

Connecting Unify OpenScape Business IP-PBX to BroadCloud SIP Trunk using AudioCodes Mediant™ E-SBC

Version 7.0



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Notice

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1 Introduction

This Configuration Note describes how to set up AudioCodes Enterprise Session Border Controller (hereafter, referred to as *E-SBC*) for interworking between BroadCloud's SIP Trunk and IP-PBX environment.

1.1 Intended Audience

The document is intended for engineers, or AudioCodes and BroadCloud Partners who are responsible for installing and configuring BroadCloud's SIP Trunk and IP-PBX for enabling VoIP calls using AudioCodes E-SBC.

1.2 About AudioCodes E-SBC Product Series

AudioCodes' family of E-SBC devices enables reliable connectivity and security between the Enterprise's and the service provider's VoIP networks.

The E-SBC provides perimeter defense as a way of protecting Enterprises from malicious VoIP attacks; mediation for allowing the connection of any PBX and/or IP-PBX to any service provider; and Service Assurance for service quality and manageability.

Designed as a cost-effective appliance, the E-SBC is based on field-proven VoIP and network services with a native host processor, allowing the creation of purpose-built multiservice appliances, providing smooth connectivity to cloud services, with integrated quality of service, SLA monitoring, security and manageability. The native implementation of SBC provides a host of additional capabilities that are not possible with standalone SBC appliances such as VoIP mediation, PSTN access survivability, and third-party value-added services applications. This enables Enterprises to utilize the advantages of converged networks and eliminate the need for standalone appliances.

AudioCodes E-SBC is available as an integrated solution running on top of its field-proven Mediant Media Gateway and Multi-Service Business Router platforms, or as a software-only solution for deployment with third-party hardware.

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2 Component Information

2.1 IP-PBX Version

Table 2-1: IP-PBX Version

Vendor	Unify
Model	OpenScape Business v.2 OpenScape Office v.3
Protocol	SIP/UDP
Additional Notes	

2.2 AudioCodes E-SBC Version

Table 2-2: AudioCodes E-SBC Version

SBC Vendor	AudioCodes
Models	▪ Mediant 500 E-SBC ▪ Mediant 800 Gateway & E-SBC ▪ Mediant 1000B Gateway & E-SBC ▪ Mediant 3000 Gateway & E-SBC ▪ Mediant 2600 E-SBC ▪ Mediant 4000 E-SBC
Software Version	SIP_F7.00A.058.002
Protocol	▪ SIP/UDP (to the both BroadCloud SIP Trunk and IP-PBX)
Additional Notes	None

2.3 BroadCloud SIP Trunking Version

Table 2-3: BroadCloud Version

Vendor/Service Provider	BroadCloud
SSW Model/Service	BroadWorks
Software Version	21
Protocol	SIP/UDP
Additional Notes	None

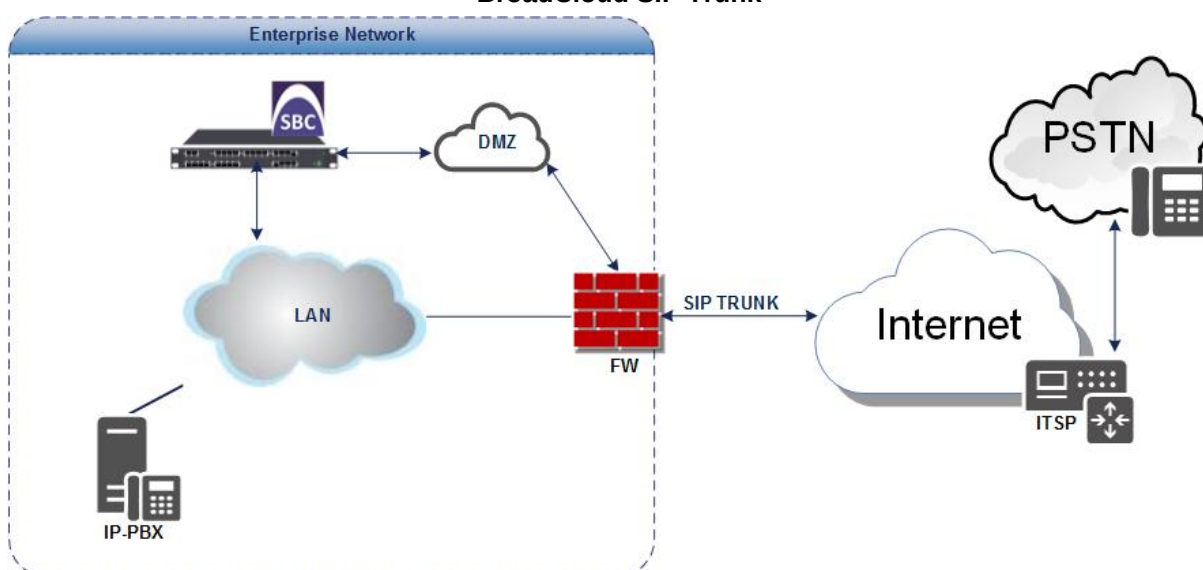
2.4 Interoperability Test Topology

The interoperability testing between AudioCodes E-SBC and BroadCloud SIP Trunk with IP-PBX was done using the following topology setup:

- Enterprise deployed with IP-PBX in its private network for enhanced communication within the Enterprise.
- Enterprise wishes to offer its employees enterprise-voice capabilities and to connect the Enterprise to the PSTN network using BroadCloud's SIP Trunking service.
- AudioCodes E-SBC is implemented to interconnect between the Enterprise LAN and the SIP Trunk.
 - **Session:** Real-time voice session using the IP-based Session Initiation Protocol (SIP).
 - **Border:** IP-to-IP network border between IP-PBX network in the Enterprise LAN and BroadCloud's SIP Trunk located in the public network.

The figure below illustrates this interoperability test topology:

Figure 2-1: Interoperability Test Topology between E-SBC and IP-PBX with BroadCloud SIP Trunk



2.4.1 Environment Setup

The interoperability test topology includes the following environment setup:

Table 2-4: Environment Setup

Area	Setup
Network	▪ IP-PBX is located on the Enterprise's LAN ▪ BroadCloud SIP Trunk is located on the WAN
Signaling Transcoding	▪ IP-PBX operates with SIP-over-UDP transport type ▪ BroadCloud SIP Trunk operates with SIP-over-UDP transport type
Codecs Transcoding	▪ IP-PBX supports G.711A-law, G.711U-law, and G.729 coder ▪ BroadCloud SIP Trunk supports G.711A-law, G.711U-law, and G.729 coder
Media Transcoding	▪ IP-PBX operates with RTP media type ▪ BroadCloud SIP Trunk operates with RTP media type

2.4.2 Known Limitations

There were no limitations observed in the interoperability tests done for the AudioCodes E-SBC interworking between IP-PBX and BroadCloud 's SIP Trunk.

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3 Configuring Unify OpenScape Business IP-PBX

This chapter describes how to configure basic parameters of the IP-PBX to operate with AudioCodes E-SBC.



Note: For more complicated configuration parameters, refer to the User Manual of each IP-PBX.

3.1 Basic Configuration Parameters

The screenshots below shows the main parameters which should be configured at the IP-PBX, to operate with the AudioCodes E-SBC.

➤ **To configure the IP-PBX:**

1. Open the **Main Web Maintenance Console** on the IP-PBX.
2. Enter **Expert Mode**.
3. Select **Voice Gateway**.
4. Select **ITSP Trunks**.
5. Enter the information in the fields as shown in the screens below.

Figure 3-1: Internet Telephony Service Provider Screen - 1

Expert mode - Telephony Server

Voice Gateway

- SIP Parameters
- Codec Parameters
- Destination Codec Parameters
- Internet Telephony Service Provider
 - 1&1
 - Acropolis
 - Amis
 - AT&T
 - Audio Codes**
 - BabyTEL
 - Belgacom IMS
 - Belgacom
 - BT IPVS
 - Cablecom
 - Cbeyond
 - CenturyLink 1
 - CenturyLink 2
 - COLT UK & Europe
 - COLT VPI
 - Commander Primus
 - Comptel
 - CTBC
 - Deanconnect B.V.
 - Destiny
 - Thomson

Internet Telephony Service Provider

Edit Internet Telephony Service Provider Delete Internet Telephony Service Provider Add Internet Telephony Station

Provider Name:

Enable Provider: ☒

Provider Identifier in System:

Domain Name:

Transport protocol:

Transport security:

Provider Registrar

Use Registrar: ☐

IP Address / Host name:

Port:

Reregistration Interval at Provider (sec):

Provider Proxy

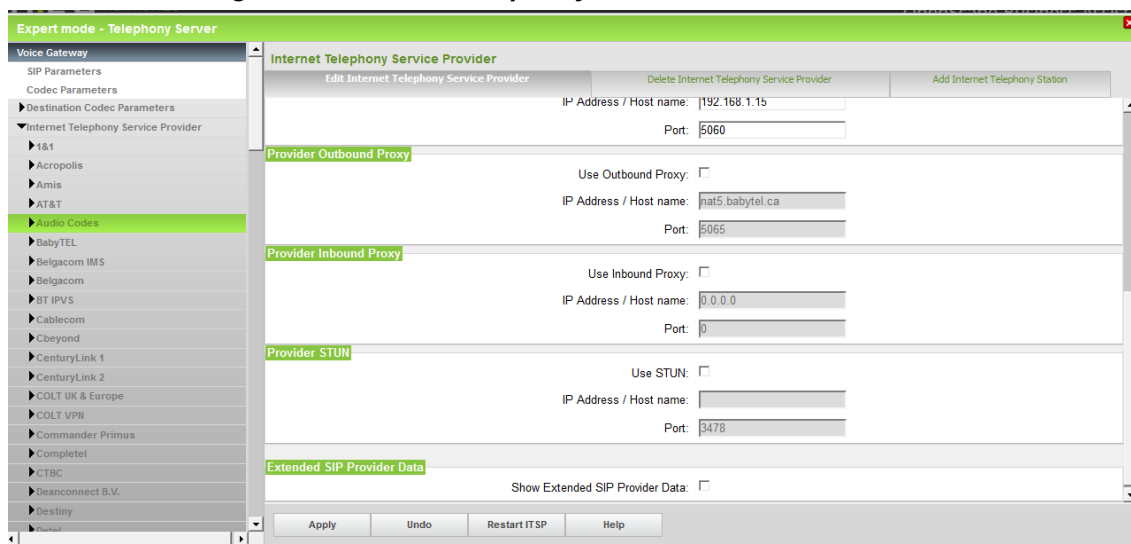
IP Address / Host name:

Port:

Provider Outbound Proxy

Apply Undo Restart ITSP Help

Figure 3-2: Internet Telephony Service Provider Screen - 2



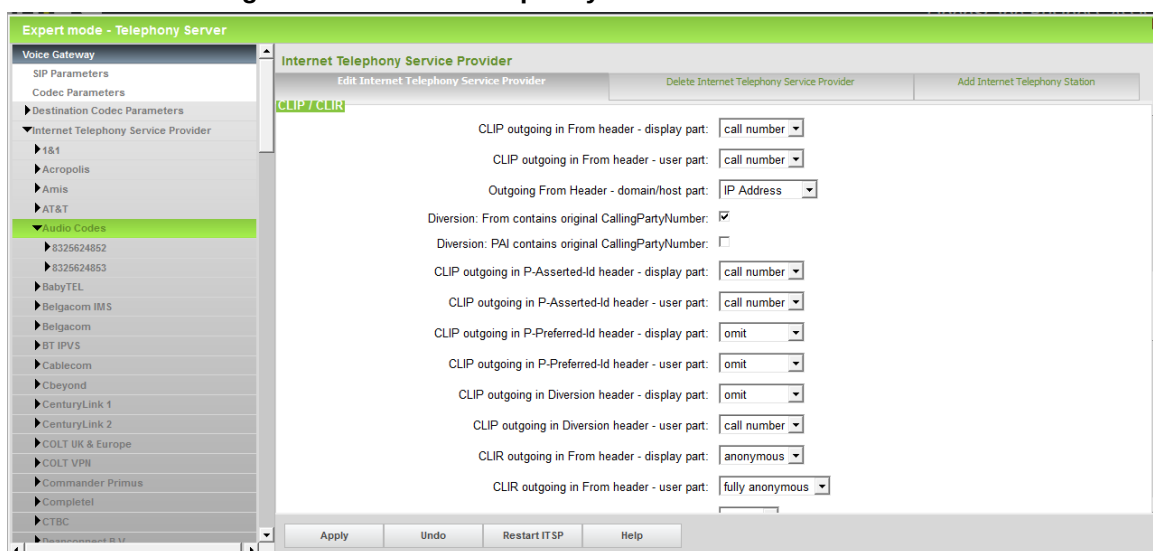
The screenshot shows the 'Expert mode - Telephony Server' interface. On the left, a tree view under 'Voice Gateway' shows 'Internet Telephony Service Provider' selected. The main panel is titled 'Internet Telephony Service Provider' and contains the following sections:

- IP Address / Host name:** 192.168.1.15
- Port:** 5060
- Provider Outbound Proxy:**
 - Use Outbound Proxy: ☐
 - IP Address / Host name: nat5.babytel.ca
 - Port: 5065
- Provider Inbound Proxy:**
 - Use Inbound Proxy: ☐
 - IP Address / Host name: 0.0.0.0
 - Port: 0
- Provider STUN:**
 - Use STUN: ☐
 - IP Address / Host name:
 - Port: 3478
- Extended SIP Provider Data:**
 - Show Extended SIP Provider Data: ☐

At the bottom, there are buttons for 'Apply', 'Undo', 'Restart ITSP', and 'Help'.

6. Select the 'Show Extended SIP Provider Data' check box and verify the field entries as follows:

Figure 3-3: Internet Telephony Service Provider Screen - 3



The screenshot shows the 'Expert mode - Telephony Server' interface. On the left, a tree view under 'Voice Gateway' shows 'Internet Telephony Service Provider' selected. The main panel is titled 'Internet Telephony Service Provider' and contains the following sections:

- CLIP/CLIR:**
 - CLIP outgoing in From header - display part: call number
 - CLIP outgoing in From header - user part: call number
 - Outgoing From Header - domain/host part: IP Address
 - Diversion: From contains original CallingPartyNumber: ☒
 - Diversion: PAI contains original CallingPartyNumber: ☐
 - CLIP outgoing in P-Asserted-Id header - display part: call number
 - CLIP outgoing in P-Asserted-Id header - user part: call number
 - CLIP outgoing in P-Preferred-Id header - display part: omit
 - CLIP outgoing in P-Preferred-Id header - user part: omit
 - CLIP outgoing in Diversion header - display part: omit
 - CLIP outgoing in Diversion header - user part: call number
 - CLIR outgoing in From header - display part: anonymous
 - CLIR outgoing in From header - user part: fully anonymous

At the bottom, there are buttons for 'Apply', 'Undo', 'Restart ITSP', and 'Help'.

Figure 3-4: Internet Telephony Service Provider Screen - 4

Expert mode - Telephony Server

Voice Gateway

- SIP Parameters
- Codec Parameters
- Destination Codec Parameters
- Internet Telephony Service Provider
- 1&1
- Acropolis
- Amis
- AT&T
- Audio Codes
- 8325624852
- 8325624853
- BabyTEL
- Belgacom IMS
- Belgacom
- BT IPV5
- Cablecom
- Cbeyond
- CenturyLink 1
- CenturyLink 2
- COLT UK & Europe
- COLT VPN
- Commander Primus
- Comptel
- CTBC

Internet Telephony Service Provider

Edit Internet Telephony Service Provider Delete Internet Telephony Service Provider Add Internet Telephony Station

CLIR outgoing Privacy header: omit

Call number formatting

Incoming call - Called party number: P-Called-Party-Id header user part

Incoming call - Calling party number: automatic

Incoming call - Type of number (calling): automatic

Incoming call - Type of number (called): automatic

Outgoing call - Type of number (calling): automatic

Mapping of provider number: in any case

CLIP no Screening support: not supported

Call No. with international/national prefix: yes

Registration

Register Contact contains IP-Address: localIPAddr

ContactUnWithProtocol: ☐

BNC Registration (SIPconnect): normal registration

Apply Undo Restart ITSP Help

Figure 3-5: Internet Telephony Service Provider Screen - 5

Expert mode - Telephony Server

Voice Gateway

- SIP Parameters
- Codec Parameters
- Destination Codec Parameters
- Internet Telephony Service Provider
- 1&1
- Acropolis
- Amis
- AT&T
- Audio Codes
- 8325624852
- 8325624853
- BabyTEL
- Belgacom IMS
- Belgacom
- BT IPV5
- Cablecom
- Cbeyond
- CenturyLink 1
- CenturyLink 2
- COLT UK & Europe
- COLT VPN
- Commander Primus
- Comptel
- CTBC

Internet Telephony Service Provider

Edit Internet Telephony Service Provider Delete Internet Telephony Service Provider Add Internet Telephony Station

ReRegistration interval after failure (sec): 120

ReRegistration mode: continuous

ReRegistration after call failure: CallFailuresNoRegFailure

Security

UDP mode: symmetric UDP

Approved Peer selection: trust configured Servers only

Miscellaneous

Direct Payload: ☐

Media Renegotiation Avoidance: ☒

UseRouteURIAuthentication: ☒

Ignore 100 Rel: ☒

UseViaRPort: ☒

UPDATE Supported: ☐

Session Timer support: not active

Send automatic 183 response timer (sec): 0

Apply Undo Restart ITSP Help

Figure 3-6: Internet Telephony Service Provider Screen - 6

Expert mode - Telephony Server

Voice Gateway

- SIP Parameters
- Codec Parameters
- Destination Codec Parameters
- Internet Telephony Service Provider
- 1&1
- Acropolis
- Amis
- AT&T
- Audio Codes
- 8325624852
- 8325624853
- BabyTEL
- Belgacom IMS
- Belgacom
- BT IPV5
- Cablecom
- Cbeyond
- CenturyLink 1
- CenturyLink 2
- COLT UK & Europe
- COLT VPN
- Commander Primus
- Comptel
- CTBC

Internet Telephony Service Provider

Edit Internet Telephony Service Provider Delete Internet Telephony Service Provider Add Internet Telephony Station

ReRegistration mode: continuous

ReRegistration after call failure: CallFailuresNoRegFailure

Security

UDP mode: symmetric UDP

Approved Peer selection: trust configured Servers only

Miscellaneous

Direct Payload: ☐

Media Renegotiation Avoidance: ☒

UseRouteURIAuthentication: ☒

Ignore 100 Rel: ☒

UseViaRPort: ☒

UPDATE Supported: ☐

Session Timer support: not active

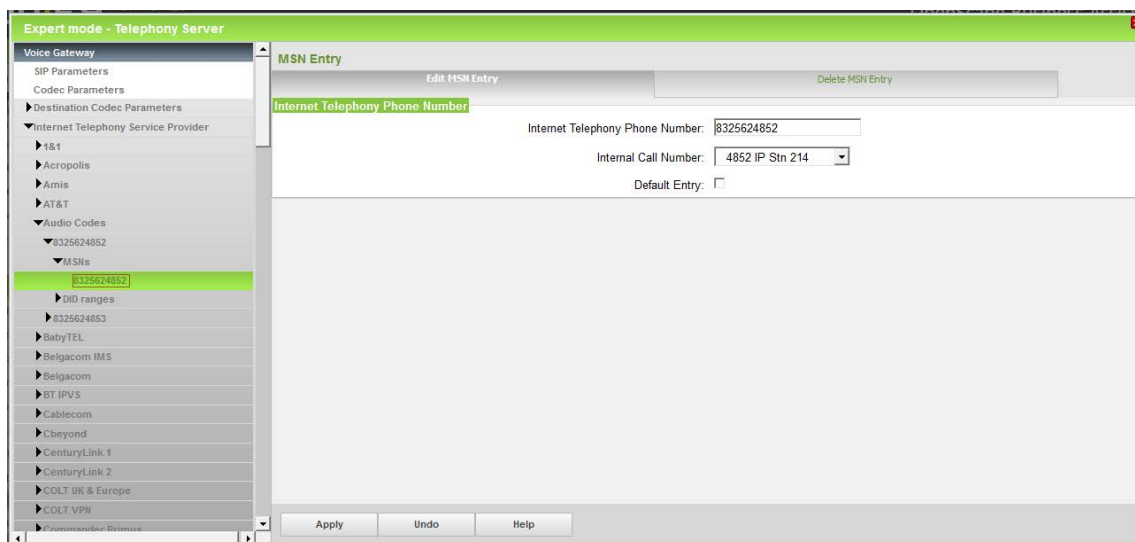
Send automatic 183 response timer (sec): 0

UDP-Keep Alive: UdpKeepAliveON

Apply Undo Restart ITSP Help

7. Click the **Add Internet Telephony Station** tab.
8. Add the information for the AudioCodes SBC provided by BroadCloud, as shown in the example below.

Figure 3-7: MSN Entry



9. Create a Route for the AudioCodes SBC as shown below.

Figure 3-8: Creating a Route - 1

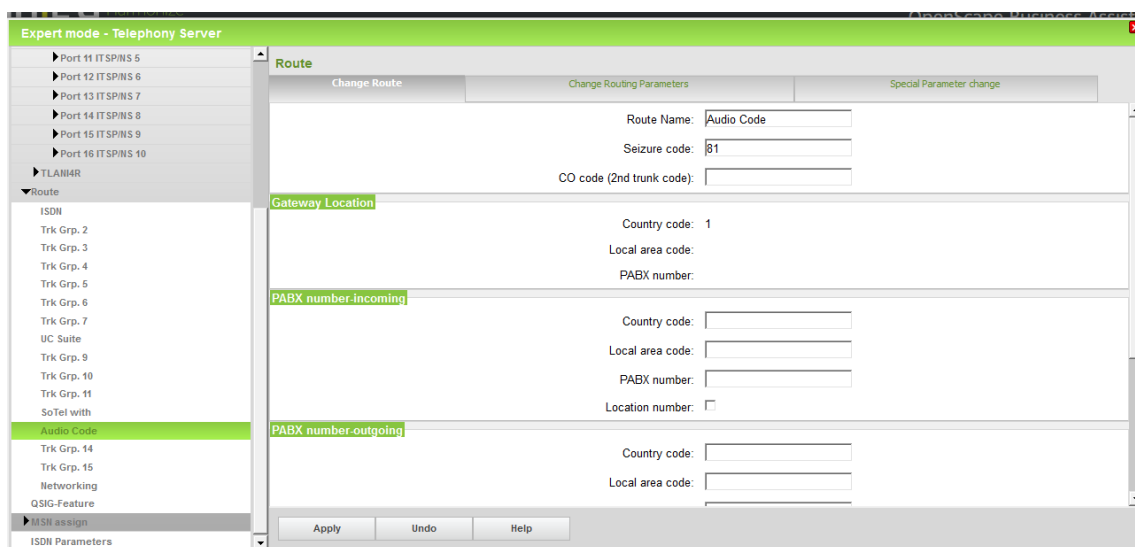


Figure 3-9: Creating a Route - 2

Expert mode - Telephony Server

Route

Change Route Change Routing Parameters Special Parameter change

PABX number-incoming

Country code:

Local area code:

PABX number:

Location number: ☐

PABX number-outgoing

Country code:

Local area code:

PABX number:

Suppress station number: ☐

Overflow route

Overflow route :

Digit transmission

Digit transmission:

Mobile Extension Number (MEX)

MEX Number

Apply Undo Help

- Assign the Route to a Routing Table.

Figure 3-10: Routing Table

Expert mode - Telephony Server

Routing Table

Change Routing Table

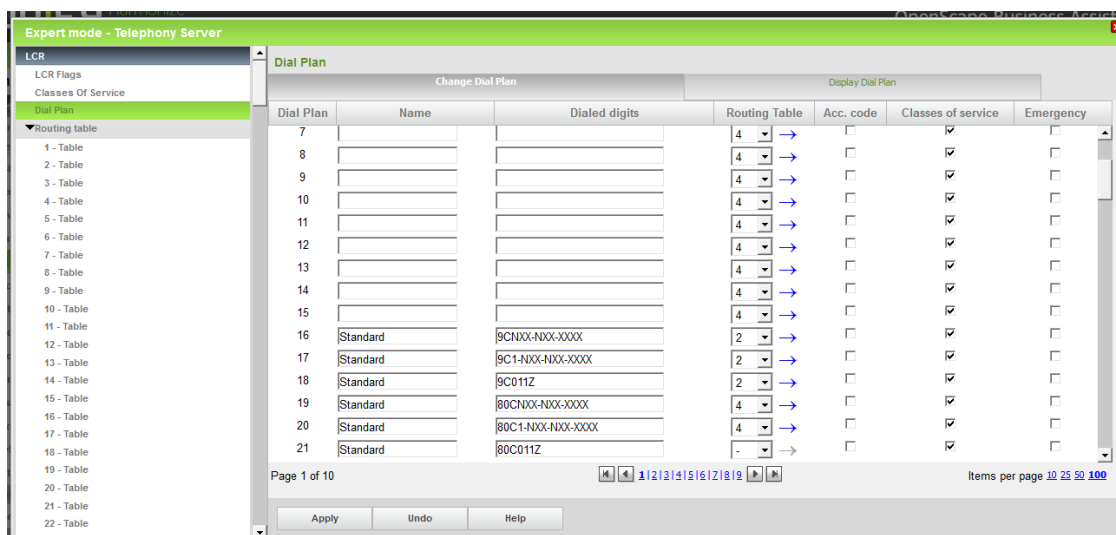
en-bloc sending

Index	Dedicated Route	Route	Dial Rule	min. COS	Warning	Dedicated Gateway	GW Node ID
1	☐	Audio Code	Native SIP	1	None	No	
2	☐	Audio Code	Native SIP	1	None	No	
3	☐	Audio Code	Native SIP	1	None	No	
4	☐	Audio Code	Native SIP	1	None	No	
5	☐	ISDN	CO	15	None	No	
6	☐	None	None	15	None	No	
7	☐	None	None	15	None	No	
8	☐	None	None	15	None	No	
9	☐	None	None	15	None	No	
10	☐	None	None	15	None	No	
11	☐	None	None	15	None	No	
12	☐	None	None	15	None	No	
13	☐	None	None	15	None	No	

Apply Undo Help

11. Assign the Routing Table in the Dial Plan.

Figure 3-11: Dial Plan



12. Check the System Flags per the example below.

Figure 3-12: System Flags - 1

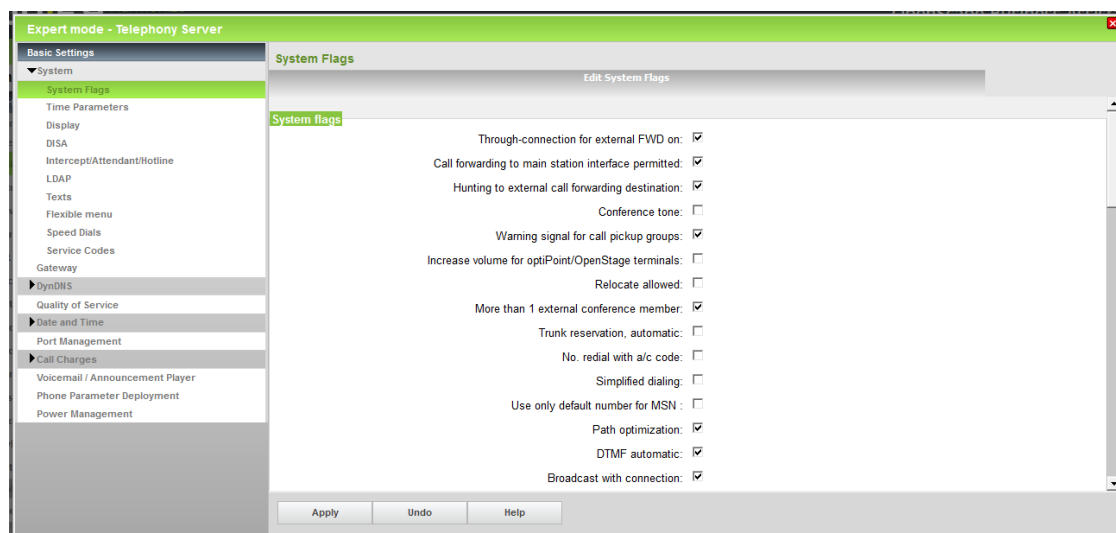


Figure 3-13: System Flags - 2

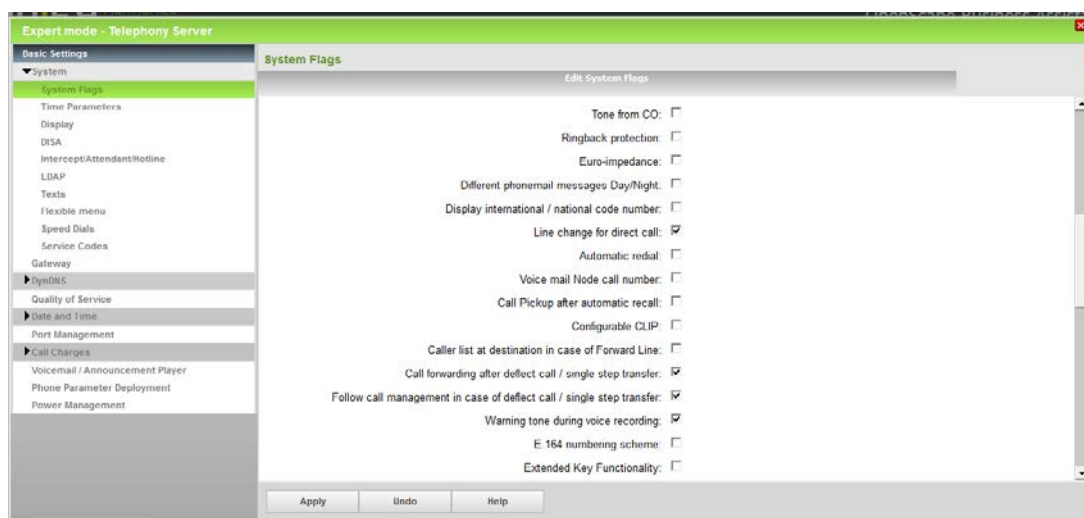


Figure 3-14: System Flags - 3

Expert mode - Telephony Server

Basic Settings

▼ System

System Flags

Time Parameters

Display

DISA

Intercept/Attendant/Hotline

LDAP

Texts

Flexible menu

Speed Dials

Service Codes

Gateway

► DynDNS

Quality of Service

► Date and Time

Port Management

► Call Charges

Voicemail / Announcement Player

Phone Parameter Deployment

Power Management

System Flags

Edit System Flags

Extended Key Functionality: ☐

Calling number in pick-up groups / ringing groups / CFN /RNA: ☒

SPE support: ☐

SPE advisory tone: ☐

SIP Prov. to SIP Prov. transit: ☒

Transparent dialing of * and # on trunk interfaces: ☐

Add seizure code for MEX: ☐

CMI MWI Ringer: ☐

Automatic OpenStage TDM Phone Software Update: ☒

Restrict indirect trunk group connections according to CON Matrix: ☐

Open numbering scheme

active: ☐

Node callnumber:

CO features (transfer/conf./drop)

CO features: ☐

Apply

Undo

Help

Figure 3-15: System Flags - 4

Expert mode - Telephony Server

Basic Settings

▼ System

System Flags

Time Parameters

Display

DISA

Intercept/Attendant/Hotline

LDAP

Texts

Flexible menu

Speed Dials

Service Codes

Gateway

► DynDNS

Quality of Service

► Date and Time

Port Management

► Call Charges

VoiceMail / Announcement Player

Phone Parameter Deployment

Power Management

System Flags

Edit System Flags

Restrict indirect trunk group connections according to CON Matrix: ☐

Open numbering scheme

active: ☐

Node callnumber:

CO features (transfer/conf./drop)

CO features: ☐

Transit permission

Feature transit: ☒

Tie traffic transit: ☒

External traffic transit : ☒

Special switch

CALL PROC no send: ☐

Automatic, cyclical line seizure: ☒

Restriction for UC calls

Restriction for UC calls: ☐

Apply

Undo

Help

13. Configure the station with the appropriate dial numbers

Expert mode - Telephony Server

Station

▼ Station

▶ IP0 Stations

▼ IP Clients

▶ System Clients

▶ SIP Clients

▶ RAS User

▶ Deskshare User

▶ Analog Stations

▶ ISDN Stations

▶ DECT Stations

▶ IVM/EVM Ports

▶ Virtual Stations

▶ UC Applications

▶ Profiles/Templates

▶ ODI Extensions

▶ Mobility User

▶ Stations Overview

▶ Key Programming

IP Clients

Edit Subscriber

Device Info

CallNo	DID	Name	Type	Clip/Lin	Active	Fax CallNo	Fax DID
Search:							
4852	→ 8325624852	IP Stn 214	System Client		✓		
215	→	IP Stn 215	System Client		-		
218	→	IP Stn 218	SIP Client		-		
4853	→ 8325624853	IP Stn 216	System Client		✓		
			No Port		-		
			No Port		-		
			No Port		-		
			No Port		-		
			No Port		-		
			No Port		-		
			No Port		-		
			No Port		-		
			No Port		-		
			No Port		-		

Page 1 of 20

◀

1

2

3

4

5

6

7

8

9

10

▶

Items per page 10 25 50 100

Apply

Undo

Help

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4 Configuring AudioCodes E-SBC

This chapter provides step-by-step procedures on how to configure AudioCodes E-SBC for interworking between IP-PBX and the BroadCloud SIP Trunk. These configuration procedures are based on the interoperability test topology described in Section 2.4 on page 10, and includes the following main areas:

- E-SBC WAN interface - BroadCloud SIP Trunking environment
- E-SBC LAN interface - IP-PBX environment

This configuration is done using the E-SBC's embedded Web server (hereafter, referred to as *Web interface*).

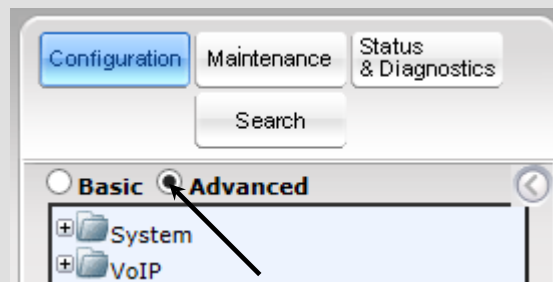
Notes:

- For implementing IP-PBX and BroadCloud SIP Trunk based on the configuration described in this section, AudioCodes E-SBC must be installed with a Software License Key that includes the following software features:

- ✓ **SBC**
- ✓ **Security**
- ✓ **DSP**
- ✓ **RTP**
- ✓ **SIP**

For more information about the Software License Key, contact your AudioCodes sales representative.

- The scope of this interoperability test and document does not cover all security aspects for connecting the SIP Trunk to the IP-PBX environment. Comprehensive security measures should be implemented per your organization's security policies. For security recommendations on AudioCodes' products, refer to the Recommended Security Guidelines document.
- Before you begin configuring the E-SBC, ensure that the E-SBC's Web interface Navigation tree is in Advanced-menu display mode. To do this, select the Advanced option, as shown below:



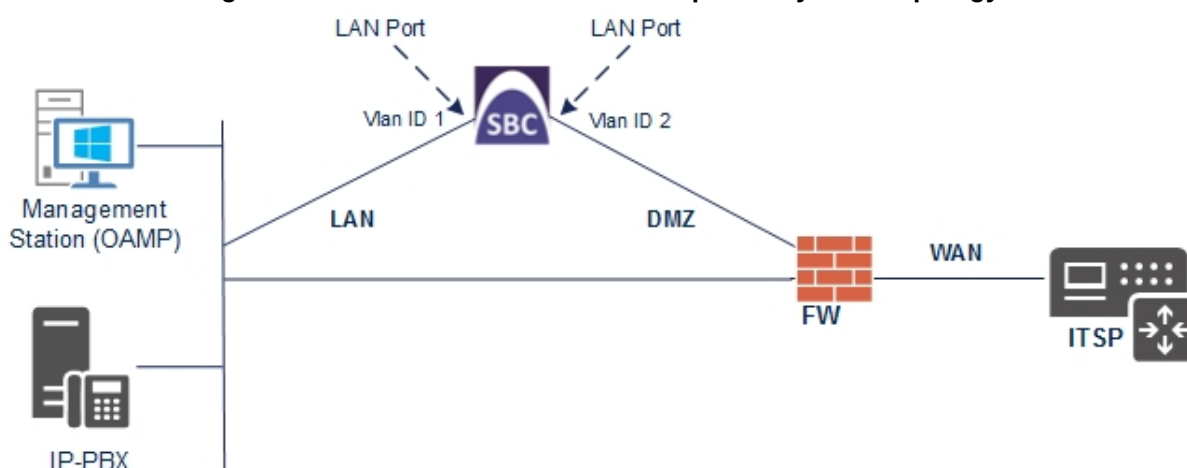
- Note that when the E-SBC is reset, the Navigation tree reverts to Basic-menu display.

4.1 Step 1: IP Network Interfaces Configuration

This step describes how to configure the E-SBC's IP network interfaces. There are several ways to deploy the E-SBC; however, this interoperability test topology employs the following deployment method:

- E-SBC interfaces with the following IP entities:
 - IP-PBX, located on the LAN
 - BroadCloud SIP Trunk, located on the WAN
- E-SBC connects to the WAN through a DMZ network
- Physical connection: The type of physical connection to the LAN depends on the method used to connect to the Enterprise's network. In the interoperability test topology, E-SBC connects to the LAN and WAN using dedicated LAN ports (i.e., two ports and two network cables are used).
- E-SBC also uses two logical network interfaces:
 - LAN (VLAN ID 1)
 - WAN (VLAN ID 2)

Figure 4-1: Network Interfaces in Interoperability Test Topology



4.1.1 Step 1a: Configure VLANs

This step describes how to define VLANs for each of the following interfaces:

- LAN VoIP (assigned the name "Voice")
- WAN VoIP (assigned the name "WANSP")

➤ **To configure the VLANs:**

1. Open the Ethernet Device Table page (**Configuration** tab > **VoIP** menu > **Network** > **Ethernet Device Table**).
2. There will be one existing row for VLAN ID 1 and underlying interface GROUP_1.
3. Add another VLAN ID 2 for the WAN side as follows:

Parameter	Value
Index	1
VLAN ID	2
Underlying Interface	GROUP_2 (Ethernet port group)
Name	vlan 2
Tagging	Untagged

Figure 4-2: Configured VLAN IDs in Ethernet Device Table

The screenshot shows the 'Ethernet Device Table' interface. At the top, there are buttons for 'Add +', 'Edit', 'Delete', and 'Show / Hide'. Below these is a search bar with a dropdown menu set to 'All' and a 'Search' button. The table itself has five columns: 'Index', 'VLAN ID', 'Underlying Interface', 'Name', and 'Tagging'. There are two rows of data. The first row has Index 0, VLAN ID 1, Underlying Interface GROUP_1, Name vlan 1, and Tagging Untagged. The second row has Index 1, VLAN ID 2, Underlying Interface GROUP_2, Name vlan 2, and Tagging Untagged. At the bottom of the table, there is a pagination bar showing 'Page 1 of 1' and a 'View 1 - 2 of 2' indicator.

Ethernet Device Table				
Add + Edit Delete Show / Hide All Search in table Search				
Index	VLAN ID	Underlying Interface	Name	Tagging
0	1	GROUP_1	vlan 1	Untagged
1	2	GROUP_2	vlan 2	Untagged
Page 1 of 1 10 View 1 - 2 of 2				

4.1.2 Step 1b: Configure Network Interfaces

This step describes how to configure the IP network interfaces for each of the following interfaces:

- LAN VoIP (assigned the name "Voice")
- WAN VoIP (assigned the name "WANSP")

➤ **To configure the IP network interfaces:**

1. Open the IP Interfaces Table page (**Configuration** tab > **VoIP** menu > **Network** > **IP Interfaces Table**).
2. Modify the existing LAN network interface:
 - a. Select the 'Index' radio button of the **OAMP + Media + Control** table row, and then click **Edit**.
 - b. Configure the interface as follows:

Parameter	Value
IP Address	10.15.45.101 (IP address of E-SBC)
Prefix Length	16 (subnet mask in bits for 255.255.0.0)
Default Gateway	10.15.0.1
VLAN ID	1
Interface Name	Voice (arbitrary descriptive name)
Primary DNS Server IP Address	10.15.25.1
Underlying Device	vlan 1

3. Add a network interface for the WAN side:
 - a. Enter **1**, and then click **Add Index**.
 - b. Configure the interface as follows:

Parameter	Value
Application Type	Media + Control
IP Address	195.189.192.156 (WAN IP address)
Prefix Length	25 (for 255.255.255.128)
Default Gateway	195.189.192.129 (router's IP address)
VLAN ID	2
Interface Name	WANSP
Primary DNS Server IP Address	80.179.52.100
Secondary DNS Server IP Address	80.179.55.100
Underlying Device	vlan 2

4. Click **Apply**, and then **Done**.

The configured IP network interfaces are shown below:

Figure 4-3: Configured Network Interfaces in IP Interfaces Table

▼ Interface Table

Add +

Edit ✎

Delete 🗑

Show / Hide 📄

▼ All

Search in table

Search 🔍

Inde:	Interfac Name	Application Type	Interface Mode	IP Address	Prefix Length	Default Gateway	Primary DNS	Secondary DNS	Underlying Device	
0	Voice	OAMP + Medi	IPv4 Manual	10.15.17.10	16	10.15.0.1	10.15.25.1	0.0.0.0	vlan 1	
1	WANSP	Media + Cont	IPv4 Manual	195.189.192.156	25	195.189.192.129	80.179.52.100	80.179.55.100	vlan 2	

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10 ▼

View 1 - 2 of 2

4.2 Step 2: Enable the SBC Application

This step describes how to enable the SBC application.

➤ **To enable the SBC application:**

1. Open the Applications Enabling page (**Configuration** tab > **VoIP** menu > **Applications Enabling** > **Applications Enabling**).

Figure 4-4: Enabling SBC Application



2. From the 'SBC Application' drop-down list, select **Enable**.
3. Click **Submit**.
4. Reset the E-SBC with a burn to flash for this setting to take effect (see Section 4.13 on page 60).

4.3 Step 3: Configure Media Realms

This step describes how to configure Media Realms. The simplest configuration is to create two Media Realms - one for internal (LAN) traffic and one for external (WAN) traffic.

➤ **To configure Media Realms:**

1. Open the Media Realm Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **Media Realm Table**).
2. Add a Media Realm for the LAN interface. You can use the default Media Realm (Index 0), but modify it as shown below:

Parameter	Value
Index	0
Name	MRLan (descriptive name)
IPv4 Interface Name	Voice
Port Range Start	6000 (as required by IP-PBX)
Number of Media Session Legs	100 (media sessions assigned with port range)

Figure 4-5: Configuring Media Realm for LAN

The screenshot shows the 'Edit Row' dialog box for configuring a Media Realm. The dialog has a title bar 'Edit Row' with a close button. The fields and their values are:

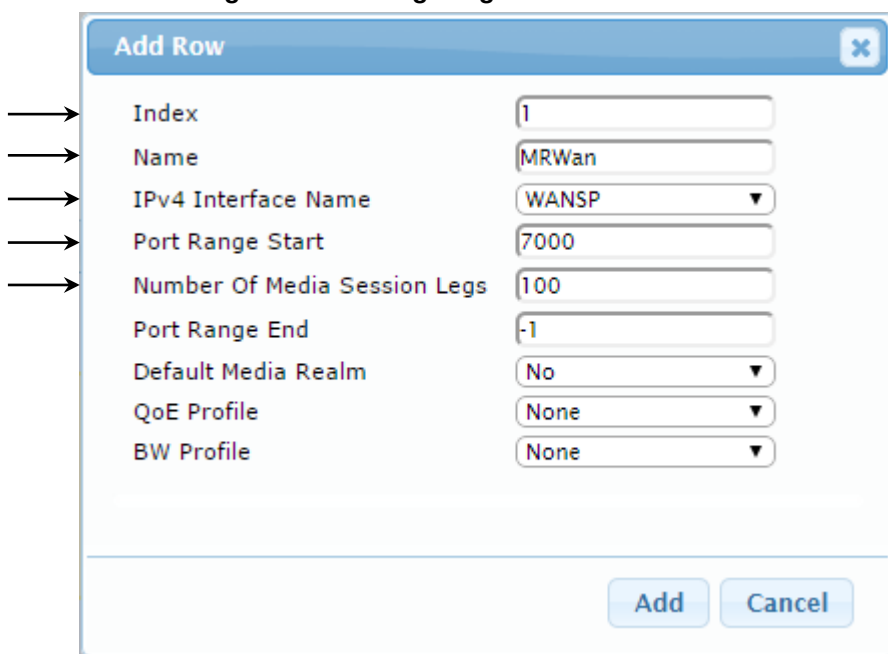
- Index: 0
- Name: MRLan
- IPv4 Interface Name: Voice
- Port Range Start: 6000
- Number Of Media Session Legs: 100
- Port Range End: 6990
- Default Media Realm: No
- QoS Profile: None
- BW Profile: None

At the bottom, there are 'Save' and 'Cancel' buttons. Five arrows on the left point to the Index, Name, IPv4 Interface Name, Port Range Start, and Number Of Media Session Legs fields.

3. Configure a Media Realm for WAN traffic:

Parameter	Value
Index	1
Name	MRWan (arbitrary name)
IPv4 Interface Name	WANSP
Port Range Start	7000 (represents lowest UDP port number used for media on WAN)
Number of Media Session Legs	100 (media sessions assigned with port range)

Figure 4-6: Configuring Media Realm for WAN



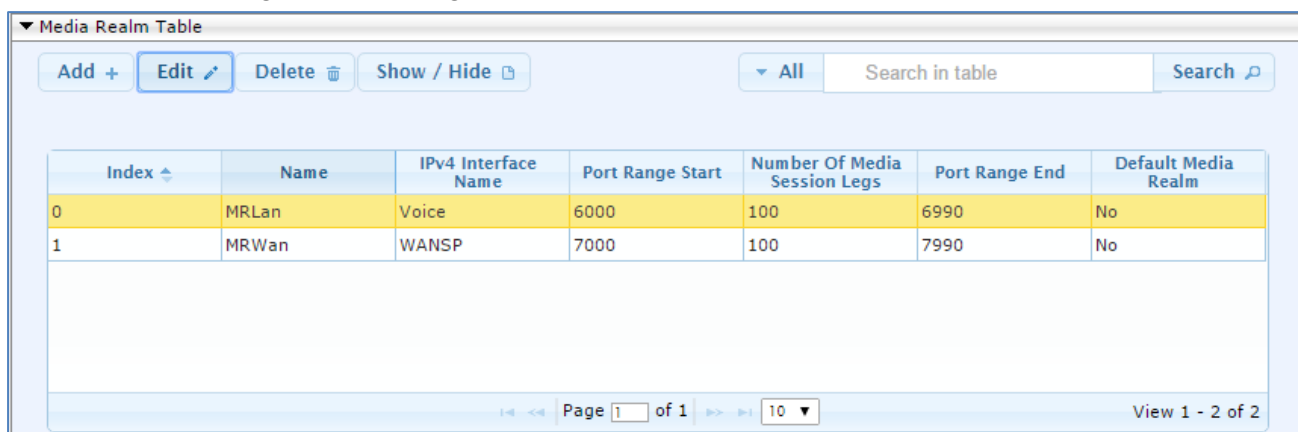
The 'Add Row' dialog box contains the following fields and values:

- Index: 1
- Name: MRWan
- IPv4 Interface Name: WANSP
- Port Range Start: 7000
- Number Of Media Session Legs: 100
- Port Range End: -1
- Default Media Realm: No
- QoS Profile: None
- BW Profile: None

Buttons at the bottom: Add, Cancel.

The configured Media Realms are shown in the figure below:

Figure 4-7: Configured Media Realms in Media Realm Table



Index	Name	IPv4 Interface Name	Port Range Start	Number Of Media Session Legs	Port Range End	Default Media Realm
0	MRLan	Voice	6000	100	6990	No
1	MRWan	WANSP	7000	100	7990	No

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4.4 Step 4: Configure SIP Signaling Interfaces

This step describes how to configure SIP Interfaces. For the interoperability test topology, an internal and external SIP Interface must be configured for the E-SBC.

➤ **To configure SIP Interfaces:**

1. Open the SIP Interface Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **SIP Interface Table**).
2. Add a SIP Interface for the LAN interface. You can use the default SIP Interface (Index 0), but modify it as shown below:

Parameter	Value
Index	0
Interface Name	IP-PBX (see Note below)
Network Interface	Voice
Application Type	SBC
TLS Port	5060
TCP and UDP	0
Media Realm	MRLan

3. Configure a SIP Interface for the WAN:

Parameter	Value
Index	1
Interface Name	BroadCloud (see Note below)
Network Interface	WANSP
Application Type	SBC
UDP Port	5060
TCP and TLS	0
Media Realm	MRWan

The configured SIP Interfaces are shown in the figure below:

Figure 4-8: Configured SIP Interfaces in SIP Interface Table

SIP Interface Table									
Add +		Edit ✎	Delete 🗑	Show / Hide 📄		All		Search in table	Search 🔍
Index	Name	SRD	Network Interface	Application Type	UDP Port	TCP Port	TLS Port	Encapsulating Protocol	Media Realm
0	IP-PBX	DefaultSRD	Voice	SBC	5060	0	0	No encapsulation	MRLan
1	BroadCloud	DefaultSRD	WANSP	SBC	5060	0	0	No encapsulation	MRWan

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Note: Unlike in previous software releases where configuration entities (e.g., SIP Interface, Proxy Sets, and IP Groups) were associated with each other using table row indices, Version 7.0 uses the string **names** of the configuration entities. Therefore, it is recommended to configure each configuration entity with meaningful names for easy identification.

4.5 Step 5: Configure Proxy Sets

This step describes how to configure Proxy Sets. The Proxy Set defines the destination address (IP address or FQDN) of the IP entity server. Proxy Sets can also be used to configure load balancing between multiple servers.

For the interoperability test topology, two Proxy Sets need to be configured for the following IP entities:

- IP-PBX
- BroadCloud SIP Trunk

The Proxy Sets will be later applying to the VoIP network by assigning them to IP Groups.

➤ To configure Proxy Sets:

1. Open the Proxy Sets Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **Proxy Sets Table**).
2. Add a Proxy Set for the IP-PBX. You can use the default Proxy Set (Index 0), but modify it as shown below:

Parameter	Value
Index	0
Name	IP-PBX (see Note on page 38)
SBC IPv4 SIP Interface	IP-PBX
Proxy Keep-Alive	Using Options

Figure 4-9: Configuring Proxy Set for IP-PBX

The screenshot shows the 'Edit Row' dialog for configuring a Proxy Set. The parameters and their values are as follows:

- Index: 0
- SRD: DefaultSRD
- Name: IP-PBX
- Gateway IPv4 SIP Interface: None
- SBC IPv4 SIP Interface: IP-PBX
- Proxy Keep-Alive: Using OPTIONS
- Proxy Keep-Alive Time [sec]: 60
- Redundancy Mode: (empty)
- Proxy Load Balancing Method: Disable
- DNS Resolve Method: (empty)
- Proxy Hot Swap: Disable
- Keep-Alive Failure Responses: (empty)
- Classification Input: IP Address only
- TLS Context Name: None

Arrows on the left point to the Index, SRD, Name, SBC IPv4 SIP Interface, and Proxy Keep-Alive fields.

Buttons at the bottom: Save, Cancel.

3. Configure a Proxy Address Table for Proxy Set for IP-PBX:
 - a. Go to Configuration tab > VoIP menu > VoIP Network > Proxy Sets Table > Proxy Address Table.

Parameter	Value
Index	0
Proxy Address	192.168.1.202:5060 (IP-PBX IP address / FQDN and destination port)
Transport Type	UDP

Figure 4-10: Configuring Proxy Address for IP-PBX

Edit Row

Index

Proxy Address

Transport Type

Save Cancel

4. Configure a Proxy Set for the BroadCloud SIP Trunk:

Parameter	Value
Index	1
Name	BroadCloud (see Note on page 38)
SBC IPv4 SIP Interface	BroadCloud
Proxy Keep-Alive	Using Options

Figure 4-11: Configuring Proxy Set for BroadCloud SIP Trunk

The screenshot shows the 'Edit Row' configuration window for a Proxy Set. The window has a title bar 'Edit Row' with a close button. Below the title bar, there is a list of parameters and their values. Arrows on the left point to the first five rows of the configuration:

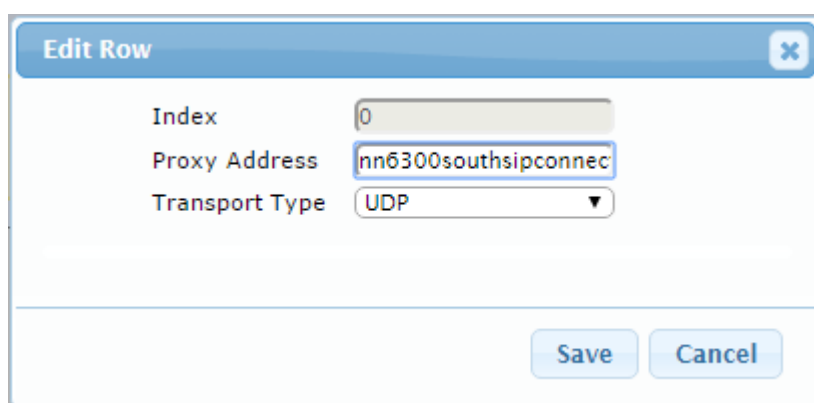
- Index: 1
- SRD: DefaultSRD
- Name: BroadCloud
- Gateway IPv4 SIP Interface: None
- SBC IPv4 SIP Interface: BroadCloud
- Proxy Keep-Alive: Using OPTIONS
- Proxy Keep-Alive Time [sec]: 60
- Redundancy Mode: (empty dropdown)
- Proxy Load Balancing Method: Disable
- DNS Resolve Method: SRV
- Proxy Hot Swap: Disable
- Keep-Alive Failure Responses: (empty text field)
- Classification Input: IP Address only
- TLS Context Name: None

At the bottom right, there are 'Save' and 'Cancel' buttons.

- a. Configure a Proxy Address Table for Proxy Set 1:
- b. Navigate to **Configuration** tab > **VoIP** menu > **VoIP Network** > **Proxy Sets Table** > **Proxy Address Table**.

Parameter	Value
Index	0
Proxy Address	nn6300southsipconnect.adpt-tech.com (IP-PBX IP address / FQDN and destination port)
Transport Type	UDP

Figure 4-12: Configuring Proxy Address for



Edit Row

Index
0

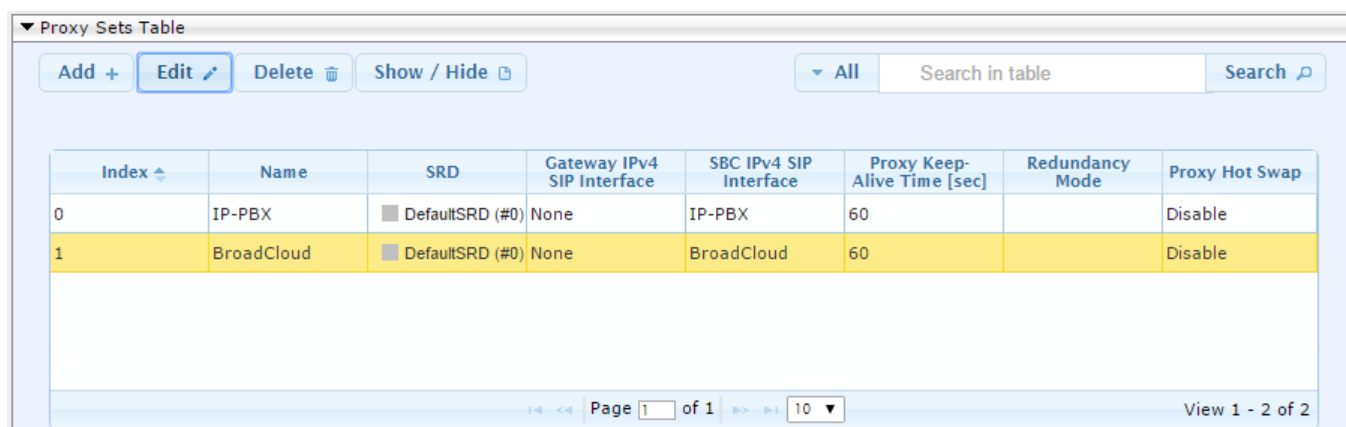
Proxy Address
nn6300southsipconnect

Transport Type
UDP

Save
Cancel

The configured Proxy Sets are shown in the figure below:

Figure 4-13: Configured Proxy Sets in Proxy Sets Table



Index	Name	SRD	Gateway IPv4 SIP Interface	SBC IPv4 SIP Interface	Proxy Keep-Alive Time [sec]	Redundancy Mode	Proxy Hot Swap
0	IP-PBX	DefaultSRD (#0)	None	IP-PBX	60		Disable
1	BroadCloud	DefaultSRD (#0)	None	BroadCloud	60		Disable

4.6 Step 6: Configure IP Profiles

This step describes how to configure IP Profiles. The IP Profile defines a set of call capabilities relating to signaling (e.g., SIP message terminations such as REFER) and media (e.g., coder and transcoding method).

In this interoperability test topology, IP Profiles need to be configured for the following IP entities:

- IP-PBX - to operate in non-secure mode using RTP and UDP
- BroadCloud SIP trunk - to operate in non-secure mode using RTP and UDP

➤ To configure IP Profile for the IP-PBX:

1. Open the IP Profile Settings page (**Configuration** tab > **VoIP** > **Coders and Profiles** > **IP Profile Settings**).
2. Click **Add**.
3. Click the **Common** tab, and then configure the parameters as follows:

Parameter	Value
Index	1
Name	IP-PBX (see Note on page 38)

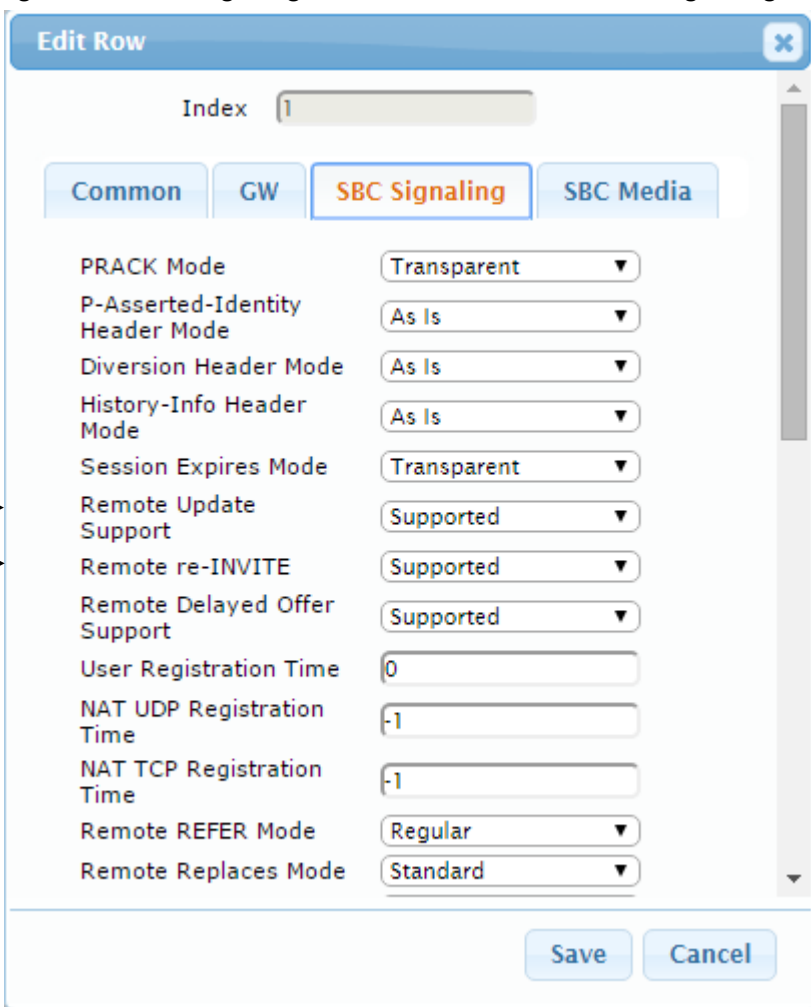
Figure 4-14: Configuring IP Profile for IP-PBX – Common Tab

The screenshot shows the 'Edit Row' dialog box for configuring an IP Profile. The 'Common' tab is selected. The 'Index' field is set to 1. The 'Name' field is set to 'IP-PBX'. Other parameters include Dynamic Jitter Buffer Minimum Delay [msec] (10), Dynamic Jitter Buffer Optimization Factor (10), Jitter Buffer Max Delay [msec] (300), RTP IP DiffServ (46), Signaling DiffServ (40), Silence Suppression (Disable), RTP Redundancy Depth (0), Echo Canceler (Line), Broken Connection Mode (Ignore), Input Gain (-32 to 31 dB) (0), Voice Volume (-32 to 31 dB) (0), and Media IP Version (Only IPv4). The 'Save' and 'Cancel' buttons are at the bottom right.

4. Click the **SBC Signaling** tab, and then configure the parameters as follows:

Parameter	Value
Remote Update Support	Supported
Remote re-INVITE	Supported

Figure 4-15: Configuring IP Profile for IP-PBX – SBC Signaling Tab



Index: 1

Common GW **SBC Signaling** SBC Media

PRACK Mode: Transparent

P-Asserted-Identity Header Mode: As Is

Diversion Header Mode: As Is

History-Info Header Mode: As Is

Session Expires Mode: Transparent

Remote Update Support: Supported

Remote re-INVITE: Supported

Remote Delayed Offer Support: Supported

User Registration Time: 0

NAT UDP Registration Time: -1

NAT TCP Registration Time: -1

Remote REFER Mode: Regular

Remote Replaces Mode: Standard

Save Cancel

5. Click the **SBC Media** tab, and then configure the parameters as follows:

Parameter	Value
SBC Media Security Mode	RTP

Figure 4-16: Configuring IP Profile for IP-PBX – SBC Media Tab

The screenshot shows the 'Edit Row' dialog box for configuring the SBC Media tab. The dialog has a title bar with 'Edit Row' and a close button. Below the title bar is an 'Index' field with the value '1'. There are four tabs: 'Common', 'GW', 'SBC Signaling', and 'SBC Media'. The 'SBC Media' tab is selected. The parameters and their values are as follows:

Transcoding Mode	Only If Required
Extension Coders	None
Allowed Audio Coders	None
Allowed Coders Mode	Restriction
Allowed Video Coders	None
Allowed Media Types	
SBC Media Security Mode	RTP
Media Security Method	SDES
Enforce MKI Size	Enforce
SDP Remove Crypto Lifetime	No
RFC 2833 Mode	As Is
Alternative DTMF Method	As Is
RFC 2833 DTMF Payload Type	0
Fax Coders	None

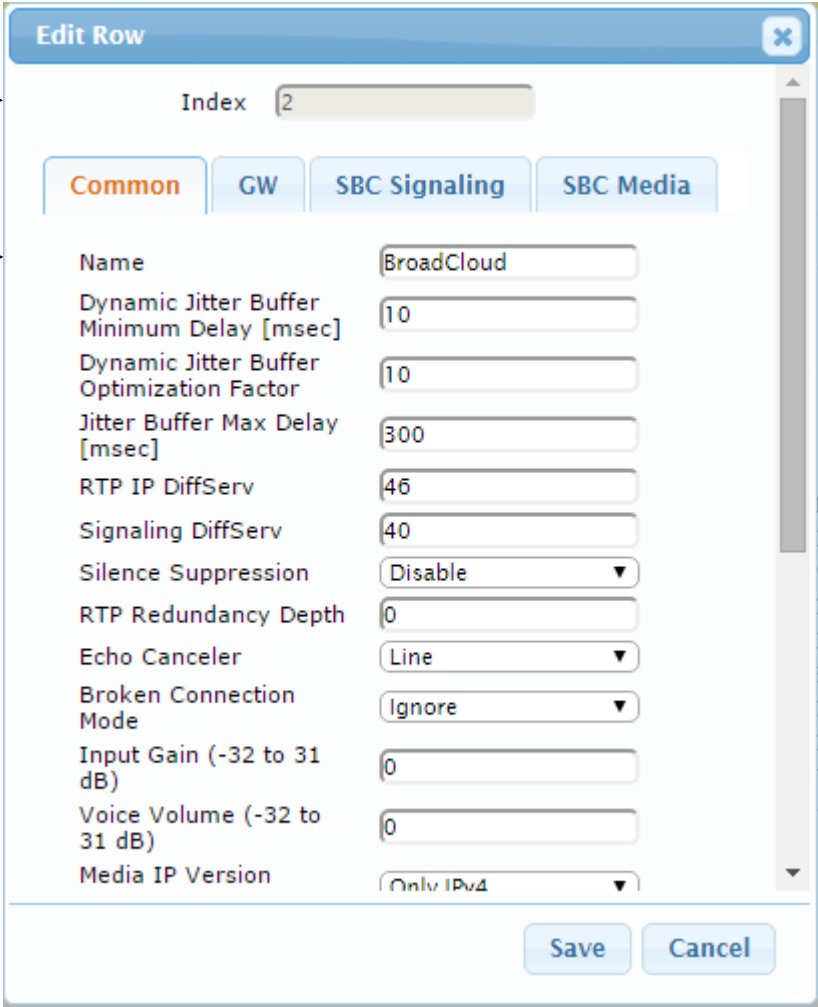
An arrow points to the 'SBC Media Security Mode' parameter. At the bottom right are 'Save' and 'Cancel' buttons.

➤ To configure an IP Profile for the **BroadCloud SIP Trunk**:

1. Click **Add**.
2. Click the **Common** tab, and then configure the parameters as follows:

Parameter	Value
Index	2
Name	BroadCloud (see Note on page 37)

Figure 4-17: Configuring IP Profile for BroadCloud SIP Trunk – Common Tab



→

→

Index

Common GW SBC Signaling SBC Media

Name

Dynamic Jitter Buffer Minimum Delay [msec]

Dynamic Jitter Buffer Optimization Factor

Jitter Buffer Max Delay [msec]

RTP IP DiffServ

Signaling DiffServ

Silence Suppression

RTP Redundancy Depth

Echo Canceled

Broken Connection Mode

Input Gain (-32 to 31 dB)

Voice Volume (-32 to 31 dB)

Media IP Version

Save Cancel

3. Click the **SBC Signaling** tab, and then configure the parameters as follows:

Parameter	Value
P-Asserted-Identity Header Mode	Add (required for anonymous calls)

Figure 4-18: Configuring IP Profile for BroadCloud SIP Trunk – SBC Signaling Tab

→

Edit Row [X]

Index: 2

Common | GW | **SBC Signaling** | SBC Media

PRACK Mode: Transparent ▼

P-Asserted-Identity Header Mode: Add ▼

Diversion Header Mode: As Is ▼

History-Info Header Mode: As Is ▼

Session Expires Mode: Transparent ▼

Remote Update Support: Supported ▼

Remote re-INVITE: Supported ▼

Remote Delayed Offer Support: Supported ▼

User Registration Time: 0

NAT UDP Registration Time: -1

NAT TCP Registration Time: -1

Remote REFER Mode: Regular ▼

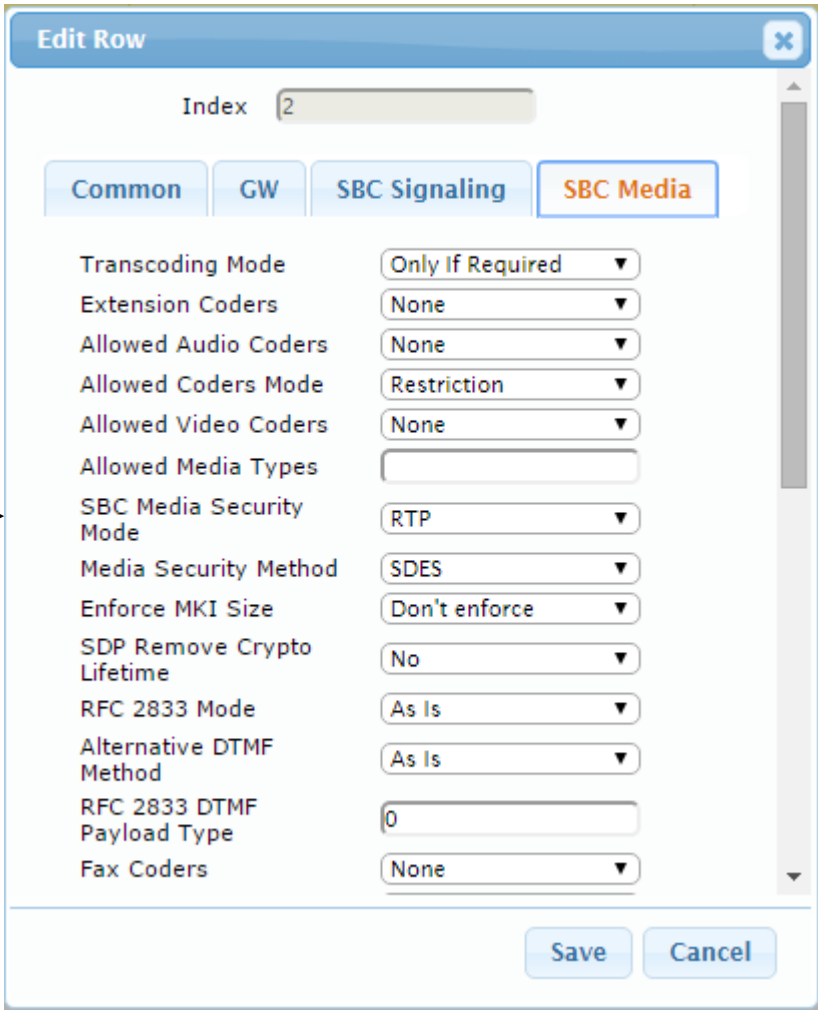
Remote Replaces Mode: Standard ▼

Save Cancel

4. Click the **SBC Media** tab, and then configure the parameters as follows:

Parameter	Value
SBC Media Security Mode	RTP

Figure 4-19: Configuring IP Profile for BroadCloud SIP Trunk – SBC Media Tab



Edit Row [X]

Index: 2

Common GW SBC Signaling **SBC Media**

Transcoding Mode: Only If Required ▼

Extension Coders: None ▼

Allowed Audio Coders: None ▼

Allowed Coders Mode: Restriction ▼

Allowed Video Coders: None ▼

Allowed Media Types:

→ SBC Media Security Mode: RTP ▼

Media Security Method: SDES ▼

Enforce MKI Size: Don't enforce ▼

SDP Remove Crypto Lifetime: No ▼

RFC 2833 Mode: As Is ▼

Alternative DTMF Method: As Is ▼

RFC 2833 DTMF Payload Type: 0

Fax Coders: None ▼

Save Cancel

4.7 Step 7: Configure IP Groups

This step describes how to configure IP Groups. The IP Group represents an IP entity on the network with which the E-SBC communicates. This can be a server (e.g., IP PBX or ITSP) or it can be a group of users (e.g., LAN IP phones). For servers, the IP Group is typically used to define the server's IP address by associating it with a Proxy Set. Once IP Groups are configured, they are used to configure IP-to-IP routing rules for denoting source and destination of the call.

In this interoperability test topology, IP Groups must be configured for the following IP entities:

- IP-PBX located on LAN
- BroadCloud SIP Trunk located on WAN

➤ To configure IP Groups:

1. Open the IP Group Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **IP Group Table**).
2. Add an IP Group for the IP-PBX. You can use the default IP Group (Index 0), but modify it as shown below:

Parameter	Value
Index	0
Name	IP-PBX (see Note on page 38)
Type	Server
Proxy Set	IP-PBX
IP Profile	IP-PBX
Media Realm	MRLan
SIP Group Name	10.15.25.12 (according to IP-PBX requirement)

3. Configure an IP Group for the BroadCloud SIP Trunk:

Parameter	Value
Index	1
Name	BroadCloud (see Note on page 38)
Type	Server
Proxy Set	BroadCloud
IP Profile	BroadCloud
Media Realm	MRWan
SIP Group Name	interop.adpt-tech.com (according to ITSP requirement)

The configured IP Groups are shown in the figure below:

Figure 4-20: Configured IP Groups in IP Group Table

▼ IP Group Table											
Add + Edit Delete Show / Hide				▼ All		Search in table			Search		
Index	Name	SRD	Type	SBC Operation Mode	Proxy Set	IP Profile	Media Realm	SIP Group Name	Classify By Proxy Set	Inbound Message Manipulation Set	Outbound Message Manipulation Set
0	IP-PBX	DefaultSRD	Server	Not Configured	IP-PBX	IP-PBX	MRLan	10.15.25.12	Enable	-1	-1
1	BroadCloud	DefaultSRD	Server	Not Configured	BroadCloud	BroadCloud	MRWan	interop.adpt-te	Enable	-1	4
Page 1 of 1 10 View 1 - 2 of 2											

4.8 Step 8: Configure IP-to-IP Call Routing Rules

This step describes how to configure IP-to-IP call routing rules. These rules define the routes for forwarding SIP messages (e.g., INVITE) received from one IP entity to another. The E-SBC selects the rule whose configured input characteristics (e.g., IP Group) match those of the incoming SIP message. If the input characteristics do not match the first rule in the table, they are compared to the second rule, and so on, until a matching rule is located. If no rule is matched, the message is rejected. The routing rules use the configured IP Groups to denote the source and destination of the call. As configured in Section 4.7 on page 34, IP Group 1 represents IP-PBX, and IP Group 2 represents BroadCloud SIP Trunk.

For the interoperability test topology, the following IP-to-IP routing rules need to be configured to route calls between IP-PBX (LAN) and BroadCloud SIP Trunk (WAN):

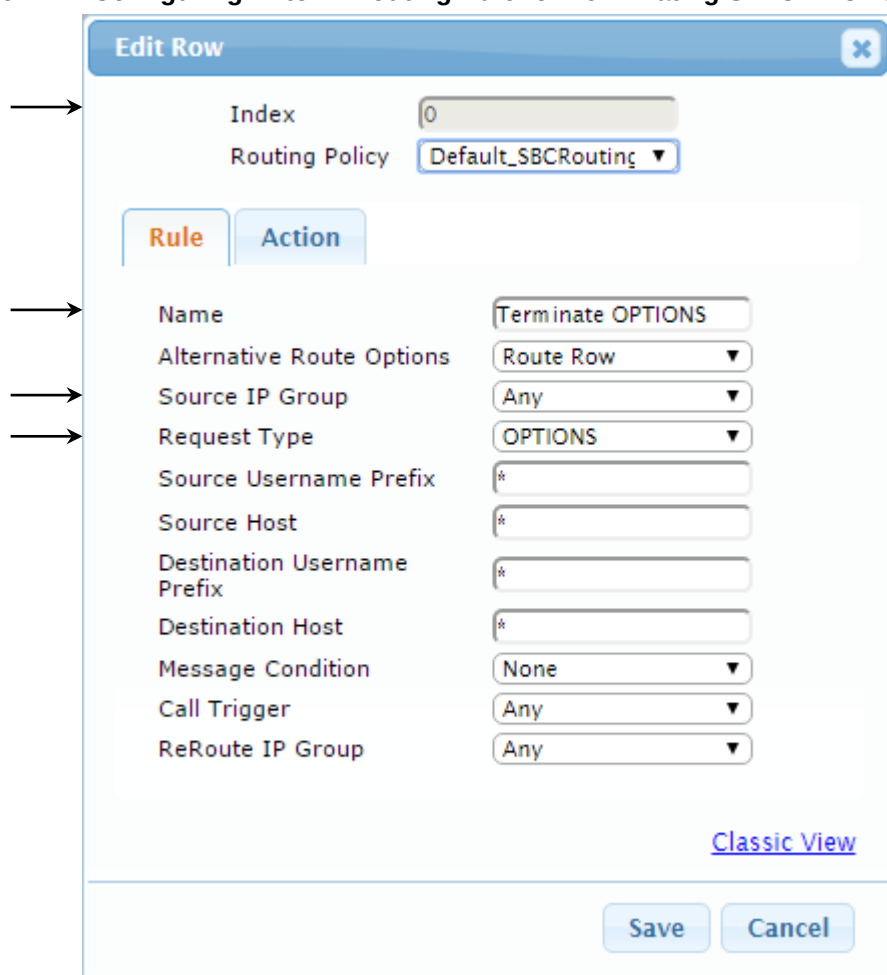
- Terminate SIP OPTIONS messages on the E-SBC
- Calls from IP-PBX to BroadCloud SIP Trunk
- Calls from BroadCloud SIP Trunk to IP-PBX

➤ To configure IP-to-IP routing rules:

1. Open the IP-to-IP Routing Table page (**Configuration** tab > **VoIP** menu > **SBC** > **Routing SBC** > **IP-to-IP Routing Table**).
2. Configure a rule to terminate SIP OPTIONS messages received from the LAN:
 - a. Click **Add**.
 - b. Click the **Rule** tab, and then configure the parameters as follows:

Parameter	Value
Index	0
Name	Terminate OPTIONS (arbitrary descriptive name)
Source IP Group	Any
Request Type	OPTIONS

Figure 4-21: Configuring IP-to-IP Routing Rule for Terminating SIP OPTIONS – Rule Tab



- c. Click the **Action** tab, and then configure the parameters as follows:

Parameter	Value
Destination Type	Dest Address
Destination Address	internal

Figure 4-22: Configuring IP-to-IP Routing Rule for Terminating SIP OPTIONS – Action Tab

Add Row [X]

Index: 0
Routing Policy: Default_SBCRouting

Rule **Action**

Destination Type: Dest Address ▼
Destination IP Group: None ▼
Destination SIP Interface: None ▼
Destination Address: internal
Destination Port: 0
Destination Transport Type: ▼
Call Setup Rules Set ID: -1
Group Policy: None ▼
Cost Group: None ▼

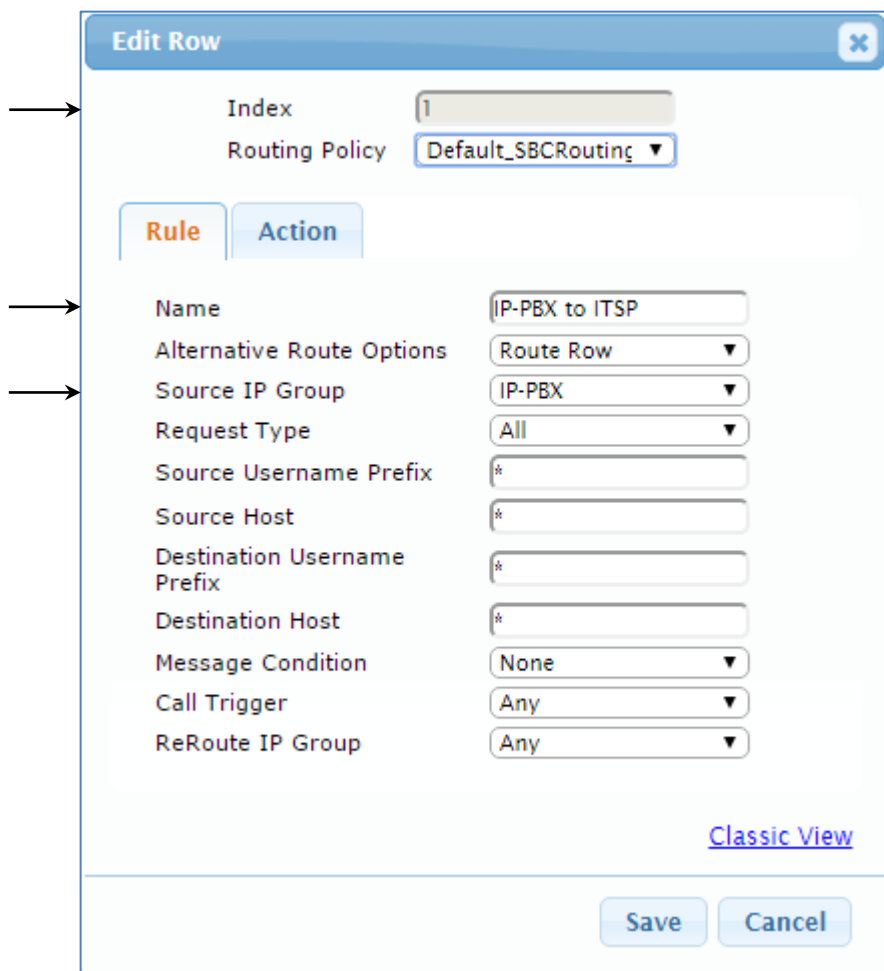
[Classic View](#)

Add Cancel

3. Configure a rule to route calls from Skype IP-PBX to BroadCloud SIP Trunk:
 - a. Click **Add**.
 - b. Click the **Rule** tab, and then configure the parameters as follows:

Parameter	Value
Index	1
Name	IP-PBX to ITSP (arbitrary descriptive name)
Source IP Group	IP-PBX

Figure 4-23: Configuring IP-to-IP Routing Rule for IP-PBX to ITSP – Rule tab



Edit Row

Index
1
Routing Policy
Default_SBCRouting

Rule

Action

Name
IP-PBX to ITSP
Alternative Route Options
Route Row
Source IP Group
IP-PBX
Request Type
All
Source Username Prefix
*
Source Host
*
Destination Username Prefix
*
Destination Host
*
Message Condition
None
Call Trigger
Any
ReRoute IP Group
Any

[Classic View](#)

Save
Cancel

- c. Click the **Action** tab, and then configure the parameters as follows:

Parameter	Value
Destination Type	IP Group
Destination IP Group	BroadCloud
Destination SIP Interface	BroadCloud

Figure 4-24: Configuring IP-to-IP Routing Rule for IP-PBX to ITSP – Action tab

The screenshot shows the 'Edit Row' dialog box with the 'Action' tab selected. The 'Index' is set to 1 and the 'Routing Policy' is 'Default_SBCRouting'. The 'Destination Type' is 'IP Group', 'Destination IP Group' is 'BroadCloud', and 'Destination SIP Interface' is 'BroadCloud'. Other fields include 'Destination Address', 'Destination Port' (0), 'Destination Transport Type', 'Call Setup Rules Set ID' (-1), 'Group Policy' (None), and 'Cost Group' (None). A 'Classic View' link is at the bottom right, and 'Save' and 'Cancel' buttons are at the bottom.

Index	1
Routing Policy	Default_SBCRouting
Rule Action	
Destination Type	IP Group
Destination IP Group	BroadCloud
Destination SIP Interface	BroadCloud
Destination Address	
Destination Port	0
Destination Transport Type	
Call Setup Rules Set ID	-1
Group Policy	None
Cost Group	None

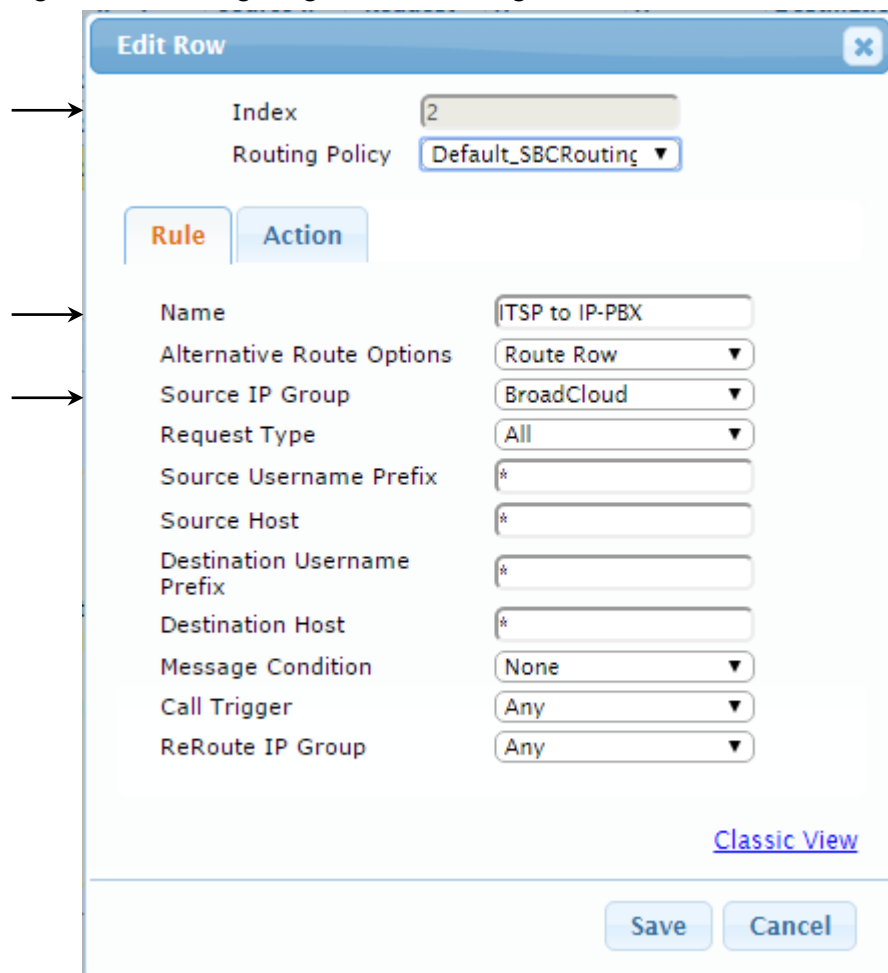
[Classic View](#)

Save Cancel

4. To configure rule to route calls from BroadCloud SIP Trunk to IP-PBX:
 - a. Click **Add**.
 - b. Click the **Rule** tab, and then configure the parameters as follows:

Parameter	Value
Index	2
Name	ITSP to IP-PBX (arbitrary descriptive name)
Source IP Group	BroadCloud

Figure 4-25: Configuring IP-to-IP Routing Rule for ITSP to IP-PBX – Rule tab



Edit Row

Index
2
Routing Policy
Default_SBCRouting

Rule

Action

Name
ITSP to IP-PBX
Alternative Route Options
Route Row
Source IP Group
BroadCloud
Request Type
All
Source Username Prefix
*
Source Host
*
Destination Username Prefix
*
Destination Host
*
Message Condition
None
Call Trigger
Any
ReRoute IP Group
Any

[Classic View](#)

Save
Cancel

- c. Click the **Action** tab, and then configure the parameters as follows:

Parameter	Value
Destination Type	IP Group
Destination IP Group	IP-PBX
Destination SIP Interface	IP-PBX

Figure 4-26: Configuring IP-to-IP Routing Rule for ITSP to IP-PBX – Action tab

Index: 2
Routing Policy: Default_SBCRouting

Rule **Action**

Destination Type: IP Group
Destination IP Group: IP-PBX
Destination SIP Interface: IP-PBX
Destination Address:
Destination Port: 0
Destination Transport Type:
Call Setup Rules Set ID: -1
Group Policy: None
Cost Group: None

[Classic View](#)

Save Cancel

The configured routing rules are shown in the figure below:

Figure 4-27: Configured IP-to-IP Routing Rules in IP-to-IP Routing Table

IP-to-IP Routing Table

Add + Edit Delete Insert + Up ↑ Down ↓ All Search in table Search

Show / Hide

Index	Name	Routing Policy	Alternative Route Options	Source IP Group	Request Type	Source Username Prefix	Destination Username Prefix	Destination Type	Destination IP Group	Destination SIP Interface	Destination Address
0	Terminate OPTI	Default_SB	Route Row	Any	OPTIONS	*	*	Dest Address	None	None	internal
1	IP-PBX to ITSP	Default_SB	Route Row	IP-PBX	All	*	*	IP Group	BroadCloud	BroadCloud	
2	ITSP to IP-PBX	Default_SB	Route Row	BroadCloud	All	*	*	IP Group	IP-PBX	IP-PBX	

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Note: The routing configuration may change according to your specific deployment topology.

4.9 Step 9: Configure IP-to-IP Manipulation Rules

This step describes how to configure IP-to-IP manipulation rules. These rules manipulate the source and / or destination number. The manipulation rules use the configured IP Groups to denote the source and destination of the call. As configured in Section 4.7 on page 34, IP Group 0 represents IP-PBX, and IP Group 1 represents BroadCloud SIP Trunk.



Note: Adapt the manipulation table according to you environment dial plan.

For example, for this interoperability test topology, a manipulation was configured to add the prefix to the destination number for calls from the IP-PBX IP Group to the BroadCloud SIP Trunk IP Group for specific destination username prefix.

➤ **To configure a number manipulation rule:**

1. Open the IP-to-IP Outbound Manipulation page (**Configuration** tab > **VoIP** menu > **SBC > Manipulations SBC > IP-to-IP Outbound**).
2. Click **Add**.

3. Click the **Rule** tab, and then configure the parameters as follows:

Parameter	Value
Index	0
Name	Call to desk
Source IP Group	IP-PBX
Destination IP Group	BroadCloud
Destination Username Prefix	4347

Figure 4-28: Configuring IP-to-IP Outbound Manipulation Rule – Rule Tab

Edit Row

Index: 0

Routing Policy: Default_SBCRouting

Rule | Action

Name: Call to desk

Additional Manipulation: No

Request Type: All

Source IP Group: IP-PBX

Destination IP Group: BroadCloud

Source Username Prefix: *

Source Host: *

Destination Username Prefix: 4347

Destination Host: *

Calling Name Prefix: *

Message Condition: None

Call Trigger: Any

ReRoute IP Group: Any

Save Cancel

- | Parameter | Value |
|------------------|-----------------|
| Manipulated Item | Destination URI |
| Prefix to Add | 0119723976 |

Edit Row

Index

0

Routing Policy

Default_SBCRouting

Rule

Action

Manipulated Item

Destination URI

Remove From Left

0

Remove From Right

0

Leave From Right

255

Prefix to Add

0119723976

Suffix to Add

Privacy Restriction Mode

Transparent

Classic View

Save

Cancel

- The figure below shows an example of configured IP-to-IP outbound manipulation rules for calls between IP-PBX IP Group and BroadCloud SIP Trunk IP Group:

IP to IP Outbound Manipulation

Add +

Edit ↗

Delete 🗑

Insert +

Up ↑

Down ↓

▼ All

Search in table

Search 🔍

Show / Hide 📄

Inde:	Name	Routing Policy	Additic Manipi	Source IP Group	Destinatio IP Group	Source Usernam Prefix	Destinat Usernam Prefix	Manipuli Item	Remove From Left	Remove From Right	Leave From Right	Prefix to Add	Suffix to Add
0	Call to desk	Default_S	No	IP-PBX	BroadCloud	*	4347	Destinatio	0	0	255	01197239	
1	Call to mobile	Default_S	No	IP-PBX	BroadCloud	*	4774	Destinatio	1	0	255	01197254	
2	For Anonymo	Default_S	No	IP-PBX	BroadCloud	*	*	Source UR	0	0	255		

⏪

⏩

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10 ▼

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4.10 Step 10: Configure Message Manipulation Rules

This step describes how to configure SIP message manipulation rules. SIP message manipulation rules can include insertion, removal, and/or modification of SIP headers. Manipulation rules are grouped into Manipulation Sets, enabling you to apply multiple rules to the same SIP message (IP entity).

Once you have configured the SIP message manipulation rules, you need to assign them to the relevant IP Group (in the IP Group table) and determine whether they must be applied to inbound or outbound messages.

➤ **To configure SIP message manipulation rule:**

1. Open the Message Manipulations page (**Configuration** tab > **VoIP** menu > **SIP Definitions** > **Msg Policy & Manipulation** > **Message Manipulations**).
2. Configure a new manipulation rule (Manipulation Set 4) for BroadCloud SIP Trunk. This rule applies to messages sent to the BroadCloud SIP Trunk IP Group. This replaces the host part of the SIP From Header with the value from the SIP To Header.

Parameter	Value
Index	0
Name	Change From host
Manipulation Set ID	4
Message Type	any.request
Action Subject	header.from.url.host
Action Type	Modify
Action Value	header.to.url.host

Figure 4-31: Configuring SIP Message Manipulation Rule 0 (for BroadCloud SIP Trunk)

The screenshot shows the 'Edit Row' dialog box with the following fields and values:

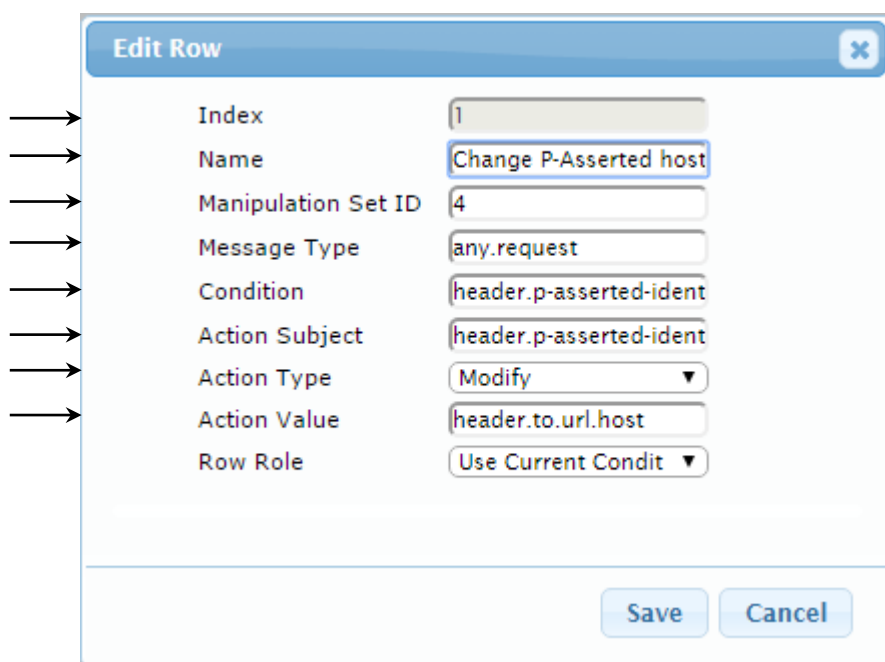
- Index: 0
- Name: Change From host
- Manipulation Set ID: 4
- Message Type: any.request
- Condition: (empty)
- Action Subject: header.from.url.host
- Action Type: Modify (dropdown)
- Action Value: header.to.url.host
- Row Role: Use Current Condit (dropdown)

At the bottom of the dialog are 'Save' and 'Cancel' buttons. Arrows on the left side of the dialog point to each of the nine fields.

3. Configure another manipulation rule (Manipulation Set 4) for BroadCloud SIP Trunk. This rule applies to messages sent to the BroadCloud SIP Trunk IP Group. This replaces the host part of the SIP P-Asserted-Identity Header with the value from the SIP To Header.

Parameter	Value
Index	1
Name	Change P-Asserted host
Manipulation Set ID	4
Message Type	any.request
Condition	header.p-asserted-identity exists
Action Subject	header.p-asserted-identity
Action Type	Modify
Action Value	header.to.url.host

Figure 4-32: Configuring SIP Message Manipulation Rule 1 (for BroadCloud SIP Trunk)



Edit Row

Index

1

Name

Change P-Asserted host

Manipulation Set ID

4

Message Type

any.request

Condition

header.p-asserted-ident

Action Subject

header.p-asserted-ident

Action Type

Modify

Action Value

header.to.url.host

Row Role

Use Current Condit

Save

Cancel

4. Configure another manipulation rule (Manipulation Set 4) for BroadCloud SIP Trunk. This rule is applied to response messages sent to the BroadCloud SIP Trunk IP Group for Rejected Calls initiated by the IP-PBX. This replaces the method type '502' with the value '480', because BroadCloud SIP Trunk not recognizes '502' method type.

Parameter	Value
Index	2
Name	Reject Responses
Manipulation Set ID	4
Message Type	any.response
Condition	header.request-uri.methodtype=='502'
Action Subject	header.request-uri.methodtype
Action Type	Modify
Action Value	'480'

Figure 4-33: Configuring SIP Message Manipulation Rule 2 (for BroadCloud SIP Trunk)

Edit Row

Index: 2

Name: Reject Responses

Manipulation Set ID: 4

Message Type: any.response

Condition: header.request-uri.met

Action Subject: header.request-uri.met

Action Type: Modify

Action Value: '480'

Row Role: Use Current Condit

Save Cancel

Figure 4-34: Example of Configured SIP Message Manipulation Rules

▼ Message Manipulations

Add + Edit Edit Delete Delete Insert + Up ↑ Down ↓ Show / Hide Show

▼ All Search in table Search

Index	Name	Manipulation Set ID	Message Type	Condition	Action Subject	Action Type	Action Value	Row Role
0	Change From host	4	any.request		header.from.url.host	Modify	header.to.url.host	Use Current Cond
1	Change P-Asserte	4	any.request	header.p-asserted-identity	header.p-asserted-ide	Modify	header.to.url.host	Use Current Cond
2	Reject Responses	4	any.response	header.request-uri.metho	header.request-uri.me	Modify	'480'	Use Current Cond

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The table displayed below includes SIP message manipulation rules, which are bound together by commonality via the Manipulation Set ID 4, which are executed for messages sent to the BroadCloud SIP Trunk IP Group. These rules are specifically required to enable proper interworking between BroadCloud SIP Trunk and IP-PBX. Refer to the *User's Manual* for further details concerning the full capabilities of header manipulation.

Rule Index	Rule Description	Reason for Introducing Rule
0	This rule applies to messages sent to the BroadCloud SIP Trunk IP Group. This replaces the host part of the SIP From Header with the value from the SIP To Header.	BroadCloud SIP Trunk required that all messages should be from known hosts.
1	This rule applies to messages sent to the BroadCloud SIP Trunk IP Group. This replaces the host part of the SIP P-Asserted-Identity Header with the value from the SIP To Header.	
2	This rule applies to response messages sent to the BroadCloud SIP Trunk IP Group for Rejected Calls initiated by the IP-PBX IP Group. This replaces the '502' method type with the value '480'.	IP-PBX response with '502' method type on DND and BroadCloud SIP Trunk does not recognize '502' method type.

5. Assign Manipulation Set ID 4 to the BroadCloud SIP trunk IP Group:
 - a. Open the IP Group Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **IP Group Table**).
 - b. Select the row of the BroadCloud SIP trunk IP Group, and then click **Edit**.
 - c. Click the **SBC** tab.
 - d. Set the 'Outbound Message Manipulation Set' field to **4**.

Figure 4-35: Assigning Manipulation Set 4 to the BroadCloud SIP Trunk IP Group

The screenshot shows the 'Edit Row' dialog box for the IP Group Table. The 'SBC' tab is selected. The 'Outbound Message Manipulation Set' field is set to 4. An arrow points to this field.

Index	SRD
2	DefaultSRD

Common **GW** **SBC**

SBC Operation Mode: Not Configured
Classify By Proxy Set: Enable
SBC Client Forking Mode: Sequential
Inbound Message Manipulation Set: -1
Outbound Message Manipulation Set: 4
Msg Man User Defined String1:
Msg Man User Defined String2:
Registration Mode: User Initiates Regis:
Max. Number of Registered Users: -1
Authentication Mode: User Authenticates
Authentication Method List:
Username:
Save Cancel

- e. Click **Submit**.

4.11 Step 11: Configure Registration Accounts

This step describes how to configure SIP registration accounts. This is required so that the E-SBC can register with the BroadCloud SIP Trunk on behalf of IP-PBX. The BroadCloud SIP Trunk requires registration and authentication to provide service.

In the interoperability test topology, the Served IP Group is IP-PBX IP Group and the Serving IP Group is BroadCloud SIP Trunk IP Group.

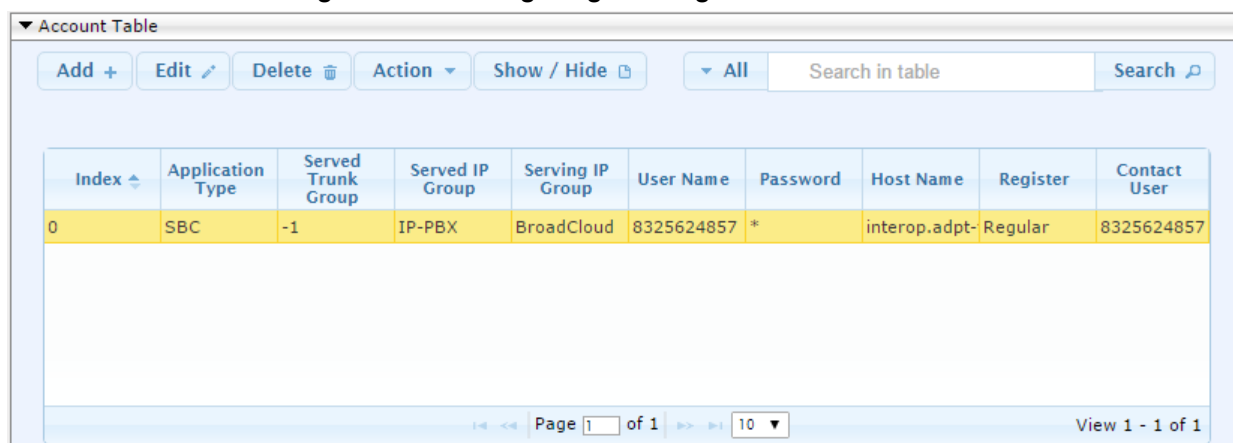
➤ **To configure a registration account:**

1. Open the Account Table page (**Configuration** tab > **VoIP** menu > **SIP Definitions** > **Account Table**).
2. Enter an index number (e.g., "0"), and then click **Add**.
3. Configure the account according to the provided information from , for example:

Parameter	Value
Application Type	SBC
Served IP Group	IP-PBX
Serving IP Group	BroadCloud
Username	As provided by BroadCloud
Password	As provided by BroadCloud
Host Name	interop.adpt-tech.com
Register	Regular
Contact User	8325624857 (pilot number)

4. Click **Apply**.

Figure 4-36: Configuring SIP Registration Account



The screenshot shows the 'Account Table' interface. At the top, there are buttons for 'Add +', 'Edit', 'Delete', 'Action', and 'Show / Hide'. Below these is a search bar with 'All' selected and a 'Search' button. The table has 10 columns: Index, Application Type, Served Trunk Group, Served IP Group, Serving IP Group, User Name, Password, Host Name, Register, and Contact User. A single row is visible with index 0, containing the following values: SBC, -1, IP-PBX, BroadCloud, 8325624857, *, interop.adpt-, Regular, and 8325624857. At the bottom, there is a pagination bar showing 'Page 1 of 1' and a 'View 1 - 1 of 1' indicator.

Index	Application Type	Served Trunk Group	Served IP Group	Serving IP Group	User Name	Password	Host Name	Register	Contact User
0	SBC	-1	IP-PBX	BroadCloud	8325624857	*	interop.adpt-	Regular	8325624857

4.12 Step 12: Miscellaneous Configuration

This section describes miscellaneous E-SBC configuration.

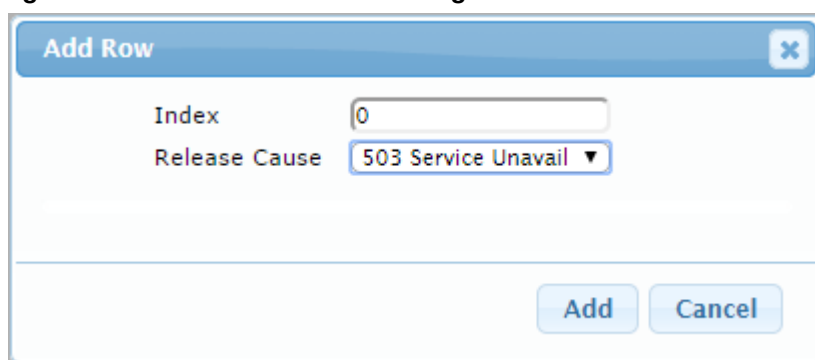
4.12.1 Step 12a: Configure SBC Alternative Routing Reasons

This step describes how to configure the E-SBC's handling of SIP 503 responses received for outgoing SIP dialog-initiating methods, e.g., INVITE, OPTIONS, and SUBSCRIBE messages. In this case E-SBC attempts to locate an alternative route for the call.

➤ To configure SIP reason codes for alternative IP routing:

1. Open the SBC Alternative Routing Reasons page (**Configuration** tab > **VoIP** menu > **SBC** > **Routing SBC** > **SBC Alternative Routing Reasons**).
2. Click **Add**; the following dialog box appears:

Figure 4-37: SBC Alternative Routing Reasons Table - Add Record



Add Row	
Index	0
Release Cause	503 Service Unavail ▼
Add Cancel	

3. Click **Submit**.

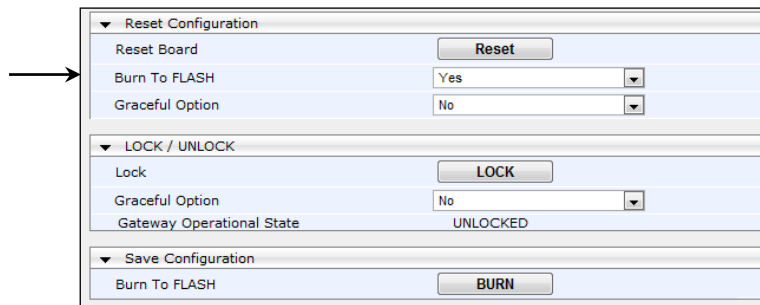
4.13 Step 13: Reset the E-SBC

After you have completed the configuration of the E-SBC described in this chapter, save ("burn") the configuration to the E-SBC's flash memory with a reset for the settings to take effect.

➤ To save the configuration to flash memory:

1. Open the Maintenance Actions page (**Maintenance** tab > **Maintenance** menu > **Maintenance Actions**).

Figure 4-38: Resetting the E-SBC



▼ Reset Configuration	
Reset Board	Reset
Burn To FLASH	Yes
Graceful Option	No
▼ LOCK / UNLOCK	
Lock	LOCK
Graceful Option	No
Gateway Operational State	UNLOCKED
▼ Save Configuration	
Burn To FLASH	BURN

2. Ensure that the 'Burn to FLASH' field is set to **Yes** (default).
3. Click the **Reset** button.

A AudioCodes INI File

The *ini* configuration file of the E-SBC, corresponding to the Web-based configuration as described in Section 4 on page 21, is shown below:



Note: To load and save an ini file, use the Configuration File page (**Maintenance** tab > **Software Update** menu > **Configuration File**).

```

*****
;
;** Ini File **
;
*****

;Board: Mediant 500 E-SBC
;HW Board Type: 69 FK Board Type: 77
;Serial Number: 4965606
;Slot Number: 1
;Software Version: 7.00A.058.002
;DSP Software Version: 5014AE3_R => 700.44
;Board IP Address: 192.168.1.15
;Board Subnet Mask: 255.255.255.0
;Board Default Gateway: 192.168.1.1
;Ram size: 496M Flash size: 64M Core speed: 500Mhz
;Num of DSP Cores: 1 Num DSP Channels: 30
;Num of physical LAN ports: 4
;Profile: NONE
;;;Key features;;Board Type: 77 ;DATA features: ;QOE features:
VoiceQualityMonitoring MediaEnhancement ;Channel Type: DspCh=30
IPMediaDspCh=30 ;HA ;Security: IPSEC MediaEncryption StrongEncryption
EncryptControlProtocol ;IP Media: Conf VXML ;DSP Voice features: RTCP-XR
;PSTN FALLBACK Supported ;FXSPorts=3 ;FX0Ports=1 ;Coders: G723 G729 G728
NETCODER GSM-FR GSM-EFR AMR EVRC-QCELP G727 ILBC EVRC-B AMR-WB G722 EG711
MS_RTA_NB MS_RTA_WB SILK_NB SILK_WB SPEEX_NB SPEEX_WB OPUS_NB OPUS_WB
;Control Protocols: MGCP SIP SASurvivability SBC=60 MSFT FEU=100
TestCall=100 ;Default features;;Coders: G711 G726;

;----- HW components-----
;
; Slot # : Module type : # of ports
;-----
; 2 : FXS : 3
; 3 : FX0 : 1
;-----

[SYSTEM Params]

;LastConfigChangeTime is hidden but has non-default value
;PM_gwINVITEDialogs is hidden but has non-default value
;PM_gwSUBSCRIBEDialogs is hidden but has non-default value
;PM_gwSBCRegisteredUsers is hidden but has non-default value
;PM_gwSBCMediaLegs is hidden but has non-default value
;PM_gwSBCTranscodingSessions is hidden but has non-default value

[BSP Params]

PCMLawSelect = 3

```

```
UdpPortSpacing = 10
EnterCpuOverloadPercent = 99
ExitCpuOverloadPercent = 95
```

[Analog Params]

[ControlProtocols Params]

```
AdminStateLockControl = 0
```

[MGCP Params]

[MEGACO Params]

```
EP_Num_0 = 0
EP_Num_1 = 1
EP_Num_2 = 1
EP_Num_3 = 0
EP_Num_4 = 0
```

[PSTN Params]

[SS7 Params]

[Voice Engine Params]

```
PrerecordedTonesFileName = 'RingbackTone-Guitar-U-law.dat'
```

[WEB Params]

```
UserProductName = 'Mediant 500 E-SBC'
LogoWidth = '145'
UseProductName = 1
HTTPSCipherString = 'RC4:EXP'
;HTTPSPkeyFileName is hidden but has non-default value
```

[SIP Params]

```
MEDIACHANNELS = 30
GWDEBUGLEVEL = 5
;ISPRACKREQUIRED is hidden but has non-default value
ENABLESBCAPPLICATION = 1
MSLDAPPRIMARYKEY = 'telephoneNumber'
MEDIACDRREPORTLEVEL = 1
SBCFORKINGHANDLINGMODE = 1
ENERGYDETECTORCMD = 587202560
ANSWERDETECTORCMD = 10486144
;GWAPPCONFIGURATIONVERSION is hidden but has non-default value
```

[SCTP Params]

[IPsec Params]

[Audio Staging Params]

[SNMP Params]

[PhysicalPortsTable]

```
FORMAT PhysicalPortsTable_Index = PhysicalPortsTable_Port,
PhysicalPortsTable_Mode, PhysicalPortsTable_SpeedDuplex,
PhysicalPortsTable_PortDescription, PhysicalPortsTable_GroupMember,
PhysicalPortsTable_GroupStatus;
PhysicalPortsTable 0 = "GE_4_1", 1, 4, "User Port #0", "GROUP_1", "Active";
PhysicalPortsTable 1 = "GE_4_2", 1, 4, "User Port #1", "GROUP_1",
"Redundant";
PhysicalPortsTable 2 = "GE_4_3", 1, 4, "User Port #2", "GROUP_2", "Active";
PhysicalPortsTable 3 = "GE_4_4", 1, 4, "User Port #3", "GROUP_2",
"Redundant";
```

[\PhysicalPortsTable]

[EtherGroupTable]

```
FORMAT EtherGroupTable_Index = EtherGroupTable_Group, EtherGroupTable_Mode,
EtherGroupTable_Member1, EtherGroupTable_Member2;
EtherGroupTable 0 = "GROUP_1", 2, "GE_4_1", "GE_4_2";
EtherGroupTable 1 = "GROUP_2", 2, "GE_4_3", "GE_4_4";
EtherGroupTable 2 = "GROUP_3", 0, "", "";
EtherGroupTable 3 = "GROUP_4", 0, "", "";
```

[\EtherGroupTable]

[DeviceTable]

```
FORMAT DeviceTable_Index = DeviceTable_VlanID,
DeviceTable_UnderlyingInterface, DeviceTable_DeviceName,
DeviceTable_Tagging;
DeviceTable 0 = 1, "GROUP_1", "vlan 1", 0;
DeviceTable 1 = 2, "GROUP_2", "vlan 2", 0;
```

[\DeviceTable]

[InterfaceTable]

```
FORMAT InterfaceTable_Index = InterfaceTable_ApplicationTypes,
InterfaceTable_InterfaceMode, InterfaceTable_IPAddress,
InterfaceTable_PrefixLength, InterfaceTable_Gateway,
InterfaceTable_InterfaceName, InterfaceTable_PrimaryDNSServerIPAddress,
InterfaceTable_SecondaryDNSServerIPAddress,
InterfaceTable_UnderlyingDevice;
InterfaceTable 0 = 6, 10, 192.168.1.15, 24, 192.168.1.1, "Voice",
192.168.1.1, 0.0.0.0, "vlan 1";
InterfaceTable 1 = 5, 10, 10.0.1.100, 24, 10.0.1.1, "WANSP", 8.8.8.8,
0.0.0.0, "vlan 2";
```

[\InterfaceTable]

[DspTemplates]

```
;
; *** TABLE DspTemplates ***
; This table contains hidden elements and will not be exposed.
; This table exists on board and will be saved during restarts.
;

[ \DspTemplates ]

[ WebUsers ]

FORMAT WebUsers_Index = WebUsers_Username, WebUsers_Password,
WebUsers_Status, WebUsers_PwAgeInterval, WebUsers_SessionLimit,
WebUsers_SessionTimeout, WebUsers_BlockTime, WebUsers_UserLevel,
WebUsers_PwNonce;
WebUsers 0 = "Admin",
"$1$juq+86Wi9veioKH7/aj4q/z8rcWUk5LB15TBnJqbmJrPzJmAh9HQhofSj4m0jImJiIyIpKD
1oPwm8vL58P749Ks=", 1, 0, 2, 15, 60, 200,
"5defa220d918d4a93d2ecba9436e766a";
WebUsers 1 = "User",
"$1$1KT0pqWhra6p/6Wmq8aZkZTFkpaTnJ+YyJibzJnW04GhhIPVgdyJiIjdjtqM+ffY9fP28PK
q/qvz9PSO/ejp5bY=", 1, 0, 2, 15, 60, 50,
"11bb2bd9dc4e498f75e0277a53e49d5c";

[ \WebUsers ]

[ TLSContexts ]

FORMAT TLSContexts_Index = TLSContexts_Name, TLSContexts_TLSVersion,
TLSContexts_ServerCipherString, TLSContexts_ClientCipherString,
TLSContexts_OcspEnable, TLSContexts_OcspServerPrimary,
TLSContexts_OcspServerSecondary, TLSContexts_OcspServerPort,
TLSContexts_OcspDefaultResponse;
TLSContexts 0 = "default", 0, "RC4:AES128", "ALL:!aNULL", 0, , , 2560, 0;

[ \TLSContexts ]

[ IpProfile ]

FORMAT IpProfile_Index = IpProfile_ProfileName, IpProfile_IpPreference,
IpProfile_CodersGroupID, IpProfile_IsFaxUsed, IpProfile_JitterBufMinDelay,
IpProfile_JitterBufOptFactor, IpProfile_IPDiffServ,
IpProfile_SigIPDiffServ, IpProfile_SCE, IpProfile_RTPRedundancyDepth,
IpProfile_RemoteBaseUDPPort, IpProfile_CNGmode, IpProfile_VxxTransportType,
IpProfile_NSEMode, IpProfile_IsDTMFUsed, IpProfile_PlayRBTone2IP,
IpProfile_EnableEarlyMedia, IpProfile_ProgressIndicator2IP,
IpProfile_EnableEchoCanceller, IpProfile_CopyDest2RedirectNumber,
IpProfile_MediaSecurityBehaviour, IpProfile_CallLimit,
IpProfile_DisconnectOnBrokenConnection, IpProfile_FirstTxDtmfOption,
IpProfile_SecondTxDtmfOption, IpProfile_RxDTMFOption, IpProfile_EnableHold,
IpProfile_InputGain, IpProfile_VoiceVolume, IpProfile_AddIEInSetup,
IpProfile_SBCExtensionCodersGroupID, IpProfile_MediaIPVersionPreference,
IpProfile_TranscodingMode, IpProfile_SBCAllowedMediaTypes,
IpProfile_SBCAllowedCodersGroupID, IpProfile_SBCAllowedVideoCodersGroupID,
IpProfile_SBCAllowedCodersMode, IpProfile_SBCMediaSecurityBehaviour,
IpProfile_SBCRFC2833Behavior, IpProfile_SBCAlternativeDTMFMethod,
IpProfile_SBCAssertIdentity, IpProfile_AMDSensitivityParameterSuit,
IpProfile_AMDSensitivityLevel, IpProfile_AMDMaxGreetingTime,
IpProfile_AMDMaxPostSilenceGreetingTime, IpProfile_SBCDiversionsMode,
```

```

IpProfile_SBCHistoryInfoMode, IpProfile_EnableQSIGTunneling,
IpProfile_SBCFaxCodersGroupID, IpProfile_SBCFaxBehavior,
IpProfile_SBCFaxOfferMode, IpProfile_SBCFaxAnswerMode,
IpProfile_SbcPrackMode, IpProfile_SBCSessionExpiresMode,
IpProfile_SBCRemoteUpdateSupport, IpProfile_SBCRemoteReinviteSupport,
IpProfile_SBCRemoteDelayedOfferSupport, IpProfile_SBCRemoteReferBehavior,
IpProfile_SBCRemote3xxBehavior, IpProfile_SBCRemoteMultiple18xSupport,
IpProfile_SBCRemoteEarlyMediaResponseType,
IpProfile_SBCRemoteEarlyMediaSupport, IpProfile_EnableSymmetricMKI,
IpProfile_MKISize, IpProfile_SBCEnforceMKISize,
IpProfile_SBCRemoteEarlyMediaRTP, IpProfile_SBCRemoteSupportsRFC3960,
IpProfile_SBCRemoteCanPlayRingback, IpProfile_EnableEarly183,
IpProfile_EarlyAnswerTimeout, IpProfile_SBC2833DTMFPayloadType,
IpProfile_SBCUserRegistrationTime, IpProfile_ResetSRTPStateUponRekey,
IpProfile_AmdMode, IpProfile_SBCReliableHeldToneSource,
IpProfile_GenerateSRTPKeys, IpProfile_SBCPlayHeldTone,
IpProfile_SBCRemoteHoldFormat, IpProfile_SBCRemoteReplacesBehavior,
IpProfile_SBCSDPptimeAnswer, IpProfile_SBCPreferredPTime,
IpProfile_SBCUseSilenceSupp, IpProfile_SBCRTPRedundancyBehavior,
IpProfile_SBCPlayRBTToTransferee, IpProfile_SBCRTCPMode,
IpProfile_SBCJitterCompensation,
IpProfile_SBCRemoteRenegotiateOnFaxDetection, IpProfile_JitterBufMaxDelay,
IpProfile_SBCUserBehindUdpNATRegistrationTime,
IpProfile_SBCUserBehindTcpNATRegistrationTime,
IpProfile_SBCSDPHandleRTCPAttribute,
IpProfile_SBCRemoveCryptoLifetimeInSDP, IpProfile_SBCIceMode,
IpProfile_SBCRTCPMux, IpProfile_SBCMediaSecurityMethod,
IpProfile_SBCHandleXDetect, IpProfile_SBCRTCPFeedback,
IpProfile_SBCRemoteRepresentationMode, IpProfile_SBCKeepVIAHeaders,
IpProfile_SBCKeepRoutingHeaders, IpProfile_SBCKeepUserAgentHeader,
IpProfile_SBCRemoteMultipleEarlyDialogs,
IpProfile_SBCRemoteMultipleAnswersMode, IpProfile_SBCDirectMediaTag,
IpProfile_SBCAdaptRFC2833BWToVoiceCoderBW;
IpProfile 1 = "IP-PBX", 1, 0, 0, 10, 10, 46, 40, 0, 0, 0, 0, 2, 0, 0, 0, 0,
-1, 1, 0, 0, -1, 0, 4, -1, 1, 1, 0, 0, "", -1, 0, 0, "", -1, -1, 0, 0, 0,
0, 0, 0, 8, 300, 400, 0, 0, 0, -1, 1, 0, 1, 3, 0, 2, 2, 1, 0, 0, 1, 0, 1,
1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
300, -1, -1, 0, 0, 0, 0, 0, 0, 0, -1, -1, -1, -1, -1, 0, "", 0;
IpProfile 2 = "BroadCloud", 1, 0, 0, 10, 10, 46, 40, 0, 0, 0, 0, 2, 0, 0,
0, 0, -1, 1, 0, 0, -1, 0, 4, -1, 1, 1, 0, 0, "", -1, 0, 0, "", -1, -1, 0,
2, 0, 0, 1, 0, 8, 300, 400, 0, 0, 0, -1, 1, 0, 1, 3, 0, 2, 2, 1, 0, 0, 1,
0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0,
0, 0, 300, -1, -1, 0, 0, 0, 0, 0, 0, 0, -1, -1, -1, -1, -1, 0, "", 0;

```

[\IpProfile]

[CpMediaRealm]

```

FORMAT CpMediaRealm_Index = CpMediaRealm_MediaRealmName,
CpMediaRealm_IPv4IF, CpMediaRealm_IPv6IF, CpMediaRealm_PortRangeStart,
CpMediaRealm_MediaSessionLeg, CpMediaRealm_PortRangeEnd,
CpMediaRealm_IsDefault, CpMediaRealm_QoeProfile, CpMediaRealm_BWProfile;
CpMediaRealm 0 = "MRLan", "Voice", "", 6000, 100, 6999, 1, "", "";
CpMediaRealm 1 = "MRWan", "WANSP", "", 7000, 100, 7999, 0, "", "";

```

[\CpMediaRealm]

[SBCRoutingPolicy]

```
FORMAT SBCRoutingPolicy_Index = SBCRoutingPolicy_Name,  
SBCRoutingPolicy_LCREnable, SBCRoutingPolicy_LCRAverageCallLength,  
SBCRoutingPolicy_LCRDefaultCost, SBCRoutingPolicy_LdapServerGroupName;  
SBCRoutingPolicy 0 = "Default_SBCRoutingPolicy", 0, 1, 0, "";
```

```
[ \SBCRoutingPolicy ]
```

```
[ SRD ]
```

```
FORMAT SRD_Index = SRD_Name, SRD_BlockUnRegUsers, SRD_MaxNumOfRegUsers,  
SRD_EnableUnAuthenticatedRegistrations, SRD_SharingPolicy,  
SRD_UsedByRoutingServer, SRD_SBCOperationMode, SRD_SBCRoutingPolicyName,  
SRD_SBCDialPlanName;  
SRD 0 = "DefaultSRD", 0, -1, 1, 0, 0, 0, "Default_SBCRoutingPolicy", "";
```

```
[ \SRD ]
```

```
[ SIPInterface ]
```

```
FORMAT SIPInterface_Index = SIPInterface_InterfaceName,  
SIPInterface_NetworkInterface, SIPInterface_ApplicationType,  
SIPInterface_UDPPort, SIPInterface_TCPPort, SIPInterface_TLSPort,  
SIPInterface_SRDName, SIPInterface_MessagePolicyName,  
SIPInterface_TLSContext, SIPInterface_TLSMutualAuthentication,  
SIPInterface_TCPKeepaliveEnable,  
SIPInterface_ClassificationFailureResponseType,  
SIPInterface_PreClassificationManSet, SIPInterface_EncapsulatingProtocol,  
SIPInterface_MediaRealm, SIPInterface_SBCDirectMedia,  
SIPInterface_BlockUnRegUsers, SIPInterface_MaxNumOfRegUsers,  
SIPInterface_EnableUnAuthenticatedRegistrations,  
SIPInterface_UsedByRoutingServer;  
SIPInterface 0 = "IP-PBX", "Voice", 2, 5060, 0, 0, "DefaultSRD", "",  
"default", -1, 0, 500, -1, 0, "MRLan", 0, -1, -1, -1, 0;  
SIPInterface 1 = "BroadCloud", "WANSP", 2, 5060, 0, 0, "DefaultSRD", "",  
"default", -1, 0, 500, -1, 0, "MRwan", 0, -1, -1, -1, 0;
```

```
[ \SIPInterface ]
```

```
[ ProxySet ]
```

```
FORMAT ProxySet_Index = ProxySet_ProxyName, ProxySet_EnableProxyKeepAlive,  
ProxySet_ProxyKeepAliveTime, ProxySet_ProxyLoadBalancingMethod,  
ProxySet_IsProxyHotSwap, ProxySet_SRDName, ProxySet_ClassificationInput,  
ProxySet_TLSContextName, ProxySet_ProxyRedundancyMode,  
ProxySet_DNSResolveMethod, ProxySet_KeepAliveFailureResp,  
ProxySet_GWIPv4SIPInterfaceName, ProxySet_SBCIPv4SIPInterfaceName,  
ProxySet_SASIPv4SIPInterfaceName, ProxySet_GWIPv6SIPInterfaceName,  
ProxySet_SBCIPv6SIPInterfaceName, ProxySet_SASIPv6SIPInterfaceName;  
ProxySet 0 = "IP-PBX", 1, 60, 0, 0, "DefaultSRD", 0, "", -1, -1, "", "",  
"IP-PBX", "", "", "", "", "";  
ProxySet 1 = "BroadCloud", 1, 60, 0, 0, "DefaultSRD", 0, "", -1, 1, "", "",  
"BroadCloud", "", "", "", "", "";
```

```
[ \ProxySet ]
```

```
[ IPGroup ]
```

```

FORMAT IPGroup_Index = IPGroup_Type, IPGroup_Name, IPGroup_ProxySetName,
IPGroup_SIPGroupName, IPGroup_ContactUser, IPGroup_SipReRoutingMode,
IPGroup_AlwaysUseRouteTable, IPGroup_SRDName, IPGroup_MediaRealm,
IPGroup_ClassifyByProxySet, IPGroup_ProfileName, IPGroup_MaxNumOfRegUsers,
IPGroup_InboundManSet, IPGroup_OutboundManSet, IPGroup_RegistrationMode,
IPGroup_AuthenticationMode, IPGroup_MethodList,
IPGroup_EnableSBCCClientForking, IPGroup_SourceUriInput,
IPGroup_DestUriInput, IPGroup_ContactName, IPGroup_Username,
IPGroup_Password, IPGroup_UIFormat, IPGroup_QOEProfile, IPGroup_BWProfile,
IPGroup_MediaEnhancementProfile, IPGroup_AlwaysUseSourceAddr,
IPGroup_MsgManUserDef1, IPGroup_MsgManUserDef2, IPGroup_SIPConnect,
IPGroup_SBCPSAPMode, IPGroup_DTLSContext, IPGroup_CreatedByRoutingServer,
IPGroup_UsedByRoutingServer, IPGroup_SBCOperationMode,
IPGroup_SBCRouteUsingRequestURIPort, IPGroup_SBCKeepOriginalCallID,
IPGroup_SBCDialPlanName;
IPGroup 0 = 0, "IP-PBX", "IP-PBX", "", "", -1, 0, "DefaultSRD", "MRLan", 1,
"IP-PBX", -1, -1, -1, 0, 0, "", 0, -1, -1, "", "", "$1$gQ==", 0, "", "",
"", 0, "", "", 0, 0, "", 0, 0, -1, 0, 0, "";
IPGroup 1 = 0, "BroadCloud", "BroadCloud", "interop.adpt-tech.com", "", -1,
0, "DefaultSRD", "MRwan", 1, "BroadCloud", -1, -1, 4, 0, 0, "", 0, -1, -1,
"", "", "$1$gQ==", 0, "", "", "", 0, "", "", 0, 0, 0, 0, -1, 0, 0, "";

```

[\IPGroup]

[SBCAlternativeRoutingReasons]

```

FORMAT SBCAlternativeRoutingReasons_Index =
SBCAlternativeRoutingReasons_ReleaseCause;
SBCAlternativeRoutingReasons 0 = 503;

```

[\SBCAlternativeRoutingReasons]

[ProxyIp]

```

FORMAT ProxyIp_Index = ProxyIp_ProxySetId, ProxyIp_ProxyIpIndex,
ProxyIp_IpAddress, ProxyIp_TransportType;
ProxyIp 0 = "0", 0, "192.168.1.202:5060", 0;
ProxyIp 1 = "1", 0, "nn6300southsipconnect.adpt-tech.com", 0;

```

[\ProxyIp]

[Account]

```

FORMAT Account_Index = Account_ServedTrunkGroup, Account_ServedIPGroupName,
Account_ServingIPGroupName, Account_Username, Account_Password,
Account_HostName, Account_Register, Account_ContactUser,
Account_ApplicationType;
Account 0 = -1, "IP-PBX", "BroadCloud", "8325624857",
"$1$SSg/LyUiDSA0NCFhZGRj", "interop.adpt-tech.com", 1, "8325624857", 2;

```

[\Account]

[IP2IPRouting]

```

FORMAT IP2IPRouting_Index = IP2IPRouting_RouteName,
IP2IPRouting_RoutingPolicyName, IP2IPRouting_SrcIPGroupName,
IP2IPRouting_SrcUsernamePrefix, IP2IPRouting_SrcHost,

```

```
IP2IPRouting_DestUsernamePrefix, IP2IPRouting_DestHost,
IP2IPRouting_RequestType, IP2IPRouting_MessageConditionName,
IP2IPRouting_ReRouteIPGroupName, IP2IPRouting_Trigger,
IP2IPRouting_CallSetupRulesSetId, IP2IPRouting_DestType,
IP2IPRouting_DestIPGroupName, IP2IPRouting_DestSIPInterfaceName,
IP2IPRouting_DestAddress, IP2IPRouting_DestPort,
IP2IPRouting_DestTransportType, IP2IPRouting_AltRouteOptions,
IP2IPRouting_GroupPolicy, IP2IPRouting_CostGroup, IP2IPRouting_DestTags,
IP2IPRouting_SrcTags;
IP2IPRouting 0 = "Terminate OPTIONS", "Default_SBCRoutingPolicy", "Any",
"\"", "\"", "\"", "\"", 6, "\"", "Any", 0, -1, 1, "\"", "\"", "internal", 0, -1, 0,
0, "\"", "\"", "\"";
IP2IPRouting 1 = "IP-PBX to ITSP", "Default_SBCRoutingPolicy", "IP-PBX",
"\"", "\"", "\"", "\"", 0, "\"", "Any", 0, -1, 0, "BroadCloud", "BroadCloud", "\"",
0, -1, 0, 0, "\"", "\"", "\"";
IP2IPRouting 2 = "ITSP to IP-PBX", "Default_SBCRoutingPolicy",
"\"BroadCloud\"", "\"", "\"", "\"", "\"", 0, "\"", "Any", 0, -1, 0, "IP-PBX", "IP-
PBX", "\"", 0, -1, 0, 0, "\"", "\"", "\"";
```

```
[ \IP2IPRouting ]
```

```
[ IPOutboundManipulation ]
```

```
FORMAT IPOutboundManipulation_Index =
IPOutboundManipulation_ManipulationName,
IPOutboundManipulation_RoutingPolicyName,
IPOutboundManipulation_IsAdditionalManipulation,
IPOutboundManipulation_SrcIPGroupName,
IPOutboundManipulation_DestIPGroupName,
IPOutboundManipulation_SrcUsernamePrefix, IPOutboundManipulation_SrcHost,
IPOutboundManipulation_DestUsernamePrefix, IPOutboundManipulation_DestHost,
IPOutboundManipulation_CallingNamePrefix,
IPOutboundManipulation_MessageConditionName,
IPOutboundManipulation_RequestType,
IPOutboundManipulation_ReRouteIPGroupName, IPOutboundManipulation_Trigger,
IPOutboundManipulation_ManipulatedURI,
IPOutboundManipulation_RemoveFromLeft,
IPOutboundManipulation_RemoveFromRight,
IPOutboundManipulation_LeaveFromRight, IPOutboundManipulation_Prefix2Add,
IPOutboundManipulation_Suffix2Add,
IPOutboundManipulation_PrivacyRestrictionMode,
IPOutboundManipulation_DestTags, IPOutboundManipulation_SrcTags;
IPOutboundManipulation 0 = "Add + for National Calls",
"\"Default_SBCRoutingPolicy\"", 0, "IP-PBX", "BroadCloud", "\"", "\"", "\"001\"",
"\"", "\"", "\"", 0, "Any", 0, 1, 2, 0, 255, "+", "\"", 0, "\"", "\"";
IPOutboundManipulation 1 = "Add 011 to International Calls",
"\"Default_SBCRoutingPolicy\"", 0, "IP-PBX", "BroadCloud", "\"", "\"", "\"00\"", "\"",
"\"", "\"", 0, "Any", 0, 1, 2, 0, 255, "011", "\"", 0, "\"", "\"";
IPOutboundManipulation 2 = "For Anonymous", "Default_SBCRoutingPolicy", 0,
"IP-PBX", "BroadCloud", "\"", "\"", "\"", "\"", "\"", "\"", 0, "Any", 0, 0, 0, 0,
255, "\"", "\"", 0, "\"", "\"";
```

```
[ \IPOutboundManipulation ]
```

```
[ CodersGroup0 ]
```

```
FORMAT CodersGroup0_Index = CodersGroup0_Name, CodersGroup0_pTime,
CodersGroup0_rate, CodersGroup0_PayloadType, CodersGroup0_Sce,
CodersGroup0_CoderSpecific;
```

```
CodersGroup0 0 = "g711Alaw64k", 20, 255, -1, 0, "";
```

```
[ \CodersGroup0 ]
```

```
[ MessageManipulations ]
```

```
FORMAT MessageManipulations_Index = MessageManipulations_ManipulationName,  
MessageManipulations_ManSetID, MessageManipulations_MessageType,  
MessageManipulations_Condition, MessageManipulations_ActionSubject,  
MessageManipulations_ActionType, MessageManipulations_ActionValue,  
MessageManipulations_RowRole;  
MessageManipulations 0 = "Change From host", 4, "any.request", "",  
"header.from.url.host", 2, "header.to.url.host", 0;  
MessageManipulations 1 = "Change P-Asserted host", 4, "any.request",  
"header.p-asserted-identity exists", "header.p-asserted-identity.url.host",  
2, "header.to.url.host", 0;
```

```
[ \MessageManipulations ]
```

```
[ GwRoutingPolicy ]
```

```
FORMAT GwRoutingPolicy_Index = GwRoutingPolicy_Name,  
GwRoutingPolicy_LCREnable, GwRoutingPolicy_LCRAverageCallLength,  
GwRoutingPolicy_LCRDefaultCost, GwRoutingPolicy_LdapServerGroupName;  
GwRoutingPolicy 0 = "GwRoutingPolicy", 0, 1, 0, "";
```

```
[ \GwRoutingPolicy ]
```

```
[ ResourcePriorityNetworkDomains ]
```

```
FORMAT ResourcePriorityNetworkDomains_Index =  
ResourcePriorityNetworkDomains_Name,  
ResourcePriorityNetworkDomains_Ip2TelInterworking;  
ResourcePriorityNetworkDomains 1 = "dsn", 1;  
ResourcePriorityNetworkDomains 2 = "dod", 1;  
ResourcePriorityNetworkDomains 3 = "drsn", 1;  
ResourcePriorityNetworkDomains 5 = "uc", 1;  
ResourcePriorityNetworkDomains 7 = "cuc", 1;
```

```
[ \ResourcePriorityNetworkDomains ]
```

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