

# How to Configure the Avaya BCM50 6.0 for use with Integra Telecom SIP Solutions

## Overview

This document provides a reference for configuration of the Avaya BCM50 PBX to connect to Integra Telecom SIP Trunks. The document covers a basic setup with required steps for interoperability with Integra Telecom only.

## Test Network Setup

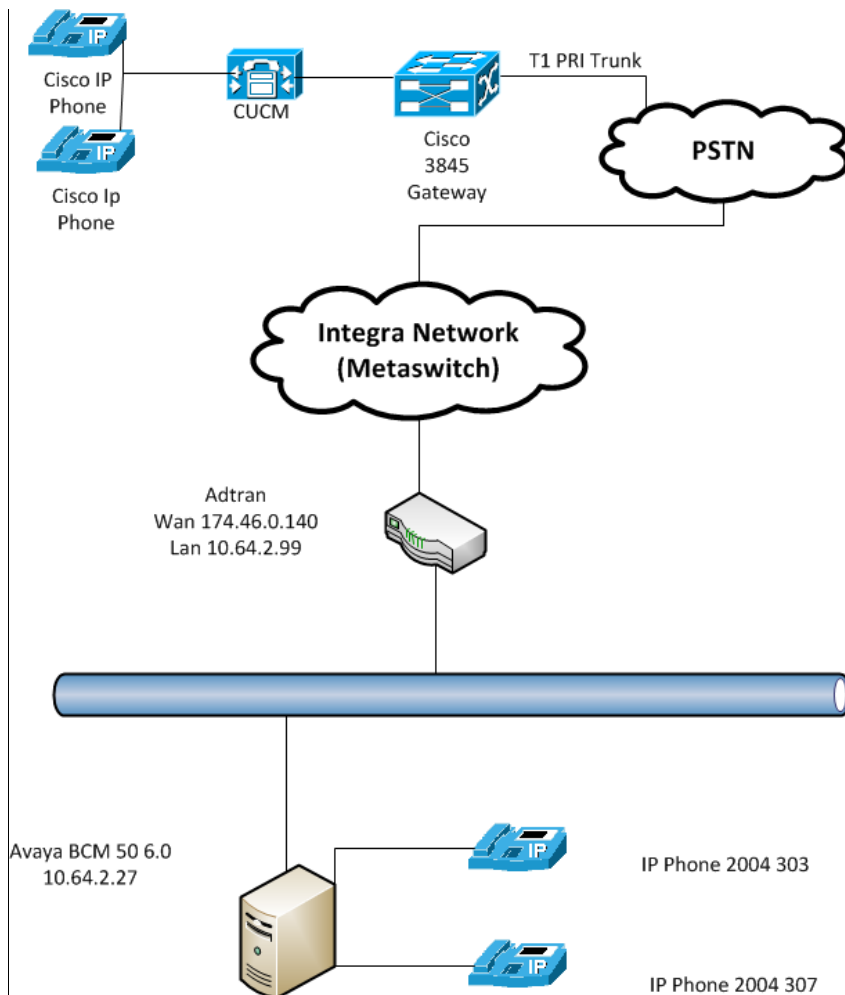


Figure 1 Avaya BCM 50 Network Layout

## Devices Under Test

Devices Under Test	Version
Avaya BCM 50 (IP-PBX)	6.0
Adtran NetVanta 3305	17.09.02.00

## 3<sup>rd</sup> Party Components and their Versions

3 <sup>rd</sup> Party Product/Components	Version
Cisco 6509 switch	12.2(33)SXH1

## Limitations

These are the Avaya BCM 50 Limitations:

- Avaya BCM 50 has an issue with fax using G.711. Fax with T.38 works
- PRACK (100rel) is required in order to support test case where PSTN originates a call to BCM 50 extension and BCM 50 does a blind transfer to PSTN.

## Configuration in the Avaya BCM 50 (IP-PBX)

This section shows the configuration for Avaya BCM 50 to *Integra Network passing thru Adtran*. All values provided are for example purposes only and actual values will be provided by Integra Implementation Team.

The following steps show a quick sequence on how to configure the Avaya BCM 50 with Adtran.

1. **System settings** (Detailed Information in section 2.1)
2. **SIP Trunk/Fax** (Detailed Information in section 2.2)
3. **Incoming Call Routing** (Detailed Information in section 2.3)
4. **Outgoing Call Routing** (Detailed Information in section 2.4)

### System Settings

Configure the system settings by navigating to System → IP Subsystem → General Settings. The Default Gateway should be the LAN interface of Adtran. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Set the Default Gateway; 10.64.2.99
2. Set the Published IP Interface; Customer LAN
3. Set the domain name; localdomain
4. Set the Primary DNS address;

The figure below shows "LAN Settings" screen

The screenshot displays the 'IP Subsystem' configuration page. On the left is a 'Task Navigation Panel' with a tree view containing categories like System, IP Subsystem, and Resources. The main area shows the 'General Settings' tab. A yellow warning icon is present with the text: 'If you change the default gateway you may lose your connection to the Network Element'. The configuration fields are as follows:

- System name: [ ]
- Default gateway: 10.64.2.99
- Published IP Interface: Customer LAN
- Published IP Address: 10.64.2.27
- Discovered Public Address: 0.0.0.0
- Address Discovery Flag:
- Provisioned Public Address: [ ]
- Modify... button
- DNS domain name: localdomain
- Primary DNS address: 10.64.1.3
- Secondary DNS address: [ ]

Figure 2 General Settings

The next screen is System → IP Subsystem → LAN Interfaces. The values below are for example purposes only and the actual values will be specific to your network.

1. Set the Customer LAN IP Address; 10.64.2.27.
2. Set the Customer LAN Subnet Mask; 255.255.255.0.
3. Confirm the Customer LAN MTU Size; 1500
4. Confirm the Customer LAN Allow Network Access is unchecked.

The figure below shows “LAN Interfaces” screen.

IP Subsystem					
General Settings LAN Interfaces VLAN Interfaces Static Routes Dial-Out Static Routes					
LAN Interfaces Summary					
Name	IP Address	Subnet Mask	MAC Address	MTU Size	Allow Network Access
Customer LAN	10.64.2.27	255.255.0.0	00:16:ca:3d:dd:7d	1500	<input type="checkbox"/>
OAM LAN	10.10.11.1	255.255.255.252	00:16:ca:3d:dd:7e	1500	<input checked="" type="checkbox"/>

Figure 3 LAN Interfaces

## SIP Trunk

Configure the SIP trunk in Avaya BCM 50 by navigating to SIP Trunking →Public →ITSP Templates . The ITSP Template will be imported from the PC that you are configuring the BCM 50 with. The Import process is very simple. Click on Import... then chose the correct path and Template name. In this case the template name will be "Integra\_Telecom". Once the template is imported, click on the imported template and confirm the following values are checked in the ITSP Templates Advanced screen. The template serves as an entry point when creating a User. The values cannot be changed from the screen below. The template will be made available from the Integra Implementation Team.

1. Confirm Support 100rel is checked
2. Confirm Allow UPDATE is checked
3. Confirm Use Null IP to hold is checked
4. Confirm Enable SDP OPTIONS query is checked
5. Confirm Allow REFER is checked
6. Confirm Support Replaces is checked

The figure below shows "ITSP Templates Advanced" screen.

Details for Template: Integra\_Telecom

Basic Advanced Comments

Enable local NAT compensation:

Enable media relay:

Use maddr in R-URI:

Use maddr in Contact:

Support 100rel:

Allow UPDATE:

Use Null IP to hold:

Use user=phone:

Force E164 international dialing:

Enable SDP OPTIONS query:

Allow REFER:

Support Replaces:

NAT Pinhole Maintenance

Signaling method:

Signaling interval:

ITSP association method:

Authentication realm:

Figure 4 ITSP Templates Advanced

The next screen is SIP Trunking →Public →ITSP Templates → Basic. With the imported template still highlighted confirm the following values are present. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team.

1. Confirm SIP Domain Remote: proxy1.integravoip.net
2. Confirm Proxy Transport: UDP
3. Confirm Registrar Address: proxy1.integravoip.net
4. Confirm Registrar Port: 5060
5. Confirm Registrar Required box is checked

The figure below shows "ITSP Templates Basic" screen.

Details for Template: Integra\_Telecom

Basic | Advanced | Comments

SIP Domain

Remote: proxy1.integravoip.net

Local:

Proxy

Address:

Port: 0

Transport: UDP

Registrar

Address: proxy1.integravoip.net

Port: 5060

Required:

Outbound Proxy Table

Domain	IP Address	Port	Load-balancing Weight	Keep alive
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Figure 5 ITSP Templates Basic

The next screen is SIP Trunking →Public →Accounts. To create an Account, follow the steps below:

1. Click Add. When Add is clicked the Add Account box appears with two choices. Choose "Select Template".
2. Select the Template that was previously installed and choose select.
3. Enter the following values and select OK. Once OK is selected you will be asked to confirm the password.
  - a. Name: SipTrunkIntegra
  - b. Description: This is a sip trunk to Integra Telecom
  - c. SIP Domain: proxy1.integravoip.net
  - d. Registration required: check if not checked
  - e. SIP username: XXXXXXXXXXX
  - f. Password:\*\*\*\*\*

The values shown are for example purposes only and the actual values will be provided by Integra Implementation Team.

The figure below shows the "Add Account" screen.

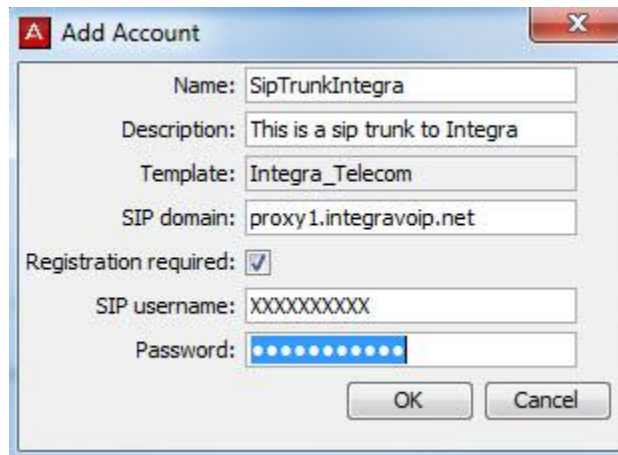


Figure 6 Add Account

The next screen is SIP Trunking → Public → Accounts → Basic. Highlight the Account name that was just added. Select the Basic tab under Details for Account: The Registrar Address will be populated. If it is, remove it. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Confirm SIP Domain Remote: proxy1.integravoip.net
2. Confirm Proxy Transport: UDP
3. Confirm Registrar Address: <no value>
4. Confirm Registrar Port: 5060

The figure below shows "Accounts Basic" screen.

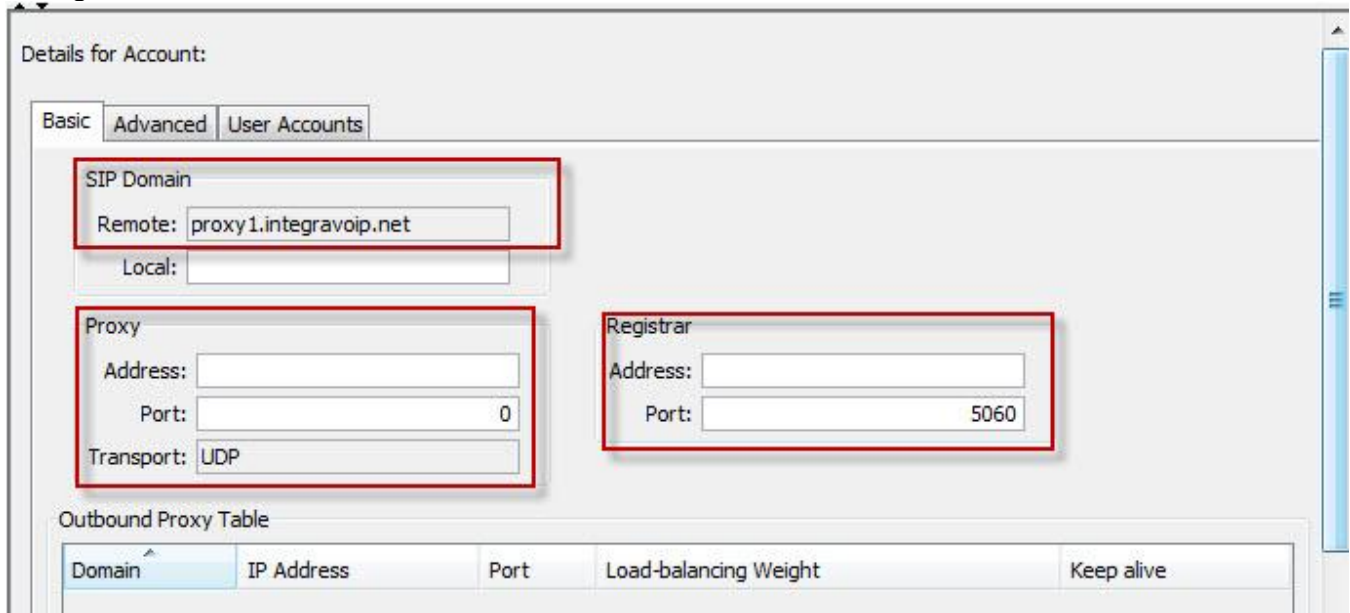


Figure 7 Accounts Basic

The next screen is SIP Trunking →Public →Accounts → Advanced. The values in this screen may need to be altered from the original template that was installed previously. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Confirm Support 100rel is checked
2. Confirm Allow UPDATE is checked
3. Confirm Enable SDP OPTIONS query is unchecked
4. Confirm Allow REFER is checked
5. Confirm Support Replaces is checked
6. Confirm Standard SIP Caps Exchange is checked
7. Confirm ITSP association method is "From header address DNS match"
8. Confirm Outbound Called characters to absorb is set to "0"

The figure below shows "Accounts Advanced" screen.

Details for Account:

Basic Advanced **User Accounts**

Enable local NAT compensation:

Enable media relay:

Use maddr in R-URI:

Use maddr in Contact:

Support 100rel:

Allow UPDATE:

Use Null IP to hold:

Use user=phone:

Force E164 international dialing:

Enable SDP OPTIONS query:

Allow REFER:

Support Replaces:

Enable Connected Identity:

Standard SIP Caps Exchange:

NAT Pinhole Maintenance

Signaling method: **None**

Signaling interval: **30**

Session timer

Session refresh method: **Disable**

Active call limit: **0**

ITSP association method: **From header address DNS match**

Outbound Called characters to absorb: **0**

Inbound Called prefix to prepend:

Authentication realm:

Figure 8 Accounts Advanced



The next screen is SIP Trunking →Public →Accounts → User Accounts. Integra Implementation Team provides a user name and password for the SIP trunk to register to Integra Telecom's network. This screen is where that information is used. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Set Description: Account Registered with Integra
2. Confirm Domain: domain should be set to values used with the template that was installed
3. Confirm Parent account is checked
4. Set User Credentials SIP username: 3608529756
5. Set User Credentials Auth name: 3608529756
6. Set User Credentials Auth password: \*\*\*\*\*
7. Confirm SIP Registration; Registration is checked.
8. Confirm Registration Details Registrar Port is set to 5060
9. Confirm Registration Details Transport is set to UDP
10. Set Registration Details Expiry: 3600

The figure below shows "Accounts User Accounts" screen.

**Modify account**

Description: Account Registered with Integra  
 Domain: proxy1.integravoip.net

Account identity  
 Parent account:

User Credentials  
 SIP username: 3608529756  
 Auth name: 3608529756  
 Auth password: ●●●●●●●●●●  
 Realm:

Message Handling  
 CLID Override:  
 Display name Override:  
 PAI CLID Override:  
 PAI Display name Override:  
 Contact Override:  
 Maddr in Contact:   
 Local Domain Override:  
 Compensate for NAT:

SIP Registration  
 Registration:

Registration Details  
 Registrar:  
 Registrar Port: 5060  
 Transport: UDP  
 Expiry: 3600

OK Cancel

Figure 9 Accounts User Accounts

The next screen is SIP Trunking →Media Parameters. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Set Preferred Codecs Selected list to G.729 and G.711-ulaw
2. Set Fax transport: T.38 (Note G.711 faxing is not supported)

The figure below shows “Media Parameters” screen.

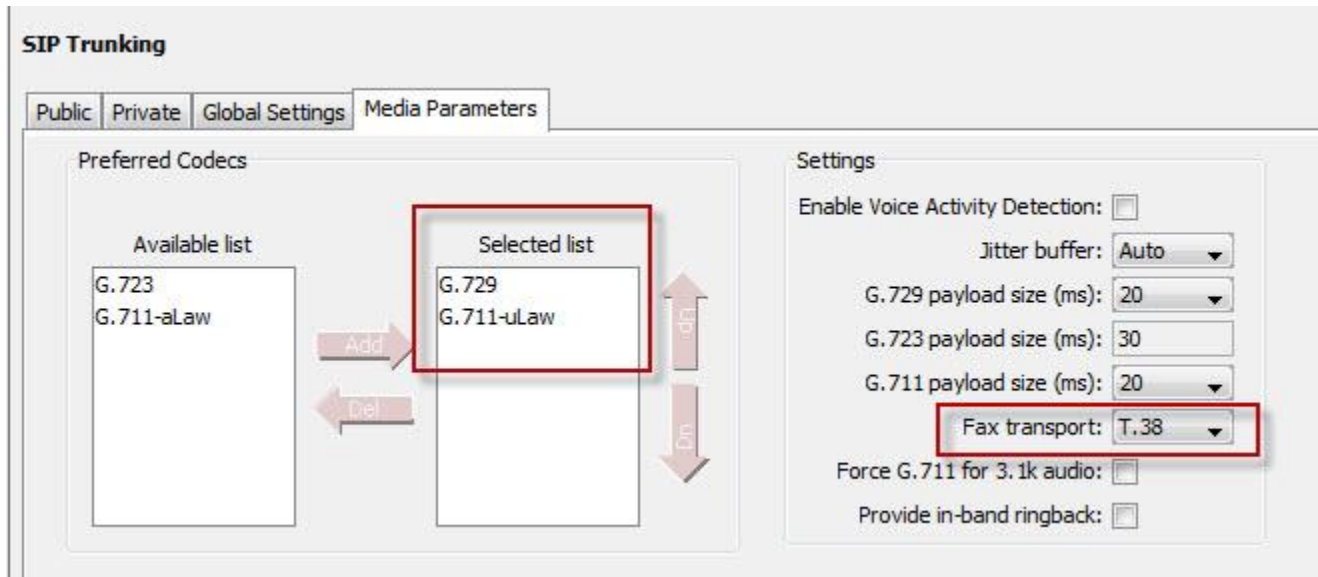


Figure 10 Sip Trunk Media Parameters

## Incoming Call Routing

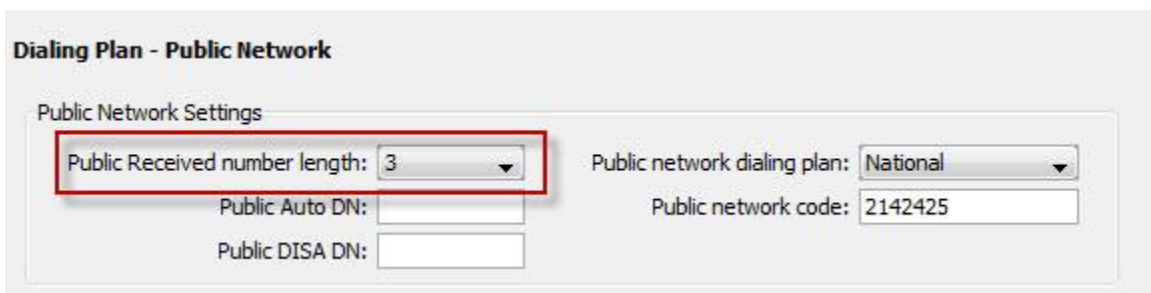
When Avaya BCM 50 is implemented using Integra Telecom as the Service Provider, Integra provides a 10 digit User name which is a PSTN number. This PSTN number is registered with a SIP trunk, from Avaya BCM 50 to Integra Telecom. For this example 360-852-9756 is used. When 360-852-9756 is dialed an Invite is sent to Avaya BCM 50. The information below is used in routing the call to the destination.

- Telephony → Dialing Plan → Public Network → Public Received number length: "3". This 3 signifies that BCM 50 acquires the last 3 digits of the called party number. Which in this example, is 756.
- Telephony → Lines → Target Lines → Line 208 has Pub.Received # of 756. Select this record.
- Telephony → Lines → Target Lines → Line 208 → Assigned DNs has DN of 307.

Configure "Public Received number length" in Avaya BCM 50 by navigating to Telephony → Dialing Plan → Public Network → Public Received number length: 3 This number may vary depending on deployment requirements. The other values will be addressed for outbound calls. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Set the Public Received number length; 3

The figure below shows "Dialing Plan Public Network" screen.



**Dialing Plan - Public Network**

Public Network Settings

Public Received number length: 3

Public network dialing plan: National

Public Auto DN:

Public network code: 2142425

Public DISA DN:

Figure 11 Dialing Plan Public Network

Configure “Public Received number” by navigating to Telephony → Lines → Target Lines. Target Lines are used to map the last 3 digits of the called number as defined in Figure 11 “Public Received number length”. For this example the last 3 digits of the called number are 756. For purpose of this example Line 208 is used. DN 307 will be the phone that receives the call. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Set the Public Received #: 756
2. Set the Assigned DN's to 307
3. Set the Appearance Type to Ring only
4. Set the Appearances to 1

The figure below shows “Target Lines” screen.

**Target Lines**

Line	Trunk Type	Name	Control Set	Line Type	Prime Set	Pub. Received #	Priv. Received #	Distinct Ring
206	Target line	Line206	221	Public	221	996		None
207	Target line	Line207	221	Public	221	995		None
208	Target line	Line208	221	Public	221	756		None
209	Target line	Line209	221	Public	221	762		None

Copy Paste... Renumber

Details for Line: 208

DN	Appearance Type	Appearances	Caller ID Set	Vmsg Set
307	Ring only	1		

Figure 12 Target Line

## Outgoing Call Routing

For this example we will use extension 307 and 303. When extension 307 places an outbound call the caller ID will be the information populated in Pub. OLI for DN 307. When extension 303 places an outbound call the caller ID will be the information populated in Pub. OLI for extension 303 prepended with the Public network code from Figure XX. All Sip trunks are assigned to Pool BlocA.

- Telephony →Dialing Plan → Line Pools →BlocA →DNs. The DN's that have permission must be assigned in this screen.
- Telephony →Dialing Plan → Routing → Destination Codes. For this configuration BCM 50 uses 8 as the access code for dialing to PSTN. When the extension dials 8 the call is pointed to Normal Route 1.
- Telephony →Dialing Plan → Routing → Routes. Route 1 uses Pool BlocA with the DN Type of Public (Unknown)
- Telephony →Dialing Plan → Public Network → Public Network Settings. BCM 50 uses the Public network dialing plan: and Public network code: from this screen when setting the caller id for the originating station
- Resources →IP Trunks →SIP Trunking →Public →Routing Table. This table is referenced to see if the digits after the 8 are provisioned in this routing table. If the digits are provisioned the call completes if not fast busy is heard.
- Telephony →Sets →Active Sets →Line Access.

Configure the DN's that have permission to use BlocA by navigating to Dialing Plan → Line Pools →BlocA →DNs DN 303 and 304 are allowed to use BlocA. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

The figure below shows "Line Pools DN's" screen.

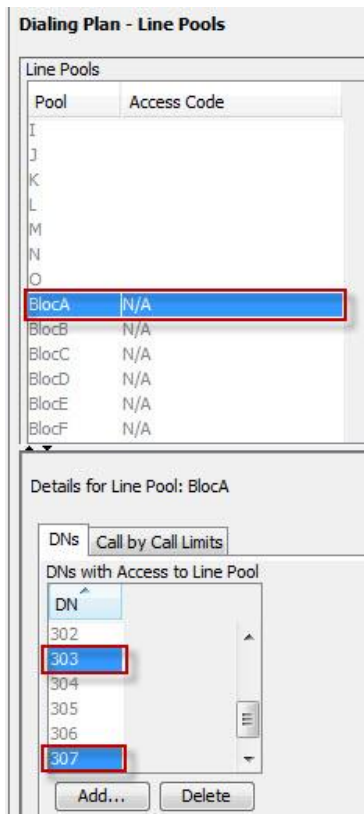


Figure 13 Line Pools DNs

Configure the access code of 8 by navigating to Dialing Plan → Routing → Destination Codes. The Absorbed Length of All removes the 8 form the called number. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Set the Destination Code; 8
2. Set the Normal Route; 001
3. Set the Absorbed Length; All

The figure below shows "Destination Codes" screen

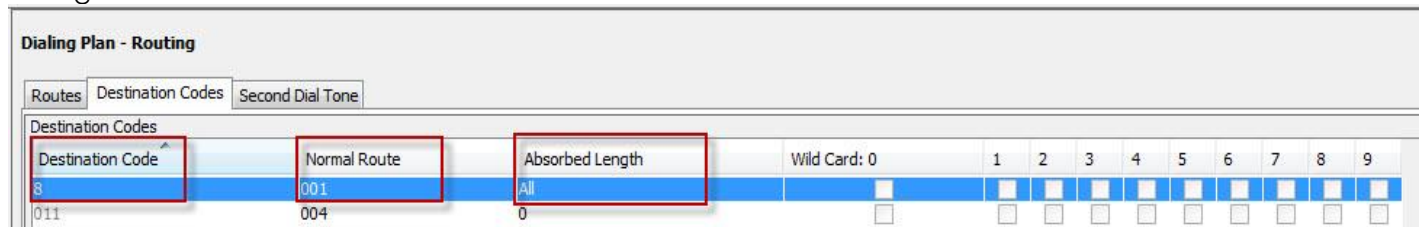


Figure 14 Destination Codes

Configure Route 001 by navigating to Telephony → Dialing Plan → Routing → Routes. The Absorbed Length of All removes the 8 from the called number. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Set Route; 001
2. Set Use Pool; BlocA
3. Set DN Type; Public (Unknown)

The figure below shows “Dialing Plan Routing” screen

Route	External Number	Use Pool	DN Type	Service Type	Service ID
000		A	N/A	N/A	N/A
001		BlocA	Public (Unknown)	N/A	N/A
002		B	Public (Unknown)	N/A	N/A
003		BlocB	N/A	Public	N/A
004		BlocB	N/A	Public	N/A

Figure 15 Dialing Plan Routing

Configure Public Network Settings by navigating to Telephony → Dialing Plan → Public Network → Public Network Settings. The Absorbed Length of All removes the 8 from the called number. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Set Public network dialing plan; National
2. Set Public network code; XXXXXXXX

The figure below shows “Dialing Plan Routing” screen

**Dialing Plan - Public Network**

Public Network Settings

Public Received number length: 3

Public Auto DN:

Public DISA DN:

Public network dialing plan: National

Public network code: 2142425

Figure 16 Dialing Plan Routing OutBound



Configure patterns that are allowed to be dialed by navigating to Resources → IP Trunks → SIP Trunking → Public → Routing Table. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. Set Name; dallas
2. Set Destination Digits; 1

The figure below shows “SIP Trunking Routing Table” screen

Name	Destination Digits	Account
dallas	1	SipTrunkIntegra
internationaldial	011	SipTrunkIntegra

Figure 17 Routing Table

Configure Public OLI by navigating to Telephony → Sets → Active Sets → Line Access. When DN 303 originates a call it will use 2142425997 as the caller id. When DN 307 originates a call it will use 3608529756 as the caller id. The values below are for example purposes only and the actual values will be provided by Integra Implementation Team

1. For DN 303 set Pub.OLI; 997
2. For DN 307 set Pub.OLI; 10 digit number

The figure below shows “Active Sets Line Access” screen

DN	Model	Name	Port	Pub. OLI	Priv. OLI	Fwd No Answer	Fwd Delay	Fwd Busy	Fwd All
303	1140E/2004/2007/2050/221x	Ricardo	0102	997	303	334	4	334	
304	1140E/2004/2007/2050/221x	Gerry	0110	996	304		N/A		
305	1140E/2004/2007/2050/221x	Prakash	0103	994	305		N/A		
306	1140E/2004/2007/2050/221x	David	0111	995	306		N/A		
307	1140E/2004/2007/2050/221x	307	0104	3608529756	307	303	4	334	

Figure 18 Active Sets Line Access