

## Connecting SV9100 IP-PBX to BroadCloud SIP Trunk using AudioCodes Mediant™ E-SBC

Version 7.0



Orchestrating a brighter world **NEC**





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## Notice

This document describes how to connect the IP-PBX and BroadCloud SIP Trunk using AudioCodes Mediant E-SBC product series.

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## Document Revision Record

LTRT	Description
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## Documentation Feedback

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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**

<b>Vendor</b>	NEC
<b>Model</b>	SV9100
<b>Software Version</b>	
<b>Protocol</b>	SIP/UDP
<b>Additional Notes</b>	None

### 2.2 AudioCodes E-SBC Version

**Table 2-2: AudioCodes E-SBC Version**

<b>SBC Vendor</b>	AudioCodes
<b>Models</b>	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
<b>Software Version</b>	SIP_F7.00A.035.012
<b>Protocol</b>	SIP/UDP (to the both BroadCloud SIP Trunk and IP-PBX)
<b>Additional Notes</b>	None

### 2.3 BroadCloud SIP Trunking Version

**Table 2-3: BroadCloud Version**

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

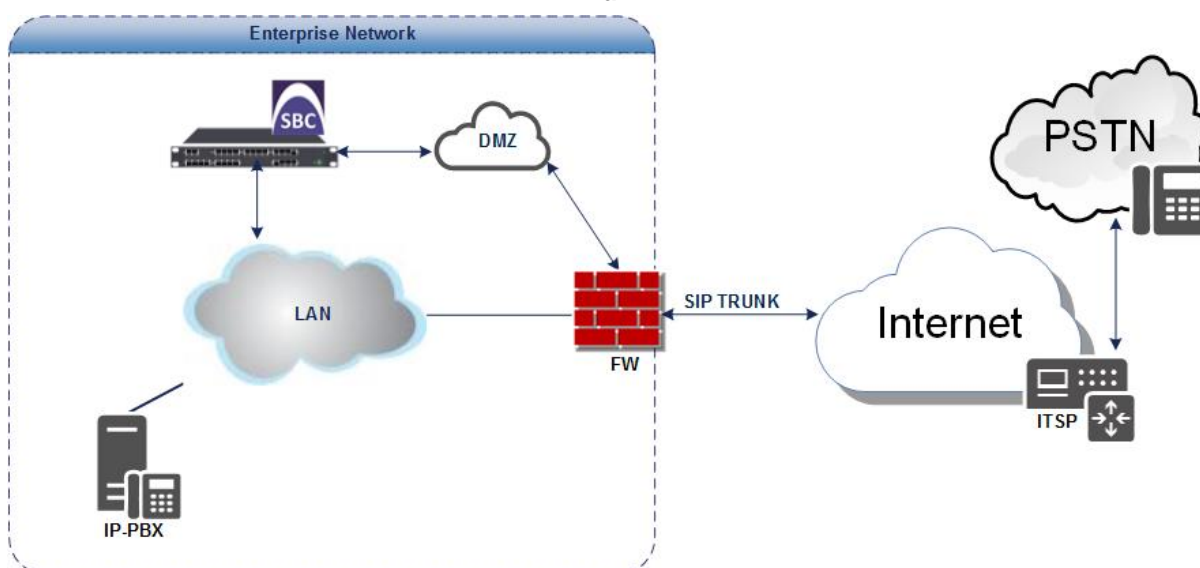
## 2.4 Interoperability Test Topology

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
<b>Network</b>	<ul style="list-style-type: none"> <li>▪ IP-PBX is located on the Enterprise's LAN</li> <li>▪ BroadCloud SIP Trunk is located on the WAN</li> </ul>
<b>Signaling Transcoding</b>	<ul style="list-style-type: none"> <li>▪ IP-PBX operates with SIP-over-UDP transport type</li> <li>▪ BroadCloud SIP Trunk operates with SIP-over-UDP transport type</li> </ul>
<b>Codecs Transcoding</b>	<ul style="list-style-type: none"> <li>▪ IP-PBX supports G.711A-law, G.711U-law, and G.729 coder</li> <li>▪ BroadCloud SIP Trunk supports G.711A-law, G.711U-law, and G.729 coder</li> </ul>
<b>Media Transcoding</b>	<ul style="list-style-type: none"> <li>▪ IP-PBX operates with RTP media type</li> <li>▪ BroadCloud SIP Trunk operates with RTP media type</li> </ul>

## 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 NEC SV9100 IP-PBX

This chapter describes how to configure basic parameters of the NEC SV9100 IP-PBX to operate with AudioCodes E-SBC.



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

## 3.1 Basic Configuration Parameters

The figure below displays the main parameters which should be configured on the NEC SV9100 IP-PBX to operate with the AudioCodes E-SBC.

Standard Trunk routing or ARS/F-Route can be used to select the SIP trunks for outgoing calls.

DID/DDI Routing is used for incoming calls.

➤ **To configure NEC IP-PBX:**

1. Connect to the NEC IP PBX Using the PCPro Configuration tool and download the current configuration:

**Figure 3-1: Blade configuration of NEC SV9100 viewed in PC Pro**

The screenshot shows the PC Pro software interface for configuring a NEC SV9100 IP-PBX. The main window displays a rack of blades for 'Chassis 1' with the following configuration:

- 01 00.01 GCD-CP10 + GP2-1PLE
- 02 GCD-LTA 1~10tel
- 03 03.09 GCD-30PRTA (PRI) 1~30trk
- 04 02.05 GCD-ETIA
- 05
- 06

Below the blade configuration, there are three tables:

Version Information	
Type	Version
File Ver	SV9100 EMEA V3.0
Main Software	3.00.54
DBMS	V5.0H
PCPro Server	1.03.00.pipk
CP10 Revision	5
BS10	Not Installed
VM	Advanced VM
IPL	VOIPDB(E1)
USB	Not Installed

Trunks		
Type	Ports	Total
CO		0
BRI		0
PRI	1~30	30
T1		0
CCH		0
TLI		0
DID		0
IP		0
SIP	31~38	8
H.323		0
T-Point Loopback		0
E1		0
Trk*		0
Not used	39~400	362

38 ports of 400 are used

Telephones			
Type	Ports	Extension Numbers	Total
MLT	1~8	200~207	8
SLT	9~10	208~209	2
IP	11	210	1
IP*			0
VM			0
InMail	897~912	5596~5611	16
VE	961~1472		512
DSS			0
S-Point			0
S-Point Loopback			0
Mobile*			0
CNF			0
IVR			0
RGA			0
Tel*			0
Not used	12~896, 913~960		933

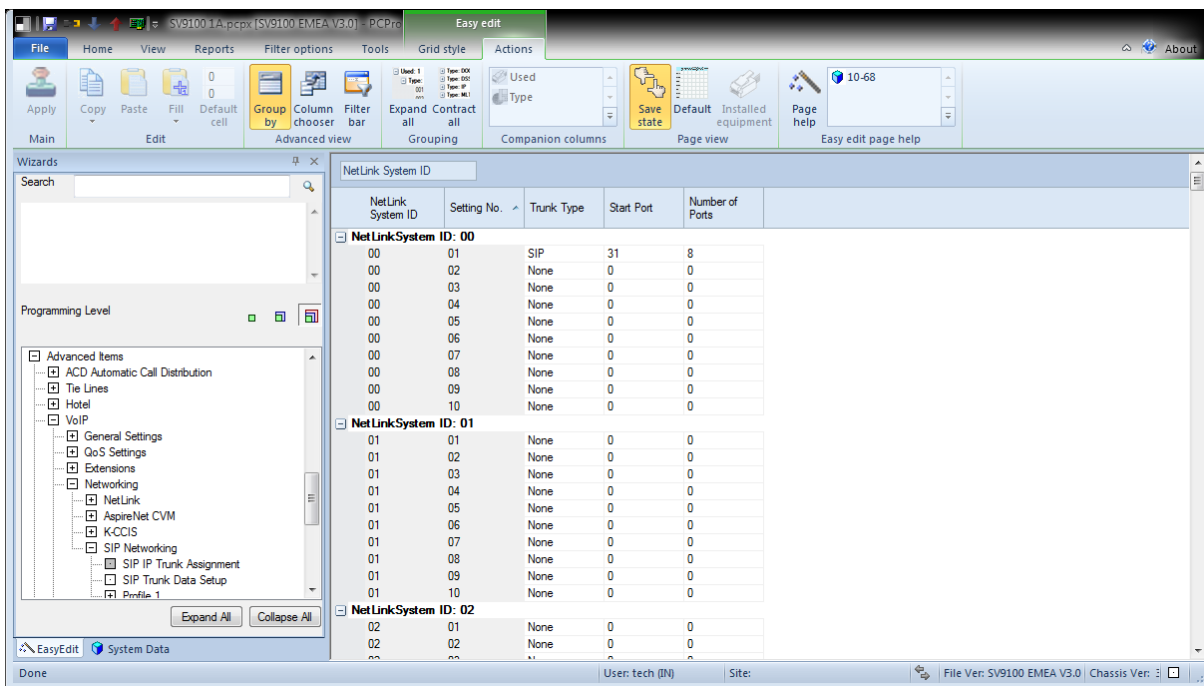
27 ports of 1472 are used



**Note:** Save your current configuration file before proceeding.

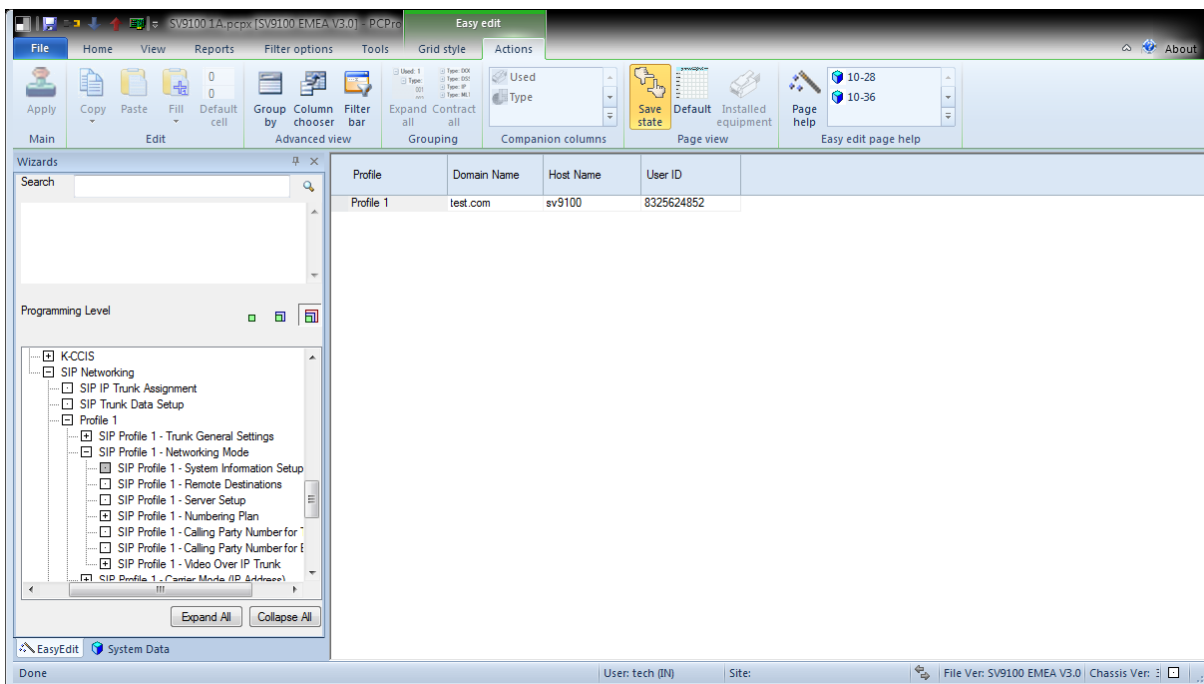
2. Enable IP Trunk Availability in **Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> SIP IP Trunk Assignment**, define number of trunks available and the required start trunk port:

**Figure 3-2: Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> SIP IP Trunk Assignment**



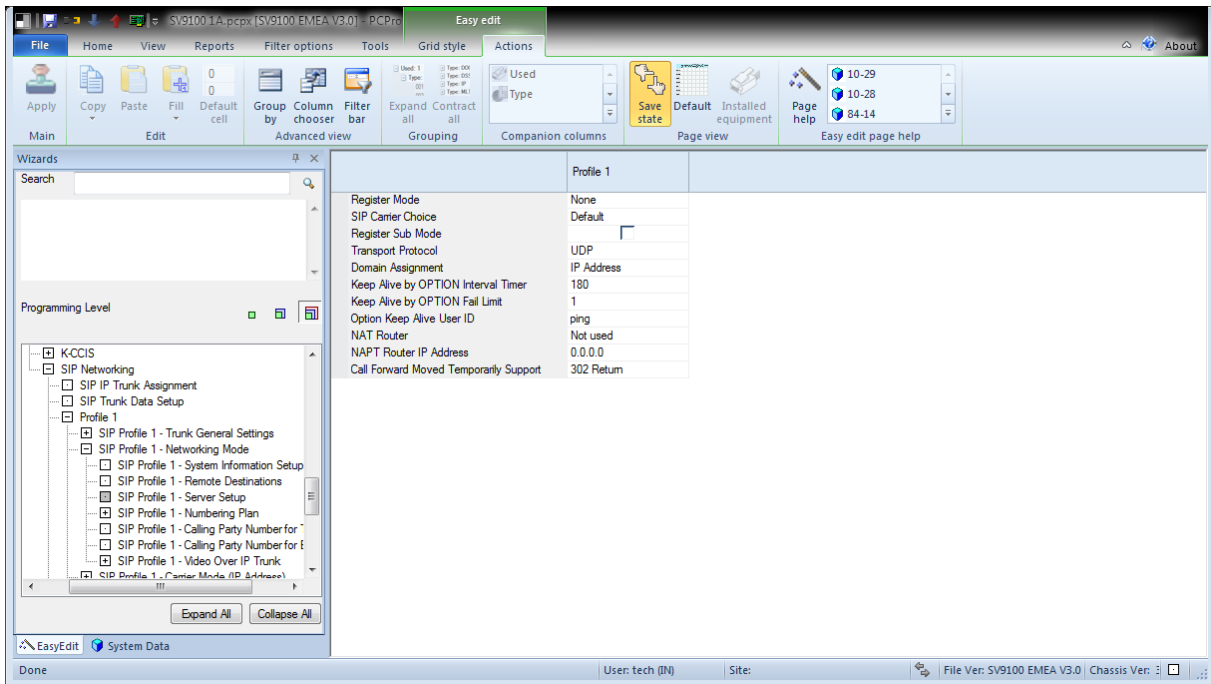
3. Enter your SIP profile details in **Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Networking Mode> SIP Profile 1 – System Information Setup**. Domain name and host name are defined by the customer’s network. User ID is supplied with your BroadCloud account:

**Figure 3-3: Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Networking Mode> SIP Profile 1 – System Information Setup**



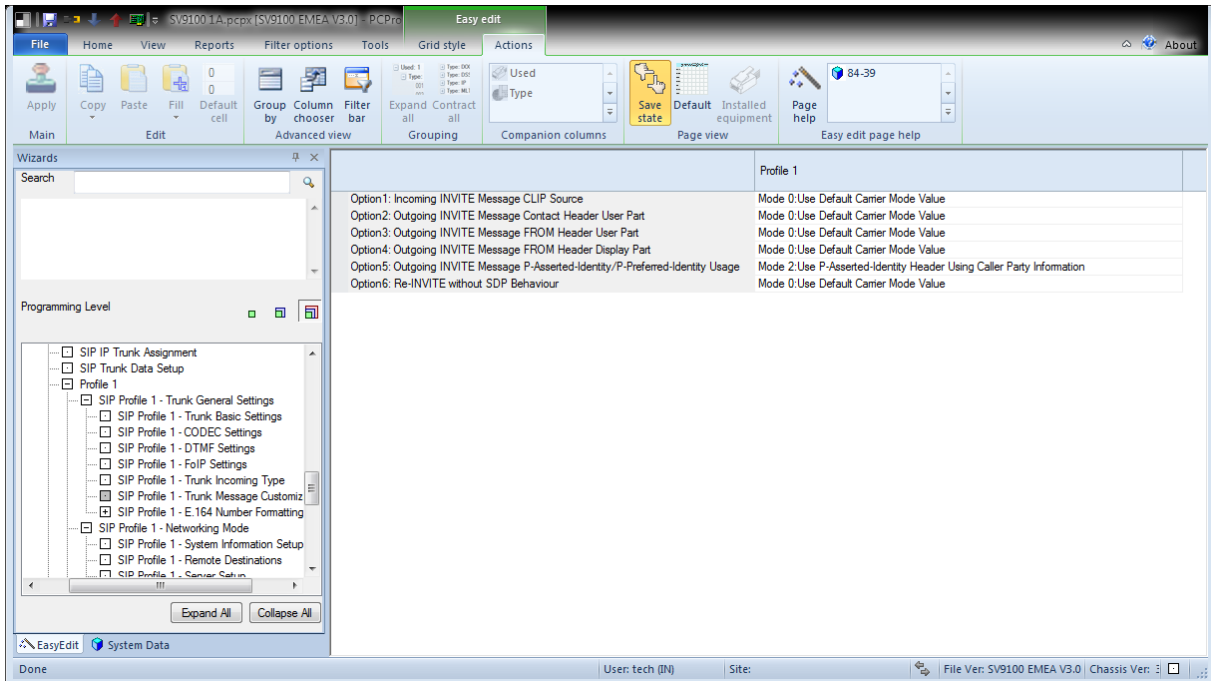
- Verify the SIP Carrier Choice in programming command **Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Networking Mode> SIP Profile 1 – Server Setup**. The SIP Carrier Choice value should be set to Default. Register mode should be set to None. UDP or TCP transport protocol can be used. Enable 302 Return as the Call Forward Temporarily Moved method if required:

**Figure 3-4: Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Networking Mode> SIP Profile 1 – Server Setup**



- Modify SIP message with custom option 05 set to “Mode 2: Use P-Asserted-Identity Header Using Caller Party Information” in **Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Trunk General Settings> SIP Profile 1 – Trunk Message Customisation:**

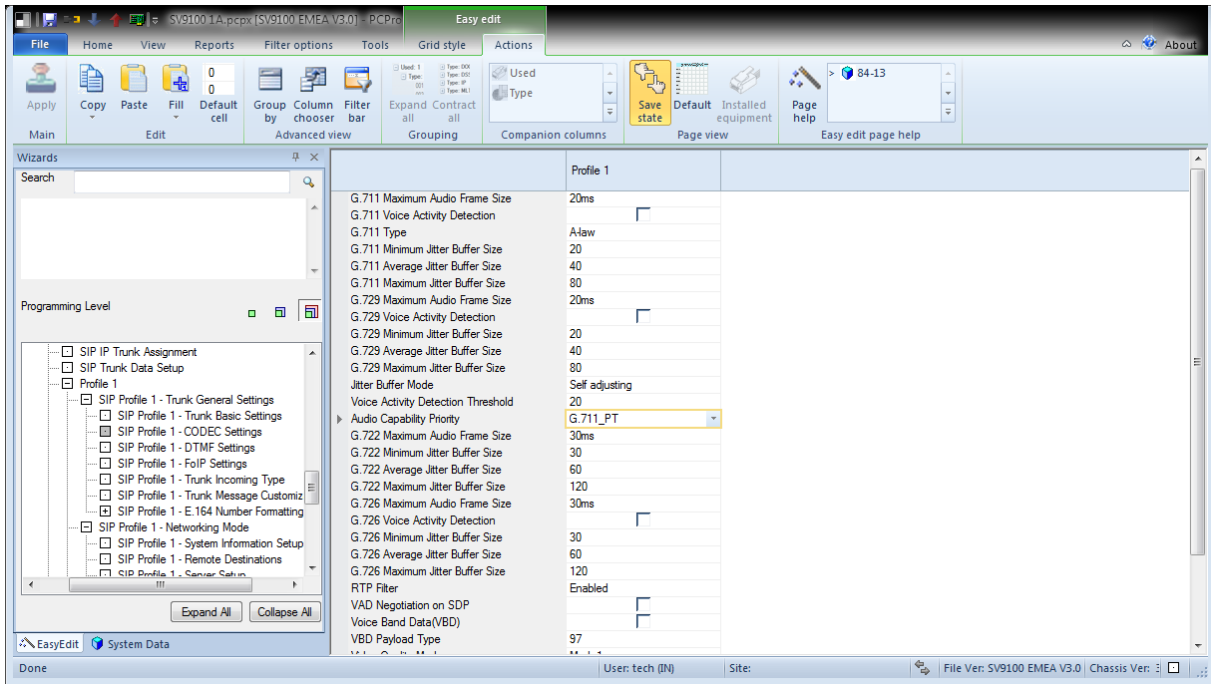
**Figure 3-5: Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Trunk General Settings> SIP Profile 1 – Trunk Message Customization**





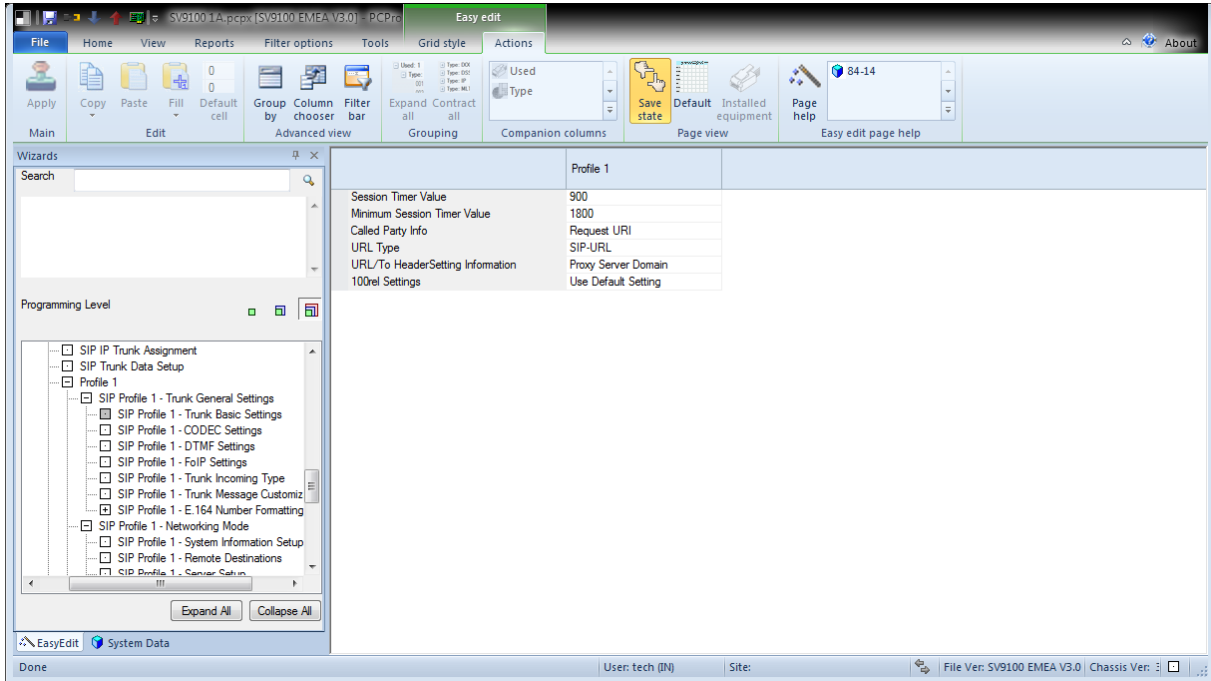
- Set your codec preference in **Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Trunk General Settings> SIP Profile 1 – CODEC Settings**:

**Figure 3-6: Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Trunk General Settings> SIP Profile 1 – CODEC Settings**



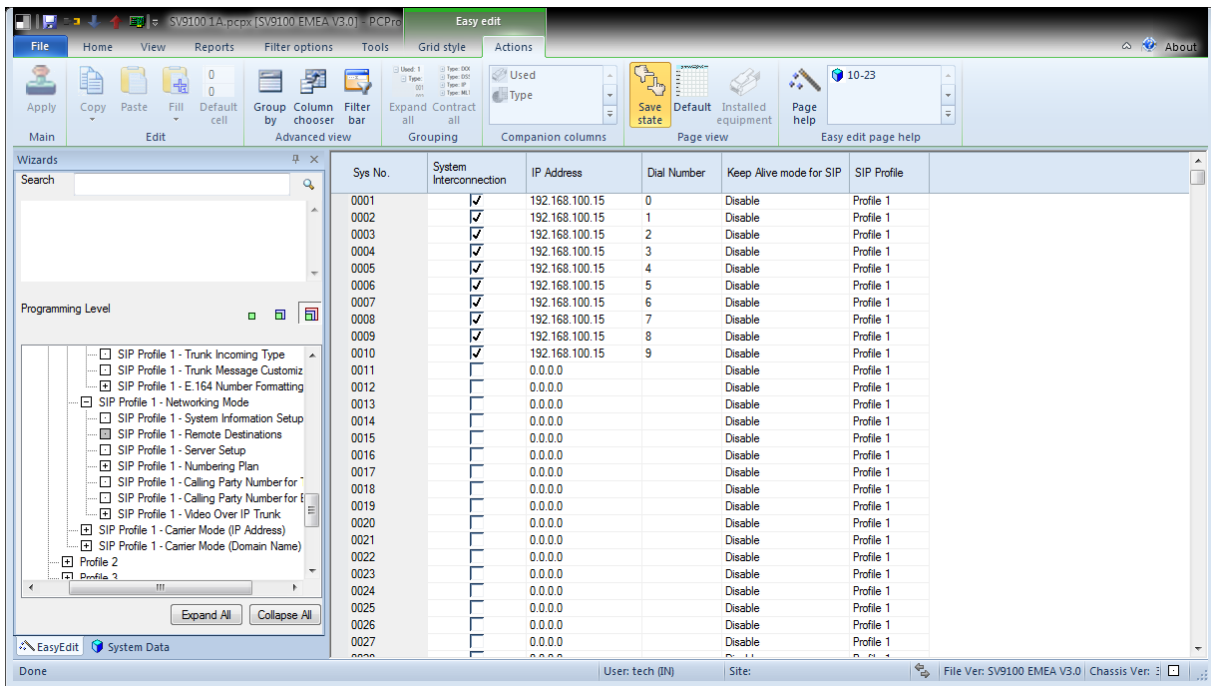
- Ensure that the Session Timer Value is configured in Programming command **Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Trunk General Settings> SIP Profile 1 – Trunk Basic Settings**. Failure to set this value may result in calls being disconnected after 60 minutes.

**Figure 3-7: Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Trunk General Settings> SIP Profile 1 – Trunk Basic Settings**



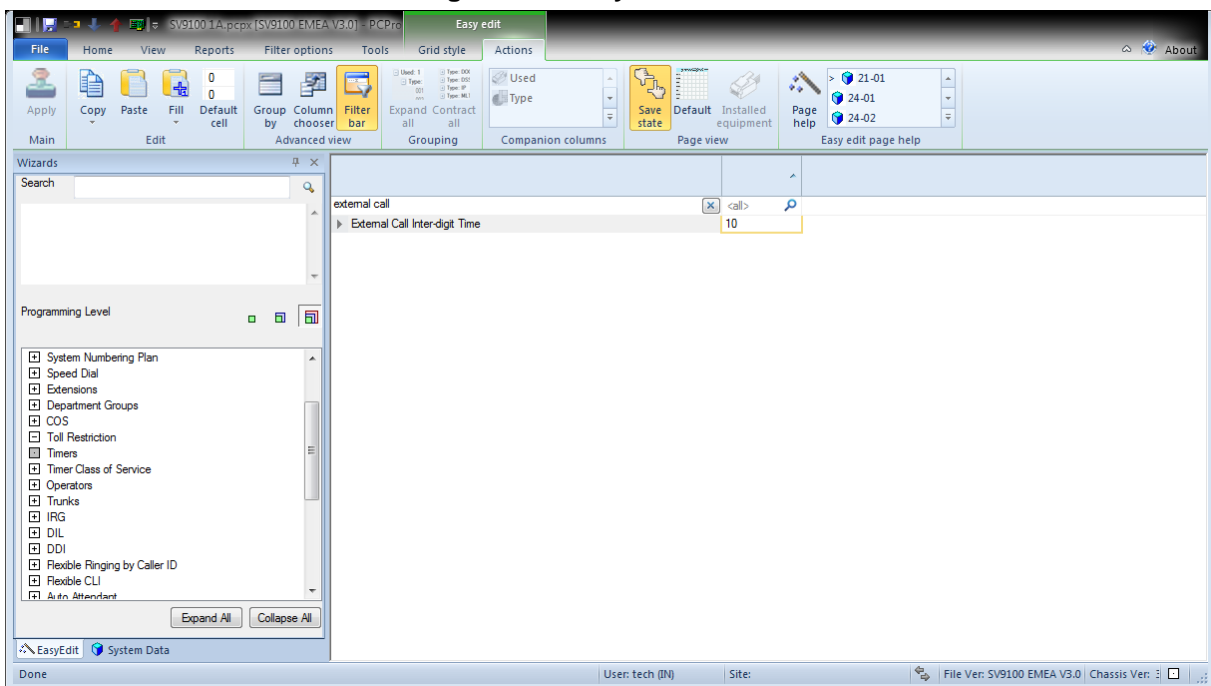
- Route outgoing trunk digits to AudioCodes E-SBC in Programming command **Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Networking Mode> SIP Profile 1 – Remote Destinations**. The shown configuration will route all dialed numbers to the SBC as dialed. IP address used is the internal LAN interface of the E-SBC:

**Figure 3-8: Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Networking Mode> SIP Profile 1 – Remote Destinations**



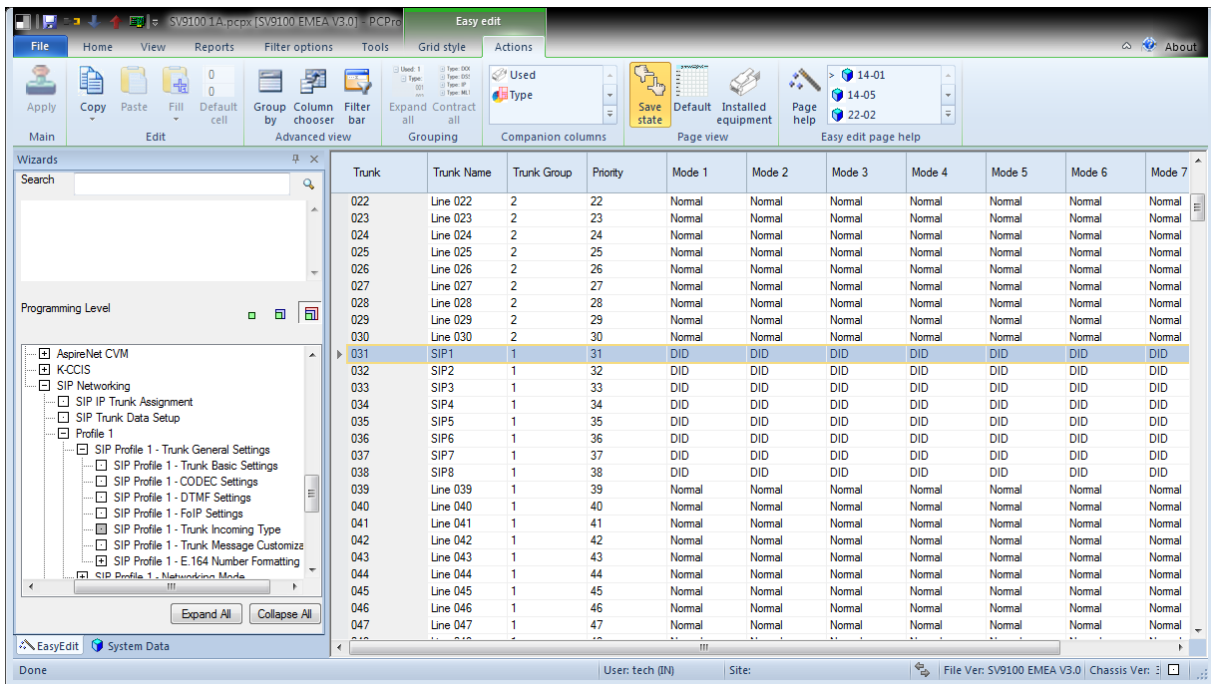
- Optionally reduce the Enbloc inter-digit timer for outgoing calls in Programming command **Easy Edit> Timers**:

**Figure 3-9: Easy Edit> Timers**



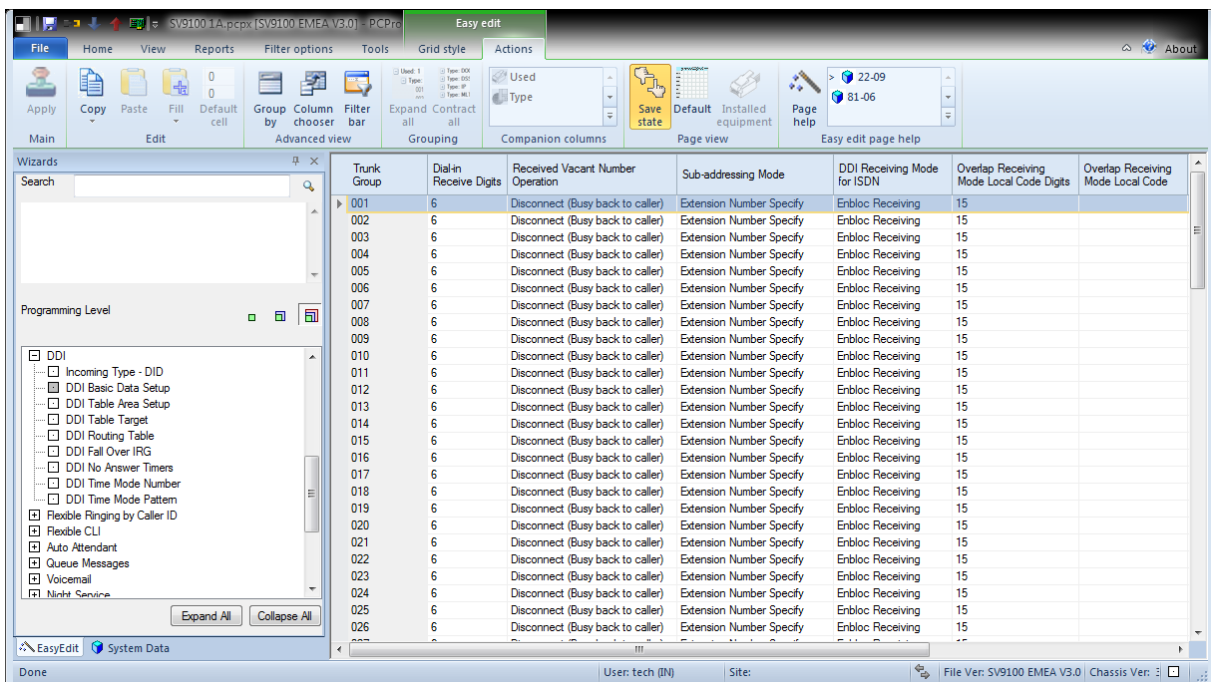
To route incoming calls via the DDI Translation tables configure the SIP trunks as DID types in Programming command **Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Trunk General Settings> SIP Profile 1 – Trunk Incoming Type:**

**Figure 3-10: Easy Edit> Advanced Items> VoIP> Networking> SIP Networking> Profile 1> SIP Profile 1 – Trunk General Settings> SIP Profile 1 – Trunk Incoming Type**



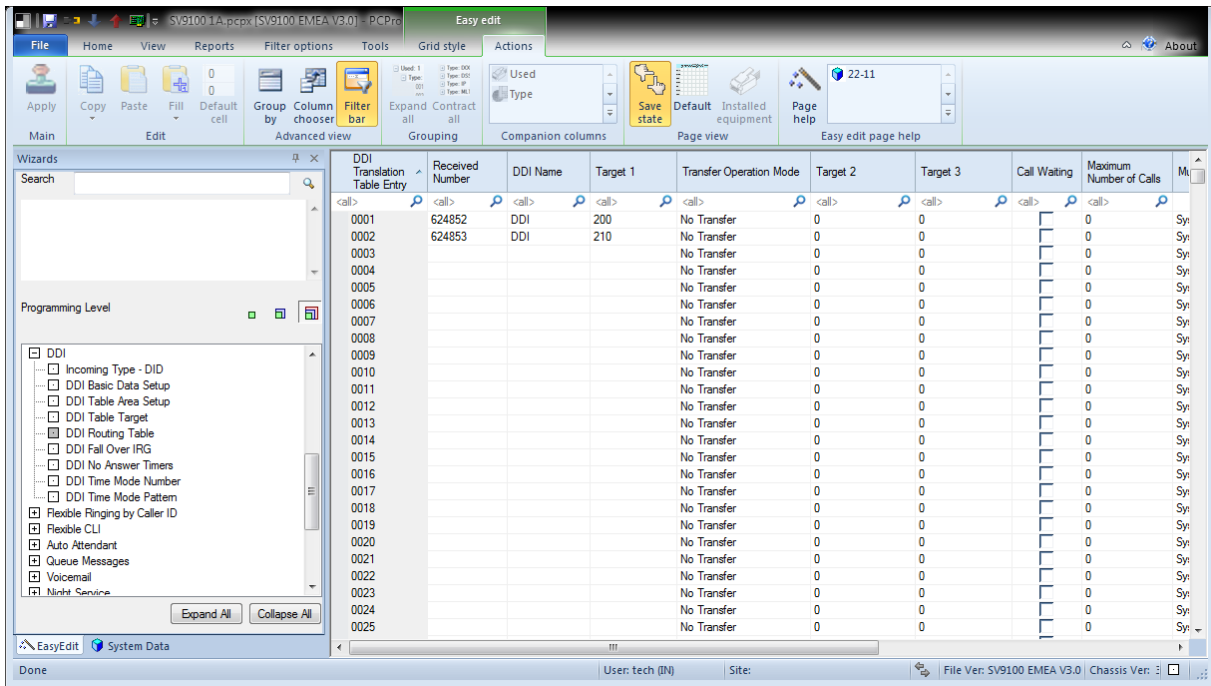
- Configure the number of received DID/DDI digits from the SIP carrier. In most cases this can be configured as 6 digits, if more than 6 digits are received from the carrier, the last 6 digits will be used for call routing:

**Figure 3-11: Easy Edit> DDI> DDI Basic Data Setup**



11. Enter your received DDI/DID numbers in **Easy Edit> DDI> DDI Routing Table**.

**Figure 3-12: Easy Edit> DDI> DDI Routing Table**



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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*).

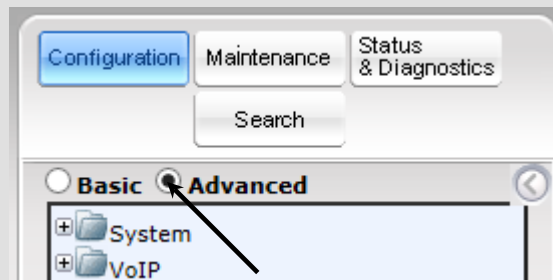
### Notes:

- 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:



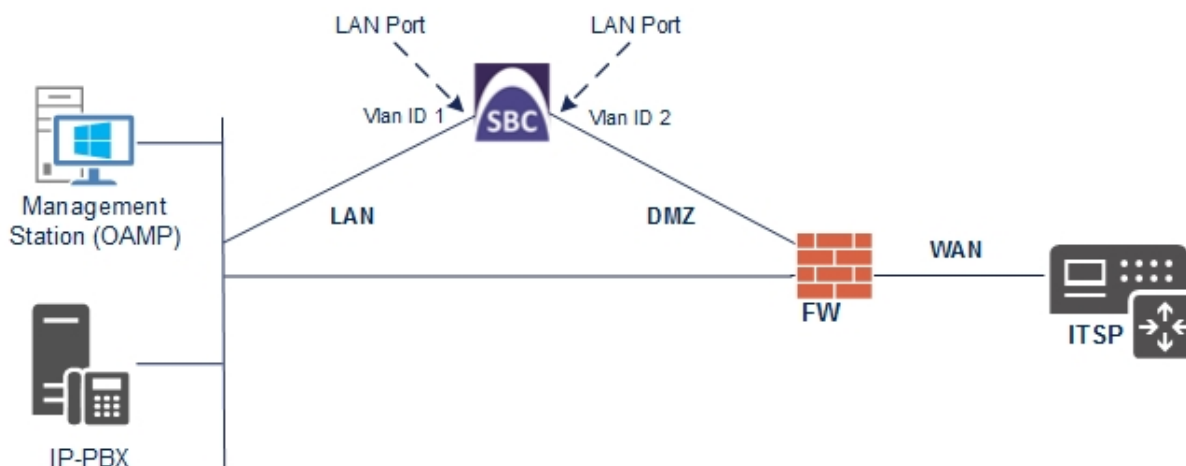
Note that when the E-SBC is reset, the Navigation tree reverts to Basic-menu display.

## 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:

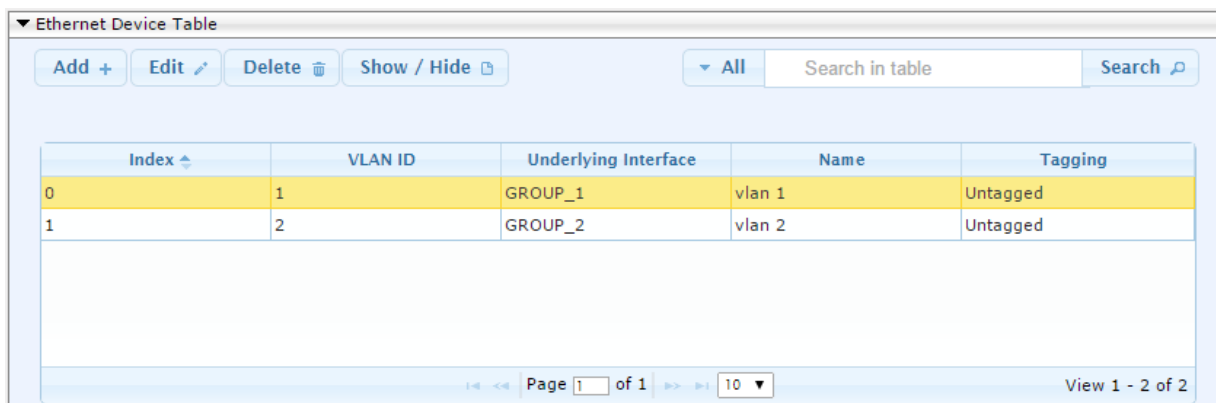
- LAN VoIP (assigned the name "Voice")
- WAN VoIP (assigned the name "WANSP")

➤ **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



### 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	<b>192.168.100.15</b> (IP address of E-SBC)
Prefix Length	<b>24</b> (subnet mask in bits for 255.255.255.0)
Default Gateway	<b>192.168.100.254</b>
VLAN ID	<b>1</b>
Interface Name	<b>Voice</b> (arbitrary descriptive name)
Primary DNS Server IP Address	<b>192.168.100.254</b>
Underlying Device	<b>vlan 1</b>

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	<b>Media + Control</b>
IP Address	<b>82.153.203.53</b> (WAN IP address)
Prefix Length	<b>25</b> (for 255.255.255.128)
Default Gateway	<b>82.153.203.49</b> (router's IP address)
VLAN ID	<b>2</b>
Interface Name	<b>WANSP</b>
Primary DNS Server IP Address	<b>82.153.203.49</b>
Secondary DNS Server IP Address	<b>8.8.8.8</b>
Underlying Device	<b>vlan 2</b>

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

The configured IP network interfaces are shown below:

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

Index	Interface Name	Application Type	Interface Mode	IP Address	Prefix Length	Default Gateway	Primary DNS	Secondary DNS	Underlying Device
0	Voice	OAMP + Media +	IPv4 Manual	192.168.100.15	24	192.168.100.254	192.168.100.254	0.0.0.0	vlan 1
1	WANSP	Media + Control	IPv4 Manual	82.153.203.53	28	82.153.203.49	82.153.203.49	8.8.8.8	vlan 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 62).

## 4.3 Step 3: Configure Media Realms

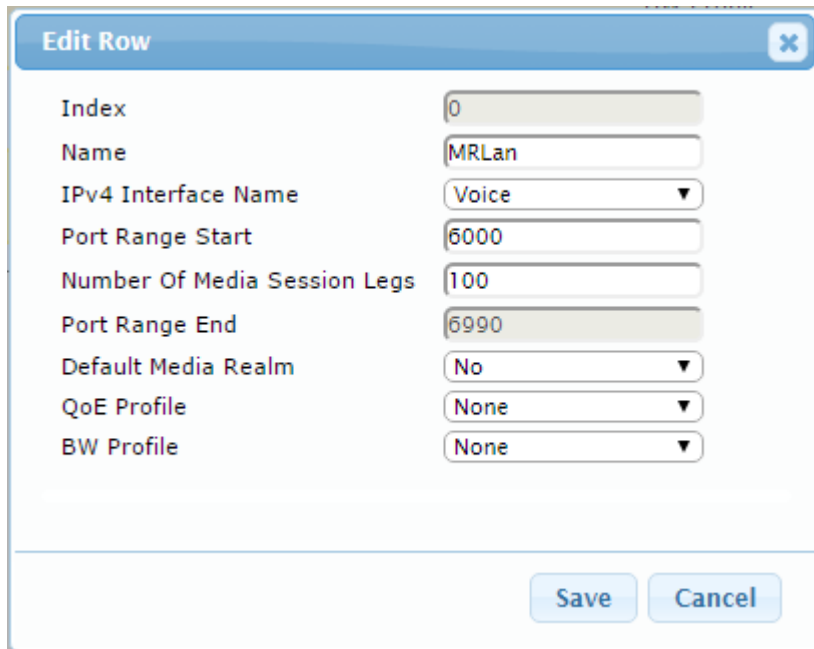
This step describes how to configure Media Realms. The simplest configuration is to create two Media Realms - one for internal (LAN) traffic and one for external (WAN) traffic.

➤ **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	<b>0</b>
Media Realm Name	<b>MRLan</b> (descriptive name)
IPv4 Interface Name	<b>Voice</b>
Port Range Start	<b>6000</b> (as required by IP-PBX)
Number of Media Session Legs	<b>100</b> (media sessions assigned with port range)

**Figure 4-5: Configuring Media Realm for LAN**



Edit Row
✕

Index	<input type="text" value="0"/>
Name	<input type="text" value="MRLan"/>
IPv4 Interface Name	<input type="text" value="Voice"/>
Port Range Start	<input type="text" value="6000"/>
Number Of Media Session Legs	<input type="text" value="100"/>
Port Range End	<input type="text" value="6990"/>
Default Media Realm	<input type="text" value="No"/>
QoS Profile	<input type="text" value="None"/>
BW Profile	<input type="text" value="None"/>

- Configure a Media Realm for WAN traffic:

Parameter	Value
Index	1
Media Realm 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 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

## 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	<b>0</b>
Interface Name	<b>IP-PBX</b> (see Note on page 31)
Network Interface	<b>Voice</b>
Application Type	<b>SBC</b>
UDP Port	<b>5060</b>
TCP and TLS	<b>0</b>
Media Realm	<b>MRLan</b>

3. Configure a SIP Interface for the WAN:

Parameter	Value
Index	<b>1</b>
Interface Name	<b>BroadCloud</b> (see Note on page 31)
Network Interface	<b>WANSP</b>
Application Type	<b>SBC</b>
UDP Port	<b>5060</b>
TCP and TLS	<b>0</b>
Media Realm	<b>MRWan</b>

The configured SIP Interfaces are shown in the figure below:

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

Index	Name	SRD	Network Interface	Application Type	UDP Port	TCP Port	TLS Port	Encapsulation 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



**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
Proxy Set ID	0
Proxy Name	IP-PBX (see Note on page 31)
SBC IPv4 SIP Interface	IP-PBX
Proxy Keep Alive	Using Options

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

Edit Row
✕

Index	<input type="text" value="0"/>
SRD	<input style="border: 1px solid #ccc;" type="text" value="DefaultSRD"/>
Name	<input type="text" value="IP-PBX"/>
Gateway IPv4 SIP Interface	<input style="border: 1px solid #ccc;" type="text" value="None"/>
SBC IPv4 SIP Interface	<input style="border: 1px solid #ccc;" type="text" value="IP-PBX"/>
Proxy Keep-Alive	<input style="border: 1px solid #ccc;" type="text" value="Using OPTIONS"/>
Proxy Keep-Alive Time [sec]	<input type="text" value="60"/>
Redundancy Mode	<input style="border: 1px solid #ccc;" type="text"/>
Proxy Load Balancing Method	<input style="border: 1px solid #ccc;" type="text" value="Disable"/>
DNS Resolve Method	<input style="border: 1px solid #ccc;" type="text"/>
Proxy Hot Swap	<input style="border: 1px solid #ccc;" type="text" value="Disable"/>
Keep-Alive Failure Responses	<input style="border: 1px solid #ccc;" type="text"/>
Classification Input	<input style="border: 1px solid #ccc;" type="text" value="IP Address only"/>
TLS Context Name	<input style="border: 1px solid #ccc;" type="text" value="None"/>



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	<b>0</b>
Proxy Address	<b>192.168.100.1:5060</b> (IP-PBX IP address / FQDN and destination port)
Transport Type	<b>UDP</b>

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

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

Parameter	Value
Proxy Set ID	<b>1</b>
Proxy Name	<b>BroadCloud</b> (see Note on page 31)
SBC IPv4 SIP Interface	<b>BroadCloud</b>
Proxy Keep Alive	<b>Using Options</b>

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

- a. Configure a Proxy Address Table for BroadCloud SIP Trunk:
- b. Go to **Configuration** tab > **VoIP** menu > **VoIP Network** > **Proxy Sets Table** > **Proxy Address Table**.

Parameter	Value
Index	1
Proxy Address	nn6300southsipconnect.adpt-tech.com (IP-PBX IP address / FQDN and destination port)
Transport Type	UDP

Figure 4-12: Configuring Proxy Address for BroadCloud SIP Trunk

The configured Proxy Sets are shown in the figure below:

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

The screenshot shows a web interface titled "Proxy Sets Table". At the top, there are buttons for "Add +", "Edit", "Delete", and "Show / Hide". To the right, there is a dropdown menu set to "All", a search input field labeled "Search in table", and a "Search" button. Below these elements is a table with the following data:

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

At the bottom of the table, there is a pagination control showing "Page 1 of 1" and a dropdown menu set to "10". On the far right, it says "View 1 - 2 of 2".

## 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:

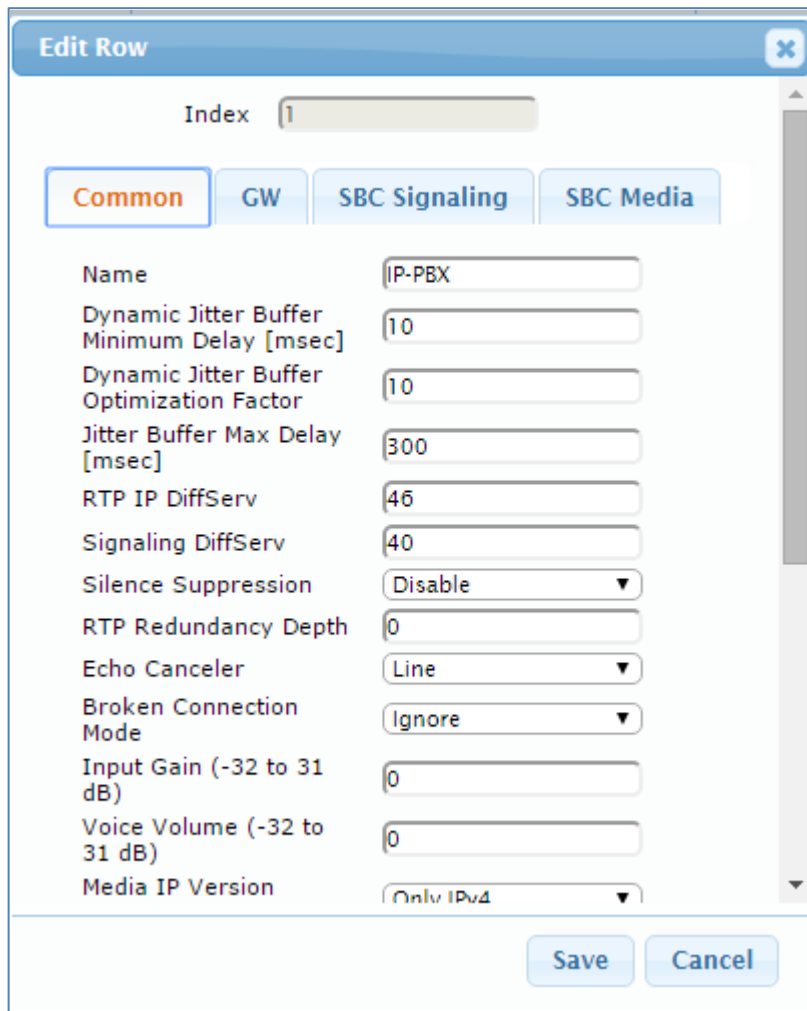
- IP-PBX - to operate in non-secure mode using RTP and UDP
- BroadCloud SIP trunk - to operate in non-secure mode using RTP and UDP

➤ **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 31)

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



✕
Edit Row

Index

Common
GW
SBC Signaling
SBC Media

Name	<input style="width: 90%;" type="text" value="IP-PBX"/>
Dynamic Jitter Buffer Minimum Delay [msec]	<input style="width: 90%;" type="text" value="10"/>
Dynamic Jitter Buffer Optimization Factor	<input style="width: 90%;" type="text" value="10"/>
Jitter Buffer Max Delay [msec]	<input style="width: 90%;" type="text" value="300"/>
RTP IP DiffServ	<input style="width: 90%;" type="text" value="46"/>
Signaling DiffServ	<input style="width: 90%;" type="text" value="40"/>
Silence Suppression	<input style="width: 90%;" type="text" value="Disable"/>
RTP Redundancy Depth	<input style="width: 90%;" type="text" value="0"/>
Echo Canceler	<input style="width: 90%;" type="text" value="Line"/>
Broken Connection Mode	<input style="width: 90%;" type="text" value="Ignore"/>
Input Gain (-32 to 31 dB)	<input style="width: 90%;" type="text" value="0"/>
Voice Volume (-32 to 31 dB)	<input style="width: 90%;" type="text" value="0"/>
Media IP Version	<input style="width: 90%;" type="text" value="Only IPv4"/>

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

Parameter	Value
Remote Update Support	<b>Supported</b>
Remote re-INVITE Support	<b>Supported</b>
Remote Can Play Ringback	<b>No</b>

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

The screenshot shows a configuration window titled "Edit Row" with a close button (X) in the top right corner. Below the title bar, there is an "Index" field containing the value "1". There are four tabs: "Common", "GW", "SBC Signaling" (which is selected and highlighted in orange), and "SBC Media". The "SBC Signaling" tab contains the following parameters and their values:

- 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

At the bottom of the window, there are "Save" and "Cancel" buttons.

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

Parameter	Value
Media Security Behavior	RTP

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

The screenshot shows the 'Edit Row' configuration window for the SBC Media tab. The window title is 'Edit Row' with a close button. Below the title, there is an 'Index' field containing the value '1'. There are four tabs: 'Common', 'GW', 'SBC Signaling', and 'SBC Media', with 'SBC Media' being the active tab. The configuration parameters and their values are as follows:

Parameter	Value
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

At the bottom of the window, there 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
Profile Name	<b>BroadCloud</b> (see Note on page 31)

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

The screenshot shows a configuration window titled "Edit Row" with a close button (X) in the top right corner. Below the title bar, there is a field for "Index" containing the value "2". Below this, there are four tabs: "Common" (highlighted in orange), "GW", "SBC Signaling", and "SBC Media". The "Common" tab contains the following parameters and values:

- Name: BroadCloud
- 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 (dropdown menu)
- RTP Redundancy Depth: 0
- Echo Canceler: Line (dropdown menu)
- Broken Connection Mode: Ignore (dropdown menu)
- Input Gain (-32 to 31 dB): 0
- Voice Volume (-32 to 31 dB): 0
- Media IP Version: Only IPv4 (dropdown menu)

At the bottom right of the window, there are "Save" and "Cancel" buttons.

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

Parameter	Value
P-Asserted-Identity Header Mode	<b>Add</b> (required for anonymous calls)

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

The screenshot shows the 'Edit Row' configuration window for the SBC Signaling tab. The 'Index' is set to 2. The 'SBC Signaling' tab is active, showing the following parameters and their values:

Parameter	Value
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

Buttons for 'Save' and 'Cancel' are located at the bottom right of the window.



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

Parameter	Value
Media Security Behavior	RTP

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

The screenshot shows the 'Edit Row' configuration window for the SBC Media tab. The 'Index' is set to 2. The 'SBC Media' tab is selected. The parameters and their values are as follows:

Parameter	Value
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

Buttons: 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	<b>0</b>
Name	<b>IP-PBX</b> (see Note on page 31)
Type	<b>Server</b>
Proxy Set	<b>IP-PBX</b>
IP Profile	<b>IP-PBX</b>
Media Realm	<b>MRLan</b>
SIP Group Name	

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

Parameter	Value
Index	<b>1</b>
Name	<b>BroadCloud</b> (see Note on page 31)
Type	<b>Server</b>
Proxy Set	<b>BroadCloud</b>
IP Profile	<b>BroadCloud</b>
Media Realm	<b>MRWan</b>
SIP Group Name	<b>interop.adpt-tech.com</b> (according to ITSP requirement)

The configured IP Groups are shown in the figure below:

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

The screenshot shows a web-based interface for managing IP Groups. At the top, there are buttons for 'Add +', 'Edit', 'Delete', and 'Show / Hide'. A search bar is also present with a dropdown menu set to 'All'. The main area contains a table with the following data:

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 Configure	IP-PBX	IP-PBX	MRLan		Enable	-1	-1
1	BroadCloud	DefaultSRD Server		Not Configure	BroadCloud	BroadCloud	MRWan	interop.adpt-	Enable	-1	4

At the bottom of the table, there is a pagination control showing 'Page 1 of 1' and a 'View 1 - 2 of 2' indicator.

## 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 35, 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	<b>0</b>
Name	<b>Terminate OPTIONS</b> (arbitrary descriptive name)
Source IP Group	<b>Any</b>
Request Type	<b>OPTIONS</b>

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

**Edit Row**

Index: 0  
 Routing Policy: Default\_SBCRouting

**Rule** | Action

Name: Terminate OPTIONS  
 Alternative Route Options: Route Row  
 Source IP Group: Any  
 Request Type: OPTIONS  
 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	<b>Dest Address</b>
Destination Address	<b>internal</b>

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

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
Route 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**

The screenshot shows the 'Edit Row' configuration window for an IP-to-IP Routing Rule. The window has a title bar 'Edit Row' with a close button. Below the title bar, there are two input fields: 'Index' with the value '1' and 'Routing Policy' with a dropdown menu showing 'Default\_SBCRouting'. Below these are two tabs: 'Rule' (selected) and 'Action'. Under the 'Rule' tab, there are several parameters with their respective values:

- 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

At the bottom right of the window, there is a link labeled 'Classic View'. At the bottom center, there are two buttons: 'Save' and 'Cancel'.

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

Parameter	Value
Destination Type	<b>IP Group</b>
Destination IP Group	<b>BroadCloud</b>
Destination SIP Interface	<b>BroadCloud</b>

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

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
Route 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

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

Parameter	Value
Destination Type	<b>IP Group</b>
Destination IP Group	<b>IP-PBX</b>
Destination SIP Interface	<b>IP-PBX</b>

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

Edit Row
✕

Index

Routing Policy

Rule

Action

Destination Type

Destination IP Group

Destination SIP Interface

Destination Address

Destination Port

Destination Transport Type

Call Setup Rules Set ID

Group Policy

Cost Group

[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 🔍

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_SBC	Route Row	Any	OPTIONS	*	*	Dest Address	None	None	internal
1	IP-PBX to ITSP	Default_SBC	Route Row	IP-PBX	All	*	*	IP Group	BroadCloud	BroadCloud	
2	ITSP to IP-PBX	Default_SBC	Route Row	BroadCloud	All	*	*	IP Group	IP-PBX	IP-PBX	

Page 1 of 1
10
View 1 - 3 of 3



**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 35, 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	<b>0</b>
Name	<b>Add + for National Calls</b>
Source IP Group	<b>IP-PBX</b>
Destination IP Group	<b>BroadCloud</b>
Destination Username Prefix	<b>001</b>

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

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

Parameter	Value
Manipulated Item	<b>Destination URI</b>
Remove From Left	<b>2</b>
Prefix to Add	<b>+</b>

**Figure 4-29: Configuring IP-to-IP Outbound Manipulation Rule - Action Tab**

Edit Row
✕

Index

Routing Policy

Rule

Action

Manipulated Item

Remove From Left

Remove From Right

Leave From Right

Prefix to Add

Suffix to Add

Privacy Restriction Mode

[Classic View](#)

Save

Cancel

5. Click **Submit**.

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:

**Figure 4-30: Example of Configured IP-to-IP Outbound Manipulation Rules**

Index	Name	Routing Policy	Additional Manipulatic	Source IP Group	Destination IP Group	Source Username Prefix	Destination Username Prefix	Manipulate Item	Remove From Left	Remove From Right	Leave From Right	Prefix to Add	Suffix to Add
0	Add + for N	Default_SB	No	IP-PBX	BroadCloud	*	001	Destination	2	0	255	+	
1	Add 011 to	Default_SB	No	IP-PBX	BroadCloud	*	00	Destination	2	0	255	011	
2	For Anonym	Default_SB	No	IP-PBX	BroadCloud	*	*	Source URI	0	0	255		

## 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).

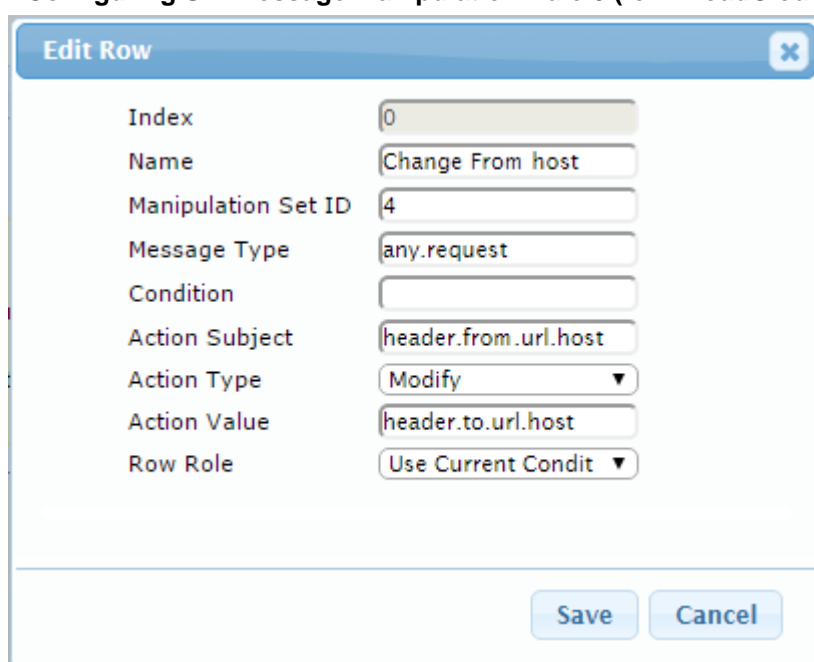
Once you have configured the SIP message manipulation rules, you need to assign them to the relevant IP Group (in the IP Group table) and determine whether they must be applied to inbound or outbound messages.

➤ **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	<b>0</b>
Name	<b>Change From host</b>
Manipulation Set ID	<b>4</b>
Message Type	<b>any.request</b>
Action Subject	<b>header.from.url.host</b>
Action Type	<b>Modify</b>
Action Value	<b>header.to.url.host</b>

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



Edit Row
✕

Index	<input type="text" value="0"/>
Name	<input type="text" value="Change From host"/>
Manipulation Set ID	<input type="text" value="4"/>
Message Type	<input type="text" value="any.request"/>
Condition	<input type="text" value=""/>
Action Subject	<input type="text" value="header.from.url.host"/>
Action Type	<input type="text" value="Modify"/>
Action Value	<input type="text" value="header.to.url.host"/>
Row Role	<input type="text" value="Use Current Condit"/>

- 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
Manipulation Name	<b>Change P-Asserted host</b>
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)

- 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	<b>Reject Responses</b>
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	<input type="text" value="2"/>
Name	<input type="text" value="Reject Responses"/>
Manipulation Set ID	<input type="text" value="4"/>
Message Type	<input type="text" value="any.response"/>
Condition	<input type="text" value="header.request-uri.met"/>
Action Subject	<input type="text" value="header.request-uri.met"/>
Action Type	<input type="text" value="Modify"/>
Action Value	<input type="text" value="'480'"/>
Row Role	<input type="text" value="Use Current Condit"/>

5. Configure another manipulation rule (Manipulation Set 4) for BroadCloud SIP Trunk. This rule is applied to forward messages sent to the BroadCloud SIP Trunk IP Group with 00 prefix and the IP-PBX IP address in the CONTACT initiated by the IP-PBX. This remove the 00.

Parameter	Value
Index	3
Name	Call FW change Contact
Manipulation Set ID	4
Message Type	invite.response.302
Condition	header.Contact regex (.*)(sip:00)(.*)((@)(192.168.100.10)(.*))
Action Subject	header.Contact
Action Type	Modify
Action Value	\$1+'sip:'+\$3+\$4+'interop.adpt-tech.com'+\$6



**Figure 4-34: Configuring SIP Message Manipulation Rule 3 (for BroadCloud SIP Trunk)**

Edit Row
✕

Index	<input type="text" value="3"/>
Name	<input type="text" value="Call FW change Contact"/>
Manipulation Set ID	<input type="text" value="4"/>
Message Type	<input type="text" value="invite.response.302"/>
Condition	<input type="text" value="header.Contact regex (.*)"/>
Action Subject	<input type="text" value="header.Contact"/>
Action Type	<input style="border: 1px solid #ccc;" type="text" value="Modify"/>
Action Value	<input type="text" value="\$1+'sip:'+\$3+\$4+'interop.a"/>
Row Role	<input style="border: 1px solid #ccc;" type="text" value="Use Current Condition"/>

**Figure 4-35: Example of Configured SIP Message Manipulation Rules**

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 Condition
1	Change P-Asserted	4	any.request	header.p-asserted	header.p-asserted	Modify	header.to.url.host	Use Current Condition
2	Reject Responses	14	any.response	header.request-ur	header.request-ur	Modify	'480'	Use Current Condition
3	Call FW change C	4	invite.response.30	header.Contact re	header.Contact	Modify	\$1+'sip:'+\$3+\$4+'	Use Current Condition

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.
3	This rule is applied to forward messages sent to the BroadCloud SIP Trunk IP Group with 00 prefix and the IP-PBX IP address in the CONTACT initiated by the IP-PBX. This remove the 00	IP-PBX response with '00' in the contact and with the IP-PBX IP address and BroadCloud SIP Trunk does not recognize it.

6. 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 4-36: Assigning Manipulation Set 4 to the BroadCloud SIP Trunk IP Group**

The screenshot shows the 'Edit Row' dialog box with the following configuration:

- Index: 2
- SRD: DefaultSRD
- Common tab: Not selected
- GW tab: Not selected
- SBC tab: Selected
- 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: (empty)
- Msg Man User Defined String2: (empty)
- Registration Mode: User Initiates Regis
- Max. Number of Registered Users: -1
- Authentication Mode: User Authenticates
- Authentication Method List: (empty)
- Username: (empty)

Buttons: 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.

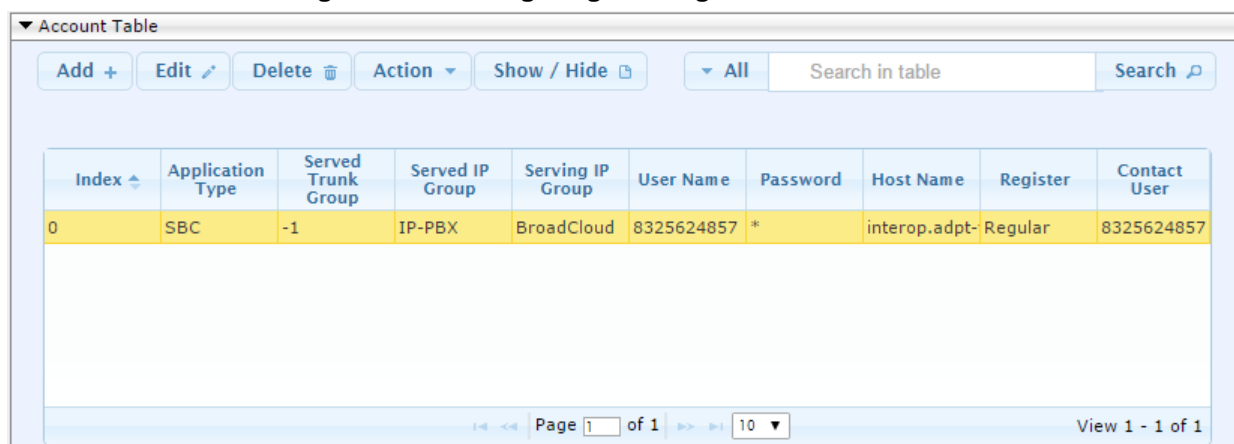
➤ **To configure a registration account:**

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	<b>SBC</b>
Served IP Group	<b>IP-PBX</b>
Serving IP Group	<b>BroadCloud</b>
Username	As provided by BroadCloud
Password	As provided by BroadCloud
Host Name	<b>interop.adpt-tech.com</b>
Register	<b>Regular</b>
Contact User	<b>8325624857</b> (pilot number)

4. Click **Apply**.

**Figure 4-37: 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'. A search bar is also present. The table below has the following columns: Index, Application Type, Served Trunk Group, Served IP Group, Serving IP Group, User Name, Password, Host Name, Register, and Contact User. The first row contains the following data: Index: 0, Application Type: SBC, Served Trunk Group: -1, Served IP Group: IP-PBX, Serving IP Group: BroadCloud, User Name: 8325624857, Password: \*, Host Name: interop.adpt-, Register: Regular, Contact User: 8325624857. The page number is 1 of 1.

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.

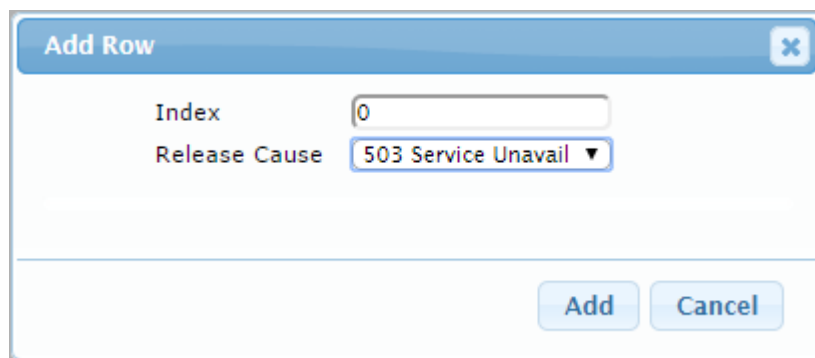
### 4.12.1 Step 12a: Configure SBC Alternative Routing Reasons

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 4-38: SBC Alternative Routing Reasons Table - Add Record**



Index	Release Cause
0	503 Service Unavail

3. Click **Submit**.

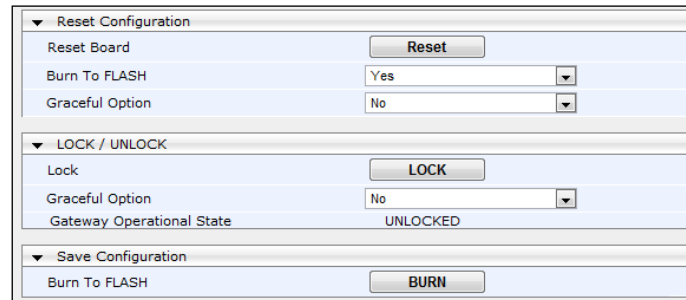
## 4.13 Step 13: Reset the E-SBC

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 4-39: Resetting the E-SBC**



Reset Configuration	
Reset Board	<input type="button" value="Reset"/>
Burn To FLASH	Yes
Graceful Option	No
LOCK / UNLOCK	
Lock	<input type="button" value="LOCK"/>
Graceful Option	No
Gateway Operational State	UNLOCKED
Save Configuration	
Burn To FLASH	<input type="button" value="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 23, 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: 76
;Serial Number: 4965606
;Slot Number: 1
;Software Version: 7.00A.035.012
;DSP Software Version: 5014AE3_R => 700.40
;Board IP Address: 192.168.100.15
;Board Subnet Mask: 255.255.255.0
;Board Default Gateway: 192.168.100.254
;Ram size: 369M  Flash size: 64M  Core speed: 500Mhz
;Num of DSP Cores: 1  Num DSP Channels: 50
;Num of physical LAN ports: 4
;Profile: NONE
;;;Key features:;Board Type: 76 ;IP Media: Conf VXML
VoicePromptAnnounc(H248.9) POC ;Channel Type: RTP DspCh=50 ;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 ;QOE
features: VoiceQualityMonitoring MediaEnhancement ;DSP Voice features:
IpmDetector RTCP-XR AMRPolicyManagement ;FXSPorts=3 ;FXOPorts=1
;BRITrunks=12 ;DATA features: ;Security: IPSEC MediaEncryption
StrongEncryption EncryptControlProtocol ;Control Protocols: MGCP MEGACO
H323 SIP TPNCP SASurvivability SBC=50 MSFT CLI TRANSCODING=50 FEU=600
TestCall=5 EMS ;Default features:;Coders: G711 G726;

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

[SYSTEM Params]

SyslogServerIP = 192.168.100.25
EnableSyslog = 1
NTPServerUTCOffset = 7200
;VpFileLastUpdateTime is hidden but has non-default value
NTPServerIP = '0.0.0.0'
;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]

[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, 192.168.100.15, 24, 192.168.100.254, "Voice",
192.168.100.254, 0.0.0.0, "vlan 1";
InterfaceTable 1 = 5, 10, 82.153.203.53, 28, 82.153.203.49, "WANSP",
82.153.203.49, 8.8.8.8, "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/z8rcWUk5LB15TBnJqbmJrPzJmAh9HQhofSj4mOjImJiIyIp
KD1oPWm8vL58P749Ks=", 1, 0, 2, 15, 60, 200,
"5defa220d918d4a93d2ecba9436e766a";
WebUsers 1 = "User",
"$1$lKT0pqWhra6p/6Wmq8aZkZTFkpaTnJ+YyJibzJnW04GHhIPVgdyJiIjdtqM+ffY9fP28
PKq/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:EXP", "ALL:!ADH", 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_EnableEarlyl183,
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_SBCAdaptRFC2833BWTtoVoiceCoderBW;
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, 0, 1, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 300, -1, -1, 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, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 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, 6990, 1, "", "";
CpMediaRealm 1 = "MRwan", "WANSP", "", 7000, 100, 7990, 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_SBCRegisteredUsersClassificationMethod, SRD_SBCRoutingPolicyName;
SRD 0 = "DefaultSRD", 0, -1, 1, 0, 0, 0, -1, "Default_SBCRoutingPolicy";

[ \SRD ]

[ SIPInterface ]

FORMAT SIPInterface_Index = SIPInterface_InterfaceName,
SIPInterface_NetworkInterface, SIPInterface_ApplicationType,
SIPInterface_UDPPort, SIPInterface_TCPPort, SIPInterface_TLSPort,
SIPInterface_SRDName, SIPInterface_MessagePolicyName,
SIPInterface_TLSText, 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_EnableSBCClientForking, IPGroup_SourceUriInput,
IPGroup_DestUriInput, IPGroup_ContactName, IPGroup_Username,
IPGroup_Password, IPGroup_UUIFormat, 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 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;
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;

[ \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, "192.168.100.10:5060", 0;
ProxyIp 1 = "1", 0, "nn6300southsipconnect.adpt-tech.com", 0;

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[ \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 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;

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```
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 ]

[ CodersGroup1 ]

FORMAT CodersGroup1_Index = CodersGroup1_Name, CodersGroup1_pTime,
CodersGroup1_rate, CodersGroup1_PayloadType, CodersGroup1_Sce,
CodersGroup1_CoderSpecific;
CodersGroup1 0 = "g711Alaw64k", 20, 0, -1, 0, "";
CodersGroup1 1 = "g711Ulaw64k", 20, 0, -1, 0, "";

[ \CodersGroup1 ]

[ CodersGroup2 ]

FORMAT CodersGroup2_Index = CodersGroup2_Name, CodersGroup2_pTime,
CodersGroup2_rate, CodersGroup2_PayloadType, CodersGroup2_Sce,
CodersGroup2_CoderSpecific;
CodersGroup2 0 = "g729", 20, 0, -1, 0, "";
CodersGroup2 1 = "g711Alaw64k", 20, 0, -1, 0, "";
CodersGroup2 2 = "g711Ulaw64k", 20, 0, -1, 0, "";
CodersGroup2 3 = "g7231", 30, 0, -1, 0, "";

[ \CodersGroup2 ]

[ CodersGroup4 ]

FORMAT CodersGroup4_Index = CodersGroup4_Name, CodersGroup4_pTime,
CodersGroup4_rate, CodersGroup4_PayloadType, CodersGroup4_Sce,
CodersGroup4_CoderSpecific;
CodersGroup4 0 = "t38fax", 255, 255, -1, 255, "";

[ \CodersGroup4 ]

[ AllowedCodersGroup1 ]

FORMAT AllowedCodersGroup1_Index = AllowedCodersGroup1_Name;
AllowedCodersGroup1 0 = "g711Ulaw64k";
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AllowedCodersGroup1 1 = "g711Alaw64k";

[ \AllowedCodersGroup1 ]

[ AllowedCodersGroup2 ]

FORMAT AllowedCodersGroup2_Index = AllowedCodersGroup2_Name;
AllowedCodersGroup2 0 = "g711Alaw64k";

[ \AllowedCodersGroup2 ]

[ 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 2 = "Reject Responses", 14, "any.response",
"header.request-uri.methodtype=='486'", "header.request-uri.methodtype",
2, "'480'", 0;
MessageManipulations 3 = "Call FW change Contact", 4,
"invite.response.302", "header.Contact regex
(.*)(sip:00)(.*)((192.168.100.10)(.*)" , "header.Contact", 2,
"$1+'sip:'+$3+$4+'interop.adpt-tech.com'+$6", 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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