed as described in the *Installation Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/installation/guide/9xcucigx.html .
- The TCL script file app_fax_detect.2.1.2.3.tcl or later.

CHAPTER 34

Managing SpeechView Transcription Error Codes in Cisco Unity Connection

See the following sections:

- Overview of SpeechView Transcription in Cisco Unity Connection, page 34-1
- Default Transcription Error Codes in Cisco Unity Connection, page 34-2
- Add New Transcription Error Code in Cisco Unity Connection, page 34-3
- Modifying the Transcription Error Code in Cisco Unity Connection, page 34-3
- Deleting the Transcription Error Code in Cisco Unity Connection, page 34-4
- Search the Transcription Error Codes in Cisco Unity Connection, page 34-4

Overview of SpeechView Transcription in Cisco Unity Connection

When a sender sends a voice mail to a SpeechView user, the received voice message is sent to the third-party external transcription service. The transcription of voice messages is sent back to Cisco Unity Connection. However, in case of any transcription failure, the third-party external transcription service sends an error code to Connection.

Cisco Unity Connection Administration interface shows the five default error codes that can be sent by the third-party external transcription service. Only the administrator has the privileges to modify/delete the existing error code and the associated description. In addition, he or she has the privilege to add a new error code. Whenever a new error code is sent by the third-party external transcription service, the administrator needs to add a new error code along with the appropriate description.

Note the following:

- The error code and the error code description should be in the default system language.
- If the error code provisioning is not done, then the error code received from the third-party external transcription service will be displayed.

Note In Cisco Unity Connection, to avoid timeout or failure of the registration request with the third-party external transcription service, make sure to:

- Remove the email disclaimers from the inbound and the outbound email messages between Connection and the third-party external transcription service.

- Maintain the SpeechView registration messages in the S/MIME format.

Default Transcription Error Codes in Cisco Unity Connection

In Cisco Unity Connection Administration page> Unified Messaging> SpeechView Transcription, when you select **Error Codes**, then on the Search Transcription Error Codes page, the default error codes appear on the screen. These default error codes are sent by the third-party external transcription service to the SpeechView user. The Table 34-1 shows the default error codes in the Cisco Unity Connection Administration interface.

Table 34-1 Default Error Codes

Error Code Name	Description
Fault	**Registration Failed** When Connection tries to register with the third-party external transcription service and the registration fails.
Inaudible	**The system was unable to transcribe the message** When a voice mail sent by a SpeechView user is inaudible at the third-party external transcription service site.
Rejected	**The system was unable to transcribe the message** When the third-party external transcription service is not able to transcript the voice mail sent by a SpeechView user.
Time-out	**The transcription request timed out** Whenever there is a response timeout from the third-party external transcription service.
Unconverted	**The transcription has failed. Call voice mail to hear the message** When the conversion request contains more than one audio file attachment, the third-party external transcription service rejects the messages.

Note The bold text in the table above shows the default error code description displayed to the user.

Add New Transcription Error Code in Cisco Unity Connection

To add a New Transcription Error Code

Step 1 In Cisco Unity Connection Administration, expand **Unified Messaging> SpeechView Transcription**, then select **Error Codes**.

Step 2 On the Search Transcription Error Codes page, select **Add New**.

Step 3 On the New Transcription Error Code page, enter the error code and the error code description to create a new error code.

Note Fields marked with * (an asterisk) are required.

Step 4 Select **Save**.

Step 5 To save and search the existing server codes on the New Transcription Error Code page, select the **Transcription Error Code** menu.

Step 6 To clear-off the new error code values before saving, select the **Reset** menu.

See Also

- New Transcription Error Code

Modifying the Transcription Error Code in Cisco Unity Connection

To Modify a Transcription Error Code

Step 1 In Cisco Unity Connection Administration, expand **Unified Messaging> SpeechView Transcription**, then select **Error Codes**.

Step 2 On the Search Transcription Error Codes page, select the display name of the error code that you want to modify.

Note If the error code that you want to modify does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 On the Edit Transcription Error Code (Fault) page, change the error code or the error code description, as applicable.

Step 4 When you have finished changing settings on the Edit Transcription Error Code (Fault) page, select **Save**.

See Also

- Edit Transcription Error Code

Deleting the Transcription Error Code in Cisco Unity Connection

To Delete a Transcription Error Code

Step 1 In Cisco Unity Connection Administration, expand **Unified Messaging> SpeechView Transcriptions**, then select **Error Codes**.

Step 2 On the Search Transcription Error Code page, check the check box adjacent to the display name of the schedule that you want to delete.

Note If the error code that you want to delete does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 3 Select **Delete Selected**.

Step 4 In the dialog box that asks you to confirm the deletion, select **OK**.

See Also

- Delete Transcription Error Code

Search the Transcription Error Codes in Cisco Unity Connection

To a search Transcription Error Code

Step 1 In Cisco Unity Connection Administration, expand **Unified Messaging> SpeechView Transcription**, then select **Error Codes**.

Step 2 On the Search Transcription Error Codes page, select **Error Codes** or **Error Code Desc** from the drop-down list.

Step 3 Enter the error code or error code description in the text box.

Step 4 Select **Find**.

See Also

- Search Transcription Error Codes

CHAPTER 35

Creating Calendar and Contact Integrations in Cisco Unity Connection

See the following sections:

- About Calendar Integrations in Cisco Unity Connection, page 35-1
- About Contact Integrations in Cisco Unity Connection, page 35-2
- Creating a Calendar and Contact Integration with Exchange 2007 in Cisco Unity Connection, page 35-2
- Creating a Calendar and Contact Integration with Exchange 2003 in Cisco Unity Connection, page 35-9
- Creating a Calendar and Contact Integration with Cisco Unified MeetingPlace in Cisco Unity Connection, page 35-16
- Creating a Calendar Integration with Cisco Unified MeetingPlace Express in Cisco Unity Connection, page 35-21

For information on configuring calendar and contact integrations in Cisco Unity Connection, see the "Configuring Cisco Unity Connection 9.x and Microsoft Exchange for Unified Messaging" chapter and/or the "Configuring Cisco Unity Connection 9.x and Cisco Unified MeetingPlace for Unified Messaging" chapter of the *Unified Messaging Guide for Cisco Unity Connection Release*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

About Calendar Integrations in Cisco Unity Connection

When integrated with supported calendar applications (Exchange 2007, Exchange 2003, Cisco Unified MeetingPlace, or Cisco Unified MeetingPlace Express), Cisco Unity Connection enables users to do the following by phone:

- Hear a list of upcoming meetings (Outlook meetings only).
- Join a meeting that is in progress (MeetingPlace and MeetingPlace Express meetings only).
- Hear a list of the participants for a meeting.
- Send a message to the meeting organizer.
- Send a message to the meeting participants.
- Accept or decline meeting invitations (Outlook meetings only).
- Set up immediate meetings (MeetingPlace and MeetingPlace Express meetings only).

- Cancel a meeting (meeting organizers only).

About Contact Integrations in Cisco Unity Connection

When integrated with Exchange 2007 or Exchange 2003, Cisco Unity Connection enables users to import Exchange contacts by using the Connection Messaging Assistant web tool. The contact information can then be used in rules that users create in the Cisco Unity Connection Personal Call Transfer Rules web tool and when users place outgoing calls by using voice commands.

Creating a Calendar and Contact Integration with Exchange 2007 in Cisco Unity Connection

If you have Exchange 2007 installed, you can integrate Cisco Unity Connection with Exchange 2007 so that users can do the following:

- Review upcoming meetings by phone.
- Import Exchange contacts. The contact information can be used in rules that users create in the Personal Call Transfer Rules web tool and when users place outgoing calls by using voice commands.

For information on configuring calendar and contact integrations in Cisco Unity Connection, see the "Configuring Cisco Unity Connection 9.x and Microsoft Exchange for Unified Messaging" chapter and/or the "Configuring Cisco Unity Connection 9.x and Cisco Unified MeetingPlace for Unified Messaging" chapter of the *Unified Messaging Guide for Cisco Unity Connection Release*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Task List for Creating a Calendar and Contact Integration with Exchange 2007 in Cisco Unity Connection

1. Review the system requirements to confirm that all requirements for Exchange 2007 and the Cisco Unity Connection server have been met. See the "Requirements for the Exchange 2007 Calendar and Contact Integration in Cisco Unity Connection" section on page 35-3.
2. Configure Exchange 2007. See the "Configuring Exchange 2007 for the Calendar and Contact Integration in Cisco Unity Connection" section on page 35-3.
3. Configure Connection. See the "Configuring Cisco Unity Connection for the Exchange 2007 Calendar and Contact Integration" section on page 35-6.
4. *(When enabling personal call transfer rules only)* Verify that the users or templates are assigned to a class of service that enables them to use the personal call transfer rules feature.
5. Configure the Connection users. See the "Configuring Users for the Exchange 2007 Calendar and Contact Integration in Cisco Unity Connection" section on page 35-7.
6. Test the calendar integration. See the "Testing the Exchange 2007 Calendar Integration in Cisco Unity Connection" section on page 35-8.
7. To teach users how to use the Connection calendar, refer them to the following:

- For listing, joining, and scheduling meetings, see the "Cisco Unity Connection Phone Menus and Voice Commands" chapter of the *User Guide for the Cisco Unity Connection Phone Interface (Release 9.x)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/phone/b_9xcucugphone.html.
- For importing Exchange contacts, see the "Managing Your Personal Contacts" chapter of the *User Guide for the Cisco Unity Connection Messaging Assistant Web Tool (Release 9.x)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/assistant/b_9xcucugasst.html.
- For using personal call transfer rules, see the *User Guide for the Cisco Unity Connection Personal Call Transfer Rules Web Tool (Release 9.x)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/pctr/b_9xcucugpctr.html.

Requirements for the Exchange 2007 Calendar and Contact Integration in Cisco Unity Connection

The calendar and contact integration with Exchange 2007 has the following requirements:

- Exchange 2007 as described in the "Requirements for Accessing Calendar Information for Meetings" and "Requirements for Accessing Exchange Contact Information" sections of *System Requirements for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html .
- Cisco Unity Connection installed as described in the *Installation Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/installation/guide/9xcucigx.html .

Configuring Exchange 2007 for the Calendar and Contact Integration in Cisco Unity Connection

Do the following tasks to configure Exchange 2007 for the calendar and contact integration:

1. Confirm that the Exchange 2007 server has been configured to include the "Client Access" role.
2. Do the "To Configure Access to Exchange 2007 for the Calendar and Contact Integration in Cisco Unity Connection" procedure on page 35-3.
3. *(Optional)* If you are using SSL for secure access to the Exchange 2007 server, do the "To Configure Secure Access to Exchange 2007 for the Calendar and Contact Integration (With SSL) in Cisco Unity Connection" procedure on page 35-4.

To Configure Access to Exchange 2007 for the Calendar and Contact Integration in Cisco Unity Connection

Step 1 On the Exchange server, open the **Internet Services (IIS) Manager** application.

Step 2 Go to **Internet Information Services > <server name> > Web Sites > Default Web Site**.

Step 3 Right-click **Exchange** and select **Properties**.

Step 4 In the Exchange Properties dialog box, select the **Virtual Directory** tab.

Step 5 Under Content For This Resource Should Come From, select **A Directory Located On This Computer.**

Step 6 Confirm the Local Path is set to **\\.\BackOfficeStorage\<your-domain.com>\MBX**.

Step 7 Select the **Read** check box.

Step 8 Select the **Directory Security** tab.

Step 9 Under Authentication and Access Control, select **Edit**.

Step 10 In the Authenticated Access section of the Authentication Methods dialog box, check the check boxes for one or more of the following options:

- Integrated Windows authentication (sometimes referred to as NTLM)
- Basic Authentication
- Digest Authentication for Windows Domain Servers

Step 11 Select **OK**.

Step 12 In the Exchange Properties dialog box, select **OK**.

Step 13 Go to **Internet Information Services > <server name> > Web Service Extensions**.

Step 14 In the right-hand pane, select **WebDav** and confirm that the status is "Allowed." If the status is not "Allowed", click **Allow.**

Step 15 On the Exchange server, open the **Exchange Management Console**.

Step 16 Go to **Server Configuration > Mailbox.**

Step 17 Do the following for each mailbox that you want to configure for the calendar and contact integration:

a. In the upper middle pane, select the mailbox name.

b. In the lower middle pane, select the **WebDav** tab.

c. Right-click **Exchange (Default Web Site)** and select **Properties**.

d. In the Exchange (Default Web Site) Properties dialog box, select the **Authentication** tab.

e. Select **Use One or More Standard Authentication Methods** and select the same authentication method(s) that you configured in Step 10.

Step 18 Click **OK**.

Step 19 Open the **Exchange Management Shell**.

Step 20 In the Exchange Management Shell, enter the following command:

iisbreset /noforce

Step 21 Press **Enter**.

To Configure Secure Access to Exchange 2007 for the Calendar and Contact Integration (With SSL) in Cisco Unity Connection

Note If you have already configured secure IMAP with SSL and have enabled the certificate for both IMAP and IIS, then you can skip the following procedure and continue with the "Configuring Cisco Unity Connection for the Exchange 2007 Calendar and Contact Integration" section on page 35-6.

Step 1 On the Exchange Server, open the **Exchange Management Shell** application.

Step 2 Enter the following command, where <Exchange server> is the IP address or fully qualified domain name of the Exchange server and <friendly name> is the friendly name that you chose for the Exchange server:

- **new-exchangecertificate -generaterequest -domainname <Exchange server> -friendlyname <friendly name>-path c:\csr.txt**

Caution The domain name for the Exchange server must be the IP address or the fully qualified domain name (recommended) so that the Connection server can successfully ping the Exchange server. Otherwise, the calendar and contact integration may not function correctly.

Step 3 Press **Enter**.

A Certificate Signing Request (CSR) file with the name Csr.txt is created in the root directory.

Step 4 Send the CSR file to a Certification Authority (CA), which generates and sends back a new certificate.

Note You must have a copy of the CA public root certificate or public root certificate chain. This certificate is needed for configuring Connection to trust the Exchange 2007 server.

Step 5 Save the new certificate in a location that is accessible to the Exchange server on which you want to import the certificate.

Step 6 On the Exchange Server, open the Exchange Management Shell application.

Step 7 Enter the following command, where <path> is the full path of the new certificate that you received from the CA:

import-exchangecertificate -path <path>

Step 8 Press **Enter**.

Step 9 Enter the following command:

dir cert:\localmachine\my | fl

Step 10 Press **Enter**.

Step 11 Highlight the "thumbprint" property and press **Ctrl-C** to copy it to the clipboard.

Step 12 If Connection will be configured to use IMAP to access both email and calendar data from Exchange 2007, enter the following command, where <thumbprint> is the "thumbprint" that you copied in Step 11:

enable-exchangecertificate -thumbprint <thumbprint> -services "IIS,IMAP"

If Connection will not be configured to use IMAP but will be configured to use calendar data from Exchange 2007, enter the following command, where <thumbprint> is the "thumbprint" that you copied in Step 11:

enable-exchangecertificate -thumbprint <thumbprint> -services "IIS"

Step 13 Press **Enter**.

Step 14 If you want data transmitted as clear text, skip the remaining steps in this procedure and continue with the "Configuring Cisco Unity Connection for the Exchange 2007 Calendar and Contact Integration" section on page 35-6. Otherwise, open the **IIS Manager** application.

Step 15 Go to **IIS > <server name> > Web Sites > Default Web Site**.

Step 16 Right-click **Default Web Site** and select **Properties**.

Step 17 In the Properties dialog box, select the **Directory Security** tab.

Step 18 Under Secure Communications, select **Edit**.

Step 19 Check the **Require Secure Channel** check box.

Step 20 Select **OK**.

Step 21 In the Properties dialog box, select **OK**.

Configuring Cisco Unity Connection for the Exchange 2007 Calendar and Contact Integration

Do the following procedure.

To Configure Cisco Unity Connection for the Exchange 2007 Calendar and Contact Integration

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **External Services**.

Step 2 On the Search External Services page, select **Add New**.

Step 3 On the New External Service page, in the Type list, select **Exchange 2007 External Service Template**.

Step 4 Check the **Enabled** check box to enable the calendar and contact integration.

Step 5 In the Display Name field, enter a descriptive name.

Step 6 In the Server field, enter the IP address or host name for the Exchange 2007 server.

Step 7 In the Authentication Mode field, select the applicable setting to match the authentication mode that is used by the Exchange server.

Step 8 In the Security Transport field, select the applicable setting:

- **None**—Connection does not use a secure connection with the Exchange 2007 server.
- **SSL**—Connection uses an SSL connection with the Exchange 2007 server.

Step 9 If you selected "SSL" and you want Connection to validate the Exchange 2007 server certificate, check the **Validate Server Certificate** check box.

Self-signed certificates cannot be validated. If you selected SSL and you are using self-signed certificates, do not check the **Validate Server Certificate** check box, or Connection will not be able to access Exchange.

Caution The CN value on the server certificate subject line or the subjectAltName:dnsname field of the server certificate must match the setting of Server field. Otherwise, validation of the server certificate will fail.

The root certificate or all certificates in a root certificate chain of the Certification Authority (CA) that signed the server certificate must be installed as Connection-trust certificates in Cisco Unified Operating System Administration. Otherwise, validation of the server certificate will fail.

Step 10 Under Service Capabilities, check the **User Access to Calendar and Personal Contacts** check box.

Step 11 Select **Verify**. A message appears indicating whether the Cisco Unity Connection configuration has been successfully verified.

If the verification fails, confirm the configuration for Exchange 2007 and Cisco Unity Connection.

Step 12 Select **Save**.

Configuring Users for the Exchange 2007 Calendar and Contact Integration in Cisco Unity Connection

Do the following procedure.

Caution Exchange 2007 must have a mailbox and Active Directory must have a user account for each Connection user that you are configuring.

To Configure Users for the Exchange 2007 Calendar and Contact Integration in Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **Users**.

Step 2 On the Search Users page, select the alias of a user.

Note If the user alias does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Search**.

Step 3 On the Edit User Basics page, on the Edit menu, select **External Service Accounts**.

Step 4 On the External Service Accounts page, select **Add New**.

Step 5 On the New External Service Accounts page, in the External Service field, select the display name that you entered in the "To Configure Cisco Unity Connection for the Exchange 2007 Calendar and Contact Integration" procedure on page 35-6.

Step 6 In the Email Address field, enter the Exchange email address in Active Directory for the user.

Step 7 In the Sign-In Type field, select the applicable option:

- **Use Connection Alias**—This option is useful when the Active Directory domain alias for the user is the same as the Connection user alias. Connection signs in the user with the Connection user alias.
- **Use User ID Provided Below**—*(Recommended)* Enter the Active Directory domain alias for the user (useful when the User ID setting is different from the Connection user alias). Connection signs in the user with the setting in this field.

Step 8 *(Only when the Use User ID Provided Below option is selected in Step 7)* In the User ID field, enter the User ID setting from Active Directory.

Step 9 If known, in the Password field, enter the Active Directory domain password for the user. Connection signs in the user with the setting in this field.

Note If you leave the Password field blank, users must sign in to Cisco Personal Communications Assistant and enter their password on the External Services Accounts page. For details, see the "Changing Your Cisco Unity Connection Passwords" chapter of the *User Guide for the Cisco Unity Connection Messaging Assistant Web Tool (Release 9.x)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/assistant/b_9xcucugasst.html.

Step 10 Under Service Capabilities, check the **User Access to Calendar and Personal Contacts** check box.

Note A user can have only one external service that has the User Access to Calendar and Personal Contacts check box or the User Access to Calendar check box checked.

Step 11 Select **Save**.

Step 12 To check the calendar configuration for the user, select **Test**. The Task Execution Results window appears with the test results.

If any part of the test fails, verify the configuration for Exchange 2007, Active Directory, Cisco Unity Connection, and the Connection user.

Step 13 Repeat Step 2 through Step 12 for all remaining users.

Testing the Exchange 2007 Calendar Integration in Cisco Unity Connection

Do the following procedure.

To Test the Configuration for the Exchange 2007 Calendar Integration in Cisco Unity Connection

Step 1 Sign in to Outlook.

Step 2 On the Go menu, select **Calendar**.

Step 3 On the File menu, select **New > Meeting Request**.

Step 4 Enter values in the required fields to schedule a new meeting for the current time, and invite a user who has an account on Cisco Unity Connection.

Step 5 Select **Send**.

Step 6 Sign in to the Cisco Unity Connection mailbox of the user that you invited to the Outlook meeting in Step 4.

Step 7 If the user account is configured for speech access, say **Play Meetings**.

If the user account is not configured for speech access, press **6**, and then follow the prompts to list meetings.

Connection reads the information about the Exchange 2007 meeting.

Creating a Calendar and Contact Integration with Exchange 2003 in Cisco Unity Connection

If you have Exchange 2003 installed, you can integrate Cisco Unity Connection with Exchange 2003 so that users can do the following:

- Review upcoming meetings by phone or while using the Cisco Personal Communications Assistant (PCA).
- Import Active Directory contacts. The contact information can be used in rules that users create in the Personal Call Transfer Rules web tool and when users place outgoing calls by using voice commands.

For information on configuring calendar and contact integrations in Cisco Unity Connection, see the "Configuring Cisco Unity Connection 9.x and Later and Microsoft Exchange for Unified Messaging" chapter and/or the "Configuring Cisco Unity Connection 9.x and Later and Cisco Unified MeetingPlace for Unified Messaging" chapter of the *Unified Messaging Guide for Cisco Unity Connection Release*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Task List for Creating a Calendar and Contact Integration with Exchange 2003 in Cisco Unity Connection

1. Review the system requirements to confirm that all requirements for Exchange 2003 and the Cisco Unity Connection server have been met. See the "Requirements for the Exchange 2003 Calendar and Contact Integration in Cisco Unity Connection" section on page 35-10.
2. Configure Exchange 2003. See the "Configuring Exchange 2003 for the Calendar and Contact Integration in Cisco Unity Connection" section on page 35-10.
3. Configure Connection. See the "Configuring Cisco Unity Connection for the Exchange 2003 Calendar and Contact Integration" section on page 35-13.
4. *(When enabling personal call transfer rules only)* Verify that the users or templates are associated with a class of service that enables them to use the personal call transfer rules feature.
5. Configure the Connection users. See the "Configuring Users for the Exchange 2003 Calendar and Contact Integration in Cisco Unity Connection" section on page 35-14.
6. Test the calendar integration. See the "Testing the Exchange 2003 Calendar Integration in Cisco Unity Connection Do the following procedure." section on page 35-15.
7. To teach users how to use the Connection calendar, refer them to the following:

- For listing, joining, and scheduling meetings, see the "Cisco Unity Connection Phone Menus and Voice Commands" chapter of the *User Guide for the Cisco Unity Connection Phone Interface (Release 9.x)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/phone/b_9xcucugphone.html.
- For importing Active Directory contacts, see the "Managing Your Personal Contacts" chapter of the *User Guide for the Cisco Unity Connection Messaging Assistant Web Tool (Release 9.x)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/assistant/b_9xcucugasst.html.

- For using personal call transfer rules, see the *User Guide for the Cisco Unity Connection Personal Call Transfer Rules Web Tool (Release 9.x)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/pctr/b_9xcucugpctr.html.

Requirements for the Exchange 2003 Calendar and Contact Integration in Cisco Unity Connection

The calendar and contact integration with Exchange 2003 has the following requirements:

- Exchange 2003 as described in the "Requirements for Accessing Calendar Information for Meetings" and "Requirements for Accessing Exchange Contact Information" sections of *System Requirements for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.
- Cisco Unity Connection installed as described in the *Installation Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/installation/guide/9xcucigx.html.

Configuring Exchange 2003 for the Calendar and Contact Integration in Cisco Unity Connection

Do the applicable procedures.

To Create the Privileged Service Account for the Exchange 2003 Calendar and Contact Integration in Cisco Unity Connection

Step 1 On the Domain Controller, open **Active Directory Users and Computers**.

Step 2 Right-click **Users** and select **New > User**.

Step 3 Create a domain user account with alias **cucsvc**.

Note It is not necessary to create a mailbox for this user.

Step 4 On the Exchange server, on the Windows Start menu, select **Programs > Microsoft Exchange > System Manager**.

Step 5 Under Servers, right-click the server name and select **Properties**.

Step 6 In the Properties dialog box, select the **Security** tab.

Step 7 Select **Add** and add **cucsvc** (the alias for the domain account that you created in Step 3) to the list of accounts with permissions on the store.

Step 8 Select **Check Names**.

Step 9 Select **OK**.

Step 10 In the list, select **cucsvc** (the alias for the domain account that you created in Step 3).

Step 11 Set the permissions for the domain account alias to allow for Receive As, Send As, and Administer Information Store. Deny all other permissions.

Step 12 In the Properties dialog box, select **OK**.

If you are not using SSL for access to the Exchange 2003 server, do the "To Configure Basic Access to Exchange 2003 for the Calendar and Contact Integration (Without SSL) in Cisco Unity Connection" procedure on page 35-11.

If you are using SSL for secure access to the Exchange 2003 server, do the "To Configure Secure Access to Exchange 2003 for the Calendar and Contact Integration (With SSL) in Cisco Unity Connection" procedure on page 35-12.

To Configure Basic Access to Exchange 2003 for the Calendar and Contact Integration (Without SSL) in Cisco Unity Connection

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Step 1 On the Domain Controller, go to **Active Directory Users and Computers**.

Step 2 Under Users, select all user accounts that have calendars that you want Connection to access.

Step 3 Right-click the highlighted users and select **Exchange Tasks**.

Step 4 In the Exchange Tasks dialog box, select **Configure Exchange Features**.

Step 5 Under Protocols, select **Outlook Web Access**.

Step 6 Select the **Enable** icon.

Step 7 Select **Next**.

Step 8 Select **Finish**.

Step 9 On the Exchange server, open the **Exchange System Manager** application.

Step 10 Go to **Servers > <server name> > Protocols > HTTP > Exchange Virtual Server**.

Step 11 Select the **Settings** tab.

Step 12 Confirm that the **Enable Forms Based Authentication** check box is unchecked.

Step 13 Select **OK**.

Step 14 Go to **Servers > <server name> > Protocols > HTTP > Exchange Virtual Server > Exchange**.

Step 15 Right-click **Exchange** and select **Properties**.

Step 16 In the Properties dialog box, select the **Access** tab.

Step 17 Confirm that the following check boxes are checked:

- Read
- Write
- Directory Browsing

Step 18 Select **Authentication**.

Step 19 Confirm that one or more of the following options are enabled:

- Basic
- Digest
- Integrated Windows Authentication

Step 20 Select **OK**.

Step 21 In the Properties dialog box, select **OK**.

Step 22 Open the **IIS Manager** application.

Step 23 Go to **IIS > <server name> > Web Sites > Default Web Site**.

Step 24 Right-click **Default Web Site** and select **Properties**.

Step 25 In the Properties dialog box, select the **Directory Security** tab.

Step 26 Under Authentication and Access Control, select **Edit**.

Step 27 Confirm that the enabled authentication schemes match those that you enabled in Step 19.

Step 28 Select **OK**.

Step 29 In the Properties dialog box, select **OK**.

To Configure Secure Access to Exchange 2003 for the Calendar and Contact Integration (With SSL) in Cisco Unity Connection

Step 1 On the Exchange server, open the **IIS Manager** application.

Step 2 Go to **IIS > Web Sites > Default Web Site**.

Step 3 Right-click **Default Web Site** and select **Properties**.

Step 4 In the Properties dialog box, select the **Directory Security** tab.

Step 5 Under Secure Communications, select **Server Certificate**.

Step 6 Select **Next**.

Step 7 Select **Create a New Certificate**.

Note If this option is not available, you must remove the existing certificate and do this step again.

Step 8 Select **Prepare the Request Now, But Send It Later**.

Step 9 Follow the prompts in the wizard to enter the applicable information for your organization.

Caution The “common name” for the Exchange server certificate must be the IP address or the fully qualified DNS name (recommended) of the Exchange server. Otherwise, the calendar and contact integration may not function correctly.

Step 10 Save the Certificate Signing Request (CSR) as a file.

Step 11 Send the CSR file to a Certification Authority (CA), which generates and sends back a new certificate.

Note You must have a copy of the CA public root certificate or public root certificate chain. This certificate is needed for configuring Connection to trust the Exchange 2003 server.

Step 12 Return to the **IIS Manager** application.

Step 13 Go to **IIS > Web Sites > Default Web Site**.

Step 14 Right-click **Default Web Site** and select **Properties**.

Step 15 In the Properties dialog box, select the **Directory Security** tab.

Step 16 Under Secure Communications, select **Server Certificate**.

Step 17 Select **Next**.

Step 18 Select **Process the Pending Request and Install the Certificate** and select **Next**.

Step 19 Browse to the local file system and select the new certificate that CA sent.

Step 20 Select **Next**.

Step 21 Confirm that the certificate information is valid and select **Next**.

Step 22 Select **Finish**.

Step 23 In the Properties dialog box, select **OK**.

Step 24 Return to the **IIS Manager** application.

Step 25 Go to **IIS > <sever name> > Web Sites > Default Web Site**.

Step 26 Right-click **Default Web Site** and select **Properties**.

Step 27 In the Properties dialog box, select the **Directory Security** tab.

Step 28 Under Secure Communications, select **Edit**.

Step 29 Check the **Require Secure Channel** check box.

Step 30 Select **OK**.

Step 31 In the Properties dialog box, select **OK**.

Configuring Cisco Unity Connection for the Exchange 2003 Calendar and Contact Integration

Do the following procedure.

To Configure Cisco Unity Connection for the Exchange 2003 Calendar and Contact Integration

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **External Services**.

Step 2 On the Search External Services page, select **Add New**.

Step 3 On the New External Service page, in the Type list, select **Exchange 2003 External Service Template**.

Step 4 Check the **Enabled** check box to enable the external service.

When this check box is not checked, the integration with Exchange 2003 is disabled.

Step 5 In the Display Name field, enter a descriptive name.

Step 6 In the Server field, enter the IP address or host name for the Exchange 2003 server.

Step 7 In the Authentication Mode field, select the applicable setting to match the authentication mode that is used by the Exchange server.

Step 8 In the Security Transport field, select the applicable setting:

- **None**—Connection does not use a secure connection with the Exchange 2003 server.
- **SSL**—Connection uses an SSL connection with the Exchange 2003 server.

Step 9 If you selected "SSL" and you want Connection to validate the Exchange 2003 server certificate, check the **Validate Server Certificate** check box.

Self-signed certificates cannot be validated. If you selected SSL and you are using self-signed certificates, do not check the Validate Server Certificate check box, or Connection will not be able to access Exchange.

Caution The CN value on the server certificate subject line or the subjectAltName:dnsname field of the server certificate must match the setting of Server field. Otherwise, validation of the server certificate will fail.

The root certificate or all certificates in a root certificate chain of the Certification Authority (CA) that signed the server certificate must be installed as Connection-trust certificates in Cisco Unified Operating System Administration. Otherwise, validation of the server certificate will fail.

Step 10 In the Alias field, enter the Windows domain and alias for the privileged service account that Connection uses to sign in to the Exchange 2003 server. (For example, enter "doman\alias").

This setting must match the user ID for the privileged service account that is configured in Exchange 2003.

Step 11 In the Password field, enter the password for the privileged service account that Connection uses to sign in to the Exchange 2003 server.

This setting must match the user password for the privileged service account that is configured in Exchange 2003.

Step 12 Under Service Capabilities, check the **User Access to Calendar and Personal Contacts** check box.

Step 13 Select **Save**.

Step 14 To check the integration with Exchange 2003, select **Test**. The Task Execution Results window appears with the test results.

If any part of the test fails, verify the configuration for Exchange 2003 and Cisco Unity Connection.

Configuring Users for the Exchange 2003 Calendar and Contact Integration in Cisco Unity Connection

Do the following procedure.

Note Exchange 2003 must have a mailbox and Active Directory must have a user for each Connection user that you are configuring.

To Configure Users for the Exchange 2003 Calendar and Contact Integration in Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **Users**.

Step 2 On the Search Users page, select the alias of a user.

Note If the user alias does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Search**.

Step 3 On the Edit User Basics page, on the Edit menu, select **External Service Accounts**.

Step 4 On the External Service Accounts page, select **Add New**.

Step 5 On the New External Service Accounts page, in the External Service field, select the display name that you entered in the "To Configure Cisco Unity Connection for the Exchange 2003 Calendar and Contact Integration" procedure on page 35-13.

Step 6 In the Email Address field, enter the primary SMTP address in Active Directory for the user.

Step 7 In the Sign-In Type field, select the applicable option:

- **Use Connection Alias**—This option is useful when the User ID setting in Active Directory is the same as the Connection user alias. Connection signs in the user with the Connection user alias.
- **Use User ID Provided Below**—Enter the User ID setting from Active Directory (useful when the User ID setting is different from the Connection user alias). Connection signs in the user with the setting in this field.

Step 8 *(Only when the Use User ID Provided Below option is selected in Step 7)* In the User ID field, enter the User ID setting from Active Directory.

Step 9 Under Service Capabilities, check the **User Access to Calendar and Personal Contacts** check box.

Note A user can have only one external service that has the User Access to Calendar and Personal Contacts check box or the User Access to Calendar check box checked.

Step 10 Select **Save**.

Step 11 To check the calendar configuration for the user, select **Test**. The Task Execution Results window appears with the test results.

If any part of the test fails, verify the configuration for Exchange 2003, Cisco Unity Connection, and the user.

Step 12 Repeat Step 2 through Step 11 for all remaining users.

Testing the Exchange 2003 Calendar Integration in Cisco Unity Connection Do the following procedure.

To Test the Exchange 2003 Calendar Integration in Cisco Unity Connection

Step 1 Sign in to Outlook.

Step 2 On the Go menu, select **Calendar**.

Step 3 On the File menu, select **New > Meeting Request**.

Step 4 Enter values in the required fields to schedule a new meeting for the current time, and invite a user who has an account on Cisco Unity Connection.

Step 5 Select **Send**.

Step 6 Sign in to the Connection mailbox of the user that you invited to the Outlook meeting in Step 4.

Step 7 If the user account is configured for speech access, say **Play Meetings**.

If the user account is not configured for speech access, press **6**, and then follow the prompts to list meetings.

Connection reads the information about the Exchange 2003 meeting.

Creating a Calendar and Contact Integration with Cisco Unified MeetingPlace in Cisco Unity Connection

If you have Cisco Unified MeetingPlace installed, you can integrate Cisco Unity Connection with Cisco Unified MeetingPlace so that users can review upcoming meetings and join active meetings by phone.

For information on configuring calendar and contact integrations in Cisco Unity Connection, see the "Configuring Cisco Unity Connection 9.x and Later and Microsoft Exchange for Unified Messaging" chapter and/or the "Configuring Cisco Unity Connection 9.x and Later and Cisco Unified MeetingPlace for Unified Messaging" chapter of the *Unified Messaging Guide for Cisco Unity Connection*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Task List for Creating a Calendar Integration with Cisco Unified MeetingPlace in Cisco Unity Connection

1. Review the system requirements to confirm that all requirements for Cisco Unified MeetingPlace and the Cisco Unity Connection server have been met. See the "Requirements for the Cisco Unified MeetingPlace Calendar Integration in Cisco Unity Connection" section on page 35-16.
2. Configure Cisco Unified MeetingPlace. See the "Configuring Cisco Unified MeetingPlace for the Calendar Integration in Cisco Unity Connection" section on page 35-17.
3. Configure Connection. See the "Configuring Cisco Unity Connection for the Cisco Unified MeetingPlace Calendar Integration" section on page 35-18.
4. Configure the Connection users. See the "Configuring Users for the Cisco Unified MeetingPlace Calendar Integration in Cisco Unity Connection" section on page 35-19.
5. Test the calendar integration. See the "Testing the Calendar Integration for the Cisco Unified MeetingPlace Calendar Integration in Cisco Unity Connection" section on page 35-20.
6. To teach users how to list, join, and schedule meetings, see the "Cisco Unity Connection Phone Menus and Voice Commands" chapter of the *User Guide for the Cisco Unity Connection Phone Interface (Release 9.x)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/phone/b_9xcucugphone.html.

Requirements for the Cisco Unified MeetingPlace Calendar Integration in Cisco Unity Connection

The calendar integration with Cisco Unified MeetingPlace has the following requirements:

- Cisco Unified MeetingPlace as described in the "Requirements for Accessing Calendar Information for Meetings" section of *System Requirements for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html .
- Cisco Unity Connection installed as described in the *Installation Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/installation/guide/9xcucigx.html .

Configuring Cisco Unified MeetingPlace for the Calendar Integration in Cisco Unity Connection

Do the following procedure.

To Configure Cisco Unified MeetingPlace for the Calendar Integration in Cisco Unity Connection

Step 1 Sign in to the Cisco Unified MeetingPlace Application Server as an administrator.

Step 2 Select **User Configuration > User Profiles**.

Step 3 Select **Add New**.

Step 4 Enter the following values in the required fields to create a privileged service account:

First Name	Leave this field blank.
Last Name	Enter **Cisco Unity Connection**.
User ID	Enter **cucsvc** or another user ID that you want.
User Password	Enter the applicable password.
Profile Number	Enter the applicable profile number.
Profile Password	Enter the applicable profile password.
Type of User	Select **System Administrator**.

Note The values that you enter for the User ID, User Password, Profile Number, and Profile Password fields will be used in the "Configuring Cisco Unity Connection for the Cisco Unified MeetingPlace Calendar Integration" section on page 35-18.

Step 5 Select **Save**.

Step 6 Sign out of Cisco Unified MeetingPlace.

Caution If you do not sign out of Cisco Unified MeetingPlace, the test will fail in the "To Test the Cisco Unified MeetingPlace Configuration for the Calendar Integration in Cisco Unity Connection" procedure on page 35-18.

To Test the Cisco Unified MeetingPlace Configuration for the Calendar Integration in Cisco Unity Connection

Step 1 In the Address field of a web browser, if SSL is not enabled, enter the following URL (where <server> is the IP address or host name of the Cisco Unified MeetingPlace server):

http://<server>/webservices/services/meetingservice?wsdl

If SSL is enabled, enter the following URL:

https://<server>/webservices/services/meetingservice?wsdl

Step 2 Press **Enter**.

Step 3 When prompted to sign in, enter the user ID and password for the privileged service account that you created in the "To Configure Cisco Unified MeetingPlace for the Calendar Integration in Cisco Unity Connection" procedure on page 35-17.

The Cisco Unified MeetingPlace WSDL download page appears with the title "XFire Services."

Configuring Cisco Unity Connection for the Cisco Unified MeetingPlace Calendar Integration

Do the following procedure.

To Configure Cisco Unity Connection for the Cisco Unified MeetingPlace Calendar Integration

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **External Services**.

Step 2 On the Search External Services page, select **Add New**.

Step 3 On the New External Service page, in the Type list, select **MeetingPlace 7.0/8.0 External Service Template**.

Step 4 Check the **Enabled** check box to enable the external service.

When this check box is not checked, the integration with Cisco Unified MeetingPlace is disabled.

Step 5 In the Display Name field, enter a descriptive name.

Step 6 In the Server field, enter the IP address or host name for the Cisco Unified MeetingPlace server.

Step 7 In the Transfer Extension Dial String field, enter the digits that Connection must dial to transfer users on the phone to the opening greeting of Cisco Unified MeetingPlace server.

Step 8 In the Security Transport field, select the applicable setting:

- **None**—Connection does not use a secure connection with the Cisco Unified MeetingPlace server.
- **SSL**—Connection uses an SSL connection with the Cisco Unified MeetingPlace server.

Step 9 If you selected "SSL" and you want Connection to validate the Cisco Unified MeetingPlace server certificate, check the **Validate Server Certificate** check box.

Self-signed certificates cannot be validated. If you selected SSL and you are using self-signed certificates, do not check the Validate Server Certificate check box, or Connection will not be able to access Cisco Unified MeetingPlace.

Caution The CN value on the server certificate subject line or the subjectAltName:dnsname field of the server certificate must match the setting of Server field. Otherwise, validation of the server certificate will fail.

The root certificate or all certificates in a root certificate chain of the Certification Authority (CA) that signed the server certificate must be installed as Connection-trust certificates in Cisco Unified Operating System Administration. Otherwise, validation of the server certificate will fail.

Step 10 In the Alias field, enter the alias for the privileged service account that Connection uses to sign in to the Cisco Unified MeetingPlace server.

This setting must match the User ID setting for the privileged service account that you configured in the "Configuring Cisco Unified MeetingPlace for the Calendar Integration in Cisco Unity Connection" section on page 35-17.

Step 11 In the Password field, enter the password for the privileged service account that Connection uses to sign in to the Cisco Unified MeetingPlace server.

This setting must match the User Password setting for the privileged service account that you configured in the "Configuring Cisco Unified MeetingPlace for the Calendar Integration in Cisco Unity Connection" section on page 35-17.

Step 12 Under Service Capabilities, check the applicable check boxes:

- **User Access to Calendar**—Check this check box so that users can hear of their upcoming meetings by phone.
- **MeetingPlace Scheduling and Joining**—Check this check box so that users can schedule and join meetings.

Step 13 Select **Save**.

Step 14 To check the integration with Cisco Unified MeetingPlace, select **Test**. The Task Execution Results window appears with the test results.

If any part of the test fails, verify the configuration for Cisco Unified MeetingPlace and Cisco Unity Connection.

Configuring Users for the Cisco Unified MeetingPlace Calendar Integration in Cisco Unity Connection

Do the following procedure.

Caution Cisco Unified MeetingPlace must have an end user for each Connection user that you are configuring.

To Configure Users for the Cisco Unified MeetingPlace Calendar Integration in Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **Users**.

Step 2 On the Search Users page, select the alias of a user.

Step 3 On the Edit User Basics page, on the Edit menu, select **External Service Accounts**.

Step 4 On the External Service Accounts page, select **Add New**. The New External Service Account page appears.

Step 5 In the External Service field, select the display name that you entered in the "Configuring Cisco Unity Connection for the Cisco Unified MeetingPlace Calendar Integration" section on page 35-18.

Step 6 In the Sign-In Type field, select the applicable option:

- **Use Connection Alias**—This option is useful when the Cisco Unified MeetingPlace profile alias is the same as the Connection user alias. Connection signs in the user with the Connection user alias. Cisco Unified MeetingPlace provides information on public and private meetings to the user.
- **Use Server Guest Account**—Connection signs in the user as a guest, without using the Connection user alias or the User ID setting. Cisco Unified MeetingPlace provides information only on public meetings to the user.
- **Use User ID Provided Below**—Enter the profile alias from Cisco Unified MeetingPlace (useful when the Cisco Unified MeetingPlace profile alias is different from the Connection user alias). Connection signs in the user with the setting in this field. Cisco Unified MeetingPlace provides information on public and private meetings to the user.

Step 7 *(Only when the Use User ID Provided Below option is selected in Step 6)* In the User ID field, enter the User ID setting from Cisco Unified MeetingPlace.

Step 8 Under Service Capabilities, check the applicable check boxes:

- **MeetingPlace Scheduling and Joining**—Check this check box so that the user can schedule and join meetings.
- **Primary Meeting Service**—If the MeetingPlace Scheduling and Joining check box is checked for two or more external services, check this check box so that Cisco Unified MeetingPlace meetings will be set up through this Cisco Unified MeetingPlace server. Uncheck this check box so that Cisco Unified MeetingPlace meetings will be set up through another server.

Step 9 Select **Save**.

Step 10 To check the calendar configuration for the user, select **Test**. The Task Execution Results window appears with the test results.

If any part of the test fails, verify the configuration for Cisco Unified MeetingPlace, Cisco Unity Connection, and the user.

Step 11 Repeat Step 2 through Step 10 for all remaining users.

Testing the Calendar Integration for the Cisco Unified MeetingPlace Calendar Integration in Cisco Unity Connection

Do the following procedure.

To Test the Configuration for the Cisco Unified MeetingPlace Calendar Integration in Cisco Unity Connection

Step 1 Sign in to Cisco Unified MeetingPlace as an end user.

Step 2 Select **Schedule**.

Step 3 Enter values in the required fields to schedule a new meeting for the current time, and invite a user who has an account on Cisco Unity Connection.

Step 4 Sign in to the Connection mailbox of the user that you invited to the Cisco Unified MeetingPlace meeting in Step 3.

Step 5 If the user account is configured for speech access, say **Play Meetings**.

If the user account is not configured for speech access, press **6**, and then follow the prompts to list meetings.

Step 6 When you hear the system announce the Cisco Unified MeetingPlace meeting that you just scheduled, either say **Join**, or press the applicable keys on the phone keypad to join the meeting.

Creating a Calendar Integration with Cisco Unified MeetingPlace Express in Cisco Unity Connection

If you have Cisco Unified MeetingPlace Express installed, you can integrate Cisco Unity Connection with Cisco Unified MeetingPlace Express so that users can review upcoming meetings and join active meetings by phone or while using the Cisco Personal Communications Assistant (PCA).

Use the following task list to create a calendar integration.

For information on configuring calendar and contact integrations in Cisco Unity Connection, see the "Configuring Cisco Unity Connection 9.x and Later and Microsoft Exchange for Unified Messaging" chapter and/or the "Configuring Cisco Unity Connection 9.x and Later and Cisco Unified MeetingPlace for Unified Messaging" chapter of the *Unified Messaging Guide for Cisco Unity Connection*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Task List for Creating a Calendar Integration with Cisco Unified MeetingPlace Express in Cisco Unity Connection

1. Review the system requirements to confirm that all requirements for Cisco Unified MeetingPlace Express and the Cisco Unity Connection server have been met. See the "Requirements for the Cisco Unified MeetingPlace Express Calendar Integration in Cisco Unity Connection" section on page 35-22.
2. Configure Cisco Unified MeetingPlace Express. See the "Configuring Cisco Unified MeetingPlace Express for the Calendar Integration in Cisco Unity Connection" section on page 35-22.
3. Configure Connection. See the "Configuring Cisco Unity Connection for the Cisco Unified MeetingPlace Express Calendar Integration" section on page 35-23.
4. Configure the Connection users. See the "Configuring Users for the Cisco Unified MeetingPlace Express Calendar Integration in Cisco Unity Connection" section on page 35-25.
5. Test the calendar integration. See the "Testing the Cisco Unified MeetingPlace Express Calendar Integration in Cisco Unity Connection" section on page 35-26.

6. To teach users how to list, join, and schedule meetings, see the "Cisco Unity Connection Phone Menus and Voice Commands" chapter of the *User Guide for the Cisco Unity Connection Phone Interface (Release 9.x)* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user/guide/phone/b_9xcucugphone.html.

Requirements for the Cisco Unified MeetingPlace Express Calendar Integration in Cisco Unity Connection

The calendar integration with Cisco Unified MeetingPlace Express has the following requirements:

- Cisco Unified MeetingPlace Express as described in the "Requirements for Accessing Calendar Information for Meetings" section of *System Requirements for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.
- Cisco Unity Connection installed as described in the *Installation Guide for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/installation/guide/9xcucigx.html.

Configuring Cisco Unified MeetingPlace Express for the Calendar Integration in Cisco Unity Connection

Do the following procedure.

To Configure Cisco Unified MeetingPlace Express for the Calendar Integration in Cisco Unity Connection

Step 1 Sign in to Cisco Unified MeetingPlace Express and select **Administration**.

Step 2 Select **User Configuration > User Profile Management**.

Step 3 Select **Add New**.

Step 4 Enter the following values in the required fields to create an API user:

First Name	Leave this field blank.
Last Name	Enter **Cisco Unity Connection**.
User ID	Enter **cucsvc** or another user ID that you want.
User Password	Enter the applicable password.
Profile Number	Enter the applicable profile number.
Type of User	Select **API User**.

Note The values that you enter for the User ID, User Password, and Profile Number fields will be used in the "Configuring Cisco Unity Connection for the Cisco Unified MeetingPlace Express Calendar Integration" section on page 35-23.

Step 5 Select **Save**.

Step 6 Sign out of Cisco Unified MeetingPlace Express.

Caution If you do not sign out of Cisco Unified MeetingPlace Express, the test will fail in the "To Test the Cisco Unified MeetingPlace Express Configuration for the Calendar Integration in Cisco Unity Connection" procedure on page 35-23.

To Test the Cisco Unified MeetingPlace Express Configuration for the Calendar Integration in Cisco Unity Connection

Step 1 In the Address field of a web browser, if SSL is not enabled, enter the following URL (where <server> is the IP address or host name of the Cisco Unified MeetingPlace Express server):

http://<server>.com/webservices/services/meetingservice?wsdl

If SSL is enabled, enter the following URL:

https://<server>.com/webservices/services/meetingservice?wsdl

Step 2 Press **Enter**.

Step 3 When prompted to sign in, enter the user ID and password for the API user that you entered in the "To Configure Cisco Unified MeetingPlace Express for the Calendar Integration in Cisco Unity Connection" procedure on page 35-22.

The Cisco Unified MeetingPlace Express WSDL download page appears with the title "XFire Services."

Configuring Cisco Unity Connection for the Cisco Unified MeetingPlace Express Calendar Integration

Do the following procedure.

To Configure Cisco Unity Connection for the Cisco Unified MeetingPlace Express Calendar Integration

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **External Services**.

Step 2 On the Search External Services page, select **Add New**.

Step 3 On the New External Service page, in the Type list, select **MeetingPlace Express 2.0 External Service Template**.

Step 4 Check the **Enabled** check box.

When this check box is not checked, the calendar integration with Cisco Unified MeetingPlace Express is disabled.

Step 5 In the Display Name field, enter a descriptive name. For example, enter "Cisco Unified MeetingPlace Express calendar."

Step 6 In the Server field, enter the IP address or host name for the Cisco Unified MeetingPlace Express server.

Step 7 In the Transfer Extension Dial String field, enter the digits that Connection must dial to transfer users on the phone to the opening greeting of Cisco Unified MeetingPlace Express server.

Step 8 In the Security Transport field, select the applicable setting:

- **None**—Connection does not use a secure connection with the Cisco Unified MeetingPlace Express server.
- **SSL**—Connection uses an SSL connection with the Cisco Unified MeetingPlace Express server.

Step 9 If you selected "SSL" and you want Connection to validate the Cisco Unified MeetingPlace Express server certificate, check the **Validate Server Certificate** check box.

Self-signed certificates cannot be validated. If you selected SSL and you are using self-signed certificates, do not check the Validate Server Certificate check box, or Connection will not be able to access Cisco Unified MeetingPlace Express.

Caution The CN value on the server certificate subject line or the subjectAltName:dnsname field of the server certificate must match the setting of Server field. Otherwise, validation of the server certificate will fail.

The root certificate or all certificates in a root certificate chain of the CA that signed the server certificate must be installed as Connection-trust certificates in Cisco Unified Operating System Administration. Otherwise, validation of the server certificate will fail.

Step 10 In the Alias field, enter the alias for the API user that Connection uses to sign in to the Cisco Unified MeetingPlace Express server.

This setting must match the User ID setting for the API user that you configured in the "Configuring Cisco Unified MeetingPlace Express for the Calendar Integration in Cisco Unity Connection" section on page 35-22.

Step 11 In the Password field, enter the password for the API user that Connection uses to sign in to the Cisco Unified MeetingPlace Express server.

This setting must match the User Password setting for the API user that you configured in the "Configuring Cisco Unified MeetingPlace Express for the Calendar Integration in Cisco Unity Connection" section on page 35-22.

Step 12 Under Service Capabilities, check the applicable check boxes:

- **User Access to Calendar**—Check this check box so that users can hear their upcoming meetings on the phone.
- **MeetingPlace Scheduling and Joining**—Check this check box so that users can schedule and join meetings.

Step 13 Select **Save**.

Step 14 To check the integration with Cisco Unified MeetingPlace Express, select **Test**. The Task Execution Results window appears with the test results.

If any part of the test fails, verify the configuration for Cisco Unified MeetingPlace Express and Cisco Unity Connection.

Configuring Users for the Cisco Unified MeetingPlace Express Calendar Integration in Cisco Unity Connection

Do the following procedure.

Note Cisco Unified MeetingPlace Express must have an end user for each Connection user that you are configuring.

To Configure Users for the Cisco Unified MeetingPlace Express Calendar Integration in Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **Users**.

Step 2 On the Search Users page, select the alias of a user.

Step 3 On the Edit User Basics page, on the Edit menu, select **External Service Accounts**.

Step 4 On the External Service Accounts page, select **Add New**. The New External Service Accounts page appears.

Step 5 In the External Service field, select the display name that you entered in the "Configuring Cisco Unity Connection for the Cisco Unified MeetingPlace Express Calendar Integration" section on page 35-23.

Step 6 In the Sign-In Type field, select the applicable option:

- **Use Connection Alias**—This option is useful when the Cisco Unified MeetingPlace Express profile alias is the same as the Connection user alias. Connection signs in the user with the Connection user alias. Cisco Unified MeetingPlace Express provides information on public and private meetings to the user.
- **Use Server Guest Account**—Connection signs in the user as a guest, without using the Connection user alias or the User ID setting. Cisco Unified MeetingPlace Express provides information only on public meetings to the user.
- **Use User ID Provided Below**—Enter the profile alias from Cisco Unified MeetingPlace Express (useful when the Cisco Unified MeetingPlace Express profile alias is different from the Connection user alias). Connection signs in the user with the setting in this field. Cisco Unified MeetingPlace Express provides information on public and private meetings to the user.

Step 7 *(Only when the Use User ID Provided Below option is selected in Step 6)* In the User ID field, enter the User ID setting from Cisco Unified MeetingPlace Express.

Step 8 *(Only if enabled)* In the User Profile Number field, enter the User ID setting from Cisco Unified MeetingPlace Express. Connection signs in the user with the setting in this field.

Step 9 Under Service Capabilities, check the applicable check boxes:

- **User Access to Calendar**—Check this check box so that users can hear their upcoming meetings by phone.

Note A user can have only one external service that has the User Access to Calendar and Personal Contacts check box or the User Access to Calendar check box checked.

- **MeetingPlace Scheduling and Joining**—Check this check box so that the user can schedule and join meetings.

- **Primary Meeting Service**—If the MeetingPlace Scheduling and Joining check box is checked for two or more external services, check this check box so that Cisco Unified MeetingPlace Express meetings will be set up through this Cisco Unified MeetingPlace Express server. Uncheck this check box so that Cisco Unified MeetingPlace Express meetings will be set up through another server.

Step 10 Select **Save**.

Step 11 To check the calendar configuration for the user, select **Test**. The Task Execution Results window appears with the test results.

If any part of the test fails, verify the configuration for Cisco Unified MeetingPlace Express, Cisco Unity Connection, and the user.

Step 12 Repeat Step 2 through Step 11 for all remaining users.

Testing the Cisco Unified MeetingPlace Express Calendar Integration in Cisco Unity Connection

Do the following procedure.

To Test the Cisco Unified MeetingPlace Express Calendar Integration in Cisco Unity Connection

Step 1 Sign in to Cisco Unified MeetingPlace Express as an end user.

Step 2 Select **Schedule**.

Step 3 Enter values in the required fields to schedule a new meeting for the current time, and invite a user who has an account on Cisco Unity Connection.

Step 4 Sign in to the Connection mailbox of the user that you invited to the Cisco Unified MeetingPlace Express meeting in Step 3.

Step 5 If the user account is configured for speech access, say **Play Meetings**.

If the user account is not configured for speech access, press **6**, and then follow the prompts to list meetings.

Step 6 When you hear the system announce the Cisco Unified MeetingPlace Express meeting that you just scheduled, either say **Join**, or press the applicable keys on the phone keypad to join the meeting.

CHAPTER 36

Configuring Service Parameters in Cisco Unity Connection 9.x

Caution Information in this chapter is applicable in a Cisco Unity Connection configuration only. If you have installed Cisco Unified Communications Manager Business Edition (CMBE), for information on configuring service parameters see the *Cisco Unified Communications Manager Administration Guide* at http://www.cisco.com/en/US/products/ps7273/prod_maintenance_guides_list.html.

Service parameters for Cisco Unity Connection allow you to configure different services in Cisco Unified Serviceability. You can view a list of parameters and their descriptions by selecting the question mark button in the Service Parameter Configuration window. You can view the list with a particular parameter at the top by selecting that parameter.

If you turn off a service in Cisco Unified Serviceability, Connection retains any updated service parameter values. If you start the service again, Connection sets the service parameters to the changed values.

For more information about Cisco Unified Serviceability services, see the *Cisco Unified Serviceability Administration Guide* at http://www.cisco.com/en/US/products/ps6509/prod_maintenance_guides_list.html.

Caution Some changes to service parameters can cause system failure. We recommend that you do not make any changes to service parameters unless you fully understand the feature that you are changing or unless the Cisco Technical Assistance Center (Cisco TAC) specifies the changes.

See the following sections:

- Configuring Service Parameters for a Cisco Unified Serviceability Service in Cisco Unity Connection 9.x, page 36-1
- Description of Service Parameters in Cisco Unity Connection 9.x, page 36-2

Configuring Service Parameters for a Cisco Unified Serviceability Service in Cisco Unity Connection 9.x

Use the following procedure to configure the service parameters for a particular Cisco Unified Serviceability service.

To Configure Service Parameters for a Cisco Unified Serviceability Service

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Service Parameters**.

Step 2 On the Service Parameters page, in the Server list, select the name of the Cisco Unity Connection server.

Step 3 In the Service list, select the service that contains the parameter that you want to update.

Note The Service Parameters page displays all services (active and not active).

Step 4 Update the applicable parameter value. To set all service parameters for the service to the default values, select **Set to Default**.

To view a list of parameters and their descriptions, select the **?** button on the right side of the page.

Step 5 Select **Save**.

Description of Service Parameters in Cisco Unity Connection 9.x

Table 36-1 describes the service parameters for Cisco Unity Connection.

Table 36-1 Service Parameter Descriptions

Service Parameter	Description
Cisco AMC Service	
Primary Collector	Specifies the Primary AMC (AlertMgr and Collector) server that collects clusterwide real-time information. Value must match one of the configured servers and, preferably, a server with no or minimal call processing. This is a required field.
Failover Collector	Specifies the Failover AMC (AlertMgr and Collector) server. The server specified in this parameter is used to collect real-time data when the Primary AMC is down or unreachable. No data is collected if Failover Collector is not specified when Primary Collector is not active.
Data Collection Enabled	Determines whether collecting and alerting of real-time cluster information is enabled (True) or disabled (False). This is a required field. Default setting: True
Data Collection Polling Rate	Specifies the AMC collecting rate, in seconds. This is a required field. Default setting: 30 Minimum: 15 Maximum: 300 Unit: seconds

Table 36-1 Service Parameter Descriptions (continued)

Service Parameter	Description
Server Synchronization Period	Specifies the amount of time, in seconds, that backup AMC (AlertMgr and Collector) waits at startup in order to determine if primary AMC is up and actively collecting. This parameter prevents backup AMC from assuming a collecting task prematurely. This is a required field. **Note** Restart the AMC service on the backup server for the parameter change to take effect. Default setting: 60 Minimum: 15 Maximum: 300 Unit: seconds
RMI Registry Port Number	Specifies the port number to turn on RMI registry. This port is used for primary or backup AMC to locate other AMC, and for the RTMT servlet to find primary/backup AMC. This is a required field. **Note** Restart the AMC service for the parameter change to take effect. Default setting: 1099 Minimum: 1024 Maximum: 65535
RMI Object Port Number	Specifies the port number used for RMI remote object. This port is used for AMC to exchange data with other AMC as well as with RTMT servlet. This is a required field. **Note** Restart the AMC service for the parameter change to take effect. Default setting: 1090 Minimum: 1024 Maximum: 65535
AlertMgr Enabled	*(For AMC troubleshooting purpose only.)* Enables and disables the alerting (email/epage) feature. This is a required field. **Note** Restart the AMC service for the parameter change to take effect. Default setting: True

Table 36-1 Service Parameter Descriptions (continued)

Service Parameter	Description
Logger Enabled	*(For AMC troubleshooting purpose only.)* Enables and disables the logging feature (CSV files for generating reports). This is a required field. **Note** Restart the AMC service for the parameter change to take effect. Default setting: True
Cisco Database Layer Monitor Service	
Maintenance Time	Specifies the hour to begin CDR database maintenance. Use this parameter in combination with the Maintenance Window parameter. For example, specifying 22 in this parameter means that the CDR maintenance would begin at 10 p.m. If the Maintenance Window parameter is set to 2, it means that CDR maintenance will run every hour from 10 p.m. to midnight. If both parameters are set to 24, CDR maintenance will run every hour all day long. During CDR maintenance, the system deletes the oldest CDRs and associated CMRs, so the maximum number of records, as specified in the Max CDR Records parameter, is maintained. Also during maintenance, the system issues an alarm if the CDR file count exceeds 200, and checks for replication links between servers that have been broken and tries to reinitialize them. This is a required field. Default setting: 24 Minimum: 1 Maximum: 24 Unit: hours
Maintenance Window	Specifies the window of time during which CDR maintenance is performed on an hourly basis. For example, if this parameter is set to 12, CDR maintenance will run every hour for 12 hours, starting at the time that is specified in the Maintenance Time parameter. For example, if the Maintenance Time parameter is set to 7, and this parameter is set to 12, CDR maintenance will begin at 7 a.m. and run every hour until 7 p.m. If both parameters are set to 24, CDR maintenance will run every hour all day long. During CDR maintenance, the system deletes the oldest CDRs and associated CMRs, so the maximum number of records, as specified in the Max CDR Records parameter, is maintained. Also, during maintenance, the system issues an alarm if the CDR file count exceeds 200, and checks for replication links between servers that have been broken and tries to reinitialize them. This is a required field. Default setting: 2 Minimum: 1 Maximum: 24 Unit: hours

Table 36-1 Service Parameter Descriptions (continued)

Service Parameter	Description
Table Out of Sync Detection	When set to On, collects Database Replication Status summary every day during the Maintenance window and compares the output of three consecutive days to determine if there are tables that have been out of sync for all three days. If that is the case, it will trigger an alert. This parameter, by default, is set to Off and is run at time specified in Maintenance Time parameter. This is a required field. Default: Off
MaintenanceTaskTrace	Sets the Maintenance Task trace. You must turn on this parameter to get a performance counter trace from the Maintenance Task. This is a required field. Default setting: Off
Cisco DirSync	
Maximum Number of Agreements	Specifies the maximum number of LDAP directories (also known as agreements) that can be configured in the LDAP Directory window in Cisco Unified CM Administration (System > LDAP > LDAP Directory). Creating more than one LDAP directory helps in synchronizing users from more than one search base. This is a required field. **Note** You must restart the Cisco DirSync service for changes to this parameter to take effect. Default setting: 5 Minimum: 1 Maximum: 5
Maximum Number of Hosts	Specifies the maximum number of LDAP host names that can be configured for failover purposes. This is a required field. **Note** You must restart the Cisco DirSync service for changes to this parameter to take effect. Default setting: 3 Minimum: 1 Maximum: 3
Retry Delay on Host Failure (secs)	Specifies the number of seconds to delay before retrying the connection to the first LDAP server (host name) that is configured in Cisco Unified CM Administration. After a connection failure, the system tries three times to reconnect to the same host. When the third attempt is also unsuccessful, the system attempts to connect to the next host name in the list in hierarchical order. This is a required field. Default setting: 5 Minimum: 5 Maximum: 60

Table 36-1 Service Parameter Descriptions (continued)

Service Parameter	Description
Retry Delay on HostList Failure (mins)	Specifies the number of minutes to delay before retrying every LDAP server (host names) that is configured in Cisco Unified CM Administration. Connection to LDAP servers are retried in the order they appear in Unified CM Administration and three connection attempts are made based on the delay interval specified in the Retry Delay On Host Failure service parameter. When all three connection attempts fail to result in a connection to the LDAP server, the next LDAP server in the list is tried. If the system is unable to connect to any of the servers in the list, an error gets logged and the system waits until the next sync interval before retrying to connect starting with the first server in the list. This is a required field. Default setting: 10 Minimum: 10 Maximum: 120
LDAP Connection Timeout (secs)	Specifies the number of seconds allowed for establishing the LDAP connection. The LDAP service provider aborts the connection attempt if a connection cannot be established in the specified amount of time. This is a required field. Default setting: 5 Minimum: 1 Maximum: 60
Delayed Sync Start Time (mins)	Specifies the delay in starting the directory synchronization process after the Cisco DirSync service starts. Directory synchronization ensures that the users in the LDAP server are copied to the Cisco Unified Communications Manager database. This is a required field. **Note** You must restart the Cisco Tomcat service for changes to this parameter to take effect. Default setting: 5 Minimum: 5 Maximum: 60
Cisco RIS Data Collector Parameters	
RIS Cluster TCP Port	Specifies specifies the static TCP port that the Cisco RIS Data Collector services in the cluster use to communicate with each other. Note: You must restart the Cisco RIS Data Collector service on each node in the cluster for the parameter change to take effect. This is a required field. **Note** Restart the Cisco RIS Data Collector service on each node in the cluster for the parameter change to take effect. Default setting: 2555 Minimum: 1024 Maximum: 65535

Table 36-1 Service Parameter Descriptions (continued)

Service Parameter	Description
RIS Client TCP Port	Specifies the static TCP port that the RIS clients use to communicate with the Cisco RIS Data Collector services in the cluster. Note: You must restart Cisco Database Layer Monitor service, and the Cisco the RIS Data Collector service on each node in the cluster for the parameter change to take effect. This is a required field. **Note** Restart Cisco Database Layer Monitor service, and the Cisco RIS Data Collector services on each node in the cluster for the parameter change to take effect. Default setting: 2556 Minimum: 1024 Maximum: 65535
RIS Client Timeout	the time, in seconds, that a RIS client will wait for a reply from the Cisco RIS Data Collector service. The RIS Data Collector service running on each node internally distributes 90 percent of the value specified in this parameter. To set this parameter correctly for a cluster with multiple nodes, specify a value that is 4 times (or more) the number of nodes that are running the RIS Data Collector service in your cluster. For example, if you have 7 nodes in the cluster that are running the RIS Data Collector service, set this value to 28 or higher. For a cluster with two nodes, set this parameter to 10, the minimum allowed value (or higher). Choosing a higher value helps ensure that the RIS Data Collector service on one node has enough time to receive a reply from the RIS Data Collector service on another node. The time needed for a reply can vary based on factors such as the node's processor speed, number of devices registered to the node, amount of server memory, the volume of calls, and other performance-affecting factors. NOTE: If the value in this parameter is set lower than the recommended 4x nodes value, Unified CM will internally increase the value to allow that needed minimum number of seconds per node. Actual response might be shorter; this value only indicates the maximum allowed time so choosing a higher value will not negatively affect performance. This is a required field. Default setting: 30 Minimum: 10 Maximum: 1000 Unit: seconds

Table 36-1 Service Parameter Descriptions (continued)

Service Parameter	Description
RIS Cleanup Time of the Day	Specifies the time of the day that the RIS database will be cleaned up to remove any unused, old device information. During this time, the NumofRegistrationAttempts performance counters for all devices reset to 0. This is a required field. Default setting: 22:00 Maximum length: 5 Allowed values: Specify time in HH:mm format (for example 06:11). Unit: hours:minutes
RIS Unused Cisco CallManager Device Store Period	Specifies specifies the RIS database information storage period for any unregistered or rejected device information from the Cisco CallManager service. After the time specified in this parameter expires, Cisco CallManager removes the expired entries during the next RIS database cleanup time (specified in the RIS Cleanup Time of the Day parameter). This is a required field. Default setting: 3 Minimum: 1 Maximum: 30 Unit: days
RIS Unused CTI Records Storage Period	Specifies the RIS database information storage period for any closed provider, device, or line information from the CTI Manager. After the time specified in this parameter expires, Cisco CTI Manager removes the expired entries during the next RIS database cleanup time (specified in the RIS Cleanup Time of the Day parameter). This is a required field. Default setting: 1 Minimum: 0 Maximum: 5 Unit: days
RIS Maximum Number of Unused CTI Records	Specifies the maximum number of records for closed CTI providers, devices, and lines that will be kept in the RIS database. After the limit specified in this parameter is reached, Cisco CTI Manager does not save any new record for unused CTI providers, devices, or lines to the RIS database. This is a required field. Default setting: 3000 Minimum: 0 Maximum: 5000 Unit: records
TLC Throttling Enabled	Enables or disables Trace and Log Central throttling behavior. This is a required field. Default setting: True

Table 36-1 Service Parameter Descriptions (continued)

Service Parameter	Description
TLC Throttling IOWait Goal	Specifies the system IOWait percentage that TLC throttles itself toward. This is a required field. Default setting: 10 Minimum: 10 Maximum: 40
TLC Throttling CPU Goal	Specifies the system CPU utilization percentage that TLC throttles itself toward. This is a required field. Default setting: 80 Minimum: 65 Maximum: 90
TLC Throttling Polling Delay	Specifies the minimum delay in milliseconds between IO wait and CPU usage polls for the purpose of trace collection throttling. This is a required field. Default setting: 250 Minimum: 200 Maximum: 2000
TLC Throttling SFTP Maximum Delay	Specifies the maximum time an SFTP transfer is paused in order to prevent timeouts. This is a required field. Default setting: 5000 Minimum: 1000 Maximum: 10000
Maximum Number of Processes and Threads	Specifies the maximum number of Processes and Threads running on the machine. If the total number of Processes and Threads on the machine has exceeded this maximum number, SystemAccess sends alarm TotalProcessesThreadsExceededThresholdStart and the corresponding alert is generated. This is a required field. Default setting: 2000 Minimum: 1000 Maximum: 3000
Enable Logging	Determines whether collecting and logging of troubleshooting perfmon data is enabled (True) or disabled (False). This is a required field. Default setting: True

Table 36-1 Service Parameter Descriptions (continued)

Service Parameter	Description
Polling Rate	Specifies the troubleshooting perfmon data polling rate, in seconds. This is a required field. Default setting: 15 Minimum: 5 Maximum: 300 Unit: seconds
Maximum No. of Files	Specifies the maximum number of troubleshooting perfmon log files that are saved on disk. If the "Maximum No. of Files" is set to a large number, it is recommended that the "Maximum File Size" be reduced. This is a required field. **Note** If this value is reduced, excessive log files with the oldest time stamp will be deleted if Troubleshooting Perfmon Data Logging is enabled and RISDC is turned on. If desired, please save these files first before changing Maximum No. of Files. Default setting: 50 Minimum: 1 Maximum: 100
Maximum File Size (MB)	Specifies the maximum file size, in megabytes, in each troubleshooting perfmon log file before the next file is started. If the "Maximum File Size" is set to a large number, it is recommended that the "Maximum No. of Files" be reduced. This is a required field. Default setting: 5 Minimum: 1 Maximum: 500
Cisco Serviceability Reporter	
RTMT Reporter Designated Node	Specifies specifies the designated node on which RTMTReporter runs. It is desirable that this node is a non-callprocessing node since RTMTReporter service is CPU-intensive. This field will be automatically filled in with the local node IP at which Reporter is first turned on. This is a required field.
RTMT Report Generation Time	Specifies the number of minutes after midnight (00:00hrs) when the Real-Time Monitoring Tool, (RTMT) reports are generated. To reduce any impact to call processing, run non-real-time reports during non-production hours. This is a required field. Default setting: 30 Minimum: 0 Maximum: 1200

Table 36-1 Service Parameter Descriptions (continued)

Service Parameter	Description
RTMT Report Deletion Age	Specifies the number of days that must elapse before reports are deleted. For example, if this parameter is set to 7, reports that were generated seven days ago get deleted on the eighth day. A value of 0 disables report generation, and any existing reports get deleted. This is a required field. Default setting: 7 Minimum: 0 Maximum: 30

CHAPTER 37

Configuring Enterprise Parameters in Cisco Unity Connection 9.x

Caution Information in this chapter is applicable in a Cisco Unity Connection configuration only. If you have installed Cisco Unified Communications Manager Business Edition (CMBE), for information on configuring enterprise parameters, see the *Cisco Unified Communications Manager Administration Guide* at http://www.cisco.com/en/US/products/ps7273/prod_maintenance_guides_list.html.

Enterprise parameters for Cisco Unity Connection provide default settings that apply to all services in Cisco Unified Serviceability.

You cannot add or delete enterprise parameters, but you can use the procedure in this section to update the existing enterprise parameters.

Note Many of the enterprise parameters rarely require change. Do not change an enterprise parameter unless you fully understand the feature that you are changing or unless the Cisco Technical Assistance Center (Cisco TAC) specifies the change.

See the following sections:

- Configuring Enterprise Parameters for Cisco Unified Serviceability Services in Cisco Unity Connection 9.x, page 37-1
- Description of Enterprise Parameters in Cisco Unity Connection 9.x, page 37-2

Configuring Enterprise Parameters for Cisco Unified Serviceability Services in Cisco Unity Connection 9.x

Use the following procedure to configure enterprise parameters for Cisco Unified Serviceability services.

To Configure Enterprise Parameters for Cisco Unified Serviceability Services

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Enterprise Parameters**.

Step 2 On the Enterprise Parameters Configuration page, enter the applicable settings. To set all service parameters to the default values, select **Set to Default**.

To view a list of enterprise parameters and their descriptions, select the **?** button on the right side of the page.

Step 3 Select **Save**.

Description of Enterprise Parameters in Cisco Unity Connection 9.x

Table 37-1 describes the enterprise parameters available in Cisco Unity Connection.

Table 37-1 Enterprise Parameter Descriptions

Enterprise Parameter	Description
Max Number of Device Level Trace	Specifies how many devices can be traced concurrently if device name-based trace is selected in Trace Configuration in Cisco Unified Serviceability. This is a required field. Default setting: 12 Minimum: 0 Maximum: 256
Localization Parameters	
Default Network Locale	Specifies the default network locale for tones and cadences. The chosen network locale applies to all gateways and phones that do not have the network locale set at the device or device pool level. This is a required field. **Note** Make sure that the chosen network locale is installed and supported for all gateways and phones. See the product documentation, if necessary. Reset all devices for the parameter change to take effect. Default setting: United States
Default User Locale	Specifies the default user locale for language selection. Not all locales are supported by all models. For models that do not support this setting, set their locale explicitly to something they support. This is a required field. **Note** Reset all devices for the parameter change to take effect. Default setting: English United States
Prepare Cluster for Rollback	

Table 37-1 Enterprise Parameter Descriptions (continued)

Enterprise Parameter	Description
Prepare Cluster for Rollback to Pre 9.0	If a Cisco Unity Connection cluster is configured and was upgraded, specifies whether the previous version of Connection was release 7.x. This is a required field. Default setting: False
Trace Parameters	
File Close Thread Flag	Enables the use of separate threads to close trace files. This may improve the performance of the system at the end of a trace file. This is a required field. Default setting: True
FileCloseThreadQueueWater Mark	Defines the high-water mark after which the separate thread used to close trace files stops accepting trace files to close; the trace file is then closed without the use of a separate thread. This is a required field. Default setting: 100 Minimum: 0 Maximum: 500
Clusterwide Domain Configuration Parameters	
Organization Top Level Domain	Defines the top level domain for the organization (for example, cisco.com). Maximum length: 255 Allowed values: Provide a valid domain (for example, cisco.com) with up to 255 of the following characters: any upper or lower case letter (a-zA-Z), any number (0-9), the hyphen (-), or the dot (.) The dot serves as a domain label separator. Domain labels must not start with a hyphen. The last label (for example, .com) must not start with a number. Abc.1om is an example of an invalid domain.
Cluster Fully Qualified Domain Name	Defines one or more Fully Qualified Domain Names (FQDN) for this cluster. Multiple FQDNs must be separated by a space. Wildcards can be specified within an FQDN using an asterisk (*). Examples are cluster-1.rtp.cisco.com and *.cisco.com. Requests containing URLs (for example, SIP calls) whose host portion matches any of the FQDNs in this parameter are recognized as a request destined for this cluster and/or devices attached to it. Maximum length: 255 Allowed values: Provide one or more fully qualified domain names (FQDN), or partial FQDNs using the * wildcard (for example, cluster-1.cisco.com or *.cisco.com). Multiple FQDNs must be separated by a space. The following characters are allowed: any upper or lower case letter (a-zA-Z), any number (0-9), hyphen (-), asterisk (*), or dot (.) The dot serves as a domain label separator. Domain labels must not start with a hyphen. The last label (for example, .com) must not start with a number. Abc.1om serves as an example of an invalid domain.

Table 37-1 Enterprise Parameter Descriptions (continued)

Enterprise Parameter	Description
Cisco Support Use	
Cisco Support Use 1	Is used by Cisco TAC only. Maximum length: 10
Cisco Support Use 2	Is used by Cisco Technical Support only. Maximum length: 10
Cisco Syslog Agent	
Remote Syslog Server Name 1 to Remote Syslog Server Name 5	Enter the name or IP address of the remote Syslog server that you want to use to accept Syslog messages. You can configure upto five Remote Syslog Servers to accept Syslog messages. If a server name is not specified, Cisco Unified Serviceability does not send the Syslog messages. Do not specify a Cisco Unified Communications Manager server as the destination because the Cisco Unified Communications Manager server does not accept Syslog messages from another server. Maximum length: 255 Allowed values: Provide a valid remote syslog server name with the following characters: A-Z, a-z, 0-9, ., -
Syslog Severity for Remote Syslog Messages	Select the desired Syslog messages severity for the remote syslog server. All the syslog messages with selected or higher severity level are sent to remote syslog. If a remote server name is not specified, Cisco Unified Serviceability does not send the Syslog messages. This is a required field. Default setting: Error
CUCReports Parameters	
Report Socket Connection Timeout	Specifies the maximum number of seconds used when attempting to establish a connection with another server. Increase this time if connection issues are experienced on a slow network. This is a required field. Default setting: 10 Minimum: 5 Maximum: 120
Report Socket Read Timeout	Specifies the maximum number of seconds used when reading data from another server. Increase this time if connection issues are experienced on a slow network. This is a required field. Default setting: 60 Minimum: 5 Maximum: 600

CHAPTER 38

Installing Plugins in Cisco Unity Connection 9.x

Caution Information in this chapter is applicable in a Cisco Unity Connection configuration only. If you have installed Cisco Unified Communications Manager Business Edition (CMBE), for information on installing plugins, see the *Cisco Unified Communications Manager Administration Guide* at http://www.cisco.com/en/US/products/ps7273/prod_maintenance_guides_list.html.

Application plugins extend the functionality of Cisco Unity Connection. For example, the Real-Time Monitoring Tool (RTMT) allows you to monitor the health of the system remotely through tools such as performance-monitoring counters and the Port Monitor.

Do the following procedure.

Note Before you install any plugins, you must disable all intrusion detection or antivirus services that run on the server where you will install the plugin.

To Install a Plugin

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Plugins**.

Step 2 On the Search Plugins page, select **Find**.

Step 3 For the plugin that you want to install, select **Download**.

Step 4 Follow the on-screen instructions for installing the plugin.

CHAPTER 39

Managing Descriptions of Message Attachments in Cisco Unity Connection 9.x

When Cisco Unity Connection is integrated with a third-party message store, Connection uses Text to Speech (TTS) to describe message attachments for users who check their messages on the phone. For example, an attachment with the extension .jpg is described as “an image.”

You can change the description of the attachments, add descriptions for attachments, and delete descriptions of attachments.

See the following sections:

- Adding a Description of a Message Attachment in Cisco Unity Connection 9.x, page 39-1
- Changing a Description of a Message Attachment in Cisco Unity Connection 9.x, page 39-2
- Deleting a Description of a Message Attachment in Cisco Unity Connection 9.x, page 39-2

Adding a Description of a Message Attachment in Cisco Unity Connection 9.x

You can add a description of message attachments that Cisco Unity Connection reads when users check their messages by phone.

To Add a Description of a Message Attachment

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Attachment Descriptions**.

Step 2 On the Search TTS Descriptions of Message Attachments page, in the Language list, select the language for which you want to add a description of a message attachment.

Note that the list of languages depends on the languages (locales) that are installed on Connection.

Step 3 Select **Add New**.

Step 4 On the New TTS Description of Message Attachments page, enter a file extension in the File Extension field.

You must enter a period at the beginning of the file extension. Otherwise, you cannot add the description of the message attachment.

Step 5 In the Description field, enter the description that you want for the message attachment.

Step 6 Select **Save**.

Changing a Description of a Message Attachment in Cisco Unity Connection 9.x

You can change a description of message attachments that Cisco Unity Connection reads when users check their messages by phone.

To Change a Description of a Message Attachment

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Attachment Descriptions**.

Step 2 On the Search TTS Descriptions of Message Attachments page, in the Language list, select the language for which you want to change a description of a message attachment.

Note that the list of languages depends on the languages (locales) that are installed on Connection.

Step 3 In the Extension column, select the extension for the attachment description that you want to change.

Step 4 On the Edit TTS Descriptions of Message Attachments page, enter a file extension in the File Extension field.

You must enter a period at the beginning of the file extension. Otherwise, you cannot add the description of the message attachment.

Step 5 In the Description field, enter the description that you want.

Step 6 Select **Save**.

Deleting a Description of a Message Attachment in Cisco Unity Connection 9.x

You can remove a description of a message attachment that you do not want Cisco Unity Connection to read when users check their messages on the phone.

To Delete a Description of a Message Attachment

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Attachment Descriptions**.

Step 2 On the Search TTS Descriptions of Message Attachments page, in the Language list, select the language for which you want to delete a description of a message attachment.

Note that the list of languages depends on the languages (locales) that are installed on Connection.

Step 3 Check the check box next to the extension for the attachment description that you want to delete.

Step 4 Select **Delete Selected**.

Step 5 When prompted to confirm the deletion, select **OK**.

CHAPTER 40

Configuring Text-to-Speech Access to Exchange Emails in Cisco Unity Connection 9.x

See the following sections:

- About Text-to-Speech Access to Exchange Emails in Cisco Unity Connection, page 40-1
- Configuring Text-to-Speech Access to Exchange 2007 Emails in Cisco Unity Connection, page 40-2
- Configuring Text-to-Speech Access to Exchange 2003 Emails in Cisco Unity Connection, page 40-6

For information on configuring text-to-speech access to Exchange emails in Cisco Unity Connection, see the "Configuring Cisco Unity Connection 9.x and Later and Microsoft Exchange for Unified Messaging" chapter of the *Unified Messaging Guide for Cisco Unity Connection Release*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

About Text-to-Speech Access to Exchange Emails in Cisco Unity Connection

When Cisco Unity Connection is configured to connect to an external message store (a message store other than Cisco Unity Connection), users can hear their emails read to them when they sign in to Cisco Unity Connection by phone. In this chapter, you configure Microsoft Exchange and Cisco Unity Connection so that licensed users can listen to emails.

Note Text-to-speech over Exchange 2007 and Exchange 2010 supports both the IPv4 and IPv6 addresses. However, the IPv6 address works only when Connection platform is configured in Dual (IPv4/IPv6) mode. For more information on Configuring IPv6 settings, see Adding or Changing the IPv6 Addresses of Cisco Unity Connection chapter of *Reconfiguration and Upgrade Guide for Cisco Unity Connection* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/upgrade/guide/9xcucrug051.html.

Configuring Text-to-Speech Access to Exchange 2007 Emails in Cisco Unity Connection

If you configure Cisco Unity Connection to integrate with Exchange 2007, users can access emails in an Exchange 2007 message store.

See the following sections:

- Task List for Configuring Text-to-Speech Access to Exchange 2007 Emails in Cisco Unity Connection, page 40-2
- Enabling IMAP Access to Exchange in Cisco Unity Connection, page 40-3
- Configuring Secure IMAP with SSL and Enabling the SSL Certificate in Cisco Unity Connection (Exchange 2007 Only), page 40-3
- Creating Cisco Unity Connection External Services to Specify the Exchange Servers That Users Can Access in Cisco Unity Connection, page 40-4
- Configuring Users for the External Services in Cisco Unity Connection, page 40-5

For information on configuring text-to-speech access to Exchange emails in Cisco Unity Connection, see the "Configuring Cisco Unity Connection 9.x and Later and Microsoft Exchange for Unified Messaging" chapter of the *Unified Messaging Guide for Cisco Unity Connection Release*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Task List for Configuring Text-to-Speech Access to Exchange 2007 Emails in Cisco Unity Connection

To enable users to access emails in an Exchange 2007 message store, complete the following tasks in the order presented.

1. Enable IMAP Access to Exchange. See the "Enabling IMAP Access to Exchange in Cisco Unity Connection" section on page 40-3.
2. Create and install an SSL server certificate on each Exchange server on which you want to access email messages. See the "Configuring Secure IMAP with SSL and Enabling the SSL Certificate in Cisco Unity Connection (Exchange 2007 Only)" section on page 40-3.
3. Create Connection external services. See the "Creating Cisco Unity Connection External Services to Specify the Exchange Servers That Users Can Access in Cisco Unity Connection" section on page 40-4.
4. Configure the users for the external services. See the "Configuring Users for the External Services in Cisco Unity Connection" section on page 40-5.
5. Associate users with a class of service that offers a license to access the TTS feature, and enables them to use it.
6. For each user, create an external service account in Connection that specifies the Exchange server on which the mailbox for the user is stored. This enables users to access their email when they sign in to Connection by phone.

Enabling IMAP Access to Exchange in Cisco Unity Connection

Cisco Unity Connection uses the IMAP protocol to access emails in Exchange so that the messages can be played by using TTS. By default, Exchange is not configured to allow IMAP access to messages. Do the following procedure to enable IMAP access on each Exchange server that contains emails that you want licensed Connection users to be able to access.

To Enable IMAP Access to Exchange in Cisco Unity Connection

Step 1 On an Exchange server that contains emails that you want licensed Connection users to be able to access, sign in to Windows by using an account that is a member of the local Administrators group.

Step 2 On the Windows Start menu, select **Administrative Tools > Services**.

Step 3 In the right pane, find the **Microsoft Exchange IMAP4** service.

Step 4 If the value of the Status column is **Started** and the value of the Startup Type column is **Automatic**, skip to Step 9.

If the values are different, double-click **Microsoft Exchange IMAP4**.

Step 5 In the Microsoft Exchange IMAP4 Properties dialog box, if Startup Type is not Automatic, change it to **Automatic**.

Step 6 If Service Status is not Started, select **Start**.

Step 7 Select **OK** to close the Microsoft Exchange IMAP4 Properties dialog box.

Step 8 Close the Services MMC.

Step 9 Repeat Step 1 through Step 8 on each Exchange server that contains emails that you want licensed Connection users to be able to access.

Configuring Secure IMAP with SSL and Enabling the SSL Certificate in Cisco Unity Connection (Exchange 2007 Only)

To Configure Secure IMAP with SSL and Enable the SSL Certificate in Cisco Unity Connection (Exchange 2007 Only)

Step 1 On the Exchange Server, open the **Exchange Management Shell** application.

Step 2 Enter the following command, where <Exchange server> is the IP address or host name of the Exchange server and <friendly name> is the friendly name that you select for the Exchange server:

new-exchangecertificate -generaterequest -domainname <Exchange server> -friendlyname <friendly name>-path c:\csr.txt

Caution The domain name for the Exchange server must be the IP address or the fully qualified DNS name (recommended) so that the Connection server can successfully ping the Exchange server. Otherwise, users may not be able to access their emails in the external message store.

Step 3 Press **Enter**. A Certificate Signing Request (CSR) file with the name Csr.txt is created in the root directory.

Step 4 Send the CSR file to a Certification Authority (CA), which will generate and send back a new certificate.

Note You must have a copy of the CA public root certificate or public root certificate chain. This certificate is needed for configuring Connection to trust the Exchange 2007 server.

Step 5 Enter the following command, where <path> is the location of the directory where the CA will save the new server certificate:

import-exchangecertificate -path <path>

Step 6 Press **Enter**.

Step 7 Enter the following command:

dir cert:\localmachine\my | fl

Step 8 Press **Enter**.

Step 9 Highlight the "thumbprint" property and press **Ctrl-C** to copy it to the clipboard.

Step 10 If Connection will be configured to use IMAP to access email from an external email server and use calendar data from Exchange 2007, enter the following command, where <thumbprint> is the "thumbprint" that you copied in Step 9:

enable-exchangecertificate -thumbprint <thumbprint> -services "IIS,IMAP"

If Connection will not be configured to use IMAP but will be configured to use calendar data from Exchange 2007, enter the following command, where <thumbprint> is the "thumbprint" that you copied in Step 9.

enable-exchangecertificate -thumbprint <thumbprint> -services "IIS"

Step 11 Press **Enter**.

Step 12 If you want data transmitted as clear text, skip the remaining steps in this procedure and continue with the "Creating Cisco Unity Connection External Services to Specify the Exchange Servers That Users Can Access in Cisco Unity Connection" section on page 40-4. Otherwise, open the **IIS Manager** application.

Step 13 Go to **IIS > <server name> > Web Sites > Default Web Site**.

Step 14 Right-click **Default Web Site** and select **Properties**.

Step 15 In the Properties dialog box, select the **Directory Security** tab.

Step 16 Under Secure Communications, select **Edit**.

Step 17 Check the **Require Secure Channel** check box.

Step 18 Select **OK**.

Step 19 In the Properties dialog box, select **OK**.

Creating Cisco Unity Connection External Services to Specify the Exchange Servers That Users Can Access in Cisco Unity Connection

In Cisco Unity Connection Administration, you create and configure one IMAP Service for each Exchange server that contains emails that you want licensed Connection users to be able to access.

To Specify the Exchange Servers on Which Cisco Unity Connection Users Can Access Emails in Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **External Services**.

Step 2 On the Search External Services page, select **Add New**.

Step 3 On the New External Service page, in the Type list, select **Exchange 2007 External Service Template**.

Step 4 Confirm that the **Enabled** check box is checked.

Step 5 In the Display Name field, enter a name that will help you identify the service when you configure Connection users to access their email. (For example, in the name of the service, you might include the name of the Exchange server that contains the email that users are accessing.)

Step 6 In the Server field, enter the server name or the fully qualified domain name of one of the Exchange servers that contain emails that you want licensed Connection users to be able to access.

The value that you enter must match the server name or the fully qualified domain name in the certificate for the Exchange server.

Step 7 In the Authentication Mode list, select **NTLM**.

Step 8 In the Security Transport Type list, if you created and installed SSL certificates, select **SSL**. Otherwise, select **None**.

Step 9 If you selected **SSL** in Step 8, check the **Validate Server Certificates** check box. Otherwise, skip to Step 10.

Self-signed certificates cannot be validated. If you selected **SSL** in Step 8 and you are using self-signed certificates, do not check the **Validate Server Certificates** check box, or Connection will not be able to access Exchange.

Step 10 Under Service Capabilities, check the **User Access to Email in Third-Party Message Store** check box.

Step 11 Select **Save**.

Step 12 Repeat Step 2 through Step 13 for each additional Exchange 2007 server that contains emails that you want licensed Connection users to access.

Step 13 Close Cisco Unity Connection Administration.

Configuring Users for the External Services in Cisco Unity Connection

Do the following procedure.

Note Exchange must have a user for each Connection user that you are configuring.

To Configure Users for the External Services in Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **Users**.

Step 2 On the Search Users page, select the alias of a user.

Step 3 On the Edit User Basics page, on the Edit menu, select **External Service Accounts**.

Step 4 On the External Service Accounts page, select **Add New**.

Step 5 On the New External Service Accounts page, in the External Service field, select the display name of the applicable external service that you created in the "Creating Cisco Unity Connection External Services to Specify the Exchange Servers That Users Can Access in Cisco Unity Connection" section on page 40-4.

Step 6 In the Email Address field, enter the email address for the user.

Step 7 In the Sign-In Type field, select the applicable option:

- **Use Connection Alias**—This option is useful when the User ID setting in Exchange 2007 is the same as the Connection user alias. Connection will sign in the user with the Connection user alias.
- **Use User ID Provided Below**—Enter the User ID setting from Exchange 2007 (useful when the User ID setting is different from the Connection user alias). Connection will sign in the user with the setting in this field.

Step 8 *(Only when the Use User ID Provided Below option is selected in Step 7)* In the User ID field, enter the User ID setting from Exchange.

Step 9 In the Password field, enter the password from Exchange. Connection will sign in the user with the setting in this field.

Step 10 Under Service Capabilities, check the **User Access to Email in Third-Party Message Store** check box.

Step 11 Select **Save**.

Step 12 To check the Exchange configuration for the user, select **Test**. The Task Execution Results window appears with the test results.

If any part of the test fails, verify the configuration for Exchange, Cisco Unity Connection, and the user.

Step 13 Repeat Step 2 through Step 12 for all remaining users.

Configuring Text-to-Speech Access to Exchange 2003 Emails in Cisco Unity Connection

If you configure Cisco Unity Connection to integrate with Exchange 2003, users can access emails in an Exchange 2003 message store.

See the following sections:

- Task List for Configuring Text-to-Speech Access to Exchange 2003 Emails in Cisco Unity Connection, page 40-7
- Enabling IMAP Access to Exchange in Cisco Unity Connection, page 40-7
- Creating and Configuring an Active Directory Service Account in Cisco Unity Connection (Exchange 2003 Only), page 40-8
- Creating and Installing SSL Certificates in Cisco Unity Connection (Exchange 2003 Only), page 40-9
- Requiring Secure Communication Between Cisco Unity Connection and Exchange in Cisco Unity Connection (Exchange 2003 Only), page 40-14
- Configuring the Cisco Unity Connection Server to Trust Exchange Certificates in Cisco Unity Connection (Exchange 2003 Only), page 40-14
- Creating Cisco Unity Connection External Services to Specify the Exchange Servers That Users Can Access in Cisco Unity Connection, page 40-16

- Configuring Users for the External Services in Cisco Unity Connection, page 40-17

For information on configuring text-to-speech access to Exchange emails in Cisco Unity Connection, see the "Configuring Cisco Unity Connection 9.x and Later and Microsoft Exchange for Unified Messaging" chapter of the *Unified Messaging Guide for Cisco Unity Connection Release*, available at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/unified_messaging/guide/9xcucumgx.html.

Task List for Configuring Text-to-Speech Access to Exchange 2003 Emails in Cisco Unity Connection

To enable users to emails on an Exchange 2003 message store, complete the following tasks in the order presented.

1. Enable IMAP access to Exchange 2003. See the "Enabling IMAP Access to Exchange in Cisco Unity Connection" section on page 40-7.
2. Create an Active Directory service account that Connection uses to access Exchange data, and grant the account the necessary permissions. See the "Creating and Configuring an Active Directory Service Account in Cisco Unity Connection (Exchange 2003 Only)" section on page 40-8.
3. Create and install an SSL server certificate on each Exchange server on which you want to access email messages. See the "Creating and Installing SSL Certificates in Cisco Unity Connection (Exchange 2003 Only)" section on page 40-9.
4. *(Optional but recommended)* Configure IIS to refuse unencrypted communications from web clients including Connection. See the "Requiring Secure Communication Between Cisco Unity Connection and Exchange in Cisco Unity Connection (Exchange 2003 Only)" section on page 40-14.
5. Configure Connection to trust the SSL certificates that you created and installed on the Exchange servers. See the "Configuring the Cisco Unity Connection Server to Trust Exchange Certificates in Cisco Unity Connection (Exchange 2003 Only)" section on page 40-14.
6. Create Connection external services. See the "Creating Cisco Unity Connection External Services to Specify the Exchange Servers That Users Can Access in Cisco Unity Connection" section on page 40-16.
7. Configure the users for the external services. See the "Configuring Users for the External Services in Cisco Unity Connection" section on page 40-17.
8. Associate users with a class of service that offers a license to access the TTS feature, and enables them to use it.
9. For each user, create an external service account in Connection that specifies the Exchange server on which the mailbox for the user is stored. This enables the user to access their email when they sign in to Connection by phone.

Enabling IMAP Access to Exchange in Cisco Unity Connection

Cisco Unity Connection uses the IMAP protocol to access emails in Exchange so the messages can be played by using TTS. By default, Exchange is not configured to allow IMAP access to messages. Do the following procedure to enable IMAP access on each Exchange server that contains emails that you want licensed Connection users to be able to listen to by using TTS.

To Enable IMAP Access to Exchange in Cisco Unity Connection

Step 1 On an Exchange server that contains emails that you want licensed Connection users to be able to access, sign in to Windows by using an account that is a member of the local Administrators group.

Step 2 On the Windows Start menu, select **Administrative Tools > Services**.

Step 3 In the right pane, find the **Microsoft Exchange IMAP4** service.

Step 4 If the value of the Status column is **Started** and the value of the Startup Type column is **Automatic**, skip to Step 9.

If the values are different, double-click **Microsoft Exchange IMAP4**.

Step 5 In the Microsoft Exchange IMAP4 Properties dialog box, if Startup Type is not Automatic, change it to **Automatic**.

Step 6 If Service Status is not Started, select **Start**.

Step 7 Select **OK** to close the Microsoft Exchange IMAP4 Properties dialog box.

Step 8 Close the Services MMC.

Step 9 Repeat Step 1 through Step 8 on each Exchange server that contains emails that you want licensed Connection users to be able to access.

Creating and Configuring an Active Directory Service Account in Cisco Unity Connection (Exchange 2003 Only)

Cisco Unity Connection accesses Exchange 2003 email by using an Active Directory account that acts as a proxy for Connection. Do the following procedure to create the service account and give it the necessary permissions.

To Create and Configure a Service Account That Can Access Exchange Emails in Cisco Unity Connection

Step 1 On a computer on which Active Directory Users and Computers and Exchange System Manager are installed, sign in to Windows by using an account that is a member of the Domain Administrators group.

Step 2 On the Windows Start menu, select **Programs > Microsoft Exchange > Active Directory Users and Computers**.

Step 3 In the left pane, expand **<Server name>**, right-click **Users**, and select **New > User**.

Step 4 Follow the on-screen prompts to create a domain user account. Do not create a mailbox.

Step 5 On the Windows Start menu, select **Programs > Microsoft Exchange > System Manager**.

Step 6 In the left pane, expand **Servers**.

Step 7 Right-click the name of the Exchange server that contains mailboxes that will be accessed by Cisco Unity Connection, and select **Properties**.

Step 8 In the <Server name> Properties dialog box, select the **Security** tab.

Step 9 Select **Add**.

Step 10 In the Select Users, Computers, or Groups dialog box, in the Enter the Object Names to Select field, enter the name of the service account that you created in Step 4.

Step 11 Select **Check Names**.

Step 12 Select **OK** to close the dialog box.

Step 13 In the <Server name> Properties dialog box, in the Group or User Names list, select the name of the service account.

Step 14 In the Permissions For <Account name> list, set the permissions:

a. For Full Control, check the **Deny** check box.

Note Ensure that the List Contents and the Read Properties are set to **Allow** on the Exchange Servers Security tab.

b. For Receive As, check the **Allow** check box

Caution If Exchange server 2003 is configured for Single Inbox, Step 14a. will break Single Inbox permission requirements. Single Inbox needs Receive As, the Send As, and the Administer Information Store permissions to be set to **Allow**.

Step 15 Select **OK** to close the <Server name> Properties dialog box.

Step 16 Repeat Step 7 through Step 15 for each additional Exchange server on which you want to access emails.

Creating and Installing SSL Certificates in Cisco Unity Connection (Exchange 2003 Only)

In this section, you create and install an SSL certificate on each Exchange server that contains emails that you want licensed Connection users to be able to access. This prevents Cisco Unity Connection from sending the credentials of the service account that you created in the "Creating and Configuring an Active Directory Service Account in Cisco Unity Connection (Exchange 2003 Only)" section on page 40-8 over the network as unencrypted text. It also prevents Exchange from sending email content over the network in unencrypted text.

If you use another method to create and install certificates, use the applicable documentation.

This section contains four procedures. Do them in the order listed, as applicable.

If you want to issue SSL certificates by using:

- Microsoft Certificate Services—do the following procedure on any server in the same domain as the Exchange servers that contain emails that you want licensed Connection users to be able to access.
- Another application—see the documentation for that application for installation instructions. Then skip to the "To Create a Certificate Signing Request in Cisco Unity Connection" procedure on page 40-10.
- An external certification authority—skip to the "To Create a Certificate Signing Request in Cisco Unity Connection" procedure on page 40-10.

To Install the Microsoft Certificate Services Component in Cisco Unity Connection

Step 1 Locate a Windows Server 2003 disc, which you may be prompted to use to complete the installation of the Microsoft Certificate Services component.

Step 2 Sign in to Windows by using an account that is a member of the local Administrators group.

Step 3 On the Windows Start menu, select **Settings > Control Panel > Add or Remove Programs**.

Step 4 In the left pane of the Add or Remove Programs control panel, select **Add/Remove Windows Components**.

Step 5 In the Windows Components dialog box, check the **Certificate Services** check box. Do not change any other items.

Step 6 When the warning appears about not being able to rename the computer or to change domain membership, select **Yes**.

Step 7 Select **Next**.

Step 8 On the CA Type page, select **Stand-alone Root CA**, and select **Next**. (A standalone certification authority (CA) is a CA that does not require Active Directory.)

Step 9 On the CA Identifying Information page, in the Common Name for This CA field, enter a name for the certification authority.

Step 10 Accept the default value in the Distinguished Name Suffix field.

Step 11 For Validity Period, accept the default value of **5 Years**.

Step 12 Select **Next**.

Step 13 On the Certificate Database Settings page, select **Next** to accept the default values.

If a message appears indicating that Internet Information Services is running on the computer and must be stopped before proceeding, select **Yes** to stop the services.

Step 14 If you are prompted to insert the Windows Server 2003 disc into the drive, insert either the Cisco Unity Connection disc, which contains the same required software, or a Windows Server 2003 disc.

Step 15 In the Completing the Windows Components Wizard dialog box, select **Finish**.

Step 16 Close the Add or Remove Programs dialog box.

Do the following procedure for each Exchange server that contains emails that you want licensed Connection users to be able to access.

To Create a Certificate Signing Request in Cisco Unity Connection

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Step 1 On a server on which Exchange System Manager is installed, sign in to Windows by using an account that is an Exchange Full Administrator.

Step 2 On the Windows Start menu, select **Programs > Microsoft Exchange > System Manager**.

Step 3 In the left pane, expand **<Organization> > Administrative Groups > <Administrative group> > Servers > <Server name> > Protocols > IMAP4**, where <Administrative group> and <Server name> identify the first Exchange server that contains emails that you want licensed Connection users to be able to access.

Step 4 Right-click **Default IMAP4 Virtual Server**, and select **Properties**.

Step 5 In the Properties dialog box, select the **Access** tab.

Step 6 Select **Certificate**.

Step 7 On the Welcome to the Web Server Certificate Wizard page, select **Next**.

Step 8 On the Server Certificate page, select **Create a New Certificate**.

Step 9 Select **Next**.

Step 10 On the Delayed or Immediate Request page, select **Prepare the Request Now But Send It Later**.

Step 11 Select **Next**.

Step 12 On the Name and Security Settings page, enter a name for the certificate (for example, <Server name>_Cert).

Step 13 Select **Next**.

Step 14 On the Organization Information page, enter the applicable values.

Step 15 Select **Next**.

Step 16 On the Your Site's Common Name page, enter the computer name of the Exchange server or the fully qualified domain name.

Remember whether you specified the computer name or the fully qualified domain name. You will need this information in a later procedure.

Caution The name must exactly match the host portion of any URL that will access the system by using a secure connection.

Step 17 Select **Next**.

Step 18 On the Geographical Information page, enter the applicable information.

Step 19 Select **Next**.

Step 20 On the Certificate Request File Name page, enter a path and filename, and write down the information. You will need it in a later procedure.

If this is not the server on which you installed Microsoft Certificate Services in the "To Install the Microsoft Certificate Services Component in Cisco Unity Connection" procedure on page 40-9, try to select a network location that you can access from the current server and from the server on which Microsoft Certificate Services is installed.

Step 21 Select **Next**.

Step 22 On the Request File Summary page, select **Next**.

Step 23 On the Completing the Web Server Certificate Wizard page, select **Finish**.

Step 24 Select **OK** to close the Default IMAP4 Virtual Server Properties dialog box.

Step 25 Repeat Step 3 through Step 24 to create a certificate signing request for each additional Exchange server that contains emails that you want licensed Connection users to be able to access.

Step 26 Close Exchange System Manager.

Step 27 If Microsoft Certificate Services is on another server and you were not able to save the certificate request files in a network location accessible to that server, copy the certificate request files to a removable medium (diskette, CD, or DVD).

Step 28 If you are not using an external certification authority, you are finished with this procedure.

If you are using an external certification authority, send the certificate request file that you specified in Step 20 to the CA. When the certificate returns from the CA, skip to the "To Install the Server Certificate in Cisco Unity Connection" procedure on page 40-13.

Issue certificates or have them issued for each of the certificate signing requests that you created in the "To Create a Certificate Signing Request in Cisco Unity Connection" procedure on page 40-10:

- If you are using Microsoft Certificate Services to issue certificates, do the following procedure.
- If you are using an application other than Microsoft Certificate Services, see the documentation for the application for information on issuing server certificates and exporting a trust certificate. When you export the trust certificate, which is uploaded to the Cisco Unity Connection server later in this chapter, export it in base-64 encoded X.509 format with a .pem filename extension. Then continue with the "To Install the Server Certificate in Cisco Unity Connection" procedure on page 40-13.
- If you are using an external certification authority (CA) to issue certificates, send the certificate signing requests to the CA. Request that the CA provide the trust certificate, which is uploaded to the Cisco Unity Connection server later in this chapter, in base-64 encoded X.509 format with a .pem filename extension. When the certificates are returned, continue with the "To Install the Server Certificate in Cisco Unity Connection" procedure on page 40-13.

To Issue the Server Certificate in Cisco Unity Connection (Only When You Are Using Microsoft Certificate Services to Issue the Certificate)

Step 1 On the server on which you installed Microsoft Certificate Services, sign in to Windows by using an account that is a member of the Domain Admins group.

Step 2 On the Windows Start menu, select **Programs > Administrative Tools > Certification Authority**.

Step 3 In the left pane, expand **Certification Authority (Local) > <Certification authority name>**, where <Certification authority name> is the name that you gave to the certification authority when you installed Microsoft Certificate Services in the "To Install the Microsoft Certificate Services Component in Cisco Unity Connection" procedure on page 40-9.

Step 4 Right-click the name of the certification authority, and select **All Tasks > Submit New Request**.

Step 5 In the Open Request File dialog box, browse to the location of the first certificate signing request file that you created in the "To Create a Certificate Signing Request in Cisco Unity Connection" procedure on page 40-10, and double-click the file.

Step 6 In the left pane of Certification Authority, select **Pending Requests**.

Step 7 Right-click on the pending request that you submitted in Step 5, and select **All Tasks > Issue**.

Step 8 In the left pane of Certification Authority, select **Issued Certificates**.

Step 9 Right-click the new certificate, and select **All Tasks > Export Binary Data**.

Step 10 In the Export Binary Data dialog box, in the Columns that Contain Binary Data list, select **Binary Certificate**.

Step 11 Select **Save Binary Data to a File**.

Step 12 Select **OK**.

Step 13 In the Save Binary Data dialog box, enter a path and filename, and write down the information. You will need it in a later procedure.

If this is not a server on which Exchange System Manager is installed, try to select a network location that you can access from the current server and from the server on which Microsoft Certificate Services is installed.

Step 14 Select **OK**.

Step 15 If you created more than one certificate signing request in the "To Create a Certificate Signing Request in Cisco Unity Connection" procedure on page 40-10, repeat Step 9 through Step 11 for each certificate signing request listed under Issued Certificates.

Step 16 Close Certification Authority.

Step 17 If Exchange System Manager is on another server, and if you were not able to save the certificate request files in a network location accessible to that server, copy the certificate request files to a removable medium (diskette, CD, or DVD).

Do the following procedure for each Exchange server that contains emails that you want licensed Connection users to be able to access.

To Install the Server Certificate in Cisco Unity Connection

Step 1 On a computer on which Exchange System Manager is installed, sign in to Windows by using an account that is an Exchange Full Administrator.

Step 2 On the Windows Start menu, select **Programs > Microsoft Exchange > System Manager**.

Step 3 In the left pane, expand **<Organization name> > Administrative Groups > <Administrative group> > Servers > <Server name> > Protocols > IMAP4**, where <Administrative group> and <Server name> identify the first Exchange server that contains emails that you want licensed Connection users to be able to access.

Step 4 Right-click **Default IMAP4 Virtual Server**, and select **Properties**.

Step 5 Select the **Access** tab.

Step 6 Select **Certificate**.

Step 7 On the Welcome to the Web Server Certificate Wizard, select **Next**.

Step 8 On the Pending Certificate Request page, select **Process the Pending Request and Install the Certificate**.

Step 9 Select **Next**.

Step 10 On the Process a Pending Request page, browse to the location where you saved the certificates, and specify the server certificate that you created using Microsoft Certificate Services or another application, or that you got from an external CA.

You may have to change the value of the Files of Type list to All Files (*.*) to see the certificates.

Step 11 Select **Next**.

Step 12 On the Certificate Summary page, select **Next**.

Step 13 On the Completing the Web Server Certificate Wizard page, select **Finish**.

Step 14 Close the Default IMAP4 Virtual Server Properties dialog box.

Step 15 Repeat Step 3 through Step 14 for each certificate that you want to install.

Step 16 Close Exchange System Manager.

Requiring Secure Communication Between Cisco Unity Connection and Exchange in Cisco Unity Connection (Exchange 2003 Only)

Earlier in this chapter, you enabled IMAP access to Exchange, and you secured the IMAP connections between the Cisco Unity Connection server and one or more Exchange servers. To prevent Exchange from allowing access through unsecured IMAP connections, do the following procedure on each Exchange server that you are allowing Cisco Unity Connection to access.

To Configure Exchange to Require Secure Communication with Cisco Unity Connection (Optional But Recommended)

Step 1 On an Exchange server that contains emails that you want licensed Connection users to be able to access, sign in to Windows by using an account that is an Exchange Full Administrator.

Step 2 On the Windows Start menu, select **Programs > Microsoft Exchange > System Manager**.

Step 3 In the left pane, expand **Servers > <Server name> > Protocols > IMAP4 > Default IMAP4 Virtual Server**.

Step 4 Right-click **Default IMAP4 Virtual Server**, and select **Properties**.

Step 5 Select the **Access** tab.

Step 6 Select **Communication**.

Step 7 Select **Require Secure Channel**.

Step 8 Select **OK**.

Step 9 Close the Properties dialog box.

Step 10 In the left pane, for the same server, expand **Servers > <Server name> > Protocols > IMAP4 > Default IMAP4 Virtual Server**.

Step 11 In the System Manager toolbar, select the **Stop** icon.

Step 12 Wait a few seconds.

Step 13 Select the **Play** icon.

Step 14 Repeat Step 1 through Step 13 for each additional Exchange server that contains emails that you want licensed Connection users to be able to access.

Configuring the Cisco Unity Connection Server to Trust Exchange Certificates in Cisco Unity Connection (Exchange 2003 Only)

To make the Cisco Unity Connection server trust the certificates for the Exchange servers, you need to upload, to the root certificate store on the Connection server, a trust certificate for each certification authority that issued certificates. Typically, you will use the same certification authority (for example, Microsoft Certificate Services or VeriSign) to issue all certificates.

To Configure the Cisco Unity Connection Server to Trust Exchange Certificates

Step 1 If you used Microsoft Certificate Services to issue the certificates, continue with Step 2.

If you used another application or an external certification authority to issue the certificates, skip to Step 21 to upload the trust certificates, in base-64-encoded X.509 format, to the root certificate store on the Connection server.

Step 2 On the server on which you installed Microsoft Certificate Services, sign in to Windows by using an account that is a member of the local Administrators group.

Step 3 On the Windows Start menu, select **Programs > Administrative Tools > Certification Authority**.

Step 4 In the left pane, expand **Certification Authority (Local)**.

Step 5 Right-click the name of the certification authority, and select **Properties**.

Step 6 In the <Certification authority name> Properties dialog box, on the **General** tab, in the CA Certificates list, select the name of one of the certificates that you issued for the Exchange servers.

Step 7 Select **View Certificate.**

Step 8 In the Certificate dialog box, select the **Details** tab.

Step 9 Select **Copy to File**.

Step 10 On the Welcome to the Certificate Export Wizard page, select **Next**.

Step 11 On the Export File Format page, select **Base-64 Encoded X.509 (.CER)**.

Step 12 Select **Next**.

Step 13 On the File to Export page, enter a temporary path and filename for the trust certificate (for example, c:\cacert.pem). Use the filename extension **.pem**.

Caution The trust certificate must have a .pem filename extension or you will not be able to upload it on the Connection server.

Step 14 Write down the path and filename because you will need it later in this procedure.

Step 15 Select **Next**.

Step 16 On the Completing the Certificate Export Wizard page, select **Finish**.

Step 17 Select **OK** to close the “Export successful” message box.

Step 18 Select **OK** to close the Certificate dialog box.

Step 19 Select **OK** to close the <Server name> Properties dialog box.

Step 20 Close **Certification Authority**.

Step 21 Copy the trust certificate to a network location that is accessible to the Connection server.

Step 22 On the Connection server, sign in to Cisco Unified Operating System Administration.

Step 23 On the Security menu, select **Certificate Management**.

Step 24 On the Certificate List page, select **Upload Certificate**.

Step 25 On the Upload Certificate page, in the Certificate Name list, select **Connection-trust**.

Step 26 In the Root Certificate field, enter the name of the certificate file that you issued using Microsoft Certificate Services or another certification authority, or that you got from a CA.

Step 27 Select **Browse**.

Step 28 In the Choose File dialog box, browse to the location of the certificate file, select the name of the file, and select **Open**.

Step 29 On the Upload Certificate page, select **Upload File**.

Step 30 When the Status area reports that the upload succeeded, select **Close**.

Step 31 If you issued certificates or had them issued by more than one certification authority, repeat Step 24 through Step 30 for each trust certificate.

Creating Cisco Unity Connection External Services to Specify the Exchange Servers That Users Can Access in Cisco Unity Connection

In Cisco Unity Connection Administration, you create and configure one IMAP Service for each Exchange server that contains emails that you want licensed Connection users to be able to access.

To Specify the Exchange Servers on Which Cisco Unity Connection Users Can Access Emails in Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **External Services**.

Step 2 On the Search External Services page, select **Add New**.

Step 3 On the New External Service page, in the Type list, select **Exchange 2003 External Service Template**.

Step 4 Confirm that the **Enabled** check box is checked.

Step 5 In the Display Name field, enter a name that will help you identify the service when you configure Connection users to access their email. (For example, in the name of the service, you might include the name of the Exchange server that contains the email that users are accessing.)

Step 6 In the Server field, enter the server name or the fully qualified domain name of one of the Exchange servers that contain emails that you want licensed Connection users to be able to access.

The value that you enter must match the server name or the fully qualified domain name in the certificate for the Exchange server, which you specified in Step 16 of the "To Create a Certificate Signing Request in Cisco Unity Connection" procedure on page 40-10.

Step 7 In the Authentication Mode list, select **NTLM**.

Step 8 In the Security Transport Type list, if you created and installed SSL certificates, select **SSL**. Otherwise, select **None**.

Step 9 If you selected SSL in Step 8, check the **Validate Server Certificates** check box. Otherwise, continue to Step 10.

Self-signed certificates cannot be validated. If you selected **SSL** in Step 8 and you are using self-signed certificates, do not check the **Validate Server Certificates** check box, or Connection will not be able to access Exchange.

Step 10 Under Service Credentials, in the Alias field, enter the Active Directory user sign-in name of the service account that you created in the "To Create and Configure a Service Account That Can Access Exchange Emails in Cisco Unity Connection" procedure on page 40-8. Use the format **<Domain name>\<Account name>**.

Step 11 In the Password field, enter the password for the service account.

Step 12 Under Service Capabilities, check the **User Access to Email in Third-Party Message Store** check box.

Step 13 Select **Save**.

Step 14 Repeat Step 2 through Step 13 for each additional Exchange server that contains emails that you want licensed Connection users to be able to access.

Step 15 Close Cisco Unity Connection Administration.

Configuring Users for the External Services in Cisco Unity Connection

Do the following procedure.

Note Exchange must have a user for each Connection user that you are configuring.

To Configure Users for the External Services in Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **Users**, then select **Users**.

Step 2 On the Search Users page, select the alias of a user.

Step 3 On the Edit User Basics page, on the Edit menu, select **External Service Accounts**.

Step 4 On the External Service Accounts page, select **Add New**.

Step 5 On the New External Service Accounts page, in the External Service field, select the display name of the applicable external service that you created in the "Creating Cisco Unity Connection External Services to Specify the Exchange Servers That Users Can Access in Cisco Unity Connection" section on page 40-16.

Step 6 In the Email Address field, enter the email address for the user.

Step 7 In the Sign-In Type field, select the applicable option:

- **Use Connection Alias**—This option is useful when the User ID setting in Exchange 2003 is the same as the Connection user alias. Connection will sign in the user with the Connection user alias.
- **Use User ID Provided Below**—Enter the User ID setting from Exchange 2003 (useful when the User ID setting is different from the Connection user alias). Connection will sign in the user with the setting in this field.

Step 8 *(Only when the Use User ID Provided Below option is selected in Step 7)* In the User ID field, enter the User ID setting from Exchange.

Step 9 Under Service Capabilities, check the **User Access to Email in Third-Party Message Store** check box.

Step 10 Select **Save**.

Step 11 To check the Exchange configuration for the user, select **Test**. The Task Execution Results window appears with the test results.

If any part of the test fails, verify the configuration for Exchange, Cisco Unity Connection, and the user.

Step 12 Repeat Step 2 through Step 11 for all remaining users.

CHAPTER 41

Reports in Cisco Unity Connection 9.x

You can use Cisco Unity Connection reports to gather information about system configuration and call handlers. See the following sections:

- Reports Overview in Cisco Unity Connection 9.x, page 41-1
- Setting Report Configuration Parameters in Cisco Unity Connection 9.x, page 41-4
- Generating and Viewing Reports in Cisco Unity Connection 9.x, page 41-5

Reports Overview in Cisco Unity Connection 9.x

You can generate the following reports in Cisco Unity Connection Serviceability:

Table 41-1 Reports Available in Cisco Unity Connection

Report Name	Description of Output
Phone Interface Failed Sign-In	Includes the following information for every failed attempt to sign in to Cisco Unity Connection by phone: • Username, alias, caller ID, and extension of user who failed to sign in. • Date and time the failed sign-in occurred. • Whether the maximum number of failed sign-ins has been reached for the user.
Users	Includes the following information for each user: • Last name, first name, and alias. • Information that identifies the Connection or Cisco Unified CMBE server associated with the user. • Billing ID, class of service, and extension. • Whether the account is locked. • Whether the user has enabled personal call transfer rules.

Table 41-1 Reports Available in Cisco Unity Connection (continued)

Report Name	Description of Output
Message Traffic	Includes totals for the following traffic categories: • Voice. • Fax. • Email. • Non-delivery receipt (NDR). • Delivery receipt. • Read receipt. • Hourly totals. • Daily totals.
Port Activity	Includes the following information for voice messaging ports: • Name. • Number of inbound calls handled. • Number of outbound MWI calls handled. • Number of outbound AMIS calls handled. • Number of outbound notification calls handled. • Number of outbound TRAP calls handled. • Total number of calls handled.
Mailbox Store	Includes the following information about the specified mailbox stores: • Mail database name. • Display name. • Server name. • Whether access is enabled. • Mailbox store size. • Last error. • Status. • Whether the mail database can be deleted.
Dial Plan	Includes a list of the search spaces configured on the Connection or Cisco Unified CMBE server, with an ordered list of partitions assigned to each search space. If the server is part of a Digital Network, also lists the search spaces and associated partition membership on every other Connection location on the network.
Dial Search Scope	Includes a list of all users and their extensions in the specified partition that is configured in the Connection directory. If a partition is not specified, lists all users and their extensions for all partitions that are configured in the directory.

Table 41-1 Reports Available in Cisco Unity Connection (continued)

Report Name	Description of Output
User Phone Sign-In and MWI	Includes the following information about phone sign-ins, MWI activity, and message notifications to phone devices per user: • Name, extension, and class of service. • Date and time for each activity. • The source of each activity. • Action completed (for example, Sign-in, MWI On or Off, and Phone Dialout). • Dial out number and results (applicable only for message notifications to phone devices). • The number of new messages for a user at time of sign-in.
User Message Activity	Includes the following information about messages sent and received, per user: • Name, extension, and class of service. • Date and time for each message. • Type of message. • Action completed (for example, new message, message saved, and so on). • Information on the message sender.
Distribution Lists	Includes the following information: • Name and display name of the list. • Date and time the list was created. (Date and time are given in Greenwich Mean Time.) • A count of the number of users included in the list. • If the Include List Members check box is checked, a listing of the alias of each user who is a member of the list.
User Lockout	Includes user alias, the number of failed sign-in attempts for the user, credential type (a result of “4” indicates a sign-in attempt from the Connection conversation; a result of “3” indicates a sign-in attempt from a web application), and the date and time that the account was locked. (Date and time are given in Greenwich Mean Time.)
Unused Voice Mail Accounts	Includes user alias and display name, and the date and time that the user account was created. (Date and time are given in Greenwich Mean Time.)
Transfer Call Billing	Includes the following information for each call: • Name, extension, and billing ID of the user. • Date and time that the call occurred. • The phone number dialed. • The result of the transfer (connected, ring-no-answer (RNA), busy, or unknown).

Table 41-1 Reports Available in Cisco Unity Connection (continued)

Report Name	Description of Output
Outcall Billing Detail	Includes the following information, arranged by day and by the extension of the user who placed the call: • Name, extension, and billing ID. • Date and time the call was placed. • The phone number called. • The result of the call (connected, ring-no-answer (RNA), busy, or unknown). • The duration of the call in seconds.
Outcall Billing Summary	Arranged by date and according to the name, extension, and billing ID of the user who placed the call, and is a listing of the 24 hours of the day, with a dialout time in seconds specified for each hour span.
Call Handler Traffic	Includes the following information for each call handler, in rows for each hour of a day: • Total number of calls. • Number of times each key on the phone keypad was pressed. • Extension. • Invalid extension. • Number of times the after greeting action occurred. • Number of times the caller hung up.
System Configuration	Includes detailed information about all aspects of the configuration of the Connection system.
SpeechView Activity Report by User	Includes the total number of transcribed messages, failed transcriptions, and truncated transcriptions for a given user during a given time period. If the report is run for all users, then the output is broken out by user.
SpeechView Activity Summary Report	Includes the total number of transcribed messages, failed transcriptions, and truncated transcriptions for the entire system during a given time period. When messages are sent to multiple recipients, the message is transcribed only once, so the transcription activity is counted only once.

Setting Report Configuration Parameters in Cisco Unity Connection 9.x

Cisco Unity Connection is automatically set to gather and store data from which you can generate reports. The following parameters can be adjusted, depending on the report output that you want to generate. All report parameter settings are found on the System Settings > Advanced > Reports page in Cisco Unity Connection Administration.

- **Milliseconds Between Data Collection Cycles**—Set by default to 30 minutes (1,800,000 milliseconds). This setting controls the amount of time Connection waits between cycles of gathering report data.

- **Days to Keep Data in Reports Database**—Set by default to 90 days. Note that even if you specify more than this number of days in the time range for the report you are generating, the number of days of data is limited by what you set here.
- **Maximum Records in Report Output**—Set by default to 25,000 records. The maximum value allowed for this field is 30,000 records. If the report you want to generate exceeds the maximum number of records allowed, you can generate the report in pieces, for example by reducing the date range or number of user accounts included in each iteration.

Note The Maximum Records in Report Output setting for the User Message Activity Report has been restricted to 15,000 records—rather than the default of 25,000 records—because of the size of the report.

- **Minimum Records Needed to Display Progress Indicator**—Set by default to 2,500 records. The maximum value allowed for this field is 10,000 records. The purpose of the progress indicator is to warn you if the report you request is large and likely to take a long time to complete. In Connection, reports are generated from within a browser, and the browser session must be kept open while the report is being generated. Depending on the size of the database, and the type of report being generated, a report can take a long time to generate; meanwhile, you are unable to use the browser, and must keep the Connection Administration session open.

Archiving Report Data

Reports data is gradually written over, depending on parameters that you set for retention of data. We recommend that if you want to keep reports for historical purposes, you develop a schedule for regularly generating reports, and save them in a location separate from the Cisco Unity Connection server.

Generating and Viewing Reports in Cisco Unity Connection 9.x

You can generate and view reports in Cisco Unity Connection Serviceability. To go to Cisco Unity Connection Serviceability, in the navigation box in the upper-right corner of Cisco Unity Connection Administration, select Cisco Unity Connection Serviceability and select Go.

For details on generating and viewing reports for Cisco Unity Connection Serviceability, see the *Administration Guide for Cisco Unity Connection Serviceability* at http://www.cisco.com/en/US/products/ps6509/prod_maintenance_guides_list.html.

CHAPTER 42

Integrating Cisco Unity Connection 9.x with an LDAP Directory

Note Information in this chapter is applicable in a Cisco Unity Connection configuration only. For information on integrating Cisco Unified Communications Manager Business Edition (CMBE) with an LDAP directory, see the following documentation available at http://www.cisco.com/en/US/products/ps7273/prod_maintenance_guides_list.html:
– The "Understanding the Directory" chapter of the *Cisco Unified Communications Manager System Guide for Cisco Unified Communications Manager Business Edition*.
– The "End User Configuration" chapter of the *Cisco Unified Communications Manager Administration Guide for Cisco Unified Communications Manager Business Edition*.

If you are using a supported LDAP-compliant directory as your corporate directory and if you do not want to separately maintain basic user information in Cisco Unity Connection, you can:

- Create Connection users by importing user data from the LDAP directory, and
- Configure Connection to periodically resynchronize Connection data with data in the LDAP directory.

For a list of the LDAP directories that are supported for use with Connection, see the "Requirements for an LDAP Directory Integration" section in *System Requirements for Cisco Unity Connection Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.

See the following sections:

- Integrating Cisco Unified Communications Manager and Cisco Unity Connection 9.x with an LDAP Directory, page 42-2
- Task List for Configuring LDAP and for Creating New Users or Synchronizing Existing Cisco Unity Connection 9.x Users with LDAP Users, page 42-2
- Activating the Cisco DirSync Service in Cisco Unity Connection 9.x, page 42-4
- Enabling LDAP Synchronization in Cisco Unity Connection 9.x, page 42-4
- Disabling LDAP Synchronization in Cisco Unity Connection 9.x, page 42-5
- Converting Phone Numbers into Extensions, page 42-5
- Converting Phone Numbers into Extensions, page 42-5
- Uploading SSL Certificates on the Cisco Unity Connection 9.x Server, page 42-7
- Configuring LDAP Authentication in Cisco Unity Connection 9.x, page 42-8
- Disabling LDAP Authentication, page 42-9

- Selecting the LDAP Users to Import into Cisco Unity Connection 9.x, page 42-10
- Filtering LDAP Users in Cisco Unity Connection 9.x, page 42-12
- Adding LDAP Directory Configurations and Importing LDAP Data in Cisco Unity Connection 9.x, page 42-13
- Changing LDAP Directory Configurations in Cisco Unity Connection 9.x, page 42-14
- Deleting LDAP Directory Configurations in Cisco Unity Connection 9.x, page 42-15
- Changing Which LDAP Field Is Mapped to the Alias Field in Connection, page 42-16

Integrating Cisco Unified Communications Manager and Cisco Unity Connection 9.x with an LDAP Directory

If Connection is integrated with a Cisco Unified CM phone system, and if you want to integrate both Connection and Cisco Unified CM with an LDAP directory, you must separately integrate each application with the LDAP directory. Integrating only one of the applications with an LDAP directory is not sufficient to allow the other application to synchronize or authenticate with the LDAP directory.

For information on integrating Cisco Unified CM with an LDAP directory, start with the "LDAP System Configuration" chapter in the "System Configuration" section of the applicable *Cisco Unified Communications Manager Administration Guide* at http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html.

For information on integrating Connection with an LDAP directory, start with the "Task List for Configuring LDAP and for Creating New Users or Synchronizing Existing Cisco Unity Connection 9.x Users with LDAP Users" section on page 42-2.

Task List for Configuring LDAP and for Creating New Users or Synchronizing Existing Cisco Unity Connection 9.x Users with LDAP Users

To configure LDAP and to create users by importing user data from the LDAP directory, do the following tasks:

1. Turn on the Cisco DirSync service. See the "Activating the Cisco DirSync Service in Cisco Unity Connection 9.x" section on page 42-4.
2. Enable LDAP synchronization. See the "Enabling LDAP Synchronization in Cisco Unity Connection 9.x" section on page 42-4.

   If you are using LDAP authentication to authenticate user access to Connection web applications or IMAP access to Connection voice messages, you must enable LDAP synchronization.
3. *(Optional)* If the phone numbers stored in the LDAP directory are not in the same format as the extensions that you want to use in Connection, specify a filter that converts phone numbers into extensions when you import LDAP data into Connection. See the applicable section:
   - Converting Phone Numbers into Extensions, page 42-5
   - Converting Phone Numbers into Extensions, page 42-5

If you use the Bulk Administration Tool (BAT) to create users, you may be able to achieve the same or better results than you could by specifying a filter in this step. In Task 9., if you use BAT, you export user data to a CSV file, edit the CSV file, and import the edited file. During this process, you can open the CSV file in a spreadsheet application and possibly create a formula that is more effective than the regular expression that you can specify for the filter discussed in the "Converting Phone Numbers into Extensions" section on page 42-5.

4. *(Optional)* If you want to use SSL to encrypt the usernames and passwords that are sent to the LDAP server for authentication and/or you want to use SSL to encrypt the data that is passed from the LDAP server to the Connection server during synchronization, export an SSL certificate from the applicable LDAP servers and upload the certificates on all Connection servers. See the "Uploading SSL Certificates on the Cisco Unity Connection 9.x Server" section on page 42-7.
5. *(Optional)* If you want Connection users who access a Connection web application or who access Connection voice messages by using an IMAP email application to authenticate their username and password against the LDAP directory, configure LDAP authentication. See the "Configuring LDAP Authentication in Cisco Unity Connection 9.x" section on page 42-8.
6. Select the user search bases that you will specify when you create LDAP directory configurations in Task 8. See the "Selecting the LDAP Users to Import into Cisco Unity Connection 9.x" section on page 42-10.
7. *(Required if the number of users in all user search bases is greater than 60,000, optional otherwise)* If the user search bases that you selected in Task 6. do not give you enough control over which LDAP users are synchronized with Connection users, you may want to specify one or more LDAP filters. See the "Filtering LDAP Users in Cisco Unity Connection 9.x" section on page 42-12.
8. Add one or more LDAP directory configurations, which define the LDAP directory and user search bases in which Connection accesses data, and import data from the LDAP directory into a hidden Cisco Unified CM database on the Connection server. When you create Connection users that are linked to LDAP users or you convert existing Connection users to users who are integrated with an LDAP directory, the data on the LDAP users is taken from the Cisco Unified CM database on the Connection server. See the "Adding LDAP Directory Configurations and Importing LDAP Data in Cisco Unity Connection 9.x" section on page 42-13.
9. If you are synchronizing existing Connection users with users in an LDAP directory, see the applicable section in the "Creating User Accounts from LDAP User Data or Changing LDAP Integration Status for Existing Users in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.
   - See the "Changing the LDAP Integration Status of Connection Users" section.
   - See the "Integrating Existing Cisco Unity Connection User Accounts with LDAP User Accounts" section.

   If you are creating new Connection users who are synchronized with users in an LDAP directory, use one of the following methods:
   - If you are creating a small number of users (a few hundred or fewer) and if you were able to create a regular expression to convert LDAP phone numbers into Connection extensions, you can use the Import Users tool.
   - If you are creating a larger number of users or if you were not able to create a regular expression to convert LDAP phone numbers into Connection extensions, export user data to a CSV file by using the Bulk Administration Tool, reformat the data by using a spreadsheet application (if necessary), and import the data by using the Bulk Administration tool.

Activating the Cisco DirSync Service in Cisco Unity Connection 9.x

The Cisco DirSync service must be turned on for Connection to access an LDAP directory. Do the following procedure.

To Turn On the Cisco DirSync Service

Step 1 Sign in to Cisco Unified Serviceability as a user that has the System Administrator role.

Step 2 On the Tools menu, select **Service Activation**.

Step 3 Under Directory Services, check the **Cisco DirSync Service** check box.

Step 4 Select **Save**, and select **OK** to confirm.

Enabling LDAP Synchronization in Cisco Unity Connection 9.x

LDAP synchronization must be enabled for Connection to access an LDAP directory. Do the following procedure.

To Enable LDAP Synchronization

Step 1 Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

Step 2 Expand **System Settings > LDAP**, then select **LDAP Setup**.

Step 3 On the LDAP Setup page, check the **Enable Synchronizing from LDAP Server** check box.

Step 4 In the LDAP Server Type list, select the type of LDAP server that you want to access.

When you are configuring Connection for Microsoft Active Directory 2008 Lightweight Directory Services, select **Microsoft Active Directory Application Mode**.

Step 5 In the LDAP Attribute for User ID list, select the field in the LDAP directory whose data you want to appear in the Alias field in Connection. Note the following requirements:

- The field that you select must have a value for every user in the LDAP directory.
- Every value for that field must be unique.

Caution If you select a field other than sAMAccountName, when users sign in to the Cisco PCA or an IMAP client or sign in to the Web Inbox, they must enter their Connection alias and their LDAP password.

Caution If you later need to change the field that you select now, and if you have already created LDAP directory configurations on the LDAP Directory page, you must delete all LDAP directory configurations, change the value here, and recreate all LDAP directory configurations. For more information, see the "Changing Which LDAP Field Is Mapped to the Alias Field in Connection" section on page 42-16.

Step 6 Select **Save**.

Disabling LDAP Synchronization in Cisco Unity Connection 9.x

If you want to temporarily disable LDAP synchronization, do the following procedure.

To Disable LDAP Synchronization

Step 1 Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

Step 2 Expand **System Settings > LDAP**, then select **LDAP Setup**.

Step 3 On the LDAP Setup page, uncheck the **Enable Synchronizing from LDAP Server** check box.

Step 4 Select **Save**.

Converting Phone Numbers into Extensions

If you want to map phone numbers in the LDAP directory to extensions in Connection but the phone numbers do not match the extensions, you can add a regular expression and a replacement pattern that together convert the phone numbers into extensions:

- The regular expression determines which phone numbers to operate on (for example, phone numbers that are 10 digits long) and the portion of the phone numbers to use as a basis for the extensions (for example, the last four digits).
- The replacement pattern specifies either to use the values selected by the regular expression or to perform additional operations (for example, prepend an 8).

Connection uses the regular expression package of the Java library. Table 42-1 lists some examples of the conversions that are possible with the expanded functionality. For more information, refer to a reference on regular expressions; several are available in print and online; do a web search on “regular expression.”

Note the following:

- Connection automatically removes non-numeric characters from the phone number, so the regular expression does not need to account for non-numeric characters.
- If a phone number in the LDAP directory does not match the regular expression, the corresponding Connection Extension field will contain the numeric portion of the LDAP phone number. For example, if a phone number begins with 425 and the regular expression gets the last four digits of the LDAP phone number as the Connection extension, but only if the LDAP phone number starts with 206, the Extension field for that Connection user will contain the entire LDAP phone number minus any non-numeric characters.
- LDAP phone numbers are converted to Connection extensions only once, when you first synchronize Connection data with LDAP data. On subsequent, scheduled synchronizations, values in the Connection Extension field are not updated with changes to the LDAP phone number. As a result, you can change the LDAP phone number as required, including specifying a completely different number, and the extension will not be overwritten the next time that Connection synchronizes data with the LDAP directory.

- You can often write more than one combination of regular expression and replacement pattern that produces the same result.

Table 42-1 Example Phone Number Conversions for Connection

Example Conversion Operation	Regular Expression for LDAP Phone Number Pattern	Replacement Pattern
Use the LDAP phone number as the Connection extension.	(.*)	$1
Use the last four digits of the LDAP phone number as the Connection extension.	.*(\d{4})	$1
Use the first four digits of the LDAP phone number as the Connection extension.	(\d{4}).*	$1
Append a 9 to the left of the last four digits of the LDAP phone number.	.*(\d{4})	9$1
Embed the digits 555 between the first three digits and the last four digits of the LDAP phone number.	(\d{3}).*(\d{4})	$1555$2
Use the last four digits of the LDAP phone number as the Connection extension, but only if the LDAP phone number is between seven and ten digits long.	\d{3,6}(\d{4})	$1
Use the last four digits of the LDAP phone number as the Connection extension, but only if the LDAP phone number starts with 206.	206.*(\d{4})	$1
Prepend 85 to the left of the rightmost 5 digits of the LDAP phone number, but only if the LDAP phone number is 10-digit long.	\d{5}(\d{5})	85$1
Remove the leftmost three digits of the LDAP phone number but only if the LDAP phone number is 13 digits long and the first three digits are 011.	011(\d{10})	$1
Remove the leftmost six digits of the LDAP phone number and then prepend 52 to the remaining digits, but only if the LDAP phone number is 10 digits long and the first three digits are 206.	206\d{3}(\d{4})	52$1

If the expanded support for regular expressions cannot convert phone numbers in your LDAP directory into Connection extensions, you may want to explore whether a formula in a spreadsheet application is able to produce the results that you want. If so, when you create new Connection users from LDAP data or synchronize existing Connection users with LDAP users, you can manipulate phone number data in the CSV file using a spreadsheet application before you import the data back into Connection. See either the "Creating Cisco Unity Connection 9.x Users from LDAP Data by Using the Bulk Administration Tool" section or the ""Integrating Existing Connection User Accounts with LDAP User Accounts Using Bulk Administration Tool" section, as applicable, in the "Creating User Accounts from LDAP User Data or Changing LDAP Integration Status for Existing Users in Cisco Unity Connection 9.x" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

To Add a Regular Expression and Replacement Pattern That Convert LDAP Phone Numbers into Cisco Unity Connection Extensions

Step 1 In Cisco Unity Connection Administration, expand **System Settings > LDAP**, then select **Phone Number Conversion**.

Step 2 In the Regular Expression for LDAP Phone Number Pattern field, enter a regular expression that identifies:

- Which phone numbers in the LDAP directory you want to convert to extensions (for example, 10-digit phone numbers that begin with 206).
- The portion of the phone numbers to use as a basis for the extensions (for example, the last four digits).

Step 3 In the Replacement Pattern field, enter a value that specifies either to use the values selected by the regular expression or to perform additional operations (for example, prepend an 8).

Caution Connection validates the syntax of the regular expression but does not validate the replacement pattern, and also cannot validate the result of the regular expression and the replacement pattern. We recommend that you verify the results on the Import Users page of Connection Administration before you create Connection subscribers.

Step 4 Select **Save**.

Uploading SSL Certificates on the Cisco Unity Connection 9.x Server

If you want to use SSL to encrypt data that is transmitted between the LDAP server and the Connection server, do the following procedure.

Note You must also specify servers by host name instead of by IP address, and check the "Use SSL" check box for each LDAP server that you configure for synchronization (see the "Adding LDAP Directory Configurations and Importing LDAP Data in Cisco Unity Connection 9.x" section on page 42-13), or for authentication (see the "Configuring LDAP Authentication in Cisco Unity Connection 9.x" section on page 42-8).

To Upload SSL Certificates from the LDAP Directory Servers

Step 1 Export the SSL certificate from the LDAP server with which you want Connection to synchronize data and from the LDAP server that you want Connection to access when authenticating user sign-ins, if any.

If you want to configure redundant LDAP servers for synchronization and/or for authentication, export an SSL certificate from each LDAP server with which you want Connection to synchronize or authenticate.

Step 2 On the Connection server, sign in to Cisco Unified Operating System Administration.

Step 3 On the Security menu, select **Certificate Management**.

Step 4 Upload the directory certificate trust that you exported in Step 1:

- Upload the directory certificate trust to tomcat-trust.

If you want this Connection server to synchronize with more than one LDAP server or to authenticate with more than one LDAP server, upload the directory certificate trusts from all of the LDAP servers.

For more information on uploading directory certificate trusts and on restarting the Cisco Dirsync and Cisco Tomcat services, on the Help menu, select **This Page**.

Caution You must restart the Cisco DirSync and Cisco Tomcat services, or LDAP synchronization and authentication will fail.

Step 5 If you are configuring Connection clustering, or if you are configuring a Digital Network, repeat Step 2 through Step 4 on the other Connection servers.

Configuring LDAP Authentication in Cisco Unity Connection 9.x

Some companies want the convenience of single sign-on credentials for their applications. To authenticate sign-ins to Connection web applications against user credentials in an LDAP directory, you must synchronize Connection user data with user data in the LDAP directory as described in the "LDAP Synchronization" section in *Design Guide for Cisco Unity Connection*.

Only passwords for Connection web applications (Cisco Unity Connection Administration for administration, Cisco Personal Communications Assistant for end users), and for IMAP email applications that are used to access Connection voice messages, are authenticated against the corporate directory. You manage these passwords by using the administration application for the LDAP directory. When authentication is enabled, the password field is no longer displayed in Cisco Unity Connection Administration.

For telephone user interface or voice user interface access to Connection voice messages, numeric passwords (PINs) are still authenticated against the Connection database. You manage these passwords in Connection Administration; users manage PINs by using the phone interface or the Messaging Assistant web tool.

The LDAP directories that are supported for LDAP authentication are the same as those supported for synchronization. See the "Requirements for an LDAP Directory Integration" section in the *System Requirements for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/requirements/9xcucsysreqs.html.

If you want to use LDAP usernames and passwords to authenticate sign-ins to Cisco Unity Connection web applications or IMAP access to Connection voice messages, do the following procedure to configure LDAP authentication.

Note You cannot use LDAP usernames and passwords to authenticate sign-ins for the administrator account that you created during installation. The administrator account is used to sign on to Cisco Unified Operating System Administration, the Disaster Recovery System, and the command line interface.

To Configure LDAP Authentication

Step 1 In Cisco Unity Connection Administration, expand **System Settings > LDAP**, and select **LDAP Authentication**.

Step 2 Check the Use LDAP Authentication for End Users check box.

Step 3 Enter other values as applicable. For more information, on the Help menu, select **This Page**.

If you change the value of the Host Name or IP Address for Server field, and if IMAP clients are accessing Connection, restart the Connection IMAP Server service. If other web applications are accessing Connection (for example, Cisco Personal Communications Assistant), restart the server.

If you uploaded SSL certificates to the Connection server in the "To Upload SSL Certificates from the LDAP Directory Servers" procedure on page 42-7:

- Check the **Use SSL** check box for every LDAP server that you specify in the Host Name or IP Address for Server field.
- In the Host Name or IP Address for Server field, specify the host name of the server, or authentication will probably fail for IMAP clients. If you specify an IP address and the SSL certificate identifies the LDAP server only by host name (which is common—certificates rarely include the IP address of a server), Connection cannot verify the identity of the LDAP server.

Note With some supported LDAP directories, you cannot specify redundant LDAP servers. For information on the LDAP directories with which Connection allows you to specify redundant servers, see the "Requirements for an LDAP Directory Integration" section in *System Requirements for Cisco Unity Connection Release 9.x*.

Step 4 Select **Save**.

Disabling LDAP Authentication

If you permanently disable LDAP authentication, users sign in to Connection web applications by using their Connection web application password instead of their LDAP directory password. If Connection users were integrated with an LDAP directory when Connection was first installed or if they have been integrated with an LDAP directory for a while, they either do not have Connection web application passwords or they do not remember their Connection web application password. Do the following procedure to force users to change their Connection web application password the next time they sign in to a Connection web application and to disable LDAP authentication.

You can use Bulk Edit to change passwords for users who have a mailbox, but you must individually change passwords for users who not have a mailbox (meaning administrators).

If you temporarily disable LDAP authentication, for example, because you are changing which field is mapped to the Alias field in Connection, you do not have to change password settings for Connection users.

To Disable LDAP Authentication

Step 1 Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

Step 2 In Cisco Unity Connection Administration, expand **System Settings > LDAP**, and select **LDAP Authentication**.

Step 3 Uncheck the **Use LDAP Authentication for End Users** check box.

Step 4 Select **Save**.

Step 5 If you are only temporarily disabling LDAP authentication, skip the rest of this procedure. Do not change password settings.

Step 6 To change the password setting for users who have a mailbox:

a. In Cisco Unity Connection Administration, expand **Users** and select **Users**.

b. If all Connection users are integrated with LDAP directory users, select all users. Otherwise, select the users who are integrated with an LDAP directory.

c. Select **Bulk Edit**.

d. On the **Edit** menu, select **Password Settings**.

e. In the Choose Password list, choose **Web Application**.

f. For **User Must Change at Next Sign-In**, check both check boxes.

g. If you want to schedule when Connection changes the setting for the selected users, under Bulk Edit Task Scheduling, choose **Run Later** and specify a date and time.

h. Select **Submit**.

Step 7 To change the password setting for users who do not have a mailbox:

a. In Cisco Unity Connection Administration, expand **Users** and select **Users**.

b. Select the first user.

c. On the **Edit** menu, select **Password Settings**.

d. In the Choose Password list, choose **Web Application**.

e. Check the **User Must Change at Next Sign-In** check box.

f. Select **Save**.

g. Repeat Step a. through Step f. for the remaining users who do not have a mailbox.

Selecting the LDAP Users to Import into Cisco Unity Connection 9.x

Later in this chapter, you create up to five Cisco Unity Connection LDAP directory configurations that specify which users in the LDAP directory you want to import into Connection. For each LDAP directory configuration, you specify a user search base, which is the position in the LDAP directory tree where Connection begins its search for user accounts. Connection imports all users in the tree or subtree (domain or OU) specified by the search base. A Connection server or cluster can only import LDAP data from subtrees with the same directory root, for example, from the same Active Directory forest.

After you create the LDAP directory configurations, you synchronize Connection data with data in the LDAP directory, which imports LDAP data into a hidden Cisco Unified Communications Manager database on the Connection server. There is a practical limit of 60,000 users that can be imported into the Cisco Unified CM database. The limit is not enforced by the synchronization process, but importing large numbers of LDAP users who will not become Connection users reduces the amount of disk space available for messages, slows database performance, and causes upgrades to take longer.

Caution Do not specify user search bases that will cause more than 60,000 users to be imported into the Cisco Unified CM database during synchronization, or Connection performance will be adversely affected.

We recommend that you analyze the structure of your LDAP directory and determine whether you can specify five or fewer user search bases that:

- Include the LDAP users that you want to import into Connection.
- Exclude the LDAP users that you do not want to import into Connection.

- Will cause fewer than 60,000 users to be imported into the Cisco Unified CM database.

If you cannot specify five or fewer search bases that meet all three of these criteria, we recommend that you create one or more LDAP filters to filter out the unwanted users specified by the search bases. For more information, see the "Filtering LDAP Users in Cisco Unity Connection 9.x" section on page 42-12.

Directories Other than Active Directory

If you are using an LDAP directory other than Microsoft Active Directory, and if you create a Connection LDAP directory configuration that specifies the root of the directory as the user search base, Connection will import data for every user in the directory. If the root of the directory contains subtrees that you do not want Connection to access (for example, a subtree for service accounts), do one of the following:

- Create two or more Connection LDAP directory configurations, and specify search bases that omit the users that you do not want Connection to access.
- Create an LDAP search filter. For more information, see the "Filtering LDAP Users in Cisco Unity Connection 9.x" section on page 42-12.

For directories other than Active Directory, we recommend that you specify user search bases that include the smallest possible number of users to speed synchronization, even when that means creating multiple configurations.

Active Directory

If you are using Active Directory and if a domain has child domains, you must create a separate configuration to access each child domain; Connection does not follow Active Directory referrals during synchronization. The same is true for an Active Directory forest that contains multiple trees—you must create at least one configuration to access each tree. In this configuration, you must map the UserPrincipalName (UPN) attribute to the Connection Alias field; the UPN is guaranteed by Active Directory to be unique across the forest.

Cisco Unity Connection Intrasite and Intersite Networking

If you are using intrasite or intersite networking to network two or more Connection servers that are each integrated with an LDAP directory, and if you specify a user search base on one Connection server that overlaps a user search base on another Connection server, be careful not to accidentally create duplicate Connection users on different Connection servers by importing the same LDAP user more than once.

Note Regardless of how you create users, Connection prevents you from creating two users with the same alias on the same Connection server, but does not prevent you from creating two users with the same alias on different Connection servers in the same site or organization.

In some cases, you may find it useful to create multiple Connection users from the same LDAP user. For example, you may want to import the same LDAP administrator accounts into every Connection server as Connection users without voice mailboxes, and use these duplicate Connection users as administrator accounts. This allows you to use LDAP synchronization and authentication for Connection administrator accounts without creating one or more LDAP users for every Connection server.

Filtering LDAP Users in Cisco Unity Connection 9.x

You may want additional control over which LDAP users you import into Cisco Unity Connection for a variety of reasons. For example:

- The LDAP directory has a flat structure that you cannot control sufficiently by specifying user search bases.
- You only want a subset of LDAP user accounts to become Connection users.
- The LDAP directory structure does not match the way you want to import users into Connection. For example:
  - If organizational units are set up according to an organizational hierarchy but users are mapped to Connection by geographical location, there might be little overlap between the two.
  - If all users in the directory are in one tree or domain but you want to install more than one Connection server, you need to do something to prevent users from having mailboxes on more than one Connection server.
- The LDAP directory includes more than 60,000 users. When you create Connection users by importing LDAP users, there is a practical limit of 60,000 users that can be imported into the Cisco Unified Communications Manager database on the Connection server. The limit is not enforced by the synchronization process, but importing large numbers of LDAP users who will not become Connection users slows database performance and causes upgrades to take longer.

In these cases, you may want to create one or more LDAP filters to provide additional control over user search bases. Note the following:

- You cannot create LDAP filters for Cisco Unified Communications Manager Business Edition.
- You can create as many LDAP filters as you want, but you can only have one active filter per Connection directory configuration, up to five per server or cluster.
- When you create LDAP directory configurations in Connection, you specify both a user search base and an LDAP filter. As applicable, create filters that integrate with the user search bases that you will specify for the maximum of five LDAP directory configurations that you can create.
- Each filter must adhere to the LDAP filter syntax specified in RFC 4515, “Lightweight Directory Access Protocol (LDAP): String Representation of Search Filters.”
- The filter syntax is not validated when you create the filter. Instead, it is validated when you specify the filter in an LDAP directory configuration.
- If you add a filter and add it to an LDAP directory configuration that you have already synchronized with the LDAP directory, or if you change a filter that is already in use in an LDAP directory configuration, you must do the following steps for the LDAP users specified by the new or updated filter to be accessible to Connection:
  1. Turn off and turn on again the Cisco DirSync service. In Cisco Unified Serviceability, select **Tools > Service Activation**. Uncheck the check box next to **Cisco DirSync**, and select **Save** to turn off the service. Then check the check box next to **Cisco DirSync**, and select **Save** to turn on the service.
  2. In Connection Administration, in the LDAP directory configuration that accesses the filter, perform a full synchronization (select **Perform Full Sync Now**).
- If you change a filter to one that excludes some of the users who were previously accessible, the Connection users who are synchronized with the now-inaccessible LDAP users will be converted to standalone Connection users over the next two scheduled synchronizations or within 24 hours, whichever is greater. The users will still be able to sign in to Connection by phone, callers can still leave messages for them, and their messages will not be deleted. However, they will not be able to

sign in to Connection web applications while Connection is breaking synchronization for these users. After the synchronization has been broken, their web-application passwords will be the passwords that were assigned when their Connection accounts were created.

Do the following procedure to add an LDAP filter.

To Add an LDAP Filter

Step 1 In Cisco Unity Connection Administration, expand **System Settings > LDAP**, then select **LDAP Custom Filter**.

Step 2 Select **Add New**.

Step 3 In the Filter Name field, enter a name for this LDAP filter. If you are adding more than one LDAP filter configuration, enter a name that identifies the LDAP users included in the current filter, for example, "Engineering."

Step 4 In the Filter field, enter a filter that adheres to the LDAP filter syntax specified in RFC 2254, "The String Representation of LDAP Search Filters." You must enclose the filter text in parentheses.

Step 5 Select **Save**.

Adding LDAP Directory Configurations and Importing LDAP Data in Cisco Unity Connection 9.x

Note If you are configuring unified messaging with Exchange, you must enter the Exchange email address for each Connection user. On the Unified Messaging Account page in Connection Administration, each user can be configured to use either of the following values:

– The Corporate Email Address specified on the User Basics page
– The email address specified on the Unified Messaging Account page

As you add LDAP directory configurations, we recommend that you choose the option to synchronize the Mail ID field in Cisco Unified Communications Manager with the mail field in the LDAP directory. This causes values in the LDAP mail field to appear in the Corporate Email Address field in Connection. Automatically populating the Corporate Email Address field with the value of the LDAP mail field is easier than populating the email address field on the Unified Messaging Account page by using Connection Administration or the Bulk Administration Tool.

Do the following procedure once for each user search base in the LDAP directory from which you want to import user data into Cisco Unity Connection.

To Add an LDAP Directory Configuration

Step 1 In Cisco Unity Connection Administration, expand **System Settings > LDAP**, then select **LDAP Directory Configuration**.

Step 2 In the LDAP Configuration Name field, enter a name for this LDAP directory configuration. If you are adding more than one LDAP directory configuration with different LDAP user search bases, enter a name that identifies the users in the current search base.

Step 3 Enter other values as applicable. For more information, on the Help menu, select **This Page**.

If you specify an LDAP filter, LDAP filter syntax is checked. If the syntax is invalid, an error message appears.

If you uploaded SSL certificates to the Connection server in the "To Upload SSL Certificates from the LDAP Directory Servers" procedure on page 42-7, check the **Use SSL** check box for every LDAP server that you specify in the **Host Name or IP Address for Server** field.

Note With some supported LDAP directories, you cannot specify redundant LDAP servers. For information on the LDAP directories with which Connection allows you to specify redundant servers, see the "Requirements for an LDAP Directory Integration" section in *System Requirements for Cisco Unity Connection Release 9.x*.

Step 4 Select **Save**.

Step 5 Select **Perform Full Sync Now**.

Step 6 To add another LDAP directory configuration for another user search base, select **Add New**, and repeat Step 2 through Step 5

Note When importing users from LDAP, the user gets successfully imported into the end user table. However, when the user is imported into the tbl_user from end user table, the sync fails if the middle name has value more than 12 bytes.

Changing LDAP Directory Configurations in Cisco Unity Connection 9.x

If you want to change an LDAP directory configuration, for example, by changing which LDAP user fields are imported into Connection, you must delete the existing directory configuration and recreate it.

Caution You must recreate the directory configuration within 24 hours, or the Connection users that are integrated with LDAP users will be converted to standalone Connection users.

To Change LDAP Directory Configurations

Step 1 Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

Step 2 Expand **System Settings > LDAP**, then select **LDAP Directory Configuration**.

Step 3 If you do not have a record of the existing settings, select the configuration that you want to change, and write down the existing settings.

Step 4 On the Find and List LDAP Directory Configurations page, check the check box next to the directory configuration that you want to change.

Note If the directory configuration does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 5 Select **Delete Selected**.

Step 6 In the dialog box that opens, asking you to confirm the deletion, select **OK**.

Step 7 Under **System Settings > LDAP**, select **LDAP Setup**.

Step 8 On the LDAP Setup page, uncheck the **Enable Synchronizing from LDAP Server** check box.

Step 9 Select **Save**.

Step 10 Recheck the **Enable Synchronizing from LDAP Server** check box.

Step 11 Select **Save** again.

Step 12 Recreate the directory configuration, and perform a full synchronization for the recreated directory configuration. See the "Adding LDAP Directory Configurations and Importing LDAP Data in Cisco Unity Connection 9.x" section on page 42-13.

Step 13 Repeat Step 2 through Step 12 for other directory configurations that you want to change, if any.

Deleting LDAP Directory Configurations in Cisco Unity Connection 9.x

If you want to delete an LDAP directory configuration, for example, because you no longer want Connection users to be integrated with an LDAP directory, do the following procedure.

Caution When you delete a directory configuration, Connection users that are integrated with LDAP users are converted to standalone Connection users in 24 hours.

To Delete LDAP Directory Configurations

Step 1 Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

Step 2 Expand **System Settings > LDAP**, then select **LDAP Directory Configuration**.

Step 3 On the Find and List LDAP Directory Configurations page, check the check boxes next to the directory configurations that you want to delete.

Note If a directory configuration does not appear in the search results table, set the applicable parameters in the search fields at the top of the page, and select **Find**.

Step 4 Select **Delete Selected**.

Step 5 In the dialog box that opens, asking you to confirm the deletion, select **OK**.

Step 6 Under **System Settings > LDAP**, select **LDAP Setup**.

Step 7 On the LDAP Setup page, uncheck the **Enable Synchronizing from LDAP Server** check box.

Step 8 Select **Save**.

Step 9 Recheck the **Enable Synchronizing from LDAP Server** check box.

Step 10 Select **Save** again.

Changing Which LDAP Field Is Mapped to the Alias Field in Connection

If you need to change which field in the LDAP directory is mapped to the Alias field in Connection, do the following procedure.

Caution You must complete this entire procedure within 24 hours, or Connection will convert all of the users who are integrated with the LDAP directory to standalone Connection users.

Caution If you are using LDAP authentication, after you complete this procedure, users will have to sign in to Connection web interfaces by using the new value of the Alias field in Connection.

To Change the LDAP Field that Is Mapped to the Alias Field in Connection

Step 1 Disable the DirSync service:

a. Sign in to Cisco Unified Serviceability as a user that has the System Administrator role.

b. On the Tools menu, select **Service Activation**.

c. Under Directory Services, uncheck the **Cisco DirSync Service** check box.

d. Select **Save**, and select **OK** to confirm.

Step 2 Disable LDAP authentication. See the "Disabling LDAP Authentication" section on page 42-9.

Step 3 Delete all LDAP directory configurations:

a. Sign in to Cisco Unity Connection Administration as a user that has the System Administrator role.

b. Expand **System Settings > LDAP**, then select **LDAP Directory Configuration**.

c. If necessary, write down the specifications for the existing LDAP directory configurations so you can reproduce them later in this procedure.

d. On the Find and List LDAP Directory Configurations page, select all directory configurations.

e. Select **Delete Selected**.

Step 4 Change the field that is mapped to the Connection Alias field:

a. In Connection Administration, expand **System Settings > LDAP**, then select **LDAP Setup**.

b. In the LDAP Attribute for User ID list, select the field in the LDAP directory whose data you want to appear in the Alias field in Connection. Note the following requirements:

- The field that you select must have a value for every user in the LDAP directory.
- Every value for that field must be unique.

Caution If you select a field other than sAMAccountName, when users sign in to the Cisco PCA or an IMAP client (Connection 9.x) or sign in to the Web Inbox, they must enter their Connection alias and their LDAP password.

c. Select **Save**.

Step 5 Re-enable LDAP authentication. For more information, see the "Configuring LDAP Authentication in Cisco Unity Connection 9.x" section on page 42-8.

Step 6 Re-add LDAP configurations, but do not synchronize Connection and LDAP data. The synchronization will not work until after you re-enable the DirSync service in the next step.

For more information, see the "Adding LDAP Directory Configurations and Importing LDAP Data in Cisco Unity Connection 9.x" section on page 42-13.

Step 7 Re-enable the DirSync service:

a. Sign in to Cisco Unified Serviceability as a user that has the System Administrator role.

b. On the Tools menu, select **Service Activation**.

c. Under Directory Services, check the **Cisco DirSync Service** check box.

d. Select **Save**, and select **OK** to confirm.

Step 8 Synchronize Connection data with LDAP data:

a. In Connection Administration, expand **System Settings > LDAP**, then select **LDAP Directory Configuration**.

b. Select **Find** to display a list of all directory configurations.

c. Display the first directory configuration, and select **Perform Full Sync Now**.

d. Repeat Step a. through Step c. for the remaining directory configurations.

CHAPTER 43

Managing Licenses in Cisco Unity Connection 9.x

See the following sections:

- About Licenses in Cisco Unity Connection 9.x, page 43-1
- Viewing Reports for Licenses in Cisco Unity Connection 9.x, page 43-3

About Licenses in Cisco Unity Connection 9.x

See the following sections:

- License Management and Enterprise License Manager (ELM) in Cisco Unity Connection 9.x, page 43-1
- Licenses and Cisco Unity Connection Clusters, page 43-3
- Licenses and Migrations from Cisco Unity, page 43-3

License Management and Enterprise License Manager (ELM) in Cisco Unity Connection 9.x

In Cisco Unity Connection 9.x, licenses are required to use the various features purchased by the customers. To use the licensed features on Connection, the licenses for the corresponding features must be installed on the Enterprise License Manager (ELM) server and Connection must communicate with the ELM server to obtain the license status. The ELM server provides centralized, simplified, and enterprise-wide management of user-based licensing. For more information on the ELM server and its configuration, refer to ELM user guide at http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/elmuserguide/9_0_1/CUCM_BK_E596FD72_00_enterprise-license-manager-user-90.html.

Cisco Unity Connection remains in the “Demonstration (Demo)” mode until it connects with the ELM server for the first time. For more information on licensing states of Connection, refer to the License Status in Cisco Unity Connection, page 43-2.

Obtaining and Installing the Licenses

For details on obtaining and installing the licenses in the ELM server, see the "*New License Fulfillment*" section in the ELM user guide at http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/elmuserguide/9_0_1/CUCM_BK_E596FD72_00_enterprise-license-manager-user-90.html.

After obtaining and installing the licenses, you are required to configure Connection with the ELM server. For information on how to connect Connection with the ELM server, refer to the "*Adding a Product instance*" section in the ELM user guide. After Connection is configured with the ELM server, Connection is no longer in “Demo” mode. To check the details of the connected ELM server, see the "**Status**" section on the License page of Cisco Unity Connection Administration. The value of the ELM server is displayed as “Not Connected” on the **License** page until Connection is configured on the ELM server.

License Status in Cisco Unity Connection

When Cisco Unity Connection is connected with the ELM server and the required number of licenses for the features are installed on the ELM server, the license status becomes “Compliance”. For example, if the ELM server is configured for 50 users, the Connection server can request for less than equal to 50 users to remain in “Compliance” mode.

If the required number of licenses are not installed on the ELM server, the license status becomes “Violation”. However, you can still use the licensed features on Connection for 60 days, which is the grace period. During this grace period, you are required to obtain and install the required number of licenses or reduce the usage of the licensed features in order to avoid license violation. However, if you do not take the required action during the grace period, then license status becomes “Expire”.

Once the license status of Cisco Unity Connection software changes to “Expire”, the software will stop functioning. The Connection server will not answer any calls to leave or retrieve voicemails. However, you can still add, modify or delete configuration data on the server. You are required to obtain and install the required number of licenses or reduce the usage of the licensed features to avoid license violation. After taking the required action, the license status changes from “Expire” to “Compliance” and you can use the licensed features on Connection again.

Note After obtaining and installing licenses for changing the license status from “Expire” to the “Compliance”, you must restart Cisco Unity Connection.

Note When the license status of Connection is “Expire”, the synchronization of users and call handler profiles from Connection on the branch stops working. However, the voicemail and auto-attendant functionalities still work at branch. For more information on the licensing requirements of the branch, refer to the *Cisco Unity Connection Survivable Remote Site Voicemail (SRSV) Guide for Cisco Unity Connection Release 9.x* at guide http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/srsv/guide/9xcucsrsvx.html.

You can view the license status on the License page of the Cisco Unity Connection Administration. For more information, see the “Viewing the License Status for Cisco Unity Connection” section in this document.

Note If the multiple Connection severs are configured with the same ELM server and the license violation occurs for one of the Connection, then the license status of all the Connection servers becomes "Violation". Similarly, if the license expiration occurs for one of the Connection, then the license status status of all the Connection servers becomes "Expire".

Licenses and Cisco Unity Connection Clusters

In a Cisco Unity Connection (high availability) environment, only the publisher server needs to be configured and connected with the ELM to obtain the license status and for the license enforcement. When the publisher server stops functioning (for example, when it is shut down for maintenance), the subscriber server handles all the incoming calls for the cluster for 60 days grace period. However, if the publisher server does not resume its normal function within the 60 days grace period, Connection will move to "Expire" state.

Licenses and Migrations from Cisco Unity

Cisco Unity Connection 9.x can use existing license information from Cisco Unity to enable Cisco Unity Connection features when migrating from Cisco Unity 4.x or later to Connection 9.x.

For instructions on migrating from Cisco Unity 4.x or later to Cisco Unity Connection 9.x, see the "Migrating from Cisco Unity 4.x or Later to Cisco Unity Connection 9.x" chapter of the *Reconfiguration and Upgrade Guide for Cisco Unity Connection Release 9.x*, at http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/elmuserguide/9_0_1/CUCM_BK_E596FD72_00_enterprise-license-manager-user-90.html.

Note Before starting migration, you need to configure Connection with the ELM server. For more information on configuring Connection with the ELM server, refer to the ELM user guide at http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/elmuserguide/9_0_1/CUCM_BK_E596FD72_00_enterprise-license-manager-user-90.html.

Viewing Reports for Licenses in Cisco Unity Connection 9.x

You can view the reports for the licenses associated with the licensed features on the **License** page of the Cisco Unity Connection Administration. The license report includes the following information:

- **Status**: Shows the license status, host name/IP address of the connected ELM server, last connectivity time of Connection with the ELM server, and last compliance time of Connection with the ELM server.
- **License Usage**: Shows the usage of licensed features of the Connection server. For features that are licensed for a number of seats, the report displays the number of used seats.

Viewing the License Status for Cisco Unity Connection

Do the following procedure to view the license status for the Cisco Unity Connection server.

To View the License Status for Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Licenses**.

Step 2 On the Licenses page, under Status, you can view the following types of License status:

- **Demonstration (Demo)**: If Connection is in the "Demo" mode, the value of License status will be "Demo".
- **Compliance**: If the required number of licenses for the desired feature are installed on the ELM server, the Connection is in the "Compliance" mode.
- **Violation**: If required number of licenses for the desired feature are not installed on the ELM server, the License status becomes "Violation". In addition, a warning message stating "License Violation has occurred. License will expire in 60 day(s). Please contact ELM administrator" appears.
- **Expire**: If you do not obtain and install the required number of licenses for the desired features on the ELM server within the 60 days grace period, the license status becomes "Expire". A warning message stating "**License violation has occurred for x day(s) and crossed the grace period. System is now in Expiration mode**" appears, where "x" is the number of days. In addition, a warning message stating "**Cisco Unity Connection cannot answer calls. A license violation has occurred. To review licenses, go to the System Settings > Licenses page in Cisco Unity Connection Administration**" appears on the Home page of the Cisco Unity Connection Administration.

Viewing the Last Connectivity Time with the ELM Server

Do the following procedure to view the Last Connectivity Time with the ELM Server.

To View the Last Connectivity Time with the ELM Server

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Licenses**.

Step 2 On the Licenses page, under Status, the value of the Last Connectivity Time of Connection with the ELM server is displayed.

Note The value of the Last Connectivity Time with ELM Server will be in Coordinated Universal Time (UTC) time zone.

Viewing the Host Name/ IP Address of the Connected ELM Server

To View the Host Name/ IP Address of the Connected ELM Server

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Licenses**.

Step 2 On the Licenses page, under Status, the Host name/ IP address of the Connected ELM server is displayed.

Viewing the Last Compliance Time

To View the Last Compliance Time of the Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Licenses**.

Step 2 On the Licenses page, under **Status**, the value of the last compliance time of Connection with ELM server is displayed.

Note The value of the Last Compliance Time will be in Coordinated Universal Time (UTC) time zone.

Viewing the License Usage

To View the License Usage for Cisco Unity Connection

Step 1 In Cisco Unity Connection Administration, expand **System Settings**, then select **Licenses**.

Step 2 On the Licenses page, under **License Usage**, the license usage for the Connection server is displayed in the "**Current usage**" column.

License Parameters for Cisco Unity Connection 9.x Features

Table 43-1 License Parameters for Cisco Unity Connection Features

License Parameter	Feature	Description
CUC_BasicMessaging	Total number of voicemail users	Specifies the maximum number of voice mail users configured in Cisco Unity Connection
CUC_SpeechView	Total number of speech view standard users	Specifies the maximum number of Speech view Standard users configured in Cisco Unity Connection
CUC_SpeechViewPro	Total number of speech view professional users	Specifies the maximum number of Speech view Professional users configured in Cisco Unity Connection
CUC_SpeechConnectPort	Total number of speech connect ports	Specifies the maximum number of Speech Connect calls configured in Cisco Unity Connection

Table 43-1 License Parameters for Cisco Unity Connection Features (continued)

License Parameter	Feature	Description
CUC_EnhancedMessaging	Total number of enhanced messaging users	Specifies the maximum number of Connection SRSV users configured on Cisco Unity Connection. The Connection SRSV users are reflected under this tag only when the branch is active.

CHAPTER 44

Managing Cisco Unity Connection Survivable Remote Site Voicemail in Cisco Unity Connection 9.1(1) and later

Added November 25, 2012

See the following sections:

- Overview of Cisco Unity Connection SRSV in Connection 9.1(1) and Later, page 44-1
- Working with Connection SRSV, page 44-2
- Managing Branches in Cisco Unity Connection 9.1(1), page 44-6

Overview of Cisco Unity Connection SRSV in Connection 9.1(1) and Later

Cisco Unity Connection Survivable Remote Site Voicemail (Connection SRSV) is a backup voicemail solution that allows you to receive voice messages during WAN outages. It works in conjunction with Cisco Unified Survivable Remote Site Telephony (SRST) for providing voicemail service to a branch when the connectivity with the central Connection voicemail service is lost.

Connection SRSV is used in the centralized Cisco Unified Communications Manager and Cisco Unity Connection environment with multiple branch offices or small sites. It provides limited voicemail and auto-attendant features that remain in synchronization with the central Connection voicemail service so that when the WAN outage or failure occurs, the Connection SRSV solution can provide voicemail service to the subscribers at the branch. However, as soon as the network is restored, all the voicemails received by the branch subscribers are automatically uploaded to the central Connection voicemail server.

Connection SRSV solution requires the following two components:

- Cisco Unity Connection: It is deployed at the central site alongside with Cisco Unified CM to deliver powerful integrated messaging and voicemail services.
- Connection SRSV: The SRSV component is natively a part of Connection which is deployed at the branch site alongside with Cisco Unified CM Express or Cisco Unified Survivable Remote Site Telephony (SRST). Connection SRSV is hosted on Cisco Integrated Service Routers Generation 2 (ISR G2) platform by using Services Ready Engine Virtualization.

Connection SRSV is a licensed feature for which you need to install licenses under **CUC_EnhancedMessaging** tag on the **License** page of Cisco Unity Connection Administration. For more information on licenses installed on the central Connection server, refer to the "Managing Licenses in Cisco Unity Connection 9.x" chapter of the System Administration Guide for Cisco Unity Connection Release 9.x at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/administration/guide/9xcucsagx.html.

See the following sections:

- Working with Connection SRSV, page 44-2
- Managing Branches in Cisco Unity Connection 9.1(1), page 44-6

Working with Connection SRSV

Connection SRSV comes into picture during WAN outages and acts as a backup of voice messaging system at the branch sites. It allows the users at branch offices to receive the voice messages during WAN outages.

In Connection 9.1(1), Connection SRSV involves provisioning of Connection through the command line interface (CLI) to run it in SRSV mode, SRST/E-SRST references Cisco Unified Communications Manager, and all the SRSV related functionalities, such as user(s) provisioning and voicemail upload, are managed by the central Connection server. Once the entire Connection SRSV system is deployed and provisioned, it remains in the idle state at the branch site and is ready to receive calls from the SRST system (either SRST or CUCME-as-SRST). The SRST component also remains idle and wait for IP phones to register with it. When the WAN outage occurs, the branch office IP phones that are registered to the central Cisco Unified Communications Manager detect the loss of connectivity and re-home to the SRST. Now, all the incoming calls to the branch are handled by the SRST. For calls that are either no-answer or reach a busy line, SRST forwards the call to the CUC-SRSV voicemail server that allows the caller to leave a voice message for the branch user. As a result, the branch office voicemail is supported during WAN outages when the central office voicemail system is unreachable.

However, when the WAN connection is restored, the IP phones automatically re-home to the central Cisco Unified Communications Manager. All the call are then managed by Cisco Unified Communications Manager and the no-answer / busy calls are forwarded to the central Connection voicemail system and all the voicemails stored on the branch get automatically synchronized with the central Connection voicemail.

See the following sections:

- Supported SRSV Topologies, page 44-2
- Methods of Provisioning and Voicemail Upload, page 44-5
- Configuring an SRSV User, page 44-6

Supported SRSV Topologies

Connection SRSV supports several topologies based on the configuration of the router. You can deploy either original SRST or CUCME-as-SRST (also known as SRST Fallback Mode) at branch.

Note If you are running SRST at the branch site, you cannot also deploy the E-SRST feature.

Following figures show three topologies supported by Connection SRSV:

Figure 44-1: Shows a topology in which SRST is deployed at the branch site. If the WAN outage occurs or PSTN goes down, Connection SRSV at the branch site provides limited voicemail support in the failover mode.

Figure 44-2: Shows a topology where CUCME-as-SRST (also known as SRST Fallback Mode) is providing call control at the branch site.

Figure 44-3: Shows a topology where multiple CUCME-as-SRST and SRSV-CUE devices are paired for load balancing at the survivable branch site. In this scenario, the administrator uses Cisco Unified Communications Manager to divide the branch users between CUCME-SRST-1 and CUCME-SRST-2. The central Connection server detects that and then sends the appropriate configuration to SRSV-1 and SRSV-2 at the branch site. In the event of WAN failure, each SRSV device will handle calls directed to it from the paired CUCME-as-SRST device.

Figure 44-1 Topology 1

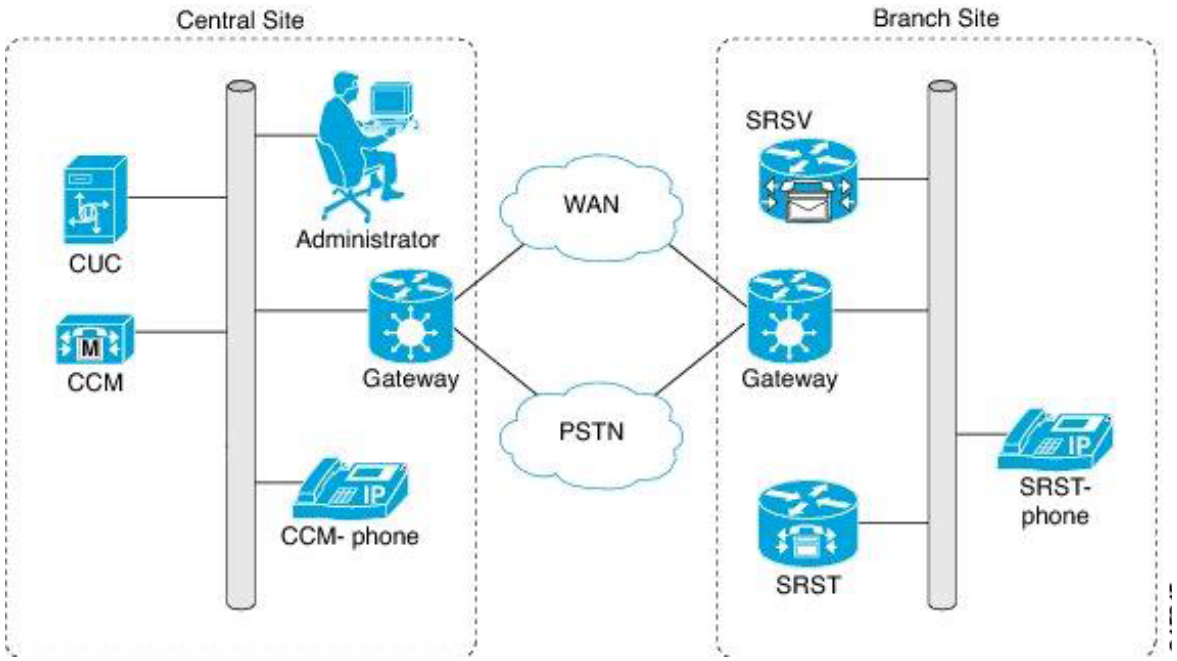


Figure 44-2 Topology 2

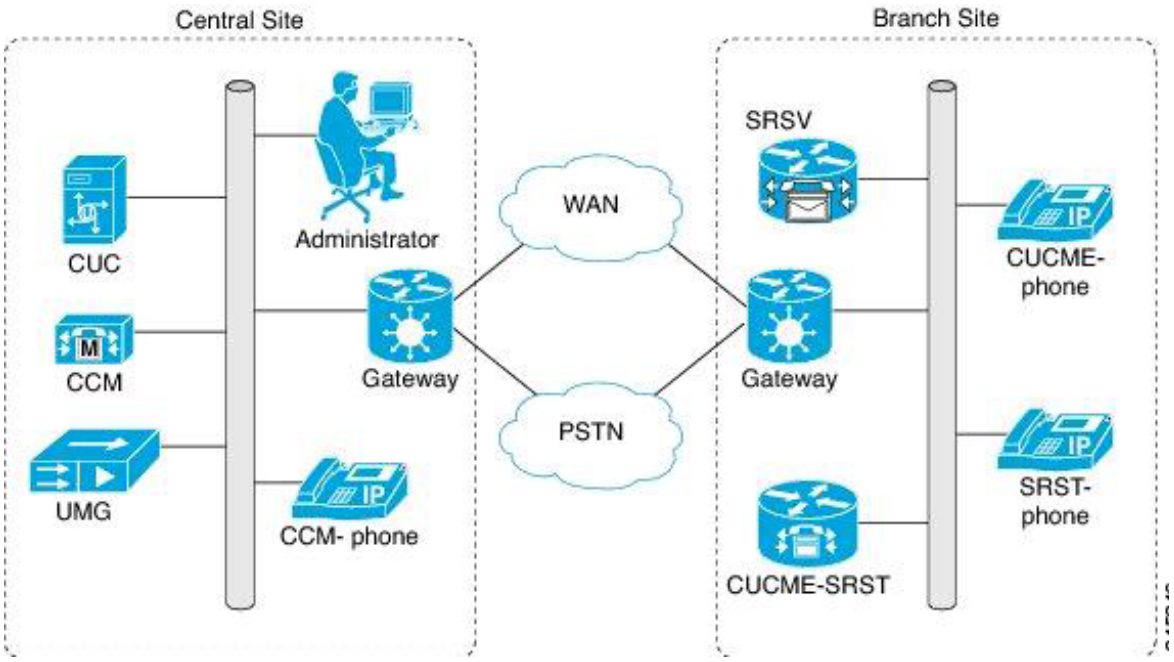
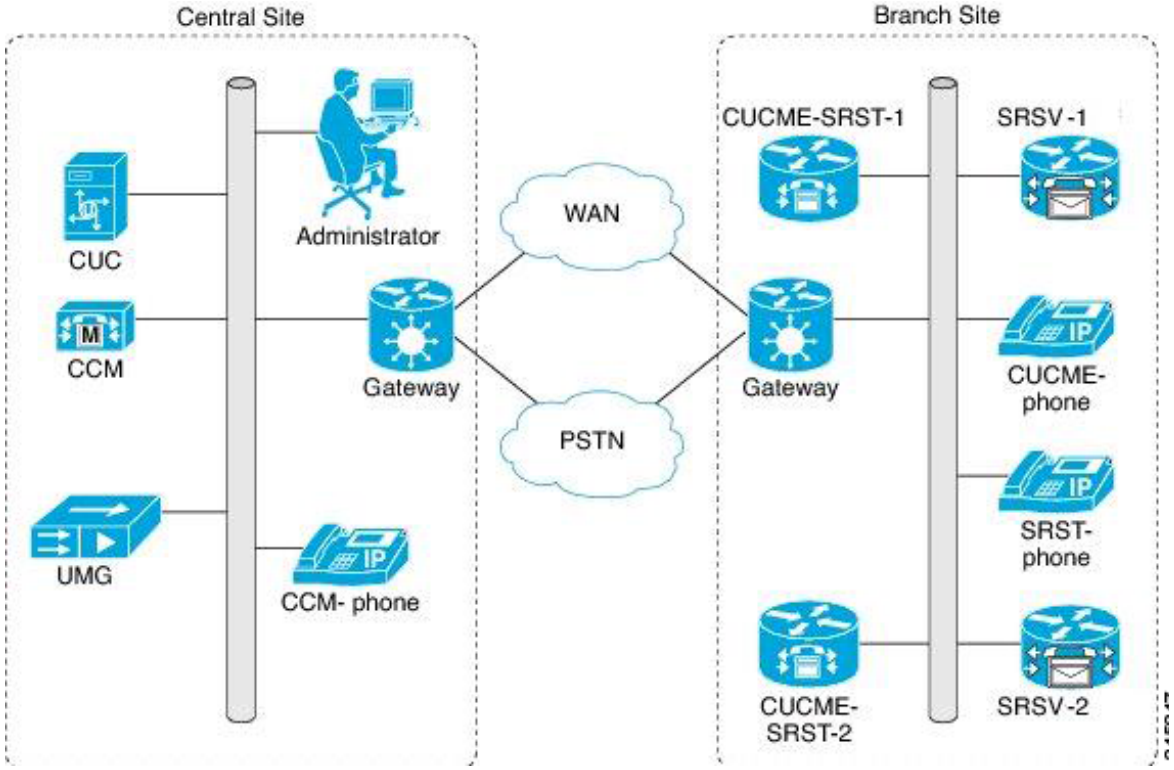


Figure 44-3 Topology 3



Note You can still install UMG in the network for E-SRST.

See also:

- Methods of Provisioning and Voicemail Upload, page 44-5
- Task List to create an Connection SRSV User, page 44-6

Methods of Provisioning and Voicemail Upload

Connection 9.1(1) supports two methods for provisioning and voicemail upload between Connection and Connection SRSV. You can use either of the following methods to provision the users from the central Connection server to the branch system:

- **Manual Synchronization of Provisioning**: To manually provision the users on the branch, navigate to **Branch Management > Edit Branch** on Cisco Unity Connection Administration (CUCA) and select **Sync Provisioning**.
- **Automatic Synchronization of Provisioning**: To automatically enable the provisioning of the users, navigate to **Tools > Task Management** on Cisco Unity Connection Administration (CUCA) and schedule **Branch Provisioning Synchronization Task**. For more information on scheduling a task, refer to the "Cisco Unity Connection 9.x Tool Settings" chapter of *Interface Reference Guide for Cisco Unity Connection Administration Release 9.x* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/gui_reference/guide/9xcucgrgx.html.

By default, a maximum of 5 provisioning threads can run at a particular instant of time. However, you can also change this value to a desired number. To change the number of provisioning threads that can run simultaneously, you need to perform the following steps on command prompt of central Connection server using administrator credentials:

Step 1 Run the following command:

```
run cuc dbquery unitydirdb EXECUTE PROCEDURE
csp_ConfigurationModify(pFullName='System.SRSV.MaxProvisioningThreads', pValue='<any_value
< 50 >');
```

For example, if you want to run 15 provisioning threads simultaneously, run the following command:

```
run cuc dbquery unitydirdb EXECUTE PROCEDURE
csp_ConfigurationModify(pFullName='System.SRSV.MaxProvisioningThreads', pValue='15');
```

Step 2 Run the following command to confirm that the value of "System.SRSV.MaxProvisioningThreads" field is set to 15:

```
run cuc dbquery unitydirdb select objectid,fullname,value from vw_configuration
where fullname like '%SRSV%'
```

After changing the value of System.SRSV.MaxProvisioningThreads to 1, you need to restart the **Connection Branch Sync Service** and **Tomcat Service** to reflect the changes.

You can use either of the following methods to upload voicemails from the branch system to the central Connection server:

- **Manual Synchronization of Voicemail Messages**: To manually upload voicemails from the branch to the central Connection server, navigate to **Branch Management > Edit Branch** on Cisco Unity Connection Administration (CUCA) and select **Voicemail Upload**.

- **Automatic Synchronization of Voicemail Messages**: To automatically enable the uploading of voice messages from the branch to the central Connection server, navigate to **Tools > Task Management** on Cisco Unity Connection Administration (CUCA) and schedule **Branch Voice mail polling task**. For more information on scheduling a task, refer to the "Cisco Unity Connection 9.x Tool Settings" chapter of *Interface Reference Guide for Cisco Unity Connection Administration Release 9.x* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/gui_reference/guide/9xcucgrgx.html.

Configuring an SRSV User

You can either create a new user or update an existing user to provide access to the SRSV feature. Before creating an SRSV user, make sure that all the required services, such as Connection REST Service and Connection Branch Sync Service are started on the central Connection server and on the branch. For more information on services required for SRSV feature, refer to the *Administration Guide for Cisco Unity Connection Serviceability Release 9.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/serv_administration/guide/9xcucservagx.html.

Task List to create an Connection SRSV User

To create an Connection SRSV user, you need to perform the following tasks:

Step 1 *Creating a Partition*: Create a partition on the Connection server. For more information on how to create a partition, refer to the "Managing Partitions in Cisco Unity Connection 9.x" section of the "Managing Partitions and Search Spaces in Cisco Unity Connection 9.x" chapter of the *System Administration Guide for Cisco Unity Connection Release 9.x* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/administration/guide/9xcucsagx.html.

Step 2 *Creating a Branch*: Create a branch on the Connection server with details of the Cisco Unity Connection SRSV server, which corresponds to the partition created above. For more information on how to create a branch, refer to the Managing Branches in Cisco Unity Connection 9.1(1), page 44-6 section.

Step 3 *Creating a New User or Assigning the Partition to an Existing User*: Assign the partition created above to an existing user or create a new user and assign the partition to the user for providing access to the SRSV feature. For more information on how to create a user, refer to the "Creating Cisco Unity Connection 9.x User Accounts in Cisco Unity Connection Administration" section of the "Adding Cisco Unity Connection 9.x Accounts Individually" chapter of the *User Moves, Adds, and Changes Guide for Cisco Unity Connection Release 9.x* guide at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/9x/user_mac/guide/9xcucmacx.html.

Managing Branches in Cisco Unity Connection 9.1(1)

You can create a branch in Cisco Unity Connection Administration, which is further associated with a partition of users having access to SRSV functionality.

To Create a Branch

Step 1 In Cisco Unity Connection Administration, expand **Networking** > **Branch Management**, then select **Branches**.

Step 2 On the **Branch Listing** page, select **Add New**.

Step 3 On the **New Branch** page, enter basic settings, as applicable. (For field information, on the **Help** menu, select **This Page**.)

Note Fields marked with * (an asterisk) are required.

Step 4 Select **Save**.

Step 5 On the **Edit Branch** page, continue entering applicable settings.

Step 6 When you have finished entering settings on the **Edit Branch** page, select **Save**.

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