

Connecting SL1100 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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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	NEC
Model	SL1100
Software Version	05.12
Protocol	SIP/UDP
Additional Notes	None

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.035.012
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

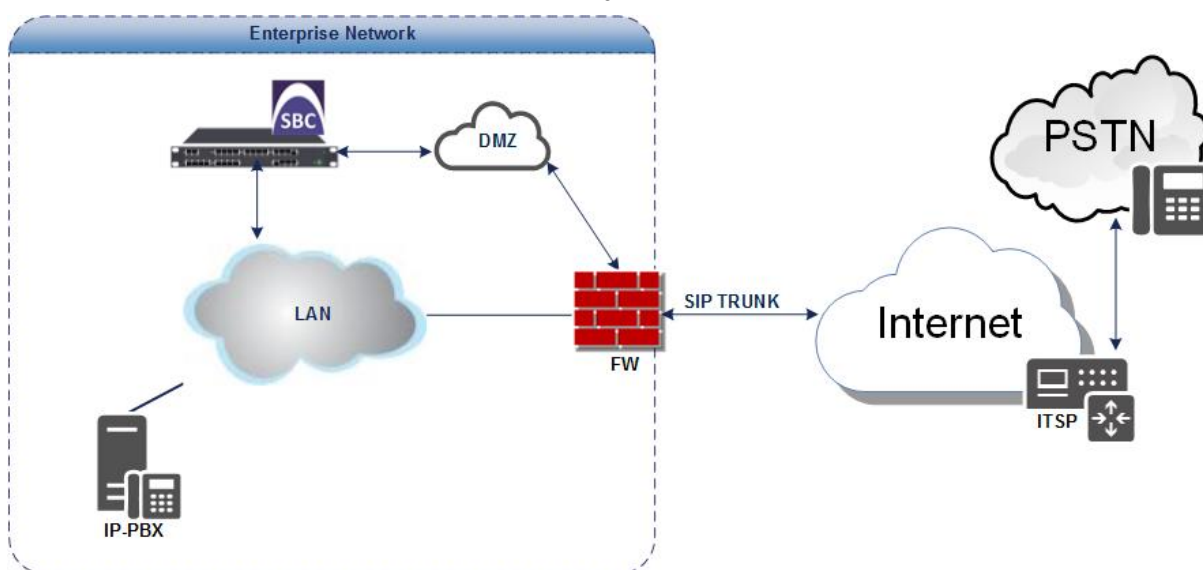
2.4 Interoperability Test Topology

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 NEC SL1100 IP-PBX

This chapter describes how to configure basic parameters of the NEC SL1100 IP-PBX to operate with AudioCodes E-SBC.



Note: For more complex configuration parameters, refer to User Manual for each IP-PBX.

3.1 Basic Configuration Parameters

The screenshots below show the main parameters, which should be configured on the NEC SL1100 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 PCPro Configuration tool and download the current configuration:

Figure 3-1: Blade configuration of NEC SL1100 viewed in PC Pro

The screenshot shows the PC Pro configuration tool interface. The main workspace displays a rack of blades. The selected blade (01) is shown in detail, including its configuration and status. The configuration includes version information, trunk settings, and telephone settings.

Type	Version
File Ver	SL1100(Euro,Middle East,Africa)
Main Software	R5.10.01
DBMS	05.12
PCPro Server	1.03.0n.pipk
CPU Revision	3
MEMDB	Installed
VOIPDB	32VOIPDB
CF-InMail	Not Installed

Type	Ports	Total
CO		0
BRI		0
PRI		0
T1		0
IP		0
SIP	1~4	4
H.323		0
T-Point Loopback		0
E1		0
Trk*		0
Not used	5~96	92
4 ports of 96 are used		

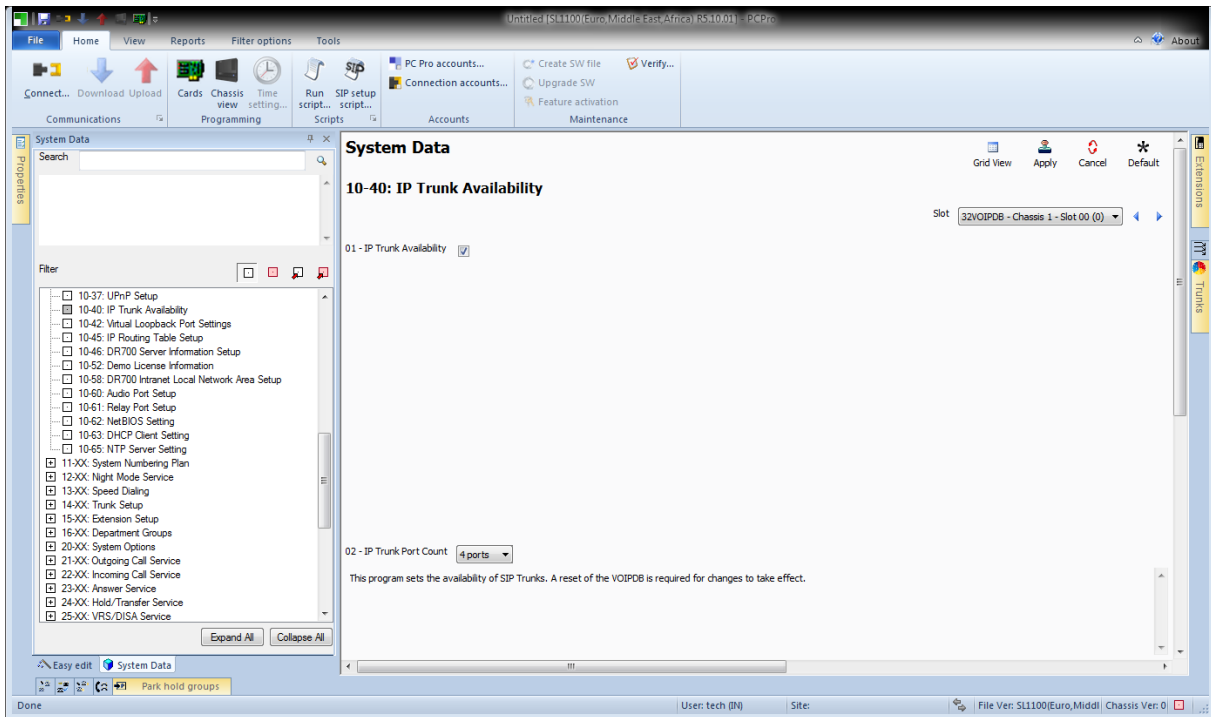
Type	Ports	Extension Numbers	Total
MLT	1~8	200~207	8
SLT	9~12	208~211	4
IP	13	212	1
JP*			0
InMail			0
VE	121~170		50
DSS			0
S-Point			0
S-Point Loopback			0
Mobile*			0
Tel*			0
DoorPhone			0
Not used	14~120		107
13 ports of 170 are used			



Note: Save your current configuration file before proceeding.

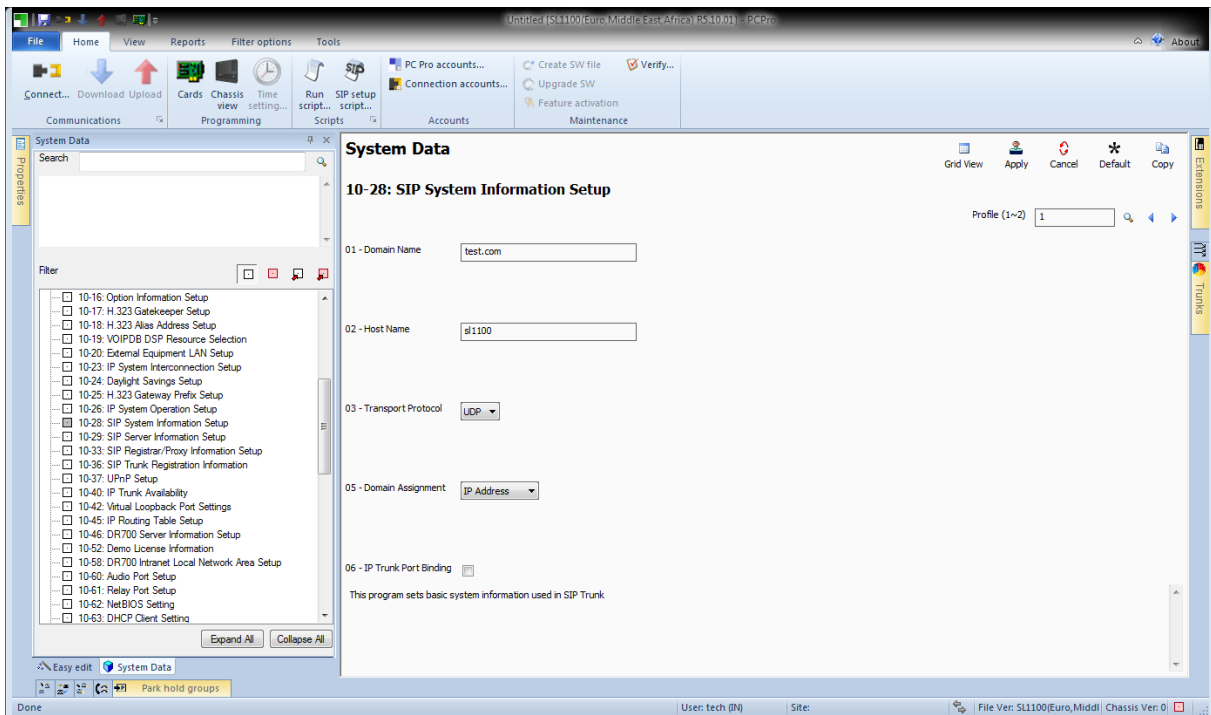
2. Enable IP Trunk Availability in programming command **10-40-01**, and define number of trunks available in **10-40-02**:

Figure 3-2: Programming command 10-40



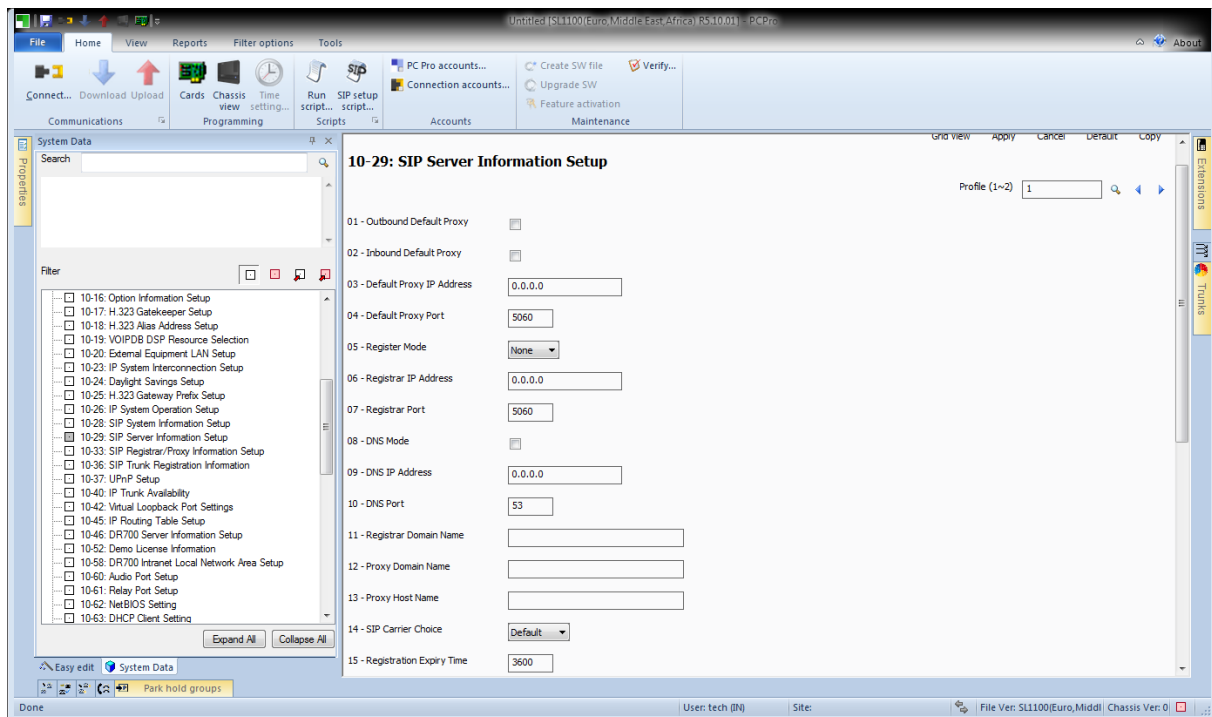
3. Enter your SIP profile details in programming command **10-28**. Select an Profile ID for the connection to the AudioCodes E-SBC. Domain name and host name are defined by the customer's network. User ID is supplied with your BroadCloud account:

Figure 3-3: Programming command 10-28



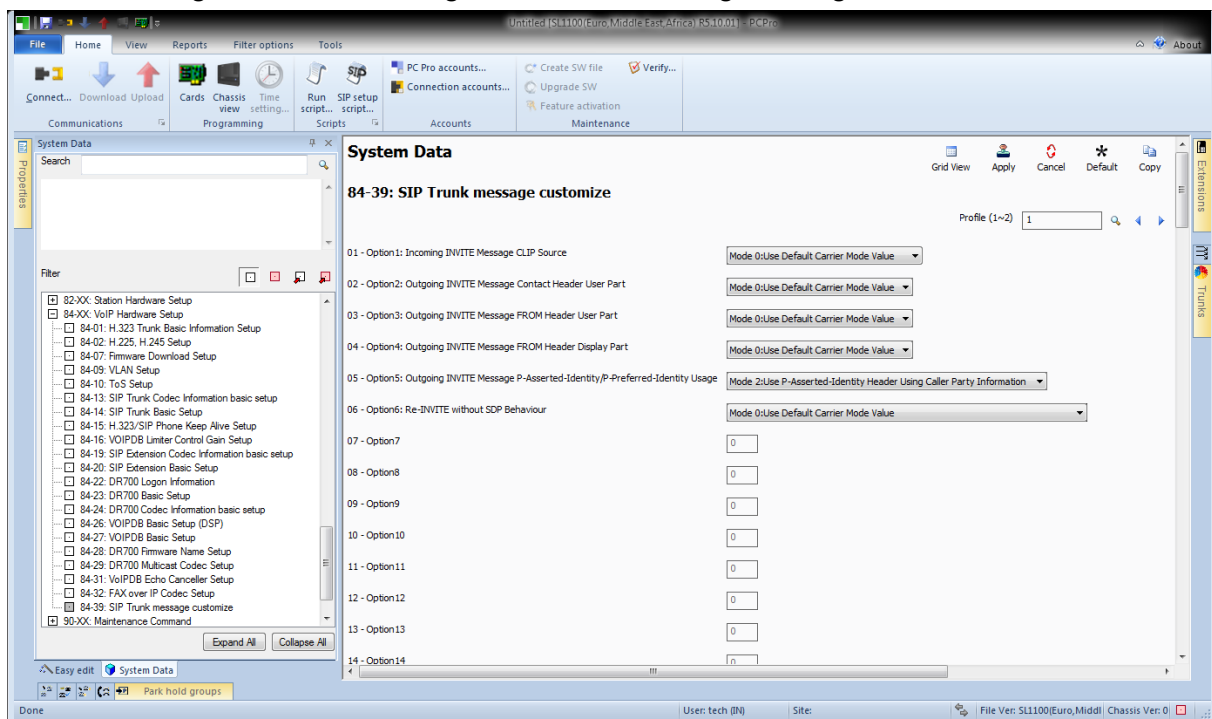
- Verify the SIP Carrier Choice in programming command **10-29-14**, ensure that the correct Profile ID is selected. The SIP Carrier Choice value should be set to Default. Register mode in programming command **10-29-05** should be set to None:

Figure 3-4: Programming command 10-29



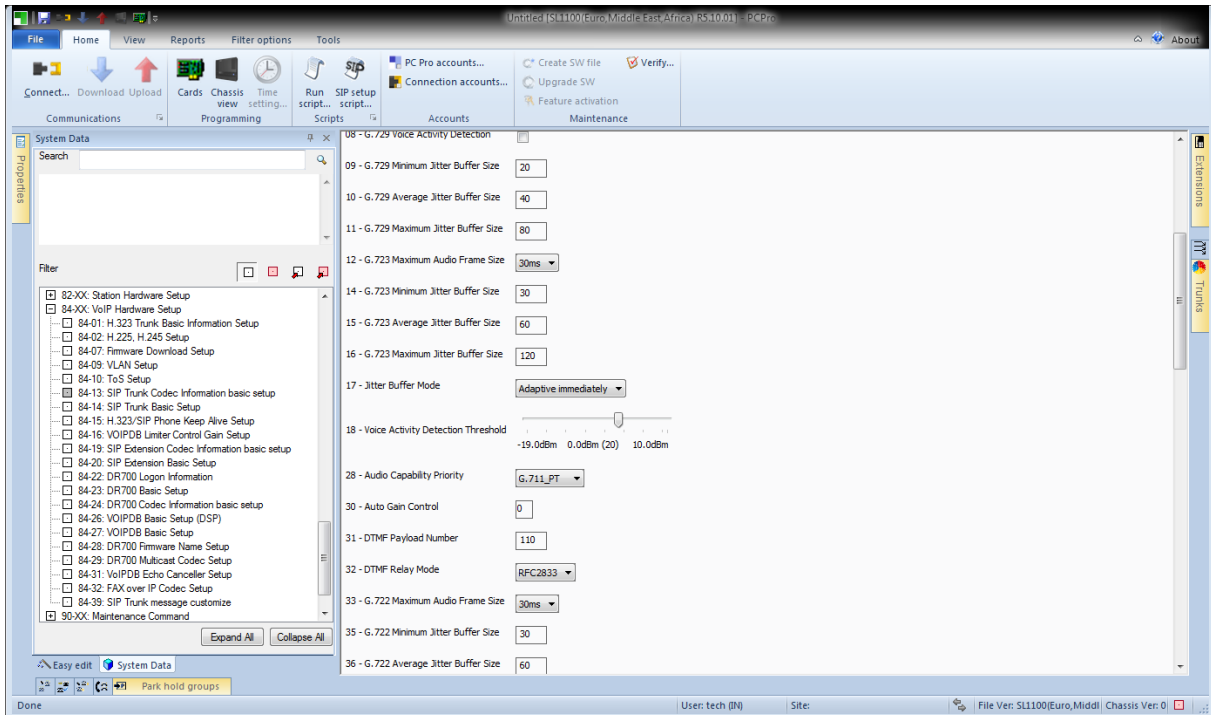
- Modify SIP message with custom option 05 set to "Mode 2: Use P-Asserted-Identity Header Using Caller Party Information" in programming command **84-39-05**. Confirm the correct Profile ID is selected:

Figure 3-5: SIP message Customization Programming command 84-39



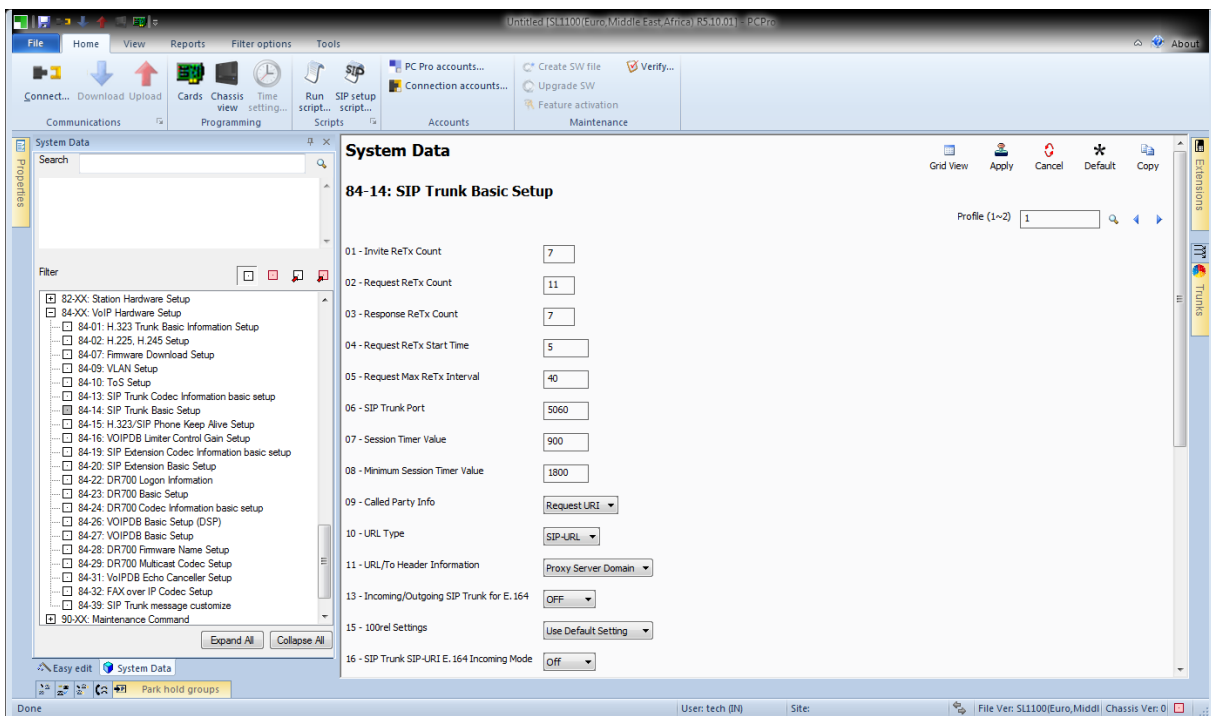
6. Set your codec preference in Programming command **84-13-28**. Enable DTMF Relay RFC2833 in command **84-13-32**:

Figure 3-6: Audio Codec priority and DTMF relay settings



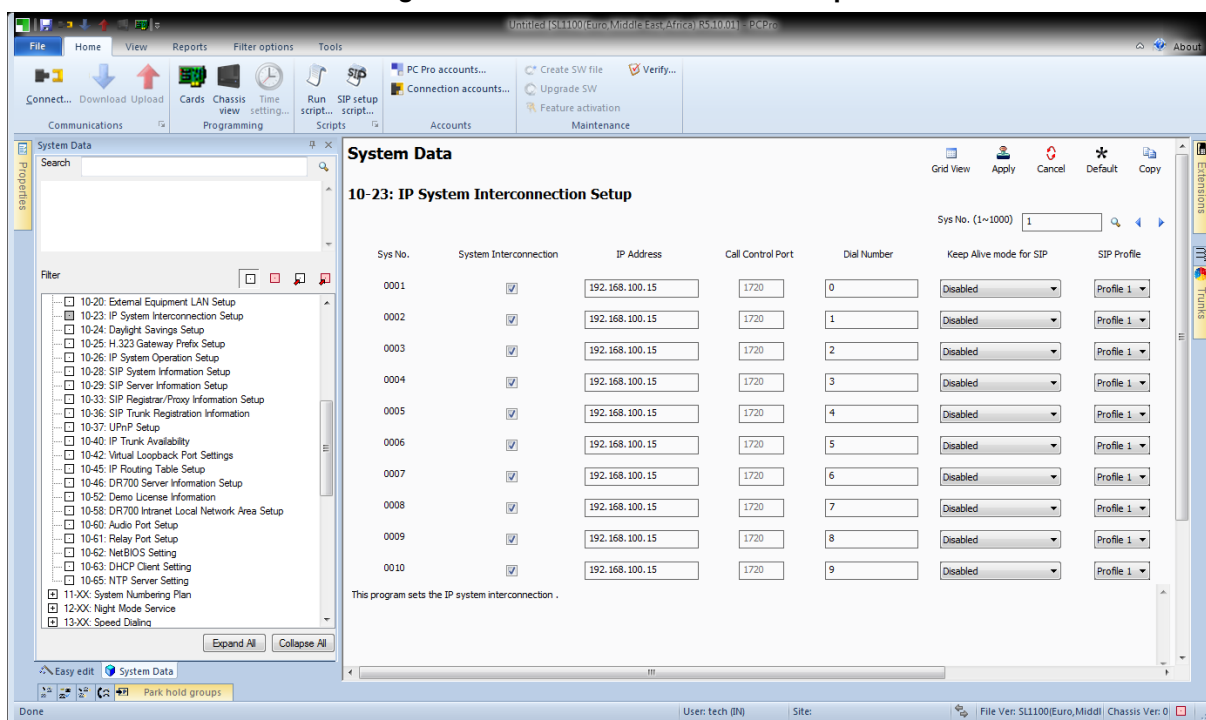
7. Ensure that the Session Timer Value is configured in Programming command **84-14-07**. Failure to set this value may result in calls being disconnected after 60 minutes. For SIP 302 Moved Temporarily support set **84-14-17** to 302 Return:

Figure 3-7: Session Refresh Timer



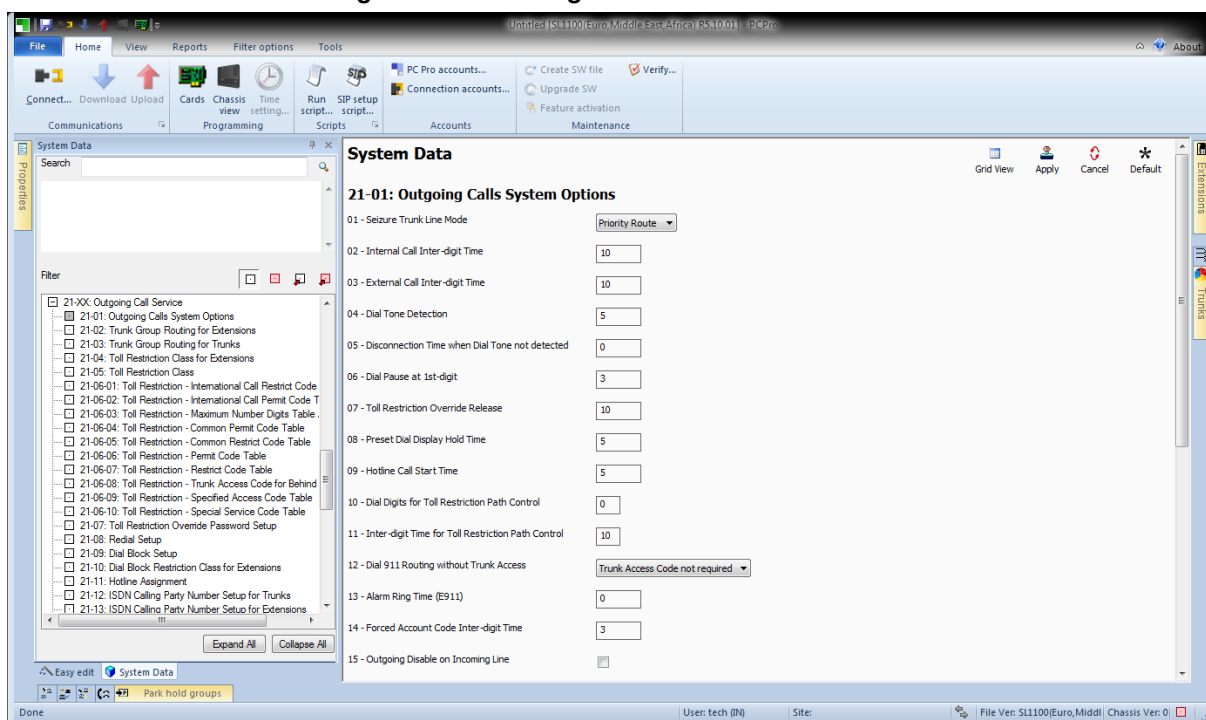
8. Route outgoing trunk digits to AudioCodes E-SBC in Programming command **10-23**. The shown configuration will route all dialed numbers to the SBC as dialed. The IP address used is the internal LAN interface of the E-SBC:

Figure 3-8: SIP Interconnection Setup



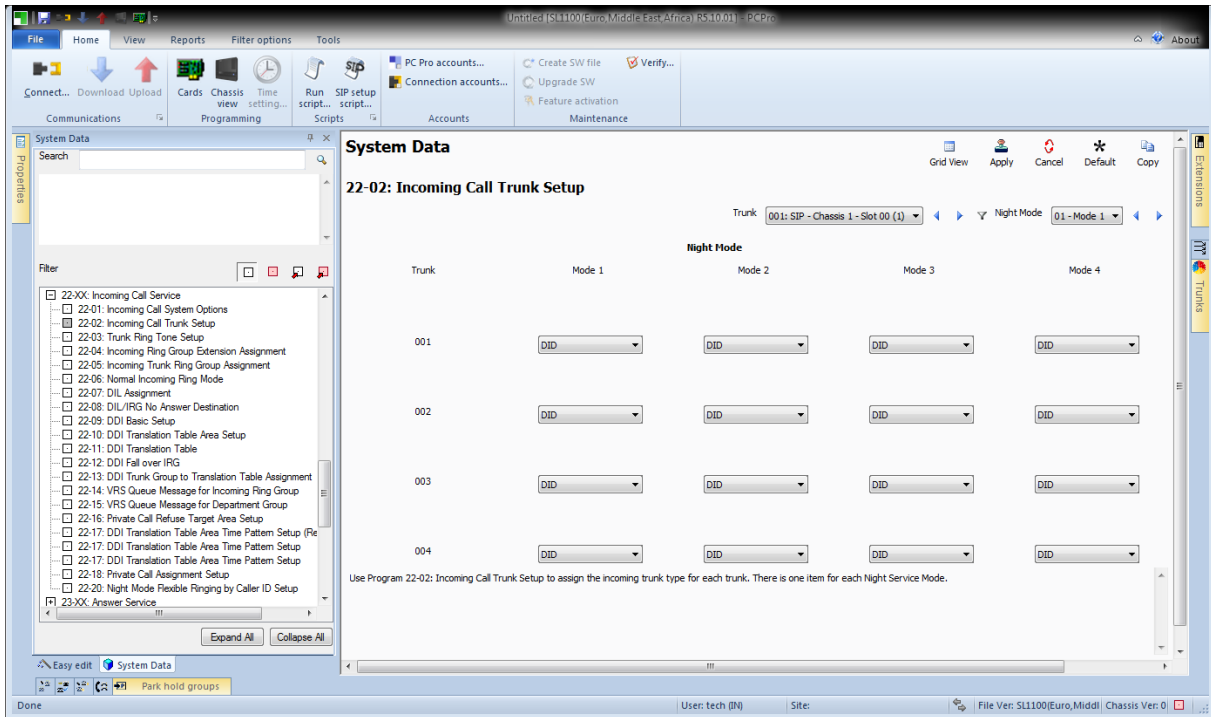
9. Optionally reduce the Enbloc inter-digit timer for outgoing calls in Programming command **21-01-03**:

Figure 3-9: Inter-digit timer for external calls



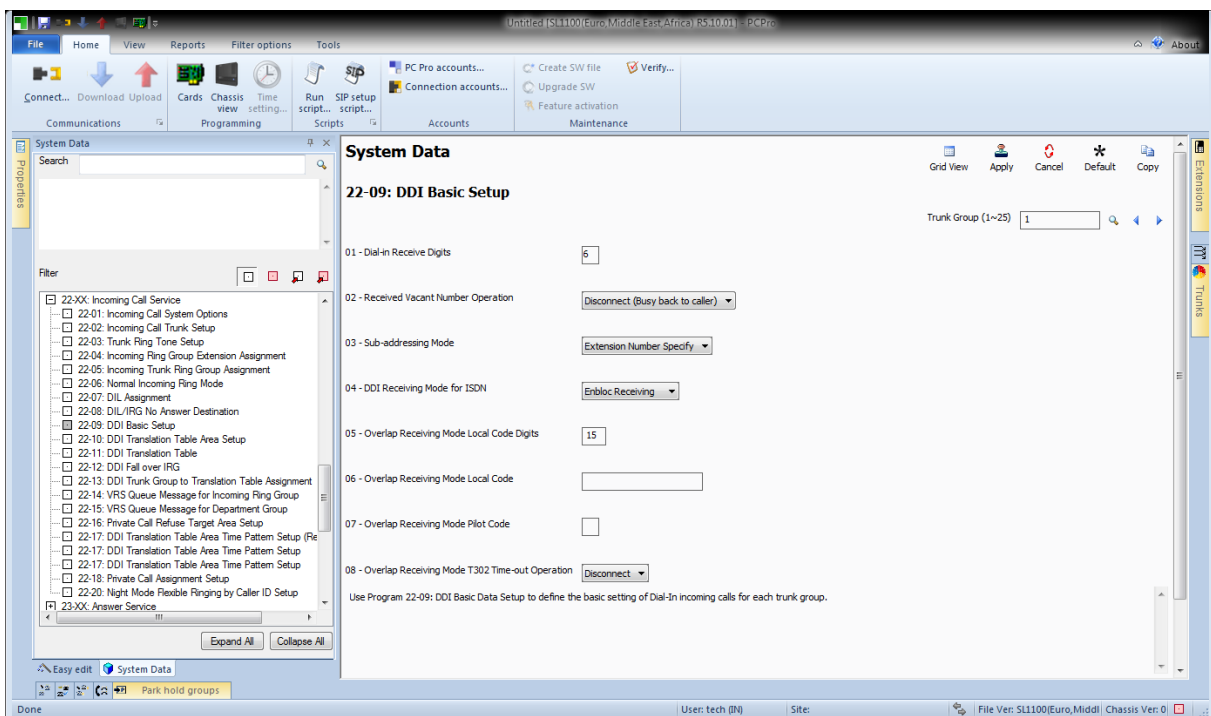
10. To route incoming calls via the DDI Translation tables, configure the SIP trunks as DID types in Programming command **22-02**:

Figure 3-10: Incoming trunk routing type



11. 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: DDI Receive Configuration



12. Enter your received DDI/DID numbers in Programming command 22-11:

Figure 3-12: DDI receive configuration

The screenshot shows the '22-11: DDI Translation Table' configuration screen in the NEC SL1100 IP-PBX software. The interface includes a menu bar (File, Home, View, Reports, Filter options, Tools) and a toolbar with various icons. A search bar is located at the top left. The left sidebar contains a list of configuration options, with '22-11: DDI Translation Table' selected. The main area displays the configuration fields for the selected option:

- 01 - Received Number: 624852
- 02 - Target 1: 200
- 03 - DDI Name: DDI
- 04 - Transfer Operation Mode: No Transfer
- 05 - Target 2: 0
- 06 - Target 3: 0
- 07 - Call Waiting: ☐
- 08 - Maximum Number of Calls: 0
- 09 - Music On Hold Source: System Music On Hold Source
- 11 - Fall over IRG: ☒

Below the fields, there is a note: 'Use Program 22-11: DDI Translation Table Number Conversion to specify for each Translation Table entry (800):'

- The digits received by the system (eight maximum)
- The extension the system dials after translation (36 digits maximum)
- The name that should show on the dialed extension's display when it rings (12 characters maximum)
- Target - 2 and 3
- If the Transfer targets are busy or receive no answer, those calls are transferred to the final transfer destination (Program 22-10).
- Operation Mode

The bottom status bar shows 'User: tech (74)', 'Site:', and 'File Ver: SL1100(Euro,Middl) Chassis Ver: 0'.

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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*).

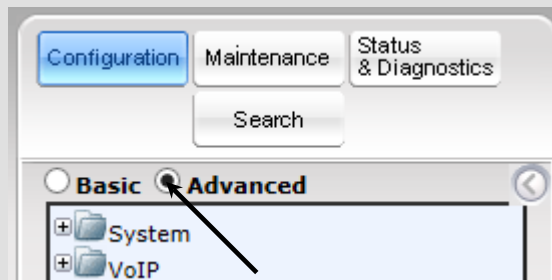
Notes:

- 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:



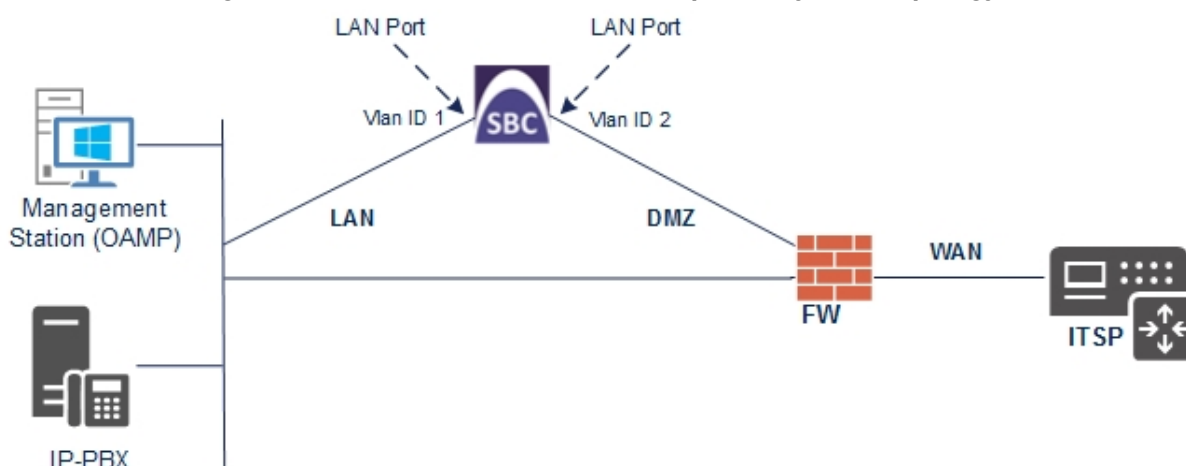
Note that when the E-SBC is reset, the Navigation tree reverts to Basic-menu display.

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 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, there is a pagination bar showing 'Page 1 of 1' and a 'View 1 - 2 of 2' link.

Index	VLAN ID	Underlying Interface	Name	Tagging
0	1	GROUP_1	vlan 1	Untagged
1	2	GROUP_2	vlan 2	Untagged

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

3. Add a network interface for the WAN side:

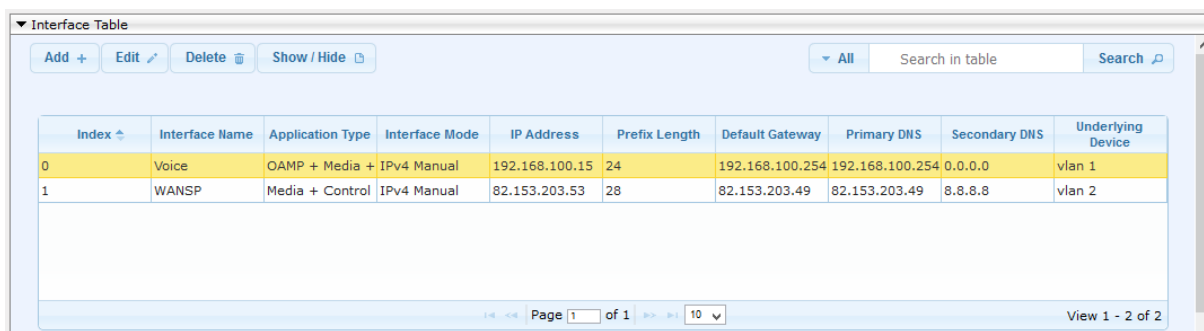
- a. Enter **1**, and then click **Add Index**.
- b. Configure the interface as follows:

Parameter	Value
Application Type	Media + Control
IP Address	82.153.203.53 (WAN IP address)
Prefix Length	25 (for 255.255.255.128)
Default Gateway	82.153.203.49 (router's IP address)
VLAN ID	2
Interface Name	WANSP
Primary DNS Server IP Address	82.153.203.49
Secondary DNS Server IP Address	8.8.8.8
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



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

Page 1 of 1 | 10 | View 1 - 2 of 2

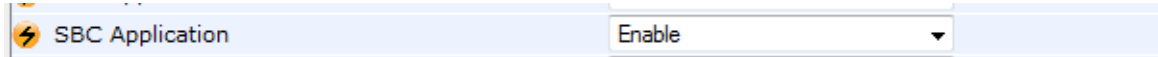
4.2 Step 2: Enable the SBC Application

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 61).

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); however modify it as shown below:

Parameter	Value
Index	0
Media Realm 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 a web-based configuration interface titled "Edit Row". It contains several input fields and dropdown menus for configuring a Media Realm. The fields are as follows:

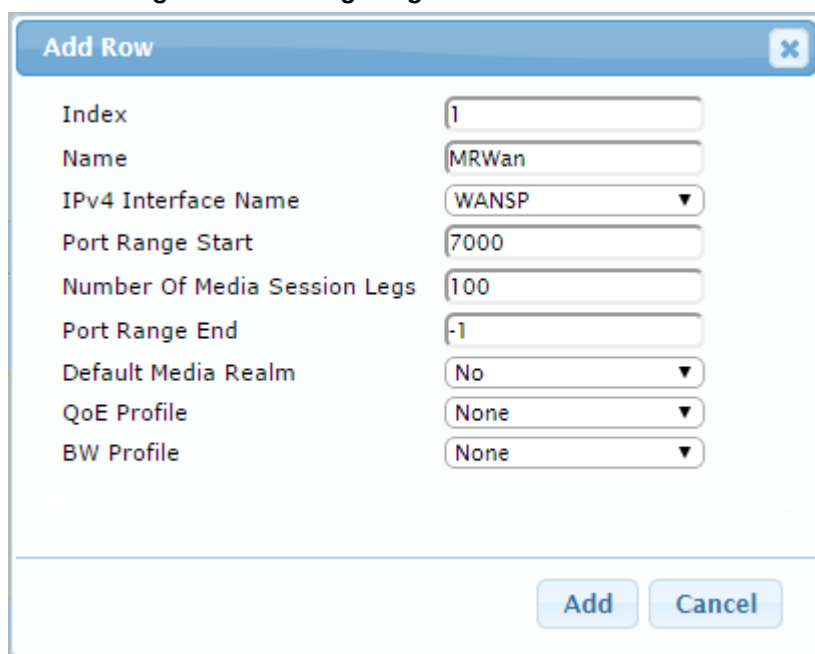
- Index:** A text input field containing the value "0".
- Name:** A text input field containing the value "MRLan".
- IPv4 Interface Name:** A dropdown menu with "Voice" selected.
- Port Range Start:** A text input field containing the value "6000".
- Number Of Media Session Legs:** A text input field containing the value "100".
- Port Range End:** A text input field containing the value "6990".
- Default Media Realm:** A dropdown menu with "No" selected.
- QoS Profile:** A dropdown menu with "None" selected.
- BW Profile:** A dropdown menu with "None" selected.

At the bottom right of the dialog, there are two buttons: "Save" and "Cancel".

3. 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



Add Row

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

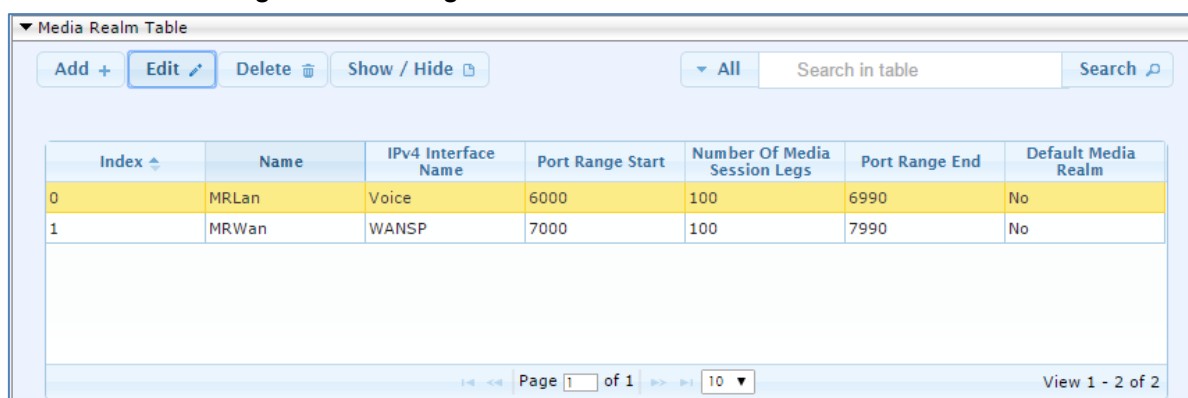
QoS Profile: None

BW Profile: None

Add Cancel

The configured Media Realms are shown in the figure below:

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



Media Realm Table

Add + Edit Delete Show / Hide

All Search in table Search

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

Page 1 of 1 10 View 1 - 2 of 2

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 on page 30)
Network Interface	Voice
Application Type	SBC
UDP Port	5060
TCP and TLS	0
Media Realm	MRLan

3. Configure a SIP Interface for the WAN:

Parameter	Value
Index	1
Interface Name	BroadCloud (see Note on page 30)
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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of 1

▶▶

10 ▼

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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), however, modify it as shown below:

Parameter	Value
Proxy Set ID	0
Proxy Name	IP-PBX (see Note on page 30)
SBC IPv4 SIP Interface	IP-PBX
Proxy Keep Alive	Using Options

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

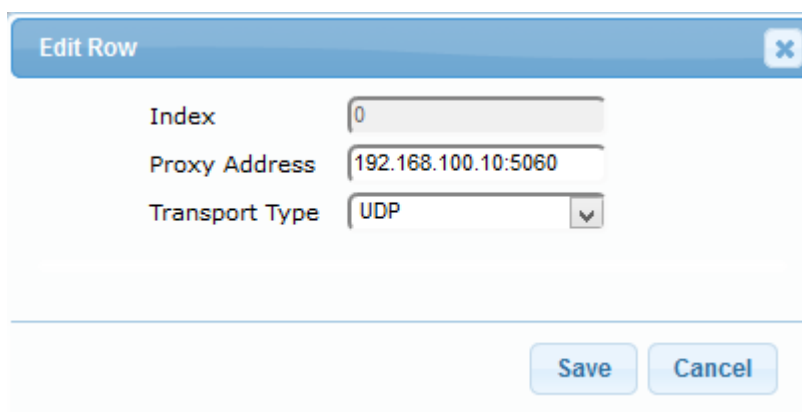
Edit Row	
Index	0
SRD	DefaultSRD
Name	IP-PBX
Gateway IPv4 SIP Interface	None
SBC IPv4 SIP Interface	IP-PBX
Proxy Keep-Alive	Using OPTIONS
Proxy Keep-Alive Time [sec]	60
Redundancy Mode	
Proxy Load Balancing Method	Disable
DNS Resolve Method	
Proxy Hot Swap	Disable
Keep-Alive Failure Responses	
Classification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

Save Cancel

3. Configure a Proxy Address Table for Proxy Set for IP-PBX:
 - a. Open the Proxy Address Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **Proxy Sets Table** > **Proxy Address Table**).

Parameter	Value
Index	0
Proxy Address	192.168.100.10:5060 (IP-PBX IP address / FQDN and destination port)
Transport Type	UDP

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



Edit Row

Index: 0
 Proxy Address: 192.168.100.10:5060
 Transport Type: UDP

Save Cancel

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

Parameter	Value
Proxy Set ID	1
Proxy Name	BroadCloud (see Note on page 30)
SBC IPv4 SIP Interface	BroadCloud
Proxy Keep Alive	Using Options

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

Edit Row	
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	
Proxy Load Balancing Method	Disable
DNS Resolve Method	SRV
Proxy Hot Swap	Disable
Keep-Alive Failure Responses	
Classification Input	IP Address only
TLS Context Name	None

Save Cancel

- Configure a Proxy Address Table for Proxy Set 1:
- Open the Proxy Address table page (**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

Edit Row	
Index	1
Proxy Address	nn6300southsipconnec
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

Proxy Sets Table

Add +
Edit
Delete
Show / Hide

All
Search in table
Search

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

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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 30)

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

Edit Row

Index: 1

Common | GW | SBC Signaling | SBC Media

Name: IP-PBX

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

Media IP Version: Only IPv4

Save Cancel

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

Parameter	Value
Remote Update Support	Supported
Remote re-INVITE Support	Supported
Remote Can Play Ringback	No

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

Edit Row

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
Media Security Behavior	RTP

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

The screenshot shows the 'Edit Row' dialog box with the 'SBC Media' tab selected. The 'Index' is set to 1. 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	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

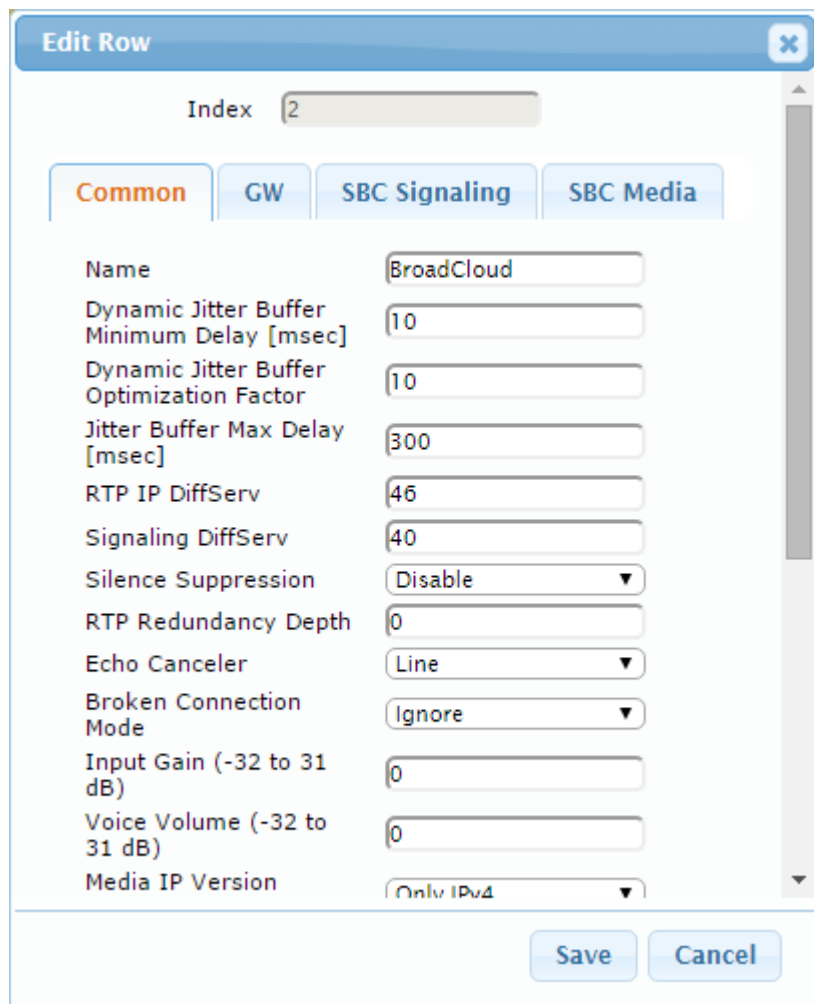
Buttons: Save, Cancel

➤ 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	BroadCloud (see Note on page 30)

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



Edit Row

Index 2

Common GW SBC Signaling SBC Media

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

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

Media IP Version Only IPv4

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

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

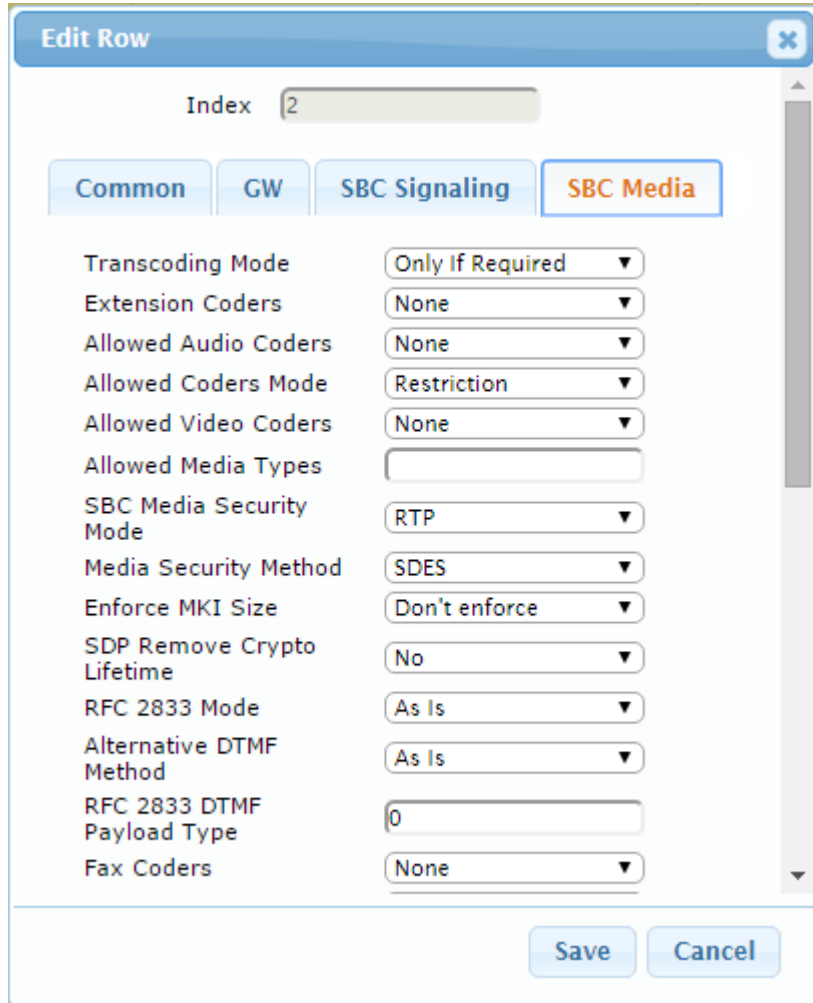
Remote Replaces Mode: Standard

Save Cancel

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

Parameter	Value
Media Security Behavior	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 30)
Type	Server
Proxy Set	IP-PBX
IP Profile	IP-PBX
Media Realm	MRLan
SIP Group Name	

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

Parameter	Value
Index	1
Name	BroadCloud (see Note on page 30)
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 Configure	IP-PBX	IP-PBX	MRLan		Enable	-1	-1
1	BroadCloud	 DefaultSRD	Server	Not Configure	BroadCloud	BroadCloud	MRWan	interop,adpt-	Enable	-1	4

⏪

⏩

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10 ▼

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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

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	Dest Address
Destination Address	internal

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

Add Row

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
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

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

Edit Row [X]

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](#)

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

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

Edit Row

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	Add + for National Calls
Source IP Group	IP-PBX
Destination IP Group	BroadCloud
Destination Username Prefix	001

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

Edit Row

Index: 0

Routing Policy: Default_SBCRoutingP

Rule | Action

Name: Add + for National Calls

Additional Manipulation: No

Request Type: All

Source IP Group: IP-PBX

Destination IP Group: BroadCloud

Source Username Prefix: *

Source Host: *

Destination Username Prefix: 001

Destination Host: *

Calling Name Prefix: *

Message Condition: None

Call Trigger: Any

Save Cancel

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

Parameter	Value
Manipulated Item	Destination URI
Remove From Left	2
Prefix to Add	+

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

Edit Row
✕

Index

Routing Policy

Default_SBCRoutingP

Rule

Action

Manipulated Item

Destination URI

Remove From Left

Remove From Right

Leave From Right

Prefix to Add

Suffix to Add

Privacy Restriction Mode

Transparent

[Classic View](#)

Save

Cancel

5. Click **Submit**.

The figure below shows an example of the 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

IP to IP Outbound Manipulation													
Add + Edit Delete Insert + Up ↑ Down ↓ Show / Hide ▼ All Search in table Search													
Index	Name	Routing Policy	Additional Manipulation	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	2	0	255	+	
1	Add 011 to	Default_SB	No	IP-PBX	BroadCloud	*	00	Destination 2	2	0	255	011	
2	For Anonym	Default_SB	No	IP-PBX	BroadCloud	*	*	Source URI	0	0	255		
Page 1 of 1 10 View 1 - 3 of 3													

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 a web-based configuration interface for SIP Message Manipulation Rules. The 'Edit Row' dialog is open, displaying the following configuration details:

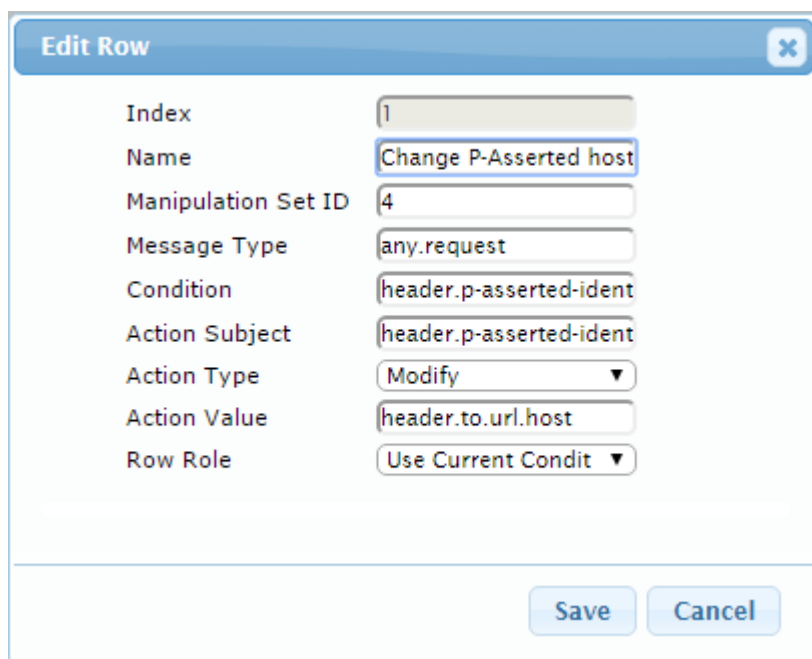
- Index:** 0
- Name:** Change From host
- Manipulation Set ID:** 4
- Message Type:** any.request
- Condition:** (empty field)
- Action Subject:** header.from.url.host
- Action Type:** Modify (selected from a dropdown menu)
- Action Value:** header.to.url.host
- Row Role:** Use Current Condit (selected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

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

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
Manipulation 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)



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)

Field	Value
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

- 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	3
Name	Call FW change Contact
Manipulation Set ID	4
Message Type	invite.response.302
Condition	header.Contact regex (.*)
Action Subject	header.Contact
Action Type	Modify
Action Value	\$1+'sip:.'+\$3+\$4+'interop.a
Row Role	Use Current Condition

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

Message Manipulations								
▼ Message Manipulations								
Add + Edit Delete Insert + Up ↑ Down ↓ Show / Hide 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.h	Modify	header.to.url.host	Use Current Cond
1	Change P-Asserte	4	any.request	header.p-asserted	header.p-asserted	Modify	header.to.url.host	Use Current Cond
2	Reject Responses	14	any.response	header.request-ur	header.request-ur	Modify	'480'	Use Current Cond
3	Call FW change C	4	invite.response.30	header.Contact re	header.Contact	Modify	\$1+'sip:.'+\$3+\$4+	Use Current Cond

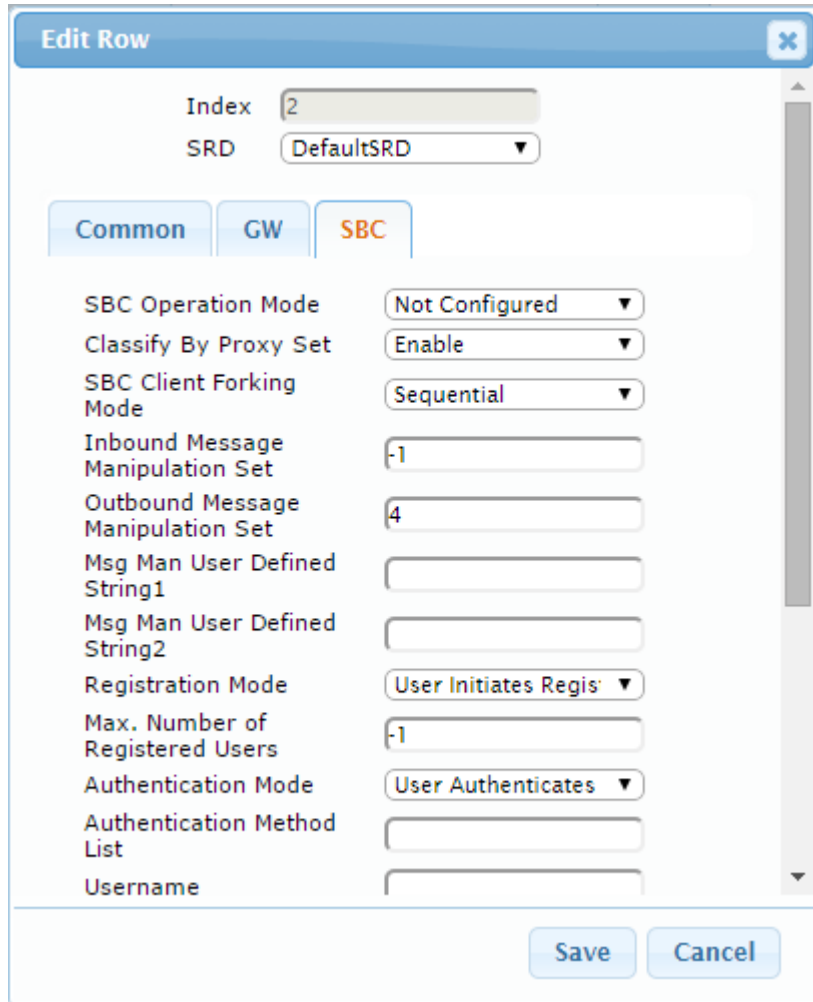
Page 1 of 1
10
View 1 - 4 of 4

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



Edit Row

Index: 2
SRD: 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 4-37: Configuring SIP Registration Account

The screenshot shows the 'Account Table' interface with a table containing one row of configuration data. The table has columns for Index, Application Type, Served Trunk Group, Served IP Group, Serving IP Group, User Name, Password, Host Name, Register, and Contact User. The row shows 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, and Contact User 8325624857. The interface includes buttons for Add, Edit, Delete, Action, and Show/Hide, along with a search bar and pagination controls.

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.

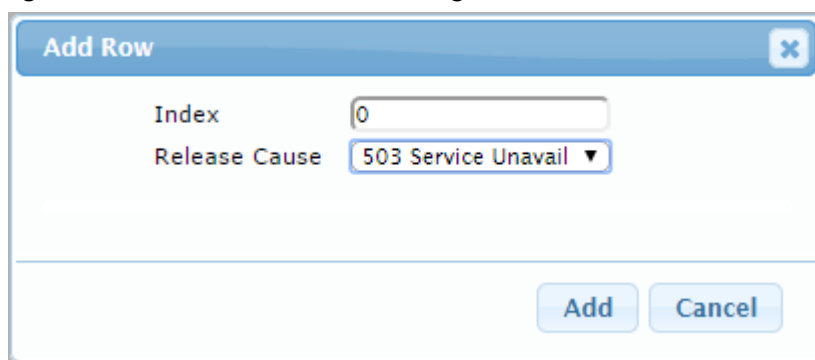
4.12.1 Step 12a: Configure SBC Alternative Routing Reasons

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



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 4-39: Resetting the E-SBC

The screenshot displays a web-based configuration interface for an E-SBC. It is organized into three main sections, each with a dropdown arrow on the left:

- Reset Configuration:** Contains three rows. The first row is 'Reset Board' with a 'Reset' button. The second row is 'Burn To FLASH' with a dropdown menu set to 'Yes'. The third row is 'Graceful Option' with a dropdown menu set to 'No'.
- LOCK / UNLOCK:** Contains three rows. The first row is 'Lock' with a 'LOCK' button. The second row is 'Graceful Option' with a dropdown menu set to 'No'. The third row is 'Gateway Operational State' with the text 'UNLOCKED'.
- Save Configuration:** Contains one row, 'Burn To FLASH', with a 'BURN' button.

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

This page is intentionally left blank.

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: 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 ;FX0Ports=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 : FX0          : 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/z8rcWUk5LB15TBnJqbmJrPzJmAh9HQhofSj4m0jImJiIyIp
KD1oPwm8vL58P749Ks=", 1, 0, 2, 15, 60, 200,
"5defa220d918d4a93d2ecba9436e766a";
WebUsers 1 = "User",
"$1$lKT0pqWhra6p/6Wmq8aZkZTFkpaTnJ+YyJibzJnW04GHhIPVgdyJiIjdjtqM+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_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, 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, 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_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_TLSCContextName,
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_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 ]

[ SBCCAlternativeRoutingReasons ]

FORMAT SBCCAlternativeRoutingReasons_Index =
SBCCAlternativeRoutingReasons_ReleaseCause;
SBCCAlternativeRoutingReasons 0 = 503;

[ \SBCCAlternativeRoutingReasons ]

[ 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;

```

```
[ \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";
AllowedCodersGroup1 1 = "g711Alaw64k";

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```
[ \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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International Headquarters

1 Hayarden Street,
Airport City
Lod 7019900, Israel
Tel: +972-3-976-4000
Fax: +972-3-976-4040

AudioCodes Inc.

27 World's Fair Drive,
Somerset, NJ 08873
Tel: +1-732-469-0880
Fax: +1-732-469-2298

Contact us: www.audiocodes.com/info

Website: www.audiocodes.com



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