



Outbound Option Guide for Cisco Unified Contact Center Enterprise and Hosted 8.5(1)

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Preface

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, refer to the online help.

Note: You must have a copy of the *Staging Guide Cisco Unified ICM/Contact Center Enterprise & Hosted, Release 8.x(y)* available in addition to this manual in order 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 will 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/disabling a campaign. This group of users need to know how read and interpret reports in order to help them run their business.

Organization

- **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 (page 7) " Intended Audience: all audiences	Provides a high-level overview of Outbound Option and its components.
Chapter 2, " Architectural Overview (page 29) " Intended Audience: System Administrators/Administrators	Provides a high-level overview of Unified CCE software, Outbound Option component relationships, scripting, and fault recovery.
Chapter 3, " Installing Outbound Option - Preliminary Steps (page 51) " Intended Audience: System Administrators	Provides prerequisite information users need to know before installing Outbound Option.
Chapter 4, " Installing Outbound Option: SIP Dialer (page 51) " Intended Audience: System Administrators	Provides all the information users need to install Outbound Option with a SIP Dialer.
Chapter 5, " Installing Outbound Option: SCCP Dialer (page 87) " Intended Audience: System Administrators	Provides all the information users need to install Outbound Option with an SCCP Dialer.
Chapter 6, " Configuring Campaigns and Imports (page 119) " Intended Audience: Administrators	Provides all the information users need to configure Outbound Option.
Chapter 7, " Administrative/Supervisory Tasks (page 155) " Intended Audience: Administrators/Supervisors who may or may not have administrative permission	Provides information on reading reports, agent desktops, adding and reskilling agents, running imports, and running and managing effective campaigns,
Appendix A, " Registry Settings (page 173) "	Contains information about registry settings for Outbound Option server processes.
Appendix B, " Long Distance Digit Prefix Logic (page 185) "	Provides information about outbound call routing.
Appendix C, " Dialer_Detail Table (page 189) "	Provides information on the Dialer_Detail table, an historical table that was incorporated into the IPCC database in Release 7.2(1). Its purpose is to allow detailed dialer records to be written to the Logger databases and replicated to each HDS database.

Chapter	Description
Appendix D, " Termination_Call_Detail Table (page 195) "	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 (page 203) "	Provides information about the Dialing List table, which is used for the Outbound Option application only. Other applications are not allowed to access it for reading, writing, or using triggers.
Appendix F, " Scheduling Contacts Between Customers and Specific Agents (page 205) "	Documents all the columns in the personal callback table.
Appendix G, " CTI OS Outbound Option ECC Variable Settings (page 207) "	Contains a sample .REG file, which creates the applicable Outbound Option 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. The following list provides more information.

- For documentation for the Cisco Unified Contact Center products mentioned above, go to <http://www.cisco.com/cisco/web/psa/default.html>, click **Voice and Unified Communications**, then click **Customer Collaboration**, and then click **Cisco Unified Contact Center Products** or **Cisco Unified Voice Self-Service Products**, then click the product or option you are interested in.
- For troubleshooting tips for the Cisco Unified Contact Center Products mentioned above, go to <http://docwiki.cisco.com/wiki/Category:Troubleshooting>, and then click the product or option you are interested in.
- Documentation for Cisco Unified Communications Manager 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 about the Cisco software support methodology, see *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.

Product Naming Conventions

- 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 listed 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 Call Manager/Cisco Unified Call Manager	Cisco Unified Communications Manager	Unified CM

Conventions

This manual uses the following conventions:

Convention	Description
boldface font	<p>Boldface font is used to indicate commands, such as user entries, keys, buttons, and folder and submenu names. For example:</p> <ul style="list-style-type: none"> • Choose Edit > Find. • Click Finish.
<i>italic font</i>	<p>Italic font is used to indicate the following:</p> <ul style="list-style-type: none"> • To introduce a new term; for example: A <i>skill group</i> is a collection of agents who share similar skills • For emphasis; for example: <i>Do not</i> use the numerical naming convention

Convention	Description
	<ul style="list-style-type: none"> • A syntax value that the user must replace; for example: IF (<i>condition, true-value, false-value</i>) • A book title; for example: Refer to the <i>Cisco CRS Installation Guide</i>
window font	<p>Window font, such as Courier, is used for the following:</p> <ul style="list-style-type: none"> • Text as it appears in code or that the window displays; for example: <code><html><title>Cisco Systems, Inc. </title></html></code> • Navigational text when selecting menu options; for example: ICM Configuration Manager > Tools> Explorer Tools > Agent Explorer
< >	<p>Angle brackets are used to indicate the following:</p> <ul style="list-style-type: none"> • For arguments where the context does not allow italic, such as ASCII output • A character string that the user enters but that does not appear on the window such as a password

Obtaining Documentation and Submitting a Service Request

For information about 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 *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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We appreciate your comments.



Chapter 1

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.

This chapter contains the following topics:

- [Overview, page 7](#)
- [Imports, page 15](#)
- [Query Rules, page 16](#)
- [Campaigns, page 17](#)
- [Campaign Skill Groups, page 24](#)
- [What Time Is It? Customer Time Versus System Time, page 26](#)
- [Call Progress Analysis \(Answering Machine Detection\), page 27](#)

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.

What Are 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 agent time is not wasted in 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 Outbound Option, you can configure a contact center for automated outbound activities.

Outbound Option Features

Outbound Option features include:

- [Cisco Internet Protocol Contact Center \(Unified CCE\) compatible dialer \(page 9\)](#)
- [Campaign management \(page 9\)](#)
- [Inbound/outbound blending \(page 9\)](#)
- [Predictive, Progressive, and Preview dialing modes \(page 9\)](#)
- [Real-time and historical reports \(page 10\)](#)
- [Personal callback \(page 10\)](#)
- [Call Progress Analysis \(CPA\) for answering machine, fax/modem, and answering machine terminating tone detection \(page 10\)](#)
- [Transfer to Interactive Voice Response \(IVR\) \(page 10\)](#)
- [Sequential dialing \(page 11\)](#)
- [Cisco IP Contact Center Agent re-skilling \(page 11\)](#)
- [Abandoned and Retry call settings \(page 11\)](#)
- [Campaign Prefix Digits for dialed numbers \(page 11\)](#)
- [Outbound Option support on Cisco IPCC Hosted \(page 12\)](#)

- [Outbound ECC variables support in Siebel 7.5.3 and 7.7 \(page 12\)](#)

About the Cisco Unified CCE Compatible Dialer

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

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

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

About 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.

About 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 OutboundControl skill group setting is set to Dedicated, inbound calls must not be routed to that skill group.

Overview

About Outbound Option Dialing Modes

Outbound Option supports the following dialing modes:

- Preview
- Direct Preview
- Progressive
- Predictive

See Also

See the "[Dialing Modes \(page 17\)](#)" section for detailed information.

About Outbound Option Activity Reports

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

See Also

The reporting types are documented throughout this chapter, plus Chapter 7, "[Administrative/Supervisory Tasks \(page 155\)](#)," provides details about how to read the reports. Refer to the Cisco Unified Intelligence Center (CUIC) documentation for detailed information about using this application.

About Callbacks

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

See Also

See the "[Callbacks \(page 20\)](#)" section for more details.

About Call Progress Analysis (CPA)

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

See Also

See the "[Call Progress Analysis \(Answering Machine Detection\) \(page 27\)](#)" section for more details.

About 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.

See Also

See the "[Transfer to IVR Campaigns \(page 22\)](#)" section for more details.

About 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.

See Also

See the "[Sequential Dialing \(page 22\)](#)" section for more details.

About 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 login 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 on 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.

See Also

See the "[Agent Re-skilling \(page 160\)](#)" section in Chapter 7, "Administrative/Supervisory Tasks," for more details. Refer to the Agent Re-skilling Tool online help for information about using the agent re-skilling feature.

About Abandoned and Retry Call Settings

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

See Also

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.”

See Also

See the online help for more information about the **Campaign prefix digits** field. See the "[Creating a Campaign \(page 131\)](#)" section in Chapter 6, "Configuring Campaigns and Imports," for more details about using this field when creating a campaign. Refer to the Unified CM documentation for detailed information about translation patterns.

About 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, etc.).

See Also

Refer to the Cisco Unified CCH documentation set for more details.

About 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 Also

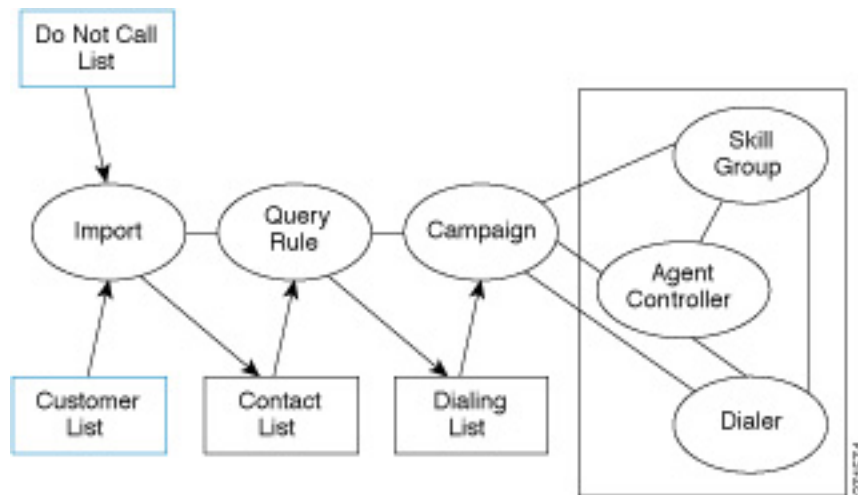
Refer to the Cisco Unified CRM Connector for Siebel guide for detailed information about the ECC variables support for Outbound Option.

How the Concepts Presented in This Chapter Relate to Each Other

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 they are configured by the user.

Table 1: Relationships Between Outbound Option Component Concepts

Concept	Description
Import	<p>Defines when and how Outbound Option reads in a user-generated list of customers to call and customers who should not be called.</p> <p>Note: See the "Imports (page 15)" section for more details.</p>
Query Rule	<p>Set of criteria for selecting customer contacts from a customer list.</p> <p>Note: See the "Query Rules (page 16)" section for more details.</p>
Campaign	<p>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.</p> <p>Users create the agent skill groups and associate them with one or more dialing lists by assigning them to a campaign.</p> <p>With Outbound Option, you can configure an agent-based campaign or a transfer to IVR campaign:</p> <ul style="list-style-type: none"> • 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. <p>Note: See the "Campaigns (page 17)" section for more details.</p>

Overview

Concept	Description
Skill Group	<p>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.</p> <p>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.</p> <p>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 <i>one</i> dialing list and <i>one</i> skill group in the campaign.</p> <p>Note: See the "Campaign Skill Groups (page 24)" section for more details.</p>
Agent Peripheral Gateway(PG)	<p>A collection of agents and skill groups that are bound to a specific Cisco Unified Communications Manager (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 <i>agent controller</i> as another way to convey <i>agent peripheral</i>.)</p> <p>Note: See the "Agent PG (page 41)" section in Chapter 2, "Architectural Overview," for more details.</p>
Dialer	<p>An Outbound Option component that places Outbound Option calls. It 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.</p> <p>Note: See the "About Outbound Option Dialer Component (page 34)" section in Chapter 2, "Architectural Overview," for more details.</p>
Customer List	<p>List of contact information that you provide during import.</p>
Contact List	<p>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.</p> <p>Note: See the "Contact List Imports (page 15)" section for more details.</p>
Dialing List	<p>The list of customer contacts that Outbound Option dials to make outbound calls. There is one dialing list for each campaign query rule.</p> <p>Each campaign query rule combination results in a unique dialing list.</p> <p>Only one dialing list will be active at a time for a particular campaign. Whenever a dialing list is active, it will be distributed to all skill groups in the campaign. A specific dialing list cannot be mapped to a specific skill group in a campaign.</p> <p>Note: See the "Dialing List (page 163)" section in Chapter 7, "Administrative/Supervisory Tasks," for more details.</p>

Using some of the terms listed above, 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, data is selected from the customer contact into dialing a dialing list using a query rule filter.
3. Outbound Option reads in records from the dialing list for the campaign, and sends records to dial to dialers co-located on peripherals where associated skill groups are configured.

Note: See the "[Creating a Campaign \(page 131\)](#)" section in Chapter 6, "Configuring Campaigns and Imports," for details on 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 have been 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 not to 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, which will immediately take effect on records that have not been sent to a Dialer. Records already sent from the Campaign Manager to the Dialer will not be affected, as those records are beyond the Campaign Manager's control.

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.

See Also

See the "[Creating a Do Not Call List \(page 161\)](#)" section in Chapter 7, "Administrative/Supervisory Tasks."

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\ directory on LoggerA. The name of the files are based on the name of the Target Table Name and the date/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 dial the same customer twice.

Note: See the "[Adding Attributes to a Contact List \(page 162\)](#)" 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. This is done by matching phone numbers to region prefix strings. If any of the phone numbers for a contact does not match a configured region prefix, it will use the default time zone data configured for the campaign.

Import Rule Reporting

The same import rule reports are used for Do Not Call and Contact List imports. The reports display an historical view of when imports were done, 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.

See Also

See Chapter 7, "[Administrative/Supervisory Tasks \(page 155\)](#)," for detailed information about Outbound Option reports.

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 \(page 20\)](#)) or IVRs ([unassisted transfer to IVR campaigns \(page 22\)](#)) 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 "[Creating a Campaign \(page 131\)](#)" section in Chapter 6, "Configuring Campaigns and Imports," for more details.

Dialing Modes

Outbound Option supports the following dialing modes:

- **Preview:** Agent previews the contact information on the desktop before deciding whether this contact should be dialed or not, then the agent can decide to skip to the next contact. Once the agent accepts a contact, the call is placed by the Dialer 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 call is skipped or rejected by the agent, 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 as 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 once 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 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 could 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 will lower 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. An example would be the hit rate changing 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: As there is a wide variation in how long each phone call lasts, this 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 (that is, if 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 when the following conditions occur:

- 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.

Once 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 an Unified CCE software problem).

Once 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.

Masking Caller ID 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 sees that an agent is available, the 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. Once the agent is reserved, the dialer places outbound calls to customer contacts using the dialing mode that was set for the campaign skill group. Once 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 this 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. Then the dialer needs to decide what to do with the second answered call. If another agent is reserved in the campaign, it will be transferred there. Otherwise, the call will be transferred to the IVR(s) configured in the Abandon to IVR setting for the campaign skill group. If no IVR was 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 their 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 \(page 20\)](#) callbacks can be handled by any agent assigned to the campaign, where the customer is called back using the configured campaign mode.
- [Personal \(page 21\)](#) callbacks allow the customer to receive a callback from the agent they spoke to when they were first contacted, and 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.

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 `CallbackTimeLimit` has been exceeded 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 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 following actions can take place during a personal callback:

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

Campaigns

- 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.
- If the required agent is not available, the callback will take one of the following configured actions:
 - Another agent is reserved for the callback using the dialed number of the associated campaign skill group.
 - The callback is rescheduled for the same time on the following day.
 - The callback is abandoned.

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 it requires special integration with third-party applications to import these records. See Appendix F, "[Scheduling Contacts Between Customers and Specific Agents \(page 205\)](#)," 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 can include 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 that you want to use for transfer to IVR campaigns, and it will attempt 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 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 will initiate contacts for a campaign based on ordering in the imported contact list. This order is not changed during the import.

Each number for the contact will be dialed once, in the order they are 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 numbers are retried.

See Chapter 6, "[Configuring Campaigns and Imports \(page 119\)](#)," 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 both zones.

Note: Customers are dialed based on the time zone of the first phone 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.

Callbacks, Retries, and Pending Contacts—Who Gets Priority?

The contact priority order is as follows:

- Top priority is given to customers who have requested *callbacks*. This ensures they are called at the time that the customer requested.
- *Retries* get second priority. A contact will be 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, so that all numbers and records are tried once before retries are attempted. See Appendix A, "[Registry Settings \(page 173\)](#)" for detailed information.

Campaign Reporting

The query rule call activity and pending record reports are available as campaign rollups 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 it is mixing 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, etc.

Campaign Query Rule Reporting

There are two general categories of campaign query rule reports:

Campaign Skill Groups

- 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 about a dozen categories.

See Also

Refer to the Reporting Guide for Cisco Unified Contact Center Enterprise & Hosted for detailed information on campaign query rule reporting.

Transfer to IVR Reporting

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

Call Type Reporting

The call type is an Unified CCE concept that maps a route point dialed number to a routing script. It is also a very useful reporting object for the enterprise to describe all calls that traversed a specific routing script. The call type mostly applies to inbound traffic in the call center because the dialer does not use the routing script when placing outbound calls. However, 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.

See Also

See Chapter 7, "[Administrative/Supervisory Tasks \(page 155\)](#)," for detailed information about Outbound Option reports.

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, it is looking at the number of available agents. With Transfer to IVR campaigns, the dialer is looking 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 will only place 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 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 given 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. The dialer has a very difficult time making 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 will generally get priority in two ways. First, the campaign skill group can be configured to utilize a percentage of active agents, reserving the rest for inbound calls. And secondly, if an inbound customer is in queue, blended agents will not be 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 will normally result in a dropped reservation call, and since 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, this will normally mean that one of the campaigns will win in the race to find an available agent when agents become available.

For example, assume 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 will send 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's memory gets priority over the other requests. Over time, this can result in an imbalance of agents between skill groups

What Time Is It? Customer Time Versus System Time

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

See Also

See Chapter 6, "[Configuring Campaigns and Imports \(page 119\)](#)," for more details.

Campaign Skill Group Reporting

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

Blended Campaign Skill Group Reporting

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

See Also

See Chapter 7, "[Administrative/Supervisory Tasks \(page 155\)](#)," for detailed information about Outbound Option reports.

What Time Is It? Customer Time Versus System Time

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

Customer Time

When dialing for a campaign, Outbound Option will attempt to dial customers during configured campaign times based on customer time zone. Each campaign has two dialing zones, so that you can separate out which numbers you want to dial during business hours from the numbers you want to dial after hours or on weekends.

Note: Since Outbound Option uses area code prefixes to determine the time zone, it might dial customers using wireless phones or VoIP phones in a different time zone according to the configured area code/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 whether or not they observe daylight saving time. The import uses this to associate time zone offsets with customers, so that when the campaign is searching for records in the active query rule's

dialing list it is considering time zone offset when looking at which contacts are applicable to dial now. But this does not manage when daylight saving time changes from time zone to time zone. This change is 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 since these locations would 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 will be 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 as described in Chapter 2, "[Architectural Overview \(page 29\)](#)," 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 at least have the same time zone patches from Microsoft.

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 different types of calls.

- Fax/modem detection looks for specific tones in the media stream.
- Voice detection looks for alternate voice and silence patterns in the media stream 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.

Call Progress Analysis (Answering Machine Detection)

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 between live voice and answering machine recording and background noise. There are a few configuration parameters that you can 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 will 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.

See Also

See the "[Creating a Campaign \(page 131\)](#)" section in Chapter 6, "Configuring Campaigns and Imports," for more information.



Chapter 2

Architectural Overview

This chapter, intended for system administrators/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.

This chapter contains the following topics:

- [Unified CCE Software Overview, page 29](#)
- [Outbound Option Software Components, page 30](#)
- [Outbound Option Scripting, page 48](#)
- [Fault Recovery, page 49](#)

Unified CCE Software Overview

This section provides a high-level overview of Unified CCE software, which must be installed/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.

Outbound Option Software Components

Refer to the Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted (located on the [Cisco web site](http://www.cisco.com/en/US/products/sw/custcosw/ps1001/tsd_products_support_series_home.html) (http://www.cisco.com/en/US/products/sw/custcosw/ps1001/tsd_products_support_series_home.html)) for details about operating system and software requirements.

Unified CCE software consists of the following components:

- **CallRouter.** The component of the Central Controller that makes routing decisions. It gathers and distributes data from and to 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, this 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.

Note: If you plan to use Cisco Security Agent, which Cisco highly recommends, you must always use the default directories when installing any software on a server. You need not choose the default disk drive if an option is available (for example, C: or D:), but you must use default directories.

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 does the following:
 - Dials customers
 - Reserves agents
 - Performs call classification

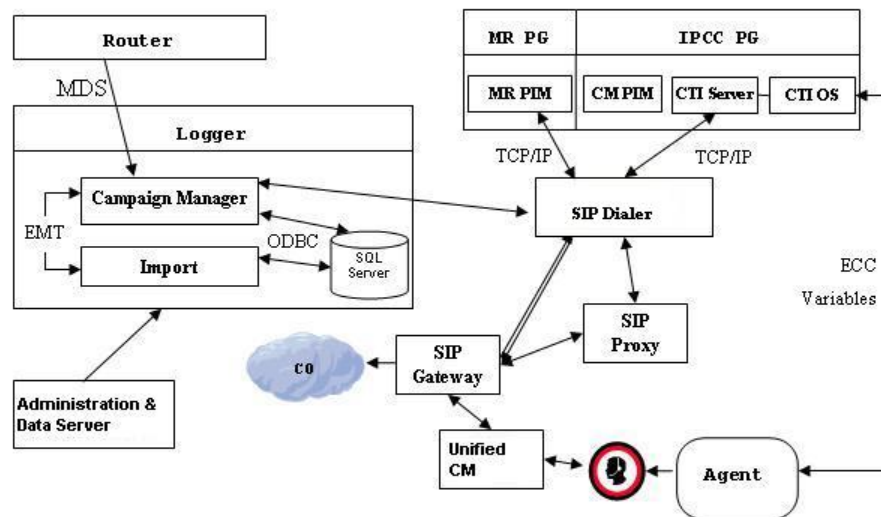
- Calculates agent availability
- Keeps outbound dialing at a level where the abandon rate is below the maximum allowed abandon rate

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

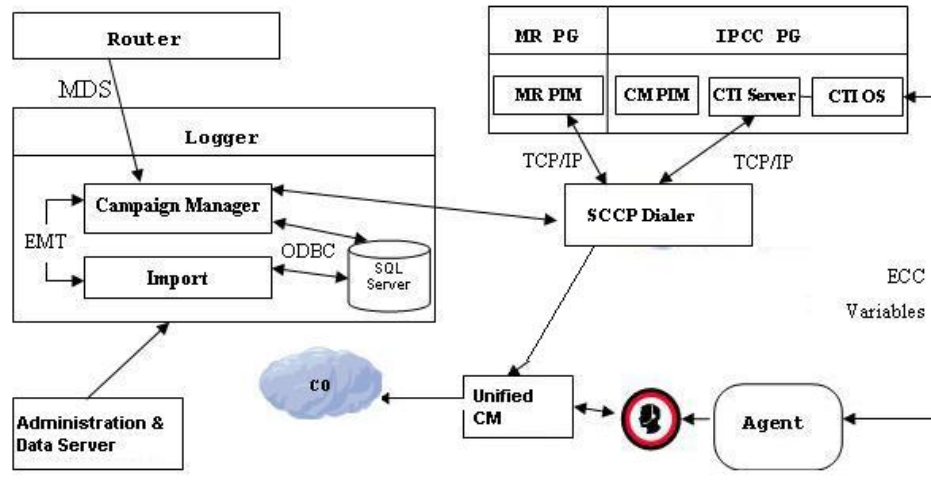
The following figure shows the component relationships within an Outbound Option deployment that uses the SIP Dialer. These relationships include the Unified CCE software components that Outbound Option uses.

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)



About the 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, "[Configuring Campaigns and Imports \(page 119\)](#)."

- 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.
- Manages the Do Not Call list and ensures no records on it are sent to the Dialers.
- Performs 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 Retry record's priority is higher than Pending record. However, the Pending record's 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

See Also

See Appendix A, "[Registry Settings \(page 173\)](#)," for detailed information about the PendingOverRetryEnabled registry setting. Refer to the Administration Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted for more information about the ICM Central Controller.

About the Outbound Option Import Component

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

The Import component imports a Contact list, which contains the phone numbers 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.

About the Outbound Option Dialer Component

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

- 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 via 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, and not by Unified CM. This 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 dial peers and Cisco 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

SIP Dialer	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 since the dialers are not synchronized, the first dialer to see the available agent will reserve it. It is not uncommon for under-utilized 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 ends up getting 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 will get 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 and/or that are dialing more lines per available agent will get a greater percentage of the available ports. For example, in a two-dialer system, if one campaign is dialing three lines per agent with six available agents, the Dialer reserves nine ports for dialing, plus three ports to reserve agents since it is sharing agent resources with its dialer peer. If multiple campaigns are active and there is a greater need than ports available, then ports will be distributed proportional to the lines per agent times the available agents for each campaign.

Each dialer checks agent availability making reservation requests based on 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(s). You can avoid this situation by scripting the reservation scripts to queue reservation calls using the same mechanism 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 there are two campaigns 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 there are only nine ports left.

Therefore, the following happens:

Outbound Option Software Components

- Campaign 1 would get 2/3 of the remaining ports, or six of the remaining ports.
- Campaign 2 would get 1/3 of the remaining ports, or three of the remaining ports.
- The Dialer will begin dialing with the ports it has, and will assign newly available ports to the campaigns once new ports become available.

Port Allocations for Campaign Modes

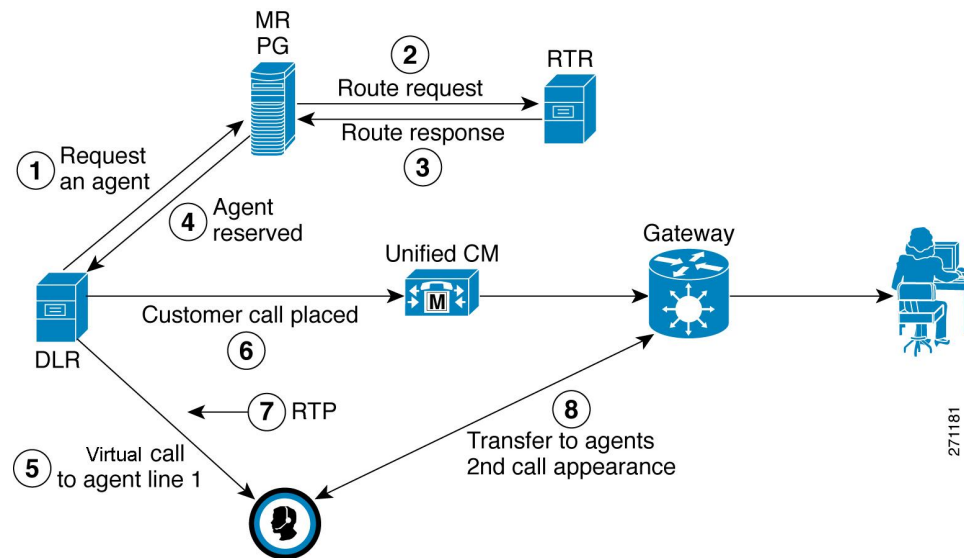
Preview, Predictive, and Progressive campaigns require at least two ports to place any calls because they require at least one port to reserve the agent and one port to dial the customer. Because campaigns are shared across active dialers that service a PG, this maximum number of active campaigns applies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



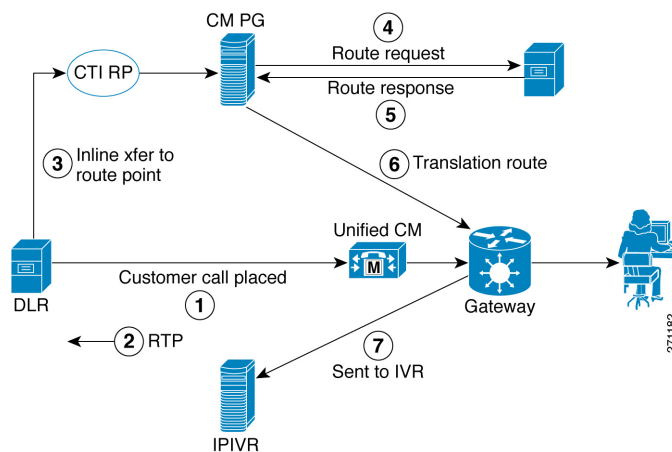
1. The Dialer process continually monitors peripheral skill group statistics from the CTI Server for an available agent. Concurrently, the Campaign Manager monitors the database for customer records and forwards active records to the Dialer. When the Dialer identifies an available agent for use in an 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 via the CTI Server and then automatically places that reservation call on hold.
6. The Dialer initiates the customer call via Unified CM and voice gateway.
7. If call progress analysis is configured, the Dialer process will analyze 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 will arrive 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 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 completes 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.

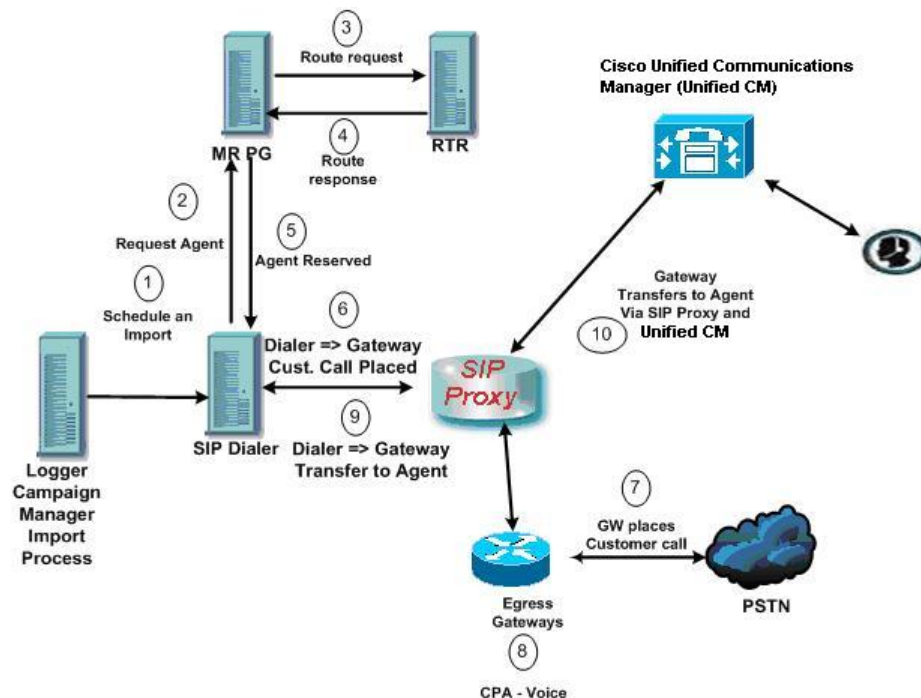
Outbound Option Software Components

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 connected to a SIP Proxy.

Figure 6: Transfer to Agent Call Flow - SIP Dialer with SIP Proxy



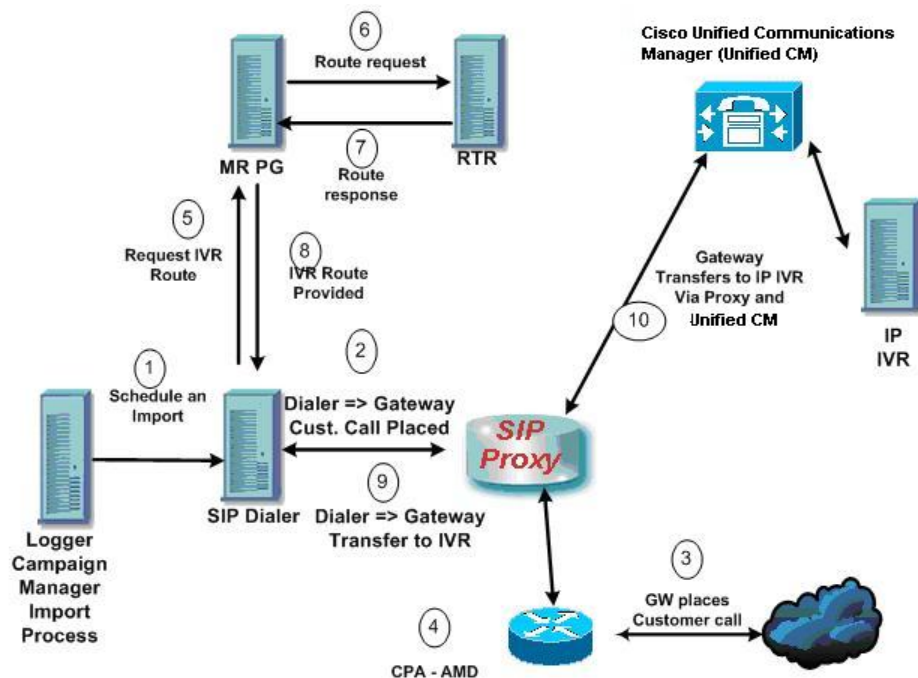
1. In this example, an unattended IVR campaign starts. Customer records are delivered to the Dialer.
2. The Dialer asks the SIP Proxy to forward an invite to an available gateway to start a call.
3. The Gateway places the call.
4. Voice Gateway does Call Progress Analysis and detects an answering machine. 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 Voice Gateway sends its invitation to the SIP Proxy, who forwards it onto CVP. The transfer is completed and media is set up between CVP and the Voice Gateway.

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



1. In this example, 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.

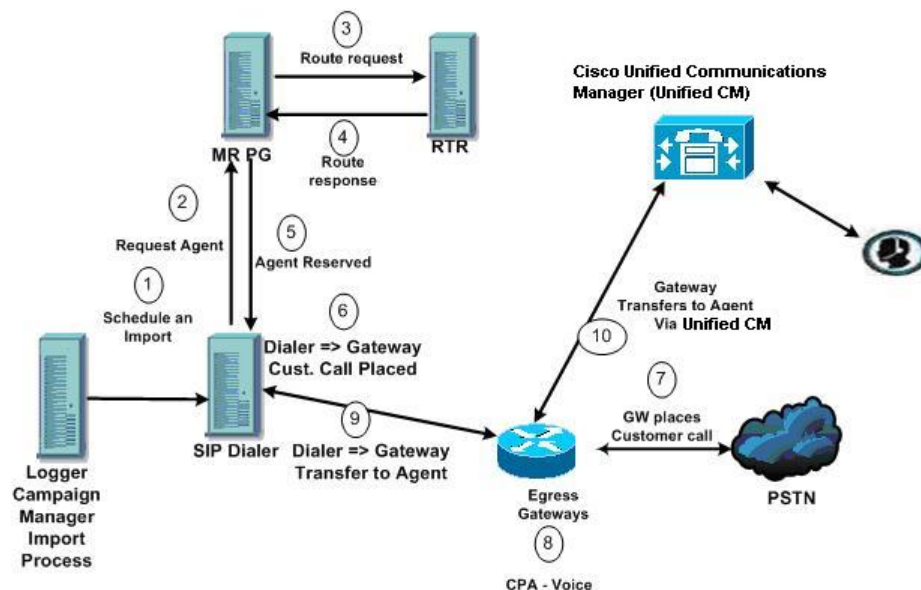
Outbound Option Software Components

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



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 Dialer is notified it is trying.
8. Call Progress Analysis is done 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 mode 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, and to provide 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 in order to allow the MR PG to be co-located. (Refer to the Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted for more details about agent PG deployments.)

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, collecting additional data, and can 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. Do not use ports allocated for the transfer to IVR feature for inbound calls. 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 might hear a fast busy or 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 & 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 (CUIC) is the standard Unified CCE reporting interface.

For details on CUIC see the [Cisco Unified Intelligence Center Documentation](http://www.cisco.com/en/US/products/ps9755/index.html) (<http://www.cisco.com/en/US/products/ps9755/index.html>)

Dialer Reporting

The Outbound Option Dialer reports provide information about the dialer platform. These predefined templates include information about performance and resource usage. They provide you with a mechanism for determining if additional dialer ports are necessary to support more outbound calls.

See Also

See Chapter 7, "[Administrative/Supervisory Tasks \(page 155\)](#)," for detailed information about the available Outbound Option reports.

Outbound Option Agent Desktops

Two desktops are available with Outbound Option: CTI Object Server (CTI OS) and the Cisco Agent Desktop (CAD).

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, utilizing CTI OS.

Refer to 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. It provides contact center agents and supervisors with powerful tools to increase agent productivity, improve customer satisfaction, and reduce contact center costs.

CAD consists of these major components:

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

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

Cisco Agent Desktop

Cisco Agent Desktop pops 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, etc.) 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 working simultaneously with the phone, CTI desktop, and

Outbound Option Software Components

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 email or fax, or initiating call-handling scripts or 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 team performance messages (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 thirty days for later review.

Cisco Desktop Administrator

Cisco Desktop Administrator allows a contact center administrator to configure how Cisco Agent Desktop looks and behaves on the agent desktop. 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.

See Also

See Chapter 3, "[Installing Outbound Option \(page 51\)](#)," for detailed desktop installation instructions.

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.

Refer to 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	<p>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 displays only if the data was available in the customer import file.</p> <p>Note: The maximum character length of this ECC variable is 30 characters.</p>
BAResponse	<p>Multi-purpose placeholder that sends data from the CTI Desktop to the Outbound Option Dialer. This variable responds to the reservation call, schedule and cancel callbacks, and changes to the callback phone number.</p> <p>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:</p> <ul style="list-style-type: none"> • 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. <p>Note: The Reject-Close and Skip-Close buttons are only available on the CTI OS desktop.</p> <p>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):</p> <ul style="list-style-type: none"> • 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 <p>For Preview modes, cancel the reservation call by clicking the Reject button.</p> <p>For Predictive mode, cancel the reservation call by clicking the Not Ready button and then hang up the reservation call.</p> <p>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:</p>

Outbound Option Software Components

ECC Variable	Description
	<ul style="list-style-type: none"> • Voice (only enable this button if one of the other buttons is pressed first since it allows an agent to classify the call as voice in case the agent classified it as something else by mistake): To reclassify the call as a voice call, set the BAResponse variable to REX_VOICE. • 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 (in case the customer does not use this number anymore): To reclassify the call as an invalid call, set the BAResponse variable to REX_INVALID. <p>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:</p> <ul style="list-style-type: none"> • Call.BAResponse="CPA_AnswerMachine" • Call.BAResponse="CPA_Voice" <p>These IF nodes route to separate External Scripts to allow for different treatment depending on whether voice or an answering machine was detected.</p>
BAStatus	<p>Contains two characters indicating the mode and direction of the Outbound Option Dialer initiated call. The first character identifies the call mode:</p> <ul style="list-style-type: none"> • 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 <p>During a reservation call, the first character is P, R, G, or A.</p> <p>When a customer call is transferred to an agent, the first character is C.</p> <p>The second character of BASTatus indicates the call direction:</p> <ul style="list-style-type: none"> • O: Outbound
BADialedListID	<p>Unique key identifying a specific customer record within the Dialing List table located in the Outbound Option private database.</p>

ECC Variable	Description
BATimeZone	<p>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 +/-#####.</p> <p>This field's first character is either a positive or negative sign, followed by 5 digits. For example:</p> <ul style="list-style-type: none"> 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 Performance

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

Dialing Mode	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
Preview	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
Preview	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
Predictive and Progressive	Initial customer calls: Dialer makes the call to a customer	No buttons are enabled, if the customer does not answer the call
Predictive and Progressive	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
Direct Preview	Initial customer calls: Agent accepts the call and calls a customer	No buttons are enabled, if the customer does not answer the call
Direct Preview	Transferred customer calls: Agent is talking to a customer	Callback, , AnsMach, Fax, and Invalid buttons are enabled

Outbound Option Scripting

Dialing Mode	Call Description	Buttons Enabled
		Note: You can revert back to voice, if you make a mistake.
Personal callback	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
Personal callback	Initial customer calls: Agent accepts the call and calls a customer	No buttons are enabled, if the customer does not answer the call
Personal callback	Transferred customer calls: Agent is talking to a customer	Callback button is enabled

Outbound Option Scripting

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

There are two types of scripts:

- [Admin scripts \(page 48\)](#)
- [Agent Reservation scripts \(page 49\)](#)

Outbound Option Admin Scripts

Outbound Option admin scripts enable, disable, or throttle campaign skill groups for outbound campaigns. This scripting is done at the skill group level to provide more flexibility when managing larger campaigns, which are distributed across multiple skill groups.

An admin script is scheduled to run at regular intervals, and can automatically close out a skill group for a specific campaign based on time or any other conditional factor that the admin script can access.

A campaign skill group is enabled by setting the campaign mode to one of the available modes (Preview, Direct Preview, Progressive or Predictive). It is disabled by the admin script by using a script node to change the campaign mode to inbound for that skill group.

This script type also provides the ability to control the percentage of agents that will be used in a campaign skill group, if this agent group is used for other campaigns or inbound calls.

Note: An admin script controls a campaign skill group. A campaign skill group can only be mapped to one campaign at a time, but a skill group can be re-used if new campaigns are added. If a campaign skill group is recycled, its admin scripting should be reused as well, or it is possible to have two admin scripts controlling the same skill group, which might cause conflicting campaign mode requests for Outbound Option.

Outbound Option Agent Reservation Scripts

Reservation scripts are used by the Dialer to reserve agents for specific outbound agent campaigns and personal callbacks. With this kind of script, the Dialer makes a route request via its Media Routing Client using the dialed number 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 will simply retry the reservation request when it sees available agents in the skill group statistics as described in the Dialer description earlier in this chapter. Queuing reservation calls is an available option with reservation scripts that distributes agents across campaigns when agents are skilled for multiple active campaigns.

Any call context that is assigned to the agent in this script will not be available in the call that the Dialer places and transfers to the agent. The reason for this behavior is that the Dialer dials multiple lines per agent and knows which customer will answer when the reservation request is made. Once the reservation call is placed, the ICM scripting does not play a part unless the call is transferred to an IVR. The call can be transferred to an IVR as part of a transfer to IVR campaign, or 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 allows the call context of the customer call to be transferred to the IVR. 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 exists on Logger Side A. There is no duplicate process of this on Logger Side B, so there is only one Campaign Manager process running 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).

Once the Campaign Manager is back online, it will update call results based on the information it receives from the Dialer. (There might be a few records that are 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 need 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 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 call is already transferred and the PG/CG does not fail during the time. If the Dialer goes down or disconnected from campaign manager and this is detected by campaign manager, the Campaign Manager marks all outstanding records with an Unknown status, and returns them to Pending status after certain time out if the Dialer is not heard from before then.

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 the records that the Dialer had with an "U" in the dialing list to indicate that it was in an unknown state. After an hour, the Campaign Manager will set the records back to a pending state ("P"), so the records can be retried. The active agent PG will continue to track and report on existing Outbound Option agent calls in the campaign's skill group, which will be reflected in the Campaign Consolidated reports.

For example, assuming two dialers are running for a given agent peripheral, then the Dialer that is still running will continue to dial records for the active campaigns, but at a reduced capacity.

If the Agent PG becomes unavailable or is reported as out of service, there is no possibility of transferring the call to an agent or even an available IVR, so pending calls in Dialer memory that have not been dialed yet will be flushed, and calls in progress will be cancelled.

If Unified CM fails, the Dialer ports will unregister and calls in progress will end. The Dialer component stays offline until the Unified CM subscriber recovers. The recommendation for this situation is that Dialer ports must not have backup Unified CM subscribers to avoid overloading any subscriber with traffic from multiple dialers.

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 would 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 was offline due to a network outage, it caches call results and updates its records to the correct call result.



Chapter 3

Installing Outbound Option - 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.

This chapter contains the following topics:

- [Before You Begin, page 51](#)
- [Where to Find Installation Procedures, page 53](#)

Before You Begin

There are a few considerations that you need to be aware of as you perform the Outbound Option installation procedures.

Optimizing Dialer Component Performance

The Outbound Option Dialer component is able to dial at a rate that can overload a Unified CM subscriber. Therefore, it is *required* that the traffic for a specific Dialer be isolated to a single Unified CM subscriber. In most cases the system cannot handle two Dialers overlapping subscribers, even as a backup.

Auto-Answer Settings

Outbound Option is flexible about how to configure auto-answer depending on what the system requirements are. The main determining factor is whether or not the business requires the Outbound Option agent to hear a zip tone. The use of agent zip tone adds almost a second onto the transfer timeline.

Outbound Option Database Sizing

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

IVR Integration

The IVR deployment determines whether you will need Unified CM MTP resources, or whether you will be able to transfer customer call context to the IVR.

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

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

A system on which you want to install Outbound Option must meet the following requirements.

- A working Unified CCE system or a working Unified SCCE system with Router, Logger, Administration & Data Server, Agent PG, an 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, you must 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:
 - Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted
 - *Cisco Unified Contact Center Enterprise (Unified CCE) Software Compatibility Guide*
- **Important:** If any service releases for the currently installed version of ICM/CCE are installed, you *must* uninstall those service releases before proceeding. Refer to the release notes for your ICM/CCE service release for uninstall instructions.

Where to Find Installation Procedures

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 [Chapter 4, Installing Outbound Option - SIP Dialer \(page 51\)](#)
- For installation procedures for a SCCP Dialer deployment, go to [Chapter 5, Installing Outbound Option - SCCP Dialer \(page 87\)](#)

Where to Find Installation Procedures



Chapter 4

Installing Outbound Option: SIP Dialer

This chapter, intended for system administrators who will perform the initial 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 Cisco Unified Communications Manager (Unified CM) configuration, and then the Outbound Option component software installation and associated database creation.

Note: Cisco Unified Border Element (CUBE) is not supported with the SIP dialer.

This chapter contains the following topics:

- [Installation Task Maps, page 55](#)
- [Unified CCE Outbound Configuration, page 57](#)
- [Configuring and Scheduling the Personal Callback Feature, page 63](#)
- [Enabling Packet Capture, page 68](#)
- [Cisco Unified Communications Manager/Gateway Configuration, page 70](#)
- [Outbound Option Software Installation Steps, page 74](#)
- [Installing the Cisco CTI Controls, page 79](#)
- [Setting Up Outbound Option in Cisco Desktop Administrator, page 81](#)
- [Verification, page 82](#)

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.

Installation Task Maps

Table 3: IPCC Enterprise Outbound Configuration Steps

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
1	Configure the IPCC PG	Configure the IPCC PG (page 90)	Configure the IPCC PG (page 90)
2	Configure the Dialer component	Configuring the Dialer Component (page 58)	Configuring the Dialer Component (page 58)
3	Configure the port map	Configuring the Port Map (page 60)	Configuring the Port Map (page 60)
4	Create a Network VRU	Creating a Network VRU (page 60)	Creating a Network VRU (page 60)
5	Configure the Media Routing PG	Configuring the Media Routing PG (MR PG) (page 61)	Configuring the Media Routing PG (MR PG) (page 61)
6	Configure a Skill Group	Configuring a Skill Group (page 61)	Configuring a Skill Group (page 61)
7	Create a Dialed Number	Creating a Dialed Number (page 62)	Creating a Dialed Number (page 62)
8	Create Translation Route To IVR	IPCC Enterprise Documentation	IPCC Enterprise Documentation
9	Configure System Options	Configuring System Options (page 63)	Configuring System Options (page 63)
10	Enable ECC Variables	Enabling ECC Variables (page 63)	Enabling ECC Variables (page 63)
11	Configure and schedule personal callbacks (optional)	Configuring and Scheduling the Personal Callback Feature (page 63)	Configuring and Scheduling the Personal Callback Feature (page 63)
12	Enable packet capture	Enabling Packet Capture (page 68)	Enabling Packet Capture (page 68)

Cisco Unified Communications Manager/Gateway Configuration

The second phase of installing Outbound Option is Unified CM and related gateway configuration.

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

Table 4: Cisco Unified Communications Manager Configuration Steps for Deployments with SIP Dialer

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
1	Disable Ring Tone for Dialer Transfer	Disabling Ringback During Transfer To Agent (page 70)	Disabling Ringback During Transfer To Agent (page 70)

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
2	Configure Voice Gateways or SIP Proxy for Outbound Option	Configuring Voice Gateways or SIP Proxy for Outbound Option (page 73)	Configuring Voice Gateways or SIP Proxy for Outbound Option (page 73)
3	Configure SIP Trunks	Configuring SIP Trunks (page 74)	Configuring SIP Trunks (page 74)

Software Installation and Database Creation

The third 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 *in the order that the steps should be performed* and provides pointers to where the tasks are discussed.

Table 5: 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	Creating the Outbound Option Private Database (page 75)	Creating the Outbound Option Private Database (page 75)
2	Install the Dialer component on the PG platform	Installing the Dialer Component (page 76)	Installing the Dialer Component (page 76)
3	Edit Dialer-related Registry values	Dialer Post-Install Registry Configuration (page 78)	Dialer Post-Install Registry Configuration (page 78)
4	Install the MR PG on the PG platform	Installing the MR PG (page 79)	Installing the MR PG (page 79)

Unified CCE Outbound Configuration

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

Configure the IPCC PG

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

-
- Step 1** In ICM Configuration Manager, open the PG Explorer tool.
 - Step 2** Click **Retrieve**, 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** checkbox.
- Step 8** Select the Default Desk Setting from the drop-down list box.
- 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 box.
- Step 11** Click **Save**.
- Step 12** Record the assigned Logical Controller ID since this number will be needed later in the procedure:
_____.
- Step 13** Record the assigned Peripheral ID since this number will be needed later in the procedure:

_____.

Configuring the Dialer Component

Perform the following steps to configure the Dialer component.

- Step 1** Make sure that all ICM services are running.
- Step 2** Open the ICM Configuration Manager.
- Step 3** Double-click the **Outbound Option - Dialer** option to display the Outbound Option Dialer configuration window.
- Step 4** Click the **Retrieve** button.
- Step 5** Click the **Add** button to add a new Dialer.
- Step 6** Enter the following information in the Dialer General Tab fields.

Table 6:

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.

Field	Description
	Note: When you install the Dialer component (see Installing the Dialer Component (page 76)), you must enter the Dialer Name in Peripheral Gateway Setup exactly as you enter it on the Dialer General Tab. Otherwise, the Dialer will not be able to register with Campaign Manager.
Computer Name (grayed out for SIP Dialer)	Grayed out and not applicable for SIP Dialer.
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 dropdown menu and not editable.
Dialer Type	Select SIP (Session Initiation 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.
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 that you want 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 10 calls per second for SIP 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**.

Configuring the 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. Each configured port represents a Dialer phone device on Unified CM.

Note:

- Unlike the SCCP dialer, you need not configure these ports on the 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.
 - When selecting extension numbers for Dialer ports, be sure to check the following places to make sure existing numbers are not being used: phone numbers in Unified CM and dial numbers in the Device Target Explorer tool.
-

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

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

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 display on the Port Map Selection tab.

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

Creating a Network VRU

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

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: Refer to the *ICM Configuration Guide for Cisco Unified ICM Enterprise* for detailed information about the ICM Configuration Manager tools.

Configuring the Media Routing PG (MR PG)

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

- 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** Select the **Cisco_Voice** option from the **Default media routing domain** drop-down list box.
- Step 10** On the Advanced tab, select the **Network VRU** that you created during IPCC installation from the drop-down list box.
- Step 11** Click **Save**.
- Step 12** Record the assigned Logical Controller ID since this number will be needed later in the procedure:
_____.
- Step 13** Record the assigned Peripheral ID since this number will be needed later in the procedure:
_____.
-

Configuring a Skill Group

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

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

- Step 2** Make sure the IPCC PIM created in the section [Configure the IPCC PG \(page 57\)](#) displays 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** checkbox.
- Step 8** Click **Add Route**.
- Step 9** Enter a name for the new route (any name is allowed).
- Step 10** Click **Save**.
-

Creating a Dialed Number

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

- 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 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, 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.

Configuring System Options

Use the Outbound Option System Options component in the ICM Configuration Manager to define contact dialing time ranges that will 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.

-
- Step 1** In ICM Configuration Manager, open the Outbound Option System Options component.
 - Step 2** Click the **General Options** tab page to define the total dialing time range that all your Outbound Option campaigns will use, then click **OK**.
 - Step 3** Click the **Bulk Update** tab page to define specific dialing time ranges for telephone numbers, then click **Update All Campaigns**.
-

Enabling 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.

-
- 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**.
-

Configuring and Scheduling the Personal Callback Feature

The following sections describe how to enable and configure the Personal Callback feature, and provide information about scheduling a personal callback.

Configuring and Scheduling the Personal Callback Feature

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

How to Configure Personal Callbacks

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.

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 will be routed to the skill group DN for the callback's associated campaign, if it 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).

Name	Default Value	Description
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).
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	<p>Indicates whether personal callbacks are allowed on Saturdays:</p> <ul style="list-style-type: none"> • 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	<p>Indicates whether personal callbacks are allowed on Sundays:</p> <ul style="list-style-type: none"> • 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.

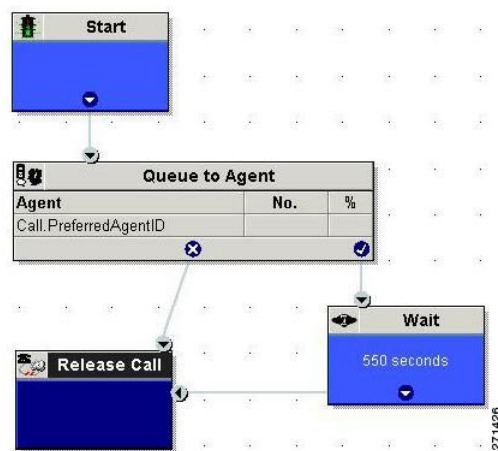
Name	Default Value	Description
PersonalCallbackCallStatusToPurge	C, M	String containing the call status types to consider when purging old personal callback records. For example, if the string contains "C,M,F,L,I," all calls with these call statuses will be purged from the database. (If the registry 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 TimeToWaitForMRIRResponse 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 in order 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 9: Personal Callback Reservation Script



Creating an Enterprise Skill Group

In order 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.

- 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, then click **Save**.
 - Step 4** In the Attributes tab, click **Add** to add the skill group(s).
 - Step 5** Click **Save**.
-

Creating 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.

Note: For Unified SCCE, you must use a Route. You cannot use an Enterprise Route to configure Personal Callback in Unified SCCE. You can skip these steps if using Unified SCCE.

- 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, then click **Add**. Select the route, then click **Save**.
 - Step 4** In the Attributes tab, add the route(s).
 - Step 5** Click **Save**.
-

Configure Queue to Agent Node

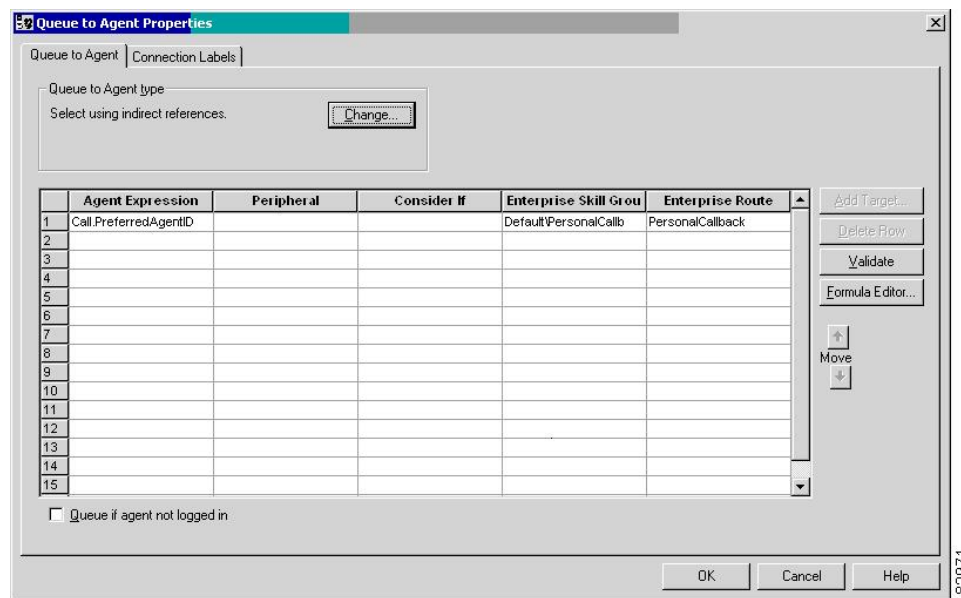
If you are using personal callbacks, perform the following steps to configure the Queue to Agent Node in your reservation script.

- Step 1** Right-click the Queue to Agent node and select **Properties**.
- Step 2** Click **Change** in the “Queue to agent type” section.

Enabling Packet Capture

- Step 3** Click **Lookup agent reference by expression**, then click **OK**.
- Step 4** Enter the agent expression **Call.PreferredAgentID**.
- Step 5** Select the enterprise skill group you created in the [Creating an Enterprise Skill Group \(page 67\)](#) section. (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 [Creating an Enterprise Route \(page 67\)](#) section.
- Step 7** Make sure 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 10: Scheduling Script



Enabling Packet Capture

In order for SIP Dialer to properly capture data, you must ensure that the SIP Dialer 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, downloadable at www.wireshark.org. (From Wireshark, click Capture to open a Capture Interfaces dialog box; the listed interface that has network packets is the active interface.)

There are two ways to change the SIP Dialer packet capture parameters to use the active interface

- From regedit.exe, change the value of the interface name option (-i) in the Dialer CaptureOptions registry key to the number of the active interface. For example, if you want to use the third interface, edit the value for -i to read **-i 3**

- 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 you want 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
/options	Specify one or more of the following <ul style="list-style-type: none"> • -i <ifname>: specify interface name to capture on • -w <filename>: capture directly to file in pcap format, file can be opened with Wireshark. • -C <file_size>: Specify 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>: Specify 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 : Print an unformatted timestamp on each dump line. • -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.
/type	Specify /type 1 to capture SIP packets only or /type 2 to capture 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 DialerCaptue
```

captures the network packets on interface 3 with capture files: capture1 – capture20. Maximum file size is 20 M

Capture files are located in the HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<customer instance>\Dialer directory.

Cisco Unified Communications Manager/Gateway Configuration

This section provides procedures for the tasks associated with the Cisco Unified Communications Manager (Unified CM) and gateway configuration.

Disabling 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).

-
- 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 pulldown menus, select the Server and Service. For Service, specify **Cisco CallManager**.
 - Step 4** Navigate to the **Send H225 User Info Message** pulldown 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 pulldown 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** pulldown menu, select **False**.
 - Step 10** Click **Update**.
-

Disabling Ringback During Transfer To Agent for SIP

The configuration for the SCCP dialer does not work for the SIP dialer because 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 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 for inbound calls to trigger the gateway to play ringback to the PSTN.
- Skip step 1 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.

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]**. You can specify a different incoming port in the SIP security profile (e.g., 5065 to the port used by normal PSTN SIP trunk (e.g., 5060).

Figure 11: SIP Security Profile

SIP Trunk Security Profile Information

Name*

Description

Device Security Mode

Incoming Transport Type*

Outgoing Transport Type

Enable Digest Authentication

Nonce Validity Time (mins)*

X.509 Subject Name

Incoming Port*

Enable Application Level Authorization

Accept Presence Subscription

Accept Out-of-Dialog REFER**

Accept Unsolicited Notification

Accept Replaces Header

Transmit Security Status

Step 2

Click **Save**.

Step 3

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

Figure 12: Create a new SIP trunk

SIP Information

Destination

Destination Address is an SRV

	Destination Address	Destination Address IPv6
1*	<input type="text" value="1.1.1.1"/>	<input type="text"/>

MTP Preferred Originating Codec*

Presence Group*

SIP Trunk Security Profile*

Step 4

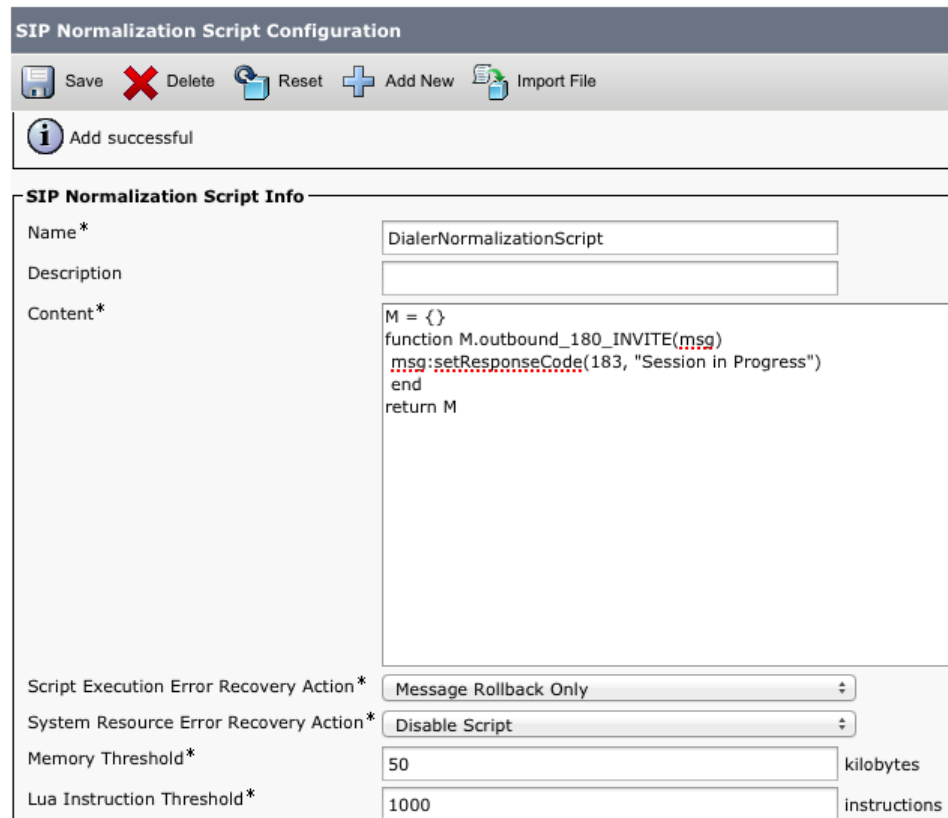
Click **Save**.

Step 5 Click **Reset**.

Step 6 In **Communications Manager GUI -> Devices -> Device Settings -> SIP Normalization Scripts -> [Create New]**, enter the following SIP normalization script into the content field. Leave everything else as default value.

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

Figure 13: Add Normalization Script



SIP Normalization Script Configuration

Save Delete Reset Add New Import File

Add successful

SIP Normalization Script Info

Name* DialerNormalizationScript

Description

Content*

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

Script Execution Error Recovery Action* Message Rollback Only

System Resource Error Recovery Action* Disable Script

Memory Threshold* 50 kilobytes

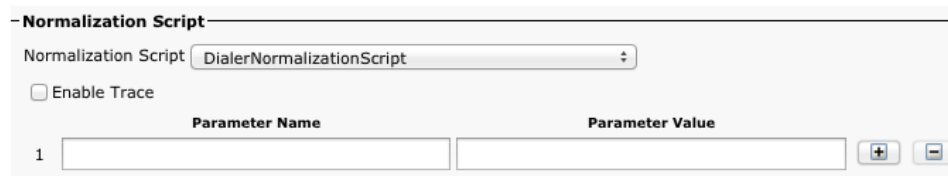
Lua Instruction Threshold* 1000 instructions

Step 7 Click **Save**.

Step 8 Click **Reset**.

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

Figure 14: Associate Script with Trunk



- Normalization Script

Normalization Script DialerNormalizationScript

Enable Trace

	Parameter Name	Parameter Value
1		

+ -

Step 10 Click **Save**.

Step 11 Click **Reset**.

Configuring Voice Gateways or SIP Proxy for Outbound Option

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

- The SIP Dialer is connected to a SIP Proxy such as Cisco Unified SIP Proxy (CUSP). 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 gateways; 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.

You specify which configuration you are using when you install the Dialer component.

Note: Outbound Option SIP Dialer is compatible only with IOS Release 15.1(x)T.

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 set in a certain manner:

- 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, disabled **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 required "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**.

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, to 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://cisco.com/en/US/products/ps10140/tsd_products_support_model_home.html (http://cisco.com/en/US/products/ps10140/tsd_products_support_model_home.html)

Configuring SIP Trunks

Unified CM is connected to the voice gateway or the SIP Proxy by by SIP Trunks, which you must configure on Unified CM. Configure these trunks as follows:

Step 1

If: You are using a SIP Proxy

Then: 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). 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

Then: 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).

Refer to 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 Call Manager Publisher. Doing this ensures that calls will go to the agent if a Subscriber node fails over. See a configuration example below:

```
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 associated with installing Outbound Option and related components.

Note: Important: Before you perform the installation procedures in this section, you must stop the Router, Logger, AW, and Agent PGs in ICM Service Control. You must initially create the

Outbound Option database using the ICMDBA tool, and then check the “enable Outbound Option” check box in the Logger setup.

Creating the Outbound Option Private Database

Before you use Outbound Option on Unified CCE, you need to 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.

-
- Step 1** Collect the following information:
- What is the size, in bytes, of each customer record in the import file? If it 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 are usually overwrite imports: Do not change record count
 - If imports are usually append imports: RecordCount = total number of rows that will be kept in a customer table at any one time
 - $\text{contact-table-size} = \text{RecordSize} * \text{RecordCount} * 1.18$
- Step 3** Estimate the dialing list table size using one of the following formulas:
- If imports are usually overwrite imports: RecordCount = number of rows imported * 1.5 (50% more rows will be inserted into the dialing list than imported)
 - If imports are usually append imports: RecordCount = total number of rows that will be kept in all customer table at any one time * 1.5
 - $\text{dialing-list-table-size} = \text{rows in dialing list} * 128 \text{ bytes} * 4.63$
- Step 4** Calculate the database size using this formula: $\text{contact-table-size} + \text{dialing-list-table-size}$.
- Step 5** Start ICMDBA by entering **ICMdba** in Microsoft Windows’ Run dialog box or command window.
- Step 6** Click 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 displays.

Outbound Option Software Installation Steps

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, then click **Create**. Click **Start**.

If necessary, you can later 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. Using triggers in the outbound database is not allowed. Triggers for the dialing lists or personal callback list should not be added or modified. The Dialer_Detail table in the HDS has the information required by custom applications. Extract that information from the HDS to a separate server where the custom application can process the data without impacting the HDS.

Upgrading 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 to Release 8.5(1). Otherwise, Campaign Manger will not start, and an alarm is triggered to indicate an incorrect private database version. See the Upgrade Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted for instructions on running EDMT.

Installing the Dialer Component

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

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. This sets 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: Once you create a Dialer, you cannot change the **Dialer Type**. To switch Dialer types, you must 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.
- For **SIP Server Type**, select either Cisco Voice Gateway or Cisco Unified SIP Proxy (CUSP).
- In the **SIP Server** field, enter the host name or IP address of the SIP server.
- 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 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 usually 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 to 3801.
- **Call Manager TFTP server** The host name or IP address of the CallManager TFTP server. This 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.

Edit the 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, you need to 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 doesn't exist or is invalid.

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

Dialer Post-Install Configuration

After you finish installing the Dialer component, you need to perform the following Dialer-related configuration:

- Configure the Dialer throttling on each Dialer in the system. Open ICM Configuration Manager, select Outbound Option > Dialer, 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 1 second period. If 5 calls are ready to be dialed, they will be spaced evenly over that 1 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, refer to 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. This disables the auto answer setting in the Dialer registry.

Refer to the [Configuring Auto Answer on Agent Phones \(page 103\)](#) section in this chapter for details on other options for auto answer that support agent notification of an incoming call.

Installing the MR PG

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

- 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 [Configuring the Media Routing PG \(MR PG\) \(page 61\)](#) 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 that will be 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.
-

Installing the 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.

Refer to the CTI documentation available online at <http://www.cisco.com>.

Outbound Option Integration 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 a few more CTI fields available in CTI OS (for example, call type, CampaignID, and QueryRuleID).

When installing, make sure you install the CTI OS Client and select the **CTI Toolkit SDK** and the **Win32** check boxes in order to access the CTI Toolkit Outbound Desktop (Win32) sample. (See the "[How to Install the CTI Toolkit Outbound Desktop \(Win32\) \(page 80\)](#)" section for more details.)

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

1. Rename the C:\ICM\CTIOS_bin\blendedagent_addecc.reg.txt file to **blendedagent_addecc.reg**.
2. Save the blendedagent_addecc.reg read-only file by right-clicking the file, select **Properties**, and then uncheck the Read Only check box.
3. Edit the **blendedagent_addecc.reg** file and globally change "InstanceName" to the real system instance name and save it.
4. Double-click on the blendedagent_addecc.reg file to add the Outbound Option ECC variables to CTI OS.
5. In the Node Manager, restart the CTI OS service.
6. Restart all CTI OS Desktop clients to download the new ECC variables.

Refer to 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 \(page 207\)](#) 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.)

Once 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 \(page 44\)](#)" section in Chapter 2 for a description of each ECC variable.)

How to Install the CTI Toolkit Outbound Desktop (Win32)

-
- Step 1** Install CTI OS Client and make sure the **CTI Toolkit SDK** and the **Win32** check boxes are selected.

Note: Refer to 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.
-

Setting Up 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.

Refer to 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**.

Verification

Adding the Enterprise Data Fields to the Layout List

Follow the instructions below to add the Outbound Option variables.

- 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 the **Edit** button.
- Step 3** Add the following fields to the Layout List by selecting the field from the Available Fields List, and then click the left arrow button.
- BAAccountNumber
 - BABuddyName
 - BACampaign
 - BADialedListID
 - BAResponse
 - BASTatus
 - BATimeZone
- Step 4** Click **OK**.
- Step 5** Click **Apply** to save your changes.
-

Verification

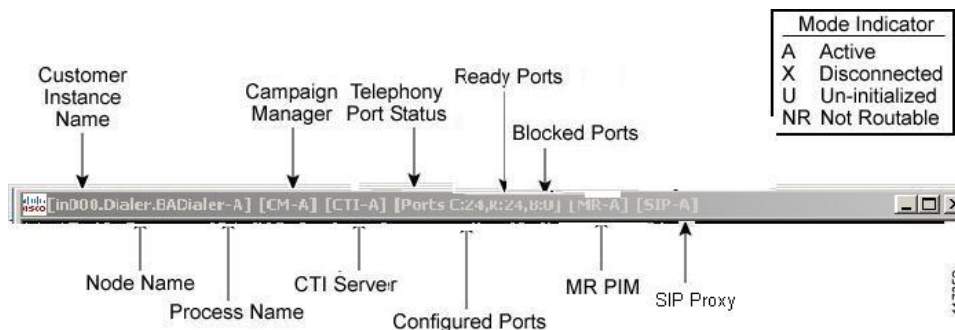
This section provides a series of verification steps to determine if the system has been installed properly. These steps are designed to pinpoint any problems that might exist in the setup before actually attempting to deploy the Dialer. If problems occur while using this product, please refer to this 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 CallManagerUnified CM using the BAT tool.

Check the Dialer Component Status Bar

The Dialer component process status bar provides a lot of details about the health of the installation even before any campaign configuration is initiated or before any call is placed.

Figure 15: SIP Dialer Dialer Component Status Bar



The first block of data 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.

The next block 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**, that means that 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, then recheck that it is the correct IP address, 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 whether 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.

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

Verification

- 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.
- The PG might not be online. Check to make sure that the PG has been enabled properly in the ICM Router setup.

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 more of a runtime activity; it is unusual for ports to be blocked.)

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

If the number of Ready ports is zero, check to see whether the IPCC PG has been started.

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**, then check the connectivity by doing the following:

- 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 that indicates that the Media Routing connection is established. Check to see if the MR PG is online by looking at its status window.

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 or **X** for disconnected.

Verify the 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 the 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 2005, perform the following steps:

1. Open the SQL Server Management Studio.
2. Expand the databases.
3. Select the *<cust instance_baA>* Outbound Option database.
4. Click the Files page.
5. In the database file row, click the button in the Autogrowth column. A Change Autogrowth dialog box appears.
6. Ensure that the Enable Autogrowth box is checked. Click **OK**
7. In the log file row, click the button in the Autogrowth column. A Change Autogrowth dialog box appears.
8. Ensure that the Enable Autogrowth box is checked. Click **OK**
9. Click the Options page.
10. On the Recovery Model pulldown menu, select **Simple**.
11. Click **OK**.

For earlier SQL Server versions, perform the following steps:

1. Open the SQL Server Enterprise Manager.
2. Right-click the *<cust instance_baA>* Outbound Option database.
3. Select the **Properties** menu option. The Properties dialog box displays.
4. Click the Data Files tab.
5. Validate that the **Automatically grow file** check box is checked.
6. Click the Transaction Log tab.
7. Validate that the **Automatically grow file** check box is checked.
8. Click the Options tab.
9. Set the Recovery Model to **Simple**.
10. Click **OK**.

Verify the 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.

Verification

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




Chapter 5

Installing Outbound Option - SCCP Dialer

This chapter, intended for system administrators who will perform the initial installation of Outbound Option, describes what you need 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 Cisco Unified Communications Manager (Unified CM) configuration, and then the Outbound Option component software installation and associated database creation.

Note: Cisco Unified Border Element (CUBE) is not supported with the SCCP dialer.

This chapter contains the following topics:

- [Installation Task Maps, page 87](#)
- [Unified CCE Outbound Configuration, page 89](#)
- [Configuring and Scheduling the Personal Callback Feature, page 96](#)
- [Cisco Unified Communications Manager/Gateway Configuration, page 101](#)
- [Outbound Option Software Installation Steps, page 103](#)
- [Installing the Cisco CTI Controls, page 108](#)
- [Setting Up Outbound Option in Cisco Desktop Administrator, page 109](#)
- [Verification, page 111](#)

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.

Installation Task Maps

Table 7: IPCC Enterprise Outbound Configuration Steps

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
1	Configure the IPCC PG	Configure the IPCC PG (page 57)	Configure the IPCC PG (page 57)
2	Configure the Dialer component	Configuring the Dialer Component (page 90)	Configuring the Dialer Component (page 90)
3	Configure the port map	Configuring the Port Map (page 92)	Configuring the Port Map (page 92)
4	Create a Network VRU	Creating a Network VRU (page 92)	Creating a Network VRU (page 92)
5	Configure the Media Routing PG	Configuring the Media Routing PG (MR PG) (page 93)	Configuring the Media Routing PG (MR PG) (page 93)
6	Configure a Skill Group	Configuring a Skill Group (page 94)	Configuring a Skill Group (page 94)
7	Create a Dialed Number	Creating a Dialed Number (page 94)	Creating a Dialed Number (page 94)
8	Create Translation Route To IVR	IPCC Enterprise Documentation	IPCC Enterprise Documentation
9	Configure System Options	Configuring System Options (page 95)	Configuring System Options (page 95)
10	Enable ECC Variables	Enabling ECC Variables (page 95)	Enabling ECC Variables (page 95)
11	Configure and schedule personal callbacks (optional)	Configuring and Scheduling the Personal Callback Feature (page 96)	Configuring and Scheduling the Personal Callback Feature (page 96)

Cisco Unified Communications Manager/Gateway Configuration

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

Table 8: Cisco Unified Communications Manager Configuration Steps for Deployments with SCCP Dialer

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
1	Configure a separate Device Pool for each Dialer	<i>Cisco Unified Communications Manager Administration Guide</i>	<i>Cisco Unified Communications Manager Administration Guide</i>
2	Configure a separate Unified Communications Manager Manager Group for each Dialer's Unified CM subscriber	<i>Cisco Unified Communications Manager Administration Guide</i>	<i>Cisco Unified Communications Manager Administration Guide</i>

Step Number	Task	IPCC Enterprise Procedure	System PG Procedure
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	Importing and Assigning Dialer Ports (page 101)	Importing and Assigning Dialer Ports (page 101)
4	Disable Tone on Hold/ Music on Hold for the Dialer	<i>Cisco Unified Communications Manager Features and Services Guide</i>	<i>Cisco Unified Communications Manager Features and Services Guide</i>
5	Disable Ring Tone for Dialer Transfer	Disabling Ringback During Transfer To Agent (page 102)	Disabling Ringback During Transfer To Agent (page 102)
6	Set Up Auto Answer on agent phone if zip tone required	Configuring Auto Answer on Agent Phones (page 103)	Configuring Auto Answer on Agent Phones (page 103)

Software Installation and Database Creation

The third 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 *in the order that the steps should be performed* and provides pointers to where the tasks are discussed.

Table 9: 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	Creating the Outbound Option Private Database (page 103)	Creating the Outbound Option Private Database (page 103)
2	Install the Dialer component on the PG platform	Installing the Dialer Component (page 105)	Installing the Dialer Component (page 105)
3	Edit Dialer-related Registry values	Dialer Post-Install Registry Configuration (page 106)	Dialer Post-Install Registry Configuration (page 106)
4	Modify JTAPI for Calls to Invalid Numbers	Modifying JTAPI for Calls to Invalid Numbers (page 106)	Modifying JTAPI for Calls to Invalid Numbers (page 106)
5	Install the MR PG on the PG platform	Installing the MR PG (page 107)	Installing the MR PG (page 107)

Unified CCE Outbound Configuration

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

Configure the IPCC PG

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

- Step 1** In ICM Configuration Manager, open the PG Explorer tool.
 - Step 2** Click **Retrieve**, 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** checkbox.
 - Step 8** Select the Default Desk Setting from the drop-down list box.
 - 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 box.
 - Step 11** Click **Save**.
 - Step 12** Record the assigned Logical Controller ID since this number will be needed later in the procedure:
_____.
 - Step 13** Record the assigned Peripheral ID since this number will be needed later in the procedure:

_____.
-

Configuring the Dialer Component

Perform the following steps to configure the Dialer component.

- Step 1** Make sure that all ICM services are running.
- Step 2** Open the ICM Configuration Manager.
- Step 3** Double-click the **Outbound Option - Dialer** option to display the Outbound Option Dialer configuration window.
- Step 4** Click the **Retrieve** button.
- Step 5** Click the **Add** button to add a new Dialer.
- Step 6** Enter the following information in the Dialer General Tab fields.

Table 10:

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 dropdown menu and 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.
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 that you want the dialer to wait before reusing a port after a hangup event. The default is one second.

Field	Description
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**.

Configuring the 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 used by the Dialer.

Note: When selecting extension numbers for Dialer ports, check the following places to make sure existing numbers are not being used: dial numbers in the Device Target Explorer tool.

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

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

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 display 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 later, during Unified CM configuration.

Creating a Network VRU

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

-
- 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: Refer to the *ICM Configuration Guide for Cisco Unified ICM Enterprise* for detailed information about the ICM Configuration Manager tools.

Configuring the Media Routing PG (MR PG)

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

- 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** Select the **Cisco_Voice** option from the **Default media routing domain** drop-down list box.
 - Step 10** On the Advanced tab, select the **Network VRU** that you created during IPCC installation from the drop-down list box
 - Step 11** Click **Save**.
 - Step 12** Record the assigned Logical Controller ID since this number will be needed later in the procedure:
_____.
 - Step 13** Record the assigned Peripheral ID since this number will be needed later in the procedure:

_____.
-

Configuring a Skill Group

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

- Step 1** In ICM Configuration Manager, open the Skill Group Explorer tool.
 - Step 2** Make sure the IPCC PIM created in the section [Configure the IPCC PG \(page 90\)](#) displays 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** checkbox.
 - Step 8** Click **Add Route**.
 - Step 9** Enter a name for the new route (any name is allowed).
 - Step 10** Click **Save**.
-

Creating a Dialed Number

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

- 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 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, 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.

Configuring System Options

Use the Outbound Option System Options component in the ICM Configuration Manager to define contact dialing time ranges that will 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.

-
- Step 1** In ICM Configuration Manager, open the Outbound Option System Options component.
- Step 2** Click the **General Options** tab page to define the total dialing time range that all your Outbound Option campaigns will use, then click **OK**.
- Step 3** Click the **Bulk Update** tab page to define specific dialing time ranges for telephone numbers, then click **Update All Campaigns**.
-

Enabling 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.

-
- 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**.
-

Configuring and Scheduling the Personal Callback Feature

The following sections describe how to enable and configure the Personal Callback feature, and provide information about scheduling a personal callback.

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

How to Configure Personal Callbacks

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.

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 will be routed to the skill group DN for the callback's associated campaign, if it 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

Name	Default Value	Description
		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).
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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 0: Personal callbacks are not allowed on Sundays and will be scheduled for the

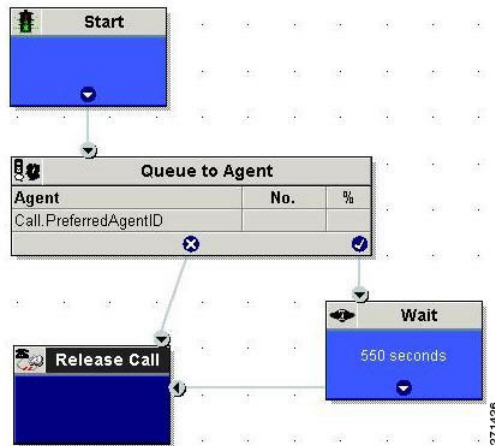
Name	Default Value	Description
		<p>next allowable day. For example, a personal callback which fails to reach the customer on a Friday will be rescheduled for the following Monday.</p> <ul style="list-style-type: none"> • 1: Personal callbacks are allowed on Sundays.
PersonalCallbackCallStatusToPurge	C, M	<p>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.)</p> <p>Note: The call status values can optionally be delimited using a comma, a hyphen, a semi-colon, or a colon.</p>
PersonalCallbackNoAnswerRingLimit	4	<p>The number of times a customer phone rings before being classified as an unanswered call (minimum value is 2; maximum value is 10).</p>

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 in order 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



Creating an Enterprise Skill Group

In order 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.

-
- 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, then click **Save**.
 - Step 4** In the Attributes tab, click **Add** to add the skill group(s).
 - Step 5** Click **Save**.
-

Creating 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.

Note: For Unified SCCE, you must use a Route. You cannot use an Enterprise Route to configure Personal Callback in Unified SCCE. You can skip these steps if using Unified SCCE.

-
- 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, then click **Add**. Select the route, then click **Save**.

Configuring and Scheduling the Personal Callback Feature

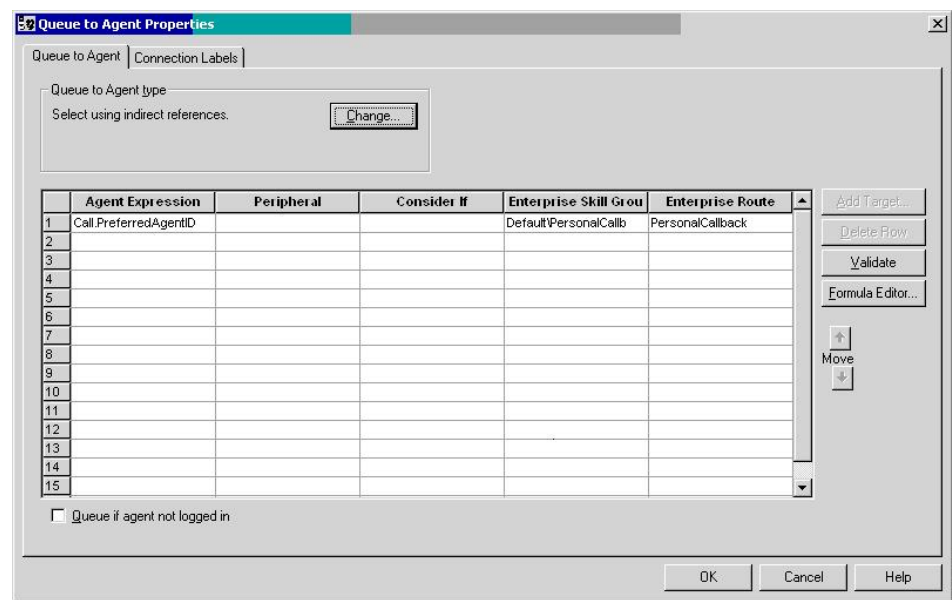
- Step 4** In the Attributes tab, add the route(s).
- Step 5** Click **Save**.

Configure Queue to Agent Node

If you are using personal callbacks, perform the following steps to configure the Queue to Agent Node in your reservation script.

- 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** Click **Lookup agent reference by expression**, then click **OK**.
- Step 4** Enter the agent expression **Call.PreferredAgentID**.
- Step 5** Select the enterprise skill group you created in the [Creating an Enterprise Skill Group \(page 67\)](#) section. (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 [Creating an Enterprise Route \(page 67\)](#) section.
- Step 7** Make sure 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



Cisco Unified Communications Manager/Gateway Configuration

This section provides procedures for the tasks associated with the Cisco Unified Communications Manager (Unified CM) and gateway configuration.

Ensure that each dialer's ports must be contained on their own UCManager subscriber, and the UCManager subscriber should not be shared with any other dialer. Since a Dialer port makes shorter calls at sustained higher call rates, it takes a larger chunk 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 will prevent the Dialer from over-utilizing its subscriber. If more than one dialer points to the same subscriber, then this dialer throttling mechanism will not be effective because it only applies to each dialer.

Importing and Assigning Dialer Ports

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

Step 1 After configuring the Dialer Port Map, click **Select All**, 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 to ensure it will work 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**, then click **Save**.

- Step 4** Select **Bulk Administration > Phones > Insert Phones**. Select the file name and the phone template name, click **Run Immediately**, then click **Submit**.
- To see the status of this job, select **Bulk Administration > Job Scheduler**, 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**, then click **Find**.
- Step 6** Click 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**.
-

Disabling Ringback During Transfer To Agent

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 and SIP only. You cannot disable Ringback for the Media Gateway Control Protocol (MGCP).

- 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 pulldown menus, select the Server and Service. For Service, specify **Cisco CallManager**.
- Step 4** Navigate to the **Send H225 User Info Message** pulldown menu. Select the **Use ANN for Ringback** option.
- Step 5** Click **Update**.
- Step 6** Repeat Steps 1 and 2.
- Step 7** On the Server and Service pulldown 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** pulldown menu, select **False**.
- Step 10** Click **Update**.
-

Configuring Auto Answer on Agent Phones

The Dialer component is preconfigured in install 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, so the agent needs to pay attention to their agent application to know when a customer call has been delivered.

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

For Mobile Agents using the nailed up connection, the Unified CM auto answer setting will 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.

If auto answer is enabled in the agent desk settings or in the Dialer component, in conjunction with the Unified CM, it can cause problems. Therefore, the recommendation is to 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 discusses the tasks associated with installing 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.

Creating the Outbound Option Private Database

Before you use Outbound Option on Unified CCE, you need to 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.

Step 1 Collect the following information:

- What is the size, in bytes, of each customer record in the import file? If it 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 are usually overwrite imports: Do not change record count
 - If imports are usually append imports: RecordCount = total number of rows that will be kept in a customer table at any one time
 - $\text{contact-table-size} = \text{RecordSize} * \text{RecordCount} * 1.18$
- Step 3** Estimate the dialing list table size using one of the following formulas:
- If imports are usually overwrite imports: RecordCount = number of rows imported * 1.5 (50% more rows will be inserted into the dialing list than imported)
 - If imports are usually append imports: RecordCount = total number of rows that will be kept in all customer table at any one time * 1.5
 - $\text{dialing-list-table-size} = \text{rows in dialing list} * 128 \text{ bytes} * 4.63$
- Step 4** Calculate the database size using this formula: $\text{contact-table-size} + \text{dialing-list-table-size}$.
- Step 5** Start ICMDBA by entering **ICMdba** in Microsoft Windows' Run dialog box or command window.
- Step 6** Click 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 displays.
- 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, then click **Create**. Click **Start**.
- If necessary, you can later 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. Using triggers in the outbound database is not allowed. Triggers for the dialing lists or personal callback list should not be added or modified. The Dialer_Detail table in the HDS has the information required by custom applications. Extract that information from the HDS to a separate server where the custom application can process the data without impacting the HDS.

Upgrading 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 to Release 8.5(1). Otherwise, Campaign Manger will not start, and an alarm is triggered to indicate an incorrect private database version. See the Upgrade Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted for instructions on running EDMT.

Installing the Dialer Component

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

-
- 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. This sets 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:** Once you create a Dialer, you cannot change the **Dialer Type**. To switch Dialer types, you must 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 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 usually 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 or 3801.
- **Call Manager TFTP server** The host name or IP address of the CallManager TFTP server. This 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.

Dialer Post-Install Registry Configuration

After you finish installing the Dialer component, you need to 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, 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 1 second period. If 5 calls are ready to be dialed, they will be spaced evenly over that 1 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, refer to 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. This disables the auto answer setting in the Dialer registry.

Refer to the [Configuring Auto Answer on Agent Phones \(page 103\)](#) section in this chapter for details on other options for auto answer that support agent notification of an incoming call.

Modifying JTAPI for Calls to Invalid Numbers

You must change the jtapi.ini file on the peripheral gateway, so that dialed calls to invalid numbers are recorded as progress codes 1, 4, 22, 28, which represent Unallocated_Number,

Send special information tone, Number changed, and Invalid Number Format, respectively, and not as No_Answer. To make this change, perform the following steps.

-
- 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.
-

Installing the MR PG

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

-
- 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 [Configuring the Media Routing PG \(MR PG\) \(page 61\)](#) 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 that will be 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.
-

Installing the 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.

Refer to the CTI documentation available online at <http://www.cisco.com>.

Outbound Option Integration 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 a few more CTI fields available in CTI OS (for example, call type, CampaignID, and QueryRuleID).

When installing, make sure you install the CTI OS Client and select the **CTI Toolkit SDK** and the **Win32** check boxes in order to access the CTI Toolkit Outbound Desktop (Win32) sample. (See the "[How to Install the CTI Toolkit Outbound Desktop \(Win32\) \(page 80\)](#)" section for more details.)

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

1. Rename the C:\ICM\CTIOS_bin\blendedagent_addecc.reg.txt file to **blendedagent_addecc.reg**.
2. Save the blendedagent_addecc.reg read-only file by right-clicking the file, select **Properties**, and then uncheck the Read Only check box.
3. Edit the **blendedagent_addecc.reg** file and globally change "InstanceName" to the real system instance name and save it.
4. Double-click on the blendedagent_addecc.reg file to add the Outbound Option ECC variables to CTI OS.

5. In the Node Manager, restart the CTI OS service.
6. Restart all CTI OS Desktop clients to download the new ECC variables.

Refer to 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 \(page 207\)](#) 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.)

Once 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 \(page 44\)](#)" section in Chapter 2 for a description of each ECC variable.)

How to Install the CTI Toolkit Outbound Desktop (Win32)

-
- Step 1** Install CTI OS Client and make sure the **CTI Toolkit SDK** and the **Win32** check boxes are selected.
- Note:** Refer to 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.
-

Setting Up 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.

Refer to 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]

Setting Up Outbound Option in Cisco Desktop Administrator

- 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**.

Adding the Enterprise Data Fields to the Layout List

Follow the instructions below to add the Outbound Option variables.

-
- 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 the **Edit** button.
- Step 3** Add the following fields to the Layout List by selecting the field from the Available Fields List, and then click the left arrow button.
- BAAccountNumber
 - BABuddyName
 - BACampaign
 - BADialedListID
 - BAResponse
 - BASTatus
 - BATimeZone
- Step 4** Click **OK**.

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

Verification

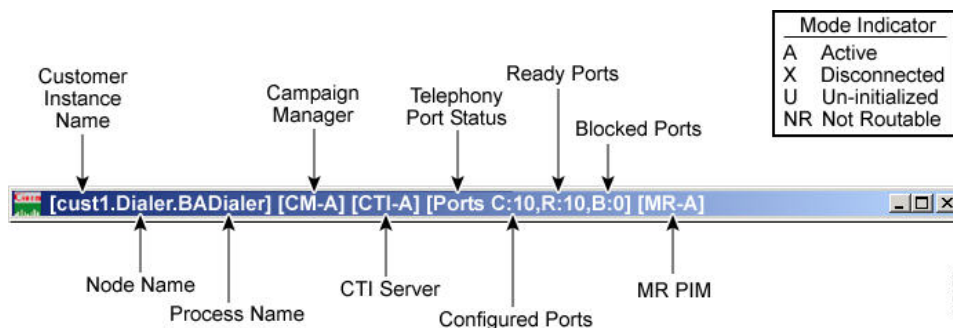
This section provides a series of verification steps to determine if the system has been installed properly. These steps are designed to pinpoint any problems that might exist in the setup before actually attempting to deploy the Dialer. If problems occur while using this product, please refer to this 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 CallManagerUnified CM using the BAT tool.

Check the Dialer Component Status Bar

The Dialer component process status bar provides a lot of details about the health of the installation even before any campaign configuration is initiated or before any call is placed.

Figure 18: Dialer Component Status Bar



The first block of data 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.

The next block 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, that means that 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, then recheck that it is the correct IP address, 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.

Verification

- 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 setup to see if the Dialer component setup contains the wrong address or port number for the side A Logger.

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 the IP address,
 - Recheck that it is the correct IP address, 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.
- The PG might not be online. Check to make sure that the PG has been enabled properly in the ICM Router setup.

The fourth block shows the state of all Dialer ports. 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 more of a runtime activity; it is unusual for ports to be blocked.)

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

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.
- Check to see whether 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.
- Check to see whether the IPCC PG has been started.
- Check to see whether 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

The final 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**, then check the connectivity by doing the following:

- 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 that indicates that the Media Routing connection is established. Check to see if the MR PG is online by looking at its status window.

Verify the 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 the Unified CM Connectivity

First, verify that each Dialer is able to 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 as follows.

How to Verify Connectivity on Unified CCE Installation

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 will be used when launching DialogicTest.

Note: The Outbound Option IP Dialer *must* be shut down before running DialogicTest.

2. From the \icm\bin directory on the Dialer, type the following to run the DialogicTest utility:

```
DialogicTest softphone <number of ports in the Dialer port map>
<CallManager name or IP address> <dialer ID> <starting channelID>
<custname>
```

Verification

where:

- The *CallManager name or IP address* indicates the Unified CM TFTP server machine.
- The *dialer ID* is the numeric identifier obtained above from the Dialer table.
- 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.
- The *custname* is the ICM customer name.

The following example displays the command syntax and the output log messages.

```

C:\WINNT\System32\cmd.exe - dialogictest softphone 1 baccmla 5004 0
D:\temp\dialogictest>dialogictest softphone 1 baccmla 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: [I] 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_U
ERSIONING
14:22:34 Trace: <SP> Port: 0 Capabilities request message received
14:22:34 Trace: Sent StationCapabilitiesResMsg
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_ERSIONING to SP_STATE
_BUTTON_TEMPLATE
14:22:34 Trace: <SP> Port: 0 Received Station Button 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]
  
```

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 would be `>d 0 51001 30`.

The following example displays the command syntax and the output log messages.

```

Select C:\WINNT\System32\cmd.exe - dialogictest softphone 1 ipccdev-ccm3a 5004 0
> d 0 51001 30
14:25:14 Trace: (SP) Dial, port: 0, phone 51001, timeout=30
Dialing Succeeded...port: 0, phone: 51001
> 14:25:14 Trace: (SP) Port: 0 Changing state from SP_STATE_READY to SP_STATE_DI
ALING_NUMBER
14:25:14 Trace: (SP) Line: 1: Changing state from SP_LINESTATE_IDLE to SP_LINE
STATE_AWAITING_DIALTONE
14:25:14 Trace: (SP) Line: 2: Changing state from SP_LINESTATE_IDLE to SP_LINE
STATE_IDLE
14:25:14 Trace: (SP) Port: 0 Received Display Text Msg: 9000
14:25:14 Trace: (SP) Port: 0: Received unhandled message from primary callgr
14:25:14 Trace: (SP) Port: 0: Received unhandled message from primary callgr
14:25:14 Trace: (SP) Port: 0 Received Receive Call State Msg - callstate=Off Ho
ok, CRN=16778296
14:25:14 Trace: (SP) Port: 0: Received unhandled message from primary callgr
14:25:14 Trace: (SP) Port: 0: Received unhandled message from primary callgr
14:25:14 Trace: (SP) Port: 0 Received Station Start Tone Msg - tone: InsideDial
Tone
14:25:14 Trace: (SP) Line: 1: Changing state from SP_LINESTATE_AWAITING_DIALTONE
to SP_LINESTATE_DIALING_NUMBER
14:25:15 Trace: (SP) Port: 0 Received Station Stop Tone Msg
14:25:15 Trace: (SP) Port: 0: Received unhandled message from primary callgr
14:25:15 Trace: (SP) Port: 0: Received unhandled message from primary callgr
14:25:15 Trace: (SP) Port: 0 Received Receive Call State Msg - callstate=Call P
roceed, CRN=16778296
14:25:15 Trace: (SP) Port: 0 Unhandled CallState message
14:25:15 Trace: (SP) Port: 0 Received Station Call Info Msg. line=1 crn=167782
96
14:25:15 Trace: (SP) Port: 0: Received unhandled message from primary callgr
14:25:15 Trace: (SP) Port: 0 Received Station Start Tone Msg - tone: AlertingTo
ne
14:25:15 Trace: (SP) Port: 0 Received Receive Call State Msg - callstate=Ring 0
ut, CRN=16778296
14:25:15 Trace: (SP) Port: 0 Unhandled CallState message
14:25:15 Trace: (SP) Port: 0: Received unhandled message from primary callgr
14:25:15 Trace: (SP) Port: 0 Received Station Call Info Msg. line=1 crn=167782
96
14:25:20 Trace: (SP) Port: 0 Received Station Stop Tone Msg
14:25:20 Trace: (SP) Port: 0 Received Station Open Receive Msg
14:25:20 Trace: (SP) Port: 0 Received Station Stop Tone Msg
14:25:20 Trace: (SP) Port: 0 Received Receive Call State Msg - callstate=Connec
ted, CRN=16778296
14:25:20 Trace: (SP) Line: 1: Changing state from SP_LINESTATE_DIALING_NUMBER to
SP_LINESTATE_CONNECTED
14:25:20 Trace: (TST) port: 0, event: [EVENT_DIALING_COMPLETE], result: [eCONN
_STATE_VOICE]
14:25:20 Trace: (SP) Port: 0 Changing state from SP_STATE_DIALING_NUMBER to SP_S
TATE_IN_CALL
14:25:20 Trace: (SP) Port: 0 Received Station Call Info Msg. line=1 crn=167782
96
14:25:20 Trace: (SP) Port: 0: Received unhandled message from primary callgr
14:25:20 Trace: (SP) Port: 0 Received Start Media Transmission Msg
14:25:30 Trace: (SP) Port: 0 Received Station Close Receive Msg

```

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](http://docwiki.cisco.com/wiki/Troubleshooting_Tips_for_Unified_CCE_8.0) (http://docwiki.cisco.com/wiki/Troubleshooting_Tips_for_Unified_CCE_8.0) for troubleshooting assistance.

Verify the 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 again 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

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.

For example, to dial station number 1234, use the following command:

```
>d 0 1234 30
```

Verification

2. Hang up this channel by typing **>h 0** and move to the next channel (channel 1) and dial the phone station again, similar to the following:

```
>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.

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 this is an 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 as it is possible to miswire this connection for a small number of ports, which creates problems in the Dialer that are difficult to find.

Verify the 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 2005, perform the following steps:

1. Open the SQL Server Management Studio.
2. Expand the databases.
3. Select the *<cust instance_baA>* Outbound Option database.
4. Click the Files page.
5. In the database file row, click the button in the Autogrowth column. A Change Autogrowth dialog box appears.
6. Ensure that the Enable Autogrowth box is checked. Click **OK**.
7. In the log file row, click the button in the Autogrowth column. A Change Autogrowth dialog box appears.
8. Ensure that the Enable Autogrowth box is checked. Click **OK**.
9. Click the Options page.
10. On the Recovery Model pulldown menu, select **Simple**.
11. Click **OK**.

For earlier SQL Server versions, perform the following steps:

1. Open the SQL Server Enterprise Manager.
2. Right-click the `<cust instance_baA>` Outbound Option database.
3. Select the **Properties** menu option. The Properties dialog box displays.
4. Click the Data Files tab.
5. Validate that the **Automatically grow file** check box is checked.
6. Click the Transaction Log tab.
7. Validate that the **Automatically grow file** check box is checked.
8. Click the Options tab.
9. Set the Recovery Model to **Simple**.
10. Click **OK**.

Verify the 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
```

Verification



Chapter 6

Configuring 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 that you need to perform in order to create an agent campaign and a transfer to IVR campaign
- Provides procedures for configuring and scheduling personal callbacks
- Gives instructions for verifying that your Outbound Option system has been configured correctly

This chapter contains the following topics:

- [Overview of the Outbound Option Configuration Process, page 120](#)
- [Understanding Dialing Modes, page 121](#)
- [Configuration Process Task Maps, page 122](#)
- [Creating Dialed Numbers, page 124](#)
- [Creating an Import Rule, page 125](#)
- [Creating a Query Rule, page 129](#)
- [Creating a Campaign, page 131](#)
- [Notes on Editing a Campaign in Progress, page 139](#)
- [Creating a Call Type, page 139](#)
- [Setting Up the Reservation Script, page 140](#)
- [Configure a Transfer to IVR Script, page 141](#)
- [Setting Up the Administrative Script, page 144](#)
- [Sample Administrative Scripts, page 147](#)
- [Mapping Scripts and Call Types and Dialed Numbers, page 149](#)
- [Single Dialer Options \(SCCP Dialer Only\), page 149](#)
- [Configuring a Translation Route for Use with SIP Dialer, page 151](#)
- [Configuring Outbound Option Multi-Tenant Customer Instances, page 152](#)

Overview of the Outbound Option Configuration Process

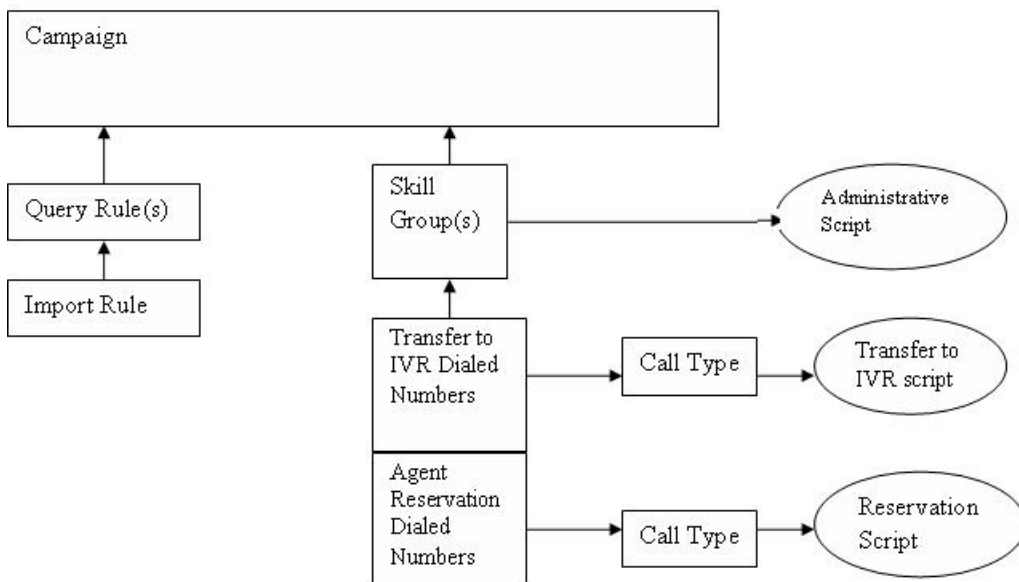
- [Configuring SIP Dialer Recording Parameters, page 153](#)
- [Verifying the DN/Script Selector Configuration, page 154](#)
- [Verifying Your Campaign Configuration, page 154](#)

Overview of the Outbound Option Configuration Process

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 that the campaign will use
- 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 DN's 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.



The sections [Agent Campaign Tasks \(page 122\)](#) and [Transfer to IVR Campaign Tasks \(page 123\)](#) provide a complete list of tasks associated with creating those campaigns.

Understanding Dialing Modes

Outbound Option supports three different types of outbound dialing modes:

- [Predictive Dialing \(page 121\)](#): 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 \(page 121\)](#): The agent gets to preview customer information on their desktop, and can choose to contact the customer, skip to another customer, or reject the call.
- [Progressive Dialing \(page 122\)](#): The administrator can specify 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 the agent a reservation call.

Predictive Dialing

A Predictive Dialer is designed to increase the resource utilization in any 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 desk. 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 given point in time may vary for your Dialer.

Preview Dialing

Preview dialing reserves an agent prior to initiating an outbound call and presents the agent with a screen pop. The agent may then Accept, Skip, or Reject the call with the following results:

Configuration Process Task Maps

- If the agent "Accepts" the call, the customer will be dialed and transferred to the agent.
- If the agent "Skips" the call, the agent will be presented with another customer call.
- If the agent "Skips-Closes" the call, the record is closed so it will not be called again, and the agent is presented with another customer call.
- If the agent "Rejects" the call, the agent will be "released." At this point, the system might deliver the agent another Preview outbound call or a new inbound call.
- If the agent "Rejects-Closes" the call, the agent will be "released" and the record is closed so it will not be called again. At this point, the system might deliver the agent another Preview outbound call or a new inbound call.

Direct Preview Dialing

This mode is similar to the Preview mode, except that the call is automatically placed by the Dialer from the agent's phone once the agent accepts. As the call is initiated from the agent's phone, the agent hears the ringing so there will be zero delay when the customer answers. But the agent will have to deal with answering machine and other results that the Dialer's CPA would normally handle for other campaign dialing modes.

Note:

- The Call Progress Analysis (CPA) and the transfer to IVR features are not available while using Direct Preview Dialing mode.
- In Direct Preview mode there will be no zip tone

Progressive Dialing

Progressive Dialing is similar to [Predictive Dialing \(page 121\)](#). The only difference is that in this 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.

Agent Campaign Tasks

The following table lists the steps that you need to perform in order 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	Creating Dialed Numbers (page 124)
2	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.	Creating Dialed Numbers (page 124)
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.	Creating Dialed Numbers (page 124)
4	Configure an Import Rule using the Outbound Option Import Rule tool	Creating an Import Rule (page 125)
5	Configure Query Rule(s) using the Outbound Option Query Rule tool	Creating a Query Rule (page 129)
6	Configure a Campaign using the Outbound Option Import Rule tool	Creating a Campaign (page 131)
7	Configure Call Type using IPCC Call Type tool	Creating a Call Type (page 139)
8	Configure Reservation Script using Script Editor	Setting Up the Reservation Script (page 140)
9	Configure transfer to IVR scripts for AMD and Abandon to IVR using Script Editor	Setting up Outbound Transfer to IVR (page 141)
10	Map Scripts to Call Types and DNs using AW Script Editor	Mapping Scripts and Call Types and Dialed Numbers (page 149)
11	Configure Administrative Script using Script Editor	Setting up the Administrative Script (page 144)
12 (SCCP Dialer only)	Configure CTI Route Points for Abandon and AMD to IVR	<i>Cisco Unified Communications Manager Administration Guide</i>

Transfer to IVR Campaign Tasks

The following table lists the steps that you need to perform in order 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.	Creating Dialed Numbers (page 124)
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.	Creating Dialed Numbers (page 124)
3	Configure an Import Rule using the Outbound Option Import Rule tool	Creating an Import Rule (page 125)

Configuration Process Task Maps

Step Number	Task	Where Discussed
4	Configure Query Rule(s) using the Outbound Option Query Rule tool	Creating a Query Rule (page 129)
5	Configure a Campaign using the Outbound Option Campaign tool	Creating a Campaign (page 131)
6	Configure Call Type using IPCC Call Type tool	Creating a Call Type (page 139)
7	Configure transfer to IVR script using Script Editor	Setting up Outbound Transfer to IVR (page 141)
8	Map Scripts to Call Types and DN's using AW Script Editor	Mapping Scripts and Call Types and Dialed Numbers (page 149)
9	Configure Administrative Script using Script Editor	Setting up the Administrative Script (page 144)
10 (SCCP Dialer only)	Configure CTI Route Points for Abandon and AMD to IVR	<i>Cisco Unified Communications Manager Administration Guide</i>

Creating Dialed Numbers

Before you configure an Outbound Option campaign, you need to create the dialed numbers that you will 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, you need to create all three dialed numbers. For transfer to IVR campaigns, you need to create the dialed numbers for the **After AMD and for transfer to IVR** field.

Perform the following steps to create these dialed numbers.

-
- Step 1** In ICM Configuration Manager, double-click the **Dialed Number/Script Selector List** tool.
- Step 2** In the **Routing Client** pulldown 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:
- For Routing Client, , select the routing client listed in the preceding table.
 - For Media Routing Domain, select **Cisco_Voice**.
 - 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.
-

Creating an Import Rule

The Outbound Option Import Rule component is where you define the import format of the user contact list (fixed length or comma-delimited fields), and the information to be found in the fields of the file, such as the first and last names of your contacts.

There are two types of import rules in Outbound Option:

- Contact - an import rule that you create for a specific campaign.
- Do Not Call - an import rule, created once and applicable to all campaigns, that provides do not call information to all campaigns

After you have imported your contact list into Unified ICM software using the Outbound Option Import process, the Import Rule component defines how Outbound Option:

- Locates the imported file and defines the name of the contact table into which the import places the contact information
- Recognizes and defines the contact list data in the imported file
- Schedules updates for your calling lists imports

Before you start creating an import rule, you need to know the location where you want Outbound Option to look for the import list.

When attempting to import customer data files from a computer that is running Cisco Security Agent (CSA), please note the following:

- Make sure the path to the file begins with "<drive>\customer\import" or "<file://\computer\customer\import>\computer\customer\import." This path rule does not apply if the import file is located on the same computer as the import process.

Creating an Import Rule

- Make sure that the import process user has network and directory read/write access to the "customer" directory as well as the "import" directory.
- CSA requires file share for import to work, but the shared folder must not be the desktop or any sensitive Operating System folder.

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.

Perform the following steps to create an import rule.

1. In ICM Configuration Manager, double-click the Outbound Option Import Rule component.
2. Click the **Retrieve** button.
3. Click the **Add** button at the bottom of the list box area of the window.
4. [Specify information on the Import Rule General Tab Page \(page 126\).](#)
5. [Specify information on the Import Rule Definition Tab Page \(page 127\).](#)
6. [Specify information on the Import Rule Schedule Tab Page \(page 129\).](#)
7. Click **Save**.

When you import records:

- 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. You must purge the dialing list manually to maintain and ensure effective query performance.

Note: If you edit an import rule, changes made 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. Examples of import names might be "Premium Calling List for XYZ", or "Do Not Call List for XYZ." The default setting is "DoNotCall."
Enable option	This option enables or disables importing for the import rule.
Import type	Choose either Contact or Do_Not_Call from the drop-down list.

Field	Description
	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 Chapter 5 of the Outbound Option Guide for Cisco Unified Contact Center Enterprise & Hosted.
Target table name (required)	<p>If you selected Do_Not_Call as the import type, the Import Rule component automatically assigns it to the DoNotCall table.</p> <p>If you selected Contact as the import type you can enter any name for the target table within the following restrictions:</p> <p>The name must be a 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 contain no spaces.</p> <p>Note: When editing an existing import rule, changing the target table name creates a new table, but does <i>not</i> remove the old table. The old table remains in the database, but will not be used by the system.</p>
Import file path (required)	Enter the directory path name for the import file. The maximum number of characters allowed is 255. Click the Browse button to the right of the edit field if you want to browse for the location.
Import data type	Select either the Comma delimited or the Fixed length setting, to indicate if the file is comma-delimited or if it uses fixed-length columns to separate fields.
Overwrite table	<p>When enabled, you can overwrite the current import with a new import.</p> <p>When disabled, new import data is appended to the existing data. Note that you cannot append a new field to existing import data. Also, you can not modify or remove existing fields.</p> <p>Note: Do not perform a file import with the Overwrite table option while a campaign is in progress. If you do so the Dialer becomes unable to access records, because a database operation is in progress on the Dialing List table.</p>

Once you have specified this information, click **Add**.

Import Rule Definition Tab Page

Specify the following information on the Import Rule Definition Tab Page.

Field	Description
Standard column type	<p>Choose a column type to use for this data field in the import rule. The following column types are allowed:</p> <ul style="list-style-type: none"> AccountNumber

Creating an Import Rule

Field	Description
	<ul style="list-style-type: none"> • Custom • FirstName • LastName • Phone01 through Phone10 (allowed data: digits 0-9, pound sign (#), and asterisk (*)) • PhoneExt01 through PhoneExt10 (allowed data: digits 0-9) . This column is for future use only, it is not currently used. <p>Outbound Option removes any single quotes present in the Import file.</p> <p>Outbound Option does not use any of the Custom columns. They are only available for use in the query rule select clause for business specific filtering into different dialing lists. This data is not sent to the agent desktop.</p>
Field name	The name that you assign to this field. The maximum length is 32 characters.
Type	<p>This drop-down list is greyed out 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:</p> <ul style="list-style-type: none"> • Custom CHAR (up to 255 characters) • Custom VARCHAR (up to 255 characters) • Custom DATETIME (data followed by time, US format) • Custom READ (up to 4 characters, including the decimal point) • Custom INT (up to 255 characters, decimal point counts as one character) <p>The default is the VARCHAR data type.</p> <p>Note that Outbound Option allows only one column of each of these types per import rule.</p> <p>Because Outbound Option does not use any data that appears in a column labeled Custom, you can have multiple columns that use the Custom column type.</p>
Field length (1-255)	The number of characters that this field uses to store data. The default is 1.
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.

Field	Description
	If you disable this option, you must have data. The default is Disabled.

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 if you want the import rule process to execute on the same day(s) each week. Enable the day(s) 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 if you want 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, for example the 31st day of April, the import does not execute on that month.
Start import when file is present option	Enable this option if you want to import a file as soon as it is copied into the specified location. Note: 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 if the import file has become available. Once 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 file name after the import is complete.
Delete File After Import	When selected, specifies that the import file be deleted after the import is complete.

Creating 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. In other words, it defines, based on SQL queries to the database, how the contact records from the Outbound Option database are selected to be inserted in the dialing list.

Note: Before you create a query rule, you *must* first have a configured import rule.

Perform the following steps to create a query rule.

Creating an Import Rule

-
- Step 1** In ICM Configuration Manager, open the Outbound Option Query Rule component.
- Step 2** Click the **Retrieve** button.
- Step 3** Click the **Add** button at the bottom of the list box area of the window.
- Step 4** Specify the following information on the 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 upper-case or lower-case. The name must begin with an alpha-numeric character, and must not contain spaces.
Enable option	If you want this query rule to be available for all campaigns, enable this option. If you do not want this query rule to be available for all campaigns, disable this option. The default is Enabled.
Import	Select the name of the import rule that you want 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.
Description	Optionally, enter a description of this query rule. The description appears only on this tab page.
Rule Clause (required)	To create an SQL rule clause for selecting records, select items from the Column Name, Operators, and SQL Functions columns on this tab page, then click Paste to enter them in the Rule Clause area of the tab page. After you have created the rule clause, click the Validate Rule Clause button to perform SQL syntax checks on everything in the Rule Clause area of the tab page. If SQL returns any syntax warning or error messages, you can correct any problems before clicking the Save button 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**.
-

Creating a Campaign

The Outbound Option Campaign component is where you define or modify the settings that apply to a campaign. You can also add or delete a campaign through this component.

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

- At least one skill group
- At least one query rule
- The following dialed numbers:
 - A dialed number for accessing the agent reservation script (not required for transfer to IVR campaigns)
 - A dialed number for transferring the call to the IVR for AMD or transfer to IVR campaign treatment
 - 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.

1. In ICM Configuration Manager, open the Outbound Option Campaign component.
2. Click the **Retrieve** button.
3. Click the **Add** button at the bottom of the list box area of the window.
4. [Specify information on the Campaign General Tab Page \(page 132\).](#)
5. [Specify information on the Campaign Purpose Tab Page \(page 134\).](#)
6. [Specify information on the Query Rule Selection Tab Page \(page 136\).](#)
7. [Specify information on the Skill Group Selection Tab Page \(page 137\).](#)
8. [Specify information on the Call Target Tab Page \(page 138\).](#)
9. 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 alpha-numeric characters, periods (.), and underscores (_). Alphabetic characters can be upper- or lower-case. The name must begin with an alpha-numeric character.
Description	Optional description for the campaign; maximum 255 characters.
Enable option	This option enables or disables the campaign.
Power Dialing	
Lines per agent (required)	<p>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.</p> <p>Default = 1.5 (Three lines for every two agents.)</p> <p>Allowable Range = 1 - 100</p> <p>This value does the following in the Outbound Option dialing modes:</p> <ul style="list-style-type: none"> • 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)	<p>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.</p> <p>Default = 2</p> <p>Range = 1 - 100</p>
Abandon calls limit (1-100)	<p>This option only applies to Predictive campaigns.</p> <p>Enable this option to set an Abandon calls limit (1-100) percentage of abandoned calls in this campaign. (A call is considered abandoned if a person answers it and the telemarketer does not connect the call to a sales representative within two seconds of the person's completed greeting.) The granularity is to one tenth of a percent. Default = 3.0.</p> <p>If the option is disabled, then the campaign will dial without regard to the abandon limit.</p>
Advanced	Clicking the Advanced button brings up 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.

Field	Description
	<ul style="list-style-type: none"> • Voice Calls Per Adjustment A count of the number of live voice connects that must occur before the Dialer will make 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)	<p>Defines the number of times the software will allow a dialed telephone number to ring. Enter the maximum number of rings you want to allow. The length of one ring is specified at the dialer level in the TimeToRingCustomer registry entry. Default = 4.</p> <p>Note: The default behavior is to allow calls to ring for 32 seconds (No answer ring limit - 4, TimeToRingCustomer key - 8 secs). Assuming the default 8 second TimeToRingCustomer key is used, setting the "No answer ring limit" to the minimum 2 rings will meet 15 second ring time requirements.</p>
Maximum attempts (1 - 100)	<p>Defines the maximum number of attempts, including callbacks and retries, that will be made for callbacks. Enter the maximum number of attempts. Maximum attempts = Zone 1 attempts + Zone 2 attempts. Default = 3.</p> <p>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.</p>
Abandoned call wait time (0 - 10) (required)	<p>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 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.</p>
Retries Section	
No answer delay	<p>Defines (in minutes) how often the software waits before calling back a no-answer call. Enter the number of minutes. Default = 60.</p>
Busy signal delay	<p>Defines (in minutes) how long the software waits before calling back a busy telephone number. Enter the number of minutes. Default = 60.</p>
Customer abandoned delay	<p>If a customer abandons a call, the time (delay in minutes) when the dialer should call the customer back. Default = 30.</p>
Dialer abandoned delay	<p>If the dialer abandons a call, the time (delay in minutes) when the dialer should call the customer back. Default = 60.</p>

Creating a Campaign

Field	Description
Answering machine delay	If the call was answered by an answering machine, the time (delay in minutes) when the dialer should call the customer 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	
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 same agent that initiated the callback to the customer at the time of the callback.
Reschedule callback mode (required)	Determines how Outbound Option should handle the personal callback if the agent is not available: <ul style="list-style-type: none"> • Use the alternate VDN. • 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. You can enter a maximum of 15 digits in this field.

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 associated with a specific skill group to an agent.
Enable IP AMD	If this option is enabled, when the Dialer detects an answering machine, it does one of the following actions. (Default = Enabled.) Selecting this option enables answering machine detection for the IP dialers in the system only. <ul style="list-style-type: none"> • Abandon Call (default) Drops the call, marks it as an answering machine, and schedules a retry.

Field	Description
	<ul style="list-style-type: none"> • Transfer to Agent Transfers the call to an agent. • Transfer to IVR Route Point Transfers the call to play a pre-recorded message. (The IVR route point is configured in the Skill Group Selection dialog box in the Campaign Skill Group Selection tab.) • Terminate Tone Detect Transfers the call after detecting the answering machine beep.
Call Progress Analysis	<p>If this option is disabled, all Call Progress Analysis for all calls made from this dialer will be disabled on a campaign-by-campaign basis, including voice detection, fax/modem detection, and answering machine detection. (Default = Disabled.)</p> <p>If Call Progress Analysis is enabled, you can specify one of the following additional parameters:</p> <ul style="list-style-type: none"> • Record CPA The Gateway provides a media stream and the Dialer records .wav files. <p>Note: 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.</p>
Transfer to IVR Campaign	
Transfer to IVR Campaign	<p>This type of campaign uses an outbound mode that 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 IVR.</p>
Enable IP AMD	<p>If this option is enabled, when the dialer detects an answering machine, it does one of the following actions. (Default = Enabled.) Selecting this option enables answering machine detection for the IP dialers in the system only.</p> <ul style="list-style-type: none"> • 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 pre-recorded message. (The IVR route point is configured in the Skill Group Selection dialog box in the Campaign Skill Group Selection tab.)

Creating a Campaign

Field	Description
	<ul style="list-style-type: none"> • Terminate Tone Detect <p>Transfers the call after detecting the answering machine beep.</p>
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 will account for longer pauses in answering machine greetings. Default is 375.
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 will categorize that answering machine call as voice. If this is a call to a business where the operator has a longer scripted greeting, a shorter value here will categorize 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 in milliseconds before identifying a problem analysis as dead air/ low volume. This could also be due to choppy voice. Default is 3000.
Maximum Termination Tone Analysis (1000-60000)	Maximum milliseconds the dialer will analyze 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 will not be transferred or dropped until this time out occurs. Default is 15000.
Reset to System Default	Resets all items in the Call Progress Analysis (CPA) Parameters section to the system defaults.

Query Rule Selection Tab Page

Specify the following information on the Query Rule Selection Tab Page.

Field	Description
Query rule name	The name of the query rule.
Enable	Enables the query rule for this campaign. Default is enabled.
Start time	The time when a query rule can begin to execute during this campaign; for example, 6:00 P.M. This time is the local time at the ICM Central Controller.
End time	The time when a query rule must stop executing during this campaign, for example, 8:00 P.M. This time is the local time at the ICM Central Controller.
Penetration (0-400):	The maximum number of people this campaign tries to contact (not necessarily talk to) 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 is 100.
Duration (0-120):	The total amount of time that this query rule can run during this campaign; for example, 30 minutes. When the query rule reaches the time limit, it stops

Field	Description
	executing and the next query rule in the list can begin to execute. Default is 30.
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 executing. Default is 30.

Skill Group Selection Tab Page

Specify the following information on the Skill Group Selection Tab Page.

Field	Description
Skill Group Name	The name of the skill group assigned to this campaign.
Overflow Agents per Dialer (0-100)	This setting is sometimes useful for Progressive campaigns if you want to reduce the abandon rate at the cost of increasing agent idle times. It insures that there is always at least one extra agent reserved before it will begin dialing. When this is set to 1, at least two agents need to be reserved before the dialer will start dialing. The intention is to increase the odds that an agent will be available when two or more customers answer. This will increase agent idle times while decreasing the abandon rate.
Dialed number	The digits that will be dialed to reserve an agent in the configured skill group. The Dialed Number in IPCC Enterprise allows only alphanumeric and (.) and (_) as valid characters and does not allow special characters like *, @, #...etc, which are actually acceptable for this Dialed number.
Records to cache (20-100)	The minimum number of dialing numbers that each dialer caches for each of your Outbound Option skill groups. Default is 100. Note that this value should not exceed 100 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 where the Dialer can 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 and can 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 will dial a fraction of the total number of ports.
Route Points for Transferring to an IVR	
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 assigned to the PGUser. Contacts will be transferred to this route point, which points to a routing script. This script will transfer the call to an IVR. The maximum length is 32 characters.

Creating a Campaign

Field	Description
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 assigned to the agent PG's CTI application (for example, PGUser). Contacts will be transferred to this route point, which points to a routing script. This script will transfer the call to an IVR. The maximum length is 32 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. Then click Retrieve. <ul style="list-style-type: none"> • <i>None</i> - This means no filter is selected and Value filter is ignored. All Skill Group records assigned to the selected peripheral are displayed. • <i>Contains, Ends With, Starts With</i> - 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 <i>None</i> 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.
Reverse	Enabled when a retrieve operation retrieves more than 100 skill groups from the ICM database. Click to display the previous 100.
Of	This displays the total number of skill groups retrieved.

Call Target Tab Page

Specify the following information on the Call Target Tab Page.

Field	Description
Daylight Savings Zone	The daylight savings zone for the calling targets that you specify in the Zone 1 and Zone 2 portion of this page. This daylight saving 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, then enter the start and end times for reaching your calling targets.

Field	Description
	<p>Note: The start and end times are local to your contacts (that is, Customer Time). The same number can be assigned to one or both zones at the same time. Zone 1 time and Zone 2 time cannot overlap.</p>
Numbers to dial	<p>Lists the phone numbers in the order they will be dialed for the Zone 1 or Zone 2 calling targets.</p> <ul style="list-style-type: none"> • 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. • To delete 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. <p>Note: Do not move phone numbers after the campaign has started because the phone numbers might not be dialed.</p>
Available numbers	<p>Contains the available phone numbers that can be added to the Numbers to dial list for the Zone 1 or Zone 2 calling targets.</p> <p>Note: Customers are dialed based on the time zone of the first phone 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.</p>

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.

Creating a Call Type

Perform the following steps to create the call type that the scripts you create later will reference.

Notes on Editing a Campaign in Progress

-
- 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**.
-

Setting Up the Reservation Script

Use the Script Editor application to create a reservation script that uses the dialed number for the MR routing client and routes through a Select node to the previously configured skill group.

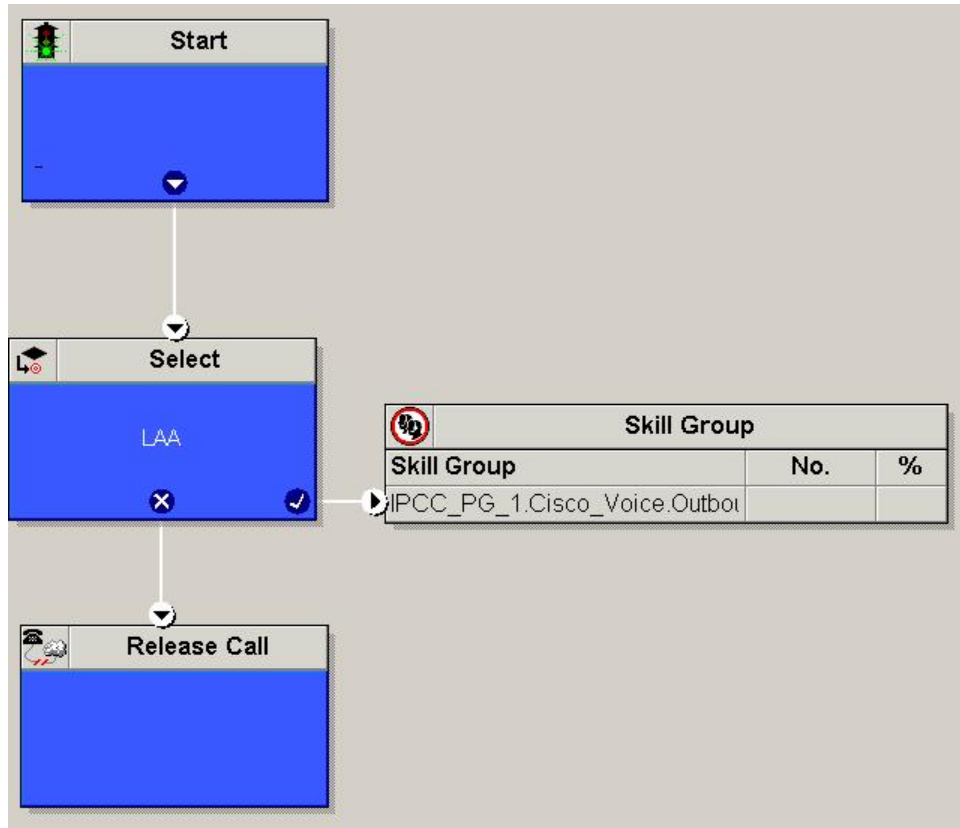
Note: You must configure a skill group and a route in the Skill Group Explorer before you begin this procedure.

-
- Step 1** Using the Script Editor Call Type Manager, associate the MR (and Personal Callback, if used) dialed number(s) with the configured call type and newly created reservation script.

Note: Refer to the Script Editor online help for information about using the Script Editor application.

The following diagram displays a sample reservation script that uses these objects.

Figure 19: Sample Routing Script

**Note:**

- Lines connecting objects cannot appear on top of objects and therefore, partially display under the objects; for example, the line connecting the “X” (output terminal failure) on the Select object to the End object runs partially under the Select object.
- Translation routes are not used in the IPCC System PG; therefore Transfer to IVR scripts using this PG need not use this object.

Configure a Transfer to IVR Script

Note:

- If you previously installed the Outbound Option Transfer to IVR engineering special, you need to reconfigure the transfer to IVR settings using the following instructions.
- You must have a translation route configured before you start this procedure. Refer to the Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted for instructions.

Perform the following steps to configure Outbound Transfer to IVR.

- 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

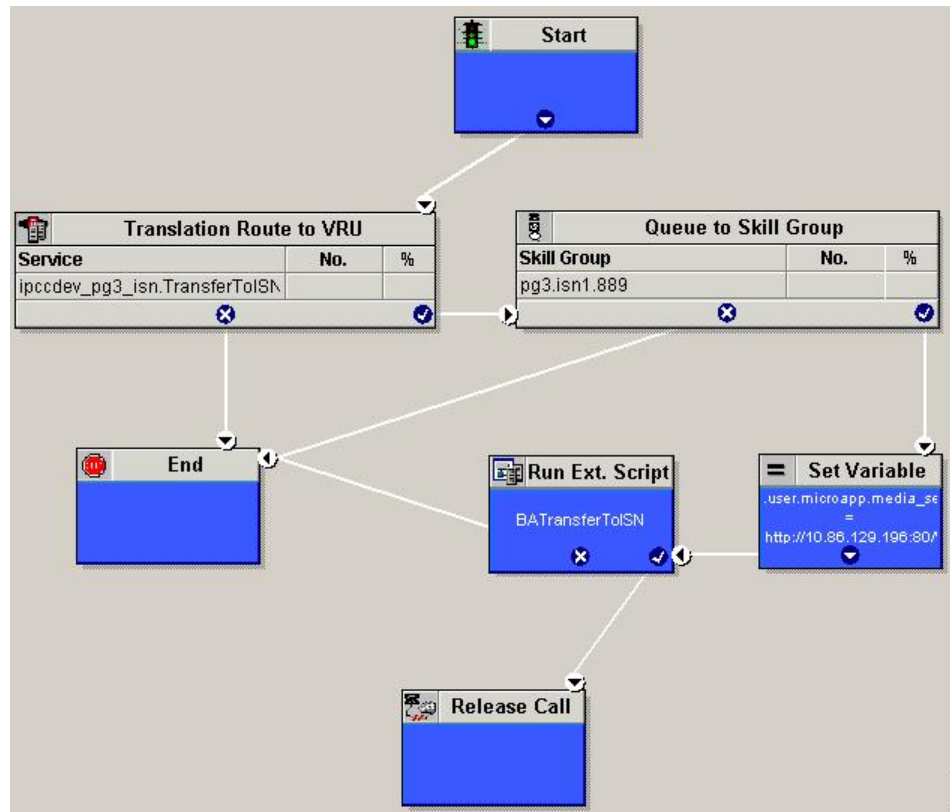
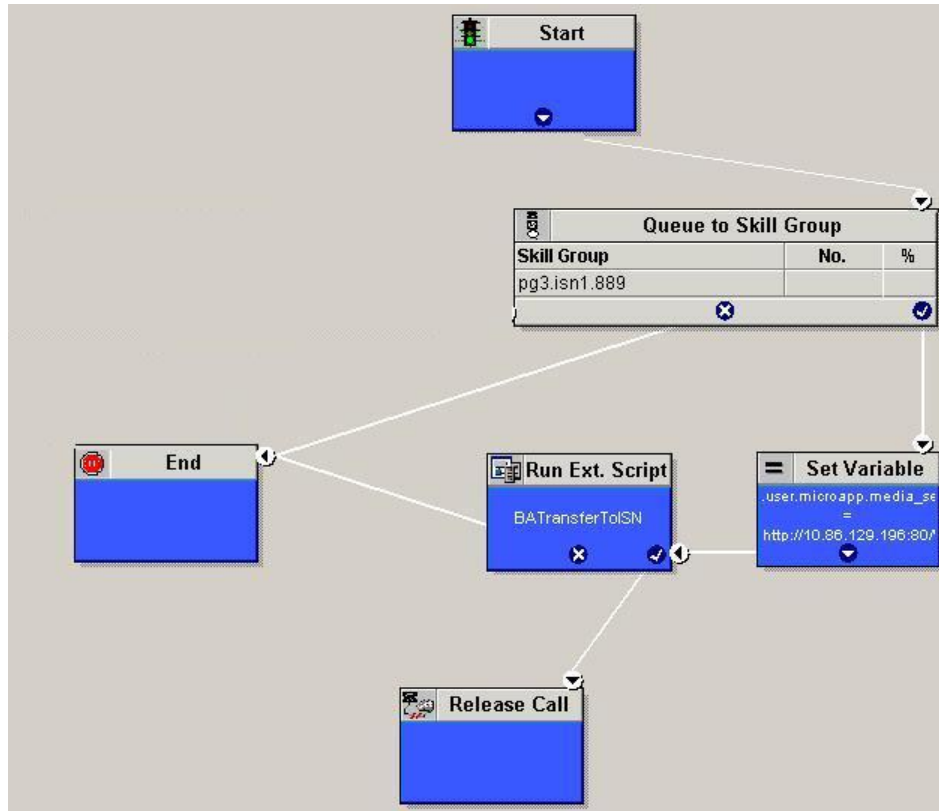


Figure 21: System IPCC Example

**Note:**

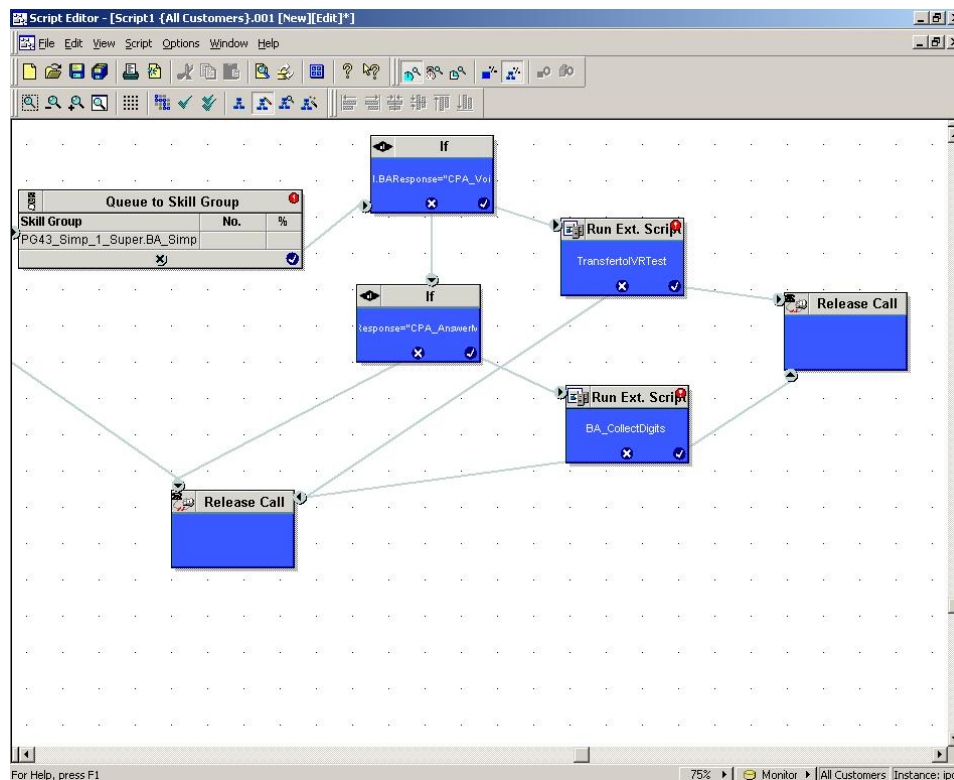
- The Transfer to IVR feature requires that a translation route to a skill group must be specified in a Transfer to IVR script. It also requires that the translation route must point at a Queue to Skill node.
- Refer to the Scripting and Media Routing Guide for Cisco Unified ICM/Contact Center Enterprise & Hosted for task-based information about using Script Editor. Refer to the Script Editor online help for detailed information about the Script Editor options.

Step 2

If you want 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 (that is, whether the call detected voice or an answering machine).

The following is an example of such an If node:

Figure 22: Exanoke BResponse 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 to 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 the "[Mapping Scripts and Call Types and Dialed Numbers \(page 149\)](#)" section.

Setting Up the Administrative Script

Use the Script Editor application to create an administrative script for each skill group to control the OutboundControl variable and the skill group reservation percentage. The Outbound Option Dialer looks at the value of this variable to determine which mode each skill group uses.

Note:

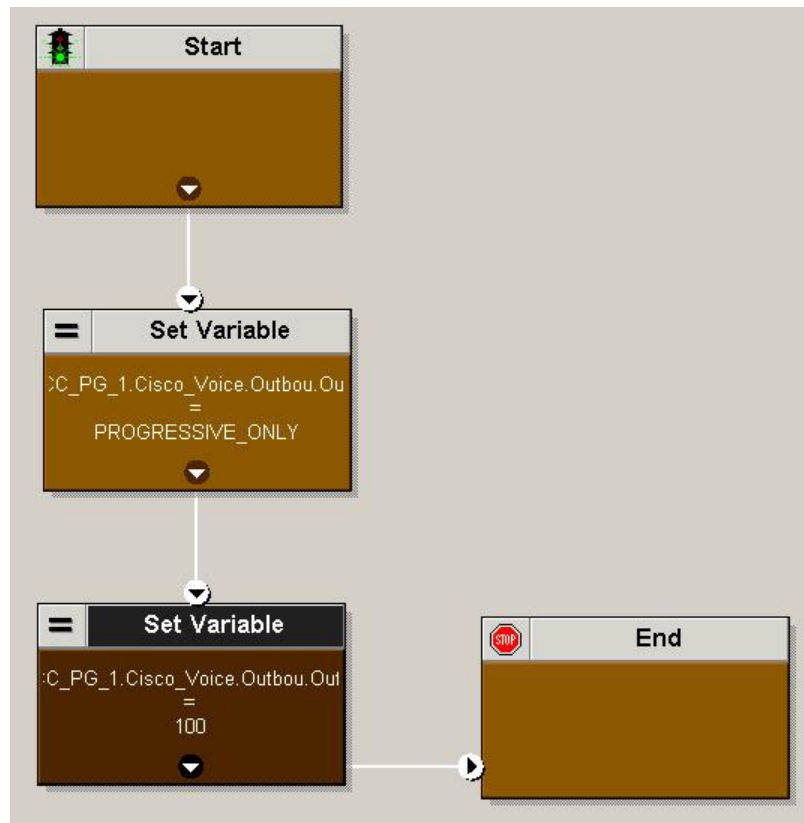
- If the OutboundControl variable is not set, the skill group defaults to inbound. See Chapter 1, "[Outbound Business Concepts \(page 7\)](#)," for detailed information about Outbound Option outbound dialing modes.
- Be aware that the dynamic routing client feature is used when an outbound agent transfers a call using Unified CVP to a Type 2 VRU. (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:

- Step 1** Open the Script Editor application.
- Step 2** 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).
- Step 3** 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 23: Sample Administrative Script



Note: Important! 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 IPCC 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.” See Chapter 1, “[Outbound Business Concepts \(page 7\)](#),” for detailed information about the transfer to IVR feature.

- Step 4** Use the Set node to set skill group variables (OutboundControl and OutboundPercent).
- 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 following values:

Table 12: OutboundControl Variable Values

Value String	Description
INBOUND	Dedicated Inbound Mode Agents will take inbound calls only. Outbound dialing is disabled for the skill group.
PREDICTIVE_ONLY	Dedicated Outbound Mode Agents in the skill group are dedicated for outbound Predictive calls only.
PREVIEW_ONLY	Dedicated Outbound Mode Agents in the skill group are dedicated for outbound Preview calls only.
PROGRESSIVE_ONLY	Dedicated Outbound Mode Agents in the skill group are dedicated for outbound Progressive calls only.
PREVIEW_DIRECT_ONLY	Dedicated Outbound Mode hearing ring tones Agents only place outbound calls and hear ring tones, such as phone ringing or busy signal.

Note:

- Outbound Option only supports base skill groups. Sub-skill groups are not allowed.
- Verify that the OutboundControl variable mode is spelled correctly. The Script Editor will pop up a warning if it does not recognize the syntax of the OutboundControl variable.
- 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.

When a call is placed using Outbound Option, the desktop buttons perform as described in the table in the [Desktop Button Performance \(page 47\)](#) section.

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, which is used for outbound dialing. For example, if there are 100 agents logged into skill group N, and the OutboundPercent variable is set to 50%, 50 agents would be allocated for outbound dialing for this campaign skill group. This allows the rest of the agents to be used for inbound or other active campaigns.

Note:

- The OutboundPercent variable also applies to Transfer To IVR campaigns, by controlling the percentage of IVR Ports that will be considered for the campaign skill group.

- This variable does not allocate specific agents for outbound dialing, just a total percentage.

Step 7 Schedule the script.

- Select **Script > Administrative Manager**. An Administrative Manager dialog box appears.
- Click **Add**.
- On the **Script** tab, select the administrative script.
- On the **Period** tab, specify the frequency that the script will run (recommended frequency is that the script run every minute of every day).
- Optionally, enter a description on the **Description** tab.
- Click **OK**.

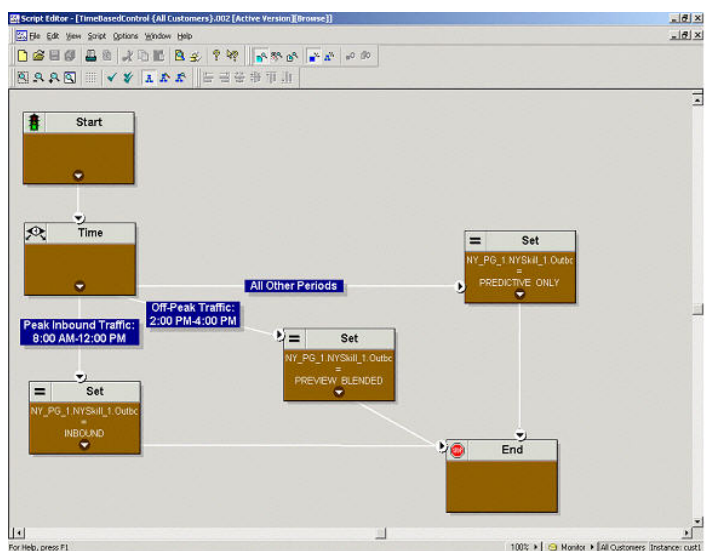
Sample Administrative Scripts

The following sections describe two sample administrative scripts.

Administrative Script 1: 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 24: TimeBasedControl Script



This script divides the day into three parts:

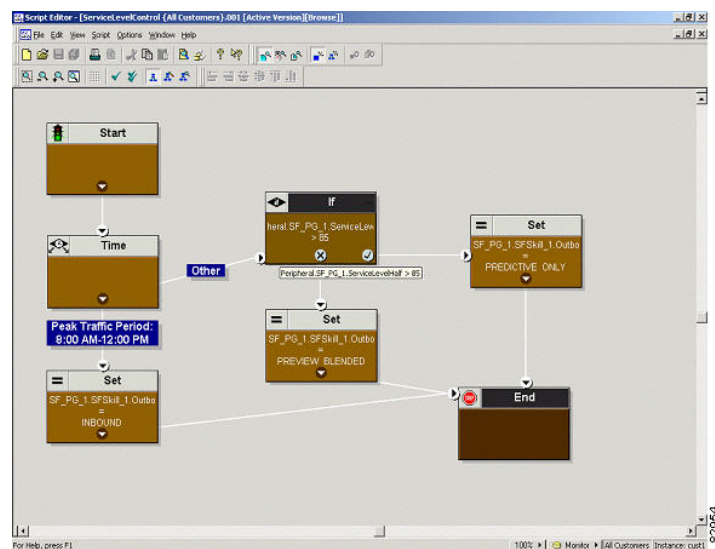
- **Peak Inbound Traffic Period (8:00 AM to 12:00PM)**: The skill group variable is set to INBOUND only, as during this time more agents are required to handle inbound calls.

- **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 will not route any inbound call to that agent. As soon as the agent is finished with the Preview call, Unified ICM software can again route an inbound call to the agent. If there are no inbound calls, Outbound Option will reserve 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 will immediately reserve the agents for outbound calls.

Administrative Script 2: ServiceLevelControl

The following figure demonstrates how to control skill group modes based upon "Service Level," which maximizes the resource utilization in a call center and maintains an acceptable service level at the same time.

Figure 25: ServiceLevelControl Script



This script divides the day into two parts:

- **Peak Traffic Period (8:00AM to 12:00PM):** During this period, the skill group variable is set to `INBOUND` only, as during this time more agents are required to handle inbound calls.
- **Other Periods:** During all other time periods, the skill groups modes are set according to the service level in the past half hour. If the peripheral service level in the past half hour period is over 85%, the skill group variable gets set to `PREDICTIVE_ONLY`, which maximizes the efficiency of outbound campaigns. If during any half hour period the peripheral service level drops below 85%, the skill group is switched to `PREVIEW_BLENDED`, so that the agents in the skill group can accept inbound calls in order to improve the service level. When the agents are not in an inbound call, Outbound Option presents the agents with a Preview outbound call, thereby maximizing the resource utilization for the call center at the same time.

Mapping Scripts and 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 do this, perform the following steps.

-
- | | |
|---------------|--|
| Step 1 | In Script Editor, open the script. |
| Step 2 | Select Script > Call Type Manager . A Call Type Manager dialog displays. |
| Step 3 | Select the call type from the Call Type pull-down menu. |
| Step 4 | Click OK . |
| Step 5 | On the Schedules tab, click Add . A Call Type Schedule dialog displays. |
| Step 6 | Select the script. Click OK . |
-

Single Dialer Options (SCCP Dialer Only)

Note: The options discussed in this section are applicable *only* in Outbound Option deployments that use the SCCP Dialer.

Predictive and Progressive agent campaigns are more effective when there are larger agent pools available for the Dialer. If the Dialers are underutilized or if there are some campaigns which target a smaller agent pool, then you might want to take an active role in pushing the campaign to one Dialer or the other.

In addition, there are a couple of ways to map specific campaigns to one dialer or the other. Dialers are deployed in pairs, but each dialer has its own MR PIM routing client connection for making route requests for the purposes of reserving agents.

- **Single Dialer – Service Control Manager Option:** If the dialer ports are being underutilized, then you might want to consider shutting down one of the dialers using the Service Control Manager and running all of the campaigns for the agent controller/PG from one dialer. Bring the offline dialer back online in case of failures or if the active dialer becomes overutilized.
- **Single Dialer – Configuration Option:** The configuration only option configures the agent reservation DN on only one of the MR routing clients. This is a straightforward method, but it gives you a little less flexibility to switch a campaign from one dialer to the other using the AW Script Editor.
- **Single Dialer – Scripting Option:** The scriptable solution uses an IF node in the routing script to honor requests from one dialer by filtering the Routing Client ID of the MR PIM associated with a specific dialer.

In this model, the dialer which is ignored will continue to make route requests for this campaign skill group, but they will be rejected. The active dialer will continue to work on the available agents for that skill group.

- Step 1** Obtain the Routing Client ID by doing the following:
- Using the PG Explorer on the AW, select the MR PG.
 - Select MR PIM1, and then select the Routing Client tab.
 - Record the ID (for example, 5001).
 - Select MR PIM2 and record the ID.
- Step 2** Modify the Routing Script by doing the following:
- Open the AW Script Editor and then open the reservation routing script for a specific skill group/campaign.
 - Before the LAA to skill group node, insert an IF node.
 - In the IF Node, select the Formula Editor.
 - Select the Call object.
 - Select the RoutingClientID.
 - Complete the expression using a double equal sign and the specified RoutingClientID for the MR PIM routing client for the Dialer you want to isolate; for example, **Call.RoutingClientID = 5001**.
 - Add connectors to the IF node so that it occurs prior to the LAA/skill group node in the script workflow.
 - Leave the failure path (x) for the IF Node blank, so that the routing script will return an error to the dialer.
 - Optionally, if you want to make the script more flexible, you can add a SWITCH node in the routing script with three branches, so that the script can be modified to select either the dialer side or include both with a simple script edit.
- Step 3** Validate the setup by doing the following:
- Run the routing script in monitor mode to verify that route requests are processing it to the proper dialer.
 - Examine the Route Call Detail records to validate if calls to the MR Dialed Number for this campaign skill group are being routed for this RoutingClientID, and are being rejected for the RoutingClientID you want to ignore (that is, ErrorCode > 0).

Note: The caveat with the Single Dialer Configuration and Scripting options is that some records will be stranded on the dialer whose campaign agent reservation requests are ignored for this campaign. The number of records stranded is the same as the Records To Cache value configured in the campaign skill group.

Configuring a Translation Route for Use with SIP Dialer

In order to transfer a connected outbound call with ECC call variables from the SIP Dialer to a VRU Peripheral, you must perform the following configuration on the translation route for the transfer to IVR campaign or the agent campaign.

-
- Step 1** On the SIP Dialer system, specify numbers for the **After AMD and for transfer to IVR campaigns** and **When no agents are available** fields on the Skill Group Selection tab of the Campaign Configuration tool.
- Step 2** Perform the following tasks on the Unified CCE system:
- a. Create a VRU PG with Network VRU Type 2.
 - b. Create and add a Network Trunk Group to this VRU PG.
 - c. Add a DNIS range on the VRU PG that corresponds to the CTI Route Points that were created previously for the DNIS Pool Translation Route Labels.
 - d. Configure a Dialed Number and a Call Type for the numbers you specified for **After AMD and for transfer to IVR campaigns** and **When no agents are available** on the SIP Dialer system. This step enables the MR PG routing scripts and enables transfer or abandoning of the call on the peripheral.
- Step 3** Perform the following tasks on the system where the peripheral resides:
- a. Create a new application of type **Cisco ICM Translation Routing**. Choose the same amount of sessions as there are ICM Ports.
 - b. Add a new Trigger of type **JTAPI**.
 - c. Choose the CTI Route Points that were created for the DNIS Pool.
 - d. Under **Subsystems**, add a new JTAPI Call Control Group. Assign a Group ID, associate the CTI Ports, and choose the trigger that you added in the previous step.
 - e. Start and stop the IP-IVR engine and verify that the Application Subsystem is IN-SERVICE. If the Application Subsystem is in a PARTIAL_SERVICE state, check for a configuration mismatch in CTI Route Points, CTI Ports, or association.
- Step 4** In the Unified CCE System script, make sure that the Translation Route to VRU node uses the Translation Route function between the peripheral and the MR PG. Also, ensure that the script uses a Queue node to queue calls to the skill group.
-

Configuring Outbound Option Multi-Tenant Customer Instances

Release 8.0(1) of Outbound Option allows multiple customer instances to run Outbound Option in a Hosted environment. This new feature, known as Outbound Option Multi-Tenant, is available in Outbound Option deployments that use the SIP Dialer.

In a Multi-Tenant environment, there are certain configuration values that you must set for each customer instance:

- You must set the number of agents when configuring each customer instance.

Note: For instructions on how to set and configure the number of agents for a customer instance, refer to the *Setup and Configuration Guide for Cisco Unified Contact Center Hosted*.

- You must set Port Throttling for each customer instance in the Dialer General tab of the Outbound Option Configuration tool.

Note: See the "[Configuring the Dialer Component \(page 58\)](#)" section for more details.

- For the SCCP Dialer, you can optionally enable recording of sessions by turning on the CPARecordWaveFile registry value. For the SIP Dialer, you can enable recording of sessions in ICM Configuration Manager. On the Outbound Option Campaign Purpose tab, check **Call Progress Analysis (CPA)**, and also check **Record CPA**.

Note: See Appendix A for more details.

- You must set the Do Not Call List size and the number of Dialer ports for each customer instance using the configlimits tool (see the next section for details).

Using the ConfigLimit Tool to Change Multi-Tenant Parameter Limits

Each customer instance database contains Configuration Limit scalability records. The two records kept concerning Outbound Option are the size (in Records) of the Do-Not-Call List to be imported, and the maximum number of Dialer Ports available for a specific customer instance of outbound Option.

You can change these values with the Configuration Limits (configlimit) tool. Perform the following steps:

-
- Step 1** Run the configlimit tool by selecting **Start > Run** from the Windows menu, then entering **configlimit**.

Note: Run configlimit on the same machine as the Distributor for the instance you want to configure. If more than one instance of the Administration & Data Server is installed on the Distributor machine, use the Select Administration Server tool to select the instance you want to configure.

Step 2 If you want to obtain the currently configured multi-tenant parameter limits, run the following command:

```
cl /show
```

Step 3 To change a multi-tenant parameter limit, enter a command in the following format:

```
cl /id [ConfigLimitID] /value [ConfigLimitCurrentValue]
[/update]
```

where:

ConfigLimitID = the ID for the multitenant parameter that you want to change. Possible values are:

1	Skill_Groups_Per_Agent
2	MAX_DNC_LIST_SIZE
3	MAX_SIP_PORTS

ConfigLimitCurrentValue = the new limit for the parameter.

Note: The configlimit tool only allows the changing of the ConfigLimitCurrentValue. You cannot change the ConfigLimitDefaultValue.

For example, the following command line changes the ConfigLimitCurrentValue value of MAX_SIP_PORTS to 250:

```
cl /id 3 /value 250 /update
```

Note: In Contact Center Hosted (CCH) deployments, configure customers with Configuration-only Administration and Data Servers so they do not have access to modify the DNC or SIP Dialer.

Configuring SIP Dialer Recording Parameters

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) 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 will delete when the total recording file size, MaxAllRecordFiles, is reached.

Verifying the DN/Script Selector Configuration

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 located in the HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\\Dialer directory.

Note: Only the G.711 codec is supported for recording. If you want to record outbound calls, you need to configure the G.711 on the voice gateway.

Verifying the DN/Script Selector Configuration

Outbound Option places agents in the Reserved state prior to using them for an outbound call. The Dialer does this by using the dialed number to route to an agent. The following procedure describes how to verify if this mechanism is working properly.

How to 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.

-
- Step 1** Log an agent into a skill group that will participate 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 will be 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 associated with the MR PG and choose the Dialed Number.
 - Step 3** Press the **Send Call** button 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 will be able to reserve agents through this script. If a label is not returned while running this script, see the [Cisco Docwiki](http://docwiki.cisco.com/wiki/Troubleshooting_Tips_for_Unified_CCE_8.0) (http://docwiki.cisco.com/wiki/Troubleshooting_Tips_for_Unified_CCE_8.0) for troubleshooting assistance.
-

Verifying Your Campaign Configuration

As a final step to verify that you have configured your Outbound Option campaign correctly, create a small campaign of one or two entries that will dial work phones or your mobile phone.



Chapter 7

Administrative/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.

This chapter contains the following topics:

- [Reading Reports, page 155](#)
- [Working with Agents, page 159](#)
- [Working with Imports, page 160](#)
- [Running and Managing Effective Campaigns, page 163](#)
- [Ensuring Adherence to FCC/FTC/UK Ofcom Requirements, page 168](#)
- [Monitoring SIP Dialer Voice Gateway Capacity, page 171](#)
- [Using the Regional Prefix Update Tool \(RPUT\), page 171](#)

Reading Reports

This section provides information on how to read and understand the Outbound Option reports.

Outbound Option Reports

This section describes the Outbound Option reports, created using the Unified CCE reporting tool Unified Intelligence Center (Unified IC), to view reports on the following enterprise contact center activity:

- [Campaigns \(page 156\)](#)
- [Skill groups \(page 157\)](#)
- [Agents \(page 158\)](#)
- [Import Rule \(page 158\)](#)

- [Dialer \(page 158\)](#)

Note: All Outbound Option reports are voice-only reports and can be used in Unified CCE environments.

The Outbound Option reports produce real-time and historical reports that display information in one of the following ways:

- **Real-time:** Displays information about a system entity at that particular instant of time; for example, number of tasks agent is currently working on, number of agents currently logged in a skill group. Every 15 seconds (this value is configurable), reports automatically query the real time database (Admin Workstation database on the distributor) to get the data for a real time report. The data is written to the database (by the CallRouter) almost every 10 seconds.
- **Half-hour/Daily:** Provides statistics for each half-hour period. Many of the half-hour reports are also available in a daily report format.

Note: Since Outbound Option uses a routing script along with a physical call to reserve agents, the Call Type real-time and half-hour reports contain data for Outbound Option reservation calls. It is important to note that this call type data pertains only to reservation calls and does not include reporting information for any outbound calls. To eliminate any confusion regarding Call Type reporting, create a separate call type for Outbound Option routing scripts.

Campaign Reporting

Outbound Option provides a campaign report template that details information about the effectiveness of a given campaign. This list can also 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.
- Campaign and Dialer Half Hour reports provide 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 will be 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 will be affected; therefore, the Dialer Utilization will only capture 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 only capture call results since the last Campaign Manager restart. If the Campaign Manager restarts, data prior to the restart is lost.

The following table describes the data 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 are left.
- How many records for selected campaigns have been dialed to completion, and how many records are left.
- 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.
- An historical table by half-hour/daily report that shows the status (summary and percentage) of each campaign for the selected time period.
- An historical table by breakdown of attempts (in percentage) of each campaign for the selected time period.
- An 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.
- An 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.
- An historical table by breakdown of actual customer calls (outbound calls which reached live voice, inbound calls and/or calls transferred to the campaign's skill group) for the selected campaigns and their skill groups for the selected time period.

Skill Group Reporting

For skill group reporting per campaign, Outbound Option provides reports that accurately 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.

Reading Reports

- An historical table by half-hour that shows Outbound Option counts for agents signed on, handle, talk, and hold states.

Agent Reporting

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 table describes the data presented in the agent reports.

- A real-time table that shows Outbound Option agent activity related to Outbound Option calls.
- An historical table that shows agent daily performance for Outbound Option predictive calls, by skill group.
- An historical table that shows agent daily performance for Outbound Option preview calls, by skill group.
- An historical table that shows agent daily performance for Outbound Option reservation calls, by skill group.

Import Rule Reporting

The following information is available in the Import Rule reports:

- Number of successful, unsuccessful, and total records imported by time range
- Current import status

The following lists describes the data presented in the Import Rule reports.

- A real-time table that shows the number of successful, unsuccessful, and total records imported, or to be imported.
- An 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 Reporting

The Outbound Option Dialer reports provide information about the dialer platform. These reports include information about performance and resource usage. They provide you with a mechanism for determining if additional dialer port resources are necessary to support more outbound calls.

The Outbound Option Dialer reports display information in one of the following ways:

- Displays real-time port status for all the ports within a dialer
- Provides half-hour and real-time statistics

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 Tone detection for each dialer.
- An historical table by half-hour that shows contact, busy, voice, answering machine, and SIT Tone detection for each dialer.
- Displays Dialer idle and all ports busy information, as well as average reservation call time and average customer attempt times.
- Displays Dialer status on a port-by-port basis used for troubleshooting. If this report does not display any records, this indicates the data feed is disabled by default.

See Also

Refer to the documentation for [Cisco Unified Intelligence Center](http://www.cisco.com/en/US/products/ps9755/index.html) (<http://www.cisco.com/en/US/products/ps9755/index.html>) for more information.

Working with Agents

In addition to reviewing the following sections, note that the table below lists agent tasks and their documentation references.

Task	Where Discussed/Notes
Adding Agents	<i>Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted</i>
Dedicating Agent to Outbound Activity Only	<i>Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted</i> ; assign the agent only to campaign skill groups
Reskilling Agents	Agent Reskilling Tool Online Help

Adding Agents

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.

See Also

[Agents Skilled for Multiple Active Campaigns \(page 25\)](#) for more details. Refer to the Installation and Configuration Guide for Cisco Unified Contact Center Enterprise & Hosted for detailed instructions on how to add/assign agents.

Dedicating a Particular 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 login and change the skill groups for agents they manage. You can 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 on 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.

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.

Refer to the Agent Re-skilling Tool online help for information about using the agent re-skilling feature.

See Also

Refer to the *Administration Guide for Cisco Unified Contact Center Enterprise & Hosted* for detailed instructions on how to re-skill agents.

Working with Imports

This section provides procedures for creating an import rule file, creating a Do Not Call list, and adding attributes for a contact list.

Running Imports

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

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.
- On the Schedule tab, specify the time that you want the import to start and how often you want the import to run.

See Chapter 6, "Configuring Campaigns and Imports," for detailed information about the Import Rule configuration component.

When the import runs, the data is read and the import file is renamed so that it is not reimported. This allows you to read and review the import file (if necessary) to troubleshoot problems.

Creating a Do Not Call List

When creating a Do_Not_Call list file, format it correctly using the following instructions.

- Step 1** Using a text editor, create a text file that will contain 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 and then stored in memory. 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, it 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 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 1GB 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.

You can access information about the National Do Not Call list at the following Web site: <https://telemarketing.donotcall.gov/>. The Federal Trade Commission's (FTC) website contains information about telemarketing rules and regulations.

Note: To clear the Do Not Call list, import a blank file with the overwriting option enabled.

Adding Attributes to a Contact List

To add additional attributes to the import, perform the following steps.

-
- 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 will not be forwarded to the agent desktop.

- Step 4** Click **Save**.
-

Running and Managing Effective Campaigns

To manage your campaigns most efficiently, use multiple query rules instead of using multiple campaigns.

Running a Single Campaign Versus Multiple Campaigns

You might choose to run multiple campaigns due to 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 will be distributed across the campaigns, which affects overall efficiency.

Note: 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.

Getting Results for Individual Customers

After running a campaign, you might want a list of customers who were reached, not reached, or have invalid phone numbers. Getting this information from your CRM integration in a more understandable format is one way to retrieve the information, but listed below are a couple of other options on where to get this data from the Outbound Option solution.

Interpreting Information from the Dialer_Detail Table

The Dialer_Detail table is a single table that contains the customer call results for all campaigns.

-
- Step 1** View the Dialer_Detail table, which resides on the HDS (offline data storage).
- Step 2** Each attempted Outbound Option call is recorded as an entry in the table. Each entry lists the number called and which numbers are invalid.
-

See Also

See Appendix C, "[Dialer_Detail Table \(page 189\)](#)," for more information.

Dialing List

The Dialing List is another good source of information, but it has several drawbacks as compared to the Dialer_Detail table. The Dialing List is only located in the Campaign Manager's private database on the Logger Side A, so excessive activity on that table will likely have a negative

performance impact on the real-time processes running on that platform, and in particular 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.

Changing the 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, particularly if the campaign import is an append instead of an overwrite type. Be aware that modifying this option in the campaign configuration will result in an update of all customer records that were not successfully contacted. The Campaign Manager can only update 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 camqry06: Call Summary Count per Campaign Real Time report.

See Also

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

Managing 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 abandons increases geometrically as the lines per agent increases; therefore, tune 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 Calculations for Abandon Rate

It is not unusual for a campaign to be over the abandon rate target for any given half hour. The Dialer looks at the end-of-day rate when managing the abandon rate. If the overall abandon rate is over target for the day, the system will target a lower abandon rate for remaining calls until

the average abandon rate falls into line. This end-of-day calculation will not 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 aggressively with an abandon rate over target for a while to compensate in the abandon rate.

Transferring Answering Machine Detection Calls to Agents

When enabling the **Transfer AMD 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 is over 50%, you might want to start out with an initial value of 1.1 or even one line per agent, if you want to stay under a 3% abandon rate.

Tuning the Parameters

The *Voice Calls Per Adjustment* and *Gain* parameters are settings in the Advanced Users configuration tab that you can use to control the way the predictive dialing behaves. Do not modify the default values unless you understand the parameters and what you are trying to achieve, as well as the possible risks incurred when changing the pacing.

- The *Voice Calls Per Adjustment* parameter is a count of the number of live voice connects needed 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 will be less significant. This would result 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 will result 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 could 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 will become less effective as the number of agents in the campaign dwindles or the hit rate changes rapidly.

Limitations of Smaller Agent Groups

The Dialer runs for each Dialer skill group, which means that if you have 20 agents in a campaign skill group on two Dialers, then on average each Dialer will be 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 will degrade.

In addition, in a small agent group where the Lines Per Agent being dialed are low, it may take a longer than average time 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, you might want to consider running that campaign on a single dialer using one of the options described in "[Single Dialer Options \(page 149\)](#)" in Chapter 4, "Configuring Campaigns and Imports." Otherwise, you might want to explore running the campaign in a Progressive mode with a conservative lines per agent value.

Managing 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 various possible reasons for longer idle times, such as some combination of one or more of the following:

- A dialing list with a low hit rate.
- A small agent pool results in fewer calls, resulting in slower adjustments.
- Shorter average handle times means agents will become available more frequently.
- Not enough dialer ports deployed or too many agents.
- A large number of retry attempts often at the beginning of a day when running with append imports resulting in lower hit rates.
- 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.
- Running out of records to dial.

Viewing 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 seem to have relatively low idle times and high all ports busy times, then it is likely the Dialers have been over-subscribed. 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 do one of the following:

- 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.

Working with Single Dialer Options

A Dialer report might indicate that one Dialer often processes significantly more attempts than the other Dialer. This is likely because of the way Dialers detect when agents are available, as one Dialer will often see the agents come available first. This can lead to some longer idle times for agents that are handled on the Dialer handling fewer agents. In an SCCP dialer configuration, you can remedy this by using one of the Single Dialer options.

See Also

[Single Dialer Options \(page 149\)](#) section in Chapter 6, "Configuring Campaigns and Imports," for more details.

Running Out of 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.

Note: Only one query rule can be active for a campaign at a time, but if a query rule runs out of records it will automatically switch to another valid query rule for the campaign that has not run out of records yet.

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 campaign. As a general rule, retries usually have a lower hit rate than pending records, so this might result in longer idle times for agents until the first group of retries are handled 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 will be 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 by setting the "PendingOverRetryEnabled" registry key to **1** in the Campaign Manager.

Note: See Appendix A, "[Registry Settings \(page 173\)](#)," 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.

Ensuring Adherence to FCC/FTC/UK Ofcom Requirements

The following legislation implemented in recent years in the United States and the United Kingdom regulates how companies can use dialers and outbound dialing to advertise to home and business numbers.

- The United States Federal Communications Commission (FCC) *Telephone Consumer Protection Act*, issued in 1992
- The United States Federal Trade Commission (FTC) *Telemarketing Sales Rule*, issued in 1995 and revised in 2003
- The United Kingdom Office of Communications (Ofcom) *Statement of Policy on the Persistent Misuse of an Electronic Communications Network or Service*, issued in 2006 and revised in 2007

The following sections highlight provisions of these acts that administrators need to keep in mind when configuring Outbound Option Dialers and Campaigns.

United States Considerations

Administrators of systems for United States based companies need to ensure that their Outbound campaigns meet the following provisions of the *Telephone Consumer Protection Act* and *Telemarketing Sales Rule*.

- Companies cannot call customers before 8:00 am or after 9:00 pm (in the customer time zone).
- Companies cannot call a customer if that customer has requested not to be called or has registered for the National Do Not Call Registry
- Prerecorded calls cannot be placed to a customer's home, except for the following:
 - Emergency calls
 - Customer has given prior consent for prerecorded calls
 - Noncommercial calls
 - Calls on behalf of a tax-exempt nonprofit organization
 - Calls that do not have unsolicited advertisements
 - Customer has an established business relationship (i.e., has a business transaction with the company within the last 18 months or an inquiry within the last 3 months)

The prerecorded call must identify the caller in the beginning of the message, and leave a company telephone number after the message. This telephone number cannot be a 900 number or other number that requires the customer to pay a higher charge other than local or long distance.

When a telemarketer abandons a call, it must deliver a prerecorded message.

- Any technology used to dial telephone numbers cannot abandon more than three percent of all calls answered by a person, measured over a 30-day period. A call is considered abandoned when it is not transferred to a live agent within two seconds of the recipient's completed greeting.
- Telemarketers must allow the phone to ring for 15 seconds or 4 rings before disconnecting any unanswered call.
- Telemarketers must maintain records to verify that the technology used to dial numbers complies with the three percent abandon rate, ring time, and the two second rule on connecting to a live sales agent. (You can verify the abandon rate through the use of Campaign Reports.)

United Kingdom Considerations

Administrators of systems for United Kingdom based companies need to ensure that their Outbound campaigns meet the following provisions of the *Statement of Policy on the Persistent Misuse of an Electronic Communications Network or Service*.

- Any technology used to dial telephone numbers cannot abandon more than three percent of all calls answered by a person, measured over a 24-hour period.
- In the event of an abandoned call, a very brief recorded information message is played within two seconds of an individual beginning to speak, which contains at least the following information:
 - The identify of the company on whose behalf the call was made, which will not necessarily be the same company that is making the call.
 - Details of a no charge (0800) or Special Services basic rate (0845) number the called person can contact, so they can decline to receive further marketing calls from that company.
 - Call must include no marketing content and cannot market to the called person.
- Telemarketers must allow the phone to ring for 15 seconds before disconnecting any unanswered call.
- When an abandoned call has been made to a particular number, any calls made to that number in the following 72 hours may only be made with the guaranteed presence of a live operator.
- For each outbound call, a Caller ID number is presented to which a customer can make a return call. This telephone number must be either a geographic or non-geographic number adopted as Presentation Number, which satisfies the Ofcom guide requirements for the use of Presentation Numbers. Also, this return call cannot be used as an opportunity to market to that person, without that person's prior consent.
- Records must be kept for six months that demonstrate compliance with the preceding Ofcom requirements. For each individual campaign, callers must maintain an up to date archive of dialer statistics that includes a daily summary of the following:
 - The number of calls attempted
 - The number of calls answered
 - The number of calls connected
 - The number of calls passed to a live operator
 - The number of live calls abandoned by the dialing equipment

Detailed calling statistics at the Call Data Record (CDR) level must me kept for all calls (connected and nonconnected calls) for a minimum of six months.

Monitoring SIP Dialer Voice Gateway Capacity

If the Voice Gateway in a SIP Dialer implementation is overdialed 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 does an automatic throttle down. This 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 about 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, you can take one of the following measures to try and 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 in the Hardware & System Software Specification (Bill of Materials) for Cisco Unified ICM/Contact Center Enterprise & Hosted. Adjust the value of Port Throttle according to the documented guidelines.

Using the Regional Prefix Update Tool (RPUT)

The Regional Prefix Update Tool (RPUT) is used to update the ICM database to the latest NALENND (North American Local Exchange NPA NXX Database).

This tool can only be used:

- If 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):

Monitoring SIP Dialer Voice Gateway Capacity

- region_prefix_data.txt (or the <DatafileName>)

Contains the data this tool uses to update the region prefix table in the ICM database.

- 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 follows:

Step 1 Open a command prompt (Select Start > Run, then enter cmd, then click OK).

Step 2 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 ICM database. The number of records that are to be updated, deleted and inserted are displayed. These records are put into two difference files:

- region_prefix_update.txt (which includes deleted entries)
- region_prefix_new.txt.

Step 3 Check the contents of the two files before proceeding.

Step 4 Update the table.

When the update is complete, the tool displays the following message:

Your region prefix table has been successfully updated.



Appendix A

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 once 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.
DialerDetailBufferTimeout	5	Describes how long to wait before sending dialer detail records to the Central Controller database when the DialerDetailBufferSize is not reached.

Campaign Manager Registry Settings

Registry Setting	Default Setting	Description
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 it is still alive.
ImportAreaCodeProcDisable (Outbound Option Import only)	0, enabled	<p>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.</p> <p>If there is a prefix match, the GMT time zones for each customer record are retrieved from the Region_Prefix table.</p> <p>Note:</p> <ul style="list-style-type: none"> 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's Call Target Tab. 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	<p>The number of digits in a phone number must be greater than this registry entry to perform a search of the region_prefix table.</p> <p>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.</p>
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 given 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 will be purged from the database. Note: <ul style="list-style-type: none"> This registry setting is not added by default; must be added manually. 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.
PersonalCallbackMaxAttemptsDefault (Campaign Manager only)	5	Sets the maximum number of DAYS 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. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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;	The interval time, in minutes, at which the Outbound Option Dialer checks the Campaign Manager for personal callback records.

Campaign Manager Registry Settings

Registry Setting	Default Setting	Description
	default is 1 minute	
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	<p>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.</p> <ul style="list-style-type: none"> • 0: Unreachable records will not be 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.
UnknownCallStatusResetTime (Campaign Manager only)	60 minutes	<p>The interval time, in minutes, at which the Campaign Manager resets the contact records in Unknown status to Pending status (available for re-use).</p> <p>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</p>

Registry Setting	Default Setting	Description
		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:

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 will auto-answer 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 will not take effect until after the Outbound Option Dialer is cycled.
CancelDialingCalls	0	Controls behavior when call attempts that have been started can be cancelled once all agents are occupied and abandon to IVR is not configured. Setting to 0 will never cancel calls after they have been started. Setting to 1 will always cancel calls after they have been started once no agents are available. A value of 100 will cancel 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.
CaptureOptions	-i 2 -tt -C 20 -s 0 -W 20 -w DialerCapture	Options associated with packet capture <ul style="list-style-type: none"> • -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).

Dialer Registry Settings

Registry Setting	Default Setting	Description
		<ul style="list-style-type: none"> -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 will be 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.
CPAMaxTimeAnalysis	3000	The amount of time to wait when it is difficult for the dialer to determine voice or answering machine.
CPAMaxToneSTDEV	"0.600000"	Standard deviation of zero crossing rate per block. Values lower than this are considered tones.
CPANoiseThresholdPeriod	100ms	The amount of time to wait for initial voice. The CPAAnalysisPeriod (page 178) 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.

Registry Setting	Default Setting	Description
CTIServerPortB	""	The TCP port number where CTI Server Side B listens.
CustRecReadyRequestToServer	30 seconds	This value 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 will be sent as soon as the Dialer notices that it is getting low on records. Subsequent requests will be sent after the TimeToWaitForRecord times out, based on this polling interval until more records are received.
DebugDumpAllCalls	1	Makes the Dialer print all debug traces associated with each call several seconds after the call ends.
DebugDumpAllEvents	1	Causes every debug trace to be printed to the screen immediately without any delay.
DirectAgentDial	0	Not used.
DisableIPCPA	0	Disables call progress analysis for this Dialer.
EMTHeartBeat	500 milliseconds	Dialer sends a heartbeat message to Campaign Manager every n milliseconds to indicate it is still alive.
EnableAutoAcceptFeature	0	<p>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.</p> <p>This feature is disabled by default and the registry key must be set to one (1) to enable the feature.</p> <p>The PreviewReservationTimeout registry key is used to configure the auto-accept timer value.</p>
EnableHeartbeat	1 (enabled)	Indicates whether or not heartbeats are enabled on the SIP Gateway or SIP Proxy.
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 will delete 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.

Dialer Registry Settings

Registry Setting	Default Setting	Description
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	<p>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.</p> <p>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.</p>
ReclassifyTransferFailures	0	Not used.
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	<p>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.</p> <p>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.</p>
SIPServerAddress	NULL	The IP address or DNS hostname of the SIP Proxy or SIP Gateway that this Dialer will connect to, as specified during setup.
SIPServerPortNumber	5060	The port number that the SIP Dialer uses to communicate with the server.
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.)

Registry Setting	Default Setting	Description
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.
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.

Dialer Registry Settings

Registry Setting	Default Setting	Description
TOS	0 (off)	<p>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).</p> <p>Note: This setting <i>does not</i> control the TOS settings on SCCP packets from the Campaign Manager to the Dialer. These settings are controlled by the DSCP parameters. Refer to the <i>Cisco Unified Communications Manager Administration Guide</i> for detailed information on how to set the DSCP Unified CM service parameters.</p> <p>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 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.</p> <p>By default, the Dialer will not mark packets, which means traffic is sent “best effort” (TOS = 0).</p> <p>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 (refer to the <i>Cisco Unified Communications Manager Administration Guide</i>). If only the Dialer side is configured, then TOS will be uni-directional and will not behave correctly.</p> <p>Configuring Bi-directional Communications:</p> <p>To turn on TOS with AF31 for bi-directional communications, configure the following registry keys for the Dialer:</p> <p>HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\<customer>\Dialer\ "TOS"=dword:00000068</p> <p>Note: Note that the dword value listed above is in hex format (decimal 104).</p> <p>Important additional configuration instructions:</p> <p>This type of TOS marking requires the setting of a special system registry key in Windows 2000 and Windows 2003 as follows:</p> <p>HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TcpIp\Parameters "DisableUserTOSSetting"=dword:00000000</p>

Registry Setting	Default Setting	Description
		<p>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, the system needs to be restarted for this change to become effective. Since this key is a system registry key, then setting it will have 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, etc.), then setting it will change the behavior of other applications.</p> <p>For additional information, see:</p> <ul style="list-style-type: none"> • http://support.microsoft.com/default.aspx?scid=kb;en-us;258978 • http://www.microsoft.com/resources/documentation/WindowsServ/2003/all/deployguide/en-us/Default.asp?url=/resources/documentation/windowsserv/2003/all/deployguide/en-us/242666.asp • http://www.microsoft.com/technet/prodtechnol/windowsserver2003/technologies/networking/tcpip03.mspx <p>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.</p>



Appendix B

Long Distance Digit Prefix Logic

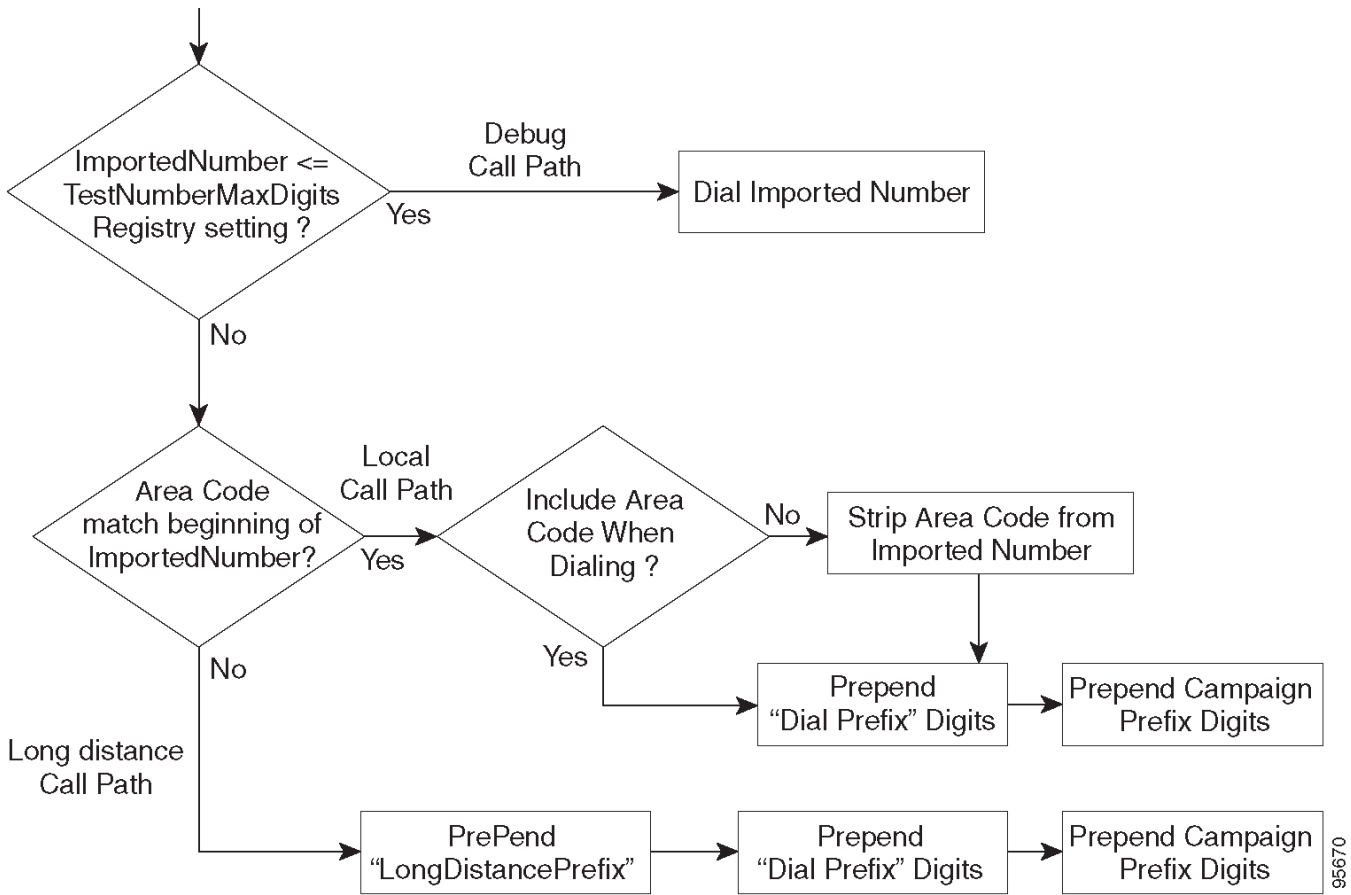
This appendix provides information about outbound call routing.

How Imported Numbers Are Transformed

The following example displays an outbound call route that provides information about how imported numbers are transformed for the outbound call.

How Imported Numbers Are Transformed

Figure 26: 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 : [0] 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 :
[0] 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:
```

Dialer Configuration Fields and Registry Settings

```

[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>>>>

```



Appendix C

Dialer_Detail Table

This appendix provides information about the Dialer_Detail table.

About the Dialer_Detail Table

The Dialer_Detail table is an historical table that is present in the Unified ICM/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 ICM/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 allow for better management of the system and generation of custom reports.

For example, the table stores the following:

- The contact's Account Number 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.

Dialer_Detail Table Database Fields and Descriptions

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 13: 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

Value	Description
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
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 14: 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

Dialer_Detail Table Database Fields and Descriptions

Value	Description
	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, etc.
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 it 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 "A" when the Campaign Manager started. If the Campaign Manager shuts down when a record is at a dialer, it no longer knows its status when it restarts; therefore, it will remain in "U" state until the record is returned to it.
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 as follows:

Table 15: DialingMode Values

Value	Description
1	Predictive only
2	Predictive blended
3	Preview only
4	Preview blended
5	Progressive only
6	Progressive blended

Value	Description
7	Direct preview only
8	Direct preview blended

CallResults Table

The following CallResults table maps the call result to the campaign call report.

Table 16: 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
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

Dialer_Detail Table Database Fields and Descriptions

Call Result	Description	Reporting Column	Counted as Attempt?	Detected Live Voice?	Retry Action
16	Call was abandoned by the dialer due to lack of agents	Abandon	Yes	Yes	Dialer Abandoned
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	Yes	No	No answer
19	Agent has skipped or rejected a preview call with the close option	AgentClosed	Yes	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, etc.	None	No	No	None, but returned to the pending state
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



Appendix D

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.

Peripheral Call Types

Mapping of 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 17: 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
CALLTYPE_PREVIEW	CALLTYPE_OO_CUSTOMER_PREVIEW = 32 CALLTYPE_OO_CUSTOMER_CALLBACK = 35

Peripheral Call Types

Peripheral Call Type	Description
	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 the 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 will be 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 Login 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)

TCD Column Descriptions

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 18: Initial Customer Call Transferred to Agent (TCD)

Column Name	Description
PeripheralCallType	One of the following: <ul style="list-style-type: none"> • 32 (preview) • 33 (preview direct) • 34 (predictive) • 35 (callback) • 36 (personal callback) • 37 (IVR)
DigitsDialed	Customer phone number

Column Name	Description
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
ICRCallKeyChild	Call key identifying the transferred customer call
PeripheralCallKey	Unique peripheral call ID (same as transferred call)
ANI	Customer phone number

Table 19: Customer Speaking With Agent (TCD)

Column Name	Description
AgentSkillTargetID	ICM agent ID
SkillGroupSkillTargetID	ICM skill group ID
PeripheralCallType	One of the following: <ul style="list-style-type: none"> • 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

With SIP dialer, the Initial Customer call and the Transferred Customer Call will have a PeripheralCallType of 1. For SCCP dialer, the peripheral call type varies.

Transfer to IVR TCD Records

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 will be generated.
- If the Dialer transfers a customer to an IVR while the IVR is experiencing technical difficulties, the record will close in the Dialing List table, with a CallResult of 10 (Voice) or 16 (Abandon). However, in the t_Termination_Call_Detail table the CallDisposition will be 7 (Short) or 10 (Disconnect/drop no answer) for the second CM PIM TCD record. The first Unified CM PIM TCD record will have a value of 23 (Voice Energy). The CallDisposition for the VRU PIM TCD record will be 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 will be generated.
- Scenario two: If the call cleared from the Agent PG side first, an extra TCD will be generated.

There is no guarantee of the event order for events coming from Unified CM; therefore, Unified CCE might generate *consistent* reports based on *inconsistent* events.

Initial Customer Call on Unified CM 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 Playing 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)

Transfer to IVR TCD Records

- **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



Appendix E

Dialing List Table

This appendix provides information about the Dialing List table. (This table is used for troubleshooting purposes.)

Other applications are not allowed to access it for reading, writing, or using triggers.

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 table below displays the Dialing Table column names and their description.

Table 20: 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 only, it is not currently used.
CallbackNumber	VARCHAR20	Phone number to be used for a regular callback - can be supplied by the agent
CallResult	SMALLINT	The call result from the last call placed for this record (see Call Result definitions).
CallResult01 through CallResult10	SMALLINT	The call result from the last time Phone01 through Phone10 was called

Dialing List Table Columns

Dialing List ID	Type	Autoincrement value - unique for each Campaign Query Rule table
		(see Call Result definitions). CallResult01 will capture 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, etc.)
LastNumberDialedZone2	SMALLINT	The last number dialed in zone2 (1 for phone01, 2 for phone02, etc.)
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 will be reset 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 will be reset 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, etc.) for this zone
AccountNumber	VARCHAR25	Customer's account number
LastName	VARCHAR50	Customer's last name
FirstName	VARCHAR50	Customer's first name.
ImportRuleDate	DATETIME	The date/time when the record was imported.



Appendix F

Scheduling Contacts Between Customers and Specific 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

The Personal Callback List maintains a list of customer records scheduled to be called back by a specific agent. The Campaign Manager creates the `Personal_Callback_List` in the Outbound Option private database the first time the Campaign Manager runs. 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 21: 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 <code>contact_list</code> to this table.
CampaignID	INT	Campaign ID (if the record was originally dialed as part of a campaign).

Personal Callback List

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: $24 + (\text{negative GMT value})$. 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, etc.) or agent reservation attempt result (Agent Rejected Call, Unable to reserve, etc.).
LastName	VARCHAR	Last name of the customer.
FirstName	VARCHAR	First name of the customer.



Appendix G

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 \(page 208\)](#)" section.

ECC Variables for Outbound Call Centers

Note: This registry file 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,
```

ECC Variables in Mixed Inbound and Outbound Call Centers

```

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

The example registry settings above (also found in *CTIOS_bin\blendedagent_addecc.reg*) will overwrite 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 code below, 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 example below 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"

```

You can pick and choose the columns that you need and the applicable display type. Cut and paste from the two files into a new registry file, editing as needed, 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.

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