



Cisco Unity Fundamentals

A comprehensive introduction to deploying, configuring, and maintaining Cisco Unity



Cisco Unity Fundamentals

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Published by:

Cisco Press

800 East 96th Street

Indianapolis, IN 46240 USA

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Printed in the United States of America 2 3 4 5 6 7 8 9 0

Second Printing February 2006

Library of Congress Cataloging-in-Publication Number: 2002104804

ISBN: 1-58705-098-6

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Introduction

The goal of any book, this one included, is to provide a transport mechanism for the transfer of knowledge. The knowledge and information presented herein is meant not only to provide a basis for learning the Cisco Unity system but also to provide a somewhat comprehensive technical reference for future needs of Cisco Unity administrators. The lack of a comprehensive hardcopy resource for Cisco Unity systems provided a catalyst for the creation of this particular book.

Goals and Methods

The most important and somewhat obvious goal of this book is to provide you with a resource for learning how to administer a Cisco Unity system environment. This book will provide key areas and notes of interest. Also included are some things learned through experiences in a Cisco Unity environment. The authors hope that the information provided herein will enable you to implement the Cisco Unity system with a minimum of trouble.

One key methodology used in this book is to help you discover which important topics you need to review in more depth, to help you fully understand and remember those details, and to help you prove to yourself that you have retained your knowledge of those topics. So, this book does not simply assume that you will memorize the information that is presented; instead it helps you to truly learn and understand the topics, by providing the following:

- Explanations and information to fill in your knowledge gaps

Who Should Read This Book?

This book is designed to be a resource that covers information presented in the Cisco Unity System Administration (CUSA) and Cisco Unity System Engineering (CUSE) courses. However, this book is meant to be a technical resource as well.

Cisco Unity installers, administrators, and engineers are the primary intended audience. However, the information is presented in a manner that makes it well suited to anyone who simply desires knowledge of the functions and features offered by Cisco Unity.

How This Book Is Organized

Although this book could be read cover to cover, it is designed to be flexible and allow you to easily move among chapters and sections of chapters to cover just the material that you need more work with. Chapters 1 through 11 are the core chapters and can be covered in any order. If you do intend to read them all, the order in the book is an excellent sequence to use. Each section includes introductory text regarding the information to follow as well as requisite knowledge recommended to fully benefit from the information to be presented.

The core chapters, Chapters 1 through 11, cover the following topics:

Chapter 1, “Cisco Unified Communications System Fundamentals,” provides an overview of Cisco Unity call flow, Cisco Unity integration, and Cisco Unity features, as well as information regarding the features included in the Cisco Personal Assistant.

Chapter 2, “Using Your Cisco Unified Communications System,” introduces the basic administration tasks and tools in Cisco Unity, along with a more in-depth discussion of the Cisco Personal Assistant.

Chapter 3, “Setting Up Cisco Unified Communications,” covers the Cisco Unity Administrator, the primary tool that is used in the administration of the Cisco Unity environment. Also covered are the basics of a Cisco Unity system.

Chapter 4, “Unified Communications Subscribers,” discusses the setup and configuration of Cisco Unity subscribers from both a global and an individual perspective. This discussion covers account policy, subscriber templates, and other key functions.

Chapter 5, “Cisco Unified Communications System Customization,” discusses additional customization of the Cisco Unity subscriber experience through the creation and modification of call handlers and call routing tables.

Chapter 6, “Cisco Unified Communications System Maintenance,” delves into a number of the tools that are available for Cisco Unity administration and maintenance. These tools allow for efficient monitoring of the health of the Cisco Unity system and explores reporting functions for the Cisco Unity environment.

Chapter 7, “Understanding Cisco Unified Communications System Hardware,” describes the Cisco Systems platform overlays for supported Cisco Unity hardware. Each platform meets particular specifications that are dictated by Cisco.

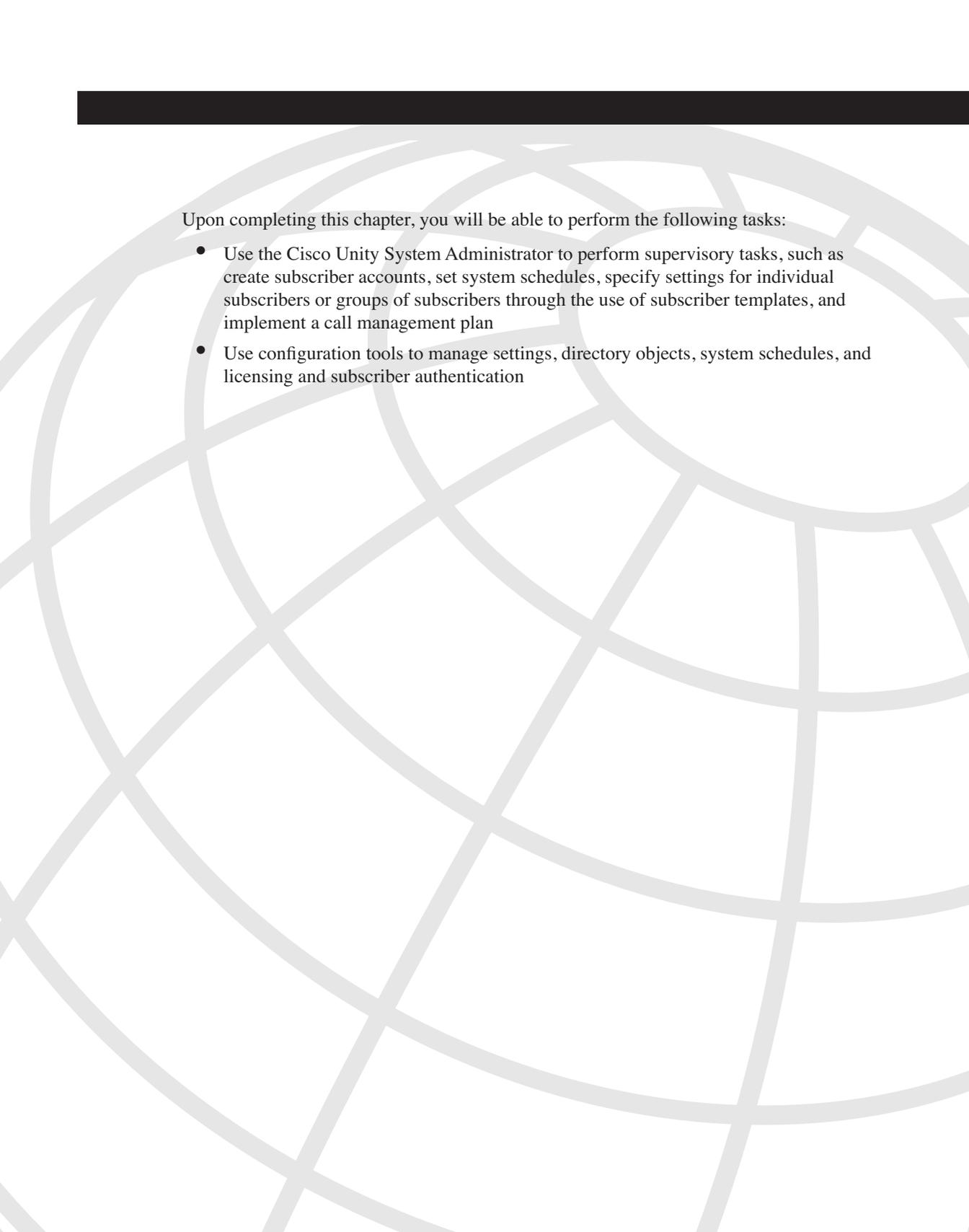
Chapter 8, “Cisco Unified Communications System Software,” explains the architecture of the Cisco Unity system when it is used with Microsoft Exchange or Lotus Domino. This includes a discussion of the Cisco Unity software installation for both new installations and upgrades.

Chapter 9, “Cisco Unified Communications Integrations,” discusses the concept of a Cisco Unity integration, including definition of the needs of integrations with PBX or Cisco CallManager switches. Also discussed are details associated with various integration scenarios.

Chapter 10, “Unified Communications Networking,” discusses the concept of networking with Cisco Unity systems. Digital, SMTP, VPIM, AMIS, and Bridge networking functions are discussed in this chapter.

Chapter 11, “Unified Communications Backup and Utilities,” deals with the ongoing needs of backing up a system. It also covers a number of extremely valuable tools that you can use in the day-to-day operations of the environment.

Appendix A, “Chapter Review Questions,” includes the answers and explanations to the review questions presented at the end of each chapter.



Upon completing this chapter, you will be able to perform the following tasks:

- Use the Cisco Unity System Administrator to perform supervisory tasks, such as create subscriber accounts, set system schedules, specify settings for individual subscribers or groups of subscribers through the use of subscriber templates, and implement a call management plan
- Use configuration tools to manage settings, directory objects, system schedules, and licensing and subscriber authentication

Setting Up Cisco Unified Communications

To manage a Cisco Unity system and administer it efficiently, you need to understand the product and its features. As with many other software functions, Cisco Unity has settings and configuration options that are both global and record-specific. This chapter is dedicated to the introduction of basic system administration, including layout, security, and help functions. Basic rules of voice processing, as well as some additional tools, are discussed to give you a better understanding of the information presented.

Among the topics discussed in this chapter is the basic use of the Cisco Unity System Administrator web tool to administer the system. Nearly every facet pertaining to the configuration of Cisco Unity is web-based in nature.

Following an introduction of the Cisco Unity System Administrator is a discussion of Cisco Unity setup to give you a basic idea of what tasks are involved in getting a new installation up and running.

Using the Cisco Unity System Administrator

The Cisco Unity System Administrator is the tool that you will use to perform the majority of administrative tasks, so you need to become familiar with this tool to effectively administer and set up a Cisco Unity system.

Before you begin to read about how to use this tool, to fully benefit from this section, it is recommended that you have the following prerequisite skills and knowledge. (If you need a quick review, see the designated chapter, where you can find more information on the topic.)

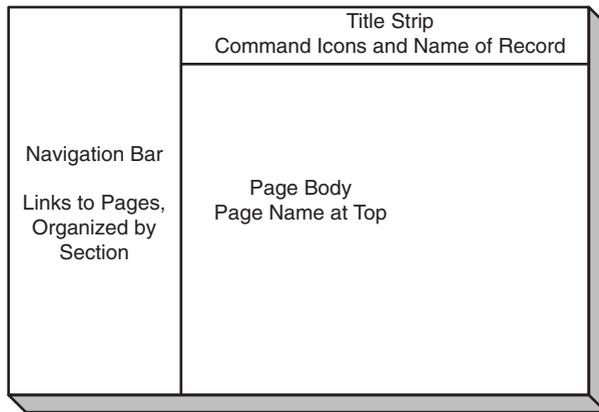
- A working knowledge of the Cisco Unity telephone user interface (TUI) and subscriber tools for managing voice messages and settings (see Chapter 2, “Using Your Cisco Unified Communications System”)
- A solid understanding of Cisco Unity basic features and functions (see Chapter 1, “Cisco Unified Communications System Fundamentals”)

The Cisco Unity System Administrator is accessible by using Microsoft Internet Explorer 6.0 or later and is optimized to be viewed at 1024 × 768 resolution using 256 colors (but not below 800 × 600, because it is not accessible at 640 × 480). It is broken into three differing frames:

- **Navigation bar**—The navigation bar on the left holds all the links to the different areas of administration and it’s organized by section.
- **Title strip**—The title strip gives the title of the page; that is the name of the subscriber or call handler. It also contains the command icons to view, add, and delete, and the name of the record being accessed.
- **Page body**—The page body gives all the current information and settings. Whereas the address of the console is dependent on your naming conventions, the default address of the Cisco Unity System Administrator is `http://<Cisco Unity server Name>/Saweb`.

Figure 3-1 shows a logical view of the entire page, including the navigation bar, title bar, and page body.

Figure 3-1 *Cisco Unity System Administrator Page Layout*



Defining the Navigation Bar

The navigation bar is one of the primary tools used on the main page of the Cisco Unity System Administrator. This bar exists on the left margin of the Cisco Unity System Administrator main page so that it is easily accessible by the Cisco Unity System administrator.

Two levels of navigation are available in the Cisco Unity System Administrator. The first level of the navigation bar shows individual data categories and furnishes web links to each group of pages within each of the categories.

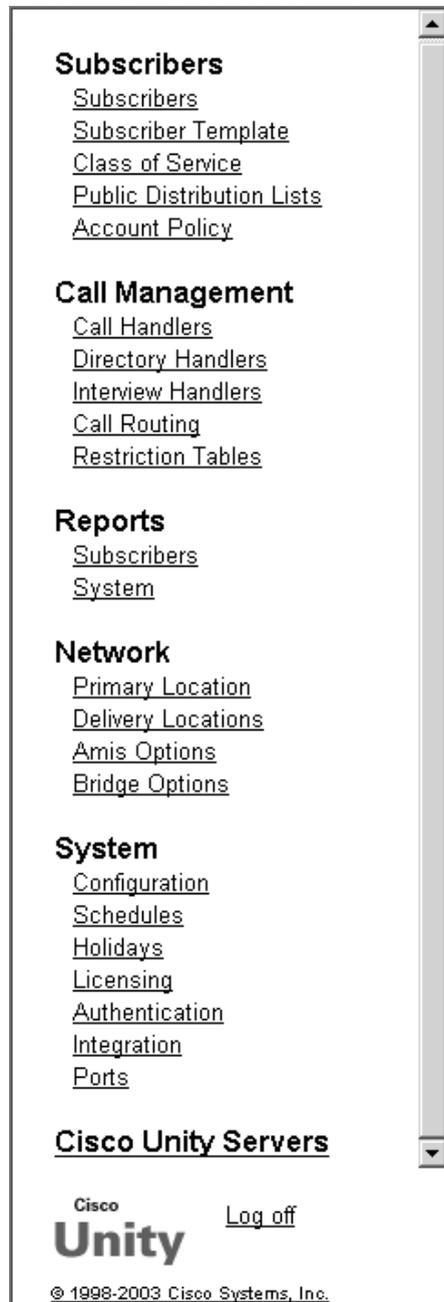
The second level furnishes web links to each page within a selected group. After you select a page, you can access individual records on that page by clicking the Find icon.

The navigation bar consists of six major portions (see Figure 3-2):

- **Subscribers**—This is where you can create, delete, or modify subscriber specific settings. This section includes links to the subscriber, subscriber template, class of service (COS) settings, public distribution lists, and account policy pages.
- **Call Management**—This is where you set how a call is handled by Cisco Unity. This section includes links to the call handlers, directory handlers, interview handlers, call routing, and restriction tables pages.
- **Reports**—This is where you can generate reports for either subscribers or system information. This section includes links to subscribers and system reports pages.
- **Network**—If you are linking Cisco Unity with another voice messaging system, this section will show the different options available for networking. The networking options you are licensed for will appear here. This section includes links to both primary and delivery location pages. If the system is licensed for AMIS or bridge networking, you see those options here also.
- **System**—This section includes links to configuration, schedules, holidays, licensing, authentication integrations, and ports pages.
- **Unity Servers**—Includes links that provide a list of all the Cisco Unity servers that are digitally networked together.

You will need to be completely familiar with the links on the navigation bar, which should come naturally to you over a short period of active administration.

Figure 3-2 *Cisco Unity System Administrator Navigation Bar*



Defining the Title Strip

The title strip is relatively self-explanatory. It serves to display the name of the record or of the group of settings that appears on the page. The title strip also features command icons that initiate actions, such as saving and finding records. At any given time, the icons are presented in color. If a grayscale icon appears, it indicates that the option associated with that icon is unavailable on that particular page. These icons include:

- **Save**—Saves entered data. This option is grayed out until changes have been recorded in the record. If a different major link is clicked after making changes to the entries but not saving the changes, the system prompts the administrator to save the changes, do not save, or cancel.
- **Find**—Opens the Find window to allow for a search of available records for the displayed category.
- **Add**—Opens an Add window to allow the addition of new records.
- **Delete**—Deletes the displayed record after prompting for confirmation of the deletion.
- **Run**—Generates a report (only available on Reports pages).
- **Online Documentation**—Provides access to the Help index and provides access to information for field-by-field documentation for each page.
- **Field Help**—Displays question marks next to fields and buttons for which Help is available.

Defining the Page Body

The page body of the Cisco Unity System Administrator is relatively self-explanatory. When you click a link, the corresponding page fills this space and you can make configuration entries. When you select the links displayed, this is where you will see actual information for each page that is entered into the Cisco Unity system. The page name is highlighted at the top of the page.

Protecting System Administration

As with any high- or unrestricted-access account, it is imperative that you protect the system administrator account. A Cisco Unity system has numerous security features to provide some level of protection. Among the features offered by the system is a choice between two authentication methods, the Anonymous method and the Integrated Windows method (formerly Windows NT Challenge/Response authentication). The Microsoft website contains general information about both authentication types, including strengths and weaknesses of each.

Table 3-1 provides an overview of the authentication methods by describing some of the advantages and disadvantages of each.

Table 3-1 *Authentication Methods*

Authentication Type	Advantages	Disadvantages
Integrated Windows authentication	User credentials are not sent across the network. Microsoft Internet Explorer and Microsoft Windows use a challenge/response mechanism to authenticate the user.	Windows cannot validate the identity of a user when the user is logged on to an untrusted domain and, therefore, denies the user access to the Cisco Unity System Administrator.
	Integrated Windows authentication is the default in Microsoft Internet Information Server (IIS); therefore, no additional setup is required.	When subscribers log on to the Cisco Unity System Administrator from another domain, they are prompted to re-enter their credentials every time that they want to use the phone as a recording and playback device for the Media Master.
Anonymous authentication	When subscribers log on to the Cisco Unity System Administrator from another domain, they can enter the applicable credentials on the Cisco Unity Log On page for the domain that the Cisco Unity server is in.	When a subscriber enters credentials on the Cisco Unity Log On page, the credentials are sent across the network in clear text. To solve this problem, configure Cisco Unity to use Secure Sockets Layer (SSL).
	When subscribers log on to the Cisco Unity System Administrator from another domain, they are not prompted to re-enter their credentials each time that they want to use the phone as a recording and playback device for the Media Master.	Because Integrated Windows authentication is the IIS default, an administrator must configure the system to use Anonymous authentication.

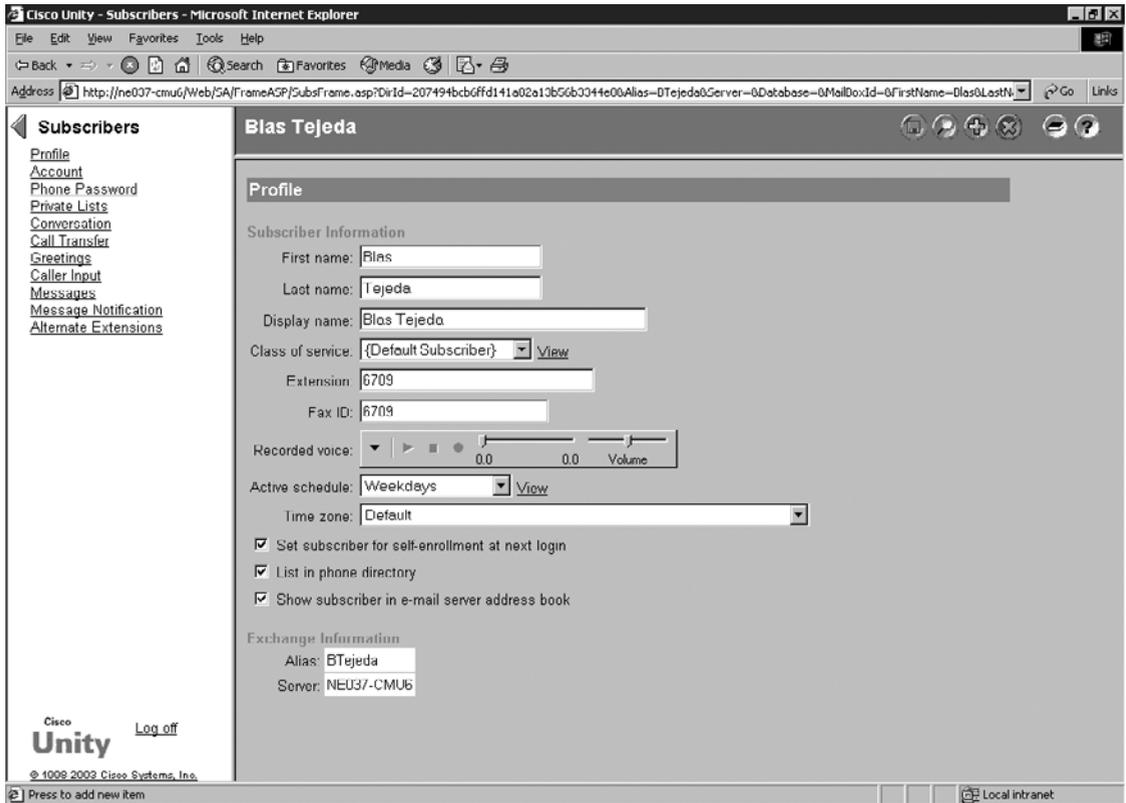
By default, IIS is configured to use Integrated Windows authentication to authenticate the username and password. During the Cisco Unity installation process, the installer has the option to configure IIS so that the Cisco Unity System Administrator uses Anonymous authentication instead.

It is important to keep in mind that, until an administrative subscriber account is created, the Windows credentials associated with the default administrator account must be used to log on to the Cisco Unity System Administrator tool.

System Administrator permissions are based on a subscriber's COS. Through COS, additional administrative tasks and capabilities can be delegated to individual subscribers. All Cisco Unity

administrators must also be Cisco Unity subscribers. Figure 3-3 shows the Cisco Unity System Administrator Subscribers page.

Figure 3-3 Cisco Unity System Administrator Subscribers Page



The manner in which the authentication is performed has an effect on the behavior of the system. The administrator account, however, remains unchanged. It is possible to maintain only the initial (default) administrator account. Typically, for customization, and even for tracking and change control, separate accounts are created for each administrative user in the domain.

It is, however, possible to track administrator actions. Actions such as entry creation, updates, deletions, and so on of Cisco Unity entities can be tracked by the Cisco Unity system.

Internet Explorer uses the Microsoft Windows 2000 Challenge and Response for System Administrator (SA) access. Netscape Navigator is not supported for SA access because there is no mechanism for challenge/response processes. SA permissions are based on a subscriber's COS. Through COS, you can delegate the system administration tasks, or a portion of them, to other subscribers. A Cisco Unity administrator must also be a Cisco Unity subscriber.

To further augment security, IIS in Windows 2000 can be configured to govern the length of time that the browser can be left idle/unattended before Cisco Unity automatically logs off the administrator. This is configured by altering the Session Timeout limit in IIS. After 20 minutes of inactivity, the subscriber is logged off automatically by the idle timer; the browser must then be refreshed and login credentials re-entered. Once the user is logged off, the system provides a link to log on again.

NOTE

The Cisco Unity system limits to five the number of administrator accounts that can be logged in to the system at any given time. Each administrative user should make sure to use the Log Off link to close the System Administrator after they have completed their administrative tasks. Otherwise, the workstation should be locked any time the administrator is away. When the administrator returns, Anonymous authentication prompts for the username and password once again, but Windows Authentication does not.

Regardless of which authentication method the installer chooses, the authentication method can be altered at any time by an administrator. Before any changes of this sort are made, however, all Cisco Unity administrators in the organization should agree that the change should be made.

Using Onscreen Help

Throughout the Cisco Unity system, including the System Administrator, an onscreen help function is provided to assist new or less-experienced Cisco Unity administrators.

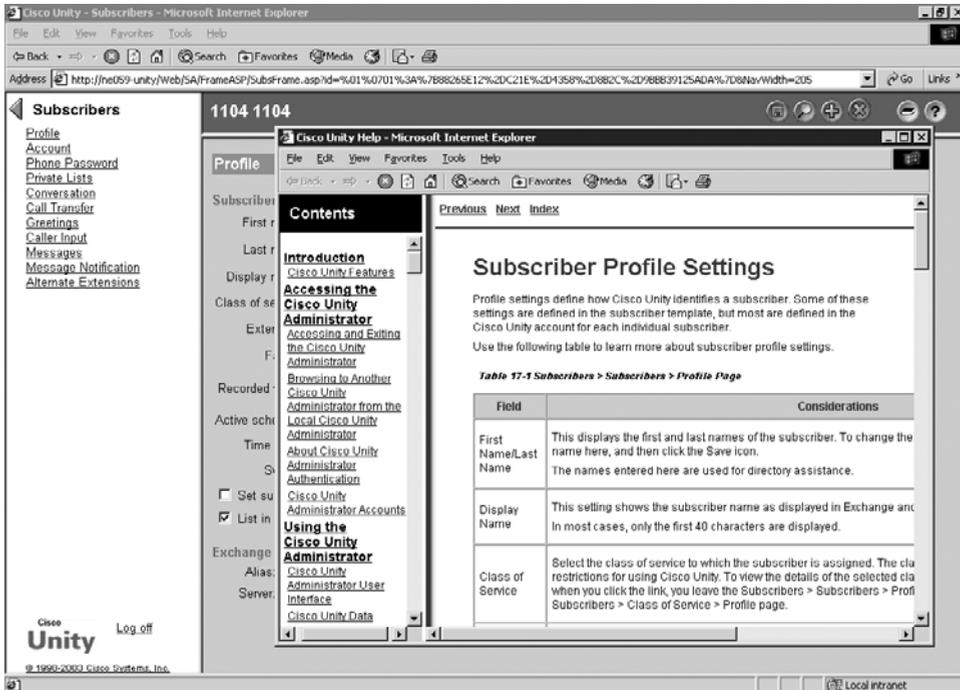
Two help icons are available on the console: a question mark icon (?) and an icon of a book. The ? icon is a field help icon, whereas the book icon is used to access Cisco Unity online documentation. Figure 3-4 illustrates these two icons.

Figure 3-4 *Field Help and Online Documentation Help Icons*



Figure 3-5 shows the result of clicking the online documentation icon. Note that a new window has opened with information specific to the selected field.

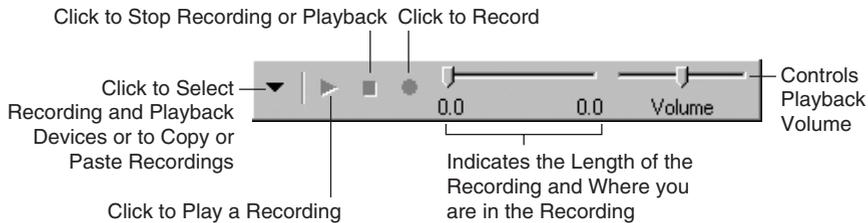
Figure 3-5 Onscreen Help Using the Book Icon



Using Cisco Unity Media Master

To enable you to record and play back voice, Cisco Unity uses the same interface consistently throughout the product. The drop-down menu allows you to choose the phone or the PC speakers and microphone to record and play back voice. It is also possible to copy and paste voice files (.wav only). The Options selection is where you specify what telephone extension Cisco Unity dials to reach a subscriber, and the name of the Cisco Unity server that will dial the extension.

The Media Master control bar appears on each Cisco Unity System Administrator page on which recordings can be made. It allows recordings to be created and played, either with a phone or with a computer microphone and speakers, by clicking the Media Master controls. Figure 3-6 shows the Media Master control bar.

Figure 3-6 *Media Master Control Bar*

Configuring a Cisco Unity System

This section serves as a Cisco Unity system setup and configuration guide. The actual architecture and processes involved in installation of the software are covered in the “Understanding Cisco Unity for Exchange Architecture” section of Chapter 8, “Cisco Unified Communications System Software.”

The ever-growing dependence on telephony and associated technologies has made voice mail an imperative tool in any business model. That in mind, it is important to understand how to set up a Cisco Unity system properly.

Before you study how to set up a Cisco Unity system, to fully benefit from this section, it is recommended that you have the following prerequisite skills and knowledge. (If you need a quick review, see the designated chapter, where you can find more information on the topic.)

- A basic understanding of the features and functions available to subscribers and administrators (see Chapter 1)
- A strong understanding of the functionality of the Cisco Personal Communications Assistant (PCA) (see Chapter 2)

Obviously, any software package must be properly installed and configured on supported platforms before it may become a useful addition to any environment, and Cisco Unity is no different. Numerous general settings must be configured on every Cisco Unity system before any subscribers can be added. Learning how to set up a Cisco Unity system efficiently and effectively is an important task for an administrator.

NOTE

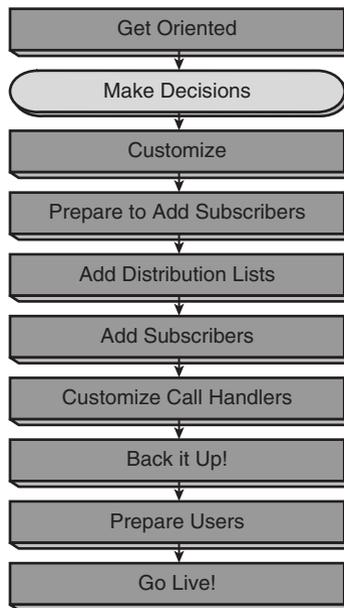
If the Cisco Unity system will use the failover feature, begin the installation on the primary server. The task list alerts you when to install the secondary server. Both Cisco Unity servers must have the same configuration.

Creating a Cisco Unity Task List

This section discusses the basic steps of getting through a new installation of the Cisco Unity software.

When you are installing a system that will become a critical piece of the overall network infrastructure, you must exercise proper due diligence. Before you perform the installation, you must assemble various pieces of information, software packages, and a proper hardware platform on which to install the system. You must decide how and where this particular Cisco Unity system will fit into the network. Figure 3-7 provides a snapshot of the steps necessary to ensure a successful rollout.

Figure 3-7 *Cisco Unity Setup Task List*



After the Microsoft Windows 2000 and Microsoft Exchange or Lotus Domino installations are complete, the Cisco Unity installation, itself, can proceed. The first few steps in the task list are some of the most vital.

- **Get oriented:** In the orientation phase, you make crucial decisions regarding placement and server roles. These decisions dictate how and where the server will interact with the network as a whole. Improper placement or underestimation of the load and demand that will be placed on the server has the potential to easily create problems. All of these considerations should be taken into account before you place any Cisco Unity server platform, to ensure that you purchase the proper hardware and licensing.

- **Make decisions:** Once you have defined the roles and responsibilities for the Cisco Unity system, you should consider the subscriber population of the system. Some questions that need to be answered ahead of time include: How many subscribers? What kinds of subscriber templates and distribution lists will be necessary? What features should be made available to subscribers, such as one-key dialing, voice-command capabilities, and so on?
- **Customize, prepare to add subscribers, and add distribution lists:** With subscriber needs in place, it is time to consider call routing. How calls are routed will have profound effects on the usability of the Cisco Unity system. Will the default directory and call handlers adequately meet the needs of all subscribers, or will some customization be necessary and, if so, to what degree?
- **Add subscriber, customize call handlers, make a backup, prepare users, and go live:** Once the process is complete and the system is ready for subscribers, you should perform a full backup of the server. This is imperative in case a restoration of the base system becomes necessary. With the backup complete, you can create subscribers. Preparing users with the proper training to use the system should then follow and then taking the system into production.

Understanding Configuration Settings

To open the Configuration Settings page, select **System > Configuration > Settings** in the Cisco Unity System Administrator. This page contains significant information about the system. These settings are typically adjusted as part of the “customize” phase (refer to Figure 3-7). As such, the values must be supplied, or left at default settings, on any system you set up. The Settings page is composed of system-wide settings, such as the default schedule, time format, search and security option, and cleanup intervals for diagnostic and log files. The Software Versions page provides information regarding what software is running, and all the associated Cisco Unity services and their version numbers. This information is useful when you need to contact the Cisco Technical Assistance Center (TAC).

Replicating Cisco Unity Directory Objects

Cisco Unity allows you to replicate to the Cisco Unity database Cisco Unity directory objects, which include mail users, locations, and distribution lists. The replication settings allow you to replicate objects on a specific schedule. There is, however, a Replicate feature that allows forced replication on demand.

Be careful about what you replicate, because replicating all Cisco Unity directory objects may significantly impact system performance. Also, consider replicating all objects during off hours.

Table 3-2 provides field names and descriptions for the options on the Configuration Settings page.

Table 3-2 *Configuration Settings Page*

Field	Description
Default Schedule	<p>Select the default schedule, which is used for all Cisco Unity operations unless specifically changed for a call handler, subscriber account, or call-routing table.</p> <p>Default: Weekdays (the only other option is All Hours–All Days).</p>
Use 24-Hour Time Format for Conversation and Schedules Conversation	<p>Check this check box to use a 24-hour time format for all Cisco Unity operations; otherwise, a 12-hour format is used.</p> <p>Default: unchecked.</p>
Enter Spelled Name Search	<p>Check this check box to allow subscribers to address messages to other subscribers by spelling a subscriber's first or last name over the phone. When checked, subscribers in the process of editing private lists can search for other subscribers by spelling the subscriber's name via the phone.</p> <p>When unchecked, subscribers can search for subscribers over the phone only by entering subscriber extensions. If checked, it does not prevent searching the subscriber database by entering a subscriber extension.</p> <p>Default: checked.</p>
RSA Two Factor	<p>Check this check box to enable enhanced phone security, which uses RSA two-factor user authentication. To use enhanced phone security, an ACE/Server must be installed and configured for your system. Additionally, a new COS must be created or an existing COS modified for the subscribers who are using enhanced phone security.</p> <p>Default: unchecked.</p> <p>NOTE RSA and ACE/Server subject matter is not covered in this book.</p>

continues

Table 3-2 Configuration Settings Page (Continued)

Field	Description
Subscribers Are Identified as Message Senders Only if They Log On	<p>Check this check box to disable identified subscriber messaging system-wide.</p> <p>When identified subscriber messaging is enabled, Cisco Unity automatically identifies a message left during an internal call as originating from the extension from which the call was made.</p> <p>Regardless of enabled or disabled status, if a subscriber logs on before leaving a message from an internal location other than the extension assigned to the subscriber, such as from a conference room, Cisco Unity identifies the call as originating from the extension of the logged-on subscriber rather than the extension from which the call is placed.</p> <p>This field is applicable only when the phone system provides caller and called party information to Cisco Unity. A system-wide setting is not configurable for an individual subscriber or subscriber template.</p> <p>Default: unchecked.</p>
Cisco Personal Communications Assistant (PCA)	The URL for Cisco PCA should be entered here so that it is automatically included as a link in the body of the e-mail message that is sent to the subscriber.
Cleanup Interval for Logger Data Files in Days	Indicate how often data files should be deleted. Default: 7 days.
Cleanup Interval for Logger Diagnostic Files in Days	Indicate how often diagnostic files should be deleted. Default: 7 days.
Cleanup Interval for Report Files in Days	Indicate how often report files should be deleted. Default: 7 days.
Replicate Cisco Unity Directory Objects	<p>Choose Changed Objects to manually synchronize changes from Active Directory or Exchange 5.5 Directory into the Cisco Unity SQL database.</p> <p>Choose All Objects only if Cisco Unity has been down for a considerable length of time.</p>
Cisco Unity Computer Settings	<i>Display only.</i> This setting shows the name of the Cisco Unity server and the Windows Domain name.
Fax Settings	This setting shows the name of the fax domain.

Table 3-2 *Configuration Settings Page (Continued)*

Field	Description
Disk Usage	<i>Display only.</i> This setting shows, in megabytes, the total, used, and free disk space on the Cisco Unity server.
Recording Settings	The System > Configuration > Recordings page contains settings for recording time limits and for silence thresholds (the amount of silence before Cisco Unity assumes the caller is no longer on the line) before, during, and after recordings.
Contacts	The System > Configuration > Contacts page is where you enter the names and phone numbers of the people responsible for maintaining or administering the Cisco Unity server. This information might be useful to a technician who is accessing Cisco Unity from offsite.
Phone Languages	Phone languages are the languages in which Cisco Unity can play system prompts to subscribers and callers. The default phone language and other system-wide phone language settings are specified. Also specified are the default text-to-speech (TTS) language, which is the language that subscribers hear when their e-mail is read to them over the phone. Note that to use TTS languages, an organization must have TTS e-mail and the appropriate languages installed.
Graphical User Interface (GUI) Languages	The settings on this page determine the languages in which the Cisco Unity System Administrator pages can be displayed. A default GUI language and other system-wide GUI language settings can be specified.

It is useful to understand the settings and capabilities of the Cisco Unity System. Proper configuration of the Recordings, Contacts, Phone Languages, and GUI Language settings is necessary to ensure proper operation of the system.

Recording Settings

The Recordings page contains settings for recording time limits and for silence thresholds (the amount of silence before Cisco Unity assumes the caller is no longer on the line) before, during, and after recordings.

To encode information, such as sound or video, as data, it is necessary to use a compression/decompression algorithm (codec). Codecs vary in form, function, efficiency, and quality. Cisco Unity is no exception to the rule when it comes to encoding and storing voice messages, greetings, and so on. Cisco Unity supports the following audio codecs:

- G.711 Mu-law (default)
- G.711 A-law
- G.729a
- Intel Dialogic OKI ADPCM 8 kHz
- Intel Dialogic OKI ADPCM 6 kHz
- GSM 6.10
- G.726 (Cisco Unity Version 4.01 or later)

For information on choosing and implementing audio codecs, refer to “White Paper: Audio Codecs and Cisco Unity,” which is available at Cisco.com (click **Products & Solutions > Voice & IP Communications > Voice Software > Cisco Unity > White Papers**).

WARNING If a Cisco Unity system is configured with a failover system, recordings settings are not replicated between the primary and secondary servers. The values must be changed manually on both servers.

Table 3-3 includes additional information about the recordings settings in the configuration section of the System Administrator.

Table 3-3 *System > Configuration > Recordings Page*

Field	Considerations
Allowed Time for Recording in Milliseconds	Select the number of milliseconds for the DTMF clip length. This setting indicates how much to truncate the end of a recording when a message is terminated with a touch-tone. Default: 170 milliseconds.
Allowed Time for Short Recording in Seconds	Select the number of seconds that Cisco Unity uses as a cutoff for short and long recordings. Recordings shorter than this number are considered short recordings; recordings longer than this number are considered long recordings. Default: 10 seconds.

Table 3-3 *System > Configuration > Recordings Page (Continued)*

Field	Considerations
Allow How Much Silence Before Time Out in Seconds	Select the number of seconds after which Cisco Unity will end the message, greeting, or recorded name if the subscriber or caller has not begun speaking. A value lower than 2 or 3 seconds may not give the subscriber or caller enough time to begin speaking. Default: 5 seconds.
Discard Any Recording Less Than in Seconds	Select the minimum length of recordings, in seconds, for messages or greetings. Note that this setting is not applied to recorded names. Default: 1 second.
Short Recording (Short Recording Trail Limit or Less)	Select the number of seconds of silence that Cisco Unity uses to detect the end of a short recording. When Cisco Unity detects a pause equal to the number of seconds specified, it assumes that the speaker has finished recording the message, greeting, or recorded name. Callers are more likely to pause longer during long messages. That in mind, it may be prudent to set a smaller pause length for short recordings than for long recordings. Cisco Unity uses the Allowed Time for Short Recording in Seconds setting to determine whether a recording is short or long. Default: 2 seconds.
Long Recording (Over Short Recording Trail Limit)	Select the number of seconds of silence that Cisco Unity uses to detect the end of a long recording. When Cisco Unity detects a pause equal to the number of seconds specified, it assumes that the speaker has finished recording the message, greeting, or recorded name. Callers are more likely to pause longer during long messages. That in mind, it may be prudent to set a greater pause length for long recordings than for short recordings. Cisco Unity uses the Allowed Time for Short Recording in Seconds setting to determine whether a recording is short or long. Default: 3 seconds.

Contacts

The **System > Configuration > Contacts** page is where the names and phone numbers of those people responsible for maintaining or administering the Cisco Unity server should be entered. This information will be useful should it be necessary to access the Cisco Unity system from offsite.

Phone Languages Settings

Phone languages are the languages in which Cisco Unity can play system prompts to subscribers and callers. You can specify a default phone language, along with other system-wide phone language settings. In addition, you can configure the default TTS language, which is the language that subscribers hear when their e-mail is read to them over the phone. Note that to use TTS languages, your organization must have TTS e-mail and the appropriate languages installed.

If you prefer, you can customize the language settings for specific Cisco Unity components, such as subscriber accounts, routing rules, call handlers, interview handlers, and the directory handler.

Use Table 3-4 to learn more about phone languages settings.

Table 3-4 *System > Configuration > Phone Languages Page*

Field	Considerations
License Counts – Total	<i>Display only.</i> This setting shows the total number of phone language licenses for the installation. This determines how many phone languages can be loaded at one time. Note that the number of phone language licenses does not limit the number of phone languages actually installed on the Cisco Unity server.
License Counts – Loaded	<i>Display only.</i> This setting shows the number of languages in the Loaded list.
License Counts – Unused	<i>Display only.</i> This setting shows the number of unused phone language licenses. Note that this number might not be the same as the number of languages in the Available list.
Available	<p>This list displays the languages that have been installed on the Cisco Unity server but that are not currently loaded.</p> <p>When a language is loaded, by moving it from the Available list to the Loaded list, the Loaded and Unused License Counts fields are adjusted accordingly. Languages can be moved to the Loaded list only if the Unused License Counts field is greater than zero.</p>
Loaded	<p>This list displays the languages that can be selected for use by the subscriber conversation and various Cisco Unity components, such as call handlers.</p> <p>When a language is unloaded, by moving it from the Loaded list to the Available list, the Loaded and Unused License Counts fields are adjusted accordingly. Any call handlers or other Cisco Unity components that were using the unloaded language are reset to use the default phone language.</p>

Table 3-4 *System > Configuration > Phone Languages Page (Continued)*

Field	Considerations
Default Phone Language	Select the default language in which system prompts are played to subscribers and callers. Only the languages shown in the Loaded list can be chosen as the default language.
Default Text-to-Speech Language	Select the default language that subscribers hear when having their e-mail read to them over the phone. This is typically the same language selected in the Default Phone Language field, with the following exceptions: If Australian or New Zealand English is selected as the phone language, select either United States English or UK English as the default TTS language. There is no appropriate TTS language available for Brazilian Portuguese or Korean.

GUI Languages Settings

The settings on the GUI Languages page determine the languages in which the Cisco Unity System Administrator pages can be displayed. The default GUI language and other system-wide GUI language settings can be specified.

To change the GUI language used in the Cisco Unity System Administrator or Cisco PCA, select a language in the browser. (Subscribers use the Cisco PCA website to access the Cisco Unity Assistant and the Cisco Unity Inbox.)

For the Cisco Unity System Administrator, the language selected in the browser must be one of the languages in the Loaded list on the GUI Languages page. If the language selected in the browser is not among the loaded languages, Cisco Unity uses the default GUI language. For Cisco PCA, the language selected in the browser must be one of the languages that Cisco PCA offers.

WARNING If you have a Cisco Unity failover system, recordings settings are not replicated between the primary and secondary servers. You must change values manually on both servers.

Managing Calls Using System Schedules

The System Schedules page can be found by clicking on the **System > Schedules** links in the Cisco Unity System Administrator. Schedules are one of the variables that Cisco Unity uses to manage calls. The standard and closed subscriber and call handler greetings play according to the days and times specified in a schedule.

Cisco Unity offers two predefined schedules in the Settings page: All Hours–All Days, and Weekdays, both of which can be modified. Any defined schedule, be it default or defined, may be used as the default schedule for Cisco Unity. The default schedule is set to Open from 8 a.m. local time to 5 p.m. local time and the Observe holidays option is checked. This default schedule is used for all call handlers, subscriber templates, and call routing tables. The Cisco Unity system may use up to 64 different schedules.

Every call handler in the system uses a schedule to determine which greeting it plays. The Standard greeting is played during the time set as Open (for example, “Thank you for calling XYZ Corp. If you know your party’s extension, enter it at any time or press ‘0’ for an operator.”); the Closed greeting plays during all other times (for example, “Thank you for calling XYZ Corp. Our offices are now closed. Please call back during our normal business hours 8 a.m. to 5:00 p.m., Monday through Friday.”) This schedule is typically configured by the administrator and based upon business hours and holidays. A holiday schedule is configured and activated using an Observe holidays check box. During that time, Cisco Unity will play the Closed greeting during all hours for the specified holiday(s).

Using Holiday Settings

When a holiday setting is in effect, Cisco Unity plays closed greetings and observes closed transfer rules. You can configure several years of holidays in advance. Those holidays can be copied from one year to the next, adjusting dates as necessary. Because many holidays occur on different dates each year, confirm that the holiday schedule remains accurate annually.

Licensing

Software licensing has long been a controversial issue. Cisco Unity is similar to the vast majority of software packages on the market in that it does require licenses to install the software legally.

Cisco Unity itself is not the only licensed portion of the overall product. Cisco Unity provides the base functionality. There are add-on software products that also must be properly licensed. Functions, such as the Cisco Unity Inbox subscribers and Audio Message Interface Standard (AMIS) networking, are licensed, whereas other functions, such as ViewMail and Cisco PCA, are not licensed.

All the licensing issues can be complex to track. Thereof, Cisco Unity provides a licensing tool that tracks the number of used and unused Cisco Unity subscribers, vendor-managed inventory subscribers, and secondary server licenses available to a particular server. This provides a single point of reference to be used in keeping track of license counts for various features offered by

the system. Prior to version 4.x, Cisco Unity servers required a hardware key to activate the system. The hardware key is simply a small USB device or a parallel port device roughly the size of a key chain. With the use of the FlexLM licensing product, this key is no longer necessary because all licensing information is held in a system file on the hard drive. This file contains all the information about ports, features, number of users, and so on that are enabled on this Cisco Unity system.

License files are required to install or to upgrade Cisco Unity software and to change licensed features. To obtain the license files that provide the settings purchased by the customer, the Cisco Unity software must be registered on Cisco.com.

Shortly after registration, Cisco e-mails the license files. The e-mail from Cisco contains instructions on how to save and store the files. The Cisco Unity Installation Guide provides specific instructions later in the installation process on the use of the license files during the installation or upgrade.

The following information is required during software registration:

- **Media Access Control**—The MAC address (physical address) for the network interface card (NIC) in the Cisco Unity computer. If the Cisco Unity server uses dual NICs as a fault-tolerant team, a virtual MAC must be identified by the administrator and assigned by the device driver (for the team rather than either physical MAC address) when the license is ordered. The license file will be registered to the specified virtual MAC address and the active NIC used. The virtual MAC is assigned in the NIC configuration under the network properties on the server.
- **Product Authorization Key**—The PAK is listed in the Cisco Unity Software Keys booklet that is shipped with the software CD-ROMs. Lotus Domino integration packages may not include a license book. In that case, the PAK is imprinted on the CD-ROM sleeve.

Registered users of Cisco.com can browse to the following URL to begin the registration process:

<http://www.cisco.com/cgi-bin/Software/FormManager/formgenerator.pl>

Nonregistered users can browse to the following URL to begin the registration process:

<http://www.cisco.com/cgi-bin/Software/FormManager/formgenerator.pl>

In either case, the license information should be e-mailed back to the e-mail address of record in the registration within 24 hours. If it does not come back in a timely manner, it is recommended that you contact TAC to investigate the matter.

It is worth the time invested to check out these URLs when setting up a Cisco Unity system for the first time. It allows verification of correct license features, add-ons, and number of licenses.

Setting Up Authentication

Authentication settings dictate the logon and lockout policy, which applies when subscribers access Cisco Unity by using Cisco PCA. If the Cisco Unity System Administrator uses the Anonymous authentication method, the policy that you specify here also applies when subscribers use the Cisco Unity System Administrator to access Cisco Unity. The basics of the available authentication options were discussed earlier in this chapter, in the section “Protecting System Administration.” This section discusses the Cisco PCA that is used by individual subscribers (nonadministrators).

It is important to consider that when subscribers log on to Cisco PCA, their credentials are sent across the network to Cisco Unity in clear text. The same is true if the Cisco Unity System Administrator uses the Anonymous authentication method. For increased security, it is therefore recommended that Cisco Unity be configured to use the SSL protocol. As a best practice, it is also recommended that Cisco Unity administrators not use the same subscriber account to log on to the Cisco Unity System Administrator as they use to log on to Cisco PCA.

Changes to authentication settings affect all Cisco Unity subscribers. These settings cannot be changed for individual subscriber accounts, though they can be individually locked out to prevent subscribers from using Cisco PCA or the Cisco Unity System Administrator to access Cisco Unity.

Note that the authentication settings represent a different logon and lockout policy from the one that applies when subscribers access Cisco Unity by phone. Table 3-5 describes the authentication settings.

Table 3-5 *Authentication Settings*

Field	Considerations
Remember Logons for __ Days	<p>If desired, check this box and enter the number of days that Cisco Unity will store logon information. When this box is checked, logons are stored and encrypted as cookies on the subscriber computer.</p> <p>When Cisco Unity remembers logon information, subscribers do not have to enter it to log on to Cisco PCA. Instead, the logon credentials for a subscriber are automatically populated in the Log On page.</p> <p>If IIS is configured so that the Cisco Unity System Administrator uses the Anonymous authentication method, this setting also applies to subscribers logging on to the Cisco Unity System Administrator.</p> <p>Default: blank.</p>

Table 3-5 *Authentication Settings (Continued)*

Field	Considerations
Remember Passwords for ___ Days	<p>If desired, check this box and enter the number of days that Cisco Unity will store password information. When this box is checked, passwords are stored and encrypted as cookies on the subscriber computer.</p> <p>When Cisco Unity remembers subscriber passwords, subscribers do not have to enter their password to log on to Cisco PCA. Instead, a subscriber password is automatically populated in the Log On page.</p> <p>If IIS is configured so that the Cisco Unity System Administrator uses the Anonymous authentication method, this setting also applies to subscribers logging on to the Cisco Unity System Administrator.</p> <p>Default: blank.</p>
Session Key Duration	<p>This field indicates the length of time that the browser can be left unattended before Cisco Unity automatically logs the subscriber off.</p> <p>The value in IIS dictates the browser session duration, but this field can be used to change the value for the Session Timeout field in IIS. When the value for the Session Timeout field is changed directly in IIS, however, the changes you make are not reflected here.</p> <p>Regardless of whether the session duration is updated here or directly in IIS, the new timeout value applies to the next new browser session.</p> <p>If IIS is configured so that the Cisco Unity System Administrator uses the Anonymous authentication method, this setting also applies to subscribers logging on to the Cisco Unity System Administrator.</p> <p>Default: 20 minutes.</p>
Disallow Blank Passwords	<p>Check this box so that subscribers are prohibited from logging on to Cisco PCA without entering a password in the Log On page, even if the Windows account policy allows blank passwords.</p> <p>If IIS is configured so that the Cisco Unity System Administrator uses the Anonymous authentication method, this setting also applies to subscribers logging on to the Cisco Unity System Administrator.</p>

continues

Table 3-5 *Authentication Settings (Continued)*

Field	Considerations
Lock Out Accounts	<p>Check this box to specify an account lockout policy for the subscribers using Cisco PCA.</p> <p>When this box is checked, enter the appropriate values in the following fields:</p> <p>Accounts Are Locked Out For __ Minutes</p> <p>Accounts Will Lock Out After __ Logon Attempts</p> <p>Reset Account Lockout Counters After __ Minutes</p> <p>If IIS is configured so that the Cisco Unity System Administrator uses the Anonymous authentication method, this setting also applies to subscribers logging on to the Cisco Unity System Administrator.</p> <p>Default: checked.</p>
Accounts Are Locked Out For __ Minutes	<p>Enter the number of minutes that Cisco Unity will prevent subscribers from accessing Cisco Unity by using Cisco PCA.</p> <p>If IIS is configured so that the Cisco Unity System Administrator uses the Anonymous authentication method, this setting also applies to subscribers logging on to the Cisco Unity System Administrator.</p> <p>This option is unavailable when the Lock Out Accounts box is unchecked.</p> <p>Default: 30 minutes.</p>
Accounts Will Lock Out After __ Logon Attempts	<p>Enter the number of failed logon attempts after which subscribers cannot access Cisco Unity by using Cisco PCA.</p> <p>If IIS is configured so that the Cisco Unity System Administrator uses the Anonymous authentication method, this setting also applies to subscribers logging on to the Cisco Unity System Administrator.</p> <p>This option is unavailable when the Lock Out Accounts box is unchecked.</p> <p>Default: 5 attempts.</p>

Table 3-5 *Authentication Settings (Continued)*

Field	Considerations
Reset Account Lockout Counters After __ Minutes	<p>Enter the number of minutes after which Cisco Unity will clear the count of failed logon attempts to Cisco PCA, unless the failed logon limit is already reached and the account is locked. A Cisco Unity administrator may unlock any account at any time.</p> <p>If IIS is configured so that the Cisco Unity System Administrator uses the Anonymous authentication method, this setting also applies to subscribers logging on to the Cisco Unity System Administrator.</p> <p>This option is unavailable when the Lock Out Accounts box is unchecked.</p> <p>Default: 30 minutes.</p>

Integrating Cisco CallManager

The integration settings are specified during installation in the Cisco Unity Telephony Integration Manager (UTIM), which configures Cisco Unity to work with the specified phone system. Once the integration is set up, there should be no need to change the integration settings, but they can be reviewed on the Integration page or revised in UTIM.

NOTE

If a Cisco Unity failover system is used, changes to the integration settings must be made in UTIM on each server individually. Integration settings are not replicated between the primary and secondary servers.

Table 3-6 details the settings available for Cisco CallManager integration. All the fields are display only.

Table 3-6 *Cisco CallManager Integration*

Field	Displays
Integration Name	The name of the Cisco CallManager integration entered in UTIM.
Manufacturer	The phone system manufacturer selected in UTIM.
Model	The phone system model selected in UTIM.
Software Version	The phone system software version selected in UTIM.

continues

Table 3-6 *Cisco CallManager Integration (Continued)*

Field	Displays
Trunk Access Code <i>(for dual phone system integrations only)</i>	The number that Cisco Unity dials to transfer a call from one phone system to the other. This code was entered in UTIM.
Cluster Name	The name of the Cisco CallManager cluster entered in UTIM.
Internet Protocol (IP) Address/Name	The IP address of the publisher (primary) Cisco CallManager server. This address was entered in UTIM.
IP Port	The TCP port used by the Cisco CallManager servers. This port was entered in UTIM. Typically this is set to Port 2000.
Real-Time Protocol (RTP)/IP Port Base	The first (or base) port number for RTP used by the Cisco CallManager servers. This first port number was entered in UTIM.
Reconnect	Whether Cisco Unity automatically reconnects to the publisher (primary) Cisco CallManager server after failover has been corrected. The setting True indicates that automatic reconnection is enabled. This value was set in UTIM.
IP Addresses	The IP addresses of the subscriber (secondary) Cisco CallManager servers. These addresses were entered in UTIM. The term 'subscriber' used here refers to the Cisco CallManager secondary servers.
MWI On Extension	The extension that Cisco CallManager uses to turn message waiting indicators (MWIs) on. This extension was entered in UTIM.
MWI Off Extension	The extension that Cisco CallManager uses to turn MWIs off. This extension was entered in UTIM.
Resynchronize At	The time each day that Cisco Unity resynchronizes MWIs for every subscriber account. This time was entered in UTIM. Resynchronization occurs only when it is enabled in UTIM.

Changing the Opening Greeting

The choice of whether to use the Automated Attendant or a live operator is one to be made by individual companies or entities. If a live operator is not made available for every incoming call, Cisco Unity can provide an unattended switchboard function in its Automated Attendant feature. The opening greeting, found under the Call Handlers page, is the one that all external callers hear. Once on the Call Handlers page, the Opening Greeting is found via a search using the Search icon. In essence, this is the operator. This greeting guides callers through the options available to them when they attempt to contact individual subscribers. It should be thorough in its options and concise in its wording.

The Opening Greeting is a call handler. The responsibility of this call handler is to answer all calls forwarded to the Cisco Unity system when using Automated Attendant. The settings that are necessary for the Automated Attendant feature to work, mapping inbound trunk calls to be

forwarded to Cisco Unity, are set at the phone system. If you decide to use the opening greeting, you'll probably prefer to rerecord the default Cisco Unity greeting because it is somewhat generic in its offerings. Cisco Unity greetings and messages may be recorded in two ways:

- **Via multimedia device**—The Media Master can use a multimedia-recording device. It may be used from any desktop PC that has access to the Cisco Unity System Administrator pages. Recording greetings is available when you see the recording tool bar.
- **Via telephone**—The Media Master has a drop-down menu that allows you to choose which device to use. The Phone Record and Playback setting must be set with an extension to call. The Cisco Unity system will dial that extension and be ready to record or play back greetings when it is answered. When using the telephone option, the Cisco Unity system uses the last port configured for TRaP.

The following is a sample opening greeting that represents an Automated Attendant message for a fictional corporation, XYZ Corp.:

“Thank you for calling the XYZ Corp. If you know your party’s extension, please dial it at any time. For a directory of extensions, press 555. Otherwise, please press 0 or hold. An operator will be with you shortly.”

The Opening Greeting may also involve more elaborate settings, such as one-key routing. Options available using one-key dialing in this way are endless and make for a more complete caller experience. From the caller’s point of view, the fewer keys to push the better the experience. For example:

“Press 1 for Sales, Press 2 for Service...”

Ideally, there should be an option for the caller to press 0 at any time to get to a live operator. Of course, the presentation of the “zero-out” option is at the discretion of the administrator(s).

Configuring the Directory Handler

The directory handler is a special predefined call handler with default settings. The settings included for the directory handler include an optional extension, search options, match list options, and caller input options.

The system directory setup provides the opportunity to specify how the system acts when a caller searches for a particular subscriber. Each subscriber may be enabled to add or delete themselves in the system directory through their system setup options. The system directory can be accessed by outside callers and subscribers by last name, first name, or extension. Additionally, the system provides the capability to choose the course of action to take if a unique match (by either name or number) is made, as well as whether or not extension numbers are spoken to callers. If the menu format is selected, the system presents a conversation similar to the following:

“To speak with Amanda, press 1; to speak with Emma, press 2; to speak with Beth, press 3; ...”

If extensions are configured to be announced, then each subscriber's extension number will be included in the conversation.

In a multiple Cisco Unity server network environment, those servers that are digitally networked can be configured to limit the search to a local Cisco Unity server or you can configure a dialing domain, which links several Cisco Unity servers together. It also makes it easier on the subscriber to address messages and for outside callers to find and be transferred to subscribers across Cisco Unity servers. The ability to do this depends on the ability of existing telephone systems to network together.

Beginning with Cisco Unity version 4.x, it is possible to create multiple directory handlers, which enables the Cisco Unity system to present a subset of all subscribers based on settings such as Class of Service, Public Distribution Lists, Dialing Domain, and so on. They can be useful when you want to separate your directory, such as when you are using centralized call processing models, or a hub-and-spoke model.

Configuring the Operator Handler

The operator box is another important system configuration. An outside caller, in most cases, should have a way to connect to the operator during a system greeting, prompt, or message. Most users expect to be connected to an operator after pressing 0. This call handler is associated with the system ID of 0 by default. If a caller does nothing during the opening greeting, they also reach the operator. The Operator Call handler is found on the Call Handlers page. It must be searched out using the Search icon.

The operator may be an individual who uses a physical extension other than 0. To accommodate that, the transfer options of the operator call handler must reflect the extension of that individual. Also, keep in mind the need for an appropriate greeting on the operator box for when the operator is not available.

Chapter Summary

In this chapter, you learned about the Cisco Unity System Administrator and some of the configuration options available within the system. Specifically, you learned how to do the following:

- Plan and design the Cisco Unity installation using specific information that must be provided ahead of the actual installation.
- Use the Cisco Unity System Administrator to manipulate the Cisco Unity server.
- Use security to authenticate access to a network using Anonymous authentication or Integrated Windows authentication.
- Provide the necessary ports to support the needs of the network and subscribers, and the licensing to provide additional features and functions to those subscribers prior to installation.

- Handle calls when they arrive at a business and receive an automated greeting. This greeting can have a profound effect on the client relationship. If callers do not consider their first contact with your company to be a positive experience, then it is quite conceivable that it will be their only contact with your company.
- Give callers options, such as pressing 0 to get to a live operator, and at the same time, the ability to access a corporate directory to dial by name (first or last), as well as direct dialing of an extension to expedite the handling of the call through the system.
- Design an efficient menu structure that you have tested so that callers have a positive experience.

For additional information on the preceding topics, refer to these resources:

- Cisco Unity CD Pack
- Cisco Unity Installation Guide
- Cisco Unity Administration Guide
- Cisco Unity Design Guide
- Networking in Cisco Unity Guide

Chapter Review Questions

Use this section to test yourself on how well you learned the concepts discussed in this chapter. You can find the answers to the review questions for this chapter in Appendix A.

- 1 List the three basic sections of the Cisco Unity System Administrator page.
- 2 List the two basic methods of authentication that are available for Cisco Unity subscribers.
- 3 Which of the two authentication types is more easily configured? Why?
- 4 How many system administrator accounts can be logged in to the Cisco Unity System Administrator tool concurrently?
- 5 List at least three options available on the Configuration Settings page and their functions.
- 6 On a date for which the Cisco Unity server has been configured as a holiday, which greeting will callers hear upon calling in?
- 7 Instead of using a hardware key for Cisco Unity licensing, what is used in Cisco Unity 4.x?
- 8 Which tool can be used to retrieve near real-time port statistics?
- 9 List two methods that can be used to alter greetings.
- 10 List two predefined call handlers.

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