Outbound Option Guide for Cisco Unified Contact Center Enterprise and Hosted Release 10.0(1)

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CONTENTS

CHAPTER 7   **Administrative and Supervisory Tasks 159**

Preface

- Purpose, page xiii

- Audience, page xiii

- Organization, page xiv

- Related Documentation, page xv

- Product Naming Conventions, page xvi

- Conventions, page xvi

- Documentation and Support, page xvii

- Documentation Feedback, page xviii

Purpose

This manual provides conceptual, installation, and configuration information about the Cisco Unified Contact Center Enterprise (Unified CCE) Outbound Option application (formerly called "Blended Agent"). It also provides verification checklists and troubleshooting information to ensure the Outbound Option installation and configuration setup is successful.

For detailed Outbound Option Components field descriptions, see the online help.

Note   You must have a copy of the *Staging Guide Cisco Unified ICM/Contact Center Enterprise & Hosted,* available in addition to this manual to successfully complete the Outbound Option installation. See http:/ /www.cisco.com/web/psa/products/index.html for the complete set of Cisco Unified ICM/Contact Center Enterprise and Hosted software manuals.

Audience

This document is intended for contact center supervisors and contact center technology experts who perform the following functions using Outbound Option:

- **System Administrators –** The installer/partner, who needs to know how to install and configure the Dialer and hook it up to Cisco Unified Communications Manager (abbreviated as Unified CM and formerly known as "CallManager").

- **Administrator –** The administrator responsible for configuration tasks, such as adding agents, skill groups, campaigns, and scripts necessary for ongoing activity.

- **Supervisors/Business users –** These users might need to perform such tasks as modifying a query rule, adjusting the lines per agent, or enabling or disabling a campaign. This group of users needs to know how to read and interpret reports to help them run their business.

- **Sales –** A secondary audience, interested primarily in conceptual information.

Organization

The following table describes the information contained in each chapter of this guide.

Chapter	Description
Chapter 1, "Outbound Business Concepts" Intended Audience: **all audiences**	Provides a high-level overview of Outbound Option and its components.
Chapter 2, "Architectural Overview" Intended Audience: **System Administrators/Administrators**	Provides a high-level overview of Unified CCE software, Outbound Option component relationships, scripting, and fault recovery.
Chapter 3, "Outbound Option Installation: Preliminary Steps" Intended Audience: **System Administrators**	Provides prerequisite information users need to know before installing Outbound Option.
Chapter 4, "Outbound Option Installation: Preliminary Steps" Intended Audience: **System Administrators**	Provides all the information users need to install Outbound Option with a Session Initiation Protocol (SIP) Dialer.
Chapter 5, "Outbound Option Installation: SCCP Dialer" Intended Audience: **System Administrators**	Provides all the information users need to install Outbound Option with a Skinny Call Control Protocol (SCCP) Dialer.
Chapter 6, "Configuration of Campaigns and Imports" Intended Audience: **Administrators**	Provides all the information users need to configure Outbound Option.
Chapter 7, "Administrative and Supervisory Tasks" Intended Audience: **Administrators/Supervisors who may or may not have administrative permission**	Provides information about reading reports, agent desktops, adding and reskilling agents, running imports, and running and managing effective campaigns,

Chapter	Description
Appendix A, "Registry Settings"	Contains information about registry settings for Outbound Option server processes.
Appendix B, "Long Distance Digit Prefix Logic"	Provides information about outbound call routing.
Appendix C, "Dialer_Detail Table"	Provides information about the Dialer_Detail table, a historical table that was incorporated into the IP Contact Center (IPCC) database in Release 7.2(1). It allows detailed dialer records to be written to the Logger databases and replicated to each Historical Data Server (HDS) database.
Appendix D, "Termination_Call_Detail Table"	Describes the PeripheralCallType and CallDisposition column values used in the Termination_Call_Detail table. It also provides the CED column values for Outbound Option reservation or personal callback calls.
Appendix E, "Dialing List Table"	Provides information about the Dialing List table. Only the Outbound Option application uses the Dialing List table. Other applications are not allowed to access it for reading, writing, or using triggers.
Appendix F, "Schedule of Contacts Between Customers and Agents"	Documents all the columns in the personal callback table.
Appendix G, "CTI OS Outbound Option ECC Variable Settings"	Contains a sample .REG file, which creates the applicable Outbound Option expanded call context (ECC) registry entries for CTI OS.

Related Documentation

Documentation for Cisco Unified ICM/Contact Center Enterprise & Hosted, as well as related documentation, is accessible from Cisco.com at: http://www.cisco.com/cisco/web/psa/default.html.

Related documentation includes the documentation sets for Cisco CTI Object Server (CTI OS), Cisco Agent Desktop (CAD), Cisco Agent Desktop - Browser Edition (CAD-BE), Cisco Unified Contact Center Management Portal, Cisco Unified Customer Voice Portal (CVP), Cisco Unified IP IVR, Cisco Unified Intelligence Center, and Cisco Support Tools.

- For documentation for these Cisco Unified Contact Center Products, go to http://www.cisco.com/cisco/web/psa/default.html, select **Voice and Unified Communications > Customer Collaboration > Cisco Unified Contact Center Products** or **Cisco Unified Voice Self-Service Products**, and select the product/option you are interested in.

- For troubleshooting tips for these Cisco Unified Contact Center Products, go to http://docwiki.cisco.com/wiki/Category:Troubleshooting, and then click the product/option you are interested in.

- Documentation for Unified CM is accessible from: http://www.cisco.com/cisco/web/psa/default.html.

- Technical Support documentation and tools are accessible from: http://www.cisco.com/en/US/support/index.html.

- The Product Alert tool is accessible from (login required): http://www.cisco.com/cgi-bin/Support/FieldNoticeTool/field-notice.

- For information on the Cisco software support methodology, see the *Software Release and Support Methodology: ICM/IPCC* available at (login required): http://www.cisco.com/en/US/partner/products/sw/custcosw/ps1844/prod_bulletins_list.html.

- For a detailed list of language localizations, see the *Cisco Unified ICM/Contact Center Product and System Localization Matrix* available at the bottom of the following page: http://www.cisco.com/en/US/products/sw/custcosw/ps1001/prod_technical_reference_list.html.

Product Naming Conventions

In this release, the product names defined in the table below have changed. The New Name (long version) is reserved for the first instance of that product name and in all headings. The New Name (short version) is used for subsequent instances of the product name.

Note This document uses the naming conventions provided in each GUI, which means that in some cases the old product name is in use.

Old Product Name	New Name (long version)	New Name (short version)
Cisco IPCC Enterprise Edition	Cisco Unified Contact Center Enterprise	Unified CCE
Cisco IPCC Hosted Edition	Cisco Unified Contact Center Hosted	Unified CCH
Cisco Intelligent Contact Management (ICM) Enterprise Edition	Cisco Unified Intelligent Contact Management Enterprise	Unified ICME
Cisco Intelligent Contact Management (ICM) Hosted Edition	Cisco Unified Intelligent Contact Management Hosted	Unified ICMH
Cisco CallManager/Cisco Unified CallManager	Cisco Unified Communications Manager	Unified CM

Conventions

This manual uses the following conventions:

Convention	Description
boldface font	Boldface font is used to indicate commands, such as user entries, keys, buttons, and folder and submenu names. For example: • Choose **Edit** > **Find**. • Click **Finish**.
italic font	Italic font is used to indicate the following: • To introduce a new term; for example: A *skill group* is a collection of agents who share similar skills. • For emphasis; for example: *Do not* use the numerical naming convention. • A syntax value that the user must replace; for example: IF (*condition, true-value, false-value*) • A book title; for example: See the *Cisco CRS Installation Guide*.
`window font`	Window font, such as Courier, is used for the following: • Text as it appears in code or that the window displays; for example: `<html><title>Cisco Systems,Inc. </title></html>` • Navigational text when selecting menu options; for example: `ICM Configuration Manager > Tools> Explorer Tools > Agent Explorer`
`< >`	Angle brackets are used to indicate the following: • 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.

Documentation and Support

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.

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mailto:ccbu_docfeedback@cisco.com

We appreciate your comments.

Outbound Business Concepts

This chapter, intended for all audiences, discusses the outbound business concepts you need to know *before* planning and configuring your outbound system. Review this chapter *in its entirety* before moving on to installing and configuring your outbound system.

Overview

This section provides a high-level overview of automatic dialers and the Cisco Outbound Option solution, which includes a description of what it does and why you would want to use it.

Automatic Dialers

Automatic dialers increase contact center efficiency because they eliminate the possibility of reaching a wrong number, save time, and make contact center agents more productive. By automatically dialing and screening for busy signals, no answer, and answering machines, dialers ensure that agents do not waste time on non-value-added mechanical and routine tasks. Only when the dialer reaches a live contact will the solution transfer the call to the next available agent.

Cisco Outbound Solution

Cisco Unified Intelligent Contact Management Enterprise and Cisco Unified Contact Center Enterprise help companies distribute inbound calls to a variety of termination points, including automatic call distributors

(ACDs), interactive voice response (IVR) systems, home agents, and network terminations. The *Cisco Outbound Option application*, with its combination of outbound dialing modes, enables call centers to manage outbound calls. The ability for agents to handle both inbound and outbound contacts offers a way to optimize contact center resources.

High-Level Overview of Cisco Outbound Option

The Cisco Outbound Option application provides outbound dialing functionality along with the existing inbound capabilities of Cisco Unified Contact Center Enterprise (Unified CCE, formerly known as "IPCC Enterprise"). This application enables the contact center to dial customer contacts and direct contacted customers to agents or IVRs.

With the Cisco Outbound Option, you can configure a contact center for automated outbound activities.

Outbound Option Features

Outbound Option features include:

- Unified CCE Compatible Dialer
- Campaign Management
- Unified Contact Center Software Management of Skill Groups
- Outbound Option Dialing Modes
- Outbound Option activity reports
- Callbacks
- Call Progress Analysis (CPA)
- Transfer to IVR
- Sequential Dialing
- Cisco IP Contact Center Agent Re-skilling
- Abandoned and Retry Call Settings
- Campaign Prefix Digits for Dialed Numbers
- Outbound Option Support on Cisco Unified Contact Center Hosted
- Outbound ECC Variables Support in Siebel 7.5.3 and Later

Unified CCE Compatible Dialer

Cisco IP Contact Center can be implemented in a single-site environment or integrated into a multi-site contact center enterprise. Some capabilities of Unified CCE include intelligent call routing, ACD functionality, network-to-desktop computer telephony integration (CTI), IVR integration, call queuing, and consolidated reporting.

With Unified CCE integration, customer calls are placed using the Cisco Voice Gateway, using the Unified CM for call control.

Outbound Option on Unified CCE provides a native multi-site outbound dialing solution.

Campaign Management

Outbound Option supports advanced list management, which provides for the following features:

- Customer records can be assigned to multiple lists, which can be merged into a single campaign.

- Pre-configured rules decide when the various lists are called.

- Agents are assigned to campaigns using skill groups.

Unified Contact Center Software Management of Skill Groups

The Script Editor application controls the outbound mode of every skill group.

Dedicated and Blended Dialing Modes

- Dedicated mode: Designed for agents who will only make outbound calls.

- Blended mode: Allows agents to receive inbound calls and make outbound calls without switching between Inbound/Outbound skill groups. (In Blended mode, inbound calls receive precedence over outbound calls.)

Outbound Option maximizes performance in both pure outbound and blended modes.

Note The skill group mode variable is only a setting and has no impact on how the Router routes calls. If a skill group is set to Dedicated mode, you must also create a corresponding routing script that uses the IF node to enforce the Dedicated mode. In other words, the IF node must state that if the Outbound Control skill group setting is set to Dedicated, inbound calls must not be routed to that skill group.

Outbound Option Dialing Modes

Outbound Option supports the following dialing modes:

- Preview

- Direct Preview

- Progressive

- Predictive

Related Topics

Outbound Option activity reports

Outbound Option uses Unified CCE software reporting features provided by the Cisco Unified Intelligence Center (Unified Intelligence Center) application, including agent, campaign, dialer, and skill groups report templates created especially for Outbound Option customers.

Related Topics

Callbacks

Depending on the Outbound Option campaign settings, a callback can be scheduled as a *personal callback* or a *regular callback*.

Related Topics

Call Progress Analysis (CPA)

Call Progress Analysis (CPA) uses a combination of call signaling and media stream analysis to differentiate various types of calls.

You enable recording of CPA on a per campaign basis on the Dialer itself by setting the Call Progress Analysis option on the Campaign Purpose Tab Page of the Outbound Option Campaign tool.

The Dialer will only record up to 100 simultaneous CPA streams. The streams are stored in CPM format. By default, the system will automatically purge old recording files when it reaches 500 meg. For details about configuring CPA recording, see information on SIP Dialer Recording Parameters Configuration.

Related Topics

Transfer to IVR

The transfer to IVR feature provides Outbound Option with another outbound mode. This mode causes the Dialer to transfer every customer call associated with a specific skill group to a service control-based IVR instead of an agent. This feature allows a contact center to run unassisted outbound campaigns using pre-recorded messages in the Cisco Unified IP-IVR and Cisco Unified Customer Voice Portal products.

Related Topics

Sequential Dialing

The sequential dialing feature, accessed through the Campaign Call Target tab, allows you to associate up to ten phone numbers per customer record.

Related Topics

Cisco IP Contact Center Agent Re-skilling

Cisco IP Contact Center agent re-skilling is an optional feature that allows IPCC call center supervisors to sign-in and change the skill groups for agents they manage. You can access this feature using the Unified CCE Agent Re-skilling Tool. It lets you change the skill group designations of agents on your team, and quickly view skill group members and details about individual agents. Changes you make to an agent's skill group membership take place immediately without need for the agent to exit and re-enter the system.

Related Topics

Abandoned and Retry Call Settings

The Campaign component contains fields to support abandoned and retry calls.

For detailed instructions on how to configure abandoned and retry call settings, see the Outbound Option online help.

Campaign Prefix Digits for Dialed Numbers

The **Campaign prefix digits** field, which is available on the Campaign General tab in the Campaign component, allows you to configure prefix digits for dialed numbers in campaigns. If you configure a prefix, it will be inserted before the Dial prefix for all numbers dialed in a campaign. This prefix allows an administrator to create campaign-specific Unified CM translation patterns, which you can use to tailor the Automatic Number Identification (ANI) seen by a customer. For example, all customers dialed from Campaign A will see a caller ID of "1-800-333-4444," while all customers dialed from Campaign B will see a caller ID of "1-800-555-1212."

Related Topics

Outbound Option Support on Cisco Unified Contact Center Hosted

Outbound Option support on Cisco Unified Contact Center Hosted (Unified CCH) Edition is available, but this release still requires Outbound Option to be deployed on a distinct CICM instance platform (meaning that Outbound Option will not be shared among customers—each needs to have their own dialer, and so forth).

See the Unified CCH documentation set for more details.

Outbound ECC Variables Support in Siebel 7.5.3 and Later

Releases 7.5(3) and later of the Cisco Unified CRM Connector for Siebel (formerly called the CTI Driver for Siebel) provide support for Outbound Option.

See the *Cisco Unified CRM Connector for Siebel* guide for detailed information about the ECC variables support for Outbound Option.

Relationships Between Outbound Option Components

The following figure shows the component relationships within Outbound Option.

> **Note** The following figure and table only describe Outbound Option Components and concepts; they do not describe the Outbound Option process.

Figure 1: Outbound Option Component Relationships
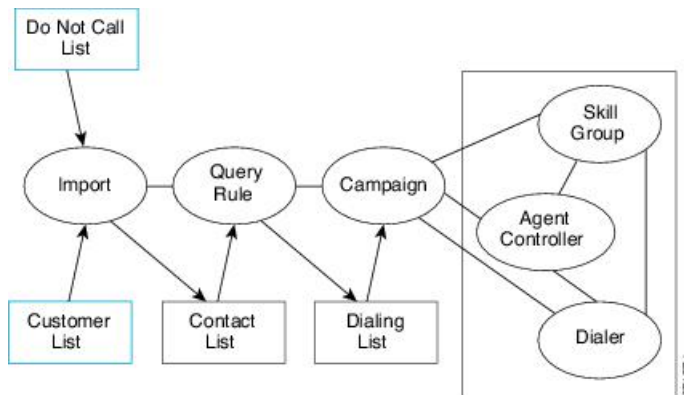
> **Note** Items outlined in blue in Figure 1 indicate that they are configured by the user.

Table 1: Relationships Between Outbound Option Component Concepts

Concept	Description
Import	Defines when and how Outbound Option reads in a user-generated list of customers to call and customers who should not be called. **Note** See the "Imports" section for more details.
Query Rule	Set of criteria for selecting customer contacts from a customer list. **Note** See the "Query Rules" section for more details.

Concept	Description
Campaign	Defines the collection of query rule-generated dialing lists associated with agent skill groups, and maps the contacts to a call with the agent skill groups.
	Users create the agent skill groups and associate them with one or more dialing lists by assigning them to a campaign.
	With Outbound Option, you can configure an agent-based campaign or a transfer to IVR campaign:
	• Agent-based campaign: This type of campaign uses an outbound mode that causes the Dialer to transfer every customer call associated with a specific skill group to an agent.
	• Transfer to IVR campaign: This type of campaign uses an outbound mode that causes the Dialer to transfer every customer call associated with a Transfer to IVR Campaign specific skill group to a service control-based IVR instead of an agent. This feature allows a contact center to run unassisted outbound campaigns using pre-recorded messages in the IVR.
	Note See the "Campaigns" section for more details.
Skill Group	Defines a selection of agents to be used in a campaign. Each skill group can only have one campaign assignment, but a campaign can service multiple skill groups.
	Outbound agents are tied to the campaign by their skill group association. Agents might belong to multiple skill groups and thus be part of multiple campaigns.
	The campaign associates dialing lists with specific skill groups, but the campaign cannot associate a specific dialing list to a specific skill group unless there is only *one* dialing list and *one* skill group in the campaign.
	Note See the "Campaign Skill Groups" section for more details.
Agent Peripheral Gateway (PG)	A collection of agents and skill groups that are bound to a specific Unified CM. The Dialer is bound to serve the group of agents in a specific call center site. (For experienced Unified CCE users, this document uses the term *agent controller* as another way to convey *agent peripheral*.)
	Note See the "Agent PG" section in Chapter 2, Architectural Overview, for more details.
Dialer	An Outbound Option component that places Outbound Option calls. The Dialer is associated with the agent peripheral at a call center site. Outbound Option sends calls to a Dialer based on the campaign skill group relationship for the agent controller at that site. The Dialer monitors campaign skill groups and is mapped to an agent peripheral.
	Note See the "Outbound Option Dialer Component" section in Chapter 2, Architectural Overview, for more details.
Customer List	List of contact information that you provide during import.

Concept	Description
Contact List	An internal table, to which an import applies a query rule to determine which records to insert in the dialing list. There is one Contact List for each import. **Note** See the "Contact List Imports" section for more details.
Dialing List	The list of customer contacts that Outbound Option dials to make outbound calls. There is one dialing list for each campaign query rule. Each campaign query rule combination results in a unique dialing list. Only one dialing list is active at a time for a particular campaign. Whenever a dialing list is active, it is distributed to all skill groups in the campaign. A specific dialing list cannot be mapped to a specific skill group in a campaign. **Note** See the "Dialing List" section in Chapter 7, Administrative/Supervisory Tasks, for more details.

Using some of the preceding terms, the following example demonstrates what happens during an Outbound Option import:

1 Outbound Option imports the user's customer list into an internal table of customer contacts.

2 While the import process continues, a query rule filter selects and inserts data from the customer contacts into a dialing list.

3 Outbound Option reads in records from the dialing list for the campaign, and sends the records to be dialed to dialers co-located on peripherals where associated skill groups are configured.

Note   See the "Create a Campaign" section in Chapter 6, "Configuring Campaigns and Imports," for details about the sequence of events that occur during a campaign creation.

Imports

You can import a list of customer contact information and a list of customers who should not be called. You can configure Outbound Option to import both types of lists either by continuously polling or at scheduled intervals. You can also specify that imported lists should replace existing lists or be appended to them.

Do Not Call List Imports

United States federal law requires telephone solicitors to maintain do not call lists. A Do Not Call (DNC) list ensures that those customers who request not to be contacted will not be contacted regardless of the calling list imported into the system.

The Do Not Call list is a list of numbers that are identified as off-limits for outbound calling. This list may include numbers from the federal DNC list, as well as numbers from customers who have specifically requested that they not be contacted. Entries in the Do Not Call list will not be dialed even though they are included in a contact list. The DNC list is shared across all campaigns, and only contains phone numbers. The campaign validates that a number in the dialing list is not in the Do Not Call list before sending it to a Dialer, which the

solution checks at the last minute before actually placing the call. You can update a Do Not Call list while a campaign is running, and the update will immediately affect records that have not been sent to a Dialer. Records already sent from the Campaign Manager to the Dialer will not be affected, because those records are beyond the control of the Campaign Manager.

Do Not Call imports are validated for improper formatting and field lengths during the import process. Invalid records are flagged and written to an error file.

Related Topics

Create Do Not Call List, on page 131

Contact List Imports

The contact list import reads in a user-generated text file of customer contacts and associated phone numbers and places it in an internal contact table. Like Do Not Call imports, there is a validation step where improperly formatted records are flagged and written to an error file. The error files are written to the \icm\<instance>\la\logfiles directory on LoggerA. The name of the files are based on the name of the Target Table Name and the date and time the import occurred. Phone numbers without prefix matches are not placed in a file.

You can add additional business-specific attributes to the contact list import file before the import occurs. This allows for segmentation of the campaign using a query rule. In this way, a single import can contain records for multiple dialing lists for the same campaign; however, do not include the campaign customer contacts in multiple dialing lists because this might result in the same customer being dialed twice.

Note See the "Add Attributes to a Contact List" section in Chapter 7, "Administrative/Supervisory Tasks," for more details.

The U.S. area code mappings are provided along with the product. International customers must provide their own data and add it to the database.

During the contact list import process, time zone and daylight saving time information is assigned to each contact by matching phone numbers to region prefix strings. If any of the phone numbers for a contact do not match a configured region prefix, the contact list import will use the default time zone data configured for the campaign.

Import Rule Reports

The same import rule reports are used for Do Not Call and Contact List imports. The reports display a historical view of when imports occurred, the number of records imported, and the number of records that were considered invalid due to length constraints or improper formatting.

For contact list imports, the reports also provide insight into the number of contacts that were assigned with the default time zone information for the campaign, as well as the number of contacts that were actually imported into the dialing list after the query rule and format validation was performed.

Related Topics

Administrative and Supervisory Tasks, on page 159

Query Rules

The query rule determines which customer contacts to use from the import for a campaign. You can associate multiple query rules with a campaign; therefore, you can use them to segment a campaign by query rule for prioritization or other logical groupings. For example, if your campaign requires dialing customers between the hours of 9:00AM and 11:00AM, you could set up a query rule to only dial during those times, then configure the campaign to switch to another query rule after that time when the sequence has ended.

When dialing, only one query rule is active at any time for each campaign.

You can change query rules based on different conditions, including configured time limit, or a number of records attempted (referred to as penetration), time of day, or current hit rate across the query rule. The query rule will also automatically switch to another available query rule if it runs out of numbers that are ready to be dialed now.

Campaigns

A campaign is made up of one or more query rule-generated dialing lists and one or more campaign skill groups. Outbound Option reads in contacts from the dialing list associated with the active query rule for the campaign, and directs Dialers to place calls to customers. The Dialer then directs contacted customers to agents (Agent Campaigns) or IVRs (Transfer to IVR Campaigns) in the campaign skill group for applicable customer treatment.

You can create or modify campaigns using the Outbound Option Campaign component, where you define or modify the settings that apply to a campaign. You can also add or delete a campaign using the Campaign component.

You can define two types of campaigns, agent-based and transfer to IVR; however, only one campaign type can be configured per campaign.

Note   See the "Create a Campaign" section in Chapter 6, "Configuring Campaigns and Imports," for more details.

Dialing Modes

Outbound Option supports the following dialing modes:

- **Preview**: The agent previews the contact information on the desktop before deciding whether this contact should be dialed or not, so the agent can decide to skip to the next contact. After the agent accepts a contact, the Dialer places the call so that the agent gets the benefit of Call Progress Analysis (CPA), but the agent does not hear the ringing.

  Note   Agents cannot place calls from their desktop (phone); only the Dialer can place calls. During a personal callback, the Dialer places the call and the assigned agent receives a screen pop on their desktop before the number is dialed, so the agent can decide if the call can be placed at that time.

In Preview mode, if the agent skips or rejects the call, the record is marked "R" for retry and is sent to another agent based on the **No answer** setting in the Campaign configuration. For example, if the No answer parameter is two hours, then the skipped or rejected record is presented to another agent after two hours.

Note The Preview and Direct Preview dialing modes only apply to *agent* campaigns because they require agent interaction, and only dial one line per agent.

- **Direct Preview**: Direct Preview is similar to the Preview mode, except that the call is placed from the agent's phone after the agent accepts. This dialing mode also avoids the possibility of abandoning calls and answering machine detection false positives. After initiating the call, the agent hears the ringing so that there is no delay when the customer answers, but the agent has to deal with answering machines and other results that the dialer's CPA would normally handle while in other dialing modes.

- **Progressive**: The campaign is configured to dial a specific number of lines per agent (not based on expected hit rate, which is the percentage of customers that have been successfully contacted); therefore, if you configure the campaign to dial two lines per agent, when an agent is available the Dialer will dial two contacts at the same time expecting only one of them to answer.

Note The Progressive and Predictive dialing modes apply to agent campaigns as well as unattended transfer to IVR campaigns. Progressive and Predictive dialing modes are focused on keeping the agent/IVR resources busy. Also, agents cannot preview the contact information on their desktops while using these dialing modes.

- **Predictive**: The Dialer adjusts the number of customers to dial per available agent (or IVR port for a transfer to IVR campaign).

As in Progressive mode, when multiple customers answer the calls placed for a single agent, secondary answers can be transferred to another associated agent in the campaign, or sent to the configured IVR for abandon treatment and possible queuing if no agents are available. If no agents or IVR is available, the call will be dropped without treatment.

A Predictive Dialer is designed to increase agent utilization in a call center. To increase the chances of reaching a customer, a Predictive Dialer dials several phone lines per available agent. The goal is to dial enough lines to keep the agents busy while not exceeding the configured maximum abandoned call rate. An abandoned call occurs when a customer answers the phone, but no agent is available to talk to them. In some cases, the abandoned call rate is limited by government regulations (typically, less than 3% for telemarketing calls). In Predictive mode, the Dialer increases the number of lines used per agent until the Abandon Rate is close to the preconfigured maximum Abandon Rate. At this point, the Dialer stabilizes the Lines Per Agent to keep the Abandon Rate below the preconfigured maximum. If the Abandon Rate goes above the maximum, the Dialer lowers the Lines Per Agent.

If the hit rate spikes upward very sharply during the campaign, it can cause the Abandon Rate to exceed the daily Abandon Rate target; for example, the hit rate changes from 10% to 30% in a few minutes. It is very difficult for the Predictive Dialer to cope with hit rate changes of this magnitude and still keep the Abandon Rate under the daily Abandon Rate target.

> **Note** Because there is a wide variation in how long each phone call lasts, Predictive mode determines the proper number of customers to call for each agent given the current hit rate and configured abandon limit.

In Predictive and Progressive mode, agents that are reserved remain reserved until there is a successful live call. They are not immediately released if a live call is not available. On campaign completion (when the dialing list for the campaign runs out of records), agents who remain reserved are released. The same action occurs if the skill group mode is switched to "Inbound."

In Predictive or Progressive mode, agents are released under the following conditions:

- A successful live call was transferred to the agent (the reservation call will be dropped).

- There are no more records in the Contact List for the campaign that the agent is working on.

- The agent's skill group mode changes from Predictive/Progressive mode to Inbound mode.

After the reservation call is dropped, the agent goes into wrap-up or available mode depending on the Unified CCE Agent Desk Setting configuration.

In Preview mode, each preview call is associated with the agent who accepted the call. In this mode, agents are released when the following conditions occur:

- The agent rejected the preview call (if the agent decides to skip the call, that agent remains reserved).

- A successful live call was transferred to the agent (the reservation call will be dropped).

- The contact number was busy, was not answered, or an answering machine was detected and answering machine detection was enabled.

- The outbound call could not be successfully transferred to the agent (this might be due to any failure on the switch or to a Unified CCE software problem).

After the reservation call is dropped, the agent might go into wrap-up mode (after call work), if the agent is a manualIN agent. (The Outbound Option Dialer does not automatically set the agent to ready mode.)

As soon as an agent goes into the Ready state, that agent might receive another call if there are more records.

Caller ID Masking by Campaign

Outbound Option allows you to configure up to 15 prefix digits for dialed numbers in a campaign. If you configure a prefix, it will be inserted before the Dial prefix for all numbers dialed in a campaign.

In Outbound Option deployments that use the SCCP Dialer, this prefix allows an administrator to create campaign-specific Unified CM translation patterns, which you can use to tailor the ANI seen by a customer by campaign. For example, all customers dialed from Campaign A will see a caller ID of "1-800-333-4444," while all customers dialed from Campaign B will see a caller ID of "1-800-555-1212." The prefix digits are always prepended to the beginning of the number, so that they can easily be stripped using translation patterns.

Note This translation pattern function is not applicable for the SIP Dialer. In a SIP Dialer deployment, the SIP Dialer uses the SIP message to make outbound calls directly to the gateway. The SIP interface allows the SIP Dialer to set the ANI directly.

Agent Campaigns

In an agent campaign, Outbound Option dials customers and transfers them to agents in targeted skill groups. The Dialer monitors for available agents. When the Dialer determines that an agent is available, the peripheral gateway (PG) places a virtual reservation call to the agent so that the contact center knows that this agent is reserved. The physical phone does not actually ring, but the agent desktop is updated with the data so that the desktop believes that there is a call in progress. After the agent is reserved, the Dialer places outbound calls to customer contacts using the dialing mode that was set for the campaign skill group. After the Dialer identifies a customer, the call is transferred to the agent. The agent is expected to stay on the reservation call until a customer call is reached to avoid the possibility of abandoned calls. Once a customer call is reached, the agent must disconnect the reservation call from the agent desktop.

The agent still has the opportunity to mark the call as a wrong number, wrong party, or to schedule a callback for later which would not close the record out. If more than one line was dialed for the agent, and more than one of those calls are answered by customers, the first call will be assigned to the agent. At this point the Dialer determines what to do with the second answered call. If another agent is reserved in the campaign, the call will be transferred there. Otherwise, the call will be transferred to the IVR or IVRs that are configured in the Abandon to IVR setting for the campaign skill group. If no IVR is configured, then the call is dropped with no treatment. It is strongly recommended that the Abandon to IVR setting be set up to avoid Dialer abandons. Once calls are sent to the IVR, prompts can be played, data collected, and the customer can be redirected to a properly skilled agent anywhere in the enterprise contact center.

Callbacks

When the system contacts a customer and transfers the call to an agent, the customer has the option to request being called back at a later date and time. The agent enters the date and time the customer would like to be called into the agent application, and the call is scheduled for callback.

Note The callback number can be different from the number originally dialed.

If an agent is skilled for a predictive campaign and schedules a callback for that campaign, the callback for that campaign will be handled in Predictive mode as well (callbacks are handled in the same mode as the campaign type).

Depending on the Outbound Option campaign settings, a callback can be scheduled as a regular callback or a personal callback.

- Regular callbacks can be handled by any agent assigned to the campaign, where the customer is called back using the configured campaign mode.

- Personal callbacks allow the customer to receive a callback from the agent they spoke to when they were first contacted. The customer is called back using a similar mode to the Preview dialing mode.

    Callbacks on personal callbacks are handled in the associated campaign mode.

Related Topics

About Regular Callbacks

Regular callbacks can be handled by any agent assigned to the campaign.

The callback time is not constrained by the campaign dialing times. CallbackTimeLimit (15 minutes by default and configurable in the registry) determines the time range when the callback can occur.

The callback time will be rescheduled for a later time if the Dialer is unable to reach the customer, because of a busy signal or ring no answer, for example.

The CallbackTime limit might be exceeded if no agents are available. If the elapsed time exceeds the CallbackTimeLimit, and RescheduleCallback (1 by default and configurable in the registry) is enabled, the record returns to the Pending state at TimeToResetDailyStats (00:30 by default and configurable in the registry).

About Personal Callbacks

The Outbound Option *personal callback* feature allows scheduling customer callbacks for specific agents, so that customers receive callbacks from the same agent who spoke with them initially.

This feature is very similar to Preview mode in that an agent reservation occurs first. When the agent is reserved, they can either accept the customer call or reject it. (The **Skip** option is not available.) Clicking **Close** sets the BAResponse variable to indicate a close operation, which closes out the record so that it is not dialed again.

Note Personal callbacks are not dependent on a particular campaign, and do not require a campaign to be running when the call is placed. This feature allows personal callbacks to work together with active campaigns containing either predictive or preview skill groups. Agents scheduled for a personal callback can be logged in to any inbound, outbound, or blended skill group at the time of the callback. The callback agent must be logged in with the same agent ID that was used to schedule the callback. Be aware that only one Dialer on a particular peripheral is assigned personal callback records.

The personal callback feature supports three callback modes:

- Use the alternate VDN (the call will be routed to the skill group DN for the campaign associated with the callback, if the DN is available).

  If this option is selected and the specified agent is not available at the designated callback time, the call is routed to another agent right away.

- Reschedule the personal callback to the same time the next business day.

- Abandon the personal callback.

The following actions can take place during a personal callback:

- If the customer cannot be reached during the specified callback time, the call is rescheduled or abandoned based on the configuration setup or until the specified maximum number of attempts has been exhausted.

- If the Outbound Option Dialer detects an answering machine response during a personal callback, the call is still transferred to the scheduled agent. This allows the agent to leave a message and/or reschedule the callback for another convenient time.

- When the callback mode is set to Reschedule or Abandon:

  ◦ If the specified agent is not logged in at the designated callback time, but then logs in within the callback time period, Outbound Option reserves the agent and places the callback.

  ◦ If the specified agent is on an existing call and is unavailable during the entire callback time period, the personal callback fails and the call is rescheduled or abandoned based on the configuration setup.

- When the callback mode is set to Alternate VDN:

  ◦ If the specified agent is not available or not logged in, another agent is reserved for the callback using the dialed number of the associated campaign skill group.

Note   Customer records can be inserted directly into the Personal Callback List to support scheduling calls between agents and customers for a specific date and time, but this requires special integration with third-party applications to import these records. See Appendix F, "Schedule of Contacts Between Customers and Agents", for detailed information.

Transfer to IVR Campaigns

A transfer to IVR campaign, also known as an unattended or unassisted campaign, can send both live customer and answering machine calls to IVRs for customer treatment. This customer treatment includes playing prompts, collecting data from the customer, and redirecting the call to applicable agents anywhere in the contact center enterprise.

The configuration allocates the maximum number of IVR ports used for transfer to IVR campaigns, and it attempts to keep them all busy within the dialing constraints.

Either Progressive or Predictive modes can be used to dial an unattended campaign. You can play a different prompt for a live customer or for an answering machine.

Note   You cannot use the transfer to IVR feature in the Direct Preview mode or the regular Preview modes.

Dialing Order

Outbound Option initiates contacts for a campaign based on the ordering in the imported contact list. This order is not changed during the import.

Each number for the contact is dialed once, in the order it is configured (on the Call Target tab in the Campaign configuration) and imported in the contact list, and before any of the numbers for that contact are retried.

See Chapter 6, "Configuration of Campaigns and Imports"for more information.

Sequential Dialing

The sequential dialing feature, accessed through the Campaign Call Target tab in the Outbound Option Campaign component, allows you to associate up to ten phone numbers per customer record. Two time periods for calling the customers, called "zones," can be configured for each campaign. Each time period (zone) lists which of the ten phone numbers will be called during that time. A phone number can be configured for either zone or for both zones.

Note Customers are dialed based on the time zone of the first phone that is configured on this tab. The time zone is based on the prefix of the phone number and the region prefix configuration. If two phone numbers imported for the same customer have different time zones, both phones will be called during times that are valid for the first phone.

Contact Priority Among Callbacks, Retries, and Pending Contacts

The contact priority order is as follows:

- Top priority is given to customers who have requested *callbacks*. This ensures that the customers are called at the time that they requested.

- *Retries* get second priority. A contact is marked for retry after all the numbers associated with the contact have been tried once, and one or more of those numbers had a call result configured for retry.

- *Pending* contacts get third priority. A customer record is considered to be pending until all of its eligible phone numbers have been tried once.

Note The default priority order can be changed by setting the PendingOverRetryEnabled registry setting to 1 in the Campaign Manager. This setting ensures that all numbers and records are tried once before retries are attempted. See Appendix A, "Registry Settings", for detailed information.

Campaign Reports

The query rule call activity and pending record reports are available as campaign roll-ups for multiple query rules within a campaign.

There are also consolidated reports available, which attempt to blend campaign call activity reporting information with skill group performance reports to give a better overall view of the business activity. Because the consolidated reports mix data from different reporting engines in a single report, there are a few caveats that are described in the reports themselves. These reports provide a rough overview of agent activity, average time between calls, abandon rate, and so on.

Related Topics

Campaign Query Rule Reports

There are two general categories of campaign query rule reports:

- One category of reports indicates the number of records closed, in Pending state, and total records in the query rule's dialing list.

- A second category of reports provides different views into the call result activity. It breaks down call results into approximately a dozen categories.

Transfer to IVR Reports

The campaign and query rule call activity reports display accurate call activity for calls that are not transferred to IVR. Calls transferred to IVR are counted as being transferred to an IVR, but the campaign and query rule activity reports do not display what occurred after the call was sent to the IVR. If calls are queued and transferred back to an agent, they are treated as new inbound calls in the reports.

Call Type Reports

The call type is a Unified CCE concept that maps a route point dialed number to a routing script. It is also a useful reporting object for the enterprise to describe all calls that traversed a specific routing script. The call type applies primarily to inbound traffic in the call center because the Dialer does not use the routing script when placing outbound calls. However, the Outbound Option does use routing scripts to reserve agents and to transfer calls to the IVR, so that it can provide some insight into how calls are being routed.

Campaign Skill Groups

A campaign skill group describes the resource pool for a campaign and provides the necessary information for managing the campaign. For larger enterprise deployments with multiple contact center sites, skill groups are associated with a specific contact center site, which might have different hours of operation and different IVR equipment. Dialing Mode is a skill group attribute, so that contact center skill groups can be opened and closed at different times for shared campaigns using Unified CCE administrative scripts.

The Dialer uses campaign skill groups to monitor resource availability. With agent campaigns, the Dialer looks at the number of available agents. With Transfer to IVR campaigns, the Dialer looks at the number of calls in queue for the associated campaign skill group to make sure it has not reached its quota of configured IVR ports.

Each Dialer is associated with a peripheral (PG). The Dialer monitors skill groups associated with its own peripheral for resource availability and requests records for campaigns associated with those skill groups.

The Dialer only places calls on behalf of agents located on its PG.

Note   One campaign could be served by multiple Dialers if one or more skill groups from each peripheral is assigned to the campaign. This assignment allows campaigns to be site-specific or shared across the enterprise depending on the configuration.

Smaller Skill Groups

Predictive mode campaigns are more efficient when there are more resources (more agents for an agent campaign; more IVR ports for a transfer to IVR campaign) in a campaign skill group. The Dialer adjusts its dialing rate based on the number of abandons in a set number of calls. The more frequently calls are placed, the more often it can adjust the dialing rate. It is difficult for the Dialer to make accurate adjustments frequently enough when there are less than 10 agents in the campaign.

Blended Campaigns/Skill Groups

Blended campaigns are campaigns in which agents take inbound calls and outbound calls at the same time. The inbound program can use the same or different skill group as the outbound campaign skill group. The inbound calls generally receive priority in two ways. First, the campaign skill group can be configured to use a percentage of active agents, reserving the rest for inbound calls; and second, if an inbound customer is in queue, blended agents are not reserved for the blended campaign.

An agent on an outbound reservation call will not be interrupted with a routed inbound call. The agent reservation call is not terminated until the agent does so or the campaign is closed out for that skill group, or until the Dialer times out the reservation. An agent on a reservation call may be interrupted by an internal call. This interruption normally results in a dropped reservation call, and because the Dialer is dialing customers for that agent, it may also result in abandoned calls if no agents are available.

Agents Skilled for Multiple Active Campaigns

Agents can be skilled for multiple active campaigns. Because of the way the Dialer reserves agents, one of the campaigns wins the race to find an available agent when agents become available.

For example, assume that you have an agent in three active campaign skill groups. That agent becomes available in all three skill groups at the same time. The Dialer monitoring at the skill group level for the number of available agents sends up three reservation requests, one for each associated campaign skill group. In such a case, the request by the first campaign skill group in the Dialer memory gets priority over the other requests. Over time, this situation results in an imbalance of agents between skill groups

To work around this issue, queue reservation calls in a similar way to what is often done for personal callbacks. This workaround ensures that reservation requests in the second and third campaign skill groups are serviced first the next time an agent in that skill group becomes available. Now, calls can be evenly distributed across each of the active campaigns when agents are skilled for more than one of them.

Related Topics

Campaign Skill Group Reports

Skill Group reports provide information about agent activity for outbound and inbound agents.

Blended Campaign Skill Group Reports

If the same skill group is used for both inbound and outbound, then the campaign consolidated reports can provide a consolidated overview of business activity for both inbound and outbound calls.

Related Topics

Administrative and Supervisory Tasks, on page 159

Customer Time Versus System Time

This section helps identify when the *customer time zone* is used in Outbound Option activities versus when the *system time* is used.

Customer Time

> **Note** Since the Outbound Option uses area code prefixes to determine the time zone, this option might dial customers using wireless phones or VoIP phones in a different time zone according to the configured area code or time zone mapping.

Customers in a specific campaign can be distributed across multiple time zones, as long as they follow the same rules for when daylight saving time changes.

To determine the time zone offset of each contact, the Unified CCE system has a configurable *region prefix database* with phone number prefixes, assigned time zone offsets, and indications as to whether or not they observe daylight saving time. The import uses this database to associate time zone offsets with customers, so that when the campaign searches for records in the active query rule's dialing list, it considers time zone offset when determining which contacts are appropriate to dial now. However, this approach does not account for daylight saving time changes from time zone to time zone. These daylight saving time changes are managed at the campaign level so that campaigns cannot attempt to contact customers in time zones that observe daylight saving time, but switch over on different calendar dates.

For example, the United States is comprised of time zone regions that do not observe daylight saving time, or switch over on the same day. But a campaign that is dialing Houston, Texas and Mexico City, Mexico might have a problem because these locations change over to daylight saving time on different days.

If a contact's number does not match any of the configured region prefixes, then the campaign's default time zone offset is assigned. If all of the customers are in one time zone, then configuring the region prefix information is not necessary.

Outbound Option receives its list of daylight saving zones from the Microsoft Operating System. Make sure that all Outbound Option components have the same version of the MS OS installed for proper handling of any new time zones. Also, make sure that the Logger and AW machines have the latest time zone update for Microsoft Windows operating systems, or have the same time zone patches from Microsoft.

Related Topics

Architectural Overview, on page 21

System Time

The system time refers to the time used in scheduled imports. It also refers to the query rule *time of day* switching of contact lists, which is based on the time at the Central Controller.

Call Progress Analysis (Answering Machine Detection)

Call Progress Analysis (CPA) uses a combination of call signaling and media stream analysis to differentiate types of calls.

- Fax/modem detection looks for specific tones in the media stream.

- Voice detection looks in the media stream for alternate voice and silence patterns after the call has been connected.

- Answering Machine Detection (AMD) uses media stream analysis to look for a longer voice stream with minimal silence periods. (An option is available that searches for terminating tone detection.)

- Operator Intercept relies on call signaling network identification. It does not analyze the media stream looking for specific tri-tones.

Enable Answering Machine Detection in the Outbound Option Campaign component on a campaign-by-campaign basis, depending upon the requirements of the campaign or the purpose of the call.

Special Information Tones (SIT) and busy tones are detected by the gateway and not by the dialer. The dialer receives skinny messages from Unified CM and handles call classification based on them.

The gateway supports SIT detection only on T1 CAS (FXO loopstart signaling) and FXO ports for calls originated from an SCCP based Unified CM dialer.

Answering machine detection takes into account speech patterns and silence between identified voice patterns, to differentiate live voice from answering machine recording and background noise. There are a few configuration parameters to modify in the Outbound Option Campaign Configuration component to change the amount of silence or the expected time of greeting depending on the business need. Accuracy levels depend on various factors, such as campaign list quality and phone number types called.

SIP Dialer

If you have a SIP dialer, you must enable IP AMD for CPA to properly function. If you do not enable IP AMD, the SIP dialer instructs the gateway to transfer the call to an agent without waiting for detection.

Related Topics

Architectural Overview

This chapter, intended for system administrators and administrators, provides an overview of the Outbound Option architecture.

The Outbound Option Dialer component is designed to maximize resources in a contact center by dialing several customers per agent. After reaching a live contact, the Outbound Option Dialer component transfers the customer to an agent along with a screen pop to the agent's desktop. To optimize use of available agents, the Outbound Option Dialer component calculates the average amount of time an agent waits to receive a call and the average call handle time per agent. With this information, the Outbound Option Dialer component calculates the number of lines to dial so that agent wait time is kept to a minimum.

Unified CCE Software Overview

This section provides a high-level overview of Unified CCE software, which must be installed and configured before installing Outbound Option.

Note See Chapters 3-5 for detailed information about installing Unified CCE and Outbound Option software.

Before installing Unified CCE software, the computers must have the Microsoft Windows operating system and, for some components, Microsoft SQL Server database management software installed. Also, ensure that there is enough disk space available on each computer to install the Unified CCE component.

See the Compatibility Matrix for Unified CCE for information on operating system and software requirements.

Unified CCE software contains the following components:

- **CallRouter**: The component of the Central Controller that makes routing decisions. It gathers and distributes data to and from remote sites.
- **Logger**: The component of the Central Controller that controls the central database.

- **Administration & Data Server**: Known as the Admin Workstation in previous releases, the Administration & Data Server is the user interface for Unified CCE software. The Administration & Data Server can be located at any central or remote site. It allows users to monitor call handling within the system and make changes to configuration data or routing scripts.

- **Peripheral Gateway**: The interface between the Unified CCE platform and third-party hardware in each call center, such as an ACD. A Peripheral Gateway (PG) is typically located at the call center.

Install the Peripheral Gateway from the PG Setup program; install the other components from the Web Setup program.

Together, the CallRouter and Logger compose the Central Controller and are installed at a central site. A Peripheral Gateway is typically installed in each call center. Administration & Data Servers can be installed at a central site, a call center, or at a separate admin site.

Outbound Option Software Components

This section provides details about the server processes of the Outbound Option application:

- **Campaign Manager**: Manages lists.

- **Outbound Option Import**: Reads customer import files and generates database lists.

- **Outbound Option Dialer**: Maximizes the resources in a contact center by dialing several customers per agent. This component resides on the PG server, where it performs the following actions:

  - Dials customers

  - Reserves agents

  - Performs call classification

  - Calculates agent availability

  - Keeps outbound dialing at a level where the abandon rate is below the maximum allowed abandon rate

The Outbound Option components comprise the user interface where configuration data can be entered. This configuration data is used by the Outbound Option server processes to configure campaigns.

Outbound Option Component Relationships

The following figure shows the component relationships within an Outbound Option deployment that uses the SIP Dialer. These relationships include the Unified CCE software components that Outbound Option uses.

Figure 2: Outbound Option Network Component Relationship (SIP Dialer)
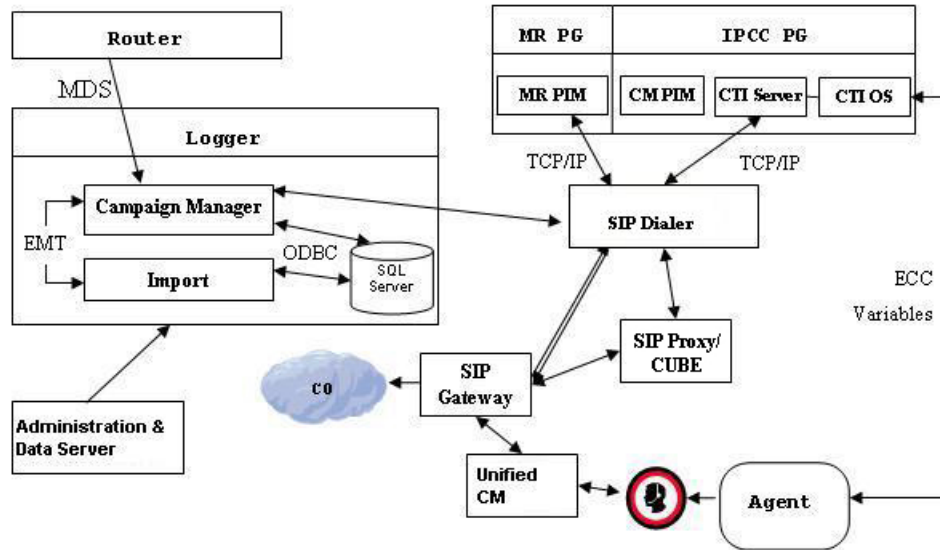
The following figure shows the component relationships within an Outbound Option deployment that uses the SCCP Dialer.

Figure 3: Diagram of Outbound Option Network Component Relationship (SCCP Dialer)
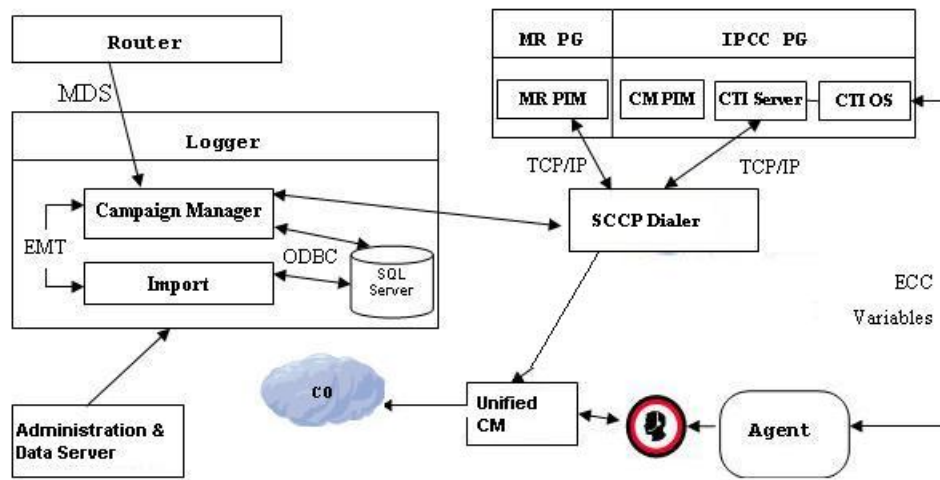
Outbound Option Campaign Manager Component

The Campaign Manager component, which resides on the Logger, is responsible for:

- Managing when a campaign runs.

- Maintaining system and dialer configurations.

- Making decisions about which contact records to retrieve from a campaign based upon configurable query rules and delivering contact records to dialers.

  Records for callbacks are sent to the Dialer only when agents are logged in, and are controlled by registry values as described in Chapter 6, "Configuration of Campaigns and Imports".

- Distributing configuration data to the import process and all available dialers in the system.

- Collecting real-time and historical data and sending it to the CallRouter.

- Managing the Do Not Call list to ensure that no records on it are sent to the Dialers.

- Performing record queries based on the following order:

  - Callback

  - Retry Zone1

  - Retry Zone2

  - Pending Zone1

  - Pending Zone1 DST

  - Pending Zone2

  - Pending Zone2 DST

  Based on this order, the priority for the Retry record is higher than for the Pending record. However, the Pending record priority can be set above the Retry record by setting the "PendingOverRetryEnabled" registry key to **1** (default is 0). If the value is set to **1**, the record query order would be:

  - Callback

  - Pending Zone1

  - Pending Zone1 DST

  - Pending Zone2

  - Pending Zone2 DST

  - Retry Zone1

  - Retry Zone2

Related Topics

Registry Settings, on page 173

Outbound Option Import Component

The Outbound Option Import component, which resides on the ICM Logger, imports the customer's contact list that the Outbound Option dialer uses to contact customers. In addition, the Import component uses the scheduling configured in the Outbound Option components to process imports that are scheduled for a particular date and time.

The Import component imports a Contact list, which contains the phone numbers that Outbound Option dials.

When the Import component processes an import, the following steps occur:

1 Import a Contact list into a table.

2 Build a dialing list for a campaign.

3 Perform region prefix matching.

✎

Note   Outbound Option can continue to run a campaign while an import is in progress; however, some of the campaign's query rules might be disabled.

Outbound Option Dialer Component

The Outbound Option Dialer component, which resides on the PG server, performs the following actions:

- Dials customers. In a deployment with the SIP Dialer, the Dialer component dials customers using the voice gateways. In a deployment with the SCCP Dialer, the Dialer component dials customers using Unified CM.

- Reserves agents through the Media Routing (MR) interface.

- Performs call classification.

- Calculates agent availability by monitoring campaign skill groups via the CTI Server interface to the agent PG.

- Transfers answered customers calls to reserved agents.

SIP Dialer

Unified CCE Release 8.5(1) offers the Session Initiation Protocol (SIP) Dialer alongside the Skinny Call Control Protocol (SCCP) Dialer that has been the sole Dialer offered in previous releases of Outbound Option. In an Outbound Option deployment that uses the SIP Dialer, functions such as dialing, call control, and Call Progress Analysis for Outbound campaigns are handled by the Voice Gateway rather than by Unified CM. This process increases the number of Outbound agents that a deployment can service on a PG, and reduces the number of PGs and Dialers customers need to deploy for larger enterprise systems.

The following table summarizes feature differences between the SIP Dialer and the SCCP Dialer.

SIP Dialer	SCCP Dialer
Use the voice gateway or CUBE dial peers and Unified SIP Proxy routing policies for outbound call routing	Use the Unified CM routing and dial plans for outbound call routing
No need to configure Unified CM translation pattern to support Campaign Automatic Number Identification (ANI)	Need to configure Unified CM translation pattern to support Campaign ANI
Perform CPA at gateway DSP resource	Perform CPA at Unified CM dialer port
CPA supports both G.711 and G.729 codecs	CPA supports only G.711 codec
No need to configure dialer port on Unified CM	Need to configure dialer port on Unified CM
Call Throttling supports 60 CPS per dialer	Call Throttling supports 5 CPS per dialer
Dialer need NOT be in proximity of voice gateway	Dialer needs to be in proximity of voice gateway
Supports 1500 dialer ports	Supports 120 dialer ports
Supports warm standby architecture	Does not support warm standby architecture
Requires one MR PIM for MR PG	Requires two MR PIMs for duplex SCCP Dialers, and one MR PIM for simplex SCCP Dialer
Only connected outbound calls, which are transferred to agents or IVR, go through Agent PG and Unified CM	*All* the outbound calls go through Agent PG and Unified CM

Dialer Port Allocation

The Dialer component reserves agents when it sees agents have become available. The Dialer requests skill group statistics from the agent PG every two seconds, and it attempts to reserve agents based on the number of available agents and the number of dialers active for this PG. If there are two dialers, each dialer attempts to reserve no more than half of the available agents. If there is only one agent left, then both dialers will attempt to reserve the agent, but because the dialers are not synchronized, the first dialer to see the available agent reserves it. It is not uncommon for under-used dialers to end up with one dialer getting more use than the others only because one dialer is more likely to see an agent become available.

For example, one dialer reserves more agents than the other dialer because both dialers ask every two seconds. If Dialer 2 always asks about agent availability right after Dialer 1, then Dialer 1 is always ahead on requesting agents and reserves more agents. Unless the agent becomes available after Dialer 1 asks, Dialer 2 receives less reservations.

Note Load balancing between Dialers increases as they get busier service for larger or multiple campaigns.

The Dialer component allocates available dialer ports based on need. Campaign skill groups with more available agents or that are dialing more lines per available agent receive a greater percentage of the available ports.

For example, in a two-dialer system, when one campaign dials three lines per agent with six available agents, the Dialer reserves nine ports for dialing, plus three ports to reserve agents because it is sharing agent resources with its dialer peer. If multiple campaigns are active and the number of ports that are needed is greater than the number of ports that are available, then ports are distributed in proportion to the lines per agent multiplied by the available agents for each campaign.

Each dialer checks agent availability to make reservation requests based on the skill group statistic refreshes that occur every two seconds. When skill groups for multiple campaigns are active for one or more of the same agents, then one campaign will always reserve that agent or agents. You can avoid this situation by scripting the reservation scripts to queue reservation calls using the same mechanism that is described for queuing personal callback reservation requests. This resolution ensures a more even distribution of calls for active campaigns that share a common agent pool.

For example, in the following scenario where two campaigns are in progress:

- Campaign 1 has four available agents and is dialing two lines per agent, which has a relative weight of eight (two lines each for four agents).

- Campaign 2 has one available agent, but is dialing at four lines per agent, which has a relative weight of four (four lines for one agent).

To satisfy dialing customers for all available agents they would need 12 ports, but in this condition only nine ports are left.

The results:

- Campaign 1 gets 2/3 of the remaining ports, or six of the remaining ports.

- Campaign 2 gets 1/3 of the remaining ports, or three of the remaining ports.

- The Dialer begins dialing with the ports it has, and assigns newly available ports to the campaigns when new ports become available.

Port Allocations for Campaign Modes

Preview, Predictive, and Progressive campaigns require at least two ports to place calls because they require at least one port to reserve the agent and one port to dial the customer. Because campaigns are shared across active dialers that service a PG, this maximum number of active campaigns applies to the PG.

Transfer to IVR and Direct Preview calls only require one port. Transfer to IVR calls do not reserve the IVR port before dialing, and Direct Preview calls use the agent's phone to place the call.

Outbound Option Dialer Process Flow

The following figure displays a call flow for an agent-based campaign in an SCCP Dialer deployment.

Figure 4: Agent-Based Campaign Call Flow
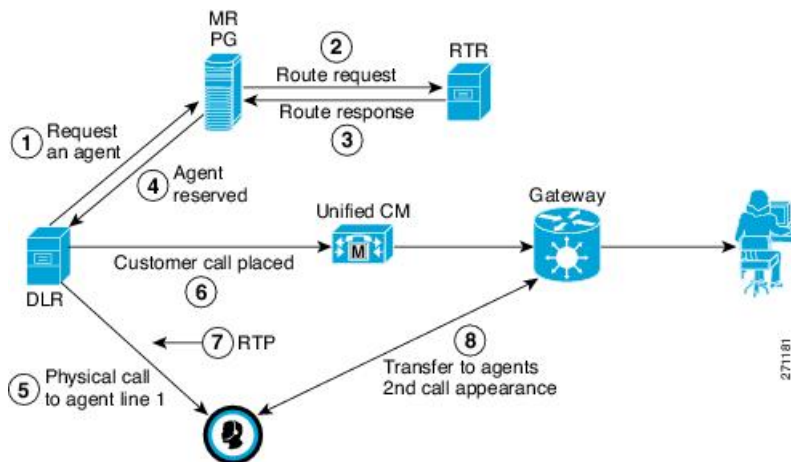
1 The Dialer process continually monitors peripheral skill group statistics from the CTI Server for an available agent. Concurrently, the Campaign Manager monitors the database for customer records and forwards active records to the Dialer. When the Dialer identifies an available agent for use in an outbound campaign, it sends a route request to the MR PIM.

2 The MR PIM forwards the route request to the Router.

3 The Unified CCE Router executes a routing script, selects an available agent, reserves that agent, and then returns a routing label (phone extension) identifying the reserved agent.

4 The MR PG returns the label for an available agent to the Dialer.

5 The Dialer then places a reservation phone call to the agent's phone extension. The Dialer auto-answers the reservation call for the agent using the CTI Server and then places that reservation call on hold.

6 The Dialer initiates the customer call using Unified CM and voice gateway.

7 If call progress analysis is configured, the Dialer process analyzes the RTP stream to detect a live answer (or answering machine detection). When a live answer is detected, the Dialer immediately initiates a transfer of the call (along with call context for screen pop) to the next reserved agent extension from the list maintained by the Dialer. Similarly, if answering machine detection is enabled, the call can be transferred to the agent, to an IVR, or dropped. The transferred call arrives on a second line appearance on the agent IP phone (thus a second line appearance for the Unified CCE extension in Unified CM must be enabled for Unified OUTDs).

8 The Dialer auto-answers the transferred call for the agent via the CTI Server, so that the voice path between the customer and the agent can be quickly established. This action releases the dialer port used to call the customer. The Dialer then hangs up the reservation call to this agent. The Dialer also updates the Campaign Manager to indicate a live answer was detected for this call. After the agent finishes handling the outbound call, the agent can be reserved for another outbound call via the same message flow.

Transfer to IVR Call Flow

The following figure displays a call flow for an IVR-based campaign in an SCCP Dialer deployment.

Figure 5: IVR-Based Campaign Call Flow
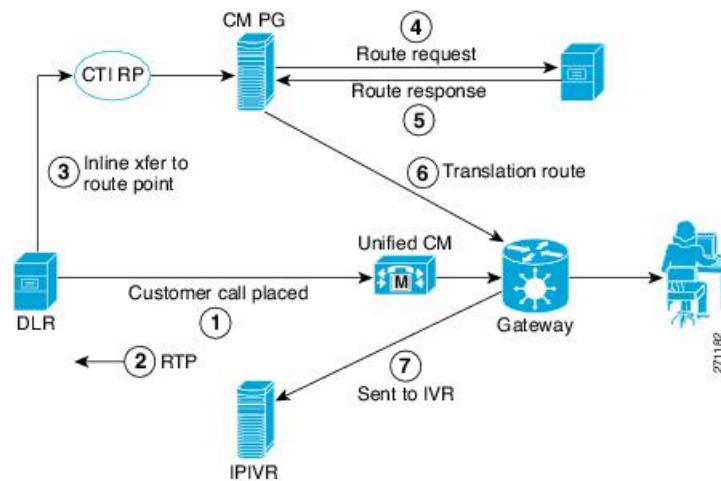
1 The Dialer initiates a call to the customer.

2 The RTP stream is analyzed and voice is detected.

3 The Dialer requests an in-line transfer to a pre-configured route point.

4 The Unified CM PG requests translation route for the Router.

5 The Router responds.

6 The response is translated and sent to Unified CM.

7 Unified CM transfers the call to the IVR.

Transfer to Agent Call Flow: SIP Dialer with SIP Proxy

The following figure illustrates a Transfer to Agent Call Flow in a deployment with a SIP Dialer that is connected to a SIP Proxy.

Figure 6: Transfer to Agent Call Flow - SIP Dialer with SIP Proxy
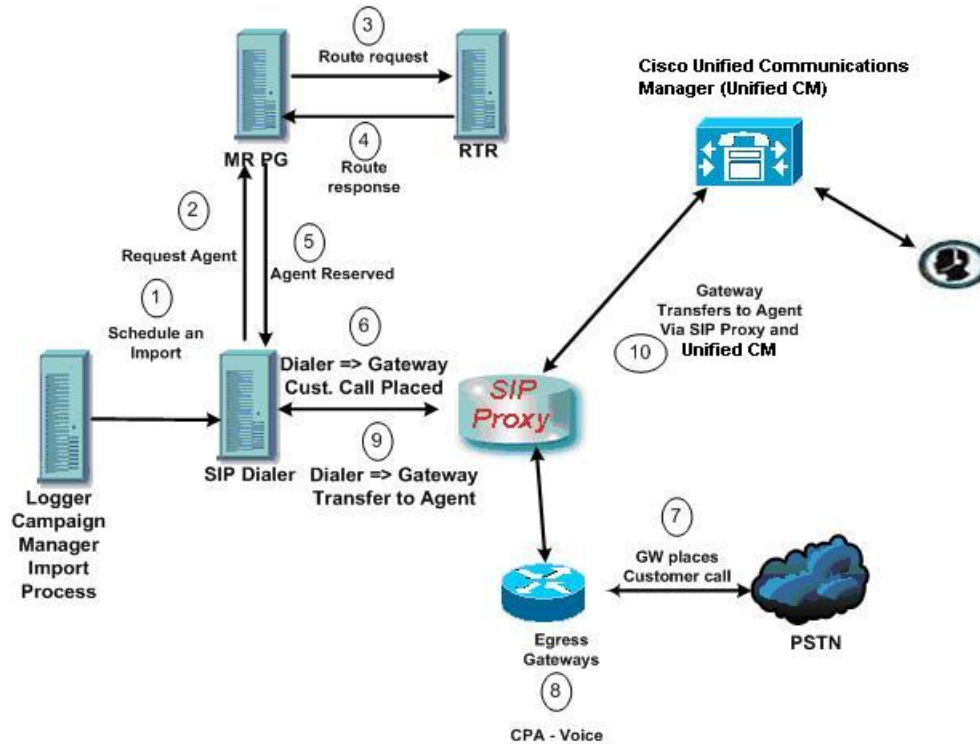
In the above example:

1. An agent campaign starts. Customer records are delivered to the Dialer.

2 to 5. An Agent is reserved with a virtual placeholder call.

6 to 7.The dialer asks the gateway (via proxy) to place a call, and it does.

8. The Voice Gateway performs Call Progress Analysis and detects live voice. Media is terminated at the VGW until the CPA completes.

9. The dialer is notified and asks the voice gateway (via proxy) to transfer the call to the agent.

10. The Voice gateway sets up the customer call with the voice agent (via proxy) and the UC Manager.

Transfer to IVR Call Flow: SIP Dialer with SIP Proxy

The following figure illustrates a Transfer to IVR Call Flow in an Outbound Option deployment with a SIP Dialer connected to a SIP Proxy.

Figure 7: Transfer to IVR Call Flow - SIP Dialer with SIP Proxy
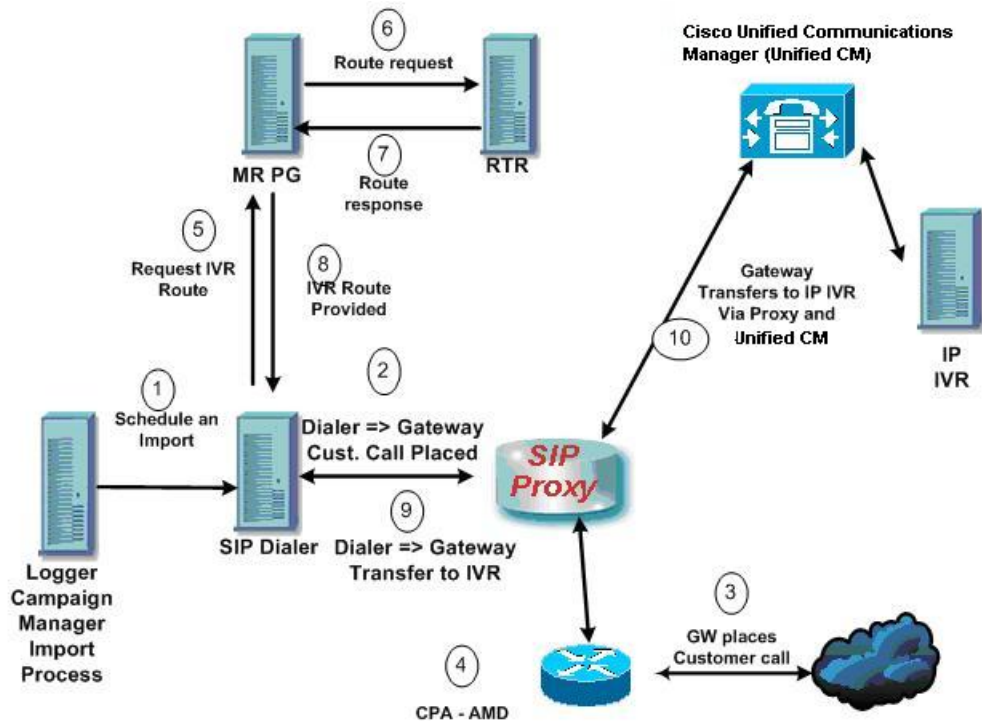
In the above example:

1 An unattended IVR campaign starts. Customer records are delivered to the Dialer.

2 The Dialer asks the SIP Proxy to forward an invite to an available gateway to start a call.

3 The Gateway places the call.

4 Voice Gateway does Call Progress Analysis and detects an answering machine. The Dialer is notified.

5 The Dialer asks the MR PG where the IVR is.

6 MR PG forwards the request to the Router.

7 Routing Script identifies the IVR and notifies the MR PG.

8 The MR PG forwards the route response to the Dialer.

9 The Dialer notifies the voice gateway to transfer the call to the IVR.

10 The Gateway initiates the transfer to the SIP Proxy, and the SIP Proxy forwards the invitation onto Unified CM. Unified CM forwards the call invitation to the IP IVR, and media is set up between the Gateway and the IP IVR.

Transfer to Agent - SIP Dialer with No SIP Proxy

The following figure illustrates a transfer to agent call flow in an Outbound Option deployment with a SIP Dialer with no SIP Proxy.

Figure 8: Transfer to Agent - SIP Dialer with No SIP Proxy
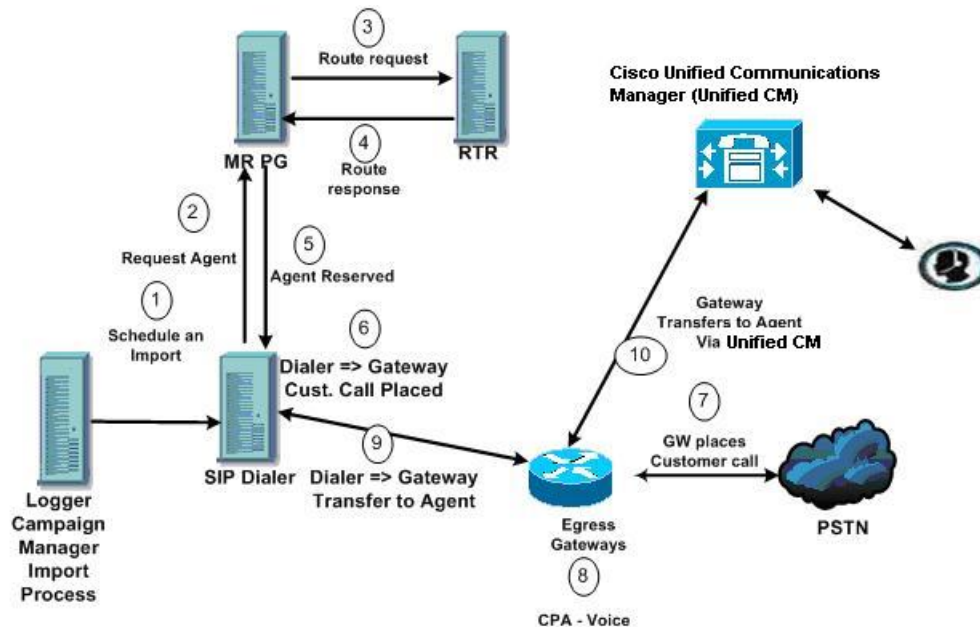
In the above example:

1 Import is scheduled and campaign starts. Records are delivered to Dialer.

2 Agent looks for an available agent via the Media Routing Interface.

3 MR PG forwards the request to the Router.

4 The Routing Script identifies an agent and responds to the MR PG.

5 Media Routing PIM notifies the Dialer that the agent is available.

6 Dialer signals the gateway to place a call to the customer.

7 The Gateway places a call to the customer, and the Dialer is notified it is trying.

8 Call Progress Analysis is performed at the gateway. Voice is detected, and Dialer is notified.

9 The Dialer asks the voice gateway to transfer the call to the reserved agent by its agent extension.

10 The Gateway directs the call to the agent via Unified CM using dial peer configuration to locate the Unified CM. Media is set up between the Gateway and the agent's phone.

Peripheral Gateway (PG)

The peripheral gateways (PGs) are redundant in a SideA - SideB configuration with one side active and the other side running in a standby while waiting to be activated. As mentioned earlier, the dialers are typically co-located with the agent PGs with the dialers running in a peer model.

Agent PG

The agent PG is a primary data collection point for agent and skill group statistics. The Dialer connects to the agent PG through the CTI Server interface where it monitors skill groups associated with campaigns during campaign configuration. It uses the number of working agents and available agents to determine when to reserve agents and when to dial for agent campaigns. For transfer to IVR campaigns, the Dialer monitors the number of calls queued as provided in the campaign skill group to determine when the Dialer component has reached its configured limit of IVR ports for this campaign.

The agent PG also monitors all calls that the Dialer ports place. The Dialer uses the PG representation of the call to push customer call context to the agent. It also provides dialer information about call results so that the PG can report the outbound statistics properly for the campaign skill group.

Campaign statistics and skill group statistics overlap in describing the number of outbound calls that reach agents. The Campaign Manager collects and reports campaign statistics. The PG collects and reports skill group statistics. It is not uncommon for the two reports to be off by a call or two for a given half hour, but it will corroborate at the end of the campaign.

Media Routing PG

The Media Routing PG (MR PG) is the interface the Dialer uses to make route requests to the Central Controller to find and reserve available agents. Each Dialer uses its own MR controller (MR PIM), and a separate dialed number is configured to differentiate requests for different campaign skill groups for agent campaigns.

In a Dialer deployment, the IVR and agent controllers (PIMs) are included in the agent PG using the Generic PG or System PG deployment to allow the MR PG to be co-located. See the Design Design Guide for a quick reference on configuration limits and scalability constraints. For more information about PG deployments seeVirtualization for Unified CCE and the Compatibility Matrix for Unified CCE pages on the DocWiki.

IVR

The Dialer uses the IVR for unassisted treatment of customer calls depending on campaign configuration for abandoned calls, answering machine treatment in an agent campaign, or for unassisted transfer to IVR campaigns.

IVR scripting is flexible in playing prompts to the user and collecting additional data. It can also be a queue point to wait for the next available agent.

Partition the ports accordingly when using the same IVR for inbound and outbound campaigns. For inbound calls, do not use ports allocated for the transfer to IVR feature. For IVR ports shared between inbound and outbound applications, the Dialer might transfer customers to an IVR which does not have any available ports left. In this case, the called party may hear a fast busy signal or hear a ring no answer message. To avoid this situation, purchase enough ports for the IVR.

Note	The transfer speed is usually under two seconds, but is dependent on network design and configuration.

Administration and Data Server: Configuration

The Administration & Data Server is an application where you can configure the Unified CCE system. (In releases prior to Release 8.0(1), this functionality was provided by an application called the Admin Workstation.) Enable the tools for configuring Outbound Option by editing the Administration & Data Server setup.

Cisco Unified Intelligence Center

Cisco Unified Intelligence Center (Unified Intelligence Center) is the standard Unified CCE reporting interface.

For details about Unified Intelligence Center, see the Cisco Unified Intelligence Center Documentation.

Dialer Reports

The Outbound Option Dialer reports provide information about the dialer platform. These predefined templates include information about performance and resource usage. The templates also enable you to determine whether you need more dialer ports to support more outbound calls.

Related Topics

Outbound Option Agent Desktops

Three desktops are available for the Outbound Option: CTI Object Server (CTI OS), the Cisco Agent Desktop (CAD), and Cisco Finesse.

Related Topics

Cisco CTI Object Server (CTI OS)

The CTI OS component provides an object-based interface to the CTI Server using the COM, C++, Java, and .NET interfaces. These interfaces permit development of agent desktop applications that interface with Unified CCE software.

Outbound Option includes a sample agent desktop, the Cisco CTI Toolkit Outbound Desktop (Win32), with Visual Basic source code, using CTI OS.

See the *CTI OS Developer's Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* for information about the CTI OS Architecture and the CTI OS Client Interface.

Cisco Agent Desktop (CAD)

Cisco Agent Desktop (CAD) is a computer telephony integration solution for contact centers that is easy to deploy, configure, and manage. The desktop provides contact center agents and supervisors with powerful tools to increase agent productivity, improve customer satisfaction, and reduce contact center costs.

CAD includes the following major components:

- Cisco Desktop Administrator
- Cisco Agent Desktop
- Cisco Supervisor Desktop
- Cisco Agent Desktop Services

This section discusses the Cisco Agent Desktop, Cisco Supervisor Desktop, and Cisco Desktop Administrator. See the CAD documentation for detailed information about other components.

Cisco Agent Desktop

Cisco Agent Desktop displays windows on the agent PC when the call arrives, increasing the speed of call processing. Cisco Agent Desktop populates any sort of third-party application (databases, help desk packages, personal information managers, and so on) based on the calling number, called number, or information that a VRU collects. The screen pop can use a combination of elements.

The Cisco Agent Desktop softphone allows agents to control calls from the PC. It minimizes keystrokes and saves time for agents who are working simultaneously with the phone, CTI desktop, and third-party applications. The softphone toolbar automates common telephony functions, including answer, drop, and speed dial. The toolbar also includes a taskbar, which launches applications based on telephony or data events. Agents select from up to ten predefined task buttons to update CRM data and other applications, as well as initiate automated after-call tasks, such as sending an e-mail or fax, or initiating call-handling scripts, or starting other Windows-based tools.

The Chat feature allows agents to communicate with their supervisors and other agents via text messages for assistance at any time without leaving their desks or putting a call on hold.

The integrated browser allows agents to view intranet and internet web pages from within Cisco Agent Desktop.

Cisco Supervisor Desktop

Cisco Supervisor Desktop allows contact center supervisors to view and direct agent activity in real time. Without leaving their desks, supervisors can observe, coach, and communicate with agents using instant messaging, view agent status details, as well as view conference information. Without the caller's knowledge, supervisors can initiate "chat" sessions to coach agents on how to handle customer issues. Supervisors can send scrolling marquee messages to all agents or to teams of agents to broadcast important information.

Supervisors can also use the real-time audio monitoring capabilities to listen to agent conversations with customers. If necessary, they can barge-in to calls—conference themselves into the conversation—or intercept a call—transfer a call to themselves. Supervisors can also record agent conversations and save those recordings for up to 30 days for later review.

Cisco Desktop Administrator

Cisco Desktop Administrator allows a contact center administrator to configure how Cisco Agent Desktop looks and behaves. Using Cisco Desktop Administrator, an administrator can create work flows, configure how enterprise data is displayed, customize task buttons, and perform many more tasks to customize Cisco Agent Desktop for that contact center's particular needs.

Related Topics

Cisco Finesse

Cisco Finesse provides the following applications and tools:

- A web-based desktop application for agents and supervisors. Agents and supervisors access their desktops by entering the following URL in their browsers: http://*hostname*, where hostname is the hostname or IP address of the Finesse server.

- A web service that provides contact center agent desktop functionality through a REST-like interface.

- An administration console for configuring system settings, desktop layout, wrap-up reasons, and reason codes. Administrators access this console by entering the following URL in their browsers: http://*hostname*/cfadmin, where hostname is the hostname or IP address of the primary Finesse server.

> **Note**   Cisco Finesse supports Outbound Option as follows:
>
> - You must use Progressive mode, Predictive mode, or Preview mode only. Direct Preview mode is not supported.
>
> - You must use the SIP Dialer only. SCCP Dialer is not supported.

The following Outbound Option features are not supported by the out-of-the-box Finesse Agent Desktop:

- scheduling a callback (regular or personal)
- adding a contact to the Do Not Call List

> **Note**   Agents who are on Progressive or Predictive Outbound Option calls do not appear in the Talking - Outbound column of the Queue Statistics gadget on the supervisor desktop. This number only includes agents who are talking on outbound calls placed by those agents.

Outbound Option Extended Call Context Variables

The Outbound Option Dialer uses CTI Extended Call Context (ECC) variables to exchange information with the CTI Toolkit Agent Desktop (Win32) for Unified CCE. The following table lists the ECC variables Outbound Option uses.

Note Dialer ECC variables can be passed to an IVR.

See the *Installation Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* for instructions on adding the Outbound Option ECC variables to CTI OS.

Table 2: ECC Variables for Outbound Option

ECC Variable	Description
BACampaign	Indicates the name of the Outbound Option campaign to which the call belongs.
BAAccountNumber	Identifies a customer account number and can be used by the desktop application to perform a database lookup to obtain additional customer data. This ECC variable is displayed only if the data was available in the customer import file. **Note** 30 characters is the maximum character length of this ECC variable.
BAResponse	Multi-purpose placeholder that sends data from the CTI Desktop to the Outbound Option Dialer. This variable responds to the reservation call to schedule and cancel callbacks, and to changes to the callback phone number. See the following rows for more information about BAResponse.
BAResponse for Preview mode	When an agent uses the **Accept**, **Reject**, **Reject-Close**, **Skip**, **Skip-Next**, and **Skip-Close** buttons in Preview mode, BAResponse is set to one of the following values: • **Accept**: Accepts the current preview call. • **Reject**: Rejects the current preview call. Sets record to "R" for retry. • **Reject-Close**: Rejects the current preview call and closes the record so it will not be called again. • **Skip**: Skips the current preview call. Sets record to "R" for retry. • **Skip-Close**: Skips the current preview call and closes the record so it will not be called again. **Note** The **Reject-Close** and **Skip-Close** buttons are only available on the CTI OS desktop.

ECC Variable	Description
BAResponse for the **Callback** button	When an agent uses the **Callback** button, BAResponse is set to one of the following values: **Note** Spaces are relevant and must be included in the commands below. • Callback mmddyyyy hh:mm: Schedules a callback for the indicated date and time • Callback Cancel: Cancels a previously scheduled callback for this call • P#xxxxxxxxxxxxxxxxxxxx: Changes the callback phone number to the number specified by xxxx For Preview modes, cancel the reservation call by clicking **Reject**. For Predictive mode, cancel the reservation call by clicking **Not Ready** and then hang up the reservation call.
BAResponse for Direct Preview calls	For Direct Preview calls, any connected customer call is classified as VOICE by the Dialer (default). To reclassify the call result, the agent has the option to click the following buttons: • **Voice**: To reclassify a call as a voice call, set the BAResponse variable to REX_VOICE. Enable the Voice button only after pressing one of the other buttons first. Pressing one of the other buttons first enables an agent to reclassify the call if needed. • **Answering Machine**: To reclassify the call as an answering machine call, set the BAResponse variable to REX_ANS_MACHINE. • **Fax/Modem**: To reclassify the call as a fax/modem call, set the BAResponse variable to REX_FAX. • **Invalid**: To reclassify the call as an invalid call, set the BAResponse variable to REX_INVALID.
BAResponse for answering machine detection in a transfer to IVR campaign	For answering machine detection on a transfer to IVR campaign, the BAResponse variable is evaluated to carry the CPA result of the customer call. Two new IF node configurations are supported: • Call.BAResponse="CPA_AnswerMachine" • Call.BAResponse="CPA_Voice" These IF nodes route to separate External Scripts to allow for different treatment depending on whether a voice or an answering machine was detected.

ECC Variable	Description
BAStatus	Contains two characters indicating the mode and direction of the Outbound Option Dialer initiated call. The first character identifies the call mode: • R: Reservation call, Predictive mode • G: Reservation call, Progressive mode • P: Reservation call, Preview mode • D: Direct Preview reservation call • C: Customer call • A: Reservation call, personal callback During a reservation call, the first character is P, R, G, or A. When a customer call is transferred to an agent, the first character is C. The second character of BAStatus indicates the call direction: • O: Outbound
BADialedListID	Unique key identifying a specific customer record within the Dialing List table in the Outbound Option private database.

BATimeZone	Indicates the GMT offset, in minutes, for the customer's time zone and obtains the customer's local time. The format of this ECC variable is +/-#####.
	
	This field's first character is either a positive or negative sign, followed by 5 digits. For example:
	
	• This example indicates that the customer is one hour behind GMT:
	    BATimeZone = -00060
	
	• This example indicates that the customer is two hours ahead of GMT:
	    BATimeZone = +00120

BABuddyName	Contains the customer's last and first name separated by a comma, which is compiled using the imported LastName, FirstName that was configured on the Import Rule Definition tab page.

Desktop Button Behavior

The following table explains the desktop button behavior when a call is placed using Outbound Option.

For more information about dialing modes, refer to .

Dialing Mode / Other Conditions	Call Description	Buttons Enabled
Preview	Reservation calls: Dialer makes the call and agent is available	**Accept**, **Skip**, **Reject**, **Skip-Close**, and **Reject-Close** buttons are enabled if the reservation call has not been accepted yet
	Initial customer calls: Agent accepts the call and Dialer makes the call to a customer	No buttons are enabled if the customer does not answer the call
	Transferred customer calls: Agent is talking to a customer	**Callback** button is enabled
Predictive and Progressive	Reservation calls: Dialer makes the call and agent is available	No buttons are enabled
	Initial customer calls: Dialer makes the call to a customer	No buttons are enabled if the customer does not answer the call
	Transferred customer calls: Agent is talking to a customer	**Callback** button is enabled
Direct Preview	Reservation calls: Dialer makes the call and agent is available	**Accept**, **Skip**, **Reject**, **Skip-Close**, and **Reject-Close** buttons are enabled if the reservation call has not been accepted yet
	Initial customer calls: Agent accepts the call and calls a customer	No buttons are enabled if the customer does not answer the call
	Transferred customer calls: Agent is talking to a customer	**Callback**, **AnsMach**, **Fax**, and **Invalid** buttons are enabled **Note** You can revert back to voice if you make a mistake.
Personal_Callback_List Table	BAStatus is set to A and O or A and B for a reservation call	**Accept** and **Reject** buttons are enabled, if the reservation call has not been accepted yet
	Initial customer calls: Agent accepts the call and calls a customer	No buttons are enabled if the customer does not answer the call
	Transferred customer calls: Agent is talking to a customer	**Callback** button is enabled

Outbound Option Scripting

Outbound Option uses Unified ICM Enterprise scripting configured on the Administrative Workstation to manage campaigns.

There are two types of scripts:

Outbound Option administrative scripts

Outbound Option administrative scripts enable, disable, or throttle campaign skill groups for outbound campaigns. The scripts can also automatically close out a skill group for a specific campaign based on time or any other conditional factor that the admin script can access. This scripting is performed at the skill group level to provide more flexibility when managing larger campaigns that are distributed across multiple skill groups.

Enable a campaign skill group by setting the campaign mode to one of the available modes: Preview, Direct Preview, Progressive or Predictive. (For more information about these modes, see Dialing Modes, on page 121.) Schedule an administrative script to run at regular intervals. Disable the campaign skill group by the administrative script, using a script node to change the campaign mode to inbound for that skill group.

This script also provides the ability to control the percentage of agents to be used in a campaign skill group and whether this skill group is used for other campaigns or inbound calls.

Note　An administrative script controls a campaign skill group. A campaign skill group can be mapped only to one campaign at a time. A skill group can be reused if new campaigns are added. If a campaign skill group is recycled, its administrative scripting should be reused as well. However, note that although it is possible to have two administrative scripts controlling the same skill group, conflicting campaign mode requests for Outbound Option can result.

Outbound Option agent reservation scripts

Two types of routing scripts are described later in this document. One is for Agent Campaign and one is for IVR Campaign.

Reservation scripts are used by the Dialer to reserve agents for specific outbound campaigns and personal callbacks. With this kind of script, the Dialer makes a route request via its Media Routing Client using the dialed number that is configured for the campaign skill group. Each campaign has its own dialed number and reservation scripting. If an agent is not available, the default behavior is for the script to end the call and the Dialer receives an error. The Dialer retries the reservation request when it sees available agents in the skill group statistics as described in the Dialer description earlier in this chapter. You can queue reservation calls which have scripts that distribute agents across campaigns when those agents are skilled for multiple, active campaigns.

A call can be transferred to an IVR as part of a transfer to IVR campaign, or transferred to non-IVR campaigns for answering machine or abandons. A transfer to IVR campaign places a route request call to a CTI Route Point dialed number on the Agent PG, which enables the call context of the customer call to be transferred to the IVR. A new call context can be added to the call while the call is being treated at the IVR.

Fault Recovery

This section describes Outbound Option behavior when specific components fail and recover.

Campaign Manager Fault Recovery

The Campaign Manager resides on Logger Side A. Logger Side B has no Campaign Manager, so only one Campaign Manager runs in the environment.

After the Dialer processes all of its cached records, it will not make calls until the Campaign Manager process recovers and further records can be sent to the Dialer again.

When the Campaign Manager process shuts down, the Dialer continues to dial contacts and saves the results until it processes all of the cached calls in memory, assuming that the Dialer is still able to reserve outbound agents for an agent campaign (that is, the ICM Router and MR PG need to be accessible).

After the Campaign Manager is back online, it updates call results based on the information it receives from the Dialer. (A few records may be lost due to race conditions when the Campaign Manager is not available.)

Dialer Fault Recovery

SIP Dialer

The SIP Dialer architecture supports a single active dialer per peripheral. Only one SIP Dialer needs to be configured. Two Dialers are installed on separate PG platforms, but each is installed using the same Dialer Name.

When the Dialer state changes from ready to not ready, it updates the status to the Campaign Manager. The Campaign Manager activates the standby Dialer if there is a standby Dialer in ready state. The same process applies if the Campaign Manager detects that the connection from the active Dialer is lost.

The Dialer returns all active and pending records to the Campaign Manager (dialer flush), or closes them internally if the link to the Campaign Manager is not available. Active calls are canceled if the call is not connected, abandoned if the call is connected but not transferred to agent/IVR, or continued if the call is already transferred and the PG/CG does not fail during that time. If the Dialer goes down or is disconnected from the Campaign Manager and the Campaign Manager detects the disconnection, the Campaign Manager marks all outstanding records with an Unknown status and returns them to Pending status if the Dialer does not respond within a certain time period.

SCCP Dialer

The Dialers run in a peer mode for a given Peripheral Gateway and Agent Controller. The Dialer asks the Campaign Manager for records for a given active campaign skill group, and the Campaign Manager distributes records to each Dialer equally as the Dialers request them.

When a Dialer shuts down, the Campaign Manager marks its records with a "U" to indicate that the Dialer has an unknown state. After an hour, the Campaign Manager sets the records back to a pending state ("P"), so that the records can be retried. The active agent PG continues to track and report on existing Outbound Option agent calls in the campaign's skill group. Tracking and reporting is reflected in the Campaign Consolidated reports.

For example, assume that two dialers are running for an agent skill group. When one Dialer shuts down, the other Dialer continues to dial records for the active campaigns. Dialing capacity is reduced.

If the Agent PG becomes unavailable, or is reported as out of service, the Dialer's memory flushes calls that have not been dialed and cancels calls in progress.

If Unified CM fails, the Dialer ports unregister and calls in progress end. The Dialer component stays offline until the Unified CM subscriber recovers. To avoid overloading any subscriber with traffic from multiple Dialers, Cisco recommends that no Dialer port has backup Unified CM subscribers.

Outbound Option implements a load balancing paradigm at the Outbound Option Dialer component level. If a dialer process terminates for any reason, other dialers at the same location become aware of this information and attempt to take over the failed dialer's load, resources permitting. The Outbound Option Campaign component marks records contained in the failed dialer with a status of "U" for unknown. These records are reset every hour to a Pending ("P") state. If the disconnected dialer is offline due to a network outage, the disconnected dialer caches call results and updates its records to the correct call result.

CHAPTER **3**

Outbound Option Installation: Preliminary Steps

This chapter, intended for system administrators who will perform the initial installation of Outbound Option, describes what you need to do before starting to install Outbound Option.

Before You Begin

The following sections identify considerations that you must make when you install Outbound Option.

Dialer Component Performance Optimization

The Outbound Option Dialer component dials at a rate that can overload a Unified CM subscriber. As a result, you must limit traffic for each Dialer to one Unified CM subscriber. In most cases the system cannot handle two Dialers that have overlapping subscribers, even as a backup.

Auto-answer Settings

Outbound Option is flexible when configuring auto-answer, depending on the system requirements. The main determining factor is whether or not the business requires the Outbound Option agent to hear a zip tone. Using an agent zip tone increases the transfer time line by almost one second.

Outbound Option Database Size

Outbound Option uses its own private SQL database on the Logger. Part of the installation includes creating this database, which is discussed later in this chapter. The SQL database creation on the Logger requires that the installer collect some business-related data and perform some calculations.

IVR Integration

The IVR deployment determines whether you require Unified CM MTP resources, or whether you can transfer customer call context to the IVR.

For this deployment, to support account number and name transfer to the IVR from the Dialer component, you need an IVR deployment that supports transfer to IVR.

If you are deploying Cisco Unified Customer Voice Portal (Unified CVP), you may need to allocate MTP resources for calls transferred to the IVR from the Dialer.

System Requirements

System requirements for Outbound Option include the following:

- A working Unified CCE system that has a Router, Logger, Administration & Data Server, Agent PG, IPCC Generic PG or System PG, CTI Server, and Unified CM connectivity with agents and CTI Route Points. See your IPCC Enterprise documentation for instructions.

- If you plan to use the transfer to IVR feature, configure an IVR deployment that supports transfer to IVR. See your Unified CVP, Cisco Unified Contact Center Express, or third party IVR documentation for instructions.

- Your system must meet the hardware and software requirements as listed in the following documents:

  - Virtualization for Unified CCE

  - Compatibility Matrix for Unified CCE

- **Important:** If any service releases for the currently installed version of ICM/CCE are installed, you *must* uninstall those service releases before proceeding. See the release notes for your ICM/CCE service release for uninstall instructions.

- Only T1 PRI and E1 PRI interfaces to the PSTN are supported for Outbound SIP dialers.

Installation Procedure Locations

Once the requirements stated in this chapter are satisfied, go to one of the following chapters for procedures for installing Outbound Option:

- For installation procedures for a SIP Dialer deployment, go to Outbound Option Installation: Preliminary Steps

- For installation procedures for a SCCP Dialer deployment, go to Outbound Option Installation: SCCP Dialer

C H A P T E R 4

Outbound Option Installation: SIP Dialer

This chapter, intended for system administrators who perform the first installation of Outbound Option, describes what you need to set up and install the Outbound Option platform.

This chapter groups installation activities to minimize switching between configuration and actual software installation. The general flow lists Unified CCE configuration first, then the Unified Communications Manager, and then the Outbound Option component software installation and associated database creation.

Installation task maps

System Configuration for Outbound Option

The first phase is to configure Outbound Option to handle the optional Outbound Option components. The following table lists the required steps and provides pointers to where the tasks are discussed.

Table 3: Configure Unified CCE for Outbound Option

Step Number	Task	Unified CCE Procedure	System PG Procedure
1	Configure the Unified CCE PG	Configure the PG, on page 49	Configure the PG, on page 49
2	Configure the Dialer component	Configure Dialer Component, on page 50	Configure Dialer Component, on page 50

Step Number	Task	Unified CCE Procedure	System PG Procedure
3	Configure the port map	Configure Port Map, on page 51	Configure Port Map, on page 51
4	Create a Network VRU	Create a Network VRU, on page 52	Create a Network VRU, on page 52
5	Configure the Media Routing PG	Configure Media Routing PG (MR PG), on page 52	Configure Media Routing PG (MR PG), on page 52
6	Configure a Skill Group	Configure Skill Group, on page 54	Configure Skill Group, on page 54
7	Create a Dialed Number	Create Dialed Number, on page 55	Create Dialed Number, on page 55
8	Create Translation Route To IVR	Unified CCE Documentation	Unified CCE Documentation
9	Configure System Options	Configure System Options, on page 56	Configure System Options, on page 56
10	Enable ECC Variables	Enable Expanded Call Variables, on page 56	Enable Expanded Call Variables, on page 56
11	Configure and schedule personal callbacks (optional)	Configure Personal Callbacks, on page 94	Configure Personal Callbacks, on page 94
12	Enable packet capture	Packet Capture, on page 63	Packet Capture, on page 63

Software Installation and Database Creation

The next phase in installing Outbound Option is Outbound Option component software installation and associated database creation. The following table lists the steps that comprise software installation and database creation and provides pointers to where the tasks are discussed.

Table 4: Software Installation and Database Creation Steps

Step Number	Task	Unified CCE Procedure	System PG Procedure
1	Install the Outbound Option private database on the Logger Side A platform	Create Outbound Option Private Database, on page 71	Create Outbound Option Private Database, on page 71

Step Number	Task	Unified CCE Procedure	System PG Procedure
2	Install the Dialer component on the PG platform	Install Dialer Component on the PG Platform, on page 73	Install Dialer Component on the PG Platform, on page 73
3	Edit Dialer-related Registry values	Edit Dialer-Related Registry Values, on page 75	Edit Dialer-Related Registry Values, on page 75
4	Install the MR PG on the PG platform	Install MR PG, on page 75	Install MR PG, on page 75

Unified CCE configuration for Outbound Option

This section provides procedures for the tasks that are associated with configuring the Unified CCE for Outbound Option.

Configure the PG

Perform the following steps to configure the PG (PG1).

Procedure

Step 1 In ICM Configuration Manager, open the PG Explorer tool.

Step 2 Click **Retrieve**, and then click **Add**.
Add a Unified CCE PG.

Step 3 Enter the name (for example, PG1).

Step 4 Select the **CallManager** or **PG Generic** PG Type.

Step 5 Add a peripheral.

Step 6 Enter the name (for example, PG1_PIM1).

Step 7 On the Peripheral tab, select the **Enable post routing** check box.

Step 8 Select the Default Desk Setting from the drop-down list box.

Step 9 On the Routing Client tab, enter the routing clientname (for example, PIM1_Voice).

Step 10 Select the **Cisco_Voice** option from the **Default media routing domain** drop-down list box.

Step 11 Click **Save**.

Step 12 Record the assigned Logical Controller ID for later use: _____.

Step 13 Record the assigned Peripheral ID for later use: _____.

Configure Dialer Component

Perform the following steps to configure the dialer component.

Procedure

Step 1   Make sure that all CCE services are running.

Step 2   Open the Unified CCE Configuration Manager.

Step 3   Expand **Outbound Option**, and double-click **Dialer** to display the Outbound Option Dialer configuration window.

Step 4   Click **Retrieve**.

Step 5   Click **Add** to add a new dialer.

Step 6   Enter the following information in the Dialer General Tab fields.

Table 5: Dialer General Tab Fields

Field	Description
Dialer Name (required)	The name of the system where the dialer is located. Maximum 32-character string, including alphanumeric characters, periods (.), and underscores (_). Alphabetic characters can be uppercase or lowercase. The name must begin with an alphanumeric character, and must not contain spaces.
	Note When you install the dialer component (see Install Dialer Component on the PG Platform, on page 73), you must enter the Dialer Name in Peripheral Gateway Setup exactly as you enter it on the Dialer General Tab. Otherwise, the dialer cannot register with Campaign Manager.
Enable	Check this check box to enable this dialer for all campaigns.
ICM Peripheral Name (required)	Select a preconfigured MR PG peripheral name. This field is a drop-down list and is not editable.
Dialer Type	Select SIP (Session Initiation Protocol)
Description	Maximum 255 characters. This description appears only on this tab page.
General Telephony Section	
Include Area Code when Dialing	When this option is enabled, the dialer uses the area code to reach local telephone numbers. The default is Disabled.
Dial prefix	Enter any dialing prefix required by your location or by your campaigns. For example, some locations require the prefix 9 to reach an outside telephone line.

Field	Description
Long distance prefix	Enter the long distance area code for all long distance calls. The dialer checks the local area codes against the contact number. If the configured local area code does not match the area code in the contact number, the dialer determines that this number is a long distance call. The default is 1. **Note** If the dialer is installed in a location outside the United States, either enter the locally specific long distance prefix in the Long distance prefix field or leave the field blank.
Local area code (comma delimited) (required)	Enter the area/city code that is used at your location. Enter multiple local area codes separated by commas; for example, "508,978,617" represents three local area codes.
Hangup Delay (1-10)	Enter the number of seconds the dialer waits before reusing a port after a hangup event. The default is 1 second.
Port Throttle	The maximum calls-per-second rate at which the dialer dials outbound calls. Default is 10 to 15 calls per second for SIP dialer.

Step 7   Click **Save**.

Configure Port Map

Perform the following steps to configure the port map for each dialer. The port map specifies the number of ports that are available on the dialer and the extension numbers that Unified Communications Manager assigns to those ports. Each configured port represents a dialer phone device on Unified Communications Manager.

Note

- For the SIP Dialer, you do not need to configure port extensions on the Unified Communications Manager. (Configuration of matching port extensions is required for the SCCP Dialer.)

- Extension numbers must be unique across the full enterprise. If there are multiple Unified Communications Manager clusters, the extensions (Unified Communications Manager directory number) must still be unique. Extension numbers can be up to ten digits in length.

- When selecting extension numbers for Dialer ports, check the phone numbers in Unified Communications Manager and the dial numbers in Device Target Explorer tool in Unified CCE Administration to make sure existing numbers are not being used.

Procedure

Step 1   In the Unified CCE Configuration Manager Outbound Option Dialer configuration window, click the Port Map Selection tab to display the port map configuration.

	Note	Make sure all agents and skill groups used by Outbound Option are associated with the Unified Communications Manager PG, not the MR PG.

Step 2 To begin adding ports to this dialer, click **Add**.

Step 3 Configure a set of ports and their associated extensions.
Note: Make sure you provide the same number of ports for all the Dialers configured on the same peripheral.

Step 4 Click **OK**. The port mappings appear on the Port Map Selection tab.

Step 5 Click **Save** to save all the configuration information.

Create a Network VRU

Perform the following steps to create a Network VRU using the Network VRU Explorer tool.

Procedure

Step 1 Open the ICM Configuration Manager application.

Step 2 Open the Explorer tools.

Step 3 Open the Network VRU Explorer tool.

Step 4 Create a type 2 VRU to be used during Media Routing (MR) PIM setup. Record the \ VRU name: _____.

Step 5 Click **Save**.

	Note	See the *ICM Configuration Guide for Cisco Unified ICM Enterprise* for detailed information about the ICM Configuration Manager tools.

Configure Media Routing PG (MR PG)

Perform the following steps to configure the MR PG (PG2).

Procedure

Step 1 In ICM Configuration Manager, open the PG Explorer tool.

Step 2 Click **Retrieve**, then click **Add**. Add an MR PG.

Step 3 Enter the name (for example, PG2_MR).

Step 4 Select the **MR PG** type.

Step 5 Add a peripheral.

Step 6 Enter the name (for example, PG2_MR_PIM1).

Step 7 On the Peripheral tab, check the **Enable post routing** check box.

Step 8 On the Routing Client tab, enter the routing client name (for example, MR_PIM1_Voice).

Step 9 Configure the routing type for SocialMedia as **Multichannel**.
Set the Default setting as **None**.

Step 10 Select the **Cisco_Voice** option from the Default media routing domain drop-down list box.

Step 11 On the Advanced tab, select the **Network VRU** that you created during IPCC installation from the drop-down list box.

Step 12 Click **Save**.

Step 13 Record the assigned Logical Controller ID for later use: _____.

Step 14 Record the assigned Peripheral ID for later use: _____.

Send to VRU

The Send to VRU node can be used in a routing script for an IVR campaign. The following steps and accompanying diagram provide an example of how to create a script for an IVR campaign.

Procedure

Step 1 Using the Dialed Number tool, associate the MR dialed numbers with the configured call type.

Step 2 Using the Script Editor Call Type Manager, associate the call type with the newly created reservation script.

Note See the Script Editor online help for information about using the Script Editor application.

Configure Skill Group

Perform the following steps to create a skill group using the Skill Group Explorer tool:

Procedure

Step 1 In ICM Configuration Manager, open the Skill Group Explorer tool.

Step 2 Make sure the PIM is displayed in the **Select filter data** section (for information on creating the PIM, see Configure the PG, on page 49).

Step 3 Click **Retrieve**.

Step 4 Click **Add Skill Group**.

Step 5 Set the **Media Routing Domain** to **Cisco_Voice**.

Step 6 Enter a peripheral name and number (record them):_____. (You can either enter a name or allow the system to generate the name.)

Step 7 Check the **ICM picks the agent** check box.

Step 8 Click **Add Route**.

Step 9 Enter a name for the new route (any name is allowed).

Step 10 Click **Save**.

Create Dialed Number

Perform the following steps to create a dialed number for the MR PG.

Procedure

Step 1 In ICM Configuration Manager, open the Dialed Number/Script Selector List tool.

Step 2 Click **Add**, and then enter a dialed number for the MR PG.

Step 3 Select the MR routing client from the drop-down list box.

Step 4 Select **Cisco_Voice** from the **Media Routing Domain** drop-down list box.

Step 5 Enter the dialed number.

Step 6 On the Dialed Number Mapping tab, click **Add.**

Step 7 In the **Calling Line ID** group box, click the **All** radio button.

Step 8 In the **Caller-entered digits** group box, click the **All** radio button.

Step 9 In the **Call type** drop-down list box, select the MR call type.

Step 10 Click **OK** on the Dialed Number Map Entry dialog box, and then click **Save.**

Note To use the Personal Callback feature, a second dialed number is required. This dialed number must have the **PersonalCallback** dialed number string. As with the previous dialed number, map all Calling Line IDs and all Caller-entered digits to the call type previously created for the MR routing client. Multiple dialers require multiple dialed numbers—one for each routing client per skill group.

Configure System Options

Use the Outbound Option System Options component in the Unified CCE Configuration Manager to define contact dialing time ranges to apply to all of your Outbound Option campaigns.

Be sure to select AM or PM for your start and end times.

Procedure

Step 1	In Unified CCE Configuration Manager, expand **Outbound Option**, and then select **System Options**.
Step 2	Click the General Options tab to define the dialing time range for all your Outbound Option campaigns to use, and then click **OK**.
Step 3	Click the Bulk Update tab page to define specific dialing time ranges for telephone numbers, and then click **Update All Campaigns**.

Enable Expanded Call Variables

Perform the following steps to enable the expanded call variables.

Procedure

Step 1	Open the System Information tool in the Tools/Miscellaneous folder in the ICM Configuration Manager application.
Step 2	In Unified CCE Administration, click **Manage** > **Expanded Call Variables**.
Step 3	Check the **Expanded call context enabled** check box.
Step 4	Click **Save**.
Step 5	Open the List tools.
Step 6	Open the Expanded Call Variable List tool.
Step 7	Click all BAxxxx variables (BAAccountNumber, BABuddyName, BACampaign, BADialedListID, BAResponse, BAStatus, and BATimezone).
Step 8	In the Attributes tab, check the **Enabled** check box for each variable.
Step 9	Click **Save**.

(Optional) Configure Personal Callbacks

Personal Callback is an optional feature in Outbound Option. Personal Callback allows an agent to schedule a callback to a customer for a specific date and time. A personal callback connects the agent who originally spoke to the customer back to the customer at the customer-requested time.

This section describes how to configure your system to handle personal callbacks. Then, when your contact center users create campaigns, they enable the callback feature on a per campaign basis. The following table outlines the steps involved and lists which steps are described in detail below.

Note   All personal callbacks occur in Preview mode. Be aware that only one Dialer on a particular peripheral is assigned personal callback records.

Some personal callback options must be configured through the registry. Furthermore, if a personal callback record is not associated with a campaign, it follows the rules configured within the registry.

Procedure

Step 1   To enable Personal Callback, open the Unified CCE Configuration Manager.

Step 2   Select **Outbound Option**.

Step 3   Load the Campaign tool.

Step 4   Select the **Campaign General** tab.

Step 5   Open a predefined campaign.

Step 6   Check the **personal callback** check box.
Personal callback is now enabled. To configure the personal callback registry entries, continue with Step 7 of this procedure.

Step 7   Configure a call type for personal callback. For information about creating call types, see "Call Types" in the *Packaged CCE Administration Guide*.

Step 8   Create a dialed number with the name PersonalCallback on the outbound routing client. Refer to "Dialed Numbers" in the *Packaged CCE Administration Guide for Release 9.0(x)* for information about configuring dialed numbers.

Step 9   In Script Editor, create a routing script that sets up the Personal Callback reservation.
Include the following nodes:

- Add a queue-to-agent node.

- Add a Wait node after the Queue to Agent node. Use a value that is less than the TimeToWaitForMRIResponse Dialer registry setting. The default value is 600 seconds (10 minutes).

- The script should end in a Release Node instead of an End Node to avoid filling the Router Log Viewer with "No Default Label" errors.

For example, the following Personal Callback reservation script uses nodes described in following sections:

Figure 9: Personal Callback Reservation Script
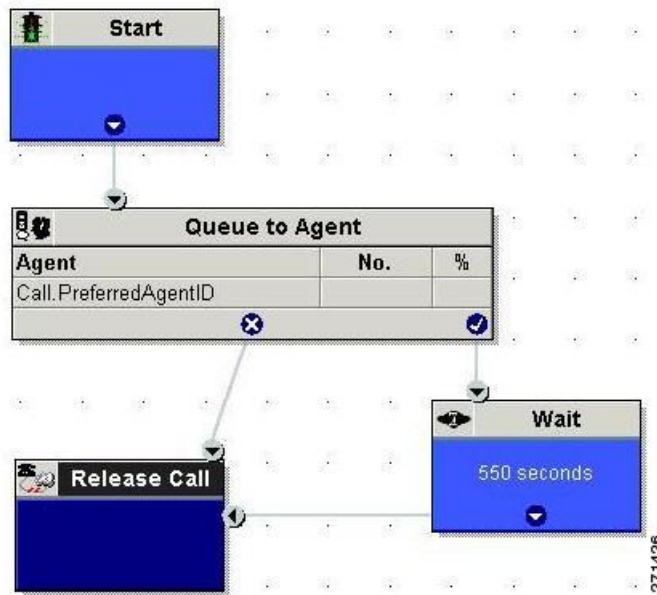
For details of routing scripts, refer to Set Up Routing Scripts.

Step 10 Open **regedit** on the data server (DS).

Step 11 Open HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<instance name>\LoggerA\BlendedAgent\CurrentVersion in the Outbound Option registry.

Step 12 Configure the personal callback registry entries listed in the following table. (Enter the values in decimal format.)

Note   The minimum and maximum values in the table are enforced by Outbound Option at runtime. The registry does not validate the values. Also, the default values are sufficient for most users.

Name	Default Value (integers)	Description
CallbackTimeLimit	15	Calculates the callback time range for each personal callback in minutes. Outbound Option queries the Personal Callback List for callback records, where the CallbackDateTime value is between the current time and the sum of the current time minus the CallbackTimeLimit.
PersonalCallbackTimeToRetryBusy	1	Sets the amount of time, in minutes, that the Outbound Option Dialer waits before retrying a personal callback when the customer's phone is busy (minimum value is 1; maximum value is 10).

Name	Default Value (integers)	Description
PersonalCallbackTimeToRetryNoAnswer	20	Sets the amount of time, in minutes, that the Outbound Option Dialer waits before retrying a personal callback when the customer does not answer the phone (minimum value is 5; maximum value is 60).
PersonalCallbackTimeToRetryReservation	5	Sets the amount of time, in minutes, that the Outbound Option Dialer waits before retrying to reserve an agent if the agent is not available (minimum value is 1; maximum value is 10).
PersonalCallbackMaxAttemptsDefault	5	Sets the maximum number of times a personal callback is attempted (minimum value is 1; maximum value is 20). When the number of maximum attempts reaches 0, the record is not tried again and the status is set to "M" (max-ed out).
PersonalCallbackTimeToCheckForRecords	5	The interval time, in minutes, at which the Outbound Option Dialer checks the Campaign Manager for personal callback records (minimum value is 1; maximum value is 30).
PersonalCallbackDaysToPurgeOldRecords	5	The number of days after the personal callback has been scheduled to keep the record before it is purged (minimum value is 1; maximum value is 30).
PersonalCallbackRecordsToCache	20	The number of personal callback records to send to the Outbound Option Dialer at one time (minimum value is 5; maximum value is 100).
PersonalCallbackSaturdayAllowed	0	Indicates whether personal callbacks are allowed on Saturdays: • 0: Personal callbacks are not allowed on Saturdays and will be scheduled for the next allowable day. For example, a personal callback which fails to reach the customer on a Friday will be rescheduled for the following Sunday or Monday. • 1: Personal callbacks are allowed on Saturdays.

Name	Default Value (integers)	Description
PersonalCallbackSundayAllowed	0	Indicates whether personal callbacks are allowed on Sundays: • 0: Personal callbacks are not allowed on Sundays and will be scheduled for the next allowable day. For example, a personal callback which fails to reach the customer on a Friday will be rescheduled for the following Saturday or Monday. • 1: Personal callbacks are allowed on Sundays.
PersonalCallbackCallStatusToPurge	C, M	If needed, this registry entry must be created. String containing the call status types to consider when purging old personal callback records. For example, if the string contains "C,M,F,L,I," all calls with these call statuses are purged from the database. (If the registry entry is missing, the default is assumed.) **Note** The call status values can optionally be delimited using a comma, a hyphen, a semicolon, or a colon. For more information about call status values, see the *Database Schema Guide for Cisco Unified Contact Center Enterprise* http://www.cisco.com/en/US/products/sw/custcosw/ps1844/prod_technical_reference_list.html.
PersonalCallbackNoAnswerRingLimit	4	If needed, this registry entry must be created. The number of times a customer phone rings before the call is classified as an unanswered call (minimum value is 2; maximum value is 10).

Step 13 Create an enterprise skill group and an enterprise route. Then configure the Queue to Agent node.

Create an Enterprise Skill Group

To use the Personal Callback feature, you need to create the enterprise skill group associated with the agent using the Enterprise Skill Group List tool.

Procedure

Step 1   Open the List tools.

Step 2   Open the Enterprise Skill Group List tool.

Step 3   Create an enterprise skill group. In the **Add Name** field, type the enterprise name, then click **Add**. Select the skill group, and then click **Save**.

Step 4   In the Attributes tab, click **Add** to add the skill group or groups.

Step 5   Click **Save**.

Create an Enterprise Route

After you create the enterprise skill group associated with the agent, you need to create an enterprise route using the Enterprise Route List tool. This route should target the enterprise skill group created in the previous step.

Procedure

Step 1   Open the List tools.

Step 2   Open the Enterprise Route List tool.

Step 3   Create an enterprise route. In the **Name** field, type the enterprise route, and then click **Add**. Select the route, then click **Save**.

Step 4   On the Attributes tab, add the route.

Step 5   Click **Save**.

Configure Queue to Agent Node

Procedure

Step 1 In Script Editor, double-click the Queue to Agent node.

Step 2 Press **Change** in the **Queue to agent type** section.

Step 3 Click **Lookup agent reference by expression**, then click **OK**.

Step 4 In the agent expression column, enter Call.PreferredAgentID.

Step 5 Select the enterprise skill group you created in the **Enterprise Skill Group** section (see Create an Enterprise Skill Group, on page 60). If you are configuring for Unified SCCE, select the Route you configured in that section.

Step 6 Select the enterprise route you created in the **Enterprise Route** section (see Create an Enterprise Route, on page 61).

Step 7 Confirm that the Peripheral column is left blank.

Step 8 Click **OK** to save the Queue to Agent node.

Step 9 Save and then schedule the script. When scheduling the script, use the call type that is configured for personal callback.

Figure 10: Scheduling Script
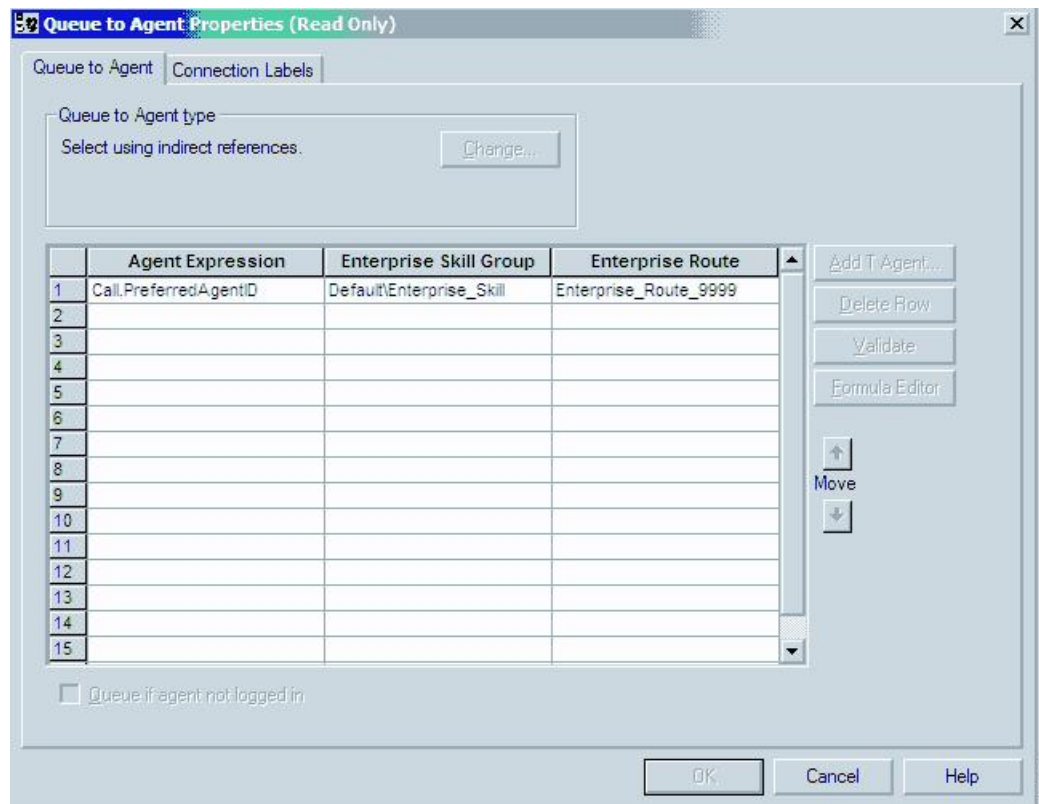
Packet Capture

In order for SIP Dialer to properly capture data, you must ensure that the SIP Dialer on the call server machine is using the active interface from the Ethernet Interface list. You can find out which interface is the active interface by using a network protocol analyzer tool such as Wireshark, which you can download from www.wireshark.org. (From Wireshark, click **Capture** to open a Capture Interfaces dialog box; the listed interface with network packets is the active interface.)

You can change the SIP Dialer packet capture parameters to use the active interface from the Windows Registry Editor. Change the value of the interface name option (-i) in the CaptureOptions key to the number of the active interface. For example, to use the third interface, edit the value for -i to read `-i 3`.

Capture files are in the `HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<`*customer instance*`>\Dialer` registry key location.

- From a command prompt window, enter a `procmon ba_capture` command to specify that SIP Dialer use the active interface. In this command, specify the number of the active interface to use in the `/options -i` parameter.

The syntax of the procmon ba_capture command is as follows:

```
ba_capture [/on] [/off] [/options] [/type]
```
where

/on, /off	/on turns packet capture on, /off turns packet capture off. The default is off; you should turn it on.
/options	• -i <ifname>: Specifies interface name to capture on. • -w <filename>: Captures directly to file in pcap format, file can be opened with Wireshark or with other tools. • -C <file_size>: Specifies the maximum size of a capture file. The units of file_size are millions of bytes (1,000,000 bytes, not 1,048,576 bytes). • -W <filecount>: Specifies the number of files created. The capture files are overwritten from the beginning, thus creating a rotating buffer. Capture files after the first capture file have the name specified with the -w flag, with a number after it, starting at 1 and continuing upward. • -tt : Prints an unformatted timestamp on each dump line. • -s : Snarfs `snaplen` bytes of data from each packet rather than the default of 68 . Setting `snaplen` to 0 means use the required length to catch whole packets.
/type	`/type 1` captures SIP packets only or `/type 2` captures the entire data payload on the Dialer host machine.

For example, the command

```
capture /on /options -i 2 -tt -C 20 -s 0 -W 20 -w DialerCapture
```

captures the network packets on interface 3 with capture files: capture1 – capture20. The maximum number of capture files stored is 20. After 20 files are created, the oldest capture file is overwritten with the new data. Maximum file size is 20 MB.

Unified Communications Manager and Gateway Configuration

The next phase of installing Outbound Option is configuring Unified Communications Manager and its related gateway.

The following table lists the steps that comprise Unified Communications Manager configuration and provides pointers to where the tasks are discussed.

Table 6: Unified CM Configuration Steps for Deployments with SIP Dialer

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
1	Disable Ring Tone for Dialer Transfer	Disable Ringback During Transfer to Agent for SCCP, on page 64	Disable Ringback During Transfer to Agent for SCCP, on page 64
2	Configure SIP Trunks	Configure SIP Trunks, on page 70	Configure SIP Trunks, on page 70

Disable Ringback During Transfer to Agent for SCCP

Perform the following configuration so that customers do not hear a ringback tone while a call is being transferred to an agent.

Note   The following configuration is applicable to H323 only. You cannot disable Ringback for the Media Gateway Control Protocol (MGCP).

Procedure

Step 1   Log into the Unified CM Administration window.

Step 2   Select **System** > **Service Parameters**. The Service Parameter Configuration screen appears.

Step 3   On the Server and Service drop-down menus, select the Server and Service. For Service, specify **Cisco CallManager**.

Step 4   Navigate to the Send H225 User Info Message drop-down menu. Select the **Use ANN for Ringback** option.

Step 5   Click **Save**.

Step 6   Repeat Steps 1 and 2.

Step 7   On the Server and Service drop-down menus, select the Server and Service. For Service, specify **Cisco IP Voice Media Streaming App**.

Step 8   Navigate to the Annunciator (ANN) parameters section of the screen.

Step 9   On the Run Flag drop-down menu, select **False**.

Step 10   Click **Update**.

Disable Ringback During Transfer to Agent for SIP

The configuration for the SCCP Dialer does not work for the SIP Dialer. When the SIP Dialer is handing off the call to an agent, it sends REFER to the voice gateway. The voice gateway initiates a new SIP call (new INVITE) to CUCM, and then receives a 180 RINGING response. As a result, the gateway generates a ringback tone to the customer. With CUCM 8.5 and later, you can disable the ringback by applying a SIP normalization script to the CUCM SIP trunk. This script manipulates the 180 RINGING to a 183 SESSION PROGRESS message to prevent the gateway from generating a ringback.

Note

- Apply this SIP normalization script only to the SIP trunk that is handling the inbound call from voice gateway for agent transfer. If you use the same gateway for both PSTN calls and the SIP Dialer, you must configure separate trunks in Unified Communications Manager and apply this normalization script only to the Dialer SIP trunk. The trunk for PSTN calls still needs a 180 ringing SIP message for inbound calls to trigger the gateway to play ringback to the PSTN.

- Skip Step 3 if a dedicated SIP trunk already exists for handling agent transfer dialer. Perform Step 1 if the same SIP trunk is used for normal inbound PSTN calls and dialer agent transfer calls.

Procedure

Step 1   Navigate to `https://<IP_address>:8443` where `<IP_address>` identifies the Unified Communications Manager server.

Step 2   Log in to Unified Communications Manager

Step 3   To create a SIP trunk in Unified Communications Manager with a SIP security profile for the dialer agent transfer calls, select **Communications Manager GUI** > **System** > **Security** > **SIP Trunk Security Profile** > **[Add New]**.

The default port is 5060.

Figure 11: SIP Security Profile

Step 4   Click **Save**.

Step 5   Create a New SIP trunk and associate the created SIP trunk Security Profile.

Figure 12: Create a new SIP trunk

Step 6   Click **Save**.

Step 7   Click **Reset**.

Step 8   In **Communications Manager GUI** > **Devices** > **Device Settings** > **SIP Normalization Scripts** > **[Create New]**, enter the following SIP normalization script into the content field. All other values remain set to default.

```
M = {}
function M.outbound_180_INVITE(msg)
msg:setResponseCode(183, "Session in Progress")
end
return M
```

Figure 13: Add Normalization Script

Step 9 Click **Save**.

Step 10 Click **Reset**.

Step 11 Associate the created normalization script with the SIP trunk.

Figure 14: Associate Script with Trunk

Step 12 Click **Save**.

Step 13 Click **Reset**.

Configuration of Voice Gateways, SIP Proxy, or Cisco Unified Border Element

In an Outbound Option deployment that uses the SIP Dialer, there are three possible types of configurations:

- The SIP Dialer is connected to a SIP Proxy such as Cisco Unified SIP Proxy. The SIP Proxy, in turn, is connected to voice gateway. It is possible for the SIP Proxy to be connected to more than one voice gateway; a configuration with multiple voice gateways is known as a *server group*.

- The SIP Dialer is connected directly to a voice gateway; no SIP Proxy is present. The voice gateway is configured with standard dial peer configuration so that the gateway knows how to direct traffic to agent extensions or to the IVR. This configuration is already commonly used for inbound calls.

Specify which configuration you are using when you install the Dialer component.

When you configure a voice gateway for use with Outbound Option, most of the default configuration values are sufficient. However, the following values must be specifically set. If you do not know these values, request the information from your voice network administrator.

- You *must* ensure **100rel** is enabled for Outbound Option. Otherwise, Outbound calls from the SIP Dialer fail. **100rel** is enabled globally on the gateway by default. However, **100rel** cannot be enabled globally if Unified CVP calls are also routed with this gateway. When using Outbound Option on the same gateway as Unified CVP, disable **100rel** globally with the command **rel1xx disable** and enable **100rel** on the Outbound dial peer with the example dial-peer command: **voice-class sip rel1xx supported "100rel"**.

- When configuring a voice gateway for use with the SIP Dialer, do *not* specify **signaling forward unconditional** under **voice service voip**. The SIP Dialer does not support this configuration. Instead, specify **signaling forward none**.

- Telecom carriers sometimes send ISDN alerting message without a progress indicator, which causes the voice gateway to send a SIP 180 Ringing message instead of a SIP 183 Session In Progress message to the SIP dialer. The SIP dialer has the capability to process provisional messages such as 180, 181, 182, and 183 with or without Session Description Protocol (SDP). When the SIP dialer receives these provisional messages without SDP, it does not perform Call Progress Analysis (CPA), and the Record CPA feature is disabled.

  To enable the SIP dialer to perform CPA, add the following configuration to the POTS dial-peer of the voice gateway so that a SIP 183 message is sent to the SIP dialer:**"progress_ind alert enable 8"**.

- In some situations, the carrier may send an ISDN Connect message without an alerting message. In this case, the SIP Dialer disconnects the call because it receives 200 OK before a SIP 183 Session In Progress message.

  To correct this situation, add the configuration **" progress_ind connect enable 8"** to the POTS dial-peer of the voice gateway. This configuration causes the gateway to send the SIP 183 Session In Progress message before 200K.

You *must* ensure the **100rel** SIP capability is enabled for Outbound Option. Otherwise, outbound calls from the SIP Dialer fail. The following two sections provide examples of voice gateway configuration from the command line.

Note In an Outbound SIP dialer with Unified CVP IVR deployment, a call-survivability script enabled on an incoming POTS dial-peer in the Ingress gateway is not invoked during dialer-related call flows. Enabling a call-survivability script on an Inbound POTS dial-peer, however, does not negatively affect dialer-related call flows.

If you are using a SIP Proxy, perform the following configuration on the SIP Proxy:

  • Enable the SIP Dialer to reach the correct voice gateway for outbound calls.

  • Enable the voice gateway to reach all of the applicable Unified CM/CVP nodes for calls transferred to an agent, an IVR, or to CVP.

  • If your SIP proxy is connected to more than one voice gateway, you can optionally load balance between the voice gateways.

For detailed instructions on how to perform SIP Proxy configuration, see the Cisco Unified SIP Proxy documentation website at http://www.cisco.com/en/US/partner/products/ps10475/products_installation_and_configuration_guides_list.html.

Configure CUBE

Note CUBE is only supported with SIP dialer when CPA is disabled.

While configuring Cisco Unified Border Element, ensure that you:

  • Disable the CPA on the terminating network or voice gateway when the Cisco Unified Border Element is connected to the voice gateway or any other terminating network.

  • Configure the three dial-peers in the Cisco Unified Border Element. The dial-peers are used for:

    • incoming calls from the dialer.

    • outgoing calls to the terminating network from the Cisco Unified Border Element.

    • calls to be routed to the Cisco Unified Communications Manager.

  • Issue the following commands globally to configure the Cisco Unified Border Element:

    ◦ **no supplementary-service sip refer**

    ◦ **supplementary-service media-renegotiate**

  • Disable the Call Progress Analysis (CPA) for the SIP dialer to process these provisional messages: 180, 181, and 183 - with and without SDP.

    To disable the CPA, go to Configuration Manager > launch Outbound Option Campaign > Campaign Purpose tab > uncheck the Call Progress Analysis (CPA) checkbox.

Configure SIP Trunks

Unified CM is connected to the voice gateway or the SIP Proxy by SIP Trunks, which you configure on Unified CM.

Configure a SIP trunk on Unified CM from Unified CM to the voice gateway. Specify the IP address of the voice gateway in the Destination field. See also steps in this topic: .

Procedure

Step 1 Configure these trunks as follows:

Option	Description
If you are using a SIP Proxy	Configure two SIP trunks on Unified CM for making the transfer to agents. Configure one trunk between Unified CM and the SIP Proxy (specify the IP address of the SIP Proxy in the Destination field), and configure a second trunk from Unified CM to the voice gateways (specify the IP address of the voice gateways in the Destination field).
If you are not using a SIP Proxy	Configure a SIP trunk on Unified CM from Unified CM to the voice gateway (specify the IP address of the voice gateway in the Destination field).
If you are using CUBE	Configure a SIP trunk between the Unified CM and CUBE. (specify the IP address of the CUBE in the Destination field).

See the *Cisco Unified Communications Manager System Guide* for instructions on how to configure SIP trunks.

Step 2 If your Unified CM cluster has more than two nodes, and you want to reach each node from both the voice gateway and Cisco Unified SIP Proxy, configure the trunk to belong to a device pool that points to the Communications Manager Publisher. This configuration ensures that calls go to the agent if a Subscriber node fails over. See the following configuration example:
For information about logging into Ingress or VXML gateways, refer to the "Courtesy Callback" chapter.

Example:
```
dial-peer voice 617 voip
description catch all for refer
destination-pattern 617T
session protocol sipv2
session target ipv4:10.86.227.107 (CUCM Publisher)
codec g711ulaw
!

dial-peer voice 508 voip
description catch all for refer
destination-pattern 508T
session protocol sipv2
session target ipv4:10.86.227.107 (CUCM Publisher)
codec g711ulaw
!
```

Outbound Option Software Installation Steps

This section discusses the tasks that are associated with installing Outbound Option and related components. Before proceeding, navigate to the side A data server and stop all ICM services there. Then perform the steps in the following sections.

Software Installation and Database Creation

The next phase in installing Outbound Option is Outbound Option component software installation and associated database creation. The following table lists the steps that comprise software installation and database creation and provides pointers to where the tasks are discussed.

Table 7: Software Installation and Database Creation Steps

Step Number	Task	Unified CCE Procedure	System PG Procedure
1	Install the Outbound Option private database on the Logger Side A platform	Create Outbound Option Private Database, on page 71	Create Outbound Option Private Database, on page 71
2	Install the Dialer component on the PG platform	Install Dialer Component on the PG Platform, on page 73	Install Dialer Component on the PG Platform, on page 73
3	Edit Dialer-related Registry values	Edit Dialer-Related Registry Values, on page 75	Edit Dialer-Related Registry Values, on page 75
4	Install the MR PG on the PG platform	Install MR PG, on page 75	Install MR PG, on page 75

Create Outbound Option Private Database

Before you use Outbound Option on Unified CCE, estimate the size of the Outbound Option private database and then create it on the Logger Side A platform using the ICM ICMDBA utility.

Note It is important that you create the Outbound Option private database on *side A only*.

Procedure

Step 1 Collect the following information:

- What is the size, in bytes, of each customer record in the import file? If the size is less than 128 bytes, use 128. (RecordSize)

- How many records will be imported? (RecordCount)

- Will new imports replace or append records that are already imported?

Step 2 Estimate the contact table size using one of the following formulas:

- If imports overwrite imports: Do not change record count

- If imports append imports: RecordCount = total number of rows kept in a customer table at any one time

- contact-table-size = RecordSize * RecordCount * 1.18

Step 3 Estimate the dialing list table size using one of the following formulas:

- If imports overwrite imports: RecordCount = number of rows imported * 1.5 (50% more rows are inserted into the dialing list than imported)

- If imports append imports: RecordCount = total number of rows kept in customer table at any one time * 1.5

- dialing-list-table-size = rows in dialing list * 128 bytes * 4.63

Step 4 Calculate the database size using this formula:

(Number of rows in all DL tables * (size of one row + size of index)) +
(Number of rows in personal call back table * (size of one row + size of index)) +
Sum of (Number of rows in Contact List table * (size of one row + size of index))

Step 5 Start ICMDBA by entering **ICMDBA** in the Microsoft Windows Run dialog box or command window.

Step 6 Select the Logger and select **Database** > **Create**.

Step 7 In the Create Database window, specify the Outbound Option database type.
Be sure to enable **autogrow** on the database.

Step 8 Click **Add**. The Add Device window appears.
Use this window to create a new data device and log device for the Outbound Option database. Specify the disk drive letter and size in megabytes for each new device. Click **OK** to create the device, and then click **Create**. Click **Start**.

At a later time, if necessary, you can edit the device to change storage size, or remove a device, using the **Database** > **Expand** option.

Step 9 Click **Close**.

⚠️

Caution   No manual changes to the contents of the outbound database are allowed. Do not use triggers in the outbound database. Triggers for the dialing lists or personal callback list should not be added or modified. The Dialer_Detail table in the HDS contains the information required by custom applications. Extract that information from the historical database server (HDS) to a separate server where the custom application can process the data without impacting the HDS.

Configure Logger

Perform the following steps to configure the logger.

Procedure

Step 1   Click **Web Setup**.

Step 2   Load the Logger and click **Edit Logger**.

Step 3   Check the **enable Outbound Option** check box.

Step 4   Click **Save.**

Upgrade of an Outbound Option Database from a Previous Release

If you are upgrading from a previous CCE/CCH release, you must run the Enhanced Database Migration Tool (EDMT) to upgrade your Outbound Option database. Otherwise, Campaign Manager will not start, and an alarm is triggered to indicate an incorrect private database version. See the *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide* at http://www.cisco.com/en/US/products/sw/custcosw/ps1844/prod_installation_guides_list.html for instructions on running EDMT.

Install Dialer Component on the PG Platform

Perform the following steps to install the dialer component on the Side A PG platform.

Procedure

Step 1   Make sure all ICM Services are stopped.

Step 2   On both the call server side A and side B run Peripheral Gateway Setup. Type **Start** > **All Programs** > **Cisco Unified CCE Tools** > **Peripheral Gateway Setup**.

Step 3   In the Cisco Unified ICM/Contact Center Enterprise & Hosted Setup dialog box, in the left column under Instances, select an instance.

Step 4   Click **Add** in the Instance Components section.
The ICM Component Selection dialog box opens.

Step 5   Click **Outbound Option Dialer**.

The Outbound Option Dialer Properties dialog box opens.

Step 6 In the initial Dialer Properties dialog box, check **Production mode** and **Auto start at system startup** unless you are specifically told otherwise by your Unified ICM support provider. These options set the Dialer Service startup type to Automatic, so the dialer starts automatically when the machine starts up.

Step 7 For **Dialer Type**, select the radio button for **SIP (Session Initiation Protocol)**.

Step 8 Click **Next**.

Note After you create a dialer, you cannot change the **Dialer Type**. To switch dialer types, delete the existing dialer and create a new dialer.

Step 9 An Outbound Option SIP Dialer Properties dialog box appears if you selected SIP as your Dialer Type. Supply the following information on this page:

- In the **SIP Dialer Name** field, enter the name of the SIP dialer. There is a 32-character limit. Example: Dialer_for_Premium_Calling_List. The name entered here must match the name configured in Configuration Manager.

- For **SIP Server Type**, select either Cisco voice gateway or Cisco Unified SIP Proxy (CUSP).

- In the **SIP Server** field, enter the hostname or IP address of the Cisco voice gateway.

- In the **SIP Server Port** field, enter the port number of the SIP Server port. Default is 5060.

Click **Next.**

Step 10 On the last Outbound Option Dialer Properties dialog box, specify the following information:

- **Outbound Option server**: The host name or IP address of the Outbound Option server. This is typically the same machine where the Outbound Option Campaign Manager (Dataserver Side A) is located.

- **CTI server A**: The hostname or IP address of the machine that has side A of CTI server installed. This is typically the same machine where the PG is located (Call Server Side A).

- **CTI server port A**: The port number the dialer uses to create an interface with CTI server side A. The default is 42027. Make sure CTI server port matches with CG configuration. Locate the CTI OS Server port number by running the Diagnostic Framework Portico page from the call server machine, and selecting ListProcesses.

- **CTI server B**: For duplexed installations, the hostname or IP address of the machine that has side B of CTI server installed.

- **CTI server port B**: For duplexed installations, the port number the dialer uses to create an interface with CTI server side B. The default is 43027.

- **Heart beat**: How often the dialer checks its connection to the CTI server, in milliseconds. The default value is 500.

- **Media routing port**: The port number the dialer uses to create an interface with the Media Routing PIM on the Media Routing PG. The default is 3800 to 3801. Make sure the Media routing port matches that of the MR PG configuration. Access this registry key:
  `Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,`
  `Inc.\ICM\mango\PG2A\PG\CurrentVersion\PIMS\pim1\MRData\Config\ApplicationTcpServiceName1.`

- **Call Manager TFTP server**: The host name or IP address of the CallManager TFTP server. This server is the same machine used for the CallManager publisher.

Step 11   Click **Next**. A Summary screen appears.

Step 12   Verify that you have specified the correct information. Click **Back** to make corrections if needed; otherwise, click **Next** to begin dialer installation.

Modification of Local Static Route File

The SIP Dialer installation process installs an empty template file named DNPHost in the \icm\customerInstanceName\Dialer directory. This file defines the static route mappings of a dialed number wildcard pattern to the IP address or host name with which an agent phone or CTI Route point is registered. For each static route you wish to define, enter a row in this file in the following format:

```
 wildcard pattern, IP address or host name, description
```
Examples:

```
 7?????, 10.86.227.144, transferring outbound calls to agent extensions

86! , 10.86.227.186, for CTI Route Points on CUCM node1

4?????, gambino.cisco.com, transfer to IVR campaign
```
For single gateway deployments, the SIP Dialer reads the static routing info from DNPHost and uses the information from the file to construct the SIP REFER message. If the SIP Dialer is setup to support a voice gateway, the SIP Dialer loads DNPHost, ensures that it has valid routing entries, and sends an alarm if the file does not exist or is invalid.

See the installed DNPHost file template for additional information about its use.

Edit Dialer-Related Registry Values

After you finish installing the dialer component, perform the following dialer-related configuration:

- Configure the Dialer throttling on each Dialer in the system. Open ICM Configuration Manager, select **Outbound Option** > **Dialer**, and then enter a value in the Port Throttle field. This field indicates the number of ports to throttle, which helps determine the calls per second rate at which the Dialer dials outbound calls. For example, a port throttle count=5 indicates that no more than 5 calls can be started during a one second period. If 5 calls are ready to be dialed, they are spaced evenly over that one second period. The total call capacity of Unified CM is dependent on several different factors, including the Unified CM version, inbound call rate, and outbound call rate.

  For more details, see the *SNMP Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*.

- After the dialer process runs for the first time, change the value of the AutoAnswerCall entry to 0 to disable the auto answer setting in the Dialer registry.

  See Auto Answer Configuration on Agent Phones, on page 102 for details about other options for auto answer that support agent notification of an incoming call.

Install MR PG

Perform the following steps to install the MR PG on the Side A platform.

Procedure

Step 1	Run ICM Setup to install a PG that corresponds with PG2, which was configured earlier.
Step 2	In the Peripheral Gateway Properties window, select the **PG2** PG Node ID and the **MediaRouting** Client Type.
Step 3	Click **Next**.
Step 4	Add a PIM, PIM1.
Step 5	In the MediaRouting Configuration window, enable the PIM.
Step 6	Enter the peripheral name and the peripheral ID (recorded at the end of the procedure described in Configure Media Routing PG (MR PG), on page 52) of the MR_PIM.
Step 7	Set the Application Hostname fields:

      • For simplex deployments, set both of the Application Hostname fields to the computer name of the Outbound Option Dialer.

      • For duplex Sip Dialers with duplex MR PG deployments,

          ◦ Specify the local Dialer HostName in ApplicationHostName1.

          ◦ Specify the remote, duplex Dialer HostName in ApplicationHostName2.

Step 8	Set the Application Connection Port to the port number used by the Outbound Option Dialer (usually 38001).
Step 9	Click **Next** until Setup finishes. When Setup finishes, click **Finish**.
Step 10	Repeat the preceding steps to install the MR PG on the Side B PG platform.

Installation of Cisco CTI Controls

This section describes the installation process for the Cisco CTI controls. It also describes how to install the Cisco CTI Toolkit Outbound Desktop (Win32) for Unified CCE.

Perform the following procedures to install CTI controls to support Outbound Option on the desktop.

See the CTI documentation available online at http://www.cisco.com.

Integrate Outbound Option with CTI OS

Outbound Option works with CTI OS, which provides an object-based interface to the CTI Server using the COM and C++ interfaces. These interfaces permit development of agent desktop applications that interface with Unified ICM software.
Outbound Option is fully compatible with the CTI OS CIL library and the CTI Toolkit Agent Desktop (Win32). While there are no Outbound Option-specific controls available for the CTI Toolkit Agent Desktop (Win32), a sample CTI OS Desktop (known as the "Cisco CTI Toolkit Outbound Desktop (Win32)"), which supports Outbound Option, is shipped with the product (located in *<Drive Letter>*`:\Program Files\Cisco Systems\CTIOS Client\CTIOS Toolkit\Win32 CIL\Samples\CTI Toolkit Outbound Desktop`). In addition, the standard CTI Toolkit Agent Desktop (Win32) can be modified to display all Outbound Option ECC variables in the call variable grid.

![note icon] **Note**   Be aware that CTI OS Release 7.0(0) and greater uses CTI Protocol 11. As a result, there are more CTI fields available in CTI OS (for example, call type, CampaignID, and QueryRuleID).

When installing, install the CTI OS Client, select the **CTI Toolkit SDK** and the **Win32** check boxes to access the CTI Toolkit Outbound Desktop (Win32) sample. (See the "Install CTI Toolkit Outbound Desktop (Win32), on page 78" section for more details.)

If you are running Outbound Option with CTI OS, perform the following procedure to add Outbound Option ECC variables to CTI OS Server:

Procedure

Step 1   Log in to the CTI OS server.

Step 2   Rename the *<Drive Letter>*:\ICM\CTIOS_bin\blendedagent_addecc.reg.txt file to **blendedagent_addecc.reg**.

Step 3   Save the **blendedagent_addecc.reg** read-only file. Right-click the file, select **Properties**, and then uncheck the Read Only check box.

Step 4   Edit the **blendedagent_addecc.reg** file and globally change "InstanceName" to the real system instance name and save it.

Step 5   Double-click on the**blendedagent_addecc.reg** file to add the Outbound Option ECC variables to CTI OS.

Step 6   In the Node Manager, restart the CTI OS service on the call server.

Step 7   Restart all CTI OS Desktop clients to download the new ECC variables.

What to Do Next

See the *CTI OS System Manager's Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* for more information. See CTI OS Outbound Option ECC Variable Settings, on page 215 for a sample .REG file which creates the applicable Outbound Option ECC registry entries. (This registry file must be edited and run on the CTI OS server.)

After the Outbound Option ECC variables have been added to the standard CTI Toolkit Agent Desktop (Win32), the values can be set through the grid. (See the "Outbound Option Extended Call Context Variables, on page 36" section for a description of each ECC variable.)

Configure CTI OS Server for Outbound Option

If you are running Outbound Option with CTI OS, perform the following procedure to add Outbound Option expanded call variables to CTI OS Server:

Procedure

Step 1	Log in to the CTI OS server.
Step 2	Rename the *<Drive Letter>*`:\ICM\CTIOS_bin\blendedagent_addecc.reg.txt` file to `blendedagent_addecc.reg`.
Step 3	Right-click the file, select Properties, and then uncheck the read-only check box.
Step 4	Edit the `blendedagent_addecc.reg` file and globally change "InstanceName" to the system instance name from your Unified ICM setup.
Step 5	Save the file.
Step 6	Double-click the `blendedagent_addecc.reg` file to add the Outbound Option expanded call variables to CTI OS.
Step 7	In the Node Manager, restart the CTI OS service on the call server.
Step 8	Restart all CTI OS Desktop clients to automatically download the new expanded call variables.

Install CTI Toolkit Outbound Desktop (Win32)

A sample CTI OS Desktop (known as the "Cisco CTI Toolkit Outbound Desktop (Win32)"), which supports Outbound Option, is shipped with the product. It is located in <Drive Letter>:\Program Files\Cisco Systems\CTIOS Client\CTIOS Toolkit\Win32 CIL\Samples\CTI Toolkit Outbound Desktop.

Procedure

Step 1	Install CTI OS Client and confirm that the **CTI Toolkit SDK** and **Win32** check boxes are checked.
	Note See the *CTI OS System Manager's Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* for detailed information about installing the CTI Toolkit SDK.
Step 2	Access the CTI Toolkit Outbound Desktop (Win32) from the following location: *<Drive Letter>*`:\Program Files\Cisco Systems\CTIOS Client\CTIOS Toolkit\Win32 CIL\Samples\CTI Toolkit Outbound Desktop`
Step 3	Double-click the **CTIOSOutOptSSoftphone.exe** file. The CTI Toolkit Outbound Desktop (Win32) displays.

Integrate Outbound Option with Standard CTI Toolkit Agent Desktop

Outbound Option is fully compatible with the CTI OS CIL library and the CTI Toolkit Agent Desktop (Win32). While there are no Outbound Option-specific controls available for the CTI Toolkit Agent Desktop (Win32), the standard CTI Toolkit Agent Desktop (Win32) can be modified to display all Outbound Option expanded call variables in the call variable grid.

Set Outbound Option Expanded Call Variables

After you add the Outbound Option expanded call variables to the standard CTI Toolkit Agent Desktop (Win32), you can set the values through the grid on the Agent Desktop with Outbound Option. When the

agent logs in, the Outbound Option-related expanded call variables are visible. The agent can then change values for those variables.

Setup of Outbound Option in Cisco Desktop Administrator

This section provides information about setting up Outbound Option with Cisco Desktop Administrator. When using Outbound Option with Cisco Agent Desktop, outbound calls appear as inbound calls to the agent, and information about the call appears in the Enterprise Data pane.

See the CAD documentation available online at http://www.cisco.com for more information.

Outbound Option Enterprise Data

To enable Outbound Option enterprise data to appear in the Cisco Agent Desktop Enterprise Data window, the administrator must edit the Default layout to include some or all Outbound Option variables. These variables are prefixed with "BA." (Edit the default enterprise data layout in the Cisco Desktop Administrator.)

- BAAccountNumber [200]
- BABuddyName [201]
- BACampaign [202]
- BADialedListID [203]
- BAResponse [204]
- BAStatus [205]
- BATimeZone [206]

Note

- The BAStatus field is required. All other BA fields are optional for Progressive and Predictive modes. In Preview mode, the **Skip** button will not work if BADialedListID is not enabled.

- The BABuddyName field is required, to see the customer's name being called.

- If a call is part of a Preview dialing mode campaign, the first letter in the BAStatus field entry is **P**. If a call is part of a Direct Preview dialing mode campaign, the first letter in the BAStatus field entry is **D**.

Add Enterprise Data Fields to Layout List

Use the following procedure to add the Outbound Option variables.

Procedure

Step 1   Start Cisco Desktop Administrator.

Step 2   In the navigation tree, navigate to the Layout Editor in the Enterprise Data window: **Location >** (logical contact center name) **> Enterprise Data Configuration > Enterprise Data**. Click **Edit**.

Step 3   Add the following fields to the Layout List by selecting the field from the Available Fields List, and then clicking the left arrow button:

   • BAAccountNumber

   • BABuddyName

   • BACampaign

   • BADialedListID

   • BAResponse

   • BAStatus

   • BATimeZone

Step 4   Click **OK**.

Step 5   Click **Apply** to save your changes.

Verification

This section provides a series of verification steps to determine if the system has been installed properly. These steps are designed to pinpoint problems that might exist in the setup before actually attempting to deploy the Dialer. If problems occur while using this product, please see this section before contacting Cisco Technical Support (TAC).

Note   This section assumes that the Outbound Option application is installed and at least one Dialer has been configured along with its associated port map. This section also assumes that the Dialer port map has been exported and configured on Unified CM using the BAT tool.

Dialer Component Status

The Dialer component process status provides details about the health of the installation even before any campaign configuration is initiated or before any call is placed. You can view the Dialer component status in the Diagnostic Framework Portico.

Figure 15: SIP Dialer Component Status
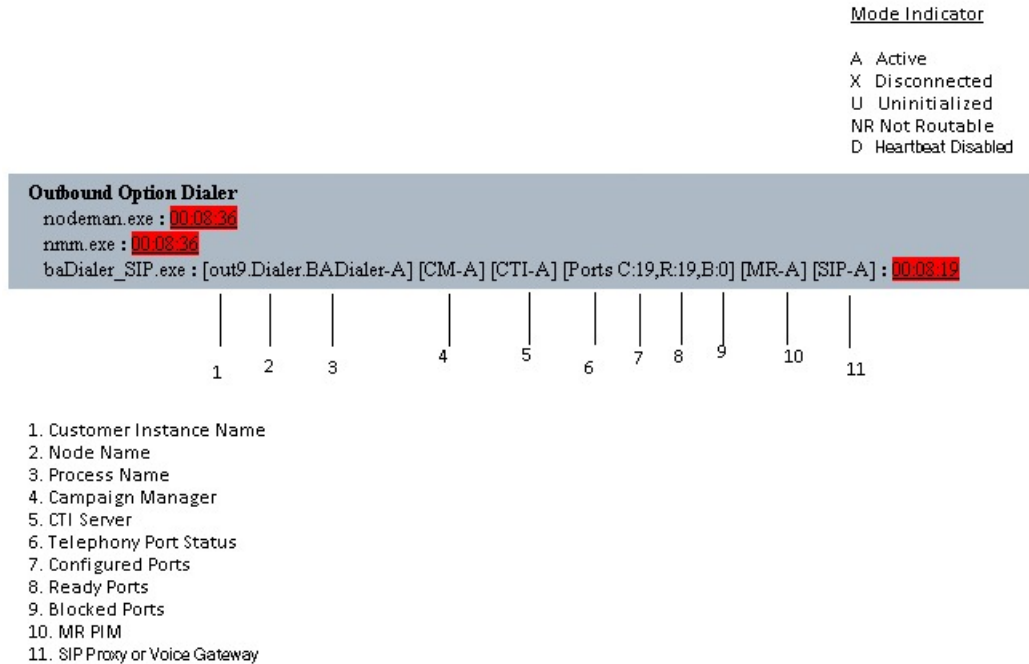
Customer Instance Name

The customer instance name shows the dialer's customer instance, node name, and process name. This can be used if TAC asks you to interrogate the system while debugging a problem for a case.

Campaign Manager

The Campaign Manager shows the Campaign Manager connectivity status. This status is either A for active or X for disconnected. If the Campaign Manager connectivity status is X, the dialer is not connected to the Campaign Manager.

Try pinging from the dialer to the Campaign Manager machine by hostname and by IP Address.

- If the ping fails for the IP address, recheck that the IP address is correct and troubleshoot network connectivity.

  ◦ Check to see whether the Logger Side A node is running.

  ◦ Check to verify whether Outbound Option has been enabled in the Logger Side A setup, and that the Campaign Manager process is running.

- If the ping is successful for the IP address but not for the DNS hostname, check that the DNS hostname is correct and that it is properly configured in the system's DNS server.

- If the ping is successful, then recheck the dialer component setup to see if the dialer component setup contains the wrong address or port number for the side A Logger.

- Check to see if the name of the Dialer configured in Configuration Manager matches the name entered during PG setup.

CTI Server

The third block shows CTI Server connectivity status. This status is either **A** for active or **X** for disconnected. If the status is **X**, then the dialer cannot connect to either CTI Server on side A or side B.

Try pinging from the dialer to the CTI Server/PG machines by hostname and by IP address.

- If the ping fails for the IP address:

  ◦ Recheck that the IP address is correct, and troubleshoot network connectivity.

  ◦ Check to see whether the CTI Server processes are running.

- If the ping is successful for the IP address but not for the DNS hostname, check that the DNS hostname is correct and whether it is properly configured in the system's DNS server.

- If the ping is successful, then recheck the dialer component set up to see if the dialer component set up contains the wrong address or port number for the CTI Server.

- Check that the PG is online. Check that the PG has been enabled properly in the ICM Router setup.

Ports

The fourth block shows the state of all dialer ports. The first value, C, shows the total number of configured ports. The second value, R, shows the total number of ready ports. Finally, the third value, B, reports the number of dialer ports that are blocked. (This is runtime activity; it is unusual for ports to be blocked.)

If the number of ports Configured is zero, then the dialer is not receiving port configuration from the Campaign Manager component. Check to verify that ports are configured properly.

If the number of Ready ports is zero, confirm that the PG has been started.

MR PIM

The next block shows connectivity status with the MR PIM. This status is either **A** for active, **X** for disconnected, or **NR** which means connected but not yet able to route. (The **U** status is rarely seen and indicates that a particular connectivity object within the dialer has not been created yet.)

- If the MR Status is **X**, check the connectivity by verifying the MR PG address and port configured in the dialer component setup.

If the MR PG status is **NR**, then the Media Routing connection is established. Check to see if the MR PG is online by looking at its status window.

SIP Dialer

The final block shows connectivity status with the SIP Proxy or Voice Gateway that is connected to the SIP dialer. This status is either **A** for active, **X** for disconnected, or **D** for heartbeat disabled.

Verify Critical Configuration Steps

In the Dialer Configuration Component, click the Port Map Selection tab and ensure the Dialer is assigned to a Unified CM PG.

Verify Database Configuration

The procedure for verifying that the database configuration is properly set up for SQL Server varies, depending on the installed version of SQL Server.

For SQL Server 2008 R2, perform the following steps:

Procedure

Step 1 Open the SQL Server Management Studio.

Step 2 Expand the databases.

Step 3 Select the **<cust instance_baA> Outbound Option** database. Right click and select **Properties**.

Step 4 Select the **Files** page.

Step 5 In the database file row, click the button in the **Autogrowth** column. A Change Autogrowth dialog box appear.

Step 6 Ensure that the **Enable Autogrowth** box is checked. Click **OK**.

Step 7 In the log file row, click the button in the **Autogrowth column**. A Change Autogrowth dialog box appears.

Step 8 Ensure that the **Enable Autogrowth** box is checked. Click **OK**.

Step 9 Select the **Options** page.

Step 10 On the Recovery Model drop-down menu, select **Simple**.

Step 11 Click **OK**.

Verify Router Registry Key

If you are using the Transfer to IVR feature, verify that the following router registry key on Side A and Side B of the Router has a value of 2.

```
HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<customer
    instance>\RouterA/B\Router\
    CurrentVersion\Configuration\Global\SkillGroupCallsInQTimerInterval = 2
```

Outbound Option Installation: SCCP Dialer

Note The SCCP Dialer is deprecated for release 10.0 and will reach end-of-sale in an upcoming release.

This chapter, intended for system administrators performing the initial installation of Outbound Option, describes how to set up and install the Outbound Option platform in an SCCP Dialer deployment.

This chapter groups installation activities to minimize switching between configuration and actual software installation. The general flow lists Unified CCE configuration first, then the Unified CM configuration, and then the Outbound Option component software installation and associated database creation.

Note Cisco Finesse is not supported with the SCCP dialer.

Installation task maps

Unified CCE Outbound Configuration

The first phase of installing Outbound Option is configuring Unified CCE and Outbound Option components. The following table lists the steps that comprise Unified CCE Outbound configuration *in the order that the steps should be performed*, and provides pointers to where the tasks are discussed.

Table 8: IPCC Enterprise Outbound Configuration Steps

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
1	Configure the IPCC PG	Configure the PG	Configure the PG
2	Configure the Dialer component	Configure Dialer Component	Configure Dialer Component
3	Configure the port map	Configure Port Map	Configure Port Map
4	Create a Network VRU	Create a Network VRU	Create a Network VRU
5	Configure the Media Routing PG	Configure Media Routing PG (MR PG)	Configure Media Routing PG (MR PG)
6	Configure a Skill Group	Configure Skill Group	Configure Skill Group
7	Create a Dialed Number	Create Dialed Number	Create Dialed Number
8	Create Translation Route To IVR	IPCC Enterprise Documentation	IPCC Enterprise Documentation
9	Configure System Options	Configure System Options	Configure System Options
10	Enable ECC Variables	Enable ECC Variables	Enable ECC Variables
11	Configure and schedule personal callbacks (optional)	Configure Personal Callbacks	Configure Personal Callbacks

Cisco Unified CM and Gateway Configuration

The following table lists the steps that comprise Unified CM configuration *in the order that the steps should be performed*, and provide pointers to where the tasks are discussed.

Table 9: Cisco Unified Communications CM Steps for Deployments with SCCP Dialer

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
1	Configure a separate Device Pool for each Dialer	*Cisco Unified Communications Manager Administration Guide*	*Cisco Unified Communications Manager Administration Guide*
2	Configure a separate Unified CM Manager Group for each Dialer's Unified CM subscriber	*Cisco Unified Communications Manager Administration Guide*	*Cisco Unified Communications Manager Administration Guide*
3	Import Dialer Ports and assign to the PG's CTI Application User, assigning Dialer ports for each Dialer component to a distinct device pool	Import and Assign Dialer Ports	Import and Assign Dialer Ports
4	Disable tone on hold/ music on hold for the Dialer	*Cisco Unified Communications Manager Features and Services Guide*	*Cisco Unified Communications Manager Features and Services Guide*
5	Disable ring tone for dialer transfer	Disable Ringback During Transfer to Agent for SIP	Disable Ringback During Transfer to Agent for SIP
6	Set Up Auto Answer on agent phone if zip tone required	Auto Answer Configuration on Agent Phones	Auto Answer Configuration on Agent Phones

Software Installation and Database Creation

The third phase of installing Outbound Option is installing the component software and creating the associated database. The following table lists the steps that comprise software installation and database creation *in the order that the steps should be performed* and provides pointers to where the tasks are discussed.

Table 10: Software Installation and Database Creation Steps

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
1	Install the Outbound Option private database on the Logger Side A platform	Create Outbound Option Private Database	Create Outbound Option Private Database

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
2	Install the Dialer component on the PG platform	Install Dialer Component	Install Dialer Component
3	Edit Dialer-related Registry values	Configure Dialer After Installation	Configure Dialer After Installation
4	Modify JTAPI for calls to invalid numbers	Modify JTAPI for Calls to Invalid Numbers	Modify JTAPI for Calls to Invalid Numbers
5	Install the MR PG on the PG platform	Install MR PG	Install MR PG

Unified CCE Outbound Option Configuration

This section provides procedures for the tasks associated with Unified CCE Outbound Option configuration.

Configure IPCC PG

Perform the following steps to configure the IPCC PG (PG1).

Procedure

Step 1 In ICM Configuration Manager, open the PG Explorer tool.

Step 2 Click **Retrieve**, and then click **Add**. Add an IPCC PG.

Step 3 Enter the name (for example, PG1_IPCC).

Step 4 Select the **CallManager** or **PG Generic** PG Type.

Step 5 Add a peripheral.

Step 6 Enter the name (for example, PG1_IPCC_PIM1).

Step 7 On the Peripheral tab, click the **Enable post routing** check box.

Step 8 Select the Default Desk Setting from the drop-down list.

Step 9 On the Routing Client tab, enter the routing client name (for example, IPCC_PIM1_Voice).

Step 10 Select the **Cisco_Voice** option from the **Default media routing domain** drop-down list.

Step 11 Click **Save**.

Step 12 Record the assigned Logical Controller ID for later use: _____.

Step 13 Record the assigned Peripheral ID for later use: _____.

Configure Dialer Component

Perform the following steps to configure the Dialer component.

Procedure

Step 1 Confirm that all ICM services are running.

Step 2 Open the ICM Configuration Manager.

Step 3 Double-click the **Outbound Option - Dialer** option to open the Outbound Option Dialer configuration window.

Step 4 Click **Retrieve**.

Step 5 Click **Add** to add a new Dialer.

Step 6 Enter the following information in the Dialer General Tab fields.

Field	Description
Dialer Name (required)	The name of the system where the Dialer is located. Maximum 32-character string, including alpha-numeric characters, periods (.), and underscores (_). Alphabetic characters can be upper- or lower-case. The name must begin with an alpha-numeric character, and must not contain spaces.
Computer Name (required)	Maximum 32-character string, including alpha-numeric characters, periods (.), underscores (_), and hyphens (-). Alphabetic characters can be upper- or lower-case. The name must begin with an alpha-numeric character and must not contain spaces.
Enable	Click the check box to enable or disable this Dialer for all campaigns.
ICM Peripheral Name (required)	Select a preconfigured peripheral name. This field is a drop-down list and is not editable.
Dialer Type	Select SCCP (Skinny Call Control Protocol).
Description	Maximum 255 characters. This description appears only on this tab page.
General Telephony	
Include Area Code when Dialing	When this option is enabled, the Dialer uses all digits to reach local telephone numbers rather than not using the area code. The default is Disabled.

Field	Description
Dial prefix	Enter any dialing prefix required by your location or by your campaigns. For example, some locations might require the prefix 9 to reach an outside telephone line.
Long distance prefix	Enter the pre-pended value for all long distance calls. The Dialer checks the local area codes against the contact number. If the configured local area code does not match the area code in the contact number, the Dialer determines this number is a long distance call. The default is 1.
Local area code (comma delimited) (required)	Enter the area/city code used at your location. Enter multiple local area codes separated by commas; for example, "508,978,617" represents three local area codes.
Hangup Delay (1-10)	Enter the number of seconds for the Dialer to wait before reusing a port after a hangup event. The default is one second.
Port Throttle	The maximum calls per second rate at which the Dialer dials outbound calls. Default is 5 calls per second for SCCP Dialer.

Note If the Dialer is installed in a location outside the U.S., either enter the locally-specific long distance prefix in the Long distance prefix field or leave the field blank.

Step 7 Click **Save**.

Configure Port Map

Perform the following steps to configure the port map for each Dialer. This specifies the number of ports available on the Dialer and the extension numbers, which Unified CM assigns to those ports. The maximum number of ports per SCCP Dialer is 120. Each configured port represents a Dialer phone device (Cisco 30 VIP) on Unified CM.

- Extension numbers must be unique across the full enterprise. If there are multiple Unified CM clusters, the extensions (Unified CM directory number) must still be unique. Extension numbers can be up to ten digits in length.

- When selecting extension numbers for Dialer ports, confirm that existing phone numbers in Unified CM and dial numbers in the Device Target Explorer tool are not already done.

Procedure

Step 1   In the ICM Configuration Manager Outbound Option Dialer configuration window, click the Port Map Selection tab to display the port map configuration.

Note   Confirm that all agents and skill groups used by Outbound Option are associated with the Unified CM PG, and not the MR PG.

Step 2   To begin adding ports to this Dialer, click **Add**.

Step 3   Configure a set of ports and their associated extensions.

Note   Make sure you provide the same number of ports for all the Dialers configured on the same peripheral.

Step 4   Click **OK**. The port mappings appear on the Port Map Selection tab.

Step 5   Click **Save** to save all the configuration information.

Step 6   Click **Export**. The Select CM Version dialog appears.

Step 7   Click the Unified CM option. (Select the latest Unified CM option if you are using a later version of Unified CM.)

Step 8   Click **OK** and specify the path for the port mapping file.

Step 9   Click **Save** to save the file. You will import this file, during Unified CM configuration.

Create a Network VRU

Perform the following steps to create a Network VRU using the Network VRU Explorer tool.

Procedure

Step 1   Open the ICM Configuration Manager application.

Step 2   Open the Explorer tools.

Step 3   Open the Network VRU Explorer tool.

Step 4   Create a type 2 VRU to be used during Media Routing (MR) PIM setup. Record the \ VRU name: _____.

Step 5   Click **Save**.

Note   See the *ICM Configuration Guide for Cisco Unified ICM Enterprise* for detailed information about the ICM Configuration Manager tools.

Configure Media Routing PG (MR PG)

Perform the following steps to configure the MR PG (PG2).

Procedure

Step 1	In ICM Configuration Manager, open the PG Explorer tool.
Step 2	Click **Retrieve**, and then click **Add**. Add an MR PG.
Step 3	Enter the name (for example, PG2_MR).
Step 4	Select the **MR PG** type.
Step 5	Add a peripheral.
Step 6	Enter the name (for example, PG2_MR_PIM1).
Step 7	On the Peripheral tab, check the **Enable post routing** check box.
Step 8	On the Routing Client tab, enter the routing client name (for example, MR_PIM1_Voice).
Step 9	Select the **Cisco_Voice** option from the **Default media routing domain** drop-down list.
Step 10	On the Advanced tab, select the **Network VRU** that you created during system installation from the drop-down list.
Step 11	Click **Save**.
Step 12	Record the assigned Logical Controller ID for later use: _____.
Step 13	Record the assigned Peripheral ID for later use: _____.

Configure Skill Group

Perform the following steps to create a skill group for the PG using the Skill Group Explorer tool:

Procedure

Step 1	In ICM Configuration Manager, open the Skill Group Explorer tool.
Step 2	Confirm that the PIM created in the section Configure IPCC PG is displayed in the Select filter data section.
Step 3	Click **Retrieve**.
Step 4	Click **Add Skill Group**.
Step 5	Set the Media Routing Domain to the **Cisco_Voice** option.
Step 6	Enter a peripheral name and number (record them):_____. (You can either enter a name or allow the system to generate the name.)
Step 7	Enable the **ICM picks the agent** check box.
Step 8	Click **Add Route**.
Step 9	Enter a name for the new route (any name is allowed).
Step 10	Click **Save**.

Create Dialed Number

Perform the following steps to create a dialed number for the MR PG.

Procedure

Step 1 In ICM Configuration Manager, open the Dialed Number/Script Selector List tool.

Step 2 Click **Add**, then enter a dialed number for the MR PG.

Step 3 Select the MR routing client from the drop-down list.

Step 4 Select **Cisco_Voice** from the **Media Routing Domain** drop-down list.

Step 5 Enter the dialed number.

Step 6 On the Dialed Number Mapping tab, click **Add**.

Step 7 In the **Calling Line ID** group box, click the **All** radio button.

Step 8 In the **Caller-entered digits** group box, click the **All** radio button.

Step 9 In the **Call type** drop-down list, select the MR call type.

Step 10 Click **OK** on the Dialed Number Map Entry dialog box, and then click **Save**.

Note To use the Personal Callback feature, a second dialed number is required. This dialed number must have the **PersonalCallback** dialed number string. As with the previous dialed number, map all Calling Line IDs and all Caller-entered digits to the call type previously created for the MR routing client. Multiple dialers require multiple dialed numbers—one for each routing client per skill group.

Configure System Options

Use the Outbound Option System Options component in the ICM Configuration Manager to define contact dialing time ranges that apply to all of your Outbound Option campaigns.

Because this component uses 12-hour time notation, be sure to select AM or PM for your start and end times.

Procedure

Step 1 In ICM Configuration Manager, open the Outbound Option System Options component.

Step 2 Select the General Options tab page to define the total dialing time range for all your Outbound Option campaigns to use, and then click **OK**.

Step 3 Select the Bulk Update tab page to define specific dialing time ranges for telephone numbers, and then click **Update All Campaigns**.

Enable ECC Variables

Perform the following steps to enable the Expanded Call Context (ECC) variables using the System Information tool and the Expanded Call Variable List tool.

Procedure

Step 1	Open the System Information tool in the Tools/Miscellaneous folder in the ICM Configuration Manager application.
Step 2	Enable the Expanded call context enabled check box.
Step 3	Click **Save**.
Step 4	Open the List tools.
Step 5	Open the Expanded Call Variable List tool.
Step 6	Click all BAxxxx variables (BAAccountNumber, BABuddyName, BACampaign, BADialedListID, BAResponse, BAStatus, and BATimezone).
Step 7	In the Attributes tab, click the Enabled check box for each variable.
Step 8	Click **Save**.

Configuration and scheduling of personal callback feature

Configure Personal Callbacks

> **Note** All personal callbacks occur in Preview mode. Be aware that only one Dialer on a particular peripheral is assigned personal callback records.

Some personal callback options must be configured through the registry. Furthermore, if a personal callback record is not associated with a campaign, it follows the rules configured within the registry.

Procedure

Step 1	Configure the reschedule callback mode in the Outbound Option Campaign Configuration Component by selecting one of the following options on the Campaign General tab:

- Use the alternate VDN—the call is routed to the skill group DN for the campaign associated with the callback, if the DN is available

- Reschedule the personal callback to the same time the next business day

- Abandon the personal callback

Step 2 Open the HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<instance name>\LoggerA\BlendedAgent\CurrentVersion folder in the Outbound Option registry.

Step 3 Configure the personal callback registry entries listed in the following table.

Name	Default Value	Description
CallbackTimeLimit	15	Calculates the callback time range for each personal callback in minutes. The Campaign Manager queries the Personal Callback List for callback records where the CallbackDateTime value is between the current time and the sum of the current time minus the CallbackTimeLimit.
PersonalCallbackTimeToRetryBusy	1	Sets the amount of time, in minutes, that the Outbound Option Dialer waits before retrying a personal callback when the customer's phone is busy (minimum value is 1; maximum value is 10).
PersonalCallbackTimeToRetryNoAnswer	20	Sets the amount of time, in minutes, that the Outbound Option Dialer waits before retrying a personal callback when the customer does not answer the phone (minimum value is 5; maximum value is 60).
PersonalCallbackTimeToRetryReservation	5	Sets the amount of time, in minutes, that the Outbound Option Dialer waits before retrying to reserve an agent if the agent is not available (minimum value is 1; maximum value is 10).
PersonalCallbackMaxAttemptsDefault	5	Sets the maximum number of times a personal callback will be attempted (minimum value is 1; maximum value is 20). When the number of maximum attempts reaches 0, the record is not tried again and the status is set to "M" (max-ed out).
PersonalCallbackTimeToCheckForRecords	5	The interval time, in minutes, at which the Outbound Option Dialer checks the Campaign Manager for personal callback records (minimum value is 1; maximum value is 30).
PersonalCallbackDaysToPurgeOldRecords	5	The number of days after the personal callback has been scheduled to keep the record before it is purged (minimum value is 1; maximum value is 30).

Name	Default Value	Description
PersonalCallbackRecordsToCache	20	The number of personal callback records to send to the Outbound Option Dialer at one time (minimum value is 5; maximum value is 100).
PersonalCallbackSaturdayAllowed	0	Indicates whether personal callbacks are allowed on Saturdays: • 0: Personal callbacks are not allowed on Saturdays and will be scheduled for the next allowable day. For example, a personal callback which fails to reach the customer on a Friday will be rescheduled for the following Monday. • 1: Personal callbacks are allowed on Saturdays.
PersonalCallbackSundayAllowed	0	Indicates whether personal callbacks are allowed on Sundays: • 0: Personal callbacks are not allowed on Sundays and will be scheduled for the next allowable day. For example, a personal callback which fails to reach the customer on a Friday will be rescheduled for the following Monday. • 1: Personal callbacks are allowed on Sundays.
PersonalCallbackCallStatusToPurge	C, M	String containing the call status types to consider when purging old personal callback records. For example, if the string contains "C,M,F,L,I," all calls with these call statuses will be purged from the database. (If the registry entry is missing, the default is assumed.) **Note** The call status values can optionally be delimited using a comma, a hyphen, a semi-colon, or a colon.
PersonalCallbackNoAnswerRingLimit	4	The number of times a customer phone rings before being classified as an unanswered call (minimum value is 2; maximum value is 10).

Step 4 Set up the Personal Callback reservation script using the Script Editor application.

- Add a Wait node after the Queue to Agent node using a value that is less than the TimeToWaitForMRIResponse Dialer registry setting (default value of 600 seconds equals 10 minutes).
- Like all reservations scripts, the script should end in a Release Node instead of an End Node to avoid cluttering up the Router Log Viewer with "No Default Label" errors.

For example, the following Personal Callback reservation script uses the nodes described above:

Figure 16: Personal Callback Reservation Script
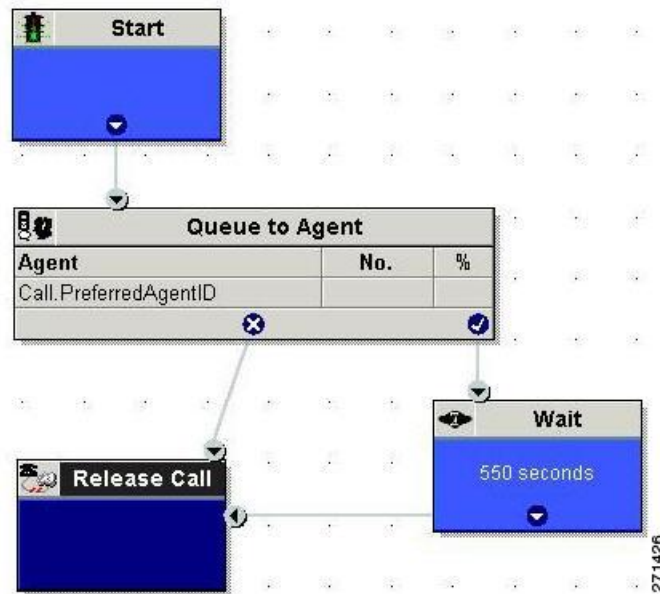
Create Enterprise Skill Group

To use the Personal Callback feature, you need to create the enterprise skill group associated with the agent using the Enterprise Skill Group List tool.

Procedure

Step 1   Open the List tools.

Step 2   Open the Enterprise Skill Group List tool.

Step 3   Create an enterprise skill group. In the **Add Name** field, type the enterprise name, then click **Add**. Select the skill group, and then click **Save**.

Step 4   In the Attributes tab, click **Add** to add the skill group or groups.

Step 5   Click **Save**.

Create Enterprise Route

After you create the enterprise skill group associated with the agent, you need to create an enterprise route using the Enterprise Route List tool. This route should target the enterprise skill group created in the previous step.

Procedure

Step 1 Open the List tools.

Step 2 Open the Enterprise Route List tool.

Step 3 Create an enterprise route. In the **Name** field, type the enterprise route, and then click **Add**. Select the route, and then click **Save**.

Step 4 In the Attributes tab, add the route.

Step 5 Click **Save**.

Configure Queue to Agent Node

If you use personal callbacks, complete the following steps to configure the Queue to Agent Node in your reservation script.

Procedure

Step 1   Right-click the Queue to Agent node and select **Properties**.

Step 2   Click **Change** in the "Queue to agent type" section.

Step 3   Select **Lookup agent reference by expression**, and then click **OK**.

Step 4   Enter the agent expression **Call.PreferredAgentID**.

Step 5   Select the enterprise skill group you created in the Create an Enterprise Skill Group section.

Step 6   Select the enterprise route you created in the Create an Enterprise Route section.

Step 7   Confirm that the Peripheral column is left blank.

Step 8   Click **OK** to save the Queue to Agent node.

Step 9   Save and then schedule the script.

Figure 17: Scheduling Script
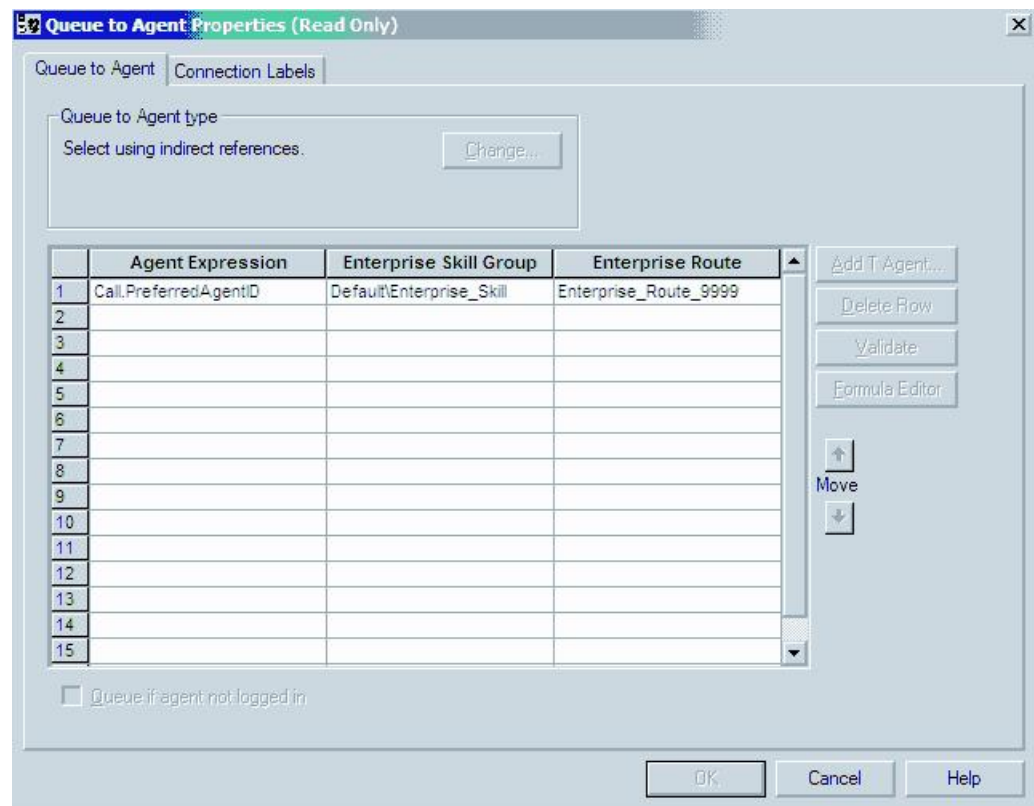
Unified CMr and Gateway Configuration

This section provides procedures for the tasks associated with the Unified CM and gateway configuration.

Ensure that each dialer's ports are contained on their own UCManager subscriber, and the UCManager subscriber is not shared with any other Dialer. Because a Dialer port makes shorter calls at sustained higher call rates, it takes a larger portion of UCManager resources than a normal agent phone. The sizing calculator should have already been used to properly size when designing the solution. The port throttle configuration referenced in Dialer configuration prevents the Dialer from over-using its subscriber. If more than one Dialer points to the same subscriber, then this Dialer throttling mechanism is not effective because it only applies to each Dialer.

Import and Assign Dialer Ports

Perform the following procedure to import Dialer Ports and assign them to the PG's CTI Application User.

Procedure

Step 1 After configuring the Dialer Port Map, click **Select All**, and then click **Export** to save the port map configuration to a CSV-formatted text file. Select the Unified CM version.
Note   Be sure to select the Unified CM release that is compatible with the product release.

Step 2 Use the Cisco Unified CM BAT tool to create a new phone template.

1 Select the **Cisco 30 VIP** phone choice.

2 Enter the template name.

3 Set the device pool.

4 Choose the **Standard 30 VIP** phone button template and the device security profile.

5 Save the phone template.

6 Click the line1 template and insert a single line with no speed dials.

7 Click **Save**.

Note   When creating a dialer port template using the BAT tool, be careful when selecting the Device pool. Make sure the correct region is set so it works across different audio codecs.

Step 3 Select **Bulk Administration** > **Upload Download**. Click **Add New**. Browse to the CSV file, select **Phones**, select **Insert Phones** > **Specific Details**, and then click **Save**.

Step 4 Select **Bulk Administration** > **Phones** > **Insert Phones**. Select the file name and the phone template name, click **Run Immediately**, and then click **Submit**.
To see the status of this job, select **Bulk Administration** > **Job Scheduler**, and then click the **Find** button.

Step 5 Associate the newly created devices with a PG user. In the Unified CM Administration window, select **User Management** > **Application User**, and then click **Find**.

Step 6 Select the **Device Association** link. In the Device List Filter, select the **Directory Number** and then enter the first few digits of the newly created Dialer ports.

Step 7 Click **Select Devices**. Make sure the check box next to each Dialer port is checked.

Step 8 Click **Save**.

Disable Ringback During Transfer to Agent for SIP

The configuration for the SCCP Dialer does not work for the SIP Dialer. When the SIP Dialer is handing off the call to an agent, it sends REFER to the voice gateway. The voice gateway initiates a new SIP call (new INVITE) to CUCM, and then receives a 180 RINGING response. As a result, the gateway generates a ringback tone to the customer. With CUCM 8.5 and later, you can disable the ringback by applying a SIP normalization script to the CUCM SIP trunk. This script manipulates the 180 ringing to a 183 SESSION PROGRESS message to prevent the gateway from generating a ringback.

Note Apply this script only to the SIP trunk that is handling the inbound call from voice gateway for agent transfer. If you use the same gateway for both PSTN calls and the SIP Dialer, you must configure separate trunks in CUCM and apply this normalization script only to the Dialer SIP trunk. The trunk for PSTN calls still needs a 180 ringing response for inbound calls to trigger the gateway to play ringback to the PSTN.

Note Skip step 1 if a dedicated SIP trunk already exists for handling agent transfer dial. Perform step 1 if the same SIP trunk is used for normal inbound PSTN calls and Dialer agent transfer calls.

Procedure

Step 1 To create a SIP trunk in CUCM with a SIP security profile for the Dialer agent transfer calls, select **Communications Manager GUI > System > Security >SIP Trunk Security Profile>[Add New]**.

Step 2 Click **Save**.

Step 3 Create a new IP trunk and associate the created SIP trunk Security Profile.

Step 4 Click **Save**.

Step 5 Click **Reset**.

Step 6 In **Communications Manager GUI > Device Settings > SIP Normalization Scripts [Create New]**, enter the following SIP normalization script into the content field. All other values remain set to default.
```
M = {}function M.outbound_180_INVITE(msg) msg:setResponseCode(183, "Session
in Progress") endreturn M
```

Step 7 Click **Save**.

Step 8 Click **Reset**.

Step 9 Associate the created normalization script with the SIP trunk.

Step 10 Click **Save**.

Step 11 Click **Reset**.

Auto Answer Configuration on Agent Phones

The dialer component is preconfigured during installation to auto answer Outbound Option related calls to the Outbound Option agent. However, this default configuration does not provide a zip tone to the agent (which notifies of incoming calls), so agents must monitor the agent application for incoming customer calls.

To enable zip tone, enable auto-answer on the agent's phone configuration in Unified CM. This solution adds about a second onto the transfer time. This solution is identical to the solution that is used for Unified CCE.

For Mobile Agents using the nailed connection, the Unified CM auto answer setting does not provide a zip tone, but Unified CCE does provide an option for playing a notification tone to the agent using the agent desk settings.

Enabling auto answer in the agent desk settings or in the dialer component in conjunction with the Unified CM can be problematic. Therefore, Cisco recommends that you disable the auto answer option in the dialer component, and enable it either in the agent desk settings or in Unified CM.

Outbound Option Software Installation Steps

This section describes how to install Outbound Option and related components.

Note **Important:** Before you perform the installation procedures in this section, you *must* stop the Router, the Logger, the AW, and the Agent PGs in ICM Service Control. You must also enable Outbound Option in the Logger setup before creating the Outbound Option database. ICMDBA cannot create the Outbound Option database without enabling it in the Logger.

Create Outbound Option Private Database

Before you use Outbound Option on Unified CCE, estimate the size of the Outbound Option private database and then create it on the Logger Side A platform using ICM's ICMDBA utility.

Note Unified SCCE automatically creates and sizes the Outbound Option database. Skip this step if you are deploying Outbound Option with Unified SCCE.

Procedure

Step 1 Collect the following information:

- What is the size, in bytes, of each customer record in the import file? If the size is less than 128 bytes, use 128. (The size of a record cannot be less than 128 bytes.) (RecordSize)

- How many records will be imported? (RecordCount)

- Will new imports replace or append records already imported?

Step 2 Estimate the contact table size using one of the following formulas:

- If imports overwrite imports: Do not change record count

- If imports append imports: RecordCount = total number of rows kept in a customer table at any one time

- contact-table-size = RecordSize * RecordCount * 1.18

Step 3   Estimate the dialing list table size using one of the following formulas:

- If imports overwrite imports: RecordCount = number of rows imported * 1.5 (50% more rows will be inserted into the dialing list than imported)

- If imports append imports: RecordCount = total number of rows kept in all customer table at any one time * 1.5

- dialing-list-table-size = rows in dialing list * 128 bytes * 4.63

Step 4   Calculate the database size using this formula: contact-table-size + dialing-list-table-size.

Step 5   Start ICMDBA by entering **ICMdba** in Microsoft Windows' Run dialog box or command window.

Step 6   Select the Logger and select **Database** > **Create** (or click the right mouse button and select **Create**).

Step 7   In the Create Database window, specify the Outbound Option database type.

Step 8   Click **Add**. The Add Device window opens.
Use this window to create a new data device and log device for the Outbound Option database. Specify the disk drive letter and size in megabytes for each new device. Click **OK** to create the device, and then click **Create**. Click **Start**.

At a later time, if necessary, you can edit the device to change storage size, or remove a device, using the **Database** > **Expand** option.

Step 9   Click **Close**.

⚠️

Caution   No manual changes to the contents of the outbound database are allowed. Do not use triggers in the outbound database. Triggers for the dialing lists or personal callback list should not be added or modified. The Dialer_Detail table in the HDS contains the information required by custom applications. Extract the information from the HDS to a separate server where the custom application can process the data without impacting the HDS.

Upgrade of Outbound Option from Previous Release

If you are upgrading from a previous CCE/CCH release, you must run the Enhanced Database Migration Tool (EDMT) to upgrade your Outbound Option database. Otherwise, Campaign Manger will not start, and an alarm is triggered to indicate an incorrect private database version. See the *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide* at http://www.cisco.com/en/US/products/sw/custcosw/ps1844/prod_installation_guides_list.html for instructions on running EDMT.

Install Dialer Component

Perform the following steps to install the Dialer component on the Side A PG platform.

Procedure

Step 1   Make sure all ICM Services are stopped.

Step 2   Run Peripheral Gateway Setup.

Step 3   In the Cisco Unified ICM/Contact Center Enterprise & Hosted Setup dialog box, in the left column under Instances, select an instance.

Step 4   Click **Add** in the Instance Components section.
The ICM Component Selection dialog box opens.

Step 5   Click **Outbound Option Dialer**.
The Outbound Option Dialer Properties dialog box opens.

Step 6   In the initial Dialer Properties dialog box, check **Production mode** and **Auto start at system startup** unless you are specifically told otherwise by your Unified ICM support provider. These options set the Dialer Service startup type to Automatic, so the Dialer starts automatically when the machine starts up.

Step 7   For Dialer Type, select **SCCP (Skinny Call Control Protocol)**.

Step 8   Click **Next**.
Note   After you create a Dialer, you cannot change the **Dialer Type**. To switch Dialer types, delete the existing Dialer and create a new Dialer.

Step 9   On the last Outbound Option Dialer Properties dialog box, specify the following information:

- **Outbound Option server**: The host name or IP address of the Outbound Option server. This server is typically the same machine where the Outbound Option Campaign Manager is located.

- **CTI server A**: The host name or IP Address of the machine that has side A of CTI server installed.

- **CTI server port A**: The port number the Dialer uses to interface with CTI server side A. The default is 42027.

- **CTI server B**: For duplexed installations, the host name or IP Address of the machine that has side A of CTI server installed.

- **CTI server port B**: For duplexed installations, the port number the Dialer uses to interface with CTI server side B. The default is 43027.

- **Heart beat**: How often the dialer checks its connection to the CTI server, in milliseconds. The default value of 500 is acceptable.

- **Media routing port**: The port number the Dialer uses to interface with the Media Routing PIM on the Media Routing PG. The default is 3800 ot 3801.

- **Call Manager TFTP server**: The host name or IP address of the CallManager TFTP server. This server is the same machine used for the CallManager publisher.

Step 10   Click **Next.** A Summary screen appears.

Step 11   Verify that you have specified the correct information. Click **Back** to make corrections if needed; otherwise, click **Next** to begin Dialer installation.

Configure Dialer After Installation

After you finish installing the Dialer component, edit the following Dialer-related Registry values:

- Configure the Dialer throttling on each Dialer in the system. Open ICM Configuration Manager, select **Outbound Option** > **Dialer**, and then enter a value in the Port Throttle field. This field indicates the number of ports to throttle, which helps determine the calls per second rate at which the Dialer dials outbound calls. For example, a port throttle count=10 and a time=2 indicates that no more than 5 calls can be started during a one second period. If 5 calls are ready to be dialed, they will be spaced evenly over that one second period. The total call capacity of Unified CM is dependent on several different factors, including the Unified CM version, inbound call rate, and outbound call rate.
  For more details, see the *SNMP Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted*.

- After the Dialer process runs for the first time, you also need to change the value of the AutoAnswerCall entry to 0, disabling the auto answer setting in the Dialer registry.
  See the Auto Answer Configuration on Agent Phones section in this chapter for details about other options for auto answer that support agent notification of an incoming call.

Modify JTAPI for Calls to Invalid Numbers

You must change the jtapi.ini file on the peripheral gateway so that dialed calls are recorded with progress codes, and not as No_Answer. Progress codes 1, 4, 22, and 28 represent Unallocated_Number, Send special information tone, Number changed, and Invalid Number Format, respectively. To make this change, perform the following steps.

Procedure

Step 1 From the IPCC PG, access a command prompt and set the path to `C:\winnt\java\lib`. Enter the command `java CiscoJtapiVersion -parms> Jtapi.ini`.

Step 2 Go to c:\winnt\java\lib.

Step 3 Open the jtapi.ini file in a text editor.

Step 4 Add the following line, if not already present: `UseProgressAsDisconnectedDuringErrorEnabled=1,4,22,28`.

Step 5 Save and close the file.

Step 6 Reboot the PG machine.

Install MR PG

Perform the following steps to install the MR PG on the Side A platform.

Procedure

Step 1	Run ICM Setup to install a PG that corresponds with PG2, which was configured earlier.
Step 2	In the Peripheral Gateway Properties window, select the **PG2** PG Node ID and the **MediaRouting** Client Type.
Step 3	Click **Next**.
Step 4	Add a PIM, **PIM1**.
Step 5	In the MediaRouting Configuration window, enable the PIM.
Step 6	Enter the peripheral name and the peripheral ID (that you recorded at the end of the Configure Media Routing PG (MR PG) procedure) of the MR_PIM.
Step 7	Set both Application Hostname fields to the computer name of the Outbound Option Dialer.
Step 8	Set the Application Connection Port to the port number used by the Outbound Option IPCC Dialer (usually 38001).
Step 9	Click **Next** until Setup finishes. When Setup finishes, click **Finish**.
Step 10	Repeat the preceding steps to install the MR PG on the Side B PG platform.

Installation of Cisco CTI Controls

This section describes the installation process for the Cisco CTI controls. It also describes the Cisco CTI Toolkit Outbound Desktop (Win32) for Unified CCE.

Perform the following procedures to install CTI controls to support Outbound Option on the desktop.

See the CTI documentation available online at http://www.cisco.com.

Integrate Outbound Option with CTI OS

Outbound Option works with CTI OS, which provides an object-based interface to the CTI Server using the COM and C++ interfaces. These interfaces permit development of agent desktop applications that interface with Unified ICM software.
Outbound Option is fully compatible with the CTI OS CIL library and the CTI Toolkit Agent Desktop (Win32). While there are no Outbound Option-specific controls available for the CTI Toolkit Agent Desktop (Win32), a sample CTI OS Desktop (known as the "Cisco CTI Toolkit Outbound Desktop (Win32)"), which supports Outbound Option, is shipped with the product (located in *<Drive Letter>*:\Program Files\Cisco Systems\CTIOS Client\CTIOS Toolkit\Win32 CIL\Samples\CTI Toolkit Outbound Desktop). In addition, the standard CTI Toolkit Agent Desktop (Win32) can be modified to display all Outbound Option ECC variables in the call variable grid.

Note   Be aware that CTI OS Release 7.0(0) and greater uses CTI Protocol 11. As a result, there are more CTI fields available in CTI OS (for example, call type, CampaignID, and QueryRuleID).

When installing the CTI OS Client, select the **CTI Toolkit SDK** and the **Win32** check boxes to access the CTI Toolkit Outbound Desktop (Win32) sample. (See the "Install CTI Toolkit Outbound Desktop (Win32)" section for more details.)

If you are running Outbound Option with CTI OS, perform the following procedure to add Outbound Option ECC variables to the CTI OS Server.

Procedure

Step 1   Rename the C:\ICM\CTIOS_bin\blendedagent_addecc.reg.txt file to **blendedagent_addecc.reg**.

Step 2   Save the blendedagent_addecc.reg read-only file. Right-click the file, select **Properties**, and then uncheck the Read Only check box.

Step 3   Edit the **blendedagent_addecc.reg** file and globally change "InstanceName" to the real system instance name and save it.

Step 4   Double-click on the blendedagent_addecc.reg file to add the Outbound Option ECC variables to CTI OS.

Step 5   In the Node Manager, restart the CTI OS service.

Step 6   Restart all CTI OS Desktop clients to download the new ECC variables.

What to Do Next

See the *CTI OS System Manager's Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* for more information. See CTI OS Outbound Option ECC Variable Settings for a sample .REG file which creates the applicable Outbound Option ECC registry entries. (This registry file must be edited and run on the CTI OS server.)

After the Outbound Option ECC variables have been added to the standard CTI Toolkit Agent Desktop (Win32), the values can be set through the grid. (See the "Outbound Option Extended Call Context Variables" section in Chapter 2 for a description of each ECC variable.)

Install CTI Toolkit Outbound Desktop (Win32)

Procedure

Step 1   Install CTI OS Client and confirm that the **CTI Toolkit SDK** and the **Win32** check boxes are selected.
     Note   See the *CTI OS System Manager's Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* for detailed information about installing the CTI Toolkit SDK.

Step 2   Access the CTI Toolkit Outbound Desktop (Win32) from the following location:
<Drive Letter>:\Program Files\Cisco Systems\CTIOS Client\CTIOS Toolkit\Win32 CIL\Samples\CTI Toolkit Outbound Desktop

Step 3   Double-click the **CTIOSOutOptSSoftphone.exe** file to display the CTI Toolkit Outbound Desktop (Win32).

Setup of Outbound Option in Cisco Desktop Administrator

This section provides information about setting up Outbound Option with Cisco Desktop Administrator. When using Outbound Option with Cisco Agent Desktop, outbound calls appear as inbound calls to the agent, and information about the call appears in the Enterprise Data pane.

See the CAD documentation available online at http://www.cisco.com for more information.

Outbound Option Enterprise Data

To enable Outbound Option enterprise data to appear in the Cisco Agent Desktop Enterprise Data window, the administrator must edit the Default layout to include some or all Outbound Option variables. These variables are prefixed with "BA." (Edit the default enterprise data layout in the Cisco Desktop Administrator.)

- BAAccountNumber [200]
- BABuddyName [201]
- BACampaign [202]
- BADialedListID [203]
- BAResponse [204]
- BAStatus [205]
- BATimeZone [206]

Note

- The BAStatus field is required. All other BA fields are optional for Progressive and Predictive modes. In Preview mode, the **Skip** button will not work if BADialedListID is not enabled.

- The BABuddyName field is required, if you want to see the customer's name being called.

- If a call is part of a Preview dialing mode campaign, the first letter in the BAStatus field entry is **P**. If a call is part of a Direct Preview dialing mode campaign, the first letter in the BAStatus field entry is **D**.

Add Enterprise Data Fields to Layout List

Use the following procedure to add the Outbound Option variables.

Procedure

Step 1 Start Cisco Desktop Administrator.

Step 2 In the navigation tree, navigate to the Layout Editor in the Enterprise Data window: **Location** > **(logical contact center name)** > **Enterprise Data Configuration** > **Enterprise Data**. Click **Edit**.

Step 3 Add the following fields to the Layout List by selecting the field from the Available Fields List, and then clicking the left arrow button.

        • BAAccountNumber

        • BABuddyName

        • BACampaign

        • BADialedListID

        • BAResponse

        • BAStatus

        • BATimeZone

Step 4   Click **OK**.

Step 5   Click **Apply** to save your changes.

Verification

This section provides a series of verification steps to determine if the system has been installed properly. These steps are designed to pinpoint problems that might exist in the setup before actually attempting to deploy the Dialer. If problems occur while using this product, please see this section before contacting Cisco Technical Support (TAC).

Note   This section assumes that the Outbound Option application is installed and at least one Dialer has been configured along with its associated port map. This section also assumes that the Dialer port map has been exported and configured on Unified CM using the BAT tool.

Troubleshoot Connections

Dialer Component Status

The Dialer component process status provides a lot of details about the health of the installation even before any campaign configuration is initiated or before any call is placed. You can view the Dialer component status in the Diagnostic Framework Portico.

Figure 18: SCCP Dialer Component Status
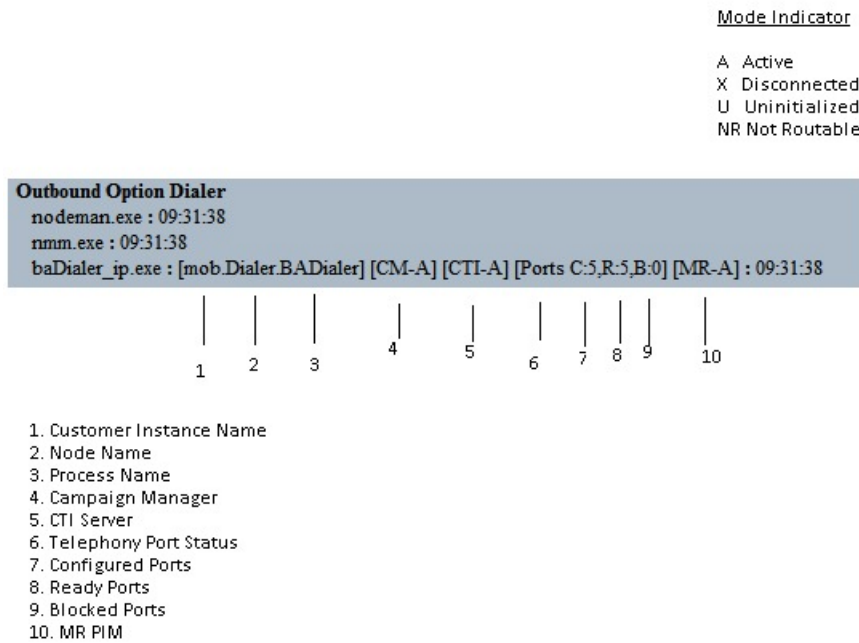
Troubleshoot Dialer Connections

Dialer customer instance, node name, and process name

This information is useful if TAC asks you to interrogate the system while debugging a problem for a case.

Campaign Manager connectivity status

This status is either A for active or X for disconnected. If the Campaign Manager connectivity status is X, the Dialer is not connected to the Campaign Manager.
Try pinging from the Dialer to the Campaign Manager machine by hostname and by IP Address.

- If the ping fails for the IP address, recheck that the IP address is correct, and then troubleshoot network connectivity.

  ◦ Check to see whether the Logger Side A node is running.

  ◦ Check to verify whether Outbound Option has been enabled in the Logger Side A setup, and that the Campaign Manager process is running.

- If the ping is successful for the IP address but not for the DNS hostname, check that the DNS hostname is correct and that it is properly configured in the system's DNS server.

- If the ping is successful, recheck the Dialer component setup to see if the Dialer component setup contains the wrong address or port number for the side A Logger.

CTI Server connectivity status

This status is either **A** for active or **X** for disconnected. If the status is **X**, then the Dialer cannot connect to either CTI Server on side A or side B.

Try pinging from the Dialer to the CTI Server/PG machines by hostname and by IP address.

- If the ping fails for the IP address:

  ◦ Recheck that the IP address is correct, and then troubleshoot network connectivity.

  ◦ Check to see if the CTI Server processes are running.

- If the ping is successful for the IP address but not for the DNS hostname, check that the DNS hostname is correct and that it is properly configured in the system's DNS server.

- If the ping is successful, then recheck the Dialer component set up to see if the Dialer component set up contains the wrong address or port number for the CTI Server.

- Confirm that the PG is online. Check that the PG has been enabled properly in the ICM Router setup.

Dialer ports states

The first value, C, shows the total configured ports derived from the port map configuration. The second value, R, shows the total number of ports registered with Unified CM. Finally, the third value, B, indicates the number of Dialer ports that failed to register with Unified CM. The third value also reports the number of Dialer ports that are blocked. (This is a runtime activity; it is unusual for ports to be blocked.)

If the number of ports Configured is zero, then the Dialer is not receiving port configuration from the Campaign Manager component. Check to verify that ports are configured properly.

If the number of ports Registered is zero, then the Dialer component is having trouble registering with Unified CM.

- Check the TFTP server address in the Dialer component setup configuration.

- Confirm that the Unified CM is configured correctly. In particular, check if the port map has been imported and the ports have been registered to the JTAPI user for the IPCC PG.

- Confirm that the IPCC PG has been started.

- Confirm that the JTAPI Gateway has finished configuring. If it has not, wait for it to finish.

- Verify that Unified CM and CTI Manager are running.

- Check to see if DNS name (of your PG) is resolving the CUCM IP address

MR PIM connectivity status

This status is either **A** for active, **X** for disconnected, or **NR**, which means connected but not yet able to route. (The **U** status is rarely seen and indicates that a particular connectivity object within the Dialer has not been created yet.)

- If the MR Status is **X**, check the connectivity by performing the following steps:

- Ping the MR PG address by hostname or IP address.

- Double check the MR PG address and port configured in the Dialer component setup.

If the MR PG status is **NR**, then the Media Routing connection is established. Check to see if the MR PG is online by looking at its status window.

Verify Critical Configuration Steps

In the Dialer Configuration Component, click the Port Map Selection tab and ensure the Dialer is assigned to a Unified CM PG.

Verify Connectivity

First, verify that each Dialer can place calls on Unified CM. A diagnostic utility, DialogicTest, is installed on the Dialer machine in the \icm\bin directory. From the \icm\bin directory, execute DialogicTest to verify connectivity on Unified CCE installation.

Procedure

Step 1 For an Unified CCE installation, determine the Dialer's peripheral ID before executing the DialogicTest utility. This value can be obtained from the Dialer table stored in the Side A database of the ICM Logger. Using the SQL query analyzer, run the following query on the Side A database:

```
Select * from Dialer
```

Match the DialerName column with the Dialer that is being configured and note the peripheral ID (stored in the DialerID column). This ID is used when launching DialogicTest.

Note The Outbound Option IP Dialer *must* be shut down before running DialogicTest.

Step 2 From the \icm\bin directory on the Dialer, type the following to run the DialogicTest utility, type

```
Dialogictest softphone <number of ports in the Dialer port map> <CallManager name or IP
address> <dialer ID> <starting channelID> <custname>
```

where:

a) The *CallManager name or IP address* indicates the Unified CM TFTP server machine.
b) The *dialer ID* is the numeric identifier obtained above from the Dialer table.
c) The *starting channel ID* indicates the first port ID in the Dialer (usually 0). This creates simulated Dialer ports based on the port map configuration.
d) The *custname* is the ICM customer name.

Example:
The following example displays the command syntax and the output log messages.

```
C:\WINNT\System32\cmd.exe - dialogictest softphone 1 baccm1a 5004 0                    _ | □ | ×

D:\temp\dialogictest>dialogictest softphone 1 baccm1a 5004 0
Softphone type selected
1 ports selected
14:22:22 Trace: (SP) Answering machine detection not supported in IPCC
14:22:23 Trace: Getting Configuration File [SEPDA005004f000.cnf.xml] from TFTP S
erver [10.86.142.240]
14:22:23 Trace: (SP)    ConnectToCCM - port: 0 : attempt #1 to connect to call m
anager [10.86.142.240]
14:22:23 Trace: [1] softphone channels intialized
14:22:23 Trace: (SP) Dial tone detection always enabled in IPCC
14:22:23 Trace: (SP) Edge detection not supported in IPCC
14:22:23 Trace: (SP) Answering machine detection not supported in IPCC
14:22:23 Trace: (SP) Answering machine detection not supported in IPCC
> 14:22:32 Trace: (SP)  port: 0 successfully connected to Call Manager [10.86.14
2.240]
14:22:32 Trace: (SP) Port: 0: Connected to Primary Call Manager [10.86.142.240]

14:22:32 Trace: (SP) Port: 0 Changing state from SP_STATE_UNKNOWN to SP_STATE_RE
GISTER
14:22:34 Trace: (SP) Port: 0  Received Station Register Ack Msg, keepInt=30
14:22:34 Trace: (TST)   port: 0, event: [EVENT_UNKNOWN], result: [none]
14:22:34 Trace: (SP) Port: 0 Changing state from SP_STATE_REGISTER to SP_STATE_V
ERSIONING
14:22:34 Trace: (SP) Port: 0  Capabilities request message received
14:22:34 Trace: Sent StationCapabilitesResMsg
14:22:34 Trace: (SP) Port: 0  Received Station Version Msg, version: 3109068
14:22:34 Trace: (SP) Port: 0 Changing state from SP_STATE_VERSIONING to SP_STATE
_BUTTON_TEMPLATE
14:22:34 Trace: (SP) Port: 0  Received Station Buttom Template Msg
14:22:34 Trace: (SP) Port: 0 Changing state from SP_STATE_BUTTON_TEMPLATE to SP_
STATE_LINESTATE
14:22:35 Trace: (SP) Port: 0  LineStat Message received : 19000
14:22:35 Trace: (SP) Port: 0 Changing state from SP_STATE_LINESTATE to SP_STATE_
READY
14:22:35 Trace: (SP) Line: 1: Changing state from SP_LINESTATE_UNKNOWN to SP_LIN
ESTATE_IDLE
14:22:35 Trace: (SP) Line: 2: Changing state from SP_LINESTATE_UNKNOWN to SP_LIN
ESTATE_IDLE
14:22:35 Trace: (TST)   port: 0, event: [STATION_ASSIGNED], result: [19000]
```

Step 3 Choose a phone station on the ACD that has a "caller ID" display and note its phone number. This phone station is called to validate connectivity between the Dialer and the station. Using DialogicTest, dial this station using the following syntax:

>d 0 <station #> 30

where *d* is the abbreviation for "Dial," *0* is the first channel in the port map, *station #* is the actual number to reach the phone station, and *30* represents the amount of time DialogicTest attempts to ring the phone station. For example, to dial station 51001, the command is >d 0 51001 30.

Example:
The following example displays the command syntax and the output log messages.

This syntax causes the phone station to ring and display the calling number, which is the station identifier of the first port in the Dialer port map. Answer the phone station and speak into the receiver. The DialogicTest utility notes that voice was detected. If the phone does not ring, the Dialer does not have basic connectivity with the switch and will not work properly. See the Cisco Docwiki for troubleshooting assistance.

Verify Dialer Port Map Configuration

Now that basic connectivity has been verified, it is important to verify that the port map which was configured in the Unified ICM configuration matches the configuration of the switch (or Unified CM for Unified CCE). The DialogicTest utility is also used for this process.

Note   The Outbound Option IP Dialer *must* be shut down before running DialogicTest.

How to Verify the Dialer Port Map Configuration

Procedure

Step 1   Beginning with the first port of the port map (channel 0 in DialogicTest), dial the phone station used for testing above and verify that the calling number displayed on the station matches the first port configured in the Dialer port map in Unified ICM software.

Example:
For example, to dial station number 1234, use the following command:
`>d 0 1234 30`

Step 2   Hang up this channel by typing `>h 0` and move to the next channel (channel 1). Dial the phone station again, using a command similar to the following example:

Example:
`>h 0 >d 0 1234 30`

Verify that the calling number shown on the station matches the station number configured in the ICM Dialer port map.

Step 3   Hang up this channel by typing `>h 1` and move to channel 2. Continue this procedure for the entire port map to verify that the station numbers configured in Unified ICM software match the actual numbers on the switch. If there is a mismatch in this configuration, the Dialer will not work properly.
If the configuration is a Unified CCE configuration and the BAT tool was used to configure the devices on Unified CM, it is satisfactory to test only a few ports in the range. If the Dialer is connected to a switch using an Analog link, each port must be tested because it is possible to wire this connection incorrectly for a small number of ports. Incorrect wiring creates problems in the Dialer that are difficult to find.

Verify Database Configuration

The procedure varies for verifying that the database configuration is properly set up for SQL Server, depending on the installed version of SQL Server.

Procedure

For SQL Server 2008 R2 64bit, perform the following steps:

a) Open the SQL Server Management Studio.
b) Expand the databases.
c) Select the *<cust instance_baA>* Outbound Option database. Right click and select **Properties**.
d) Select the **Files** page.
e) In the database file row, click the button in the Autogrowth column. A Change Autogrowth dialog box appears.
f) Ensure that the Enable Autogrowth box is checked. Click **OK**.

g) In the log file row, click the button in the Autogrowth column. A Change Autogrowth dialog box appears.

h) Ensure that the Enable Autogrowth box is checked. Click **OK**.

i) Click the Options page.

j) On the Recovery Model drop-down menu, select **Simple**.

k) Click **OK**.

Verify Router Registry Key

If you are using the Transfer to IVR feature, verify that the following router registry key on Side A and Side B of the Router has a value of 2:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<customer
     instance>\RouterA/B\Router\
     CurrentVersion\Configuration\Global\SkillGroupCallsInQTimerInterval = 2
```

Configuration of Campaigns and Imports

This chapter, intended for administrators, provides an overview of the Outbound Option components and information that:

- Provides a high-level overview of creating an Outbound Option campaign

- Describes the tasks to perform to create an agent campaign and a transfer to IVR campaign

- Provides procedures for configuring and scheduling personal callbacks

- Gives instructions to verify that your Outbound Option system has been configured correctly

Outbound Option Configuration Process Overview

The process of configuring Outbound Option involves the following procedures:

- Configuring dialed numbers (DNs) for agent reservation and transferring to IVR
- Creating a skill group and a route for the campaign
- Creating an import rule to schedule contact and do-not-call imports
- Creating a query rule to filter contact records based on SQL queries and associate those records with an import
- Create a campaign to define campaign settings, such as the campaign name, description, answering machine detection, personal callback settings, dial settings, query rule selections, and skill group selections
- Create call types to map the DNs to a reservation or transfer to IVR routing script
- Create reservation, transfer to IVR, and administrative scripts

The following figure provides a high-level overview of this process.
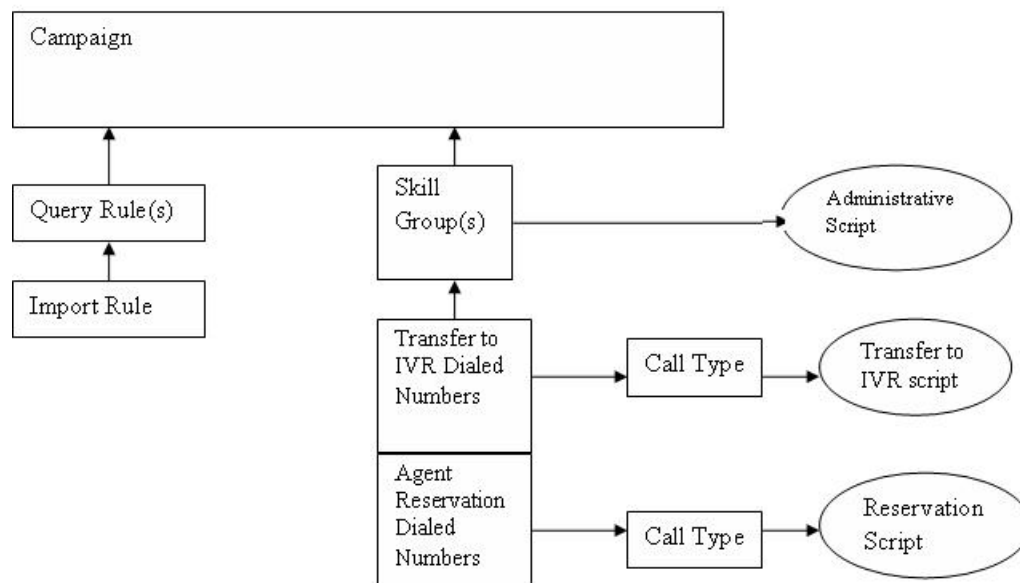
Campaign Task List, on page 123 and Transfer to IVR Campaign Tasks, on page 124 provide a complete list of tasks associated with creating those campaigns.

Dialing Modes

Outbound Option supports three different types of outbound dialing modes:

- Predictive Dialing, on page 122: The Dialer component determines the number of customers to dial per agent, based on the abandoned rate. The agent must take the call if logged into a campaign skill group.

- Preview Dialing, on page 122: The agent previews customer information on their desktop, and chooses to contact the customer, skip to another customer, or reject the call.

- Progressive Dialing, on page 123: The administrator specifies a fixed number of lines to dial per agent instead of the Dialer component determining the number of lines. The agent must take the call if logged into a campaign skill group.

Note For agent campaigns, all three modes reserve an agent at the beginning of every outbound call cycle by sending a reservation call to the agent.

Predictive Dialing

In predictive dialing, the dialer determines the number of customers to dial per agent based on the abandon rate. The agent must take the call if that agent is logged into a campaign skill group.

A Predictive Dialer is designed to increase the resource utilization in a call center. It is designed to dial several customers per agent. After reaching a live contact, the Predictive Dialer transfers the customer to a live agent along with a screen pop to the agent's desktop. The Predictive Dialer determines the number of lines to dial per available agent based on the target abandoned percentage.

Predictive Dialing Description

Outbound Option predictive dialing works by keeping outbound dialing at a level where the abandon 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 agent until the abandon rate rises to the preconfigured maximum abandon rate. At this point, the Dialer begins lowering the lines per agent 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 point in time may vary for the Dialer.

Preview Dialing

Preview dialing reserves an agent prior to initiating an outbound call and presents the agent with a popup window. The agent may then Accept, Skip, or Reject the call with the following results:

- **Accept**: The customer is dialed and transferred to the agent.

- **Skip**: The agent is presented with another customer call.

- **Skips-Close**: The customer will not be called again, and the agent is presented with another customer call.

- **Reject**: The agent is released. At this point, the system delivers another call to the agent, either another Preview outbound call, or a new inbound call.

- **Rejects-Close**: The agent is released and the record is closed so it is not called again. At this point, the system delivers another call to the agent, either another Preview outbound call or a new inbound call.

Direct Preview Dialing

The Direct Preview mode is similar to the Preview mode, except that the call is automatically placed by the dialer from the agent's phone after the agent accepts. Because the call is initiated from the agent's phone, the agent hears the ringing, and there is no delay when the customer answers. However, in this mode, the agent must deal with answering machines and other results that the Dialer Call Progress Analysis (CPA) normally handles for other campaign dialing modes.

Note
- The CPA and the transfer to IVR features are not available while using Direct Preview Dialing mode.
- A *zip tone* is a tone that announces incoming calls. There is no zip tone in Direct Preview mode.

Progressive Dialing

Progressive Dialing is similar to predictive dialing (see Predictive Dialing, on page 122). The only difference is that in Progressive Dialing mode, Outbound Option does not calculate the number of lines to dial per agent, but allows users to configure a fixed number of lines that will always be dialed per available agent.

Configuration Process Task Maps

This section contains configuration process task map tables that list the steps for creating an agent campaign and a transfer to IVR campaign.

Campaign Task List

The following table lists the steps required to create an agent campaign, *in the order that you need to perform these steps*, and the location (in this document or in another Cisco document) of the instructions for the task. The primary difference in configuration steps between an agent campaign and a transfer to IVR campaign is that the agent campaign requires an agent reservation script, while the transfer to IVR campaign does not.

Table 11: Steps for Creating an Agent Campaign

Step Number	Task	Where Discussed
1	Create DN on MR client using IPCC DN tool.	Create Dialed Numbers, on page 125
2	Create DN for Abandon to IVR on the CM PC for the SCCP Dialer, and on the MR PG for the SIP Dialer.	Create Dialed Numbers, on page 125
3	Create DN for AMD to IVR. For the SCCP dialer you create this on the CM PG; for the SIP dialer you create this on the MR PG.	Create Dialed Numbers, on page 125
4	Configure an Import Rule using the Outbound Option Import Rule tool.	Create Import Rule, on page 127
5	Configure Query Rules using the Outbound Option Query Rule tool.	Create a Query Rule, on page 134
6	Configure a Campaign using the Outbound Option Campaign tool.	Create a Campaign, on page 135

Step Number	Task	Where Discussed
7	Configure Call Type using IPCC Call Type tool.	Create a Call Type, on page 147
8	Configure Reservation Script using Script Editor.	Set Up Reservation Script
9	Configure transfer to IVR scripts for AMD and Abandon to IVR using Script Editor.	Configure a Transfer to IVR Script, on page 149
10	Map Scripts to Call Types and DNs using AW Script Editor.	Map Scripts, Call Types, and Dialed Numbers, on page 155
11	Configure Administrative Script using Script Editor.	Set Up Administrative Script, on page 151
12 (SCCP Dialer only)	Configure CTI Route Points for Abandon and AMD to IVR.	*Cisco Unified Communications Manager Administration Guide*

Transfer to IVR Campaign Tasks

The following table lists the steps required to create a transfer to IVR campaign, *in the order that you need to perform these steps*, and the location (in this document or in another Cisco document) of the instructions for the task.

Step Number	Task	Where Discussed
1	Create DN for Abandon to IVR. For the SCCP dialer you create this on the CM PG; for the SIP dialer you create this on the MR PG.	Create Dialed Numbers, on page 125
2	Create DN for AMD to IVR. For the SCCP dialer you create this on the CM PG; for the SIP dialer you create this on the MR PG.	Create Dialed Numbers, on page 125
3	Configure an Import Rule using the Outbound Option Import Rule tool.	Create Import Rule, on page 127
4	Configure Query Rules using the Outbound Option Query Rule tool.	Create a Query Rule, on page 134
5	Configure a Campaign using the Outbound Option Campaign tool.	Create a Campaign, on page 135
6	Configure Call Type using IPCC Call Type tool.	Create a Call Type, on page 147

Step Number	Task	Where Discussed
7	Configure transfer to IVR script using Script Editor.	Configure a Transfer to IVR Script, on page 149
8	Map Scripts to Call Types and DNs using AW Script Editor.	Map Scripts, Call Types, and Dialed Numbers, on page 155
9	Configure Administrative Script using Script Editor.	Set Up Administrative Script, on page 151
10 (SCCP Dialer only)	Configure CTI Route Points for Abandon and AMD to IVR.	*Cisco Unified Communications Manager Administration Guide*

Configure Skill Group

Perform the following steps to create a skill group using the Skill Group Explorer tool:

Procedure

Step 1 In ICM Configuration Manager, open the Skill Group Explorer tool.

Step 2 Make sure the PIM is displayed in the **Select filter data** section (for information on creating the PIM, see Configure the PG, on page 49).

Step 3 Click **Retrieve**.

Step 4 Click **Add Skill Group**.

Step 5 Set the **Media Routing Domain** to **Cisco_Voice**.

Step 6 Enter a peripheral name and number (record them):_____. (You can either enter a name or allow the system to generate the name.)

Step 7 Check the **ICM picks the agent** check box.

Step 8 Click **Add Route**.

Step 9 Enter a name for the new route (any name is allowed).

Step 10 Click **Save**.

Create Dialed Numbers

Before you configure an Outbound Option campaign, you need to create the dialed numbers to specify for certain fields on the Campaign Skill Group tab page. The following table lists these fields, the purpose for the dialed number to be created, and the routing client associated with that dialed number.

Campaign Skill Group Tab Field Name	Purpose	Associated Routing Client
Dialed Number	Dialed Number to reserve agents. Not applicable for Transfer to IVR campaigns.	Configure on the MR routing clients for each Dialer.
After AMD and for transfer to IVR	Dialed Number for Transfer to IVR.	For SIP Dialer, configure on the MR Peripheral PG. For SCCP Dialer, configure on the agent controller / PG.
When no agents are available	Dialed Number for Transfer to IVR.	For SIP Dialer, configure on the MR Peripheral PG. For SCCP Dialer, configure on the agent controller / PG.

For agent campaigns, create all three dialed numbers. For transfer to IVR campaigns, create the dialed numbers for the **After AMD and for transfer to IVR** field.

Perform the following steps to create these dialed numbers.

Procedure

Step 1 In ICM Configuration Manager, double-click the **Dialed Number/Script Selector List** tool.

Step 2 In the **Routing Client** drop-down menu on the left portion of the screen, select the routing client listed in the preceding table.

Step 3 Click **Retrieve**.

Step 4 Click **Add**.

Step 5 On the Attributes tab:

a) For Routing Client, select the routing client listed in the preceding table.

b) For Media Routing Domain, select **Cisco_Voice**.

c) Enter values in the **Dialed Number String/Script Selector** and **Name** fields.

Step 6 Click **Save**.

Step 7 For Unified CCE configurations that have more than one Dialer component, repeat these steps to create the dialed number for each media routing client.

Configure Dialed Numbers

You must configure at least two dialed numbers on the outbound routing client: one for the agent campaign and one for the IVR campaign. See the *Cisco Packaged Contact Center Enterprise Administration and Configuration Guide* at http://www.cisco.com/en/US/products/ps12586/tsd_products_support_series_home.html for information about configuring dialed numbers.

Create Import Rule

The Import Rule defines how Outbound Option:

- Locates the imported file and defines the name of the contact table into which the import process places the contact information.

- Recognizes and defines the contact list data in the imported file. The Import Rule defines the import format of the user contact list (fixed length, comma-delimited, or pipe delimited fields), and the information to be found in the fields of the file, such as the first and last names of contacts.

  Note The import file supports delimiting the records by comma (,) or by pipe (|). The delimiter is chosen based on the following rules:

  - If a record that is imported has commas and no pipes, the Import process will use comma as delimiter.

  - If a record that is imported has pipes and no commas, the Import process will use pipe as delimiter.

  - If a record that is imported has a combination of pipes and commas, the pipe is used as delimiter irrespective of which delimiter the Import process finds first.

- Schedules updates for your calling lists imports.

There are two types of import rules in Outbound Option:

- Contact - An import rule that you create for a specific campaign. Note that it is possible to have a single import rule with many contacts, and use query rules to separate those contacts into different campaigns.

- Do Not Call - An import rule, created once and applicable to all campaigns, that provides do-not-call information to all campaigns

Before you create an import rule, you need to decide where you want Outbound Option to look for the import list.

Note When you edit an existing import rule, changing the target table name creates a new table, but does *not* remove the old table. The old table remains in the database, but will not be used by the system.

When you import records, take note of the following:

- The dialing rate/CPS is affected.

- The "record fetch query performance" is also affected if you are importing huge number of records. The performance of the query impacts the call rate. Purge the dialing list manually to maintain and ensure effective query performance.

Perform the following steps to create an import rule.

Procedure

Step 1 In ICM Configuration Manager, expand the Outbound Option menu, then double-click the Outbound Option Import Rule component.

Step 2 Click **Retrieve**.

Step 3 Click **Add** at the bottom of the list box area of the window. Then fill out the information that is required on the following tab pages:

Step 4 Click **Save**.

Note If you edit an import rule, the changes that you make to that import rule take effect on the next import.

Import Rule General Tab Page

Specify the following information on the Import Rule General tab page.

Field	Description
Import name (required)	There is a 32-character limit.
Enable option	This option enables or disables importing for the import rule.
Import type	Select either Contact or Do_Not_Call from the drop-down list.
	Note If you are creating a Do_Not_Call import, be sure to also properly format the Do Not Call list file as described in Create Do Not Call List, on page 131. If you are creating a contact import, format the contact import file as described in Create Contact Import File, on page 133.

Field	Description
Target table name (required)	If you selected Do_Not_Call as the import type, the Import Rule component automatically assigns it to the DoNotCall table. If you selected Contact as the import type, you can enter any name for the target table within the following restrictions: The name must be a maximum 32-character string, including alphanumeric characters, periods (.), underscores (_), and hyphens (-). Alphabetic characters can be upper- or lowercase. The name must begin with an alphanumeric character and must not contain spaces. **Note** When editing an existing import rule, changing the target table name creates a new table but does *not* remove the old table. The old table remains in the database, but will not be used by the system.
Import file path (required)	Enter the directory path name for the import file. The maximum number of characters allowed is 255. Click **Browse** to the right of the Edit field to browse for the location.
Import data type	Select the **Comma delimited**, the **Pipe delimited**, or the **Fixed length** setting, to indicate if the file is comma-delimited, pipe-delimited, or if it uses fixed-length columns to separate fields.
Overwrite table	When this option is enabled, you can overwrite the current import with a new import. When this option is disabled, new import data is appended to the existing data. Note that you cannot append a new field to existing import data. Also, you cannot modify or remove existing fields. **Note** Do not perform a file import with the **Overwrite table** option while a campaign is in progress. If you do, the dialer becomes unable to access records, because a database operation is in progress on the dialing List table.

Import Rule Definition Tab Page

Specify the following information on the Import Rule Definition tab page.

Field	Description

Standard column type	Choose a column type to use for this data field in the import rule. The following column types are allowed:
	
	    • AccountNumber
	
	    • Custom
	
	    • FirstName
	
	    • LastName
	
	    • Phone01 through Phone10 (allowed data: digits 0-9, pound sign (#), and asterisk (*))
	
	    • PhoneExt01 through PhoneExt10. This column is for future use. Do not use it.
	
	Outbound Option removes single quotation marks present in the Import file.
	
	Outbound Option does not send data from Custom columns to the agent desktop. They are available for use only in the query rule select clause for business-specific filtering into different dialing lists.

Field name	The name that you assign to this field, disabled unless you select Custom for the Standard column type. The maximum length is 32 characters.

Type	The field name and its drop-down list are disabled unless you select Custom for the Standard column type. For a Custom type, select the data type that this field uses. The following Custom column types are allowed:
	
	    • Custom CHAR (up to 255 characters)
	
	    • Custom VARCHAR (up to 255 characters)
	
	    • Custom DATETIME (date followed by time: MM/dd/yy HH:mm:ss)
	
	    • Custom REAL (up to 4 characters, including the decimal point)
	
	    • Custom INT (up to 255 characters; decimal point counts as one character)
	
	The default is the VARCHAR data type.
	
	Note that Outbound Option allows only one column of each of these types per import rule.

Field length (1-255)	The number of characters that this field uses to store data. The default is 1.

Field	Description
Decimal places (1-10)	For numeric data fields, enter the number of decimal places you want the import rule to use.
Allow nulls to be entered for this field option	If you enable this option, you can have empty data in the import file for this column. If you disable this option, you must have data. The default is Disabled.

Imports

This section provides procedures for creating an import rule file, creating a Do Not Call list, and adding attributes for a contact list.

Import Procedure

Before you run an import, you must first create an import rule file that contains the data to be imported. This import rule can have a maximum of 10240 characters per row, and can be in one of two formats:

- **Comma-delimited format** - Each column data is separated by a comma.

- **Fixed format** - Each column data is separated by spaces.

- **Pipe-delimited format** - Each column data is separated by a pipe.

Then, to run the import, specify information about that import in the Import Rule component:

- On the General tab, specify attributes such as the Import Type (contact list or Do Not Call list), the directory path of the import file, and the format of the import file.

- On the Definition tab, specify the import file fields that are to appear as columns in the import list. You can specify these fields only if you are creating a contact list. the Do Not Call list import type has fixed fields.

- On the Schedule tab, specify the time that you want the import to start and how often you want the import to run.

When the import runs, the data is read and the import file is renamed so that it is not re-imported. This allows you to read and review the import file (if necessary) to troubleshoot problems.

Create Do Not Call List

When creating a Do_Not_Call list file, format it correctly using the following instructions.

Procedure

Step 1	Using a text editor, create a text file that contains all the do-not-call phone numbers.
Step 2	Enter a phone number and an extension (if applicable) for each Do Not Call entry on a new line.
Step 3	Observe the following characteristics for each Do Not Call entry:

  a) Each phone number can be a maximum of 20 characters long.
  b) Each extension can be a maximum of eight characters long.
  c) Phone numbers with associated extensions must be separated with a comma between the phone number and the extension.
  d) The Do Not Call table can support up to 60 million entries, but note that the information is stored in memory in the Campaign Manager process.
  e) Each Do Not Call entry uses 16 bytes of memory, so 60 million entries would require approximately one gigabyte of memory (960 million bytes) on the Logger Side A platform.

Step 4	Save the text file to the local server.

The following is an example of a Do_Not_Call list:

```
2225554444

2225556666

2225559999

2225552000,4321
```

To add a customer to this list, import a Do Not Call list.

Do Not Call import files are read by the Campaign Manager. Dialing List entries are marked as Do Not Call entries only when the Campaign Manager fetches the Dialing List entry *and only when there is an exact, digit-for-digit match*. This allows Do Not Call imports to happen while a Campaign is running without rebuilding the Dialing List.

Note   If the Dialing List includes a base number plus extension, this entry must match a Do Not Call entry for that same base number and same extension. The dialer will not dial the extension.

When the Campaign Manager starts it automatically imports from the DoNotCall.restore file that is stored in the *<drive>\icm\<instance>\la\bin* directory. When reading Do Not Call import files, the Campaign Manager appends the data to the DoNotCall.restore file. This restore file allows recovery of Do Not Call records after the Campaign Manager stops unexpectedly or for planned maintenance, such as a Service Release installation.

The restore file can grow to approximately 1 GB if 60 million DNC records are imported, each having ten-digit numbers plus five-digit extensions. Sufficient disk space must be available on LoggerA to store the DoNotCall.restore file.

Note   To clear the Do Not Call list, import a blank file with the Overwrite table option enabled.

Create Contact Import File

When creating a contact import file, you must observe the format you designed according to the database rules set up in Import Rule Definition Tab Page, on page 129.

The following example assumes that you have contact information with AccountNumber, FirstName, LastName, and Phone column types.

Procedure

Step 1   Using a text editor, create a text file that contains the information for these fields.

Step 2   Enter an account number, first name, last name, and phone number for each entry on a new line.
Use either comma delimited, pipe delimited, or fixed length, as described on the Import Rule General Tab Page.

Step 3   Save the text file to the local server.
The following is an example of a contact import file:

```
6782,Henry,Martin,2225554444

3456,Michele,Smith,2225559999

4569,Walker,Evans,2225552000
```

Import Rule Schedule tab page

Specify the following information on the Import Rule Schedule tab page.

Field	Description
Schedule start time	Enter or select the time when the process starts. Because the setting uses 12-hour time notation, be sure to select AM or PM. The time is based on the local time at the ICM Logger utility. The default is 9:00 AM.
Weekly option	Enable this option for the import rule process to execute on the same days each week. Enable the days of the week when you want the process to execute. Disable this option if you do not want the process to execute weekly.
Monthly option	Enable this option for the import rule process to execute on selected days each month. Enter the day of the month on which you want the process to execute. Note that if you select a date that does not occur during a particular month, such as the 31st day of April, the import does not execute on that month.

Field	Description
Start import when file is present option	Enable this option to import a file as soon as it is copied into the specified location. Note that the folder that you specify must have write permissions. Otherwise, import file copying and renaming cannot occur. The import process polls every second to see when the import file becomes available. After the file is available, the import begins immediately.
Rename File After Import	When selected, specifies that the import file be renamed by appending ".bak" to the filename after the import is complete.
Delete File After Import	When selected, specifies that the import file be deleted after the import is complete.

Create a Query Rule

The Query Rule component defines the SQL rule that the Outbound Option Import process uses to build the dialing list for a particular campaign. Based on SQL queries to the database, the rule defines how the contact records from the Outbound Option database are selected to be inserted in the dialing list.

Perform the following steps to create a query rule.

Procedure

Step 1 In ICM Configuration Manager, expand the Outbound Options menu, then open the Outbound Option Query Rule component.

Step 2 Click **Retrieve**.

Step 3 Click **Add** at the bottom of the list box area of the window.

Step 4 Specify the following information on the Query Rule General tab page.

Table 12: Query Rule General Tab Page

Field	Description
Query rule name (required)	Maximum 32-character string, including alpha-numeric characters, periods (.), and underscores (_). Alphabetic characters can be uppercase or lowercase. The name must begin with an alphanumeric character, and must not contain spaces.
Enable option	Specifies that the rule is available for all campaigns. The default is Enabled.
Import	Select the name of the import rule to use as part of this query rule. The drop-down list displays all of the import rules that you created with the Outbound Option Import Rule component.

Field	Description
Description	(Optional) Enter a description of this query rule.
Rule Clause (required)	To create a rule clause for selecting records, select items from the Column Name, Operators, and SQL Functions columns on this tab page, and then click **Paste** to enter them in the Rule Clause area of the tab page. After you have created the rule clause, click **Validate Rule Clause** to perform SQL syntax checks on everything in the Rule Clause area. If SQL returns any syntax warning or error messages, correct any problems before clicking **Save** at the bottom of the tab page. If you want a rule clause to select all records in the input, specify a rule clause of 1=1.
Update Dialing List	If you make changes to this query rule, clicking this button causes the changes to be updated in the dialing list for all the campaigns that use this particular query rule (dynamic update). If you do not click this button, the changes occur during the next import.

Step 5 Click **Save**.

Create a Campaign

Use the Outbound Option Campaign tool to define or modify the settings that apply to a campaign. You can also add or delete a campaign through this tool.

You can define two types of campaigns: agent-based, and transfer to IVR. However, only one campaign type can be configured per campaign.

Before you create a campaign, you must first configure the following information:

- A dialed number for accessing the agent reservation script
- A dialed number for transferring the call to the IVR for AMD
- A dialed number for transferring the call to the IVR for abandon treatment when no agents are available.

Perform the following steps to create a campaign.

Procedure

Step 1 In ICM Configuration Manager, expand the Outbound Option menu, then open the Outbound Option Campaign component.

Step 2 Click **Retrieve**.

Step 3 Click **Add** at the bottom of the list box area of the window.

Step 4 Fill in the fields described on the following pages:

Step 5 Click **Save.**

Campaign General Tab Page

Specify the following information on the Campaign General tab page.

Field	Description
Campaign Name (required)	Maximum 32-character string, including alphanumeric characters, periods (.), and underscores (_). Alphabetic characters can be upper- or lowercase. The name must begin with an alphanumeric character.
Description	Optional description for the campaign; maximum 255 characters.
Enable option	This option enables or disables the campaign.
Power Dialing Section	
Lines per agent (required)	The number of lines dedicated to each agent in this campaign. Note that if this value and the Maximum lines per agent value are both set to 1, the mode defaults to Progressive. Default = 1.5 (Three lines for every two agents.) Allowable Range = 1 - 100 This value performs as follows in the Outbound Option dialing modes: • Preview mode: Ignored (always 1). • Progressive mode: Used as defined. • Predictive mode: Used as an initial value.
Dialing Options Section	
Maximum lines per agent (required)	The upper bound for the number of customers the dialer will dial for a reserved agent at a time when the campaign is running in predictive mode. Default = 2 Range = 1 - 100

Field	Description
Abandon calls limit (1-100)	This option only applies to Predictive campaigns. Enable this option to set an Abandon calls limit (1-100) for the percentage of abandoned calls in this campaign. The granularity is to one-tenth of a percent. Default = 3.0. If the option is disabled, the campaign dials without regard to the abandon limit. **Note** A call is considered abandoned if a person answers it and the contact center does not connect the call to a sales representative within two seconds of the person's completed greeting.
Advanced	Clicking the Advanced button opens a Predictive Dialing Settings dialog box. On this dialog box, you can change the following parameters that control how adjustments are made to the lines per agent in this campaign. Accept the default in most cases. • **Voice Calls Per Adjustment**: A count of the number of live voice connects that must occur before the Dialer makes an adjustment. Increasing this number results in less frequent adjustments based on larger sample size. Decreasing this number results in more frequent adjustments using a smaller sample size. Default = 70 . • **Gain**: The size of the adjustment to lines per agent each time an adjustment is made. Increasing the Gain results in larger lines per agent adjustments; decreasing the Gain results in smaller lines per agent adjustments. Default = 1 .
Dial Settings Section	
No answer ring limit (2 - 10)	Defines the number of times the software allows a dialed telephone number to ring. Enter the maximum number of rings allowed. The length of one ring is specified at the dialer level in the TimeToRingCustomer registry entry. Default = 4. **Note** The default behavior is to allow calls to ring for 32 seconds (No answer ring limit - 4, TimeToRingCustomer key - 8 seconds). Assuming the default 8 second TimeToRingCustomer key is used, setting the "No answer ring limit" to the minimum 2 rings meets 15-second ring-time requirements.

Field	Description
Maximum attempts (1 - 100)	Defines the maximum number of attempts, including callbacks and retries. Enter the maximum number of attempts to be made in zone 1 and zone 2. Default = 3. Note that increasing the number of attempts causes closed records to be reopened, which can result in slower performance. Modifying this parameter while the campaign is in progress can result in longer agent idle times and delays to retrieve records from the dialing list.
Abandoned call wait time (0 - 10) (required)	Minimum duration (in seconds) of an outbound call. If the duration of an outbound call is less than this specified value, Outbound Option considers the call as customer abandoned, and the customer record that is associated with that call is scheduled for a retry. To disable this feature, set this value to 0. Enter the number of seconds. Default = 1. Note that if this feature is disabled, then Outbound Option does not consider this call as customer abandoned. It affects the reporting of this call in the Outbound Option dialer_detail table.
Campaign Prefix Digits	Digits to be prefixed to each customer number dialed from this campaign. For the SIP Dialer, this field represents the phone number that is advertised as the calling number for the campaign. Enter a maximum of 15 digits in this field.
Retries Section	
No answer delay	Defines (in minutes) how often the software waits before calling back a no-answer call. Enter the number of minutes. Default = 60.
Busy signal delay	Defines (in minutes) how long the software waits before calling back a busy telephone number. Enter the number of minutes. Default = 60.
Customer abandoned delay	If a customer abandons a call, the time (delay in minutes) when the dialer should call the customer back. Default = 30.
Dialer abandoned delay	If the dialer abandons a call, the time (delay in minutes) when the dialer should call the customer back. Default = 60.
Answering machine delay	If the call was answered by an answering machine, how long the software waits (in minutes) before calling back. Default = 60.
Customer not home delay	If the customer was not at home and should be called back, the time (in minutes) when the dialer should call the customer back. Default = 60.
Callback Settings Section	

Field	Description
Personalized callback	Enables the personal callback option. This option allows an agent to schedule a callback to a customer for a particular date and time, which connects the customer to the agent they originally spoke to (at the time the customer requested).
Reschedule callback mode (required)	Determines how Outbound Option should handle the personal callback if the agent is not available: • Use Campaign DN. • Reschedule the personal callback to the same time the next business day. • Abandon the personal callback.
Campaign Prefix Digits	Digits to be prefixed to each customer number dialed from this campaign. For the SCCP Dialer, this field creates a unique prefix that can be used by the Unified CM Translation Pattern function to change the ANI that customers see. For the SIP Dialer, this field represents the phone number that is advertised as the calling number for the campaign. Enter a maximum of 15 digits in this field.

Modification of Maximum Number of Attempts in a Campaign

Adjusting the maximum number of attempts amount (Maximum attempts field on the Campaign General tab page) in a campaign configuration can be useful for calling customers who were not previously reached without having to import their phone numbers again. This option is particularly useful if the campaign import is an append instead of an overwrite type. Be aware that modifying this option in the campaign configuration results in an update of all customer records that were not successfully contacted. The Campaign Manager can update only about 20 records per second, and no new customer records will be delivered to the dialer for this campaign while this update is in progress; therefore, only update the **Maximum attempts** field when the campaign is *not* in progress.

You can view how many records have been closed and how many were successfully reached by using the Call Summary Count per Campaign Real Time report. See Reports, on page 159 for more information.

Parameter Tuning

The Voice Calls Per Adjustment and Gain parameters are settings in the Advanced Users configuration tab used to control the way the predictive dialing behaves. Do not modify the default values unless you understand the parameters and the possible risks incurred when changing the pacing.

• The Voice Calls Per Adjustment parameter is a count of the number of live voice connections that are required to trigger a correction. (The default value is 70 voice calls.) If the abandon rate exceeds the target by a significant margin, the dialer can make corrections before collecting 70 calls.

• The Gain parameter controls the size of the Lines per agent corrections.

Setting the Voice Calls Per Adjustment parameter to a smaller setting leads to larger fluctuations in the measured Abandon Rate because the sample size is less significant. This results in less change in the Lines per agent value over time.

⚠

Caution   Be careful when modifying both parameters (Gain and Voice Calls Per Adjustment) at the same time. For example, increasing the Gain while decreasing the Voice Calls Per Adjustment results in larger changes in the "Lines per agent correction rate," which might overcorrect changes in measured values. Decreasing the Gain while increasing the Voice Calls Per Adjustment can similarly cause too slow of a change to underlying changes in the hit-and-abandon-rates. A campaign that is reaching more than 20 live voice customers every minute (600 per half hour) might benefit from reducing the Gain, but a lower Gain becomes less effective as the number of agents in the campaign dwindles or the hit rate changes rapidly.

Campaign Purpose Tab Page

Specify the following information on the Campaign Purpose tab page.

✎

Note   You cannot configure both Agent Based campaigns and Transfer to IVR campaigns at the same time.

Field	Description
Agent Based Campaign	
Agent Based Campaign	This type of campaign uses an outbound mode that causes the dialer to transfer every customer call that is associated with a specific skill group to an agent.
Enable IP AMD	Selecting this option enables answering machine detection for the IP dialers in the system only. If this option is enabled, when the dialer detects an answering machine, it performs one of the following actions. (Default = Enabled.) • **Abandon Call (default)**: Drops the call, marks it as an answering machine, and schedules a retry. • **Transfer to Agent**: Transfers the call to an agent. • **Transfer to IVR Route Point**: Transfers the call to play a prerecorded message. (The IVR route point is configured in the Skill Group Selection dialog box in the Campaign Skill Group Selection tab.) **Note** Once transferring to an agent or to an IVR is configured, there is no way to set the AMD records as Retry. You must use a customized query to identify such calls and create a new campaign. • **Terminate Tone Detect**: Transfers the call after detecting the answering machine beep.

Field	Description
Call Progress Analysis	If this option is disabled, all Call Progress Analysis for all calls made from this dialer is disabled on a campaign-by-campaign basis, including voice detection, fax/modem detection, and answering machine detection. (Default = Disabled.)
	If Call Progress Analysis is enabled, specify the Record CPA parameter. The Gateway provides a media stream and the dialer records .wav files. This improves Call Progress Analysis performance.
	Note If you have a SIP dialer, you must enable IP AMD for CPA to function. If you do not enable IP AMD, the SIP dialer instructs the gateway to transfer the call to agent without waiting for detection.
Transfer to IVR Campaign	
Transfer to IVR Campaign	This type of campaign uses an outbound mode that causes the dialer to transfer every customer call that is associated with a specific skill group to a service control-based IVR instead of an agent. This feature allows a contact center to run unassisted outbound campaigns using prerecorded messages in the IVR.
Enable IP AMD	Selecting this option enables answering machine detection for the IP dialers in the system only. If this option is enabled, when the dialer detects an answering machine, it does one of the following actions. (Default = Enabled.)
	• **Abandon Call (default)**: Drops the call, marks it as an answering machine, and schedules a retry.
	• **Transfer to IVR Route Point**: Transfers the call to play a prerecorded message. (The IVR route point is configured in the Skill Group Selection dialog box in the Campaign Skill Group Selection tab.) **Note** Once transferring to an agent or to an IVR is configured, there is no way to set the AMD records as Retry. You must use a customized query to identify such calls and create a new campaign.
	• **Terminate Tone Detect**: Transfers the call after detecting the answering machine beep.
Call Progress Analysis Parameters	
Minimum Silence Period (100-1000)	Minimum silence period required to classify a call as voice detected. If many answering machine calls are being passed through to agents as voice, then increasing this value accounts for longer pauses in answering machine greetings. Default is 608.

Field	Description
Analysis Period (1000-10000)	Number of milliseconds spent analyzing this call. If there is a short agent greeting on an answering machine, then a longer value here categorizes that answering machine call as voice. If the call is to a business where the operator has a longer scripted greeting, a shorter value here categorizes the long, live greeting as answering machine. Default is 2500.
Minimum Valid Speech (50-500)	Minimum number of milliseconds of voice required to qualify a call as voice detected. Default is 112.
Maximum Analysis Time (1000-10000)	Max number of milliseconds allowed for analysis before identifying a problem analysis as dead air/low volume. Default is 3000.
Maximum Termination Tone Analysis (1000-60000)	Maximum milliseconds the dialer analyzes an answering machine voice message looking for a termination tone. If the message has an odd tone and the analysis does not recognize it, the call is not transferred or dropped until this timeout occurs. Default is 30000.
Reset to System Default	Resets all items in the Call Progress Analysis (CPA) Parameters section to the system defaults.

Query Rule Selection Tab Page

Press the **Add** button on the Query Rule Selection tab page and specify the following information.

Field	Description
Query rule name	The name of the query rule.
Enable	Enables the query rule for this campaign. Default = Enabled.
Start time	The local time at the ICM Central Controller when a query rule can begin to execute.
End time	The local time at the ICM Central Controller when a query rule must stop executing.
Penetration (0-400):	The maximum number of calls that this campaign tries during a query rule execution; for example, 400 contact attempts. When a query rule reaches the penetration number, it stops executing and the next query rule in the list begins to execute. Default = 100. If this option is enabled, Duration and Hit Rate are disabled.
Duration (0-120):	The total amount of time that this query rule can run; for example, 30 minutes. When the query rule reaches the time limit, it stops executing and the next query rule in the list can begin to execute. Default = 30. If this option is enabled, Penetration and Hit Rate are disabled.

Field	Description
Hit Rate (0-100):	The minimum percentage of calls that can be answered (excluding answers by answering machines) during this query rule execution; for example, 30 percent. If the hit rate drops below this value, the next query rule begins to execute. Default = 30. If this option that is enabled, Duration and Penetration are disabled.

Skill Group Selection Tab Page

From the Skill Group Selection tab page, press **Add** to display the fields available to fill out.

Field	Description
Skill Group Name	The name of the skill group assigned to this campaign.
Overflow Agents per Dialer (0-100)	This setting can be useful for Progressive campaigns to reduce the abandon rate at the cost of increasing agent idle times. This setting ensures that there is always at least one extra agent reserved before it begins dialing. When this setting is set to 1, at least two agents need to be reserved before the dialer begins dialing. The intention is to increase the odds that an agent is available when two or more customers answer, which increases agent idle times while decreasing the abandon rate.
Dialed number	The digits that are dialed to reserve an agent in the configured skill group. The Dialed Number allows only alphanumeric and (.)and (_)as valid characters; there is a ten-character limitation. It does not allow special characters like *,@, # ... etc., which are unacceptable for this dialed number. A matching dialed number also needs to be created.
Records to cache (1-400)	The minimum number of dialing numbers that each dialer caches for each of the Outbound Option skill groups. Default = 1. Note that this value should not exceed 400 records.
Number of IVR Ports	The total number of IVR ports allocated for the specific skill group. This value indicates how many ports are available for the dialer to transfer customer calls. Since this value indicates the total number of ports supported by the IVR for the current skill group, multiple skill groups can make transfer to IVR calls. They also use one IVR to play different messages based on the route point where the contact is transferred. If there are multiple dialers associated with this skill group, each dialer dials a fraction of the total number of ports.
Route Points for Transferring to an IVR	

Field	Description
After AMD and for transfer to IVR campaigns	If the campaign is a Transfer to IVR campaign or is configured to transfer AMD calls to an IVR, this number indicates the route point required to execute the transfer to IVR routing script. This number should coincide with a route point configured on Unified CM and be assigned to the PGUser. Contacts are transferred to this route point, which points to a routing script. This script transfers the call to an IVR. The maximum length is 32 characters.
When no agents are available	If the campaign is a Transfer to IVR campaign or is configured to transfer AMD calls to an IVR, this number enables the Dialer to play a message to any calls about to be disconnected due to lack of available agents. This number should coincide with a route point configured on Unified CM and be assigned to the agent PG's CTI application (for example, PGUser). Contacts are transferred to this route point, which points to a routing script. This script transfers the call to an IVR. The maximum length is 10 characters.
Filter	
Peripheral	The name of the Peripheral for which the Skill Groups to be assigned to this campaign are to be configured. Click **Add** in the Skill Group Selection tab to display a pop-up window listing the configured Peripherals.
Skill Group Condition	Select the condition for filtering the skill groups associated with the selected peripheral, and then click **Retrieve**. • *None* - This means no filter is selected and Value filter is ignored. All Skill Group records assigned to the selected peripheral are displayed. • *Contains*, *Ends With*, *Starts With* - Select one of these conditions and enter an appropriate entry in the **Value** field. The filtered Skill Group records assigned to the selected peripheral are displayed.
Value	The entry in this field is based on the selections made in the **Skill Group Condition** field. If *None* is selected, this field is ignored.
Retrieve	Click this button to retrieve and display data based on the Peripheral, Skill Group Condition, and Value filters.
Pagination	
Page	Enter a page number to display a page of retrieved skill groups.
Forward	Enabled when a retrieve operation retrieves more than 100 skill groups. Click to display the next 100 skill groups.

Field	Description
Reverse	Enabled when a retrieve operation retrieves more than 100 skill groups from the ICM database. Click to display the previous 100.
Of	Displays the total number of skill groups retrieved.

Call Target Tab

Specify the following information on the Call Target tab.

Field	Description
Daylight Savings Zone	Describes the default time zone to use for any numbers dialed which do not map to the Outbound Option region prefixes.
Zone 1 and Zone 2 options	Enable this option, and then enter the start and end times for reaching your calling targets. Zones are useful for distinguishing phone locations. For example, Zone 1 can be designated as work, and Zone 2 can be home. **Note** The start and end times are local to your contacts (Customer Time). The same number can be assigned to one or both zones at the same time. However, Zone 1 time and Zone 2 time cannot overlap.
Numbers to dial	Lists the phone numbers in dialing order for the Zone 1 or Zone 2. • To move a phone number into the Numbers to dial list, click a number in the Available numbers list and then click the left arrow to add it to the Numbers to dial list. Do not move phone numbers after the campaign has started because the phone numbers might not be dialed. • To remove a phone number in the Numbers to dial list, click the number and then click the right arrow to add it to the Available numbers list. • To control the dialing order, use the up and down arrows to move the phone numbers within the Numbers to dial list. **Note** Customers are dialed based on the time zone of the first phone that is configured on this tab. The time zone is based on the prefix of the phone number and the region prefix configuration. If two phone numbers that are imported for the same customer have different time zones, both phones are called during times that are valid for the first phone.
Available numbers	Contains the available phone numbers that can be added to the Numbers to dial list for Zone 1 or Zone 2.

Notes on Editing a Campaign in Progress

You can edit most campaign configuration settings while a campaign is running. The changes take effect with new calls after the setting has been changed. However, avoid the following edits to a campaign in progress:

- Do not modify the Max Attempts value. Modifying this value while a campaign is in progress can cause a long delay in record retrieval and longer agent idle times.

- Do not delete a skill group while a campaign is in progress.

Create an Enterprise Skill Group

To use the Personal Callback feature, you need to create the enterprise skill group associated with the agent using the Enterprise Skill Group List tool.

Procedure

Step 1   Open the List tools.

Step 2   Open the Enterprise Skill Group List tool.

Step 3   Create an enterprise skill group. In the **Add Name** field, type the enterprise name, then click **Add**. Select the skill group, and then click **Save**.

Step 4   In the Attributes tab, click **Add** to add the skill group or groups.

Step 5   Click **Save**.

Create an Enterprise Route

After you create the enterprise skill group associated with the agent, you need to create an enterprise route using the Enterprise Route List tool. This route should target the enterprise skill group created in the previous step.

Procedure

Step 1   Open the List tools.

Step 2   Open the Enterprise Route List tool.

Step 3   Create an enterprise route. In the **Name** field, type the enterprise route, and then click **Add**. Select the route, then click **Save**.

Step 4   On the Attributes tab, add the route.

Step 5   Click **Save**.

Create a Call Type

Perform the following steps to create the call type that the scripts you create later will reference.

Procedure

Step 1 In ICM Configuration Manager, double-click the Call Type List tool.

Step 2 Click **Retrieve**.

Step 3 Click **Add**.

Step 4 Enter the **Name** for the call type.

Step 5 Accept the defaults for all other fields.

Step 6 Click **Save**.

Outbound Option Scripting

Outbound Option uses Unified ICM Enterprise scripting configured on the Administrative Workstation to manage campaigns.

There are two types of scripts:

- Outbound Option administrative scripts, on page 41

- Outbound Option agent reservation scripts, on page 41

Outbound Option administrative scripts

Outbound Option administrative scripts enable, disable, or throttle campaign skill groups for outbound campaigns. The scripts can also automatically close out a skill group for a specific campaign based on time or any other conditional factor that the admin script can access. This scripting is performed at the skill group level to provide more flexibility when managing larger campaigns that are distributed across multiple skill groups.

Enable a campaign skill group by setting the campaign mode to one of the available modes: Preview, Direct Preview, Progressive or Predictive. (For more information about these modes, see Dialing Modes, on page 121.) Schedule an administrative script to run at regular intervals. Disable the campaign skill group by the administrative script, using a script node to change the campaign mode to inbound for that skill group.

This script also provides the ability to control the percentage of agents to be used in a campaign skill group and whether this skill group is used for other campaigns or inbound calls.

> **Note** An administrative script controls a campaign skill group. A campaign skill group can be mapped only to one campaign at a time. A skill group can be reused if new campaigns are added. If a campaign skill group is recycled, its administrative scripting should be reused as well. However, note that although it is possible to have two administrative scripts controlling the same skill group, conflicting campaign mode requests for Outbound Option can result.

Outbound Option agent reservation scripts

Two types of routing scripts are described later in this document. One is for Agent Campaign and one is for IVR Campaign.

Reservation scripts are used by the Dialer to reserve agents for specific outbound campaigns and personal callbacks. With this kind of script, the Dialer makes a route request via its Media Routing Client using the dialed number that is configured for the campaign skill group. Each campaign has its own dialed number and reservation scripting. If an agent is not available, the default behavior is for the script to end the call and the Dialer receives an error. The Dialer retries the reservation request when it sees available agents in the skill group statistics as described in the Dialer description earlier in this chapter. You can queue reservation calls which have scripts that distribute agents across campaigns when those agents are skilled for multiple, active campaigns.

A call can be transferred to an IVR as part of a transfer to IVR campaign, or transferred to non-IVR campaigns for answering machine or abandons. A transfer to IVR campaign places a route request call to a CTI Route Point dialed number on the Agent PG, which enables the call context of the customer call to be transferred to the IVR. A new call context can be added to the call while the call is being treated at the IVR.

Set Up Reservation Script

Use the Script Editor application to create a reservation script that uses the dialed number for the Outbound Routing Type and routes through a Select node to the previously configured skill group.

Script for Agent Campaign

The following steps and accompanying diagram provide an example of how to create a script for an agent campaign.

Procedure

Using the Script Editor Call Type Manager, associate the MR (and Personal Callback, if used) dialed numbers with the configured call type and newly created reservation script.

Figure 19: Sample Script for Agent Campaign Without Personal Callback
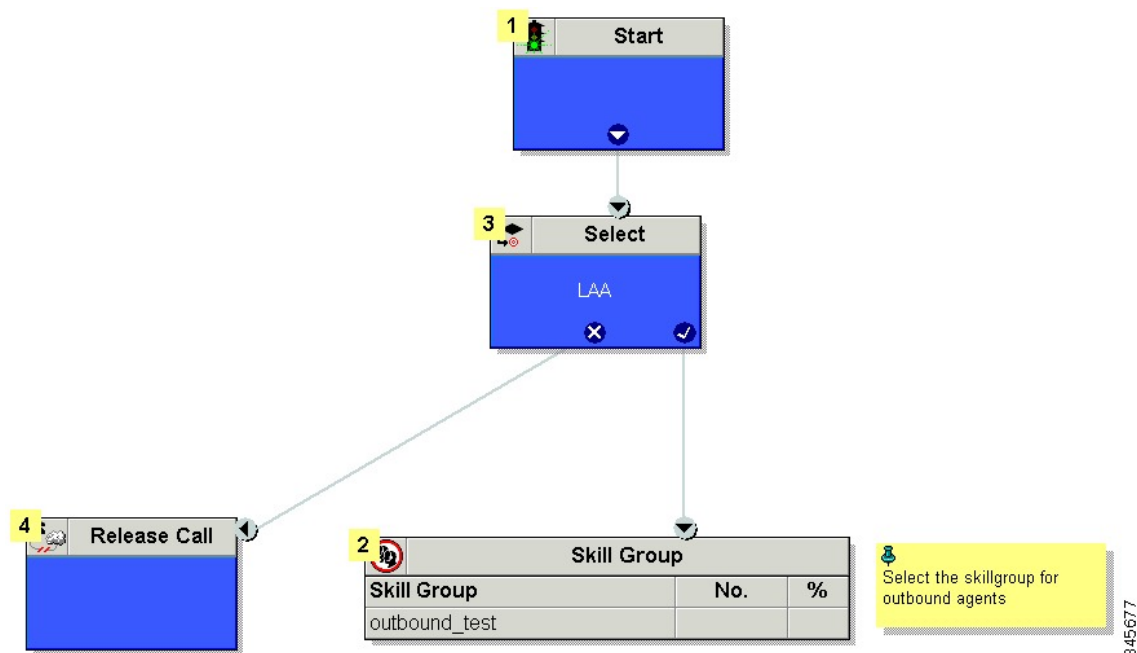
For information on configuring a personal callback, see (Optional) Configure Personal Callbacks, on page 56

Configure a Transfer to IVR Script

Note
- If you previously installed the Outbound Option Transfer to IVR engineering special, reconfigure the transfer to IVR settings using the following instructions.

- You must have a translation route configured before you start this procedure. See the *Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted* for instructions.

Perform the following steps to configure Outbound Transfer to IVR.

Procedure

Step 1 Use the Script Editor to create a Transfer to IVR script that includes Translation Route to IVR, Queue to Skill Group, Run Ext. Script, and Set Variable nodes. The following diagram illustrates an example.

Figure 20: Sample CVP Routing Script
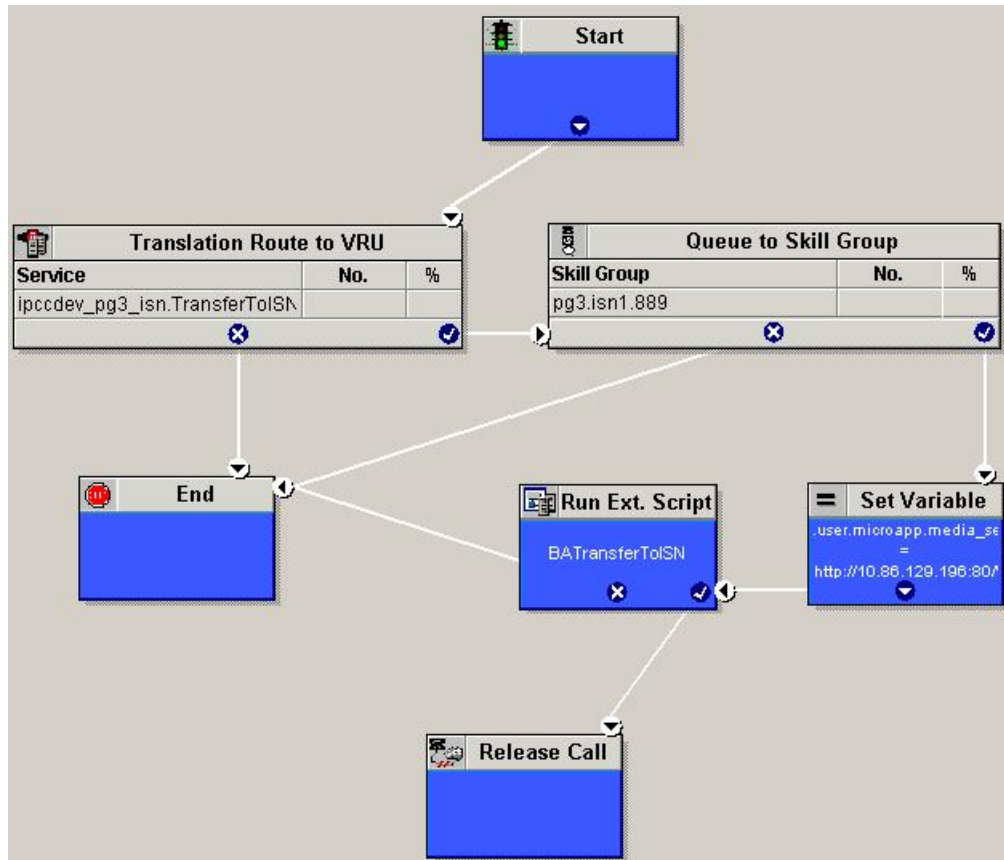
Note	• The Transfer to IVR feature requires that a translation route to a skill group must be specified in a Transfer to IVR script. It also requires that the translation route must point at a Queue to Skill node.
	• See the *Scripting and Media Routing Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted* for task-based information about using Script Editor. See the Script Editor online help for detailed information about the Script Editor options.

Step 2 To implement answering machine detection as part of this transfer to IVR script, include an If node that evaluates the value of the BAResponse variable and prescribes a call treatment depending on the CPA result of the call (whether the call detected voice or an answering machine).

The following is an example of such an If node.

Figure 21: Exanoke BAResponse If Node
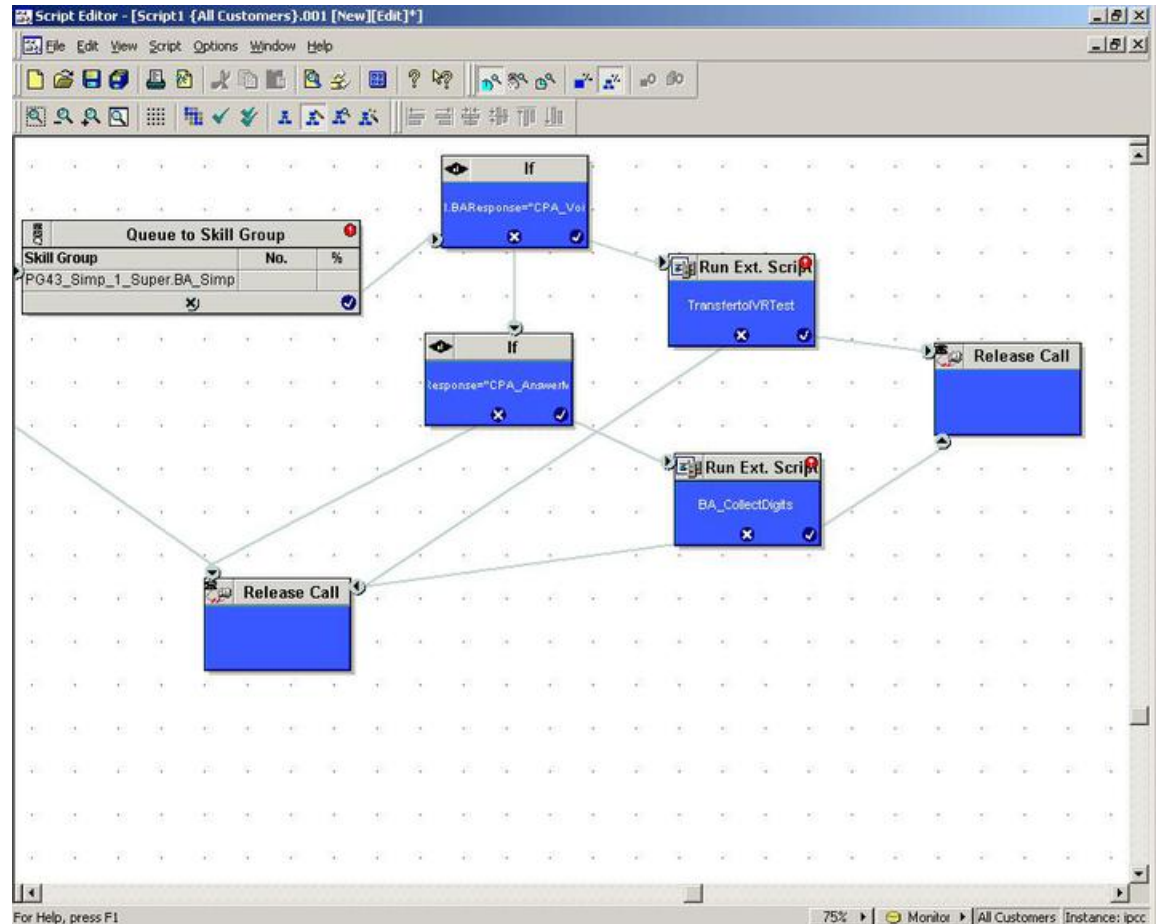
Step 3 Create an IVR or VRU script. (Be aware that this script is different from a reservation script.) The IVR script contains a list of commands that tell the IVR what kind of information to play to the customer, such as a pre-recorded message using a .wav file. The IVR script can also collect survey information by requesting the customer press specific numbers. Consult your Unified CVP, IP/IVR, or documentation for your other third-party IVR for more information.

Step 4 Schedule the script by following the procedure in .

Set Up Administrative Script

Use the Script Editor application to create an administrative script for each skill group to set the OutboundControl variable and the skill group reservation percentage. The Outbound Option Dialer uses the value of this variable to determine which mode each skill group uses.

Note

- If the OutboundControl variable is not set, the skill group defaults to inbound. See Outbound Business Concepts, on page 1 for detailed information about Outbound Option outbound dialing modes.

- Make sure the routing client for the translation route labels is Unified CM, which makes the outgoing call.

Perform the following steps to create the administrative script:

Procedure

Step 1   Open the Script Editor application.

Step 2   Select **File** > **New** > **Administrative Script**.

Step 3   Create an administrative script.
One script can be used to control all Outbound Option skill groups or multiple scripts can control multiple Outbound Option skill groups. For example, if you want to control skill groups at different times of the day, you might need multiple administrative scripts; however, if you are going to initialize the groups all in the same way, you may need only one script (with additional Set nodes).

Step 4   Set up the script with the following nodes (required): Start, Set Variable, End, and If.

The following diagram displays a very simple administrative script where both the OutboundControl variable and the outbound percentage are set for a skill group. A script in a production call center would typically be more complex, perhaps changing these variables due to time of day or service level.

Figure 22: Sample Administrative Script
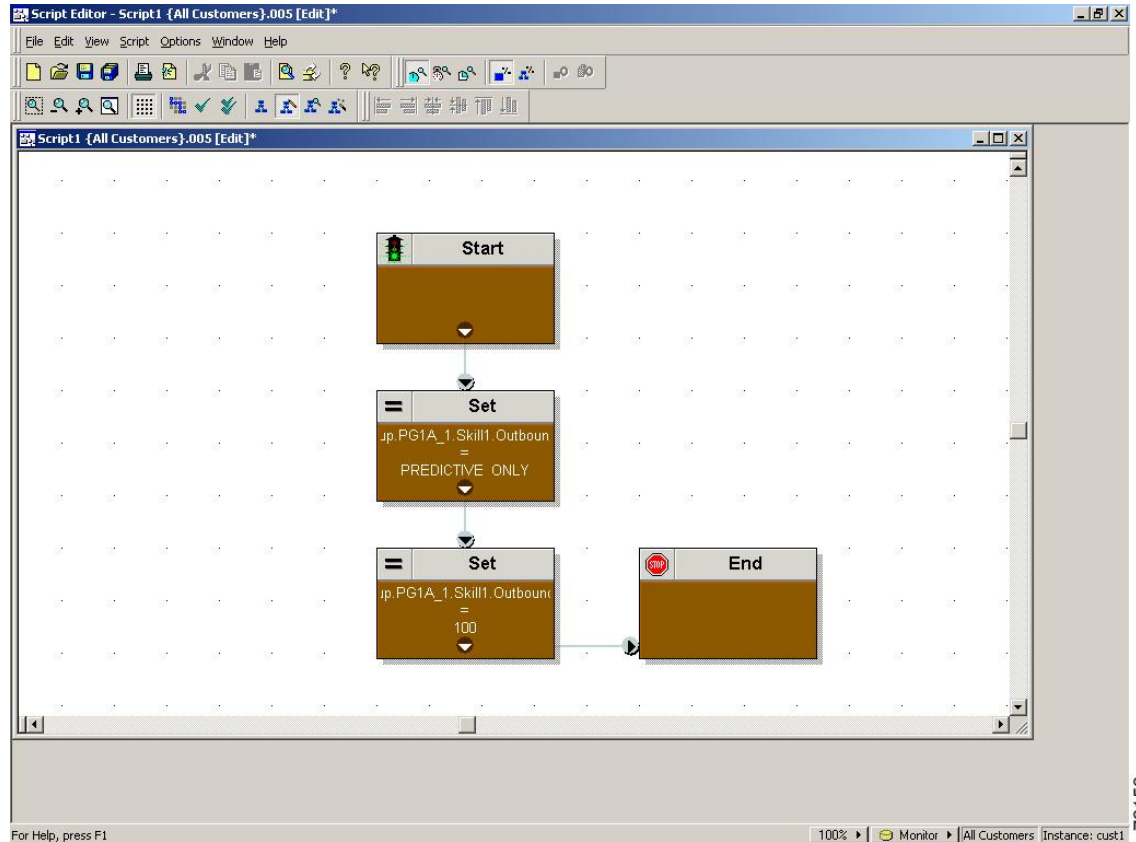
Note   The transfer to IVR feature requires an IF node in the administrative script to disable it if the IVR is not available. Also, to ensure timely responses to IVR outages, set the administrative script to run every minute. When using the System PG, use this node to ensure that the trunks are not set to idle; for example, "NetworkTrunkGroup.IPCC_Component_Interface_PG_NTG.TrunksIdle>0."

Step 5   Set the OutboundControl variable. Setting this variable enables contact center managers to control the agent mode. Set this variable to one of the values listed in the following table.

Table 13: OutboundControl Variable Values

Value String	Description
INBOUND	Agents take inbound calls only. Outbound dialing is disabled for the skill group.
PREDICTIVE_ONLY	Agents in the skill group are dedicated for outbound Predictive calls only.

Value String	Description
PREVIEW_ONLY	Agents in the skill group are dedicated for outbound Preview calls only.
PROGRESSIVE_ONLY	Agents in the skill group are dedicated for outbound Progressive calls only.
PREVIEW_DIRECT_ONLY	Agents only place outbound calls and hear ring tones, such as phone ringing or busy signal.

Note If the administrative script is changed and the SET node is removed, the value of the OutboundControl variable is the same as it was the last time the script was executed. However, if the Central Controller is restarted, the value resets to INBOUND.

Step 6 Set the OutboundPercent variable in the same administrative script; for example, select the OutboundPercent variable in the Set Properties window and enter the agent percentage in the Value field. This variable controls the percentage of agents, which are logged into a particular skill group, used for outbound dialing. For example, if there are 100 agents logged into a skill group, and the OutboundPercent variable is set to 50%, 50 agents would be allocated for outbound dialing for this campaign skill group. This set up allows the rest of the agents to be used for inbound or other active campaigns. The default is 100%.

Note
- The OutboundPercent variable also applies to Transfer To IVR campaigns, by controlling the percentage of IVR Ports that are considered for the campaign skill group.

- This variable does not allocate specific agents for outbound dialing, just a total percentage. The default is 100%.

Step 7 Schedule the script.
a) Select **Script** > **Administrative Manager**. An Administrative Manager dialog box appears.
b) Click **Add**.
c) On the Script tab, select the administrative script.
d) On the Period tab, specify the run frequency of the script. (Recommended frequency is every minute of every day.)
e) Optionally, enter a description on the Description tab.
f) Click **OK** to close the Add Administrative Schedule dialog box.
g) Click **OK** to close the Administrative Manager.

Sample Administrative Scripts

The following section describes a sample administrative script.

Administrative Script: TimeBasedControl

The following figure is a simple example of setting skill group modes for maximizing the resource utilization in a call center based upon time of day.

Figure 23: TimeBasedControl Script
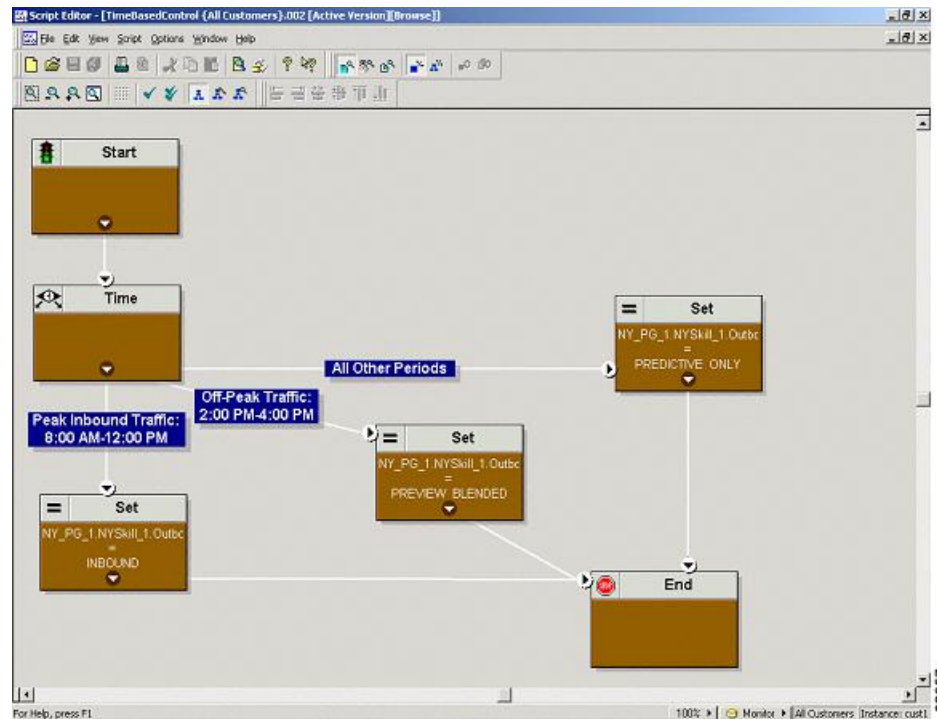
This script divides the day into three parts:

- **Peak Inbound Traffic Period (8:00 AM to 12:00 PM)**: During this time, the skill group variable is set to INBOUND only, because more agents are required to handle inbound calls.

- **Off-Peak Traffic Period (2:00PM to 4:00PM)**: During this time, the skill group variable is set to PREVIEW_BLENDED, so that when an agent is not on an inbound call, Outbound Option presents the agent with Preview calls. Once the agent is on a Preview outbound call or is busy making a decision to accept or reject the call, Unified ICM software does not route an inbound call to that agent. As soon as the agent is finished with the Preview call, Unified ICM software routes an inbound call to the agent. If there are no inbound calls, Outbound Option reserves the agent for another outbound call.

- **All Other Periods**: For the rest of the day, the skill group variable is set to PREDICTIVE_ONLY so that if any agents are logged-in, Outbound Option immediately reserves the agents for outbound calls.

Map Scripts, Call Types, and Dialed Numbers

After you create a reservation script, you must associate that script with the call type and dialed number configured for the campaign. To make the association, perform the following steps.

Procedure

Step 1 In Script Editor, open the script.

Step 2 Select **Script** > **Call Type Manager**. A Call Type Manager dialog opens.

Step 3 Select the call type from the **Call Type** drop-down list.

Step 4 Click **OK**.

Step 5 On the Schedules tab, click **Add**. A Call Type Schedule dialog opens.

Step 6 Select the script. Click **OK**.

Configure Translation Route for Use with SIP Dialer

Configure the translation route for the transfer-to-IVR campaign or the agent campaign to transfer a connected outbound call with ECC call variables from the SIP Dialer to a VRU Peripheral.

You need configure the network VRU as Type 2 for IP IVR, or as Type 8 for CVP.

For more information about configuring the translation routes, see *Configuration Guide for Cisco Unified Intelligent Contact Management/Contact Center Enterprise & Hosted* (available at http://www.cisco.com/en/ US/products/sw/custcosw/ps1844/products_installation_and_configuration_guides_list.html) and the Campaign Manager online help.

Multi-Tenant Customer Instances Configuration

Outbound Option Multi-Tenant is no longer supported beginning with Release 9.0(1).

SIP Dialer Recording Parameters Configuration

When recording is enabled in a campaign on the SIP dialer, the number of recording files that result can be large. The following table lists registry settings that you can adjust to regulate the number of recording sessions and the maximum recording file size.

Registry Setting	Default Setting	Description
MaxAllRecordFiles	500,000,000	The maximum recording file size (in bytes) of all recording files. per SIP Dialer.
MaxMediaTerminationSessions	200	The maximum number of media termination sessions per SIP Dialer if recording is enabled in the Campaign configuration.
MaxPurgeRecordFiles	100,000,000	The maximum recording file size (in bytes) that the SIP Dialer deletes when the total recording file size, MaxAllRecordFiles, is reached.

Registry Setting	Default Setting	Description
MaxRecordingSessions	100	The maximum number of recording sessions per SIP Dialer if recording is enabled in the Campaign configuration.

Recording files are in the `HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<customer instance>\Dialer` directory.

Note Only the G.711 codec is supported for recording. To record outbound calls, configure the G.711 on the voice gateway.

Verification of Dialed NumberDN/Script Selector Configuration

Outbound Option places agents in the Reserved state prior to using them for an outbound call. The dialer performs this action by using the dialed number to route to an agent. The following procedure describes how to verify that this mechanism works properly.

Verify DN/Script Selector Configuration

When an Outbound Option Dialer is installed in a Unified CCE environment, the dialer uses the dialed number to make routing requests through the Media Routing (MR) Peripheral Gateway. The following verification steps assume that all the applicable configuration and reservation script generation has already been performed.

Procedure

Step 1 Log an agent in to a skill group participating in an outbound campaign, and make the agent available. (Note the dialed number, which was configured in the Skill Group Selection tab in the Campaign component.) If a different dialed number is used for predictive and preview calls, make sure to verify both dialed numbers.

Step 2 Run the Script Editor application and select the **Call Tracer** utility from the **Script** > **Call Tracer** menu. Select the routing client that is associated with the MR PG and select the Dialed Number.

Step 3 Press **Send Call** to simulate a route request and note the results. If a label was returned for the agent who was logged in above, the reservation script is working properly and the dialer can reserve agents through this script. If a label is not returned while running this script, see the Troubleshooting Unified CCE Docwiki at http://docwiki-dev.cisco.com/wiki/Troubleshooting_Unified_CCE for troubleshooting assistance.

Verify Campaign Configuration

As a final step to verify that you configured your Outbound Option campaign correctly, create a small campaign of one or two entries that dial work phones or your mobile phone.

Administrative and Supervisory Tasks

This chapter, intended for administrators and supervisors (who may or may not have administrative permission), provides an overview of the Outbound Option administrative and supervisory tasks.

- Reports, page 159
- Agent Management, page 163
- Imports, page 164
- Campaign Management, page 167
- SIP Dialer Voice Gateway Over-capacity Errors, page 171
- Update the North American Numbering Plan Data , page 171

Reports

This section provides an overview of the Outbound Option reports available in the Cisco Unified Intelligence Center (CUIC).

Outbound Option Reports

This section describes the Outbound Option reports, created using the Unified Intelligence Center.

- Outbound Historical Reports Bundle
- Outbound Realtime Reports Bundle
- Agent Reports, on page 161
- Campaign reports, on page 160
- Skill Group Reports, on page 161
- Import Rule Reports, on page 162
- Dialer Reports, on page 163

Note All Outbound Option reports are voice-only reports and can be used in Unified CCE environments.

The Outbound Option reports are distributed in two report bundles: Realtime Outbound and Historical Outbound. The report bundles are available as downloads from Cisco.com (http://software.cisco.com/download/release.html?mdfid=282163829&softwareid=284697222&release=10.0.1&relind=AVAILABLE&rellifecycle=&reltype=latest.) Depending on how it was deployed, your installation of Unified Intelligence Center may include all or a subset of these reports.

For information on importing report bundles or custom reports, see the *Cisco Unified Intelligence Center Report Customization Guide* at http://www.cisco.com/en/US/products/ps9755/tsd_products_support_series_home.html.

Note Call Type reporting can be used on Outbound Option reservation calls and transfer to IVR calls. Call Type reporting is not applicable for outbound customer calls because a routing script is not used.

Campaign reports

Outbound Option provides a campaign report template that describes the effectiveness of a campaign. This list can be used for Agent and IVR campaigns.

Observe the following guidelines when using the campaign reports:

- Campaign Real Time reports describe how many records are left in the campaign dialing list.

- Both Campaign and Dialer Half Hour reports provide the call result counts since the last Campaign Manager restart in the half hour that it restarts.

- Dialer utilization fields in the Dialer Half Hour report are unaffected, although the Half Hour record might be missing if the Campaign Manager was inactive during the half-hour boundary. When the Dialer restarts, only the Dialer Utilization fields are affected; therefore, the Dialer Utilization only captures port status since the Dialer restarted during that half hour. Some records might be left in an active state for a short period of time after the Dialer or Campaign Manager restarts, but the Campaign Manager has a mechanism to reclaim those records.

Note Campaign Real Time reports capture call results since the last Campaign Manager restart only. If the Campaign Manager restarts, data prior to the restart is lost.

The following list describes the data that is presented in the campaign reports.

- A summary of call results for query rules within a campaign since the beginning of the day.

- A summary of call results for a campaign since the beginning of the day. It includes a summary of all query rules within the campaign.

- A view of what is configured for valid campaign calling times for zone1 and zone2 for selected campaigns. The times are relative to the customer's time zone.

- A view of what is configured for valid campaign calling times for zone1 and zone2 for selected campaign query rules. The zone times are relative to the customer's time zone. The query rule start and stop times are relative to the Central Controller time.

- How many records for selected query rules have been dialed to completion, and how many records remain.

- How many records for selected campaigns have been dialed to completion, and how many records remain.

- A summary of call results for selected campaign query rules for selected half-hour intervals.

- A summary of call results for all query rules for selected campaigns for selected half-hour intervals.

- A historical table by half-hour/daily report that shows the status (summary and percentage) of each campaign for the selected time period.

- A historical table by breakdown of attempts (in percentage) of each campaign for the selected time period.

- A historical table by half-hour/daily report that shows the status (summary and percentage) per query rule of each campaign for the selected time period.

- A historical table by breakdown of attempts (in percentage) per query rule of each campaign for the selected time period.

- A summary half-hour/daily report that shows activity and performance of the selected campaigns and their skill group for the selected time period, including abandon rate, hit rate, and agent idle times.

- A historical table by breakdown of actual customer calls (outbound calls which reached live voice, inbound calls, or calls transferred to the campaign skill group) for the selected campaigns and their skill groups for the selected time period.

Skill Group Reports

For skill group reporting per campaign, Outbound Option provides reports that represent the skill group activity for a contact center.

The following list describes the data presented in the skill group reports:

- A real-time table that shows all skill groups and their associated Outbound Option status.

- A historical table by half-hour intervals that shows Outbound Option counts for agents signed on, handle, talk, and hold states.

Agent Reports

In addition to the reports contained in the Outbound Reports bundles, other Agent reports also provide information about Outbound activities:

Report	Outbound Option Fields
Agent Queue Real Time Agent Real Time Agent Skill Group Real Time Agent Team Real Time	The **Direction** field indicates he direction of the call that the agent is currently working on including Other Out/Outbound Direct Preview, Outbound Reserve, Outbound Preview, or Outbound Predictive/Progressive. The **Destination** field indicates the type of outbound task on which the agent is currently working.

Report	Outbound Option Fields
Agent Team State Counts	The **Active Out** field shows the number of agents currently working on outbound tasks.
Agent State Real Time Graph	For agents handling Outbound Option calls, the **Hold** state indicates that the agent has been reserved for a call because the Outbound Dialer puts the agent on hold while connecting the call.

To interpret agent data for Outbound Option tasks, you need to understand how Outbound Option reserves agents, reports calls that are connected to agents, and handles calls dropped by customers before the calls are connected.

Outbound Option is automatically enabled at setup. It provides automatic outbound dialing capability.

The Outbound Option Dialer, which places outbound calls to customers and connects these calls with agents, assigns and connects calls differently than regular Unified CCE routing. Report data for agents handling Outbound Option calls therefore differs from data for agents handling typical voice calls and multichannel tasks.

When the Outbound Dialer initiates a call to a customer, it reserves the agent assigned to handle the call by placing a reservation call to the agent and changing the agent's state to Hold. This reservation call is reported as a Direct In call to the agent.

For typical voice calls, the agent is placed into Reserved state when Unified CCE software reserves the agent to handle a call; the agent's state is reported as Reserved. For Outbound Option calls, reports show the agent in Hold state when reserved for a call and the time that agent spends reserved is reported as Hold Time.

When the customer answers the call, the Outbound Option Dialer transfers the call to an agent. The call is now reported as a Transfer In call to the agent. When the customer call is transferred to the agent, the reservation call is dropped by the dialer and classified as Abandon on Hold.

The abandoned call wait time, set in the Campaign Configuration screen, determines how calls are reported if the caller hangs up. Calls are counted in the Customer Abandon field in both Real Time and Historical campaign query templates only if the customer hangs up before the abandoned call wait time is reached.

For agent reporting per campaign, Outbound Option provides reports that accurately represent the outbound agent activity for a contact center, including information grouped by skill group.

The following list describes the data presented in the agent reports.

- A real-time table that shows Outbound Option agent activity related to Outbound Option calls.

- A historical table that shows agent daily performance for Outbound Option predictive calls, by skill group.

- A historical table that shows agent daily performance for Outbound Option preview calls, by skill group.

- A historical table that shows agent daily performance for Outbound Option reservation calls, by skill group.

Import Rule Reports

Outbound Option reports also enable you to view the success of record importation. Using the Import Rule templates, you can monitor whether records are being added successfully (good records) or are failing (bad

records). Also, you can monitor how long it takes to import the records so that you can plan for future record importation.

The same import rule reports are used for Do Not Call and Contact List imports. The reports display a historical view of when imports were done, the number of records imported, and the number of records that were considered invalid because of length constraints or improper formatting.

For contact list imports, the reports also provide insight into the number of contacts that were assigned with the default time zone information for the campaign, as well as the number of contacts that were actually imported into the dialing list after the query rule and format validation was performed.

The following information is available in the Import Rule reports:

- Number of successful, unsuccessful, and total records imported by time range

- Current import status

- A real-time table that shows the number of successful, unsuccessful, and total records imported or to be imported.

- A historical table that shows the number of successful, unsuccessful, and total records imported by time range. The Total Records column indicates the total number of records available in the import file.

Dialer Reports

The Outbound Option Dialer reports provide information about the dialer. These reports include information about performance and resource usage. The templates also enable you to determine whether you need more dialer ports to support more outbound calls.

The following list describes the data presented in the Outbound Option Dialer reports:

- A real-time table that shows contact, busy, voice, answering machine, and SIT detection for each dialer. A special information tone (SIT) consists of three rising tones indicating a call has failed.

- An historical table by half-hour intervals that shows contact, busy, voice, answering machine, and SIT Tone detection for each dialer.

- Displays information about the amount of time the dialer was idle or had all ports busy.

- Displays Dialer status on a port-by-port basis used for troubleshooting. If this report does not display any records, then the data feed is disabled by default. It would be enabled only for troubleshooting purposes.

Agent Management

In addition to reviewing the following sections, note that the following table lists agent tasks and their documentation references.

Task	Where Discussed/Notes
Adding Agents	*Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted*
Dedicating Agent to Outbound Activity Only	*Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted*; assign the agent only to campaign skill groups

Task	Where Discussed/Notes
Re-skilling Agents	Agent Re-skilling Tool Online Help

Agent Addition

You assign agents to skill groups to map them to campaigns and to skill the agents for multiple active campaigns.

Note An agent can be assigned to multiple campaigns.

Related Topics

Agents Skilled for Multiple Active Campaigns, on page 18

Dedicate an Agent to Only Perform Outbound Activity

To perform this activity, associate the agent *only* with campaign skill groups.

Agent Re-skilling

The agent re-skilling feature allows supervisors to sign-in and change the skill groups for agents they manage. Access this feature using the Unified CCE Agent Re-skilling Tool. This tool is an optional, browser-based application designed for use by call-center supervisors. It lets you change the skill group designations of agents on your team and quickly view skill group members and details about individual agents. Changes you make to an agent's skill group membership take place immediately without the need for the agent to exit and re-enter the system.

Note If your company decides to install this tool, you can perform the functions listed above. The Agent Re-skilling Tool is an optional tool, so this tool might not be available on your system.

See the Agent Re-skilling Tool online help for information about using the agent re-skilling feature.

See the *Administration Guide for Cisco Unified Contact Center Enterprise & Hosted* for detailed instructions on how to re-skill agents.

Imports

This section provides procedures for creating an import rule file, creating a Do Not Call list, and adding attributes for a contact list.

Import Procedure

Before you run an import, you must first create an import rule file that contains the data to be imported. This import rule can have a maximum of 10240 characters per row, and can be in one of two formats:

- **Comma-delimited format** - Each column data is separated by a comma.
- **Fixed format** - Each column data is separated by spaces.
- **Pipe-delimited format** - Each column data is separated by a pipe.

Then, to run the import, specify information about that import in the Import Rule component:

- On the General tab, specify attributes such as the Import Type (contact list or Do Not Call list), the directory path of the import file, and the format of the import file.
- On the Definition tab, specify the import file fields that are to appear as columns in the import list. You can specify these fields only if you are creating a contact list. the Do Not Call list import type has fixed fields.
- On the Schedule tab, specify the time that you want the import to start and how often you want the import to run.

When the import runs, the data is read and the import file is renamed so that it is not re-imported. This allows you to read and review the import file (if necessary) to troubleshoot problems.

Create Do Not Call List

When creating a Do_Not_Call list file, format it correctly using the following instructions.

Procedure

Step 1 Using a text editor, create a text file that contains all the do-not-call phone numbers.

Step 2 Enter a phone number and an extension (if applicable) for each Do Not Call entry on a new line.

Step 3 Observe the following characteristics for each Do Not Call entry:

a) Each phone number can be a maximum of 20 characters long.

b) Each extension can be a maximum of eight characters long.

c) Phone numbers with associated extensions must be separated with a comma between the phone number and the extension.

d) The Do Not Call table can support up to 60 million entries, but note that the information is stored in memory in the Campaign Manager process.

e) Each Do Not Call entry uses 16 bytes of memory, so 60 million entries would require approximately one gigabyte of memory (960 million bytes) on the Logger Side A platform.

Step 4 Save the text file to the local server.

The following is an example of a Do_Not_Call list:

```
2225554444
```

```
2225556666

2225559999

2225552000,4321
```

To add a customer to this list, import a Do Not Call list.

Do Not Call import files are read by the Campaign Manager. Dialing List entries are marked as Do Not Call entries only when the Campaign Manager fetches the Dialing List entry *and only when there is an exact, digit-for-digit match*. This allows Do Not Call imports to happen while a Campaign is running without rebuilding the Dialing List.

Note   If the Dialing List includes a base number plus extension, this entry must match a Do Not Call entry for that same base number and same extension. The dialer will not dial the extension.

When the Campaign Manager starts it automatically imports from the DoNotCall.restore file that is stored in the *<drive>\icm\<instance>\la\bin* directory. When reading Do Not Call import files, the Campaign Manager appends the data to the DoNotCall.restore file. This restore file allows recovery of Do Not Call records after the Campaign Manager stops unexpectedly or for planned maintenance, such as a Service Release installation.

The restore file can grow to approximately 1 GB if 60 million DNC records are imported, each having ten-digit numbers plus five-digit extensions. Sufficient disk space must be available on LoggerA to store the DoNotCall.restore file.

Note   To clear the Do Not Call list, import a blank file with the Overwrite table option enabled.

Add Attributes to a Contact List

To add additional attributes to the import, perform the following steps.

Procedure

Step 1   In ICM Configuration Manager, double-click the Outbound Option Import Rule component.

Step 2   Enter the attributes in the fields on the Import Rule Definition tab page.

Step 3   Add custom attributes using the custom selections.
These custom attributes are only useful for filtering out customer contacts into different dialing lists based on your business needs; for example, you could define a custom entry called "Amount Owed" and add the customer contacts that owe more into a different dialing list that can be dialed at a higher priority.

Note   These custom attributes are not forwarded to the agent desktop.

Step 4   Click **Save**.

Campaign Management

To manage your campaigns most efficiently, use multiple query rules instead of using multiple campaigns.

Single Campaign Versus Multiple Campaigns

You might choose to run multiple campaigns because of different calling policies (for example, time rules) or to run different outbound modes simultaneously.

From the perspective of dialer port allocation, running fewer campaigns with a larger agent pool is more efficient. Dialer ports are allocated based on the number of agents assigned and the current number of lines per agent to dial. The more campaigns you have that are active, the more the ports are distributed across the campaigns, which affects overall efficiency.

Use query rules to break down a campaign into smaller requirements. These rules can be enabled based on penetration or scheduled times. Campaign reports are available on a query rule level.

Note   In multiple campaigns, the skill groups of agents handling the calls must be the same as those of a single campaign.

Results from Individual Customers

After running a campaign, you can generate a list of customers who were reached, not reached, or have invalid phone numbers. The following are options for how to receive this information from the Outbound Option solution.

Interpret Information from Dialer_Detail Table

The Dialer_Detail table is a single table that contains the customer call results for all campaigns. When you view the Dialer_Detail table, note that each attempted Outbound Option call is recorded as an entry in the table. Each entry lists the number called and which numbers are invalid.

Related Topics

Dialing List

The Dialing List is a good source of information, but it has several drawbacks when compared to the Dialer_Detail table. The Dialing List is only in the Campaign Manager's private database on the Logger Side A, so excessive activity on that table will have a negative performance impact on the real-time processes running on that platform, particularly the Campaign Manager. This can lead to interruptions in dialing and long idle times for agents, so avoid querying this table while campaigns are in progress.

Another drawback to using the Dialing List is that there is a different dialing list table for every campaign query rule, so you must look in multiple locations as opposed to looking in the one Dialer_Detail table.

Management of Predictive Campaigns

The following sections provide guidelines to follow when working with predictive campaigns.

Initial Values for Lines per Agent

Determining the initial value for the number of lines per agent is not as simple as inverting the hit rate. If a campaign has a 20% hit rate, you cannot assume that five lines per agent is the applicable initial value for the campaign if you are targeting a 3% abandon rate. The opportunity for abandoned calls increases geometrically as the lines per agent increases; therefore, set the initial value conservatively in the campaign configuration.

If the reports show that the abandon rate is below target and does not come back in line very quickly, modify the initial value in the campaign configuration to immediately correct the lines per agent being dialed.

End-of-Day Calculation for Abandon Rate

It is not unusual for a campaign to be over the abandon rate target for any given 30 minute period. The dialer examines the end-of-day rate when managing the abandon rate. If the overall abandon rate is over target for the day, the system targets a lower abandon rate for remaining calls until the average abandon rate falls into line. This end-of-day calculation cannot work until after the campaign has been running for one hour. Small sample sizes due to short campaigns or campaigns with fewer agents might not give the dialer enough time to recover from an initial value that is too high.

Similarly, if the campaign is significantly under the target abandon rate, it might begin dialing more frequently with an abandon rate over target for a while to compensate in the abandon rate.

Transfer of Answering Machine Detection Calls to Agents

When enabling the Transfer AMD (Answering Machine Detection) to agent option for an agent campaign or enabling the Transfer AMD to IVR option for an IVR campaign, consider the increase in calls to the target resources (agents or IVR) when determining the initial value. If the expectation is that the AMD rate and the live voice rate are over 50%, perhaps start out with an initial value of 1.1 or even one line per agent to stay under a 3% abandon rate.

Parameter Tuning

The Voice Calls Per Adjustment and Gain parameters are settings in the Advanced Users configuration tab used to control the way the predictive dialing behaves. Do not modify the default values unless you understand the parameters and the possible risks incurred when changing the pacing.

- The Voice Calls Per Adjustment parameter is a count of the number of live voice connections that are required to trigger a correction. (The default value is 70 voice calls.) If the abandon rate exceeds the target by a significant margin, the dialer can make corrections before collecting 70 calls.

- The Gain parameter controls the size of the Lines per agent corrections.

Setting the Voice Calls Per Adjustment parameter to a smaller setting leads to larger fluctuations in the measured Abandon Rate because the sample size is less significant. This results in less change in the Lines per agent value over time.

<table>
<tr><td>

⚠️

Caution</td><td>Be careful when modifying both parameters (Gain and Voice Calls Per Adjustment) at the same time. For example, increasing the Gain while decreasing the Voice Calls Per Adjustment results in larger changes in the "Lines per agent correction rate," which might overcorrect changes in measured values. Decreasing the Gain while increasing the Voice Calls Per Adjustment can similarly cause too slow of a change to underlying changes in the hit-and-abandon-rates. A campaign that is reaching more than 20 live voice customers every minute (600 per half hour) might benefit from reducing the Gain, but a lower Gain becomes less effective as the number of agents in the campaign dwindles or the hit rate changes rapidly.</td></tr>
</table>

Limitations of Smaller Agent Groups

The dialer runs for each dialer skill group, so if you have 20 agents in a campaign skill group on two dialers, then on average each dialer is allocated 10 agents. Below 20 agents, the dialer's ability to stay near the abandon rate target degrades. With small sample sizes, the measured abandon rate has larger fluctuations, making adjustments based on abandon rate measurements difficult. Parameters have been set to adjust to most situations when 70 live connects are made per dialer skill group within approximately 10 minutes or less, allowing six corrections per hour. 70 live connects would roughly occur with 10 active agents per dialer skill group and an Average Handle Time (AHT) equal to 50 seconds. As the call rate decreases below this number, the performance degrades.

In addition, in a small agent group where the Lines Per Agent being dialed are low, it may take longer to get a live connect. While most agents are connected within the Average Handle Time, statistical fluctuations may mean occasional long waits for a live connect.

For smaller agent groups that are held to a small abandon rate limitation, consider running that campaign on a single dialer using one of the options described in Single Dialer Options (SCCP Dialer Only). Otherwise, explore running the campaign in a Progressive mode with a conservative lines per agent value.

Management of Agent Idle Time

One of the key reporting metrics for administrators managing campaigns is the amount of time agents spend idle between calls.

There are many possible reasons for longer idle times, such as a combination of one or more of the following:

- A dialing list with a low hit rate. The solution is to create a better list.

- A small agent pool results in fewer calls, resulting in slower adjustments. One solution is to add more agents to the pool.

- Shorter average handle times means agents become available more frequently. A shorter handle time means that the agent idle time percentage will climb.

- Not enough dialer ports deployed or too many agents. Deploy more ports or use fewer agents.

- A large number of retry attempts at the beginning of a day when running with append imports resulting in lower hit rates. Prioritize pending over retries.

- Modifying the maximum number of attempts up or down in an active campaign. This activity can interrupt the Campaign Manager's processing of dialer requests for records, as mentioned earlier in this chapter. One solution is to perform the activity during off hours.

- Running out of records to dial. Import new records.

Sources of Higher Idle Times in Reports

The following Outbound Option reports provide information regarding sources of higher idle times:

- Campaign Consolidated Reports: These reports provide a very useful overview of a campaign by combining campaign and agent skill group statistics into a single report. They provide average idle time, campaign hit rate, the number of agents working on the campaign, as well as their Average Handle Time per call. Low hit rates and low average handle times result in more work for the dialer to keep those agents busy.

- Dialer Capacity Reports: These reports show how busy the dialers are and how much time was spent at full capacity when the dialer was out of ports. They also provide the average reservation call time as well as the average time each dialer port spent contacting customers.

Dialer Saturation

If both Dialers have relatively low idle times and high all ports busy times, then it is likely the Dialers have been oversubscribed. The combination of number of agents, Dialing List hit rate, and average handle time are likely more than the deployed number of ports the Dialer can handle.

To solve this problem, perform one of the following actions:

- Reduce the number of agents working on the campaign.

- Move a campaign to a skill group on another agent PG.

- Add more Dialer ports to the solution, possibly on another agent PG.

Few Available Records

Call Summary Count reports show how many records in the aggregate campaign dialing lists have been closed and how many are still available to dial.

Retry Records in Append Campaigns

Running campaigns with an append import and maximum number of attempts greater than one can result in a large number of retries at the beginning of the next day. As a general rule, retries usually have a lower hit rate than pending records. Longer idle times for agents might result until the first group of retries are called because retry records normally have priority over pending records by default. The number of records increase as you increase the retry time.

There are a few ways to manage this situation:

- Shorten the retry times to reduce the number of retries that are scheduled at the end of the day.

- Change the Campaign Manager priority scheme so all numbers and records are tried once before any retries are attempted. Set the PendingOverRetryEnabled registry key to **1** in the Campaign Manager.

Note See Registry Settings, on page 173, for detailed information about the PendingOverRetryEnabled registry setting.

• Modify the campaign import to use the **Overwrite** option instead of the **Append** option and import new records daily.

SIP Dialer Voice Gateway Over-capacity Errors

Your network monitoring tool might receive an alarm from the SIP dialer about being over capacity. You can ignore the alarm unless it becomes an ongoing issue. This section describes the source of the alarm and remedial actions.

If the Voice Gateway in a SIP dialer implementation is over dialed or over capacity, the SIP Dialer receives one of the following messages: .

• SIP 503 messages if the SIP Dialer is deployed with Voice Gateway only

• SIP 502 messages if the SIP Dialer is deployed with SIP Proxy

The SIP dialer raises an alarm when the percentage of SIP 502 or SIP 503 messages reaches 1% of all messages.

If the percentage of SIP 502 or SIP 503 messages reaches 2% of all messages, the SIP dialer performs an automatic throttle down. This throttle down means that the SIP dialer decreases the configured value of Port Throttle (the calls-per-second rate at which the dialer dials outbound calls, set on the Dialer General tab in ICM Configuration Manager) by approximately 10%.

If one throttle down does not correct the problem, the SIP dialer performs additional throttle downs until either the problem is corrected or the value of Port Throttle is throttled down to 50% of the originally configured value.

For each automatic throttle down, alarm and trace messages clearly provide detailed information about the adjusted port throttle value, the configured port throttle value, and time duration.

If Voice Gateway capacity becomes an ongoing issue, use one of the following measures to attempt to remedy the problem:

• Check the Voice Gateway configuration. If there are errors, fix them and reset Port Throttle to its original value.

• Check the sizing information. Adjust the value of Port Throttle according to the documented guidelines.

Update the North American Numbering Plan Data

The Regional Prefix Update Tool (RPUT) is used to update the Unified CCE ICM database to the latest North American Local Exchange NPA NXX Database (NALENND).

• If Unified CCE ICM is using the North American Numbering Plan.

• On an Administration & Data Server that includes **Real-time Data Server** as part of its role.

The RPUT is composed of the following two files (installed in the `ICM\bin` directory on the data server):

• region_prefix_data.txt (or the <DatafileName>)

  Contains the data this tool uses to update the region prefix table in the Unified CCE ICM database. Note that you should change paths to the `ICM\bin` directory.

• regionfix.exe

This executable reads the region_prefix_data.txt data file and updates the region prefix table.

The RPUT is run from the command line as described in the following procedure.

Procedure

Step 1 Open a command prompt (Select **Start** > **Run**, and enter **cmd**, then click **OK**).

Step 2 Change the path to `ICM\bin`.

Step 3 Enter the following at the prompt: `regionfix.exe <DatafileName>` (where *<DatafileName>* is the name of the data file).

    Note   If the *<DatafileName>* is left blank, the RPUT uses the region_prefix_data.txt file as the input data file.

The Regional Prefix Update Tool then shows the version of the input data file and asks if you want to proceed. If you proceed, the tool connects to the Unified CCE ICM database. The number of records that are to be updated, deleted, and inserted appear. These records are put into two different files:

- region_prefix_update.txt (which includes deleted entries)

- region_prefix_new.txt

Step 4 Check the contents of the two files before proceeding.

Step 5 Answer **Yes** to proceed with the update.

When the update is complete, the tool displays the following message:

```
Your region prefix table has been successfully updated.
```

Registry Settings

This appendix contains information about registry settings for Outbound Option server processes.

Note   Registry settings are located in /Cisco Systems, Inc./ICM/<instance name>/LoggerA(B)/BlendedAgent/CurrentVersion.

Campaign Manager Registry Settings

The following registry settings modify the behavior of the Campaign Manager:

Registry Setting	Default Setting	Description
CallbackTimeLimit (Campaign Manager only)	15 minutes	Calculates the callback time range for each personal callback in minutes. The Campaign Manager queries the Personal Callback List for callback records, where the CallbackDateTime database column value is between the current time and current time minus the CallbackTimeLimit. For example, if the current time is 3:00 PM and the CallbackTimeLimit is 15 minutes, the query to retrieve Personal Callback records is "where CallbackDateTime >= 2:45 PM and CallbackDateTime <= 3:00 PM." This column is also used to control how long a Personal Callback is retried after it is sent to a dialer. If the CallbackTimeLimit is set to 15 minutes, the Dialer keeps reserving the agent and calling the customer for 15 minutes before giving up for that day. The Dialer re-reserves the agent based on the PersonalCallbackTimeToRetryReservation registry entry.
DialerDetailBufferSize	20	Describes how many dialer detail records should be buffered before sending to the Central Controller database.

Registry Setting	Default Setting	Description
DialerDetailBufferTimeout	5	Describes how long to wait before sending dialer detail records to the Central Controller database when the DialerDetailBufferSize is not reached.
DialerDetailEnabled	TRUE	When set to 0, dialer detail records are not sent from campaign manager. All Dialer Detail records are disabled.
EMTHeartBeat (Outbound Option Import only)	500 milliseconds	Outbound Option Import sends a heartbeat message to Campaign Manager every n milliseconds to indicate that it is still alive.
ImportAreaCodeProcDisable (Outbound Option Import only)	0, enabled	When set to 0, this setting performs standard region_prefix matching. When set to 1, the GMT time zones are always set to the local time zone of the ICM Logger.
		If there is a prefix match, the GMT time zones for each customer record are retrieved from the Region_Prefix table.
		Note Time zones are selected based on the data in the Region_Prefix database. When contacts are imported, the phone number is assigned a time zone based on the information in the region prefix table. Each prefix has settings for the time zone and daylight savings observation. If the prefix of the contact number does not match any of the prefixes listed in the region prefix table, then the contact number is assigned the time zone listed in the campaign configuration tool Call Target Tab.
		Note If this registry setting changes, the ICM Logger must be restarted before the new values take affect. Alternatively, restart the Outbound Option Import process by closing its console window.
ImportRegLocalNumberSize (Outbound Option Import only)	7 digits	The number of digits in a phone number must be greater than this registry entry to perform a search of the region_prefix table.
		Note If this registry setting changes, the ICM Logger must be restarted before the new values take affect. Alternatively, restart the Outbound Option Import process by closing its console window.
MinimumCallsForHitRate (Campaign Manager only)	30 calls	Specifies the minimum number of calls that have to be attempted before the hit-rate percentage calculation begins for a campaign query rule.
PendingOverRetryEnabled	0	When set to 1, pending records get priority over retry records for all campaigns.
PersonalCallbackNoAnswerRingLimit (Campaign Manager only)	Minimum value is 2; maximum value is 10; default is 4 rings	The number of times a customer phone rings before being classified as an unanswered call.

Registry Setting	Default Setting	Description
PersonalCallbackCallStatusToPurge (Campaign Manager only)	If the registry entry is missing, the default values are C,M	String containing the call status types to consider when purging old personal callback records. For example, if the string contains "C,M,F,L,I," all calls with these call statuses are purged from the database. **Note** This registry setting is not added by default; it must be added manually. **Note** The call status values can optionally be delimited using a comma, a hyphen, a semi-colon, or a colon.
PersonalCallbackDaysToPurgeOldRecords (Campaign Manager only)	Minimum value is 1; maximum value is 30; default is 5 days	The number of days after the personal callback has been scheduled to keep the record before it is purged.
PersonalCallbackDisableViaQueryRule (Campaign Manager only)	0	This registry key determines if the Callback has to be enabled if the query rule is disabled.
PersonalCallbackMaxAttemptsDefault (Campaign Manager only)	5	Sets the maximum number of times a personal callback is attempted (minimum value is 1; maximum value is 20). When the number of maximum attempts reaches 0, the record is not tried again and the status is set to M (max-ed out).
PersonalCallbackMode	1	Not used.
PersonalCallbackRecordsToCache (Campaign Manager only)	Minimum value is 5; maximum value is 100; default is 20	The number of personal callback records to send to the Outbound Option Dialer at one time.
PersonalCallbackSaturdayAllowed (Campaign Manager only)	0	Indicates whether personal callbacks are allowed on Saturdays. • 0: Personal callbacks are not allowed on Saturdays and will be scheduled for the next allowable day. For example, a personal callback which fails to reach the customer on a Friday will be rescheduled for the following Monday. • 1: Personal callbacks are allowed on Saturdays.
PersonalCallbackSundayAllowed (Campaign Manager only)	0	Indicates whether personal callbacks are allowed on Sundays. • 0: Personal callbacks are not allowed on Sundays and will be scheduled for the next allowable day. For example, a personal callback which fails to reach the customer on a Friday or Saturday will be rescheduled for the following Monday. • 1: Personal callbacks are allowed on Sundays.
PersonalCallbackTimeToCheckForRecords (Campaign Manager only)	Minimum value is 1; maximum value is 30; default is 1 minute	The interval time, in minutes, at which the Outbound Option Dialer checks the Campaign Manager for personal callback records.

Registry Setting	Default Setting	Description
PersonalCallbackTimeToRetryBusy (Campaign Manager only)	Minimum value is 1; maximum value is 10; default is 1 minute	Sets the amount of time, in minutes, that the Outbound Option Dialer waits before retrying a personal callback when the customer's phone is busy.
PersonalCallbackTimeToRetryNoAnswer (Campaign Manager only)	Minimum value is 5; maximum value is 60; default is 20 minutes	Sets the amount of time, in minutes, that the Outbound Option Dialer waits before retrying a personal callback when the customer does not answer the phone.
PersonalCallbackTimeToRetryReservation (Campaign Manager only)	Minimum value is 1; maximum value is 10; default is 1 minute	Sets the amount of time, in minutes, that the Outbound Option Dialer waits before retrying to reserve an agent if the agent is not available.
RescheduleCallbacks (Campaign Manager only)	1	Boolean value. Controls how to handle contacts that were requested to be called back at a particular time, but were unreachable at that time for whatever reason. • 0: Unreachable records are not rescheduled or purged. • 1: Unreachable records will be scheduled for retry at the next valid time.
SQLServer (Campaign Manager and Outbound Option Import)	null	Not used.
TCD_DBComputerName_A	""	Not used.
TCD_DBComputerName_B	""	Not used.
TCD_DBDatabaseName_A	""	Not used.
TCD_DBDatabaseName_B	""	Not used.
TCDCopyPendingEnabled	0	Not used.
TCDEnabled	0	Not used.
TCDKeepDays	30	Not used.
TimeToResetDailyStats (Campaign Manager only)	30 minutes after midnight ("00:30")	Specifies the time of day (in 24-hour format: hh:mm) when the real-time statistics for DialerRealTime and DialerPortRealTime are reset.

Registry Setting	Default Setting	Description
UnknownCallStatusResetTime (Campaign Manager only)	60 minutes	The interval time, in minutes, at which the Campaign Manager resets the contact records in Unknown status to Pending status (available for re-use). **Note** Contact records are marked Unknown if they are in the Active state when the Campaign Manager is initialized or if the Outbound Option Dialer dialing those (Active) records disconnects from the Campaign Manager due to network or Outbound Option Dialer failure.

Dialer Registry Settings

The following registry settings modify the behavior of the Outbound Option Dialer. To specify the exact path, modify the registry path for the dialer to **HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<instance name>\Dialer** instead of **HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\\Dialer**.

Registry Setting	Default Setting	Description
AnswerTransferUsingAgentPhone	1	When enabled (1), dialer automatically answers customer calls transferred to agent phones.
AutoAnswerCall	1	This registry key is not created until the process starts up. It controls whether the Dialer auto-answers the call or not. The recommendation is to disable this and use the auto-answer in Unified CM if you want zip tone.
Ca_cnosig	20 seconds	Amount of silence before no ringback is returned, in seconds. If ringback is not detected within this time limit, the call is dropped. **Note** Changes made to this setting take effect after the Outbound Option Dialer is cycled.
CancelDialingCalls	0	Controls behavior when started call attempts can be cancelled once all agents are occupied and abandon to IVR is not configured. Setting to 0 never cancels calls after they have been started. Setting to 1 always cancels calls after they have been started once no agents are available. A value of 100 cancels all ringing calls that are less than 100 milliseconds after the dialing was started (that is, line went off hook).
CaptureEnabled	0	When set to 0, packet capturing is disabled; when set to 1, packet capturing is enabled.

Registry Setting	Default Setting	Description
CaptureOptions	-i 2 -tt -C 20 -s 0 -W 20 -w DialerCapture	Options associated with packet capture: • -i \<ifname\>: Interface name to capture on • -tt : Print an unformatted timestamp on each dump line. • -w \<filename\>: Capture directly to file in pcap format, file can be opened with Wireshark. • -C \<file_size\>: The maximum size of a capture file. The units of file_size are millions of bytes (1,000,000 bytes, not 1,048,576 bytes). • -W \<filecount\>: The number of files created. The capture files are overwritten from the beginning, thus creating a rotating buffer. Capture files after the first capture file have the name specified with the -w flag, with a number after it, starting at 1 and continuing upward. • -s : Snarf `snaplen` bytes of data from each packet rather than the default of 68 . Setting `snaplen` to 0 means use the required length to catch whole packets.
CaptureType	1	When set to 1, capture SIP packets only. When set to 2, capture the entire data payload on the Dialer host machine.
CCMTransferDelay	0	Not used.
ConsecutiveNoDialToneEvents	3	Not used.
CPAActiveThreshold	32	Signal must exceed CPAActiveThreshold*noiseThreshold to be considered active. For example, 32 is 10 * log(32) = 15 dB.
CPAAnalysisPeriod	2500	Maximum amount of time (from the moment the system first detects speech) that analysis is performed on the input audio.
CPAJitterBufferDelay	150	The jitter buffer delay (in mS).
CPAMinSilencePeriod	375	Amount of time that the signal must be silent after speech detection to declare a live voice (in mS).
CPAMaxNoiseFloor	10000	Maximum Noise floor possible. Used to restrict noise floor measurement.
CPAMinNoiseFloor	1000	Minimum Noise floor possible. Used to restrict noise floor measurement.
CPAMaxTermToneAnalysis	15000	The amount of time to wait for the beep of an answering machine before the dialer connects the agent with the machine to leave a message.

Registry Setting	Default Setting	Description
CPAMaxTimeAnalysis	3000	The amount of time to wait when the dialer has difficulty determining voice or answering machine.
CPAMaxToneSTDEV	0.600000	Standard deviation of zero crossing rate per block. Values lower than this and CPAMaxEnergySTDev are considered tones.
CPANoiseThresholdPeriod	100ms	The amount of time to wait for initial voice. The CPAAnalysisPeriod starts once the system detects speech.
CPARecordWaveFile	0 (off)	Setting this entry to 1 enables recording of the CPA period to assist in troubleshooting. The key must be added to be enabled.
CTIServerA	""	The machine name where CTI Server Side A resides.
CTIServerB	""	The machine name where CTI Server Side B resides.
CTIServerPortA	""	The TCP port number where CTI Server Side A listens.
CTIServerPortB	""	The TCP port number where CTI Server Side B listens.
CustRecReadyRequestToServer	30 seconds	Describes the polling interval when the campaign is enabled, agents are available, and the Dialer needs more records from the Campaign Manager. The first request is sent as soon as the Dialer notices that it is low on records. Subsequent requests are sent after the TimeToWaitForRecord times out, based on this polling interval until more records are received.
DirectAgentDial	0	Not used.
DisableIPCPA	0	Disables call progress analysis for this Dialer.
EMTHeartBeat	500 milliseconds	Dialer sends a heartbeat message to the Campaign Manager every n milliseconds to indicate that it is still alive.
EnableAutoAcceptFeature	0	Normally, an agent must respond to the Preview dialog when a reservation call is placed. With the implementation of the Auto Accept feature, the Outbound Option Dialer implements the Auto-Accept functionality. It causes the Dialer to Auto-ACCEPT the preview call in n seconds (instead of skipping) if the agent fails to respond to the preview dialog. The same applies to Personal Callback calls. This feature is disabled by default and the registry key must be set to one (1) to enable the feature. The PreviewReservationTimeout registry key is used to configure the auto-accept timer value.

Registry Setting	Default Setting	Description
EnableHeartbeat	1 (enabled)	EnableHeartbeat registry is used to enable heartbeats on the dialer. When this flag is enabled, the dialer will send heartbeats (SIP OPTIONS request message) to the SIP server - Proxy or Gateway. If there is no response from the SIP server, the dialer will mark itself as not ready and inform the same to the campaign manager. If this registry is disabled, there will be no indication if the SIP server goes down.
HBInterval	5 seconds	The time between heartbeats.
HBNumTries	1	The number of times a timeout occurs before the SIP Dialer identifies the SIP Gateway or SIP Proxy as down.
LongDistancePrefix	"1"	Not used.
MaxAllRecordFiles	500,000,000	The maximum recording file size (in bytes) per SIP Dialer.
MaxMediaTerminationSessions	200	The maximum number of media termination sessions per SIP Dialer if recording is enabled in the Campaign configuration.
MaxPurgeRecordFiles	100,000,000	The maximum recording file size (in bytes) that the SIP Dialer deletes when the total recording file size, MaxAllRecordFiles, is reached.
MaxRecordingSessions	100	The maximum number of recording sessions per SIP Dialer if recording is enabled in the Campaign configuration.
MRPort	38001	The connection port for the MR PIM.
OptimizeAgentAvailability	0	This registry entry is reserved for future use. Leave the value of this parameter at 0.
OverrideNetworkTones	0	Not used.
PersonalCallbackDN	"PersonalCallback"	Contains a script name that the MR PIM receives as a dialed number when personal callback calls need to reserve agents.
PreviewReservationTimeout	600	Number of seconds to wait before canceling a preview agent's reservation call. This key is automatically created when the Dialer starts. If a preview agent does not accept/reject/skip a call within this time period, the agent's reservation call is dropped and the record is marked as rejected. **Note** This registry setting also works with Direct Preview mode, and applies to the regular callback calls in both Preview mode and Direct Preview mode.
ReclassifyTransferFailures	0	Not used.

Registry Setting	Default Setting	Description
RTPortFeedDisable	1	When set, real-time dialer port messages are disabled for this dialer. Enabling the Real Time Port Feed by setting to 0 causes the dialpr01 report to populate, but this can cause impacts to the Outbound Campaign in delays in getting records.
Server	""	The machine name of the Campaign Manager.
SetAgentsReadyOnResvDrop	1	When set to 1, the Outbound Option Dialer automatically sets manual IN agents to the Ready state, if the reservation call is dropped due to any reason other than transfer of a live customer call.
		If this value is set to 0, then manual IN agents assume the After Call Work (ACW) state at the end of each reservation call and manually become ready to receive another call.
SIPDialerPortBaseNumber	58800	This key specifies the port number used by the dialer to communicate with the SIP server. This registry is created by default when the dialer machine is installed.
SIPServerAddress	NULL	The IP address or DNS hostname of the SIP Proxy or SIP Gateway that this Dialer connects to, as specified during setup.
SIPServerPortNumber	5060	The port number that the SIP Dialer uses to communicate with the server.
SIPServerTransportType	1	The transport type used to communicate with the gateway/CUSP.
		A setting of 1 indicates that the transport type is UDP, and a setting of 2 indicates that the transport type is TCP. Currently, only UDP is supported.
SkillGroupQueryDelay	1 second	The amount of time, in seconds, to wait between CTI Server skill group query requests.
SwitchPrefix	""	Dialing prefix pre-pended to every phone number; for example, this entry could be used to dial an outside line access number, such as 9.
TalkTimeAvg	60 seconds	The amount of time an average customer call takes. (Seed value for talk time, which is adjusted as a moving average as the system is used.)
TestNumberMaxDigits	5	Maximum length for test phone numbers. Test phone numbers do not receive any prefixes added by the Dialer.
TFTPServer	""	The name of the Unified CM TFTP server. This server is usually located on the Publisher Unified CM.

Registry Setting	Default Setting	Description
TimeToCTIBeginCall	7 seconds	The amount of time, in seconds, to wait for the CTI begin call event before canceling call.
TimeToFreeStuckCall	7200 seconds, which is 2 hours	The amount of time, in seconds, before a customer call is declared stuck and dropped.
TimeToFreeStuckPort	7200 seconds, which is 2 hours	The amount of time, in seconds, to wait before releasing a stuck port.
TimeToHoldCustomer	1 second	The amount of time, in seconds, to wait before abandoning a customer call due to lack of agents. If abandon to IVR is enabled for campaigns, this value should be set to 0 to reduce transfer delays.
TimeToReserve	10 seconds	The amount of time, in seconds, to wait before dropping a reservation call.
TimeToRetryCustomerRequest	30 seconds	The amount of time, in seconds, to wait before retrying a close customer record request to the Campaign Manager. When the Outbound Option Dialer finishes with a customer record, it sends a close customer record request message to the Campaign Manager. If this message is not sent, the Outbound Option Dialer retries the call based on the configured timeout.
TimeToRingCustomer	8 seconds	The amount of time, in seconds, each customer ring takes. For example, if this entry is set to 8 and the no-answer configuration in the campaign is set to 3 rings, then the Dialer classifies the call as no-answer within 3*8 (24) seconds.
TimeToTransfer	7 seconds	The amount of time, in seconds, to wait before dropping a call being transferred.
TimeToWaitForCTIResp	3 seconds	The amount of time, in seconds, to wait for the CTI Server to respond to a request before dropping the call.
TimeToWaitForIPDialTone	4 seconds	The amount of time, in seconds, to wait for the Unified CM dial tone.
TimeToWaitForMRIResponse	600 seconds (10 minutes)	The amount of time, in seconds, to wait for the MR PIM to respond to a new task request before cancelling the request.
TimeToWaitForRecord	5 seconds	The amount of time, in seconds, to wait for customer records from the Campaign Manager before declaring the skill group disabled. Once a skill group has been disabled, the Dialer begins polling the Campaign Manager every <CustRecReadyRequestToServer> seconds for additional records.

Registry Setting	Default Setting	Description
TOS	0 (off)	Sets the type of Service field in the IP Header on SCCP packets from the Dialer to the Campaign Manager for Quality of Service (QoS).

Note This setting *does not* control the TOS settings on SCCP packets from the Campaign Manager to the Dialer. These settings are controlled by the DSCP parameters. See the *Cisco Unified Communications Manager Administration Guide* for detailed information about how to set the DSCP Unified CM service parameters.

For Release 7.0(0) of Outbound Option, the Dialer was enhanced to support the marking of SCCP ("Skinny") packets with "Type of Service" (TOS). This support allows for preferential treatment (for example, class AF31 for assured forwarding) of call signaling traffic, if the network is configured to support this QoS scheme.

By default, the Dialer does not mark packets, which means traffic is sent "best effort" (TOS = 0).

The Dialer sets TOS markings for outgoing packets only. Setting TOS on signaling packets from Unified CM to the Dialer requires configuring Unified CM properly using the DSCP parameters (see the *Cisco Unified Communications Manager Administration Guide*). If only the Dialer side is configured, then TOS will be uni-directional and will not behave correctly.

Configuring Bi-directional Communications:

To turn on TOS with AF31 for bi-directional communications, configure the following registry keys for the Dialer:

HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<customer>\Dialer\ "TOS"=dword:00000068

Note Note that the dword value listed above is in hex format (decimal 104).

Registry Setting	Default Setting	Description
		Important additional configuration instructions:
		This type of TOS marking requires the setting of a special system registry key in Windows 2000 and Windows 2003 as follows:
		HKEY_LOCAL_MACHINE\SYSTEM\ CurrentControlSet\Services\TcpIp\Parameters "DisableUserTOSSetting"=dword:00000000
		DisableUserTOSSetting defaults to 1 (and is not present by default); therefore, TOS markings are disabled without setting this key. After this registry key is set, restart the system for this change to become effective. Because this key is a system registry key, then setting it has an impact on all the applications running on the system. Hence, if the Dialer is co-resident with other applications (that is, CTI Server, router, and so on), then setting it changes the behavior of other applications.
		For additional information, see: • http://support.microsoft.com/ default.aspx?scid=kb;en-us;258978 • http://technet.microsoft.com/en-us/library/ cc706993%28WS.10%29.aspx • http://www.microsoft.com/technet/prodtechnol/ windowsserver2003/technologies/networking/tcpip03.mspx
		Note Important! In order for TOS to become effective, the network (specifically the routers) needs to be configured to treat packets with TOS markings preferential.

Long Distance Digit Prefix Logic

Transformation of Imported Numbers

The following example displays an outbound call route that provides information about how imported numbers are transformed for the outbound call.

Figure 24: How Imported Numbers Are Transformed
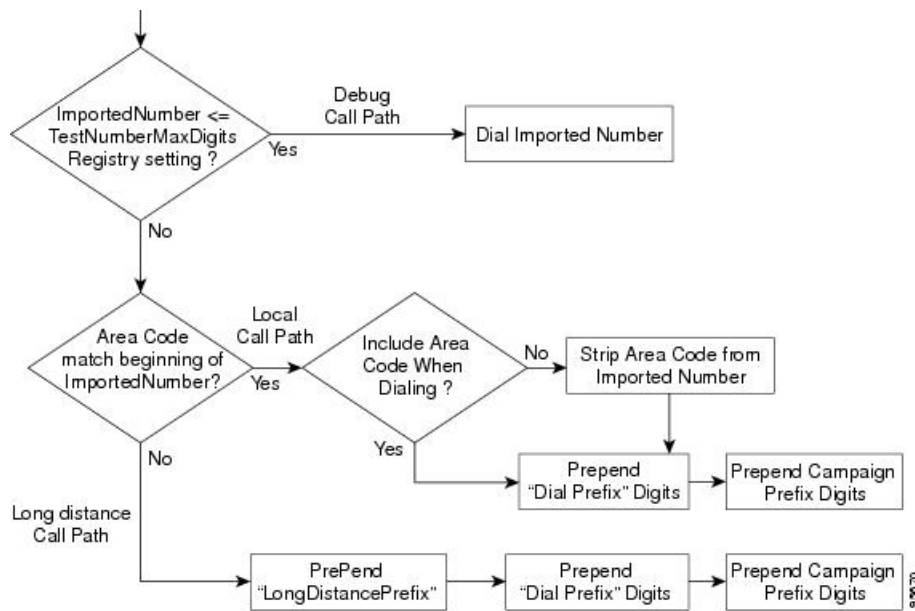
Call Item	Outbound Option Configuration Field	Description
ImportedNumber <= TestNumberMaxDigits Registry setting		Final dialing number transferred to either the ACD or Unified CM (used for debugging/lab purposes only)
Area Code match beginning of ImportedNumber	Local area code	Area/city code used at your location, which is configured in the Dialer Configuration Component
Include Area Code When Dialing	Local area code	Includes the area code for a long distance call or removes the area code for a local call
PrePend "LongDistancePrefix"	Long distance prefix	Includes the pre-pended value for a long distance call, which is configured in the Dialer Configuration Component
PrePend "Dial Prefix" Digits	Dial prefix	Include the dialing prefix required by your location or by your campaign, which is configured in the Dialer Configuration Component

Dialer Configuration Fields and Registry Settings

The following example displays the Dialer configuration fields and Registry settings from the Dumpconf Procmon command that are used in an outbound call.

```
C:\>procmon ipccd dialer badialer >>>>dumpconf Dialer Config
    ------------- DialerID : [5006] PeripheralID : [5000] ActiveDialers : [1] LocalAreaCode
: [978]
    <--- area code DialToneDetectEnabled : [0] HangupTime : [1] TenDigitDialEnabled : [0]
    <--- Include area code when dialing PrefixDigits : [] <--- Dial prefix digits
    LongDistancePrefix : [1] <---- "Long distance prefix" Callback config has not been
received
    yet --------------------------------------- Configured Skill Groups
----------------------
    --------- SkillGroupID : [11988] VDN : [11988] PeripheralNumber : [890]
SkillGroupEnableStatus:
    [0] CampaignName : [DialAgents] ModeName : [N] TypeName : [I] Customer Count : [0]
Customer
    Count (idle) : [0] RecordsToCache : [20] PredictiveExt : [890] PreviewExt : [890]
    *PortsPerAgent : [1.500000] AgentPercentage : [100] AgentsLoggedIn : [0] AgentsAvailable
 : [0]
    AgentsTalking : [0] *PortsAllocated : [0] AgentsReadyIn8Secs : [0] TalkTimeAverage :
[60]
    *AgentsToReserveDelta : [0] *PortsUsedToDialDelta : [0] OverflowAgents : [0]
    AutoAnswerReservation : [0] AbandonRate : [2] MaximumLinesPerAgent : [2.000000]
    NoAnswerRingLimit : [4] MinimumCallDuration : [1] PreReservedRecordCount: [0]
IVRPortCount :
    [0] TransferToIVREnabled : [N] TransferAnsMachine : [Y] IVRExt : [] ---------
SkillGroupID :
    [-1] VDN : [-1] PeripheralNumber : [0] SkillGroupEnableStatus: [0] CampaignName :
[Callback]
    ModeName : [A] TypeName : [O] Customer Count : [0] Customer Count (idle) : [0]
RecordsToCache :
    [0] PredictiveExt : [] PreviewExt : [] *PortsPerAgent : [1.500000] AgentPercentage :
[100]
    AgentsLoggedIn : [0] AgentsAvailable : [0] AgentsTalking : [0] *PortsAllocated : [0]
```

```
    AgentsReadyIn8Secs : [0] TalkTimeAverage : [0] *AgentsToReserveDelta : [0]
    *PortsUsedToDialDelta : [0] OverflowAgents : [0] AutoAnswerReservation : [1] AbandonRate
 : [1]
    MaximumLinesPerAgent : [3.000000] NoAnswerRingLimit : [3] MinimumCallDuration : [0]
    PreReservedRecordCount: [0] IVRPortCount : [0] TransferToIVREnabled : [N]
TransferAnsMachine :
    [N] IVRExt : [] --------- SkillGroupID : [11965] VDN : [11965] PeripheralNumber : [889]

    SkillGroupEnableStatus: [0] CampaignName : [TT_ISN] ModeName : [R] TypeName : [O]
Customer
    Count : [0] Customer Count (idle) : [0] RecordsToCache : [20] PredictiveExt : [12345]
    PreviewExt : [12345] *PortsPerAgent : [1.500000] AgentPercentage : [100] AgentsLoggedIn
 : [60]
    AgentsAvailable : [60] AgentsTalking : [0] *PortsAllocated : [0] AgentsReadyIn8Secs :
 [0]
    TalkTimeAverage : [60] *AgentsToReserveDelta : [0] *PortsUsedToDialDelta : [0]
OverflowAgents :
    [0] AutoAnswerReservation : [0] AbandonRate : [3] MaximumLinesPerAgent : [2.500000]
    NoAnswerRingLimit : [4] MinimumCallDuration : [1] PreReservedRecordCount: [0]
IVRPortCount :
    [60] TransferToIVREnabled : [Y] TransferAnsMachine : [Y] IVRExt : [90001] Port Map
Config
    --------------- Port: [000], Station: [30100] Port: [015], Station: [30115] Port:
[081],
    Station: [30181] Port: [082], Station: [30182] Port: [083], Station: [30183] Port:
[016],
    Station: [30116] Port: [031], Station: [30131] Port: [087], Station: [30187] Port:
[023],
    Station: [30123] Port: [071], Station: [30171] Port: [095], Station: [30195] Port:
[063],
    Station: [30163] Port: [055], Station: [30155] Port: [047], Station: [30147] Port:
[039],
    Station: [30139] Port: [008], Station: [30108] Port: [032], Station: [30132] Port:
[024],
    Station: [30124] Port: [088], Station: [30188] Port: [072], Station: [30172] Port:
[064],
    Station: [30164] Port: [048], Station: [30148] Port: [040], Station: [30140] Port:
[001],
    Station: [30101] Port: [009], Station: [30109] Port: [033], Station: [30133] Port:
[017],
    Station: [30117] Port: [025], Station: [30125] Port: [089], Station: [30189] Port:
[065],
    Station: [30165] Port: [073], Station: [30173] Port: [049], Station: [30149] Port:
[041],
    Station: [30141] Port: [002], Station: [30102] Port: [018], Station: [30118] Port:
[026],
    Station: [30126] Port: [090], Station: [30190] Port: [066], Station: [30166] Port:
[074],
    Station: [30174] Port: [050], Station: [30150] Port: [042], Station: [30142] Port:
[003],
    Station: [30103] Port: [027], Station: [30127] Port: [019], Station: [30119] Port:
[091],
    Station: [30191] Port: [075], Station: [30175] Port: [067], Station: [30167] Port:
[059],
    Station: [30159] Port: [051], Station: [30151] Port: [043], Station: [30143] Port:
[004],
    Station: [30104] Port: [020], Station: [30120] Port: [028], Station: [30128] Port:
[092],
    Station: [30192] Port: [084], Station: [30184] Port: [076], Station: [30176] Port:
[060],
    Station: [30160] Port: [068], Station: [30168] Port: [052], Station: [30152] Port:
[036],
    Station: [30136] Port: [021], Station: [30121] Port: [044], Station: [30144] Port:
[093],
    Station: [30193] Port: [005], Station: [30105] Port: [029], Station: [30129] Port:
[085],
    Station: [30185] Port: [069], Station: [30169] Port: [077], Station: [30177] Port:
[061],
    Station: [30161] Port: [053], Station: [30153] Port: [037], Station: [30137] Port:
[045],
    Station: [30145] Port: [014], Station: [30114] Port: [038], Station: [30138] Port:
[079],
    Station: [30179] Port: [010], Station: [30110] Port: [056], Station: [30156] Port:
```

```
[034],
     Station: [30134] Port: [080], Station: [30180] Port: [057], Station: [30157] Port:
[058],
     Station: [30158] Port: [022], Station: [30122] Port: [006], Station: [30106] Port:
[030],
     Station: [30130] Port: [011], Station: [30111] Port: [035], Station: [30135] Port:
[012],
     Station: [30112] Port: [013], Station: [30113] Port: [086], Station: [30186] Port:
[070],
     Station: [30170] Port: [094], Station: [30194] Port: [078], Station: [30178] Port:
[062],
     Station: [30162] Port: [046], Station: [30146] Port: [054], Station: [30154] Port:
[007],
     Station: [30107] Registry Config Values --------------------- TimeToCTIBeginCall :
[7]
     TimeToRingCustomer : [8] TimeToHoldCustomer : [1] TimeToReserve : [10] TimeToTransfer
 : [7]
     TimeToFreeStuckPort : [7200] TimeToFreeStuckCall : [7200] SwitchPrefix : []
     TimeToRetryCustomerRequest : [30] TimeToWaitForRecord : [5] TimeToWaitForCTIResp : [3]

     TalkTimeAvg : [60] CustRecReadyRequestToServer: [30] TestNumberMaxDigits : [5] <-----
"Test
     Number Max digits" ca_cnosig : [20] PortThrottleTime : [2] PortThrottleCount : [20]
     OptimizeAgentAvailability : [0] RTPortFeedDisable : [1] SkillGroupQueryDelay : [1]
     ReclassifyTransferFailures : [0] SetAgentsReadyOnResvDrop : [1] DirectAgentDial : [0]
     OverrideNetworkTones : [0] AnswrTrnsfrUsingAgentPhone : [1] </end>>>>>
```

Dialer_Detail Table

- About the Dialer_Detail Table, page 189
- Dialer_Detail Table Database Fields and Descriptions, page 190

About the Dialer_Detail Table

The Dialer_Detail table is a historical table that is present in the Unified CCE/CCH database in Releases 7.2(2) and later. Its purpose is to allow detailed dialer records to be written to the Logger databases and replicated to each HDS database.

This table can become very large. Running custom reporting queries against it while it is on the HDS can degrade performance. To optimize performance, extract the data from the HDS into your own custom database on a separate server (one that is not used for other Unified CCE/CCH components). Use only DBDateTime (date and time of the record that was written to the HDSdatabase) to perform the extraction. The table on the custom database can be indexed according to the custom reporting needs.

Advantages

Data stored in this table allows for better management of the system and generation of custom reports.

For example, the table stores the following information:

- The Account Number for the contact and the Call Result, so that the last termination code can be obtained for each contact.
- An identifier for the Agent so that skipped records and callbacks scheduled by each agent can be determined.
- Additional data for better troubleshooting of Outbound Dialer attempts such as the CallID that was used to place the call.

Data Flow

1 After making an attempt to contact a customer, the Dialer sends the results to the Campaign Manager in a CloseCustomerRecord message.

The CloseCustomerRecord message is also sent if the Agent chooses to skip a call in preview mode. Results for Personal Callback attempts are sent to the Campaign Manager using a ClosePersonalCallbackRecord message.

2 Campaign Manager then sends a Dialer Detail record to the Router.

At this point, the message flow is identical to all other historical data in the system.

3 The Router passes the historical data information to the Historical Logger process.

4 The Historical Logger process commits the data to the Logger database.

5 The Replication process on the Logger passes the historical data to the Replication process on the Historical Data Server (HDS).

6 The Replication process on the HDS commits the data to the HDS database.

Fault Tolerance

When the Router is down or the Campaign Manager loses the connection to the Router, the Campaign Manager stores Dialer_Detail records in a file on the server where Campaign Manager is running. All the Dialer_Detail records in the cached file are sent to the Router when the connection is restored.

Dialer_Detail Table Database Fields and Descriptions

For a full description of the database fields for the Dialer_Detail table, see the *Database Schema Handbook for Cisco Unified ICM/Contact Center Enterprise & Hosted*.

CallResult Codes and Values

The CallResult field can be populated with the following values:

Table 14: CallResult Codes and Values

Value	Description
0	Dialer has not yet attempted to contact that customer record
2	Error condition while dialing
3	Number reported not in service by network
4	No ringback from network when dial attempted
5	Operator intercept returned from network when dial attempted
6	No dial tone when dialer port went off hook
7	Number reported as invalid by the network

Value	Description
8	Customer phone did not answer
9	Customer phone was busy
10	Customer answered and was connected to agent
11	Fax machine detected
12	Answering machine detected
13	Dialer stopped dialing customer due to lack of agents or network stopped dialing before it was complete
14	Customer requested callback
16	Call was abandoned by the dialer due to lack of agents
17	Failed to reserve agent for personal callback.
18	Agent has skipped or rejected a preview call or personal callback call.
19	Agent has skipped or rejected a preview call with the close option
20	Customer has been abandoned to an IVR
21	Customer dropped call within configured abandoned time
22	Mostly used with TDM switches - network answering machine, such as a network voicemail
23	Number successfully contacted but wrong number
24	Number successfully contacted but reached the wrong person
25	Dialer has flushed this record due to a change in the skillgroup or the campaign
26	The number was on the do not call list
27	Call disconnected by the carrier or the network while ringing
28	Dead air or low voice volume call

CallStatusZone Values

The CallStatusZone1 and CallStatusZone2 fields can be populated with the following values that show the current status of the customer record for the zone.

The values are:

Table 15: CallStatusZone Values

Value	Description
A	Active: Stored in CallStatusZoneX (1 or 2). A zone is set to active when it has been sent to a dialer for dialing.
B	A callback was requested. Stored in CallStatusZone1 and CallStatusZone2 field when a regular callback (non personal callback) has been scheduled. The Callback time itself is stored in both the CallbackDateTimeZone1 and CallbackDateTimeZone2 columns since the callback overrides the individual zones.
C	Closed: Record has been closed for that particular zone, so the record will not be retried again for that zone (zone1 or zone2).
J	Agent rejected (closed out the record)
M	The maximum number of attempts has been reached. Stored in both CallStatusZone1 and CallStatusZone2. A record is set to "M" when it has dialed the maximum times as specified in the campaign and will not be retried again. Both zones are set to "M" to indicate no further calling in either zone.
P	Pending. Stored in CallStatusZoneX (1 or 2). This is the initial state of a record before any dialing has taken place. The record remains in the pending state for a particular zone until all of the numbers specified for that zone are dialed. A pending contact which has already dialed at least one dialer from its sequence will have at least one CallBackDateTimeXX column filled in with a retry time.
R	Retry. Stored in CallStatusZoneX (1 or 2) for the zone where the Retry is scheduled. The retry time itself is stored in the CallbackDateTimeZoneX (1 or 2) as well as in the individual number column CallbackDateTimeXX, where XX is the number to be retried (01 - 10). Call can be retried for a variety of reasons, including receiving a busy or no answer result.
S	A personal callback was requested. Stored in both CallStatusZone1 and CallStatusZone2. A record is set to "S" when it has been scheduled for a personal callback. Both zones are set to "S" to indicate that the record has been moved to the personal callback list.
U	Unknown: Stored in CallStatusZone1 and CallStatusZone2. A record is set to Unknown if its status was Active when the Campaign Manager started or the Dialer re-started. The record will stay in the Unknown state until it gets an update. If the Campaign Manager fails to get an update within sixty minutes, it will return the record to Pending.
X	For a personal callback, the agent is not available, and the reschedule mode is Abandon. (This value is used for CallStatusZone1 only.)

DialingMode Values

The DialingMode field can be populated with the following values that show the campaign mode for the call. This field is NULL for Do Not Call entries.

Values are shown in the following table.

Table 16: DialingMode Values

Value	Description
1	Predictive only
2	Predictive blended
3	Preview only
4	Preview blended
5	Progressive only
6	Progressive blended
7	Direct preview only
8	Direct preview blended

CallResults Table

The following CallResults table maps the call result to the campaign call report.

Table 17: CallResults Table

Call Result	Description	Reporting Column	Counted as Attempt?	Detected Live Voice?	Retry Action
2	Error condition while dialing	None	No	No	None, but returned to the pending state
3	Number reported not in service by network	None	Yes	No	None
4	No ringback from network when dial attempted	NoRingBack	Yes	No	No answer

Call Result	Description	Reporting Column	Counted as Attempt?	Detected Live Voice?	Retry Action
5	Operator intercept returned from network when dial attempted	SITTone	Yes	No	None
6	No dial tone when dialer port went off hook	NoDialTone	Yes	No	No answer
7	Number reported as invalid by the network	SITTone	Yes	No	None
8	Customer phone did not answer	NoAnswer	Yes	No	No answer
9	Customer phone was busy	Busy	Yes	No	Busy
10	Customer answered and was connected to agent	Voice	Yes	Yes	None
11	Fax machine detected	Fax	Yes	No	None
12	Answering machine detected	AnsweringMachine	Yes	No, but transfer to agent possible	Answering Machine, if needed
13	Dialer stopped dialing customer due to lack of agents	Cancelled	Yes	No	Dialer Abandoned
14	Customer requested callback	Callback & PersonalCallback	Yes	Yes	None
15	Callback Machine	Callback & PersonalCallback	Yes	No	None
16	Call was abandoned by the dialer due to lack of agents	Abandon	Yes	Yes	Dialer Abandoned

Call Result	Description	Reporting Column	Counted as Attempt?	Detected Live Voice?	Retry Action
17	Failed to reserve agent for personal callback	None	No	No	No answer
18	Agent has skipped or rejected a preview call or personal callback call	AgentRejected	No	No	No answer
19	Agent has skipped or rejected a preview call with the close option	AgentClosed	No	No	None
20	Customer has been abandoned to an IVR	AbandonToIVR	Yes	Yes	Dialer Abandoned, if needed
21	Customer dropped call within configured abandoned time	CustomerAbandon	Yes	Yes	Customer Abandoned
22	Mostly used with TDM switches - network answering machine, such as a network voicemail	NetworkAnsMachine	Yes	No	Answering Machine, if needed
23	Number successfully contacted but wrong number	WrongNumber	Yes	Yes	None
24	Number successfully contacted but reached the wrong person	CustomerNotHome	Yes	Yes	Customer not home
25	Dialer has flushed this record due to a change in the skillgroup, the campaign, or some other parameter	None	No	No	None, but returned to the pending state

Call Result	Description	Reporting Column	Counted as Attempt?	Detected Live Voice?	Retry Action
26	The number was on the do not call list	None	No	No	None
27	Network disconnected while alerting	NoRingback	Yes	No	No answer
28	Low Energy or Dead Air call detected by CPA	NoRingback	Yes	No	No answer

Outbound dialer call result for combinations of PSTN and status code

The following dialer call results corresponds to the combinations of PSTN cause code and Status code specified in the Dialer_ Detail table.

Status code: Status code is a 3-digit integer result code that indicates the outcome of an attempt to understand and satisfy a SIP request.

PSTN cause code: In signaling context, PSTN cause codes are used to indicate certain events or conditions in the network.

CheckCallState: Indicates whether the call is active or not . TRUE value implies that the call is active.

CallState: Indicates the intermediate call state. When a call is active, it can have any one of the following values - CS_INITIATED, CS_ALERTED, and CS_CONNECTED.

DialerCallResult: Indicates the SIP Dialer call result for the respective SIP status code and PSTN cause code.

Table 18: Outbound Dialer Call Result for PSTN and status code combinations

StatusCode	PSTNCauseCode	CheckCallState	CallState	DialerCallResult	System Type Values (from Dialer detail: CallResult)
404	0	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
404	1	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
404	31	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
404	20	FALSE	CS_NONE	NOT_IN_SERVICE	3
408	120	FALSE	CS_NONE	NO_DIALTONE	6
410	22	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
480	18	TRUE	CS_INITIATED	NO_RINGBACK	4

StatusCode	PSTNCauseCode	CheckCallState	CallState	DialerCallResult	System Type Values (from Dialer detail: CallResult)
480	18	TRUE	CS_ALERTED	NO_ANSWER	8
480	19	FALSE	CS_NONE	NO_ANSWER	8
480	20	TRUE	CS_INITIATED	NO_RINGBACK	4
480	20	TRUE	CS_ALERTED	NO_RINGBACK	4
480	20	TRUE	CS_CONNECTED	CUSTOMER_ABANDONED	21
480	20	TRUE	CS_NONE	NO_RINGBACK	4
481	127	FALSE	CS_NONE	CUSTOMER_ABANDONED	21
484	28	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
485	1	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
486	0	FALSE	CS_NONE	BUSY	9
486	17	FALSE	CS_NONE	BUSY	9
487	127	TRUE	CS_NONE	NO_DIALTONE	6
487	127	TRUE	CS_INITIATED	NO_RINGBACK	4
487	127	TRUE	CS_ALERTED	NO_ANSWER	8
502	38	FALSE	CS_NONE	NO_DIALTONE	6
502	0	FALSE	CS_NONE	NO_DIALTONE	6
503	0	FALSE	CS_NONE	NO_DIALTONE	6
503	34	FALSE	CS_NONE	NO_DIALTONE	6
503	41	FALSE	CS_NONE	NO_DIALTONE	6
503	42	FALSE	CS_NONE	NO_DIALTONE	6
503	47	FALSE	CS_NONE	NO_DIALTONE	6
503	87	FALSE	CS_NONE	NO_DIALTONE	6
580	47	FALSE	CS_NONE	NO_DIALTONE	6
500	4	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
500	5	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
500	6	FALSE	CS_NONE	NO_DIALTONE	6
500	44	FALSE	CS_NONE	NO_DIALTONE	6
500	8	TRUE	CS_INITIATED	NO_RINGBACK	4

Outbound dialer call result for combinations of PSTN and status code

StatusCode	PSTNCauseCode	CheckCallState	CallState	DialerCallResult	System Type Values (from Dialer detail: CallResult)
500	9	TRUE	CS_INITIATED	NO_RINGBACK	4
500	39	TRUE	CS_INITIATED	NO_RINGBACK	4
500	16	TRUE	CS_INITIATED	NO_RINGBACK	4
500	16	TRUE	CS_ALERTED	NO_ANSWER	8
500	16	TRUE	CS_CONNECTED	CUSTOMER_ABANDONED	21
500	44	FALSE	CS_NONE	NO_DIALTONE	6
500	46	FALSE	CS_NONE	BUSY	9
500	63	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
500	86	FALSE	CS_NONE	CUSTOMER_ABANDONED	21
604	1	FALSE	CS_NONE	NUMBER_NOT_ALLOCATED	7
600	17	FALSE	CS_NONE	BUSY	9

APPENDIX D

Termination_Call_Detail Table

Peripheral call types

Map Release 8.x to Release 6.0(0) and Earlier Peripheral Call Types

This section maps the Release 8.x peripheral call types to Release 6.0(0) and earlier peripheral call types.

Table 19: Mapping of Release 8.x Peripheral Call Types to Release 6.0(0) and Earlier Peripheral Call Types

Peripheral Call Type	Description
CALLTYPE_RESERVATION	CALLTYPE_OO_RESERVATION_PREVIEW = 27
	CALLTYPE_OO_RESERVATION_PREVIEWDIRECT = 28
	CALLTYPE_OO_RESERVATION_PREDICTIVE = 29
	CALLTYPE_OO_RESERVATION_CALLBACK = 30
	CALLTYPE_OO_RESERVATION_PERSONALCALLBACK = 31
CALLTYPE_AUTO_OUT	CALLTYPE_OO_CUSTOMER_PREDICTIVE = 34
	CALLTYPE_OO_CUSTOMER_IVR = 37

Peripheral Call Type	Description
CALLTYPE_PREVIEW	CALLTYPE_OO_CUSTOMER_PREVIEW = 32
	CALLTYPE_OO_CUSTOMER_CALLBACK = 35
	CALLTYPE_OO_CUSTOMER_PREVIEWDIRECT = 33
	CALLTYPE_OO_CUSTOMER_PERSONALCALLBACK = 36
	CALLTYPE_OO_CUSTOMER_PREDICTIVE = 34
	CALLTYPE_OO_CUSTOMER_IVR = 37

Call Disposition Values Used in Termination_Call_Detail Table

The following CallDisposition values can be interpreted as Outbound Option Result Codes:

- 01. ABAND_NETWORK - Customer phone number not in service

- 02. ABAND_LOCAL_QUEUE - An outbound call was abandoned either by the customer or dialer 08. BUSY - Outbound call resulted in a busy signal

- 19. RING_NO_ANSWER - Outbound call was not answered in the allotted time

- 20. INTERCEPT_REORDER - Dialer did not receive a ring back from the ACD on network

- 21. INTERCEPT_DENIAL - Customer call was intercepted by the operator

- 22. TIME_OUT - Dialer unable to detect dial tone

- 23. VOICE_ENERGY - Outbound call was answered by a person

> **Note** On Unified CCE, this result might also represent a call answered by an answering machine.

- 24. NONCLASSIFIED_ENERGY_DETECT - Outbound call reached a FAX machine

- 26. UABORT - Outbound call was disconnected before customer answered

- 33. ANSWERING_MACHINE - Outbound call was answered by answering machine

CED Column Values

The CED column values for Outbound Option reservation or personal callback calls are as follows:

"Callback" = Personal callback customer call

"ICM_BA_Reservation_Call" = Reservation call

TCD Column Descriptions

The following types of records are generated when the Outbound Option Dialer makes agent reservation calls and customer calls.

Reservation Calls

Reservation calls generate two TCD records and one RCD record:

- IPCC reservation call (TCD) as described below.
- MR PIM reservation entry "not a real call" (TCD) as described below.
- MR PIM route request (RCD) as described on the next page.

Note   This record is a route request sent from the Dialer via the MR PIM.

IPCC Reservation Call

PeripheralCallType = 18 (Reserve)

CallDisposition = 6 (agent abandon)

DialedNumber =Number dialed to run routing script

CED = ICM_BA_Reservation_Call

DNIS = Agent phone number (also InstrumentPortNumber)

HoldTime =Most of reserve time is kept under this bucket

TalkTime = Prior to reservation call being placed on hold the talking bucket is incremented

Duration = Total reservation time

AgentPeripheralNumber = Agent Sign-in ID

PeripheralCallKey = Unique peripheral call ID

ANI = Customer phone number (only available for Preview reservation calls)

RouterCallKeyDay/RouterCallKey = Maps reservation call to MR reservation request and associates it with route_call_detail record

MR PIM Reservation Entry Not a Real Call (TCD)

PeripheralID = MR PIM Peripheral ID (not Unified CM Peripheral ID)

PeripheralCallType = 1 (ACD IN; all MR calls are this type)

CallDisposition = 14 (call handled by Dialer)

RouterCallKeyDay/RouterCallKey = Maps MR reservation request to actual reservation call and associates it with MR reservation route_call_detail record

MR PIM Route Request (RCD - route_call_detail)

RouterCallKeyDay/RouterCallKey = Maps MR reservation route to actual reservation call and associates it with MR reservation route_call_detail record

RequestType = 6 (Post-Routing)

RoutingClientID = MR PIM used by Dialer

ScriptID = Script used to service agent reservation request

RouterErrorCode = 0 (no error)

Label = Agent phone extension

DialedNumberString = Dialed number used to choose script

Customer Calls

Customer calls generate up to two TCD records:

- Initial customer call transferred to agent (TCD) as described in Table D-2.

- Customer speaking with agent (TCD) as described in Table D-3.

Table 20: Initial Customer Call Transferred to Agent (TCD)

Column Name	Description
PeripheralCallType	One of the following: • 32 (preview) • 33 (preview direct) • 34 (predictive) • 35 (callback) • 36 (personal callback) • 37 (IVR)
DigitsDialed	Customer phone number
CallDisposition	29 (announced transfer, call was transferred to agent)
Duration	Number of seconds agent was reserved for an outbound call including amount of time it took to reserve the agent
HoldTime	Number of seconds agent was reserved
ICRCallKey	Unique key for TCD record

Column Name	Description
ICRCallKeyChild	Call key identifying the transferred customer call
PeripheralCallKey	Unique peripheral call ID (same as transferred call)
ANI	Customer phone number

Table 21: Customer Speaking with Agent (TCD)

Column Name	Description
AgentSkillTargetID	ICM agent ID
SkillGroupSkillTargetID	ICM skill group ID
PeripheralCallType	One of the following: • 32 (preview) • 33 (preview direct) • 34 (predictive) • 35 (callback) • 36 (personal callback) • 37 (IVR)
DigitsDialed	Agent phone extension
CallDisposition	13 (disconnect/drop handled, call was handled by agent)
Duration	Total customer handle time (including talk and wrap-up)
TalkTime	Agent talk time
ICRCallKey	Unique key for TCD record
ICRCallKeyChild	Call key identifying the original customer call prior to the transfer
PeripheralCallKey	Unique peripheral call ID (same as original customer call prior to transfer)
ANI	Customer phone number

Transfer to IVR TCD Records

SIP Dialer

With SIP dialer, the Transferred Customer Calls have a PeripheralCallType of 1.

No TCD records are cut for the outbound calls that do not hit the Unified CCE peripheral for either CVP(IVR) or Agent-based campaigns.

SCCP Dialer

For SCCP dialer, the peripheral call type varies.

Transfer to IVR calls generate up to three TCD records:

- Initial Customer Call on Unified CM PIM Transferred to Route Point

- Transferred Customer Call on Unified CM PIM Redirected to IVR

- IVR Playing a Message on VRU Pim to a Customer

Note

- If the call is not answered, only one TCD record is generated.

- If the Dialer transfers a customer to an IVR while the IVR is experiencing technical difficulties, the record closes in the Dialing List table with a CallResult of 10 (Voice) or 16 (Abandon). However, in the t_Termination_Call_Detail table, the CallDisposition is 7 (Short) or 10 (Disconnect/drop no answer) for the second CM PIM TCD record. The first Unified CM PIM TCD record has a value of 23 (Voice Energy). The CallDisposition for the VRU PIM TCD record is 27 (Failed Software).

For calls transferred to an IVR, depending on the sequence of events occurring from Unified CM to Unified CCE, an extra TCD might be generated.

- Scenario one: If the call arrived at the IVR before it cleared from the Agent PG side, no extra TCD is generated.

- Scenario two: If the call cleared from the Agent PG side first, an extra TCD is generated.

There is no guarantee of the event order for events coming from Unified CM; therefore, Unified CCE might generate *inconsistent* reports based on *inconsistent* events.

Initial Customer Call on PIM Transferred to Route Point

- **PeripheralCallType** - one of the following:

  ◦ 32 (preview)

  ◦ 33 (preview direct)

  ◦ 34 (predictive)

  ◦ 35 (callback)

  ◦ 36 (personal callback)

  ◦ 37 (IVR)

- **DigitsDialed** - Customer phone number

- **CallDisposition** - 29 (announced transfer, call was transferred to route point)

- **Duration** - Number of seconds it took the Dialer to dial the customer phone number and have the customer pick up the phone

- **ICRCallKey** - Unique key for TCD record

- **ICRCallKeyChild** - Call key identifying the transferred customer call

- **PeripheralCallKey-** Unique peripheral call ID (same as transferred call)

- **ANI** - Customer phone number

Transferred Customer Call on Unified CM PIM Redirected to IVR

- **PeripheralCallType** - one of the following:

  ◦ 32 (preview)

  ◦ 33 (preview direct)

  ◦ 34 (predictive)

  ◦ 35 (callback)

  ◦ 36 (personal callback)

  ◦ 37 (IVR)

- **DigitsDialed** - Customer phone number

- **CallDisposition** - 15 (redirect)

- **Duration** - Number of seconds it took the Dialer to redirect the call

- **ICRCallKey** - Unique key for TCD record

- **ICRCallKeyParent** - Call key identifying the initial customer call

- **PeripheralCallKey** - Unique peripheral call ID (same as transferred call)

- **ANI** - Customer phone number

IVR Plays a Message on VRU PIM to a Customer

- **PeripheralCallType** - 1 (ACD in, call comes into IVR)

- **DigitsDialed** - Digits dialed to reach the route point, which executes the translation route

- **CallDisposition** - 13 (disconnect/drop handled, call was handled by IVR) or 6 (abandon; customer hangs up the phone before the IVR message ends)

- **LocalQTime** - Total customer handle time at the IVR

- **ICRCallKey** - Unique key for TCD record

- **PeripheralCallKey** - Unique peripheral call ID (same as original customer call prior to transfer)

- **ANI** - Customer phone number

Termination_Call_Detail Table

This appendix provides a summary of new peripheral call types that identify the dialing mode of reservation and customer calls, and describes the PeripheralCallType and CallDisposition column values used in the Termination_Call_Detail table. It also provides the CED column values for Outbound Option reservation or personal callback calls.

Dialing_List Table Columns

There is a separate Dialing_List table for every Campaign and Query Rule combination. The naming convention for each table is "DL_CCCC_QQQQ," where "CCCC" is the database ID of the campaign and "QQQQ" is the database ID for the query rule. The following table displays the Dialing_List table column names and their description.

Table 22: Dialing_List Table Columns for Release 7.0(0)

Dialing List ID	Type	Autoincrement value - unique for each Campaign Query Rule table
Phone01 through Phone10	VARCHAR20	Phone number imported into Phone01 through Phone 10 standard column
PhoneExt01 through PhoneExt10	VARCHAR8	Phone number extension imported into PhoneExt01 through PhoneExt10 standard column. This column is for future use; it is not currently being used.
CallbackNumber	VARCHAR20	Phone number to be used for a regular callback it can be supplied by the agent
CallResult	SMALLINT	The call result from the last call placed for this record (see Call Result definitions).

Dialing List ID	Type	Autoincrement value - unique for each Campaign Query Rule table
CallResult01 through CallResult10	SMALLINT	The call result from the last time Phone01through Phone10 was called (see Call Result definitions). CallResult01 captures the results of all requested regular callback calls for Phone01 to Phone10
LastZoneDialed	SMALLINT	The last zone that was dialed (0 indicates zone1, 1 indicates zone2)
LastNumberDialedZone1	SMALLINT	The last number dialed in zone1 (1 for phone01, 2 for phone02, and so on)
LastNumberDialedZone2	SMALLINT	The last number dialed in zone2 (1 for phone01, 2 for phone02, and so on)
CallsMadeToZone1	SMALLINT	The number of calls made to numbers in zone 1 **Note** For a call which an Outbound Agent has scheduled a callback, the CallResult resets to 0
CallsMadeToZone2	SMALLINT	The number of calls made to numbers in zone 2 **Note** For a call which an Outbound Agent has scheduled a callback, the CallResult resets to 0
CallbackDateTimeZone1	DATETIME	The date/time when the next call to this zone will occur
CallbackDateTimeZone2	DATETIME	The number of calls made to numbers in zone 2
CallbackDateTime01 through CallbackDateTime010	DATETIME	The date/time when the next call to this phone number will occur
GMTPhone01 through GMTPhone10	SMALLINT	The time zone where this phone number is located
DSTPhone01 through DSTPhone10	SMALLINT	Is DST observed at this phone number (boolean).
CallStatusZone1 and CallStatusZone2	CHAR(1)	The call status (pending, retry, callback, and so forth) for this zone
AccountNumber	VARCHAR25	Customer's account number
LastName	VARCHAR50	Customer's last name

Dialing List ID	Type	Autoincrement value - unique for each Campaign Query Rule table
FirstName	VARCHAR50	Customer's first name.
ImportRuleDate	DATETIME	The date/time when the record was imported.

APPENDIX **F**

Schedule of Contacts Between Customers and Agents

This appendix describes the Personal Callback List and documents all the columns in the personal callback table.

✎ **Note** This table is insert only, and can be used to perform queries.

Personal_Callback_List Table

The Personal Callback List maintains a list of customer records scheduled to be called back by a specific agent. The Personal_Callback_List is managed by the Campaign Manager.

When an agent (working in an outbound campaign) schedules a personal callback with the personal callback mode enabled, the scheduled callback is treated as a personal callback (for the agent who scheduled the callback). The original record in the contact_list is updated with CallStatus=S ("S" indicates the customer record has a personal callback scheduled) and a new record is inserted into the Personal_Callback_List.

The following table documents all the columns in the personal callback table.

Table 23: Personal Callback Table Columns

Column Name	Type	Description
PersonalCallbackListID	AUTO-INT	Unique identifier for each record in this table.
DialingListID	INT	Cross-references a record that has been moved from the contact_list to this table.
CampaignID	INT	Campaign ID (if the record was originally dialed as part of a campaign).

Column Name	Type	Description
PeripheralID	INT	Peripheral ID for the peripheral where the agent would be available.
AgentID	INT	Agent to which the call has to be connected.
AlternateVDN	VARCHAR	VDN to use (if original agent is unavailable).
GMTZone	SMALLINT	GMT of the customer number (if NULL, the local GMT zone is assumed). If this value is provided, it must always be a positive value from 0 to 23. Convert all negative GMT values using the following formula: 24 + (negative GMT value). For example, the US eastern time zone is -5, so the value stored in this column is 24 + (-5) = 19.
Phone	VARCHAR	Phone number to call back.
AccountNumber	VARCHAR	Customer account number.
MaxAttempts	INT	Maximum number of times a call will be attempted (decrements at each attempt). An "attempt" is defined as the Outbound Option Dialer's attempt to reserve the agent and make the customer call. Since the Outbound Option Dialer is responsible for placing multiple customer call attempts (busy, no answer), the actual individual call attempts are not tracked here; only the end result at the end of the callback time range. **Note** Once this column is set to 0, no more attempts will be made.
CallbackDateTime	DATETIME	Time to attempt customer callback is normalized to the logger GMT zone; for example, if the Campaign Manager is in Boston and the customer is in California and wished to be contacted at 3:00 PM, the time in this column would be 6:00 PM.
CallStatus	CHAR	Current status of the callback record, such as 'P' for pending or 'C' for closed. **Note** New records must be set to 'P.'
CallResult	SMALLINT	Telephony call result (busy, no answer, and so on) or agent reservation attempt result (Agent Rejected Call, Unable to reserve and so on.)
LastName	VARCHAR	Last name of the customer.
FirstName	VARCHAR	First name of the customer.

CTI OS Outbound Option ECC Variable Settings

This appendix contains a sample .REG file, which creates the applicable Outbound Option ECC registry entries for CTI OS.

If your call center has both inbound and outbound call traffic, also see the "ECC Variables in Mixed Inbound and Outbound Call Centers Example" section.

ECC Variables for Outbound Call Centers Example

> **Note** This sample registry file (.REG) must be run on the CTI OS server.

```
REGEDIT4 [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
Desktops\Grid\CallAppearance]
    [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
    Desktops\Grid\CallAppearance\Columns] [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
  Desktops\Grid\CallAppearance\Columns\Number] [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,

    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
    Desktops\Grid\CallAppearance\Columns\Number\1] "Type"="CallID"
    [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
    Desktops\Grid\CallAppearance\Columns\Number\2] "Type"="CallStatus"
    [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
    Desktops\Grid\CallAppearance\Columns\Number\3] "Type"="DNIS"
[HKEY_LOCAL_MACHINE\SOFTWARE\Cisco
    Systems, Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
    Desktops\Grid\CallAppearance\Columns\Number\4] "Type"="ANI"
[HKEY_LOCAL_MACHINE\SOFTWARE\Cisco
    Systems, Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
    Desktops\Grid\CallAppearance\Columns\Number\5] "Type"="CED"
[HKEY_LOCAL_MACHINE\SOFTWARE\Cisco
    Systems, Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
    Desktops\Grid\CallAppearance\Columns\Number\6] "Type"="DialedNumber"
    [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
    Desktops\Grid\CallAppearance\Columns\Number\7] "Type"="CallType"
```

```
                    [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
                    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
                    Desktops\Grid\CallAppearance\Columns\Number\8] "Type"="WrapUp" "maxchars"="39"
                    "editable"="true" [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
                    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
                    Desktops\Grid\CallAppearance\Columns\Number\9] "Type"="ECC" "Name"="BAResponse"
                    "Header"="BAResponse" "Maxchars"="24" "ReadOnly"="false"
            [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco
                    Systems, Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
                    Desktops\Grid\CallAppearance\Columns\Number\10] "Type"="ECC" "Name"="BAStatus"
                    "Header"="BAStatus" "Maxchars"="3" "ReadOnly"="true" [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco

                    Systems, Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
                    Desktops\Grid\CallAppearance\Columns\Number\11] "Type"="ECC" "Name"="BAAccountNumber"
                    "Header"="BAAccountNumber" "Maxchars"="33" "ReadOnly"="true"
            [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco
                    Systems, Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
                    Desktops\Grid\CallAppearance\Columns\Number\12] "Type"="ECC" "Name"="BATimeZone"
                    "Header"="BATimeZone" "Maxchars"="7" "ReadOnly"="true" [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco

                    Systems, Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
                    Desktops\Grid\CallAppearance\Columns\Number\13] "Type"="ECC" "Name"="BACampaign"
                    "Header"="BACampaign" "Maxchars"="33" "ReadOnly"="true"
            [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco
                    Systems, Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
                    Desktops\Grid\CallAppearance\Columns\Number\14] "Type"="ECC" "Name"="BADialedListID"
                    "Header"="BADialedListID" "Maxchars"="33" "ReadOnly"="false"
            [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco
                    Systems, Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
                    Desktops\Grid\CallAppearance\Columns\Number\15] "Type"="QueryRuleID"
                    [HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
                    Inc.\CTIOS\InstanceName\ctios1\EnterpriseDesktopSettings\All
                    Desktops\Grid\CallAppearance\Columns\Number\16] "Type"="CampaignID" "Maxchars"="39"
                    "editable"="false"
```

ECC Variables in Mixed Inbound and Outbound Call Centers Example

The preceding example registry settings (also found in *CTIOS_bin\blendedagent_addecc.reg*) overwrites existing peripheral call variables for inbound traffic.

There is another file in the CTIOS_bin directory called *callappearance.default.reg.txt* that restores the variables to their default setting.

In mixed inbound and outbound call centers, you can create a new registry file using examples from both *callappearance.default.reg.txt* and *blendedagent_addecc.reg* to create a set of variables that meet your mixed call center's needs.

For example, in the following code, the third line ends in **9**. The **9** indicates the column number. Therefore, column **9** displays **Var1**, since the type in line 4 of the following example is set to **Var1**.

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems,
    Inc.\CTIOS\CTIOS_InstanceName\ctios1\EnterpriseDesktopSettings\All
    Desktops\Grid\CallAppearance\Columns\Number\9] "Type"="Var1" "maxchars"="39"
    "editable"="true"
```

Select the columns and applicable display type required. Cut and paste from the two files into a new registry file, editing as needed, and then import the new file into the registry.

✎

Note   The registry files are provided as examples. You can also manually edit the registry to achieve the same results.

I N D E X