cisco.

Cisco Unified Presence Fundamentals

Learn how to use Cisco Unified Presence Server and Client to streamline communication and improve business agility



ciscopress.com

Cisco Unified Presence Fundamentals

Brian Morgan, CCIE No. 4865

Shane Lisenbea

Michael C. Popovich III, CCIE No. 9599

Copyright© 2010 Cisco Systems, Inc.

Published by: Cisco Press 800 East 96th Street Indianapolis, IN 46240 USA

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without written permission from the publisher, except for the inclusion of brief quotations in a review.

Printed in the United States of America

First Printing June 2010

Library of Congress Cataloging-in-Publication Data:

Morgan, Brian (Brian Edward)

Cisco Unified Presence fundamentals / Brian Morgan, Shane Lisenbea, Michael Popovich III. p. cm.

ISBN 978-1-58714-044-0 (pbk.)

1. Telecommunication—Message processing. 2. Internet telephony. 3. Multimedia communications. I. Lisenbea, Shane, 1970– II. Popovich, Michael, 1973– III. Cisco Systems, Inc. IV. Title.

TK5102.5.M654 2010 006.7—dc22

2010019260

ISBN-13: 978-1-58714-044-0

ISBN-10: 1-58714-044-6

Warning and Disclaimer

This book is designed to provide information about Cisco Unified Presence. Every effort has been made to make this book as complete and as accurate as possible, but no warranty or fitness is implied.

The information is provided on an "as is" basis. The authors, Cisco Press, and Cisco Systems, Inc. shall have neither liability nor responsibility to any person or entity with respect to any loss or damages arising from the information contained in this book or from the use of the discs or programs that may accompany it.

The opinions expressed in this book belong to the author and are not necessarily those of Cisco Systems, Inc.

Trademark Acknowledgments

All terms mentioned in this book that are known to be trademarks or service marks have been appropriately capitalized. Cisco Press or Cisco Systems, Inc., cannot attest to the accuracy of this information. Use of a term in this book should not be regarded as affecting the validity of any trademark or service mark.

Introduction

Unified Communications and Collaboration is on the so-called "Hot List" in any forum wherein people are discussing communications and ways to better stay in touch. This book is aimed at explaining the concepts, ideas, and capabilities behind Presence, which is likely one of the least understood and most underestimated features in a Unified Communications solution. It has the power to end phone-tag before the game even begins. It has the power to ensure that you reach the right resource by the right means and on the first attempt.

Goals and Methods

The most important and somewhat obvious goal of this book is to explain not only the concepts behind Presence but also the technologies involved, their interdependencies, and how to troubleshoot them. It is understood that knowing a concept is not sufficient in and of itself. There must be comprehension and direction; a primer of sorts. With that in mind, some discussion of practical applications of Presence as a technology has also been addressed herein.

The book has been organized such that you might begin with little or no knowledge of Presence as a concept. The ideas behind it, installation and deployment of the technologies, and some possible applications are discussed to show some basic capabilities. It is largely up to you to decide how to best utilize these technologies within your organization; However, we assist in getting things moving in the right direction.

Who Should Read This Book?

This book is not designed to be a general networking topics book, although it can be used for that purpose. It is meant to be a reference before, during, and after the implementation of Cisco Unified Presence. It is both a guide and a reference resource. This book is intended to assist in understanding, installing, deploying, and troubleshooting numerous aspects of Cisco Unified Presence. In being so, it will be quite specific in those places where it is most important. With the installation out of the way, much of the level of specificity herein will disappear. This is due to the authors' desire to avoid placing impediments to imagination. Unified Communications and Collaboration solutions are intended to be customized to fit a particular environment, solve business needs, and transform the way in which business is done. As you read this book, you can apply the information to your own environment and shape it into your own solution to meet your needs and that of your business.

How This Book Is Organized

As mentioned, this book is both a reference and a guide. It walks you through the installation process and detail interdependencies between various systems within a Cisco Unified Communications environment. So it might be of most benefit to read the book cover-to-cover prior to stepping into an installation effort. You can likely learn things in the troubleshooting chapter that can save you some pain in the installation phase, for example. The outline of the book is as follows:

- Chapter 1, "What Is Unified Communications?"—This chapter provides a high-level tour of Unified Communications components. The purpose of doing so is to provide a base upon which a solid understanding of Presence and its uses can be built.
- Chapter 2, "Cisco Unified Presence Overview"—This chapter provides an introduction to Presence as a concept before getting deeper into Presence features and functionality. This provides a better understanding of the concepts discussed in the remainder of the book surrounding both the Presence Server and Presence clients.
- Chapter 3, "Installing Cisco Unified Presence Server 7"—This chapters provides a step-by-step guide to installing Cisco Unified Presence Server 7.x. It also discusses in detail the interdependencies between the Cisco Unified Presence Server and the Cisco Unified Communications Manager, as well as the configuration of those interdependencies.
- Chapter 4, "Cisco Unified Presence Integration with Cisco Unified Communications Manager"—This chapter provides a deeper view of the combined functional capabilities of Cisco Unified Presence and Cisco Unified Communications Manager. It covers LDAP integration and configuration along with user and phone feature association.
- Chapter 5, "Cisco Unified Personal Communicator"—This chapter covers the installation and configuration of the Cisco Unified Personal Communicator. Aside from simply installing the client, this chapter discusses the interdependencies between user, desk phone, and CUPC client as they relate to one another. The configuration includes not only the Cisco Unified Presence Server dependencies, but also those within the Cisco Unified Communications Manager.
- Chapter 6, "Cisco Unified Presence Practical Applications"—This chapter provides some general use cases for Presence as a feature. It looks into how Presence might be used by a varied user base with varied needs and provides some high-level case studies of features that different types of users might utilize.
- Chapter 7, "Cisco Unified Presence Federation"—This chapter discusses needs and configuration of both intradomain federation and intradomain federation with Cisco Unified Presence Server clusters. It also goes into the basics of interdomain federation with Microsoft OCS.
- Chapter 8, "Leveraging Cisco Unified Presence in Vertical Markets"—This chapter provides a use-case overview of how varying types of businesses might utilize the feature set provided by Cisco Unified Presence.
- Chapter 9, "Troubleshooting Cisco Unified Presence"—This chapter covers the troubleshooting aspect of Cisco Unified Presence. This includes troubleshooting the Cisco Unified Presence Server, Cisco Unified Personal Communicator, and Cisco Unified Communications Manager and the interdependencies between all these elements.

Chapter 5

Cisco Unified Personal Communicator

Cisco Unified Personal Communicator (CUPC) is the client application that integrates into the Cisco Unified Presence Server (CUPS). This client runs on a Windows or Macintosh desktop environment and provides for several integrated communications features such as desk phone control, Instant Messaging (IM), Presence, softphone, communication escalation, and so on. This chapter covers the client installation, configuration, basic and advanced features, and client-side troubleshooting.

Figure 5-1 illustrates the communications in a basic CUP deployment with an IP phone and CUPC client.



Figure 5-1 Communications of a Basic CUP Deployment

Note CUPS enables Presence information to be populated by many types of presentities; however, CUPC is the only software client supported directly by CUPS.

CUPC Configuration

The configuration of a user leveraging CUPC has several basic steps that need to be completed:

- Step 1. Configure user in CUCM.
- **Step 2.** Configure desk phone device in CUCM (optional).
- **Step 3.** Configure the CUPC device in CUCM.
- Step 4. Configure CUPS advanced end-user features:
 - Voicemail
 - Conferencing
 - Lightweight Directory Access Protocol (LDAP)
- **Step 5.** Install CUPC software on the client machine.

The following sections describe these configuration steps in greater detail.

Configuring CUPC User in CUCM

It is strongly recommended having LDAP synchronization configured in any CUCM installation. This brief section covers the steps required to configure a user in CUCM *without* LDAP integration. This is because when LDAP synchronization is enabled, the ability to add/delete users in the CUCM user interface is removed. All users are added or removed via the LDAP management interface. Figure 5-2 illustrates the concepts for the following steps:

- Step 1. In CUCM Administration, select User Management > End User > Add New.
- Step 2. Fill in at least the required user information (User ID and Last Name).
- **Step 3.** Device Associations can be left at the default.
- **Step 4.** If this user will use extension mobility services, configure the required settings. Make sure to select the correct Presence group because this impacts what Presence visibility this user has.
- **Step 5.** Leave directory number associates at the default setting unless you already have a desk phone and directory number configured for this user.

End User Configuration - Mozi	lla Firefox	
Eile Edit View Higtory Book	marks <u>I</u> ools <u>H</u> elp	
🔇 - C X 🏠	https://172.16.1.55:8443/ccmadmin/userEdit.do?key=92f1a	3a9-94a6-c133-31b3-ab761600867c 🏠 🚹 = [🐴 = Google 🖉
End User Configuration	× Service Parameter Configuration × +	
Cisco Unifie	ed CM Administration	Navigation Cisco Unified CM Administration - Go ccmadministrator About Logout
System - Call Routing - Media	a Resources - Voice Mail - Device - Application - User Management	■ Buk Administration Help
End User Configuration		Related Links: Back to Find List Users 👻 Go
Save		
Status		
i Status: Ready		
r User Information		
NOTE: The add and delete fun	ction are disabled because the user directory is sync with LDAP.	764
(i.e. The Enable Synchronizati	on From LDAP Server flag on the LDAP System Configuration is check	ed).
LDAP Sync Status	Active	5
User ID*	brmorgan	
PIN	••••••	Edit Credential
Confirm PIN	••••••	
Last name" Middle name	Morgan	
First name	Brian	
Telephone Number	2001	
Mail ID		
Manager User ID		
User Locale	English, United States	
Associated PC		
Digest Credentials		
Confirm Digest Credentials	•••••	
Device Associations		
Controlled Devices SEP000AS	3023419C	
UPCBRMC	Device A	ssociation
Extension Mobility		
Available Profiles	brmorgan-device-profile	*
		-
× Find: Record-Route	👃 Next 👚 Previous 🖌 Highlight all 📃 Match case	
Done		🔒 승승승승승 🖾

Figure 5-2 CUCM User Page

- **Step 6.** The mobility section enables the user to configure single number reach access and mobile voice access (directory assistant IVR). Configure this section according to the end user's needs.
- **Step 7.** Ensure that the user roles include **Standard** CTI Enabled and **Standard** CTI Allow Control of All Devices, as shown in Figure 5-3.
- **Step 8.** Select the Save button.
- **Step 9.** In CUCM Administration, select **System > Licensing > Capabilities** Assignments.
- Step 10. Select the users recently added that will have Presence and CUPC capabilities.
- Step 11. Click both check boxes to enable CUP and CUPC features for the users.

End Use	er Configuration - Mozilla Firefox	-	and the second	
Eile Edit	View History Bookmarks I	ools <u>H</u> elp		
< >	• C × 🏠 📶	at61.55 https://172.16.1.55:844	3/ccmadmin/userEdit.do?key=92f1a3a9-94a6-	c133-31b3-ab761600867c 🏠 🚹 = 🛛 🖓 = Google 🖉
End U	Iser Configuration	× Service Parameter Cor	nfiguration × +	
cisco	Cisco Unified Cl	M Administration		Navigation Cisco Unified CM Administration - Go ccmadministrator About Logout
System +	Call Routing - Media Resource	es - Voice Mail - Device -	Application User Management Bulk /	Administration 👻 Help 🗸
ind User	· Configuration			Related Links: Back to Find List Users 👻 Go
Save	,			
Director	ry Number Associations—			
Primary	Extension 2001 in pt-all-phon	ies	•	
Mobility	Information			
Enable Primary	le Mobility User Device	SEP00040023419C		
Enabl	le Mobile Voice Access			
Maximun	n Wait Time for Desk Pickup*	10000		
Remote	Destination Limit*	4		
Kemote	Destination Profiles		* View Details	
CADE In	formation			
Associate	ed CAPF Profiles			
			+ View Details	
Parmire	ions Information		354007/2009/2014	-
Groups	Standard CTI Allow Calling Nu	umber Modification		
	Standard CTI Allow Control of Standard CTI Allow Reception Standard CTI Enabled Standard CTI Secure Connect	f All Devices of SRTP Key Material	Add to User Group Remove from User Group	
Roles	Standard CTI Allow Control of Standard CTI Allow Reception Standard CTI Enabled Standard CTI Secure Connect Standard CUReporting	All Devices of SRTP Key Material	w Details	
-	1			
Save]			
0.	and and are serviced these			
	indicates required item.			a
SHE				

Figure 5-3 CUCM User Page Continued

Tip The user might not show up for several minutes on the CUP server. If it is taking too long, go to **Cisco Unified Serviceability > Tools > Control Center-Feature Services**, select the CUP server (publisher if in a cluster), and then start or restart Cisco UP Sync Agent.

When the user has been added to CUCM, it will be synchronized over to the CUP server. There is no need to add the user separately to the CUP server. LDAP synchronization is strongly recommended so most of these steps would not be necessary, and the rest can be done when doing the phone device provisioning in CUCM. For more information on CUCM synchronization with LDAP, refer to the "LDAP System Configuration" section in the *Cisco Unified Communications Manager Administration Guide* at http://tinyurl.com/yaoy42m.

Configuring IP Phone in CUCM

A common deployment model is for a single user to have both a desk phone and have CUPC act as a softphone during communications that take place away from the desk. CUPC offers a softphone capability that enables it to act as a phone device on a computer without the requirement of a desk phone, making the desk phone an optional device in a deployment. The use of a desk phone is optional and not required when deploying and configuring CUPC. This section covers the basic steps necessary in setting up an IP Phone to be used with CUPC. Figure 5-4 shows the addition of a physical desk phone.

Phone Configuration - Mozilla Firefox	
jile Edit View Higtory Bookmarks Iools Help	
🔇 🖂 C 🔀 🏠 🛄 1724161.555 https://172.16.1.55:8443/ccmadmin/phoneEdit.do	🕼 🚺 - 🛛 🖓 - Google 🛛 🔎
Phone Configuration	
alialia Cisco Unified CM Administration For Cisco Unified Communications Solutions	Navigation Cisco Unified CM Administration - Go ccmadministrator About Logout
System + Call Routing + Media Resources + Voice Mail + Device + Application + User Management + Bulk Administration +	Help +
Phone Configuration	Related Links: Back To Find/List 👻 Go
Nex .	
Status Status: Ready	
Select the type of phone you would like to create Product Type: Cisco 7971 Select the device protocol: SCCP • Monet	
 *• Indicates required item. **- Create a phone template using the Bulk Administration Tool to enable template-based phone creation. 	
Jone	🏭 (c)

Figure 5-4 Adding a Desk Phone in CUCM

- **Step 1.** In CUCM Administration, select **Device > Phone**.
- Step 2. Click the Add New button.
- **Step 3.** Select the device for the desk phone; then click the Next button. *Do not* select Cisco Unified Personal Communicator.
- **Step 4.** Select the protocol for the phone to use.
- **Step 5.** Make sure the Presence Group and SUBSCRIBE Calling Search Space are defined according to your Presence policy.

Note Presence authorization works with Presence Groups to allow or block Presence requests between groups. This enables greater granularity in offering Presence services to groups or departments.

The SUBSCRIBE calling search space determines how CUCM routes Presence requests that come from the phone. This setting enables you to apply a calling search space separate from the call-processing search space for Presence (SUBSCRIBE) requests for the phone.

Step 6. Make sure that Allow Control of Device from CTI is checked. Figure 5-5 illustrates the settings for Steps 5 and 6.

Phone Configuration - Mozilla Firefox			
File Edit View History Bookmarks Tools Help			
C × 🏠 🚛 17216155 https://1	72.16.1.55:8443/ccmadmin/gendevic	eEdit.do?key=43806b60-5aa4-8677-d7e3-255fdfc 🏠 🚹 🚽 🛃	Google
Phone Configuration × Service F	Parameter Configuration ×		
Cisco Unified CM Adminis For Cisco Unified Communications So	tration lutions	Navigation Cisco Unific ccmadmin	d CM Administration 👻 Go Istrator About Logout
System + Call Routing + Media Resources + Voice Mail	- Device - Application - Use	r Management 👻 Bulk Administration 👻 Help 👻	
Phone Configuration		Related Links: Back To Find/List	✓ Go
📊 Save 💢 Delete 📄 Copy 🎦 Reset 🧷 Ap	oply Config 🛁 Add New		
36 None	Use Device Pool Calling Retry Video Call as Auc Ignore Presentation Inc Allow Control of Device Cugged Into Hunt Group Remote Device Protected Device****	Party Transformation CSS licators (internal calls only) from CTI	
	Protocol Specific Inform Packet Capture Mode*	None	-
	Packet Capture Duration	0	-
	Presence Group*	pa_hq	•
	Device Security Proble*	Cisco 7971 - Standard SCCP Non-Secure Profile	*
	SUBSCRIBE Calling Search	Space loss-no-local	•
	Unattended Port		
	Require DTMF Reception	n)	
	RFC2833 Disabled		
	Certification Authority P	roxy Function (CAPF) Information	
	Certificate Operation*	No Pending Operation	
	Authentication Mode*	By Null String +	
	Authentication String		
	Generate String		
	Key Size (Bits)*	1024	
	Operation Completes By	2010 4 7 12 (YYYY:MM:DD:HH)	
0	1		A 66666 M

Figure 5-5 Adding a Desk Phone in CUCM Continued

Step 7. Configure all the remaining required settings for the phone and end-user requirements.

Step 8. Associate the user to the phone, as shown in Figure 5-6.

The phone now registers to CUCM with the proper settings and user association. Adding the phone allows users to have the option to control their phone through a computer telephony interface (CTI) with the CUPC client. This allows for the added software features offered by the CUPC client and still has a desk phone for a more reliable voice experience.

End User Configuration - Moz	illa Firefox	and the second diversity of	
Eile Edit View History Book	marks <u>I</u> ools <u>H</u> elp		
<d- &<="" c="" th="" ×=""><th>(III 172363355 https://172363.55:8443/ccmadmin/userEdit.do?key</th><th>=92f1a3a9-94a6-c133-31b3-ab761600867c 🏫 🚺 =</th><th>🛃 - Google 🖉</th></d->	(III 172363355 https://172363.55:8443/ccmadmin/userEdit.do?key	=92f1a3a9-94a6-c133-31b3-ab761600867c 🏫 🚺 =	🛃 - Google 🖉
End User Configuration	*		
Cisco Unifi Cisco Unifi	ied CM Administration ed Communications Solutions	Navigation Cisco	Unified CM Administration 🚽 GO dministrator About Logout
System - Call Routing - Med	ia Resources + Voice Mail + Device + Application + User Manag	ement - Bulk Administration - Help -	
End User Configuration		Related Links:	Back to Find List Users 👻 Go
Save			
-User Information			
(i.e. The Enable Synchronizat LDAP Sync Status User ID*	ion From LDAP Server flag on the LDAP System Configuration is o Active brmorgan	(networked).	
P.15		Edit Credential	
Confirm PIN Last name*	Moroan		
Middle name	The gall		
First name	Brian		
Telephone Number	2001		-
Manager User ID Department			
User Locale	English, United States		
Associated PC			
Digest Credentials	••••••••••		
Confirm Digest Credentials	•••••••••••		
Device Associations			
Controlled Devices SEPODOA UPCBRM	B823419C DRGAN	rice Association	
Extension Mobility			
Available Profiles	brmorgan-device-profile	^	
Done			🏭 ಮನವನ್ನು 🔂

Figure 5-6 Associating Phones with Users

Configuring a CUPC Device in CUCM

The next step is to set up a CUPC device in CUCM associated to the appropriate user and potentially connected to a desk phone. The first step in planning for the CUPC device configuration is to understand the naming convention required in CUCM. These requirements follow:

- Derives from the username
- Starts with *UPC*
- Contains only uppercase letters or numerals
- Contains no more than 12 additional characters after UPC

Table 5-1 provides some examples that outline these requirements.

CUCM Username	Associated Softphone Device Name
mpopovich	UPCMPOPOVICH
michael_popovich	UPCMICHAELPOPOV
michaelpopovich	UPCMICHAELPOPOV
mike.popovich	UPCMIKEPOPOVICH

Table 5-1 Username Examples for CUPC in CUCM

When the naming convention has been decided, the CUPC device can now be added to CUCM:

- **Step 1.** In CUCM Administration, select **Device > Phone**.
- **Step 2.** Click the Add New button.
- **Step 3.** Select the Cisco Unified Personal Communicator.
- **Step 4.** The Device Name should be the CUPC name determined earlier, for example, UPCMPOPOVICH. This is shown in Figure 5-7.

Phone Configuration - Mozilla Firefox					
Eile Edit View History Bookmarks Tools He	slp				
C X A Marzanass	https://172.16.1.55:8443/ccmadmi	n/gendeviceEdit.do?key=8cff05e6-51ae-76d6-b	c8d-e0a205t 🏠	🛛 • 🛛 🛃 • Google	
Phone Configuration					
Cisco Unified CM Adr	ninistration		Navigation (Cisco Unified CM Admin cmadministrator	istration - Ge About Logo
System 👻 Call Routing 👻 Media Resources 👻 V	/oice Mail - Device - Applicatio	on 👻 User Management 👻 Bulk Administration	Help		
hone Configuration		Related	Links: Back T	o Find/List	• Go
🔜 Save 💥 Delete 📄 Copy 💁 Reset	🥖 Apply Config 斗 Add New	v			
Status Peads					
atatus: Ready					
Association Information Phone	туре				
Modify Button Items Produ	e Protocol: SIP	ersonal Communicator			
1 ens Line [1] - Add a new DN					
Devic	e Information				
Regist IDed A	ration	Unknown			
No.	uine is Antiue				
(A ce	uica is not tourtad				
Device	e Name*	UPCMPOPOVICH			
Deacri	ption	Michael Basevich CUDC			
Device	Pool*	darba		Many Dataile	
Comm	on Device Configuration	s None >		View Details	
Phone	Button Template*	Standard Unified Communicator \$10	•	VIDW COLDIN	
Comm	on Phone Profile*	Standard Common Phone Profile			
Calling	Search Space	deet-ba			
Media	Resource Group List	malaba			
User H	fold MOH Audio Source	1.SampleAutioSource			
Netwo	rk Hold MOH Audio Source	1-SampleAudioSource			
Locatio	on*	loc ha			
User L	ocale	English, United States			
Netwo	rk Locale	United States			
Device	Mobility Mode	Default		View Current Device I	Mobility
		Settings		And Selection and Vision	And Address of the Ad
	User ID	ciscouser	-		
Owner					
Primar	ry Phone	SEP0026C8A7D53D	-		
Primar Use Tr	ry Phone rusted Relay Point*	SEP0026C8A7D53D Default	:		

Figure 5-7 Adding a CUPC Endpoint in CUCM Continued

- Step 5. Uncheck the box for Allow Control of Device from CTI.
- Step 6. Specify the correct Presence Group and SUBSCRIBE Calling Search Space.
- **Step 7.** Set the Owner User ID field to the appropriate user.
- **Step 8.** Configure the rest of the settings according to system/user policy.
- Step 9. Click the Save button.
- Step 10. Click the Line[1] > Add a new DN link.
- **Step 11.** Assign the directory number to the line. If a phone device is already configured, use the same DN as the phone. If this is a CUPC-only user, enter a new DN, as shown in Figure 5-8.

Directory Number Confi	guration - I	Mozilla Firefox	and the second se		
le Edit Yiew Higtory	Bookmark	s Iools Help			
C X	A (III	17241541.55 https://172.16.1.5	5:8443/ccmadmin/directoryNumberEdit.do?d	levicekey=8cff05e6-51ae-76d6- 🏠 🚺 = 🔣 - Google	
Directory Number Co	onfinuration				
Cisco II	Intillad	Chi Administratio			
CISCO For Cisco I	Unified C	ommunications Solutions	20	Navigation Cisco Unified CM Ad	About L Lon
Cat Pouton -	Madia Das	Aureas - Malca Mal - Dav	ra - Annication - Hear Management -	Bulk Administration - Main -	- Hoost Cog
system - carrioting -	siedia Kea	ources - voice mar - per	ce • Application • oser management •		
irectory Number Con	nfiguratio	0		Related Links: Configure Device (UPCMF	POPOVICH) -
Save					
Status-					
() Stature Band					
Status: Ready					
Directory Number Inf	formation				
Directory Number* 2	086				
Route Partition pl	t-all-phone	15			
Description M	lichael Pop	ovich			
Alerting Name M	lichael Pop	ovich			
ASCII Alerting Name M	lichael Pop	ovich			
Active					
	20				
Directory Number Sel	ttings -				
Voice Mail Profile	la la	UnityCxn	 (Choose <none< li=""> </none<>	e> to use system default)	
Calling Search Space		less-no-restrictions	•		
Presence Group*	1	pg_hq	•		
User Hold MOH Audio Sc	ource	1-SampleAudioSource	-		
Network Hold MOH Audi	o Source	1-SampleAudioSource	•		
AAR Settings					
		Voice Mail	AAR Destination Mask	AAR Group	
AAR	3 or			< None >	-
Retain this destinat	ion in the	call forwarding history			
Call Forward and Call	Dickup 6	attings			
can rorward and can	г нскир 5	Voice Mail	Destination	Asting Gaseth Space	
Calling Search Space 4	Activation I	Policy	C C C C C C C C C C C C C C C C C C C	Use System Default	
Encward All		Dor		< Note >	
C ME WORKS A COM		6			•
	and the second				
Secondary Calling Sea	irch Space	for Forward All		« None »	•

Figure 5-8 Adding a DN to a CUPC Endpoint

- Step 12. Uncheck the box for Allow Control of Device from CTI.
- Step 13. Configure the rest of the settings according to system policy.
- Step 14. Click Save.

When saved, a new screen comes up that shows what devices are associated to the DN. This field should at least have the CUCP device associated with it. If it is a shared DN with a phone device, two devices should be listed: the CUPC and the phone device. This is shown in Figure 5-9.

bet H www Hadow, Beckwards Lock Herp C Edd Waw Hadow, Beckwards Lock Herp C Construction Number Configuration C Call Routing C Ca	Directory Number Co	onfiguration -	Mozilla Firefox					0.0
Image: Section in the secting in the secting in the secting in the sec	Lile Edit View Histo	Rookma	ske Toole Halo					
C Control transmission Control transm	the Ton Them halte	ay gookina						
Checkeropy Number Configuration Advance Configuration Casco Unified CM Administration Carcadministration Carcadm	S . G	0.0	https://172.16.1.55:8443	/ccmadm	in/directoryNumberEdit.do?key=	30055140-ec07-b9c	0-a257-4 {2 1 = 3 = Google	
Initial Cisco Unified CM Administration Cace Unified CM Administration Or Cisco Unified CM Administration Cace Unified CM Administration Or Cisco Unified CM Administration Solutions Or Cisco Unified CM Administration Cace Unified CM Administration Or Cisco Unified CM Administration Out & Administration Or Cisco Unified CM Administration User Management + Duk Administration + Hep + Note that Administration States Costs Cisco Configure Device (SEP0020CBA7D53D) • Cisco Configure Device (SEP0020CB7D53D) • Cisco Configure	Directory Number	r Configuration	on +					
C1500 For Cisco Unified Communications Solutions cemadministrator About 1 Spiten · CallRound · Meda Resources · Voice Mal · Device · Appication · User Managemet · Duk Administration · Heb · Stratus Configure Device (SEP0026CBA7D53D) · Status: Ready Directory Number Configuration Related Links: Configure Device (SEP0026CBA7D53D) · Status: Ready Directory Number Information Directory Number Configuration Configure Device (SEP0026CBA7D53D) · Rest: Apply Config Add New Status: Ready Directory Number Information Directory Number Status Status: Ready Directory Number Status Directory Number Status Sport Rest: Sep0026CBA7D53D Configure Device from CTI Aasculated Device from CTI Associated Devices Sep0026CBA7D53D Status: Ready Directory Number Settings Uncentory Number Settings Add Naduo Source IsompleAudioSource (Choose <none> to use system default) Conserver Auto Answer Off Add Conce Nature Status Add Links Add Resting Nature Status One Status<th>alada Cisco</th><th>Unified</th><th>d CM Administration</th><th></th><th></th><th></th><th>Navigation Cisco Unified CM Admi</th><th>nistration 👻 🕼 G</th></none>	alada Cisco	Unified	d CM Administration				Navigation Cisco Unified CM Admi	nistration 👻 🕼 G
bystem • Call Routing • Media Resources • Voice Mail • Device • Application • User Management • Duk Administration • Heb + Nectory Number Configuration	CISCO For Cisc	co Unified (Communications Solutions				ccmadministrator	
Directory Number Configuration Status: Configuration Configuration <td>System 👻 Call Routing</td> <td>· Media Re</td> <td>esources - Voice Mail - Device -</td> <td>Applicat</td> <td>ion 👻 User Management 👻 Bu</td> <td>R Administration +</td> <td>Help -</td> <td></td>	System 👻 Call Routing	· Media Re	esources - Voice Mail - Device -	Applicat	ion 👻 User Management 👻 Bu	R Administration +	Help -	
Jave Keets Image: Status: Ready	Directory Number (Configurati					Configure Device (SEP0026CB/	(7D53D) • G
Status Discutory Number Information Directory Number 1 Directory Number 5 SEP002C620250D UPCMPOPOVICH Image: Sep002C6207D3D UPCMPOPOVICH Directory Number Settings Vale Mail Profile UnityCan Chaine Search Space Presence Group 1 Directory Number 2 Directory Number 2 Directory Number 2 Directory Number 3 Directory Number 4 UnityCan Presence Group 1 Directory Number 4 Directory Number 5 Directory Number 5 <th>🔜 Save 🗙 Delete</th> <th>e 🍟 Rese</th> <th>et 🧷 Apply Config 📲 Add New</th> <th></th> <th></th> <th></th> <th></th> <th></th>	🔜 Save 🗙 Delete	e 🍟 Rese	et 🧷 Apply Config 📲 Add New					
Status: Redy Directory Number Information Directory Number* 2086 Route Partition Description Michael Popovich Posicity Number Michael Popovich Asting Name Michael Popovich Asting Name Michael Popovich Asting Name Michael Popovich Steppoctore from CTI Associated Devices Disociate Devices Image: Steppoctor CTI Choose <none> to use system default) Caling Search Space Kearch Space Vace Mail Positio Search Course Inter Michael Popovich Course Choose <none> to use system default) Caling Search Space Kearch Kado Naudo Source I-SampleAudioSource I-SampleAudioSource Auto Answer Off And And Concertaints in the ast Idenmation Mask AAk Croup Ank Course Manage: International Course Space Kearch Mask Idenmation Mask AAk Croup Ank Course Manage: International Course Space Kearch Mask Idenmation Idenmation Mask AAk Course Manage: International Course Space Kearch Mask Idenmation Idenmation Mask AAk Course Manage: Idenmation Idenmation Idenmation Mask AAk Course Manage: Idenmation Idenmation Idenmation Idenmation Idenmation Idenmation Idenmation Idenmation Idenmation Idenmatice Manage: Idenmatice Id</none></none>	Status	-						
Directory Number 2036 Route Parktion pt-ali-phones Description Michael Repovich Phone Astring Name Michael Repovich Astring Name Step002/CR207D3D UPCMPOPOVICH Dissociate Devices Dissociate Device Presence Group* phq User Hold MOM Audo Source Dissociate Device	(i) Status: Ready							
Directory Number Information Directory Number Information Decorption Decorpti	•							
Directory Number * 2006 Description Schelphones • Michael Popovich Phone Altring Name Michael Popovich ASCII Alerting Name Michael Popovich School Device from CTI Associated Devices School Device from CTI Associated Devices School Device TO Directory Number Settings Voice Mail Profile UnityCxn • (Choose <none> to use system default) Directory Number Settings Voice Mail Profile UnityCxn • (Choose <none> to use system default) Directory Number Settings Voice Mail Profile Or Pop. Pop. Pop. Pop. Pop. • Presence Group * Pop. Pop. Pop. • User Hold MOH Audio Source • Auto Answer * Auto Answer Off • AAR Settings AAR © or • Voice Mail AAR Destination Mask AAR Group</none></none>	Directory Number	Informatio		-	-			
Roule Pertition pt-all-phones - Roule Perpetition Michael Pepovich Phone Alarting Name Michael Pepovich SILI Alerting Name Michael Pepovich Michael Pepovich SILI Alerting Name Michael Subject SILI SILI Alerting Name Michael Pepovich SILI Alerting Name Michael Subject SILI SILI Alerting Name Michael Subject SILI SILI Alerting Name Michael Subject SILI SILI Alerting Name Michael Subject SILI Alerting Name Michael Alerting Name Michael Subject SILI Alerting Name Michael S	Directory Number*	2086						
Description Michael Popovich Pione Alerting Name Michael Popovich ASCII Alerting Name Michael Popovich Associated Devices BSP0922C6200200 UPCMPOPOVICH Edit Device Edit Devices Edit Device Dissociate Devices Image: Comparison of the second of	Route Partition	pt-all-phor	nes	+				
Metring Name Muhael Popovich ASCII Altering Name Hichael Popovich ASCII Altering Name Hichael Popovich Hicha	Description	Michael Po	povich Phone					
ASCII Alerting Name Michael Popovich Associated Devices Edit Device Edit Device Edit Line Appearance Disociate Devices Di	Alerting Name	Michael Po	povich					
I allow Control of Device from CTI Associated Devices Devices Devices Devices Dissociated Devices	ASCII Alerting Name	Michael Po	povich					
Associated Devices JEP002/5CBA7053D UPCMPOPOVICH Cited Line: Appearance Dissociate Devices Dissociate	Allow Control of	Device from	CTI					
UPCNF0F0F0VtCH Edit Device Fdit Line Appearance Dissociate Devices Image: Section Space Unity Cxn Colling Secret Space Image: Space Space Space User Hold MOH Audio Source 1-SampleAudioSource Image: Space Space Space Value Mail AR Settings Value Mail AAR Destination Mask AAR Image: Space Space Space Value Mail AAR Image: Space S	Associated Devices	SEP0026C	8A7D53D					
Image: Section		UPCMPOPO	OVICH		Edit Device			
Dissociate Devices					Edit Line Appearance			
Dissociate Devices Dissociate Devices 			**					
Directory Number Settings Vaice Mail Profile UnityCxn Calling Search Space Icosenorestrictions Presence Group* pg_hq uper Hold MOH Audio Source - Liver Hold MOH Audio Source - Auto Answer* Auto Answer Off AAR Settings* Vaice Mail AAR Settings - Mail AAR Destination Mask AAR or Concerting Institution In the autif Accuration Mask	Dissociate Devices							
Directory Number Settings Voice Mail Profile UnityCxn (Choose <none> to use system default) Calling Search Space Icss-no-restrictions Presence Group pg_hq Guer Hold MOH Audio Source I-SampleAudioSource Auto Answer? Auto Answer Off AAR Settings AAR Settings AAR Croup AAR or AAR Settings</none>				-				
Voice Mail Point Voice Mail Point AAR Settings AAR Cosume Voice Mail Addition Mask AAR Group AAR Settings Voice Mail Add Source Voice Mail AAR Destination Mask AAR Group AAR Settings	Discutory Reaches	Calling						
AAR AAR Charling Starting to the set formation bittom AAR Charling Starting to the set formation bittom Charling Starting AAR Charling Starting AAR Core Charling Starting	Voice Mail Profile	seconds	11-20-Car		(Change Alleger)	and a start start		
	Calling Search Frome		UnityCxn		↓ (Choose <none> t</none>	o use system den	iuit)	
Inserted Work Audio Source 1-SempleAudioSource Network Hold MOH Audio Source 1-SempleAudioSource Auto Answer Off ARR Settings	Coming Search Space		icss-no-restrictions		•			
AAR Settings Voice Mail AAR Destination Mask AAR Group AAR Settings Voice Mail AAR Destination Mask AAR Croup	Iver Hold MOH Audie	Source	pg_nq					
ARR Settings Voice Mail Voice Mail ARR Destination Mask AR Group ARR O C D D D D D D D D D D D D D D D D D D	Network Hold MOH A	udio Pource	1-SampleAudioSource		•			
AAR Settings AAR Settings Voice Mail AAR Destination Mask AAR Group AAR O	Auto Answer!	0000 000/06	1-SampleAudioSource		•			
AAR Settings Voice Mail AAR Destination Mask AAR Group AAR Or Kons >	Auto Answer		Auto Answer Off		•			
Voice Mail AAR Destination Mask AAR Group AAR Or <t< td=""><td>AAR Settings</td><td>_</td><td></td><td>_</td><td></td><td>_</td><td></td><td></td></t<>	AAR Settings	_		_		_		
AAR or <none> +</none>			Voice Mail	1	AAR Destination Mask		AAR Group	
2) Antain this destination in the call desugnation history	AAR	or				< No	ne >	-
	Datain this danti	insting in the	s sell forwarding history					

Figure 5-9 Adding a DN to a CUPC Endpoint Continued

Now that the CUPC device is set up in CUCM and the users are configured, the client can be installed, and there will be Presence, desk phone connectivity (CTI), and soft-phone functionality. These are the basic services that CUPC has available, and in the next section, the advanced features of CUPC will be configured. It is recommended to have these features configured before installing the client.

Configuring Advanced Features for CUPC

The advanced features available to the CUPC client consist of Unity voicemail, MeetingPlace conferencing, video, and LDAP integration. The following sections describe the configuration of these advanced features in greater detail.

Voicemail Configuration for CUPC

CUPC has the capability to access Unity voicemail directly through the client interface. This is useful to the end user by providing a visual interface to the Unity voicemail system, enabling the user to prioritize voicemails by name, timestamp, duration, and so on without having to listen to the messages first.

Two primary prerequisites must be completed before integrating CUPS to Unity:

- Implement a supported version of Unity or Unity Connection, which are the only two supported messaging platforms for CUPS integration.
- Complete the integration of CUCM and Unity/Unity Connection, and make sure all voice ports are working properly.

The sections that follow discuss how to satisfy these prerequisites in more detail.

Cisco Unity Connection

The following steps describe the Cisco Unity Connection (CUC) provisioning steps for CUPC users. Use Figure 5-10 with the following steps.



Figure 5-10 Enabling IMAP in Unity Connection

- **Step 1.** Configure a class of service in CUC with IMAP enabled:
 - a. Select Class of Service in the left navigation pane.
 - b. Select or add the desired class of service in the list.
 - c. Check the Allow Users to Use Unified Client to Access Voice Mail box. This allows access to port 7993 and TLS for the CUPC client support.
 - d For IMAP client support as well, check the Allow Users to Access VoiceMail Using an IMAP Client box and select the Allow Users to Access Message Bodies button.
 - e Click Save.
- Step 2. Create a CUC user account and voicemail box for each CUPC user.
- **Step 3.** Make sure the web application password is set for the user.

Note Secure messaging is optional, and a set of features offered in Unity Connection enables several security features that provide control for access and distribution to messages. Several caveats need to be understood before enabling these features. You can find detailed information on these caveats at http://tinyurl.com/y9uuu2q.

Use Figure 5-11 with the following steps to enable secure messaging:

- **Step 1.** Enable secure messaging:
 - a. Select **Class of Service** using the navigation panel; then click the Class of Service the CUPC users are a part of.
 - b. Under the Message Options section of the Class of Service; select the type of secure messaging next to the **Require Secure Messaging** option:
 - Always: Messages will always be marked secure.
 - Never: Messages will never be marked secure. (Users can still mark messages as private, and they will be secure.)
 - Ask: Users will be prompted from the Special Delivery Options menu to select if the message is marked secure or not.
 - **Private:** Messages are marked secure only when the user makes them a private message. This is the system default.



Figure 5-11 Enabling Secure Messaging in Unity Connection

- **Step 2.** Configure unidentified caller message security settings, as shown in Figure 5-12:
 - a. Select Users in the navigation panel.
 - b. Select the desired user.
 - c. Select Edit > Message Settings.
 - d. Check Mark Secure in the Unidentified Callers Message Security section.



Figure 5-12 Enabling Secure Messaging in Unity Connection Continued

Cisco Unity

The next steps cover the configuration requirements for Unity as the message platform for the CUPC user:

- **Step 1.** Configure the Microsoft Exchange server to use IMAP by enabling the IMAP Connector. Refer to Chapter 9, "Troubleshooting Cisco Unified Presence," for step-by-step guidance.
- **Step 2.** Configure the port and encryption type. Ensure that SSL is the only encryption type being used and not TCP. This setting is manually done in Exchange 2003 but on Exchange 2007, SSL is the default.
- **Step 3.** Configure the user in Unity.
- **Step 4.** Create the exchange mailbox for the users. This step might not be necessary, depending on whether the user was added in Unity or AD first. If users were imported from AD into Unity, the mailbox should already be there as a result of the import process. For purposes of brevity, it is assumed that this is the case.

The following steps are necessary only if secure messaging is implemented with Cisco Unity:

- **Step 1.** Enable secure messaging through the Cisco Unity System Admin Page, as shown in Figure 5-13:
 - a. Select Subscribers > Subscribers > Features.
 - b. Select the desired option in the Message Security When Sending a Message list.
 - c. Select Save.
- **Step 2.** Configure unidentified caller message security settings, as shown in Figure 5-14.:
 - a. Select System > Configuration > Message Security Settings.
 - b. Select an option from the list on how messages should be secured from unidentified callers.
 - c. Select Save.



Figure 5-13 Enabling Secure Messaging in Unity



Figure 5-14 Enabling Secure Messaging in Unity Continued

Configuring Voicemail Servers in CUPS

Voicemail servers are defined in CUPS to allow for required interactions between CUPS and the specified voicemail server. Voice message web service (VMWS) is the service on a Cisco Unity or CUC server that enables deleted voicemails to be moved to their correct location in the mail store and also provides encryption service for secure messaging environments. The IP address of the voicemail server and the peer Microsoft Exchange server (if using Unity) is needed prior to the following steps:

- **Step 1.** Navigate to Application > Cisco Unified Personal Communicator > Voicemail Server in the CUPS administration page, as shown in Figure 5-15.
- Step 2. Click Add New.
- Step 3. Select Unity or Unity Connection in the server type menu.
- **Step 4.** Define the voicemail server name.
- **Step 5.** Define the FQDN hostname or IP address.
- **Step 6.** For Cisco Unity Servers, define **443** for Web Service Port. For Cisco Unity Connection Servers, define 143 for the Port.

Cisco Unified CM Console	× III Voicemail Server Configuration × 🔶	
Cisco Unifi	ed Presence Administration	Navigation Cisco Unified Presence Administration - cupsadmin About <u>What's Now</u> Log
stem - Presence - Applica	tion - User Management - Bulk Administration - Diagnostics - Help -	
icomail Server Configura	tion	Felated Links: Rack To Find/List -
🖌 Save 🗙 Delete [C	opy Car Add New	
tatus		
Status: Ready		
y,		
icemail Server Configur	ation	
: least one valid port and pro ust be configured.	itocol	
arver Type*	Unity Connection	
ame*	UnityCxn	
escription	Unity Connection 7	
ostname/IP Address*	172.16.1.57	
prt.	143	
otocol Type	тср 🗸	
Enable Secure Messaging		
source Port	442	
cure Protocol Type		
	< None >	
Save Delete Copy	ASSE	
	No. 2	

Figure 5-15 Configuring the CUPC Voice Mail Server in CUPS

- **Step 7.** For Cisco Unity Servers, select **HTTPS** for Web Service Protocol. For Cisco Unity Connection Servers, select TCP, UDP, TLS, or SSL. The default is UDP.
- **Step 8.** If enabling Secure Messaging (optional), define the Secure Port and Secure Protocol Type. For Cisco Unity Servers, choose HTTP or HTTPS for Protocol Type. For Cisco Unity Connection Servers, choose TCP, SSL, or TLS as the Protocol Type.
- Step 9. Click Save.

Configuring Mailstore Server in CUPS

Defining a mailstore in CUPS is required for the CUPC client to access the voicemail messages on the voicemail server. Figure 5-16 shows the CUPS Mailstore page. The FQDN hostname or IP address of the mailstore server is necessary to complete the following tasks.

e Edit View Higto Cisco Unified CM (Cisco Unified CM (Cisco For Cisco For Cisco For Cisco Stem + Presence + Distore Configure Save × Debit	yy Bookmarks Tools Help A A A A A A A A A A A A A A A A A A A	yzłab39bae-3002-1c96-s046-574 🎲 🗋 + 🚺 - Google 🔎 Nsvigation Cisco Unified Presence Administration - Go cupsadmin About <u>Witht's New</u> Lopout
Cisco Unified CM Cisco Unified CM Cisco For Cisco For Cisco F		y=1ab39bae-3d92-1c96-a0d6-57a 🏠 👔 👔 + 🚮 + Google 🖉 📕 Nevigation Cisco Unified Presence Administration - Goo cupsadmin About <u>What's New</u> Logou
Cisco Unified CM (Cisco For Cisco For Cisco stem + Presence + allstore Configure Save X Delete	console X Mailstore Configuration X Image: Configuration of the configuratio of the configuratio ot the configuratio ot the conf	Navigation Cizco Unified Presence Administration - Go cupsedmin About <u>What's New</u> Logou
Internet of Cisco For Cisco Save Configure Save Configure Debug	Unified Presence Administration to Unified Communications Solutions Application + User Management + Buk Administration + Diagnostics + Help + Uon	Navigation Cizco Unified Presence Administration - Go cupsadmin About <u>What's New</u> Logov
stem • Presence • alistore Configura J Save 🗶 Delet	Appleation • User Management • Bulk Administration • Diagnostics • Help • tion	
ailstore Configura] Save 🗶 Delek	tion	
🕤 Save 🗙 Delete		Related Links: Back To Find/List 👻 Go
	Copy 📥 Add New	
tatus		
) Status: Ready		
failstore Configur	ation	
lame*	UnityCxn	
escription	Unity Connection 7	
iostname/IP Addres	172.16.1.57	
ort*	143	
rotocol Type*	TCP ·	
D *- indicates rec	uired item.	

Figure 5-16 Configuring the CUPC Mailstore in CUPS

- **Step 1.** Navigate to Application > Cisco Unified Personal Communicator > Mailstore in the CUPS administration site.
- Step 2. Click Add New.
- **Step 3.** Define the mailstore server name.
- **Step 4.** Define the FQDN hostname or IP address.
- **Step 5.** Define the IMAP port number for CUPC to use in connecting to the mailstore server.

Unity Connection options follow:

- **TCP**: port 143
- **SSL:** port 993
- TLS: port 143 or 7993

Unity with Exchange options are the same as Unity Connection except TLS is supported only on port 143.

Step 6. Click Save.

Configuring Voicemail Profiles in CUPS

The voicemail profile is required in CUPS to enable the CUPC client to access the correct voicemail resources for the end user. The following steps are necessary to configure the voicemail profile:

- **Step 1.** Navigate to Application > Cisco Unified Personal Communicator > Voicemail Profile in the CUPS administration page, as shown in Figure 5-17.
- Step 2. Click Add New.
- **Step 3.** Define the profile name.
- **Step 4.** Select the Voice Message Pilot number for the correct voicemail server of the CUPC end user.

	tion - Mozilla Firefox				0
ile Edit Yiew History B	ookmarks Iools Help				
C · C × e	https://172.16.	1.56:8443/ccmadmin/upcV	JnityProfileEdit.do?key=b	e617ebc-c123-13cb-1592-71 🏠 🚹 -	🛃 🐐 Google
Cisco Unified CM Consol	e X Voicemail Pro	ofile Configuration	de		
	icial passas a dari				
CISCO Eas Cisco Un	ified Presence Admi	nistration		Navigation Cisco Unifier	Presence Administration -
For cisco on	meu communications solutio			cupsadmin	About Whists new L
system · Presence · Ap	pication • Oser Management • 0	luk Administration • Diagn	osocs • nep •		
oicemail Profile Config				Related Li	inks: Back To Find/List 👻
🗔 Save 🎽 Delete 🚽	a Add New				
Status					
i Status: Ready					
Voicemail Profile C	anfiguration				
Primary Voicemail Server	UnityCxn	•			
Name*	Unity Connection				
Description	Unity Connection 7				
Voice Messaging Pilot	2400	•			
Backup Voicemail Server	< None >	•			
Backup Voicemail Server	< None >	•			
Primary Mailstore	Not Selected	*			
Backup Mailstore	< None >	7			
Backup Mailstore	< Noné >	Ψ.			
Make this the default V	picemail Profile for the system.				
Users in Profile				Lastname	Department
SUSERS in Profile	User ID	Firstname			
Users in Profile	User ID	Bugs	Bunny		
Users in Profile	User ID	Bugs Brian	Bunny Morgan		
Users in Profile	User ID	Bugs Brian cisco	Bunny Morgan User		
Users in Profile blunny brmorgan ciscouser mmartian	User ID	Bugs Brian cisco Marvin	Bunny Morgan User Martian		
Users in Profile	User 1D	Firstname Bugs Brian cisco Marvin Peter	Bunny Morgan User Martian Packet		
Users in Profile bbunny trmaruan ciscouter mmartian packet rrabbit	User ID	Firstname Bugs Brian cisco Marvin Peter Roger	Bunny Morgan User Martian Packet Rabbit		
Users in Profile	User ID	Firstname Bugs Brian Cisco Marvin Peter Roger Wow	Bunny Morgan User Martian Packet Rabbit Ibavelotoofletteroin		

Figure 5-17 Configuring the CUPC Voicemail Profile in CUPS

Note Voicemail and mailstore server failover is not supported in CUPS 7.0(4).

When the voicemail profile configuration is complete, CUPC end users are now ready to log in and access the voicemail services through the desktop client.

Conferencing Configuration for CUPC

One of the major benefits of using the CUPS and the CUPC client is that application integrations allow for consolidated user functionality into other applications, such as video and conferencing. These integrations are at the touch of a button and easy to use from an end-user perspective. Initiating a conversation through an IM window and then escalating that conversation to an audio or video call at the touch of a button and then further enhancing that conversation into a collaboration conference is compelling for end users and has a dramatic effect on their productivity. This functionality begins to bring the true value of CUPS and the CUPC client to the user.

CUPC can be configured to support ad-hoc web conference sessions with the following products:

- Cisco Unified MeetingPlace
- Cisco Unified MeetingPlace Express
- Cisco Unified MeetingPlace VT
- Cisco Webex Meeting Center

MeetingPlace Express and Meeting Place Express VT

MeetingPlace Express and MeetingPlace Express VT can both provide web and audio conferencing functionality to CUPC. MeetingPlace Express VT provides video conferencing resources to provide the capability for CUPC to escalate a point-to-point video call to a multipoint video call.

Several things need to be completed before integrating the MeetingPlace Express (VT) platform into the CUPS solution:

- 1. Install a release of MeetingPlace Express (VT) supported by the CUPC client. The release notes for the CUPC client will specify the specific supported software versions. You can find current CUPC 7.x release notes at http://tinyurl.com/y9dephh.
- 2. Configure CUCM to integrate with MeetingPlace Express (VT).
- **3.** Determine the number of web, audio, and video ports required for the solution. A good rule of thumb for the average user population is 1:40 (ports:client) for web and video and 1:20 for audio.

The next steps cover the necessary configuration to integrate MeetingPlace Express (VT) with CUPC:

Step 1. Configure the MeetingPlace Express (VT) conferencing capabilities:

a. Install the following licenses:

- adhocsystemsoftware
- webconf
- maxadhoc
- maxweb
- b. Configure MeetingPlace Express (VT) for adhoc conferencing. You can find detailed documentation for this feature at http://docwiki.cisco.com/wiki/Cisco_Unified_MeetingPlace_Express, Release_2.x.
- c. Configure MeetingPlace Express for the reservationless feature to support full web meetings initiated by MeetingPlace Express and the web meetings initiated by CUPC. You can find specific details on configuring user profiles, call control, and such on MeetingPlace Express at http://docwiki.cisco.com/wiki/Cisco_Unified_MeetingPlace_Express,_Release_2.x.
- **Step 2.** Enable Secure Sockets Layer (SSL) encryption. This is optional; however, if it is not completed, passwords sent between CUPC and MeetingPlace Express will be sent in clear text, creating a potential security vulnerability.
- **Step 3.** Configure a user profile for each CUPC user that is going to initiate web conferences from the CUPC client.

Note This is not required for *all* CUPC users and is needed only for the users that will initiate the web conferences.

- **Step 4.** Ensure that the Presenter add-in is installed on each CUPC user's computer. This can be done remotely by downloading the install package from Cisco Connection Online, or the user can download it by navigating to the MeetingPlace Express server's main page using a web browser.
- Step 5. Configure the voice network so that inbound calls from the PSTN to the CUPC user support RFC2388. This allows an inbound call from MeetingPlace Express to the CUPC user to use the CUPC key pad for DTMF instead of key press markup language (KPML). This is required only for DTMF support on inbound calls to CUPC, which supports both KPML and DTMF for outbound calls. This will be done on the CUCM configuration page for the SIP Trunk configured to CUPS (see Figure 5-18).

When these configurations are made, CUPS configuration will take place to define a conferencing server and profile. Those steps come later in this chapter, after the MeetingPlace and Webex configurations are covered.

ile Edit View History Bookmarks Tools	Help		- Libert Libert Libert
C X A Planata	https://172.16.1.55:8443/ccmadmin/trunkEdit.d	o?kev=5c1af701-7c56-13c7-f95d	d-ceSecab06a7 🗘 🚺 - 🛛 🖓 - Google
Trunk Configuration ×	Conferencing Host Configuration		
	All concretend for constantion		
CISCO Unified CM F For Cisco Unified Communi	Administration Ications Solutions		Navigation Cisco Unified CM Administration 👻 🧾 comadministrator About Log
ystem + Call Routing + Media Resources +	Voice Mail - Device - Application - User N	fanagement 👻 Bulk Administratio	on - Help -
runk Configuration			Related Links: Back To Find/List 🔹 🔲
🔒 Save 💥 Delete 😭 Reset 🧷 A	pply Config 📲 Add New		
Calling Name Presentation Detail	it .		
Caller ID DN			
Caller Name			
Redirecting Diversion Header Deliver	v - Outbound		
IP Information			
estination Address	172.16.1.56		
estination Address IPv6			
Destination Address is an SRV			
restination Port	5060		
TP Preferred Originating Codec*	711ulaw		
resence Group*	Standard Presence group	-	
IP Trunk Security Profile*	Non Secure SIP Trunk Profile	-	
erouting Calling Search Space	less-no-restrictions	•	
ut-Of-Dialog Refer Calling Search Space	loss-no-restrictions	-	
UBSCRIBE Calling Search Space	loss-no-local		
IP Profile*	Standard SIP Profile	*	
TMF Signaling Method*	No Preference		
	No Preference		
eolocation Configuration	RFC 2833		
Seolocation < None >	-		
Seolocation Filter < None >			
Sand Gaplocation Information			
E send dedication information			
Save Delete Reset Apply (Config Add New -		
i) *- indicates required item.			
i) **- Device reset is not required for of	hanges to Packet Capture Mode and Packet Cap	oture Duration.	
			n states m

Figure 5-18 Configuring RFC 2388 DTMF Support

Configuring MeetingPlace

The following steps configure MeetingPlace to support the CUPC client:

- **Step 1.** Install the web and audio conferencing user licenses.
- **Step 2.** Enable SSL encryption. This is optional; however, if not completed, passwords sent between CUPC and MeetingPlace Express will be sent in clear text, creating a potential security vulnerability.
- **Step 3.** Configure user authentication on the web conference server. The following methods are supported:
 - MeetingPlace
 - LDAP
 - HTTP Basic
 - LDAP, then MeetingPlace
- **Step 4.** Configure user profiles for each CUPC user on the MeetingPlace server.

When these configurations are made, CUPS configuration takes place to define a conferencing server and profile. Those steps come later in this chapter, after the Webex configurations are covered.

Configuring WebEx Meeting Center

Integration for CUPC into WebEx Meeting Center is a new integration available with CUPS version 7.0(3) and CUPC version 7.0(2). The WebEx Meeting Center conferencing server must be installed prior to configuration. You can find documentation on how to set up this server on the provisioned WebEx site that is being integrated. Create a user profile on the WebEx Meeting Center for each CUPC user that needs access to initiate web conferencing meetings.

The previous three integration options outline the steps required to provision a CUPC user to have access to the conferencing features that the client provides. This provisioning, so far, has only taken place on the conferencing servers. The next section covers the steps to define these conferencing servers and the conferencing profiles in the CUPS for the CUPC client to leverage these resources.

Configuring Conference Servers in CUPS

This section covers the configuration of the conferencing server in CUPS so that the CUPC client can access the available resources. The configuration steps are done through the CUPS administration web pages.

Before beginning the configuration, you must complete the following prerequisite tasks:

- Get the IP address and the port number of the conferencing server.
- Integrating to a WebEx Meeting Center solution requires the Site ID and the Partner ID assigned to your WebEx site. If you do not know these IDs, you can get them from your WebEx administrator.

The following configuration steps are necessary to complete the integration:

- **Step 1.** Go to Application > Cisco Unified Personal Communicator > Conferencing Server in the CUPS administration page, as shown in Figure 5-19.
- Step 2. Click Add New.
- **Step 3.** Define the Name of the conference server.
- **Step 4.** Define an optional description of the conference server.
- **Step 5.** Enter the IP address or a hostname of the conference server. The hostname needs to be a Full Qualified Domain Name (FQDN) that can be resolved by the DNS server used by CUPS.
- **Step 6.** Define the port that the conference server is configured for. The options are for 80 (HTTP) or 443 (HTTPS).

Conferencing Host Cor	figuration - Mozilla Firefox	
Eile Edit View History	Bookmarks Tools Help	
C · C ×	A Marzatonico https://172.16.1.56:8443/ccmadmin/upcMeetingPlaceHostE	dit.do?key=b40d5416-193a-d413-8 🎲 🚹 - 🔡 - Google 🖉
Trunk Configuration	× Conferencing Host Configuration × +	
cisco For Cisco	Unified Presence Administration Unified Communications Solutions	Navigation Cisco Unified Presence Administration 👻 Go cupsadmin About <u>What's New</u> Logou
System + Presence +	Application • User Management • Bulk Administration • Diagnostics • Help •	
Conferencing Host Co	onfiguration	Related Links: Back To Find/List - Go
📊 Save 💥 Delete	Copy 🚽 Add New	
Status		
i Status: Ready		
Conferencing Host C	onfiguration	
Name*	Lab_MPE	
Description	MeetingPlace Express	
Hostname/IP Address	172.16.1.59	
Port*	80	
Protocol*	нттр	
•• indicates requi	red item.	
Done		A 00000 B.

Figure 5-19 Configuring the CUPC Conferencing Server in CUPS

- **Step 7.** Select the protocol used when CUPS communicates with the conferencing server. The current supported protocols are HTTP and HTTPS.
- **Step 8.** Select the conferencing server being integrated.
- **Step 9.** If WebEx were selected, enter the Site ID and the Partner ID for the WebEx site being integrated.

Configuring Conferencing Profiles in CUPS

This section covers the final step for CUPC users accessing conferencing resources on the network. Prior to this section, the steps covered addressed the conferencing server provisioning of the CUPC user and configuring the conference server in CUPS. There can be more than one conference server defined in CUPS as required by end-user feature/functionality, migration from one platform to another, increased capacity requirements, and so on. Conference profiles enable the capability to have different CUPC end users configured for different conferencing server resources. The following steps are needed to configure conferencing profiles and assign CUPC users:

Step 1. Navigate to Application > Cisco Unified Personal Communicator > Conferencing Profile in the CUPS administration page, as shown in Figure 5-20.

Cisco Uni	fied Presence Adr		No.		
For Cisco Uni		ministration		Navigation Cisco Unified Pr	esence Administration 🔸
	fied Communications Solu	tions		cupsadmin A	bout <u>What's New</u> Lo
stem • Presence • App	Ication + User Management +	Buk Administration + Diagn	ostics + Help +		
nferencing Profile Con	figuration			Related Link:	s: Back To Find/List 👻
🕽 Save 💥 Delete 👍	Add New				
latus					
Add successful					
Conferencies Destile	6 - 11 11				
Conterencing Prome	Configuration				
ame*	conf_profile_mpe_lab				
escription	Manhan Black Everage Co	onferencing Profile			
	HeetingHate Express Ci				
imary Conferencing Serv	er Lab_MPE		•		
imary Conferencing Serve ackup Conferencing Serve	er Lab_MPE		- -		
imary Conferencing Serve ackup Conferencing Serve ackup Conferencing Serve	r Lab_MPE f < None > f < None >		-		
imary Conferencing Serve ackup Conferencing Serve ackup Conferencing Serve Make this the default Co	r Lab_MPE F ANNE C None > C None > Inferencing Profile for the sys	tem.	-		
imary Conferencing Serve ackup Conferencing Serve ackup Conferencing Serve Make this the default Co Users in Profile	riebungridue express Ci er Lab_MPE if < None > if < None > inferencing Profile for the sys	tem.	•		
imary Conferencing Serve ackup Conferencing Serve ackup Conferencing Serve Make this the default Co Users in Profile	r Lab_MPE r Lab_MPE r < None > r < None > if < None > inferencing Profile for the sys User 10	tem.	•	Lathama	Desetment
imary Conferencing Servi ackup Conferencing Serve ackup Conferencing Serve Make this the default Co Users in Profile	User ID	item. Firstname Ruos	• • •	Lestname	Department
imary Conferencing Servic ockup Conferencing Servic ockup Conferencing Servic Make this the default Co Users in Profile blaumy bronoraan	releasing Profile Express Crief If < None > If < None >	Firstname Bugs Brian	Bunny Moroan	Lestname	Department
mary Conferencing Serve ckup Conferencing Serve ckup Conferencing Serve Make this the default Co Susers in Profile blaunny brorotan ciscourser	releasing Profile Express Crief F Lab_MPE F < None > If < None > I	rtem. Firstname Bugs Brian cisco	Bunny Morgan user	Lastname	Department
mary Conferencing Servi ckup Conferencing Servi (kup Conferencing Servi Make this the default Co Busers in Profile Interview I	Viewigning Expression T Lab, MPC If < None > If < None > If < None > If < None > If < None > User ID	Firstname Bugs Brian disco Marvin	Bunny Morgan user Martian	Lastname	Department
mary Conferencing Serve ckup Conferencing Serve ckup Conferencing Serve Make this the default Co Sters in Profile blaumax brancaan ciscouser mmartian opacket	User ID	Firstname Bugs Brian Oficio Manvin Peter	Bunny Morgan User Natian Packet	Lastname	Department
imary Conferencing Servickup Conferencing Servickup Conferencing Serve (Make this the default Co Suscent in Profile Maximum M	Vieter ID	Firstname Bugs Brian Cisco Marvin Péter Rocer	Bunny Morgan User Martian Packet Packet	Lastname	Department
imary Conferencing Service actup Conferencing Service Make this the default Co Suscess in Profile Internation Internation Internation Internation Internation Internation Internation Internation	receipting Exploses CL T < None > T < None > If < None > If < None > If < None > User ID User ID	Firstname Bugs Brian disco Marvin Peter Roger Woow	Bunny Morgan User Martian Packet Rabbit Ihavelcooffettersinmynam	Lastname	Department

Figure 5-20 Configuring the CUPC Conferencing Profile in CUPS

Step 2.	Click Add New.
Step 3.	In the name section, define the name of the conferencing profile.
Step 4.	Select the Primary Conferencing Server as defined in the system.
Step 5.	You can add up to two backup conferencing servers defined in the system.
Step 6.	Check the Make This the Default Conferencing Profile for the System box if this is the default system.
Step 7.	Click the Add Users to Profile.
Step 8.	Select the users for this voicemail profile.
Step 9.	Click Add Selected.

Step 10. Click Save.

Note Conferencing server failover is not supported in CUPS 7.0(4).

This section completes the required tasks necessary to configure full conferencing features for CUPC users. This feature will allow for ad-hoc web conferencing leveraging Meeting Express, Meeting Place Express VT, MeetingPlace, and WebEx Meeting Center. Conferencing can be a conversation escalated to a point-to-point web sharing portal or a full-service web conference with the ability to invite other users to the conference via a click to add, e-mail, or IM.

Configuring Video for CUPC

Video is relatively simple for a CUPC deployment. The main thing to note here is that video with CUPC is supported only when the client is in softphone mode. To configure video for CUPC, complete the following tasks:

- **Step 1.** Configure the CUPC client for softphone use if it is not the user's primary device.
- **Step 2.** Confirm that video use is enabled for the CUPC device in CUCM. This is done within the Region settings of CUCM and assigned to the device through the device pool.
- Step 3. Distribute supported video cameras for the CUPC users.
- **Step 4.** If three or more parties are required in a video call, the media resource group defined for those users must have a conference bridge configured with video resources available. The supported options are MeetingPlace Express VT, MeetingPlace with video, and Cisco Unified Videoconferencing solution that leverages the 3500 series Multipoint Control Units (MCU).

Note Steps 1 through 3 are the only ones necessary for point-to-point video.

Configure LDAP for CUPC

This section covers LDAP integration for the purposes of user lookup in the CUPC client. This enables CUPC users to search for and add contacts from a defined LDAP directory. The section does *not* cover LDAP directory integration for purposes of user provisioning and authentication with CUCM. Detailed LDAP integration for those purposes can be found in the "Configuring CUPC Users in CUCM" section of this chapter. Cisco strongly recommends having CUCM integrated to LDAP for user provisioning and authentication and configuring CUPC for LDAP integration on CUPS for user lookup functionality.

The first thing to understand before configuring LDAP servers in CUPS is the rules for how contacts are displayed in CUPC. This is important to understand because there will be attributes that need to be mapped for displaying names, and these rules determine how names are displayed:

- If a user edits a contact name retrieved from LDAP in CUPC, display that name. This is the Nickname attribute in CUPS.
- If the LDAP user field DisplayName is configured, display that name.
- If the LDAP user field Nickname is configured, display that name with the last name.
- If none of the preceding are configured, display the LDAP user field of the FirstName and LastName. If there is no last name, display only the first name. If there is no first name, display only the last name.
- If no LDAP user fields are configured, display the LDAP UserID or the CUPS user ID.
- If a non-LDAP contact is added, the user can define the Display As name, first name, and last name.

The first thing you need to do is to configure an LDAP attribute map for the supported LDAP server and the CUPC client attributes. Several attribute mappings available enable you to manipulate information between the LDAP server and the CUPC client, but only one is required at the start to provide the functionality of adding users retrieved in an LDAP search to the CUPC client contact list. The following are the steps necessary to accomplish that task:

- **Step 1.** Navigate to Application > Cisco Unified Personal Communicator > Settings in the CUPS administration page, as shown in Figure 5-21.
- **Step 2.** Select the type of LDAP server you want to configure in the drop-down menu.
- **Step 3.** Define the UserID field under the UPC User Fields to one of the following:

Microsoft Active Directory - sAMAccountName

Sun ONE - uid

Step 4. Click Save.

After you correctly set the attributes, you can configure the LDAP server. The steps necessary to configure an LDAP server in CUPS are as follows:

- **Step 1.** Navigate to Application > Cisco Unified Personal Communicator > LDAP Server, as shown in Figure 5-22.
- Step 2. Click Add New.
- **Step 3.** Define the name of the LDAP server.
- **Step 4.** Define the FQDN hostname or the IP address.
- **Step 5.** Define the port number used by the LDAP server; 389 is the default.

	A A A A A A A A A A A A A A A A A A A	madmin/upcSettingsEdit.do?type=1	😭 🚺 + 🛛 Google	
Trunk Configuratio	n 🛛 🛛 🗙 🕅 Unified Personal Commun	icator S × 🔶		
cisco For Cisco	Unified Presence Administrati	on	Navigation Cisco Unified Presence Administration cupsadmin About <u>What's New</u>	on 🕶
stem + Presence +	Application 👻 User Management 👻 Bulk Administra	tion 🕶 Diagnostics 👻 Help 👻		
ified Personal Co	mmunicator Settings			
Save				
tatur -				
D Stature Baade				
CUPC Global Se	ettings			-
Proxy Listener*	Default Cisco SIP Proxy TCP Listener	•		
Primary TFTP Server	172.16.1.55			
Backup TFTP Server				
Backup TFTP Server				
CUPC LDAP Att	ribute Mapping			
Directory Server Typ	e* [Microsoft Active Directory Microsoft Active Directory Netcosoft Active Directory	Restore Defaults		
Directory Server Typ	e* [Microsoft Active Directory Microsoft Active Directory Microsoft Active Directory Microsoft Active Directory Microsoft College of Super Fields	Restore Defaults	LDAP User Fields	
Directory Server Typ UPC User Fields UserID	e* (Microsoft Active Directory Microsoft Active Directory Netscope or Sun CNE (DAP Server Itetscope or Sun CNE (DAP Server (DAP User Fridds SAMAccountName	Restore Defaults UPC User Fields FirstName	LDAP User Fields givenName	
Directory Server Typ UPC User Fields UserID LastName	e* Microsoft Active Directory Microsoft Active Directory Microsoft Active Directory Netscope or Sur Child Cover Parts SAMAccountName an	Restore Defaults UPC User Fields FristName MiddleName	LDAP User Fields givenName middleName	
CUPC LDAP Att Directory Server Typ UPC User Fields UserID LastName Nickname	e* Microsoft Active Directory Microsoft Active Directory Microsoft Active Directory Netscope or Sur Offic LDAP Server LDAP User Frada shttps://www.frada sn ncluname	Restore Defaults UPC User Fields FirstName MiddleName Photo	LDAP User Fields givenName middleName	
CUPC LOAP Att Directory Server Typ UPC User Fields UserID LastName Nickname Title	e* Microsoft Active Directory Microsoft Active Directory Microsoft Active Directory Netscope of Sur Offit (LDAY Server IDAY User Fields SAMAccountName Sn nickname btle	Restore Defaults UPC User Fields FirstName MiddleName Photo DisplayName	LDAP User Tields givenName middleName displayName	
CUPC LOAP Att Directory Server Typ UPC User Fields UserID LastName Nickname Title NamePrefix	e* Microsoft Active Directory Microsoft Active Directory Microsoft Active Directory Microsoft Active Directory INAS User Factor EAMAccountiname sn michame title namePrefix	Restore Defaults UPC User Fields FirstName Photo DisplayName NameSuffix	LDAP User Fields given/tame middlebame displayhame	
CUPC LOAP Att Directory Server Typ UPC User Fields UserID LastName Nickname Title NamePrefix: Gender	* Microsoft Active Directory Nicrosoft Active Directory Nicrosoft Active Directory Nicrosoft Active Directory Nicrosoft Active Directory (NAP Vise Fasta adMAccountname sn nickname bile namePrefix gender	Restore: Defaults UPC User Fields FirstName MiddleName Photo DisplayName NameSulfix BusinessEMail	LDAP User Fields givenName middleName displayName mail	
CUPC LOAP Att Directory Server Typ USerID Lastlame Nickname Title NamePrefix Gender BusinessPhaneNumb	e* Microsoft Active Directory Microsoft Active Directory Netscope Active Directory Netscope or Sur Child Libor Packa SAMAccountName sn nockname title namePrefix gender telephoneNumber	Restore Defaults UPC User Fields FirstName MiddleName Phote DisplayName NameSuffix DusinessUteil BusinessVoiceMail	LDAP User Fields givenName middleName displayName mail	
CUPC LDAP Att Directory Server Typ UPC User Fields UserID LastName Nickname Title NamePrefix Gender BusinessPhoneNumb BusinessMobilePhone	e* Microsoft Active Directory Microsoft Active Directory Microsoft Active Directory Netscoe or Sur Offe (1242 Server EXX Discr Factor adMAccountName an nickname title namePreix gender ier telephoneNumber a mobile	Restore Defaults UPC User Fields FirstName MiddleName Phote DisplayName NameSuffix QusinessNail BusinessNoiceMail BusinessPager	LDAP User Fields giventame middleName displayName mail pager	
CUPC LDAP Att Directory Server Typ UPC User Fields UserID LastName Nickname Title NamePrefix Gender BusinessPhoneNumb BusinessPhoneNumb BusinessPhoneNumb	Protection of the process of the second	Restore Defaults UPC User Fields HiddleName MiddleName Photo Display/Name NameSUfix DusinessEMail BusinessEMail BusinessCherPhone	LDAP User Fields givenName middleName displayName mail pager otherFielephone	
CUPC LOAP Att Directory Server Typ UPC User Fields UserID LastName Niskname Title NamaPrefix Gender BusinessPhoneNiumb Businessfox Businessfox HomeEMail	Bit Microsoft Active Directory Precode Active Directory Precode Active Directory Intesche er Sur Directory Intesche er Sur Directory Intesche er Sur Directory Externa extension active Sn Inschname Uile namePrefix gender telephoneNumber er telephoneNumber facsimileTelephoneNumber	Restore: Defaults UPC User Fields FirstName Photo DisplayName NameSulfix DusinessEMail BusinessPuiceMail BusinessPager DusinessPager DusinessPager	LDAP User Fields givenName middleName displayName mail pager otherTelephone	

Figure 5-21 Configuring the User ID Format in CUPS

- **Step 6.** Select the protocol to use. The default is TCP.
- Step 7. Click Save.

Note More than one LDAP server can be defined in the CUPS system for purposes of failover. If this is done, all the defined LDAP servers must be of the same type.

The final required configuration is the LDAP Profile. The required steps to configure an LDAP profile in CUPS follows:

- **Step 1.** Navigate to Application > Cisco Unified Personal Communicator > LDAP Profile in the CUPS administration page, as shown in Figure 5-23.
- Step 2. Click Add New.
- **Step 3.** Define the name of the profile.
- **Step 4.** It is optional but recommended to define the Bind Distinguished Name field using an administrator-level account. Anonymous bind is available if wanted.

The syntax can vary depending on the LDAP server used. Table 5-2 provides a guide to the syntax for Microsoft Active Directory and Sun ONE.

- **Step 5.** Define the LDAP bind password.
- **Step 6.** Define the search context to be used for LDAP user searches by the CUPC client. A single OU search context is supported. For example (Microsoft AD):

CN=users,DC=cisco,DC=com

- **Step 7.** Check to perform a recursive search of the directory.
- **Step 8.** Select the primary LDAP server.
- Step 9. Select any backup LDAP servers.
- Step 10. Click Add Users to Profile.
- Step 11. Select the users for this voicemail profile.
- Step 12. Click Add Selected.
- Step 13. Click Save.



Figure 5-22 Configuring the CUPC LDAP Server in CUPS

LDAP Profile Configu	uration - Mozilla Firefox			
e <u>E</u> dit <u>V</u> iew Higto	pry Bookmarks Iools Help			
C > C >	🔨 🏠 172.16.1.55 http:	:://172.16.1.56:8443/ccmadmin/upcLda	pProfileEdit.do?key=d68a9d3c-2e31-52b7-f3bd-37 🏠 🚺 - 🛛 🔩 -	Google
Cisco Unified CM	Console 🛛 🗶 🚮 LDA	P Profile Configuration ×	*	
cisco For Cis	Unified Presence	Administration	Navigation Cisco Unified Pres	ence Administration 👻
ystem - Presence -	- Application - User Manager	ent - Bulk Administration - Diagnos	tcs + Help +	
DAD Deafile Canfi	ouration		Palated Lieber	Dark To Find Airth
over prome comi	guration		Related Links.	Back TO Pillo/List +
🚽 Save 🗙 Delet	e 🕞 Add New			
Status				
Status: Ready				
LDAP Profile C	Configuration			
Name*	Idanusemer			
Description	IDAR Secure			
Bind Distinguished N	lame concisco user com	isers do=moroan do=lab	III Assessment Rind	
(DN)	cin-ciaco aserten-e	ana ayon - margan, an - na	C Anonymous bind	
Capfree Password		•••••••		
Search Context				
Primary LDAR Serve	cn=users,dc=morg	an,dc=lab	Recursive Search	
Backup LDAP Server	cupe-loap			
Backup LDAP Server	< None >			
Make this the def	fault LDAP Profile for the syste	m.		
SUsers in Profi	ie			
	User ID	Firstname	Lastname	Department
bbunny		Bugs	Bunny	
brmorga	0	Brian	Morgan	
ciscouser	e	cisco	user	
mmartia	ā.	Marvin	Martian	
ppacket		Peter	Packet	
rrabbit		Roger	Rabbit	
wihavelo	tsoflettersi	Wow	Ihavelotsoflettersinmyname	
Add Use	rs to Profile Select All	Clear All Delete Selected Ro	ws per Page 50 👻	
Save Delete	Add New			
and Control				
one				

Figure 5-23 Configuring the CUPC LDAP Profile in CUPS

LDAP Server Type	Distinguished Name Syntax		
Microsoft Active Directory	CN=Michael Popovich, CN=Users, DC=Contoso, DC=com		
Sun ONE	cn=Michael Popovich, ou=Operations, o=Example Corp, st=CA, c=US		

Table 5-2 Supported LDAP Directory Types and Naming Syntax

Upon completion of these steps, the CUPC users can search for contacts in the client and leverage the defined LDAP directory. When the search is completed on the client, the user has the option to IM, place an audio and video call to LDAP-defined contact numbers, initiate a web conference, and add the LDAP contact to the CUPC contact list.

CUPC Troubleshooting

The next few sections cover basic troubleshooting relative to the CUPC client. Some steps can be done by the end user and takes place on the client machine, and others are done by a system administrator or more experienced network administrator to narrow down possible root causes to an issue.

Basic CUPC Troubleshooting

If there is any service issues after a user has logged in, there are two basic things an end user can do to immediately confirm an issue and give administrators a good idea of what the problem is and how to resolve it follow:

- Look at the server health of the CUPC services. This is accomplished by navigating to Help > Show Server Health in the menu of the CUPC client (see Figure 5-24). There is an overall health status of all the available CUPC services that can be configured. Next to each process or service is a status indicator telling the user if the status is good with a green check or bad with a red octagon with an X in the middle. The end user can quickly tell an administrator what the initial problem might be. In the figure, there seems to be a couple of issues that need to be resolved.
- If the first option is not enough to adequately determine the potential problem, the end user can generate a more detailed dump of information that can be sent to the administrator. This is done by navigating to Help > Create Problem Report in the menu of the CUPC client, as shown in Figure 5-25. This starts a wizard in which the end users can quickly fill out the required information describing what they were attempting to do and what they were doing at the time of the problem. The tool then generates a log report and gathers necessary files that will be compiled into a zip file. This zip file will automatically be saved on the desktop. That file can be e-mailed to the administrator or appended to a Cisco TAC case for a more detailed review. One suggestion would be to enable detailed logging on the client and have the user log off and log back in to the client.

When the user and administrator have determined a specific problem, more troubleshooting will most likely be required. The following sections cover some initial troubleshooting steps for the various CUPC services, such as authentication, voicemail, conferencing, LDAP, and so on. Many of these topics are covered in more depth in Chapter 9. For more detailed information on using the diagnostic tools available for CUPC, go to http://tinyurl.com/ydhhfo9.



Figure 5-24 CUPC Show Server Health Tool

CUPS and CUCM Integration Troubleshooting

There could be issues with an end user not being able to log in to CUPC. This can be because of several issues and the following are some ideas on where to look:

- Make sure the end user has network connectivity to the voice network. This can be through the enterprise network or VPN, but connectivity must first be confirmed. Pinging the IP address of the CUPS server is the easiest way to accomplish this.
- LDAP integration with CUCM is the Cisco recommended way for deploying CUCM. CUPS authenticates users through CUCM, and if a user cannot authenticate using CUPC, verify LDAP is functional between CUCM and your LDAP server. This can be done by having the user authenticate to the CUCM end-user pages. If that is not allowed, an administrator can authenticate to CUCM admin pages using an LDAP account to verify connectivity.

If this is a new user, it is possible that the user has not synched over to the CUPS cluster. Usually, the administrator would have verified this already because most deployments have some manual configuration of the CUPC user for voicemail and conferencing profiles. Deployments assign default profiles for all services, and when a user is synched and automatically assigned to a CUPS node, the user should be functional. If this is the case, make sure the Sync Agent and Proxy Service is running. If those services are not running, restart them manually and confirm the user is assigned on the cluster.

S. Bria File V	m Morgan (brmore Tiew Contacts Actio	an) Sidi ans Help
6		
Cisco Unified Problem Reporting Tool	×	1
Step 1 of 2. Collect information.	cisco	
Use the space provided to describe the problem in your o	wn words.	
Logged into the client and cannot maintain Presence sta	te information. 🗵	
1	2	20)
		View All
		Date 👻
		10:17 AM Today
<< Back Next >	>> Cancel	2:13 PM Mar-26-2010 3-26-2010
(97 (97	2) 849-7299	2:51 PM Mar-25-2010
III) Nic	cole Tam (ntam)	11:22 AM Mar-25-2010
Ro Ro	bert Holmes (robholme)	4:13 PM Mar-22-2010
► Sear	ch Name, User ID or P	hone
Connect	ed(Limited)	

Figure 5-25 CUPC Create Problem Report Tool

Voicemail Troubleshooting

Most common voicemail issues from the CUPC client stem from a user not being able to log on, or voicemail messages are not downloading or don't appear in the recent pane. Here are some things to look at to address voicemail issues on CUPC:

Make sure users enter their credentials correctly in the CUPC client. This is found under File > Preferences > Account. If the user can log in to CUPC but does not see any voicemail messages, this is most likely not configured correctly. Show Server Health will also reveal this issue.

- If voicemail messages are not downloading but authentication is working, there are a few things to consider:
 - Check the server configuration to make sure that IMAP is enabled on the mailstore and that the voicemail profile is accurate for the CUPC user.
 - (Cisco Unity Connection) If messages are still not being received and the credentials have been checked, make sure that port 7993 is configured on the server and that the CUPC client is listening on port 7993. If there are any firewalls between the client and server, make sure that traffic on port 7993 is allowed to pass through.
 - Clear the voicemail cache on the end-user machine. This is accomplished by deleting all the files in the following directories:

For Windows XP: *drive*:\Documents and Settings*UserID*\Local Settings\Application Data\Cisco\Unified Personal Communicator\VoiceMail

For Windows Vista: *drive*:\Users*UserID*\AppData\Local\Cisco\Unified Personal Communicator\VoiceMail

For Mac OS: *home*/Library/Caches/Cisco/UnifiedPersonalCommunicator/ VoiceMail

If voicemails do not display in the recent pane of the CUPC client and server health shows that the server fails due to authentication failure, have the user re-enter their credentials in the CUPC client. If the client tried to reconnect but can't, it is most likely that the voicemail account is either locked or the password has expired.

Conferencing Troubleshooting

This section covers the basic troubleshooting steps focused on conferencing and covers MeetingPlace Express and MeetingPlace:

- If the user complains that the conferencing button is dimmed on the CUPC client, that is most likely due to the conferencing resources not being configured for the system, the conference profile has not been defined for the user, or the Web Conferencing Server credentials on the CUPC client are incorrect. Check the CUPS server and make sure that a conferencing server has been configured and that the correct conference profile has been identified for the CUPC client. When that is confirmed, make sure the CUPC user has configured the correct user information in the Web Conference Server setting of the client.
- If the user complains that he cannot escalate a call to a web conference when he clicks **Start Web Conference**, check the CUCM server and make sure that the directory lookup dial rules are configured correctly. This issue can occur when the CUPC client cannot match a calling party number with the correct person from LDAP via the CUCM server. Details on configuring directory lookup dial rules can be found at http://tinyurl.com/yd5pyd6.

Note Advanced troubleshooting information for MeetingPlace express can be found at http://tinyurl.com/ychwbnw and for MeetingPlace at http://tinyurl.com/ya3s2os.

LDAP Troubleshooting

The following provide solutions to some common LDAP problems. For instance, if there are no results when a user does a query in the Search pane, there can be several reasons for this; here are some things to look at to resolve the issue:

- If anonymous bind is configured in CUPS for the LDAP server, uncheck that check box and configure the Bind Distinguished Name information.
- Check client connectivity to the LDAP server by having the user ping the IP address of the LDAP server or telnet to the LDAP port on the server. (The default is port 389.)
- If using bind credentials in the LDAP server configuration on CUPS, double-check that those credentials are correct.
- Verify the correct search space is defined in the LDAP server configuration on CUPS.

For more detailed LDAP troubleshooting information, go to http://tinyurl.com/yadqb4v.

Summary

The CUPC client is a feature-rich client that offers a lot of productivity enhancements to the end user. It is flexible for both the stationary and mobile workspace users with desk-phone CTI control and softphone. The collaboration features provided by the client cover Instant Messaging, audio/video calls, web conferencing—all at the click of a button. The idea of escalating a conversation as needed gives the end user the ability to get more done in a single interaction than has ever been provided before. The click-to-action functionality of CUPC gives the power of advanced collaboration features to end users with little to no knowledge of how to initiate them. This is especially evident with video and web conferencing because these two collaborative mediums have historically had low adoption rates because of complex scheduling and setup.

Index

A

activating CUPS, 70-71

active/standby redundant high-availability deployment (CUP server), 40

ad-hoc conferencing

MeetingPlace Express, CUPC support, configuring, 158–159, 161

troubleshooting, 172-173

WebEx Meeting Center, CUPC support, configuring, 161

adding nodes to CUPS cluster, 90-91, 93

advanced CUPC features, voicemail, configuring, 149–150, 152, 154–158

application server, adding for CUCM installation, 46

authentication (LDAP)

configuring, 112

as CUCM/CUPS integration requirement, 108

AXL (Administrative XML Layer) API, 45 AXL group, adding for CUCM installation, 48, 50 AXP (Application Extension

Platform), 11–12

В

balanced nonredundant high-availability deployment (CUP server), 39–40
balanced redundant high-availability deployment (CUP server), 38–39
Bell, Alexander Graham, 2
BLF (Busy Lamp Field), 7
BLF support (CUCM), 24

С

call center agents, as typical Presence users, 185–186 call control, 3, 177 IP-based, 5 *CUCM*, 7–8 *endpoint network access*, 8–9 *ISRs*, 9–11

Mobile Connect, 181 Mobile Voice Access, 181 for stationary users, 181–182 call handlers, 11 CIPC (Cisco IP Communicator), 16-17 Cisco ASA (Adaptive Security Appliance), TLS Proxy feature, 191.193 Cisco AXP (Application Extension Platform), 11-12 **Cisco Unified Communications** Answer File Generator, unattended Presence server installation, 94-99 **Cisco Unified MeetingPlace**, 12 Cisco Unity, configuring as CUPC message platform, 152, 154 Cisco Unity Inbox Web Tool, 178 Cisco UWL (User Workspace License), 18-19 city and county government productivity, enhancing with **CUPS. 211** CLI, CUP domain, configuring, 195-197 clients (UC) CIPC, 16–17 Cisco UWL, 18–19 CUCIMOC, 17 **CUMC**, 17 **CUPC**, 18 **CUVA. 18** cloud services, 13 clusters CUP, 27-28 nodes, adding, 90-91, 93 Collaboration, 179-180 Cisco Unified MeetingPlace, 12 for stationary users, 182–183

commands, show network eth0. 195 - 197comparing Presence Sources and Presence Consumers, 177 conference servers, CUPS, configuring, 161 conferencing, troubleshooting, 172 - 173conferencing profiles, CUPS, configuring, 162, 164 configuring CTI gateway, 85, 88 CUCM CUPC devices, 145, 147-148 *IP phones*, 143, 145 **CUCM/CUPS** integration CTI gateway settings, 118, 121 - 123device associations, 129. 132-134 LDAP profile, 128, 130–131 preconfiguration checks, 114-115 Presence service parameter, 122, 124 SIP trunks, 125–126, 128 CUP domain from CLI. 195 - 197CUPC. 140, 142 LDAP. 164–165, 167–168 MeetingPlace support, 158-159, 161 Proxy Listener, 135–136 Service Parameter, 135–136 TFTP server connection, 134–135 video. 164 voicemail, 149-150, 152, 154-158 WebEx Meeting Center support, 161

CUPS conference servers, 161 conferencing profiles, 162, 164 redundancy, 93–94 Federation, 188–189 DNS. 194–195 email federation, 189-191 on Microsoft OCS, 197, 200-202 TLS peer subject creation, 191.193 IPPM. 83-85 LDAP. 109 authentication, 112 connectivity, 113 synchronization, 110–111 proxy domain, 82–83 connectivity CUCM/CUPS, troubleshooting, 228 - 229CUPS/CUCM, troubleshooting, 99, 101 LDAP/CUPS, configuring, 113 CTI (Computer Telephony Interface) gateway configuring, 85, 88 CUCM/CUPS integration, configuring, 118, 121–123 CUAD (Cisco Unified Application Designer), 12 **CUAE** (Cisco Unified Application Environment), 12 CUAS (Cisco Unified Application Server), 12 CUC (Cisco Unity Connection) provisioning, 149 secure messaging, enabling, 150, 152

CUCIMOC (Cisco UC Integration for Microsoft Office Communicator), 17 CUCM, 7-8, 21 CUP federated deployment, 35–37 CUP multicluster deployment, 33–34 CUP single-cluster deployment, 32-33 CUPC configuring, 140, 142 devices, configuring, 145, 147-148 CUPS dependencies. troubleshooting, 226, 228–229 CUPS synchronization, 72-73 installation tasks application server, adding, 46 AXL group, adding, 48, 50 CUPS service activation, 70–71 CUPS software installation, 51, 53, 55, 57, 59, 62, 64, 66, 68 CUPS software licensing, 69–70 Presence Gateway, adding, 74-79.81 IP phones, configuring, 143, 145 Presence capabilities, 23 phone directories, 25 speed dials, 24 **CUCM/CUPS** integration CTI gateway settings, configuring, 118, 121–123 device associations, 129, 132–134 LDAP configuration, 109–113 LDAP profile, 128, 130–131 LDAP requirements authentication, 108 directory access, 108 provisioning, 107

preconfiguration checks, 114 - 115Presence service parameter, configuring, 122, 124 SIP trunks, configuring, 125–126, 128 troubleshooting, 170–171 CUMC (Cisco Unified Mobile Communicator)), 17 CUME (Cisco Unified Media Engine), 12 CUP components, 22 deployment models clusters, 27-28 platform scalability, 30 redundancy, 29-30 federated deployment, 35-37 federation capabilities, 205 multicluster deployment, 33-34 single-cluster deployment, 32–33 users, 25 CUP domain, configuring from CLI, 195-197 **CUP** Servers DNS, configuring, 194–195 email federation, configuring, 189-191 Federation, configuring, 188–189 multinode scalability, 37-41 Publish Trunk service parameter, 26 CUPC (Cisco Unified Personal Communicator)), 18 ad-hoc conferencing MeetingPlace support, configuring, 158-159, 161 WebEx Meeting Center support, configuring, 161

configuring, 140, 142 devices, configuring in CUCM, 145, 147-148 failed TFTP downloads. troubleshooting, 250–251 LDAP, configuring, 164–165, 167 - 168leveraging with CUPS, 206-207 Proxy Listener, configuring, 135–136 Service Parameter, configuring, 135-136 softphones, creating for users, 131 - 134TFTP server connection, configuring, 134 - 135troubleshooting, 169 user device associations. troubleshooting, 244–245 user group membership, troubleshooting, 246, 248-249 user names, troubleshooting, 241.243 video, configuring, 164 voicemail configuring, 149-150, 152, 154 - 158troubleshooting, 171–172, 251-252.257 **CUPC Show Server Health** tool, 169 **CUPS** (Cisco Unified Presence Server). 204 conference servers, configuring, 161 conferencing profiles, configuring, 162, 164 CUCM connectivity, troubleshooting, 99, 101 CUCM dependencies, troubleshooting, 226, 228-229

CUCM synchronization, 72–73 CUPC, leveraging, 206-207 installing, 45 supported server platforms, 44 - 45leveraging in vertical markets city and county government, 211 emergency services, 210-211 bealthcare, 207-209 retail. 212-213 mailstore servers, configuring, 155 - 156nodes, adding to cluster, 90-91.93 Presence objects, 187 redundancy, configuring, 93–94 service activation, 70-71 software installation, 51, 53, 55, 57, 59, 62, 64, 66, 68 software licensing, 69-70 System Troubleshooter, 101, 103-104.106 troubleshooting tools MOC Troubleshooter page, 221-222 RTMT. 225-226 System Status page, 216-218 System Troubleshooter page, 218 - 220users, troubleshooting, 229-230, 232-234, 236-237, 239-240 voicemail profiles, configuring, 157-158 voicemail servers, configuring, 154 - 155CUVA (Cisco Unified Video Advantage), 18

CUWL (Cisco Unified Workplace Licensing), 177

D

defining UC, industry definition, 1–2 dependencies (CUPS/CUCM), 99, 101 troubleshooting, 226, 228-229 deploying CUCM CUP federated deployment, 35 - 37CUP multicluster deployment, 33 - 34CUP single-cluster deployment, 32 - 33deployment models (CUP) clusters, 27–28 platform scalability, 30 redundancy, 29-30 Derived Presence, 176, 187 desk phones, adding in CUCM, 143.145 device associations, CUCM/CUPS integration, configuring, 129, 132 - 134devices, CUPC, configuring in CUCM, 145, 147-148 **Diagnostics tab (CUPS** Administration page) MOC Troubleshooter page, 221–222 System Status page, 216–218 System Troubleshooter page, 218 - 220directory access (LDAP), as **CUCM/CUPS** integration requirement, 108 DNS, configuring, 194–195 doctor communications, enhancing productivity with CUPS, 209

E

Edison, Thomas, 2 email federation, configuring, 189–191 emergency services, CUPS, leveraging, 210–211 endpoints, 8–9 executives, as typical Presence users, 183–184

F

failed TFTP downloads, troubleshooting, 250–251 Federated Presence, Microsoft OCS configuration, 197, 200–202 Federation configuring, 188–189 DNS, configuring on CUP Server, 194–195 email federation, configuring, 189–191 IM networks, 187 TLS peer subject creation, 191, 193 federation capabilities (CUP), 205

G

Gray, Elisha, 2

Η

healthcare industry, CUPS, leveraging, 207 doctor communications, 209 nurse communications, 208 high availability, 29 history of telephony, 2–3

IM federated networks, 187 Jabber, 180 industry definition of UC, 1-2 installing CUCM application server, adding, 46 AXL group, adding, 48, 50 CUPS service activation. 70–71 CUPS software installation, 51, 53, 55, 57, 59, 62, 64, 66, 68 CUPS software licensing, 69–70 Presence Gateway, adding, 74-79,81 CUPS, 45 supported server platforms, 44 - 45Presence server, unattended installation, 94–99 Integrated Messaging, 178–179 interdomain federation capabilities (CUP), 205 interenterprise federation capabilities (CUP), 205 International Phonetic Alphabet, 2 IP phones, configuring in CUCM, 143, 145 **IPICS** (Cisco IP Interoperability and Collaboration System), 210 IPPM (IP Phone Messenger), configuring, 83-85 IPT (IP Telephony) call control, 5 CUCM, 7-8 endpoint network access, 8–9 ISRs, 6, 9–11

ISRs (Integrated Services Routers), 6, 9-11

J

Jabber, 180

LDAP

authentication, configuring, 112 configuring, 109 for CUPC, 164-165, 167-168 connectivity, configuring, 113 CUCM/CUPS integration requirements authentication, 108 directory access, 108 provisioning, 107 synchronization, configuring, 110 - 111troubleshooting, 173 LDAP profile, CUCM/CUPS integration, configuring, 128, 130-131 LDAP synchronization, troubleshooting, 232-234, 236-237.239-240 leveraging CUPC with CUPS, 206 - 207leveraging CUPS in vertical markets city and county government, 211 emergency services, 210-211 healthcare, 207 doctor communications, 209 nurse communications, 208 retail, 212-213

licensing CUPS, 69–70 log files, 222–223

Μ

mailstore servers, configuring in CUPS, 155-156 MeetingPlace, CUPC support, configuring, 158–159, 161 messaging for stationary users, 182 Microsoft OCS, federation, configuring, 197, 200-202 Mobile Connect, 181 mobile users, 183 mobility, 13, 180–181 MOC Troubleshooter page (CUPS Diagnostics tab), 221–222 multicluster deployment (CUCM), 33-37 multinode scalability (CUP server), 37 active/standby redundant high-availability deployment, 40 balanced nonredundant highavailability deployment, 39 - 40balanced redundant high-availability deployment, 38–39 nonhigh-availability deployment, 41

Ν

nodes, adding to CUPS cluster, 90–91, 93 nonhigh-availability deployment (CUP server), 41 nurse communications, enhancing productivity with CUPS, 208 Nyquist, Harry, 2 Nyquist-Shannon theorem, 2

Ρ

PBX architecture, 3 ISRs, 6, 9–11 signaling, 4-5 phone directories (CUCM), 25 platform scalability (CUP), 30 plug-ins (RTMT), 223 Post-Installation Wizard, 66, 68 preconfiguration checks, CUCM/CUPS integration, 114–115 preinstallation tasks (CUPS), 44-45 Presence, 14-15, 21, 179, 187 **CUCM. 23** phone directories, 25 speed dials, 24 CUP components, 22 deployment models, 27-30 users, 25 CUP server. Publish Trunk service parameter, 26 Derived Presence, 187 user scenarios call center agents, 185–186 executives, 183-184 mobile users, 183 stationary users, 181–183 teleworkers, 184 Presence Engine log files, 223 Presence Gateway, adding, 74–79, 81 Presence server CTI gateway, configuring, 85, 88 IPPM, configuring, 83–85 proxy domain, configuring, 82–83 Presence service parameter, CUCM/CUPS integration, configuring, 122, 124

provisioning (LDAP), as CUCM/CUPS integration requirement, 107
proxy domain, configuring, 82–83
Proxy Listener, configuring for CUPC, 135–136
public sector, enhancing productivity with CUPS city and county government, 211 emergency services, 210–211
Publish Trunk service parameter (CUP server), 26

R

redundancy CUP, 29–30 CUPS, configuring, 93–94 retail, CUPS, leveraging, 212–213 RTMT (Real Time Monitoring Tool), 225–226 plug-ins, 223

S

scalability CUP, 30 CUP server, multinode scalability, 37 - 41secure messaging, CUC, configuring, 150, 152 Service Parameter, configuring for CUPC. 135–136 show network eth0 command, 195-197 single-cluster deployment (CUCM), 32 - 33SIP Proxy log files, 223 SIP trunks, CUCM/CUPS integration, configuring, 125-126, 128

SNR (Single Number Reach), 15, 180 softphones, creating for CUPC users, 131-134 SONA. 6 **SRST. 11** stationary users, 181 call control, 181–182 collaboration, 182–183 messaging, 182 Sync Agent log files, 222 synchronization CUCM/CUPS, 72-73 LDAP configuring, 110–111 troubleshooting, 232–234, 236-237, 239-240 System Status page (CUPS Diagnostics tab), 216-218 System Troubleshooter (CUPS), 218 - 220users, troubleshooting, 229-240 System Troubleshooting, 101, 103-104, 106

T

telephony. *See also* IPT call control, 3 history of, 2–3 PBX architecture, 3 *signaling*, 4–5 teleworkers, as typical Presence users, 184 TFTP, failed downloads, troubleshooting, 250–251 TFTP server connection, configuring for CUPC, 134–135 TLS peer subject creation, 191, 193 trace files. 222–223 troubleshooting conferencing, 172–173 CUCM/CUPS dependencies, 226, 228 - 229CUCM/CUPS integration, 170–171 CUCP failed TFTP downloads, 250–251 voicemail access, 251–252, 257 **CUPC. 169** user device associations, 244 - 245user group membership, 246, 248 - 249user names, 241, 243 CUPS/CUCM connectivity, 99, 101 CUPS users, 229-230, 232-234, 236-237, 239-240 LDAP. 173 with System Troubleshooter, 101, 103-104.106 voicemail. 171–172 troubleshooting tools MOC Troubleshooter page, 221–222 RTMT, 225–226 System Status page, 216–218 System Troubleshooter page, 218 - 220trace files, 222-223

U

UC, industry definition of, 1–2
UC applications, Cisco Unified MeetingPlace, 12
UC components call control, 177
Collaboration, 179–180

mobility, 180-181 Presence, 179 voice messaging, 177-178 Integrated Messaging, 178–179 Unified Messaging, 178 UC solutions applications Cisco AXP, 11-12 mobility, 13 voice messaging, 13-14 clients, 16 CIPC. 16-17 Cisco UWL, 18-19 CUCIMOC. 17 CUMC, 17 CUPC. 18 CUVA. 18 user experience, 15–16 unattended Presence server installation, 94-99 Unified Messaging, 178 user device associations (CUPC), troubleshooting, 244-245 user group membership (CUPC), troubleshooting, 246, 248-249 user names (CUPC), troubleshooting, 241.243 user scenarios call center agents, 185–186 executives, 183-184 mobile users, 183 stationary users, 181 call control, 181–182 collaboration, 182-183 messaging, 182 teleworkers, 184 users (CUCM), configuring without LDAP integration, 140, 142

users (CUPS), troubleshooting, 229–240

V

verifying TLS Peer Subject creation, 191 video, configuring for CUPC, 164 video conferencing, 180 Visual Voice Mail, 177 voice messaging, 13-14, 177-178 Integrated Messaging, 178–179 Unified Messaging, 178 voicemail configuring in CUPC, 149–150, 152 Cisco Unity configuration, 152.154 CUPS mailstore servers. 155-156 CUPS voicemail profiles, 157-158 CUPS voicemail servers. 154-155 troubleshooting, 171–172, 251-252.257 voicemail profiles, configuring in CUPS. 157–158

W

WebEx Connect, 180 WebEx Meeting Center, CUPC support, configuring, 161

X

XCP (Jabber eXtensible Communications Platform), 180