Configure Outbound Dialer for UCCX Agent Based Progressive

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Introduction

This document describes how to configure an Outbound Campaign for Agent-based Progressive for Unified Contact Center Express (UCCX).

Prerequisites

Requirements

Cisco recommends knowledge of these topics:

- Cisco Unified Border Element (CUBE) configuration
- Unified Contact Center Express (UCCX) configuration

Components Used

The information in this document is based on these hardware and software versions:

- UCCX version 12.5.1.11002-481
- CUCM version 12.5.1.11900-146
- ISR4451 version 17.03.04a

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

Specific requirements for this document include:

- Finesse Agent on Ready mode.
- ISR4451 with CUBE basic configuration and PVDM for Call Progress Analysis (CPA) functionality.
- Internet Telephony Service Provider (ITSP) integrated with CUBE.
- Unified CCX Outbound license

On UCCX Outbound Dialer feature, there are five types of campaigns:

Agent-based:

- Agent Direct Preview
- Agent Progressive
- Agent Predictive

IVR Based:

- Progressive
- Predictive



Note: This document focuses on the configuration for Agent-based Progressive.

There are some services on UCCX that must be in service:

- Outbound subsystem
- Unified CM Telephony subsystem
- RmCm subsystem
- Unified CCX Database



Note: Navigate to **Cisco Unified CCX Serviceability** > **Tools** > **Control Center Network Services.**

Configure

Network Diagram

This topology diagram shows the interaction of UCCX, Finesse, CUCM, and CUBE for outbound campaigns:



Configurations

UCCX Configuration

1. Log into the CCX Administration:



2. Then click on **Subsystems > CM Telephony > Call Control Group**:



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Then Click on Add New:

Gisco Unified CCX Administration For Cisco Unified Communications Solutions	Navigation Cisco Unified CCX Administration V Go admin About Logout
System Applications Subsystems Wizards Tools Help	
Cisco Unified CM Telephony Call Control Group Configuration]
status	

3. Fill out the mandatory fields marked with asterisks such as the **Description**, **Number of CTI ports**, **Group Type**, **Device Name Prefix**, and **Directory Number**, and click **Add**:

$\leftarrow \ \rightarrow \ \mathbf{G}$	O 🔒 🔤 https://ucoxpub1.karlab	local/appadmin/JTAPICTIGroup	р			8 ↔	S 7 2	
Cisco Unified Co	d CCX Administration	A DIA		IN		Navigation Cis	co Unified CCX Administration admin About	✓ Go Logout
System Applications Subsyste	ms Wizards Tools Help							
Cisco Unified CM Telepho	ny Call Control Group Configura	ation						
🔒 Add 🔞 Cancel								
- Status					 			
(i) Status : Ready								
Group Information								
Description*								
Number Of CTI Ports*		0						
Media Termination Support*		O Yes O No						
Group Type*		Inbound Outbound						
Directory Number Information								
Device Name Prefix*								_
Starting Directory Number*								
Device Pool		Default v						
DN Calling Search Space		None V						
Location		Hub_None v						
Partition		None	~					
		Show More						



Notes:

- On Group Type select Outbound.
- Once you click Add the Status changes to In Progress, UCCX begins to create the CTI Ports.

This is the expected output after you click Add:

uludi. Cisco Unified CCX Administration		Navigation Cisco Unified CCX Administration	on 🗸 Go
CISCO For Cisco Unified Communications Solutions		admin Abo	out Logout
System Applications Subsystems Wizards Tools Help			
Cisco Unified CM Telephony Call Control Group Configu	uration		
🔜 Update 🍵 Delete 🚫 Cancel			
- Ctabus			^
i Status : Ready			
Group Information			
Group ID*	3		
Description*	ccg_out		
Number Of CTI Ports*	100		
Media Termination Support*	O Yes 💿 No		
Group Type*	 Outbound 		
Directory Number Information			
Device Name Prefix*	Ivr1		
Starting Directory Number*	2000		
List of CTI Ports	wrt _2002.hrt _2004.hrt _2006.hrt _2006. wrt _2007.hrt _2008.hrt _2008.hrt _2016.hrt _2011. hrt _2017.hrt _2018.hrt _2018.hrt _2018.hrt _2011. hrt _2017.hrt _2018.hrt _2018.hrt _2018.hrt _2011. hrt _2017.hrt _2018.hrt _2028.hrt _		•
Device Pool	Default 🗸		

4. Navigate to **Subsystems** > **RMCM** > **Contact Service Queues** to create the Progressive CSQ:

cisco For Cisco	Unified CCX Admin	istr 15	ation	Navigation Cisco Unitied CCX Administration V Go
System Applications	Subsystems Wizards Tool	в Н	elp	
	Cisco Unified CM Telephony	•		
	RmCm	•	Skills	
Oises Unified	Chat and Email	•	Resources	
Cisco Unified	Outbound	•	Resource Groups	
System version: 12.5.1.	Database	•	Contact Service Queues	
	HTTP		RmCm Provider	
	eMail		Assign Skills	
	Cisco Media		Agent Based Routing Settings	
Convright @ 1009-2021 Cis	MRCP ASR	1	Teams	
All rights reserved	MRCP TTS	•		
This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.				
A summary of U.S. laws go If you require further assist	verning Cisco cryptographic produ ance please contact us by sending	ts ma email	y be found at: <u>http://www.cisco.com/v</u> to export@cisco.com.	wwiexporticrypto/log/istorg.html
Then click	Add New:			

Image: Cisco Unified CCX Administration Image: Cisco Unified CCX Administratis Cisco Unified CCX Administration Ima

5. Fill out the mandatory fields marked with an asterisk such as **Contact Service Queue Name**, and select the most appropriate options for your specific environment, then click **Next**:

ululu Cisco Unified CCX	Administration	Navigation Cisco Unified CCX Administration 🗸 Go
CISCO For Cisco Unified Communicat	ons Solutions	admin About Logou
System Applications Subsystems Wiz	ards Tools Help	
Contact Service Queue Configura	ation	
Next 🙆 Cancel		
Status		
i Status : Ready		
Contact Service Queue Name*		
Contact Service Queue Type	Voice	
Contact Queuing Criteria	FIFO	
Automatic Wrapup*	C Enabled O Disabled	
Wrapup Time*	O Enabled Second(s) O Disabled	
Resource Pool Selection Model*	Resource Skills v	
Service Level*	5	
Service Level Percentage*	70	
Prompt	- No Selection - 🗸	
Next Cancel		
(i) *- indicates required item		

This is the expected output:

alula Cisco Unified	CCX Administration	Navigation Cisco Unified CCX Administration 👻 Go
CISCO For Cisco Unified Comr	nunications Solutions	admin About Logout
System Applications Subsystems	Wizards Tools Help	
Contact Service Queue Con	figuration	
📫 Next 📋 Delete 🙆 Ca	ncel San Open Printable Report of this CSQ configuration	
Status		
(i) Status : Ready		
Contact Service Queue Name*	AgentBasedProgresive	
Contact Service Queue Type	Voice	
Contact Queuing Criteria	FIFO	
Automatic Wrapup*	C Enabled O Disabled	
Wrapup Time*	O Enabled Second(s) • Disabled	
Resource Pool Selection Model*	Resource Skills v	
Service Level*	5	
Service Level Percentage*	70	
Prompt	- No Selection - V	
Next Delete Cancel		

```
(i) *- indicates required item
```

6. Then click Next, select the required skills, and add them, and finally click Add:

aluda Cisco Un	ified CCX Administration	Navigation Cisco Unified CCX Administration V Go
CISCO For Cisco Unifie	ied Communications Solutions	admin About Logout
System Applications Subs	systems Wizards Tools Help	
Contact Service Queu	e Configuration	
🔒 Add 🔞 Cancel	C Show Resources	
Contact Service Queue Name	0 555	
Resource Selection Criteria	Longest Available V	
Select Required Skills	English Spanish	
Skills	Minimum Competence Delete	
English	5	
Add Cancel (1) 1-Beginner, 10-Expert		

7. Now configure the Outbound section, so navigate to **Subsystems** > **Outbound** > **General**:

CISCO For Cisco Unified Communications Solutions		admin About Logou
System Applications Subsystems Wizards Tools Help		
General Configuration		
Indate 🙆 Clear		
Status		
Status : Ready		
Customer Dialing Time Range (hh:mm)*		
Start Time	1:00 AM ~	
End Time	11:00 PM V	
Outbound Call Timeout* (seconds)	60	
Dialing Prefix		
Long Distance Prefix		
International Prefix		
Local Area Code		
De Nut Barrow I and Anno Onto Mitra Distant		
Do Not Remove Local Area Code When Dialing		
Auto Answer	Enable for predictive and progressive campaigns	
Assigned CSQs	Available CSQs	
AgentBasedDirectPreview(100)	csq1 ^	
AgentBasedPredictive(100)	AgentBasedProgresive	
AgentBasedProgresive(10)		
·	•	
% of Logged in Agents for Outbound 100 V		



Note: Here you need to add the Progressive CSQ created in the previous step to the Available CSQs section and click update.

8. Navigate to **Subsystems** > **Outbound** > **Campaigns** to create the Agent-based Progressive campaign:



Cisco Unified CCX Administration Navigation Cisco Unified CCX Administration Go Cisco For Cisco Unified CCX Administration admin About Logout System Applications Subsystems Wizards Tools Help Campaigns Image: Add New Image: Add New</

9. Then select the Agent-based **Campaign Type**, and also select the **Dialer Type** of Progressive, and then click **Next**:



10. Then fill out the mandatory values marked with an asterisk like Campaign Name, Start and End Time, Campaign Calling Number, and other desired values according to your specific needs.

alulu Cisco Unified CCX Administration		Navigation Cisco Unified CCX Administration 👻 Go
CISCO For Cisco Unified Communications Solutions		admin About Logout
System Applications Subsystems Wizards Tools Help		
Agent Progressive Campaign Configuration		
📊 Add 🛛 🚫 Cancel		
Status		^
(i) Status : Ready		
- Automatic Import of Contacts		
Status : Not Configured.		
Parameter Name	Parameter Value	Suggested Value
Campaign Name*		
Enabled*	O Yes 💿 No	
Description		
Start Time (hh:mm)*	8:00 AM 🗸 Central Daylight Time	
End Time (hh:mm)*	9:00 PM V Central Daylight Time	
Campaign Calling Number*		
Maximum Attempts to Dial Contact*	3 v	3
Callback Time Limit*	15 Minute(s)	15
Callback Missed*	Reschedule for same time next business day 🗸	Reschedule for same time next business day
Dialing Options		
Lines Per Agent(1-3)*	1.0	
Handle Low Volume as Voice		
Answering Machine Treatment	Transfer To IVR O End Call	Transfer To IVR
	Trigger* : Select Trigger	
	AppName :	
Abandoned Call Treatment	Transfer To IVR Abandon Call	Transfer To IVR
	Trigger" : Select Trigger 🗸	
	AppName :	

Configuration Continues:

Dial Settings				
No Answer Ring Limit*	15 Second	d(s)	15	dig dig dig dig
Abandoned Call Wait Time*	2 Second	d(\$)	2	
Retries				
No Answer Delay*	60 Minute(s	(\$)	60	
Busy Signal Delay*	60 Minute(s	(\$)	60	
Customer Abandoned Delay*	0 Minute(s	(\$)	0	
Dialer Abandoned Delay*	0 Minute(s	(\$)	0	en Gin e
Assigned CSQs	Available CSQs			

Add Cancel

B. Charles



Note: Just click yes on Enable.

This is the expected result:

CISCO Unified CCX Administration		Navigation Cisco Unified CCX Administration V Go
System Applications Subsystems Wizards Tools Help		
Agent Progressive Campaign Configuration		
🔚 Save 🚫 Cancel 🛓 Import Contacts 🧃 Delete All Con	ntacts 👔 Open Printable Report	
Status		
i Status : Ready		
Automatic Import of Contacts		
Status : Not Configured.		
Parameter Name	Parameter Value	Suggested Value
Campaign Name*	AgentBasedProgressive	
Enabled*	O Yes ○ No	
Description	AgentBasedProgressive	
Start Time (hh:mm)*	1:00 AM V Central Daylight Time	
End Time (hh:mm)*	11:00 PM V Central Daylight Time	
Campaign Calling Number*	1900	
Maximum Attempts to Dial Contact*	3 🗸	3
Callback Time Limit*	15 Minute(s)	15
Callback Missed*	Reschedule for same time next business day 🗸	Reschedule for same time next business day
Dialing Options		
Lines Per Agent(1-3)*	1.0	
Handle Low Volume as Voice	● Yes ◯ No	
Answering Machine Treatment	Transfer To IVR End Call	Transfer To IVR
Abandoned Call Treatment	O Transfer To IVR Abandon Call	Transfer To IVR

11. Add the proper Progressive CSQ on Assigned CSQs and click Add.

Dial Settings						
No Answer Ring Limit*	15	Second(s)	15			
Abandoned Call Wait Time*	2	Second(s)	2			
Retries						
No Answer Delay*	60	Minute(s)	60			
Busy Signal Delay*	60	Minute(s)	60			
Customer Abandoned Delay*	0	Minute(s)	0			
Dialer Abandoned Delay*	0	Minute(s)	0			
Assigned CSQs	Available CS	Qs				
AgentBasedProgresive						
Add Cancel Import Contacts Delete All Contacts Open Printable Report			9			

12. Finally, navigate to **Subsystems** > **Outbound** > **SIP** Gateway Configuration, and type the specific IP Address of the CUBE that handles the outbound calls:

Cisco Unified CCV	dministratio					Nation Cinc	Linified CC)	Adminie	Instian	W Co
CISCO For Cisco Unified Communication	is Solutions					Chargeson Chart	Commed Co.	admin	About	Logout
System Applications Subsystems Wizard	is Tools Help			 						
SIP Gateway Configuration										
Update 🕢 Cancel										
Status										
Status										
Status : Ready										
Gateway Configuration										_
Gateway Hostname/IP Address*	10.2.10.70	1								
Gateway Port*	5060	ĩ								
Local CCX Port*	5065	ĩ								
Local User Agent*	Cisco-UCCX									
Transport Protocol*	O UDP O TCP									
Call Progress Analysis Configuration										-
Parameter Name	Parameter Value		Suggested Value							
Minimum Silence Period (100 - 1000)*	375	Milliseconds	375							
Analysis Period (1000 - 10000)*	2500	Milliseconds	2500							
Maximum Time Analysis (1000 - 10000)*	3000	Milliseconds	3000							
Minimum Valid Speech Time (50 - 500)*	112	Milliseconds	112							
Maximum Term Tone Analysis (1000 - 60000)*	15000	Milliseconds	15000							

Update Cancel

CUBE Configuration

Add global configuration on CUBE under voice service voip and add the cpa global parameters:

<#root>

voice service voip

ip address trusted list ipv4 0.0.0.0 0.0.0.0 mode border-element no supplementary-service sip refer ---->This command avoids to send Refer SIP message to ITSP allow-connections sip to sip cpa timing live-person 2501 cpa timing term-tone 15500 cpa threshold active-signal 18db



Note: Make sure you do not need to configure allow trusted list, otherwise you need to configure each ip address of the UCCX and CUCM here.

Configure dspfarm services on the voice card:

<#root>

voice-card 0/1

dsp services dspfarm

Configure the dspfarm profile and enable Call Progress Analysis (CPA):

<#root>

dsp services dspfarm

dspfarm profile 1 transcode description dialer-lab codec g729abr8 codec g729ar8 codec g711alaw codec g711ulaw call-progress-analysis <-- This line enables CPA on the dspfarm maximum sessions 10 associate application CUBE <--Remeber to use CUBE application here



Note: On the cube router for this lab the PVDM is installed on the slot 0/1:

<#root>
#sh inventory
---Output omitted
NAME: "subslot 0/1 db module 0", DESCR: "PVDM4-64 Voice DSP Module" PID: PVDM4-64
---Output omitted
Configure the inbound dial peer:

<#root>

dial-peer voice 10 voip

description dialer IncomingDP session protocol sipv2 incoming called-number . <--This dot means that the dial peer receives any digit dtmf-relay rtp-nte codec g711ulaw no vad



Note: There are so many ways to receive a call on a dial peer, this is only an example for this lab using incoming called-number command.

Configure the outbound dial peer pointing to the ITSP:

<#root>

dial-peer voice 400 voip

```
description ** DIALER ITSP SIDE **
destination-pattern 9001$
```

session protocol sipv2 session target ipv4:10.4.14.4 <--ITSP IP Address</pre> dtmf-relay rtp-nte codec g711ulaw no vad



Note: You must to point to the ITSP IP Address and create the proper destination pattern for your specific dial plan.

Configure the dial peer that points to the CUCM agent:

<#root>

dial-peer voice 2000 voip

```
description ** DIALER UCCX agents on CUCM**
destination-pattern 2000
                         --Agent Extension, this can be a range of extensions.
session protocol sipv2
session target ipv4:10.2.10.30 <--IP Address of the Call Manager
```

dtmf-relay rtp-nte codec g711ulaw no vad



Note: This dial peer is only an example for this lab and it is being sent to a specific agent extension registered on the CUCM.



Note: Unified CCX does not support the translation or modification of the phone number that it uses to dial out outbound calls. Any **voice translation rule** configured in the gateway that modifies the phone number are not supported.

Verify

Verify the dspfarm is up, active and associated and also the CPA is enabled:

```
<#root>
#show dspfarm profile 1
Dspfarm Profile Configuration
Profile ID = 1, Service = TRANSCODING, Resource ID = 1
Profile Description : dialer-lab
Profile Service Mode : Non Secure
Profile Admin State :
```

```
Profile Operation State :

ACTIVE

Application : CUBE Status :

ASSOCIATED

Resource Provider : FLEX_DSPRM Status : UP

Total Number of Resources Configured : 10

Total Number of Resources Available : 10

Total Number of Resources Out of Service : 0

Total Number of Resources Active : 0

Codec Configuration: num_of_codecs:4

Codec : g711ulaw, Maximum Packetization Period : 30

Codec : g711alaw, Maximum Packetization Period : 30

Codec : g729ar8, Maximum Packetization Period : 60

Codec : g729abr8, Maximum Packetization Period : 60

Call Progress Analysis : ENABLED
```

Verify the agent goes to Talking State on Finesse and the BA Campaign is the Agent-basedProgressive:

uluilu cisco	Cisco Finesse	Talking	~ 🤇		~		¢	$\widehat{\ldots}$	0	5
Home **	Coll Variable 1 -	00:00:21 ^	9001	Keypad Hold	Direct Transfer Consult Wrap Callback	Up(0) ~			End	
	BA AccountNumber :				BA Status : OUTBOUND					1
Ð	BA Campaign : AgentBa	sedProgressive		BA Response						
	Call Variable 1				Call Variable 6					L
My History	Call Variable 2 :				Call Variable 7					
	Call Variable 3 :				Call Variable 8 :					
<u>1.1</u>	Call Variable 4 :				Call Variable 9 :					
	Call Variable 5 :				Call Variable 10 :					
My Statistics										1
	Agent CSQ Statistics R	Report Agent Team	Summary Repo	rt				: Ľ	~ [
\$					· • ·					
	CSQ Name			Calls Waiting		Longest Call in Queue				
Manage Chat										
and Email										

Troubleshoot

The easiest way to troubleshoot is to collect debugs on CUBE with this configuration:

```
conf t
service timestamps debug datetime localtime msec
service timestamps log datetime msec
service sequence-numbers
logging buffered 10000000 debug
no logging console
no logging monitor
default logging rate-limit
default logging queue-limit
voice iec syslog
```

UP

Debug ccsip messages Debug ccsip error

Debug voice ccapi inout <-- CCAPI debug allows to verify the dial peers matched. <--Enables SIP messages logs <--Enables SIP Errors logs



Note: Another way to collect logs is by enabling traces on the UCCX side, for this refer to the Tech Note on UCCX Tracing Levels on the Outbound voice calls section for more information.

Once you collect the CUBE logs you need to validate you are matching the correct dial peers for three legs:

<#root>

Incoming Dial-peer=

10 <--First Leg

Outgoing Dial-peer=

400 <--Second Leg

Outgoing Dial-peer=

2000 <--Third Leg

There are three legs:

- the first leg comes from UCCX,
- the second leg goes to ITSP,
- and the third leg goes to the CUCM





Note: The Analysis described in this section describes only specific segments of the SIP messages that you need to troubleshoot.

On the first leg, it is important to check that CPA is sent with the correct CPA parameters configured on UCCX on the SIP Invite message:

---Output omitted Content-Type: application/ x-cisco-cpa Content-Disposition: signal;handling=optional Events=FT,Asm,AsmT,Sit CPAMinSilencePeriod=375 CPAAnalysisPeriod=2500 CPAMaxTimeAnalysis=3000 CPAMinValidSpeechTime=112

<#root>

CPAMaxTermToneAnalysis=15000 --unique_boundary--

```
---Output omitted
```

The 200 ok SIP message on the first leg also needs to say that the CPA is enabled:

<#root>

```
---Output omitted
```

```
--uniqueBoundary
Content-Type: application/x-cisco-cpa
Content-Disposition: signal;handling=optional
event=enabled
--uniqueBoundary--
```

The first Update SIP message on the first leg indicates that the CPA event has been detected:

<#root>

---Output omitted

```
Content-Type: application/
```

x-cisco-cpa

Content-Disposition: signal;handling=optional Content-Length: 26

event=detected

status=

CpaS

The second Update SIP message also on the first leg indicates that the CPA event is Live Human Speech:

<#root>

---Output omitted

```
Content-Type: application/x-cisco-cpa
Content-Disposition: signal;handling=optional
Content-Length: 167
event=detected
status=LS <-- This indicates it is Human speech
pickupT=2510
maxActGlitchT=0
numActGlitch=0
```

valSpeechT=190
maxPSSGlitchT=0
numPSSGlitch=0
silenceP=380
termToneDetT=0
noiseTH=35
actTh=2097164

The Refer SIP message on first leg indicates where to send the call to on the Refer-To header:

<#root>

---Output omitted

Refer-To: <sip:2000@10.2.10.70>



Note: If the issue persists, open a Cisco TAC Case, and attach the CUBE logs collected for further

troubleshooting along with sh tech of your CUBE. For the UCCX side, you need to collect <u>UCCX</u> <u>Engine traces and Finesse agent side logs</u>.

Related Information

Understand Inbound/Outbound Dial Peers that Match on Cisco IOS® Platforms

Call Progress Analysis Overview

Tech Note on UCCX Tracing Levels

Cisco Unified Contact Center Express Design Guide