

DialPlan for HQ Site

« Codec Negotiation (/workbook/view/ccie-collaboration/task/codec-negotiation-MzAzMg%3D%3D) | Class of Service for HQ Site (/workbook/view/ccie-collaboration/task/class-of-service-for-hq-site-MzAzNA%3D%3D) »

Last updated: November 13, 2017

Tasks

- Configure HQ CUCM to satisfy the following dial plan requirements.
- Access code for all PSTN call is 9
- Configure local route group (R1) for HQ's local Voice gateway.
- Use Route-List RL-R1 as the naming convention
- Calls traversing between HQ phone and R1 PRI trunk should always use G711 codec.
- Ensure that all calls will be sending Display Name and Number over PSTN.
- Telco delivers 10 digit direct inward dialing called numbers in inbound calls, 408502XXXX, where XXXX is any HQ internal 4-digits extension.
- Verify HQ MGCP gateway configuration by placing an inbound call from line 1 on the PSTN phone to 502XXXX, where XXXX is any HQ internal 4-digit extension.
- For outbound calls, ensure 911 calls from any HQ IP phone terminate media on R1. For 911 calls, send 408502XXXX, where XXXX is the 4-digit extension as the calling number. 9911 is not required.

```
Calling Party Type =
Calling Party Plan =
Called Party Type =
Called Party Plan =
```

- All HQ IP phones should be able to call local 7 digits PSTN numbers by dialing the access code **9** followed by 7 additional digits. The First digit after the access code could be any digit from 2 to 9, the remaining digit could be 0 (zero) to 9. This type of call should always use the local gateway R1 as the primary route. 7-digit calling number (502XXXX where xxxx is internal extension) and calling name should be sent to PSTN.

```
Calling Party Type =
Calling Party Plan =
Called Party Type =
Called Party Plan =
```

- All HQ IP phones should be able to place a national long distance PSTN calls by dialing the access code **9** followed by **1**, followed by 3 digit area code and lastly 7 digit subscriber number. The First digit of the area code and subscriber number could be any digit from 2 to 9, the

remaining area code and subscriber number digit could be 0 (zero) to 9. This type of call should always use the local gateway R1 as the primary route. 10-digit calling number (408502XXXX where xxxx is internal extension) and calling name should be sent to PSTN.

```
Calling Party Type =
Calling Party Plan =
Called Party Type =
Called Party Plan =
```

- All HQ IP phones should also be able to place international calls by dialing the access code **9** followed by **011**, followed by variable length digit. Ensure phones are able to dial international numbers with and without # symbol. This type of call should always use local gateway R1. +1408503XXXX where xxxx is internal extension should be sent as calling number. Calling number should be sent to PSTN.
- Ensure that when calls are dialed without # symbol the call should wait for maximum of 5 seconds.

```
Calling Party Type =
Calling Party Plan =
Called Party Type =
Called Party Plan =
```

Note:
You are not allowed to use any Partitions or Calling Search Spaces.

Configuration: [Click to collapse](#)

HQ – Publisher

Device > Gateway (Find)

Click on S0/SU1/DS1-0@R1.ine.com (<http://S0/SU1/DS1-0@R1.ine.com>)

Device Name	Description	Device Pool	Calling Search Space	Device Type	Status	IP Address
R1.ine.com	R1.ine.com			Cisco 2911	Unknown	
S0/SU1/DS1-0@R1.ine.com	S0/SU1/DS1-0@R1.ine.com	CP-HQ-PHONES		Cisco MGCP T1 Port	Registered with 11:100:64:12	11.102.64.254

Gateway Configuration

Save Delete Reset Apply Config Add New

Enable status poll

Unattended Port

Enable G.Clear

Call Routing Information - Inbound Calls

Significant Digits*

Save/Apply Config & Reset

On R1

```
no mgcp
mgcp
```

Verification

From PSTN Phone Line 1 dial 502200X. Pickup the call and check the codec on HQ Phone 1 or Phone 2 it would be g729

HQ Publisher

System > Region Information > Audio Codec Preference List

CONTENTS >

Audio Codec Preference List Configuration

Save Delete Copy Add New

Status
Status: Ready

Audio Codec Preference List Information

Name* New-Audio-List-MGCP

Description* Low Loss Codec List

Codecs in List*

- G.711 U-Law 64k
- G.711 A-Law 64k
- G.711 U-Law 56k
- G.711 A-Law 56k
- ILBC 16k
- AMR-WB (7k-24k)
- AMR (5k-13k)
- MP4A-LATM 128k
- AAC-LD (MP4A Generic)
- MP4A-LATM 64k
- MP4A-LATM 56k
- L16 256k
- MP4A-LATM 48k
- G.722 64k
- ISAC 32k
- MP4A-LATM 32k
- G.722.1 32k
- G.722 56k
- G.722.1 24k
- G.722 48k
- MP4A-LATM 24k
- G.728 16k
- GSM Enhanced Full Rate 13k
- GSM Full Rate 13k
- G.729b 8k
- G.729ab 8k
- G.729 8k
- G.729a 8k
- GSM Half Rate 6k
- G.723.1 7k

Save Delete Copy Add New

System > Region Information > Region

Region Configuration Related Links: Back To Find()

Save Delete Reset Apply Config Add New

Region Information
Name: RegionMGCP-4-G711

Region Relationships

Region	Audio Codec Preference List	Maximum Audio Bit Rate	Maximum Session Bit Rate for Video Calls
RegionMGCP-4-G711	New-Audio-List-MGCP	64 kbps (G.722, G.711)	384
	New-Audio-List-MGCP	64 kbps (G.722, G.711)	384

NOTE: Regions not displayed Use System Default Use System Default Use System Default

Modify Relationship to other Regions

Region	Audio Codec Preference List	Maximum Audio Bit Rate	Maximum Session Bit Rate for Video Calls
Default	Keep Current Setting	Keep Current Setting	<input checked="" type="radio"/> Keep Current Setting
RegionPhone1			<input type="radio"/> Use System Default
RegionR2Cube			<input type="radio"/> None
RegionMGCP-4-G711			<input type="radio"/> kbps

Save Delete Reset Apply Config Add New

System > Device Pool (Create New Device Pool)

Device Pool Configuration

Save ✖ Delete 📄 Copy 🔄 Reset 🔧 Apply Config ➕ Add New

Device Pool Settings

Device Pool Name*

Cisco Unified Communications Manager Group*

Calling Search Space for Auto-registration

Adjunct CSS

Reverted Call Focus Priority

Intercompany Media Services Enrolled Group

Roaming Sensitive Settings

Date/Time Group*

Region*

Media Resource Group List

Location

Network Locale

SRST Reference*

Connection Monitor Duration***

Single Button Barge*

Join Across Lines*

Physical Location

Device Mobility Group

Local Route Group

Device Mobility Related Information****

Device Mobility Calling Search Space

AAR Calling Search Space

AAR Group

Calling Party Transformation CSS

Device > Gateway (Apply the Device Pool to the T1 port)



Click on the endpoint which is the T1 port & Apply the Device Pool, Save & Apply & Reset

Verification

From PSTN Phone Line 1 dial 502200X. Pickup the call and check the codec on HQ Phone 1 or Phone 2 and this time it would be g711

Call Routing > Route/Hunt > Route Group

Route Group Configuration

Save

Status
 Status: Ready

Route Group Information
 Route Group Name*
 Distribution Algorithm*

Route Group Member Information

Find Devices to Add to Route Group
 Device Name contains
 Available Devices**
 Port(s)

Current Route Group Members
 Selected Devices (ordered by priority)*

Call Routing > Route/Hunt > Route List

Route List Configuration

Save Delete Copy Reset Apply Config Add New

Status
 Update successful

Route List Information
 Registration Registered with Cisco Unified Communications Manager 11.100.64.12
 IP Address 11.100.64.12
 Device is trusted
 Name*
 Description
 Cisco Unified Communications Manager Group*
 Enable this Route List (change effective on Save; no reset required)
 Run On All Active Unified CM Nodes

Route List Member Information
 Selected Groups**
 Removed Groups***

System > Device Pool

Device Pool Settings

Device Pool Name*
 Cisco Unified Communications Manager Group*
 Calling Search Space for Auto-registration
 Adjunct CSS
 Reverted Call Focus Priority
 Local Route Group

Call Routing > Route/Hunt > Route Pattern (For Emergency)

Route Pattern Configuration

Save ✖ Delete 📄 Copy ➕ Add New

Status

📘 Status: Ready

Pattern Definition

Route Pattern*

Route Partition

Description

Numbering Plan

Route Filter

MLPP Precedence*

Apply Call Blocking Percentage

Resource Priority Namespace Network Domain

Route Class*

Gateway/Route List* [\(Edit\)](#)

Route Option

Route this pattern

Block this pattern

Call Classification*

Allow Device Override Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation*

Calling Name Presentation*

Calling Party Number Type*

Calling Party Numbering Plan*

Connected Party Transformations

Connected Line ID Presentation*

Connected Name Presentation*

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

Called Party Number Type*

Called Party Numbering Plan*

Call Routing > Route/Hunt > Route Pattern (For Local/Subscriber Calls)

Route Pattern Configuration

Save ✖ Delete 📄 Copy ➕ Add New

Status
📄 Status: Ready

Pattern Definition

Route Pattern*	<input type="text" value="9.[2-9]XXXXXX"/>
Route Partition	< None >
Description	<input type="text"/>
Numbering Plan	-- Not Selected --
Route Filter	< None >
MLPP Precedence*	Default
<input type="checkbox"/> Apply Call Blocking Percentage	<input type="text"/>
Resource Priority Namespace Network Domain	< None >
Route Class*	Default
Gateway/Route List*	RL-R1 (Edit)
Route Option	<input checked="" type="radio"/> Route this pattern <input type="radio"/> Block this pattern <input type="text" value="No Error"/>
Call Classification*	OffNet
<input type="checkbox"/> Allow Device Override <input checked="" type="checkbox"/> Provide Outside Dial Tone <input type="checkbox"/> Allow Overlap Sending <input type="checkbox"/> Urgent Priority <input type="checkbox"/> Require Forced Authorization Code	
Authorization Level*	<input type="text" value="0"/>
<input type="checkbox"/> Require Client Matter Code	

Calling Party Transformations

<input checked="" type="checkbox"/> Use Calling Party's External Phone Number Mask	
Calling Party Transform Mask	<input type="text" value="XXXXXXXX"/>
Prefix Digits (Outgoing Calls)	<input type="text"/>
Calling Line ID Presentation*	Default
Calling Name Presentation*	Default
Calling Party Number Type*	Subscriber
Calling Party Numbering Plan*	ISDN

Connected Party Transformations

Connected Line ID Presentation*	Default
Connected Name Presentation*	Default

Called Party Transformations

Discard Digits	PreDot
Called Party Transform Mask	<input type="text"/>
Prefix Digits (Outgoing Calls)	<input type="text"/>
Called Party Number Type*	Subscriber
Called Party Numbering Plan*	ISDN

Call Routing > Route/Hunt > Route Pattern (For National Calls)

Route Pattern Configuration

Save ✖ Delete 📄 Copy ➕ Add New

Status
📄 Status: Ready

Pattern Definition

Route Pattern*	<input type="text" value="91.[2-9]XX[2-9]XXXXXX"/>
Route Partition	< None >
Description	<input type="text"/>
Numbering Plan	-- Not Selected --
Route Filter	< None >
MLPP Precedence*	Default
<input type="checkbox"/> Apply Call Blocking Percentage	<input type="text"/>
Resource Priority Namespace Network Domain	< None >
Route Class*	Default
Gateway/Route List*	RL-R1 (Edit)
Route Option	<input checked="" type="radio"/> Route this pattern <input type="radio"/> Block this pattern <input type="text" value="No Error"/>
Call Classification*	OffNet
<input type="checkbox"/> Allow Device Override <input checked="" type="checkbox"/> Provide Outside Dial Tone <input type="checkbox"/> Allow Overlap Sending <input type="checkbox"/> Urgent Priority	

Calling Party Transformations

<input checked="" type="checkbox"/> Use Calling Party's External Phone Number Mask	
Calling Party Transform Mask	<input type="text" value="XXXXXXXXXX"/>
Prefix Digits (Outgoing Calls)	<input type="text"/>
Calling Line ID Presentation*	Default
Calling Name Presentation*	Default
Calling Party Number Type*	National
Calling Party Numbering Plan*	ISDN

Connected Party Transformations

Connected Line ID Presentation*	Default
Connected Name Presentation*	Default

Called Party Transformations

Discard Digits	PreDot
Called Party Transform Mask	<input type="text"/>
Prefix Digits (Outgoing Calls)	<input type="text"/>
Called Party Number Type*	National
Called Party Numbering Plan*	ISDN

Call Routing > Route/Hunt > Route Pattern (**International Calling with #**)

Route Pattern Configuration

Save Delete Copy Add New

Status

Status: Ready

Pattern Definition

Route Pattern*

Route Partition

Description

Numbering Plan

Route Filter

MLPP Precedence*

Apply Call Blocking Percentage

Resource Priority Namespace Network Domain

Route Class*

Gateway/Route List* [\(Edit\)](#)

Route Option
 Route this pattern
 Block this pattern

Call Classification*

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation*

Calling Name Presentation*

Calling Party Number Type*

Calling Party Numbering Plan*

Connected Party Transformations

Connected Line ID Presentation*

Connected Name Presentation*

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

Called Party Number Type*

Called Party Numbering Plan*

Call Routing > Route/Hunt > Route Pattern (For International Calls without #)

Route Pattern Configuration

Save Delete Copy Add New

Status
i Status: Ready

Pattern Definition

Route Pattern*

Route Partition

Description

Numbering Plan

Route Filter

MLPP Precedence*

Apply Call Blocking Percentage

Resource Priority Namespace Network Domain

Route Class*

Gateway/Route List* [\(Edit\)](#)

Route Option
 Route this pattern
 Block this pattern

Call Classification*

Allow Device Override Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation*

Calling Name Presentation*

Calling Party Number Type*

Calling Party Numbering Plan*

Connected Party Transformations

Connected Line ID Presentation*

Connected Name Presentation*

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

Called Party Number Type*

Called Party Numbering Plan*

System > Service Parameters

Service Parameter Configuration

Save Set to Default Advanced

Status
i Update successful

Select Server and Service

Server*

Service*

All parameters apply only to the current server except parameters that are in the cluster-wide group(s).

Service Parameter Configuration

Save Set to Default Advanced

1302-Timer* 15000

Device > Gateway (Go the T1 endpoint)

PRI Protocol Type Specific Information

Display IE Delivery

Redirecting Number IE Delivery - Outbound

Redirecting Party Transformation CSS

< None >

Call Routing > Route/Hunt > Route Pattern

<input type="checkbox"/>	9[2-9]xxxxxx	RL-R1
<input type="checkbox"/>	9011	RL-R1
<input type="checkbox"/>	9011.E	RL-R1
<input type="checkbox"/>	91[2-9]x[2-9]xxxxxx	RL-R1
<input type="checkbox"/>	911	RL-R1

Add New Select All Clear All Delete Selected

CONTENTS

Verification

R1

```
debug isdn q931
```

From HQ Phone 1/HQ Phone 2 call PSTN for the following Numbers

```
Emergency Dial =  
Subscriber Dial =  
National Dial =  
International Dial =
```

Press ? twice on SCCP Phone (200X) phone to verify G711 Codec after you pick the call from the PSTN

« Codec Negotiation (/workbook/view/ccie-collaboration/task/codec-negotiation-MzAzMg%3D%3D) | Class of Service for HQ Site (/workbook/view/ccie-collaboration/task/class-of-service-for-hq-site-MzAzNA%3D%3D) »