



Cisco Unified CCX Administration Guide, Release 8.5(1)

Cisco Unified Contact Center Express and Cisco Unified IP IVR
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CONTENTS

Preface i

Audience 1-ii

Organization 1-ii

Glossary 1-v

Conventions 1-vi

Obtaining Documentation and Submitting a Service Request 1-vii

PART 1

Unified CCX: Overview

CHAPTER 1

Introducing Unified CCX 1-1

About the Unified CCX Components 1-1

The Unified CCX Product Family 1-4

 Unified IP IVR 1-4

 Unified Contact Center Express 1-5

About Unified CCX Cluster Architecture 1-6

 About Unified CCX Active Server 1-7

About Unified CCX Engine 1-8

Setting Up Unified CCX 1-10

 Provisioning Telephony and Media Subsystems 1-11

 Provisioning Unified CCX Subsystems 1-12

 Provisioning the Unified CCX Subsystem 1-12

 Provisioning Additional Unified CCX Subsystems 1-13

 Viewing License Information 1-14

- Uploading Licenses 1-15
- Deleting Licenses 1-16
- Configuring Unified CCX Applications 1-17
 - Available Applications 1-17
 - Managing Scripts, Prompts, Grammars, and Documents 1-18
- Configuring Unified CCX Historical Reporting 1-18
- Running and Managing Unified CCX 1-19
- Where To Go From Here? 1-19

CHAPTER 2

Introduction to Unified CCX Administration Web Interface 2-1

- Accessing Unified CCX Administration Web Interface 2-2
- Cisco Unified CCX Administration Menu Bar and Menus 2-3
- Navigating the Cisco Unified CCX Administration Application 2-4
- Unified CCX Configuration Web Pages 2-6
 - Displaying Details for Advanced Configuration 2-7
 - Using Tool Bar and Buttons 2-7
 - Using Configuration Wizards 2-8

PART 2

Unified CCX: Configuration

CHAPTER 3

Unified CCX Provisioning Checklist 3-1

- About Unified CCX 3-2
- Unified CCX Provisioning Checklist 3-3
- Changing the Licensing Packages 3-5

CHAPTER 4

Provisioning Unified CM for Unified CCX 4-1

- Configuring Unified CM Information 4-2
- Modifying Cluster Information from Unified CCX 4-2

- Displaying Unified CM Cluster Nodes in Unified CCX 4-4
 - Selecting Server for Unified CM Configuration (displayed only in a HA over WAN deployment) 4-5
- Modifying AXL Information 4-5
- Modifying Unified CM Telephony Information 4-8
- Modifying RmCm Provider Information 4-10
- Configuring Unified CM for Unified CCX 4-12
 - Invoking Unified CM Administration 4-13
 - Defining Unified CM Users as Agents 4-13
 - Guidelines for Configuring Agent Phones 4-14
 - Assigning Unified CM Users as Cisco TelePresence Virtual Agents 4-16
 - Assigning Unified CM Users as Unified CCX Agents 4-18
 - Configuring Tool for Auto-Registered Phones Support (TAPS) 4-22

CHAPTER 5**Provisioning Unified CCX for Unified CME 5-1**

- Introducing Unified CME for Unified CCX 5-1
 - Guidelines 5-2
 - Supported Features 5-3
 - Interoperability between Unified CCX and Unified CME 5-4
- Verifying Licenses 5-5
- Modifying Unified CME Information from Unified CCX 5-5
- Configuring the AXL User in Unified CCX 5-6
- Provisioning Unified CME Telephony Subsystem 5-7
 - Validating Unified CME and Unified CCX Data 5-8
 - Configuring a Unified CME Telephony Provider 5-9
 - Modifying Unified CME Telephony Call Control Group 5-10
 - Adding or Modifying a Unified CME Telephony Trigger 5-11
- Managing Unified CCX Users 5-14

- Assigning Capability Views to Unified CCX Users in a Unified CME Deployment **5-15**
- Creating New Unified CCX Users in a Unified CME Deployment **5-15**
- Changing Passwords and Pins **5-17**
- Identifying Agent Directory Numbers **5-18**

CHAPTER 6

Configuring Cisco Applications 6-1

- About Unified CCX Applications **6-1**
 - Configuring Script Applications **6-2**
 - Configuring Busy Application **6-7**
 - Configuring Ring-No-Answer Application **6-9**
 - Configuring Unified ICME Post-Routing Application **6-11**
 - Configuring Unified ICME Translation-Routing Application **6-14**
 - Configuring Remote Monitoring Application **6-16**
- Adding Application Triggers **6-18**
 - Adding a Unified CM/Unified CME Telephony Trigger **6-19**
 - Adding Unified CM/Unified CME Telephony Triggers from an Application Web Page **6-20**
 - Adding Unified CM/Unified CME Telephony Triggers from Unified CCX **6-21**
 - Adding an HTTP Trigger **6-21**
 - Adding HTTP Triggers from an Application Web Page **6-22**
 - Adding HTTP Triggers from the HTTP Subsystem **6-24**
- Managing Scripts **6-25**
 - Uploading New Scripts **6-26**
 - Viewing or Downloading a Script File **6-28**
 - Refreshing Scripts **6-30**
 - Individual Script Refresh **6-30**
 - Bulk Script Refresh **6-31**
 - Renaming a Script or Folder **6-32**

Deleting a Script or Folder 6-33

Sample Scripts 6-34

CHAPTER 7**Provisioning Telephony and Media 7-1**

About Unified CCX Telephony and Media 7-1

Media Termination Groups 7-2

Provisioning Channels to Handle Calls 7-3

Telephony and Media Resources Provisioning Checklist 7-4

Provisioning Unified CM Telephony Subsystem 7-5

Resynchronizing Cisco JTAPI Client 7-6

Resynchronizing Unified CM Telephony Data 7-7

Configuring a Unified CM Telephony Provider 7-7

Adding a New Unified CM Telephony Call Control Group 7-9

Adding a Unified CM Telephony Trigger 7-16

Additional Unified CM Telephony Information 7-22

Provisioning Unified CM Telephony Triggers for Unified CCX Queuing 7-22

Resynchronizing Unified CM Telephony Information 7-22

Provisioning Cisco Media Subsystem 7-23

Adding a CMT Dialog Control Group 7-24

Provisioning ASR and TTS in Unified CCX 7-26

Before You Provision ASR/TTS 7-26

Provisioning MRCP ASR Subsystem 7-27

Provisioning MRCP ASR Providers 7-28

Provisioning MRCP ASR Servers 7-29

Provisioning MRCP ASR Dialog Groups 7-31

Provisioning MRCP TTS Subsystem 7-34

Provisioning MRCP TTS Providers 7-35

Provisioning MRCP TTS Servers 7-37

Provisioning MRCP TTS Default Genders 7-39

Provisioning Unified CCX 8-1

- Configuring RmCm Provider 8-2
 - Modifying RmCm Provider 8-2
 - Associating Agent Extensions with the RmCm Provider 8-3
- Configuring Resource Groups 8-4
 - Creating a Resource Group 8-4
 - Modifying an Existing Resource Group Name 8-5
 - Deleting a Resource Group 8-6
- Configuring Skills 8-7
 - Creating a Skill 8-7
 - Modifying an Existing Skill Name 8-8
 - Deleting a Skill 8-9
- Configuring Agents 8-10
 - Implications of Deleting Agents in Unified CM 8-11
 - Assigning Resource Groups and Skills to One Agent 8-12
 - Assigning Resource Groups and Skills to Multiple Agents 8-14
 - Removing Skills from Agents 8-16
- Configuring Contact Service Queues 8-17
 - Creating a CSQ 8-18
 - Modifying an Existing CSQ 8-24
 - Deleting a CSQ 8-25
 - Resource Pool Selection Criteria: Skills and Groups 8-26
 - Resource Skill Selection Criteria Within a CSQ 8-28
- Configuring and Using Remote Monitoring 8-30
 - Creating a Remote Monitoring Supervisor 8-31
 - Assigning Resources and CSQs to a Supervisor 8-32
- Configuring Agent-Based Routing 8-34
 - Wrap-Up Data Usage 8-35
- Configuring Teams 8-35

Creating a Team Supervisor	8-36
Creating Teams	8-37
Modifying Agents on Teams	8-39
Deleting a Team	8-39
Unified Gateway Auto-Configuration Details	8-40

CHAPTER 9**Provisioning Additional Subsystems 9-1**

About Additional Subsystems	9-2
Provisioning Unified ICME Subsystem	9-3
Configuring General Unified ICME Information	9-4
Configuring Unified ICME VRU Scripts	9-7
Provisioning HTTP Subsystem	9-10
Configuring HTTP Triggers	9-11
Provisioning Database Subsystem	9-12
Configuring Database Subsystem	9-13
Adding a New DataSource	9-14
Polling Database Connectivity	9-15
Provisioning eMail Subsystem	9-16

CHAPTER 10**Managing Prompts, Grammars, Documents, and Custom Files 10-1**

Managing Prompt Files	10-2
Managing Grammar Files	10-5
Managing Document Files	10-7
Managing Languages	10-9
Creating a New Language	10-9
Renaming a Language	10-10
Deleting a Language	10-11
Upload Zip files to a Language Folder	10-11
Recording and Uploading Prompt Files	10-13

- Recording a Prompt 10-14
- Add Spoken Name Prompts 10-16
- Managing Custom Files 10-17
 - Specify Custom Classpath Entries 10-17
- Managing AAR Files 10-18
 - Creating AAR Files 10-21
 - Uploading AAR Files 10-21
 - META-INF Directory 10-22
 - Prompts, Grammars, Documents, and Scripts Directories 10-22
 - Prompts Directory 10-23
 - Grammars Directory 10-23
 - Documents Directory 10-23
 - Scripts Directory 10-23
 - AAR Manifest 10-23
 - Attribute Types 10-25
 - Main Attributes 10-26
 - Per-Entry Attributes 10-28
 - META-INF Directory Attributes 10-29

CHAPTER 11

Managing the Unified CCX System 11-1

- Basic Terminology 11-2
- High Availability and Automatic Failover 11-3
 - Network Partitions 11-4
- Managing Unified CCX CDS Information 11-4
- Managing System Parameters 11-5
- Changing IP Address of Unified CCX 11-10
 - Readiness Checklist 11-11
 - Changing the IP Address 11-13
 - Changing the IP Address for Server in a Single-Node Deployment 11-13

- Changing the IP Addresses for Servers in a High Availability (HA) Deployment 11-16
- Post-Change Task List 11-22
- Exiting Unified CCX Administration 11-23

CHAPTER 12**Managing Unified CCX Historical Reporting 12-1**

- About Unified CCX Historical Datastore 12-1
- Historical Reporting Configuration 12-2
 - Configuring Database Server Limits 12-2
 - Viewing Historical Reports 12-3
- Purging Historical Data 12-3
 - Configuring Automatic Purging 12-4
 - Configuring Purge Schedule Configuration Parameters 12-5
 - Purging Manually 12-6
- File Restore 12-7

CHAPTER 13**Configuring Unified CCX Outbound Dialer 13-1**

- Unified CCX Outbound IVR Dialer Types 13-1
- About the Outbound Feature for Unified CCX 13-3
 - Outbound Characteristics 13-3
 - Unified CCX Requirements 13-4
 - Outbound Components 13-7
- Dialing Modes 13-8
 - Direct Preview Dialing Mode 13-9
 - Progressive Dialing Mode 13-10
 - Understanding the Working of an IVR-Based Progressive Campaign 13-10
 - Predictive Dialing Mode 13-12
 - Predictive Dialing Description 13-12

- Steps to Configure an Outbound IVR Subsystem in Unified CCX 13-14
- How Is a Contact’s Local Time Determined? 13-15
- The Outbound Configuration Checklist 13-16
- Verifying the RmCm and Outbound Subsystems 13-17
- Configuring General Outbound Properties 13-18
 - Customer Dialing Lists 13-21
 - Handling Callbacks 13-27
 - How the Outbound Option Works with Area Codes 13-28
 - Handling Configuration Updates 13-29
 - Allocating CSQ Agent Pool Percentages 13-30
- Adding a New Campaign 13-31
- Importing Contacts for a Campaign 13-39
- Enabling Campaigns 13-41
- Adding Area Codes 13-42
- Setting-up Communications with the Agent’s Desktop 13-43
- Agents Receive Outbound Calls 13-44
 - Agent Allocation and Queuing 13-45
 - Previewing Customer Information 13-46
 - Exchanging Data with CAD 13-48
 - Call Status Values 13-50
 - Resetting Contact States at Midnight 13-51
 - Call Result Values 13-52
 - Reclassification Status Behavior 13-54
 - Handling Skip-Next Behavior 13-56
 - Handling Skip/Reject Behavior 13-57
 - Call Retrieval Priority 13-58
 - Handling Failover and System Restarts 13-58
- Handling Do Not Call Contacts 13-59

Reporting on Real-Time Unified CCX Data 14-1

Available Unified CCX Real-Time Reports 14-2

Opening Real-Time Reporting 14-3

Running Reports 14-5

Viewing Detailed Subreports 14-5

Printing Reports 14-6

Resetting Report Statistics 14-6

Clearing Stuck Calls 14-7

Setting Report Options 14-7

Setting Report Appearance 14-8

Application Reporting User Interface 14-8

Report Menu 14-9

Contacts Summary Real-Time Report 14-11

Application Tasks Summary Real-Time Report 14-13

Application Tasks 14-13

Engine Tasks 14-14

Contacts 14-14

Applications 14-19

Sessions 14-20

Datasource Usage 14-20

Overall Cisco Unified Contact Center Express Stats 14-21

CSQ Cisco Unified Contact Center Express Stats 14-25

Preview Outbound Campaign Cisco Unified Contact Center Express
Stats 14-27

IVR Outbound Campaign Stats 14-29

Overall IVR Outbound Stats 14-31

Resource Cisco Unified Contact Center Express Stats 14-32

Failover Behavior for Unified CCX Stats 14-34

Tools Menu 14-35

- The Reset All Statistics Menu Option 14-35
- Open Printable Report Menu Option 14-36
- Refresh Connections Menu Option 14-36
- Clear Contact Menu Option 14-36
- Views Menu 14-37
 - Application Tasks 14-39
 - Contacts 14-39
 - Applications 14-39
 - Sessions 14-40
- Settings Menu 14-40
 - Options Menu Option 14-41

CHAPTER 15

Using Unified CCX Supervisor and Unified CCX User Options Plug-Ins 15-1

- About User Management 15-1
- About Unified CCX User Capabilities 15-2
 - Administrator Privileges 15-3
 - Supervisor Privileges 15-3
 - Historical Report User Privileges 15-5
 - Agent Privileges 15-5
- Using Unified CCX Supervisor Web Interface 15-6
 - Accessing the Unified CCX Supervisor Web Page 15-6
 - Monitoring Agents 15-7
 - Monitoring CSQs 15-7
 - Viewing CSQ IDs for Remote Monitoring 15-8
 - Installing Client-Side Historical Reporting 15-9
- Using the Unified CCX User Options Web Interface 15-9
 - Accessing the Unified CCX User Options Web page 15-9
 - Downloading Agent Desktop 15-10
 - Cisco Unified CCX Desktop Client Configuration Tool 15-11
 - Adding Alternative Pronunciations 15-12

Accessing Unified CM User Options page 15-13

PART 3

Unified CCX: Reference

CHAPTER 16**System Menu 16-1**

- Server Menu Option 16-1
- Unified CM Configuration Menu Option 16-3
- Unified CME Configuration Menu Option 16-4
- System Parameters Menu Option 16-4
- Custom File Configuration Menu Option 16-5
- License Information Menu Option 16-5
 - Add License(s) 16-6
 - Display Licenses 16-6
- Language Information Menu Option 16-7
- Logout Menu Option 16-8

CHAPTER 17**Applications Menu 17-1**

- Application Management Menu Option 17-1
- Script Management 17-3
- Prompt Management 17-4
- Grammar Management 17-5
- Document Management 17-6
- AAR Management 17-6

CHAPTER 18**Subsystems Menu 18-1**

- Unified CM Telephony Menu Option 18-2
 - Unified CM Telephony Provider Configuration 18-3
 - Unified CM Telephony Call Control Group Configuration 18-4

- Unified CM Telephony Triggers Configuration **18-4**
- Unified CM Telephony Data Synchronization **18-5**
- Unified CM Telephony Cisco JTAPI Resync **18-6**
- Unified CM Telephony Advanced Settings **18-7**
- Unified CME Telephony Menu Option **18-8**
 - Unified CME Telephony Provider Configuration **18-8**
 - Unified CME Telephony Call Control Group Configuration **18-9**
 - Unified CME Telephony Triggers Configuration **18-9**
 - Validate Unified CME in Unified CCX Data **18-10**
- RmCm Menu Option **18-10**
 - Skill Configuration **18-11**
 - Adding a New Skill **18-11**
 - Modifying Skills **18-12**
 - Resources Configuration **18-12**
 - Modifying a Resource **18-12**
 - Resource Group Configuration **18-13**
 - Adding a New Resource Group **18-13**
 - Modifying Existing Resource Groups **18-13**
 - Contact Service Queues Configuration **18-14**
 - Adding a CSQ **18-14**
 - RmCm Provider Configuration **18-15**
 - Assign Skills Configuration **18-15**
 - Adding Skills **18-16**
 - Removing Skills **18-16**
 - Remote Monitor Configuration **18-16**
 - Assigning Resources and CSQs to a Remote Supervisor **18-17**
 - Agent Based Routing Settings Configuration **18-17**
 - Teams Configuration **18-17**
 - Adding a New Team **18-18**
- Outbound Menu Option **18-18**

General Configuration	18-19
Campaign Configuration	18-19
Add New Campaigns	18-20
Import Contacts	18-20
Delete Contacts	18-21
Area Code Management	18-21
Add New Area Code	18-22
SIP Gateway Configuration	18-22
Unified ICM Menu Option	18-25
Unified ICME Configuration	18-25
Unified ICME VRU Scripts	18-26
Add a New VRU Script	18-27
Database Menu Option	18-27
DataSource	18-28
Adding a New DataSource	18-28
Adding a New Database Parameter	18-29
Driver	18-29
Adding a New Database Driver	18-29
HTTP Menu Option	18-30
HTTP Configuration	18-31
Add a New HTTP Trigger	18-31
eMail Menu Option	18-31
Cisco Media Menu Option	18-32
MRCP ASR Menu Option	18-33
MRCP ASR Provider	18-33
MRCP ASR Servers	18-33
MRCP ASR Dialog Groups	18-34
MRCP TTS Menu Option	18-35
MRCP TTS Providers	18-35

MRCP TTS Servers 18-36

MRCP TTS Default Genders 18-36

CHAPTER 19

Wizards Menu 19-1

Application Wizard 19-1

RmCm Wizard 19-3

CHAPTER 20

Tools Menu 20-1

Plug-ins Menu Option 20-2

Real-Time Reporting Menu Option 20-3

Real-Time Snapshot Config Menu Option 20-4

 Creating a System DSN for Wallboard 20-5

 Using Wallboard Software in a High Availability (HA) Deployment 20-8

Historical Reporting Menu Option 20-10

 Database Server Configuration 20-10

 Purge Schedule Configuration 20-11

 Purge Now 20-11

 File Restore 20-12

User Management Menu Option 20-12

 User View Submenu Option 20-13

 Name Grammar Generator Configuration 20-14

 Spoken Name Upload Submenu Option 20-15

 Administrator Capability View Menu Option 20-16

 Supervisor Capability View Menu Option 20-16

 Reporting Capability View Menu Option 20-16

 Agent Capability View Menu Option 20-17

Password Management 20-17

Windows Upgrade Menu Option 20-18

CHAPTER 21**Help Menu 21-1**

- Contents and Index Option 21-2
- For This Page Menu Option 21-3
- Troubleshooting Tips Menu Option 21-3
- Unified CCX Documentation Link Option 21-3
- About Menu Option 21-3

APPENDIX A**Unified CCX Licensing Packages A-1**

- Application Availability by License Package A-2
- Trigger Availability by License Package A-2
- Subsystem Availability by License Package A-2
- Historical Report Availability by License Package A-4
- Unified CCX Services Availability by License Package A-4
- Unified CCX Component Availability by License Package A-6
- Support Scalability for Unified CME A-6

INDEX



Preface

Cisco Unified Contact Center Express (Unified CCX), a member of the Cisco Unified Communications family of products, manages customer voice contact centers for departments, branches, or small to medium-size companies planning to deploy an entry-level or mid-market contact center solution.

The *Cisco Unified CCX Administration Guide* provides instructions for using the Administration web interface to provision the subsystems of the Unified CCX package and to configure Unified CCX applications.

This guide shows you how to implement the following two systems that integrate with the Unified CCX:

- Cisco Unified Contact Center Express (Unified CCX)
- Cisco Unified Interactive Voice Response (Unified IP IVR)

This guide also includes a reference section that describes all the menus and menu options of the Unified CCX Administration web interface.

This guide will help you to:

- Perform initial configuration tasks.
- Administer applications such as the Unified CCX Engine, and other components of the Cisco Unified Communication family of products.
- Familiarize yourself with the menus and menu options of the Unified CCX Administration web interface.

Audience

The *Cisco Unified CCX Administration Guide* is written for business analysts and application designers who have the domain-specific knowledge required to create multimedia and telephony customer response applications. Experience or training with Java is not required but is useful for making best use of the capabilities of the Cisco Unified Communications family of products.

Organization

This guide is divided into three parts.

- **Part 1**, “Unified CCX: Overview”, provides an overview of the Unified CCX components and Administration web interface.
- **Part 2**, “Unified CCX: Configuration,” describes the tasks necessary for configuring Unified CCX.
- **Part 3**, “Unified CCX: Reference,” describes the menu options of the available real-time reports.

Part 1 contains the following chapters:

Chapter Number and Title	Description
Chapter 1, “Introducing Unified CCX”	Describes key features of the Unified CCX system. Provides an overview of the configuration tasks necessary to configure and administer the Unified CCX.
Chapter 2, “Introduction to Unified CCX Administration Web Interface”	Provides an overview of the Unified CCX Administration web interface.

Part 2 contains the following chapters:

Chapter Number and Title	Description
Chapter 3, “Unified CCX Provisioning Checklist”	Introduces the Unified CCX subsystem and provides a configuration checklist for the available products.
Chapter 4, “Provisioning Unified CM for Unified CCX”	Explains how to modify the Unified CM Unified CM information from Unified CCX.
Chapter 5, “Provisioning Unified CCX for Unified CME”	Explains how to modify the Unified CME information from Unified CCX.
Chapter 6, “Configuring Cisco Applications”	Describes how to configure Cisco Busy applications, Cisco Ring-No-Answer applications, Unified ICME post-routing applications, Unified ICME translation-routing applications, and how to manage script files.
Chapter 7, “Provisioning Telephony and Media”	Introduces the Unified CCX telephony and media subsystems and describes how to provision the Unified CM telephony, CMT (Cisco Media Termination), MRCP ASR (Automated Speech Recognition), and MRCP TTS (Text-To-Speech) subsystems.
Chapter 8, “Provisioning Unified CCX”	Describes how to provision Unified CM and the Unified CCX subsystem.
Chapter 9, “Provisioning Additional Subsystems”	Describes how to provision the Cisco Unified Intelligent Contact Management Enterprise (Unified ICME), HTTP, Database, and eMail subsystems.
Chapter 10, “Managing Prompts, Grammars, Documents, and Custom Files”	Describes how to manage prompt, grammar, and document files.
Chapter 11, “Managing the Unified CCX System”	Describes how to configure, control, and monitor Unified CCX component activities and information in a Unified CCX Cluster.

Chapter Number and Title	Description
Chapter 12, “Managing Unified CCX Historical Reporting”	Describes how to configure the database server, schedule data synchronization, configure historical report users, and set up automatic and manual purging of the Unified CCX historical reports databases.
Chapter 13, “Configuring Unified CCX Outbound Dialer”	Describes how to configure the Unified Outbound Dialer feature for automated outbound activities for the Unified CM deployment of Unified CCX.
Chapter 14, “Reporting on Real-Time Unified CCX Data”	Describes how to run real-time reports on Unified CCX data. Provides directions for launching sub-reports, printing reports, refreshing reports, and setting report options.
Chapter 15, “Using Unified CCX Supervisor and Unified CCX User Options Plug-Ins”	Provides detailed information on the additional plug-in options provided by Unified CCX.

Part 3 contains the following chapters:

Chapter Number and Title	Description
Chapter 16, “System Menu”	Describes the options under the System menu of the Unified CCX Administration menu bar.
Chapter 17, “Applications Menu”	Describes the options under the Applications menu of the Unified CCX Administration menu bar.
Chapter 18, “Subsystems Menu”	Describes the options under the Subsystems menu of the Unified CCX Administration menu bar.
Chapter 19, “Wizards Menu”	Describes the options under the Wizards menu of the Unified CCX Administration menu bar.
Chapter 20, “Tools Menu”	Describes the options under the Tools menu of the Unified CCX Administration menu bar.

Chapter Number and Title	Description
Chapter 21, “Help Menu”	Describes the options under the Help menu of the Unified CCX Administration menu bar.
Appendix A, “Unified CCX Licensing Packages”	Describes the features that are available with each Unified CCX license package.

Glossary

For a complete list of terms used in Cisco Unified CCX and Cisco Unified IP IVR, see

http://www.cisco.com/en/US/products/sw/custcosw/ps1846/prod_technical_reference_list.html.

Conventions

This manual uses the following conventions:

Convention	Description
boldface font	<p>Boldface font is used to indicate commands, such as user entries, keys, buttons, and folder and submenu names. For example:</p> <ul style="list-style-type: none"> • Choose Edit > Find. • Click Finish.
<i>italic font</i>	<p><i>Italic</i> font is used to indicate the following:</p> <ul style="list-style-type: none"> • To introduce a new term. Example: A <i>skill group</i> is a collection of agents who share similar skills. • For emphasis. Example: <i>Do not</i> use the numerical naming convention. • A syntax value that the user must replace. Example: IF (<i>condition, true-value, false-value</i>) • A book title. Example: See the <i>Installation Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 8.5(1)</i>.
window font	<p>Window font, such as Courier, is used for the following:</p> <ul style="list-style-type: none"> • Text as it appears in code or that the window displays. Example: <code><html><title>Cisco Systems, Inc. </title></html></code>
<>	<p>Angle brackets are used to indicate the following:</p> <ul style="list-style-type: none"> • For arguments where the context does not allow italic, such as ASCII output. • A character string that the user enters but that does not appear on the window such as a password.

Related Documentation

Related Unified CCX documentation is available at the URL mentioned below:

http://www.cisco.com/en/US/products/sw/custcosw/ps1846/tsd_products_support_series_home.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

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

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



PART 1

Unified CCX: Overview



CHAPTER 1

Introducing Unified CCX

The Unified CCX provides a multimedia (voice, data, and web) IP enabled customer-care application environment that enhances the efficiency of contact centers by simplifying business integration, easing agent administration, increasing agent flexibility, and enhancing network hosting.

The following sections provide an overview of the configuration and management components of the Unified CCX product family:

- [About the Unified CCX Components, page 1-1](#)
- [The Unified CCX Product Family, page 1-4](#)
- [About Unified CCX Cluster Architecture, page 1-6](#)
- [Setting Up Unified CCX, page 1-10](#)
- [Running and Managing Unified CCX, page 1-19](#)
- [Where To Go From Here?, page 1-19](#)

About the Unified CCX Components

This section describes the following components of the Unified CCX system:

- **Unified Gateway**—Connects the Cisco Unified Communications family of products to the Public Switched Telephone Network (PSTN) and to other private telephone systems such as PBX.

- Unified CM Server—The Cisco Unified Communications Manager (Unified CM) provides the features required to implement IP phones, manage gateways, provide failover and redundancy service for the telephony system, and direct Voice over IP (VoIP) traffic to the Unified CCX system.



Note Cisco Unified Communications Manager was previously known as Unified Call Manager. This guide uses Cisco Unified Communications Manager at the first occurrence and Unified CM for later occurrences.

- Unified CME interoperability—The Cisco Unified Communications Manager Express (Unified CME) provides interoperability between Unified CCX and Unified CME, call routing using SIP-based route point, keep alive session management, Support of Cisco Agent Desktop for use with Unified CME, and the ability to store the users locally in the Unified CCX database.



Note Cisco Unified Communications Manager Express was previously known as Unified CallManager Express. This guide uses Cisco Unified Communications Manager Express at the first occurrence and Unified CME for later occurrences.

- Unified CCX Server—Contains the Unified CCX Engine that runs applications, including Cisco script applications, Unified CM user integration, Unified CME interoperability, Cisco Unified Intelligent Contact Management Enterprise (Unified ICME) translation-routing and post-routing applications, Busy applications, Ring No Answer applications, and Voice Extensible Markup Language (VXML) 2.0 applications. You can position your Unified CCX application server anywhere on the IP network and administer your applications from a web browser on any computer on the IP network. Because Unified CCX uses an open architecture that supports industry standards, you can integrate your applications with a wide variety of technologies and products such as Enterprise databases and Unified CCX Agent Desktop. The Unified CCX Server has the following components:
 - Unified CCX Configuration Datastore (CDS)—Manages configuration, component, and application information within the Unified CCX cluster and communicates with Unified CM. See the *Cisco Unified Contact Center Express Serviceability Administration Guide*.

- Historical Reports Database Server—Dedicated server that stores Unified CCX database for the following datastores: Configuration Datastore (CDS), Historical Datastore (HDS), Repository Datastore (RDS), and Agent Datastore (ADS).



Note If you are using Microsoft Internet Explorer Version 6.0 or higher or Mozilla Firefox Version 2.0 or 3.0 browser, verify that the popup blocker is disabled.

- Unified CCX Editor—Allows application developers to use a simple Graphical User Interface (GUI) to create, modify, and debug Unified CCX scripts for automating customer interactions. Each script consists of a series of steps, implemented as Java Beans.
- Unified CCX Administration and Unified CCX Serviceability web interfaces—Provides access through a web browser for administrators to configure and manage Unified CCX Datastores, Servers, and Applications.
- Cisco IP Agent and Supervisor Desktops—Desktop programs that allow Unified CCX agents and supervisors to log into the system, change agent states, and monitor status.
- Media Resource Control Protocol (MRCP) Automatic Speech Recognition (ASR) server—(optional.) Dedicated server that performs real-time speech recognition.
- MRCP Text-to-Speech (TTS) server—(optional.) Dedicated server that converts text into speech and plays it back to the caller.



Note Support for High Availability and remote servers is available only in multiple-server deployments.

- Historical Reporting Client—The Unified CCX and Unified IP IVR applications can generate a variety of historical reports that provide detailed Call Contact Call Detail record (CCDR) records, application performance, and traffic analysis information.

The Unified CCX Product Family

The Unified CCX product family provides contact-processing functions for your Cisco Unified Communications solution.

The software package you choose determines which steps, components, and subsystems you receive. Each Unified CCX product includes Unified CCX Engine and Unified CCX Editor.

The Unified CCX product family includes the following packages:

- [Unified IP IVR, page 1-4](#)
- [Unified Contact Center Express, page 1-5](#)

Unified IP IVR

The Unified IP IVR is a multimedia (voice, data, web) IP enabled interactive voice response solution that offers an open and feature-rich foundation for the creation and delivery of Unified IP IVR applications via Internet technology.

Unified IP IVR automates call handling by autonomously interacting with contacts. Using Unified IP IVR, you can create applications that answer calls, provide menu choices for callers, obtain caller data such as passwords or account identification, and transfer calls to caller-selected extensions. You can also create Unified IP IVR applications that respond to HTTP requests, outbound calling, sending e-mail, and processing VXML 2.0 commands.

The Unified IP IVR package provides the following features:

- JDBC support—Unified IP IVR applications can access Oracle, Sybase, and IBM DB2 databases.
- Real-Time reporting client—Unified IP IVR applications can generate a variety of reports that provide detailed information about the real-time status of your system.
- Historical reporting client—Unified IP IVR applications can generate a variety of historical reports that provide detailed information about the performance of your system.
- ASR—Unified IP IVR applications can take advantage of ASR to provide callers with the option to use speech to navigate through menu options.
- TTS—Unified IP IVR applications can use TTS to read back documents and pre-scripted prompts to callers.

Unified Contact Center Express

Cisco Unified Contact Center Express (Unified CCX) is an IP-based Automated Call Distribution (ACD) system that queues and distributes incoming calls to Unified CCX agents, who can be either groups of Unified CM users for Unified CM integration or Unified CCX users for Unified CME integration.

You can use Unified CCX applications to route calls to specific agents. You can also integrate Unified CCX with Unified IP IVR to gather caller data and classify incoming calls.

Unified CCX includes a web-based real-time and historical reporting system that you can use to monitor system, Contact Service Queue (CSQ), and resource performance.

The Unified CCX system consists of the following major components:

- **Resource Manager**—Application program that monitors Unified CCX agent phones and allows you to organize agents into resource groups or skills-based partitions according to the types of calls each group can handle.
- **CSQ**—Application program that places incoming calls in a queue and distributes them to the appropriate set of agents as the agents become available.
- **Unified CCX Agent Desktop**—Application program that Unified CCX agents run on their desktop computers to log in to the system, change Unified CCX state, and monitor status.

The following licensing options are available for the Unified CCX system:

- **Unified CCX Standard** (designed for entry-level users)—Includes the steps necessary for creating basic Unified CCX applications including IP Phone Agent (IPPA) and skills-based routing and does not include Cisco Agent Desktop (CAD).
- **Unified CCX Enhanced** (designed for enterprise-level users)—Includes all functions of Unified CCX Standard, plus support for priority queuing. Includes a license to enable custom Java extensions.
- **Unified CCX Premium**—Adds full Unified IP IVR support (except for Unified ICM integration) including database integration, Voice eXtensible Markup Language (VoiceXML), HTML web integration, custom Java extensions, and e-Notification services. The outbound feature is now bundled

with the Premium package. You will receive one outbound seat free with each premium seat. The maximum number of outbound seats supported will be based on the hardware type.

- Unified CCX Outbound IVR—You need to have an Unified CCX Outbound IVR license on top of Unified CCX premium license to enable this feature. You can increase the number of ports for an existing Outbound IVR license. The Display License sub menu option displays the licensed Outbound IVR ports and the sum of the dedicated Outbound IVR ports for all IVR campaigns that are running currently in your Unified CCX. The dedicated Outbound IVR port for a campaign is the number of IVR ports that you want to reserve for a campaign based on the number of CTI ports available in the outbound call control group.

**Note**

The Unified CCX Enhanced package and the Unified CCX Premium package are provisioned in the same way.

About Unified CCX Cluster Architecture

**Note**

Support for High Availability and remote servers is available only in multiple-server deployments.

The Unified CCX cluster consists of one or more servers (nodes) that are running Unified CCX components in your Unified CCX deployment.

If you deploy Unified CCX components on a single server, the Unified CCX cluster (often referred to as cluster in this manual) consists of that server. If you deploy Unified CCX on multiple servers, the cluster includes the Unified CCX server and standby server on which you installed Unified CCX. The Unified CCX cluster can support up to two Unified CCX Servers, one designated as the *active Unified CCX Server* and the other designated as the *standby Unified CCX Server* for high availability purposes.

When you install or upgrade Unified CCX on a server, you designate the cluster to which the server will belong by designating the cluster profile for that cluster.

Cluster architecture accommodates high availability and failover since, in case of the failure of a component, a secondary server will take over the functionality lost by that failed component.

All Unified CCX servers within the cluster are configured identically and installed with the same features. One server is designated the *active server*.

About Unified CCX Active Server



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

The Unified CCX active server makes global decisions for the cluster and keeps track of calls in the CSQs, agent states (if Unified CCX is installed) and generating historical detail records.



Note

Only one server in the cluster can be the active server at any given time.

If the active server fails, the Unified CCX provides automatic failover to the standby server. If the active server fails (for example, in the event a hardware failure occurs or the Unified CCX Engine process terminates), some calls being handled by the server are lost. The lost calls are restricted to those being handled by the system (those in the IVR stage or in queue). Calls answered by agents continue to remain live even though related data on the agent desktop is lost. When the standby server takes over as the new active server, call processing continues (see [High Availability and Automatic Failover, page 11-3](#)).

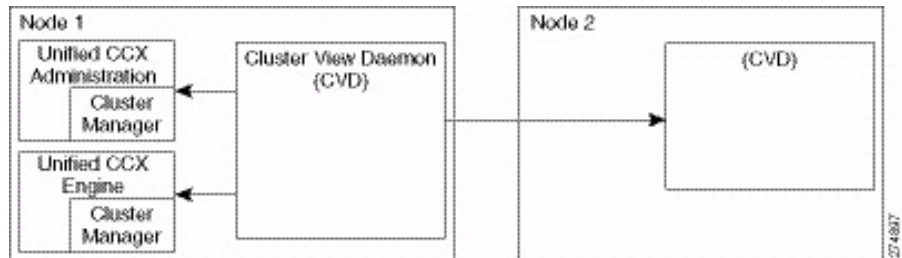
A Unified CCX cluster consists of the one or more servers (nodes) that run Unified CCX components in your Unified CCX deployment (see [Basic Terminology, page 11-2](#)).

Cluster management consists of two main elements:

- Cluster Manager—Receives updates about cluster status and subsystem states.

- Cluster View Daemon (CVD)—Java code that interacts with Platform Service Manager and implements inter-node communication on behalf of the cluster. It detects availability of the other nodes, components and services, provides consistent cluster view and dynamically elects a master service. The following figure shows the components of the CVD interaction with nodes.

Figure 1-1 Cluster View Daemon



The CVD has two interfaces:

- One that monitors *inside* the node, using:
 - Node Manager to monitor and control local processes.
 - Cluster Manager publisher or subscriber to communicate with local applications, such as Engine and Application Administration.
- Another that monitors *outside* the node and communicates with other nodes in the cluster.



Note

For detailed information about Unified CCX clusters, see [Chapter 11, “Managing the Unified CCX System.”](#)

About Unified CCX Engine

The Unified CCX Engine enables you to run multiple applications to handle Unified CM Telephony calls, Unified CME Telephone calls, or HTTP requests.

The Unified CCX Engine uses the Unified CM Telephony subsystem to request and receive services from the Computer Telephony Interface (CTI) manager that controls Unified CM clusters. The Unified CCX Engine is implemented as a service that supports multiple applications.

The Unified CCX Engine uses the Unified CME Subsystem to interact with the Unified CME application that run on Integrated Service Routers (ISRs) using open standard Session Initiation Protocol (SIP).

You can use a web browser to administer the Unified CCX Engine and your Unified CCX applications from any computer on the network. Unified CCX provides you the following two web applications:

- Unified CCX Administration web interface - Used to configure system parameters, subsystems, view real-time reports that include total system activity and application statistics and so on.
- Unified CCX Serviceability web interface - Used to view alarm and trace definitions for Unified CCX services, start and stop the Unified CCX Engine, monitor Unified CCX Engine activity, and so on.



Note If you are using Microsoft Internet Explorer Version 6.0 or higher or Mozilla Firefox Version 2.0 or 3.0 browser, verify that the popup blocker is disabled.

Depending on the Unified CCX products that you are using, the Unified CCX server may employ as many as 14 subsystems for communicating with other services:

- Applications—Manages the applications in the Unified CCX Engine and other features such as session management.
- Cisco Media—Configures Cisco Media Termination (CMT) dialog control groups, which can be used to handle simple Dual Tone Multifrequency (DTMF) based dialog interactions with customers.
- Core Reporting—Provides information for Unified IP IVR real-time reports.
- Database—Handles the connections between the Unified CCX server and the enterprise database.
- eMail—Adds components to the Unified CCX Engine that allows it to send e-mail messages.

- Enterprise Server—Communicates data for screen pops to the Unified CCX Agent Desktop.
- HTTP—Adds components to the Unified CCX Engine that allow it to respond to HTTP requests.
- ICM Subsystem—Manages the connection between the Unified CCX server and ICM.
- Unified CM Telephony—Manages the connection between Unified CM CTI Manager and the Unified CCX Engine.
- Unified CME Telephony—Manages the SIP connection between Unified CME and the Unified CCX Engine.
- MRCP ASR—Allows a script to respond to voice input in addition to DTMF using the MRCP protocol.
- MRCP TTS—Composes voice prompts that are generated real-time from text, such as speaking the words in the text of an e-mail message using the MRCP protocol.
- Resource Manager-Contact Manager (RmCm)—Allows Unified CCX to monitor agent phones, control agent states, route and queue calls, and manage the historical reporting feature.
- Voice Browser—Manages Voice Browser functionality.
- Unified CCX Voice over Internet Protocol (VoIP)—Enables remote recording and monitoring

**Note**

Recording and monitoring over pre-configured SPAN port is not supported in HA over WAN deployment of Unified CCX.

Setting Up Unified CCX

After you install the Unified CCX system and perform the initial setup as mentioned in the *Cisco Unified Contact Center Express Installation Guide*, you can start provisioning and configuring the system:

- *Provisioning* is the process of allocating resources and devising strategies for drawing on them to support the needs of your business.

- *Configuring* is the process of making applications available to the Unified CCX system.

The sections that follow describe these tasks:

- [Provisioning Telephony and Media Subsystems, page 1-11](#)
- [Provisioning Unified CCX Subsystems, page 1-12](#)
- [Viewing License Information, page 1-14](#)
- [Configuring Unified CCX Applications, page 1-17](#)

Provisioning Telephony and Media Subsystems

The Unified CCX telephony and media subsystems manage telephony and media resources and communicate with supporting telephony and media systems.

Depending on the Unified CCX applications you plan to use, you need to provision some or all of the following subsystems:

- **Unified CM Telephony.** The Unified CM Telephony subsystem controls the Unified CM telephony resources for the Unified CCX system.



Caution

While Unified CM supports Unicode characters in first and last names, those characters become corrupted in Unified CCX Administration web pages for Real Time Reporting, Cisco Agent/Supervisor Desktop, and Historical Reports.

- **Unified CME Telephony.** The Unified CME Telephony subsystem controls the Unified CME telephony resources for the Unified CCX system.
- **Cisco Media.** The Cisco Media subsystem controls the CMT media resources for the Unified CCX system.
- **MRCP ASR.** The MRCP ASR subsystem controls the ASR media resources for the Unified CCX system.
- **MRCP TTS.** The MRCP TTS subsystem controls the TTS media resources for the Unified CCX system.

**Note**

For detailed instructions on provisioning the Unified CCX telephony subsystems, see [Chapter 7, “Provisioning Telephony and Media.”](#)

Provisioning Unified CCX Subsystems

You need to provision your Unified CCX subsystems to enable the Unified CCX Engine to run multiple applications to handle Unified Communications calls or HTTP requests.

**Note**

You need to configure a particular subsystem only if you are using Unified CCX applications that require it and which are installed and activated using the appropriate license.

To continue the Unified CCX system configuration process, you will connect to the Unified CCX Administration web interface and perform the following tasks:

- [Provisioning Unified CCX Subsystems, page 1-12](#)
- [Provisioning Additional Unified CCX Subsystems, page 1-13](#)
- [Wizards Menu, page 19-1](#)

Provisioning the Unified CCX Subsystem

If you have purchased any of the three versions of Unified CCX, you will need to provision the Unified CCX subsystem.

**Note**

If your Unified CCX system does not include Unified CCX, proceed directly to the [“Provisioning Additional Unified CCX Subsystems”](#) section on page 1-13.

Provision the following settings on the Unified CCX subsystem:

- **RmCm Provider.** The Resource Manager (RM) of the Unified CCX system uses a Unified CM user (called a Unified CM Telephony provider) for monitoring agent phones, controlling agent states, and routing and queuing calls.
- **Resources.** Agents that answer calls are also called *resources*. After you create a resource group, you must assign agents (resources) to that group. You can assign skills to agents if you have Unified CCX Standard license.
- **Resource Groups.** Collections of agents that your CSQ uses to handle incoming calls. To use resource group-based CSQs, you must specify a resource group.

- **Skills.** (Unified CCX Standard license) *Skills* are customer-definable labels assigned to agents. You can route incoming calls to agents who have the necessary skill or sets of skill to handle the call.
- **CSQs.** After you assign an agent to a resource group, or assign skills to an agent, you need to configure the agent for the CSQ to which the agent will be assigned.
- **Agent-Based Routing Settings.** You can configure Automatic Work and Wrapup Time settings for the agent based routing feature from the Agent-Based Routing Settings page (see [Configuring Agent-Based Routing, page 8-34](#)).
- **Remote Monitoring.** If you want to associate agents and CSQs that will be monitored by remote supervisors, you need to configure remote monitoring settings. This feature is not available when interoperating with Unified CME.
- **Teams.** If you want to create or associate teams with various agents, CSQs, and supervisors, you need to configure team settings.

**Note**

For detailed instructions on provisioning the Unified CCX subsystem, see [Chapter 8, “Provisioning Unified CCX”](#) and [Chapter 19, “Wizards Menu.”](#)

Provisioning Additional Unified CCX Subsystems

The additional Unified CCX subsystems provide Unified ICME, HTTP, Database, and E-mail features.

Provision the following subsystems:

- **Unified ICME.** The ICM subsystem communicates with Unified ICME software.
- **HTTP.** The HTTP subsystem enables Unified CCX applications to respond to requests from a variety of web clients.
- **Database.** The Database subsystem enables Unified CCX applications to communicate with enterprise database servers.
- **eMail.** The eMail subsystem enables Unified CCX applications to create and send e-mail.

**Note**

For detailed instructions on provisioning these four subsystems, see [Chapter 9, “Provisioning Additional Subsystems.”](#)

Viewing License Information

The initial license configuration is part of the Setup Wizard procedure (during installation). The uploaded licenses define the feature set for a Unified CCX system. See the *Cisco Unified Contact Center Express Installation Guide* for more information on obtaining and installing licenses for Cisco Unified CCX 8.5(1).

You can add additional licenses using the **Add Licenses** submenu option (see [Uploading Licenses, page 1-15](#)). See [Unified CCX Licensing Packages, page A-1](#) for details on license options.

To view the license details of your Unified CCX, choose **System > License Information > Display License(s)** from the Unified CCX Administration menu bar. The License Information web page opens displaying the details of the configured licenses including the expiry date in case of time bound licenses (see [License Information Menu Option, page 16-5](#)).

From 8.5(1)SU3 release, the License Information web page displays a drop-down list with all licenses, active and expired, that have been configured in the system. When you choose a license from the list, the content of that license is displayed.

You can view the cumulative content of all the currently active licenses in the system by selecting **Cumulative License Information** from the drop-down list. This option also displays a breakup of the temporary and permanent license counts.

**Note**

If two licenses with same feature name are uploaded, the Unified CCX Administration Display Licenses web page will display the nearest one as the expiry date. Though the expiry date refers to the nearest date, it does not mean that the license expires on the date displayed in the “Display Licenses” page if you had uploaded a permanent license.

For Unified CCX 8.5(1), if you have a premium license with an Outbound IVR license, then this web page will display the number of licensed IVR ports for outbound and inbound and the dedicated ports for both outbound and inbound calls.

**Caution**

Deleting or reducing the number of Outbound IVR ports in the license is not a supported scenario in Unified CCX 8.5(1). Doing this might lead to inaccurate data in Dedicated Licensed Ports, which in turn might lead to more number of abandoned calls.

Uploading Licenses

Software for all the Unified CCX feature components are loaded on the system during installation. However, no feature is available for use unless a license for that feature is added and activated.

You can upload and display licenses using the License Information page. To upload a license, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **System > License Information > Add License(s)**.

The License Information web page opens.

Step 2 Specify a License file or click **Browse** to locate a file.

You can either specify a single file with a .lic extension or a .zip file containing multiple .lic files.

**Note**

While upgrading from a previous release, if there are multiple licenses, it is recommended to zip all the .lic files into a single .zip file and then upload the zip file. If specifying a .zip file, ensure that all .lic files that need to be added are in the root of the .zip file and are not in subfolders in the zip file.

Step 3 Click **Upload**.

Step 4 On successful upload of license, you will see the following confirmation message in the status bar on top of this web page - “License has been uploaded successfully”.

If you upload an Add-on license to increase the existing licensed Outbound IVR ports, the following message will be displayed - “As the number of licensed Outbound IVR Ports have increased, please increase the number of ports in the Outbound Call Control Group to utilize all the licensed ports”.

Deleting Licenses

From the 8.5(1)SU3 release, there is a provision to delete temporary licenses.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **System > License Information > Display License(s)**.

The Display License(s) web page opens.

Step 2 From the drop-down list, choose the license to be deleted.

The content of the license is displayed. Make sure you have selected the correct license to be deleted.



Note The Delete button beside the drop-down list is enabled only when a temporary license is selected. For all other licenses, this button remains dimmed.

Step 3 Click **Delete** placed next to the drop-down list.



Note For a High Availability (HA) system, you may delete the license from only one node. The delete effect replicates to the other node. Login to the second node to confirm that the change is reflected.

If the HA system is operating in the Island mode where both the nodes are masters, it is recommended that you delete the license separately from both the nodes.

Configuring Unified CCX Applications

After you provision the Unified CCX subsystems and view your license information, you need to configure Unified CCX applications to interact with contacts and perform a wide variety of functions.

To continue the Unified CCX system configuration process, connect to the Unified CCX Administration web interface and manage the following tasks:

- [Available Applications, page 1-17](#)
- [Managing Scripts, Prompts, Grammars, and Documents, page 1-18](#)
- [Wizards Menu, page 19-1](#)

Available Applications

There are several types of applications you can configure for Unified CCX:

- *Script* applications perform such functions as receiving calls, playing back prompts, receiving caller input, transferring calls, and queueing calls.
- The *Busy* application simulates a busy signal.
- The *Ring-No-Answer* application simulates a ring tone.

In addition, if your Unified CCX system is to be configured to interface with Unified IP IVR for Unified ICME (not with Unified CCX by way of the Unified Gateway) two extra applications are available: ICME post-routing applications and ICME translation-routing applications (see [“About Unified CCX Applications”](#) section on page 6-1).

After adding a Unified CCX application, you need to define a *trigger* so that this application can respond to telephone calls and HTTP requests. Triggers are specified signals that invoke application scripts in response to incoming contacts.



Note

For detailed instructions on configuring Unified CCX applications and defining triggers, see [Chapter 6, “Configuring Cisco Applications.”](#)

Managing Scripts, Prompts, Grammars, and Documents

The process of configuring Cisco script applications includes uploading Unified CCX scripts and pre-recorded prompts, installing grammars and customized languages, and adding triggers to applications.

Depending on your particular Unified CCX implementation, you may need to perform most or all of the following tasks to configure a Cisco script application:

- **Manage scripts:** Cisco script applications are based on scripts that you must upload to the repository and make available to the Unified CCX system.
- **Manage prompts:** Many applications make use of pre-recorded prompts, stored as .wav files, which are played back to callers to provide information and elicit caller response. You must upload these .wav files to the repository and make them available to the Unified CCX system.
- **Install grammars:** A *grammar* is a specific set of all possible spoken phrases and Dual Tone Multi-Frequency (DTMF) digits to be recognized by Unified CCX applications and acted upon during run time. The Unified CCX system uses specific grammars when recognizing and responding to caller response to prompts. You must store these grammars in a directory to make them available to the Unified CCX system.
- **Install customized Unified CCX languages:** Language packs, such as American English, Canadian French, and so on are installed with Unified CCX.

**Note**

For detailed instructions on managing these files, see [Chapter 10, “Managing Prompts, Grammars, Documents, and Custom Files.”](#)

Configuring Unified CCX Historical Reporting

When you install the Unified CCX system, the installation process creates a database named db_cra. This database contains:

- Information for historical reports, including Unified CCX configuration information, stored procedures, and some call statistics.
- The ContactCallDetail table, which is the main table for call statistics.

To conclude the Unified CCX system configuration process, connect to the Unified CCX Administration web interface and perform the following Historical Reporting Configuration tasks:

1. Define the maximum number of database connections for report client sessions.
2. Assign historical reporting capability to users.
3. Configure the Daily Purge Schedule and specify notification parameters.

**Note**

For detailed instructions on how to configure the Unified CCX historical reporting database, see [Chapter 12, “Managing Unified CCX Historical Reporting.”](#)

Running and Managing Unified CCX

To manage your Unified CCX, you must first provision and configure it. The day-to-day administration of the Unified CCX system and datastores consist of many tasks, such as:

- Starting and stopping the Unified CCX Engine and processes.
- Managing and monitoring the status of Unified CCX servers and components across the cluster.

**Note**

Support for High Availability and remote servers is available only in multiple-server deployments.

Where To Go From Here?

- Introduction and overview of the Unified CCX system
 - See [Chapter 2, “Introduction to Unified CCX Administration Web Interface.”](#)
- Provisioning and management tasks.
 - See [Chapter 3, “Unified CCX Provisioning Checklist”](#)

- See [Chapter 4](#), “Provisioning Unified CM for Unified CCX.”
- See [Chapter 5](#), “Provisioning Unified CCX for Unified CME”
- See [Chapter 7](#), “Provisioning Telephony and Media.”
- See [Chapter 8](#), “Provisioning Unified CCX.”
- See [Chapter 9](#), “Provisioning Additional Subsystems.”
- See [Chapter 6](#), “Configuring Cisco Applications.”
- See [Chapter 10](#), “Managing Prompts, Grammars, Documents, and Custom Files.”
- See [Chapter 11](#), “Managing the Unified CCX System.”
- See [Chapter 12](#), “Managing Unified CCX Historical Reporting.”
- See [Chapter 13](#), “Configuring Unified CCX Outbound Dialer”
- See [Chapter 14](#), “Reporting on Real-Time Unified CCX Data.”
- See [Chapter 15](#), “Using Unified CCX Supervisor and Unified CCX User Options Plug-Ins.”
- Reference information for each Unified CCX Administration menu option.
 - See [Chapter 16](#), “System Menu.”
 - See [Chapter 17](#), “Applications Menu.”
 - See [Chapter 18](#), “Subsystems Menu.”
 - See [Chapter 19](#), “Wizards Menu”
 - See [Chapter 20](#), “Tools Menu.”
 - See [Chapter 21](#), “Help Menu.”



CHAPTER 2

Introduction to Unified CCX Administration Web Interface

The Unified CCX provides a multimedia (voice, data, and web) IP-enabled customer-care application environment, using VoIP technology that allows your Cisco Unified Communications network to share resources with your data network.

You can then use a web browser located on any computer on the IP network to configure and administer your applications with the Unified CCX Administration web interface.



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

The Unified CCX Administration web interfaces, that is, Cisco Unified CCX Administration and Cisco Unified CCX Serviceability together allows you to:

- Configure and monitor overall system functions, applications, and subsystems
- Access a wide variety of system tools, and
- Perform many other administrative tasks.

The following sections provide more information about the Unified CCX Administration web interface:

- [Accessing Unified CCX Administration Web Interface, page 2-2](#)
- [Cisco Unified CCX Administration Menu Bar and Menus, page 2-3](#)

- [Unified CCX Configuration Web Pages, page 2-6](#)

Accessing Unified CCX Administration Web Interface

The web pages of the Unified CCX Administration web interface allow you to configure and manage the Unified CCX system and its subsystems.

Use the following procedure to browse into the server and log on to Unified CCX Administration web interface.

Procedure

-
- Step 1** Open the Unified CCX Administration Authentication page from a web browser on any computer on your network and enter the following case-sensitive URL:

```
https://<servername>/appadmin
```

In this example, replace *<servername>* with the host name or IP address of the required Unified CCX server.

- Step 2** A Security Alert dialog box displays. Click the appropriate button.

The Authentication page appears.



Note Ensure that Cisco Tomcat and Cisco Unified Cluster View Daemon services are up and running before you login to the Unified CCX Administration using the above-mentioned URL. If you are using Microsoft Internet Explorer Version 6.0 or higher or Mozilla Firefox Version 2.0 or 3.0 browser, verify that the popup blocker is disabled.

- Step 3** At the main Cisco Unified CCX Administration web page, enter your Unified CCX username and password.



Note If you are accessing Unified CCX for the first time, enter the Application User credentials specified during installation of the Unified CCX. See the *Cisco Unified Contact Center Express Installation Guide* for further instructions. The user id is case-insensitive in Unified CCX 8.5(1).

Step 4 Click **Login**.

A web page opens listing information about Cisco Unified CCX Administration and the Cisco Unified CCX Administration menu bar appears at the top of the page.



Note For security purposes, Cisco Unified CCX Administration logs you out after 30 minutes of inactivity, and you must log back in.

Related Topics

- [Using Unified CCX Supervisor Web Interface, page 15-6](#)
- [Using the Unified CCX User Options Web Interface, page 15-9](#)

Cisco Unified CCX Administration Menu Bar and Menus

The Cisco Unified CCX Administration menu bar appears at the top of every web page of the Unified CCX Administration web interface. You begin every Unified CCX configuration and administration task by choosing a menu and submenu option from the menu bar.

The Cisco Unified CCX Administration menu bar contains the following menu options:

- **System**—Contains options for configuring new servers in the cluster, Unified CM information, language information, changing system parameters, custom file configuration, and adding or displaying licenses. For a description of all System menu options, see [Chapter 16, “System Menu.”](#)
- **Applications**—Contains options for managing applications, scripts, prompts, grammars, documents, and AAR files. For a description of all Applications menu options, see [Chapter 17, “Applications Menu.”](#)
- **Subsystems**—Contains options for configuring parameters for the subsystems that are licensed for your Unified CCX server. Your Subsystems menu may include submenu options for one or more of the following

subsystems: Unified CM Telephony, Unified CME Telephony, Unified CCX, Cisco Unified Intelligent Contact Management Enterprise (Unified ICME) software, Database, HTTP, Email, Cisco Media, MRCP Automatic Speech Recognition (ASR), and MRCP Text-To-Speech (TTS). For a description of all Subsystem menu options, see [Chapter 18, “Subsystems Menu.”](#)

- **Wizards**—Contains options that provide access to the following wizards of your Unified CCX server: Application and RmCm. For description of these two wizard menu options, see [Chapter 19, “Wizards Menu.”](#)
- **Tools**—Contains options that allow you to access the following system tools such as Plug-ins, Real-Time Reporting, Real-Time Snapshot Config, and Historical Reporting. You can also assign access levels to administrators and supervisors and reset passwords. For a description of all Tools menu options, see [Chapter 20, “Tools Menu.”](#)
- **Help**—Provides access to online help for Unified CCX. For a description of all Help menu options, see [Chapter 21, “Help Menu.”](#)

Navigating the Cisco Unified CCX Administration Application

After you log on, the main Cisco Unified CCX Administration web page redisplay. The web page includes the drop-down list box in the upper, right corner called **Toolbar**. To access the applications in the drop-down list box, choose the program that you want and click **Go**.



Note

The minimum supported screen resolution specifies 1024x768. Devices with lower screen resolutions may not display the applications correctly.

The choices in the drop-down list box include the following Cisco Unified CCX Administration applications:

- **Cisco Unified CCX Administration**—Use Cisco Unified CCX Administration to configure system parameters, subsystems, wizards, and much more.
- **Cisco Unified CCX Serviceability**—Takes you to the main Cisco Unified CCX Serviceability web page that is used to configure trace files, alarms, and to activate and deactivate services.

- Cisco Desktop Administrator—Takes you to the main Cisco Desktop Administrator web page that is used to configure Enterprise Data, Personnel, Cisco Unified Presence Settings, and Agent E-Mail Settings.
- Cisco Unified Serviceability—Takes you to the main Cisco Unified Serviceability web page that is used to save alarms and traces for troubleshooting, provide alarm message definitions, activate and deactivate services and so on.
- Cisco Unified OS Administration—Takes you to main Cisco Unified OS Administration web page, so you can configure and administer the Cisco Unified Communications platform.
- Disaster Recovery System—Takes you to the Cisco Disaster Recovery System, a program that provides data backup and restore capabilities for all servers in a Cisco Unified CCX Administration cluster.

After you log in to Cisco Unified CCX Administration, you can access the following three applications that display in the Navigation drop-down list box in top right corner of the Administration menu bar with single sign-on:

- Cisco Unified CCX Administration
- Cisco Unified CCX Serviceability
- Cisco Desktop Administrator

**Note**

You must be an end user on the configured Unified CM with Administrator capability in Unified CCX to log in to any of the Cisco Unified CCX Administration web applications.

You can access the following three platform-based web applications using the credentials mentioned against the application:

- Cisco Unified Serviceability—Application User credentials as configured during installation of Unified CCX.
- Cisco Unified Operating System Administration—Platform User credentials as configured during installation of Unified CCX.
- Disaster Recovery System—Platform User credentials as configured during installation of Unified CCX.

To access these applications from Cisco Unified CCX Administration, you must first choose the desired application from the Navigation drop-down list box in the upper, right corner and click **Go**.

Unified CCX Configuration Web Pages

When you choose any menu and submenu option from the Unified CCX Administration menu bar, a configuration or administration web page opens. Use this web page to continue your configuration or administration task.

In some cases you will perform your configuration or administration task on this one web page.

In other cases, the web page that first opens when you choose a submenu item leads to a series of web pages. For example, the Unified CM Telephony Call Control Group Configuration web page contains both a tool bar in the top with a few icons that link to other web pages and a configuration area.

The following table describes the **Refresh All** button and the **Copy**, **Delete**, and **Refresh** icons that are found in several Unified CCX web pages.

Icon/Button	Description
Copy	Click this icon to copy the information in that specific row. Note When you click Copy icon, the web page, displays the copied configuration so you can make changes, if desired.
Delete	Click this icon to delete the information in that specific row.
Refresh	Click this icon to refresh the information in that specific row.
Refresh All	Click this button to refresh the information listed on this page.

Related Topics

- [Displaying Details for Advanced Configuration, page 2-7](#)
- [Using Tool Bar and Buttons, page 2-7](#)
- [Using Tool Bar and Buttons, page 2-7](#)
- [Using Configuration Wizards, page 2-8](#)

Displaying Details for Advanced Configuration

In Unified CCX Administration web interface, the concept of advanced configuration with the **Show More** and **Show Less** options exists. On the applicable pages, all configuration details can be displayed or reduced based on user preferences and requirements.

A page by default displays fewer parameters. Parameters configured with default values and not requiring modification or user input are now available in the advanced configuration section. You can access this advanced configuration section by clicking the **Show More** button at the bottom of the page. When you click this button, the extra parameters become visible and the button changes to **Show Less**. When you click **Show Less** button, the page reverts to its original list of parameters.



Note

If you are using Unified CCX with Cisco Contact Center Gateway solution, see the *Cisco IPCC Gateway Deployment Guide for Cisco Unified ICME/CCE/CCX*. The instructions for configuring Unified CCX with that solution differs from what is described in this guide. The Unified Gateway provides for the integration of the Unified ICME system with Unified CCX by way of Unified Gateway. See the Cisco Unified Contact Center Enterprise Install and Upgrade Guides available at http://www.cisco.com/en/US/products/sw/custcosw/ps1844/prod_installation_guides_list.html for detailed information. The Unified Gateway is a Peripheral Gateway (PG) which you configure on the Unified ICME software.

Related Topics

- [Unified CCX Configuration Web Pages, page 2-6](#)
- [Using Tool Bar and Buttons, page 2-7](#)
- [Using Configuration Wizards, page 2-8](#)

Using Tool Bar and Buttons

On the top left tool bar of many web pages, you will find a **Add New** icon and the same Add New will also be displayed as a button at the bottom of the web page also.

For example, the Unified CM Telephony Call Control Group Configuration web page contains **Add New** and **Refresh All** icons on the top left tool bar and the same are displayed as buttons at the bottom of the web page. When you click the **Add New** icon or button, another Unified CM Telephony Call Control Group Configuration web page opens. Use this area to add a new Unified CM Telephony Call Control Group.

Many web pages contain icons or buttons that perform a variety of functions. For example, the **Refresh All** button on the Unified CM Telephony Call Control Group Configuration web page refreshes all the Unified CM Telephony call control group configurations in the Unified CCX server.

A few web pages (for example, Subsystems > Database > Parameters page) also contain a **Reset to Default** icon and button. This allows you to revert to the software set defaults for each parameter on this page.

Related Topics

- [Unified CCX Configuration Web Pages, page 2-6](#)
- [Displaying Details for Advanced Configuration, page 2-7](#)
- [Using Tool Bar and Buttons, page 2-7](#)
- [Using Configuration Wizards, page 2-8](#)

Using Configuration Wizards

In Unified CCX, two wizards are available in the main menu: the Application Wizard and the RmCm Wizard.

To improve the usability and configuration process, these wizards walk you through the configuration pages in the required order and help ease the configuration process for these two features. You can access these wizards from a new main menu option called **Wizards**.

Related Topics

- [Wizards Menu, page 19-1](#)
- [Unified CCX Configuration Web Pages, page 2-6](#)
- [Displaying Details for Advanced Configuration, page 2-7](#)
- [Using Tool Bar and Buttons, page 2-7](#)



PART 2

Unified CCX: Configuration



CHAPTER 3

Unified CCX Provisioning Checklist

The following two product deployments are available for the Unified CCX:

- The Unified CM product supports both single-node and two-node (high availability) deployments.
- The Unified CME product only supports a single-node deployment.

The deployment model is transparent to the Unified CCX installer as the clustering for Unified CM is performed through the Unified CCX Administration using the Unified CCX setup wizard. HA over WAN feature of Unified CCX is supported only for Unified CM deployments and not for Unified CME deployments.



Note

This guide is applicable for both product deployments and identifies the configuration differences between the products where applicable.

The following topics introduce the Unified CCX subsystem and explain how to modify the Unified CM/Unified CME information from Unified CCX.

- [About Unified CCX, page 3-2](#)
- [Unified CCX Provisioning Checklist, page 3-3](#)

About Unified CCX

The Unified CCX system uses the Unified CCX subsystem as part of an ACD system to provide resource distribution and queueing to call centers.

See [Unified Contact Center Express, page 1-5](#) to know more about the licensing options that are available for the Unified CCX system.

Two types of routing are available:

- **Contact Service Queue (CSQ)-based routing:** CSQs are entities that route calls to your resources (agents). Each CSQ controls incoming calls and determines where an incoming call is placed in the queue and to which agent the call is sent.

Each CSQ selects resources from an associated resource pool that you define or from resource skills for all Unified CCX license packages. When an agent becomes available to take a call, the system chooses a queued call from one of the CSQs whose resource pool includes the agent, and routes that call to that agent.

- **Agent-based routing:** Agent-based routing provides the ability to send a call to a *specific* agent, rather than any agent available in a CSQ.

A Unified CCX agent can participate in both CSQ- and agent-based routing. Unified CCX agent can be any one of the following:

- Cisco Agent Desktop (CAD)
- IP Phone Agent
- Extension Mobility (EM) Agent
- Cisco Agent Desktop Business Edition (CAD-BE) Agent



Note EM agents are not supported with Unified CME deployments.

- Supervisor (if the supervisor is taking calls).



Note A supervisor who is not taking calls is not considered as an agent.

Calls are queued in the Unified CCX server and sent to agents by the Unified CCX server.

The machine you install your Unified CCX system on determines how many agents and IVR ports Unified CCX can accommodate. However, there are several general configuration rules that you should be aware of:

- Each agent cannot be associated with more than:
 - 25 CSQs. (This is a configuration design guideline; Unified CCX Administration does not enforce the rule.)
 - 50 skills. (Unified CCX Administration enforces this rule.)
- Each CSQ cannot be associated with more than 50 skills. (Unified CCX Administration enforces this rule.)
- A call should not queue for more than 25 CSQs. (This is a configuration design guideline; Unified CCX Administration does not enforce the rule.)

Related Topic

[Unified CCX Provisioning Checklist, page 3-3](#)

Unified CCX Provisioning Checklist

To provision Unified CCX, complete the following tasks:

Step	Task	For Unified CM, See...	For Unified CME, See...
Step 1	Configure Unified CME to enable interoperability with Unified CCX.	Not applicable	<p>“Provisioning Unified CCX for Unified CME” section on page 5-1</p> <p>Also see the <i>Cisco Unified Communications Manager Express 8.5(1) New Features</i>.</p>

Unified CCX Provisioning Checklist

Step	Task	For Unified CM, See...	For Unified CME, See...
Step 2	Configuring Unified CM users who will be agents in your Unified CCX system.	“Provisioning Unified CM for Unified CCX” section on page 4-1	Not applicable
	Create users and assign the agent capability to these users in Unified CCX.	Not applicable	“Managing Unified CCX Users” section on page 5-14
Step 3	Provisioning the resources information for the Unified CCX telephony and media	“Provisioning Unified CM Telephony Subsystem” section on page 7-5	“Provisioning Unified CME Telephony Subsystem” section on page 5-7
Step 4	Provisioning the RmCm Provider to allow the RmCm Subsystem to be in service.	“Configuring RmCm Provider” section on page 8-2	
Step 5	Creating resource groups.	“Configuring Resource Groups” section on page 8-4	
Step 6	Creating skills.	“Configuring Skills” section on page 8-7	
Step 7	Assigning agents to resource groups and assigning skills to agents.	“Configuring Agents” section on page 8-10	
Step 8	Creating Contact Service Queues.	“Configuring Contact Service Queues” section on page 8-17	
Step 9	Provisioning Remote Monitoring—if you are using Unified CCX Premium.	“Configuring and Using Remote Monitoring” section on page 8-30	Not applicable
Step 10	Provisioning agent-based routing—if you are using Unified CCX Enhanced or Premium.	“Configuring Agent-Based Routing” section on page 8-34	
Step 11	Creating teams and assigning agents to teams.	“Configuring Teams” section on page 8-35	

Related Topic

[About Unified CCX, page 3-2](#)

Changing the Licensing Packages

The following three license upgrade options are available for Unified CCX system:

- Standard to Premium
- Standard to Enhanced
- Enhanced to Premium

For detailed information on licensing packages, see [Application Availability by License Package, page A-2](#).

While upgrading the licenses, you need to configure certain system parameters details of which are explained below. Choose **System > System Parameters** from the Cisco Unified CCX Administration menu bar to open the System Parameters Configuration web page where you can update these values.

- **Standard to Premium or Enhanced:** Only Enhanced and Premium package licenses support Recording. When you upgrade to Enhanced or Premium license package, you need to manually change the Recording Count to a desired value to enable the recording functionality.
- **Standard or Enhanced to Premium:** You need to configure the Number of Outbound Seats while upgrading to a Premium license.

Refer to [Managing System Parameters, page 11-5](#) for more information on configuring the system parameters.



Note

Downgrade of license is not supported in Unified CCX.

■ Changing the Licensing Packages



CHAPTER 4

Provisioning Unified CM for Unified CCX

When you access Unified CCX Administration for the first time in a cluster, the system automatically initiates the cluster setup procedure once for each cluster to perform the following tasks:

- Identify Unified CCX license files
- Enter information about Unified CM Administrative XML Layer (AXL) and Unified CM Telephony and RmCm providers

You can modify the Unified CM information from Unified CCX. See the *Installation Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 8.5(1)* for detailed information on how to perform the initial system setup using the Unified CCX Administration web interface.

The following topics explain how to modify the Unified CM information from Unified CCX.

- [Configuring Unified CM Information, page 4-2](#)
- [Modifying Cluster Information from Unified CCX, page 4-2](#)
- [Modifying AXL Information, page 4-5](#)
- [Modifying Unified CM Telephony Information, page 4-8](#)
- [Modifying RmCm Provider Information, page 4-10](#)
- [Configuring Unified CM for Unified CCX, page 4-12](#)
- [Defining Unified CM Users as Agents, page 4-13](#)
- [Configuring Tool for Auto-Registered Phones Support \(TAPS\), page 4-22](#)

Configuring Unified CM Information

During initial setup of Unified CCX using the Unified CCX Administration web interface, the administrator who installed the Unified CCX should have already provided the Unified CM IP address and host name(s). The administrator must also provide the Administrative XML Layer (AXL) authentication (user ID and password) information.

The Unified CM Configuration web page allows you to configure and update the Unified CM cluster information, AXL authentication information, Unified CM Telephony subsystem information, and RmCm Provider configuration information from within Unified CCX.

This page has four blocks of information: Unified CM cluster details, AXL service details, Unified CM Telephony Provider details, and RmCm Provider details.

Related Topics

- [Modifying Cluster Information from Unified CCX, page 4-2](#)
- [Modifying AXL Information, page 4-5](#)
- [Modifying Unified CM Telephony Information, page 4-8](#)
- [Modifying RmCm Provider Information, page 4-10](#)
- [Configuring Unified CM for Unified CCX, page 4-12](#)
- [Configuring RmCm Provider, page 8-2](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)

Modifying Cluster Information from Unified CCX



Caution

If you change the cluster information, you must reconfigure the Unified CM Telephony/RmCm setup. After reconfiguring this information, you must restart the Unified CCX Engine.

**Tip**

To log back into Unified CCX Administration, you must associate a user with Administrator capabilities.

The cluster setup is derived from the information provided during the Unified CCX installation process—if configured. You can change this information at any time as required from Unified CCX. If you do change the cluster, you must provide the IP address of the AXL server to which you will move this server.

For the cluster setup change to take effect, the Administrative XML Layer (AXL) service must be enabled on the required server. If the AXL service is enabled on that server, the Unified CCX Administration attempts to access that server and updates the Unified CM cluster setup information.

To change previously-configured cluster setup information from Unified CCX, complete the following steps.

Procedure


Step 1 From the Unified CCX Administration menu bar, choose **System > Cisco Unified CM Configuration**.

The Cisco Unified CM Configuration web page opens.

Step 2 Click **Change Unified CM Cluster** icon that displays in the tool bar in the upper, left corner of the window to change the existing cluster setup for this server.

The Change CM Cluster dialog box opens.

Step 3 Use this dialog box to specify the following three mandatory fields.

Field	Description
AXL Service Provider	Provide the IP address or host name of the AXL server providing access to Unified CM.
	 <p>Note Ensure to configure multiple AXL providers running the AXL Service for a redundant system.</p>
User Name	Enter the user name for the AXL server providing access to Unified CM.
Password	Enter the corresponding password for the user account providing access to Unified CM.

Step 4 Click **OK**.

Unified CCX Administration enables that service and then tries to access the Unified CM Cluster information and update the Unified CM Configuration page.

**Note**

In a HA over WAN deployment of Unified CCX, the updated AXL Service provider information will be updated against the primary Unified CCX node. After successful change of cluster, you can configure the AXL service provider for the secondary node from the Cisco Unified CM Configuration web page by navigating to **System > Cisco Unified CM Configuration** menu option from the Unified CCX Administration menu bar.

Related Topics

- [Displaying Unified CM Cluster Nodes in Unified CCX, page 4-4](#)
- [Modifying AXL Information, page 4-5](#)
- [Modifying Unified CM Telephony Information, page 4-8](#)
- [Modifying RmCm Provider Information, page 4-10](#)
- [Configuring RmCm Provider, page 8-2](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)

Displaying Unified CM Cluster Nodes in Unified CCX

When connected to a Unified CM cluster, the Unified CM Configuration page in the Unified CCX Administration GUI only displays the IP address of one node. However, in a two-node cluster, it should show the IP addresses of both the publisher and subscriber nodes. To display both IP addresses, you must configure the Domain Name Server (DNS) suffix information (for the required nodes in the cluster) in the server in which Unified CCX is installed.

Selecting Server for Unified CM Configuration (displayed only in a HA over WAN deployment)

In a HA over WAN deployment of Unified CCX, when you choose **System > Cisco Unified CM Configuration** from the Unified CCX Administration menu bar, the **Select Server for UCM Configuration** section displays a new field called **Select Server**. You can view the different Unified CCX nodes that are available in a drop-down list. Select the node for which you want to update the Unified CM configuration and click **Go**. The Unified CM Configuration for the selected node will be displayed.

Though the user credentials are common for all the nodes in the cluster, you can select a different AXL service provider and CTI manager for each node. Thus, you can opt to associate the selected Unified CCX node with a different AXL Service Provider and CTI Manager that is local rather than those over WAN. Once you configure the data for the selected node, click **Update** to save the configuration information. The selected Unified CCX node will communicate only with the AXL service provider or CTI Manager with which it is configured. For detailed information on behaviour in HA over WAN scenario, refer to *Expected Behaviour During a Failover Guide*.

Modifying AXL Information

To change previously-configured AXL information, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **System > Cisco Unified CM Configuration**.
- Step 2** The Cisco Unified CM Configuration web page opens. Go to **AXL Service Provider Configuration** section to modify the AXL information using the following fields.

Field	Description
AXL Service Provider Configuration	
Selected AXL Service Providers	<p>Lists the AXL service providers selected by the Unified CCX user. Select the required entry and move to the opposite list box using the right and left arrows. Arrange the order of the selected entries using the up and down arrows.</p> <p>Note If you deselect the AXL service provider from the Selected list box, a Microsoft IE or Mozilla Firefox window pops up informing you about the (list of) deselected service(s). For security reasons (in case the service is being used by another AXL service provider), manually disable the AXL service only from the Unified CM.</p>
Available AXL Service Providers	<p>Lists the Unified CM entries in the cluster. Select the required entry and move to the opposite list box using the right and left arrows.</p>
Cluster Wide Parameters	

Field	Description
User Name	<p>The Unified CM User ID. This information is provided during cluster setup in the Unified CCX installation process.</p> <p>When you select an AXL Service Provider, the corresponding user name is automatically displayed in this field. This is a mandatory field.</p>
Password	<p>Password for the Unified CM User ID. This information is provided during cluster setup in the Unified CCX installation process. When you select an AXL Service Provider, the corresponding user's password is automatically displayed in this field. This is a mandatory field.</p> <p>After logging in to the Unified CCX Administration web interface, follow the steps mentioned below to update the AXL password:</p> <ol style="list-style-type: none"> a. Login to Unified CM Administration web interface and update the password for the application user (AXL provider). b. Navigate back to System > Cisco Unified CM Configuration web page of Unified CCX and enter the new password in the Password field. c. A dialog box prompts you to confirm the AXL user name and password. Re-enter the AXL user id and password and click Login. d. The system validates the data and takes you back to the Unified CM configuration page. Enter the updated password once again to validate and click Update. <p>The AXL password is updated successfully and you should be able to login to Unified CCX Administration web interface of Unified CCX with the new AXL password.</p>

- Step 3** Click **Update** icon on top of the Cisco Unified CM Configuration web page or the **Update** button that displays at the bottom of the web page to save the changes. The Unified CM Configuration web page refreshes to display the new settings.

The selected AXL services are now enabled. If the selected AXL services cannot be enabled, an error message instructs you to reselect AXL service providers.

Related Topics

- [Modifying Cluster Information from Unified CCX, page 4-2](#)
- [Modifying Unified CM Telephony Information, page 4-8](#)
- [Modifying RmCm Provider Information, page 4-10](#)
- [Configuring RmCm Provider, page 8-2](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)

Modifying Unified CM Telephony Information



Note

The Unified CM Telephony client is installed in the background after you configure the Unified CM Telephony user. The Unified CM Telephony client runs silently and verifies that the right version and the right client are installed.

Configuring the Unified CM Telephony user does not automatically install the Unified CM Telephony client. This is normally done during activation of Unified CCX engine in component activation (see *Cisco Unified Contact Center Express Serviceability Guide*). To do it manually, go to **Subsystems > Unified CM Telephony** and select **Cisco JTAPI Resync** submenu option from the Unified CCX Administration menu bar. See [Configuring a Unified CM Telephony Provider, page 7-7](#) to install the Unified Telephony client.

The latest list of CTI Managers within a cluster are listed in this section. If the Unified CM is not functioning or if the Unified CCX is not able to connect to the Unified CM for any reason, information obtained from the most recent connection is saved as a part of the bootstrap information.

To change previously-configured Unified CM Telephony information, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **System > Unified CM Configuration**.

The Cisco Unified CM Configuration web page opens.

Step 2 Scroll down to **Unified CM Telephony Subsystem - Unified CM Telephony Provider Configuration** section and reconfigure the Unified CM Telephony information using the following fields.

Field	Description
Unified CM Telephony Subsystem—Unified CM Telephony Provider Configuration	
Selected CTI Managers	Lists the CTI Managers selected by the Unified CCX user. Select the required entry and move to the opposite list box using the right and left arrows. Arrange the order of the selected entries using the up and down arrows. Note If you deselect CTI Managers from the Selected list box, a Microsoft IE or Mozilla Firefox window pops up informing you about the (list of) deselected CTI Manager(s).
Available CTI Managers	Lists the CTI Managers in the cluster. Move to the opposite list box using the right and left arrows.
Cluster Wide Parameters	
User Prefix	The syntax of the User ID is: <code><userprefix>_<nodeid></code> For example, if you set this field to cti_user , then the User ID for Node 1 will be cti_user_1 . This is a mandatory field.
Password	Password you defined for the User ID in Unified CM. If a CTI Manager is already selected, then the corresponding password is displayed in this field. This is a mandatory field.
Confirm Password	Re-enter the password that you provided in the Password field. This is a mandatory field.

Step 3 Click **Update** icon on top of the Cisco Unified CM Configuration web page or the **Update** button that displays at the bottom of the web page to save the changes.

The Unified CM Configuration web page refreshes to display the new settings.

The newly selected CTI Manager is now enabled. If the selected CTI Manager cannot be enabled, an error message instructs you to reselect CTI Managers.

**Note**

In a HA over WAN deployment of Unified CCX, the JTAPI user will be created only for the selected node. To create JTAPI user for the HA node, you have to explicitly select the HA node, make necessary updates, and click **Update**. See [Selecting Server for Unified CM Configuration \(displayed only in a HA over WAN deployment\)](#), page 4-5 section for detailed information.

Related Topics

- [Modifying Cluster Information from Unified CCX](#), page 4-2
- [Modifying AXL Information](#), page 4-5
- [Modifying RmCm Provider Information](#), page 4-10
- [Configuring Unified CM for Unified CCX](#), page 4-12
- [Configuring RmCm Provider](#), page 8-2
- [Provisioning Unified CM Telephony Subsystem](#), page 7-5

Modifying RmCm Provider Information

The list of all CTI Managers available in a cluster are saved as a part of the bootstrap information. You can change to any available CTI Managers listed in the Available CTI Managers list box in this page.

**Note**

The RmCm Provider specified through the Unified CCX Administration is automatically created in Unified CM. You do not need to use the Unified CM web interface to create the user.

To change previously-configured RmCm provider information or to configure a new RmCm Provider, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **System > Unified CM Configuration**.
- The Unified CM Configuration web page opens.
- Step 2** Scroll down to **RmCm Subsystem - RmCm Provider Configuration** and reconfigure the selected CTI Manager using the following fields.

Field	Description
RmCm Subsystems—RmCm Provider Configuration	
Selected CTI Managers	<p>Lists the CTI Managers selected by the Unified CCX user. Select the required entry and move to the opposite list box using the right and left arrows. Arrange the order of the selected entries using the up and down arrows.</p> <p>Note If you deselect CTI Managers from the Selected list box, a Microsoft IE or Mozilla Firefox window pops up informing you the list of deselected CTI Manager(s).</p>
Available CTI Managers	Lists the CTI Managers in the cluster. Select the required entry and move to the opposite list box using the right and left arrows.
User ID	<p>User prefix for the Unified CM User IDs to be created in Unified CM.</p> <p>If a CTI Manager is already selected, then the corresponding user name is displayed in this field. If you change the CTI Managers, be sure to enter the corresponding user prefix for the selected service. This is a mandatory field.</p>
Password	<p>Password you defined for the User ID in Unified CM.</p> <p>If a CTI Manager is already selected, then the corresponding password is displayed in this field. If you change the CTI Manager, be sure to enter the corresponding password for the selected service. This is a mandatory field.</p>
Confirm Password	Re-enter the password that you provided in the Password field. This is a mandatory field.

- Step 3** Click **Update** icon on top of the Cisco Unified CM Configuration web page or the **Update** button that displays at the bottom of the web page to save the changes. The Unified CM Configuration web page refreshes to display the new settings. The newly selected RmCm Provider is now enabled. If the selected RmCm Provider cannot be enabled, an error message instructs you to reselect RmCm Provider.
-

Related Topics

- [Modifying Cluster Information from Unified CCX, page 4-2](#)
- [Modifying AXL Information, page 4-5](#)
- [Modifying Unified CM Telephony Information, page 4-8](#)
- [Configuring RmCm Provider, page 8-2](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)

Configuring Unified CM for Unified CCX

To enable Unified CCX to communicate with Unified CM, you also need to assign extensions for the users who will be agents in your Unified CCX system. If you delete a Unified CCX user with Administrative rights from Unified CM, the user will not be able to log into the Unified CCX Administration web interface.



Note

Q Signalling (QSIG) and Path Replacement (PR) feature of Unified CM are not supported by Unified CCX.



Caution

When logging into Cisco Agent Desktop, agents use the Unified CM user ID and password. While the Unified CM limits agent IDs to 128 alphanumeric characters, the Unified CCX limits agent IDs to 31 alphanumeric characters. Be sure to abide by the 31 character-limit when configuring agents in Unified CM.

This section contains the following procedures:

- [Invoking Unified CM Administration, page 4-13](#)

- [Defining Unified CM Users as Agents, page 4-13](#)

Invoking Unified CM Administration

Begin the process of configuring Unified CM by connecting to the Unified CM Administration web interface.

To connect to the Unified CM Administration web interface, complete the following steps.

Procedure

Step 1 From a web browser on any computer on your network, enter the following URL: **https://servername/ccmadmin**.

In this example, *servername* is the host name or IP address of your Unified CM server.

Step 2 A Security Alert dialog box displays. Click the appropriate button.

Step 3 At the main Cisco Unified Communications Manager Administration web page, enter the Unified CM user name and password, and then click **Login**.

The Unified CM Administration web page appears.

You are now ready to use the Unified CM Administration web interface to configure users for Unified CCX.

Related Topic

[Defining Unified CM Users as Agents, page 4-13](#)

Defining Unified CM Users as Agents



Do not configure Unified CM users having same username/password as the application administration credentials (configured during install). Doing so may restrict the Unified CM when shared across multiple Unified CCX servers.

To use any version of Unified CM, you must first ensure that you define Unified CM users as Unified CCX agents in Unified CM. Once you perform this task, these Unified CCX agents can be combined into Resource Groups, assigned Skills, and placed in CSQs.

**Note**

In Unified CCX, this operation is called “associating a device.”

**Note**

Languages like Cyrillic use 2 bytes per character. Some of the desktop applications do not support more than 16 characters. Ensure that the first name, the last name, and the user ID of the agent for these languages are restricted to 16 characters each.

This section contains the following topics:

- [Guidelines for Configuring Agent Phones, page 4-14](#)
- [Assigning Unified CM Users as Cisco TelePresence Virtual Agents, page 4-16](#)
- [Assigning Unified CM Users as Unified CCX Agents, page 4-18](#)

Related Topic

[Invoking Unified CM Administration, page 4-13](#)

Guidelines for Configuring Agent Phones

Follow these guidelines when configuring agent phones for Unified CCX agents:

- Choose **Device > Phone** in the Unified CM Administration. The Find and List Phones window displays. Enter search criteria to locate a specific phone and click **Find**. A list of phones that match the search criteria displays. Click the device name of the phone to which you want to add a directory number. The Phone Configuration window displays. In the Unified CM Administration Phone Configuration web page, select the required Association Information (on the left) to get to the Directory Number Configuration web page. In this page, make the following changes:
 - In the Multiple Call/Call Waiting Settings section, set the Maximum Number of Calls to 2 (default is 4) for TNP phones and 3 for RT phones.

- In the Multiple Call/Call Waiting Settings section, set the Busy Trigger value to 1 (default is 2).
- In the Call Forward and Call Pickup Settings section, verify that you do not forward any Unified CM device to the Unified CCX extension of an agent.
- In the Call Forward and Call Pickup Settings section, verify that you do not configure the Unified CCX extension of an agent to forward to a Unified CCX route point.
- Always disable (off) Secure Real-Time Transport Protocol (SRTP) when configuring a Cisco Unified Communications product. You can disable SRTP for a specified device or for the entire Unified CM:
 - For a specified device: Choose **Device > Phone**. In the Find and List Phone page, select the required phone device. In the Phone Configuration page for the selected phone, scroll down to the Protocol Specific Information section. To turn off SRTP on the phone device, select any one of the **Non Secure SCCP Profile auth by** choices from the drop-down list of **SCCP Phone Security Profile** or **SCCP Device Security Profile** field.
 - For the entire Unified CM cluster: Choose **System > Enterprise Parameters**. In the Enterprise Parameters Configuration page, scroll down to the Securities Parameters section, to verify that the corresponding value for the Cluster Security Mode field is 0. This parameter indicates the security mode of the cluster. A value of 0 indicates that phones will register in non-secure mode (no security).
- The UCCX extension for the agent must be listed within the top 4 extensions on the device profile. Listing the extension from position 5 on will cause UCCX to fail to monitor the device, hence the agent will not be able to log in.
- Do not forward any Unified CM device to the Unified CCX extension of an agent.
- Do not configure the Unified CCX extension of an agent to forward to a Unified CCX route point.
- Do not use characters other than the numerals 0 - 9 in the Unified CCX extension of an agent.
- Do not configure two lines on an agent's phone with the same extension when both lines exist in different partitions.
- Do not assign a Unified CCX extension to multiple devices.

- Do not configure the same Unified CCX extension in more than one device or device profile. (Configuring a Unified CCX extension in one device or device profile is supported.)
- To use Cisco Unified IP Phones 9900 Series, 8900 Series and 6900 Series as agent devices, the RmCm Application user in Unified Communications Manager needs to have 'Allow device with connected transfer/conference' option assigned to itself.

To determine a list of Unified CCX agent devices supported by the Cisco Agent Desktop, see the *Cisco Unified CCX Software and Hardware Compatibility Guide* for active releases available at:

http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_device_support_tables_list.html.

Related Topics

- [Invoking Unified CM Administration, page 4-13](#)
- [Assigning Unified CM Users as Unified CCX Agents, page 4-18](#)

Assigning Unified CM Users as Cisco TelePresence Virtual Agents

The Cisco TelePresence application enables enterprises to create a live, face-to-face interaction with customers over the network. This solution allows rapid deployment of a virtual contact center infrastructure, Agents using Cisco TelePresence are referred to as virtual agents in this guide. Virtual agents connect to callers using Unified CCX thus incorporating ACD, CAD, CTI, and Unified IP IVR with Cisco Unified CM and providing the entire solution on one server.



Note

For more information on the Cisco TelePresence solution, see <http://www.cisco.com/en/US/products/ps7060/index.html>.

The following guidelines apply for the Cisco TelePresence integration with Unified CCX:

- The only commonly-supported codec for Unified CCX and Cisco TelePresence is G711.
- The following supervisor features are not supported:
 - Monitoring and recording is not supported for Cisco TelePresence integration with Unified CCX.

- Due to the unavailability of third-party call control, Cisco Supervisor Desktop (CSD) features, barge-in, and intercept are not supported.
- You will not be able to use the call control Cisco Agent Desktop (CAD) features (hold, unhold, answer, transfer, conference, Make Call, and touch tone). Be sure to remove or disable these features from CAD as specified in [Step 4](#) in the following procedure.

Follow this procedure to assign Unified CM users as virtual agents:

Procedure

Step 1 Identify the required Cisco TelePresence system that should participate as a virtual agent in the Unified CCX application.

- a. Note the Unified CM extension of the Cisco TelePresence deployment.



Note The Cisco Unified IP Phone 7970G phone and Cisco TelePresence system must be assigned the same extension in Unified CM as they both share the same line.

- b. Note the MAC address or the Directory Number of the Cisco Unified IP Phone 7970G phone connected to the identified Cisco TelePresence system.



Tip From the Unified CCX perspective, this is another SIP end point.

Step 2 Associate the Cisco Unified IP Phone 7970G phone with the Unified CM user to configure this user as a virtual agent (see [Defining Unified CM Users as Agents, page 4-13](#)).

Step 3 Associate the Cisco Unified IP Phone 7970G phone with the RmCm provider (see [Configuring RmCm Provider, page 8-2](#)).



Note Do not associate the corresponding Cisco TelePresence system with the RmCm provider.

Step 4 Customize the Cisco Agent Desktop workflow groups (see [Cisco Desktop Administrator User's Guide](#)).

**Tip**

All the Cisco Agent Desktop call control buttons must be disabled as third-party call control will not be available for the Cisco TelePresence integration with Unified CCX.

Assigning Unified CM Users as Unified CCX Agents

**Warning**

Do not configure Unified CM users having same username/password as the application administration credentials (configured during install). Doing so may restrict the Unified CM when shared across multiple Unified CCX servers.

RmCm uses the Unified CM database to determine which devices it can control and provides an interface method for getting the Media Access Control (MAC) address of the calling party.

After you install RmCm, you have access to the Unified CM database. The database stores parameters that initialize Unified CM Telephony, user profiles, application logic, network-specific configuration information, and Directory Number Associations such as Primary Extension and Unified CCX Extension.

The Primary Extension field represents the primary directory number for the end user. End users can have multiple lines on their phones. From the drop-down list box, choose a primary extension when associating devices for this end user.

Unified CCX Extension allows you to define Unified CM users as Unified CCX agents in Unified CM.

To assign Unified CCX devices to end users and application users in the Unified CM, these users must first exist in Unified CM. If these users do not exist, you must first add the users. See the *Cisco Unified Communications Manager Administration* guide to obtain detailed information about the Unified CCX web interface and configuration procedures. After adding the end user and the application user, be sure to modify their Unified CCX settings (see [Modifying Existing Unified CM Users](#)).

Modifying Existing Unified CM Users

**Note**

Be sure to assign Unified CCX devices to both end users and application users in the Unified CM web interface.

To assign devices to an end user, you must access the End User Configuration window for that user. The End User Configuration window in Unified CM Administration allows the administrator to add, search, display, and maintain information about Unified CM end users.

To assign devices to an application user, you must access the Application User Configuration window for that user. The Application User Configuration window in Unified CM Administration allows the administrator to add, search, display, and maintain information about Unified CM application users.

To modify the Unified CCX Extension settings for existing Unified CM users who are Unified CCX agents, complete the following steps.

Procedure

Step 1

Connect to the Unified CM Administration web interface.

For information about connecting to the Unified CM Administration web interface (see [Invoking Unified CM Administration, page 4-13](#)).

The Unified CM Administration web page appears.

Step 2

From the Unified CM Administration menu bar, choose **User Management > End User**.

The Find and List End Users page displays. Use the two drop-down list boxes to search for an end user.

**Tip**

To find all end users registered in the database, click **Find** without entering any search text. A list of discovered end users displays. If you choose to do this step, skip to [Step 6](#).

Step 3

From the first Find end user where drop-down list box, choose one of the listed criteria.

- Step 4** From the second Find end user where drop-down list box, choose one of the listed criteria,
- Step 5** Specify the appropriate search text, if applicable, and click **Find**.
A list of discovered end users displays.
- Step 6** From the list of records, click the end user name that matches your search criteria.
The End User Configuration page opens displaying the configuration information for the end user that you chose.
- Step 7** In the Controlled Devices list box below the Device Information section, select the device and click the Down arrow below the Available Profiles list box. If the device that you want to associate with this end user is not displayed in this pane, do the following to associate devices with an end user:
- a. From the Device Information pane, click **Device Association**. The User Device Association page opens.
 - b. Finding a Device - Because you may have several devices in your network, Cisco Unified Communications Manager lets you locate specific devices on the basis of specific criteria. Click **Find**. All or matching records display. You can change the number of items that display in each page by choosing a different value from the Rows per Page drop-down list box.
 - c. Associating a Device - From the Device association for (this particular user) pane, choose the devices that you want to associate with this end user by checking the box to the left of the device name(s). You can also use the buttons at the bottom of the window to select and deselect devices to associate with the end user.
 - d. To complete the association, click **Save Selected/Changes**.
 - e. From Related Links drop-down list box in the upper, right corner of the web page, choose Back to User, and click **Go**.
 - a. The End User Configuration page displays, and the associated devices that you chose display in the Controlled Devices pane.
- Step 8** Select the required device, if you are not using the Extension Mobility feature, and save your changes to associate that device with this end user.
If you are using Extension Mobility feature, associate the User Device Profile, not the device, with this end user.

After the device is associated, the Controlled Devices field displays the description information (for example, the MAC address) that the end user controls.

Step 9 In the End User Configuration page, scroll down to the **Directory Number Associations** section.

Step 10 In the **Primary Extension** field drop-down list and the **IPCC Extension** field drop-down list, choose the required agent extension for this device.

These fields represent the primary directory number for the end user. End users can have multiple lines on their phones. If you have a single line, be sure to select the same extension for both fields.

Step 11 Click **Update** to apply the changes.

The specific End User Information page for this user appears, with the message that the update was successful.

Step 12 From the Unified CM Administration menu bar, choose **User Management > Application User**. RmCm Providers are referred to as application users in Unified CM.



Note When you associate one device with the Unified CCX agent (end user) and you are not using the Extension Mobility feature, you must also be sure to associate the same device with the Unified CCX RmCm Provider (application user).
If you are using the Extension Mobility feature, associate the device profile, instead of the device, with the RmCm Provider (application user).

The Find and List Application Users window displays. Use the two drop-down list boxes to search for the application users in Unified CM.



Tip To find all application users registered in the database, click **Find** without entering any search text. A list of discovered end users displays. If you choose to do this step, skip to [Step 16](#).

Step 13 From the first Find application user where drop-down list box, choose one of the listed criteria.

Step 14 From the second Find application user where drop-down list box, choose one of the listed criteria,

- Step 15** Specify the appropriate search text, if applicable, and click **Find**.
A list of discovered application users displays.
- Step 16** From the list of records, click the application user name that matches your search criteria.
The window displays the application user that you choose.
- Step 17** Repeat [Step 7](#) and [Step 8](#) for the selected Application User.
These steps ensure that the Unified CM application users are also defined as Unified CCX agents in Unified CM.
- Step 18** Click **Update** to apply the changes.
The specific Application Information page for this user appears, with the message that the update was successful.
See the “**User Management Configuration**” section in *Cisco Unified Communications Manager Administration* guide for detailed information on how to configure an End User and Application User using Unified CM.
Now that you have defined the agent in Unified CM, you can configure agents in Unified CCX (see [Configuring Agents, page 8-10](#)). Subsequent to that, you will also need to configure resource groups (see [Configuring Resource Groups, page 8-4](#)) and CSQs (see [Creating a CSQ, page 8-18](#)).
-

Related Topics

- [Guidelines for Configuring Agent Phones, page 4-14](#)
- [Invoking Unified CM Administration, page 4-13](#)
- [Configuring Agents, page 8-10](#)

Configuring Tool for Auto-Registered Phones Support (TAPS)

The Tool for Auto-Registered Phone Support (TAPS) loads a preconfigured phone setting on a phone. The TAPS works in conjunction with the Bulk Administration Tool (BAT). After the BAT is used to bulk add phones with dummy MAC addresses to Cisco Unified Communications Manager Release 8.5(1) (Unified CM) Administration, you can plug the phones into the network.

The administrator or the phones' users can then dial a TAPS directory number that causes the phone to download its configuration. At the same time, the phone gets updated in the Unified CM database with the correct MAC address of the phone. Refer to *Configuring the Bulk Administration Tool (BAT)* if you are not familiar with the BAT.

For the TAPS to function, you must make sure that Auto-registration is enabled in Cisco Unified CM Administration (select **System** > **Cisco Unified CM**). Follow the instructions mentioned in the procedure below to install and configure TAPS application with Unified CCX 8.5(1).

Procedure

- Step 1** Login to Cisco Unified CM Administration Release 8.5(1) and choose **Application** > **Plugins** from the Cisco Unified CM Administration menu bar.
- Step 2** In the Find and List Plugins web page, search for "Cisco TAPS" and click **Find**.
- Step 3** Download the TAPS_AAR.aar file to your client PC, which is used for accessing Unified CM Administration and Unified CCX Administration.
- Step 4** Install Unified CCX 8.5(1) using the procedure mentioned in *Installing Cisco Unified Contact Center Express Release 8.5(1) Guide*. Complete steps 1 to 15 mentioned in "Performing the Initial Setup for a Deployment with Cisco Unified CM" section of the *Installing Cisco Unified Contact Center Express Release 8.5(1) Guide*.
- Step 5** After completing Steps 1 to 15, do the following from User Configuration page in Unified CCX Administration:
- In the Cisco Unified CM Users list box, select the Cisco Unified CM user whom you want to designate as the Cisco Unified CCX administrator and who can configure TAPS.
 - Click the **left arrow** (<) to move the selected user to the Cisco Unified CCX Administrator list box.
 - Click **Finish**. The Cisco Unified CCX Setup Result Information window displays. This window confirms the result of the initial setup. The Cisco Unified CCX engine will restart.
 - Close your web browser.

- Step 6** Login to Cisco Unified CCX Administration as the Unified CCX application administrator, who can configure TAPS. After installing and configuring Unified CCX 8.5(1) and Unified CM, follow the procedure below to setup TAPS.
- a. From the Unified CCX Administration menu bar, choose **Applications > AAR Management**. Click **Browse** button and upload the TAPS_AAR.aar file downloaded in Step 3 from Unified CM.
 - b. On successful upload, you will see a confirmation message in the status bar on top of the AAR Management web page.

**Note**

For TAPS configuration, you need to restart the Unified CCX engine and Unified CCX Cluster View Daemon (CVD). You can restart the CVD using the CLI command - **utils service <service name> stop/start**.

- c. After restarting the CVD, login once again to Cisco Unified CCX Administration as the Unified CCX application administrator. From the Unified CCX Administration menu bar, choose **Subsystems > Unified CM Telephony > Call Control Group**. Click **Add New** and provide the Call Control Group Configuration values for TAPS using the following fields:
 - Group ID
 - Number of CTI Ports
 - Media Termination Support
 - Device Name Prefix
 - Starting Directory Number
- d. From the Unified CCX Administration menu bar, choose **Subsystems > Cisco Unified CM Telephony > Triggers**. Click **Add New** and specify values for the following mandatory fields:
 - Directory Number
 - Language
 - Application Name
 - Device Name
 - Description
 - Call Control Group: The call control group types can be Inbound or Outbound for Unified CCX running with Unified CM.

- e. Choose **Subsystems > Cisco Unified CM Telephony > Data Resync** from the Cisco Unified CCX Administration menu bar to check and resynchronize the JTAPI data between Cisco Unified CM and Cisco Unified CCX.
 - f. From the Unified CCX Administration menu bar, choose **Applications > Application Management**. The Application Management web page opens displaying the details of existing applications.
 - g. Click **Add New** icon or button. The Add a New Application web page opens.
 - h. From the Application Type drop-down menu, choose **Cisco Script Application** and click **Next**. The Cisco Script Application configuration web page opens.
 - i. In the Script field, select the script “/TAPS.aef” from the drop-down list and enter the IP address of the Cisco Unified CM in the text box below the Script drop-down list.
 - j. Check the check box against **Cisco_Unified_CM_IP_Address** field.
 - k. Click **Yes** radio button in the Enabled field.
 - l. Click **Update**.
 - m. Login to Cisco Unified CM Serviceability Page and restart the TAPS Service.
-



CHAPTER 5

Provisioning Unified CCX for Unified CME

After you complete the initial setup of Unified CCX (see the *Installation Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 8.5(1)*), you will have identified the information that Unified CCX requires to provision Unified CME for Unified CCX (see [Interoperability between Unified CCX and Unified CME, page 5-4](#)). You can modify the Unified CME information from Unified CCX.

The following topics explain how to modify the Unified CME information from Unified CCX.

- [Introducing Unified CME for Unified CCX, page 5-1](#)
- [Verifying Licenses, page 5-5](#)
- [Modifying Unified CME Information from Unified CCX, page 5-5](#)
- [Configuring the AXL User in Unified CCX, page 5-6](#)
- [Provisioning Unified CME Telephony Subsystem, page 5-7](#)
- [Managing Unified CCX Users, page 5-14](#)
- [Identifying Agent Directory Numbers, page 5-18](#)

Introducing Unified CME for Unified CCX

Unified CCX enables interoperability with Unified CME, Release 4.2 and later. This interoperability allows for the following functions:

- Configuration query and update between Unified CCX and Unified CME.

- SIP-based simple and supplementary call control services including call routing between Unified CME and Unified CCX using SIP-based route point.
- Unified CCX keep alive session management of Unified CME.
- Unified CCX device and call monitoring of agent lines and call activities in Unified CME.
- Support of Unified CCX 8.5(1) Cisco Agent Desktop for use with Unified CME.

This section includes the following topics:

- [Guidelines, page 5-2](#)
- [Supported Features, page 5-3](#)
- [Interoperability between Unified CCX and Unified CME, page 5-4](#)
- [Unified CCX Provisioning Checklist, page 3-3](#)

Guidelines

The following guidelines apply when using the Unified CME product for Unified CCX:

- In the Unified CME Telephony subsystem the concept of CTI Ports does not exist. When a call is offered at a CME Telephony Route Point, the route point accepts the call. The call is not transferred to a CTI Port.
- The Unified CME Telephony subsystem only supports G711 codec prompts.
- Unified CME Telephony users are stored locally in the Unified CCX Database.
- Unified IP Phone Agents are limited to one Unified CCX for each Unified CME product.
- The Unified CME Telephony subsystem supports only SCCP Phones as agent devices.
- Only incoming calls from PSTN trunk are supported for deployment of the interoperability feature between Unified CME and Unified CCX. Other trunks, such as SIP and H.323, are supported as usual in Unified CME, however, not for customer calls to Unified CCX. For more information on deployment models, see [Deployment Models, page 5-4](#)

Related Topics

- [Supported Features, page 5-3](#)
- [Interoperability between Unified CCX and Unified CME, page 5-4](#)
- [Unified CCX Provisioning Checklist, page 3-3](#)
- [Configuring Unified CCX Applications, page 1-17](#)

Supported Features

The following Unified CCX features are supported by the Unified CME product for Unified CCX:

- Unified CCX as a whole
- Limited CAD Functionality
- Limited CSD Functionality

For more information on Unified CCX features that are not supported by the Unified CME offering, see the *Release Notes for Cisco Unified Contact Center Express and Cisco Unified IP IVR, Release 8.5(1)*.

Related Topics

- [Guidelines, page 5-2](#)
- [Interoperability between Unified CCX and Unified CME, page 5-4](#)
- [Unified CCX Provisioning Checklist, page 3-3](#)

Interoperability between Unified CCX and Unified CME

Table 5-1 identifies the tasks to configure interoperability between Unified CCX and Unified CME.

Table 5-1 Tasks to Configure Interoperability between Unified CCX and Unified CME

Step	Task	Name of Document
1	Verify that the appropriate version of Unified CME is installed on the router.	See the <i>Configuring Interoperability with Cisco Unified CCX</i> chapter in the <i>Cisco Unified Communications Manager Express System Administrator Guide</i> .
2	Configure the Unified CME router. Tip Note the AXL user ID, password, and the router's IP address.	
3	Configure Unified CME to enable interoperability with Unified CCX.	
4	Install Unified CCX for Unified CME.	See the <i>Installation Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 8.5(1)</i> .
5	Launch the setup wizard on Unified CCX and go through the setup for the Unified CME. Tip When setup launches, you are asked for the AXL user ID and password that you created in Unified CME. You also need to enter the router IP address.	
6	Configure Unified CME Telephony Subsystem to enable interoperability with Unified CCX.	Provided in this chapter of the <i>Cisco Unified CCX Administration Guide</i> .
7	Create users and assign the agent capability to these users in Unified CCX.	

Deployment Models

- **Examples of Supported Deployments:**
 - PSTN -- PRI -- CME -- UCCX
 - PSTN -- BRI -- CME -- UCCX
 - PSTN -- FXO/FXS -- CME -- UCCX
 - PSTN -- T1 CAS -- CME -- UCCX

- **Examples of Unsupported Deployments:**
 - SIP Provider -- CME -- UCCX
 - Provider -- H.323 Trunk -- CME -- UCCX

Related Topics

- [Guidelines, page 5-2](#)
- [Supported Features, page 5-3](#)
- [Unified CCX Provisioning Checklist, page 3-3](#)

Verifying Licenses

Licenses are installed for the first time in the Unified CCX setup wizard. Once you have uploaded the licenses, the Unified CME Telephony Call Control Group is automatically created.

Related Topics

- [Viewing License Information, page 1-14](#)
- [Display Licenses, page 16-6](#)
- [Add License\(s\), page 16-6](#)

Modifying Unified CME Information from Unified CCX

During the Unified CCX setup process, the administrator provides the Unified CME IP address and host name(s) and the Administrative XML Layer (AXL) authentication (user ID and password) information. You can change this information at any time as required from Unified CCX. If you do change the information, you must provide the IP address of the AXL server to which you will move this server.

Related Topics

- [Introducing Unified CME for Unified CCX, page 5-1](#)
- [Verifying Licenses, page 5-5](#)
- [Configuring the AXL User in Unified CCX, page 5-6](#)

- [Provisioning Unified CME Telephony Subsystem, page 5-7](#)
- [Managing Unified CCX Users, page 5-14](#)
- [Identifying Agent Directory Numbers, page 5-18](#)

Configuring the AXL User in Unified CCX

To change previously-configured Unified CME setup information from Unified CCX, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **System > Cisco Unified CME Configuration**.

The Unified CME Configuration web page opens. This page facilitates configuration of Unified CME server information, which is required to authenticate the AXL Service of the Unified CME server.

Step 2 Use this web page to specify the following fields.

Field	Description
Unified CME server host name or IP address	IP address or Host name of the Unified CME router.
AXL User ID	User name for the AXL server providing access to Unified CME. The user name is created on the Unified CME router.
AXL User Password	The corresponding password for the user account providing access to Unified CME. The user name is created on the Unified CME router.



Note The above-mentioned fields are mandatory.

Step 3 Click **Update**.

Unified CCX Administration enables that service and then tries to access the Unified CME information and updates the page.

Provisioning Unified CME Telephony Subsystem

The Unified CCX Engine uses the Unified CME Telephony subsystem to open a logical session with Unified CME. This session verifies provider authentication, periodically exchanges heartbeats, and monitors Unified CME availability after successful authentication. The Unified CME Telephony subsystem is available with all Unified CCX license packages.

To enable your Unified CCX server to handle Cisco Unified Communications requests, you will need to provision the Unified CME Telephony subsystem.

From the Unified CCX Administration GUI, you can configure and update the Unified CME Telephony subsystem information.

To provision the Unified CME Telephony subsystem, complete the following tasks:

Step	Task	For instructions, see
1	Configure a Unified CME Telephony Provider, if not already configured. Specify the router on which Unified CME is running, and provide a Unified CME user ID and password.	Configuring a Unified CME Telephony Provider, page 5-9
2	Validate Unified CME and Unified CCX versions.	Validating Unified CME and Unified CCX Data, page 5-8
3	Provision Unified CME Telephony call control groups.	Modifying Unified CME Telephony Call Control Group, page 5-10
4	Provision a Unified CME Telephony trigger. Unified CME Telephony triggers invoke application scripts in response to incoming contacts.	Adding or Modifying a Unified CME Telephony Trigger, page 5-11

Related Topics

- [Provisioning Unified CME Telephony Subsystem, page 5-7](#)

- [Managing Unified CCX Users, page 5-14](#)
- [Introducing Unified CME for Unified CCX, page 5-1](#)
- [Verifying Licenses, page 5-5](#)
- [Modifying Unified CME Information from Unified CCX, page 5-5](#)
- [Configuring the AXL User in Unified CCX, page 5-6](#)
- [Managing Unified CCX Users, page 5-14](#)
- [Identifying Agent Directory Numbers, page 5-18](#)

Validating Unified CME and Unified CCX Data

Use the validate tool when the configuration in Unified CCX and Unified CME are not synchronized. You can also use this tool to perform a comparison between the Unified CCX and Unified CME configurations. For example, if the router configuration does not match the configuration stored in the Unified CCX database, you can run the validate tool to verify the missing information.



Tip

You can only run this tool when Unified CME is accessible from Unified CCX.



Caution

This tool does not perform the resynchronization, it only points out the problems.

To validate the Unified CME and Unified CCX data, choose **Subsystems > Cisco Unified CME Telephony > Validate Cisco Unified CME in Cisco Unified CCX** from the Unified CCX Administration menu bar. The Validation Results web page opens, displaying the summary and status of the validation.

Related Topics

- [Configuring a Unified CME Telephony Provider, page 5-9](#)
- [Modifying Unified CME Telephony Call Control Group, page 5-10](#)
- [Adding or Modifying a Unified CME Telephony Trigger, page 5-11](#)

Configuring a Unified CME Telephony Provider

The Unified CME Telephony provider opens a logical session with Unified CME to detect the state of the connection. This session verifies provider authentication, periodically exchanges heartbeats, and continues to monitor Unified CME availability after successful authentication.

Absence of the heartbeats might be caused by various issues. See the Troubleshooting Wiki page:

http://docwiki.cisco.com/wiki/Troubleshooting_Unified_Contact_Center_Express for more details.

The Unified CME Telephony Providers area of the Unified CME Telephony Configuration web page is a configurable page that displays the latest configured information.

To modify the Unified CME Telephony subsystem, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Cisco Unified CME Telephony > Cisco Unified CME Telephony Provider**.

The Unified CME Telephony Configuration web page opens displaying the fields mentioned in the following table:

Field	Description
Remote Cisco Unified CME Telephony Port	Enter the SIP port number used by Unified CME to communicate with Unified CCX. This is a mandatory field and the default value is 5060.
Local Cisco Unified CME Telephony Port	This read only field provides the port number of the available port in Unified CCX. The default value is 5062.
User Agent	This read-only field provides a description of the owner for this connection.
Keep Alive Interval	If a keep alive message is not received for more than the time period specified in this field, then the connection between Unified CCX and Unified CME is considered broken. This is a mandatory field.
Session Server ID	This read only field provides the auto-generated unique ID for the Unified CCX server.

Field	Description
Transport	Specify the required protocol to send the keep alive messages. This is a mandatory field and only the TCP Protocol is accepted.
Outbound Trigger DN	This user-specified trigger must be created before the Unified CME Telephony triggers are created. Unified CCX uses this trigger to place calls outside of the Unified CCX. This is a mandatory field.

- Step 2** Click **Update** icon that displays in the tool bar in the upper, left corner of the window or the **Update** button that displays at the bottom of the window to save the changes.

Related Topics

- [Validating Unified CME and Unified CCX Data, page 5-8](#)
- [Modifying Unified CME Telephony Call Control Group, page 5-10](#)
- [Adding or Modifying a Unified CME Telephony Trigger, page 5-11](#)

Modifying Unified CME Telephony Call Control Group

The Unified CME Telephony call control group is automatically added based on license. It is created when you upload the license. The number of channel equals the licensed IVR ports.

The Unified CME Telephony Call Control Group Information web page is read-only and cannot be modified.

Related Topics

- [Validating Unified CME and Unified CCX Data, page 5-8](#)
- [Configuring a Unified CME Telephony Provider, page 5-9](#)
- [Adding or Modifying a Unified CME Telephony Trigger, page 5-11](#)

Adding or Modifying a Unified CME Telephony Trigger

Unified CME Telephony triggers define the route point to which a directory number is associated. A Unified CME Telephony trigger responds to calls that arrive on a specific route point by selecting telephony and media resources to serve the call and invoking an application script to handle the call. The Unified CME Telephony triggers are available with all Unified CCX license packages.

Unified CME Telephony trigger settings include:

- **Directory Number** information, such as the Voice Mail Profile and Calling Search Space.
- **Application** information, such as the application name to associate with the trigger.
- **Session** information, such as the application to associate with the trigger, Maximum Number of sessions allowed, and the Idle Timeout value.

To add or modify a Unified CME Telephony trigger, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Cisco Unified CME Telephony > Cisco Unified CME Telephony Triggers**.

The Unified CME Telephony Trigger Configuration web page opens.



Note You can access the Unified CME Telephony Configuration web page only when the Unified CCX Engine is running.

- Step 2** The following table describes the different fields on this page.

Field	Description
Directory Number	A unique phone number.
Application	Application name to associate with the trigger.
Sessions	Maximum number of simultaneous calls that the trigger can handle.
Enabled	True if the trigger is enabled; False if the trigger is disabled.

- Step 3** Click **Add New** icon in the tool bar in the upper, left corner of the window or **Add New** button at the bottom of the window. To modify Unified CME Telephony trigger information for an existing record, click the specific record.
- Step 4** The Unified CME Telephony Trigger Configuration web page opens. Use this web page to add or update values in the following fields:

Page Area	Field	Description
Directory Information	Directory Number	<p>A unique phone number. The value includes numeric characters, preceded or appended by the following special characters:</p> <p># * [] X -</p> <p>Examples of valid Directory Numbers: *#12#* or 12*23</p> <p>Examples of invalid Directory Numbers: 91X+, 91X?, 91!, 813510[^0-5] as it contains a character other than numerical and allowed special characters or 8]90[-, as it doesn't conform with the rule that the square bracket ([]) characters enclose a range of values. This is a mandatory field.</p> <p>Note See the <i>Wild cards and Special Characters in Route Patterns and Hunt Pilots</i> section in the <i>Cisco Unified Communications Manager System Guide</i> for more information.</p>
Trigger Information	Language	<p>Drop-down menu, choose the default language to associate with the incoming call when the application is started. This is a mandatory field.</p>
		<p>Note To add a Language option, click Edit button. The User Prompt dialog box opens. Enter a locale string value and click OK. The User Prompt dialog box closes, and the name of the language opens in the Language field in the Unified CME Telephony Configuration web page.</p>
	Application Name	<p>Drop-down menu, choose the application to associate with the trigger. This is a mandatory field.</p>

Page Area	Field	Description
Advanced Trigger Information (Click Show More to see these settings.)	Enabled	Default = Enabled (Yes). Radio buttons, choose the required option: Yes - enable the trigger. No - disable the trigger.
	Maximum Number of sessions	The maximum number of simultaneous calls that this trigger can handle. The number is actually governed by the Unified CM (10,000 for each separate line). However in Unified CCX, this number is restricted to the maximum number of sessions. Any call exceeding this number gets the busy tone.
	Idle Timeout (in ms)	Default = 5000ms. The number of milliseconds (ms) the system should wait before rejecting the Unified CME Telephony request for this trigger.
	Call Control Group	Default = Media Termination. A read-only field displaying the call control group to associate with the trigger. To override this default, select Yes in the Override Media Termination field. By default, only one Unified CME Telephony Call Control Group is (Default Call Control Group) is created during the setup process.
	Override Media Termination	Radio buttons, choose the required option: Yes - Override media termination. No - Enable media termination. Default = Media Termination. If you select Yes, two panes open: <ul style="list-style-type: none"> Selected Dialog Groups displays the default or selected group. Available Dialog Groups lists the configured dialog groups. Use the left and right arrow to move the required dialog group to the Selected Dialog Group pane. You can add dialog groups when adding a new dialog group via ASR/TTS. Only two dialog groups are allowed to be added to Unified CME deployment.
	Description	Description of the trigger.
	Call Control Group	Displays the group type information in the drop down box for selecting the call control group.

Step 5 Click **Add** icon at the top of the page.

The Unified CME Telephony Trigger Configuration web page opens, and displays the new Unified CME Telephony trigger.

To add a new Cisco Media Termination (CMT) dialog control group, click **Add New CMT Dialog Control Group** icon that displays in the tool bar in the upper, left corner of the window. The Cisco Media Termination Dialog Group Configuration web page opens. Follow the steps mentioned in [Adding a CMT Dialog Control Group, page 7-24](#) for detailed instructions on how to add a new CMT dialog control group.

Related Topics

- [Validating Unified CME and Unified CCX Data, page 5-8](#)
- [Configuring a Unified CME Telephony Provider, page 5-9](#)
- [Modifying Unified CME Telephony Call Control Group, page 5-10](#)
- [Adding a CMT Dialog Control Group, page 7-24](#)

Managing Unified CCX Users

Unlike Unified CM users, Unified CCX users on Unified CME are configured and managed by Unified CCX.

A Unified CCX user on Unified CME can be assigned one of the following Unified CCX capabilities: Administrator, Supervisor, Reporting, or Agent.

This section includes the following topics:

- [Assigning Capability Views to Unified CCX Users in a Unified CME Deployment, page 5-15](#)
- [Creating New Unified CCX Users in a Unified CME Deployment, page 5-15](#)

Related Topics

- [User Management Menu Option, page 20-12](#)
- [About Unified CCX User Capabilities, page 15-2](#)

Assigning Capability Views to Unified CCX Users in a Unified CME Deployment

You can assign a capability after you create the Unified CME user or when you are creating the Unified CME user. To assign a capability when creating a Unified CME user, see [Creating New Unified CCX Users in a Unified CME Deployment, page 5-15](#).

To assign a capability to a pre-existing Unified CME user in Unified CCX, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Tools > User Management > Administrator Capability View or Supervisor Capability View or Reporting Capability View or Agent Capability View**.
- The User Configuration web page displays with two panes. The pane on the right always displays the list of Available Users and the left pane changes to display the users assigned to the selected view.
- Step 2** Change the users as required for each view using the arrow in either direction. Your changes are displayed in this page and must be saved to the database.
- Step 3** Click **Update** icon that displays in the tool bar in the upper, left corner of the window or the Update button that displays at the bottom of the window to save the changes to the database.
- Step 4** Repeat this process as needed to assign the required capability for each user. See [About Unified CCX User Capabilities, page 15-2](#) for detailed description of each roles.
-

Creating New Unified CCX Users in a Unified CME Deployment

You can create new Unified CME users from Unified CCX at any time. When creating these users, you can simultaneously assign the capability level.

To create a new Unified CME user and to assign a capability in Unified CCX, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Tools > User Management > User View**.
- The User Configuration web page opens.
- Step 2** Click **Create New User** icon that displays in the tool bar in the upper, left corner of the window.
- The User Configuration page reopens where you can specify values for the following fields:

Field	Description
User ID	Unique identifier for this new Unified CME user. This is a mandatory field.
First Name	The first name for this new Unified CME user.
Last Name	The last name for this new Unified CME user. This is a mandatory field.
Name Dialing	An automatically generated field that concatenates the first and last name into a unique field to dial a name by function.
Password	This field cannot be empty. The password requires at least five alphanumeric characters. This is a mandatory field.
Confirm Password	Retype the password assigned in the previous field. Do not copy and paste the password. This is a mandatory field.
PIN	This field cannot be empty. The pin is limited to five numbers and cannot be greater than 20 numbers.
Confirm PIN	Retype the pin assigned in the previous field. Do not copy and paste the pin. This is a mandatory field.
Capabilities	

Field	Description
Selected Capabilities	The capability assigned for each Unified CME user is identified in this box. Use the arrow to assign the required capability for this new Unified CME user. If you wish to change the assigned capability at a later time, follow the procedure provided in the “Assigning Capability Views to Unified CCX Users in a Unified CME Deployment” section on page 5-15.
Available Capabilities	The list of capabilities that can be assigned for this new Unified CME user. Use the arrow in either direction to assign the required capability.

Step 3 After entering the information in the fields/boxes, click **Update** icon that displays in the tool bar in the upper, left corner of the window or the **Update** button that displays at the bottom of the window.

The User Configuration page refreshes to dynamically display the newly-added Unified CME user. The capabilities for the newly-added user are effective immediately.

Click **Show More** button to specify values for different fields related to General, Localization, and Organizational properties.

Step 4 Repeat this process as needed to assign other new users.

Changing Passwords and Pins

The Unified CCX users in a Unified CME Deployment are configured and managed by Unified CCX. Therefore, in addition to the general privileges, a Unified CCX Application User (**http://<Cisco Unified CCX IP address>/Appuser**) has the following additional privileges:

- Change password
- Change the pin
- Upload the spoken name

To access the Unified CCX Supervisor web page, see [Accessing the Unified CCX Supervisor Web Page, page 15-6.](#)

Identifying Agent Directory Numbers

Directory numbers associated with Unified CCX agent phones must be configured in Unified CME. Identifying agent directory numbers in Unified CME is an ongoing task. See the *Cisco Unified Communications Manager Express 8.5(1) New Features* document for more information.



CHAPTER 6

Configuring Cisco Applications

The Unified CCX system uses applications to interact with contacts and perform a wide variety of functions, such as prompting callers for information, transferring calls, and providing information to callers.

To configure Unified CCX applications, you must complete the following tasks:

- Provision telephony and media resources (see [Chapter 7, “Provisioning Telephony and Media”](#))
- Provision your Unified CCX subsystem, if required (see [Chapter 8, “Provisioning Unified CCX”](#))
- Provision additional subsystems, if required (see [Chapter 9, “Provisioning Additional Subsystems”](#))

The following sections describe how to configure applications and make them available to the Unified CCX system.

- [About Unified CCX Applications, page 6-1](#)
- [Adding Application Triggers, page 6-18](#)
- [Managing Scripts, page 6-25](#)

About Unified CCX Applications

The Unified CCX system uses applications to interact with contacts and perform a wide variety of functions.

**Note**

Unified CCX licenses you purchase and install determine the applications available on your system (see [Application Management Menu Option, page 17-1](#)).

Unified CCX provides the following application types:

- **Script** (see [Configuring Script Applications, page 6-2](#)).
- **Busy** (see [Configuring Busy Application, page 6-7](#)).
- **Ring-No-Answer** (see [Configuring Ring-No-Answer Application, page 6-9](#)).
- **Remote Monitoring** (see [Configuring Remote Monitoring Application, page 6-16](#)).

If Unified CCX is integrated with Unified ICME, you will also need to configure one or both of the following application types:

- **Unified ICME post-routing** (see [Configuring Unified ICME Post-Routing Application, page 6-11](#)).
- **Unified ICME translation-routing** (see [Configuring Unified ICME Translation-Routing Application, page 6-14](#)).

**Note**

If you are not using Cisco Unified Intelligent Contact Management Enterprise (Unified ICME) software, you do not need to configure Unified ICME post-routing and Unified ICME translation-routing applications. For information about these Unified ICME software features, see the *Cisco Unified ICME Scripting and Media Routing Guide*.

Related Topic

[Unified CCX Licensing Packages, page A-1](#)

Configuring Script Applications

The Unified CCX *script* applications are applications based on scripts created in the Unified CCX Editor. These applications come with every Unified CCX system and execute scripts created in the Unified CCX Editor

Use the Unified CCX Editor to create scripts that direct the Unified CCX system to automatically answer calls and other types of contacts, prompt callers for information, accept caller input, queue calls, distribute calls to available agents, place outbound calls, respond to HTTP requests, and send e-mail messages.

**Note**

The Unified CCX system includes a number of sample scripts. For a description of these sample scripts, and for more information on creating scripts with the Unified CCX Editor, see the *Cisco Unified CCX Scripting and Development Series: Volume 1, Getting Started with Scripts*. In addition, a script repository is available at

http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_implementation_design_guides_list.html. This repository provides some examples of scripting techniques that can leverage Unified CCX abilities.

Cisco script applications can make use of many components, such as scripts, pre-recorded prompts, grammars, languages, locales, and custom Java classes. For more information about these components, see [Chapter 10, “Managing Prompts, Grammars, Documents, and Custom Files.”](#)

**Tip**

Upload these components to the Repository before you configure a Cisco script application that uses them.

Depending on your particular Unified CCX implementation, you may need to perform most or all of the following tasks to configure a Cisco script application:

1. Manage scripts. Cisco script applications are based on scripts that you must upload to the repository and make available to the Unified CCX system.
2. Manage prompts. Many applications make use of pre-recorded prompts, stored as .wav files, which are played back to callers to provide information and elicit caller response. You must upload these .wav files to the repository and make them available to the Unified CCX system.
3. Install grammars. The Unified CCX system uses specific grammars to recognize and respond to caller response to prompts. You must store these grammars in a directory to make them available to the Unified CCX system.

4. Install customized Unified CCX languages. Language packs, such as American English, Canadian French, and so on, are installed with Unified CCX. You install language packs in a directory accessible by the Unified CCX system.
5. Install Java files. In addition to the Java files automatically installed as part of the Unified CCX installation process, you can install your own custom classes and Java Archive (JAR) files to customize the performance of your Unified CCX system.
6. Add a Cisco script application. Scripts created in the Unified CCX Editor are used as the basis for Cisco script applications.
7. Add an application trigger. Triggers are specified signals that invoke application scripts in response to incoming contacts. After adding a new Cisco script application, you need to add a trigger so that this application can respond to telephone calls and HTTP requests.

To add a new Cisco script application, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Application Management**.
- The Application Management web page opens displaying the details of existing applications, if any.
- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.
- The Add a New Application web page opens
- Step 3** From the Application Type drop-down menu, choose **Cisco Script Application** and click **Next**.
- The Cisco Script Application configuration web page opens.
- Step 4** Use this web page to specify the following fields.

Field	Description
Name	A name for the application. This is a mandatory field.
ID	<p>Accept the automatically-generated ID, or enter a unique ID. This is a mandatory field.</p> <p>Note The Historical Reporting feature uses this ID to identify this application.</p>
Maximum Number Of Sessions	<p>The maximum amount of simultaneous sessions (instances) that the application can handle. This is a mandatory field.</p> <p>Note The limit for the maximum number of simultaneous remote monitoring sessions is 16, but the actual number depends on your system's CPU and memory resources. Entering a number that is too high can result in unacceptable system performance.</p>
Script	<p>Note This field is available only for Cisco Script Application type. This is a mandatory field.</p> <p>Perform one of the following actions:</p> <ul style="list-style-type: none"> Choose a script from the drop-down list to run the application. If the script contains parameters, the parameters display below the Script drop-down menu. Each parameter has a check box, which enables you to override the default value for that parameter. If you want to override the value, check the check box for that parameter. <p>Note All scripts under the default directory are listed in the drop-down list of the Script field in the Cisco Script Application Configuration page.</p> <ul style="list-style-type: none"> Click Edit, enter the script name in the dialog box, and click OK. The User Prompt dialog box closes, and the name you entered appears in the Script field. <p>Note If you enter the script name as a file URL, enter the value with double backslashes (\\). For example, file://c:\\temp\\aa.aef</p>
Description	<p>Use the Tab key to automatically populate this field.</p> <p>Note For the Busy and Ring-No-Answer application types, this field is only visible when you click Show More.</p>

Field	Description
Enabled	<p>Click the required radio button to accept (Yes = default) or reject (No)</p> <p>Note For the Busy and Ring-No-Answer application types, this field is only visible when you click Show More.</p>
Default Script	<p>Note This field is available only for Cisco Script Application type.</p> <p>The default script executes when an error occurs with the configured script application that causes it to abort.</p> <p>Perform one of the following actions:</p> <ul style="list-style-type: none"> Choose a script from the drop-down list to run the application. If a Default Script is not defined, the internal system default is executed. Click Edit, specify a script in the dialog box that appears, and click OK.

Step 5 Click **Add**.

The Cisco Script Application page refreshes, the **Add New Trigger** hyperlink appears in the left navigation bar, and the following message is displayed in the status bar on top:

The operation has been executed successfully.

Click **Back to Application List** icon or button to view the list of existing applications.

Step 6 Your next step is to add a trigger for the application (see [Adding Application Triggers, page 6-18](#)).**Related Topics**

- [About Unified CCX Applications, page 6-1](#)
- [Configuring Busy Application, page 6-7](#)
- [Configuring Ring-No-Answer Application, page 6-9](#)
- [Configuring Remote Monitoring Application, page 6-16](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)
- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)

Configuring Busy Application

This application, which comes with every Unified CCX system, plays a busy signal.

**Note**

The Cisco Busy application comes with each Unified CCX system.

The Cisco Busy application returns a busy signal when a call reaches a Computer Telephony Interface (CTI) route point and the extension is busy.

To configure the Busy application, you will need to perform the following tasks:

1. Add the Busy application.
2. Add a Unified CM Telephony trigger to the Busy application. The Busy application is activated when it is triggered by a Unified CM Telephony trigger. The Busy application does not support HTTP triggers.

To configure the Unified CCX server with the Busy application, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Application Management**.
- The Application Management web page opens displaying the details of existing applications, if any.
- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.
- The Add a New Application web page opens
- Step 3** From the Application Type drop-down menu, choose **Busy**, and then click **Next**.
- The Busy Application Configuration web page appears.

Step 4 Use this web page to specify the following fields.

Field	Description
Name	A name for the application. This is a mandatory field.
ID	Accept the automatically-generated ID, or enter a unique ID. This is a mandatory field. Note The Historical Reporting feature uses this ID to identify this application.
Maximum Number Of Sessions	The maximum amount of simultaneous sessions (instances) that the application can handle. Note The limit for the maximum number of simultaneous remote monitoring sessions is 16, but the actual number depends on your system's CPU and memory resources. Entering a number that is too high can result in unacceptable system performance.
The following fields are displayed only on click of Show More button	
Description	Use the Tab key to automatically populate this field.
Enabled	(Radio button) Accept Yes (the default).

Step 5 Click **Add**.

The Busy web page refreshes, the **Add New Trigger** hyperlink appears in the left navigation bar, and the following message is displayed in the status bar on top:

The operation has been executed successfully

Step 6 Your next step is to add a trigger for the application (see [Adding Application Triggers, page 6-18](#)).

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Configuring Script Applications, page 6-2](#)
- [Configuring Ring-No-Answer Application, page 6-9](#)
- [Configuring Remote Monitoring Application, page 6-16](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)

- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)

Configuring Ring-No-Answer Application

This application, which comes with each Unified CCX system, plays a ring tone.



Note

The Cisco Ring-No-Answer application comes with each Unified CCX system.

The Cisco Ring-No-Answer application returns a ring tone signal when a call reaches a CTI route point.

To configure the Ring-No-Answer application, you will need to perform the following tasks:

1. Add the Ring-No-Answer application.
2. Add a Unified CM Telephony trigger to the Ring-No-Answer application. The Ring-No-Answer application is activated when it is triggered by a Unified CM Telephony trigger.

To configure the Unified CCX server with the Ring-No-Answer application, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Application Management**.

The Application Management web page opens displaying the details of existing applications, if any.

- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.

- Step 3** From the Application Type drop-down menu, choose **Ring-No-Answer**, and then click **Next**.

The Ring-No-Answer web page opens.

Step 4 Use this web page to specify the following fields.

Field	Description
Name	A name for the application. This is a mandatory field.
ID	Accept the automatically-generated ID, or enter a unique ID. This is a mandatory field. Note The Historical Reporting feature uses this ID to identify this application.
Maximum Number Of Sessions	The maximum amount of simultaneous sessions (instances) that the application can handle. This is a mandatory field. Note The limit for the maximum number of simultaneous remote monitoring sessions is 16, but the actual number depends on your system's CPU and memory resources. Entering a number that is too high can result in unacceptable system performance.

The following fields are displayed only on click of **Show More** button

Description	Use the Tab key to automatically populate this field.
Enabled	(Radio button) Accept Yes (the default).

Step 5 Click **Add**.

The Ring-No-Answer web page refreshes, the **Add New Trigger** hyperlink appears in the left navigation bar, and the following message is displayed in the status bar on top:

The operation has been executed successfully

Step 6 Your next step is to add a trigger for the application (see [Adding Application Triggers, page 6-18](#)).

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Configuring Script Applications, page 6-2](#)
- [Configuring Busy Application, page 6-7](#)

- [Configuring Ring-No-Answer Application, page 6-9](#)
- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)

Configuring Unified ICME Post-Routing Application

These applications are used by the Unified IP IVR system to receive calls directly from Unified CM, which sends the call to the post-routing route point on the Unified CCX system.



Note

The Unified ICME Post-routing application comes with Unified IP IVR.

Unified ICME post-routing applications use the Unified CCX server as a queue point for Unified ICME. In Unified ICME post-routing, the Unified IP IVR system receives calls directly from Unified CM, which sends the call to the post-routing route point on the Unified CCX system.

If you configure this route point to run an initial application, such as an application to welcome the caller and collect an account number, the Unified CCX system notifies the Unified ICME software about the call, and then waits for further instructions. If you do not configure an initial script, the Unified CCX system informs the Unified ICME software about the call, but takes no other action.

After notification, the Unified ICME system runs a script, which can be composed of many different call-handling steps, including three commands that can be sent to the Unified CCX system:

- **Connect**—This request is automatically sent by Unified ICME whenever an agent is available and the call can be connected to that agent.
- **Release**—This request releases the call.
- **Run VRU Script**—This request runs the VRU script.



Note

Before you can configure a Unified ICME post-routing application, you must first upload any VRU scripts that the application will need (see [Provisioning Unified ICME Subsystem, page 9-3](#)).

To configure a Unified ICME post-routing application, you will need to perform the following tasks:

1. Add a Unified ICME post-routing application. In addition to configuring general information such as name and ID, you must specify the script on which the Unified ICME post-routing application is based.
2. Add a Unified CM Telephony trigger to the Unified ICME post-routing application. The Unified ICME post-routing application is invoked by a Unified CM Telephony trigger. The Unified ICME post-routing application does not support HTTP triggers.

To configure the Unified CCX server with the post-routing application and to add a Unified CM Telephony trigger, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Application Management**.

The Application Management web page opens displaying the details of existing applications, if any.

- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.

- Step 3** From the **Application Type** drop-down menu, choose **Unified ICME Post-Routing**.

The Unified ICME Post-Routing configuration web page opens.

- Step 4** Use this web page to specify the following fields.

Field	Description
Name	A name for the application.
Description	Use the Tab key to automatically populate this field.
ID	Accept the automatically-generated ID, or enter a unique ID. This ID is the service identifier that will be reported with the call back to Unified ICME.

Field	Description
Maximum Number Of Sessions	<p>The maximum amount of simultaneous sessions (instances) that the application can handle.</p> <p>Note The limit for the maximum number of simultaneous remote monitoring sessions is 16, but the actual number depends on your system's CPU and memory resources. Entering a number that is too high can result in unacceptable system performance.</p>
Enabled	(Radio button) Accept Yes (the default).
Timeout (in seconds)	The maximum amount of time (in seconds) that the system will wait to invoke the application before rejecting a contact.
Initial Script	<p>(Drop-down list) Choose a script to run when the Unified CCX receives a call.</p> <p>This script can be used to acquire initial digits from the caller and report the information to Unified ICME as part of the notification of the incoming call. This capability allows Unified ICME to correctly choose a Unified ICME script to serve the call.</p>
Default Script	<p>(Drop-down list) Choose a script to run to route a call to a default treatment in the event of a:</p> <ul style="list-style-type: none"> • System error • Request by Unified ICME

Step 5 Click **Add**.

The Unified ICME Post-Routing web page refreshes, the **Add New Trigger** hyperlink appears in the left navigation bar, and the following message is displayed in the status bar on top:

The operation has been executed successfully

Step 6 Your next step is to add a trigger for the application (see [Adding Application Triggers, page 6-18](#)).**Related Topics**

- [About Unified CCX Applications, page 6-1](#)
- [Configuring Script Applications, page 6-2](#)

- [Configuring Busy Application, page 6-7](#)
- [Configuring Ring-No-Answer Application, page 6-9](#)
- [Configuring Remote Monitoring Application, page 6-16](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)
- [Provisioning Unified ICME Subsystem, page 9-3](#)

Configuring Unified ICME Translation-Routing Application

These applications use the Unified CCX server as a queue point for Unified IP IVR, so that Unified ICME can route calls to the Unified CCX server.

**Note**

The Unified ICME Translation-routing application comes with Unified IP IVR.

You must configure Unified ICME translation-routing applications when the Unified CCX server is used as a queue point for a Unified CCX solution in which calls are expected to be routed by the Unified ICME to the Unified CCX server.

The call attributes will be reported as part of a configured translation-route on the Unified ICME.

**Note**

Before you can configure a Unified ICME translation-routing application, you must first upload any VRU scripts that the application will need (see [Provisioning Unified ICME Subsystem, page 9-3](#)).

To configure the Unified ICME translation-routing application, you will need to perform the following tasks:

1. Add a Unified ICME translation-routing application.

In addition to configuring general information such as name and ID, you must specify the script on which the Unified ICME translation-routing application is based.

2. Add a Unified CM Telephony trigger to the Unified ICME translation-routing application.

The Unified ICME translation-routing application is invoked by a Unified CM Telephony trigger, and does not support HTTP triggers.

To configure the Unified CCX server with a Unified ICME translation-routing application and to add a Unified CM Telephony trigger, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Application Management**.

The Application Management web page opens displaying the details of existing applications, if any.

- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.

The Add a New Application web page opens.

- Step 3** From the Application Type drop-down menu, choose **Unified ICME Translation-Routing**.

The Unified ICME Translation-Routing configuration web page opens.

- Step 4** Use this web page to specify the following fields.

Field	Description
Name	A name for the application.
Description	Use the Tab key to automatically populate this field.
ID	Accept the automatically-generated ID, or enter a unique ID. This field corresponds to the service identifier of the call reported to the Unified ICME and configured in the Unified ICME translation route.
Maximum Number Of Sessions	The maximum amount of simultaneous sessions (instances) that the application can handle. Note The limit for the maximum number of simultaneous remote monitoring sessions is 16, but the actual number depends on your system's CPU and memory resources. Entering a number that is too high can result in unacceptable system performance.
Enabled	(Radio button) Accept Yes (the default).

Field	Description
Timeout (in seconds)	The maximum amount of time (in seconds) that the system will wait to invoke the application before rejecting a contact.
Default Script	(Drop-down list) Choose a script to run to route a call to a default treatment in the event of a: <ul style="list-style-type: none"> System error Request by Unified ICME

Step 5 Click **Add**.

The Unified ICME Translation Routing web page refreshes, the **Add New Trigger** hyperlink appears in the left navigation bar, and the following message is displayed in the status bar on top:

The operation has been executed successfully

Step 6 Your next step is to add a trigger for the application (see [Adding Application Triggers](#), page 6-18).**Related Topics**

- [About Unified CCX Applications](#), page 6-1
- [Configuring Script Applications](#), page 6-2
- [Configuring Busy Application](#), page 6-7
- [Configuring Remote Monitoring Application](#), page 6-16
- [Configuring Unified ICME Post-Routing Application](#), page 6-11
- [Configuring Unified ICME Translation-Routing Application](#), page 6-14
- [Provisioning Unified ICME Subsystem](#), page 9-3

Configuring Remote Monitoring Application

This application, available when you purchase Unified CCX Premium, allows a supervisor to monitor an agent's conversation.



Note The Remote Monitoring application comes with Unified CCX Premium systems.

You must configure Remote Monitoring applications when you want to use the Remote Monitoring feature to allow a supervisor to monitor an agent's conversation.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Application Management** and click **Add New**.
The Add a New Application web page opens.
- Step 2** Choose **Cisco Script Application** from the Application Type drop-down menu and click **Next**.
The Cisco Script Application web page appears.
- Step 3** Use this web page to specify the following fields.

Field	Description
Name	A name for the application. This is a mandatory field.
ID	Accept the automatically-generated ID, or enter a unique ID. This is a mandatory field. Note The Historical Reporting feature uses this ID to identify this application.
Maximum Number of Sessions	The maximum amount of simultaneous sessions that monitoring sessions allow. This is a mandatory field. Note The limit for the maximum number of simultaneous remote monitoring sessions is 16, but the actual number depends on your system's CPU and memory resources. Entering a number that is too high can result in unacceptable system performance.
Script	Select a customized Remote Monitor script or rmon.aef from the drop-down list. Note A new set of fields appears for a remote monitoring script.
Description	Use the Tab key to automatically populate this field.

Field	Description
Enabled	(Radio button) Accept Yes (the default).
Default Script	Accept System Default . The default script is executed if an error occurs with the configured application script.

Step 4 Click **Add**.

The Remote Monitoring web page refreshes displaying the following message below the Status bar and the **Add New Trigger** hyperlink appears on the left navigation bar:

The operation has been executed successfully

Your next step is to add a trigger for the application (see [Adding Application Triggers, page 6-18](#)).

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Configuring Script Applications, page 6-2](#)
- [Configuring Busy Application, page 6-7](#)
- [Configuring Ring-No-Answer Application, page 6-9](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)
- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)

Adding Application Triggers

After adding a new Cisco application, you need to add one or more *triggers* so that the application can respond to Unified CM/Unified CME Telephony calls and HTTP requests.

Triggers are specified signals that invoke application scripts in response to incoming contacts. The Unified CCX system uses Unified CM/Unified CME Telephony triggers to trigger responses to telephone calls and HTTP triggers to respond to HTTP requests.

You can use either of two methods to add a trigger to an application: Add the trigger from the Cisco Application web page or add the trigger from the Unified CM/Unified CME Telephony or HTTP Triggers web pages available from the Subsystem menu.

This section contains the following procedures:

- [Adding a Unified CM/Unified CME Telephony Trigger, page 6-19](#)
- [Adding an HTTP Trigger, page 6-21](#)

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Managing Scripts, page 6-25](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)
- [Provisioning Unified CME Telephony Subsystem, page 5-7](#)
- [Provisioning HTTP Subsystem, page 9-10](#)

Adding a Unified CM/Unified CME Telephony Trigger

You must add Unified CM/Unified CME Telephony triggers to invoke Cisco applications in response to incoming contacts.

A Unified CM/Unified CME Telephony trigger responds to calls that arrive on a specific route point by selecting telephony and media resources to serve the call and invoking an application script to handle the call.

This section contains the following procedures:

- [Adding Unified CM/Unified CME Telephony Triggers from an Application Web Page, page 6-20](#)
- [Adding Unified CM/Unified CME Telephony Triggers from Unified CCX, page 6-21](#)

Related Topics

- [Adding a Unified CM/Unified CME Telephony Trigger, page 6-19](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)
- [Provisioning Unified CME Telephony Subsystem, page 5-7](#)

Adding Unified CM/Unified CME Telephony Triggers from an Application Web Page

To add a Unified CM/Unified CME Telephony trigger directly from the Cisco Application configuration web page, complete the following steps.

Procedure

- Step 1** From the configuration web page for the application you want to add a trigger for, click **Add New Trigger**.
- The Add a New Trigger window opens.
- Step 2** From the Trigger Type drop-down menu, choose **Unified CM/Unified CME Telephony** and click **Next**.
- The Unified CM//Unified CME Telephony Trigger Configuration window opens.
- Step 3** Follow the procedure described in [Adding a Unified CM Telephony Trigger, page 7-16](#).
-

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Adding a Unified CM/Unified CME Telephony Trigger, page 6-19](#)
- [Adding an HTTP Trigger, page 6-21](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)
- [Provisioning Unified CME Telephony Subsystem, page 5-7](#)
- [Configuring HTTP Triggers, page 9-11](#)

Adding Unified CM/Unified CME Telephony Triggers from Unified CCX

To add a Unified CM/Unified CME Telephony trigger to an application from the Unified CM/Unified CME Telephony subsystem, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Unified CM/Unified CME Telephony > Triggers**.
- The respective Unified CM or Unified CME Telephony Trigger Configuration summary web page opens.
- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.
- Step 3** The Cisco Unified CM Telephony Trigger Configuration web page opens. Follow the procedure described in [Adding a Unified CM Telephony Trigger, page 7-16](#) (Steps 3 and 4) for detailed instructions on adding and configuring a Unified CM Telephony trigger.
-

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Adding Application Triggers, page 6-18](#)
- [Adding a Unified CM/Unified CME Telephony Trigger, page 6-19](#)
- [Adding an HTTP Trigger, page 6-21](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)
- [Provisioning Unified CME Telephony Subsystem, page 5-7](#)
- [Configuring HTTP Triggers, page 9-11](#)

Adding an HTTP Trigger

A Cisco application can be used to handle HTTP requests when the Unified CCX system is provisioned with an HTTP trigger.

**Note**

HTTP triggers are available if your system has a license installed for one of the following Cisco product packages: Unified IP IVR or Unified CCX Premium.

An HTTP trigger is the relative URL a user enters into the client browser to start the application. You can upload either eXtensible Style Language Transformation (XSLT) templates or Java Server Pages (JSP) templates to serve as your HTTP trigger.

The following path is an example of an HTTP-triggered request (using the HTTP trigger name “/hello”):

```
http://www.appserver.acme.com:9080/hello
```

In this example, the URL starts the application with the HTTP trigger “/hello” on a web server running on port 9080 with the host name www.appserver.acme.com.

You can add the HTTP trigger from the Cisco Script Application web page or add the trigger from the HTTP subsystem.

This section contains the following procedures:

- [Adding HTTP Triggers from an Application Web Page, page 6-22](#)
- [Adding HTTP Triggers from the HTTP Subsystem, page 6-24](#)

Adding HTTP Triggers from an Application Web Page

To add an HTTP trigger directly from a Cisco Application Configuration web page, complete the following steps.

Procedure

- Step 1** From the configuration web page for the application you want to add a trigger for, click **Add New Trigger** hyperlink.

The Add a New Trigger window opens.

Step 2 From the Trigger Type drop-down menu, select **HTTP** and click **Next**.

The HTTP Trigger Configuration window opens.

Step 3 Use this web page to specify the following fields.

Field	Description
URL	The relative URL For example: <code>/hello</code>
Language	Perform one of the following actions: <ul style="list-style-type: none"> Choose a default language from the drop-down list. Click Edit, specify a default language in the dialog box that appears, and click OK.
Maximum Number Of Sessions	The maximum amount of simultaneous sessions that can be served by the HTTP subsystem for this trigger.
Idle Timeout (in ms)	Maximum amount of time (in milliseconds) that the system will wait to invoke the application before rejecting a contact.
Enabled	(Radio button) Accept Yes (the default). Note If you disable the trigger, the user receives an error message when browsing to the defined trigger URL.

Step 4 Click **Add**.

The Cisco Application Configuration web page appears, and the URL of the HTTP trigger appears on the navigation bar.

Step 5 Test the trigger by entering the URL you just configured in the address bar of your browser.

For example,

`/hello`

The browser should display “hello”.

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Adding a Unified CM/Unified CME Telephony Trigger, page 6-19](#)
- [Adding an HTTP Trigger, page 6-21](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)
- [Configuring HTTP Triggers, page 9-11](#)

Adding HTTP Triggers from the HTTP Subsystem

To configure a HTTP trigger from the HTTP subsystem, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > HTTP**.
The HTTP Trigger Configuration web page opens.
- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.
The HTTP Trigger Configuration window opens.
- Step 3** Use this web page to specify the following mandatory fields.

Field	Description
URL	The relative URL For example: <code>/hello</code>
Language	Perform one of the following actions: <ul style="list-style-type: none"> • Choose a default language from the drop-down list. • Click Edit, specify a default language in the dialog box that appears, and click OK.
Application Name	Choose the name of the Application from the drop-down list.
Maximum Number Of Sessions	The maximum amount of simultaneous sessions that can be served by the HTTP subsystem for this trigger.

Field	Description
Idle Timeout (in ms)	Maximum amount of time (in milliseconds) that the system will wait to invoke the application before rejecting a contact.
Enabled	Click the required radio button to accept - Yes (the default) Note If you disable the trigger, the user receives an error message when browsing to the defined trigger URL.

Step 4 Click **Add**.

The Cisco Application Configuration web page appears, and the URL of the HTTP trigger appears on the navigation bar.

Step 5 To test the trigger, enter the URL you just configured in the address bar of your browser.

For example,

```
/hello
```

The browser should display “hello”.

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Adding a Unified CM/Unified CME Telephony Trigger, page 6-19](#)
- [Adding an HTTP Trigger, page 6-21](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)
- [Configuring HTTP Triggers, page 9-11](#)

Managing Scripts

Scripts are created with the Unified CCX Editor, and can perform a wide variety of functions. For example, scripts can prompt callers for extension numbers to transfer calls, place callers in a queue and route calls to available agents, and place outbound calls.

The Script Management option of the Applications menu of the Unified CCX Administration web interface contains options for managing and refreshing Unified CCX scripts that are stored in the repository.

**Note**

Your Unified CCX system includes sample scripts stored as .aef files. For a description of these scripts, see the “[Sample Scripts](#)” section on page 6-34.

This section contains the following procedures:

- [Uploading New Scripts](#), page 6-26
- [Viewing or Downloading a Script File](#), page 6-28
- [Refreshing Scripts](#), page 6-30
- [Renaming a Script or Folder](#), page 6-32
- [Deleting a Script or Folder](#), page 6-33
- [Sample Scripts](#), page 6-34
- [Wizards Menu](#), page 19-1

**Caution**

If a large number of VRU scripts are configured for your system, the **Upload a New Script** and **Refresh Scripts** operations can take a long time to complete. These tasks can also result in high CPU utilization.

Related Topics

- [About Unified CCX Applications](#), page 6-1
- [Adding Application Triggers](#), page 6-18

Uploading New Scripts

To make a script available for use as a Unified CCX application, you must first upload the script to the repository.

In Unified CCX Release 4.5 and later, uploaded scripts are stored in the Repository Datastore (RDS) database, along with prompts, grammars, and documents files. Prior to Release 4.5, the RDS database only contained the

prompts, grammars, and documents files. The scripts can also be grouped into folders and subfolders. When user scripts are uploaded into repository, they get synchronized to local disk and are accessed from there.

To upload a script to the repository, complete the following steps.

Procedure


- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Script Management**.

The Script Management page opens.



Note The Script Management page allows you to only work with user scripts; it does not have language-based directories.

The following table describes the available columns on the Script Management web page.

Field	Description
Folder Path	The level of the directory that is currently selected in the folder drop-down list.
Name	The name of the script. Note Click the icon in front of the script name to download the script file.
Size	The size of the script file prefixed with KB. The file size is converted from bytes to KB. Note This column is usually blank on the root page as the items on this page are usually folders.
Date Modified	The date and time when the document was last uploaded or changed along with time zone.
Modified by	The user ID of the person who performed these modifications.
Delete	To delete the corresponding folder.  Caution When you delete a folder, you permanently remove it from the repository and make it unavailable to the Unified CCX system.

Field	Description
Rename	To rename the required subfolder within the <code>default</code> folder.
Refresh	To refresh the corresponding script (see Individual Script Refresh, page 6-30).

- Step 2** Click **Upload New Scripts** icon that displays in the tool bar in the upper, left corner of the window or the **Upload New Scripts** button that displays at the bottom of the window.
- Step 3** The Upload Script dialog box opens.
- Step 4** To locate the script, click **Browse** button next to the File Name field, navigate to the directory in which the scripts are located, select a script, and click **Open**. The script path for the profile appears in the File Name field.
- Step 5** Click **Upload** to upload the script to the repository.
- A window opens, informing you that the script was successfully uploaded. You are now ready to manage any existing scripts shown in the Script Management page (if necessary) or add prompts that may be useful to your applications.

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Viewing or Downloading a Script File, page 6-28](#)
- [Refreshing Scripts, page 6-30](#)
- [Renaming a Script or Folder, page 6-32](#)
- [Deleting a Script or Folder, page 6-33](#)
- [Sample Scripts, page 6-34](#)

Viewing or Downloading a Script File

You can view or download any script file that appears in the list on the Script Management web page.

To view or download a script file, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Script Management**.
- Step 2** The Script Management page opens to display the contents of the **default** folder.
- Step 3** Click **Download Script** icon that appears before the Name of the script file you want to view or download.
- The File Download dialog box opens.
- Step 4** Perform one of the following tasks:
- To view the script file, click **Open**.
The script file opens in the Unified CCX Editor.
 - To download the script file, click **Save**, and then follow the prompts to choose a directory and file name for the script file.
The file is saved to the specified directory.
-

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Uploading New Scripts, page 6-26](#)
- [Refreshing Scripts, page 6-30](#)
- [Renaming a Script or Folder, page 6-32](#)
- [Deleting a Script or Folder, page 6-33](#)
- [Sample Scripts, page 6-34](#)

Refreshing Scripts

**Caution**

If a large number of VRU scripts are configured for your system, the **Upload a New Script** and **Refresh Scripts** operations can take a long time to complete. These tasks can also result in high CPU utilization.

When you make changes to a script, you must refresh the script to direct all the applications and subsystems that use this script to reload the new version. There are two script refresh options:

- [Individual Script Refresh](#)
- [Bulk Script Refresh](#)

Individual Script Refresh

To refresh an individual script on the Unified CCX server from the repository (RDS), complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Script Management**.
- The Script Management page opens to display the contents of the **default** folder.
- Step 2** In the row that contains the script, click **Refresh** icon.
- The script information refreshes and the Script Management page reappears.
-

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Uploading New Scripts, page 6-26](#)
- [Viewing or Downloading a Script File, page 6-28](#)
- [Refreshing Scripts, page 6-30](#)
- [Renaming a Script or Folder, page 6-32](#)

- [Deleting a Script or Folder, page 6-33](#)
- [Sample Scripts, page 6-34](#)

Bulk Script Refresh

**Note**

Support for High Availability and remote servers is available only in multiple-server deployments.

Bulk scripts refers to multiple .aef script files within one .zip file.

**Note**

This option is available only when you upload .zip files. You will see the option to refresh scripts after the selected file is uploaded successfully.

To refresh all scripts (within a zip file) with one command, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Script Management**.
- The Script Management page opens to display the contents of the **default** folder.
- Step 2** Click **Upload New Scripts** icon or button.
- Step 3** The Upload Script dialog box opens.
- Step 4** To locate the script, click **Browse** button next to the File Name field, navigate to the directory in which the scripts are located, select a file, and click **Open**. The script path for the profile appears in the File Name field.

**Tip**

You can only upload .zip files containing .aef files. The total size of the.zip file cannot exceed 20 MB.

- Step 5** Click **Upload** to upload the script to the repository.
- A window opens, informing you that the script upload succeeded.

Step 6 Click **Refresh** icon in the Script Management page.

The Script Management web page opens, giving you the option of refreshing the script and the applications that reference it, or just refreshing the script.

Step 7 Specify one of the following options:

- If you want all applications and subsystems that reference the script (in the repository) to use the new version, click **Yes**.
- If you only want to refresh the scripts, click **No**.
- If you want to cancel the operation, click **Cancel**.

The script information refreshes and the Script Management page reappears to display the newly-loaded .zip file.

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Uploading New Scripts, page 6-26](#)
- [Viewing or Downloading a Script File, page 6-28](#)
- [Refreshing Scripts, page 6-30](#)
- [Renaming a Script or Folder, page 6-32](#)
- [Deleting a Script or Folder, page 6-33](#)
- [Sample Scripts, page 6-34](#)

Renaming a Script or Folder

To rename a script, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Applications > Script Management**.

The Script Management page opens to display the contents of the **default** folder.

Step 2 Click **Rename** icon for the folder or script that you want to rename. A dialog box opens displaying the name of the selected folder or script.

Step 3 Enter a new name for this folder or script in the text box.

Step 4 Click **Rename** button.

The dialog box refreshes to state that the folder was successfully renamed.

Step 5 Click **Return to Script Management** button.

The dialog box closes and the **default** folder's updated Script Management page displays the new script name.

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Uploading New Scripts, page 6-26](#)
- [Viewing or Downloading a Script File, page 6-28](#)
- [Refreshing Scripts, page 6-30](#)
- [Deleting a Script or Folder, page 6-33](#)
- [Sample Scripts, page 6-34](#)

Deleting a Script or Folder

When you delete a script or a folder, you remove it permanently from the repository.

To delete a script or folder, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Applications > Script Management**.

The Script Management page opens to display the contents of the **default** folder.

Step 2 To delete a folder, click **Delete** icon for the folder or script that you want to delete.

Step 3 A dialog box opens to confirm your action on the selected script or folder. Click **OK**.

The dialog box closes and the **default** folder's updated Script Management page refreshes to display the updated list of folders and scripts.

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Uploading New Scripts, page 6-26](#)
- [Viewing or Downloading a Script File, page 6-28](#)
- [Refreshing Scripts, page 6-30](#)
- [Renaming a Script or Folder, page 6-32](#)
- [Deleting a Script or Folder, page 6-33](#)
- [Sample Scripts, page 6-34](#)

Sample Scripts

Your Unified CCX system includes sample scripts stored as .aef files. These scripts have been built using Unified CCX Editor steps, including pre-recorded prompts. You can use these scripts to create applications without performing any script development, or you can use these scripts as models for your own customized scripts.



Note

The included scripts are bundled with the Unified CCX system solely as samples, they are not supported by Cisco. For more information on these sample scripts, see the *Cisco Unified CCX Scripting and Development Series: Volume 1, Getting Started with Scripts*.



CHAPTER 7

Provisioning Telephony and Media

Resource provisioning information for the Unified CCX telephony and media subsystems are provided in the following sections:

- [About Unified CCX Telephony and Media, page 7-1](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)
- [Additional Unified CM Telephony Information, page 7-22](#)
- [Provisioning Cisco Media Subsystem, page 7-23](#)
- [Provisioning ASR and TTS in Unified CCX, page 7-26](#)

About Unified CCX Telephony and Media

The Unified CCX system uses a telephony resource called Computer Telephony Interface (CTI) ports to accept incoming calls and to place outbound calls. The Unified CCX system uses the following media resources to provide interactive services for calls:

- **Unified CM Telephony**—The Unified CCX Engine uses the Unified CM Telephony subsystem to send and receive calls from the Unified CM by interfacing with the CTI Manager through the Unified CM Telephony client.
- **Unified CME Telephony**—The Unified CCX Engine uses the Unified CME Telephony subsystem to open a logical session with Unified CME. This session verifies provider authentication, periodically exchanges heartbeats, and monitors Unified CME availability after successful authentication.

- Cisco Media Termination (CMT)—The CMT channels provide media terminations in the Unified CCX for Unified CM/CME Telephony Call Contacts. These channels enable the Unified CCX to play media to the connected party. DTMF digits are received out of band by the Unified CM/CME Telephony subsystem.
- MRCP Automated Speech Recognition (MRCP ASR)—The ASR media resource allows callers to use speech to navigate menus and to provide other information to Unified CCX applications.
- MRCP Text-To-Speech (MRCP TTS)—The TTS media resource enables Unified CCX applications to play back documents to callers as speech.



Note Media resources are licensed and sold as Unified IP IVR ports. Although you can provision more channels than you are licensed for, licensing is enforced at run-time. If more channels are provisioned than licensed, the system will not accept the extra calls, as doing so would violate your licensing agreements.

The Unified CCX system uses the concept of *groups* to share telephony and media resources among different applications:

- *Call control groups* allow you to control how the system uses CTI ports. For example, you can reserve more ports for higher-priority applications or provide access to fewer ports for applications with less traffic.
- *Media resource groups* allow you to share media resources among different applications. For example, you can share ASR media resource groups with applications that collect caller information and applications that transfer calls to specific extensions.

The Unified CCX system also uses the concept of *triggers*, which are specified signals that invoke application scripts in response to incoming contacts.

Media Termination Groups

Media termination groups are associated with CTI port Groups.

During initial Unified CCX Setup, based on the licensed number of CTI ports, a default CTI port group and its associated media termination group is created. By default, every trigger is associated with this CTI Port Group and the corresponding media termination group.

**Note**

For Unified CME deployments, this will be the only available CTI Port Group. But in the Unified CM deployments, you can create and use additional CTI Port Groups as required.

If a CTI port group is selected to support media termination and if the number of channels are identical to both groups, then the CTI port group is automatically created in the background. This auto creation feature eliminates the manual CTI port group creation process.

If you elect to override media termination, then the call control channel chooses the media termination automatically. If you wish to select a new dialog group then you can have more than one media termination options. The options are used in the order displayed in the drop-down list (see [Adding a New Unified CM Telephony Call Control Group](#), page 7-9).

Provisioning Channels to Handle Calls

Unified CCX needs two types of channels to process calls:

- A *call control channel*, which is provisioned through the Unified CM Telephony subsystem and corresponds to CTI port resources in Unified CM.
- A *media channel*, which is provisioned through either the CMT subsystem or the MRCP subsystem and corresponds to the kernel resources for handling the media voice path with the caller.

**Note**

MRCP channels also correspond to additional resources on the MRCP server for performing speech recognition.

Unified CCX needs access to a channel of each type to successfully process a call. However, the capabilities of the two channel types are not identical.

For example, consider a Unified CCX system provisioned with a single Unified CM Telephony call control channel (that is, a CTI port) and a single CMT channel. The system can handle one call at a time; when that call terminates, the system must reinitialize the channel resources before it can accept another call.

However, the time each channel takes to reinitialize is not equal—CMT channels take more time to reinitialize than CTI ports. For example:

- The Unified CM Telephony call control channel may take approximately 1 millisecond to reinitialize
- The CMT channel may take approximately 200 milliseconds to reinitialize.

This example implies that the system will not be able to accept a new incoming call for 200 milliseconds after the first call terminates; although the Unified CM Telephony channel is available after one millisecond, the CMT channel is not and Unified CCX needs both channels to process a call.

Such a delay can become an issue when a Unified CCX system is experiencing a high load condition or needs to handle a burst of incoming calls. Consequently, CMT channels require a higher channel count provisioning.


Tip

To provision Unified CCX systems to handle burst calls equally among all required resources, you must configure approximately 10% more CMT channels than CTI ports, and approximately 10% more MRCP channels than ASR licenses.

Telephony and Media Resources Provisioning Checklist

To provision telephony and media resources, complete the following tasks:

Step	Task	For instructions, see
Step 1	Provision the Unified CM Telephony subsystem, which controls the telephony resources for the Unified CCX system.	Provisioning Unified CM Telephony Subsystem, page 7-5
Step 2	Provision the Cisco Media subsystem, which controls the CMT media resources for the Unified CCX system.	Provisioning Cisco Media Subsystem, page 7-23

Step	Task	For instructions, see
Step 3	Provision the MRCP ASR subsystem, which controls the ASR media resources for the Unified CCX system.	Provisioning MRCP ASR Subsystem, page 7-27
Step 4	Provision the MRCP TTS subsystem, which controls the TTS media resources for the Unified CCX system.	Provisioning MRCP TTS Subsystem, page 7-34

Provisioning Unified CM Telephony Subsystem

The Unified CM Telephony subsystem is the subsystem of the Unified CCX Engine that sends and receives call-related messages from the Unified CM CTI Manager through the Unified CM Telephony client. To enable your Unified CCX server to handle Cisco Unified Communications requests, you will need to provision the Unified CM Telephony subsystem. The Unified CM Telephony subsystem is available in all the Unified CCX license packages.



Note

In previous versions of Unified CCX, it was necessary to configure Unified CM Telephony information using Unified CM. In Unified CCX Release 4.0 and later, Unified CM Telephony configuration tasks are performed directly through Unified CCX Administration web pages.

To provision the Unified CM Telephony subsystem, complete the following tasks:

Step	Task	For instructions, see
1	Configure a Unified CM Telephony Provider, if not already configured. Specify the server on which the Cisco Media Convergence Server (Cisco MCS) is running Unified CM CTI Manager, and provide a Unified CM user ID and password.	Configuring a Unified CM Telephony Provider, page 7-7 and Modifying Unified CM Telephony Information, page 4-8
2	Provision Unified CM Telephony call control groups. Unified CM Telephony call control groups pool together a series of CTI ports, which the system then uses to serve calls as they arrive at the Unified CCX server.	Adding a New Unified CM Telephony Call Control Group, page 7-9

Step	Task	For instructions, see
3	Provision a Unified CM Telephony trigger. Unified CM Telephony triggers invoke application scripts in response to incoming contacts.	Adding a Unified CM Telephony Trigger , page 7-16
4	Resynchronize Unified CM Telephony versions. <ul style="list-style-type: none"> • Configuring a Unified CM Telephony Provider, page 7-7 • Resynchronizing Unified CM Telephony Data, page 7-7 	Provisioning Unified CM Telephony Subsystem , page 7-5

Related Topics

[Additional Unified CM Telephony Information](#), page 7-22

Resynchronizing Cisco JTAPI Client

During the resynchronizing process, an additional check ensures that the Unified CM Telephony Client (also known as the Cisco JTAPI Client) are the same between the clients installed on the Unified CCX node and the Cisco Unified CM. If the Unified CCX detects a mismatch, the system downloads and installs the required version of Cisco JTAPI Client.

To resynchronize and view the status of Cisco JTAPI client, complete the following steps:

Procedure

Step 1 Choose **Subsystems > Cisco Unified CM Telephony > Cisco JTAPI Resync** from the Unified CCX Administration menu bar.

Step 2 The Cisco JTAPI Resync web page opens displaying the status of Cisco JTAPI Client resynchronization.

At this point, if there is an incompatible version, it automatically downloads the new client.

Related Topics

- [Configuring a Unified CM Telephony Provider, page 7-7](#)
- [Adding a Unified CM Telephony Trigger, page 7-16](#)
- [Additional Unified CM Telephony Information, page 7-22](#)

Resynchronizing Unified CM Telephony Data

This resynchronizing process ensures that the Unified CM Telephony user, the call control groups, and the triggers matches the data of Unified CM being used.

To resynchronize the Unified CM Telephony data, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Cisco Unified CM Telephony > Data Resync**.
- Step 2** The Data Resync web page opens after resynchronization displaying the Data Resync status of Unified CM Telephony Port Groups and Unified CM Telephony Triggers.

Related Topics

- [Configuring a Unified CM Telephony Provider, page 7-7](#)
 - [Adding a Unified CM Telephony Trigger, page 7-16](#)
 - [Additional Unified CM Telephony Information, page 7-22](#)
-

Configuring a Unified CM Telephony Provider

The Unified CM Telephony Provider web page is a read-only page that displays the latest configured information.


**Caution**

Some setups may prevent the Unified CM directory administrator from creating new Unified CM Telephony providers in a multi-server configuration. If this setup applies to you, be sure to delete preexisting Unified CM Telephony providers

before creating new Unified CM Telephony providers. For example, if the Unified CM Telephony provider prefix is *cmtelphony* and you have a two-server configuration (*node_id1* and *node_id2*), then you must delete both *cmtelphony_<node_id1>* and *cmtelphony_<node_id2>*. If you do not verify and delete preexisting Unified CM Telephony providers, the Unified CM Telephony subsystem issues an error and will not allow you to create Unified CM Telephony providers from the Unified CM Telephony Provider Configuration web page.

To access this configuration area, choose **Subsystems > Cisco Unified CM Telephony > Provider** from the Unified CCX Administration menu bar. The Cisco Unified CM Telephony Provider web page opens.

The following table describes the read-only fields displayed in the Unified CM Telephony Provider Configuration web page.

Field Heading	Description
Primary Unified CM Telephony Provider	IP address of the Cisco Media Convergence Server (Cisco MCS) running Unified CM CTI Manager in the cluster. This is normally the first CTI Manager or Cisco Unified CM Telephony Provider selected by the Unified CCX user for Unified CM Telephony subsystem using System > Cisco Unified CM Configuration web page.
Secondary Unified CM Telephony Provider	IP address of the second Cisco Media Convergence Server (Cisco MCS) running Unified CM CTI Manager in the cluster. This is normally the second CTI Manager or Cisco Unified CM Telephony Provider selected by the Unified CCX user for Unified CM Telephony subsystem using System > Cisco Unified CM Configuration web page.
	 <p>Note If you have selected only one Unified CM Telephony provider, this field will be blank.</p>
User Prefix	User prefix for the Unified CM user IDs created in Unified CM.

To modify the Unified CM Telephony subsystem, click **Modify Cisco Unified CM Telephony Provider Information** icon that displays in the tool bar in the upper, left corner of the window. The Cisco Unified CM Configuration web page

opens. Refer to [Modifying Unified CM Telephony Information, page 4-8](#) section for detailed information on how to reconfigure the Unified CM Telephony information.

Related Topics

- [Configuring a Unified CM Telephony Provider, page 7-7](#)
- [Adding a New Unified CM Telephony Call Control Group, page 7-9](#)
- [Additional Unified CM Telephony Information, page 7-22](#)
- [Modifying Unified CM Telephony Information, page 4-8](#)

Adding a New Unified CM Telephony Call Control Group

The Unified CCX system uses Unified CM Telephony call control groups to pool together a series of CTI ports, which the system uses to serve calls as they arrive or depart from the Unified CCX server. You can create multiple Unified CM Telephony call control groups to share and limit the resources to be used by specific applications.

To configure a new Unified CM Telephony call control group, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > Unified CM Telephony > Call Control Group**.

The Cisco Unified CM Telephony call control group Configuration web page opens, which displays the existing Unified CM Telephony Call Control Group information, if any.

Step 2 Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window to create a new CTI port. The Cisco Unified CM Telephony Call Control Group Configuration web page opens.



Note You can create only one call control group of the Outbound type, in which the number of CTI ports must be always equal to or greater than the licensed Outbound IVR ports.

Step 3 Use this web page to specify the following information:

Page Area	Field	Description
Group Information	Group ID	<p>Group ID corresponds to the trunk group number reported to Cisco Unified Intelligent Contact Management Enterprise (Unified ICME) when the Unified CCX server is part of the Unified ICME solution.</p> <p>Note This field is not available in the page for adding a new call control group. While you add a new call control group the next available Group ID is used internally. This field is displayed only in Cisco Unified CM Telephony Call Control Group Configuration list / update page.</p> <p>Note If a Stop icon displays beside the Group ID (on the Cisco Unified CM Call Control Group Configuration list page), it indicates that the data is invalid or out of sync with Unified CM data; if a Head icon displays, then the Group is valid.</p>
	Description	Enter a brief description for a call control group that is added. This is a mandatory field and this field must be populated before you add a call control group.

Page Area	Field	Description
Group Information (continued)	Number of CTI Ports	<p>Number of CTI Ports assigned to the call control group. This is a mandatory field.</p> <p>If you have a Premium license with an Outbound IVR license, you can create only one Outbound call control group with a minimum licensed number of IVR ports or more. The number of CTI ports for an outbound type of call control group can be modified but not below the licensed ports for Outbound IVR. This rule does not apply to inbound type call control groups. You can continue to create more inbound type call control groups.</p> <p>Note If this field is set to <i><n></i>, the system creates <i><n></i> ports for each Unified CCX Engine node (node in which Unified CCX Engine component is enabled).</p>
	Media Termination Support	<p>Enables the auto-creation of media termination groups. This is a mandatory field.</p> <p>Yes = provides automatic media termination if the CTI port group is successful (see Media Termination Groups, page 7-2).</p> <p>No = Media termination port group is not created (default).</p>
	Group Type	<p>Select the group type for the call control group using this radio button. The choices are Inbound and Outbound. This is a mandatory field and Inbound radio button is enabled by default. You cannot change the group type from Outbound to Inbound and vice versa. The Outbound type call control group will be displayed only if you have uploaded the Outbound IVR license on top of the premium license in your Unified CCX.</p> <p>Note The existing call control groups will have this value as inbound after an upgrade from Unified CCX versions prior to 8.5(1).</p>
Directory Number Information	Device Name Prefix	<p>The Device Name Prefix (DNP) used in the name that will be given all of the CTI Ports in this group. This is a mandatory field.</p> <p>The CTI ports for this port group is restricted to a maximum of 5 characters and has the following format:</p> <p style="text-align: center;"><i><deviceprefix>_<directoryno></i></p> <p>For example, if the Device Name Prefix is <i>CTP</i> and the starting Directory Number is <i>7000</i>, then the CTI Port that is created in Unified CM can have the device name <i>CTP_7000</i>.</p>

Select Server for Telephony Port Group Configuration (displayed only in a HA over WAN deployment)

Page Area	Field	Description
	Select Server	<p>This field is displayed only in a HA over WAN deployment and it displays the different Unified CCX nodes that are available in a HA over WAN deployment in a drop-down list.</p> <p>In a HA over WAN setup, you need to configure directory information along with Unified CM-specific information for the ports in each node. Once you select a node, all configuration details displayed below this field will be specific to the selected node only. So, if you update any node-specific parameters (below the Select Server field), it will be applicable only to the ports specific to the selected node. But, if you update any configuration data above the Select Server field, it will be applicable for the ports in both the nodes except for the Number of CTI Ports field.</p> <p>Note You need to ensure that the values in Number of CTI ports field for both the nodes are the same. If you modify this field, the number of ports is modified for the selected node only as the device pool selection for both nodes could be different in a HA over WAN deployment. If you click Add before updating this value for either of the node, then the port group for that node will be marked with a red cross in the main Cisco Unified CM Telephony Call Control Group Configuration web page to signify the fact that the number of ports between the two nodes is different and the other node should also be updated. In such a scenario, click the hyperlink for the node that is tagged in red and from the Cisco Unified CM Telephony Call Control Group Configuration page for the selected node, update the value in the Number of CTI Ports field and click Update to ensure the number of CTI ports for both the nodes are the same.</p> <p>Once you configure the data for the selected node and click Add or Update, the updated configuration information will be saved. For detailed information on behaviour in HA over WAN scenario, refer to <i>Expected Behaviour During a Failover Guide</i>. In case of LAN deployment, this field is not displayed as the same configuration data will be applicable for both the nodes in the cluster.</p>

Page Area	Field	Description
Directory Number Information	Starting Directory Number	<p>A unique phone number. The value can include numeric characters and special characters (#) and (*). The specified number of ports will be created starting from the value specified in this field. The Directory Number that you enter can appear in more than one partition. This is a mandatory field.</p> <p>Note When a pattern is used as a Directory Number, the phone display and the caller ID display on the dialed phone will contain characters other than digits. To avoid this, provide a value for Display (Internal Caller ID), Line Text Label, and External Phone Number Mask.</p>
	Device Pool	<p>Set of common characteristics for devices, such as region, date/time group, softkey template, and MLPP information to which you want to assign this phone.</p> <p>Note The support for having multiple device pools associated with call control group(s) has been withdrawn in Unified CCX 8.5(1). If you have multiple device pools associated with call control group(s) in an older version of Unified CCX, it is recommended to manually assign a single device pool to each call control group. For more information, see Unified CM Telephony Data Synchronization, page 18-5.</p>
	DN Calling Search Space	<p>A collection of partitions that are searched to determine how a dialed number should be routed. The calling search space for the device and the calling search space for the directory number get used together. The directory number calling search space takes precedence over the device calling search space.</p> <p>For more information, see the <i>Cisco Unified Communications Manager System Guide</i>.</p>
	Location	<p>The Cisco Unified Communications phone location setting specifies the total bandwidth that is available for calls to and from this location. A location setting of HUB_NONE means that the location feature does not keep track of the bandwidth that this Cisco Unified Communications phone consumes.</p>
	Partition	<p>The Cisco Unified Communications phone location setting specifies the total bandwidth that is available for calls to and from this location. A location setting of HUB_NONE means that the location feature does not keep track of the bandwidth that this Cisco Unified Communications phone consumes.</p>

Page Area	Field	Description
Advanced Directory Number Information (only available if you click Show More)		
Directory Number (<i>continued</i>)	Alerting Name ASCII	This information is automatically populated based on the configuration in the Unified CM setup and displays the ASCII name filed used in one of the following situations: <ul style="list-style-type: none"> • if the device is not capable of handling the Unicode strings • if the locals on end point devices do not match • if the Unicode string is not specified
	Redirect Calling Search Space	A collection of partitions that are searched to determine how a redirected call should be routed.
	Media Resource Group List	A prioritized grouping of media resource groups. An application chooses the required media resource, such as a Music On Hold server, from the available media resources according to the priority order that is defined in a Media Resource Group List. If you choose <none>, Unified CM uses the Media Resource Group that is defined in the device pool.
Directory Number Setting	Voice Mail Profile	A list of profiles defined in the Voice Mail Profile Configuration. The first option is <None>, which is the current default Voice Mail Profile that is configured in the Voice Mail Profile Configuration.
	Presence Group	See <i>Cisco Unified Communications Manager Administration Guide</i> for detailed information on how to configure presence groups.

Page Area	Field	Description
	Require DTMF Reception	A Unified CM radio button to determine if DTMF reception is required. Yes is selected by default. If you select No, a warning message is displayed.
	AAR Group	Automated Alternate Routing (AAR) group for this device. The AAR group provides the prefix digits that are used to route calls that are otherwise blocked due to insufficient bandwidth. An AAR group setting of <None> specifies that no rerouting of blocked calls will be attempted.
	User Hold Audio Source	Audio source heard by the caller when the Unified CCX Script places the caller on hold via the Hold Step (when you press the hold key).
	Network Hold Audio Source	Audio source heard by the caller will when Unified CCX performs a Consult Transfer (when Unified CCX calls an agent). Use this entry for the .wav file (for example, .wav file playing a ring back tone) to be played to the caller during this Consult Transfer.
Call Forward and Pickup Settings	Call Pickup Group	The number that can be dialed to answer calls to this directory number in the specified partition.
	Display	Use a maximum of 30 alphanumeric characters. Typically, use the user name or the directory number (if using the directory number, the person receiving the call may not see the proper identity of the caller). Leave this field blank to have the system display the extension.
	External Phone Number Mask	Phone number (or mask) that is used to send Caller ID information when a call is placed from this line. You can enter a maximum of 30 number and X characters. The X characters represent the directory number and must appear at the end of the pattern. For example, if you specify a mask of 972813XXXX, an external call from extension 1234 displays a caller ID number of 9728131234.

Step 4 Click **Add** or **Save**.

The Unified CM Telephony Call Control Group Configuration summary web page opens. The corresponding CTI ports are created in the Unified CM Telephony call control group. The new call control group appears in the list of call control groups displayed in the Cisco Unified CM Telephony Call Control Group Configuration web page.

Related Topics

- [Configuring a Unified CM Telephony Provider, page 7-7](#)
 - [Adding a Unified CM Telephony Trigger, page 7-16](#)
 - [Additional Unified CM Telephony Information, page 7-22](#)
-

Adding a Unified CM Telephony Trigger

You must configure Unified CM Telephony triggers to invoke application scripts in response to incoming contacts. A Unified CM Telephony trigger responds to calls that arrive on a specific route point by selecting telephony and media resources to serve the call and invoking an application script to handle the call. The Unified CM Telephony triggers are available with all Unified CCX license packages.

Unified CM Telephony trigger settings include:

- **Session** information, such as the application to associate with the trigger, Maximum Number of sessions allowed (see [Media Termination Groups, page 7-2](#)), and the Idle Timeout value.
- **CTI** information, such as a CTI port device and CTI route points for each call Unified CCX simultaneously places or accepts.
- **Directory Number** information, such as the Voice Mail Profile and Calling Search Space.
- **Call Forward and Pickup** instructions.

To add and configure a Unified CM Telephony trigger, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Cisco Unified CM Telephony > Triggers**.

The Unified CM Telephony Trigger Configuration web page opens displaying the following fields.

Field	Description
Route Point	Available CTI route point, which is the directory number associated with the trigger.
Application	Application name to associate with the trigger.
Sessions	Maximum number of simultaneous calls that the trigger can handle.
Enabled	True if the trigger is enabled; False if the trigger is disabled.

**Note**

If you try to delete a trigger associated with an outbound call control group, then the campaigns associated with the trigger become invalid and the application also gets deleted. In such cases, on click of Delete icon or button, a dialog box opens to confirm your action. Click **OK** if you want to delete the trigger and disassociate the campaigns associated with it. If you delete a trigger and navigate to the Campaign Configuration web page, you will also see an alert regarding the missing trigger association for that campaign.

- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.
- The Unified CM Telephony Trigger Configuration web page opens.
- Step 3** Use this web page to specify the following mandatory fields:

Field	Description
Directory Information	
Directory Number	<p>A unique phone number. The value includes numeric characters, preceded or appended by the following special characters:</p> <p># * [] X -</p> <p>Examples of valid Directory Numbers: *#12#* or 12*23</p> <p>Examples of invalid Directory Numbers: 91X+, 91X?, 91!, 813510[^0-5] as it contains a character other than numerical and allowed special characters or 8]90[-, as it doesn't conform with the rule that the square bracket ([]) characters enclose a range of values.</p> <p>Note See the <i>Wildcards and Special Characters in Route Patterns and Hunt Pilots</i> section in the <i>Cisco Unified Communications Manager System Guide</i> for more information.</p>
Trigger Information	
Language	<p>Choose the default language to associate with the incoming call when the application is started from this drop-down menu.</p> <p>Note To add a Language option, click Edit button. The User Prompt dialog box opens. Enter a locale string value and click OK. The User Prompt dialog box closes, and the name of the language opens in the Language field in the Unified CM Telephony Configuration web page.</p>
Application Name	Drop-down menu, choose the application to associate with the trigger.
Device Name	A unique identifier for this device, consisting of alphanumeric characters, dots, dashes, or underscores.
Description	A descriptive name for the CTI route point.
Call Control Group	Choose the call control group to associate with the trigger from this drop-down menu. For Outbound IVR Dialer, you must select the call control group from Outbound type call control group list. The route point should be created on Unified CM. Once you assign the Outbound group for a trigger, you cannot change it to an Inbound group and vice versa.

Advanced Configuration (available only if you click **Show More**).

Advanced Trigger Information

Field	Description
Enabled	Radio buttons, choose the required option: Yes - enable the trigger (default) No - disable the trigger.
Maximum Number of Sessions	The maximum number of simultaneous calls that this trigger can handle. The number is actually governed by the Unified CM (10,000 for each separate line). However in Unified CCX, this number is restricted to the maximum number of sessions. Any call exceeding this number gets the busy tone (see the “Adding a Unified CM Telephony Trigger” section on page 7-16).
Idle Timeout (in ms)	The number of milliseconds (ms) the system should wait before rejecting the Unified CM Telephony request for this trigger.
Override Media Termination	Radio buttons to choose the required options: Yes - Override media termination. No - Enable media termination (default). If you select Yes, two panes open: <ul style="list-style-type: none"> Selected Dialog Groups displays the default or selected group. Available Dialog Groups lists the configured dialog

CTI Route Point Information

Alerting Name ASCII	This information is automatically populated based on the configuration in the Unified CM setup and displays the ASCII name filed used in one of the following situations: <ul style="list-style-type: none"> if the device is not capable of handling the Unicode strings if the locals on end point devices do not match if the Unicode string is not specified
Device Pool	The device pool to which you want to assign this route point. A device pool defines sets of common characteristics for devices, such as region, date/time group, softkey template, and MLPP information.
Location	The total bandwidth that is available for calls to/from this location. A location setting of HUB_NONE indicates that the locations feature does not keep track of the bandwidth used by this route point.

Directory Number Settings

Field	Description
Partition	<p>The partition to which the Directory Number belongs. The Directory Number field value must be unique within the partition that you choose.</p> <p>If you do not want to restrict access to the Directory Number, select <None> as the partition setting.</p>
Voice Mail Profile	<p>A list of profiles defined in the Voice Mail Profile Configuration.</p> <p>The first option is <None>, which is the current default Voice Mail Profile that is configured in the Voice Mail Profile Configuration.</p>
Calling Search Space	<p>A collection of partitions that are searched for numbers that are called from this directory number. The specified value applies to all devices that use this directory number.</p> <p>Note Changes to this field result in an update of the numbers listed in the Call Pickup Group field.</p> <p>You can configure calling search space for Forward All, Forward Busy, Forward No Answer, and Forward on Failure directory numbers. The value you choose applies to all devices that are using this directory number.</p> <p>If you set the Forward All Calling Search Space field to <None>, Unified CM uses the calling search spaces of the line and the phone when you forward the calls by using the Cisco IP Phone User Options windows or the CFwdAll softkey on the phone.</p> <p>To restrict users from forwarding calls on their phones, choose a restrictive calling search space from the Forward All Calling Search Space field.</p> <p>For example, assume you have two calling search spaces: Building and PSTN. Building only allows users to call within the building, while PSTN allows users to call both in and outside the building. You could assign the phone to the Building calling search space and the line on your phone to the PSTN calling search space. If you set the Call Forward All calling search space to <None>, Unified CM can forward calls to any number within the PSTN or building calling search spaces. To prevent a user from forwarding calls to numbers outside the building, set the Call Forward All calling search space to Building. For more information, see the <i>Cisco Unified Communications Manager System Guide</i>.</p>
Presence Group	<p>A list of groups to integrate the device with the iPass server. The device/line information is provided to integrating applications.</p>

Field	Description
Call Forward and Pickup Settings	
Forward Busy	<p>Check one of the following options:</p> <p>Voice Mail - Check this box to use settings in the Voice Mail Profile Configuration window.</p> <p>Note When this box is checked, Unified CM ignores the settings in the Destination box and Calling Search Space.</p> <p>Destination: to use any disable phone number, including an outside destination.</p> <p>Calling Search Space: to apply the above setting all devices that are using this directory number.</p>
Display	Use a maximum of 30 alphanumeric characters. Typically, use the user name or the directory number (if using the directory number, the person receiving the call may not see the proper identity of the caller). Leave this field blank to have the system display an extension.
External Phone Number Mask	<p>Phone number (or mask) that is used to send Caller ID information when a call is placed from this line.</p> <p>You can enter a maximum of 30 number and X characters. The X characters represent the directory number and must appear at the end of the pattern. For example, if you specify a mask of 972813XXXX, an external call from extension 1234 displays a caller ID number of 9728131234.</p>

Step 4 Click **Add** or **Save** to save the changes. The specified route point is created on the the Unified CM.

The Unified CM Telephony Trigger Configuration web page opens and displays the new Unified CM Telephony trigger.

Related Topics

- [Configuring a Unified CM Telephony Provider, page 7-7](#)
- [Configuring a Unified CM Telephony Provider, page 7-7](#)
- [Adding a New Unified CM Telephony Call Control Group, page 7-9](#)
- [Additional Unified CM Telephony Information, page 7-22](#)

Additional Unified CM Telephony Information

This section includes the following topics:

- [Provisioning Unified CM Telephony Triggers for Unified CCX Queuing, page 7-22](#)
- [Resynchronizing Unified CM Telephony Information, page 7-22](#)

Provisioning Unified CM Telephony Triggers for Unified CCX Queuing

When limiting the number of calls per application in Unified CCX applications, you need to take care to coordinate the Unified CM Telephony trigger Maximum Number of Sessions limit with the Media Group session limit.

For example, say you are using Unified CCX for queuing calls and set the Unified CM Telephony trigger Maximum Number of Sessions limit on Unified CCX to **4** and set the Call Forward and Pickup Settings to send the fifth call to voice mail. To make this happen, you must configure the Media Group Session Limit to the identical setting (**4**). This will cause Unified CM to forward the next incoming call to voice mail (once the CTI New Call Accept timer setting expires).

The drawback of this approach is that you need to define more media groups for each application and you cannot share the same set of media groups across multiple applications.

Related Topics

[Provisioning Unified CM Telephony Subsystem, page 7-5](#)

Resynchronizing Unified CM Telephony Information

If the Unified CM Telephony information (Unified CM Telephony users, CTI ports, triggers) in the Unified CM is missing or not in sync with Unified CCX data, choose **Subsystems > Cisco Unified CM Telephony > Data Resync** from the Unified CCX Administration menu bar. Unified CCX checks whether:

- The Unified CM Telephony users exist in Unified CM.
- All the ports belonging to the Port Group exist in Unified CM.
- The Port Group's data is in sync with Ports data in Unified CM.
- The Ports' association to users are correct.
- The Route Point exist in Unified CM.
- The Triggers data is in sync with the Route Point data in the Unified CM.
- The Route Points have been associated with all the Unified CM Telephony users in Unified CM.
- Synchronizes the data by:
 - Creating any missing users.
 - Creating any missing ports.
 - Modifying out-of-sync ports.
 - Associating CTI Ports to Unified CM Telephony users. (For example, associating CTI Ports created for Node 1 to the Unified CM Telephony User for Node 1, and so forth.)
 - Creating any missing route points.
 - Modifying out-of-sync route points.
 - Associating route points to all the Unified CM Telephony users.

Related Topics

[Provisioning Unified CM Telephony Subsystem, page 7-5](#)

Provisioning Cisco Media Subsystem

The Cisco Media subsystem is a subsystem of the Unified CCX Engine. The Cisco Media subsystem manages the CMT media resource. CMT channels are required for Unified CCX to be able to play or record media.

The Cisco Media subsystem uses *dialog groups* to organize and share resources among applications. A dialog group is a pool of *dialog channels* in which each channel is used to perform *dialog interactions* with a caller, during which the caller responds to automated prompts by pressing buttons on a touch-tone phone.

**Note**

The built-in grammars and grammar options that are supported by Unified CCX when using an MRCP dialog channel is determined by the MRCP speech software you purchase. See the software vendor for information about what built-in grammars and features are supported.

To enable your Unified CCX applications to handle simple DTMF-based dialog interactions with customers, you will need to provision the Cisco Media subsystem to configure CMT dialog groups.

**Caution**

All media termination strings begin with **auto** and contain the same ID as the call control group—not the CMT dialog group. If the default media termination is configured and the ID differs, follow the procedure provided in the [“Adding a CMT Dialog Control Group”](#) section on page 7-24.

Related Topics

- [Adding a New Unified CM Telephony Call Control Group, page 7-9](#)
- [Cisco Media Menu Option, page 18-32](#)

Adding a CMT Dialog Control Group

To add a CMT dialog control group, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Cisco Media**.

The Cisco Media Termination Dialog Group Configuration web page opens. Any preconfigured entry is listed on this page with the following information:

Field	Description
GroupID	The unique Group ID associated with the media.
Description	CMT group description. Note The ID in the this field need not necessarily match the CMT group ID.
Channels	Number of channels associated with the group.

Step 2 Click **Add New icon** at the top or **Add New** button at the bottom of the window. The Cisco Media Termination Dialog Group Configuration web page opens.



Note By default, a Unified CM Telephony Call Control Group with Group ID 0 is created.

Step 3 Use this web page to specify the following fields.

Field	Description
Group ID	A Group ID value unique within all media group identifiers, including ASR group identifiers. This is a mandatory field.
Description	Description for the Cisco Media Termination Dialog group.
Number of Licensed IVR ports	Number of licensed IVR ports. <i>Display only.</i>
Maximum Number Of Channels	Maximum number of channels associated with this group. This is a mandatory field. Note You can specify any value for Maximum Number Of Channels, but restrictions are placed on the system when a call is made. This restriction is imposed by the number of licensed IVR ports on your system. This is a mandatory field.

Step 4 Click **Add** icon that displays in the tool bar in the upper, left corner of the window or the **Add** button that displays at the bottom of the window.

The CMT Dialog Group Configuration web page opens, displaying the new CMT dialog group.

You are now ready to provision MRCP ASR and MRCP TTS subsystems.

Related Topics

- [Provisioning Cisco Media Subsystem, page 7-23](#)
- [Cisco Media Menu Option, page 18-32](#)

Provisioning ASR and TTS in Unified CCX

Unified CCX supports ASR and TTS through two subsystems:

- MRCP ASR—This subsystem allows users to navigate through a menu of options by speaking instead of pressing keys on a touch-tone telephone.
- MRCP TTS—This subsystem converts plain text (UNICODE) into spoken words to provide a user with information or prompt a user to respond to an action.

Related Topics

- [Before You Provision ASR/TTS, page 7-26](#)
- [Provisioning MRCP ASR Subsystem, page 7-27](#)
- [Provisioning MRCP TTS Subsystem, page 7-34](#)

Before You Provision ASR/TTS

It is the responsibility of the **customer** to perform the following tasks:

- Order ASR/TTS speech servers from Cisco-supported vendors.

**Note**

For more information on supported speech servers for Unified CCX, see the *Cisco Unified CCX Software and Hardware Compatibility Guide* for Active Releases available at http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_device_support_tables_list.html.

- Work with the ASR/TTS vendor to size the solutions.
- Provision, install, and configure the ASR/TTS vendor software on a different server (in the same LAN) and not where the Unified CCX runs. You can configure the speech software for Unified CCX 8.5(1) in the same way as Unified CCX 7.0 (see http://www.cisco.com/en/US/prod/collateral/voicesw/custcosw/ps5693/ps1846/product_bulletin_c25-546866.html for detailed information).
- Before uploading a ASR/TTS script to Unified CCX Administration, validate the script against the capabilities and specifications supported by the ASR/TTS vendor.

Provisioning MRCP ASR Subsystem

The MRCP ASR subsystem allows users to navigate through a menu of options by speaking instead of pressing keys on a touch-tone telephone. When a user calls local directory assistance, for example, ASR can prompt the user to say the city and state in which to locate the information, then connect the user to an appropriate operator.

To provision the MRCP ASR subsystem, define the following information:

- **MRCP ASR Providers**—Information about the vendor of your speech server, including the number of licenses and the grammar type (see [Provisioning MRCP ASR Providers, page 7-28](#)).
- **MRCP ASR Servers**—Information about the ASR server's name, port location, and available languages (see [Provisioning MRCP ASR Servers, page 7-29](#)).
- **MRCP ASR Groups**— Information about the MRCP ASR dialog control groups and associated locales, which enable Unified CCX applications to use speech recognition (see [Provisioning MRCP ASR Dialog Groups, page 7-31](#)).

Related Topics

- [Before You Provision ASR/TTS, page 7-26](#)
- [Provisioning MRCP TTS Subsystem, page 7-34](#)

Provisioning MRCP ASR Providers

Use the MRCP ASR Provider Configuration web page to specify information about the vendor of your speech server.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystem > MRCP ASR > MRCP ASR Providers**.

The MRCP ASR Provider Configuration web page opens, displaying the list of currently configured MRCP Providers, licenses, and the corresponding status. The following table provides a brief description of these fields.

Field	Description
Provider	MRCP ASR Providers configured by the Unified CCX Administrator.
License	The number of ASR port licenses purchased from the ASR vendor.
Status	Status or state of the subsystem.

- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.

The MRCP ASR Provider Configuration web page opens.

- Step 3** Use this web page to specify the following mandatory fields.

Field	Description
Provider Name	Enter the name of the MRCP ASR provider supported by Unified CCX.
Number of Provider Licenses	The number of ASR port licenses purchased from the ASR vendor.
Grammar Variant	Vendor-specific grammar setting. Valid options: <ul style="list-style-type: none"> Nuance Open Speech Recognizer servers (OSR 3.1.x) Nuance 8.5 ASR servers (Nuance) IBM WVS ASR servers (2003 SISR)

- Step 4** Click **Add** icon in the tool bar in the upper, left corner of the window or the **Add** button that displays at the bottom of this window to apply changes.

**Note**

After you update MRCP ASR/TTS Providers, Servers, and Groups, the corresponding Provider needs to be Refreshed for changes to take effect. The Unified CCX Engine does not need to be restarted. However, during a Refresh, Unified CM Telephony triggers using affected groups will fall back to the dialog group that is configured and the MRCP Provider being refreshed will go NOT_CONFIGURED until the reload is complete.

Your changes appear in the MRCP ASR Providers List page. You are now ready to provision MRCP ASR Servers.

**Note**

If you delete an ASR/TTS provider and all of its associated servers and then create a new ASR/TTS provider, its status might become IN_SERVICE immediately, even before you create any servers for it. In this situation, click **Refresh** for that ASR/TTS provider, or click **Refresh All**. These actions change the status of the ASR/TTS provider to NOT_CONFIGURED.

Related Topics

- [Provisioning MRCP ASR Servers, page 7-29](#)
- [Provisioning MRCP ASR Dialog Groups, page 7-31](#)

Provisioning MRCP ASR Servers

Use the MRCP ASR Server Configuration web page to specify information about the speech server's name, port location, and available language.

**Note**

You must have a MRCP ASR Provider defined before you can provision a MRCP ASR Server.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystem > MRCP ASR > MRCP ASR Servers**.

The MRCP ASR Server Configuration web page opens, displaying a list of previously configured servers, if applicable with the following information:

Column	Description
Computer Name	Host name or IP address in which the ASR server software is installed. Note ASR server deployment over WAN is not supported in Unified CCX. In other words, the ASR server should be in the same LAN where Unified CCX is. Thus, you need to specify the ASR server host name or IP address that is local with the Unified CCX node while installing the ASR server software in this field.
Provider	The MRCP ASR Provider to which this server is associated.
Port	TCP port numbers used to connect to a MRCP server <ul style="list-style-type: none"> • OSR 3.1x - 4900 • 2003 SISR - 554 • Nuance - 554
Status	Status or state of the subsystem.

- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window to provision a new MRCP ASR Server.

The MRCP ASR Server Configuration web page opens.

- Step 3** Use this web page to specify the following fields.

Field	Description
Server Name	Host name or IP address of the server where the MRCP ASR server software is installed.
Provider Name	Select the name of the MRCP ASR Provider to which this server is associated from this drop-down list.

Field	Description
Port Number	<p>TCP port numbers that are used to connect to an MRCP server. Though the default value is shown as 4900, you need to provide any one of the following values in this field based on the TCP provider or grammar variant you have selected while configuring an MRCP ASR provider:</p> <ul style="list-style-type: none">OSR 3.1x - 49002003 SISR - 554Nuance - 554
Locales	<p>Languages supported by the ASR Provider. Select a language (or multiple languages) from the drop-down list and click Add Language; the selected language appears in the Enabled Language list.</p> <p>Note Use the check box to disable/enable a language.</p>

Step 4 Click **Add** to apply changes.

Your changes appear in the MRCP ASR Server list web page. You are now ready to provision MRCP ASR Groups.

Related Topics

- [Provisioning MRCP ASR Providers, page 7-28](#)
- [Provisioning MRCP ASR Dialog Groups, page 7-31](#)

Provisioning MRCP ASR Dialog Groups

Use the MRCP Groups Configuration web page to specify information about MRCP ASR dialog control groups, which enable Unified CCX applications to use speech recognition.



Note

You must have a MRCP ASR Provider defined before you can provision a MRCP ASR Group. Also, you should configure MRCP ASR Servers for the specific MRCP Provider before configuring the MRCP ASR Groups. This allows users to configure languages for the groups based on the languages supported by the configured servers.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystem > MRCP ASR > MRCP ASR Dialog Groups**.

The MRCP ASR Dialog Group Configuration web page opens to display a list of preconfigured entries, if applicable with the following information:

Field	Description
Group ID	Identifier for the group.
Description	Description of this dialog group.
Provider	Name of the MRCP ASR provider.
Channels	Maximum number of sessions.


This web page also displays the Number of Licensed IVR Channels.

- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window to provision a MRCP ASR Group.

The MRCP ASR Dialog Group Configuration web page opens.

- Step 3** Use this web page to specify the following fields:

Field	Description
Group ID	Associated group ID.
Description	Description of this dialog group. Tip Include languages that will be used by this Group to the description. Doing so will provide insight to the languages this Group uses when you set up the dialog group in the Unified CM Telephony trigger configuration. This also ensures that the locales used by the application configured in the Unified CM Telephony trigger match the locales supported by the MRCP ASR dialog group being selected.
Number Of Provider Licenses	Display only.
Number Of Licensed IVR Ports	Display only.

Field	Description
Maximum Number Of sessions	<p>Maximum number of sessions associated with this dialog group.</p> <p>Note You can assign any value for Maximum Number Of Channels, but restrictions are placed on the system when a call is made. This restriction is imposed by the number of licensed IVR ports on your system.</p> <hr/> <p> Caution Under heavy load, calls that utilize a channel from an MRCP ASR Dialog Control Group, might have a reduced call completion rate as the MRCP channels used by calls can take some additional time to clean up all the sessions set up with MRCP resources. To address this situation, you can overprovision the value of this field by a factor of 1.2 or by an additional 20 percent. For example, if your application requires 100 MRCP ASR channels, then modify the value in this field to be 120 MRCP ASR channels.</p>
Provider Name	Select a MRCP Provider name from the drop-down list that contains a list of all previously defined provider names.
Enabled Languages	<p>Select the language(s) that you wish to configure for this group from the list displayed.</p> <p>The displayed languages represent the locales configured for all MRCP ASR servers for the specified provider. If there are no MRCP ASR servers configured, no languages are displayed. In this case, you will need to update the group configuration once MRCP ASR servers have been configured for the specified provider.</p>

Step 4 Click **Add** to apply changes.

Your changes appear in the MRCP ASR Groups list web page.

Related Topics

- [Provisioning MRCP ASR Providers, page 7-28](#)
- [Provisioning MRCP ASR Servers, page 7-29](#)

Provisioning MRCP TTS Subsystem

The MRCP TTS subsystem converts plain text (UNICODE) into spoken words to provide a user with information or prompt a user to respond to an action.

For example, a company might use TTS to read back a customer's name, address, and telephone number for verification before the company ships a requested product to the customer's location. Or a customer might dial into a pre-designated phone number, access a voice portal, and listen to the latest weather report or stock quotes. TTS can also convert e-mail text to speech and play it back to the customer over telephone.

To provision the MRCP TTS subsystem, define the following information:

- **MRCP TTS Providers**—Information about the vendor of your TTS system (see [Provisioning MRCP TTS Providers](#), page 7-35).



Note If you delete an ASR/TTS provider and all of its associated servers and then create a new ASR/TTS provider, its status might become IN_SERVICE immediately, even before you create any servers for it. In this situation, click Refresh for that ASR/TTS provider, or click Refresh All. These actions change the status of the ASR/TTS provider to NOT_CONFIGURED.

- **MRCP TTS Servers**—Information about the TTS server's name, port location, and available languages (see [Provisioning MRCP TTS Servers](#), page 7-37).
- **MRCP TTS Default Genders**—Information about the default gender setting for the Locales specified during TTS Server provisioning ([Provisioning MRCP TTS Default Genders](#), page 7-39).



Note You will need at least one MRCP TTS Provider for each vendor requiring TTS server installation.

Related Topics

- [Before You Provision ASR/TTS](#), page 7-26
- [Provisioning MRCP ASR Subsystem](#), page 7-27

Provisioning MRCP TTS Providers

Use the MRCP TTS Providers Configuration web page to specify information about the vendor of your TTS server.



Note

After you update MRCP ASR/TTS Providers, Servers, and Groups, the corresponding Provider needs to be Refreshed for changes to take effect. The Unified CCX Engine does not need to be restarted. However, during a Refresh, Unified CM Telephony triggers using affected groups will fall back to the dialog group that is configured and the MRCP Provider being refreshed will go NOT_CONFIGURED until the reload is complete.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > MRCP TTS > MRCP TTS Provider**.

The MRCP TTS Provider Configuration web page opens. If providers are already configured, this page lists the provider name and corresponding status. The following table provides a brief description of these fields:

Field	Description
ProviderName	MRCP TTS Providers supported by Unified CCX.
Status	Status or state of the subsystem.

Step 2 Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window. Use this web page to specify the MRCP TTS Provider supported by Unified CCX. The MRCP TTS Provider Configuration web page reopens. The Provider Name drop-down list displays the existing MRCP TTS Providers. Choose the MRCP TTS Provider supported by Unified CCX from this list.



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

Step 3 Click **Add** to apply changes.

Your changes appear in the MRCP TTS Provider Configuration web page. You are now ready to provision MRCP TTS Servers.

Related Topics

- [Configuring Default TTS Provider for the Unified CCX System, page 7-36](#)
- [Provisioning MRCP TTS Servers, page 7-37](#)
- [Provisioning MRCP TTS Default Genders, page 7-39](#)

Configuring Default TTS Provider for the Unified CCX System

Optionally, you can configure a default TTS provider. The Unified CCX Prompt Manager uses the default TTS provider for rendering TTS prompts if a TTS provider is not configured in the TTS Prompt. This usually happens in the case of VXML applications. For additional information on supported VXML tags for Unified CCX, see *Scripting and Development Series: Volume 1, Getting Started with Scripts for Cisco Unified CCX and Cisco Unified IP IVR, Release 8.5(1)*.

To configure a default TTS provider, follow these steps.

Step 1 Choose **System > System Parameters**.

Step 2 In the Default TTS Provider drop down list below Media Parameters section, select the provider you wish to be the system default. You must select only a preconfigured TTS provider as the Default TTS Provider.



Note If you are deploying an VXML applications and the only TTS functionality you need is to play pre-recorded .wav files, select the **Cisco LiteSSMLProcessor** option as the Default TTS Provider. This option allows you to execute SSML that has .wav file references in them.

Step 3 Click **Update**.

Related Topic

[Provisioning MRCP TTS Providers, page 7-35](#)

Provisioning MRCP TTS Servers

Use the MRCP TTS Servers Configuration web page to configure the TTS server's name, port location, and available languages.

You need at least one MRCP TTS Server associated with each configured provider.



Note

You must have a MRCP TTS Provider defined before you can provision a MRCP TTS Server.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > MRCP TTS > MRCP TTS Server**.

The MRCP TTS Server Configuration web page opens, displaying a list of previously configured servers, if applicable with the following information:

Column	Description
Computer Name	Host name or IP address of the server in which the TTS server software is installed. Note TTS server deployment over WAN is not supported in Unified CCX. In other words, the TTS server should be in the same LAN where Unified CCX is. Thus, you need to specify the TTS server host name or IP address that is local with the Unified CCX node while installing the TTS server software in this field.
Port	TCP port numbers used to connect to a MRCP server: <ul style="list-style-type: none"> • IBM WebSphere Voice Server • Nuance Vocalizer 4.0 • Scansoft Realspeak 4.0
Provider	The MRCP TTS Provider to which this server is associated.
Status	Status or state of the subsystem.

Step 2 Click **Add MRCP TTS Server** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window to provision a new MRCP ASR Server.

The MRCP TTS Server Configuration web page opens.

Step 3 Use this web page to specify the following fields.

Field	Description
Server Name	Host name or IP address of the server the MRCP TTS server software is installed.
Provider Name	Select the name of the MRCP TTS Provider to which this server is associated from this drop-down list.
Port Number	TCP port number used to connect to a MRCP TTS server. The port numbers are automatically displayed based on the provider or grammar variant that you have selected while configuring a MRCP TTS provider. Following are the different TCP Provider names along with their port numbers: <ul style="list-style-type: none"> • IBM WebSphere Voice Server V5.1.3 - 554 • Nuance Vocalizer 4.0 - 554 • Scansoft Realspeak 4.0 - 4900
Locales	Languages supported by the TTS Provider. Select a language (or multiple languages) from the drop-down list and click Add Language ; the selected language appears in the Enabled Language list. <p>Note Use the check box to disable/enable a language.</p>

Step 4 Click **Add** to apply changes.

Your changes appear in the MRCP TTS Server Configuration web page. You are now ready to provision MRCP TTS Default Genders.



Note

Whenever a new language is added for a MRCP Server—and if this is the first instance of this language being added for the corresponding MRCP Provider—then the default gender for that locale and for the specified provider is

set to Neutral. You should check the MRCP Locales page to review the default genders that are set automatically per locale per provider. Default genders are used when a prompt for a specific locale is used without specifying any gender.

Related Topics

- [Provisioning MRCP TTS Providers, page 7-35](#)
- [Provisioning MRCP TTS Default Genders, page 7-39](#)

Provisioning MRCP TTS Default Genders

Use the MRCP TTS Default Genders Configuration web page to configure the default gender settings per Locale per Provider. TTS uses default genders when a prompt for a specific locale is used without specifying the gender.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > MRCP TTS > MRCP TTS Default Genders**.

The MRCP TTS Default Gender Configuration web page opens displaying the default genders currently configured for each locale for every MRCP TTS Provider that is currently configured.

Step 2 Optionally, change the default gender setting for each locale for each provider.



Note The Locale radio button has the Male, Female, or Neutral options. By default, the “Default Gender” is set to “Neutral” unless configured explicitly.

Step 3 Click **Update** to apply changes.

The system updates the default gender setting for each Locale per Provider.

Related Topics

- [Provisioning MRCP TTS Providers, page 7-35](#)

- [Provisioning MRCP TTS Servers, page 7-37](#)



CHAPTER 8

Provisioning Unified CCX

To provision the Unified CCX subsystem, you must provision your telephony and media resources (see the [“About Unified CCX Telephony and Media”](#) section on page 7-1).



Tip

This section is common to both the Unified CM and Unified CME deployments. Where applicable, a note calls attention if a particular section does not apply to Unified CME.

The following topics introduce the Unified CCX subsystem and explain how to provision it in the Unified CCX system.

- [Configuring RmCm Provider, page 8-2](#)
- [Configuring Resource Groups, page 8-4](#)
- [Configuring Skills, page 8-7](#)
- [Configuring Agents, page 8-10](#)
- [Configuring Contact Service Queues, page 8-17](#)
- [Configuring and Using Remote Monitoring, page 8-30](#)
- [Configuring Agent-Based Routing, page 8-34](#)
- [Configuring Teams, page 8-35](#)
- [Unified Gateway Auto-Configuration Details, page 8-40](#)

Configuring RmCm Provider

The Unified CCX Resource Manager (RM) uses a Unified CM/Unified CME Telephony user (called the RmCm Provider) to monitor agent phones, control agent states, and route and queue calls. See *Installing Cisco Unified Contact Center Express Release 8.5(1) Guide* for detailed instructions on how to configure the RmCm Provider user.

**Note**

For Unified CME, the concept of RmCm **user** does not exist. The AXL Service provider account is used to perform this task.

**Note**

The RmCm user specified through Unified CCX Administration is updated automatically in Unified CM.

This section contains the following topics:

- [Modifying RmCm Provider, page 8-2](#)
- [Associating Agent Extensions with the RmCm Provider, page 8-3](#)

Modifying RmCm Provider

**Note**

This section only applies to Unified CCX Deployments with Unified CM.

**Caution**

While Unified CM supports Unicode characters in first and last names, those characters become corrupted in Unified CCX Administration web pages for RmCm configuration, Real Time Reporting, Cisco Agent/Supervisor Desktop, and Historical Reports.

The RmCm Provider web page is a read-only page that displays the latest configured information. To access this configuration area, choose **Subsystems > RmCm > RmCm Provider** from the Unified CCX Administration menu bar. The RmCm Provider web page opens displaying the following read-only fields.

Field	Description
Primary RmCm Provider	The host name or IP address of the Cisco Media Convergence Server (Cisco MCS) running CTI Manager (Unified CM that runs CTI Manager). The RmCm subsystem registers with the CTI Manager so that it can observe an agent's device when the agent logs in. When the CTI Manager fails, the RmCm subsystem registers with the second CTI Manager, if there is one configured.
Secondary RmCm Provider	The host name or IP address of the secondary RmCm Provider.
User ID	The RmCm user ID.

To modify the RmCm Provider, click **Modify RmCm Provider Information** icon in the tool bar in the upper, left corner of the window. The Cisco Unified CM Configuration web page opens. See [Modifying RmCm Provider Information, page 4-10](#) for detailed instructions on how to change previously-configured RmCm provider information.

Related Topic

[Modifying RmCm Provider Information, page 4-10](#)

Associating Agent Extensions with the RmCm Provider



Note

This section only applies to Unified CCX Deployments with Unified CM.

For every agent/resource created in Unified CM make sure that the agent phone is also associated with the RmCm Provider. You do this from the Unified CM User Page for the RmCm Provider. In other words, even though you *create* the RmCm User in Unified CCX Administration, you still need to use the Unified CM interface to *associate* the RmCm user with an agent phone. These phones are the same as those associated with each agent (see [Assigning Unified CM Users as Unified CCX Agents, page 4-18](#)).

For detailed information on Unified CME configuration, see the Configuration page for Unified CME at http://www.cisco.com/en/US/products/sw/voicesw/ps4625/tsd_products_support_configure.html.

Configuring Resource Groups

Resource groups are collections of agents that your CSQ uses to handle incoming calls. To use resource group-based CSQs, you must specify a resource group.

This section describes:

- [Creating a Resource Group, page 8-4](#)
- [Modifying an Existing Resource Group Name, page 8-5](#)
- [Deleting a Resource Group, page 8-6](#)

Creating a Resource Group

To create a resource group, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Resource Groups**.
- The Resource Group web page opens with a list of configured resource groups (if any).
- Step 2** Click **Add New** icon in the tool bar in the upper, left corner of the window or **Add New** button at the bottom of the window.
- The Resource Group Configuration area opens.
- Step 3** In the Resource Group Name field, enter a resource group name.
- Enter a name that identifies the resource group to which you want to assign agents (for example, “Languages”).
- Step 4** Click **Add**.

The Resource Groups page opens displaying the resource group name in the Resource Group Name column.

Related Topics

- [Modifying an Existing Resource Group Name, page 8-5](#)
- [Deleting a Resource Group, page 8-6](#)

Modifying an Existing Resource Group Name

To modify a resource group name, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Resource Groups**.

The Resource Group web page opens.

Step 2 In the Resource Group Name column, click the resource group that you want to modify.

The Resource Group Configuration area opens.

Step 3 Type the name of the resource group in the Resource Group Name text field.

Step 4 Click **Update** to apply the modifications.

The Resource Groups area opens, displaying the modified resource group name in the Resource Group Name column.

Related Topics

- [Creating a Resource Group, page 8-4](#)
- [Deleting a Resource Group, page 8-6](#)

Deleting a Resource Group

When you delete a resource group, the resource group is removed automatically if it is not associated with any agents and CSQs. If the resource group is associated with any agents or CSQs and if you click **Delete**, then you will be directed to another web page, where you can see a list of the associated CSQs and agents and you are prompted to confirm whether you want to delete the same.



Tip

To delete resource groups, you can use the following procedure or open a Resource Group and click **Delete** icon or button in the Resource Group Configuration web page.

To delete a resource group, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Resource Groups**.
- The Resource Group web page opens.
- Step 2** Click **Delete** icon next to the name of the Resource Group that you want to delete.
- A dialog box opens, warning that the resource group is about to be permanently deleted
- Step 3** Click **Continue**.
- The resource group is deleted.
-

Related Topics

- [Creating a Resource Group, page 8-4](#)
- [Modifying an Existing Resource Group Name, page 8-5](#)

Configuring Skills

Skills are customer-definable labels assigned to agents. All the Unified CCX license packages can route incoming calls to agents who have the necessary skill or sets of skill to handle the call.

This section describes:

- [Creating a Skill, page 8-7](#)
- [Modifying an Existing Skill Name, page 8-8](#)
- [Deleting a Skill, page 8-9](#)

Creating a Skill

To create a skill, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Skills**.

The Skills web page opens to display the Skill Name (customer-definable label assigned to an agent), if configured.

Step 2 Click **Add New** icon in the tool bar in the upper, left corner of the window or **Add New** button at the bottom of the window.



Note When the system reaches the maximum number of skills that can be created, the **Add New** icon or button no longer appears.

The Skill Configuration web page opens.

Step 3 In the Skill Name field, enter a description of a relevant skill (for example, French).

Step 4 Click **Add**.

The Skills web page opens, showing the skill in the Skill Name column and the total number of skills that exist in the system. You can add a maximum of 150 skills.

Related Topics

- [Modifying an Existing Skill Name, page 8-8](#)
- [Deleting a Skill, page 8-9](#)

Modifying an Existing Skill Name

To modify a skill name, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Skills**.

The Skills web page opens.

Step 2 In the Skill Name column, click the skill that you want to modify.

The Skill Configuration web page opens.

Step 3 Modify the name of the skill in the Skill Name text field.

Step 4 Click **Update** to apply the modifications.

The Skills Configuration summary opens, displaying the modified skill name in the Skill Name column.

Related Topics

- [Creating a Skill, page 8-7](#)
- [Deleting a Skill, page 8-9](#)

Deleting a Skill

When you delete a skill, the skill is removed automatically if it is not associated with any agents and CSQs. If the skill is associated with any agents or CSQs and if you click **Delete**, then you will be directed to another web page, where you can see a list of the associated CSQs and agents and you are prompted to confirm whether you want to delete the same.



Tip

To delete skills, you can use the following procedure or open a skill and click **Delete** icon or button in the Skills Configuration web page.

To delete a skill, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > RmCm. > Skills**.

The Skills web page opens.

Step 2 Click **Delete** icon next to the name of the skill that you want to delete.

A dialog box opens, warning that the skill is about to be permanently deleted.

Step 3 Click **Continue**.

The skill is deleted.

Related Topics

- [Creating a Skill, page 8-7](#)
- [Modifying an Existing Skill Name, page 8-8](#)

Configuring Agents

Once the end users in Cisco Unified Communications¹ are defined as agents, the list of agents and their associated Unified CCX devices are displayed in the **Subsystems > RmCm > Resources** page. These agents are also called resources. After you create a resource group, you can assign agents (resources) to that group.

If you have Unified CCX Standard license package, you can add skills to agents once the skills have been created. You can also select the *competence level* of the agent(s) in assigned skills. Competence level indicates the agent's level of expertise in that skill.

You can assign resource groups and skills to agents either individually or in bulk. The bulk option enables you to assign skills and resource groups to multiple agents at the same time.

Once you assign agents to resource groups and skills, you can create a CSQ (see [Configuring Contact Service Queues, page 8-17](#)).

This section describes:

- [Implications of Deleting Agents in Unified CM, page 8-11](#)
- [Assigning Resource Groups and Skills to One Agent, page 8-12](#)
- [Assigning Resource Groups and Skills to Multiple Agents, page 8-14](#)
- [Removing Skills from Agents, page 8-16](#)

Related Topics

- [Assigning Unified CM Users as Unified CCX Agents, page 4-18](#)
- [Modifying an Existing Resource Group Name, page 8-5](#)
- [Deleting a Resource Group, page 8-6](#)

1. Unified Communications users in a Unified CM deployment refers to a Unified CM user. Unified Communications users in a Unified CME deployment refers to a Unified CCX user. End users or agents in a Unified CME deployment is created in the Unified CCX.

Implications of Deleting Agents in Unified CM

**Note**

This section only applies to Unified CCX Deployments with Unified CM.

If you modify an agent's record in Unified CM (for example, changing the Unified CCX extension or deleting the agent), ensure to refresh the user page on Unified CCX Administration interface so that the agent's information in the Unified CCX RmCm subsystem is updated. Choose **Subsystems > RmCm > Resources** option to update the Unified CCX information in the Unified CCX Administration any time. If you change the Unified CCX extension of an agent who is currently logged in, the agent will continue to use the old extension until the agent logs off. The agent must log off and then log back in to the Cisco Agent Desktop to get the new extension.

When Unified CCX detects that the agent no longer exists in Unified CM, it does not automatically delete that agent from the Unified CCX database. Instead, the Unified CCX Resources page displays a new link called **Inactive Agents**. When you click this link, Unified CCX displays a list of agents deleted from Unified CM but still existing in the Unified CCX database. In this case, select the agents to delete from Unified CCX by checking the check box next to the required agent (or select all agents for deletion by clicking **Check All**). Then click **Delete** to remove the selected agents from the Unified CCX database. Unless you follow this procedure, agents deleted in Unified CM will continue to appear in the agents list in the Unified CCX Resources page, but they will not be able to log in as the Unified CM authentication will not be successful.

**Caution**

Deleting Inactive Agents removes the agent details and records from the Historical Reporting Database and HR reports will not display historical information of these agents.

If Unified CM connection errors have occurred, all agents will not be visible to Unified CCX. In this case, Unified CCX interprets these agents as deleted agents. As a result, the Inactive Agents list will not be accurate. When the errors are resolved, click **Inactive Agents** again to see an accurate list.

Related Topics

- [Defining Unified CM Users as Agents, page 4-13](#)
- [Assigning Resource Groups and Skills to One Agent, page 8-12](#)

- [Assigning Resource Groups and Skills to Multiple Agents](#), page 8-14
- [Removing Skills from Agents](#), page 8-16

Assigning Resource Groups and Skills to One Agent

To assign a resource group and skills to an individual agent, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Resources**.

The Resources web page opens.



Note Only agents or supervisors who have assigned Unified CCX extensions are displayed in the list of resources in the Resources area.

- Step 2** Use this web page to view the following fields.

Field	Description
Resource Name	Name of the agent.
Resource Group	Resource group to which the agent has been assigned.
IPCC Extension	Unified CCX Extension assigned to the resource group.
Team	Team to which the agent belongs.

- Step 3** Click the name of the agent in the Resource Name column.
The Resource Configuration web page opens.
- Step 4** Use this web page to specify the following fields.

Field	Description
Resource Name	Name of the agent (Display only).
Resource ID	Unique identifying number of the agent (Display only). This is the alpha-numeric user id assigned in the Unified CM End User Configuration page.
Unified CCX Extension	Unified CCX Extension assigned to the resource group (Display only). This is the IP Phone extension assigned to the user from the Unified CM End User Configuration page as IPCC Extension.
Resource Group	A resource group with which to associate the agent. (Optional).
Automatic Available	Accept the default (Enabled) to automatically put the agent into the Available or Ready state after the agent finishes a call and disconnects. Note When a logged on agent in Ready, Not Ready, or Work state answers a call, the agent's state is subject to the Automatic Available setting. (See Creating a CSQ, page 8-18.)
Assigned/Unassigned Skills	Select one or more skills from the Unassigned Skills list and click < to add the skills to the Assigned Skills List. Select one or more skills from the Assigned Skills List and click > to remove skills from the Unassigned Skills list. You can assign up to 50 skills to the agent. Note You can change the competency level of one skill at a time, only. You cannot change skill competency level as a bulk procedure.
Competence Level	Select a skill from the Assigned Skills list and choosing a number from the Competence Level drop-down menu Changes the competence level of an assigned skill (1 = Beginner, 10 = Expert).
Team	A group of agents who assign the team to which the resource belongs.

Step 5 Click **Update** to apply the changes.

The Resources area of the RmCm Configuration summary web page opens, and the agent is now assigned to the resource group and skills (if skills were assigned).

Related Topics

- [Implications of Deleting Agents in Unified CM, page 8-11](#)
- [Assigning Resource Groups and Skills to Multiple Agents, page 8-14](#)
- [Removing Skills from Agents, page 8-16](#)

Assigning Resource Groups and Skills to Multiple Agents

To assign resource groups and skills to agents in bulk, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, **Subsystems > RmCm > Assign Skills**.

The Assign Skills summary web page opens.



Tip Only agents or supervisors who have assigned Unified CCX extensions are displayed in the list of resources in the Resources area.

Step 2 Use this web page to view the following fields:

Field	Description
Resource Name	Contains the agent's name.
Resource Group	Contains the resource group assigned to the agent.
Cisco Unified CCX Extension	Contains the Unified CCX extension of the agent.

Step 3 In the Resource Name column, check the check box beside each agent to whom you want to assign set of same resource group and skills. In the Resource Name column, check the check box next to each agent you want to assign set of same resource group and skills.



Note You can check the **Select All** check box to select all agents.

The Skill summary web page shows the total number of skills created.

- Step 4** Click **Add Skill** icon that displays in the tool bar in the upper, left corner of the window or the **Add Skill** button that displays at the bottom of the window.

The Add Skill web page opens.

- Step 5** Use this web page to specify the following fields.

Field	Description
Resource Group	To assign a resource group to all the selected agents, choose a resource group from the Resource Group drop-down menu.
Skills to Add	Select one or more skills from the Skills list and click < to add the skills to the Skills to Add List. Note The Skills to Add list contains all skills, not just the skills that agents already have.
Skills	List of the available skills.
Competence Level	Select a skill from the Assigned Skills list and choosing a number from the Competence Level drop-down menu

- Step 6** Click **Update** to apply the changes.

The Assign Skills area of the RmCm Configuration web page opens, and the agents are now assigned to the resource group and skills (if skills were assigned).

Related Topics

- [Implications of Deleting Agents in Unified CM, page 8-11](#)
- [Assigning Resource Groups and Skills to One Agent, page 8-12](#)
- [Removing Skills from Agents, page 8-16](#)

Removing Skills from Agents



Note

If a resource is not assigned a skill you attempt to remove, the resource is not updated. However, the system will still generate a related message.

To remove skills from agents, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Assign Skills**.

The Assign Skill summary web page opens.

- Step 2** In the Resource Name column, click the check box next to the agent(s) you want to remove skills from.



Note

You can click **Select All** check box to select all agents.

- Step 3** Click **Remove Skill** icon that displays in the tool bar in the upper, left corner of the window or the **Remove Skill** button that displays at the bottom of the window.

The Remove Skill Configuration web page opens.

- Step 4** Use this web page to specify the following fields.

Field	Description
Skills to Remove	List of skills that can be removed from the selected agents.
Skills	List of the skills not assigned to the agents.
Update	Click this button to apply changes.
Cancel	Click this button to cancel changes.

- Step 5** Remove skills by choosing one or more skills from the Skills list and clicking > to move the skills to the Skills to Remove list.

- Step 6** Click **Update** to apply the changes.

The Assign Skills area of the RmCm Configuration web page opens, and the agents are no longer assigned to the skills.

Related Topics

- [Implications of Deleting Agents in Unified CM, page 8-11](#)
- [Assigning Resource Groups and Skills to One Agent, page 8-12](#)
- [Assigning Resource Groups and Skills to Multiple Agents, page 8-14](#)

Configuring Contact Service Queues

The Contact Service Queue (CSQ) controls incoming calls by determining where an incoming call should be placed in the queue and to which agent the call is sent.

After you assign an agent to a resource group and skills, you need to configure the CSQs.

You assign agents to a CSQ by associating a resource group or by associating *all* skills of a particular CSQ. Agents in the selected resource group or having *all* the selected skills are assigned to the CSQ.

Skills within the CSQ can be *ordered*. This means, when resources are selected, a comparison is done based on the *competency* level (highest for “most skilled” and lowest for “least skilled”) of the first skill in the list. If there is a “tie,” then the next skill within the order is used, and so on.

Skills within the CSQ can also be *weighted*. The weight value is an integer from 1 to 1000. Each competency level is multiplied by the skill's associated weight, and a final comparison is done on the sum of all the weighted skill competencies (highest value for “most skilled” and lowest for “least skilled”).



Note

For an example of using skill order and weight to determine agent competency level, see “[Resource Pool Selection Criteria: Skills and Groups](#)” section on [page 8-26](#).

The maximum number of CSQs in the system depends on the type of server on which the engine is running. For example, in Unified CCX Release 8.5(1), the following numbers apply:

- MCS-7845 (or equivalent platform): 150 CSQs
- All other platforms: 25 CSQs

For more information, see the Unified CCX Data Sheets at http://www.cisco.com/en/US/products/sw/custcosw/ps1846/prod_literature.html.

Each agent can belong to up to 25 CSQs. To ensure that agents are not assigned to more than 25 CSQs, click **Resources** submenu option in the RmCm Configuration web page, and click **Open Resources Summary Report** icon. The report opens, listing each agent and the number of CSQs to which the agent belongs. If the agent belongs to more than 25 CSQs, modify the skills and resource groups to which the agent is assigned so that the agent does not belong to more than 25 CSQs.

This section describes the following procedures:

- [Creating a CSQ, page 8-18](#)
- [Modifying an Existing CSQ, page 8-24](#)
- [Deleting a CSQ, page 8-25](#)
- [Resource Pool Selection Criteria: Skills and Groups, page 8-26](#)
- [Resource Skill Selection Criteria Within a CSQ, page 8-28](#)

Creating a CSQ

To create a new CSQ and assign agents, complete the following steps.



Note

See [Configuring Contact Service Queues, page 8-17](#) for the number of CSQs that you can create on your system.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Contact Service Queues**.

The Contact Service Queues web page opens.

Step 2 Use this web page to view the following fields:

Field	Description
Name	Name of the resource or skill group.
Contact Queuing Criteria	Algorithm used to order the queued calls (contacts).
Resource Pool Selection Model	The resource selection criteria chosen for this CSQ.
Resource Pool	The skills or resource group used for this CSQ.
CSQ Type	The type of the CSQ.
Delete	Deletes the selected CSQ.


Step 3 Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.

The Contact Service Queue Configuration web page opens.



Note If this link does not appear on the page, it means that the system has reached the maximum number of CSQs that can be created. The CSQ Summary page displays the total number of created CSQs.

Step 4 Use this web page to specify the following fields.

Field	Description
Contact Service Queue Name	Enter a meaningful name that is concise, yet easy to recognize (for example, LanguageExperts). This is a mandatory field.
Contact Service Queue Type	Select one of the following options from this drop-down menu: <ul style="list-style-type: none"> • Voice (default)—Agents in this CSQ can handle inbound voice calls. • Email—Agents in this CSQ can handle inbound email.
	 <p>Note If you select Email CSQ type, you can configure only the Resource Pool Selection Model field. All other fields are not configurable.</p>

Field	Description
Contact Queuing Criteria	Display-only. Displays the criteria used for queuing the contacts. For example, First In, First Out (FIFO).
Automatic Work	<p>Determines whether agents in this CSQ automatically enter Work state after a call. This is a mandatory field. Options are:</p> <ul style="list-style-type: none"> • Enabled—Causes the agents to go into Work state automatically when a call ends. • Disabled (default)—Causes agents to enter Ready or Not Ready state when a call ends, depending on the Automatic Available setting for the agent. <p>Note For more information, see Assigning Resource Groups and Skills to One Agent, page 8-12.</p>
Wrapup Time	<p>Determines the length of the workstate for this CSQ after a call. Options are:</p> <ul style="list-style-type: none"> • Enabled button with seconds field—The seconds field specifies the length of the workstate phase (greater than 0 second but less than 7200 seconds). • Disabled—No limit on how long the agent can stay in the workstate.
Resource Pool Selection Model	<p>Select one of the following options from the drop-down menu:</p> <ul style="list-style-type: none"> • Resource Skills—To create a skills-based CSQ. • Resource Group—To create a resource group-based CSQ. <p>Note This is a mandatory field. For information about choosing between skill-based or group-based selection, see “Resource Pool Selection Criteria: Skills and Groups” section on page 8-26.</p>
Service Level	The target maximum number of seconds a call is queued before it is connected to an agent. This is a mandatory field.
Service Level Percentage	<p>The target goal for percentage of contacts that meet the service level. This is a mandatory field.</p> <p>For example, a call center that has a service level of 20 and a service level percentage of 80 percent has a goal of answering 80 percent of its calls within 20 seconds.</p>

Field	Description
Prompt	<p>.wav prompt file to associate with the CSQ. You can retrieve the prompt file that you select from this Prompt drop-down list using the Create CSQ Prompt Step in the Unified CCX Editor.</p> <p>In the Unified CCX Editor, Create CSQ Prompt Step is one of the steps used to create scripts for the Unified CCX engine. In this step, you need to give the CSQ ID that is displayed as the last number in the AppAdmin address bar of the web page that is displayed when you click on an existing CSQ. For example, the CSQ ID will be 3 if the address bar of an existing CSQ Configuration web page ends with “&csdid=3”. When the script executes, it will return the prompt associated with the specific CSQ ID. Use the Play Prompt Step within the script to play this prompt.</p> <p>See the <i>Cisco Unified CCX Editor Step Reference Guide</i> for detailed information on scripting.</p>

Step 5 Click **Next**.

The second Contact Service Queue Configuration area opens with the newly-assigned CSQ Name.

Step 6 Select an option from the Resource Selection Criteria drop-down menu.



Note The Resource Selection Criteria field is displayed only if you have selected the CSQ type as Voice. This field is not configurable for an E-mail CSQ type.



Note The Resource Pool Selection Model settings determine the options available in this drop-down menu.

- **Longest Available**—Selects the agent who has been in the Available state for the longest amount of time.
- **Most Handled Contacts**—Selects the agent who has answered the most handled calls.
- **Shortest Average Handle Time**—Selects the agent who generally spends the least amount of time talking to customers.

- **Most Skilled**—Used for expert agent call distribution. Selects the agent with the highest total competency level. The total competency level is determined by adding the agent’s competency levels for each of their assigned skills that are also assigned to the CSQ.
 - *Example 1:* If Agent1 is assigned Skill1(5), Skill2(6), and Skill3(7) and CSQ1 specifies Skill1(min=1) and Skill3(min=1), the total competency level for Agent1 for CSQ1 is **12**.
 - *Example 2:* If Agent1 is assigned Skill1(5) and Skill2(6) and Skill3(7) and CSQ1 specifies Skill1(min=1), only, the total competency level for Agent1 for CSQ1 is **5**.
- **Least Skilled**—Used for expert agent call distribution. Selects the agent with the lowest total competency level. The total competency level is determined by adding the agent’s competency level in each assigned skill.
- **Most Skilled by Weight**— Used for expert agent call distribution. Selects the agent with the highest total competency level multiplied by the skill’s associated weight.
- **Least Skilled by Weight**—Used for expert agent call distribution. Selects the agent with the lowest total competency level multiplied by the skill’s associated weight.
- **Most Skilled by Order**— Used for expert agent call distribution. Selects the agent with the highest total competency level in the ordered list.
- **Least Skilled by Order**— Used for expert agent call distribution. Selects the agent with the lowest total competency level in the ordered list.



Note If two or more agents have equal competency level, then the selection automatically defaults to **Longest Available** selection criteria.

Step 7 Specify the following settings, as necessary:



Note The Resource Pool Selection Model setting determines the availability of these options.

- a. Use the Select Skills list to highlight the skills you want; click **Add** button next to the list.

- b. Specify a Minimum Competence Level for the skills assigned to the CSQ. Depending on the Resource pool criteria you chose, specify a Weight value between 1 and 1000.
- c. If the Resource Selection Criteria is Most Skilled by Order or Least Skilled by Order, use the arrow icons to order the skills by moving them up or down in the list.



Note Use the **Delete** icon next to a skill to delete that skill from the Skills Required list.

- Step 8** If you selected one of the Least/Most Skilled options as shown in the bulleted list below for the Resource Selection Criteria, you can view the agent order using **Show Resources** icon or button.



Note The order of the agents determines the priority, the agent at the top of the list having the highest priority.

To change the order of the agents belonging to the CSQ, you should modify the skill set of the agents. The Least/Most Skilled Resource Selection Criteria option comprises the following:

- Most Skilled
- Least Skilled
- Most Skilled by Order
- Least Skilled by Order
- Most Skilled by Weight
- Least Skilled by Weight

- Step 9** If you selected *Resource Groups* as the Resource Pool Selection Model on the previous page, follow these steps:

- a. Select an option from the Resource Selection Criteria drop-down menu:
 - **Longest Available**—Selects the agent who has been in the Available state for the longest amount of time.
 - **Linear**—Selects the next available agent with the highest priority, as determined by the agent order in the Resources list.

- **Circular**—Selects the next available agent with the highest priority, based on the last agent selected and the agent order in the Resources list.
 - **Most Handled Contacts**—Selects the agent who has answered the most handled calls.
 - **Shortest Average Handle Time**—Selects the agent who generally spends the least amount of time talking to customers.
- b. Choose the resource group for this CSQ from the Resource Group drop-down menu.
 - c. Click **Show Resources** icon to show all agents who meet the specified criteria.
 - d. If you selected *Linear* or *Circular* as the Resource Selection Criteria, if necessary, rearrange the order of agents in the Resources list by highlighting an agent and using the up and down arrows to move the agent in the list.
 - e. Click **Add** to apply changes and update the system.

The new CSQ is now displayed, and all agents who belong to the resource group or **all** selected skill groups are now a part of this CSQ.

Related Topics

- [Modifying an Existing CSQ, page 8-24](#)
- [Deleting a CSQ, page 8-25](#)
- [Resource Pool Selection Criteria: Skills and Groups, page 8-26](#)
- [Resource Skill Selection Criteria Within a CSQ, page 8-28](#)

Modifying an Existing CSQ



Note

Changes take effect when all agents affected by the changes have left the Ready state.

To modify an existing CSQ, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Contact Service Queues**.

The Contact Service Queues web page opens.

Step 2 In the Name list, click the CSQ that you want to modify.

The Contact Service Queue Configuration page opens.

Step 3 Modify the Contact Service Queue Configuration information as necessary.



Note

Click **Next** icon that displays in the tool bar in the upper, left corner of the window or the **Next** button that displays at the bottom of the window to view and update the remaining fields.

Step 4 Click **Update** icon in the top of the window or the **Update** button that displays at the bottom of the window to apply the modifications.

Related Topics

- [Creating a CSQ, page 8-18](#)
- [Deleting a CSQ, page 8-25](#)
- [Resource Pool Selection Criteria: Skills and Groups, page 8-26](#)
- [Resource Skill Selection Criteria Within a CSQ, page 8-28](#)

Deleting a CSQ

When you delete a CSQ, any skills or resource groups assigned to that CSQ are automatically removed from the CSQ, and any application using that CSQ can no longer access it. Before deleting the CSQ, change the applications to use a different CSQ. If the application is using a CSQ when the CSQ is deleted, new incoming calls will get an error and existing queued calls will not be routed to agents.

To delete a CSQ, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Contact Service Queues**.

The Contact Service Queues web page opens.

Step 2 Click **Delete** icon next to the name of the CSQ that you want to delete.



Note You can also delete a CSQ from its Contact Service Queue Configuration page using the Delete icon or button.

Related Topics

- [Creating a CSQ, page 8-18](#)
- [Modifying an Existing CSQ, page 8-24](#)
- [Resource Pool Selection Criteria: Skills and Groups, page 8-26](#)
- [Resource Skill Selection Criteria Within a CSQ, page 8-28](#)

Resource Pool Selection Criteria: Skills and Groups

The resource selection criteria available for CSQs with Resource *Skills* is different from that of CSQs with Resource *Groups*.

Example—In a banking application with two skills (Banking and CreditCard) and one Resource Group (General Queries), assume that the following agents, skills, and resource groups are defined:

Agent ID	Assigned Skills	Resource Group
Agent1	Banking (Competence Level 10) CreditCard (Competence Level 6)	GeneralQueries
Agent2	Banking (Competence Level 5) CreditCard (Competence Level 10)	GeneralQueries
Agent3	None	GeneralQueries

In addition, suppose you had the following Contact Service Queue information defined:

Table 8-1 Agent Skill and Resource Group Settings

CSQ Name	Resource Pool Selection Model	Resource Selection Criteria	Skill/Competence	Available Agents
CSQ1	Resource Skills	Most Skilled	Banking Minimum competency: 5	Agent1 Agent2
CSQ2	Resource Skills	Most Skilled	CreditCard Minimum competency: 5	Agent1 Agent2
CSQ3	Resource Group	Longest Available	GeneralQueries	Agent1 Agent2 Agent3

In this scenario, if a caller calls with a question about CreditCard information and there are no CSQs currently available with CreditCard skills (that is, Agent1 and Agent2), there is a possibility for Agent3—who has no CreditCard skill—to get selected as the Longest Available Agent.

To avoid such a situation, you could design the script to always look into CSQ2 for available agents since it has the highest competency of 10 for CreditCard, and agent selection here is based on most skilled.



Note

If two or more agents have equal competency level, then the selection automatically defaults to **Longest Available** selection criteria.

Related Topics

- [Creating a CSQ, page 8-18](#)
- [Modifying an Existing CSQ, page 8-24](#)
- [Deleting a CSQ, page 8-25](#)
- [Resource Skill Selection Criteria Within a CSQ, page 8-28](#)

Resource Skill Selection Criteria Within a CSQ

Resource selection *within* a CSQ is based on the resource competency levels of the skills associated to the CSQ. You can choose between the most and least skilled.

The Unified CCX system defines a Level 10 competency to be the highest skill level, while a Level 1 denotes the lowest skill level. When more than one skill is involved, each skill is given the same weight, meaning no preference is given to any skill. A comparison is performed on the sum of all the competency levels for the associated skills. (Skills assigned to resources but not associated to the CSQ are ignored.) In the case of a tie when skill competencies are equal, the resource that has been ready for the longest amount of time will be chosen.

The following table provides examples of how Unified CCX selects resources within a CSQ.

Table 8-2 **Resource Skill Selection Criteria**

Example	CSQ Skills	Agent Competency Levels	Sequence Agents Become Ready	Selection Order
Most skilled resource selection model	Technical Support	Agent A = 10	A, B C	A, B, C
		Agent B = 10	C, A, B	A, B, C
		Agent C = 5	A, C, B	A, B, C
			C, B, A	B, A, C
Least skilled resource selection model	Technical Support	Agent A = 10	A, B, C	C, A, B
		Agent B = 10	C, A, B	C, A, B
		Agent C = 5	A, C, B	C, A, B
			C, B, A	C, B, A

Table 8-2 **Resource Skill Selection Criteria**

Example	CSQ Skills	Agent Competency Levels	Sequence Agents Become Ready	Selection Order
Note	The ordering in the two examples above are not opposite because the selection criteria has changed from most to least skilled—when competency levels are equal, both selection models choose the resources that have been available for the longest time.			
Most skilled resource selection model	Sales Support	Agent A = Sales (10)	A, B, C	A, B, C
		Support (5)	C, A, B	A, B, C
		Agent B = Sales (5),	A, C, B	A, B, C
		Support (10)	C, B, A	B, A, C
Least skilled resource selection model	Sales Support	Agent A = Sales (10)	A, B, C	C, A, B
		Support (5)	C, A, B	C, A, B
		Agent B = Sales (5),	A, C, B	C, A, B
		Support (10)	C, B, A	C, B, A
		Agent C = Sales (5)		
		Support (1)		

Related Topics

- [Creating a CSQ, page 8-18](#)
- [Modifying an Existing CSQ, page 8-24](#)
- [Deleting a CSQ, page 8-25](#)
- [Resource Pool Selection Criteria: Skills and Groups, page 8-26](#)

Configuring and Using Remote Monitoring

**Note**

This section only applies to Unified CCX Deployments with Unified CM.

The Unified CCX Remote Monitoring feature allows a supervisor to call into any site where the supervisor has a Unified CM user profile and monitor an agent's conversation.

**Note**

The incoming and outgoing streams to/from the agent phone and the outgoing stream to the supervisor phone must have the same encoding with only G.711 being supported.

When you, as a supervisor, monitor a conversation, you can hear all parties on the call. The parties will have no indication that you are monitoring the call. You cannot join the call or be heard by the parties. This is referred to as silent monitoring.

With Remote Monitoring, you can choose to monitor a call in either of these ways:

- **By resource (agent)**—In this case, you identify the resource by agent extension. If the agent is on a call, monitoring will begin immediately. If the agent is not on a call, monitoring will begin when the agent is presented with a call (that is, when the agent's phone rings) or when the agent initiates a call (that is, when the agent's phone goes off-hook).
- **By CSQ**—In this case, you will monitor the call of an agent who belongs to the CSQ. When you monitor by CSQ, you select the CSQ from a menu. When a call is presented to an agent who belongs to the selected CSQ, monitoring will begin for that agent and call.

**Note**

For CSQ monitoring, the supervisor cannot start monitoring the call after it connects to the agent; the call must arrive at the agent *after* supervision begins. For agent monitoring, supervision can begin after the call connects to the agent.

This section describes the steps needed to configure Remote Monitoring:

- [Creating a Remote Monitoring Supervisor, page 8-31](#)
- [Assigning Resources and CSQs to a Supervisor, page 8-32](#)

Related Topics

- [Configuring Remote Monitoring Application, page 6-16](#)
- [Viewing CSQ IDs for Remote Monitoring, page 15-8](#)

Creating a Remote Monitoring Supervisor



Note


This section only applies to Unified CCX Deployments with Unified CM.

Use the User Management web page to assign supervisor privileges to a user.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Tools > User Management > Supervisor Capability View**.
- The User Configuration web page opens displaying the list in two panes. The left pane displays the list of existing Unified CCX Supervisors and the right pane displays the list of Available Users.
- Step 2** Change the users as required using the arrow in either direction.
- Your changes are dynamically displayed in this page and are effective immediately.
- Step 3** Repeat this process as needed to assign the Supervisor capability for more than one user.

Click **Back to User List** icon that displays in the tool bar in the upper, left corner of the window or the **Back to User List** button that displays at the bottom of the window to view the list of existing users. This web page display the following fields.

Field	Description
User Id	Unique identifier of the user for which the spoken name is to be uploaded. 
	Note The User Id must be numerical.
First Name	The first name for each user. You can sort this field alphabetically.
Last Name	The last name for each user. You can sort this field alphabetically.
Capability	The capability assigned for each user. You can sort this field alphabetically.

Related Topics

- [Configuring and Using Remote Monitoring, page 8-30](#)
- [Assigning Resources and CSQs to a Supervisor, page 8-32](#)
- [Configuring Remote Monitoring Application, page 6-16](#)
- [Viewing CSQ IDs for Remote Monitoring, page 15-8](#)

Assigning Resources and CSQs to a Supervisor



Note

This section only applies to Unified CCX Deployments with Unified CM.

Use the Remote Monitor configuration web page to assign a Supervisor a list of Resources and CSQs that he/she is allowed to monitor.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Remote Monitor**.

The Remote Monitor web page opens to display the Supervisor, Name, and User ID of Unified CM users who are Unified CCX supervisors (if configured).



Note The **Remote Monitor** submenu option is available only if you are using Unified CCX Premium license package.

- Step 2** Click a User ID value.



Note This is a Unified CM user configured as a Unified CCX supervisor. (see [Creating a Remote Monitoring Supervisor, page 8-31](#)).

The Remote Monitor Configuration web page opens.

- Step 3** Use this web page to specify the following fields.

Field	Description
Contact Service Queues Name	(Check box.) CSQ Names the supervisor can monitor.
Resources	(Check box.) User IDs of agents the supervisor can monitor.

- Step 4** Click **Update** to apply the changes.

The Remote Monitor area of the RmCm Configuration web page reappears.

The Supervisor can now access the Unified CCX Supervisor web page and view the allowed CSQs and agents.

**Tip**

When running the Remote Monitoring script, you might need to provide a CSQ ID. This ID is internally generated and is only visible on the Unified CCX Supervisor page (see [Viewing CSQ IDs for Remote Monitoring, page 15-8](#)).

Related Topics

- [Configuring and Using Remote Monitoring, page 8-30](#)
- [Creating a Remote Monitoring Supervisor, page 8-31](#)
- [Configuring Remote Monitoring Application, page 6-16](#)
- [Viewing CSQ IDs for Remote Monitoring, page 15-8](#)

Configuring Agent-Based Routing

Agent-based routing provides the ability to send a call to a *specific* agent, rather than any agent available in a CSQ.

Use the Agent Based Routing Settings web page to configure system-wide parameters to be used in an agent-based routing application.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Agent Based Routing Settings**. The Agent-Based Routing Settings area opens.

**Note**

The Agent Based Routing Settings is available only if you are using Unified CCX Enhanced or Premium license packages.

- Step 2** Use this web page to specify the following fields.

Field	Description
Automatic Work	<p>Determines if agents automatically move to the Work state after a call.</p> <ul style="list-style-type: none"> Enabled—Causes agents to go into Work state automatically when a call ends. Disabled (default)—Causes agents to enter Ready or Not Ready state when a call ends, depending on the Automatic Available setting for the agent.
Wrapup Time	<p>Determines if agents automatically enter Wrapup after a call.</p> <ul style="list-style-type: none"> Enabled button with seconds field—Controls how long the agent can stay in the Work state if Automatic work is enabled. The seconds field specifies the Wrapup time length (greater than 0 second but less than 7200 seconds). Disabled (default)—No limit of how long the agent can stay in the Work state if Automatic Work is enabled.

- Step 3** Click **Save** icon that displays in the tool bar in the upper, left corner of the window or the **Save** button that displays at the bottom of the window to apply changes.

Wrap-Up Data Usage

Contact centers use wrap-up data to track the frequency of activities or to identify the account to which a call is charged, and other similar situations. Like reason codes, wrap-up data descriptions are set up by your system administrator to reflect the needs of your contact center. By default this feature is disabled.

If the wrap-up data feature is enabled in Cisco Desktop Administration, the agent will see a pop-up window when he moves to work state in which he can select the appropriate description that sums up the call outcome.

See the *Cisco Desktop Administrator User Guide* for more information.

Configuring Teams

A *team* is a group of agents who report to the same supervisor. A team can have one primary supervisor and optional secondary supervisor(s). A supervisor can also monitor CSQs that are assigned to the team being supervised.

Barge-in is when a supervisor joins an existing call between an agent and a customer.

Intercept is when the supervisor joins a call and drops the agent from the call.

A *default team* is automatically created by the system and cannot be deleted. If agents are not assigned to any team, they belong to the default team. When an agent is assigned to a team, the team's supervisor can barge-in and intercept any call being handled by the agent.

**Note**

Before creating a team, you must set up supervisors using the User Management page.

This section describes:

- [Creating a Team Supervisor, page 8-36](#)
- [Creating Teams, page 8-37](#)
- [Modifying Agents on Teams, page 8-39](#)
- [Deleting a Team, page 8-39](#)

Creating a Team Supervisor

You can use the following procedure to view a list of all users. Double-click the required user and change the capability for that user to Supervisor.

Use the User Management web page to assign supervisor privileges to a user.

Procedure


Step 1 From the Unified CCX Administration menu bar, choose **Tools > User Management > Supervisor Capability View**.

The User Configuration web page opens displaying the list in two panes. The left pane displays the list of existing Unified CCX Supervisors and the right pane displays the list of Available Users.

Step 2 Change the users as required using the arrow in either direction.

Step 3 Click **Update** to save your changes so that they are effective immediately.

Click **Back to User List** icon that displays in the tool bar in the upper, left corner of the window or the **Back to User List** button that displays at the bottom of the window to view the list of existing users. This web page display the following fields.

Field	Description
User Id	Unique identifier of the user for which the spoken name is to be uploaded. 
	Note The User Id must be numerical.
First Name	The first name for each user. You can sort this field alphabetically.
Last Name	The last name for each user. You can sort this field alphabetically.
Capability	The capability assigned for each user. You can sort this field alphabetically.

Related Topics

- [Creating Teams, page 8-37](#)
- [Modifying Agents on Teams, page 8-39](#)
- [Deleting a Team, page 8-39](#)

Creating Teams

Use the Teams area of the RmCm Configuration web page to create or associate teams with various agents, CSQs, and supervisors.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Teams**.

The Teams web page opens displaying the following fields.

Field	Description
Team Name	Name for the team.
Primary Supervisor	(Drop-down list.) Primary supervisor for the team. The drop-down list contains users designated as supervisors on the User Management web page.

Step 2 Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.

The Team Configuration page appears.

Step 3 Use this web page to specify the following fields.



Note Primary and secondary supervisors are users configured as Unified CCX supervisors (see [Creating a Team Supervisor, page 8-36](#)).

Field	Description
Team Name	Name for the team. This is a mandatory field.
Primary Supervisor	Assign a Primary supervisor for the team from this drop-down list.
Secondary Supervisors / Available Supervisors	Use the arrow buttons to assign secondary supervisors for the team.
Assigned Resources / Available Resources	Use the arrow buttons to assign or remove resources for the team from the available resources. Note You <i>cannot</i> remove resources from the default team.
Assigned CSQs / Available CSQs	Use the arrow buttons to assign or CSQs for the team. Note You <i>can</i> remove CSQs from the default team.

Step 4 Click **Add** to apply changes.

Related Topics

- [Creating a Team Supervisor, page 8-36](#)

- [Modifying Agents on Teams, page 8-39](#)
- [Deleting a Team, page 8-39](#)

Modifying Agents on Teams

Use the Teams area to add agents or change agents on an existing Team.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Teams**.
- The Teams web page opens.
- Step 2** Click a name in the **Team Name** column
- The Team Configuration page appears.
- Step 3** Select an agent name in the **Resources Assigned to other Teams** list and use the arrow icon to move it into the **Assigned Resources** list if you want to add an agent to this team.
- To remove an agent from this team, select an agent name in the **Assigned Resources** list and use the arrow icon to move it into the **Resources Assigned to other Teams** list. This agent now belongs to the default team.
- Step 4** Click **Update** to apply changes.
-

Related Topics

- [Creating a Team Supervisor, page 8-36](#)
- [Creating Teams, page 8-37](#)
- [Deleting a Team, page 8-39](#)

Deleting a Team

Use the Teams area of the RmCm Configuration web page to delete an existing Team.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > RmCm > Teams**.
- The Teams web page opens.
- Step 2** Click **Delete** icon for the Team Name you want to delete.
- The system prompts you to confirm the delete.
- Step 3** Click **OK**.
-

Related Topics

- [Creating a Team Supervisor, page 8-36](#)
- [Creating Teams, page 8-37](#)
- [Modifying Agents on Teams, page 8-39](#)

Unified Gateway Auto-Configuration Details



Note

Unified CCX supports ACD integration with the Cisco Unified Intelligent Contact Management Enterprise (Unified ICME) solution by way of the Cisco Unified Gateway. The Unified Gateway is a Peripheral Gateway (PG) which is configured on the Unified ICME software. The Unified Gateway is no longer coresident on the Unified CCX server as opposed to the earlier versions of Unified CCX. The CTI protocol, supports integration of Unified Gateway with Unified ICME. The *Cisco IPCC Gateway Deployment Guide for Cisco Unified ICME/CCE/CCX* provides an overview of the Unified Gateway feature, lists the supported deployment options, provides comparative information, and includes information on configuring and integrating the Unified Gateway.

Some of the configurations performed on the Unified CCX using the appropriate web page in Unified CCX Administration will be automatically configured on Unified ICME via the Unified Gateway. The following table provides a list of

these configurations, the equivalent term used on Unified ICME for these configurations, and the Configuration Manager tool that can be used on the Unified ICME Admin Workstation to view these configurations.

Unified CCX Term	Unified ICME Term	Unified ICME Configuration
Application	Service	Service Explorer
Route Point (Trigger)	Routing Device	Peripheral Monitor Table
CSQ	Skill Group	Skill Group Explorer
Resource	Agent	Agent Explorer Note The agent extension goes to the Peripheral Monitor Table.

**Note**

These configurations and their attributes cannot be changed on Unified ICME if auto-configuration is enabled on Unified ICME.



CHAPTER 9

Provisioning Additional Subsystems

To provision additional subsystems, you must complete the following tasks:

- Log into the Unified CCX Administration (see [Chapter 2, “Accessing Unified CCX Administration Web Interface”](#)).
- Provision your telephony and media resources (see [Chapter 7, “Provisioning Telephony and Media”](#)).
- Provision your Unified CCX subsystem, if required (see [Chapter 8, “Provisioning Unified CCX”](#)).

The following sections introduce the additional Unified CCX subsystems and explain how to provision them.

- [About Additional Subsystems, page 9-2](#)
- [Provisioning Unified ICME Subsystem, page 9-3](#)
- [Provisioning HTTP Subsystem, page 9-10](#)
- [Provisioning Database Subsystem, page 9-12](#)
- [Provisioning eMail Subsystem, page 9-16](#)

About Additional Subsystems

Your Unified CCX system may include some or all of the following additional subsystems:

- The Unified ICME subsystem—The Unified CCX system uses the Cisco Unified Intelligent Contact Management Enterprise (Unified ICME) subsystem to communicate with Unified ICME to manage call distribution across sites and call-processing environments. (see [Provisioning Unified ICME Subsystem, page 9-3](#)).

**Note**

If you are using Unified CCX with Cisco Contact Center Gateway solution, please see the *Cisco IPCC Gateway Deployment Guide for Cisco Unified ICME/CCE/CCX*. The instructions for configuring Unified CCX with that solution differs from what is described in this guide. The Unified Gateway provides for the integration of the Unified ICME system with Unified CCX by way of the Unified Gateway. The Unified Gateway is a Peripheral Gateway (PG) which you configure on the Unified ICME software.

- The HTTP subsystem—The Unified CCX system uses the HTTP subsystem to enable Unified CCX applications to respond to requests from a variety of web clients, including computers and IP phones (see [Provisioning HTTP Subsystem, page 9-10](#)).
- The Database subsystem—The Unified CCX system uses the Database subsystem to enable Unified CCX applications to interact with customer provided enterprise database servers to make database information accessible to contacts (see [Provisioning Database Subsystem, page 9-12](#)).
- The eMail subsystem—The Unified CCX system uses the eMail subsystem to communicate with your e-mail server and enable your applications to create and send e-mail. (see [Provisioning eMail Subsystem, page 9-16](#)).

If you plan to run applications that use any of the additional Unified CCX subsystems included in your Unified CCX package, you should now provision those subsystems. The Unified CCX system uses these additional subsystems to communicate with supporting systems such as Unified ICME, web servers, database servers, and e-mail servers.

**Note**

You need to provision a particular subsystem only if you are using Unified CCX applications that require it.

Provisioning Unified ICME Subsystem

**Note**

The Unified ICME subsystem is available if your system has a license installed for Unified IP IVR.

The Unified CCX system uses the Unified ICME subsystem to communicate with Unified ICME to manage call distribution across sites and call-processing environments.

The Unified CCX server is frequently used as part of a Unified ICME solution with Unified ICME. In this type of installation, the Unified ICME uses the Unified CCX server to queue calls and perform other functions such as collecting caller-entered digits, performing database lookups, and playing back prompts.

**Note**

If you are not using Unified ICME, you do not need to provision the Unified ICME subsystem.

Unified ICME scripts can direct calls based on various criteria such as the time of day or the availability of subsystems. The Unified ICME uses four different commands to interact with the Unified CCX system:

- **Connect**—Connects the call. Unified ICME sends the connect message with a label to instruct the Unified CCX system where to direct the call.
- **Release**—Hangs up the call.
- **Run VRU Script**—Runs a Unified ICME Voice Response Unit (VRU) script on the Unified CCX system.
- **Cancel**—Cancels the Unified ICME VRU script that is currently running.

This section includes the following tasks:

- [Configuring General Unified ICME Information, page 9-4](#)
- [Configuring Unified ICME VRU Scripts, page 9-7](#)

Related Topics

- [About Additional Subsystems, page 9-2](#)
- [Provisioning HTTP Subsystem, page 9-10](#)
- [Provisioning Database Subsystem, page 9-12](#)
- [Provisioning eMail Subsystem, page 9-16](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)
- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)

Configuring General Unified ICME Information


General Unified ICME information includes the TCP/IP socket number for receiving messages from the Unified ICME system and the expanded call context variables you want to use to pass call-related information. To configure general Unified ICME information, complete the following steps.


Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > ICM > General**.

The ICME Configuration web page opens displaying the following fields.

Step 2 Use this web page to specify the following fields.

Field	Description
VRU Connection Port	<p>The same number configured in the VRU Peripheral Interface Manager (PIM) on the Unified ICME system. The default value in the Unified ICME setup is 5000. This is a mandatory field.</p> <p>The system uses this TCP/IP socket number to receive messages from the Unified ICME system. You can copy the VRU Connection Port value from the VRU PIM configuration dialog box of the VRU PG machine.</p>
PG Hosts Allow	<p>By default, any PG will be able to connect in the Unified ICME setup. For security reasons, you can configure selected PGs, which you want to connect to the Unified IP IVR system using any one of the following three options:</p> <ul style="list-style-type: none"> • All – Click the All radio button if you want any PG to be able to connect to the Unified IP IVR. This radio button will be selected by default in the Unified ICME setup. • None - Click the None radio button if you do not want even a single PG to connect to the Unified IP IVR. • Specific – Click the Specific radio button if you want to connect only specific PGs to the Unified IP IVR. Once you select this option, you will be able to enter the Host name or IP address for any one or both the PGs using the following fields: <ul style="list-style-type: none"> – PG 1 Hostname/IP Address – PG 2 Hostname/IP Address <p> Note When you select the Specific option, the PG1 Hostname/IP Address is a mandatory field.</p>

Field	Description
Service Control	<p>If you click Yes, the Service Control interface allows Unified ICME to provide call-processing instructions to the Unified CCX system. It also provides Unified ICME software with event reports indicating changes in call state.</p> <p>You must enable the service control interface to use the Unified ICME subsystem.</p>
Additional VRU Call Information	<p>Select the required variables to pass call-related information by selecting the check box. The following expanded call variables are available on the Unified ICME subsystem:</p> <ul style="list-style-type: none"> • Task ID: Task ID that handles the current call. • Media ID: Media ID that handles the current call. • Last Redirected Address: Transient part ID of the call. • Arrival Type: Arrival type of the call. • Session Handled: Boolean flag that the Unified ICME software or a Set Contact Info step with a Handled flag step sets to indicate whether the session is handled. <p> Note Unified CCX automatically sets the flag whenever a call is connected to an agent.</p> <ul style="list-style-type: none"> • VRU Script Name: Script name to run on the PreConnect feature. <p>Note All scripts under the default directory are listed in the drop-down list of the Script field in the Cisco Script Application Configuration page.</p> <ul style="list-style-type: none"> • Config Param: Parameters for the VRU scripts on the PreConnect feature.

**Note**

You can also define your own expanded call variables in the Configure ICME tool in the Unified ICME system. The Unified CCX Engine registers the user-defined expanded call variables with Unified ICME after it loads the VRU scripts that use these variables. The variables remain registered until the Unified ICME session is reopened (either by request from the VRU PG or when the Unified CCX Engine is restarted). The variables remain registered even if you delete the script that uses them.

**Tip**

Every Call Context Variable and Expanded Call Context Variable must be defined on both sides of the system that receive and send variable data in scripts. In a Unified CCX system, these variables must be defined both in Unified CCX and in Cisco Desktop Administrator (CDA). In a Unified CCX system integrated with Unified ICME through the Unified Gateway, these variable must be defined in Unified CCX, in CDA, and also in Unified ICME.

Step 3 Click **Update**.

The configuration information is added to the system.

You are now ready to configure the Unified ICME VRU Scripts area of the Unified ICME Configuration web page.

Related Topic

- [Configuring Unified ICME VRU Scripts, page 9-7](#)
- [About Additional Subsystems, page 9-2](#)

Configuring Unified ICME VRU Scripts

Configure Unified ICME VRU scripts. Unified ICME VRU Script entries allow you to map the VRU script name, used by Unified ICME in the Run VRU Script node, to a Unified CCX script name.

Unified ICME uses VRU scripts to handle interactions with contacts. These scripts are loaded as applications on the Unified CCX Engine.

To configure Unified ICME VRU Scripts, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > ICM**.
The Unified ICME Configuration web page opens, displaying the General area.
- Step 2** On the Unified ICME Configuration toolbar, click **Unified ICME VRU Scripts**.
The Unified ICME VRU Scripts summary web page opens.
- Step 3** Use this web page to specify the following fields.

Field	Description
VRU Script Name	Displays the VRU script name. Note All scripts under the default directory are listed in the drop-down list of the Script field in the Cisco Script Application Configuration page.
Script	Displays the script associated with the VRU script.

- Step 4** Click **Add a New VRU Script** icon or button.
The Unified ICME VRU Script area of the Unified ICME Configuration web page opens.
- Step 5** Use this web page to specify the following fields.

Field	Description
VRU Script Name	A name for the VRU script you want to add.
Script	<p>The Unified CCX script to associate with the VRU script. You can select the script from the drop-down list or click Edit button to specify a new script.</p> <p>Note All scripts under the default directory are listed in the drop-down list of the Script field in the Cisco Script Application Configuration page.</p> <p>To specify a new script, click Edit, enter the script name in the dialog box, and click OK. The User Prompt dialog box closes, and the name you entered appears in the Script field.</p> <p>Note If you enter the script name as a file URL, enter the value with double backslashes (\\). For example, file://c:\\temp\\aa.aef</p>

Step 6 Click **Add**.

The Unified ICME VRU Script area closes, and the name of the VRU script you added appears in the Unified ICME VRU Scripts summary web page.

You are now ready to provision any additional subsystems your Unified CCX applications require or to begin configuring Unified CCX applications. See [Chapter 6, “Configuring Cisco Applications.”](#)

Related Topics

- [Configuring General Unified ICME Information, page 9-4](#)
- [About Additional Subsystems, page 9-2](#)

Provisioning HTTP Subsystem

**Note**

The HTTP subsystem is available if your system has a license installed for one of the following Cisco product packages: Unified IP IVR or Unified CCX Premium.

The Unified CCX system uses the HTTP subsystem to enable Unified CCX applications to respond to requests from a variety of web clients, including computers and IP phones.

**Note**

If you are not using HTTP applications, you do not need to provision the HTTP subsystem.

The Unified CCX system uses subdirectories in the Unified CCX installation directory to store text substitution, eXtensible Style Language (xsl) templates, static and dynamic web pages, and Java Servlet Pages (JSPs).

**Note**

Use the Document Management page to upload these documents. For more information on the Document Management page, see [Chapter 10, “Managing Prompts, Grammars, Documents, and Custom Files.”](#)

To provision the HTTP subsystem, you need to provision HTTP triggers. HTTP applications use triggers to activate the application in response to an incoming HTTP message.

**Note**

You cannot change the TCP/IP port numbers used by the HTTP subsystems or triggers in Unified CCX 8.5(1).

This section describes:

- [Configuring HTTP Triggers, page 9-11](#)

Related Topics

- [About Additional Subsystems, page 9-2](#)
- [Provisioning Unified ICME Subsystem, page 9-3](#)

- [Provisioning Database Subsystem, page 9-12](#)
- [Provisioning eMail Subsystem, page 9-16](#)
- [Adding Application Triggers, page 6-18](#)

Configuring HTTP Triggers

You need to create an application using **Applications > Application Management** menu from the Unified CCX Administration menu bar. Once you create an application, you can configure HTTP triggers for the application using the steps mentioned below.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > HTTP**. The HTTP Trigger Configuration web page opens.



Note For a complete description of all columns, icons, and buttons on this page, see [HTTP Configuration, page 18-31](#).

- Step 2** Use this web page to specify the following fields.

Field	Description
URL	The relative URL For example: <code>/hello</code>
Application Name	Select an application for which you want to add a HTTP trigger from this list box.

Field	Description
Sessions	<p>The maximum amount of simultaneous sessions (instances) that the application can handle.</p> <ul style="list-style-type: none"> The limit for the maximum number of simultaneous remote monitoring sessions is 16, but the actual number depends on your system's CPU and memory resources. Entering a number that is too high can result in unacceptable system performance.
Enabled	<p>(Radio button) Accept Yes (the default).</p> <p>Note If you disable the trigger, the user receives an error message when browsing to the defined trigger URL.</p>

Step 3 Click **Add New**.

The HTTP Trigger Configuration web page closes, and the trigger information appears on the HTTP Trigger Configuration summary web page.

You are now ready to provision any additional subsystems your Unified CCX applications require or to begin configuring Unified CCX applications. See [Configuring Cisco Applications, page 6-1](#).

Related Topics

- [About Additional Subsystems, page 9-2](#)
- [Adding Application Triggers, page 6-18](#)

Provisioning Database Subsystem

**Note**

The database subsystem is available if your system has a license installed for either the Unified IP IVR or Unified CCX Premium product packages. If you are not using Unified CCX applications that require access to databases, you do not need to provision the Database subsystem.

The Unified CCX system uses the Database subsystem to enable Unified CCX applications to interact with database servers to make database information accessible to contacts.

To provision the Database subsystem, perform the following procedures:

- [Configuring Database Subsystem, page 9-13](#)
- [Adding a New DataSource, page 9-14](#)

**Caution**

The Database subsystem does not support database views or execute store procedures.

Related Topics

- [About Additional Subsystems, page 9-2](#)
- [Provisioning Unified ICME Subsystem, page 9-3](#)
- [Provisioning HTTP Subsystem, page 9-10](#)
- [Provisioning eMail Subsystem, page 9-16](#)

Configuring Database Subsystem

The Database subsystem enables the Unified CCX applications to obtain information from data sources, which are databases configured to communicate with the Unified CCX system. You can connect the Unified CCX system with enterprise databases such as Microsoft SQL Server, Sybase, Oracle, or IBM DB2.

You can upload JDBC driver files using **Subsystems > Database > Drivers** menu option. Refer to [Adding a New Database Driver, page 18-29](#) for detailed instructions on how to upload a jdbc driver.

**Note**

To determine a list of enterprise databases supported for the Database subsystem, see the *Cisco Unified CCX Software and Hardware Compatibility Guide* for active releases available at http://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_device_support_tables_list.html.

Adding a New DataSource

After uploading the JDBC driver (see [Configuring Database Subsystem, page 9-13](#)), you need to use this to create the datasource in the Database subsystem.


To add a new data source, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Database > DataSource**. Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window from the DataSources web page.

The Datasource Configuration web page opens where you can specify the following fields.

Field	Description
Data Source Name	Data source name for referring to the datasource. This is a mandatory field.
User Name	Username defined for connecting to the enterprise database. This is a mandatory field.
Password	Password defined for connecting to the enterprise database.
Confirm Password	Re-enter the password that you provided in the Password field.
Maximum Number of Connections	Maximum number of connections allowed to connect to the database. This database is usually an external database to which the customer script can connect. While the limit is set by that database and governed by your license, if this number in this setting is exceeded, the corresponding workflow is aborted and the caller receives an error message. However, you can avoid this error by configuring the appropriate number of sessions (see Maximum Number Of Sessions, in Chapter 6, “Maximum Number Of Sessions”) in the corresponding script/application. Also the script writer can provide information about how many connections are used per call (or instance of application). This is a mandatory field.

Field	Description
Driver	Displays the list of available drivers for the enterprise database. One or more datasources can use the same driver. Select a driver for this datasource from this list box. This is a mandatory field.
JDBC URL	JDBC URL that is used to obtain a connection to the enterprise database. This is a mandatory field. The JDBC URL provided will be used by Unified CCX to connect to the enterprise database using JDBC. The URL to be used is dependent on the database you are connecting. The examples provided in the Datasource Configuration web page can be used as a reference to define the URL. Refer to the driver documentation for more information.
	 <p>Note If the test connection fails for Oracle JDBC drive connection, try the following connection url: <code>jdbc:oracle:thin:[user/password]@[host][:port]:SID</code></p>

Step 2 Click **Add** to save the changes.

The Enterprise Database Subsystem Configuration web page opens. You are now ready to provision any additional subsystems your Unified CCX applications require or to begin configuring Unified CCX applications. See [Configuring Cisco Applications, page 6-1](#).

Related Topics

- [Configuring Database Subsystem, page 9-13](#)
- [Adding a New DataSource, page 9-14](#)
- [About Additional Subsystems, page 9-2](#)

Polling Database Connectivity

To poll connectivity to the database on a periodic basis, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > Database > Parameters**.

The Parameters web page opens to display the parameter-related fields.

Step 2 Use this web page to specify the following fields:

Field	Description
RetryConnectInterval	Specifies the interval between two connection attempts when a data source is initialized. The default is 15,000 milliseconds.
NumAttempt	Specifies the number of attempts to establish connections to the database when a data source is initialized. The default is 3 attempts.
LoginTimeout	Sets the maximum time in seconds that a driver will wait while attempting to connect to a database. The default is 0 (disabled).

Step 3 Click **Update** to apply changes (or **Reset to Default** if you prefer to retain the default values).

The window refreshes and Unified CCX updates the parameters with your changes. You are now ready to provision any additional subsystems your Unified CCX applications require or to begin configuring Unified CCX applications (see [Configuring Cisco Applications, page 6-1](#)).

Related Topics

- [Configuring Database Subsystem, page 9-13](#)
- [About Additional Subsystems, page 9-2](#)

Provisioning eMail Subsystem

**Note**

The eMail subsystem is available if your system has a license installed for one of the following Cisco product packages: Unified IP IVR or Unified CCX Premium.

The Unified CCX system uses the eMail subsystem to communicate with your e-mail server and enable your applications to create and send e-mail. You must provision the eMail subsystem if you intend to create scripts that use messaging steps to create and send e-mail.

**Tip**

If your e-mail system is configured to receive acknowledgments, you should process the mailbox you identify in your configuration to determine whether or not an e-mail was successfully sent.

The e-mail configuration process identifies the default e-mail address and server to be used for sending e-mail (including e-pages and faxes) and for receiving acknowledgments.

**Note**

If you are not using e-mail applications, you do not need to provision the eMail subsystem.

To provision the eMail subsystem, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > eMail**. The eMail Configuration web page opens.
- Step 2** Use this web page to specify the following fields:

Field	Description
Mail Server	A fully-qualified e-mail server name. Example: server.domain.com)
email Address	An existing fully qualified e-mail address for the administrative account. Example:administrator@domain.com

- Step 3** Click **Update**.

The Unified CCX system saves your changes and the Unified CCX Administration web page opens.

**Note**

Cisco does not currently support multiple email configurations. To remove the email information, you must erase the fields and click **Update**.

You are now ready to provision any additional subsystems your Unified CCX applications require, or to begin configuring Unified CCX applications (see [Chapter 6, “Configuring Cisco Applications,”](#) and [Chapter 10, “Managing Prompts, Grammars, Documents, and Custom Files.”](#))

Related Topics

- [About Additional Subsystems, page 9-2](#)
- [Provisioning Unified ICME Subsystem, page 9-3](#)
- [Provisioning HTTP Subsystem, page 9-10](#)
- [Provisioning Database Subsystem, page 9-12](#)
- [Provisioning eMail Subsystem, page 9-16](#)



CHAPTER 10

Managing Prompts, Grammars, Documents, and Custom Files

Unified CCX applications can make use of many auxiliary files that interact with callers, such as scripts, pre-recorded prompts, grammars, and custom Java classes.

To manage these auxiliary files, you must complete the following tasks:

- Provision telephony and media resources (see [Chapter 7, “Provisioning Telephony and Media”](#)).
- Provision Unified CCX subsystem, if required (see [Chapter 8, “Provisioning Unified CCX”](#)).
- Provision additional subsystems, if required (see [Chapter 9, “Provisioning Additional Subsystems”](#)).
- Configure Cisco script applications (see [Chapter 6, “Configuring Cisco Applications”](#)).

Depending on your particular Unified CCX implementation, your applications might make use of some or all of the file types described in the following sections:

- [Managing Prompt Files, page 10-2](#)
- [Managing Grammar Files, page 10-5](#)
- [Managing Document Files, page 10-7](#)
- [Managing Languages, page 10-9](#)
- [Recording and Uploading Prompt Files, page 10-13](#)
- [Managing Custom Files, page 10-17](#)

- [Managing AAR Files, page 10-18](#)

Managing Prompt Files

Many applications make use of pre-recorded prompts stored as .wav files, which are played back to callers to provide information and elicit caller response.

Several system-level prompt files are loaded during Unified CCX installation. However, any file you create needs to be made available to the Unified CCX Engine before a Unified CCX application can use them. This is done through the Unified CCX cluster's Repository datastore, where the prompt, grammar, and document files are created, stored, and updated.



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

The Unified CCX Server's local disk prompt files are synchronized with the central repository during Unified CCX Engine startup and during run-time when the Repository datastore is modified. For more information about the Repository datastore, see *Cisco Unified Contact Center Express Serviceability Guide*.

To access the Prompt Management page, perform the following steps:

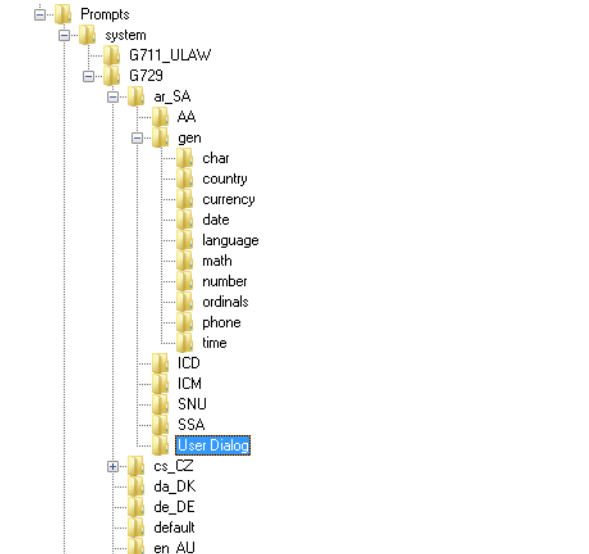
Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Application > Prompt Management**.
- Step 2** The Prompt Management web page opens to display the following fields and buttons.

Field	Description
Language	Lists the location of the items listed in the Name column.
Folder	Path of the current item selected in the Name column with respect to the root folder.
Name	Name of the language.

Field	Description
Size	<p>The size of the prompt file prefixed with KB. The file size is converted from bytes to KB.</p> <p>Note This column is usually blank on the root page because the items on this page are usually folders.</p>
Date Modified	<p>The date and time when the document was last uploaded or changed along with time zone.</p>
Modified by	<p>The user ID of the person who performed these modifications.</p>
Delete	<p>Click Delete icon to remove the folder and its contents from the repository.</p>
Rename	<p>Click Rename icon to rename the folder in the repository.</p>
Refresh	<p>Click Refresh icon to refresh the folder in the repository.</p>
Create Language	<p>Displays a dialog box that lets you create a new language folder. For detailed information on how to create a new language, see Creating a New Language, page 10-9.</p>
Upload Zip Files	<p>Displays a dialog box that lets you locate and upload a zip file. For detailed information on how to upload a zip file, see Upload Zip files to a Language Folder, page 10-11.</p> <p>Note The zip file must contain language folders in the root directory. Be sure to place the grammar files in folders and then zip the folders.</p>

When you click a hyperlink (if configured) in the Name folder column, a secondary page appears. From this page, you can create a new subfolder or upload a new Prompt. The below figure shows the structure of the system prompts.



Related Topics

- [Wizards Menu, page 19-1](#)
- [Managing Grammar Files, page 10-5](#)
- [Managing Document Files, page 10-7](#)
- [Managing Languages, page 10-9](#)
- [Recording and Uploading Prompt Files, page 10-13](#)
- [Managing Custom Files, page 10-17](#)
- [Managing AAR Files, page 10-18](#)
- [Managing Scripts, page 6-25](#)

Managing Grammar Files

The Unified CCX system uses specific grammars when recognizing and responding to caller response to prompts. A grammar is a specific set of all possible spoken phrases and Dual Tone Multi-Frequency (DTMF) digits to be recognized by Unified CCX applications and acted upon during run time.

Several system-level grammar files are loaded during Unified CCX installation. However, any file *you* create needs to be made available to the Unified CCX Engine before a Unified CCX application can use them. This is done through the Unified CCX cluster's Repository datastore, where the grammar files are created, stored, and updated.



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

The Unified CCX Server's local disk grammar files are synchronized with the central repository during Unified CCX Engine startup and during run-time when the Repository datastore is modified. For more information about the Repository datastore, see *Cisco Unified Contact Center Express Serviceability Guide*.

To access the Grammar Management page, perform the following steps:

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Grammar Management**.
- Step 2** The Grammar Management web page opens to display the following fields and buttons.

Field	Description
Language	Location of the items listed in the Name column.
Folder	Path of the current item selected in the Name column with respect to the root folder.
Codec	The codec chosen during installation for this Unified CCX server. Display only.
Name	Name of the language folder.

Field	Description
Size	The size of the grammar file prefixed with KB. The file size is converted from bytes to KB. This column is usually blank on the root page as the items on this page are usually folders.
Date Modified	The date and time when the document was last uploaded or changed along with time zone.
Modified by	The user ID of the person who performed these modifications.
Delete	Displays a dialog box that lets you delete an existing language folder.
Rename	Displays a dialog box that lets you rename an existing language folder.
Refresh	Refreshes the specified folder in the repository.
Create Language	Displays a dialog box that lets you create a new language folder. For detailed information on how to create a new language, see Creating a New Language, page 10-9 .
Upload Zip Files	Displays a dialog box that lets you locate and upload a zip file. For detailed information on how to upload a zip file, see Upload Zip files to a Language Folder, page 10-11 . Note The zip file must contain language folders in the root directory. Be sure to place the grammar files in folders and then zip the folders.

When you click a hyperlink (if configured) in the Name folder column, a secondary page appears. From this page, you can create a subfolder or upload a new Prompt, Grammar, or Document.

Related Topics

- [Wizards Menu, page 19-1](#)
- [Managing Prompt Files, page 10-2](#)
- [Managing Document Files, page 10-7](#)
- [Managing Languages, page 10-9](#)
- [Recording and Uploading Prompt Files, page 10-13](#)
- [Managing Custom Files, page 10-17](#)
- [Managing AAR Files, page 10-18](#)

- [Managing Scripts, page 6-25](#)

Managing Document Files

Documents might consist of .txt, .doc, .jsp, or .html files. Documents can also include custom classes and Java Archive (JAR) files that allow you to customize the performance of your Unified CCX system.

Several system-level document files are loaded during Unified CCX installation. However, any file *you* create needs to be made available to the Unified CCX Engine before a Unified CCX application can use them. This is done through the Unified CCX cluster's Repository datastore, where the document files are created, stored, and updated.



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

The Unified CCX Server's local disk document files are synchronized with the central repository during Unified CCX Engine startup and during run-time when the Repository datastore is modified. For more information about the Repository datastore, see *Cisco Unified Contact Center Express Serviceability Guide*.

To access the Document Management page, perform the following steps:

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Document Management**.
- Step 2** The Document Management web page opens to display the following fields and buttons.

Field	Description
Language	Location of the items listed in the Name column.
Folder	Path of the current item selected in the Name column with respect to the root folder.
Name	Name of the language.

Field	Description
Size	The size of the document file prefixed with KB. The file size is converted from bytes to KB. Note This column is usually blank on the root page because the items on this page are usually folders.
Date Modified	The date and time when the document was last uploaded or changed along with time zone.
Modified by	The user ID of the person who performed these modifications.
Delete	Displays a dialog box that lets you delete an existing language folder.
Rename	Displays a dialog box that lets you rename an existing language folder.
Refresh	Refreshes the specified folder in the repository.
Create Language	Displays a dialog box that lets you create a new language folder. For detailed information on how to create a new language, see Creating a New Language, page 10-9 .
Upload Zip Files	Displays a dialog box that lets you locate and upload a zip file to the repository. For detailed information on how to upload a zip file, see Upload Zip files to a Language Folder, page 10-11 . Note The zip file must contain language folders in the root directory. Be sure to place the grammar files in folders and then zip the folders.

When you click a hyperlink (if configured) in the Name folder column, a secondary page appears. From this page, you can create a subfolder or upload a new Prompt, Grammar, or Document.

Related Topics

- [Wizards Menu, page 19-1](#)
- [Managing Prompt Files, page 10-2](#)
- [Managing Grammar Files, page 10-5](#)
- [Managing Languages, page 10-9](#)
- [Recording and Uploading Prompt Files, page 10-13](#)
- [Managing Custom Files, page 10-17](#)
- [Managing AAR Files, page 10-18](#)

- [Managing Scripts, page 6-25](#)

Managing Languages

The topics in this section describe the procedure for managing languages:

- [Wizards Menu, page 19-1](#)
- [Creating a New Language, page 10-9](#)
- [Renaming a Language, page 10-10](#)
- [Deleting a Language, page 10-11](#)
- [Upload Zip files to a Language Folder, page 10-11](#)

Creating a New Language

Follow this procedure to create a new Prompt, Grammar, or Document language folder in the Repository datastore:

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Prompt Management** or **Grammar Management** or **Document Management**.
- The corresponding Management web page opens.
- Step 2** Click **Create New Folder** or **Create Language** icon that displays in the tool bar in the upper, left corner of the window or the **Create New Folder** or **Create Language** button that displays at the bottom of the window.
- The Create New Folder or Create Language dialog box opens.
- Step 3** Perform any one of the following actions:
- Select a value from the Language drop-down list.
 - If you're unable to find a particular language or if the Language drop-down list is empty, click **Edit** button to add a new Language. The Explorer User Prompt dialog box opens. Enter the name of the new language in the Language Name field and click **OK**.
- Step 4** Click **Create**.

A new language folder Name appears on the summary web page.

Renaming a Language

Follow this procedure to rename a Prompt/Grammar/Document language folder in the Repository datastore:

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Prompt Management** or **Grammar Management** or **Document Management**.
- The corresponding Management web page opens.
- Step 2** Select the **Rename** icon against the folder you want to rename.
- Step 3** The Rename Folder dialog box opens.
- Step 4** From the Select Language Folder To Rename field, choose the name of the folder to be renamed.
- Step 5** In the Rename Folder To field, enter the new name.
- Step 6** Click **Rename**.

The web page then refreshes itself to provide a summary and status. Click Return to Document Management to navigate to the respective Prompt or Grammar or Document Management page.

Deleting a Language

Follow this procedure to delete a Prompt/Grammar/Document language folder in the Repository datastore:

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Prompt Management** or **Grammar Management** or **Document Management**.
The corresponding Management web page opens.
- Step 2** Select the **Delete** icon against the respective folder, which you want to delete.
- Step 3** A dialog box opens to confirm the Delete action for the specific folder.
- Step 4** Click **OK** to delete.
-

Upload Zip files to a Language Folder

In addition to adding Prompt or Document files individually, you can upload multiple files from a Zip file.



Note

The maximum upload file size is 20MB, whether it is a single file or a Zip file.



Tip

Be sure to upload (or download) large zip files in Prompt, Grammar and Document Management pages during off-peak hours.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Applications > Prompt Management** or **Grammar Management** or **Document Management**.
The corresponding Management web page opens.

Step 2 Click **Upload Zip Files** icon that displays in the tool bar in the upper, left corner of the window or the **Upload Zip Files** button that displays at the bottom of the window to upload a new prompt or zip file.

Step 3 The Upload Document dialog box opens.

Step 4 Enter the path for the script file or click **Browse** to locate the script or the zip file containing the script files. Select the required script file and click **Open**.

**Note**

You can upload only files with extension .aef or .zip.

Step 5 Click the **Upload** button to upload the new script to the repository. A dialog box confirms the successful upload of the files.

**Note**

If you try to upload invalid script files, then the upload would be unsuccessful and an error message would be displayed on the upload dialog box. You can also create User defined directories using “Create a New folder” option and uploads scripts to those directories.

Step 6 By default, the files are unzipped after uploading. If you want to change this option, uncheck the **Unzip after uploading** check box.

**Caution**

In the Documents Management summary web page, you have the option to zip or to unzip the file before uploading. By default, this check box is checked to unzip the file before uploading. Ensure to uncheck the check box if you want to upload it as a zipped file. The maximum upload file size of the Zip file is 20MB.

Step 7 The contents of the zip file is uploaded to the folder. On successful uploading of the zip file, the status icon is updated accordingly. Click **Return to Document Management** button to go back to the respective Management web page.

Recording and Uploading Prompt Files

Prompts are messages that the Unified CCX system plays back to callers. Unified CCX applications often use prompts to elicit caller response so that the Unified CCX system can transfer calls, receive account information, and perform other functions.

To use prompts in your Unified CCX applications, you must first create a folder to store them. You can then record and upload new user prompts, delete prompts, and modify existing prompts.

You store pre-recorded prompts as .wav files. The Unified CCX system also allows users to record spoken names, which you can upload to be used in the playback of prompts.

**Note**

Unified CCX supports audio playback of RIFF header .wav files only though your MRCP vendor might support multiple .wav file header formats.

ScanSoft uses RIFF headers. When generating a wav file prompt specifically for Nuance, be sure to consider the server playing the prompt:

- If the prompt is played by the Nuance Speech Server, then the .wav file will require a SPHERE header.
- If the prompt is played by the Unified CCX server, then the .wav file requires a RIFF header.

Nuance provides a tool to convert .wav files from RIFF headers to SPHERE headers.

Managing prompts can include one or more of the following activities:

- **Creating a folder:** You must create a folder to store the .wav files that the Unified CCX system uses as prompts.
- **Recording a prompt:** You can record your own prompts to be used in applications.
- **Upload one or more prompts:** You can replace any of the stored prompts used by Cisco script applications with a different .wav file by uploading the new.wav file. If necessary, you can also add spoken name prompts. Some Unified CCX applications play back the pre-recorded names of the people that callers are trying to reach, to allow the caller to confirm the transfer of the call.

This section contains the following topics:

- [Recording a Prompt, page 10-14](#)
- [Add Spoken Name Prompts, page 10-16](#)

**Note**

For instructions for Adding and Uploading prompts, see “[Managing Prompt Files](#)” section on page 10-2.

Recording a Prompt

You can record your own prompts to be used in applications. The example provided in this section uses the Windows Sound Record option. This option is one of many possibilities for recording G711 prompts. G711 is a freely distributed public domain codec and has several recording options. Some of these options are included in Microsoft Windows systems and are available to any sound recording application.

The G729 codec is licensed and is not freely distributed. A white paper that describes the G729 prompt recording options is available on request. The white paper is located at http://www.cisco.com/en/US/prod/collateral/voicesw/custcosw/ps5693/ps1846/solution_overview_c22-524728.html

To record a prompt, complete the following steps.

The following procedure is an example of recording G.711 prompts with Microsoft Windows Sound Recorder, using a microphone plugged into your computer. If you are not using Microsoft Windows Sound Recorder, see the documentation provided with your audio application.

Procedure

- Step 1** From your Windows Start menu, choose **Start > Programs > Accessories > Entertainment > Sound Recorder**.
- The Sound Recorder dialog box opens.
- Step 2** Click **Record** button and speak your greeting into the microphone.
- Step 3** Click **Stop** button when you finish recording.

- Step 4** To check your greeting, click **Rewind** button or drag the slider back to the beginning of the recording. Then click **Play** button.
- Step 5** When you are satisfied with your greeting, choose **File > Save As**.
The Save As window opens.
- Step 6** Click **Change** to set the recording options.
You can also set recording properties by choosing **Properties** from the Sound Recorder File menu.
The Sound Selection dialog box opens.
- Step 7** From the Format drop-down menu, choose one of the following options based on the prompts selected during the installation of Unified CCX software:
- If you selected G711 prompts, then **CCITT u-Law**.
 - If you selected G729 prompts, then see your G.729 white paper.



Note The instructions in this procedure assume that, during Unified CCX installation, you configured Unified CCX to use the G.711 codec for prompts. If this assumption is incorrect, and you specified the G.729 codec instead, you would choose a G.729 option from this menu. For more information about recording prompts with G.729, see your G.729 documentation.

- Step 8** From the Attributes drop-down menu, choose 8.000 kHz, 8 Bit, Mono 7 kb/sec.
- Step 9** Click **Save As**.
The Save As dialog box opens.
- Step 10** Enter a name for this format, and then click **OK**.
The Save As Dialog Box closes.
- Step 11** In the Sound Selection dialog box, click **OK**.
The Sound Selection dialog box closes.
- Step 12** In the Save As window, navigate to the directory of your choice, preferably a directory that you have set aside for prompts.
- Step 13** Select the file name, and click **Save**.
The Save As dialog box closes.

You are now ready to add this prompt to the Unified CCX system.

Add Spoken Name Prompts

Some Unified CCX applications play back the pre-recorded names of people that callers are trying to reach, to allow callers to confirm the transfer of a call.

To upload .wav files of the spoken names of users, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Tools > User Management > Spoken Name Upload**.
- Step 2** The Spoken Name Prompt Upload web page opens with the following fields:

Field	Description
User Id	Unique identifier of the user for which the spoken name is to be uploaded. This is a mandatory field.
Codec	The codec chosen during installation for this Unified CCX server. Display only.
Spoken Name (.wav)	Location of the .wav file. This is a mandatory field.

- Step 3** In the User Id field, enter an ID number that will identify the user.
- Step 4** In the Spoken Name (.wav) field, enter the path for a .wav file or click **Browse** to navigate to the directory that contains the Spoken Name .wav file.
The Choose File dialog box opens. Select the required script file and click **Open**.
- Step 5** Click **Upload** icon that displays in the tool bar in the upper, left corner of the window or click the **Upload** button that displays at the bottom of the window to upload the file.
- Step 6** Repeat this process as needed to upload all spoken name .wav files.
-

Managing Custom Files

Use the Custom File Configuration web page to configure the classpath location of custom classes.

Specify Custom Classpath Entries

Use the Custom Classes Configuration web page to specify the available classpath entries.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **System > Custom File Configuration**.

The Custom Classes Configuration web page opens. You can:

- Select required entries from the Available Classpath Entries list and arrange them in the order you want.
- Use the arrow icons to move items between the Available Classpath Entries and Selected Classpath Entries lists.

Step 2 Click **Update** when your selections are complete.

Click **Upload Custom Jar Files** icon that displays in the tool bar in the upper, left corner of the window or the **Upload Custom Jar Files** button that displays at the bottom of the window to upload Jar files. The Document Management web page opens. Refer to [Managing Document Files, page 10-7](#) to know the procedure for uploading Jar files.

Managing AAR Files



Caution

Ensure that the contents of the AAR file are correct and conform to the specifications detailed in this section. If you upload AAR files that do not conform to these specifications, the Unified CCX Engine may not function as designed. Consequently, you need to manually reconfigure some of the applications uploaded through AAR.

AAR files are archives of prompt, grammar, document, scripts, applications, and custom classes that you use as building blocks for applications and extensions.

An AAR file can be simple—for instance, consisting of a single prompt—or complex—for example, containing all the prompts for all languages application uses, the workflow, and the configuration information for an application.

An AAR file is essentially a zip file that contains an optional META-INF directory. The META-INF directory, if it exists, stores configuration data, including security, versioning, extensions, and services (see [META-INF Directory, page 10-22](#)).

You create AAR files using Java tools. After creating a file, you need to upload it to Unified CCX.

The example below shows a sample AAR Application Manifest.

Example 10-1 Sample AAR Main Manifest

```
Manifest-Version: 1.1
Created-By: 1.4.2_05 (Sun Microsystems Inc.)
Built-By: aaruser
Sealed: false
Cisco Unified CCX-Version: 8.5(1)
Class-Path:
Application-List: customApp1.mf customApp2.mf
Subsystem-List: sub1.mf sub2.mf
Palette-List: Custom1 Custom2
Custom1-Palette-Name: Category1
Custom2-Palette-Name: Category2
Custom1-Step-List: step1.mf
Custom2-Step-List: step2.mf step3.mf
Implementation-Title: AAR Test File
Implementation-Version: 4.5(1)
Implementation-Vendor: Cisco Systems, Inc.
```

```
Implementation-Vendor-Id: 12345  
Implementation-URL: http://www.cisco.com
```

Example 10-2 Sample AAR Application Manifest

```
Application-Version: 1.1  
Created-By: 1.4.2_05 (Sun Microsystems Inc.)  
Built-By: aaruser  
Sealed: false  
Implementation-Title: AAR Application MF  
Implementation-Version: 8.5(1)  
Implementation-Vendor: Cisco Systems, Inc.  
Implementation-Vendor-Id: 12345  
Implementation-URL: http://www.cisco.com  
Application-Name: Custom AA  
Application-Type: Cisco Script Application  
Application-Description: Cisco Unified CCX Cisco Custom Application  
Application-Id: 100  
Max-Sessions: 300  
Enabled: true  
Script: SSCRIPT[aa.aef]  
Default-Script: SSCRIPT[aa.aef]  
Initial-Script: SSCRIPT[aa.aef]
```

The figure below shows a sample AAR file.

Figure 10-1 Sample AAR File

Name	Type	Modified	Size	Ratio	Packed	Path
custom_app2.aef	AEF File	6/15/2005 3:10 PM	83,521	85%	12,924	Scripts(default)
custom_aa.aef	AEF File	6/15/2005 3:10 PM	9,862	71%	2,841	Scripts(default)
app2.aef	AEF File	2/20/2005 12:08 PM	80,486	84%	12,690	Scripts(default)
ringin45fastbusy60.wav	WAV Audio	5/12/2005 12:20 PM	1,686,764	94%	101,084	Prompts(default)
ringlo.wav	WAV Audio	5/12/2005 12:20 PM	32,110	77%	9,087	Prompts(default)
ringback45fastbusy60.wav	WAV Audio	5/12/2005 12:20 PM	1,687,574	91%	144,181	Prompts(default)
ringback2.wav	WAV Audio	5/12/2005 12:20 PM	64,160	84%	10,282	Prompts(default)
ringback.wav	WAV Audio	5/12/2005 12:20 PM	32,110	77%	7,266	Prompts(default)
fastbusy60.wav	WAV Audio	5/12/2005 12:20 PM	245,278	99%	3,068	Prompts(default)
fastbusy.wav	WAV Audio	5/12/2005 12:20 PM	4,146	54%	1,889	Prompts(default)
dialtone2fastbusy60.wav	WAV Audio	5/12/2005 12:20 PM	319,558	84%	49,869	Prompts(default)
dialtone.wav	WAV Audio	5/12/2005 12:20 PM	37,198	34%	24,367	Prompts(default)
busy30.wav	WAV Audio	5/12/2005 12:20 PM	238,288	98%	4,801	Prompts(default)
busy.wav	WAV Audio	5/12/2005 12:20 PM	8,000	54%	3,719	Prompts(default)
440beep.wav	WAV Audio	5/12/2005 12:20 PM	4,058	93%	279	Prompts(default)
Manifest.mf	MF File	9/3/2005 10:26 AM	140	14%	121	meta-inf\
NameGrammarStd.grxml	GRXML File	5/19/2005 4:55 PM	231	38%	144	Grammars(en_US)\user\
NameGrammarNuance.grxml	GRXML File	5/19/2005 4:55 PM	232	38%	145	Grammars(en_US)\user\
AAWantToCallVoiceStd.grxml	GRXML File	5/19/2005 4:55 PM	4,188	83%	702	Grammars(en_US)\AA\
AAWantToCallVoiceNuance.grxml	GRXML File	5/19/2005 4:55 PM	4,196	83%	718	Grammars(en_US)\AA\
AAMainMenuVoiceStd.grxml	GRXML File	5/19/2005 4:55 PM	751	62%	285	Grammars(en_US)\AA\
AAMainMenuVoiceNuance.grxml	GRXML File	5/19/2005 4:55 PM	789	62%	301	Grammars(en_US)\AA\
UserStd.grxml	GRXML File	5/19/2005 4:55 PM	1,523	72%	425	Grammars(en_US)\
UserNuance.grxml	GRXML File	5/19/2005 4:55 PM	1,297	69%	398	Grammars(en_US)\
SimpleDigitStringStd.grxml	GRXML File	5/19/2005 4:55 PM	1,496	75%	378	Grammars(en_US)\
SimpleDigitStringNuance.grxml	GRXML File	5/19/2005 4:55 PM	1,497	73%	405	Grammars(en_US)\
ImplicitConfirmStd.grxml	GRXML File	5/19/2005 4:55 PM	1,955	76%	476	Grammars(en_US)\
ImplicitConfirmNuance.grxml	GRXML File	5/19/2005 4:55 PM	1,926	74%	496	Grammars(en_US)\
ExplicitConfirmStd.grxml	GRXML File	5/19/2005 4:55 PM	4,286	83%	721	Grammars(en_US)\

To deploy custom applications, steps, and subsystems through an AAR file, you must first create the AAR file using a jar or zip tool and then upload the file through the Unified CCX Administration web page.

The sections that follow describe how to:

- [Creating AAR Files, page 10-21](#)
- [Uploading AAR Files, page 10-21](#)
- [META-INF Directory, page 10-22](#)

- [Prompts, Grammars, Documents, and Scripts Directories](#), page 10-22
- [AAR Manifest](#), page 10-23
- [Attribute Types](#), page 10-25

Creating AAR Files

You create an AAR file using a jar or WinZip tool.

An AAR file format is similar to a Zip file format. It includes an optional META-INF directory, which is used to store configuration data, including security, versioning, extension, and services.

Uploading AAR Files

To upload an AAR file, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Applications > AAR Management**.

The AAR Management web page opens to display the following fields.

Field	Description
Enter a Valid AAR File to Upload	You can either enter the name of the AAR file or click Browse button next to this field to navigate to the directory in which the file is located. This is a mandatory field.
Overwrite existing files	Enable this checkbox in case you want to overwrite the existing
Upload	Click this button to upload the AAR file.
Clear	Click this button to clear the selected file.

Enter the path for the AAR file or click **Browse** button to upload the file. The Choose File dialog box opens. Select the required script file and click **Open**.

- Step 2** Click **Upload**.

The contents of the AAR file are uploaded to the respective folders.

**Note**

Unified CCX generates an error if the AAR file is not formatted correctly or is missing some custom files.

META-INF Directory

Unified CCX uses the following files and subdirectories in the META-INF directory to configure applications, extensions and services:

- **MANIFEST.MF.** The file used to define extension and application related data (see [AAR Manifest, page 10-23](#)).
- **applications.** This directory stores all application configuration files (see [The application Subdirectory Attributes, page 10-30](#)).

Prompts, Grammars, Documents, and Scripts Directories

The AAR files features also provides directories to store prompts, grammars, documents, and scripts to be uploaded to the Repository.

The AAR directory structure mirrors the function of the Unified CCX Prompt, Grammar, Documents, and Scripts Management web pages. Each directory corresponds to each language for which to install prompts, grammars, documents and scripts. Languages are defined using the Java Locale standard and the special default directory is used for prompts, grammars, and documents that are common to all languages.

Only Unified CCX supported prompt files and extensions are allowed within each directory. The maximum length of each individual folder name and file name within a directory is 64 characters.

Prompts Directory

The Prompts directory stores prompts that must be uploaded to the prompt repository (to make it seem like they were uploaded through Unified CCX Prompt Management).

Grammars Directory

The Grammars directory stores grammars that must be uploaded to the grammar repository (to make it seem like they were uploaded through Unified CCX Grammar Management).

Documents Directory

The Documents directory stores documents that must be uploaded to the document repository (to make it seem like they were uploaded through Unified CCX Document Management).

Scripts Directory

The Scripts directory stores scripts that must be uploaded to the script repository (to make it seem like they were uploaded through Unified CCX Script Management).

**Note**

The Script directory must define a single directory named `default` under which all script files must be listed.

AAR Manifest

An AAR file manifest consists of a main section followed by a list of sections for individual AAR file entries, each separated by a newline.

Information in a manifest file contains *name-value* pairs—which are also referred to as *headers* or *attributes*. Groups of name-value pairs are known as a *section*; sections are separated by empty lines.

Table 10-1 describes the expected syntax of the manifest file.

Table 10-1 Manifest File Syntax

Name	Value
section:	*header +newline
nonempty-section:	+header +newline
newline:	CR LF LF CR (not followed by LF)
header:	name: value
name:	alphanum *headerchar
value:	SPACE *otherchar newline *continuation
continuation:	SPACE *otherchar newline
alphanum:	{A-Z} {a-z} {0-9}
headerchar:	alphanum - _
otherchar:	Any UTF-8 character except NUL, CR and LF
Note	To prevent corruption of files sent through e-mail, do not use “From” to start a header.

The main section, which is terminated by an empty line:

- Contains security and configuration information about the AAR file itself, as well as the applications or extensions that this AAR file is defining.
- Defines main attributes that apply to every individual manifest entry. No attribute in this section can have its name equal to “Name”.

The individual sections define various attributes for directories or files contained in this AAR file. Not all files in the AAR file need to be listed in the manifest as entries. The manifest file itself must not be listed. Each section must start with an attribute with the name as “Name”, and the value must be a relative path to the file or directory.

If there are multiple individual sections for the same file entry, the attributes in these sections are merged. If a certain attribute have different values in different sections, the last one is recognized.

Attributes that are not understood are ignored. Such attributes may include implementation specific information used by applications.

Table 10-2 describes the specification for any file that can be archived in the AAR.

Table 10-2 *Syntax for AAR Files*

Name	Value
manifest-file	main-section newline *individual-section
main-section	version-info newline *main-attribute
version-info	Manifest-Version: version-number
version-number	digit+{.digit+}*
main-attribute	(any legitimate main attribute) newline
individual-section	Name: value newline *perentry-attribute
perentry-attribute	(any legitimate perentry attribute) newline
newline	CR LF LF CR (not followed by LF)
digit	{0-9}

Attribute Types

Attributes that appear in the main section are called main attributes. Attributes that appear in individual sections are called per-entry attributes. Some attributes appear in both the main and individual sections, in which case the per-entry attribute value overrides the main attribute value for the specified entry.

Main Attributes

Main attributes are the attributes that are present in the main section of the manifest:

- General main attributes: See [Table 10-3](#).

Table 10-3 *General Category in the Main Attributes*

Attribute	Description
Manifest-Version	The manifest file version. The value is a legitimate version number. Unified CCX 8.5(1) will start with version 1.1.
Created-By	The version and the vendor of the java implementation on top of which this manifest file is generated. This attribute is generated by the jar tool.
Cisco Unified CCX-Version	The minimum Unified CCX version release compatible with the AAR file. Unified CCX-version is the accumulation of the Unified CCX release, Unified CCX Service Release, and Unified CCX Engineering Special defined in that order. For example, if the AAR file is compatible with Cisco Unified CCX release 4.5(1)_Build705, SR1_Build001, ES2_Build002, the Cisco Unified CCX-Version would be defined as 4.5(1)SR1ES2_Build002. Only the last build number is taken. So for instance, if the AAR file is compatible with Cisco Unified CCX release 4.5(1)_build705, SR1_Build001, then the Cisco Unified CCX-Version is 4.5(1)SR1_Build001. As a last example, if AAR file is compatible with Cisco Unified CCX release 4.5(1)_Build705 and above, then Cisco Unified CCX-Version would be 4.5(1)_Build705.

Table 10-3 *General Category in the Main Attributes*

Attribute	Description
Class-Path	The directories or JAR files that need to be installed and accessed by scripts directly. Entries are separated by one or more spaces. The Unified CCX class loader uses the value of this attribute to construct its internal search path where each entry is defined relative to the /Documents/default/classpath directory in this AAR file.
Application-List	The application configuration files from the META-INF/applications/ directory to be installed. Entries are separated by one or more spaces.
Subsystem-List	The subsystem configuration files from the META-INF/subsystems/ directory to be installed. Entries are separated by one or more spaces.
Palette-List	The step palettes that need to be installed. Each palette listed in this attribute will have a set of additional attributes that the Unified CCX editor uses to specify the palette name and the palette steps to install. Entries are separated by one or more spaces.
<palette>-Palette-Name	The unique name of the palette to define in the Unified CCX editor where the specified steps will be grouped and accessible.
<palette>-Step-List	The step configuration files from the META-INF/steps/ directory to be installed under the palette. Entries are separated by one or more spaces.

- Attribute defined for extension identification: Extension-Name
This attribute specifies a name for the extension contained in the AAR file. The name should be a unique identifier.

- Attributes defined for extension and directory versioning and sealing information: These attributes define features of the extension which the AAR file is a part of. The values of these attributes apply to all the directories in the AAR file, but can be overridden by per-entry attributes. See [Table 10-4](#).

Table 10-4 *Implementation Category in the Main Attributes*

Attribute	Description
Implementation-Title	The title of the extension implementation.
Implementation-Version	The version of the extension implementation.
Implementation-Vendor	The organization that maintains the extension implementation.
Implementation-Vendor-Id	The ID of the organization that maintains the extension implementation.
Implementation-URL	The URL from which the extension implementation is downloaded.
Sealed	Defines if this AAR file is sealed. Sealing a directory means that the files uploaded to the corresponding repository will not be modifiable once installed unless the AAR file is reinstalled. If set to true, then all directories in the AAR file default to be sealed, unless individually defined otherwise. If set to false, then all directories are modifiable.

Per-Entry Attributes

Per-entry attributes apply only to individual AAR file entry with which the manifest entry is associated. If the same attribute also appears in the main section, then the value of the per-entry attribute overwrites the main attribute's value.

- Example 1: If AAR file a.aar has the following manifest content, then all the files archived in a.aar are sealed, except US English prompts. If the same attributes also appeared in an entry representing a parent directory of another entry then the value of the per-entry attribute overwrites the parent directory per-entry attribute's value.

```
Manifest-Version: 1.1
Created-By: 1.2 (Sun Microsystems Inc.)
```



```
Sealed: true
Name: Prompts/en_US/
Sealed: false
```

- Example 2: If AAR file a.aar has the following manifest content, then all the US English prompts archived in a.aar are sealed, except US English prompts located in the AA/ directory.

```
Manifest-Version: 1.1
Created-By: 1.2 (Sun Microsystems Inc.)
Name: Prompts/en_US/
Sealed: true
Name: Prompts/en_US/AA/
Sealed: false
```

The per-entry attributes fall into the following groups:

- Attributes defined for file contents: Content-Type

This attribute specifies the MIME type and subtype of data for a specific file entry in the AAR file. The value should be a string in the form of type/subtype. For example, image/bmp is an image type with a subtype of bmp (representing bitmap). This indicates the file entry as an image with the data stored as a bitmap. RFC 1521 and 1522 discuss and define the MIME types definition.

- Attributes defined for directory versioning and sealing information:

These are the same set of attributes defined in [Table 10-4](#) for the main attributes. When used as per-entry attributes, these attributes overwrite the main attributes for the individual file specified by the manifest entry.

META-INF Directory Attributes

The Unified CCX recognizes the x.MF file in the applications, subsystems, and steps subdirectories in the META-INF directory and interprets each to configure applications, subsystems, and steps respectively. The x is the base file name as listed on the Application-List main attribute of the manifest file. The X.MF file contains one section defining the configuration of a particular application.

The application Subdirectory Attributes

Table 10-5 describes the syntax of the manifest file for the application subdirectory.

Table 10-5 *Application Subdirectory's Manifest File Syntax*

Name	Value
application-file	version-info newline *application-attribute
version-info	Application-Version: version-number
version-number	digit+{.digit+}*
application-attribute	(any legitimate application attribute) newline
newline	CR LF LF CR (not followed by LF)
digit	{0-9}

The application attributes fall into the following groups:

- General main attributes: See Table 10-6.

Table 10-6 *Application Attributes*

Attribute	Description
Application-Version	The application configurations file version. The value is a legitimate version number. For example, Cisco Unified CCX Release 4.5 starts with version 1.1.
Application-Name	The unique name of the application (see Unified CCX Application Management).
Application-Type	The type of the application (Cisco Script Application, Busy, Ring-No-Answer, Unified ICME Translation or Post Routing).
Application-Description (optional)	The description for the application (see Unified CCX Application Management).
Application-Id	A unique identifier for the application (see Unified CCX Application Management).
Max-Sessions	The maximum number of sessions for the application (see Unified CCX Application Management).

Table 10-6 **Application Attributes**

Attribute	Description
Enabled	The application is enabled if the value is set to true (see Unified CCX Application Management). If the value is set to false, the case is ignored.
Script	The main script of a Cisco Script Application (see Unified CCX Application Management). The value must be relative to the Scripts directory. Unified CCX 8.5(1) does not support configuring script parameters.
Default-Script	The default script of a Cisco Script Application, Unified ICME Translation or Post Routing application (see Unified CCX Application Management). The value must be relative to the Scripts directory. Unified CCX 8.5(1) does not support configuring script parameters.
Initial-Script	The initial script of a Unified CCX Post Routing application (see Unified CCX Application Management). The value must be relative to the Scripts directory. Unified CCX 8.5(1) does not support configuring script parameters.

- Attributes defined for application versioning and sealing information: These attributes define features of the application to which the AAR file belongs. These attributes are the same as those listed in [“Implementation Category in the Main Attributes”](#) (see [Table 10-4](#)).



CHAPTER 11

Managing the Unified CCX System

Unified CCX administration provides options to configure, control, and monitor Unified CCX component activities and information across a cluster.



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

See the *Installation Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 8.5(1)* for instructions about tasks that significantly change your Unified CCX deployment, such as:

- Changing from a single-server deployment to a multiple-server deployment.
- Removing a Unified CCX Software component from a server.
- Moving a Unified CCX Software component to another server.
- Changes to a Unified CCX cluster (adding, removing, or replacing a server).

The following sections describe the day-to-day management of Unified CCX components.

- [Basic Terminology, page 11-2](#)
- [High Availability and Automatic Failover, page 11-3](#)
- [Managing Unified CCX CDS Information, page 11-4](#)
- [Managing System Parameters, page 11-5](#)
- [Changing IP Address of Unified CCX, page 11-10](#)
- [Exiting Unified CCX Administration, page 11-23](#)

Basic Terminology

This section provides information about different Unified CCX terminology.

- **Cluster.** A Unified CCX cluster (often referred to as cluster in this manual) consists of one or more servers (nodes) that are running Unified CCX components in your Unified CCX deployment. If you deploy Unified CCX components on a single server, the Unified CCX cluster consists of that server. If you deploy Unified CCX on multiple servers, the cluster includes the Unified CCX server and standby server on which you installed Unified CCX. The Unified CCX cluster supports up to two Unified CCX servers, one designated as the *active Unified CCX server* and the other designated as the *standby Unified CCX server* for high availability purposes.



Note Support for High Availability and remote servers is available only in multiple-server deployments.

- **Cluster profile.** The Unified CCX Administration web page (home page) displays information about the cluster profile. A cluster profile includes data relating to the Unified CCX servers, components, and licenses installed in a cluster.
- **Node (server).** A server that is part of the Unified CCX cluster.
- **Active Server.** The active server provides all system services and resources. You can deploy one active server in each Unified CCX subsystem. If the active server fails, the Unified CCX subsystem automatically fails over to the standby server (see [High Availability and Automatic Failover, page 11-3](#)).
- **Standby Server.** You can deploy up to two servers in each Unified CCX system for high availability—one active server (master) and one standby (not active) server. With high availability, if an active server becomes unavailable, the standby server automatically becomes the active server (see [High Availability and Automatic Failover, page 11-3](#)).
- **Component.** The software units in the Unified CCX system. The main software components of the Unified CCX server are the Engine, datastores, monitoring, recording, and the Cluster View Daemon (CVD). See the *Installation Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 8.5(1)* for more information on setup and installation procedures.

- **Service.** An executable unit. A service may have other services as its children. (For example, subsystems and managers are children of the engine service).
- **Feature.** A logical representation of the functional unit.
- **Master service.** A specially-elected service. Only one service from the Engine service, desktop services, database services set can be the master within the Unified CCX Engine component. See the *Cisco Unified Contact Center Express Serviceability Guide* for detailed information on services.
- **Standby service.** An active service that can take over the master functionality in case the master service becomes unavailable within the Unified CCX Engine component. You cannot configure the standby service. The Cluster View Daemon (CVD) dynamically elects the services on the active node to be the master. See the *Cisco Unified Contact Center Express Serviceability Guide* for detailed information on services.

High Availability and Automatic Failover



Note

Support for High Availability (HA) and remote servers is available only in multiple-server deployments. Unified CCX does not support more than two nodes in a HA setup. Expansion servers where the Database, Monitoring, or Recording components are running on separate servers are not supported.

Unified CCX provides high availability and automatic failover capability through the use of two servers, the *active server* and the *standby server*.

The active server provides all system services and resources; no services or resources are available from the standby server. When you make administrative changes on the active server, both the servers are synchronized.

If the active server fails, there is automatic failover to the standby server. For detailed information on HA over WAN deployment, see *Cisco Unified CCX Solution Reference Network Design*.

Network Partitions

Network malfunction or misconfiguration can create network partitions and split the network into separate *islands*. If a node enters this state, the node is referred to as being in the island mode. Nodes in the island mode are hard to detect. While these nodes can communicate within a partitioned island, they cannot communicate between partitioned islands. If the islands do not communicate, then each island will select its own active server.

Generally, you can connect to the Unified CCX administration on any node, and see a consistent cluster view. If a node is in the island mode, you will see different cluster views when you connect to nodes in each island.

**Note**

Support for High Availability and remote servers is available only in multiple-server deployments.

If your node enters the island mode, it should recover from the island mode as soon as the underlying network issue is resolved. If the island mode persists, check the network connectivity/reachability between the two CCX servers and take action accordingly.

Managing Unified CCX CDS Information

The Unified CCX system stores configuration information in the Cisco Configuration Datastore Server (CDS). The Unified CCX Administration configurations are stored in the CDS.

**Note**

Support for High Availability and remote servers is available only in multiple-server deployments.

The Unified CCX server can receive directory information from one Cisco Unified Communications directory and application configuration and script logic from a repository on another server. See *Cisco Unified Contact Center Express Serviceability Guide* for detailed information.

Managing System Parameters

The parameters in the System Parameters Configuration page are grouped logically into sections with headings. Each parameter has a corresponding suggested or default value on the right side of the page. Where applicable, radio buttons are used to toggle between the parameter options.

In this web page, you can configure the number of historical reporting clients, the recording count, port settings, the default session timeout, and codec.




Note


Changing some system parameters like IP address, Network Time Protocol (NTP) and so on can result in a different License MAC. You need to get rehosted license files (with new License MAC) in such cases within 30-day grace period beyond which the system will stop working.


Procedure

- Step 1** Choose **System > System Parameters** from the Unified CCX Administration menu bar.


The System Parameters Configuration web page appears displaying the following fields.

Field	Description
Generic System Parameters	
System Time Zone	The system or primary time zone will be the same as local time zone of the primary Unified CCX node configured during installation. Display only field. Unified CCX Administration uses this primary time zone to display time-related data.
	 <p>Note If you have changed the primary time zone, you need to reboot both the nodes in the Unified CCX cluster.</p>
Network Deployment Parameters (displayed only in a HA over WAN deployment)	
Network Deployment Type	Display only field that displays the network deployment type as LAN or WAN only if we have more than one node.

Field	Description
Internationalization Parameters	
Customizable Locales	Use to specify a unique locale. Default: (blank)
Default Currency	Default currency, such as American dollars (USD), Euros, and so on. This is a mandatory field. The system uses the default currency for converting currency amounts in a playable format when no currency designator is specified. Default: American Dollar [USD]
Media Parameters	
Codec	The codec chosen during installation for this Unified CCX server. The codec configuration settings differ based on the Unified CCX deployment type: <ul style="list-style-type: none"> • In Unified CM deployments, the codec parameter is configurable. • In Unified CME deployments, the codec parameter is not configurable and is always G711.
Recording Count	The maximum number of simultaneous sessions that are supported with this system configuration. This value cannot be greater than the number of seats. This is a mandatory field.  Note Standard license package does not support recording. Premium package license supports recording, however, when you upgrade from Standard to Premium license package, you need to manually change this recording count to a suitable value based on the hardware type to enable recording functionality. Default: 0
Default TTS Provider	Default TTS (Text-to-Speech) provider. Default: By default, no TTS provider is configured. Select a provider from the drop-down list to configure it as the default. The system uses the default TTS provider to determine which provider to use if the TTS request does not explicitly specify the provider to use.

Field	Description
User Prompts override System Prompts	When enabled, custom recorded prompt files can be uploaded to the appropriate language directory under Prompt Management as described in Managing Prompt Files, page 10-2 , to override the system default prompt files for that language. By default, this is disabled.
Application Parameters	
Supervisor Access	<p>The Administrator uses this option to allow certain privileges to supervisors (all supervisors have the same privilege). The options are:</p> <ul style="list-style-type: none"> • No access to teams—The supervisor logs into the Supervisor page, but will not be able to see any team information (No RmCm info). • Access to all teams—The supervisor logs into the Supervisor page, and will be able to see all the teams (RmCm information) • Access to supervisor’s teams only—The supervisor logs into the Supervisor page, and will be able to see the teams they supervise. <p>Default: No access to teams</p> <p> Note A supervisor who does not have administrator privileges can add, modify, or remove skills from an agent (see Supervisor Privileges, page 15-3).</p>
Max Number of Executed Steps	<p>The maximum number of steps an application can execute before the Unified CCX Engine terminates the script or application. This is a mandatory field.</p> <p>This limitation is intended to prevent a script from running indefinitely.</p> <p>Default: 1000</p> <p>Note Do not change the default value.</p>
Additional Tasks	<p>This field allows you to control the creation of additional threads that the Unified CCX server internally initializes based on licensed Unified IP IVR ports. This is a mandatory field.</p> <p>Default: 0</p>

Field	Description
Default Session Timeout	<p>Maximum amount of time (in minutes) a user-defined mapping ID remains in the session object memory after the session is moved to the idle state. During this duration, the session continues to be accessible even if you have terminated that session. Use this setting to configure the time required to perform your after-call work (for example, writing variables to a database before clearing the session). This is a mandatory field.</p> <p>The default is 30 minutes (recommended). Reducing this number, also reduces the system memory usage comparatively.</p> <p>You can add a user-defined mapping ID to a session using the Session Mapping step in the script editor. Once assigned, you can use this mapping ID to get the session object from another application instance. By doing so, other applications obtain access to the session context. See the <i>Cisco Unified CCX Getting Started with Scripts</i> guide for more information.</p>
Enterprise Call Info Parameter Separator	<p>A character used Get/Set Enterprise Call Info steps in the Unified CCX Editor to act as a delimiter for call data. This is a mandatory field.</p> <p>Default: (bar)</p>
Agent State after Ring No Answer	<p>Radio button determining how agent state should be set after a Ring No Answer event. This is a mandatory field. The choices are:</p> <ul style="list-style-type: none"> • Ready. If an agent does not answer a call, the Agent State is set to Ready. • Not Ready (default). If an agent does not answer a call, the Agent State is set to Not Ready.
Number of HR session licenses	<p>The number of Historical Reporting sessions that can be supported with this system configuration. This denotes the number of historical reporting clients that can be started simultaneously on different client machines. This is a mandatory field.</p> <p>This value cannot be greater than the number of licensed seats in the case of Unified CCX (see Historical Reporting Configuration, page 12-2).</p> <p>Default: 0 for Unified CCX (Standard, Enhanced, and Premium), 5 Unified IP IVR.</p>

Field	Description										
Number of Outbound seats	<p>The maximum number of Outbound seats. The configuration of Outbound seats is done during the initial configuration or setup phase, after the installation.</p> <p> Note This is a mandatory field. This field will be displayed only if you have a Premium license.</p> <p>The maximum number of preview outbound seats that can be configured is the limited by either the Premium Seat Count or the hardware limit, whichever is the least. If there is an invalid entry during configuration, an error message is displayed.</p> <p>The hardware limit for the Preview Outbound seat count is as shown in the table:</p> <table border="1"> <thead> <tr> <th><u>Hardware Type</u></th> <th><u>Max count</u></th> </tr> </thead> <tbody> <tr> <td>7845</td> <td>300</td> </tr> <tr> <td>7835</td> <td>75</td> </tr> <tr> <td>7825</td> <td>75</td> </tr> <tr> <td>7816</td> <td>50</td> </tr> </tbody> </table>	<u>Hardware Type</u>	<u>Max count</u>	7845	300	7835	75	7825	75	7816	50
<u>Hardware Type</u>	<u>Max count</u>										
7845	300										
7835	75										
7825	75										
7816	50										

System Ports Parameters

RMI Port	<p>The port number used by the Unified CCX CVD to serve RMI requests. This is a mandatory field.</p> <p>Default: 6999</p>
----------	---

Field	Description
RmCm TCP Port	TCP port number on which the CTI server component of the RmCm subsystem opens the server socket and listens to the clients. All CTI server clients, such as Cisco Agent Desktop, Unified ICME Server, Sync Server, and IP Phone Agent Server, use this port number. This is a read-only field and cannot be modified. Default: 12028
Master Listener TCP Port	TCP port used for communication between CVD and Cisco Agent/Supervisor Desktop Services. This is a read-only field and cannot be modified. Default: 1994

- Step 2** Click **Update** icon that displays in the tool bar in the upper, left corner of the window or the **Update** button that displays at the bottom of the window.
The system notifies all nodes in the cluster about the changes.

**Note**

If Cluster View Daemon is in Shutdown state during this operation, then the changes just made are synchronized on that node when Cluster View Daemon is started again.

Changing IP Address of Unified CCX

This section provides the steps you need to follow whenever there is a change in IP address for the following Unified CCX deployments:

- Unified CCX Cluster with Single-node
- Unified CCX Cluster with High Availability (HA)

You may want to change the IP address for a variety of reasons, including moving the server from one segment to another or resolving a duplicate IP address problem. This section contains the following sub-sections:

- [Readiness Checklist, page 11-11](#)

- [Changing the IP Address, page 11-13](#)
 - [Changing the IP Address for Server in a Single-Node Deployment, page 11-13](#)
 - [Changing the IP Addresses for Servers in a High Availability \(HA\) Deployment, page 11-16](#)
- [Post-Change Task List, page 11-22](#)

**Note**

Host name change is not supported in Cisco Unified CCX 8.5(1).

Readiness Checklist

Perform the following tasks to ensure that your system is prepared for a successful IP address change.

**Note**

If you do not receive the results that you expect when you perform these tasks, do not continue with this procedure until after you resolve any problems that you find. DB replication across the entire cluster is essential for this process.

Procedure

-
- Step 1** List all servers in the cluster and note whether the nodes are defined by using IP addresses or host names.
- From Cisco Customer Response Solutions menu bar on the first node, navigate to **System > Server**. A list of all servers in the cluster displays.
 - See whether the servers are defined using IP addresses or host names and capture this list of servers for later reference. Ensure that you have saved an inventory of both the host name and IP address of each node in your cluster.
- Step 2** Ensure that all servers in the cluster are up and available by checking for any active ServerDown alerts. You can check by using either the Real Time Monitoring Tool (RTMT) or the Command Line Interface (CLI) on the first node.
- To check by using RTMT, access Alert Central and check for ServerDown alerts.

- To check by using the CLI on the first node, enter the following command and inspect the application event log:

```
file search activelog syslog/CiscoSyslog ServerDown
```

Step 3 Check the DB replication status on all the Cisco CRS nodes and Cisco Unified Communications nodes in the cluster to ensure that all servers are replicating database changes successfully using the steps mentioned below:

- a. **For Unified CCX:** In a High Availability deployment of Unified CCX, you can check the DB replication status for the datastores across all servers in the cluster using Unified CCX Serviceability Administration. Choose **Tools > Datastore Control Center > Replication Servers** from the Unified CCX Serviceability menu bar to view the replication status. The value in State field for both the servers in this web page should display ACTIVE/ CONNECTED. Refer to *Cisco Unified Contact Center Express Serviceability Guide* for more information on how to reset replication.
- b. **For Cisco Unified Communications Platform:** You can check the DB replication status on all the Cisco Unified Communications nodes in the cluster by using either RTMT or a CLI command.
 - To check by using RTMT, access the Database Summary and inspect the replication status.
 - To check by using the CLI, enter the command that is shown in the following example:

```
admin: show perf query class "Number of Replicates Created and
State of Replication"
==>query class :

- Perf class (Number of Replicates Created and State of
Replication)
has instances and values:
ReplicateCount -> Number of Replicates Created    = 344
ReplicateCount -> Replicate_State                 = 2
```

Be aware that the Replicate_State object shows a value of 2 in this case. The following list shows the possible values for Replicate_State:

- 0—Replication Not Started. Either no subscribers exist, or the Database Layer Monitor service is not running and has not been running since the subscriber was installed.
- 1—Replicates have been created, but their count is incorrect.

- 2—Replication is good.
 - 3—Replication is bad in the cluster.
 - 4—Replication setup did not succeed.
- Step 4** Run a manual DRS backup and ensure that all nodes and active services are backed up successfully. For more information, refer the *Disaster Recovery System Administration Guide* for your release.
- Step 5** Run the CLI command `utils diagnose module validate_network` through Platform CLI on all nodes in the cluster to ensure network connectivity and DNS server configuration are intact.
-

Changing the IP Address

This section describes how to change the IP address.



Caution

Changing the IP address on any node in a Cisco CRS cluster can interrupt call processing and other system functions. Also, changing the IP address can cause the system to generate certain alarms and alerts such as ServerDown and automatic failover to a backup server may not operate. Because of this potential impact to the system, you must perform IP address changes during a planned maintenance window.

This section contains the following subsections:

- [Changing the IP Address for Server in a Single-Node Deployment](#)
- [Changing the IP Addresses for Servers in a High Availability \(HA\) Deployment](#)

Changing the IP Address for Server in a Single-Node Deployment

Use this procedure to change the IP address of the server in a single-node deployment.

Procedure

- Step 1** Change the DNS record of the server to point to the new IP address. Ensure that you correctly update both the forward (A) and reverse (PTR) records, and there are no duplicate PTR records.



Note Skip Step 2 if the server is defined by host name and you are changing only the IP address.

- Step 2** From Cisco Customer Response Solutions menu bar, perform the following tasks:
- a. Navigate to **System > Server**. Click the IP address of the server.
 - b. The Server Configuration page for the server opens. Enter the new IP address in the **Host Name/IP Address** field and click **Save**.

- Step 3** If you are moving the server to a different subnet that requires a new default gateway address, you can change the default gateway and IP address using either CLI command or through Cisco Unified Communications Operating System Administration interface as explained below:

Using CLI command:

- a. To change the default gateway, enter the following CLI command:

```
set network gateway <IP Address>
The following sample output displays:
admin:set network gateway 10.3.90.2
***  W A R N I N G  ***
```

```
This will cause the system to temporarily lose network
connectivity
```

```
Do you want to continue ?
```

```
Enter "yes" to continue or any other key to abort
yes
executing...
admin:
```



Note Ensure that the server is moved to the new subnet and has access to the default gateway before proceeding to the following sub-step.

- b. To change the IP address of the server, enter the following CLI command:

```
set network ip eth0 <ip_address> <netmask>
```

where *ip_address* specifies the new server IP address and *netmask* specifies the new server network mask.

The following sample output displays:

```
admin: set network ip eth0 10.3.90.21 255.255.254.0
** W A R N I N G ***
If there are IP addresses (not hostnames)
configured in UCCX Administration
under System -> Servers then you must change
the IP address there BEFORE changing it here
or call processing will fail. This will cause the system to
restart
=====
Note: To recognize the new IP address all nodes within
the cluster will have to be manually rebooted.
=====
Do you want to continue?
Enter "yes" to continue and restart or any other key to abort
```

Enter **y** and press **Enter**. This will automatically reboot this server with the new IP address.

Through Cisco Unified Communications Operating System Administration Interface:

Alternatively, you can change the IP address and default gateway of the server from Cisco Unified Communications Operating System Administration interface using the steps mentioned below:

- a. Choose **Settings > IP > Ethernet**.
- b. Change the IP address, default gateway, and netmask, and click **Save**. The server reboots automatically with the new IP address.

Step 4 If you change the IP address, License MAC of the server will also change. Rehost the new license. Old license enters its grace period.

Step 5 From Cisco Desktop Administrator web page, choose **Services Configuration > Silent Monitoring & Recording > Remove VoIP/Recording & Playback Services**. Remove any VoIP Monitor Service or Recording & Playback Service listed, which uses the IP address that has been changed.

- Step 6** From Cisco Desktop Administrator, navigate to CAD Configuration Setup. Update primary location of the CAD-BE Server to the new IP address. The Services IP Address should display the new IP address. If not, change it to the new IP address. Click **Save** and then restart all CAD services on the server after making these updates.

**Note**

When you change the IP address in a single node deployment, CAD does not launch itself and you need to run the Cisco Unified CCX Desktop Client Configuration tool to update the client installations with the new IP address (see [Post-Change Task List, page 11-22](#)).

Changing the IP Addresses for Servers in a High Availability (HA) Deployment

Use the following subsections to change the IP address of publisher and subscriber in a HA deployment:

- [Changing the IP Address for Publisher Server in a HA Deployment, page 11-16](#)
- [Changing the IP Address for Subscriber Server in a HA Deployment, page 11-19](#)

Changing the IP Address for Publisher Server in a HA Deployment

Use this procedure to change the IP address of publisher server in a HA deployment.

Procedure

-
- Step 1** Change the DNS record of the publisher server to point to the new IP address. Ensure that you correctly update both the forward (A) and reverse (PTR) records, and there are no duplicate PTR records.
- Step 2** Verify that the DNS change propagates to other nodes by using the `utils network host` and `show tech network hosts` CLI commands on all the cluster nodes.



Note Skip Step 3 if the server is defined by host name and you are changing only the IP address.

Step 3 From Cisco Customer Response Solutions menu bar, perform the following tasks:

- a. Navigate to **System > Server**. From the List Servers web page, click the IP address of the publisher server.
- b. The Server Configuration page for the publisher server opens. Enter the new IP address in the **Host Name/IP Address** field and click **Save**.

Step 4 From the Cisco Unified Operating System Administration web page of the subscriber server in the cluster, perform the following tasks:

- a. Navigate to **Settings > IP > Publisher**.
- b. Change the IP address of the publisher server.

Step 5 To update new IP of the publisher server in subscriber, enter the following CLI command on the subscriber server:

```
utils uccx modify remote_IPAddress <Old_IP_of_Publisher>
<New_IP_of_Publisher>
```

The following output displays:

```
admin:utils uccx modify remote_IPAddress 10.3.90.21 10.3.90.28

Old Remote IP Address: 10.3.90.21
New Remote IP Address: 10.3.90.28
```

This command should be executed only in case you are changing IP Address of remote server.

Are you sure you want to run this command?

Continue (y/n)?

Enter **y** and press **Enter**.

Step 6 If you are moving the publisher server to a different subnet that requires a new default gateway address, you can change the default gateway and IP address using either CLI command or through Cisco Unified Communications Operating System Administration interface as explained below:

Using CLI command:

- a. To change the default gateway, enter the following CLI command:

```
set network gateway <IP Address>
```

The following sample output displays:

```
admin:set network gateway 10.3.90.2
      *** W A R N I N G ***
```

This will cause the system to temporarily lose network connectivity

```
Do you want to continue ?
```

```
Enter "yes" to continue or any other key to abort
yes
executing...
admin:
```



Note

Ensure that the server is moved to the new subnet and has access to the default gateway before proceeding to the following sub-step.

- b. To change the IP address of the server, enter the following CLI command:

```
set network ip eth0 <ip_address> <netmask>
```

where *ip_address* specifies the new server IP address and *netmask* specifies the new server network mask.

The following sample output displays:

```
admin: set network ip eth0 10.3.90.21 255.255.254.0
** W A R N I N G **
```

```
If there are IP addresses (not hostnames)
configured in UCCX Administration
under System -> Servers then you must change
the IP address there BEFORE changing it here
or call processing will fail. This will cause the system to
restart
```

```
=====
Note: To recognize the new IP address all nodes within
the cluster will have to be manually rebooted.
```

```
=====
Do you want to continue?
Enter "yes" to continue and restart or any other key to abort
```

Enter **y** and press **Enter**. This will automatically reboot this server with the new IP address.

Through Cisco Unified Communications Operating System Administration Interface:

Alternatively, you can change the IP address and default gateway of the server from Cisco Unified Communications Operating System Administration interface using the steps mentioned below:

- a. Choose **Settings > IP > Ethernet**.
- b. Change the IP address, default gateway, and netmask, and click **Save**. The server reboots automatically with the new IP address.

- Step 7** Reboot all other servers in the cluster using the CLI command `utils system restart`.
- Step 8** If you change the IP address, License MAC will also change. Rehost the new license for the new LicenseMAC. Old license enters its grace period.
- Step 9** From Cisco Desktop Administrator web page, choose **Services Configuration > Silent Monitoring & Recording > Remove VoIP/Recording & Playback Services**. Remove any VoIP Monitor Service or Recording & Playback Service listed, which uses the IP address that has been changed.
- Step 10** From Cisco Desktop Administrator, navigate to CAD Configuration Setup. Update primary and secondary location of the CAD-BE Servers to the new IP address. The Services IP Address should display the new IP address. If not, change it to the new IP address. Click **Save** and then restart all CAD services on the server after making these updates.

**Note**

When you change the IP address of publisher, CAD will connect to the subscriber and will update the IP address of the publisher automatically through its True Update functionality (see [Post-Change Task List, page 11-22](#)).

Changing the IP Address for Subscriber Server in a HA Deployment

Use this procedure to change the IP address of a subscriber server in a HA deployment.

Procedure

-
- Step 1** Change the DNS record of the subscriber server to point to the new IP address. Ensure that you correctly update both the forward (A) and reverse (PTR) records, and there are no duplicate PTR records.

- Step 2** Verify that the DNS change propagates to other nodes by using the `utils network host` and `show tech network hosts` CLI commands on all the cluster nodes.



Note Skip Step 3 if the server is defined by host name and you are changing only the IP address.

- Step 3** From Cisco Customer Response Solutions menu bar, perform the following tasks:
- a. Navigate to **System > Server**. From the List Servers web page, click the IP address of the subscriber server.
 - b. The Server Configuration page for the subscriber server opens. Enter the new IP address in the **Host Name/IP Address** field and click **Save**.



Note You can use the CLI command `run sql select name,nodeid from ProcessNode` to check whether the new IP address has been replicated on all the servers.

- Step 4** To update new IP of the subscriber in publisher, enter the following CLI command on the publisher server:

```
utils uccx modify remote_IPAddress <Old_IP_of_Subscriber>
<New_IP_of_Subscriber>
```

The following output displays:

```
admin:utils uccx modify remote_IPAddress 10.3.90.21 10.3.90.28
```

```
Old Remote IP Address: 10.3.90.21
```

```
New Remote IP Address: 10.3.90.28
```

This command should be executed only in case you are changing IP Address of remote server.

Are you sure you want to run this command?

Continue (y/n)?

Enter **y** and press **Enter**.

- Step 5** If you are moving the server to a different subnet that requires a new default gateway address, you can change the default gateway and IP address using either CLI command or through Cisco Unified Communications Operating System Administration interface as explained below:

Using CLI command:

- a. To change the default gateway, enter the following CLI command:

```
set network gateway <IP Address>
```

The following sample output displays:

```
admin:set network gateway 10.3.90.2
      *** W A R N I N G ***
This will cause the system to temporarily lose network
connectivity

      Do you want to continue ?

Enter "yes" to continue or any other key to abort
yes
executing...
admin:
```

**Note**

Ensure that the server is moved to the new subnet and has access to the default gateway before proceeding to the following sub-step.

- b. To change the IP address of the server, enter the following CLI command:

```
set network ip eth0 <ip_address> <netmask>
```

where *ip_address* specifies the new server IP address and *netmask* specifies the new server network mask.

The following sample output displays:

```
admin: set network ip eth0 10.3.90.21 255.255.254.0
** W A R N I N G **
If there are IP addresses (not hostnames)
configured in UCCX Administration
under System -> Servers then you must change
the IP address there BEFORE changing it here
or call processing will fail. This will cause the system to
restart
=====
Note: To recognize the new IP address all nodes within
the cluster will have to be manually rebooted.
=====
Do you want to continue?
Enter "yes" to continue and restart or any other key to abort
```

Enter **y** and press **Enter**. This will automatically reboot this server with the new IP address.

Through Cisco Unified Communications Operating System Administration Interface:

Alternatively, you can change the IP address and default gateway of the server from Cisco Unified Communications Operating System Administration interface using the steps mentioned below:

- a. Choose **Settings > IP > Ethernet**.
- b. Change the IP address, default gateway, and netmask, and click **Save**. The server reboots automatically with the new IP address.

- Step 6** Reboot all other servers in the cluster using the CLI command `utils system restart`.
- Step 7** From Cisco Desktop Administrator web page, choose **Services Configuration > Silent Monitoring & Recording > Remove VoIP/Recording & Playback Services**. Remove any VoIP Monitor Service or Recording & Playback Service listed, which uses the IP address that has been changed.
- Step 8** From Cisco Desktop Administrator, navigate to CAD Configuration Setup. Update primary and secondary location of the CAD-BE Servers to the new IP address. The Services IP Address should display the new IP address. If not, change it to the new IP address. Click **Save** and then restart all CAD services on the server after making these updates.

Post-Change Task List

Once you change the IP addresses of your cluster, complete the following tasks:

Procedure

- Step 1** Choose **Tools > Plug-ins** and click **Cisco Unified CCX Desktop Suites** from the Unified CCX Administration menu bar. From the Cisco Unified CCX web page, run the Cisco Unified CCX Desktop Client Configuration tool to update the client installations with the new IP addresses.

On the client, if only one IP address in a HA system has been updated and the client is an XP machine with administrator privileges, then the Automatic Update process will update the registry the next time the user logs on. However, you will have to manually update the client's system by running `C:\Program Files\Cisco\Desktop\bin\PostInstall.exe` program, and update it with the correct IP addresses, if any of the following conditions are true:

- IP address of a single node deployment is changed

- Both IP addresses in a HA system is changed
 - Client OS is Microsoft Vista or Win7
 - Client does not have administrative rights
- Step 2** Ensure that all the servers in the cluster are up and available.
- Step 3** Check the DB replication status as mentioned in Step 3 of the [Readiness Checklist](#) to ensure all the servers are replicating database changes successfully.
- Step 4** Run a manual DRS Backup and ensure that all nodes and active services are successfully backed up.
- Step 5** Run the CLI command `utils diagnose module validate_network` through platform CLI on all nodes in the cluster to ensure network connectivity and DNS server configuration are intact.
- Step 6** If you have changed the IP address to move the Unified CCX server to a different network, then any firewall configuration on the other network must be changed to permit or deny traffic from the new IP address.
- Step 7** If you have created any DSN using old IP address, change the DSN to point to the new IP. For example, the DSN created for Wallboard.
- Step 8** You might have to update the new IP address in the following web pages as well:
- **Cisco Desktop Administrator > Cisco Unified Presence Settings > Cisco Unified Presence Cluster** - Publisher Host/IP Address and Subscriber Host/IP Addresses
 - **Cisco Desktop Administrator > Agent E-Mail Settings > Global Settings** - IMAP Server Host/IP Address and SMTP Server Host/IP Address
 - **Work Flow Configuration > User Interface > Browser Setup** - URL and Home Page
 - **Work Flow Configuration > HTTP Action** - Host
 - **Work Flow Configuration > IPC Action** - IP Address
-

Exiting Unified CCX Administration

To exit Unified CCX Administration without closing your web browser, you can:

- Click the **Logout** link displayed in the top right corner of any Cisco Unified CCX Administration web page or
- Choose **System > Logout** from the Unified CCX Administration menu bar.

The system logs you out of Unified CCX and displays the Unified CCX Authentication web page.

**Note**

You can also exit Unified CCX Administration by closing your web browser.



CHAPTER 12

Managing Unified CCX Historical Reporting

The following sections describe how to manage the Unified CCX Historical Datastore to accommodate historical reporting.

- [About Unified CCX Historical Datastore, page 12-1](#)
- [Historical Reporting Configuration, page 12-2](#)
- [Purging Historical Data, page 12-3](#)
- [File Restore, page 12-7](#)

About Unified CCX Historical Datastore

In a Unified CCX Cluster, there can be one or more Historical datastores.



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

The Historical Unified CCX Datastore can be co-located only on the server with the Unified CCX Engine.



Note

For more information about Historical datastore, see *Cisco Unified Contact Center Express Serviceability Guide*.

Historical Reporting Configuration

**Note**

Verify that the **Number of HR Session Licenses** field is updated to reflect the licensed value. This value cannot be greater than the number of licensed Unified CCX seats. The default value is **0** for Unified CCX (Standard, Enhanced, and Premium), and **5** for Unified IP IVR (see [Managing System Parameters, page 11-5](#)).

**Caution**

If this value remains at 0 (default), you may encounter a licensing error and you cannot login to the Historical Reporting Client.

The Unified CCX Historical Reporting subsystem provides you with a way to set up and manage the purging of the Historical Reporting databases.

Setting up Unified CCX for Historical Reporting consists of three tasks:

1. [Configuring Database Server Limits, page 12-2](#)
2. [Viewing Historical Reports, page 12-3](#)
3. [Configuring Automatic Purging, page 12-4](#)

Configuring Database Server Limits

To limit the performance impact of historical reporting on a particular Unified CCX server, you can configure a maximum number of five client/scheduler database connections per server.

To do so, complete the following steps:

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Tools > Historical Reporting > Database Server Configuration**.

The Database Server Configuration web page opens with the following fields:

Field	Description
Server Name	The host name or IP Address of the database server.
Maximum DB Connections for Report Clients Sessions	<p>The maximum number of client and scheduler connections that can access the Historical Reports Database server.</p> <p>There is a limit of 5 instances of Historical Reporting Client and Scheduler based on the load that can be run on each server. The historical report client issues an error if you exceed this limit.</p>

Step 2 Enter a value in the Maximum DB Connections for Report Client Sessions field next to a Server Name.

Step 3 Click **Update**.

The configuration changes take effect.

Viewing Historical Reports

Choose **Tools > User Management > Reporting Capability View** to configure historical reporting users. The User Configuration web page opens (see [Historical Report User Privileges, page 15-5](#)) for detailed instructions. You can view the historical reports through Historical Reporting client.

Purging Historical Data

As the Unified CCX Engine runs, it collects information about the status and performance of the Unified CCX system. Historical information is stored in a database that can then be accessed to provide reports (see the *Cisco Unified CCX Historical Reports User Guide* for more information about Unified CCX Historical Reports).

When the database approaches its maximum size, some or all of the data in it must be removed. Removing data from a database is called *purging*.

When the system purges data, it removes data from the db_cra database. It determines what information to purge based on the number of months you specify and on the current date. For example, if you instruct the system to purge data older than 12 months, a purge on January 15 will purge data older than January 15 of the previous year.

**Note**

When you purge data, you permanently delete it. If you want to keep data that will be purged, back up the database.

Unified CCX Administration provides the following features for purging historical reports from the database:

- Daily comparison of the size of the database to a user-specified maximum size
- User-specified time at which the system purges data
- Automatic purging of the database when it exceeds the user-specified maximum sizes
- Automatic purging of the database based on user-specified parameters
- Manual purging of the database

This section describes:

- [Configuring Automatic Purging, page 12-4](#)
- [Purging Manually, page 12-6](#)

Configuring Automatic Purging

The Unified CCX Engine performs automatic purging each day at a preset time.

To help keep your system running most efficiently, schedule automatic purging to run when your system is least busy. By default, daily purges are scheduled to run at 12:00 a.m. (00:00 Hrs), but you can change this time.

The system bases its purging activities on a variety of parameters. You can change the default value for any parameter as needed.

The following section contains the procedure for setting daily purge schedule and auto purge.

Configuring Purge Schedule Configuration Parameters

You can change the time of day that the system assesses the need to purge data and the age of data to purge.

When data is purged, the Unified CCX sends a “Database purged” message. This message announces that a purge has taken place and includes an explanation of the purging activity. If the database is approaching its maximum size, then the Unified CCX sends the following message - “Database approaching maximum size”.

The system can send notifications through the following two methods:

- Syslog (system log)
- SNMP traps

To set the purge schedule configuration parameters, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Tools > Historical Reporting > Purge Schedule Configuration**.

The Purge Schedule Configuration area opens. The following fields are displayed in the Purge Schedule Configuration area.

Field	Description
Purge Schedule	
Daily purge at	Time of day for the daily purge along with the time zone. The time mentioned here is based on the primary time zone, which is specified during initial setup of Unified CCX Administration. In a High Availability over WAN deployment, the purge schedule will happen at the time zone of the primary node.
Purge data older than	Number of months data can persist before being purged.
Auto Purge Configuration	

Field	Description
Initiate automatic purge when database exceeds	Percentage of the maximum database size at which an automatic purge is initiated (as compared to the total available size).
Auto purge data for the oldest	Age of data to be purged.

- Step 2** From the drop-down list in the Daily purge at field, choose a time of day at which the system determines if purging is necessary.
- Step 3** From the drop-down list in the Purge data older than field, choose the required number of months.
- If the system determines that purging is necessary, it will purge both databases of data that is older than the number of months specified in this field.
- Step 4** From the drop-down list in the Initiate automatic purge when database size exceeds field, accept the default, or choose another number.
- Step 5** From the drop-down menu in the Auto purge data for the oldest field, accept the default of **15**, or choose another number.
- Step 6** Click **Update** icon that displays in the tool bar in the upper, left corner of the window or the **Update** button that displays at the bottom of the window.
- The new purge schedule configuration is added to the Unified CCX system.

Purging Manually

You can manually purge the databases at any time. This action will not affect the automatic purging schedule.



Note

Support for High Availability is available only in multiple-server deployments.

To manually purge historical data, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Tools > Historical Reporting > Purge Now**.

The Purge Now web page opens. The Purge data older than field is displayed in the Purge Now web page. You can specify this field in months and days.

- Step 2** From the drop-down list in the Purge data older than *N* months field, keep the default (13 months) or specify the required number of months.

If the system determines that purging is necessary, it will purge both databases of data that is older than the number of months specified in this field.

The Initiate automatic purge when database exceeds field displays the current historical database size as compared to the total available size.

- Step 3** From the drop-down list in the Purge data older than *N* days field, keep the default (15 days) or specify the required number of days.

If the system determines that purging is necessary, it will purge both databases of data that is older than the number of days specified in this field.

- Step 4** Click **Purge Now**.

The database purge is initiated in the server and the Purge Now area refreshes.

Related Topic

- [Configuring Purge Schedule Configuration Parameters, page 12-5](#)

File Restore

Use the File Restore menu option to restore the database records written to HR files when the database goes down. See [File Restore, page 20-12](#) for detailed information on how to restore the database records written to HR files when the database goes down.



CHAPTER 13

Configuring Unified CCX Outbound Dialer

The Unified CCX Outbound Dialer feature, available in the Unified CM version of the Unified CCX product, is bundled along with the Unified CCX Premium license package. This chapter provides conceptual, installation, and configuration information about the Unified CCX Outbound application.

When you upload the Premium license, the Outbound subsystem will automatically appear in the Subsystems menu. With this feature, you can maintain high agent productivity by configuring contact centers for automated Outbound activities and allow agents who are not busy with inbound calls to perform Outbound calls.

Unified CCX Outbound IVR Dialer Types

In addition to the existing preview outbound dialer option, Unified CCX Release 8.5(1) supports IVR-based dialing. You can configure a campaign as an Outbound IVR campaign if you have an Outbound IVR license in addition to the existing Unified CCX Premium license. If you select the IVR based option for a campaign, the outbound calls will be handled by the IVR scripts. Typical applications include appointment and bill payment reminders.

You can choose any one of the following dialer types for an IVR-based campaign:

- Progressive
- Predictive

Predictive/Progressive Dialer is developed to leverage call control and Answering Machine Detection (AMD) capability of SIP Gateway Interface to perform dialing, call control, and Call Progress Analysis for Outbound campaigns. This offloads call control off the Unified CM since the calls that need not be treated by an agent or an IVR such as no answers, busy tones, and so on are not sent to Unified CM.

You can procure Unified CCX Outbound IVR license based on the IVR ports that you want to use for an Outbound IVR campaign. You need to upload an additional license for Outbound IVR feature. The Outbound IVR feature will not be available with Premium license of Unified CCX (see [Unified CCX Requirements, page 13-4](#)).

**Note**

The Outbound feature is *not supported* in the following Unified CCX packages:

- Unified CCX Standard version
 - Unified CCX Enhanced version
 - Unified CME Version of Unified CCX
 - Unified IP IVR
-

The following sections describe how to configure the Outbound feature in detail.

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [Dialing Modes, page 13-8](#)
- [Steps to Configure an Outbound IVR Subsystem in Unified CCX, page 13-14](#)
- [How Is a Contact's Local Time Determined?, page 13-15](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Verifying the RmCm and Outbound Subsystems, page 13-17](#)
- [Configuring General Outbound Properties, page 13-18](#)
- [Adding a New Campaign, page 13-31](#)
- [Importing Contacts for a Campaign, page 13-39](#)
- [Enabling Campaigns, page 13-41](#)
- [Adding Area Codes, page 13-42](#)
- [Setting-up Communications with the Agent's Desktop, page 13-43](#)
- [Handling Do Not Call Contacts, page 13-59](#)

About the Outbound Feature for Unified CCX

The Outbound feature provides Outbound dialing functionality in addition to existing Unified CCX inbound capabilities. This feature allows agents who are not busy with inbound calls to handle Outbound calls.

With the Outbound feature, customer calls are placed using the Cisco Unified Communications by way of the Unified CM for call control.

This section contains the following topics:

- [Outbound Characteristics, page 13-3](#)
- [Unified CCX Requirements, page 13-4](#)
- [Outbound Components, page 13-7](#)
- [Dialing Modes, page 13-8](#)

Outbound Characteristics

The Outbound feature includes the following characteristics:

- An Outbound subsystem that can be monitored from the control center
- Dialing modes - Direct preview, Predictive, and Progressive
- Unified CCX Administration web pages to configure the Outbound feature
- Outbound historical report templates (see the *Cisco Unified CCX Historical Reports User Guide*)



Note

Calls made by the Outbound subsystem will not be displayed in the Contacts Summary Real-Time Report.

- Real-Time reports are part of the Unified CCX Administration GUI real-time reporting applet (see [Chapter 14, “Reporting on Real-Time Unified CCX Data”](#))
- Access to real-time Outbound data from the GetReportingStatistics step
- Cisco Agent Desktop (CAD) allows agents to handle Outbound calls (see the *Cisco Desktop Administrator’s User Guide*)
- Sequential dialing

Related Topics:

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [Unified CCX Requirements, page 13-4](#)
- [Outbound Components, page 13-7](#)
- [Direct Preview Dialing Mode, page 13-9](#)

Unified CCX Requirements

To use the Outbound feature, you must adhere to the following requirements:

- **Unified CCX Licensing Requirements:** The licensing requirements for Outbound feature in Unified CCX will vary depending on the dialing modes (see [Dialing Modes, page 13-8](#)).
 - **For Unified CCX Outbound Direct Preview Dialer:** The Unified CCX Outbound Preview Dialer feature is automatically available with Premium license package without any additional license. It is no longer available with Enhanced license (see [Unified CCX Licensing Packages, page A-1](#)).
 - **For Unified CCX Outbound IVR Dialer:** You need to upload an Outbound IVR license on top of Unified CCX premium license with the required number of IVR ports that you would like to use for the Outbound IVR feature (see [Uploading Licenses, page 1-15](#)).

**Note**

The sum of inbound and outbound IVR ports should be less than or equal to maximum number of IVR ports supported for your hardware model.

Once you obtain the Outbound IVR license for a specific number of ports, the IVR ports will be distributed between the inbound and outbound IVR calls using the following approach based on the different scenarios explained below.

You can view the licensed IVR ports for outbound and inbound and the dedicated ports for both outbound and inbound calls by navigating to **System > License Information > Display License(s)** submenu from the Unified CCX Administration menu bar.

Scenario 1:

If your Contact Center is already utilizing maximum licensed IVR ports supported for your hardware model, then:

- Inbound calls will take precedence over the configured Outbound IVR calls.
- If IVR ports are dedicated for a campaign, then the Outbound IVR ports available for the campaign will be gradually incremented as and when the inbound ports become free.

For example, if you have an MCS 7845 hardware that supports maximum of 300 IVR ports and if you have 200 premium seats, then the current licensed IVR ports = 300 (Minimum of [seats*2, maximum supported for platform]).

In this case, if you upload an Outbound IVR add-on license for 100 IVR ports and add 3 campaigns with 20 dedicated ports each running at the same time, then the 60 Outbound IVR ports will be available to the campaigns only when the number of inbound ports are freed up to support the Outbound IVR calls.

In other words, if the number of inbound ports that are used during the outbound IVR campaign time is 280, then only 20 Outbound IVR ports will be available to the campaigns. The number of Outbound IVR ports will be gradually incremented depending on the availability of free inbound ports.

Scenario 2:

If your Contact Center is close to utilizing the maximum IVR ports supported for your hardware model, then:

- Inbound calls will take precedence over the configured Outbound IVR calls.
- If IVR ports are dedicated for a campaign and if you reach the maximum inbound call limit, then the Outbound IVR ports available for the campaign will be gradually incremented as and when the inbound ports become free.

For example, if you have an MCS 7845 hardware that supports maximum of 300 IVR ports and if you have 130 premium seats, then the current licensed IVR ports = 260 (Minimum of [seats*2, max supported for platform]).

In this case, if you upload an Outbound IVR add-on license for 50 IVR ports and add 2 campaigns with 25 dedicated ports each running at the same time and if you reach the inbound call limit of 260 during the outbound IVR

campaign time, then only 40 ports (300-260) will be freed up initially for Outbound IVR calls. The number of Outbound IVR ports will be gradually incremented depending on the availability of free inbound ports.

Scenario 3:

If your Contact Center is using fewer ports than the maximum licensed ports supported for your hardware model, then the number of available IVR ports for inbound will continue to remain the same.

For example, if you have an MCS 7845 hardware that supports maximum of 300 IVR ports and if you have 60 premium seats, then the current licensed IVR ports = 120 (Minimum of [seats*2, max supported for platform]).

In this case if you upload an Outbound IVR add-on license for 50 IVR Outbound ports, and add 2 campaigns with 20 dedicated ports each running at the same time, then Unified CCX will support 40 IVR Outbound calls and inbound port limit will continue to be 120 as the sum of both inbound and outbound ports (160) are within the maximum licensed ports (300) for the platform.

- **Unified CCX Subsystem Requirements:**

- The Outbound subsystem must be IN SERVICE (see [Verifying the RmCm and Outbound Subsystems, page 13-17](#)).
- The RmCm subsystem must be IN SERVICE (see [Configuring RmCm Provider, page 8-2](#)).
- The Unified CM Telephony subsystem must be IN SERVICE (see [Provisioning Unified CM Telephony Subsystem, page 7-5](#)).
- The Unified CCX Database must be IN SERVICE.
- IBM Informix Dynamic Server

- **Cisco Security Agent (CSA) usage:** If you plan to use CSA, which Cisco highly recommends, you must always use the default directories when installing any software on a server. You need not choose the default disk drive if an option is available (for example, C: or D:), but you must use default directories.

- **Geographic region support:**
 - The Outbound feature can be used in any geographic region supported by Unified CCX. The area codes and time zones mapping for North America are automatically pre-populated in the system. The system uses this information to determine the time zone of a customer's phone number. See [Adding Area Codes](#), page 13-42.
 - For regions outside North America, administrators must enter the mapping of the international area codes and their time zones using the Unified CCX Administration GUI. See [How Is a Contact's Local Time Determined?](#), page 13-15.
 - The national do_not_call list is not supported in this release. Be sure to abide by the national do_not_call list. See [Handling Do Not Call Contacts](#), page 13-59.

**Note**

In this guide, the underscore character linking each word differentiates the national do_not_call list from the Outbound subsystem's Do Not Call list.

Related Topics:

- [About the Outbound Feature for Unified CCX](#), page 13-3
- [Outbound Characteristics](#), page 13-3
- [Outbound Components](#), page 13-7
- [Direct Preview Dialing Mode](#), page 13-9

Outbound Components

This section provides details about the following Outbound feature components:

- **Unified CCX Administration:** Enables the Outbound subsystem configuration, creates campaigns, and imports contacts to generate the dialing list.
- **Outbound subsystem:** Is responsible for the following tasks:
 - Manages campaigns
 - Maintains Outbound system configurations
 - Manages the dialing list

- Reserves agents
- Makes Outbound calls
- Updates the call data in the dialing list based on the outcome of the call.
- Decides which contact records to retrieve from a campaign

The Outbound subsystem views campaigns as logical entities that group a set of contacts together in a dialing list. Campaigns deliver outgoing calls to agents. Agents are assigned to campaigns using CSQs.

Related Topics:

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [Outbound Characteristics, page 13-3](#)
- [Unified CCX Requirements, page 13-4](#)
- [Direct Preview Dialing Mode, page 13-9](#)

Dialing Modes

The Outbound feature in Unified CCX Release 8.5(1), supports the following dialing modes:

- [Direct Preview Dialing Mode](#)
- [Progressive Dialing Mode](#)
- [Predictive Dialing Mode](#)

This new feature in the Outbound Dialer allows agents who are not busy with inbound calls to handle outbound calls, thus maintaining high level of agent productivity.

**Note**

In Unified CCX 8.5(1), progressive and predictive dialers will be only used for IVR-based campaigns and not for Agent-based campaigns. In other words, the agents cannot preview the contact information on their desktops while using Predictive and Progressive dialing modes in Unified CCX Release 8.5(1).

Direct Preview Dialing Mode

The direct preview dialing mode allows agents to preview a customer call on CAD before the call is placed. The advantage of this mode is that an agent is already on the call when the customer answers and can quickly begin talking with the customer immediately.

The Outbound subsystem presents the agent with a popup window displaying the customer information prior to placing the Outbound call. The agent has the choice of accepting the call or ignoring it. The Outbound subsystem dials the customer only if the agent accepts the call.

If the agent accepts the call in this mode, the Outbound call is initiated from the agent's phone. Since the call is initiated from the agent's phone, the agent can hear the customer's phone ring and also hear other tones, such as a busy signal.

**Tip**

You must explicitly disable the Call Waiting option on the agent's phone to successfully use this feature. The Call Waiting option must be disabled (default) in Unified CM on each Outbound agent phone to ensure that every customer call successfully transfers to an available agent.

Related Topics:

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [Outbound Characteristics, page 13-3](#)
- [Unified CCX Requirements, page 13-4](#)
- [Outbound Components, page 13-7](#)

When an Outbound call is transferred or conferenced to another agent, the second/subsequent agents are not counted towards the number of Outbound licenses. For example, if you have five seats licensed for Outbound and Agent1 gets an Outbound call, Agent1 accepts the call and conferences in Agent2 and Agent3. Now, three agents are on one Outbound call but only Agent1 is considered an Outbound agent and you are only using one licensed seat. Consequently, your system allows four more Outbound calls to agents.

**Caution**

When Agent A transfers an Outbound call to Agent B, all Preview Outbound option buttons are enabled on Agent B's desktop. Despite all buttons being enabled, Agent B must only select the Do Not Call or the callback buttons at this

time.

Likewise, after transferring the call to Agent B, Agent A should not attempt to set or change a callback time for that call.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [How Is a Contact's Local Time Determined?, page 13-15](#)
- [The Outbound Configuration Checklist, page 13-16](#)

Progressive Dialing Mode

Progressive dialer configuration is set for each campaign at the time of creating a campaign and can be updated at a later point.

In the Progressive Dialing mode, you can specify a fixed number of lines that will always be dialed per available IVR port. You can configure the progressive dialer settings for each campaign while creating the campaign through Unified CCX Application Administration web interface. You can also update the configuration at a later date (see [Adding a New Campaign, page 13-31](#)).

For example, in Progressive dialer if Number of Lines Per Port is 3 and X number of dedicated ports are available for Outbound calls, then the Outbound IVR dialer will dial 3X IVR calls (3*X). Depending on the number of calls that are getting abandoned due to the shortage of dedicated ports which may occur, you might have to adjust the lines per port manually to make the calls efficiently.

An abandoned call occurs when a customer answers the phone, but no port is available to play the prompts to the customer. In some cases, the abandoned call rate is limited by government regulations (typically, less than 3% for telemarketing calls).

Understanding the Working of an IVR-Based Progressive Campaign

The outbound subsystem does the following in an IVR-based Progressive campaign of Unified CCX.

Procedure

- Step 1** The outbound subsystem checks the licensing information to determine the number of available ports for the campaign.
- Step 2** Then the outbound dialer will multiply the available ports for the campaign with the configured number of lines per port. Based on this output and the number of contacts, it will start dialing the contacts. For instance, if 50 ports are available for a campaign and if you have configured the lines per port as 2 through Unified CCX Application Administration web interface, then it can dial 100 contacts.
- Step 3** The SIP gateway performs call progressive analysis of the call and informs the outcome of the call to Unified CCX. See [SIP Gateway Configuration, page 18-22](#) for detailed information on how to configure the SIP gateway parameters through Unified CCX Administration web interface. The outcome of a call can be anyone of the following:
- a. All the dialed contacts, which turns out to be live voice will be connected to the CTI port, which plays the IVR script and it will disconnect the remaining calls.

If the dialer detects more contacts with live voice than the available ports, then it will drop those calls and those will be considered as abandoned calls. If the dialer detects less contacts with live voice, then the dialer will connect those calls to the CTI port that plays the IVR script and the remaining CTI ports will be freed.
 - b. If the dialer detects an answering machine, then it performs either of the following depending on the option selected in the Answering Machine Treatment field in the Campaign Configuration web page:
 - Connects to the CTI port that plays the IVR script or
 - Abandons the call
 - c. If the dialer detects a fax or modem, then the dialer abandons the call.
 - d. If the dialer detects a call as low volume, then it performs either of the following depending on the options selected in the **Handle Low Volume as Voice** field in the Campaign Configuration web page:
 - If you have selected Yes radio button in the Handle Low Volume as Voice field, then the dialer considers the call as live voice and connects the call to the CTI port that plays the IVR script.

- If you have selected No radio button in the Handle Low Volume as Voice field, then low volume calls are not handled as voice and they are abandoned.

See [Adding a New Campaign, page 13-31](#) for detailed information on how to configure these values through the Unified CCX Application Administration web interface.

Related Topics:

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [Direct Preview Dialing Mode, page 13-9](#)
- [Predictive Dialing Mode, page 13-12](#)

Predictive Dialing Mode

The Predictive Dialing mode works similar to the Progressive Dialing mode in terms of dialing the Outbound IVR calls. The difference remains in tuning the lines per port depending on the abandoned call rate thus eliminating manual intervention as in the case of the Progressive Dialer.

In other words, in the Predictive Dialing mode, the Dialer adjusts the number of customers to dial per available IVR port for transfer to an IVR campaign. The number of lines to dial is calculated by an algorithm and gets updated automatically.

A Predictive Dialer is designed to increase IVR port utilization in a contact center. To increase the chances of reaching a customer, a Predictive Dialer dials several outbound calls to customers per available IVR port. The goal is to dial enough lines to keep the IVR ports busy while not exceeding the configured maximum abandoned call rate.

Predictive Dialing Description

The Outbound IVR feature in predictive dialing works by keeping outbound dialing at a level where the abandoned rate is below the maximum allowed abandon rate. For example, each campaign is configured with a maximum allowed abandon rate. In Predictive mode, the Dialer continuously increments the number of lines being dialed per port until the abandon rate rises to the

preconfigured maximum abandon rate. At this point, the Dialer begins lowering the lines per port until the abandon rate goes below the preconfigured maximum. In this way, the Dialer stays just below the preconfigured maximum abandon rate.

Under ideal circumstances, the Dialer internally targets an abandon rate of 85% of the preconfigured maximum abandon rate. Due to the random nature of outbound dialing, the actual attainable abandon rate at any given point in time may vary for your Dialer.

When a campaign starts for the first time, the predictive algorithm starts off with the seed value of Lines Per Port configured through the AppAdmin web interface. The predictive algorithm starts correcting the Lines Per Port value only when the number of calls answered by live voice reaches the value defined by the Predictive Correction Pace.

Consecutive corrections happen after Predictive Correction Pace divided by 4, number of live voice calls. The amount of correction given by the predictive algorithm is controlled by the Predictive Gain as well. The correction factor is multiplied by the Predictive Gain and then it is added to the Lines Per Port of the previous iteration.

**Note**

It is advisable not to change the Correction Pace and Predictive Gain values unless there is an urgent need to control the output of the predictive algorithm. For example, in cases where a campaign runs for a very short time and the Lines Per Port needs to be corrected at a very faster pace then you can reduce the Predictive Correction Pace and update the value in the Gain field as 1.0, which is the maximum value.

If a campaign runs for multiple days, then when the campaign starts up, the predictive algorithm starts off with the Lines Per Port value from the previous day instead of the seed value in the AppAdmin web interface, so that better correction is achieved within a given time.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [Direct Preview Dialing Mode, page 13-9](#)
- [Progressive Dialing Mode, page 13-10](#)

Steps to Configure an Outbound IVR Subsystem in Unified CCX

Table 13-1 identifies the tasks that you need to perform while configuring an Outbound IVR subsystem in Unified CCX.

Table 13-1 Tasks to Perform while Configuring an Outbound IVR Subsystem in Unified CCX

Step	Task	Name of the Document or Related Sections in this Guide
1	Install Unified CCX with Unified CM and perform the initial system setup using the Cisco Unified CCX Administration web interface.	See the <i>Installation Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 8.5(1)</i> .
2	Verify whether you have performed the different requirements mentioned in Unified CCX Requirements, page 13-4 . Note You need to have Unified CCX Outbound IVR license on top of Unified CCX premium license to use the Outbound IVR feature	<ul style="list-style-type: none"> Unified CCX Requirements, page 13-4 Uploading Licenses, page 1-15
3	Configure the General Outbound properties that are common for all the campaigns.	Configuring General Outbound Properties, page 13-18
4	To enable communication between Unified CCX and SIP gateway, configure the SIP Gateway parameters using the SIP Gateway Configuration web page in Unified CCX Application Administration web interface.	SIP Gateway Configuration, page 18-22
5	Create a Call Control Group for Outbound type with the required number of IVR ports to be used for Outbound IVR campaigns.	Adding a New Unified CM Telephony Call Control Group, page 7-9
6	Create an application, which will be used for the Outbound IVR campaign.	<ul style="list-style-type: none"> Configuring Unified CCX Applications, page 1-17 About Unified CCX Applications, page 6-1
7	Create a trigger and assign the newly created Outbound Call Control group to this trigger.	Adding a Unified CM Telephony Trigger, page 7-16

Table 13-1 Tasks to Perform while Configuring an Outbound IVR Subsystem in Unified CCX

Step	Task	Name of the Document or Related Sections in this Guide
8	Create a new IVR campaign and configure the progressive dialer parameters for this campaign.	Adding a New Campaign, page 13-31
9	Import contact for the campaign.	Importing Contacts for a Campaign, page 13-39

How Is a Contact's Local Time Determined?

The Outbound subsystem use the area code of a contact's phone number to determine the time zone of the contact's calling area. The system provides the mapping for North American area codes to their corresponding time zones. The Area Codes web page allows you to add, modify, and delete any area code to time zone mapping (see [Adding Area Codes, page 13-42](#)).

Some area codes extend across multiple time zones. For such area codes, you can edit the default time zone for that area code and specify a different one, if required.

Changes to area codes take affect the next time you import contacts (see [Importing Contacts for a Campaign, page 13-39](#)). For example, if the time zone of area code 603 is changed from 16 to 17, contacts already present in the system that have an area code of 603 continue to have the GMT Offset of 16. Any contacts with area code 603 that are imported after the area code change have 17 for the GMT Offset.

When Outbound contacts are imported into the database, all contacts are assigned a GMT time zone for the three phone numbers provided. The Outbound subsystem determines this GMT time zone by extracting the area code of each phone number and checking it against the Area Codes table to obtain the corresponding time zone. If the area code cannot be matched, the Outbound subsystem uses the local time zone and Daylight Savings Time (DST) setting of the server. The Outbound subsystem also considers the DST to determine if an Outbound contact can be called at a given time.

The Outbound subsystem ensures that the contacts are dialed at valid times. For Outbound contacts which have been scheduled for callback, the scheduled callback time is converted to GMT time zone and stored in the `callbackDateTime` field in the database.

For pending records, the Outbound subsystem ensures that Outbound contacts are called only within the `Customer Dialing Time Range (hh:mm)` detected by the `MinCustomerDialTime` and `MaxCustomerDialTime`, as per federal regulations. You can configure this time in the Unified CCX Administration GUI (see [Configuring General Outbound Properties](#), page 13-18).

Related Topics

- [About the Outbound Feature for Unified CCX](#), page 13-3
- [The Outbound Configuration Checklist](#), page 13-16
- [Adding Area Codes](#), page 13-42

The Outbound Configuration Checklist

To configure the Outbound subsystem, complete the following tasks:

Step	Task	For instructions, see
Step 1	Configure RmCM. Create CSQs. Assign resources to CSQ.	<ul style="list-style-type: none"> • Configuring RmCm Provider, page 8-2 • Creating a CSQ, page 8-18. • Resource Skill Selection Criteria Within a CSQ, page 8-28
Step 2	Verify that the RmCm and Outbound subsystems are IN SERVICE.	Verifying the RmCm and Outbound Subsystems , page 13-17
	Configure the general properties of the Outbound subsystem.	Configuring General Outbound Properties , page 13-18
	a Configure customer dialing time range as determined by the regulations of the required region	How Is a Contact's Local Time Determined? , page 13-15
b	Configure the dialing prefixes for your geographic area.	How the Outbound Option Works with Area Codes , page 13-28

Step	Task	For instructions, see
Step 3	c Assign the CSQs and % of Logged in Agents for Outbound.	Allocating CSQ Agent Pool Percentages, page 13-30 Handling Configuration Updates, page 13-29 To configure CSQs, see Configuring Contact Service Queues, page 8-17
Step 4	Create campaigns.	Adding a New Campaign, page 13-31
Step 5	Import contacts for each campaign.	Importing Contacts for a Campaign, page 13-39
Step 6	Enable campaigns.	Enabling Campaigns, page 13-41
Step 7	If the dialing list contains contacts outside of North America or if Unified CCX is installed outside of North America, manually add the area codes and their corresponding time zones of the regions	Adding Area Codes, page 13-42
Step 8	Enable direct preview in CDA.	See the <i>Cisco Desktop Administrator User's Guide</i> .
Step 9	Setup communication with the agent's desktop.	Setting-up Communications with the Agent's Desktop, page 13-43
Step 10	Agents log in and get ready to receive Outbound calls (agents must belong to CSQs assigned to Outbound).	Agents Receive Outbound Calls, page 13-44

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)

Verifying the RmCm and Outbound Subsystems

The Outbound subsystem's initial state is OUT OF SERVICE. Next, it goes to INITIALIZING state, at which point it checks the conditions listed below. If all the conditions are met, the state changes to IN SERVICE.

For the Outbound subsystem to be IN SERVICE, the following conditions apply:

- The RmCm subsystem on the same box must also be in service. The RmCm subsystem is considered to be active when you have provisioned the RmCm Provider and associated agent extensions with the RmCm Provider (see [Configuring RmCm Provider, page 8-2](#)).
- The Unified CCX Database service (on the publisher node) should be up and running. For example, if you have a dual node (Node A and B) setup with Node A as the publisher node, you need to have the Unified CCX Database service up and running on Node A for the Outbound subsystem to be IN SERVICE.

**Note**

The publisher node will always be the first node installed in the cluster.

On the standby service, if all four nodes are up and running *and* RmCM is in service, then the Outbound subsystem is IN SERVICE.

**Tip**

During a fail over, it might take a couple of minutes before the Outbound subsystem displays the correct state (IN SERVICE) as the verification cycle needs to complete.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [The Outbound Configuration Checklist, page 13-16](#)

Configuring General Outbound Properties

General Outbound properties refer to the settings information that is common for all the campaigns.

**Caution**

Area code and long distance prefix configuration changes made to the Outbound subsystem do not take effect for calls/contacts currently in the Outbound subsystem's memory. For example, if you change the long distance prefix or local area code, the contacts already in the Outbound subsystem's memory will continue to use the old long distance prefix and local area code.

To configure general Outbound properties, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Outbound > General**.

The General Configuration web page opens to display the General pane (default view).

- Step 2** Use this web page to specify the following fields in the General Configuration section.

Field	Description
Customer Dialing Time Range (hh:mm)	<p>The time range during which a customer can be called. This time range supersedes the time range of individual campaigns and ensures that a customer is never called outside the legally allowed time range for that country. This is a mandatory field.</p> <p>For example, in the USA, the Federal Communications Commission (FCC) specifies the legal time range as 8 AM – 9 PM. This does not apply to callbacks since the customer explicitly requested to be called at a certain time. This time range is always converted to the local time for each contact record.</p> <p>Default = 8:00 AM - 9:00 PM (USA FCC regulations)</p>
Preview Call Timeout	<p>If an agent does not respond to the Outbound preview call on the Cisco Agent Desktop (CAD) within the timeout duration specified in this field, the system sets the agent to the Not Ready state, similar to the behavior for Ring No Answer (RNA) for inbound calls. This is a mandatory field.</p> <p>Default= 60 seconds, Range = 5 to 3600 seconds.</p>
Dialing Prefix	<p>The number to pre-pend to the phone number for dialing outgoing calls (also referred to as switch prefix). This number can have any numeric value, including 0 or leading zeros.</p>
Long Distance Prefix	<p>The number to pre-pend to the phone number for dialing long distance. This number can have any numeric value, including 0 or leading zeros.</p>
International Prefix	<p>The number to pre-pend to international phone numbers. This number can have any numeric value, including 0 or leading zeros.</p>

Field	Description
Local Area Code	The area code of the Unified CCX server location. This number can have any numeric value, including 0 or leading zeros.
Do Not Remove Local Area Code When Dialing	If this box is checked, the local area code is included when dialing the phone numbers within this area code. If it is unchecked, then the local area code is stripped from the phone number before dialing the local numbers. It is expected that when contacts are imported into the system, the phone numbers include the area code. For international phone numbers, the country code must be included when importing contacts.
Include Long Distance Prefix	This field will be displayed only if you select the Do Not Remove Local Area Code When Dialing check box. For local numbers, the long distance prefix will be prepended only if this checkbox is checked. The long distance prefix will be prepended to the phone number for all non-local numbers (the numbers that do not start with local area code) irrespective of the status (checked/unchecked) of this checkbox.
Assigned CSQs	Assigned CSQs refer to CSQs used by the Outbound subsystem. To allocate CSQs for Outbound, select a CSQ from the Assigned CSQ list, and then select a value from the % of Logged in Agents for Outbound drop-down to indicate what percentage of the CSQ is allocated for Outbound and then click “<” icon. At this point, the selected CSQ is removed from the Available CSQs box and shows up in the Assigned CSQs box with the percentage allocation in parentheses next to the CSQ name. This is a mandatory field.
Available CSQs	The Available CSQs pane displays all CSQs configured in the CSQ Configuration page under the RmCm subsystem configuration.
% of Logged in Agents for Outbound	The % of Logged in Agents for Outbound field indicates the percentage of logged in agents in each of the selected CSQs that are allocated for handling Outbound calls. Note The CSQ allocation percentage is defined at the global level and not at a campaign level. For example, if a CSQ has 100 agents and 20% are allocated for Outbound, a pool of 20 agents are shared among the Outbound campaigns. In the Add New Campaign web page, you can specify the CSQs to assign to a campaign.

Step 3 Click **Update** icon that displays in the tool bar in the upper, left corner of the window or the **Update** button that displays at the bottom of the window.

The System Options components are now updated.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Customer Dialing Lists, page 13-21](#)
- [Handling Callbacks, page 13-27](#)
- [How the Outbound Option Works with Area Codes, page 13-28](#)
- [Handling Configuration Updates, page 13-29](#)
- [Allocating CSQ Agent Pool Percentages, page 13-30](#)

Customer Dialing Lists

Contact centers purchase or maintain customer dialing lists in files, which can be imported using the Unified CCX Administration GUI. When the file is imported, the Outbound subsystem generates a dialing list that is then used to dial customers.

A dialing list can be in *comma-delimited* format, with a maximum of 10240 characters per row.

The following table lists all columns in the dialing list table.

Field Name	Data Type	Required	Description
recordID	int	Yes	A unique identifier for the record.
dialingListID	int	Yes	Unique identifier for a contact.
profileID	int	Yes	Identifier for the Unified CCX profile that is associated with this record.
campaignID	int	Yes	A unique identifier for the campaign.
createDateTime	datetime	Yes	The time when the record is created or updated

Field Name	Data Type	Required	Description
accountNumber	nvarchar(25)	NO	Account number of contact. From imported file. This field is sent to the agent desktop. This parameter has a maximum length of 25 characters.
firstName	nvarchar(50)	NO	First Name of contact. From imported file. This parameter has a maximum length of 50 characters.
lastName	nvarchar(50)	NO	Last Name of contact. From imported file. This parameter has a maximum length of 50 characters.
phone01	varchar(28)	Yes	Primary Phone Number of contact. From imported file. This parameter has a maximum length of 28 characters and must be a valid phone number.
phone02	varchar(28)	NO	Additional Number of contact. From imported file. This number is dialed when agent selects Skip--Next for the preview call. This parameter has a maximum length of 28 characters and must be a valid phone number.
phone03	varchar(28)	NO	Additional Number of contact. From imported file. This number is dialed if the attempts to dial first two numbers were unsuccessful. This parameter has a maximum length of 28 characters and must be a valid phone number.
gmtZonePhone01	smallint	Yes	The time zone for this phone number of this contact. GMT time zones are on a 0-23 scale which begins with 0 at Greenwich, England and increases to the East. For the United States, New York is GMT 19, San Francisco is at GMT 16.
dstPhone01	bit	Yes	1 - DST is observed at this phone. 0 - DST is not observed at this phone.

Field Name	Data Type	Required	Description
gmtZonePhone02	smallint	Yes	The time zone for this phone number of the contact. GMT time zones are on a 0-23 scale which begins with 0 at Greenwich, England and increases to the East. For the United States, New York is GMT 19, San Francisco is at GMT 16.
dstPhone02	bit	Yes	1 - DST is observed at this phone. 0 - DST is not observed at this phone.
gmtZonePhone03	smallint	Yes	The time zone for this phone number of the contact. GMT time zones are on a 0-23 scale which begins with 0 at Greenwich, England and increases to the East. For the United States, New York is GMT 19, San Francisco is at GMT 16.
dstPhone03	bit	Yes	1 - DST is observed at this phone. 0 - DST is not observed at this phone.
callbackNumber	varchar(28)	NO	Phone number to be used for callback - can be supplied by the agent.
callbackDateTime	datetime	NO	This column is used, after a call attempt has been made, to store the time in which this contact is called back. For customer requested callbacks, this time is the requested callback time. For retries due to no answers or busy attempts, this is the time when the system retries this contact. Stored in UTC time.

Field Name	Data Type	Required	Description
callStatus	smallint	Yes	<p>The status of the contact record.</p> <p>1 = Pending: The call is pending.</p> <p>2 = Active: The record is sent (active) to the Outbound subsystem for dialing</p> <p>3 = Closed: The record is closed.</p> <p>4 = Callback: The record is marked for a callback.</p> <p>5 = Max Calls: Maximum attempts have been reached for this record (considered closed).</p> <p>6 = Retry: The call is redialed immediately whenever there is any miss.</p> <p>7 = Unknown: If the Outbound subsystem was restarted with records in the Active (2) state, they are moved to this state.</p> <p>8 = Retries with delay: The call is redialed as it was either busy, no answer, customer abandoned or system abandoned. Retry time is set as per the corresponding configuration in the Unified CCX Application Administration web interface.</p>

Note When contacts are imported, they will have a default value of 1 in the call status column and 0 in the call result column in the Dialing List table. The call status of 3 and a call result 0 denotes that the contact was closed without being dialed. This happens if the phone01 column is empty for the contact.

Tip If you import contacts with the same phone01 field as an existing contact, then the existing contact is overwritten by the imported contact in the following fields: accountNumber, firstName, lastName, phone02, phone03. However, other fields like call result, call status are not overwritten. Besides, a new contact will NOT be added to the Dialing List table

Field Name	Data Type	Required	Description
callResult	smallint	NO	<p>The call result from the last call placed for this record</p> <p>1 = (Voice) Customer answered and was connected to agent</p> <p>2 = Fax machine or modem detected</p> <p>3 = Answering machine detected</p> <p>4 = Number reported as invalid by the network</p> <p>5 = Customer did not want to be called again</p> <p>6 = Number successfully contacted but wrong number</p> <p>7 = Number successfully contacted but reached the wrong person</p> <p>8 = Customer requested callback</p> <p>9 = Agent has skipped or rejected the preview call</p> <p>10 = Agent has skipped or rejected the preview call with the close option (not dialed)</p> <p>11 = Busy tone detected</p> <p>12 = Agent did not respond to the preview call within the timeout duration</p> <p>13 = Callback Failed - this value is not written to the database; this is for internal use only</p> <p>14 = Callback missed and marked for Retry</p> <p>15 = Customer's phone timed out either due to Ring No Answer (RNA) or Gateway failure.</p> <p>16 = Call was abandoned because IVR port was unavailable or Unified CCX failed to transfer the call to the IVR port.</p> <p>17 = Call failed due any one of the reasons mentioned in Call Result Values, page 13-52.</p> <p>18 = Customer abandoned as customer disconnected the call within the time limit as configured in "Abandoned Call Wait Time" in Unified CCX Application Administration web interface.</p>

Configuring General Outbound Properties

Field Name	Data Type	Required	Description
callResult01	smallint	NO	The call result from the last time phone01 was called. Values same as callResult
callResult02	smallint	NO	The call result from the last time phone02 was called. Values same as callResult
callResult03	smallint	NO	The call result from the last time phone03 was called. Values same as callResult
lastNumberDialed	smallint	NO	The last number dialed. 1 = phone01 2 = phone02 3 = phone03
callsMadeToPhone01	smallint	NO	The number of call attempts made to phone01. If there was an error in attempting to call this number, the attempt is not counted here.
callsMadeToPhone02	smallint	NO	The number of call attempts made to phone02. If there was an error in attempting to call this number, the attempt is not counted here.
callsMadeToPhone03	smallint	NO	The number of call attempts made to phone03. If there was an error in attempting to call this number, the attempt is not counted here.
privateData	image(16)	NO	Any field which is used internally only can be stored in this column in a blob
active	bit	YES	Whether the record is active in the system. A record becomes inactive if the campaign is deleted from the system. 0 = Inactive 1 = Active
dateInactive	datetime	NO	Date this record was deleted.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)

- [The Outbound Configuration Checklist, page 13-16](#)
- [Handling Callbacks, page 13-27](#)
- [How the Outbound Option Works with Area Codes, page 13-28](#)
- [Handling Configuration Updates, page 13-29](#)
- [Allocating CSQ Agent Pool Percentages, page 13-30](#)

Handling Callbacks

A customer can request a callback at a specific callback phone number and also specify the time/date of the callback. The Outbound subsystem stores this information (the callback phone number, date, time) in the dialing list table.

The Outbound subsystem handles the callback as follows:

- **Convert to GMT:** The callback date and time specified with respect to the customer's time zone is converted to GMT time zone and then stored in the database.
- **Agent not Available:** When the Outbound subsystem looks up the database for contacts, it first checks the callbacks. The default callback time limit is 15 minutes (can be changed) before and after the customer-specified time. If an agent is available, then the Outbound subsystem places the callback. If an agent is not available, the Outbound subsystem retries agent availability (agent state) after 10 minutes.
- **Missed Callbacks:** If a callback is missed, you have three action options:
 - Reschedule it to the same time on the next business day
 - Mark it as another retry (the callback phone number is removed and the callback date time is ignored). In this case, it moves out of the call back state and into the retry state.
 - Close the record (never dialed again).

The selected status is changed at midnight for calls not retrieved (see [Resetting Contact States at Midnight, page 13-51](#)).

- **Agent reclassifications:** If calls were retrieved and presented to the agent and if the agent reclassified it (for example, changed it to answering machine status), then the call status is updated to answering machine (see [Reclassification Status Behavior, page 13-54](#)).

- Invalid number: If the number is invalid, the callback continues to be retried until the callback time limit expires or the agent reaches the customer.

**Caution**

If a callback is presented and the callback number is invalid (or busy), the callback continues to be retried irrespective of the number of retries set (for normal busy/invalid). It will be retried until the callback time limit expires.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Customer Dialing Lists, page 13-21](#)
- [How the Outbound Option Works with Area Codes, page 13-28](#)
- [Handling Configuration Updates, page 13-29](#)
- [Allocating CSQ Agent Pool Percentages, page 13-30](#)

How the Outbound Option Works with Area Codes

In the Outbound option, the area code determines the geographical location of the phone number you dial, which correspondingly provides the Greenwich Meridian Time (GMT) zone. The db_cra database contains a mapping of the area codes to the time zones.

The U.S. area code mappings are provided along with the product. International customers should provide their own data and add it to the database (see [Adding Area Codes, page 13-42](#)).

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Customer Dialing Lists, page 13-21](#)
- [Handling Callbacks, page 13-27](#)
- [Handling Configuration Updates, page 13-29](#)
- [Allocating CSQ Agent Pool Percentages, page 13-30](#)

Handling Configuration Updates

Whenever Outbound parameters are modified in the Unified CCX Administration GUI, the changes take effect immediately. If a new CSQ is added using the **Subsystems -> RmCm -> Contact Service Queues** menu option, it is instantly displayed in the list of available CSQs in the General configuration page in the Unified CCX Administration GUI as this list is dynamically updated. If a CSQ is modified and if this impacts the allocation of agents, the Outbound subsystem is aware of this change as it refreshes the list of agents in each relevant CSQ periodically.

- If a configuration change affects the Outbound contacts dialing process (for example, if a campaign is disabled or a CSQ is removed from a campaign), the Outbound subsystem stops processing the Outbound contacts, recalls these contacts to the database, and resets the call status to Pending.
- If a campaign start time is changed, the Outbound subsystem checks if the campaign is enabled. If it is enabled, and if the new start time is after the current time, it performs the following actions:
 - Sends a recall contact message to the Outbound subsystem passing the campaign ID.
 - For all Outbound contacts for this campaign in the Outbound subsystem's memory, it resets all Outbound contacts to the pending state and clears them from memory.

If the campaign is disabled or if the new start time is before the current time, the Outbound subsystem ignores this change.

- If campaign end time is changed, the Outbound subsystem checks if the campaign is enabled. If it is enabled, and if the new end time is before the current time, it performs the following actions:
 - Sends a recall contact message to the Outbound subsystem passing the campaign ID.
 - For all the Outbound contacts for this campaign in Outbound subsystem's memory, it resets all the Outbound contacts to the Pending state and clears them from memory.

If the campaign is disabled or if the new end time is after the current time, the Outbound subsystem ignores this change.

- If a CSQ is deleted from a campaign or if the CSQ itself is deleted, the Outbound subsystem sends a recall contacts message with the csq ID of the deleted CSQ. It also reallocates any Outbound contacts in its memory that are currently allocated to this CSQ among the other existing CSQs for this campaign.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Customer Dialing Lists, page 13-21](#)
- [Handling Callbacks, page 13-27](#)
- [How the Outbound Option Works with Area Codes, page 13-28](#)
- [Allocating CSQ Agent Pool Percentages, page 13-30](#)

Allocating CSQ Agent Pool Percentages

You need to specify a percentage of total agents in the assigned CSQs to be allocated for Outbound calls. This pool of agents is shared by all Outbound campaigns.

**Tip**

The CSQs for Outbound are the same as those CSQs for inbound. If you need more CSQs, you must first configure them in Unified CCX and assign the required CSQs for agents as required by your configuration before allocating them as specified in this procedure.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [How Is a Contact's Local Time Determined?, page 13-15](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Configuring General Outbound Properties, page 13-18](#)
- [Customer Dialing Lists, page 13-21](#)
- [Handling Callbacks, page 13-27](#)

- [How the Outbound Option Works with Area Codes](#), page 13-28
- [Handling Configuration Updates](#), page 13-29
- [Adding a New Campaign](#), page 13-31

Adding a New Campaign

Use the Campaign component to configure properties for the campaign, including the campaign name and description, CSQ selection, and the time range when a campaign can call contacts.

Complete the following steps to define or modify the settings that apply to a campaign:

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > Outbound > Campaigns**.

The Campaign web page opens displaying the details of existing campaigns, if any. Click an existing campaign to view or update the configuration settings for the campaign.

Step 2 Click **Add New** icon in the tool bar in the upper, left corner of the window or the **Add New** button at the bottom of the window.

On click of **Add New**, Add a New Campaign web page opens up where you can specify the campaign type and the dialer type for the campaign using the following fields.



Note

You need to upload an Outbound IVR license on top of the Premium license for Unified CCX to create a campaign for Outbound IVR.

■ Adding a New Campaign

Field	Description
Select the type of the campaign	
Campaign Type	<p>Type of the campaign to be used for outbound calls. You can specify any one of the following two campaign types:</p> <ul style="list-style-type: none"> • Agent based - If you select this, all the outbound calls in a campaign will be handled by the available agents. • IVR based - If you select the IVR based option, the outbound calls in a campaign will be handled by the IVR scripts.
Select the type of dialer for the campaign	
Dialer Type	<p>The dialer type options available for a campaign will vary depending on the selected Campaign Type. If you select Agent Based campaign type, Direct Preview dialer type option is displayed. If you select IVR based campaign type, then you can select any one of the following dialer types:</p> <ul style="list-style-type: none"> • Progressive (default) • Predictive <p>See the Importing Contacts for a Campaign, page 13-39 for detailed information on different dialing modes for outbound calls.</p>



Note

You cannot change the Campaign Type and Dialer Type for an existing campaign.

Once you select the campaign type and dialer type, click **Next** to continue. The Campaign Configuration web page opens displaying the following three column headings:

- Parameter Name
- Parameter Value
- Suggested Value

You can specify values for a new campaign or modify values for an campaign using the fields mentioned below Parameter Value column. See the table below for a list of fields along with their description.

The Suggested Value displays the default configuration value for each campaign. You can refer to these values if you want to revert any changes made to one or more parameters mentioned in the Campaign Configuration web page.

Field	Description
Campaign Name	Name of the campaign (must be a unique identifier). This is a mandatory field.
Enabled	Indicates to the Outbound subsystem whether this campaign is currently active. Default = No.
Description	Description of the campaign.
Start Time/End Time (hh:mm) AM PM Time Zone	Indicate the time range during which the campaign runs. These are mandatory fields. The name of the primary time zone is also displayed adjacent to these two field values. Default = 8:00 AM - 9:00 PM Pacific Standard Time (USA FCC regulations).
Campaign Calling Number	The campaign calling number is the number that will be displayed to the contact. This number is used by the dialer. This is a mandatory field.
Application Trigger	This is the JTAPI trigger associated with this campaign. There will be one-to-one mapping between a campaign and an application trigger. Hence, only those triggers that are not associated with any other campaigns are displayed in the trigger list.
Application Name	The name of the application associated with the above-mentioned JTAPI trigger. This field is auto-populated.
Maximum Attempts to Dial Contact	The maximum number of times the Outbound subsystem attempts to dial a contact beyond which the call status will be marked as closed. You can choose this value from the drop-down list box. Default = 3, Range = 1 to 3.
Callback Time Limit	The duration before and after the scheduled callback time during which the Outbound subsystem attempts to place a callback. For example, if a callback was scheduled for 9:30 am and if the Callback Time Limit is set to 15 minutes, then the Outbound subsystem calls the customer anytime between 9:15 am to 9:45 am. Default = 15 minutes, Range = 1 to 60 minutes

Field	Description
Dialing Options (displayed only if you have selected IVR-based campaign type)	
Number of Dedicated Ports	<p>Number of dedicated IVR ports that you want to reserve for this campaign based on the number of CTI ports available in the outbound call control group for the campaign duration. That is, the total number of dedicated IVR ports for the selected campaign cannot exceed the maximum licensed ports for Outbound IVR minus the sum total of IVR ports dedicated to other campaigns running at the same time.</p> <p>You can enter or update this value for a campaign only after associating a trigger with the campaign. Default value = 0, Range = 0 to number of available ports for the campaign duration.</p> <p>For example, if you have an MCS 7845 hardware, which supports maximum of 300 IVR ports with 50 licensed ports for Outbound IVR and you have already dedicated:</p> <ul style="list-style-type: none"> • 20 ports for Campaign1, which runs between 10-12 pm and • 10 ports for Campaign2, which runs between 2-4 pm, then the number of dedicated IVR ports that you can enter in this field for a new campaign cannot exceed: <ul style="list-style-type: none"> – 30 ports if the new campaign runs between 10-12 pm and – 40 ports if the new campaign runs between 2-4 pm and – 50 ports if the new campaign runs during any time other than 10-12 pm and 2-4 pm <p>If the number of configured ports for a campaign is greater than the available number of licensed ports at the specified campaign time, then an alert message stating the same will be shown while saving the campaign.</p> <p>See Unified CCX Requirements, page 13-4 to know how the licensed IVR ports are distributed between the inbound and outbound IVR calls in different scenarios.</p>

Field	Description
Lines Per Port (1-3)	<p>Number of lines to be dialed for each port. The dialer will try to connect as many live voices to the available port(s) where IVR script is playing and it will disconnect the remaining calls. The probability of abandoned calls increases geometrically as the lines per port increases.</p> <p>In an IVR-based Progressive campaign, you can configure the number of lines to dial per port at a time. The dialer will determine the number of calls to dial based on the following calculation - Lines per port * Available number of ports.</p> <p>In an IVR-based Predictive campaign, this is the seed value that is passed to the predictive algorithm. Initially the dialer starts dialing with this value.</p> <p>Note If you change this value in the middle, the predictive algorithm will take the updated value in this field during the next iteration.</p> <p>This is a mandatory field.</p> <p>Default value = 1.5; Range = 1 to 3.</p>
Handle Low Volume as Voice	<p>Determines whether a low volume call should be treated as voice or disconnected. Select Yes or No radio button accordingly.</p> <p>Default is Yes, which means low volume calls are handled as voice and they are connected to the IVR port.</p>
Answering Machine Treatment	<p>This field enables you to specify how to handle an outbound call if it detects an answering machine. If the call detects an answering machine, you can choose to abandon the call or transfer it to IVR by selecting the desired radio button in this field.</p> <p>Transfer to IVR radio button is enabled by default.</p>
<p>(The following four fields in Dialing Options are displayed only if you have selected Predictive dialer type for an IVR-based campaign)</p>	
Maximum Lines Per Port (1-3)	<p>Maximum number of lines to be dialed for each port. You can configure the maximum number of lines that can be dialed per port and the predictive algorithm ensures that it does not exceed this number.</p> <p>This is a mandatory field. Default value = 3.0, Range = 1 to 3.</p>

■ Adding a New Campaign

Field	Description
Predictive Correction Pace (10-1000)	The number of calls that were answered by live voice that the predictive algorithm should consider for each iteration. This is directly proportional with the correction frequency made in the Lines Per Port parameter. This is a mandatory field. Default value = 100, Range = 10 to 1000. Note It is advisable not to change this value.
Predictive Gain	The Gain parameter controls the size of the lines per port corrections. This is directly proportional to the size of the lines per port correction. This is a mandatory field. Default value = 1.0, Range = Greater than 0 to 1.0. Note It is advisable not to change this value.
Call Abandon Limit (0-100)	Call abandon percentage, which should be within the limit specified by Federal Trade Commission (FTC). This is a mandatory field. Default value - 3%, Range 0-100%. This means that no more than three percent of calls that are answered by a person are abandoned, measured per day per calling campaign.

Dial Settings (displayed only if you have selected IVR-based campaign type)

No Answer Ring Limit	The duration for which the Progressive/Predictive dialer should allow the phone to ring before disconnecting an unanswered call. Default is 15 seconds, which means that the dialer should wait for a minimum of 15 seconds before disconnecting a call. Range = 1-60 seconds.
Abandoned Call Wait Time	If the customer disconnects the call within the time set here, then the call is classified as customer abandoned. This is a mandatory field. Default value = 2 seconds, Range = 1 to 10 seconds.

Retries (displayed only if you have selected IVR-based campaign type): Set the value for the following four fields as “0” if you want to disable retry option for an existing IVR campaign.

No Answer Delay	Duration (in minutes) for which the dialer waits before calling back a no-answer call. Default value = 60 minutes.
Busy Signal Delay	Duration (in minutes) for which the dialer waits before calling back a busy telephone number. Default value = 60 minutes.

Field	Description
Customer Abandoned Delay	<p>If a customer abandons a call, the duration (in minutes) after which the dialer should call the customer back.</p> <p>Default value = 30 minutes.</p>
Dialer Abandoned Delay	<p>If the dialer abandons a call, the duration (in minutes) after which the dialer should call back the customer.</p> <p>Default value = 60 minutes.</p>
Displayed only if you have selected Agent Based campaign type	
Contact Records Cache Size	<p>The number of contact records the Outbound subsystem retrieves from the database in bulk for dialing. The allowed values are 1-100. This is a mandatory field. For example, if 50 records are retrieved in bulk for campaign1 and 10 for campaign2 and they are running at the same time, the Outbound subsystem attempts to place 50 Outbound calls for campaign1 and 10 Outbound calls for campaign2. The number of Outbound calls actually placed for each campaign depends upon the number of agents available for the respective campaigns.</p> <p>Once all the records retrieved for a campaign have been dialed, the Outbound subsystem fetches another batch of records for that campaign. Over a period of time, it is likely that more contacts would have been called from campaign1 than from campaign2.</p> <p>If two campaigns run simultaneously and share CSQs or agents, the records in both campaigns may not be processed at the same rate—even if their contact cache sizes are identical. It is possible that more records from one of these two campaigns is processed before the other.</p> <p>Default = 20, Range = 1 to 100</p>
Answering Machine Retry	<p>If you select Yes, then the Outbound subsystem tries to call the phone number again at a later time if an answering machine was reached the first time.</p> <p>Default = No</p>
Callback Missed	<p>Determines the action that should be taken on the contacts that were not called back. The three options for this field are:</p> <ul style="list-style-type: none"> • Reschedule for same time next business day (default) • Mark it for a retry • Close the record.

Field	Description
Assigned CSQs	CSQs from which agents are selected for Outbound calls for this campaign. This is a mandatory field.
Available CSQs	CSQs that have been allocated for Outbound and are not yet assigned to this campaign.

Step 3 Click **Add or Save** to save the configuration changes. While saving a new or updated IVR campaign, the Outbound IVR subsystem validates the Session values in the application and trigger pages based on following criteria and it might display an alert message to increase Session value in application and trigger pages:

- In case of Progressive campaign, the Outbound subsystem checks whether the Lines Per Port * Dedicated Port is greater than minimum of the Session value in application and trigger.
- In case of Predictive campaign, the Outbound subsystem checks whether the maximum Lines Per Port * Dedicated Port is greater than minimum of the Session value in application and trigger.

You should increase the Session values in the application and trigger to the suggested value in the alert message to reduce the number of abandoned calls in an IVR campaign.

Once you create a campaign, you need to import contacts for the campaign. See [Importing Contacts for a Campaign, page 13-39](#) section for detailed information on how to import contacts for different types of campaigns.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [How Is a Contact's Local Time Determined?, page 13-15](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Configuring General Outbound Properties, page 13-18](#)

Importing Contacts for a Campaign

**Note**

- You can only import a total of 10,000 contacts for a campaign at any given time. When some or all of these contacts are processed, you can import additional contacts to add up to a total of 10,000 at any given time.
- While importing the contacts file for a campaign, use only comma-separated plain text file with .txt extension. The contacts file should be ASCII-encoded or UTF-8 encoded if it contains special characters (for example, if the contact names are in Chinese, Russian, Japanese and so on).

When contacts are imported, the contacts text file is checked for duplicate entries. If the phone01 value of a contact matches the phone01, phone02, or phone03 values of another contact in the contacts list being imported, then the previous contact is overwritten with the new contact.

**Caution**

You must verify all the contacts against the national do_not_call list before importing them.

**Note**

In this guide, the underscore character linking each word differentiates the national do_not_call list from the Outbound subsystem's Do Not Call list.

**Tip**

Each time contacts are imported, they are appended to the existing list of contacts for the selected campaign. If the new list contains a contact with the same phone01 value as the phone01, phone02, or phone03 value or the same phone02 value as the phone01, phone02, or phone03 value or the same phone03 value as the phone01, phone02, or phone03 value, of an existing contact, the existing contact is overwritten with the new contact information. The call history for the contact (if any) is retained.

To import contacts for a selected campaign, complete the following steps.

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Outbound > Campaigns**.
- The Campaigns web page opens displaying the details of existing campaigns.
- Step 2** Click the hyperlink below the Name column for the campaign for which you want to import the contacts.
- The Campaign Configuration web page opens for the selected campaign.
- Step 3** Click **Import Contacts**. The Import Contacts web page opens.
- Step 4** Specify a file name to import the contacts from the fields being imported.
- A contact list can contain up to 6 fields: AccountNumber, FirstName, LastName, Phone1, Phone2, and Phone 3.
- Step 5** Navigate to the directory that contains the imported fields in the *same order* as they appear in the text file.
-

While uploading outbound contacts in a HA over WAN deployment of Unified CCX, if all the contacts that are being uploaded exist in the database and are being modified, then follow the guidelines mentioned below to avoid long delays:

- Upload the contacts during non-peak hours
- Upload in batches of 500 contacts or less

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [How Is a Contact's Local Time Determined?, page 13-15](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Configuring General Outbound Properties, page 13-18](#)
- [Adding a New Campaign, page 13-31](#)
- [Enabling Campaigns, page 13-41](#)

Enabling Campaigns

You must verify that the configured campaigns are active and that the start and end times for the enabled campaigns are specified as required.

To verify the state of the required campaign, complete the following steps.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Outbound > Campaigns**.

The Campaigns web page opens displaying following information for the existing campaigns:

Field	Description
Name	Name of the campaign.
Start Time/End Time (hh:mm) AM PM	Start Time and End Time fields indicate the time range during which the campaign runs.
Remaining Contacts	The Remaining Contacts field indicates the number of contacts that are yet to be dialed for each campaign. In addition to the contacts that have not been dialed, this number also includes contacts that have requested a callback and contacts that will be tried again because of unsuccessful prior attempt(s) (for example, contact was busy or unavailable). A detailed breakdown of the pending contacts is provided in the Printable Reports page for each campaign.
Enabled	The Enabled field indicates to the Outbound subsystem whether this campaign is currently active.
Campaign Type	Denotes whether a specific campaign is IVR-based or Agent-based. The existing campaigns will be marked as Agent-based after an upgrade.
Delete	Click Delete icon next to the name of the campaign that you want to delete.

- Step 2** Verify that the Enabled field is set to TRUE and that the start and end times are specified as required.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
 - [How Is a Contact's Local Time Determined?, page 13-15](#)
 - [The Outbound Configuration Checklist, page 13-16](#)
 - [Configuring General Outbound Properties, page 13-18](#)
 - [Adding a New Campaign, page 13-31](#)
 - [Adding Area Codes, page 13-42](#)
-

Adding Area Codes

**Caution**

Area code and long distance prefix configuration changes made to the Outbound subsystem do not take effect for calls/contacts currently in the Outbound subsystem's memory. For example, if you change the long distance prefix or local area code, the contacts already in the Outbound subsystem's memory will continue to use the old long distance prefix and local area code.

The Outbound subsystem provides all of the mappings from North American area codes to their corresponding time zones at the time of product release. The Area Codes page allows the administrator to add, modify, and delete any area code to time zone mappings.

Some area codes extend across multiple time zones. For such area codes, an administrator can edit the default time zone for that area code and specify a different one, if required.

The Area Codes Management page allows users to find, add, delete, and modify the mapping of area codes and time zones. The Outbound subsystem uses the area code of a contact's phone number to determine the time zone of the contact's calling area. This page can also be used for adding international area codes. International area codes must include the country code and the city code.

To add an area code, complete the following steps.

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > Outbound > Area Codes**.

The Area Codes Management web page opens.

Step 2 In the Area Code field, specify a unique identifier for the area code. This field can have any numeric value, including 0 or leading zeros. This is a mandatory field.

Step 3 Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window.

The new Area Code information is updated.

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [How Is a Contact's Local Time Determined?, page 13-15](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Configuring General Outbound Properties, page 13-18](#)
- [Adding a New Campaign, page 13-31](#)
- [Importing Contacts for a Campaign, page 13-39](#)
- [Enabling Campaigns, page 13-41](#)

Setting-up Communications with the Agent's Desktop

In Unified CCX, CAD allows agents to handle Outbound calls. The Cisco Agent Desktop and Cisco Supervisor Desktop do not support any new reports.

To display the additional buttons for the Outbound feature on CAD, the Direct Preview option must be enabled on Cisco Desktop Administrator (CDA). See the [Cisco Desktop Administrator's User Guide](#) and the [Cisco Agent User Guide](#) for further information.

Related Topics

- [About the Outbound Feature for Unified CCX](#), page 13-3
- [How Is a Contact's Local Time Determined?](#), page 13-15
- [The Outbound Configuration Checklist](#), page 13-16
- [Configuring General Outbound Properties](#), page 13-18
- [Adding a New Campaign](#), page 13-31
- [Importing Contacts for a Campaign](#), page 13-39
- [Enabling Campaigns](#), page 13-41
- [Adding Area Codes](#), page 13-42
- [Agents Receive Outbound Calls](#), page 13-44

Agents Receive Outbound Calls

Agents can now log in and get ready to receive Outbound calls. To do so, agents must belong to CSQs assigned to Outbound (see [Allocating CSQ Agent Pool Percentages](#), page 13-30).

This section contains the following topics:

- [Agent Allocation and Queuing](#), page 13-45
- [Previewing Customer Information](#), page 13-46
- [Exchanging Data with CAD](#), page 13-48
- [Call Status Values](#), page 13-50
- [Call Result Values](#), page 13-52
- [Reclassification Status Behavior](#), page 13-54
- [Handling Skip-Next Behavior](#), page 13-56
- [Handling Skip/Reject Behavior](#), page 13-57
- [Call Retrieval Priority](#), page 13-58
- [Handling Failover and System Restarts](#), page 13-58

Related Topics

- [About the Outbound Feature for Unified CCX](#), page 13-3

- [How Is a Contact's Local Time Determined?](#), page 13-15
- [The Outbound Configuration Checklist](#), page 13-16
- [Configuring General Outbound Properties](#), page 13-18
- [Adding a New Campaign](#), page 13-31
- [Importing Contacts for a Campaign](#), page 13-39
- [Enabling Campaigns](#), page 13-41
- [Adding Area Codes](#), page 13-42
- [Setting-up Communications with the Agent's Desktop](#), page 13-43
- [Handling Do Not Call Contacts](#), page 13-59

Agent Allocation and Queuing

The Outbound subsystem allocates agents for Outbound calls by pulling a batch of contacts from the db_cra database and assigning a Ready agent to each by reserving the agents for Outbound calls and presenting them with the Outbound calls. Only CAD agents are presented with Outbound calls.

Agents are chosen from the CSQ using the same criteria configured in Unified CCX Administration GUI for inbound calls. If an agent accepts an Outbound call, the Outbound subsystem initiates a call on the agent's behalf. If the agent rejects the contact, the agent reservation is cancelled and the agent becomes Ready again and may be presented with either an Outbound call or an inbound call. The contact that was rejected is assigned to another agent. If the agent decides to skip the contact, the agent reservation is not cancelled. Instead, the skipped contact gets assigned to another (or the same) agent.

The agent's response such as accept, skip, and reject is saved in the database for each contact presented during a campaign. If the agent does not respond within the timeout configured on the General page of the Outbound subsystem configuration in Unified CCX Administration GUI, the Outbound subsystem moves the agent to Not Ready state (much like an inbound Not Ready state) and assigns the contact to another agent. The status of the contact (for example, the contact can be closed or needs to be dialed again) and the call result (for example, the contact was reached successfully or contact was not home) is recorded in the database and this data is presented in the real-time and historical reports.

**Note**

Calls made by the Outbound subsystem will not be displayed in the Contacts Summary Real-Time Report.

The goal of the subsystem is to maximize the number of Outbound calls made without sacrificing the inbound service level of the CSQs involved in the Outbound campaign. It accomplishes this by only using agents sitting idle in Ready state, not handling inbound calls. The administrator configures, through Unified CCX Administration GUI, the percentage of logged in agents (CAD + IPPA in ready, work, reserved, or talking state) in a CSQ that are allocated for handling Outbound calls.

Related Topics

- [Previewing Customer Information, page 13-46](#)
- [Exchanging Data with CAD, page 13-48](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)
- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Handling Skip/Reject Behavior, page 13-57](#)
- [Call Retrieval Priority, page 13-58](#)
- [Handling Failover and System Restarts, page 13-58](#)

Previewing Customer Information

Before placing an Outbound call, an available agent is reserved and presented with a preview record on the desktop. This lets the agent preview the contact before deciding on an action. This dialog contains customer information such as name, account number, and phone number.

The enabled buttons when an agent is in the Reserved state are described in the following table:

Status	Result of Selecting this Status
Accept	Accept the current preview record and initiate the Outbound call to the customer from the agent's phone.
Reject	Reject the current preview record, cancel the agent reservation, and change the agent state to Ready. The agent can now handle either inbound or Outbound calls.
Reject-Close	Reject the current preview call and close the record so that contact is not called again for this particular campaign. This cancels the agent reservation and changes the agent's state to Ready so the agent can now handle either inbound or Outbound calls.
Skip	Skip the current preview record and retain the agent in the reserved state to allow the agent to handle another Outbound contact.
Skip-Close	Skip the current preview call and close the record so the contact is not called again for this particular campaign. The agent remains reserved to handle another Outbound contact.
Cancel Reservation	Cancel the agent reservation and set the agent to the Not Ready state. The record remains open in the database. This state is similar to the Reject state except that the agent is transferred to the Not Ready state instead of the Ready state.

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Exchanging Data with CAD, page 13-48](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)
- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Handling Skip/Reject Behavior, page 13-57](#)
- [Call Retrieval Priority, page 13-58](#)
- [Handling Failover and System Restarts, page 13-58](#)

Exchanging Data with CAD

Unified CCX uses predefined Expanded Call Context (ECC) variables to exchange data with CAD for the Preview Outbound option. Unified CCX uses the same ECC variables that Unified ICME uses for the Preview Outbound option.

These ECC variables are present on CDA. To display them on CAD, they must be added to the `oDefault` layout that is associated with the call.

The following table lists the pre-defined ECC variables used for the Preview Outbound option:



Caution

Do not use these pre-defined ECC variables in any other context as they are reserved for the Outbound feature.

ECC Variable	Description
BAStatus	<p>Required. Contains two characters indicating the mode and direction of the Preview Outbound option initiated call.</p> <ul style="list-style-type: none"> • The first character identifies the call mode: <ul style="list-style-type: none"> – D = Direct Preview reservation for Unified CCX – C = Direct Preview call for Unified CCX – Z = the Outbound call transferred or conferenced • The second character identifies the direction (always 'O' = Outbound for Unified CCX). <p>So a <code>BAStatus</code> of <code>DO</code> would indicate a Direct Preview Reservation for an Outbound Call, which is always the case for Outbound calls in Unified CCX.</p>
BACampaign	Optional. The name of the Outbound campaign to which the call belongs.
BAAccountNumber	<p>Optional. Identifies a customer account number and can be used by CAD to perform a database lookup to obtain additional customer data. This ECC variable displays only if the data was available in the customer import file.</p> <p>Note: The maximum character length of this ECC variable is 30 characters.</p>

ECC Variable	Description
BAResponse	Optional. Multi-purpose placeholder that sends data from CAD to the Preview Outbound option. This variable is used when the CAD responds to the server's agent reservation request (for example, Accept, Reject, Skip, etc.). It is also used to schedule and cancel callbacks and make changes to the callback number.
BADialedListID	Optional. Unique key identifying a specific customer record.
BATimeZone	Optional. The GMT offset, in minutes, for the customer's time zone and local time.
BABuddyName	Optional. Contains the customer's first and last name separated by a comma, if provided in the contacts list imported for the campaign.
BACustomerNumber	Optional. Contains dialed customer phone number.

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Previewing Customer Information, page 13-46](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)
- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Handling Skip/Reject Behavior, page 13-57](#)
- [Call Retrieval Priority, page 13-58](#)
- [Handling Failover and System Restarts, page 13-58](#)

Call Status Values

For each contact, the call statuses and their corresponding values are recorded in the database and described in the following table:

Call Status	Value (stored in database)	Description
Pending	1	The call is pending. This is the initial state for all records.
Active	2	The record was retrieved by the Outbound subsystem for dialing.
Closed	3	The record is closed (not dialed).
Callback	4	The record is marked for a callback.
Max Calls	5	Maximum attempts have been reached for this record (considered closed).
Retry	6	The record is redialed immediately whenever there is any miss in the callbacks for Retries with Delay.
Unknown	7	If the Outbound subsystem was restarted with records in the Active (2) state, they are moved to this state.
Retries with Delay	8	The record is redialed as it was either busy, no answer, customer abandoned or system abandoned. Retry time is set as per the corresponding configuration in Unified CCX Application Administration web interface.

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Previewing Customer Information, page 13-46](#)
- [Exchanging Data with CAD, page 13-48](#)
- [Resetting Contact States at Midnight, page 13-51](#)
- [Call Result Values, page 13-52](#)
- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Handling Skip/Reject Behavior, page 13-57](#)
- [Call Retrieval Priority, page 13-58](#)

- [Handling Failover and System Restarts, page 13-58](#)

Resetting Contact States at Midnight

The Outbound subsystem performs the following actions at midnight:

- The DialingListConfig records with a call status of Unknown are reset to Pending.
- Missed callback records (dialingListConfig records that have call status callback and a callBackDateTime smaller than the current time) are updated depending on the missed callback action configured in the Unified CCX Administration GUI.
 - MissedCallbackAction: Reschedule (for the same time on the next business day)
 - MissedCallbackAction: Retry (sets the call status to Retry and deletes the callBackNumber from the database).
 - MissedCallbackAction: Close (sets the call status to Closed)
 - Dialing list records with a call status of Closed or Max_Calls are deleted.



Note

The records marked as closed today will be deleted the next day at midnight. For example, the records closed on 4th June will be deleted on 5th June at midnight.

- Dialing list records with a call result of Do Not Call are not deleted as these records are exported to a text file.
- The DialingListConfig records with a call status of “Retries with delay” and which could not be retried due to lapsed time are marked for immediate retry at midnight.
- When the Unified CCX engine goes from offline to online (for example, the standby server becomes active (online) if the active (first) server fails), the dialing list records with a status of Unknown are reset to Pending.

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Previewing Customer Information, page 13-46](#)

- [Exchanging Data with CAD, page 13-48](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)
- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Handling Skip/Reject Behavior, page 13-57](#)
- [Call Retrieval Priority, page 13-58](#)
- [Handling Failover and System Restarts, page 13-58](#)

Call Result Values

For each contact, the call results (as marked by the agent on CAD or automatically deleted by the system) and their corresponding values are recorded in the database and described in the following table:

Call Result	Value (stored in database)	Description
Voice	1	Customer answered and was connected to agent.
Fax	2	Fax machine or modem detected.
Answering machine	3	Answering machine detected.
Invalid	4	Number reported as invalid by the network.
Do Not Call	5	Customer did not want to be called again.
Wrong Number	6	Number successfully contacted but wrong number.
Customer Not Home	7	Number successfully contacted but reached the wrong person.
Callback	8	Customer requested callback.
Agent Rejected	9	Agent skipped or rejected the preview call.
Agent Closed	10	Agent skipped or rejected the preview call with the close option (not dialed).
Busy	11	Busy tone detected.

Call Result	Value (stored in database)	Description
Ring No Answer	12	Agent did not respond to the preview call within the time out duration. Note You can configure the time out duration using the Preview Call Timeout field detailed in the “Configuring General Outbound Properties” section on page 13-18.
Callback Failed	13	This value should not be written to the database; this is for internal use only.
Callback Missed	14	Callback missed and marked for Retry.
Timeout	15	Customer’s phone timed out either due to Ring No Answer (RNA) or Gateway failure.
Call Abandoned	16	Call was abandoned because IVR port was unavailable or Unified CCX failed to transfer the call to the IVR port.
Call Failed	17	Call failed due any one of the following reasons: <ul style="list-style-type: none"> • Dialer asked the Gateway to cancel a call that has not yet been placed • Gateway has declined the call • Gateway is down or Gateway has timed out while placing the call • Gateway failure or configuration issues at the Gateway.
Customer Abandoned	18	Customer abandoned as customer disconnected the call within the time limit as configured in “Abandoned Call Wait Time” in Unified CCX Application Administration web interface.

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Previewing Customer Information, page 13-46](#)
- [Exchanging Data with CAD, page 13-48](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)

- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Handling Skip/Reject Behavior, page 13-57](#)
- [Call Retrieval Priority, page 13-58](#)
- [Handling Failover and System Restarts, page 13-58](#)

Reclassification Status Behavior

When the Outbound contacts are imported into the database from the Unified CCX Administration GUI, the call status column in the Dialing List table is assigned the default value of 1 (Pending) indicating that these Outbound contacts are yet to be dialed. When the Outbound subsystem retrieves a batch of contacts from the database, the call status is set to 2 (Active). After a call is placed to the Outbound contact, the call status is set to 3 (Closed) and the call result is set to 1 (Voice), as all Outbound calls are classified by the agent desktop as voice by default. If the agent clicks the reclassification button on the agent desktop and reclassifies the call as answering machine/fax/busy/invalid or selects the callback button and schedules a callback, the Outbound subsystem updates the call result field accordingly, and based on the call result, it also updates the call status.

The following table describes the relationship between call status and call result values and the resulting behavior of the system. The values in brackets are the actual values stored in the database.



Note

The following information is applicable only for Preview Dialer.

Call Result	Call Status	Behavior
Voice (1)	Closed (3)	This contact is not dialed again.
Fax (2)	Retry (6)	This contact is retried, using a different phone number provided for this contact. If alternate phone numbers are not available, the call status is closed.
Answering machine (3)	Retry (6)	This contact is retried, with the same phone number as before.

Call Result	Call Status	Behavior
Invalid (4)	Retry (6)	This contact is retried, using a different phone number provided for this contact. If alternate phone numbers are not available, the call status is closed.
Do Not Call (5)	Closed (3)	This contact is not dialed again.
Wrong Number (6)	Retry (6)	This contact is retried, using a different phone number provided for this contact. If alternate phone numbers are not available, the call status is closed.
CustomerNotHome (7)	Retry (6)	
Callback (8)	Callback (4)	This contact is dialed again using the number stored in the callbackNumber column, at the time stored in callbackDateTime column.
Reject or Skip (9)	Active (No change)	This contact is presented to another agent.
Reject-Close or Skip-Close	Closed (3)	This contact is not dialed again.
Busy	Retry (6)	This contact is retried, with the same phone number as before.

The call status is set to 3 (Closed) when the Outbound contact is no longer dialed for this campaign. This happens when a call was successfully placed (call result is voice) and also when an agent selects Skip-Closed, Reject-Closed, or Do Not Call. This also happens automatically if the system reaches the maximum attempts limit for an Outbound contact which means that the system tried dialing the Outbound contact the maximum number of times configured in the Unified CCX Administration GUI.

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Previewing Customer Information, page 13-46](#)
- [Exchanging Data with CAD, page 13-48](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Handling Skip/Reject Behavior, page 13-57](#)

- [Call Retrieval Priority, page 13-58](#)
- [Handling Failover and System Restarts, page 13-58](#)

Handling Skip-Next Behavior

**Tip**

To ensure that a skip-next selection is handled as designed, be sure to set at least two, if not all three, phone numbers.

When an agent on an Outbound call with a customer selects the skip-next button on CAD, two options (wrong number or not home) are made available to this agent. The behavior for both options is the same, the agent continues to remain on the call with the customer, while the Outbound subsystem updates the phone number to be dialed to the next available number (with up to three phone number possibilities—phone01, phone02m and phone03). If the record is imported with only one phone number and phone02 and phone03 are empty, this record is closed after the agent drops the call. If phone02 is empty, but phone03 is present, then phone03 is used as the next number to dial.

If the max attempts to dial contact is set to 2 (default), even if the agent selects the skip-next button, the record is closed and the next number is never dialed.

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Previewing Customer Information, page 13-46](#)
- [Exchanging Data with CAD, page 13-48](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)
- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip/Reject Behavior, page 13-57](#)
- [Call Retrieval Priority, page 13-58](#)
- [Handling Failover and System Restarts, page 13-58](#)

Handling Skip/Reject Behavior

The Outbound subsystem handles an agent's skip/reject requests as listed below:

- Skip/reject close request: the contact is always set to Closed.
- Contact is a callback record: the contact goes back in queue so the callback can be retried.
- Contact is not a callback: it is set to Pending and is picked up from the database the next time that the Outbound subsystem reads records.
- Contact is recalled (deleted the CSQ to which this contact belonged, or the campaign that this contact belongs to was stopped): then this contact is no longer considered a callback.
- Reject: the agent is moved to available or unavailable (depending on configuration) after the reject.
- Skip: The Outbound subsystem verified if there is another contact in queue for this agent. If so, the agent remains in the reserved state and receives a new DialingListConfig. Now, the agent has the option again to accept/reject/skip/... for this new record.
- No new record for this agent: this agent is moved to available or unavailable, again depending on the configuration.
- No record for this agent: With only one active agent for a CSQ, the Outbound subsystem only requests one contact,. If the agent skips this contact, there is no other contact available.

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Previewing Customer Information, page 13-46](#)
- [Exchanging Data with CAD, page 13-48](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)
- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Call Retrieval Priority, page 13-58](#)
- [Handling Failover and System Restarts, page 13-58](#)

Call Retrieval Priority

While retrieving Outbound contacts from the database, records that have scheduled callbacks have priority as the callback time must be adhered to. Outbound contacts are retrieved in the following order of priority:

- Priority 1: Outbound contacts with scheduled callback (call status = 4) and the current time is within the CallbackTimeLimit configured on the Campaigns page (default value is 15 minutes) of the scheduled callback time.
- Priority 2: Outbound contacts in the Pending state (call status = 1).
- Priority 3: Outbound contacts in the Retry state (call status = 6).

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Previewing Customer Information, page 13-46](#)
- [Exchanging Data with CAD, page 13-48](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)
- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Handling Skip/Reject Behavior, page 13-57](#)
- [Handling Failover and System Restarts, page 13-58](#)

Handling Failover and System Restarts

Outbound contacts with an Active call status during a failover indicate that these contacts were retrieved from the database but the system went down either before they could be dialed or after they were dialed but before the call status and call result columns were updated. When the system restarts, the call status for all such Outbound contacts is changed to 7 (Unknown). All Outbound contacts in the Unknown state will be reset to the Pending state (should be retrieved for dialing again) at midnight every night.

If there is an Outbound call in progress during a failover, they cannot be dialed again as the call status is set to Closed as soon as an Outbound call is placed and these records will not be retrieved for dialing again when the system comes back. However, if the failover happened before the system could update the call status to Closed, these records remain in the Active state and are marked Unknown so they transition to Pending state after midnight. Once they are in the Pending state, they will be dialed again.

Related Topics

- [Agent Allocation and Queuing, page 13-45](#)
- [Previewing Customer Information, page 13-46](#)
- [Exchanging Data with CAD, page 13-48](#)
- [Call Status Values, page 13-50](#)
- [Call Result Values, page 13-52](#)
- [Call Result Values, page 13-52](#)
- [Reclassification Status Behavior, page 13-54](#)
- [Handling Skip-Next Behavior, page 13-56](#)
- [Handling Skip/Reject Behavior, page 13-57](#)
- [Call Retrieval Priority, page 13-58](#)

Handling Do Not Call Contacts



Note

In this guide, the underscore character linking each word differentiates the national `do_not_call` list from the Outbound subsystem's Do Not Call list.

When an agent reclassifies an outbound contact as Do Not Call from CAD, then the record of the contact is closed and marked inactive in the database and it will not be dialed again. In addition to this, for all contacts in other campaigns that contain the same phone number as the outbound contact marked as Do Not Call, the records will be closed and marked inactive in the database and those contacts will not be dialed again.

The following actions are performed by the Outbound subsystem:

- All contacts marked Do Not Call are exported to a text file `<root dir>:\DoNotCall.txt`. If the file already exists, the new contacts being exported are appended to the file along with a timestamp of when the export was done.
- After the Do Not Call contacts are exported to the text file, they are marked inactive in the Dialing List table and are permanently deleted from the database when the database is purged (see [Purging Historical Data, page 12-3](#)).

Related Topics

- [About the Outbound Feature for Unified CCX, page 13-3](#)
- [How Is a Contact's Local Time Determined?, page 13-15](#)
- [The Outbound Configuration Checklist, page 13-16](#)
- [Verifying the RmCm and Outbound Subsystems, page 13-17](#)
- [Configuring General Outbound Properties, page 13-18](#)
- [Adding a New Campaign, page 13-31](#)
- [Importing Contacts for a Campaign, page 13-39](#)
- [Enabling Campaigns, page 13-41](#)
- [Adding Area Codes, page 13-42](#)
- [Setting-up Communications with the Agent's Desktop, page 13-43](#)



CHAPTER 14

Reporting on Real-Time Unified CCX Data

When the Unified CCX system is configured and functioning, you can run reports to monitor real-time activity using the Unified CCX Administration web interface.

If you have the Cisco Agent Desktop and Cisco Supervisor Desktop, you also can run real-time reports directly from these applications. Cisco Agent Desktop and Cisco Supervisor Desktop do not use the same calculations or data display methods as those that Unified CCX real-time reporting uses. Therefore, a report run using Unified CCX real-time reporting and a report run using Cisco Supervisor Desktop may not display the same information for a given statistic. To avoid confusion, it might help to make one of these tools your standard reporting tool.

You must be logged into the Unified CCX Administration web interface to run Unified CCX real-time reports.



Caution

While Unified CM supports Unicode characters in first and last names, those characters become corrupted in Unified CCX Administration web pages for RmCm configuration, Real Time Reporting, Cisco Agent/Supervisor Desktop, and Historical Reports.

The following sections provide more information about real-time Unified CCX data.

- [Available Unified CCX Real-Time Reports, page 14-2](#)

- [Opening Real-Time Reporting](#), page 14-3
- [Running Reports](#), page 14-5
- [Viewing Detailed Subreports](#), page 14-5
- [Printing Reports](#), page 14-6
- [Resetting Report Statistics](#), page 14-6
- [Clearing Stuck Calls](#), page 14-7
- [Setting Report Options](#), page 14-7
- [Setting Report Appearance](#), page 14-8
- [Application Reporting User Interface](#), page 14-8

Available Unified CCX Real-Time Reports

Unified CCX real-time reporting provides up to 12 reports that you can use to monitor Unified CCX system activity. The following table briefly describes each of these reports.

Report	Description
Application Tasks	Provides information about currently active applications.
Application Tasks Summary	Provides a summary of specific applications' activity.
Applications	Provides a list of all applications loaded on the Unified CCX server.
Contacts Summary	Provides information for call contacts, e-mail contacts, and HTTP contacts. Also provides the total number of contacts. Note Calls made by the Outbound subsystem will not be displayed in the Contacts Summary Real-Time Report.
Contacts	Provides information about currently active contacts.
CSQ Cisco Unified Contact Center Express Stats	Provides information about CSQ activity. This report is available only if Unified CCX has been configured.
Data source Usage	Provides information about configured data source names (DSNs).
Engine Tasks	Provides information about currently active Engine tasks.

Report	Description
Preview Outbound Campaign Cisco Unified Contact Center Express Stats	Provides information about real-time Unified CCX information for the Outbound preview dialer.
IVR Outbound Campaign Stats	Provides real-time statistics on progressive and predictive Outbound IVR campaigns since the statistics were last reset. Note This report will be available only if you have an Outbound IVR license on top of Unified CCX premium license in your Unified CCX.
Overall IVR Outbound Stats	Provides real-time statistics across all predictive and progressive campaigns for all the configured Outbound IVR campaigns since the statistics were last reset. Note This report will be available only if you have an Outbound IVR license on top of Unified CCX premium license in your Unified CCX.
Overall Cisco Unified Contact Center Express Stats	Provides information about Unified CCX resources and calls. This report is available only if Unified CCX has been configured.
Resource Cisco Unified Contact Center Express Stats	Provides information about Unified CCX resources activity.
Sessions	Provides information on all active sessions.

Related Topic[Report Menu, page 14-9](#)

Opening Real-Time Reporting

Real-Time reporting is available from the Unified CCX Administration web interface.

**Note**

Real-Time Reporting requires the Java plug-in. If the Java plug-in is not already installed on the PC on which you are viewing the reports, the Unified CCX system will automatically install it when you choose **Tools > Real Time Reporting**.

The Application Reporting web page is a stand-alone component of the Unified CCX Administration interface. It has its own menu bar, which replaces the Unified CCX Administration menu bar.

To open real-time reporting, complete the following steps.

Procedure

Step 1 If you are running Real-Time Reporting for the **first time** on this system, log into Unified CCX Administration as an **Administrator**.

The system prompts you to download the Java plug-in; follow the prompt instructions.



Note After you perform the initial download of the Real-Time Reporting Java plug-in, non-Administrative users can access Real-Time Reporting on this system.

Step 2 Choose **Tools > Real-Time Reporting** from the Unified CCX Administration menu bar.

The Application Reporting web page opens in a new window. The real-time reporting tool requires a Java plug-in. If the plug-in is not installed on the machine you are using, the Unified CCX system prompts you to accept the automatic installation of the plug-in. If you do not accept the installation, you cannot use real-time reporting.

Related Topics

- [Application Reporting User Interface, page 14-8.](#)

Running Reports

Open the real-time reporting tool from the Unified CCX Administration web interface to run reports.

To run a real-time report, complete the following steps.

Procedure

Step 1 From the Application Reporting menu bar, choose **Reports**.

Step 2 From the Reports menu, choose the report to run.

The report opens in the Application Reporting window.



Note

For detailed information about the real-time reports that are available, see [“Report Menu” section on page 14-9](#).

Viewing Detailed Subreports

You can view more detailed information for selected items in these four reports:

- Application Tasks report
- Contacts report
- Applications report
- Sessions report

To view detailed subreports, complete the following steps.

Procedure

Step 1 Run the Application Tasks, Contacts, Applications, or Sessions report.

Step 2 Click a line in the report for which you want to view more detailed information. For example, click an e-mail address in the Contacts report.

Step 3 From the Application Reporting menu bar, choose **Views** and click the subreport that you want to run.

You can also open a subreport by right-clicking the selected item and choosing a subreport.

The subreport opens.

**Note**

For detailed information about the subreports that are available, see [“Views Menu” section on page 14-37](#).

Printing Reports

To facilitate printing, you can open a printable version of a report.

To print a report, complete the following steps.

Procedure

- Step 1** Run a report.
- Step 2** From the Application Reporting menu, choose **Tools > Open Printable Report**.
A printable version of the report opens in a separate window.
- Step 3** Print the report using your browser’s print functionality.

Resetting Report Statistics

The Unified CCX system automatically resets all statistics each day at midnight. You can reset the accumulated statistics manually at any time. Resetting statistics does not reset active statistics, such as active contacts and active tasks.

To reset report statistics, complete the following steps.

Procedure

- Step 1** From the Application Reporting menu bar, choose **Tools > Reset All Stats**.
The Reset Stats dialog box opens for you to confirm the reset.
- Step 2** Click **Yes**.
Accumulated statistics are reset.
-

Clearing Stuck Calls

You may sometimes see a Contact/Call as waiting in Real Time Reports in CSQ Stats and even though there are available Agents in the queue, the call does not seem to get routed to these Agents. The waiting time for the Queued call accumulates and will not clear even if the user activates “Reset All Stats” option from the Real-Time Reporting menu.

To enable clearing such stuck call entries from the system, Unified CCX system provides the Clear Contact option. This has the ability to clear stuck calls in the system without requiring a restart of the engine.

For information on clearing stuck calls, see [Clear Contact Menu Option, page 14-36](#)

Setting Report Options

You can set the following reporting options:

- Refresh interval
- Number of times that the Unified CCX Administration web interface should attempt to reconnect to the Unified CCX server.
- Whether logged off users appear in reports

To set report options, complete the following steps.

Procedure

- Step 1** From the Application Reporting menu bar, choose **Settings > Options**.
- Step 2** The Options dialog box opens.
- Step 3** From the Polling Interval drop-down menu, choose the refresh rate in seconds.
- Step 4** From the Server Connect Retry Count drop-down menu, choose the number of times that the Unified CCX Administration web interface should attempt to reconnect to the Unified CCX server.
- Step 5** From the Show Logged Off Resources drop-down menu, choose whether logged off agents appear in reports.
- Step 6** Click **Apply** to apply the settings.
-

Setting Report Appearance

You can select from three report appearances:

- Windows, which displays reports in colors based on your Windows settings
- Motif, which displays reports in purple and menu items in brown
- Metal, which displays reports in grey and menu items in black

To set the report appearance, choose **Settings** from the Application Reporting menu bar and click the appearance that you want.



Note

For more information, see [“Settings Menu” section on page 14-40](#).

Application Reporting User Interface



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

When you choose **Tools > Real-Time Reporting** from the Unified CCX Administration menu, the Application Reporting tool opens a web page in a new window.

The Application Reporting tool menu bar contains the following options:

- **Report**—Choose this option to display a list of the available top-level real-time reports (see [Report Menu, page 14-9](#)).
- **Tools**—Choose this option to reset all the statistics and refresh connections (see [Tools Menu, page 14-35](#)).
- **Settings**—Choose this option to set the look and feel of the real-time Reporting client, set the polling (refresh) interval times, and set the amount of times the server will attempt to reconnect (see [Views Menu, page 14-37](#)).
- **Help**—Choose this option to display system information and to access Unified CCX online help ([Settings Menu, page 14-40](#)).

Report Menu



Note

All real-time reports display a **Last Updated At** field, which indicates the time of the snapshot. All summary reports display both a start time (which indicates when the summary statistics started being collected) and the current time. All real-time reports display a Connected or Not Connected status for each node in the cluster.

The Report menu provides access to a variety of top-level reports. It contains the following menu options:

- [Contacts Summary Real-Time Report, page 14-11](#)
- [Application Tasks Summary Real-Time Report, page 14-13](#)
- [Application Tasks, page 14-13](#)
- [Engine Tasks, page 14-14](#)
- [Contacts, page 14-14](#)
- [Applications, page 14-19](#)
- [Sessions, page 14-20](#)
- [Datasource Usage, page 14-20](#)

- [Overall Cisco Unified Contact Center Express Stats, page 14-21](#)
- [CSQ Cisco Unified Contact Center Express Stats, page 14-25](#)
- [Preview Outbound Campaign Cisco Unified Contact Center Express Stats, page 14-27](#)
- [IVR Outbound Campaign Stats, page 14-29](#)
- [Overall IVR Outbound Stats, page 14-31](#)
- [Resource Cisco Unified Contact Center Express Stats, page 14-32](#)
- [Failover Behavior for Unified CCX Stats, page 14-34](#)

High Availability (HA) Setup

In a HA setup, IVR real-time reports obtain data from both nodes in the cluster.



Note

Support for High Availability and remote servers is available only in multiple-server deployments.

Failover in a two-node cluster is available for Unified IP IVR reports as described in the following table.

Failover Scenario	Connection Status	Node 1 Status	Node 2
Both nodes are up	Fully Connected	Node ID current/start-time	Node ID current/start-time
Node 1 is up Node 2 is down	Partially Connected	Node ID current/start-time	Node ID Not Connected
Node 1 is down Node 2 is up	Partially Connected	Node ID Not Connected	Node ID current/start-time
Both nodes are down	Not Connected	Node ID Not Connected	Node ID Not Connected

Unified CCX real-time reports obtain data only from the current master node—failover in a two-node cluster is available as described in the following table.

Failover Scenario	Connection Status	Node 1 Status	Node 2
Both nodes are up Node 1 is master	Fully Connected	Node ID current/start-time	Node ID Not Connected
Node 1 is master Node 2 is down	Fully Connected	Node ID current/start-time	Node ID Not Connected
Node 1 is down Node 2 is master	Fully Connected	Node ID Not Connected	Node ID current/start-time
Both nodes are down	Not Connected	Node ID Not Connected	Node ID Not Connected

Contacts Summary Real-Time Report

Use the Contacts Summary report to view specific contact information for call contacts, e-mail contacts, HTTP contacts, and total number of contacts.

To access the Contacts Summary real-time report, choose **Reports > Contacts Summary** from the Application Reporting menu bar.



Note

You display the data on this report as numbers or percentages by clicking the Display Value/Display % toggle button.

The following fields are displayed on the Contacts Summary report.

Field	Description
Active	Active contacts that are currently running.
Inbound	Number of inbound contacts since the statistics were last reset.
Outbound	Number of outbound contacts since the statistics were last reset.
Connected	Number of connected contacts since the statistics were last reset. Provides a total for contacts that are connected to resources (for example, a call connected to an ACD agent).

Field	Description
Terminated	<p>Number of terminated contacts since the statistics were last reset.</p> <p>This row reports contacts that are ended normally by the application (for example, a caller hangs up and the application terminates), indicating whether the contact was terminated:</p> <ul style="list-style-type: none"> • Locally—On the local server. • Remotely—On a remote server in the cluster. <p>Note Use the + toggle button to access these statistics.</p>
Rejected	<p>Number of rejected contacts since the statistics were last reset.</p> <p>This row reports contacts that are not accepted and processed (as a result, for example, of insufficient resources or the rejection of the contact based on some customer-defined logic). Indicates the reason code for the reject:</p> <ul style="list-style-type: none"> • Channels busy • No channel license • No trigger <p>Note Use the + toggle button to access these statistics.</p>
Aborted	<p>Number of aborted contacts since the statistics were last reset.</p> <p>This row reports contacts improperly ended by a task associated with the application (as when, for example, the system generates an exception or can not invoke the application because of some error in the application) and includes the associated Java exception code.</p> <p>Note Java exception codes are dynamic, as they can be generated from a variety of sources.</p> <p>Note Use the + toggle button to access these statistics.</p>
Handled	<p>Number of handled contacts since the statistics were last reset.</p> <p>This row reports contacts that are explicitly marked “Handled” by the application (typically when the application connects the contact to a Unified CCX agent).</p>
Abandoned	<p>Number of abandoned contacts since the statistics were last reset.</p> <p>This row reports contacts that end without being marked “Handled” by the application.</p>

Application Tasks Summary Real-Time Report

Use the Application Tasks Summary report to display statistics that summarize the activity of specific applications.

To access the Application Tasks Summary real-time report, choose **Reports > Application Tasks Summary** from the Application Reporting menu bar.

The following fields are displayed on the Application Tasks Summary report.

Field	Description
Application Name	Names of the applications that are running or have run.
Running	Currently running applications.
Completed	Applications that have stopped running.
Total	Number of times an application was invoked since the statistics were last reset.
DTMF VB and AA	Application names configured from the Unified CCX administration.
Status	Displays the failover connection status. The possibilities are: Fully connected, Partially connected, and Not connected. See the following tables for detailed status information for Unified IP IVR and Unified CCX reports.

Application Tasks

Use the Application Tasks real-time report to view information about currently active applications.

To access the Application Tasks report, choose **Reports > Application Tasks** from the Application Reporting menu bar. The following fields are displayed on the Application Tasks report.

Field	Description
ID	Unique application task ID.
Node ID	Unique ID for a server in the cluster.
Application	Name of the application.
Start Time	Time when the application task started.
Duration	Length of time that the application has been active.

**Note**

If this report indicates that an application is running for an unusually long time, there may be a problem with the application. The application's script may not include error handling that prevents infinite retries if a call is no longer present. If the application does not receive a disconnect signal after a call, the application repeatedly retries to locate the call, and causes the application to run for an unusually long time. To prevent this problem, include the proper error handling in the application script.

Engine Tasks

Use the Engine Tasks real-time report to view information about currently active Engine tasks.

To access the Engine Tasks report, choose **Reports > Engine Tasks** from the Application Reporting menu bar.

The following fields are displayed on the Engine Tasks report.

Field	Description
ID	Unique identifier of the engine task. If the engine task is the main task running the application and the parent ID is empty, its identifier will match the Application Task Identifier.
Parent ID	Unique identifier for the parent of the engine task (if any).
Node ID	Unique identifier for a server in the cluster.
Server IP Address	IP address identifying the server in the cluster.
Script	Name of the script that is running the task (if the task is running a Unified CCX script).
Start Time	Time that the task started.
Duration	Length of time the task has been active.

Contacts

Use the Contacts real-time report to view information for all the active contacts for all servers across clusters.



Note Support for High Availability and remote servers is available only in multiple-server deployments.

To access the Contacts report, choose **Reports > Contacts** from the Application Reporting menu bar.

The following fields are displayed on the Contacts report.

Field	Description
ID	Unique identifier representing a contact.
Type	Type of contact: Unified CM Telephony call, Cisco agent call, or Cisco HTTP Contact.
Impl ID	Unique identifier provided by the particular type of contact. For example, for a call contact, this identifier would represent the Unified CM global call ID.
Node ID	Unique identifier for a server in the cluster.
Start Time	Time stamp when the contact was created.
Duration	Length of time that the contact is active.
Handled	If True, the contact is handled; if False, the contact is not handled.
Aborting	If True, the contact is aborted with a default treatment; if False, the contact is not aborted.
Application	Name of the application currently managing the contact.
Task	Unique identifier of the application task that is currently responsible for the contact.
Session	Unique identifier of the session currently managing the contact (if any).

You can access detailed information about specific contacts listed on the Contacts web page by performing one of the following procedures:

- [Accessing Detailed Call Contact Information, page 14-16](#)
- [Accessing Detailed E-mail Contact Information, page 14-17](#)
- [Accessing Detailed HTTP Contact Information, page 14-18](#)



Note The information displayed is dependent on the type of contact selected. Depending on the type of call, some fields may not be supported and will appear blank.

Related Topic

[Clear Contact Menu Option, page 14-36](#)

Accessing Detailed Call Contact Information

Use the Call Contacts Detailed Info real-time report to view all information related to the call contact.

To access the Call Contacts Detailed Info report, right-click a specific call contact record on the Contacts report; information for that specific record displays.

The following fields are displayed on the Call Contacts Detailed Info report.

Field	Description
State	Current state of the contact.
Inbound	If True, this call was received by the Unified CCX server; if False, this call was placed as an outbound call by an application.
Language	The selected language context of the call.
Application ID	Unique identifier of the associated application.
Called Number	Called number for this call leg from the perspective of the called party.
Dialed Number	Dialed number for this call leg from the perspective of the calling party.
Calling Number	Calling number of the originator of this call.
ANI	Automatic number identification.
DNIS	Dialed number identification service.
CLID	Caller ID.
Arrival Type	Information on how the call contact arrived in the system.
Last Redirected Number	Number from which the last call diversion or transfer was invoked.
Original Called Number	Originally called number.
Original Dialed Number	Originally dialed number.
ANI Digits	Automatic Number Identification information indicator digit codes.
CED	Entered digits that were gathered by the network before the call was received.
	Note Calls running Unified ICME applications are also reported here.

Accessing Detailed E-mail Contact Information

Use the Email Detailed Info real-time report to view all information related to the e-mail contact.

To access the Email Detailed Info report, right-click a specific e-mail contact record on the Contacts report; information for that specific record displays.

The following fields are displayed on the Email Detailed Info report.

Field	Description
State	Current state of the contact.
Inbound	If True, this e-mail message was received by the Unified CCX server; if False, this e-mail was created by an application. Note Inbound e-mail messages are not currently supported.
Language	Selected language context of the e-mail message.
Application ID	Unique identifier of the associated application.
From	Sender of this e-mail message.
To	All the recipients of this e-mail message.
Subject	“Subject” field of this e-mail message.
Attachments	List of all attachments (file names) associated with this e-mail message.

Accessing Detailed HTTP Contact Information

Use the HTTP Detailed Info real-time report to view all information related to the HTTP contact.

To access the HTTP Detailed Info report, right-click a specific HTTP contact record in the Contacts report; information for that specific record displays.

The following fields are displayed on the HTTP Detailed Info report.

Field	Description
State	Current state of the contact.
Inbound	If True, this HTTP request was received by the Unified CCX server; if False, this HTTP request was created by an application. Note This information will always be reported as True, because the Unified CCX server does not currently track outbound HTTP requests in this way.
Language	Language currently associated with the HTTP request.
Application ID	Unique identifier of the associated application.
Authentication Type	Name of the authentication scheme used to protect the servlet; for example, "BASIC" or "SSL."
Character Encoding	Length, in bytes, of the request body, which is made available by the input stream, or -1 if the length is not known. Note This length is the same as the value of the CGI ¹ variable CONTENT_LENGTH.
Content Length	MIME type of the body of the request, or null if the type is not known. Note This is the same as the value of the CGI variable CONTENT_TYPE.
Content Type	Type of HTTP contact request.
Request Language	Preferred language for client content (the language that the client accepts for its content), based on the Accept-Language header.
Path Info	Any extra path information associated with the URL the client sent when the HTTP request was made.

Field	Description
Protocol	Name and version of the protocol the request uses in the form: <i>protocol/majorVersion.minorVersion</i> ; for example, HTTP/1.1 Note This value is the same as the value of the CGI variable SERVER_PROTOCOL.
Remote Address	IP address of the client that sent the request Note This value is the same as the value of the CGI variable REMOTE_ADDR.
Remote Host	Fully qualified name of the client that sent the request, or the IP address of the client, if the name cannot be determined Note This value is the same as the value of the CGI variable REMOTE_HOST.
Remote User	Login of the user making this request, if the user has been authenticated.
Requested Session ID	HTTP session ID as specified by the client.
Request URL	Section of the URL of the HTTP request, from the protocol name up to the query string in the first line of the HTTP request.

1. CGI = Common Gateway Interface

Applications

Use the Applications real-time report to view all the applications loaded on the server.

To access the Applications report, choose **Reports > Applications** from the Application Reporting menu bar.

The following fields are displayed on the Applications report.

Field	Description
Name	Unique name of the currently loaded application.
ID	Application ID.
Type	Type of application that is currently running (for example, a Cisco Script Application).
Description	Description of the application as entered on the Unified CCX Administration web site.

Field	Description
Enabled	If True, the application is enabled; if False, the application is disabled.
Max. Sessions	Maximum number of simultaneous task instances that can run simultaneously on the Unified CCX server.
Valid	If True, the application is valid; if False, the application is invalid. ¹

1. An application is valid if it was successfully loaded and initialized from its configuration. At any time, an application can become invalid if it internally fails to be refreshed.

Sessions

Use the Sessions real-time report to view real-time information on all the active sessions.

To access the Sessions report, choose **Reports > Sessions** from the Application Reporting menu bar.

The following fields are displayed on the Sessions report.

Field	Description
ID	Session ID. Note This identifier is guaranteed to remain unique for a period of 12 months.
Mapping ID	User- or system-defined identifier that maps to this session.
Node ID	Unique identifier for a server in the cluster.
Parent	Sessions that were created as a result of consult calls propagated in the system.
Creation Time	Creation time of the session.
State	Current state of the session. Note When marked IDLE, the session is subject to being “garbage collected” by the system after a specified period of time. In addition, a session is IN_USE if it still has a contact associated or a child session.
Idle Time	Length of time that the session has been idle.

Datasource Usage

Use the Data Source Usage real-time report to view real-time information on all configured Data Source Names (DSNs).

To access the Data Source Usage report, choose **Reports > Datasource Usage** from the Application Reporting menu bar.

The following fields are displayed on the Data Source Usage report.

Field	Description
Data Source Name	Name of the data source, as configured through the Unified CCX Administration web interface.
Available Connections	Number of connections available.
Busy Connections	Number of busy connections. Note Busy + available = Maximum number of connections configured.
Checkouts Granted	Number of times the database connections have been used up since the statistics were last reset.
Checkouts Denied	Number of times the Database connections have been denied since the statistics were last reset.

Overall Cisco Unified Contact Center Express Stats

Use the Overall Cisco Unified Contact Center Express Stats real-time report to view real-time Unified CCX resource and call information.



Note

Unified CCX reports contain information for calls that have been queued in one or more CSQs. If a call is not queued (for example, the caller hangs up before being queued), the reports do not display data for that call.

Unified CCX reports retrieve the following statistics:

- Unified CCX statistics from the current Master node.
- Unified IP IVR statistics from all nodes in the cluster.

To access the Overall Unified CCX Stats report, choose **Reports > Overall Cisco Unified Contact Center Express Stats** from the Application Reporting menu bar.



Note Preview Outbound durations are updated when the preview outbound call disconnects and all agents (resources) involved in the call move out of the work and talking state.

The following fields are displayed on the Overall Cisco Unified Contact Center Express Stats report.

Field	Description
Resource Information	
CSQs	Number of CSQs currently configured. If a CSQ is added or removed, this statistic reflects that change.
Logged-in Resources	Number of resources currently logged in.
Talking Resources	Number of resources currently talking. Note This number includes resources in Talking, Work, and Reserved states.
Ready Resources	Number of resources currently ready.
Not Ready Resources	Number of resources currently not ready.
Call Information — Inbound	
Total Contacts	Number of total contacts that have arrived since the statistics were last reset. This includes contacts that are waiting, contacts connected to a resource, and contacts that have disconnected. If a resource transfers to or conferences with a route point, this value increases.
Contacts Waiting	Number of contacts waiting to be connected to a resource. Note A contact is shown as waiting until the call is <i>answered</i> by the agent. This means that, even if the phone is ringing at the agent, the contact will still show as waiting in RTR.
Contacts Handled	Number of contacts that have been handled by a resource.
Oldest Call in Queue	Displays the wait time for the oldest contact in the queue.
Contacts Abandoned	Number of contacts that have arrived and disconnected before being connected to a resource.

Field	Description
Avg Talk Duration	Average duration (in seconds) that resources spend talking on Unified CCX contacts. Talk duration starts when a contact first connects to a resource and ends when the contact disconnects from the last resource to which it was connected. Talk duration does not include hold time.
Avg Wait Duration	Average wait time (in seconds). It begins when the contact enters the system and ends when the contact stops waiting. Wait duration does not include hold time. The time a contact spends on a CTI port prior to getting queued is included in this report.
Longest Talk Duration	Longest talk duration (in seconds) of a contact. Talk duration does not include hold time.
Longest Wait Duration	Longest wait (in seconds) for a contact to be connected to a resource. Wait duration does not include hold time.

Call Information — Preview Outbound

Active	Total number of preview outbound calls currently previewed or connected to agents.
Preview	Total number of preview outbound calls currently previewed but have not been accepted, rejected, or closed by the agents.
Connected	Total number of preview outbound calls currently connected to agents. When an agent conferences in other agents, the call is counted once towards the total number of connected calls.
Offered	Total number of preview outbound calls offered. A call is considered offered when it is presented to an agent. A contact that is presented to an agent, skipped/rejected by that agent, and then presented to the same agent or to another agent is counted twice towards the number of calls offered. Offered = Accepted + Rejected + Closed + Timed-out.
Accepted	Total number of preview outbound calls accepted. A call is considered accepted if an agent has clicked Accept when presented the call. A call that is presented to an agent, skipped/rejected by that agent, presented to another agent, and then accepted by that other agent is counted once towards the number of calls accepted.

Field	Description
Rejected	<p>The number of preview outbound calls that were skipped or rejected by an agent. This means that the agent selected Reject, Skip, or Cancel Reservation. These contacts will be dialed again. If a contact is rejected by multiple agents, this field increments each time the contact is rejected.</p> <p>The number Rejected is also incremented each time an agent drops the preview call while it is ringing at the customer's contact.</p>
Closed	<p>The number of preview outbound contacts that were closed by agents. This means that the agent selected Skip-Close or Reject-close. These contacts will not be dialed again.</p>
Timed-Out	<p>Total number of preview outbound calls that timed out. A call is considered timed out when it is presented to an agent and not accepted, rejected, or closed within the allocated time. These contacts will be dialed again. If a contact timed out multiple agents, this field is incremented each time the contact is timed out for each agent.</p>
Invalid Number	<p>The number of preview outbound calls that were dialed to an invalid number. This means that the agent accepted the call (by clicking Accept), got connected to the customer, and selected the Invalid Number option from the contact Reclassification drop down. It also includes the number of preview outbound calls that failed at the network level.</p> <p>Note The agent can manually reclassify the contact as Invalid Number while the customer contact is on the call or when the agent has gone into the Work state after the call.</p>
Voice	<p>The number of preview outbound calls that ended in successful customer contact. This means that an agent accepted the call (by clicking Accept) <i>and</i> selected a classification of Voice (default) or Do Not Call for this contact.</p>
Answering Machine	<p>The number of preview outbound calls that connected to an answering machine for this campaign. This means that the agent accepted the call (by clicking Accept), got connected to the answering machine and selected the Answering Machine option from the contact Reclassification drop down.</p> <p>Note The agent can manually reclassify the contact as Answering Machine while the customer contact is on the call or when the agent has gone into the Work state after the call.</p>

Field	Description
Requested Callback	The number of contacts marked for callback. This means that the agent accepted the call (by clicking Accept), got connected to the contact, the contact requested a callback, and the agent selected the CallBack option. A call that is accepted by an agent, marked for callback, later presented to and accepted by another agent (at the callback time), and marked for callback again is counted twice towards the number of callback calls.
Avg Talk Duration	The average time in HH:MM:SS (hours, minutes, seconds) that agents spend talking on outbound calls. The durations consider all calls that were Agent Accepted and classified as Voice. If a preview outbound call is transferred or conferenced to a route point, this average outbound talk duration does not include the talk time of agents who handle the call after it came through the route point. Instead, the talk time is included in the inbound talk duration.
Longest Talk Duration	The longest talk duration of a preview outbound call in HH:MM:SS (hours, minutes, seconds). The durations consider all calls that were Agent Accepted and classified as Voice.

Related Topic

[Clear Contact Menu Option, page 14-36](#)

CSQ Cisco Unified Contact Center Express Stats

Use the CSQ Cisco Unified Contact Center Express Stats real-time report to view real-time information.

**Note**

Unified CCX reports contain information for calls that have been queued in one or more CSQs. If a call is not queued, the reports do not display data for that call.

To access the CSQ Cisco Unified Contact Center Express Stats report, choose **Reports > CSQ Cisco Unified Contact Center Express Stats** from the Application Reporting menu bar.

The following fields are displayed on the CSQ Cisco Unified Contact Center Express Stats report.

Field	Description
Name	Name of the CSQ.
Talking/ Ready Resources/ Not Ready Resources/ Logged-In Resources	<p>Number of resources who are in the talking, ready, and not ready states, and the number of resources logged in for this CSQ. Values for the four items are separated by colons. Values are displayed in the same order that the items appear in the column heading.</p> <p>Note This number includes resources in Talking, Work, and Reserved states. If you are logged into the Unified CCX Administration web interface as a Supervisor and opening the Real-Time Reporting plug-in, you will be able see all the logged in agents from all the teams independent of team membership.</p>
Total Contacts	Number of total contacts since the statistics were last reset for this CSQ.
Contacts Waiting	<p>Number of contacts waiting to be connected to a resource in this CSQ.</p> <p>This column also displays how long the oldest contact has been waiting.</p>
Contacts [oldest contact in queue]	Duration of longest currently waiting contact.
Contacts Handled	Number of contacts that have been handled by this CSQ.
Contacts Abandoned	Number of contacts that have been abandoned by this CSQ.
Contacts Dequeued	Number of contacts that have been dequeued from this CSQ.
Avg Talk Duration	Average time (in seconds) agents in this CSQ spent talking to contacts.
Avg Wait Duration	Average wait time (in seconds). It begins when the call was queued (when you execute the “Select Resource” step) and ends when the call reaches the agent. Wait duration does not include hold time. The time a contact spends on a CTI port prior to getting queued is not included in this wait time.
Longest Talk Duration	Longest time (in seconds) agents in this CSQ spend talking to contacts.
Longest Wait Duration	Longest wait (in seconds) for a contact to be connected to a resource.

Related Topic

[Clear Contact Menu Option, page 14-36](#)

Preview Outbound Campaign Cisco Unified Contact Center Express Stats

Use the Preview Outbound Campaign Cisco Unified Contact Center Express Stats real-time report to view real-time Unified Contact CCX information for the Outbound preview dialer.

To access the Preview Outbound Campaign Cisco Unified Contact Center Express Stats report, choose **Reports > Preview Outbound Campaign Cisco Unified Contact Center Express Stats** from the Application Reporting menu bar.

The following fields are displayed on the Preview Outbound Campaign Cisco Unified Contact Center Express Stats report.

Field	Description
Campaign	The name of the preview outbound campaign.
Status	The current activation state of the preview outbound campaign: <ul style="list-style-type: none"> Running: an active preview outbound campaign Stopped: an inactive preview outbound campaign.
Active	Total number of outbound calls currently previewed by or connected to agents for this preview outbound campaign. Active Calls = Previewed + Connected.
Preview	Total number of outbound calls currently previewed but have not been accepted, rejected or closed by the agents as part of this preview outbound campaign.
Connected	Total number of outbound calls currently connected to agents for this preview outbound campaign. When an agent conferences in other agents, the call is counted once towards the total number of connected calls.
Offered	Total number of outbound calls offered for this preview outbound campaign. A call is considered offered when it is presented to an agent as part of this preview outbound campaign. A contact that is presented to an agent, skipped/rejected by that agent, and then presented to the same agent or to another agent is counted twice towards the number of calls offered. Offered = Accepted + Rejected + Closed + Timed-out.
Accepted	Total number of outbound calls accepted for this preview outbound campaign. A call is considered accepted if an agent has clicked Accept when presented the call. A call that is presented to an agent, skipped/rejected by that agent, presented to another agent, and then accepted by that other agent is counted once towards the number of calls accepted.

Field	Description
Rejected	<p>The number of outbound calls that were skipped or rejected by an agent as part of this preview outbound campaign. This means that the agent selected Reject, Skip, or Cancel Reservation. These contacts will be dialed again. If a contact is rejected by multiple agents, this field increments each time the contact is rejected.</p> <p>The number Rejected is also incremented each time an agent drops the preview call while it is ringing at the customer's contact.</p>
Closed	<p>The number of outbound contacts that were closed by agents as part of this preview outbound campaign. This means that the agent selected Skip-Close or Reject-close. These contacts will not be dialed again.</p>
Timed-Out	<p>Total number of outbound calls that timed out. A call is considered timed out when it is presented to an agent and not accepted, rejected, or closed within the allocated time. These contacts will be dialed again. If a contact times out for multiple agents, this field is incremented each time the contact is timed out for each agent.</p>
Invalid Number	<p>The number of outbound calls that were dialed to an invalid number for this preview outbound campaign. This means that the agent accepted the call (by clicking Accept), got connected to the customer, and selected the "Invalid Number" option from the contact Reclassification drop down. It also includes the number of outbound calls that failed at the network level.</p> <p>Note The agent can manually reclassify the contact as Invalid Number while the customer contact is on the call or when the agent has gone into the Work state after the call.</p>
Voice	<p>The number of outbound calls that ended in successful customer contact. This means that an agent accepted the call (by clicking Accept) <i>and</i> selected a classification of Voice or Do Not Call for this contact.</p>
Answering Machine	<p>The number of outbound calls that connected to an answering machine for this preview outbound campaign. This means that the agent accepted the call (by clicking Accept), got connected to the answering machine and selected the Answering Machine option from the contact Reclassification drop down.</p> <p>Note The agent can manually reclassify the contact as Answering Machine while the customer contact is on the call or when the agent has gone into the Work state after the call.</p>

Field	Description
Requested Callback	The number of contacts marked for callback for this preview outbound campaign. This means that the agent accepted the call (by clicking Accept), got connected to the contact, the contact requested a callback, and the agent selected the CallBack option. A call that is accepted by an agent, marked for callback, later presented to and accepted by another agent (at the callback time), and marked for callback again is counted twice towards the number of callback calls.
Avg Talk Duration	The average time in HH:MM:SS (hours, minutes, seconds) that agents spend talking on outbound calls for this preview outbound campaign. The durations consider all calls that were Agent Accepted and classified as Voice. If a call is transferred or conferenced back to the route point, the preview outbound campaign talk duration does not handle the talk time of agents who handle the call after it came through the route point.
Longest Talk Duration	The longest talk duration of an outbound call in HH:MM:SS (hours, minutes, seconds) for this preview outbound campaign. The durations consider all calls that were Agent Accepted and classified as Voice.

IVR Outbound Campaign Stats

If you have an Outbound IVR license, use the IVR Outbound Campaign Stats report to view real-time statistics on each progressive and predictive IVR Outbound campaign configured in Unified CCX.



Note

This report will be available only if you have an Outbound IVR license on top of Unified CCX premium license in your Unified CCX.

To access the IVR Outbound Campaign Stats report, choose **Reports > IVR Outbound Campaign Stats** from the Application Reporting menu bar. The following fields are displayed on the IVR Outbound Campaign Stats report.

Field	Description
Campaign Name	The name of the progressive or predictive campaign.
Status	The current activation state of the campaign: <ul style="list-style-type: none"> Running: an active progressive or predictive campaign Stopped: an inactive progressive or predictive campaign.
Type	The dialer type of the campaign, which can be one of the following: <ul style="list-style-type: none"> Progressive Predictive
Attempted	The number of calls that were attempted since the statistics were last reset. Attempted will be equal to sum of the following counters - Voice + Answering Machine + Invalid Number + Fax/Modem + No Answer + Busy + Failed if there are no Customer Abandoned calls.
Voice	The number of calls that are connected to live voice since the statistics were last reset. <ul style="list-style-type: none"> If you have selected Answering Machine Treatment as "Abandon Call" for an Outbound IVR campaign through Campaign Configuration web page, then Voice = Active + System Abandoned. If you have selected Answering Machine Treatment as "Transfer to IVR" for an Outbound IVR campaign through Campaign Configuration web page, then Voice + Answering Machine = Active + System Abandoned. <p>Note Whenever there is an exception while executing some steps in an IVR script, the call will be marked as System Abandoned after it has been marked as Voice and Active. For example, if there is any codec mismatch issue, there will be an exception in the Accept Step. In such cases, the same call will be marked in the following three categories - voice, active, and system abandoned.</p>
Answering Machine	The number of calls that reached an answering machine since the statistics were last reset.
Invalid Number	The number of calls that reached an invalid number since the statistics were last reset.
Fax/Modem	The number of calls that reached fax or modem since the statistics were last reset.
No Answer	The number of calls that were not answered since the statistics were last reset.

Field	Description
Busy	The number of calls that reached a busy destination since the statistics were last reset.
Failed	The number of calls that were failed due to any one of the following reasons since the statistics were last reset: <ul style="list-style-type: none"> • Dialer asked the Gateway to cancel a call that has not yet been placed • Gateway has declined the call • Gateway is down or Gateway has timed out while placing the call • Gateway failure or configuration issues at the Gateway.
Active	The number of calls that were connected to Outbound IVR ports since the statistics were last reset. All the voice calls that will be connected to Outbound IVR ports will be marked as active. If you have selected Answering Machine Treatment as "Transfer to IVR", then the answering machine calls that are getting transferred to Outbound IVR ports will also be marked as active.
Customer Abandoned	The number of calls that were abandoned by the customer since the statistics were last reset.
System Abandoned	The number of calls that were abandoned due to non-availability of ports or any issues at system level since the statistics were last reset.
Abandon Rate (in %)	The call abandon rate since the statistics were last reset. $\text{Abandon Rate} = (\text{System Abandoned}/\text{Voice}) * 100$

Overall IVR Outbound Stats

If you have an IVR Outbound license, you can use the Overall Outbound IVR Stats report to view real-time statistics across all predictive and progressive campaigns since the statistics were last reset.

To access the Overall IVR Outbound Stats report, choose **Reports > Overall IVR Outbound Stats** from the Application Reporting menu bar. The following fields are displayed on the Overall IVR Outbound Stats report for all the configured IVR outbound campaigns.

Field	Description
Attempted	The total number of Outbound IVR calls that were attempted since the statistics were last reset.
Voice	The total number of Outbound IVR calls that were connected to live voice since the statistics were last reset.
Answering Machine	The total number of Outbound IVR calls that reached answering machine since the statistics were last reset.
Invalid Number	The total number of Outbound IVR calls that reached an invalid number since the statistics were last reset.
Fax/Modem	The total number of Outbound IVR calls that reached fax or modem since the statistics were last reset.
No Answer	The total number of Outbound IVR calls that were not answered since the statistics were last reset.
Busy	The total number of Outbound IVR calls that reached a busy destination since the statistics were last reset.
Failed	The total number of failed Outbound IVR calls for all the Outbound IVR campaigns.
Active	The total number of Outbound IVR calls that were connected to Outbound IVR ports since the statistics were last reset.
Customer Abandoned	The total number of Outbound IVR calls that were abandoned by the customer since the statistics were last reset.
System Abandoned	The total number of Outbound IVR calls that were abandoned by the system since the statistics were last reset.

Resource Cisco Unified Contact Center Express Stats

Use the Resource Cisco Unified Contact Center Express Stats real-time report to view real-time Unified Contact CCX resource information.

To access the Resource Cisco Unified Contact Center Express Stats report, choose **Reports > Resource Cisco Unified Contact Center Express Stats** from the Application Reporting menu bar.

**Note**

If multiple lines are configured for an agent, only the calls on the agent's primary extension are reported in Resource Cisco Unified Contact Center Express Stats report.

The following fields are displayed on the Resource Cisco Unified Contact Center Express Stats report.

Field	Description
Name (ID)	Unique identifier of the resource.
State	Current state of the resource.
Duration in State	Length of time (in seconds) the resource has remained in the current state.
Contacts Presented	Number of contacts that have been connected to this resource.
Contacts Handled	Number of contacts that have been handled by this resource.
Avg Talk Duration	Average time (in seconds) that this resource spends talking to contacts.
Avg Hold Duration	Average time (in seconds) that the resource keeps contacts on hold.
Longest Talk Duration	Longest time (in seconds) that this resource has spent talking to a contact.
Longest Hold Duration	Longest time (in seconds) that this resource has placed a call on hold.
Outbound Offered	Total number of outbound calls offered to this resource. A call is considered offered when it is presented to an agent. A contact that is presented to an agent, skipped/rejected by that agent, and then presented to the same agent or to another agent is counted twice towards the number of calls offered. Offered = Accepted + Rejected + Closed + Timed-out.
Outbound Accepted	Total number of outbound calls accepted by this resource. A call is considered accepted if an agent has clicked Accept when presented the call. A call that is presented to an agent, skipped/rejected by that agent, presented to another agent, and then accepted by that other agent is counted once towards the number of calls accepted. For transferred or conferenced outbound calls, the call is considered handled by the resource if it is answered by that resource

Field	Description
Outbound Rejected	<p>The number of outbound calls that were skipped or rejected by this agent. This means that the agent selected Reject, Skip, or Cancel Reservation. These contacts will be dialed again.</p> <p>The number Rejected is also incremented each time an agent drops the preview call while it is ringing at the customer's contact.</p>
Outbound Closed	The number of outbound contacts that were closed by this agent. This means that the agent selected Skip-Close or Reject-close. These contacts will not be dialed again.
Outbound Timed-Out	Total number of outbound calls that timed out. A call is considered timed out when it is presented to an agent and not accepted, rejected, or closed within the allocated time. These contacts will be dialed again. If a contact timed out for multiple agents, this field is incremented each time the contact is timed out for each agent.
Outbound Voice	The number of outbound calls that ended in successful customer contact for this resource. This means that the agent accepted the call (by clicking Accept) <i>and</i> selected a classification of Voice or Do Not Call for this contact.
Outbound Avg Talk Duration	The average time in HH:MM:SS (hours, minutes, seconds) that agents spend talking on outbound calls. The durations consider all calls that were Agent Accepted and classified as Voice. This talk duration includes talk time spent by a resource handling an outbound call that was transferred or conferenced to a route point.
Outbound Avg Hold Duration	The average time in HH:MM:SS (hours, minutes, seconds) that the Resource has spent holding an outbound call among accepted calls. The duration considers all calls that were Agent Accepted and classified as Voice.
Outbound Longest Talk Duration	The longest time in HH:MM:SS (hours, minutes, seconds) that an agent has spent talking on an outbound call. The durations consider all calls that were Agent Accepted and classified as Voice.
Outbound Longest Hold Duration	The average time in HH:MM:SS (hours, minutes, seconds) that the Resource has spent holding on the outbound calls among accepted calls. The duration considers all calls that were Agent Accepted and classified as Voice.

Failover Behavior for Unified CCX Stats

All failovers, regardless of whether the Unified CCX engine is restarted, will cause the Unified CCX stats to reset.

The Unified IP IVR stats do not reset in all cases if the Unified CCX engine is not restarted on a node. However, the node loses its active server status. The Unified IP IVR stats on that node will not be reset.

Tools Menu

The Tools menu gives you access to the following Application Reporting tools:

- **Reset All Stats**—Choose this option to reset all statistics.
- **Open Printable Report**—Choose this option to get a printable report of all currently active contacts in the system.
- **Refresh Connections**—Choose this option to refresh connections with the Unified CCX system
- **Clear Contact**—Choose this option to clear contacts/calls that have been stuck in the system for a long time.

This section contains the following topics:

- [The Reset All Statistics Menu Option, page 14-35](#)
- [Open Printable Report Menu Option, page 14-36](#)
- [Refresh Connections Menu Option, page 14-36](#)
- [Clear Contact Menu Option, page 14-36](#)

The Reset All Statistics Menu Option

Use the Reset All Stats option to reset all statistics accumulated since the last time the statistics were reset. It will not reset active statistics, such as active contacts, tasks, and so on.



Note

The Unified CCX system automatically resets all statistics each day at midnight.

To reset all statistics, choose **Tools > Reset All Statistics** from the Application Reporting menu bar. The Unified CCX system resets all statistics.

Open Printable Report Menu Option

Use the option to get a printable report of all currently active contacts in the system.

To get a printable report, choose a real-time report from the Report menu option and then **Tools > Open Printable Report** from the Application Reporting menu bar.

Refresh Connections Menu Option

To refresh connections with the Unified CCX system, choose **Tools > Refresh Connections** from the Application Reporting menu bar. The Unified CCX system refreshes all connections.

Clear Contact Menu Option

You can use the Clear Contact menu option to clear contacts in the following three situations:

Clearing Stuck Calls from the Contacts real-time report

To clear stuck calls/contacts from the Unified CCX system,

-
- Step 1** Choose the contact from Reports > Contacts.
 - Step 2** From the Application Reporting menu bar, choose **Tools > Clear Contact**. A Clear Call dialog box is displayed to warn you. If you want to continue with the clear action, click No. To cancel the action, click Yes.
 - Step 3** Click No to proceed with the clear action. A Clear Contact dialog box is displayed for you to confirm the action. You can click Yes to proceed or No to cancel.
 - Step 4** Click Yes. The Unified CCX system removes the contact from all its queues.

Clearing Stuck Calls from the Overall Cisco Unified Contact Center Express Stats real-time report

To clear stuck calls/contacts from the Unified CCX system,

-
- Step 1** Choose **Reports > Overall Cisco Unified Contact Center Express Stats**.

Step 2 Choose the contact from **Views** and click **Overall Waiting Contacts Info**.



Note Please note that the Overall Waiting Contacts Info menu option displays only those calls that are queued in CSQs and not Agent Based routing calls.

Step 3 From the Application Reporting menu bar, choose **Tools** and click **Clear Contact**. A Clear Call dialog box is displayed to warn you. If you want to continue with the clear action, click No. To cancel the action, click Yes.

Step 4 Click No to proceed with the clear action. A Clear Contact dialog box is displayed for you to confirm the action. You can click Yes to proceed or No to cancel. Click Yes. The Unified CCX system removes the contact from all its queues.

Clearing Stuck Calls from the CSQ Cisco Unified Contact Center Express Stats real-time report

To clear stuck calls/contacts from the Unified CCX system,

Step 1 Choose **Reports > CSQ Cisco Unified Contact Center Express Stats**.

Step 2 Choose the contact from **Views** and click **CSQ Waiting Contacts Info**.

Step 3 From the Application Reporting menu bar, choose **Tools > Clear Contact**. A Clear Call dialog box is displayed to warn you. If you want to continue with the clear action, click No. To cancel the action, click Yes.

Step 4 Click No to proceed with the clear action. A Clear Contact dialog box is displayed for you to confirm the action. You can click Yes to proceed or No to cancel. Click Yes. The Unified CCX system removes the contact from all its queues.

Views Menu

The Views menu allows you to access more detailed information for six reports: The Application Tasks report, the Contacts report, the Applications report, the Sessions report, Overall Cisco Unified Contact Center Express Stats report, and the CSQ Cisco Unified Contact Center Express Stats report.

**Note**

For some reports, detailed information is also available by right-clicking a record in that report.

The Views menu contains different options, depending on the report you have chosen. Possible options are:

- **Contacts by Application Task ID**—Choose this option to view contacts according to Application Task ID numbers.
- **Engine Tasks by Application Task ID**—Choose this option to view Engine tasks according to Application Task ID numbers.
- **Detailed Info**—Choose this option to view more detailed information on selected reports.
- **Application Tasks by Application Name**—Choose this option to view application tasks by application name.
- **Contacts by Session ID**—Choose this option to view contacts by session ID.
- **Overall Waiting Contacts Info**—Choose this option to view detailed information for the overall waiting contacts. To clear stuck calls in this view, see Scenario 2 in [Clear Contact Menu Option, page 14-36](#)
- **CSQ Waiting Contacts Info**—Choose this option to view detailed information for the CSQ waiting contacts. To clear stuck calls in this view, see Scenario 3 in [Clear Contact Menu Option, page 14-36](#)

This section contains the following topics:

- [Application Tasks, page 14-39](#)
- [Contacts, page 14-39](#)
- [Applications, page 14-39](#)
- [Sessions, page 14-40](#)
- [Overall Cisco Unified Contact Center Express Stats, page 14-21](#)
- [CSQ Cisco Unified Contact Center Express Stats, page 14-25](#)

Application Tasks

When you use the Views options with the Application Tasks reports, the Views menu contains the following options:

- [Contacts by Application Task ID, page 14-39](#)
- [Engine Tasks by Application Task ID, page 14-39](#)

Contacts by Application Task ID

This report displays the same report as the Contact report (see the [“Contacts” section on page 14-14.](#)) with the exception that the Contacts by Application Task ID report has been filtered using only the contact currently being managed by the selected application task.

Engine Tasks by Application Task ID

This report displays the same report as the Engine Task reports (see the [“Engine Tasks” section on page 14-14.](#)) except that the Engine Tasks by Application Task ID report has been filtered to display only the engine tasks that are associated with the application task.

Contacts

When you use the Views options with the Contacts report, the Views menu contains only the Detailed Info option.

The Detailed Info option provides various detailed information, depending on the type of contact selected. For example, if the contact is a call, the Calling Party number, the Called Number, and so on, are displayed for that particular call.

For more information, please see the [“Accessing Detailed Call Contact Information” section on page 14-16.](#)

Applications

When you use the Views options with the Application reports, the Views menu contains only the Application Tasks by Application Name option.

The Application Task By Application Name report displays the same report as the Application Task report (see [Application Tasks, page 14-39](#)), except that the Application Task By Application Name report is filtered using only the active application tasks associated with this application.

Sessions

When you use the Views options with the Session reports, the Views menu contains the following options:

- [Contacts By Session ID, page 14-40](#)
- [Detailed Info, page 14-40](#)

Contacts By Session ID

This report displays the same report as the Contact report (see the [“Contacts” section on page 14-14.](#)) with the exception that the Contacts By Session ID report is filtered using only the contacts associated with the selected session.

Detailed Info

Detailed info displays the time the session was created and its current state.

Settings Menu

The Settings menu of the Application Reporting menu bar allows you to adjust various settings of the Real Time Reporting tool.

The Settings menu contains the following menu options:

- **Options**—Choose this option to set the polling (refresh) interval times and to set the amount of times the server will attempt to reconnect.
- **Window**—Choose this option to display reports in colors based on your Windows settings.
- **Motif**—Choose this option to display reports in purple and menu items in brown.
- **Metal**—Choose this option to display reports in grey and menu items in black.

This section contains the following topic:

- [Options Menu Option, page 14-41](#)

Options Menu Option

Choose **Settings** and click **Options** to access the Options dialog box. Use the Options dialog box to set the polling (refresh) interval time, set the number of times the server will attempt to reconnect, and specify whether logged off agents appear in reports.

The following fields are displayed in the Options dialog box.

Field	Description
Polling Interval	Time between two requests to the server for new statistics by the client.
Server Connect Retry Count	The number of times that the Unified CCX Administration web interface should attempt to reconnect to the Unified CCX server. Note If an error occurs, an Error dialog box opens to alert you that the server is not communicating with the web interface.
Show Logged Off Resources	Specifies whether logged off agents appear in reports.

Click **Apply** to submit configuration changes.



CHAPTER 15

Using Unified CCX Supervisor and Unified CCX User Options Plug-Ins

The following sections provide detailed information on the additional plug-in options provided by the Unified CCX.

- [About User Management, page 15-1](#)
- [About Unified CCX User Capabilities, page 15-2](#)
- [Using Unified CCX Supervisor Web Interface, page 15-6](#)
- [Using the Unified CCX User Options Web Interface, page 15-9](#)

Related Topics

- [Accessing Unified CCX Administration Web Interface, page 2-2](#)

About User Management

In earlier versions of Unified CCX, many user parameters like user ID, password, and pin were configured from the Unified CM Administrator. Some Unified CCX-related user parameters were configured through the Unified CCX Administration.

In Unified CCX, all Unified CCX user roles (capabilities) are consolidated into one User Configuration area.

In Unified CCX versions supporting Unified CME, the user configuration and management is entirely done by Unified CCX. Therefore, in addition to consolidating all user management under one menu, Unified CCX users are managed from within the same menu.

The user information for each product is stored in different locations:

- The Unified CM user details are stored in the Unified CM database.
- The Unified CME user details are stored in the Unified CCX Database.

Related Topics

- [About Unified CCX User Capabilities, page 15-2](#)
- [Administrator Privileges, page 15-3](#)
- [Supervisor Privileges, page 15-3](#)
- [Historical Report User Privileges, page 15-5](#)
- [Agent Privileges, page 15-5](#)

About Unified CCX User Capabilities

The capability for each user refers to the Unified CCX access level assigned for each user. Unified CCX users can be assigned to one of the following four roles (or capabilities):

- Administrator
- Supervisor
- Historical Report User
- Agent

Each of these roles are described in this section.

Related Topics

- [About User Management, page 15-1](#)
- [Administrator Privileges, page 15-3](#)
- [Supervisor Privileges, page 15-3](#)
- [Historical Report User Privileges, page 15-5](#)

- [Agent Privileges, page 15-5](#)

Administrator Privileges

A Unified CCX Administrator is a user with complete access to the Unified CCX Administration and has the authority to configure the entire system. An Administrator can also be assigned a combination of other roles.

The Administrator can turn on/off the authority of a Supervisor to manage the teams and agents.

Related Topics

- [Administrator Capability View Menu Option, page 20-16](#)
- [About User Management, page 15-1](#)
- [About Unified CCX User Capabilities, page 15-2](#)
- [Supervisor Privileges, page 15-3](#)
- [Historical Report User Privileges, page 15-5](#)
- [Agent Privileges, page 15-5](#)

Supervisor Privileges

Supervisors can additionally modify and view skills, view the list of all teams for which this user is the supervisor, view the skills, CSQs, and resource groups configured in this system, view and manage resources, and configure the teams managed by the supervisor.

Unified CCX provides three types of Supervisors:

- **Application Supervisor:** A basic supervisor role applicable to a Unified CCX Application server *without* a Unified CCX license. An application supervisor can only view reports.
- **ACD Supervisor:** A supervisor with an agent's role. This role is applicable to a Unified CCX Application server with *any* Unified CCX license. An ACD supervisor can administer teams/agents and also view reports. Thus Unified CCX enables dynamic reskilling, the ability by which an ACD supervisor can add or remove skills from an agent without an administrator privilege.

- **Remote Monitoring Supervisor:** An application supervisor role with all numeric characters in the assigned user ID. This role is applicable to a Unified CCX Application server with *only* a Unified CCX Premium license. This role is *not available* for Unified CCX users in a Unified CME deployment. In addition to viewing reports, this supervisor can also view the list of agents and CSQs being monitored.

Depending on the license allowed, Unified CCX Supervisors have the following privileges:

- Download and install the Historical Reporting client to view reports.
- View agents and CSQ being monitored. This is only for a remote Supervisor.
- Download and install the Supervisor Desktop and the Agent Desktop.
- View the list of all Teams for which this user is the Supervisor.
- Configure the Teams managed by the Supervisor.
- View the Skills, CSQs, and Resource Groups configured in this system.



Note

The RmCm menu can be viewed by the Supervisor only when any one of the following two options are selected as the parameter value for the Supervisor Access field located in System -> System Parameters page -> Application Parameters:

- Access to all Teams
- Access to Supervisor's Teams only

- View and manage all the resources.

Related Topics

- [About User Management, page 15-1](#)
- [About Unified CCX User Capabilities, page 15-2](#)
- [Administrator Privileges, page 15-3](#)
- [Historical Report User Privileges, page 15-6](#)
- [Agent Privileges, page 15-5](#)
- [Using Unified CCX Supervisor Web Interface, page 15-6](#)
- [Supervisor Capability View Menu Option, page 20-16](#)

Historical Report User Privileges

A user with a historical report client role can view various historical reports. The number and types of reports allowed to be viewed depends on the licenses available on a given Unified CCX system.

Related Topics

- [Reporting Capability View Menu Option, page 20-16](#)
- [About User Management, page 15-1](#)
- [About Unified CCX User Capabilities, page 15-2](#)
- [Administrator Privileges, page 15-3](#)
- [Supervisor Privileges, page 15-3](#)
- [Agent Privileges, page 15-5](#)

Agent Privileges



Note

An agent capability is only available with a Unified CCX license.

Unified CM users in Unified CCX are assigned an agent's role when an agent extension is associated to the user in the Unified CM User Configuration page. Consequently, this role can *only* be assigned or removed for the user using Unified CM Administrator's End User configuration web page (see [Chapter 4, "Provisioning Unified CM for Unified CCX"](#)). These users can not be assigned or removed in Unified CCX Administration.

Unified CCX users in a Unified CME deployment are entirely managed by Unified CCX. This ability to change an agent's role is *available only* for Unified CCX users in a Unified CME deployment. Hence, on selecting the required agents, this page leads you to the Bulk Resource Configuration web page where you can configure multiple users and assign skills/resource groups at the same time.

Related Topics

- [Agent Capability View Menu Option, page 20-17](#)

- [About User Management, page 15-1](#)
- [About Unified CCX User Capabilities, page 15-2](#)
- [Administrator Privileges, page 15-3](#)
- [Supervisor Privileges, page 15-3](#)
- [Historical Report User Privileges, page 15-5](#)

Using Unified CCX Supervisor Web Interface

Use the Unified CCX Supervisor web page to:

- View and monitor permitted agents (see [Monitoring Agents, page 15-7](#)).
- View and monitor permitted CSQs (see [Monitoring CSQs, page 15-7](#)).
- Install client-side Historical Reporting (see [Installing Client-Side Historical Reporting, page 15-9](#))
- Access real-time reports, tools, and settings (see [Chapter 14, “Reporting on Real-Time Unified CCX Data”](#)).

Accessing the Unified CCX Supervisor Web Page

To access the Unified CCX Supervisor web page, perform the following steps:

Procedure

-
- Step 1** Ensure supervisor capability is assigned to the user designated as supervisor (see [Supervisor Privileges, page 15-3](#) and [User View Submenu Option, page 20-13](#)).



- Note** If the supervisor is assigned administrator capability as well, then the Unified CCX Administration window is opened instead of the Supervisor web page.
-

- Step 2** From a web browser on any computer on your network, enter the following case-sensitive URL:

```
https://<servername>/appadmin
```


In this example, replace *<servername>* with the host name or IP address of the required Unified CCX server.

**Tip**

If you have already accessed the Unified CCX Administration application or Supervisor web page in the browser, be sure to logout from the current session using **Logout** link displayed in the top right corner of any Cisco Unified CCX Administration web page or **System -> Logout** and login with respective user credentials.

The Unified CCX Supervisor web page appears.

Monitoring Agents

The Supervisor can view and monitor agents only when the following conditions are met:

- The Supervisor has to be a remote monitoring Supervisor. See [Creating a Remote Monitoring Supervisor, page 8-31](#).
- The resources that are to be monitored should be assigned to the remote monitoring Supervisor. See [Assigning Resources and CSQs to a Supervisor, page 8-32](#).

Related Topics

- [Supervisor Privileges, page 15-3](#)

Monitoring CSQs

The Supervisor can view and monitor CSQs only when the following conditions are met:

- The Supervisor has to be a remote monitoring Supervisor. See [Creating a Remote Monitoring Supervisor, page 8-31](#).

- The CSQs that are to be monitored should be assigned to the remote monitoring Supervisor. See [Assigning Resources and CSQs to a Supervisor, page 8-32](#).

To monitor CSQs from the Unified CCX Supervisor web page, perform the following steps:

Procedure

- Step 1** Select **Tools > Plug-ins** from the Unified CCX Administration menu bar.
 - Step 2** Click **Cisco Unified CCX Desktop Suites** hyperlink.
 - Step 3** Click **View CSQ** hyperlink to view allowed CSQs.
 - Step 4** When finished, click **Logout**.
-

Related Topics

- [Supervisor Privileges, page 15-3](#)

Viewing CSQ IDs for Remote Monitoring

To view CSQ IDs from the Unified CCX Supervisor web page, perform the following steps:

Procedure

- Step 1** From the Unified CCX Supervisor web page, log in as the Remote Monitoring supervisor.
- Step 2** Select **Tools > Plug-ins** from the Unified CCX Administration menu bar.
- Step 3** Click **Cisco Unified CCX Desktop Suites** hyperlink.
- Step 4** Click **View CSQ** hyperlink to view allowed CSQs.

The CSQ ID column shows the ID value that you should enter for the CSQ that you selected in the Start Monitor Step. See the Start Monitor Step in the *Cisco Unified CCX Scripting and Development Series: Volume 2, Editor Step Reference* for more information.

Installing Client-Side Historical Reporting

To install client-side Historical Reporting, perform the following steps:

Procedure

- Step 1** Select **Tools > Plug-ins** from the Unified CCX Administration menu bar.
 - Step 2** Click **Cisco Unified CCX Historical Reports** hyperlink.
 - Step 3** For more instructions, see the *Cisco Unified CCX Historical Reports User Guide*.
-

Using the Unified CCX User Options Web Interface

Use the Unified CCX User Options web page to perform:

- Unified CCX downloads
- Alternate pronunciations for call by name
- Access the Unified CM User Page



Note

For a Unified CME deployment, you can also change the password/PIN and upload a spoken name prompt.

Accessing the Unified CCX User Options Web page

To access the Unified CCX User Options web page, perform the following steps:

Procedure

- Step 1** From the Unified CCX Administration enter **http://<Cisco Unified CCX IP address>/appuser**.
- Step 2** If prompted to do so, enter your User ID and Password.
The Unified CCX User Options web page appears.
- Step 3** When finished, click **Logout**.
-

Downloading Agent Desktop

To install and configure the Agent Desktop, perform the following steps:

Procedure

- Step 1** In the Unified CCX User Options Welcome web page, go to **User Options > Cisco Unified CCX Downloads**.
The Download page appears.
- Step 2** Click **Cisco Unified CCX Agent Desktop** hyperlink displayed on this page.
- Step 3** The File Download dialog box appears. Click **Run** to install the Unified CCX Agent Desktop on your computer.



- Note** You need to download Cisco Unified CCX Desktop Client Configuration tool prior to installing any application(s) from the Cisco Unified CCX Desktop Product Suite.
-
-

Cisco Unified CCX Desktop Client Configuration Tool

After completing a fresh installation or upgrade of Unified CCX, you need to run the Cisco Unified CCX Desktop Client Configuration tool prior to installing any desktop application(s) from the Cisco Unified CCX Desktop Product Suite.

Since Unified CCX Release 8.5(1) is developed on the Cisco's Unified Communications Operating System (UCOS), which in turn is based on Redhat Linux, the client MSIs cannot be created while installing the desktop applications. The Unified CCX Desktop Client Configuration Tool uses the client PC for configuring the client MSIs.

It downloads the files that are needed to create the MSIs into a temporary folder, creates the MSIs, and then uploads those MSIs to the server from where they can be launched through the hyperlinks in the Plug-ins page. This tool uploads the MSIs to the Linux server, cleans up all the folders and files it created on the Windows PC.

From the client PC, which you use to access Unified CCX Administration, choose Tools > Plug-ins menu option and in the Plug-ins web page, click Cisco Unified CCX Desktop Suites. You will see another web page with the following two categories:

- Cisco Unified CCX Desktop Client Configuration tool
- Cisco Unified CCX Desktop Product Suite

To launch this tool, click **Cisco Unified CCX Desktop Client Configuration tool** hyperlink from the Cisco Unified CCX web page. You will see a File Download dialog box. Click **Run** to run the *CAD Client Configuration.msi*, which is a Windows Installer (MSI). You will see a dialog box with progress bars showing the status of Agent, Supervisor, and Administrator MSIs that are being packaged and uploaded to the Unified CCX.

If you run this tool from either of the node(s) in a High Availability deployment of Unified CCX, the MSIs are uploaded on both the primary and secondary nodes of Unified CCX.

You need to run the Desktop Client Configuration tool in the following scenarios:

- After fresh installation of Unified CCX 8.5(1)
- After installing Service Release (SR) and Engineering Special (ES) release of Unified CCX
- After changing the IP address of one or more nodes of Unified CCX

- After installing Unified CCX on the second node
- Moving to single-node from a HA deployment of Unified CCX
- After changing the CAD Language that you want to be available for use in the agent desktops and supervisor desktops of Unified CCX.

Adding Alternative Pronunciations

Alternative Pronunciations for Call by Name is an independent feature located on the Unified CCX User Options Welcome web page. This feature lets you add one or more alternate pronunciations for your first or last name and is useful if callers might refer to you by more than one name. For example, if your first name is Bob, you might add the alternate pronunciations “Bob” and “Bobby.” Similarly, if your last name is Xhu, you might add the alternate pronunciation “Xhu.”

To access the Alternative Pronunciations for Call by Name web page, perform the following steps:

Procedure

- Step 1** In the Cisco Unified CCX User Options Welcome web page, choose **User Options > Alternative Pronunciations for Call by Name**.
- The Alternate Pronunciations web page appears.
- Step 2** In the First Name field, you can enter an alternate pronunciation of your first name. For example, if your name is “Mary,” you might enter “Maria.”
- Step 3** Click **Add>>**.
- The name moves to a list of alternate first name pronunciations.
- Step 4** Repeat Steps 2 and 3 as needed to add other alternate pronunciations.
- To remove an alternate pronunciation for your first name, click the alternate pronunciation and then click **Remove**.
- Step 5** In the Last Name field, you can enter an alternate pronunciation of your last name. For example, if your last name is “Smith,” you might enter “Smitty.”
- Step 6** Click **Add>>**.
- The name moves to a list of alternate last name pronunciations.
- Step 7** Repeat Steps 5 and 6 as needed to add other alternate pronunciations.

To remove an alternate pronunciation of your last name, click the alternate pronunciation and then click **Remove**.

Step 8 Click **Save** to apply the changes.

Accessing Unified CM User Options page

To access the Unified CM User Options web page, perform the following steps:

Procedure

Step 1 In the Unified CCX User Options Welcome web page, choose **User Options > Cisco Unified CM User Page**.

The Unified CM User Options Log On dialog box appears.

Step 2 Enter your Unified CM User ID and Password and click **Log On**.

The Unified CM User Options web page appears.

Step 3 Click the option you want.

Step 4 When finished, click **Logout**.



PART 3

Unified CCX: Reference



CHAPTER 16

System Menu

The System menu of the Unified CCX Administration system provides options for performing system-related tasks. Depending on the product package you purchased, the System menu contains some or all of the following menu options:

- **Server** (see [Server Menu Option, page 16-1](#))
- Installation-based options:
 - **Unified CM Configuration** (see [Unified CM Configuration Menu Option, page 16-3](#)).
 - **Unified CME Configuration** (see [Unified CME Configuration Menu Option, page 16-4](#)).
- **System Parameters** (see [System Parameters Menu Option, page 16-4](#)).
- **Custom File Configuration** (see [Custom File Configuration Menu Option, page 16-5](#)).
- **License Information** (see [License Information Menu Option, page 16-5](#)).
- **Language Information** (see [Language Information Menu Option, page 16-7](#)).
- **Logout** (see [Logout Menu Option, page 16-8](#)).

Server Menu Option

Choose **System > Server** from the Cisco Unified CCX Administration menu bar to access the List Servers web page. Use the List Servers web page to view, add, remove, and view servers in the cluster.

To view, modify, or delete the server configuration information of any server, click the respective hyperlink in **Host Name/IP Address** field. The Server Configuration web page opens to display Host Name/IP Address, MAC Address, and Description of the server. Update the values in the fields and click **Save** to save the changes. Click **Delete** to delete the configuration information of a server.



Note You cannot delete the publisher.

To configure a new server that needs to be added to the cluster in a High Availability setup, complete the following steps:

Procedure

Step 1 Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window to add the new server from the List Servers web page.



Note You can add only one additional server. If you have already installed two servers in the cluster or if you have a Unified CME deployment the server details of only one server is displayed in this web page and the **Add New** button is disabled.



Note Host name change is not supported in Cisco Unified CCX 8.5(1)

The Server Configuration web page opens where you can specify values for the following fields:

Field	Description
Host Name/IP Address	Host name or IP address of the new Unified CCX server to be added to the cluster. This is a mandatory field.
MAC Address	MAC address of the new server.
Description	Description for the new server.

Step 2 Click **Add** to add details of the new server.

**Warning**

Before installing Unified CCX on the second node, you need to configure the second server using the procedure mentioned above. Installation of second node will fail if you fail to do this configuration.

**Note**

You will see a warning message if you click the **Add New** button without having a High Availability license.

Related Topics

- [Managing System Parameters, page 11-5](#)
- [Configuring Default TTS Provider for the Unified CCX System, page 7-36](#)

Unified CM Configuration Menu Option

Use the Unified CM Configuration web page to update the following information:

- Unified CM cluster
- AXL authentication
- Unified CM Telephony subsystem
- RmCm Provider configuration from within Unified CCX.

Choose **System > Unified CM Configuration** from the Unified CCX Administration menu bar to access the Unified CM Configuration web page.

Related Topics

- [Modifying Cluster Information from Unified CCX, page 4-2](#)
- [Modifying AXL Information, page 4-5](#)
- [Modifying Unified CM Telephony Information, page 4-8](#)
- [Modifying RmCm Provider Information, page 4-10](#)
- [Configuring RmCm Provider, page 8-2](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)

Unified CME Configuration Menu Option

Use the Unified CME Configuration web page to update the following information:

- Unified CME cluster
- Unified CME Telephony subsystem
- AXL Service Provider configuration from within Unified CCX.

Choose **System > Unified CME Configuration** from the Unified CCX Administration menu bar to access the Unified CME Configuration web page.

Related Topic

[Introducing Unified CME for Unified CCX, page 5-1](#)

System Parameters Menu Option

Use the System Parameters web page to configure system parameters such as port settings, locale settings for Cisco Agent Desktop, and set the default session timeout.

Choose **System > System Parameters** from the Unified CCX Administration menu bar to access the System Parameters Configuration web page.

Related Topics

- [Managing System Parameters, page 11-5](#)
- [Configuring Default TTS Provider for the Unified CCX System, page 7-36](#)



Note

You can configure only RMI port in Unified CCX 8.5(1). RmCm TCP and Master Listener TCP ports are display only fields.

Custom File Configuration Menu Option

Use the Custom Classes Configuration web page to specify the classpath for custom classes.

Choose **System > Custom File Configuration** from the Unified CCX Administration menu bar to access the Custom Classes Configuration area.

Related Topics

- [Specify Custom Classpath Entries, page 10-17](#)

License Information Menu Option

Use the License Information web pages to display the cluster licensing information and to upload additional licenses.

Choose **System > License Information > Add License(s) or Display License(s)** from the Cisco Unified CCX Administration menu bar to access the License Information web pages.

Related Topics

- [Add License\(s\), page 16-6](#)
- [Display Licenses, page 16-6](#)
- [Viewing License Information, page 1-14](#)
- [Unified CCX Licensing Packages, page A-1](#)

Add License(s)

From the Unified CCX Administration menu bar, choose **System > License Information > Add License(s)**. The License Information web page displays.

In the License File field, enter the path for the license file or click **Browse** to locate the license file. Select the required license file and click **Open**. Use this page to specify a license file and upload it to Unified CCX.

Related Topics

- [Display Licenses, page 16-6](#)
- [Uploading Licenses, page 1-15](#)
- [Viewing License Information, page 1-14](#)
- [Unified CCX Licensing Packages, page A-1](#)

Display Licenses

From the Unified CCX Administration menu bar, choose **System > License Information > Display License(s)**. The License Information web page opens displaying the details of the Configured License such as the license type, number of IVR ports, number of seats, maximum number of agents, and so on.



Note

The License Information page displayed on click of **Display License(s)** menu option will also specify the expiry date in case of time bound licenses.

From 8.5(1)SU3 release, the License Information web page displays a drop-down list with all licenses, active and expired, that have been configured in the system. When you choose a license from the list, the content of that license is displayed.

You can view the cumulative content of all the currently active licenses in the system by selecting **Cumulative License Information** from the drop-down list. This option also displays a breakup of the temporary and permanent license counts.

Related Topics

- [Add License\(s\), page 16-6](#)

- [Viewing License Information, page 1-14](#)
- [Unified CCX Licensing Packages, page A-1](#)

Language Information Menu Option

Customized Unified CCX languages such as American English, Canadian French, and so on are installed with Unified CCX.

Use the Languages Configuration web page to:

- Enable languages that can be used to play prompts and grammars through Cisco Unified IP IVR.
- Configure the languages that you want to use with Cisco Unified Contact Center Express CAD and CSD.

Choose **System > Language Information** from the Cisco Unified CCX Administration menu bar to access the Languages Configuration web page. The Languages Configuration web page opens to display the following fields and buttons.

Field	Description
IVR Language Configuration	
Language	Language that you wish to use with Unified IP IVR. You can select the language from the drop-down list. You can also specify the group and country-specific information for the language by selecting the desired radio button and check box respectively. Some languages have only one choice. US English (en_US) is the default.
Default IVR Language Configuration	
Default Language	System default language setting, which could be either one of the selected IVR languages or country-specific or a user-defined language entered using the Edit button. This is a mandatory field and you can choose from the drop-down list. Click Edit to add a new Language option. Default: English (United States) [en_US]
CAD/CSD Language Configuration	

Field	Description
CAD/CSD Language	<p>Language that you wish to use with Cisco Agent Desktop (CAD) or Cisco Supervisor Desktop (CSD). You can configure this language by choosing from the drop-down list.</p> <p>Note If you are upgrading from CRS 4.5 to Unified CCX 8.5(1), ensure that you have the same CAD and CSD Language Selection settings as that of your CRS 4.5 system.</p>
Update	Click Update icon that displays in the tool bar in the upper, left corner of the window or the Update button that displays at the bottom of the window to save your changes.
Clear	Click Clear icon that displays in the tool bar in the upper, left corner of the window or the Clear button that displays at the bottom of the window to restore the default settings.

Logout Menu Option

To exit Unified CCX Administration without closing your web browser, you can:

- Choose **System > Logout** from the Unified CCX Administration menu bar or
- Click **Logout** link displayed in the top right corner of any Cisco Unified CCX Administration web page.

The system logs you out of Unified CCX and displays the Unified CCX Authentication web page.



Note

You can also exit Unified CCX Administration by closing your web browser.



CHAPTER 17

Applications Menu

The Applications menu on the top contains the following menu options:

- **Application Management**—to add, configure, copy, delete, or refresh a specific application (see [Application Management Menu Option, page 17-1.](#))
- **Script Management**—to add a new script and to view, refresh, upload, or delete an existing script (see [Script Management, page 17-3.](#))
- **Prompt Management**—to display, modify, or delete existing prompts, and to add new prompts (see [Prompt Management, page 17-4.](#))
- **Grammar Management**—to display, modify, or delete existing grammars, and to add new grammars (see [Grammar Management, page 17-5.](#))
- **Document Management**—to display, modify, or delete existing documents, and to add new documents (see [Document Management, page 17-6.](#))
- **AAR Management**—to upload AAR files to Unified CCX (see [AAR Management, page 17-6.](#))

Application Management Menu Option

The Application Management menu option in the Unified CCX Administration web interface contains options for configuring and managing the applications the Unified CCX system uses to interact with contacts and perform a wide variety of functions.

To access the Application Management web pages, perform the following steps:

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Applications > Application Management**.

The Applications Configuration web page opens displaying a list of applications that are currently configured on your Unified CCX server.

Step 2 Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window to add a new application. Add a New Application web page opens.

Step 3 Select the type of application that you want to create from the Application Type drop-down list. See [About Unified CCX Applications, page 6-1](#) to know more about the different application types available in Unified CCX and how to configure them.

Related Topics

- [Configuring Script Applications, page 6-2](#)
- [Configuring Busy Application, page 6-7](#)
- [Configuring Ring-No-Answer Application, page 6-9](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)
- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)
- [Adding Application Triggers, page 6-18](#)
- [Application Availability by License Package, page A-2](#)
- [Provisioning Unified ICME Subsystem, page 9-3](#)

Script Management

Use the Script Management web page to add a new script and to rename, refresh, or delete an existing script. Unified CCX applications are based on scripts created in the Unified CCX Editor.

To access the Script Management web page, choose **Applications > Script Management** from the Unified CCX Administration menu bar. The Script Management web page opens displaying the default directory that contains the scripts uploaded to the repository.

See [Uploading New Scripts, page 6-26](#) section to view description for the various fields that are displayed in the Script Management web page for the default folder (if it already exists).

To create a new subfolder under the `default` folder, perform the following steps:

Procedure

Step 1 Click **Create New Folder** icon that displays in the tool bar in the upper, left corner of the window or the **Create New Folder** button that displays at the bottom of the window.

The Create New Folder dialog box opens.

Step 2 Enter a name of the new subfolder in the **Folder Name** field and click **Create**.

Once the folder is successfully created, the dialog box refreshes with the following message:

```
Folder successfully created
```

Step 3 Click **Return to Script Management** button to return to the `default` folder's updated Script Management page. You can create any number of folders within the `default` folder.

Related Topics

- [About Unified CCX Applications, page 6-1](#)
- [Viewing or Downloading a Script File, page 6-28](#)
- [Refreshing Scripts, page 6-30](#)
- [Sample Scripts, page 6-34](#)

Prompt Management

Several system-level prompt files are loaded during Unified CCX installation. However, any file *you* create needs to be made available to the Unified CCX Engine before a Unified CCX application can use them. This is done through the Unified CCX cluster's Repository datastore, where the prompt files are created, stored, and updated.



Note You can use a custom script or the Unified CCX Administration to upload a prompt.

To access the Prompt Management page, choose **Applications > Prompt Management** from the Unified CCX Administration menu bar.

The Prompt Management web page contains the following icons and buttons:

- **Create Language**—Click **Create Language** icon that displays in the tool bar in the upper, left corner of the window or the **Create Language** button that displays at the bottom of the window to create a new language folder (see [Creating a New Language, page 10-9](#)).
- **Upload Zip Files**—Click **Upload Zip Files** icon that displays in the tool bar in the upper, left corner of the window or the **Upload Zip Files** button that displays at the bottom of the window to upload a new prompt or zip file (see [Upload Zip files to a Language Folder, page 10-11](#)).

See [Managing Prompt Files, page 10-2](#) section to know more about the different fields in this page and how to rename, refresh, or delete existing prompts.

Related Topics

- [Managing Prompt Files, page 10-2](#)
- [Managing Languages, page 10-9](#)
- [Recording and Uploading Prompt Files, page 10-13](#)
- [Managing Custom Files, page 10-17](#)
- [Refreshing Scripts, page 6-30](#)

Grammar Management

Several system-level grammar files are loaded during Unified CCX installation. However, any file *you* create needs to be made available to the Unified CCX Engine before a Unified CCX application can use them. This is done through the Unified CCX cluster's Repository datastore, where the grammar files are created, stored, and updated.

To access the Grammar Management page, choose **Applications > Grammar Management** from the Unified CCX Administration menu bar.

The Grammar Management web page contains the following icons and buttons:

- **Create Language**—Click **Create Language** icon that displays in the tool bar in the upper, left corner of the window or the **Create Language** button that displays at the bottom of the window to create a new language folder (see [Creating a New Language, page 10-9](#)).
- **Upload Zip Files**—Click **Upload Zip Files** icon that displays in the tool bar in the upper, left corner of the window or the **Upload Zip Files** button that displays at the bottom of the window to upload a new grammar or zip file (see [Upload Zip files to a Language Folder, page 10-11](#)).

See [Managing Grammar Files, page 10-5](#) section to know more about the different fields in this page and how to rename, refresh or delete existing grammars.

Related Topics

- [Managing Grammar Files, page 10-5](#)
- [Managing Languages, page 10-9](#)
- [Recording and Uploading Prompt Files, page 10-13](#)
- [Managing Custom Files, page 10-17](#)
- [Refreshing Scripts, page 6-30](#)

Document Management

Several system-level document files are loaded during Unified CCX installation. However, any file *you* create needs to be made available to the Unified CCX Engine before a Unified CCX application can use them. This is done through the Unified CCX cluster's Repository datastore, where the document files are created, stored, and updated.

To access the Document Management page, choose **Applications > Document Management** from the Unified CCX Administration menu bar.

The Document Management web page contains the following icons and buttons:

- **Create Language**—Click **Create Language** icon that displays in the tool bar in the upper, left corner of the window or the **Create Language** button that displays at the bottom of the window to create a new language folder (see [Creating a New Language, page 10-9](#)).
- **Upload Zip Files**—Click **Upload Zip Files** icon that displays in the tool bar in the upper, left corner of the window or the **Upload Zip Files** button that displays at the bottom of the window to upload a new document or zip file (see [Upload Zip files to a Language Folder, page 10-11](#)).

See [Managing Document Files, page 10-7](#) section to know more about the different fields in this page and how to rename, refresh or delete existing documents.

Related Topics

- [Managing Document Files, page 10-7](#)
- [Managing Languages, page 10-9](#)
- [Recording and Uploading Prompt Files, page 10-13](#)
- [Managing Custom Files, page 10-17](#)
- [Refreshing Scripts, page 6-30](#)

AAR Management

Use the AAR Management web page to upload an AAR file to Unified CCX.

To access the AAR Management web page, choose **Applications > AAR Management** from the Unified CCX Administration menu bar. The AAR Management web page displays. See [Uploading AAR Files, page 10-21](#) to know the procedure for uploading an AAR file.

Related Topic

[Managing AAR Files, page 10-18](#)



CHAPTER 18

Subsystems Menu

The Subsystems menu of the Unified CCX Administration web interface provides access to the subsystems that are licensed for your Unified CCX system.

The Unified CCX system uses subsystems for communicating with other services. Depending on the Unified CCX package you have installed, the Subsystems menu may contain some or most of the following menu options:

- **Telephony:** Depending on the installation, you can select one of two options:
 - **Cisco Unified CM Telephony**—to enter Unified CM Telephony provider information, Computer Telephony Interface (CTI) port group information, Unified CM Telephony trigger information, and to resynchronize Unified CM Telephony information (see [Unified CM Telephony Menu Option, page 18-2](#)).
 - **Unified CME Telephony**—to enter Unified CME Telephony provider information, Computer Telephony Interface (CTI) port group information, Unified CME Telephony trigger information, and to validate CME and Unified CCX data (see [Unified CME Telephony Menu Option, page 18-8](#)).
- **RmCm**—to set up your Unified CCX resources ([RmCm Menu Option, page 18-10](#)).
- **Outbound**—to configure contact centers for automated outbound activities ([Outbound Menu Option, page 18-18](#)).
- **ICM**—to configure the Unified Intelligent Contact Management Enterprise (Unified ICME) subsystem to interact with Unified ICME software and to add new Voice Response Units (VRU) scripts (see [Unified ICM Menu Option, page 18-25](#)).

- **Database**—to configure the Unified CCX system to communicate with database servers (see [Database Menu Option, page 18-27](#)).
- **HTTP**—to configure the Unified CCX Engine to respond to requests from a variety of web clients, including computers and IP phones (see [HTTP Menu Option, page 18-30](#)).
- **eMail**—to configure the Unified CCX Engine to communicate with your e-mail server and enable your applications to create and send e-mail (see [eMail Menu Option, page 18-31](#)).
- **Cisco Media**—to configure Cisco Media Termination (CMT) dialog groups that can be used to handle simple Dual-Tone Multi-Frequency (DTMF) based dialog interactions with customers (see [Cisco Media Menu Option, page 18-32](#)).
- **MRCP ASR**—to configure the MRCP Automated Speech Recognition (ASR) subsystem, which allows users to navigate through a menu of options using spoken responses to prompts (see [MRCP ASR Menu Option, page 18-33](#)).
- **MRCP TTS**—to configure the MRCP Text-to-Speech (TTS) subsystem, which converts plain text (UNICODE) into spoken words to provide a user with information or to prompt a user to respond to an action (see [MRCP TTS Menu Option, page 18-35](#)).

Unified CM Telephony Menu Option

The Unified CCX system uses the Unified CM Telephony subsystem of the Unified CCX Engine to send and receive call-related messages from the Unified CM Computer Telephony Interface (CTI) Manager.

To access the Unified CM Telephony Configuration web pages, choose **Subsystems > Cisco Unified CM Telephony** from the Unified CCX Administration menu bar.

The Unified CM Telephony Configuration menu contains the following submenu options:

- **Unified CM Telephony Provider**—Choose this option to enter Unified CM Telephony provider information (see [Unified CM Telephony Provider Configuration, page 18-3](#)).
- **Unified CM Telephony Call Control Group Configuration**—Choose this option to configure CTI port groups for applications (see [Unified CM Telephony Call Control Group Configuration, page 18-4](#)).
- **Unified CM Telephony Trigger Configuration**—Choose this option to configure Unified CM Telephony triggers for applications (see [Unified CM Telephony Triggers Configuration, page 18-4](#)).
- **Data Synchronization**—Choose this option to check and synchronize data components like Unified CM Telephony Users (JTAPI Application Users), Unified CCX Triggers/Route points, and Call Control Groups between Unified CCX and Unified CM (see [Unified CM Telephony Data Synchronization, page 18-5](#)).
- **Cisco JTAPI Resync**—Choose this option to resynchronize Cisco JTAPI Client versions (see [Unified CM Telephony Cisco JTAPI Resync, page 18-6](#)).
- **Advanced Settings**—Choose this option to configure advanced settings for the Cisco Unified CM Telephony client (see [Unified CM Telephony Advanced Settings, page 18-7](#)).

Unified CM Telephony Provider Configuration

To access this configuration area, choose **Subsystems > Cisco Unified CM Telephony > Provider** from the Unified CCX Administration menu bar. The Cisco Unified CM Telephony Provider web page opens.

Use the Unified CM Telephony Provider Configuration web page to view and modify the primary and secondary location of your Unified CM Telephony provider, and user prefix.

Related Topics

- [Modifying Unified CM Telephony Information, page 4-8](#)
- [Provisioning Unified CM Telephony Subsystem, page 7-5](#)
- [Additional Unified CM Telephony Information, page 7-22](#)

- [Resynchronizing Unified CM Telephony Information, page 7-22](#)

Unified CM Telephony Call Control Group Configuration

Choose **Subsystems > Cisco Unified CM Telephony > Call Control Group** from the Unified CCX Administration menu bar to access the Unified CM Telephony Call Control Group list web page. Use the Unified CM Telephony Call Control Group Configuration web pages to display, add, modify, and delete information about the call control group.

To add a new Unified CM Telephony Call Control Group, click **Add New** icon or button on the Unified CM Telephony Call Control Group Configuration web page.

To modify an existing Unified CM Telephony Call Control Group, click any hyperlink within the Ports List table entry; the Cisco Unified CM Telephony Call Control Group Configuration web page opens.

Related Topics

- [Adding a New Unified CM Telephony Call Control Group, page 7-9](#)
- [Additional Unified CM Telephony Information, page 7-22](#)

Unified CM Telephony Triggers Configuration

Choose **Subsystems > Cisco Unified CM Telephony > Unified CM Telephony > Triggers** from the Cisco Unified CCX Administration menu bar to configure Unified CM Telephony Triggers.

The Cisco Unified CM Telephony Trigger Configuration web page opens where you can view, add, modify, and delete Unified CM Telephony triggers. To add a Unified CM Telephony trigger, click **Add New** icon or button. The Cisco Unified CM Telephony Trigger Configuration web page opens.

Related Topics

- [Adding a Unified CM Telephony Trigger, page 7-16](#)
- [Additional Unified CM Telephony Information, page 7-22](#)
- [Adding Application Triggers, page 6-18](#)

Unified CM Telephony Data Synchronization

Since Unified CCX Release 8.5(1), you can configure the telephony data synchronization through a new web page called Cisco Unified CM Telephony Data Synchronization.

The data synchronization process ensures that data components like Unified CM Telephony Users (JTAPI Application Users), Unified CCX Triggers/Route points, and Call Control Groups between Unified CCX and Unified CM are in sync, without any inconsistency.

Data Check displays whether the selected data components are in synch or not between Unified CCX and Unified CM. If you find any inconsistency, click **Data Resync** to rectify the issue. To check and synchronize the JTAPI data components between Cisco Unified CM and Cisco Unified CCX, perform the following steps:



Caution

It is important that you plan to perform this task during off peak hours to avoid hampering routine contact center operations.

Procedure

- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Cisco Unified CM Telephony > Data Synchronization**.
- The Cisco Unified CM Telephony Data Synchronization page appears.
- Step 2** Select one or more of the following three components by checking the corresponding check boxes:
- Call Control Group(s)
 - Trigger(s)
 - CM Telephony User(s)
- Step 3** Click **Data Check** or **Data Resync**. Once you click **Data Check** or **Data Resync**, a confirmation message dialog box appears prompting you to either proceed or cancel. Click OK to continue.



Note

Once you click **OK** in the confirmation message for Data Check or Data Resync, you will not be allowed to cancel the process.

- Step 4** The Cisco Unified CM Telephony Data Synchronization web page continues to update until the Data Check or Data Resync process is complete. On completion of the Data Check or Data Resync process, the result is displayed in the same web page in a tree structure. The result for each selected component is displayed in collapsed format with a tick mark if no mismatch is found. Click the arrow adjacent to each selected component to expand and view the detailed results.
- If any mismatch is found in the elements of the selected component, the results for those components are displayed automatically in an expanded format.

**Note**

If you had multiple device pools (for Call Control Groups) in your older versions of Unified CCX setup, performing Data Resync after an upgrade (from an older version to Unified CCX 8.5(1)) would merge all multiple device pools to a single default device pool. However, you can manually assign a different device pool to the Call Control Group if the default device pool is not the intended one.

Related Topics

- [Resynchronizing Unified CM Telephony Data, page 7-7](#)
- [Configuring a Unified CM Telephony Provider, page 7-7](#)
- [Unified CM Telephony Provider Configuration, page 18-3](#)

Unified CM Telephony Cisco JTAPI Resync

Choose **Subsystems > Cisco Unified CM Telephony > Cisco JTAPI Resync** from the Cisco Unified CCX Administration menu bar to resynchronize the JTAPI client version on the Unified CCX with the JTAPI version on the Unified CM. You can view the status of Cisco JTAPI client resynchronization in this web page.

If the Unified CCX detects a mismatch, the system downloads and installs the compatible or JTAPI client. required installer version. Restart the Unified CCX engine to view these configuration changes.

The JTAPI client update happens only on the local node and not on the second node in case of High Availability deployment.

Related Topics

- [Resynchronizing Unified CM Telephony Data, page 7-7](#)

- [Configuring a Unified CM Telephony Provider, page 7-7](#)
- [Unified CM Telephony Provider Configuration, page 18-3](#)

Unified CM Telephony Advanced Settings

Choose **Subsystems > Cisco Unified CM Telephony > Advanced Settings** from the Cisco Unified CCX Administration menu bar to configure advanced settings for the Unified CM Telephony Client.



Note

This will be available only in Unified CM deployment of Unified CCX.

Use the Unified CM Telephony Advanced Settings web page to update the following information:

- **Periodic Wakeup Interval (seconds):** Select the check box before **Enable Periodic Wakeup** prior to updating the existing value in this field.
- **Queue Size Threshold:** Select the check box before **Enable Queue Stats** prior to updating the existing value in this field.
- **CTI Request Timeout (sec)**
- **Provider Open Request Timeout (sec)**
- **Provider Retry Interval (sec)**
- **Server Heartbeat Interval (sec)**
- **Route Select Timeout (ms)**
- **Post Condition Timeout**
- **Use Progress As Disconnect**

Click **Update** icon that displays in the tool bar in the upper, left corner of the window or the **Update** button that displays at the bottom of the window to save the changes. Restart the Unified CCX engine to view these configuration changes.

In case of High Availability deployment, the changes are propagated to the second node. If the second node cannot be contacted, an alert message indicating that the update has failed on the remote node is displayed.

Related Topics

- [Resynchronizing Unified CM Telephony Data, page 7-7](#)

- [Configuring a Unified CM Telephony Provider, page 7-7](#)
- [Unified CM Telephony Provider Configuration, page 18-3](#)

Unified CME Telephony Menu Option

The Unified CCX system uses the Unified CME Telephony subsystem of the Unified CCX Engine to send and receive call-related messages from the Unified CME CTI Manager.

To access the Unified CME Telephony Configuration web pages, choose **Subsystems > Unified CME Telephony** from the Unified CCX Administration menu bar.

The Unified CME Telephony Configuration navigation bar contains the following submenu options:

- **Unified CME Telephony Provider**—Choose this option to enter Unified CME Telephony provider information (see [Unified CME Telephony Provider Configuration, page 18-8](#)).
- **Unified CME Telephony Call Control Groups**—Choose this option to configure CTI port groups for applications (see [Unified CME Telephony Call Control Group Configuration, page 18-9](#)).
- **Unified CME Telephony Triggers**—Choose this option to configure Unified CME Telephony triggers for applications (see [Unified CME Telephony Triggers Configuration, page 18-9](#)).
- **Validate Unified CME in Unified CCX Data**—Choose this option to resynchronize Unified CCX with Unified CM (see [Validate Unified CME in Unified CCX Data, page 18-10](#)).

Unified CME Telephony Provider Configuration

To access this configuration area, choose **Subsystems > Unified CME Telephony > Provider** from the Unified CCX Administration menu bar.

Use the Unified CME Telephony Provider Configuration web page to enter the location of your Unified CME Telephony provider, user ID, and password.

Related Topics

- [Configuring a Unified CME Telephony Provider, page 5-9](#)
- [Adding or Modifying a Unified CME Telephony Trigger, page 5-11](#)

Unified CME Telephony Call Control Group Configuration

Use the Unified CME Telephony Call Control Group Configuration web pages to display, add, modify, and delete information about the call control group.

Choose **Subsystems > Unified CME Telephony > Call Control Group** from the Unified CCX Administration menu bar to access the Unified CME Telephony Call Control Group web page.

Related Topics

- [Verifying Licenses, page 5-5](#)
- [Modifying Unified CME Telephony Call Control Group, page 5-10](#)

Unified CME Telephony Triggers Configuration

Choose **Subsystems > Unified CME Telephony > Triggers** from the Unified CCX Administration menu bar to access the Unified CME Telephony Triggers Configuration web page.

You can display, add, modify, and delete information about Unified CME Telephony triggers using this configuration page.

To add a Unified CME Telephony trigger, click **Add a New CME Telephony Trigger** icon or button on the Unified CME Telephony Triggers Configuration web page; the Unified CME Telephony Triggers Configuration page opens.

Related Topics

- [Configuring a Unified CME Telephony Provider, page 5-9](#)
- [Adding or Modifying a Unified CME Telephony Trigger, page 5-11](#)

Validate Unified CME in Unified CCX Data

To access this configuration area, Choose **Subsystems > Unified CME Telephony > Validate Unified CME in Unified CCX Data** from the Unified CCX Administration menu bar.

Related Topics

- [Introducing Unified CME for Unified CCX, page 5-1](#)
- [Validating Unified CME and Unified CCX Data, page 5-8](#)

RmCm Menu Option

Use the RmCm Configuration web page to configure skills groups, resources, resource groups, Contact Service Queues (CSQs), and RM (Resource Manager) Unified CM Telephony providers. To access the Unified CCX Configuration web page, choose **Subsystems > RmCm** from the Unified CCX Administration menu bar.

The RmCm menu contains the following submenu options:

- **Skills**—Click this submenu to create skills. This option is available only with the Unified CCX Enhanced and Unified CCX Premium license packages (see [Skill Configuration, page 18-11](#)).
- **Resources**—Click this submenu to assign a resource group and skills to agents (see [Resources Configuration, page 18-12](#)).
- **Resource Groups**—Click this submenu to create resource groups (see [Resource Group Configuration, page 18-13](#)).
- **Contact Services Queues (CSQs)**—Click this submenu to configure CSQs (see [Contact Service Queues Configuration, page 18-14](#)).
- **RmCm Provider**—Click this submenu to configure the RM (Resource Manager) Unified CM Telephony provider for the RmCm subsystem (see [RmCm Provider Configuration, page 18-15](#)).
- **Assign Skills**—Click this submenu to assign skills and a resource group to agents in bulk (see [Assign Skills Configuration, page 18-15](#)).

- **Remote Monitor**—Click this submenu to associate agents and CSQs that will be monitored by supervisors (see [Remote Monitor Configuration, page 18-16](#)).
- **Agent Based Routing Settings**—Click this submenu to send a call to a specific agent, rather than to any agent available in a CSQ (see [Agent Based Routing Settings Configuration, page 18-17](#)).
- **Teams**—Click this submenu to create or associate teams with various agents, CSQs, and supervisors (see [Teams Configuration, page 18-17](#)).

For details on the maximum number of agents, skills, and CSQs that you can configure on your system, see [About Unified CCX, page 3-2](#).

Skill Configuration

Use the Skills page to add, modify, or delete skill.

Choose **Subsystems > RmCm > Skills** from the Unified CCX Administration menu bar to access the Skills summary web page.

Related Topic

[Configuring Skills, page 8-7](#)

Adding a New Skill

Use the Skill Configuration area to add a new skill name.

Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window to access the Skill Configuration area.

Related Topic

[Creating a Skill, page 8-7](#)

Modifying Skills

Click the required skill in the Skill name column on the Skill Configuration web page to access the Skill Configuration area.

Click **Open Printable Report of this Skill Configuration** icon to view a list of the resources associated with that skill.

Related Topics

- [Modifying an Existing Skill Name, page 8-8](#)
- [Deleting a Skill, page 8-9](#)

Resources Configuration

Use the Resources Configuration area to assign a resource group and skills to a resource.

To access this configuration area, choose **Subsystems > RmCm > Resources** from the Unified CCX Administration menu bar. The main area of the Resources area of the Unified CCX Configuration web page contains a list of resources (if configured).

Click **Open Resources Summary Report** icon to open the Resources Summary Report in a new window. For each resource, this report lists the resource groups associated with the resource, the Unified CCX extension of the resource, and the number of CSQs and team to which the resource is assigned.

Related Topic

- [Configuring Agents, page 8-10](#)
- [Configuring Contact Service Queues, page 8-17](#)

Modifying a Resource

Use the Resource Configuration area to modify resource configuration.

To access the Resource Configuration area, click any of the required resource in the Resource area of the Unified CCX Configuration summary web page.

Click **Open Printable Report of this Resource Configuration** icon to open a Resource Report for the agent. The Resource Report lists each agent's resource ID, resource name, Unified CCX extension, resource group, automatic available status, skills, CSQs, and team.

Related Topic

- [Assigning Resource Groups and Skills to One Agent, page 8-12](#)
- [Removing Skills from Agents, page 8-16](#)

Resource Group Configuration

Use the Resource Group Configuration web page to display and modify the names of existing resource groups and to add new resource groups.

Choose **Subsystems > RmCm > Resource Groups** from the Unified CCX Administration menu bar to access the Resource Groups web page.

Related Topic

[Configuring Resource Groups, page 8-4](#)

Adding a New Resource Group

Use the Resource Configuration area to enter resource group name in the Resource Group Name field.

Add a new Resource Groups by clicking **Add New** icon or button in the Resource Group area of the Unified CCX Configuration web page.

Related Topic

[Creating a Resource Group, page 8-4](#)

Modifying Existing Resource Groups

Use the Resource Modification page to change or update the resource group name into the Resource Group Name field.

Modify an existing Resource Group by clicking the required resource group in the Resource Groups area. In the Resource Group Configuration area, change the Resource Group and update.

Click **Open Printable Report of this Resource Group Configuration** icon to view a list of the available resources for this resource group.

Related Topics

- [Modifying an Existing Resource Group Name, page 8-5](#)
- [Deleting a Resource Group, page 8-6](#)

Contact Service Queues Configuration

Use the Contact Service Queues area of the Unified CCX Configuration web page to display existing CSQs, delete a CSQ, and add a new CSQ.

To access the Contact Service Queues area, choose **Subsystems > RmCm > Contact Service Queues** from the Unified CCX Administration menu bar.

Related Topic

[Configuring Contact Service Queues, page 8-17](#)

Adding a CSQ

Use the Contact Service Queues Configuration area to add a new CSQ.

To access the Contact Service Queues Configuration area, click **Add New** icon or button in the Contact Service Queues area of the Unified CCX Configuration web page.

To open the Contact Service Queue Report for the required CSQ, click **Open Printable Report of this CSQ Configuration** icon from the Contact Service Queues Configuration area.

Related Topics

- [Creating a CSQ, page 8-18](#)
- [Modifying an Existing CSQ, page 8-24](#)
- [Deleting a CSQ, page 8-25](#)

- [Resource Pool Selection Criteria: Skills and Groups, page 8-26](#)
- [Resource Skill Selection Criteria Within a CSQ, page 8-28](#)

RmCm Provider Configuration

Use the RmCm Provider area of the Unified CCX Configuration web page to identify the Unified CM Telephony user for the Resource Manager.

Choose **Subsystems > RmCm > RmCm Provider** from the Unified CCX Administration menu bar to access the RmCm Provider web page.

Related Topics

- [Configuring Agents, page 8-10](#)
- [Modifying RmCm Provider Information, page 4-10](#)
- [Invoking Unified CM Administration, page 4-13](#)
- [Defining Unified CM Users as Agents, page 4-13](#)

Assign Skills Configuration

Use the Assign Skills area of the Unified CCX Configuration web page to modify an existing resource group and skill configuration or to assign new resource groups and skills to all or selected agents.

Choose **Subsystems > RmCm > Assign Skills** from the Unified CCX Administration menu bar to access this configuration area.

This web page also contains the following icons and buttons:

- **Add Skill**—to add new skills or resource groups to all or selected agents (see [Adding Skills, page 18-16](#)).
- **Remove Skill**—to remove skills of all or selected agents (see [Removing Skills, page 18-16](#)).

Related Topic

[Configuring Skills, page 8-7](#)

Adding Skills

When you click **Add Skill** button in the Assign Skills area of the Unified CCX Configuration web page, the Add Skill area opens. Use the Add Skill area to add a resource group and skills to the selected agents.

Related Topic

[Assigning Resource Groups and Skills to Multiple Agents, page 8-14](#)

Removing Skills

When you click **Remove Skill** button in the Assign Skills area of the Unified CCX Configuration web page, the Remove Skill area opens. Use the Remove Skill area to remove skills of all or selected agents.

Related Topic

[Removing Skills from Agents, page 8-16](#)

Remote Monitor Configuration

Use the Remote Monitor area of the Unified CCX Configuration web page to specify the monitoring method: by agent or by CSQ.

Choose **Subsystems > RmCm > Remote Monitor** from the Unified CCX Administration menu bar to access this configuration area.

Related Topics

- [Configuring and Using Remote Monitoring, page 8-30](#)
- [Creating a Remote Monitoring Supervisor, page 8-31](#)
- [Assigning Resources and CSQs to a Supervisor, page 8-32](#)
- [Configuring Remote Monitoring Application, page 6-16.](#)
- [Viewing CSQ IDs for Remote Monitoring, page 15-8](#)

Assigning Resources and CSQs to a Remote Supervisor

Use the Remote Monitor configuration web page to assign a Supervisor a list of Resources and CSQs that he/she is allowed to monitor.

To access the Remote Monitoring Configuration web page, click a User ID value.

Related Topics

- [Configuring and Using Remote Monitoring, page 8-30](#)
- [Creating a Remote Monitoring Supervisor, page 8-31](#)
- [Assigning Resources and CSQs to a Supervisor, page 8-32](#)
- [Configuring Remote Monitoring Application, page 6-16.](#)
- [Viewing CSQ IDs for Remote Monitoring, page 15-8](#)

Agent Based Routing Settings Configuration

Use the Agent Based Routing Settings area of the Unified CCX Configuration web page to configure Automatic Work and Wrapup Time.

Choose **Subsystems > RmCm > Agent Based Routing Settings** from the Unified CCX Administration menu bar to access this configuration area.

Related Topic

[Configuring Agent-Based Routing, page 8-34](#)

Teams Configuration

Use the Teams area of the Unified CCX Configuration web page to create or associate teams with various agents, CSQs, and supervisors.

Choose **Subsystems > RmCm > Teams** from the Unified CCX Administration menu bar to access this configuration area.

Related Topics

- [Configuring Teams, page 8-35](#)
- [Creating a Team Supervisor, page 8-36](#)

Adding a New Team

Click **Add New** icon or button on the Teams summary web page. The Team Configuration page appears.

Click **Open Printable Report of this Team Configuration** icon in the Teams web page to open the report in a new window and send it to a printer.

Related Topics

- [Creating a Team Supervisor, page 8-36](#)
- [Creating Teams, page 8-37](#)
- [Modifying Agents on Teams, page 8-39](#)
- [Deleting a Team, page 8-39](#)

Outbound Menu Option

Use the Outbound Configuration web page to provision outbound dialing functionality feature in Cisco Unified Preview Outbound Dialer Express (Outbound).

The Outbound menu option will be displayed when you upload the Cisco Unified Premium license.

This section contains the following options:

- [General Configuration, page 18-19](#)
- [Campaign Configuration, page 18-19](#)
- [Area Code Management, page 18-21](#)
- [SIP Gateway Configuration, page 18-22](#)

Related Topic

[Configuring Unified CCX Outbound Dialer](#)

General Configuration

Choose **Subsystems > Outbound > General** from the Cisco Unified CCX Administration menu bar to access the General Configuration web page.

Use this web page to add or modify Outbound dialing preferences.

Related Topics

- [Configuring Unified CCX Outbound Dialer, page 13-1](#)
- [Configuring General Outbound Properties, page 13-18](#)
- [Campaign Configuration, page 18-19](#)
- [Area Code Management, page 18-21](#)
- [Add New Campaigns, page 18-20](#)
- [Delete Contacts, page 18-21](#)
- [Add New Area Code, page 18-22](#)

Campaign Configuration

Choose **Subsystems > Outbound > Campaigns** from the Cisco Unified CCX Administration menu bar to access the Campaigns web page. You can create and schedule campaign, modify the settings that apply to campaign, and import a list of contacts (in bulk from a text file) into the Unified CCX database for each campaign using this web page.

In Unified CCX Release 8.5(1), you can define any one of the following two types for a campaign:

- Agent based - If you select this campaign type, all the outbound calls will be handled by the available agents
- IVR based - In this campaign type, the outbound calls will be handled by the IVR scripts.



Note

The existing campaigns will be marked as Agent based after an upgrade from Unified CCX versions prior to 8.5(1).

Related Topics

- [Add New Campaigns, page 18-20](#)
- [Import Contacts, page 18-20](#)
- [Delete Contacts, page 18-21](#)

Add New Campaigns

To configure the properties for the campaign, including the campaign name and description, personal callback settings, skill group selection, and the time range, click **Add New** icon or button in the Campaigns web page.

Related Topics

- [Adding a New Campaign, page 13-31](#)
- [Import Contacts, page 18-20](#)
- [Delete Contacts, page 18-21](#)
- [Add New Area Code, page 18-22](#)

Import Contacts

To import contacts for a selected campaign, click the hyperlink for the required campaign under the Name column and click **Import Contacts** button. This will open Import Contacts window through which you can import contacts.

The **Open Printable Report for this Campaign Configuration** icon provides following information for the selected campaign in addition to call-specific information, which varies depending on the selected dialer type for outbound IVR:

- Campaign Name
- Enabled - Yes or No
- Description
- Start Time of the campaign
- End Time of the campaign
- Contact Records Cache Size
- Remaining Contacts

Related Topics

- [Importing Contacts for a Campaign, page 13-39](#)
- [Add New Campaigns, page 18-20](#)
- [Delete Contacts, page 18-21](#)
- [Add New Area Code, page 18-22](#)

Delete Contacts

To ensure that a contact does not get called again for subsequent campaigns, you must delete the contact from all campaigns to which it belongs.

Click **Delete All Contacts** icon or button in the Campaign Configuration web page to delete all contacts of a particular campaign. Once you click **Delete All Contacts**, you will see a dialog box with the following message - "This campaign will be disabled and all its contacts will be permanently deleted. Continue?" with **OK** and **Cancel** buttons.

If you click **OK**, the outbound subsystem checks whether the contacts are used in an active outbound IVR campaign. If the contacts are used as part of an active Outbound IVR campaign, then you will see the following alert message in the status bar on top of the Campaign Configuration web page - "Campaign is active. Cannot remove contacts from an active campaign. Disable the campaign and try again." In such cases, disable the campaign first and then try deleting all contacts. Click **Cancel** if you do not want to delete all contacts for the specific campaign.

Related Topics

- [Handling Do Not Call Contacts, page 13-59](#)
- [Add New Campaigns, page 18-20](#)
- [Import Contacts, page 18-20](#)
- [Add New Area Code, page 18-22](#)

Area Code Management

Use this page to manually add new area codes, update existing area codes, and to add international area codes.

Related Topics

- [Adding Area Codes, page 13-42](#)
- [General Configuration, page 18-19](#)
- [Campaign Configuration, page 18-19](#)
- [Add New Campaigns, page 18-20](#)
- [Delete Contacts, page 18-21](#)
- [Add New Area Code, page 18-22](#)

Add New Area Code

The Area Codes Management page allows you to find, add, delete, and modify the mapping of area codes and time zones. The dialer uses the area code of a contact's phone number to determine the time zone of the contact's calling area.

Related Topics

- [Adding Area Codes, page 13-42](#)
- [General Configuration, page 18-19](#)
- [Area Code Management, page 18-21](#)
- [Chapter 13, “Configuring Unified CCX Outbound Dialer”](#)
- [Add New Campaigns, page 18-20](#)
- [Delete Contacts, page 18-21](#)

SIP Gateway Configuration

Choose **Subsystems > Outbound > SIP Gateway** from the Cisco Unified CCX Administration menu bar to access the SIP Gateway Configuration page. You can use the SIP Gateway Configuration web page to add or modify the parameters that enable the outbound subsystem of Unified CCX to communicate with the SIP gateway. You can also update the parameters specific to Call Progress Analysis functionality of the gateway using this web page.

Call Progress Analysis is a feature of the SIP gateway by which it determines whether the outcome of a call is an answering machine, live voice, fax, or beep tone and so on. The SIP gateway performs call progressive analysis of the call and informs the outcome of the call to Unified CCX.

**Note**

The SIP Gateway is used by the outbound subsystem to place calls only in case of IVR campaigns. Hence, it is mandatory to configure the SIP Gateway if you want to make Outbound IVR Campaigns.

Follow the procedure mentioned below to configure the SIP gateway parameters through Unified CCX Administration web interface:

Procedure

Step 1 From the Unified CCX Administration menu bar, choose **Subsystems > Outbound > SIP Gateway Configuration**.

The SIP Gateway Configuration area opens. Use this web page to view or update values in the following fields.

Field	Description
Gateway Configuration	
Gateway Hostname/IP Address	The HostName or IP Address of the SIP Gateway in the Unified CCX server, which will be used by the outbound subsystem to place calls for the predictive or progressive campaigns.
Gateway Port	The SIP port used by the gateway to communicate with Unified CCX. The default value is 5060.
Local CCX Port	The port number to be used on the Unified CCX server to communicate with the gateway. The default value is 5060.
Local User Agent	This read-only field provides a description of the owner for this connection. The default value is Cisco-UCCX/8.0.

Outbound Menu Option

Field	Description
Transport(TCP/UDP)	<p>The protocol required to send SIP messages. You can select any one of the following protocols:</p> <ul style="list-style-type: none"> • TCP - Transport Control Protocol or • UDP - User Datagram Protocol <p>The default value is UDP.</p>
<p>Call Progress Analysis Configuration (displays the Parameter Name, Parameter Value, and Suggested Value for the following fields)</p>	
Minimum Silence Period (10-1000)	<p>The amount of time that the signal must be silent after speech detection to declare a live voice (in milliseconds).</p> <p>Default = 375 milliseconds, Range = 10-1000 milliseconds</p>
Analysis Period (1000 - 0000)	<p>Maximum amount of time (from the moment the system first detects the speech) during which analysis will be performed on the input audio.</p> <p>Default = 2500 milliseconds, Range = 1000-10000 milliseconds</p>
Maximum Time Analysis (1000-10000)	<p>The amount of time to wait when it is difficult for the dialer to determine voice or answering machine.</p> <p>Default = 3000 milliseconds, Range = 1000-10000 milliseconds</p>
Minimum Valid Speech Time (50-500)	<p>Amount of time that the energy must be active before being declared speech. Anything less is considered as a glitch.</p> <p>Default = 112 milliseconds, Range = 50-500 milliseconds</p>
Maximum Term Tone Analysis (1000-60000)	<p>This is the amount of time the gateway will look for a terminating beep once an answering machine has been detected.</p> <p>Default = 15000 milliseconds, Range = 1000-60000 milliseconds</p>

Step 2 Click **Update** to save the configuration changes. The new SIP gateway configuration is added to the Unified CCX system.

Click **Cancel** to restore the default settings.

Related Topics

- [Configuring General Outbound Properties, page 13-18](#)
- [Campaign Configuration, page 18-19](#)
- [Area Code Management, page 18-21](#)
- [Add New Campaigns, page 18-20](#)

Unified ICM Menu Option

Use the Intelligent Contact Manager (ICM) Configuration web pages to add or modify Unified ICME configuration parameters and to modify VRU script information.

Related Topics

- [Provisioning Unified ICME Subsystem, page 9-3](#)
- [Configuring General Unified ICME Information, page 9-4](#)
- [Configuring Unified ICME VRU Scripts, page 9-7](#)
- [Unified Gateway Auto-Configuration Details, page 8-40](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)
- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)

Unified ICME Configuration



Note

If you are using Unified CCX with Cisco Contact Center Gateway solution, see the *Cisco IPCC Gateway Deployment Guide for Cisco Unified ICME/CCE/CCX*. The instructions for configuring Unified CCX with that solution differs from what is described in this guide. The Unified Gateway provides for the integration of the

Unified ICME system with Unified CCX by way of the Unified Gateway. The Unified Gateway is a Peripheral Gateway (PG) which you configure on the Unified ICME software.

Use the General area of the Unified ICME Configuration page to add or modify Unified ICME configuration parameters.

To configure the Unified ICME subsystem, choose **Subsystems > ICME > General** from the Unified CCX Administration menu bar to access the Unified ICME Configuration web page.

Related Topics

- [Provisioning Unified ICME Subsystem, page 9-3](#)
- [Configuring General Unified ICME Information, page 9-4](#)
- [Configuring Unified ICME VRU Scripts, page 9-7](#)
- [Unified Gateway Auto-Configuration Details, page 8-40](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)
- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)

Unified ICME VRU Scripts

Unified ICME uses Unified ICME Voice Response Unit (VRU) scripts to handle interaction with contacts. These scripts are loaded as applications on the Unified CCX Engine.

Choose **Subsystems > ICME > ICME VRU Scripts** from the Unified CCX Administration menu bar to access the ICME VRU Scripts web page.

Related Topics

- [Provisioning Unified ICME Subsystem, page 9-3](#)
- [Configuring General Unified ICME Information, page 9-4](#)
- [Configuring Unified ICME VRU Scripts, page 9-7](#)
- [Unified Gateway Auto-Configuration Details, page 8-40](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)
- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)

Add a New VRU Script

To add a new VRU Script, click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window on the ICME VRU Scripts web page.

To modify a VRU script, click any hyperlink within the VRU Script list table entry; the ICME VRU Scripts web page opens displaying the list of VRU Scripts in the Scripts drop-down box. Click **Update** to save the changes.

Related Topics

- [Provisioning Unified ICME Subsystem, page 9-3](#)
- [Configuring General Unified ICME Information, page 9-4](#)
- [Configuring Unified ICME VRU Scripts, page 9-7](#)
- [Unified Gateway Auto-Configuration Details, page 8-40](#)
- [Configuring Unified ICME Post-Routing Application, page 6-11](#)
- [Configuring Unified ICME Translation-Routing Application, page 6-14](#)

Database Menu Option

The Unified CCX system uses the Database subsystem of the Unified CCX Engine to communicate with database servers, to obtain information that can be relayed to callers or to make application decisions. The Database subsystem enables the Unified CCX applications to obtain information from data sources, which are databases configured to communicate with the Unified CCX system.

The Database menu contains the following options, which are explained below:

- Datasource
- Parameters
- Drivers

Related Topics

- [DataSource, page 18-28](#)
- [Adding a New Database Parameter, page 18-29](#)
- [Configuring Database Subsystem, page 9-13](#)

- [About Additional Subsystems, page 9-2](#)
- [Provisioning Unified ICME Subsystem, page 9-3](#)
- [Provisioning HTTP Subsystem, page 9-10](#)
- [Provisioning Database Subsystem, page 9-12](#)
- [Provisioning eMail Subsystem, page 9-16](#)

DataSource

Use the DataSources web page to add a new data source, display, modify, or delete existing datasources.

Choose **Subsystems > Database > DataSource** from the Cisco Unified CCX Administration menu bar to access the DataSources web page.

Related Topics

- [Adding a New Database Parameter, page 18-29](#)
- [About Additional Subsystems, page 9-2](#)

Adding a New DataSource

From the DataSources web page, click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the button that displays at the bottom of the window to add a new data source.

The Datasource Configuration web page opens.

For instructions on Adding a new Datasource, see [Adding a New DataSource, page 9-14](#).

Related Topics

- [Adding a New Database Parameter, page 18-29](#)
- [Configuring Database Subsystem, page 9-13](#)
- [About Additional Subsystems, page 9-2](#)

Adding a New Database Parameter

To add a new database parameter, choose **Subsystems > Database > Parameter** from the Unified CCX Administration menu bar. The Parameters web page displays. See [Polling Database Connectivity, page 9-15](#) section to know more about how to update parameter-related fields.

Related Topics

- [Configuring Database Subsystem, page 9-13](#)
- [About Additional Subsystems, page 9-2](#)
- [Adding a New DataSource, page 18-28](#)

Driver

Use the Driver List web page to upload new drivers, or to view and delete existing drivers.

Adding a New Database Driver

Follow the steps mentioned below to add a new jdbc driver:

Procedure

-
- Step 1** From the Unified CCX Administration menu bar, choose **Subsystems > Database > Drivers**.
- The Driver List web page opens up displaying a list of uploaded driver class file names along with a Delete icon.
- Step 2** Click **Add New** icon that displays in the tool bar in the upper, left corner of the window or the **Add New** button that displays at the bottom of the window to add a new driver class name. The Driver Management web page opens.
- Step 3** Specify a valid JDBC driver jar file in the Driver File field or click **Browse** to locate the driver file. The driver file is validated before uploading.
- Step 4** Choose the supported class name for the new driver from the Driver Class Name drop-down list box.

Step 5 Click **Upload** to save the new driver to the database.



Tip

- Contact your database vendor to know the appropriate JDBC driver version(s) that is compatible with your Enterprise database server. Though multiple jdbc driver versions are supported, the following table lists the JDBC drivers that have been tested with different databases.
- While uploading com.ibm.db2.jcc.DB2Driver, if your IBM DB2 deployment also requires a license Jar to be in the application's classpath, upload the license Jar as a Custom Jar File using the procedure detailed in [Specify Custom Classpath Entries, page 10-17](#). Then, restart the UCCX Engine on all nodes through Unified CCX Serviceability.

Table 18-1 JDBC Driver Versions Tested with Enterprise Databases

Databases	Tested JDBC Drivers
Oracle 10g R2	ojdbc14.jar
Oracle 10g XE	ojdbc14.jar
Sybase Adaptive Server 12	jTDS 1.2.2, jconn2.jar
IBM DB2 8.2	db2jcc4.jar
MS SQL Server 2000	jTDS 1.2.2
MS SQL Server 2005	jTDS 1.2.2
MS SQL Server 2008	jTDS 1.2.5

Related Topics

- [Adding a New DataSource, page 9-14](#)
- [About Additional Subsystems, page 9-2](#)

HTTP Menu Option

The Unified CCX system uses the HTTP subsystem of the Unified CCX Engine to add components to the Unified CCX Engine that allow applications to be triggered in response to requests from a variety of web clients, including computers and IP phones.

Related Topics

- [Provisioning HTTP Subsystem, page 9-10](#)
- [Adding Application Triggers, page 6-18](#)

HTTP Configuration

Use the HTTP Trigger Configuration web pages to display, add, modify, and delete existing HTTP triggers.

Choose **Subsystems** > **HTTP** from the Cisco Unified CCX Administration menu bar to access the HTTP Trigger Configuration web page.

Related Topics

- [Provisioning HTTP Subsystem, page 9-10](#)
- [Adding Application Triggers, page 6-18](#)

Add a New HTTP Trigger

To add a new HTTP trigger, click **Add New** icon or button on the HTTP Trigger Configuration web page to access the HTTP Trigger Configuration web page.

To modify an existing trigger, click any hyperlink within the HTTP Trigger List table; the HTTP Trigger Configuration page opens.

Related Topics

- [Provisioning HTTP Subsystem, page 9-10](#)
- [Adding Application Triggers, page 6-18](#)

eMail Menu Option

The Unified CCX system uses the eMail subsystem of the Unified CCX Engine to communicate with your e-mail server and enable your applications to create and send e-mail. The e-mail configuration identifies the default e-mail address and server to be used for sending e-mail (including e-pages and faxes) and for receiving acknowledgments.

Choose **Subsystems** > **eMail** from the Cisco Unified CCX Administration menu bar to access the eMail Configuration web page. You need to configure e-mail functionality so that Unified CCX scripts created with the e-mail steps will function correctly.

Related Topics

- [About Additional Subsystems, page 9-2](#)
- [Provisioning Unified ICME Subsystem, page 9-3](#)
- [Provisioning HTTP Subsystem, page 9-10](#)
- [Provisioning Database Subsystem, page 9-12](#)
- [Provisioning eMail Subsystem, page 9-16](#)

Cisco Media Menu Option

Choose **Subsystems** > **Cisco Media** from the Unified CCX Administration menu bar to access the Cisco Media Termination Dialog Group Configuration web page.

The Unified CCX system uses the Media subsystem of the Unified CCX Engine to configure Cisco Media Termination (CMT) dialog groups that can be used to handle simple Dual-Tone Multi-Frequency (DTMF) based dialog interactions with customers. A dialog group is a pool of dialog channels in which each channel is used to perform dialog interactions with a caller.

To modify an existing CMT dialog group, click any hyperlink within the trigger's summary table entry; Cisco Media Termination Dialog Group Configuration web page opens.

To add a new CMT dialog group, click **Add New** icon or button in the Cisco Media Termination Dialog Group Configuration web page. The Cisco Media Termination Dialog Group Configuration web page opens.

Related Topics

- [Provisioning Cisco Media Subsystem, page 7-23](#)
- [Adding a CMT Dialog Control Group, page 7-24](#)

MRCP ASR Menu Option

The Unified CCX system uses the MRCP ASR (Automatic Speech Recognition) subsystem to allow navigation through a menu of options by speaking instead of pressing keys on a touch-tone telephone.

The MRCP ASR submenu has the following options:

- [MRCP ASR Provider, page 18-33](#)
- [MRCP ASR Servers, page 18-33](#)
- [MRCP ASR Dialog Groups, page 18-34](#)

Related Topics

- [Before You Provision ASR/TTS, page 7-26](#)
- [Provisioning MRCP ASR Subsystem, page 7-27](#)

MRCP ASR Provider

Choose **Subsystems > MRCP ASR > MRCP ASR Provider** from the Cisco Unified CCX Administration menu bar to configure information about the vendor of your speech server, including the number of licenses, and the grammar type.

To modify an existing ASR Provider information, click any hyperlink within the provider's summary table entry; the ASR Provider Configuration web page opens.

To add a new ASR Provider information, click **Add New** icon or button.

Related Topic

[Provisioning MRCP ASR Providers, page 7-28](#)

MRCP ASR Servers

Choose **Subsystems > MRCP ASR > MRCP ASR Servers** from the Cisco Unified CCX Administration menu bar to configure your speech server's name, port location, and available languages.

**Note**

You must have a MRCP ASR Provider defined before you can provision a MRCP ASR Server.

To modify an existing ASR Server, click any hyperlink within the server's summary table entry; the ASR Server Configuration web page opens.

To add a new ASR Server, click **Add New** icon or button.

Related Topic

[Provisioning MRCP ASR Servers, page 7-29](#)

MRCP ASR Dialog Groups

Use the MRCP ASR Dialog Group Configuration web page to display, add, modify, and delete information about MRCP ASR dialog control groups, which enable Unified CCX applications to use speech recognition.

Choose **Subsystems > MRCP ASR > MRCP ASR Dialog Groups** from the Cisco Unified CCX Administration menu bar to configure the MRCP ASR dialog control groups.

**Note**

You must have a MRCP ASR Provider defined before you can provision a MRCP ASR Group.

To modify an existing MRCP ASR Dialog Group, click any hyperlink within the group's summary table entry; the MRCP ASR Dialog Control Group Configuration web page opens.

To add a new MRCP ASR Group, click **Add New** icon or button.

Related Topic

[Provisioning MRCP ASR Dialog Groups, page 7-31](#)

MRCP TTS Menu Option

The Unified CCX system uses the MRCP (Text-to-Speech) subsystem to convert plain text (UNICODE) into spoken words to provide a user with information or to prompt a user to respond to an action.

Use one or more of the following MRCP TTS Configuration hyperlinks to access the following web pages:

- [MRCP TTS Providers, page 18-35](#)
- [MRCP TTS Servers, page 18-36](#)
- [MRCP TTS Default Genders, page 18-36](#)

Related Topics

- [Before You Provision ASR/TTS, page 7-26](#)
- [Provisioning MRCP TTS Subsystem, page 7-34](#)

MRCP TTS Providers

Use the MRCP TTS Provider Configuration web pages to display, add, modify, and delete information about your TTS Provider.

Choose **Subsystems > MRCP TTS > MRCP TTS Provider** from the Cisco Unified CCX Administration menu bar to configure information about the vendor of your TTS system.

To modify an existing MRCP TTS Provider, click any hyperlink within the provider's summary table entry; the MRCP TTS Provider Configuration web page opens.

Related Topics

- [Provisioning MRCP TTS Providers, page 7-35](#)
- [Configuring Default TTS Provider for the Unified CCX System, page 7-36](#)

MRCP TTS Servers

Use the MRCP TTS Server Configuration web page to display, add, modify, and delete the text-to-speech server's name, port location, and available language.

To modify an existing MRCP TTS Server, click any hyperlink within the server's summary table entry; the MRCP TTS Server Configuration web page opens.

To add a new MRCP TTS Server, click **Add New** icon or button in the MRCP TTS Server Configuration web page.

Related Topic

[Provisioning MRCP TTS Servers, page 7-37](#)

MRCP TTS Default Genders

Use the MRCP TTS Default Genders Configuration web page to display or modify the gender setting for each Locale. You can modify the default gender setting for the Locales specified during TTS Server provisioning using this page. Click **Update** icon or button to save the changes.

Related Topic

[Provisioning MRCP TTS Default Genders, page 7-39](#)



CHAPTER 19

Wizards Menu

The Wizards menu of the Unified CCX Administration web interface provides access to the wizards available for your Unified CCX system.

In each Wizard web page, you are provided with a list of procedures and a description for each procedure in the main pane.

Click **Exit** icon in the tool bar in the upper, left corner of the window or the **Exit** button that displays at the bottom of the window to exit the wizard at any time and to go to the main Unified CCX Administration menu bar. Click **Next** to go to the next wizard menu option.

The Unified CCX system contains the following options in the **Wizards** menu:

- The Application Wizard (see [Application Wizard, page 19-1](#)).
- The RmCm Wizard (see [RmCm Wizard, page 19-3](#)).

Application Wizard

Application Configuration is one of the very basic requirements in Unified CCX Administration. You need to complete several steps in the suggested order to successfully complete Application Configuration.

To access the Application Wizard, select **Wizards > Application Wizard > Description of Steps** from the Unified CCX Administration menu bar. The Application Configuration Wizard: Description of Steps web page opens up displaying the different steps in which you can perform the configuration along with a brief description of each step as shown in the bulleted list below.

Click **Next** to proceed to the subsequent steps from the main Application Configuration Wizard web page or jump directly to any step using **Wizards > Application Wizard** and clicking the desired submenu (see [Configuring Unified CCX Applications](#), page 1-17).

- **Scripts**—In this step, you can view a list of existing custom scripts. On click of Next from the main Application Configuration Wizard web page, you are transferred to Script Management web page, which lists the available scripts, provides links to create a folder, and upload custom scripts. Scripts can be uploaded as either a single script file or a zip file of scripts. You can upload multiple scripts in this step (see [Managing Scripts](#), page 6-25).
- **Prompts**—In this step, you can view a list of existing custom prompts. The Prompt Management web page lists the available prompts, provides links to create new folders, and upload custom prompts. Prompts can be uploaded as either a single prompt file or a zip file of prompts. You can upload multiple prompts in this step (see [Managing Prompt Files](#), page 10-2).
- **Grammars**—In this step, you can view a list of existing custom grammar files that are used to recognize and respond to caller prompts. The Grammar Management web page lists the available grammars, provides the links to create new folders, and upload custom grammars. Grammars can be uploaded as either a single grammar file or a zip file of grammars. You can upload multiple grammars in this step (see [Managing Grammar Files](#), page 10-5).
- **Documents**—In this step, you can view a list of existing custom documents such as .txt, .doc, .jsp, or .html, custom classes, and Java Archive (JAR) files that allow you to customize the performance of your Unified CCX system. The Document Management web page lists the available documents, provides the links to create new folders, and upload custom documents. Documents can be uploaded as either a single document file or a zip file of documents. You can upload multiple documents in this step (see [Managing Document Files](#), page 10-7).
- **Application Configuration**—In this step, you can select the type of application to be configured using Add a New Application page. Click **Next** to provide configuration details for the selected application type. Each application can be any combination of the scripts, prompts, grammars, and documents on file. By default, the uploaded script, prompt, document and grammar are selected, if applicable. You can create multiple applications in this step (see [About Unified CCX Applications](#), page 6-1).

- **Triggers**—In this step, you can create different types of triggers for the applications that were created in the previous step using the Trigger Configuration page. More than one trigger can be created for one application. By default, the application configured in the previous step is automatically selected. On providing the Directory Number, device name and language, the trigger configuration is complete. You can create multiple triggers in this step (see [Adding Application Triggers, page 6-18](#)).

Selecting the type of the trigger concludes the Application Configuration wizard process.

Related Topics

- [Using Configuration Wizards, page 2-8](#)
- [RmCm Wizard, page 19-3](#)

RmCm Wizard

RmCm Configuration is commonly performed procedure in the contact center environment. You need to complete several steps in the suggested order to successfully complete RmCm Configuration. The RmCm Configuration wizard leads you through the suggested steps.



Note

The RmCm Wizard option is available with all Unified CCX license packages.

To access the Application Wizard, select **Wizards > RmCm Wizard > Description of Steps** from the Unified CCX Administration menu bar. The Application Configuration Wizard: Description of Steps web page opens up displaying the different steps in which you can perform the configuration along with a brief description of each step as shown in the bulleted list below.

Click **Next** to proceed to the subsequent steps from the main RmCm Wizard web page or jump directly to any step using **Wizards > RmCm Wizard** and clicking the desired submenu (see [Provisioning the Unified CCX Subsystem, page 1-12](#)).

- **Add a Skill**—Choose this submenu to configure the skills to be associated with the user. In this step, you are transferred to the RmCm > Skills web page (see [Creating a Skill, page 8-7](#)). Repeat this step to create multiple skills.

- **Add a Resource Group**—Choose this submenu to upload multiple custom scripts. In this step, you are transferred to the Resource Group Configuration web page, where you can enter the Resource Group Name (see [Configuring Resource Groups, page 8-4](#)).
- **Add Resources**—Choose this submenu to create resource groups that will later be assigned to resources. In this step, you are transferred to RmCm Wizard - User Configuration web page, which has a hyperlink to **Add resources in Unified CM**. This link invokes **Unified CM** automatically (see the following related topics:
 - [Configuring RmCm Provider, page 8-2](#)
 - [Configuring Unified CM for Unified CCX, page 4-12](#)
 - [Defining Unified CM Users as Agents, page 4-13](#)).
- **Add Supervisors**—Choose this submenu to assign supervisor privileges to a user. In this step, you are transferred to the User Management web page, which allows you to search for a specific user (see [Creating a Remote Monitoring Supervisor, page 8-31](#)).
- **Configure Resources**—Choose this submenu to add or remove skills that are associated with resources. In this step, you are transferred to the RmCm Configuration Resources web page, which lists the configured resources. Resources can be modified together to obtain the same skills, or they can be modified separately to be assigned different skills.(see [Configuring Agents, page 8-10](#)).
- **Modify Existing Contact Service Queues**—Choose this submenu to skills that are associated with a contact service queue. In this step, you are transferred to the RmCm Configuration Contact Service Queue web page, which lists the configured CSQs (see [Modifying an Existing CSQ, page 8-24](#)).
- **Add a Contact Service Queue**—Choose this submenu to add contact service queues. Skills or resource groups are associated to these contact service queues to filter out the resources. In this step, you are transferred to the RmCm Configuration Contact Service Queue Configuration web page, which allows you to add CSQs (see [Creating a CSQ, page 8-18](#)).
- **Modify Existing Teams**—Choose this submenu to modify agents in existing teams. In this step, you are transferred to the RmCm Configuration Contact Teams web page, which lists the configured teams (see [Modifying Agents on Teams, page 8-39](#)).

- **Add a Team**—Choose this submenu to create new teams and associate those teams with new agents. In this step, you are transferred to the RmCm Configuration Team Configuration web page, which allows you to create new teams (see [Creating Teams, page 8-37](#)).
- **Create an Application**—On completing the RmCm configuration, you can optionally proceed to the Application Wizard configuration (see [Application Wizard, page 19-1](#)).

Related Topics

- [Using Configuration Wizards, page 2-8](#)
- [Application Wizard, page 19-1](#)



CHAPTER 20

Tools Menu

The Tools menu of the Unified CCX Administration web interface provides access to system tools you can use to perform a variety of administrative tasks and contains the following menu options:

- **Plug-ins**—to download plug-ins that you can use to enhance the Unified CCX Engine (see [Plug-ins Menu Option, page 20-2](#)).
- **Real-Time Reporting**—to generate reports that provide detailed information about the status of your Unified CCX system (see [Real-Time Reporting Menu Option, page 20-3](#)).
- **Real-Time Snapshot Config**—to configure the Unified CCX database connection to a wallboard display (see [Real-Time Snapshot Config Menu Option, page 20-4](#)).
- **Historical Reporting**—to perform Historical Reporting tasks, including configuring the database server, synchronizing data, configuring users, installing client software, and purging your database (see [Historical Reporting Menu Option, page 20-10](#)).
- **User Management**—to assign access levels to administrators and supervisors (see [User Management Menu Option, page 20-12](#)).
- **Password Management**—to reset passwords for external database access users like workforce management, historical reporting user and so on (see [Password Management, page 20-17](#)).
- **W1 Upgrade**—to (see [Windows Upgrade Menu Option, page 20-18](#)).

Plug-ins Menu Option

The Unified CCX system includes software components called *plug-ins* that you can use to enhance the Unified CCX Engine. You can download these plug-ins from the Plug-ins web page.

To access the Plug-ins web page, choose **Tools > Plug-ins** from the Unified CCX Administration menu bar.

The Plug-ins web page contains one or more of the following hyperlinks (depending on the Unified CCX package you have purchased):

- **Cisco Unified CCX Editor**—Click this hyperlink to install the client-side Unified CCX Editor. For more information, see the *Cisco Unified Contact Center Express Scripting and Development Series: Volume 1, Getting Started with Scripts 8.5(1)* and *Volume 2, Editor Step Reference 8.5(1) Guide*.



Caution

Do not install the Unified CCX editor on the same machine as the Cisco Unity Editor. Both editors cannot coexist on the same machine.

- **Cisco Unified CCX Desktop Suites**—Click this hyperlink to install Cisco Desktop Administrator, Supervisor Desktop, Agent Desktop, and Client Configuration tool. For more information, see *Cisco Unified CCX Supervisor Desktop Plug-in Tasks* and the *Cisco Unified CCX Agent Desktop Plug-in Tasks*.



Note

You need to download Cisco Unified CCX Desktop Client Configuration tool prior to installing any application(s) from the Cisco Unified CCX Desktop Product Suite.

- **Cisco Unified CCX Historical Reports**—Click this hyperlink to install client-side historical reporting. For more information, see the *Cisco Unified CCX Historical Reports User Guide*.



Note

If you use Historical Reporting, the Unified CCX Historical Reports client system must be same version as the Unified CCX system.

- **Cisco Unified CCX Real-Time Monitoring Tool for Windows**—Click this hyperlink to install client-side Unified CCX Serviceability Real-Time Monitoring Tool (RTMT) for Windows. This tool monitors real-time behavior of the components in a Unified CCX cluster. RTMT uses HTTP/HTTPS and TCP to monitor device status, system performance, device discovery, and CTI applications. It also connects directly to devices by using HTTP/HTTPS for troubleshooting system problems. This plug in is available only for users with administrator capability.



Note To download on Windows, right-click **Download** hyperlink and select Save Target As option.

- **Cisco Unified CCX Real-Time Monitoring Tool for Linux**—Click this hyperlink to install client-side Unified CCX Serviceability Real-Time Monitoring Tool (RTMT) for Linux. RTMT uses HTTP/HTTPS and TCP to monitor device status, system performance, device discovery, and CTI applications. It also connects directly to devices by using HTTP/HTTPS for troubleshooting system problems. This plug in is available only for users with administrator capability.

Real-Time Reporting Menu Option



Caution

While Unified CM supports Unicode characters in first and last names, those characters become corrupted in Unified CCX Administration web pages for RmCm configuration, Real Time Reporting, Cisco Agent/Supervisor Desktop, and Historical Reports.

The Real-Time Reporting tool is a Java applet that you can use to generate a variety of reports that provide detailed information about the status of your Unified CCX system. You use the Application Reporting web page to access the Real-Time Reporting tool.

To access the Application Reporting web page, choose **Tools > Real Time Reporting** from the Unified CCX Administration menu bar.

**Note**

For complete information about using the Application Reporting component, see [Chapter 14, “Reporting on Real-Time Unified CCX Data.”](#)

Real-Time Snapshot Config Menu Option

Many call centers use wallboards to display their real-time reporting status. Wallboards can display data such as available agents in CSQs, call volumes, talk times, wait times, and number of handled calls. You can enable the Unified CCX system to write Unified CCX real-time information to a database that can then be displayed on a wallboard.

**Note**

You must purchase the wallboard separately, and configure and control it with its own wallboard software. Wallboard software and hardware are supported by the third-party wallboard vendors, not by Cisco.

You must install the wallboard software on a separate machine or desktop, not on the Unified CCX server. During installation of your wallboard software, you will need to configure your wallboard software to access the Unified CCX database. To do this, you need to assign a DSN, User ID, and password.

Use the Real-Time Snapshot Writing Configuration for Wallboard web page to enable the system to write data to the wallboard system.

To access the Real-Time Snapshot Writing Configuration for Wallboard web page, choose **Tools > Real Time Snapshot Config** from the Unified CCX Administration menu bar.

The following fields are displayed on the Real-Time Snapshot Writing Configuration for Wallboard web page.

Field	Description
Data Writing Enable	If checked, the system writes the data to the database. If not checked, the system does not write the data to the database. The default is disabled.
Data Writing Interval	Sets the refresh interval for the wallboard data. Valid options: 5, 10, 15, 20, and 25.
Cisco Unified CCX CSQs Summary	If checked, writes information about each CSQ to the RtCSQsSummary table in the Unified CCX database.
Cisco Unified CCX System Summary	If checked, writes overall Unified CCX system summary to the RtICDStatistics table in the Unified CCX database.
Wallboard System	
Server Name	IP addresses of the Servers running the Wallboard software pointing to the HDS Database Server, which contains the Wallboard Real-Time Snapshot data. If you have multiple Wallboard servers, you can list their IP addresses in this field separated by commas.



Note

For details about the information written to the RtCSQsSummary and RtICDStatistics database tables, see the *Cisco Unified CCX Database Schema Guide*. Only the RtCSQsSummary and RtICDStatistics statistics tables can be used in wallboard queries. Use of historical reporting tables in wallboard queries is not supported.

See the *Cisco Unified CCX Software and Hardware Compatibility Guide* for compatibility information.

Creating a System DSN for Wallboard

You can create a system Data Source Name (DSN) on your Windows server by performing the following procedure.

Procedure

- Step 1** Install the wallboard software and IBM Informix ODBC Driver (IDS version 3.0.0.13219 and above) on the wallboard client desktop.

**Note**

You can download the Informix ODBC driver from the following URL:
<http://www14.software.ibm.com/webapp/download/search.jsp?rs=ifxd1>.
Download the IBM Informix Client Software Development Kit (CSDK) version 3.00 or higher for the operating system you are installing with the wallboard client. More information about the CSDK can be found at the following URL:
<http://www.ibm.com/software/data/informix/tools/csdk/>.

- Step 2** Select **Start > Settings > Control Panel**.
- Step 3** From the Control Panel menu, select **Administrative Tools > Data Sources ODBC** to launch the ODBC Data Source Administrator.
- Step 4** Click the **System DSN** tab. Then click **Add** to open the Create New Data Source dialog box.
- Step 5** Scroll down to locate and select the **IBM INFORMIX ODBC DRIVER**.
- Step 6** Click **Finish** to open the IBM Informix Setup dialog box.
- Step 7** On the **General** tab, enter and apply a Data Source Name and Description.
- Step 8** On the **Connection** tab, enter the values for the fields as shown in the table below:

Field	Description
Server Name	<p>This is the instance name of the Informix database.</p> <p>Informix database instance name can be formed using Host Name of the Unified CCX server by following the conventions mentioned below:</p> <ul style="list-style-type: none"> • Convert all upper case letters to lower case. • Replace hyphens with underscore. • Add the letter "i" as a prefix to the instance name, if the host name starts with a number. • Append the letters "_uccx" to the instance name. <p>For example, if the host name is "802UCCX-Ha-Node1", then you should enter "i802uccx_ha_node1_uccx" in the server name field.</p>
Host Name	Enter the host name of the primary Unified CCX server.
Service	Enter <i>1504</i> .
Protocol	Enter <i>onsoctcp</i> .
Options	Leave blank.
Database Name	Enter <i>db_cra</i> .
User ID	Enter <i>uccxwallboard</i> . This is the user id of the Unified CCX database created for wallboard.
Password	The password for the wallboard user that has been configured. You can change the password by going to Tools > Password Management submenu option from the Unified CCX Administration menu bar (see Password Management, page 20-17).

Step 9 Click **Apply**.

Step 10 Click the **Environment** tab and enter the values for the following fields:

Field	Description
Client Locale	Enter <i>en_US.UTF8</i> .
Database Locale	Enter <i>en_US.UTF8</i> .

Leave the values unchanged (keep blank or use defaults) for all other fields.

- Step 11** Click **OK**.
- Step 12** Return to the **Connection** tab and click **Apply and Test Connection**.
If the phrase “Test completed successfully” is returned, then click **OK**.
If the test is unsuccessful, return to the configuration sequence and fix any errors.

Using Wallboard Software in a High Availability (HA) Deployment

If you use wallboard software in a High Availability (HA) deployment of Unified CCX 8.5(1) and do not want any manual intervention in case of failover, you need to upgrade your Wallboard software.

Upgraded wallboard software should have a new service which periodically requests Unified CCX server for database mastership information using REST API (URL - *http://<Unified CCX server IP Address>/uccx/isDBMaster*). During failover, this new service in wallboard will update DSN registry to use new database master server.

This REST API can be requested only from those wallboard servers, which are configured through **Tools > Real Time Snapshot Config** web page from the Unified CCX Administration menu bar. See the following sub-sections for detailed information on different scenarios.

Using Upgraded Wallboard Software with New Service in a High Availability (HA) Deployment

If you use wallboard software in a High Availability (HA) deployment of Unified CCX 8.5(1), you will need to work with your wallboard vendor to use the new API exposed by Unified CCX 8.5(1).

Wallboard software with the new service ensures that the wallboard server always displays data from the master database server of Unified CCX and no manual intervention is required. Follow the steps mentioned below to complete the setup:

Procedure

-
- Step 1** Create DSN using secondary server information and modify the same DSN using primary server information. This will create sqlhost entries for both the servers in a registry at *HKEY_LOCAL_MACHINE\SOFTWARE\Informix\SqlHosts*.
- Step 2** Configure the wallboard software with new service as mentioned in the wallboard software documentation.

- Step 3** Configure information of both the Unified CCX servers with new service of wallboard as mentioned in the wallboard software documentation.
- Once you complete the steps mentioned above, no manual intervention is required in case of failover.
-

Using Existing Wallboard Software (without the New Service) in a HA Deployment

If you use the existing wallboard software without the new service in a High Availability (HA) deployment of Unified CCX 8.5(1), you will need to complete the following actions:

Procedure

- Step 1** Create DSN using secondary server information and modify the same DSN using primary server information. This will create sqlhost entries for both the servers in a registry at *HKEY_LOCAL_MACHINE\SOFTWARE\Informix\SqlHosts*.
- Step 2** Configure the wallboard software as mentioned in the wallboard software documentation.
- Step 3** Whenever there is a failover, you need to manually change the DSN registry entry using the sub steps mentioned below:
- Enter *http://<Unified CCX server IP Address>/uccx/isDBMaster* in a web browser from any wallboard client to know whether the requested Unified CCX IP address server has a database master or not.
 - On failover, change SERVER value to master DB instance name in registry of DSN under *HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBC.INI*
 - You can find the exact database instance name at *HKEY_LOCAL_MACHINE\SOFTWARE\Informix\SqlHosts*
-

Historical Reporting Menu Option

**Caution**

While Unified CM supports Unicode characters in first and last names, those characters become corrupted in Unified CCX Administration web pages for RmCm configuration, Real Time Reporting, Cisco Agent/Supervisor Desktop, and Historical Reports., page 22-3

Use the areas of the Historical Reporting Configuration web page to perform a variety of tasks, including configuring users, installing client software, and purging your database.

To access the different Historical Reporting Configuration options, choose **Tools > Historical Reporting** and click any of the following submenu options from the Unified CCX Administration menu bar:

- **Database Server Configuration**—to specify the maximum number of client and scheduler connections to the database server (see [Database Server Configuration, page 20-10](#)).
- **Purge Schedule Configuration**—to automatically purge data as per the following configurations:
 - Timing of the purge (see [Purge Now, page 20-11](#)).
 - Automatic purge configuration (see [Purge Schedule Configuration, page 20-11](#)).
- **Purge Now**—to manually purge data (see [Purge Now, page 20-11](#)).
- **File Restore** - to restore the database records written to HR files when the database goes down (see [File Restore, page 20-12](#)).

**Note**

For additional information on Historical Reporting, see the *Cisco Unified CCX Historical Reports User Guide*.

Database Server Configuration

Use the Database Server Configuration area to specify the maximum number of client and scheduler connections that can access the database server.

Choose **Tools > Historical Reporting > Database Server Configuration** from the Unified CCX Administration menu bar to access the Database Server Configuration area.

Related Topics

[Historical Reporting Configuration, page 12-2](#)

Purge Schedule Configuration

Use the Purge Schedule Configuration area to select a user for whom you want to choose a reporting package for the Unified CCX Historical Reports system.

Choose **Tools > Historical Reporting > Purge Schedule Configuration** from the Unified CCX Administration menu bar to access the Purge Schedule Configuration web page.

The Historical Reporting Configuration web page opens enabling you to configure the following:

- Daily purge schedule
- Automatic purge (you can specify how long records should persist before the system purges them)

See [Configuring Purge Schedule Configuration Parameters, page 12-5](#) section to know the procedure for setting up the purge schedule configuration parameters.

Related topic

[Configuring Automatic Purging, page 12-4](#)

[Viewing Historical Reports, page 12-3](#)

Purge Now

Use the Purge Now area to manually purge data.

Choose **Tools > Historical Reporting > Purge Now** from the Unified CCX Administration menu bar to access the Purge Now area.

Related Topic

[Purging Manually, page 12-6](#)

File Restore

Use the File Restore area to restore the database records written to HR files when the database goes down.

To access the Historical Reporting Configuration area, choose **Tools > Historical Reporting > File Restore** from the Unified CCX Administration menu bar to access the Historical Reporting Configuration web page. **Restore Now** radio button is enabled by default on this page.

Click **Start** icon that displays in the tool bar in the upper, left corner of the window or the **Start** button that displays at the bottom of the window to restore the database records. You can view the status of the restore operation on this page.

In case of a High Availability setup, files from both the nodes are restored to the HR Database of the first and second node respectively. If it is unable to connect to the second node, you will see an alert message stating that the remote node is not reachable. When the second node comes up the restored data will be replicated but you need to repeat this Restore operation to restore the HR files, if any, on the second node.

User Management Menu Option

The User Management menu option allows you to assign access levels to Unified CCX system administrators and supervisors.

When you configure a Unified CCX supervisor, you are configuring users who can access the Unified CCX Supervisor web pages. You are not creating a supervisor for Unified CCX.



Note

Only Administrators can update the Unified CCX system. You must select at least one Administrator, so that someone is available to perform updates.

Choose **Tools > User Management** and click any of the following submenu options from the Unified CCX Administration menu bar to assign administrative privileges to administrators and supervisors:

- [User View Submenu Option, page 20-13](#)
- [Name Grammar Generator Configuration, page 20-14](#)

- [Spoken Name Upload Submenu Option, page 20-15](#)
- [Administrator Capability View Menu Option, page 20-16](#)
- [Supervisor Capability View Menu Option, page 20-16](#)
- [Reporting Capability View Menu Option, page 20-16](#)
- [Agent Capability View Menu Option, page 20-17](#)

Related Topics

- [Managing Unified CCX Users, page 5-14](#)
- [About Unified CCX User Capabilities, page 15-2](#)
- [Configuring and Using Remote Monitoring, page 8-30](#)
- [Creating a Remote Monitoring Supervisor, page 8-31](#)
- [Assigning Resources and CSQs to a Supervisor, page 8-32](#)
- [Viewing CSQ IDs for Remote Monitoring, page 15-8](#)
- [Creating a Team Supervisor, page 8-36](#)
- [Managing Unified CCX Users, page 5-14](#)

User View Submenu Option

From the Unified CCX Administration menu bar, choose **Tools > User Management > User View** to access the User Configuration web page.

Use this page to view existing users, create new users (for CME only), and assign administrative privileges to administrators and supervisors. You can provide a search string based on a user's ID. For example, if you provide the search string as

- `"*Agent1"`, it will display user IDs ending with Agent1,
- `"Agent1*"`, it will display user IDs starting with Agent1, and
- `"Agent1"`, it will display user IDs that contain Agent1.

All the columns are hyperlinked to the user configuration page.

Related Topics

- [Configuring and Using Remote Monitoring, page 8-30](#)
- [Creating a Remote Monitoring Supervisor, page 8-31](#)
- [Assigning Resources and CSQs to a Supervisor, page 8-32](#)
- [Configuring Remote Monitoring Application, page 6-16.](#)
- [Viewing CSQ IDs for Remote Monitoring, page 15-8](#)
- [Creating a Team Supervisor, page 8-36](#)
- [Managing Unified CCX Users, page 5-14](#)
- [About Unified CCX User Capabilities, page 15-2](#)

Name Grammar Generator Configuration

Use the Name Grammar Generator Configuration web page to define scheduling information for the Name Grammar Generator.

From the Unified CCX Administration menu bar, choose **Tools > User Management > Name Grammar Generator Configuration** to access Name Grammar Generator Configuration area.

Name Grammars need to be generated if you wish to use the Name to User Step with ASR. The Name Grammar Generator scans the User Directory and creates a speech recognition grammar containing every user in the directory. These grammars are saved in the grammar repository.

You may use the Name Grammar Generator Configuration page to run the Name Grammar Generator or schedule it to run at some later time. The page also displays date and time the Name Grammar Generator was last run and the completion status of that run.

The following fields are displayed on the Name Grammar Generator web page.

Field	Description
Frequency	How often Name Grammar Generator is automatically run. Valid options: Never, Daily, Weekly. This is a mandatory field.
Run task on (hrs of day)	Time of day to run the task. This is a mandatory field.
Run task on (day of week)	Day of week to run the task. This is a mandatory field.

Field	Description
Last Completed on	(Display only.) Date of last generation of name grammar .
Last Completion Result	(Display only.) The status after the last name grammar generation.
Grammar Variant	Select one or more grammar variants to generate from the check box next to the following three options: <ul style="list-style-type: none"> • OSR 3.1.x • 2003 SISR • Nuance
Current Status	(Display only.) Running status of the Name Grammar Generator.

Click **Generate Name Grammar Now** icon or button to trigger the Name Grammar Generator.



Note

Clicking **Generate Name Grammar Now** will not apply changes to the scheduling configuration; you must click **Update** to apply scheduling changes.

Spoken Name Upload Submenu Option

When a caller requests to be transferred to a specific extension, Unified CCX applications can playback a recording of the spoken name of the person to whom the caller has called. These spoken name recordings are stored as .wav files and managed by the Spoken Name Upload tool of the Unified CCX Administration web interface.

To access the Spoken Name Prompt Upload web page, choose **Tools > User Management > Spoken Name Upload** from the Unified CCX Administration menu bar.

The Spoken Name Prompt Upload web page also contains the **Click Here for Recording Information** icon and button, which displays a .htm page in your browser with more information on recording spoken name prompts.

Related Topic

[Add Spoken Name Prompts, page 10-16](#)

Administrator Capability View Menu Option

From the Unified CCX Administration menu bar, choose **Tools > User Management > Administrator Capability View** to access the capability view for the Administrator User Management area.

This web page contains a pane for the user(s) identified as the Unified CCX Administrator and another pane with the list of Available Users. Based on your requirements, you can move users back and forth between these two panes by clicking the arrows in either direction. Click **Update** to save the changes.

Related Topics

- [Managing Unified CCX Users, page 5-14](#)
- [Administrator Privileges, page 15-3](#)

Supervisor Capability View Menu Option

From the Unified CCX Administration menu bar, choose **Tools > User Management > Supervisor Capability View** to access the capability view for the Supervisor User Management area.

This web page contains a pane for the user(s) identified as the Unified CCX Supervisor and another pane with the list of Available Users. Based on your requirements, you can move users back and forth between these two panes by clicking the arrows in either direction.

Related Topics

- [Supervisor Privileges, page 15-3](#)
- [Using Unified CCX Supervisor Web Interface, page 15-6](#)
- [Managing Unified CCX Users, page 5-14](#)

Reporting Capability View Menu Option

From the Unified CCX Administration menu bar, choose **Tools > User Management > Reporting Capability View** to access the capability view for the Historical Report Users area.

The capability view for the Reporting Management web page contains a pane for the user(s) identified as the Unified CCX Historical Report Users and another pane with the list of Available Users. Based on your requirements, you can move users back and forth between these two panes by clicking the arrows in either direction.

Related Topics

- [Managing Unified CCX Users, page 5-14](#)
- [Historical Report User Privileges, page 15-5](#)

Agent Capability View Menu Option

From the Unified CCX Administration menu bar, choose **Tools > User Management > Agent Capability View** to access the capability view for Unified CCX agents.

The capability view for the Agent User Management web page contains a pane for the user(s) identified as the Unified CCX Agents and another pane with the list of Available Users. Based on your requirements, you can move users back and forth between these two panes by clicking the arrows in either direction.



Note

This role is assigned by default to Unified CCX users in a Unified CME deployment with an Agent Extension association in Unified CCX.

Related Topics

- [Managing Unified CCX Users, page 5-14](#)
- [Agent Privileges, page 15-5](#)

Password Management

From the Unified CCX Administration menu bar, choose **Tools > User Management** to access the password management web page.

You can set or reset the passwords for the following external database users using this web page:

- Wallboard
- Recording SFTP
- Workforce Management
- Historical Reporting
- System Call Tracking (part of Real Time Monitoring Tool/ Analysis Manager)

Click **Save** icon that displays in the tool bar in the upper, left corner of the window or the **Save** button that displays at the bottom of the window. Click the **Clear** button to remove the data entered and to retain the existing passwords. You will see an error message if the old and new passwords are the same for any of the users. Click Check Consistency to confirm

In case of a High Availability deployment, the password change will not be propagated to the second node. You need to access the AppAdmin web interface of the second node manually to change the password. In a HA setup, you will be able to see **Check Consistency** icon or button in the Password Management page. Use this button to check and confirm whether the passwords between the two nodes match or not. You will be able to see the status of the password check in the Password Management page.

Windows Upgrade Menu Option



Note

This menu option will be visible only if you are upgrading to Unified CCX 8.5(1) from a previous Unified CCX release. In other words, this menu option will show only if you have selected "Upgrade from a previous Unified CCX release" option during initial Appadmin setup in a single-node or high availability deployment.

Choose **Tools > Windows Upgrade** from the Unified CCX Administration menu bar to view the status of data migration. The Unified CCX Upgrade Setup web page opens where you can view the status messages for the migration activities at each stage in the text box below the Windows to Linux Upgrade field. Click **Next** to acquire control of the upgrade.

**Note**

You can close this window without affecting the data migration in progress. Go to **Tools > Windows Upgrade** from the Unified CCX Administration menu bar to come back and view the status once again.

For additional information, see the following documents:

- For upgrade issues, see the [Cisco Unified CCX Upgrade Guide](#).
- For Installation issues, see the [Installation Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 8.5\(1\)](#).

■ Windows Upgrade Menu Option



CHAPTER 21

Help Menu

The Help Menu of the Unified CCX Administration web interface provides access to online help for the Unified CCX system.

Use the Help menu to access configuration procedures and description of Unified CCX components.

The Help menu contains the following menu options:

- **Contents and Index**—Choose this option to view the entire Unified CCX Administrator Guide online help system and index (see [Contents and Index Option, page 21-2](#)).
- **For this page**—Choose this option to view context-sensitive help (see [For This Page Menu Option, page 21-3](#)).
- **Troubleshooting Tips**—Choose this option to view troubleshooting wiki page for suggestions on how to solve problems that may arise in the performance of your Unified CCX system (see [Troubleshooting Tips Menu Option, page 21-3](#)).
- **Unified CCX Documentation on Cisco.com**—Choose this option to view the documentation index page (see [For This Page Menu Option, page 21-3](#)).
- **About**—Choose this option to view Unified CCX version information (see [About Menu Option, page 21-3](#)).

Contents and Index Option

To view the entire Unified CCX Administrator Guide online help system and index, choose **Help > Contents and Index** from the Unified CCX Administration menu bar. The Unified CCX Administrator Guide Online Help window opens.

When you click any topic in the top pane, the section of the online help that corresponds to that topic appears in the bottom pane.

The following table describes the menu options in the Unified CCX Administrator Guide Online Help window.

Table 21-1 Online Help Menu Options

Menu Option	Description
Home	Returns you to the beginning of the online help document.
Search	Opens a search window, in which you can search for specific words in the online help files.
Using Help	Opens a file explaining how to use the online help files.
Glossary	Opens a glossary of definitions for terms used in Cisco Unified CCX and Cisco Unified IP IVR.
View PDF	Opens a PDF ¹ version of the Cisco Unified CCX Administration Guide.
Contents and Index	Displays the index and contents of the Unified CCX Administrator Guide online help files in a separate web page. The index is displayed in the left pane while the contents are displayed in the right pane in the online help page.

1. PDF = Portable Document Format

For This Page Menu Option

To access context-sensitive help, open the web page for which you want help and choose **Help > For This Page** from the Unified CCX Administration menu bar. The Unified CCX Administration online help displays information that is specific to the open web page.

Troubleshooting Tips Menu Option

The Unified CCX system provides the Troubleshooting Tips tool as a way for you to search the troubleshooting wiki page for suggestions on how to solve problems that may arise in the performance of your Unified CCX system.

**Note**

For more information, see the Troubleshooting Wiki page:
http://docwiki.cisco.com/wiki/Troubleshooting_Unified_Contact_Center_Express.

To access the Troubleshooting Tips wiki page, choose **Help > Troubleshooting Tips** from the Unified CCX Serviceability Administration menu bar.

Unified CCX Documentation Link Option

To access the complete Unified CCX documentation set for Unified CCX, and Unified IP IVR, choose **Help > Cisco Unified CCX Documentation on Cisco.com** from the Unified CCX Administration menu bar. A new browser window opens to display the following documentation index page:
http://www.cisco.com/en/US/products/sw/custcosw/ps1846/tsd_products_support_series_home.html.

About Menu Option

To access Unified CCX version information, choose **Help > About** from the Unified CCX Administration menu bar. The Unified CCX Administration web page opens, displaying version information and package information.



CHAPTER

A

Unified CCX Licensing Packages

This appendix describes the features that are available with each Unified CCX license package. It includes the following sections:

- [Application Availability by License Package, page A-2](#)
- [Trigger Availability by License Package, page A-2](#)
- [Subsystem Availability by License Package, page A-2](#)
- [Historical Report Availability by License Package, page A-4](#)
- [Unified CCX Services Availability by License Package, page A-4](#)
- [Unified CCX Component Availability by License Package, page A-6](#)

Application Availability by License Package

The following table lists the applications available with each license package:

Application	Unified IP IVR	Unified CCX Standard	Unified CCX Enhanced	Unified CCX Premium
Cisco Script Application	X	X	X	X
Busy	X	X	X	X
Ring No Answer	X	X	X	X
Unified ICME Post Routing	X			
Unified ICME Translation Routing	X			

Trigger Availability by License Package

The following table lists the triggers available with each license package:

Trigger	Unified IP IVR	Unified CCX Standard	Unified CCX Enhanced	Unified CCX Premium
Unified CM Telephony	X	X	X	X
Unified CME Telephony	X	X	X	X
HTTP	X			X

Subsystem Availability by License Package

The following table lists the subsystems available with each license package:

Subsystem	Unified IP IVR	Unified CCX Standard	Unified CCX Enhanced	Unified CCX Premium
CMT Subsystem	X	X	X	X
Core RTR Subsystem	X	X	X	X
Database Subsystem	X			X

Subsystem	Unified IP IVR	Unified CCX Standard	Unified CCX Enhanced	Unified CCX Premium
eMail Subsystem	X			X
Enterprise Server Data Subsystem		X	X	X
HTTP Subsystem	X			X
Unified CM Telephony Subsystem	X	X	X	X
Unified CME Telephony Subsystem	X	X	X	X
MRCP ASR Subsystem	X			X
MRCP TTS Subsystem	X			X
Outbound Subsystem ¹				X
RmCm Subsystem	X	X	X	X
Voice Browser Subsystem	X			X
VoIP Monitor Subsystem			X	X

1. The Unified CCX Outbound Preview Dialer feature does not require an additional license and it comes as part of the Premium license package.

Historical Report Availability by License Package

The following table lists the historical reports available with each license package:

Historical Report Type	Unified IP IVR	Unified CCX Standard	Unified CCX Enhanced	Unified CCX Premium
Unified IP IVR	X	X	X	X
Unified CCX Standard		X		
Unified CCX Enhanced			X	X
Wrap-up code and reports			X	X

Unified CCX Services Availability by License Package

The following table lists the Unified CCX Services available with each license package:

Unified CCX Services	None ¹	Unified IP IVR	Unified CCX Standard	Unified CCX Enhanced	Unified CCX Premium
Unified CCX Cluster View Daemon	X	X	X	X	X
Unified CCX Administration	X	X	X	X	X
Unified CCX Engine		X	X	X	X
Cisco Desktop Call/Chat Service			X	X	X
Cisco Desktop Enterprise Service			X	X	X
Cisco Desktop IP Phone Agent Service			X	X	X

Unified CCX Services	None ¹	Unified IP IVR	Unified CCX Standard	Unified CCX Enhanced	Unified CCX Premium
Cisco Desktop LDAP Monitor Service			X	X	X
Cisco Desktop License and Resource Manager			X	X	X
Cisco Desktop Recording Service (call recording)				X	X
Cisco Desktop Recording and Statistic Service			X	X	X
Cisco Desktop Sync Service			X	X	X
Cisco Desktop VoIP Service				X	X
Cisco Unified CCX Database		X	X	X	X

1. Available upon installation, before license package is activated.

Unified CCX Component Availability by License Package

The following table lists the Unified CCX Component available with each license package:

Unified CCX Component	None ¹	Unified IP IVR	Unified CCX Standard	Unified CCX Enhanced	Unified CCX Premium
Unified CCX Cluster View Daemon (CVD)	X	X	X	X	X
Unified CCX Engine		X	X	X	X
Unified CCX Repository Datastore		X	X	X	X
Unified CCX Historical Datastore		X	X	X	X
Unified CCX Configuration Datastore		X	X	X	X
Unified CCX Agent Datastore			X	X	X
Unified CCX Recording				X	X
Unified CCX Monitoring					X

1. Available upon installation, before license package is activated.

Support Scalability for Unified CME

See the Release Notes for [Unified CCX, Release 8.5\(1\)](http://www.cisco.com/en/US/partner/products/sw/custcosw/ps1846/prod_release_notes_list.html) at http://www.cisco.com/en/US/partner/products/sw/custcosw/ps1846/prod_release_notes_list.html.



INDEX

A

AAR

- files [10-18](#)
- group [7-15](#)
- management [17-6](#)
- uploading files [10-21](#)

active server [1-7, 11-2, 11-3](#)

adding triggers

Unified CME Telephony [5-11](#)

administrator privileges [15-3](#)

agent

- capabilities [15-2](#)
- configuring [4-19](#)
- configuring teams [8-35](#)
- handling callbacks [13-27](#)
- user privileges [15-5](#)

alternative pronunciation [15-12](#)

Call by Name window [15-12](#)

Call by Name window, how to add [15-12](#)

application

- by package license [A-2](#)
- configuration overview [1-17](#)
- management [17-1](#)

report [14-13, 14-19](#)

server [1-4](#)

subsystem [1-9](#)

triggers [6-18](#)

architecture, cluster [1-6](#)

ASR

overview [7-26](#)

provisioning [7-27](#)

Automated Alternate Routing

see AAR [7-15](#)

automatic failover [1-7, 11-2, 11-3](#)

Automatic Speech Recognition

see ASR [7-26](#)

B

busy application

about [6-7](#)

provisioning [6-7](#)

C

cache size

contact records [13-37](#)

- call control channel [7-3](#)
- calling search space
 - ignore setting [7-21](#)
 - restrict users [7-20](#)
 - Unified CME Telephony trigger setting [5-11](#)
 - Unified CM Telephony trigger setting [7-16](#)
 - usage [7-13, 7-20](#)
- call waiting
 - disabling in Unified CM [13-9](#)
- campaigns
 - importing contacts [13-39](#)
 - Outbound subsystem [13-8](#)
 - time changes [13-29](#)
- capabilities
 - users [15-2](#)
- channels
 - provisioning [7-3](#)
- circular resource selection [8-24](#)
- Cisco Desktop Administration [8-35](#)
- Cisco IP Agent and Supervisor desktops
 - about [1-3](#)
- Cisco Media subsystem
 - about [1-9](#)
 - provisioning [7-23](#)
- Cisco Script Application
 - adding [6-2](#)
 - adding a trigger [6-18](#)
- Cisco Security Agent
 - usage [13-6](#)
- Cisco TelePresence application [4-16](#)
- Cisco Unified CCX Administration web interface
 - about [1-3, 2-1](#)
 - configuration web pages [2-6](#)
 - menu bar and menus [2-3](#)
 - using navigation bars [2-7](#)
- Cisco Unified CCX applications
 - configuration overview [6-2](#)
- Cisco Unified CCX cluster
 - profile [11-2](#)
- Cisco Unified CCX component availability
 - by package license [A-6](#)
- Cisco Unified CCX components [1-1](#)
- Cisco Unified CCX Editor, about [1-3](#)
- Cisco Unified CCX Engine
 - about [1-8](#)
- Cisco Unified CCX Engine subsystems [1-9](#)
 - Applications [1-9](#)
 - Cisco Media [1-9](#)
 - Core Reporting [1-9](#)
 - Database [1-9](#)
 - eMail [1-9](#)
 - Enterprise Server [1-10](#)
 - HTTP [1-10](#)
 - MRCP ASR [1-10](#)
 - RmCm [1-10](#)
 - TTS [1-10](#)
 - Unified CME Telephony [1-10](#)
 - Unified CM Telephony [1-10](#)

- Unified ICME [1-10](#)
- Cisco Unified CCX platform, about [1-1](#)
- Cisco Unified CCX product family
 - about [1-4](#)
 - Unified CCX [1-5](#)
 - Unified IP IVR [1-4, 1-9](#)
- Cisco Unified CCX Server, about [1-2](#)
- Cisco Unified CCX supervisor web interface [15-6](#)
- Cisco Unified CCX user options web interface [15-9](#)
- Cisco Unified Communications components
 - about [1-2](#)
 - Cisco IP Agent and Supervisor desktops [1-3](#)
 - Cisco Unified CCX Administration web interface [1-3](#)
 - Cisco Unified CCX Editor [1-3](#)
 - Cisco Unified CCX Server [1-2](#)
 - Cisco Unified Gateway [1-1](#)
 - historical reports database server [1-3](#)
 - MRCP ASR server [1-3](#)
 - MRCP TTS [1-3](#)
 - Unified CM [1-2](#)
 - Unified CME [1-2](#)
- Cisco Unified Communications Manager Administration
 - navigating [2-4](#)
- Cisco Unified IP IVR, about [1-9](#)
- cluster
 - active server [1-7](#)
 - architecture [1-6](#)
 - cluster manager [1-7](#)
 - cluster view daemon [1-8](#)
- cluster, definition [11-2](#)
- CMT dialog channels, about [7-23](#)
- CMT dialog group
 - about [7-23](#)
- CMT dialog interactions, about [7-23](#)
- CM Telephony
 - Call Control group configuration [18-4](#)
 - provider configuration [18-3](#)
 - triggers [18-4](#)
- CM Telephony providers
 - about [5-9](#)
 - configuring [5-9](#)
- CM Telephony subsystem
 - configuration overview [5-7](#)
 - configuring CM Telephony providers [5-9](#)
- competence level, about [8-10](#)
- component, definition [11-2](#)
- Computer Telephony Interface
 - see CTI [1-9](#)
- configuration
 - datastore server [1-2](#)
- configuration checklist
 - Outbound subsystem [13-16](#)
- configuration updates
 - Outbound subsystem [13-29](#)
- configuring, definition [1-11](#)

Configuring Tool for Auto-Registered Phones Support (TAPS) [4-2](#)

Contact Service Queues

- about [8-17](#)
- creating [8-18](#)
- deleting [8-26](#)
- modifying [8-24](#)

contacts report [14-14](#)

contact summary report

- Outbound [13-3](#)

Core Reporting subsystem, about [1-9](#)

CPU utilization

- and VRU scripts [6-26](#)

creating campaigns [13-17](#)

CSQ

- about [1-5](#)
- creating [18-14](#)
- Outbound percentage [13-30](#)
- Outbound subsystem percentage [13-17](#)
- resource based [8-17](#)
- skill based [8-17](#)
- Subsystems menu [18-14](#)

CSQ Cisco Unified CCX Stats report [14-25](#)

CTI

- managing clusters [1-9](#)
- port device and route point [7-16](#)

CTI Ports

- Unified CME guidelines [5-2](#)

custom

classpaths for custom classes, steps, subsystems [16-5](#)

custom file configuration [16-5](#)

custom file configuration (System menu) [10-17](#)

D

daily purge schedule

- about [12-5](#)
- configuring [12-5](#)

Database

- in service [13-6](#)

database

- maximum connections [9-14](#)
- parameter [18-29](#)
- password [9-14](#)
- username [9-14](#)

database connectivity

- polling [9-15](#)

Database subsystem

- about [1-9, 9-2, 9-13](#)
- adding JDBC datasource [9-14](#)
- configuration overview [9-13](#)
- configuring [9-12](#)
- defining ODBC datasource [20-5](#)
- supported Enterprise Databases [9-13](#)

datasource, adding [18-28](#)

datasource usage report [14-20](#)

Daylight Savings Time

- see DST [13-15](#)

- db_cra database
 - area code mapping [13-28](#)
 - default time zone [13-42](#)
 - devices
 - by package license [A-4](#)
 - dialing functionality [13-3](#)
 - dialing lists
 - importing [13-21](#)
 - dialing mode
 - direct preview [13-3, 13-9](#)
 - dialing prefixes
 - geographic area [13-16](#)
 - Directory Number
 - associations [4-18](#)
 - Directory Number information [5-11, 7-16](#)
 - do_not_call list
 - national [13-7](#)
 - document file
 - unzipping after upload [10-12](#)
 - documents
 - about [10-7](#)
 - Do Not Call list
 - Outbound subsystem [13-7](#)
 - DST
 - Outbound subsystem [13-15](#)
- E**

- eMail subsystem
 - about [1-9, 9-2, 9-16](#)
 - configuring [9-16](#)
 - enabling campaigns [13-17, 13-41](#)
 - engine tasks report [14-14](#)
 - Enterprise Server subsystem, about [1-10](#)
- F**

- failover
 - automatic [1-7](#)
 - feature, definition [11-3](#)
 - files
 - adding zip [10-11](#)
 - managing for applications [10-1](#)
- G**

- general properties
 - Outbound subsystem [13-16, 13-18](#)
 - geographic region
 - Outbound support [13-7](#)
 - grammars
 - about [10-5](#)
- H**

- handling callbacks [13-27](#)
 - Help menu [21-1](#)
 - About [21-3](#)

- Contents and Index [21-2](#)
- For this Page [21-3](#)
- high availability [11-3](#)
- historical reporting
 - client [1-3](#)
 - configuration overview [1-18](#)
- historical reporting database
 - configuring daily purge schedule [12-5](#)
 - configuring database server [12-2](#)
 - file restore [12-7](#)
 - purge configuration [12-5](#)
- historical reports
 - by package license [A-4](#)
- historical reports database
 - purging manually [12-6](#)
- historical reports database server
 - about [1-3](#)
- historical report user capabilities [15-2](#)
- historical report user privileges [15-5](#)
- HTTP subsystem
 - about [1-10, 9-2, 9-10](#)
 - configuration overview [9-10](#)
- HTTP triggers, adding [6-24](#)

I

- importing campaigns [13-17](#)
- importing contacts
 - dialing lists [13-24](#)

- Integrated Service Router
 - see ISR [1-9](#)
- international area codes
 - mapping [13-7](#)
- invalid number
 - handling callbacks [13-28](#)
- ISR
 - Cisco Unified CME integration [8-32, 8-37](#)
 - Unified CME integration [1-9](#)

J

- JDBC datasource
 - adding [9-14](#)

K

- keep alive session management [5-2](#)

L

- LDAP server information (System menu) [11-4](#)
- least skilled
 - by order [8-22](#)
 - by weight [8-22](#)
 - resource selection [8-22](#)
- license
 - adding components [1-15, 1-16](#)
 - application availability [A-2](#)

- Cisco Unified CCX component availability [A-6](#)
- database subsystem [9-12](#)
- eMail subsystem [9-16](#)
- historical report availability [A-4](#)
- HTTP subsystem [9-10](#)
- product [7-16](#)
- service availability [A-4](#)
- subsystem availability [A-2](#)
- trigger availability [A-2](#)
- triggers [5-11](#)
- Unified ICME subsystem [9-3](#)
- linear
 - resource selection [8-23](#)
- logout [16-8](#)
- logout (System menu) [11-23](#)
- longest available
 - resource selection [8-21, 8-23](#)

M

- manage scripts [17-3](#)
- managing users [15-2](#)
- master service, definition [11-3](#)
- media channel [7-3](#)
- missed callback [13-27](#)
- most handled contacts
 - resource selection [8-21, 8-24](#)
- most skilled
 - by order [8-22](#)

- by weight [8-22](#)
- resource selection [8-22](#)

MRCP ASR

- groups configuration [7-31](#)
- provider configuration [7-28](#)
- provisioning [7-27](#)
- server configuration [7-29](#)

MRCP ASR server, about [1-3](#)

MRCP ASR subsystem

- about [1-10](#)
- configuration overview [7-27](#)
- provisioning [7-27](#)

MRCP TTS

- locals configuration [7-39](#)
- provider configuration [7-35](#)
- provisioning [7-34](#)

MRCP TTS server, about [1-3](#)

MRCP TTS subsystem

- about [1-10, 7-34](#)
- provisioning [7-34](#)

multiple time zones [13-42](#)

N

national do_not_call list [13-7, 13-39](#)

navigating

- Cisco Unified Communications Manager Administration [2-4](#)

nickname [15-12](#)

node, definition [11-2](#)

O

ODBC datasource

- about [9-13](#)
- defining [20-5](#)

Outbound

- licensed seat [13-9](#)

Outbound Subsystem

- in service [13-6](#)

Outbound subsystem

- Do Not Call list [13-7](#)

Overall Unified CCX Stats report [14-21](#)**P**

pending records

- Outbound subsystem [13-16](#)

pending state [13-29](#)plug-ins [20-2](#)point system for provisioning channels [7-3](#)

product

- licenses [7-16](#)

product license

- database subsystem [9-12](#)
- eMail subsystem [9-16](#)
- HTTP subsystem [9-10](#)
- Unified ICME subsystem [9-3](#)

profile, cluster [11-2](#)

prompts

- about [10-2, 10-13](#)

adding spoken name prompt [5-15, 5-16, 10-16](#)

recording [10-14](#)

provisioning, definition [1-10](#)

provisioning call control groups [7-9](#)

Provisioning checklist

Unified CCX subsystem [3-3](#)

provisioning checklist

telephony and media resources [7-4](#)

publisher

cluster manager [1-8](#)

purge configuration

parameters [12-5](#)

purging

- automatic [12-4](#)
- manual [12-5](#)

purging, manually [12-6](#)

Q

queuing calls

with Unified CCX [7-22](#)

R

real-time reports

- about [14-1](#)
- application tasks [14-13](#)
- application tasks summary [14-13](#)
- available reports [14-2](#)

- contacts [14-14](#)
- contact summary [14-11](#)
- CSQ Cisco Unified CCX Stats [14-25](#)
- datasource usage [14-20](#)
- engine tasks [14-14](#)
- Overall Unified CCX Stats [14-21](#)
- printing reports [14-6](#)
- resetting statistics [14-6, 14-7](#)
- Resource Unified CCX Stats [14-27, 14-32](#)
- running reports [14-5](#)
- sessions [14-20](#)
- setting appearance [14-8](#)
- setting options [14-7](#)
- viewing subreports [14-5](#)
- Refresh All button [2-8](#)
- Remote Monitoring application
 - about [6-17](#)
 - provisioning [6-16](#)
- Resource based CSQ [8-17](#)
- resource groups
 - creating [8-4, 18-13, 18-14](#)
 - deleting [8-6](#)
 - modifying name [8-5](#)
- Resource Manager, about [1-5](#)
- Resource pool selection criteria
 - between skills and groups [8-26](#)
 - within a CSQ [8-28](#)
- resources
 - assigning to resource groups and skills in bulk [8-14](#)
 - assigning to resource groups and skills individually [8-12](#)
 - modifying [18-12](#)
 - removing skills from individual agents [8-16](#)
- resource selection
 - circular [8-24](#)
 - least skilled [8-22](#)
 - least skilled by order [8-22](#)
 - least skilled by weight [8-22](#)
 - linear [8-23](#)
 - longest available [8-21, 8-23](#)
 - most handled contacts [8-21, 8-24](#)
 - most skilled [8-22](#)
 - most skilled by order [8-22](#)
 - most skilled by weight [8-22](#)
 - shortest average handle time [8-21, 8-24](#)
- Resource Unified CCX Stats report [14-27, 14-32](#)
- resynchronizing
 - Cisco JTAPI Client [7-6](#)
 - Unified CM Telephony data [7-7](#)
 - Unified CM Telephony information [7-22](#)
- Ring-No-Answer application
 - about [6-9](#)
 - provisioning [6-9](#)
- RmCm provider
 - about [8-2](#)
 - provisioning [8-2](#)
- RmCm subsystem
 - in service [13-6](#)

RmCm subsystem, about [1-10](#)

RNA application

about [6-9](#)

provisioning [6-9](#)

S

scheduling callbacks

Outbound subsystem [13-16](#)

script application

about [6-3](#)

configuration overview [6-3](#)

script management [6-26, 17-3](#)

script repository [6-3](#)

scripts

about [6-25](#)

deleting [6-33](#)

refreshing [6-30](#)

renaming [6-32](#)

viewing or downloading [6-28](#)

scripts, uploading [6-26](#)

servers

active and standy [11-2, 11-3](#)

service, definition [11-3](#)

Service Control interface [9-6](#)

Session Initiation Protocol

see SIP [1-9](#)

sessions report [14-20](#)

shortest average

handle time [8-21, 8-24](#)

SIP

router integration [1-9](#)

SIP-based route point [5-2](#)

Skill based CSQ [8-17](#)

skills

creating [8-7, 18-16](#)

deleting [8-9](#)

modifying name [8-8](#)

removing [18-16](#)

removing from individual agents [8-16](#)

spoken name prompt

adding [5-15, 5-16, 10-16](#)

standby server [11-2, 11-3](#)

standby service, definition [11-3](#)

subscriber

cluster manager [1-8](#)

subsystems

by package license [A-2](#)

Subsystems menu [18-1](#)

Add a New Dialog Control Group [7-24](#)

adding HTTP triggers [18-31](#)

adding teams [18-18](#)

agent-based routing [18-17](#)

assigning skills [18-15](#)

Cisco Media [18-32](#)

CM Telephony [18-2, 18-8](#)

CM Telephony Call Control group
configuration [18-4](#)

- CM Telephony provider configuration [18-3](#)
- CM Telephony triggers configuration [18-4](#)
- database configuration [18-27](#)
- eMail [18-31](#)
- general [18-25](#)
- HTTP [18-30](#)
- MRCP ASR [18-33](#)
- MRCP TTS [18-35](#)
- remote monitoring [18-16](#)
- resource group [18-13](#)
- resources [18-12](#)
- RmCm provider [18-15](#)
- skills configuration [18-11](#)
- teams [18-17](#)
- Unified CCX [18-10](#)
- Unified CME Telephony Call Control group configuration [18-9](#)
- Unified CME Telephony provider configuration [18-8](#)
- Unified CME Telephony triggers configuration [18-9](#)
- Unified ICME [18-25](#)
- VRU scripts [18-26](#)
- supervisor
 - configuring teams [8-35](#)
- supervisor capabilities [15-2](#)
- supervisor privileges [15-3](#)
- System menu
 - about [16-1](#)
 - custom file configuration [10-17, 16-5](#)

- LDAP Information [11-4](#)
- logout [11-23, 16-8](#)
- system parameters [11-5](#)
- systems parameters (System menu) [11-5](#)

T

- team
 - configuring [8-35](#)
 - creating a team [8-37](#)
 - deleting a team [8-39](#)
 - making changes to agents on a team [8-39](#)
- Text-to-speech
 - see TTS [7-26](#)
- time zone
 - determining local time [13-15](#)
 - handling callbacks [13-27](#)
- tool bar
 - using [2-7](#)
- Tools menu
 - application tasks [14-13](#)
 - application task summary [14-13](#)
 - Clear Contact [14-36](#)
 - contacts [14-14](#)
 - contact summary report [14-11](#)
 - CSQ Unified CCX Stats [14-25](#)
 - database server configuration [20-10](#)
 - datasource usage [14-20](#)
 - engine tasks [14-14](#)

- file restore [20-12](#)
 - historical reporting [20-10](#)
 - Open Printable Report [14-36](#)
 - Options [14-41](#)
 - overall Unified CCX Stats [14-21](#)
 - overview [20-1](#)
 - password management [20-17](#)
 - plug-ins [20-2](#)
 - purge now [20-11](#)
 - purge schedule [20-11](#)
 - real-time reporting [20-3](#)
 - real-time snapshot config [20-4](#)
 - Refresh Connections [14-36](#)
 - report [14-9](#)
 - Reset All Stats [14-35](#)
 - Resource Unified CCX Stats [14-27](#), [14-32](#)
 - sessions [14-20](#)
 - Tools [14-35](#)
 - troubleshooting tips [21-3](#)
 - user configuration [20-11](#)
 - user management [20-12](#), [20-13](#)
 - user management, Name Grammar Generation [20-14](#)
 - user management, Spoken Name Upload [20-15](#)
 - Views [14-37](#)
 - Tools meny
 - Settings [14-40](#)
 - triggers
 - by package license [A-2](#)
 - triggers and applications [6-18](#)
 - TTS
 - default provider [7-36](#)
 - overview [7-26](#)
 - provisioning [7-34](#)
 - VXML applications [7-36](#)
- ## U
-
- UNICODE [7-34](#)
 - Unified CCX
 - about [1-5](#)
 - installing agent desktop [15-10](#)
 - Unified CCX Administration
 - connecting [2-2](#)
 - Unified CCX Agent Desktop, about [1-5](#)
 - Unified CCX components [1-5](#)
 - CSQ [1-5](#)
 - Resource Manager [1-5](#)
 - Unified CCX Agent Desktop [1-5](#)
 - Unified CCX Enhanced, about [1-5](#)
 - Unified CCX Enhanced with CTI Option, about [1-5](#), [1-6](#)
 - Unified CCX Standard, about [1-5](#)
 - Unified CM
 - configure users [4-14](#), [4-18](#)
 - connecting to web interface [4-13](#)
 - users [15-13](#)
 - Unified CME
 - provisioning [5-1](#)

- users [15-5](#)
- Unified CME Telephony
 - Call Control group configuration [18-9](#)
 - provider configuration [18-8](#)
 - trigger information [5-11](#)
 - triggers [18-9](#)
- Unified CME Telephony call control groups
 - about [5-10](#)
 - provisioning [5-10](#)
- Unified CME Telephony Subsystem
 - license [A-3](#)
- Unified CME Telephony subsystem
 - about [1-10, 5-7](#)
 - provisioning Unified CME Telephony call control groups [5-10](#)
 - provisioning Unified CME Telephony trigger [5-11](#)
- Unified CME Telephony trigger
 - about [5-11](#)
 - adding [6-21](#)
 - provisioning [5-11](#)
- Unified CM Telephony
 - trigger information [7-16](#)
- Unified CM telephony
 - configuration [7-5](#)
- Unified CM Telephony information, resynchronizing [7-22](#)
- Unified CM Telephony subsystem
 - about [1-10](#)
 - configuration overview [7-5](#)
 - configuring Unified CM Telephony providers [7-7](#)
 - in service [13-6](#)
 - provisioning call control groups [7-9](#)
 - provisioning Unified CM Telephony trigger [7-16](#)
- Unified CM Telephony trigger
 - adding [6-21](#)
- Unified CM Telephony triggers
 - using with Unified CCX [7-22](#)
- Unified CM User Options page [15-13](#)
- Unified ICME
 - about [1-10](#)
- Unified ICME post-routing application
 - about [6-11](#)
 - provisioning [6-11](#)
- Unified ICME script commands [9-3](#)
- Unified ICME subsystem
 - about [1-10, 9-2, 9-3](#)
 - configuration overview [9-3](#)
 - configuring general Unified ICME information [9-4](#)
 - configuring VRU scripts [9-8](#)
- Unified ICME translation-routing application
 - about [6-14](#)
 - provisioning [6-14](#)
- Unified IP IVR, about [1-4](#)
- uploading licenses [1-15](#)
- uploading scripts [6-26](#)
- user roles [15-1](#)

users

configuring in Unified CM [4-14](#), [4-18](#)

V

virtual agents [4-16](#)

virtual infrastructure [4-16](#)

voice gateways [1-1](#)

VRU scripts

configuring [9-8](#), [18-27](#)

uploading time [6-26](#)

VXML applications

default TTS provider [7-36](#)

W

wizards

using [2-8](#)

Wizards menu [19-1](#)

Application [19-1](#)

RmCm [19-3](#)

Wrap-up

license [A-4](#)

wrap-up data

usage [8-35](#)

Z

zip files, uploading [10-11](#)