

Connecting Unify HiPath 3000 IP-PBX to BroadCloud SIP Trunk using AudioCodes Mediant™ E-SBC

Version 7.0



Table of Contents

1	Introduction	7
1.1	Intended Audience	7
1.2	About AudioCodes E-SBC Product Series.....	7
2	Component Information.....	9
2.1	IP-PBX Version	9
2.2	AudioCodes E-SBC Version	9
2.3	BroadCloud SIP Trunking Version	9
2.4	Interoperability Test Topology	10
2.4.1	Environment Setup	11
2.4.2	Known Limitations.....	11
3	Configuring Siemens HiPath 3000 IP-PBX.....	13
3.1	Basic Configuration Parameters	14
4	Configuring AudioCodes E-SBC.....	17
4.1	Step 1: IP Network Interfaces Configuration	18
4.1.1	Step 1a: Configure VLANs.....	19
4.1.2	Step 1b: Configure Network Interfaces.....	20
4.2	Step 2: Enable the SBC Application	22
4.3	Step 3: Configure Media Realms	23
4.4	Step 4: Configure SIP Signaling Interfaces.....	25
4.5	Step 5: Configure Proxy Sets	27
4.6	Step 6: Configure IP Profiles	31
4.7	Step 7: Configure IP Groups.....	37
4.8	Step 8: Configure IP-to-IP Call Routing Rules	39
4.9	Step 9: Configure IP-to-IP Manipulation Rules.....	47
4.10	Step 10: Configure Message Manipulation Rules	50
4.11	Step 11: Configure Registration Accounts	55
4.12	Step 12: Miscellaneous Configuration.....	56
4.12.1	Step 12a: Configure SBC Alternative Routing Reasons	56
4.13	Step 13: Reset the E-SBC	57
A	AudioCodes INI File	59

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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	Unify
Model	HiPath 3000
Protocol	SIP/UDP

2.2 AudioCodes E-SBC Version

Table 2-2: AudioCodes E-SBC Version

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

2.3 BroadCloud SIP Trunking Version

Table 2-3: BroadCloud Version

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

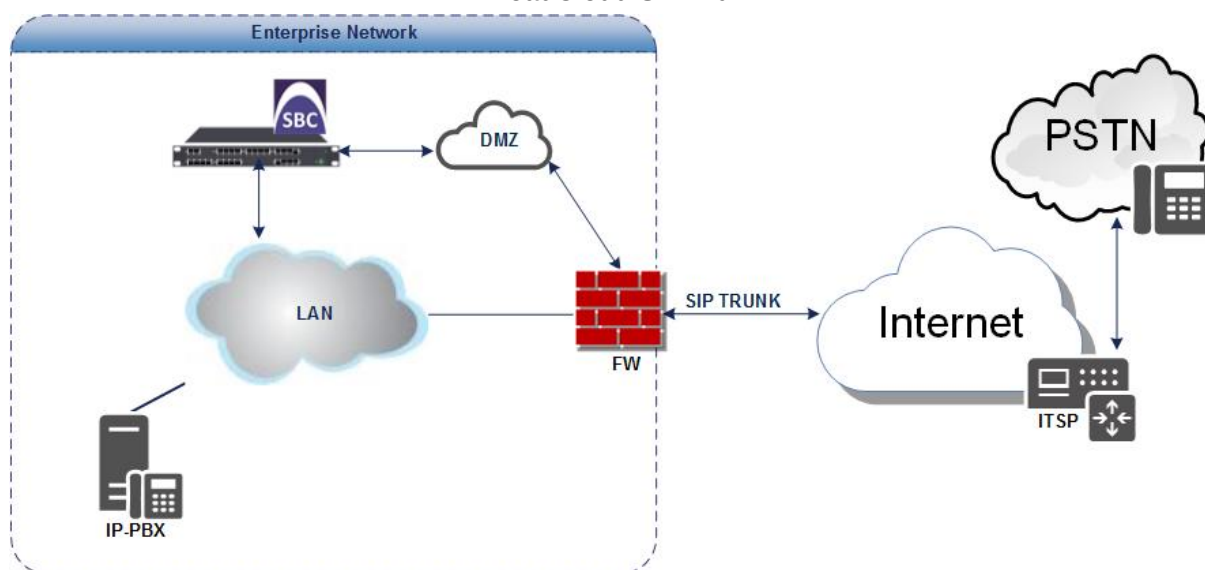
2.4 Interoperability Test Topology

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

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

The figure below illustrates this interoperability test topology:

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



2.4.1 Environment Setup

The interoperability test topology includes the following environment setup:

Table 2-4: Environment Setup

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

2.4.2 Known Limitations

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

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3 Configuring Siemens HiPath 3000 IP-PBX

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



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

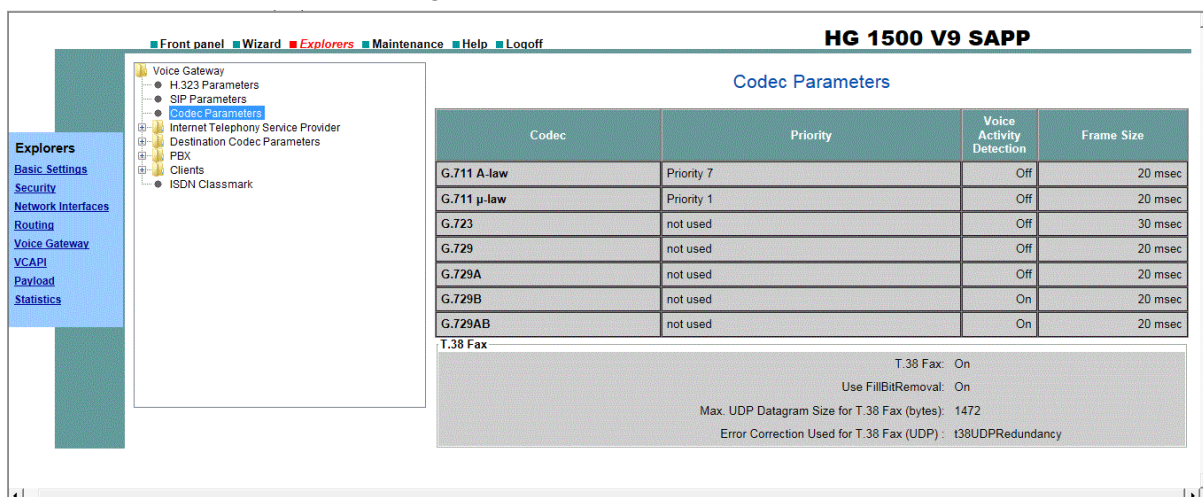
3.1 Basic Configuration Parameters

The screenshots below show the main parameters, which should be configured on the IP-PBX in order to operate with the AudioCodes E-SBC.

➤ **To configure the IP-PBX:**

1. Follow the standard practice of configuring a SIP trunk interface using Manager E.
2. For the HG1500 card, use the Web-based management to access the card.
3. Confirm the settings on the HG1500 per the screenshots below.

Figure 3-1: Codec Parameters - 1



HG 1500 V9 SAPP

Front panel Wizard Explorers Maintenance Help Logoff

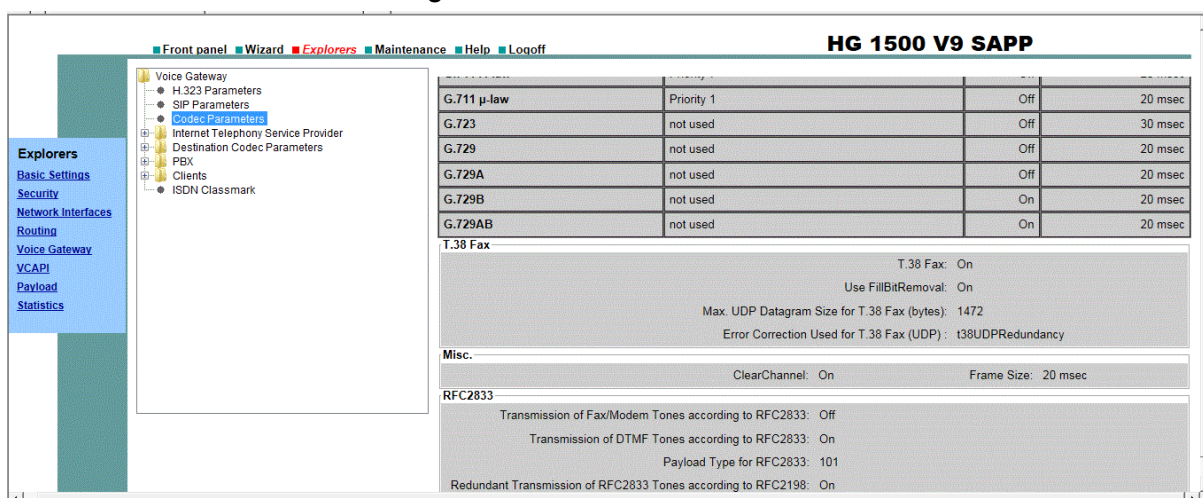
Codec Parameters

Codec	Priority	Voice Activity Detection	Frame Size
G.711 A-law	Priority 7	Off	20 msec
G.711 μ -law	Priority 1	Off	20 msec
G.723	not used	Off	30 msec
G.729	not used	Off	20 msec
G.729A	not used	Off	20 msec
G.729B	not used	On	20 msec
G.729AB	not used	On	20 msec

T.38 Fax

T.38 Fax: On
Use FillBitRemoval: On
Max. UDP Datagram Size for T.38 Fax (bytes): 1472
Error Correction Used for T.38 Fax (UDP): t38UDPRedundancy

Figure 3-2: Codec Parameters - 2



HG 1500 V9 SAPP

Front panel Wizard Explorers Maintenance Help Logoff

Codec Parameters

Codec	Priority	Voice Activity Detection	Frame Size
G.711 μ -law	Priority 1	Off	20 msec
G.723	not used	Off	30 msec
G.729	not used	Off	20 msec
G.729A	not used	Off	20 msec
G.729B	not used	On	20 msec
G.729AB	not used	On	20 msec

T.38 Fax

T.38 Fax: On
Use FillBitRemoval: On
Max. UDP Datagram Size for T.38 Fax (bytes): 1472
Error Correction Used for T.38 Fax (UDP): t38UDPRedundancy

Misc.

ClearChannel: On Frame Size: 20 msec

RFC2833

Transmission of Fax/Modem Tones according to RFC2833: Off
Transmission of DTMF Tones according to RFC2833: On
Payload Type for RFC2833: 101
Redundant Transmission of RFC2833 Tones according to RFC2198: On

Figure 3-3: SIP Parameters - 1

HG 1500 V9 SAPP

SIP Parameters

SIP User Agent

Use SIP Registrar: No
SIP Registrar IP Address:
SIP Registrar TLS Port Number:
SIP Registrar TCP/UDP Port Number:
Alternative SIP Registrar IP Address:
Alternative SIP Registrar TLS Port Number:
Alternative SIP Registrar TCP/UDP Port Number:
Period of registration (sec):

SIP Server (Registrar / Redirect)

SIP Server IP Address: 192.168.1.202
SIP Server Port Number: 5060
Period of registration (sec): 120

RFC 3261 Timer Values

Transaction Timeout (msec): 32000

Figure 3-4: SIP Parameters - 2

HG 1500 V9 SAPP

SIP Parameters

SIP Server (Registrar / Redirect)

Alternative SIP Registrar TLS Port Number:
Alternative SIP Registrar TCP/UDP Port Number:
Period of registration (sec):

SIP Server IP Address: 192.168.1.202
SIP Server Port Number: 5060
Period of registration (sec): 120

RFC 3261 Timer Values

Transaction Timeout (msec): 32000

SIP Transport Protocol

SIP via TCP: Yes
SIP via UDP: Yes
SIP via TLS: Yes

SIP Session Timer

RFC 4028 support: Yes
Session Expires (sec): 1800
Minimal SE (sec): 90

Provider Calls

Maximum possible Provider Calls: 4

Figure 3-5: ITSP Parameters - 1

HG 1500 V9 SAPP

Internet Telephony Service Provider

Provider Name: Audio Code
Enable Provider: Yes
Domain Name: 192.168.1.15
Use Local Domain Name in SIP Headers:

Provider Registrar

Use Registrar: No
IP Address / Host name: 0.0.0.0
Port: 0
Reregistration Interval at Provider (sec): 120

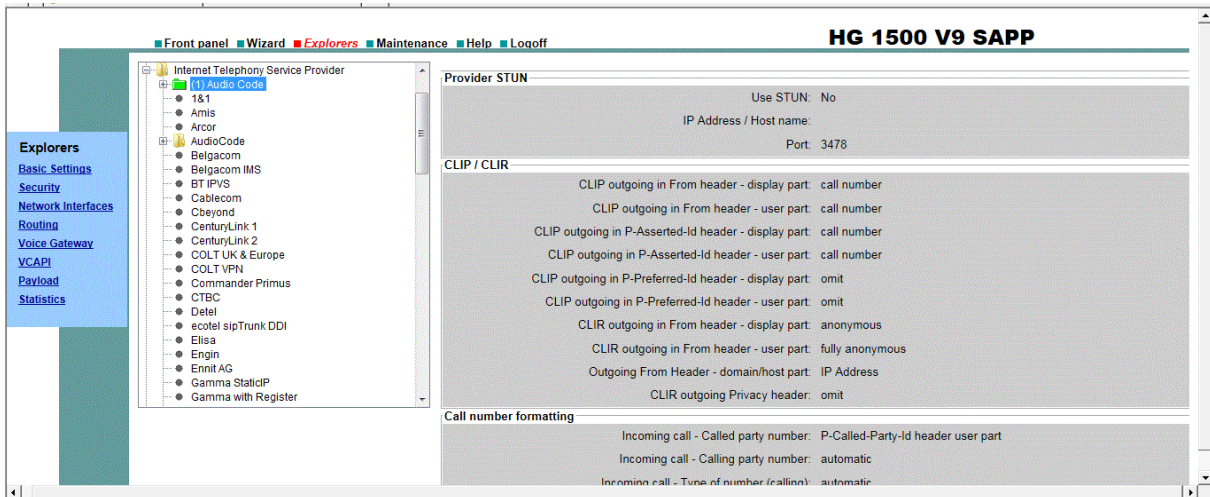
Provider Proxy

IP Address / Host name: 192.168.1.15
Port: 5060

Provider Outbound Proxy

Use Outbound Proxy: Yes
IP Address / Host name: 192.168.1.15
Port: 5060

Figure 3-6: ITSP Parameters - 2



Front panel **Wizard** **Explorers** **Maintenance** **Help** **Logout**

HG 1500 V9 SAPP

Providers

- Internet Telephony Service Provider
 - AudioCode
 - 1&1
 - Amis
 - Arcor
 - AudioCode
 - Belgacom
 - Belgacom IMS
 - BT IPVS
 - Cablecom
 - Cbeyond
 - CenturyLink 1
 - CenturyLink 2
 - COLT UK & Europe
 - COLT VPN
 - Commander Primus
 - CTBC
 - Detel
 - ecotel sipTrunk DDI
 - Elisa
 - Engin
 - Ennit AG
 - Gamma StaticIP
 - Gamma with Register

Explorers

- Basic Settings
- Security
- Network Interfaces
- Routing
- Voice Gateway
- VAPI
- Payload
- Statistics

Provider STUN

Use STUN: No

IP Address / Host name:

Port: 3478

CLIP / CLIR

CLIP outgoing in From header - display part: call number

CLIP outgoing in From header - user part: call number

CLIP outgoing in P-Asserted-Id header - display part: call number

CLIP outgoing in P-Asserted-Id header - user part: call number

CLIP outgoing in P-Preferred-Id header - display part: omit

CLIP outgoing in P-Preferred-Id header - user part: omit

CLIR outgoing in From header - display part: anonymous

CLIR outgoing in From header - user part: fully anonymous

Outgoing From Header - domain/host part: IP Address

CLIR outgoing Privacy header: omit

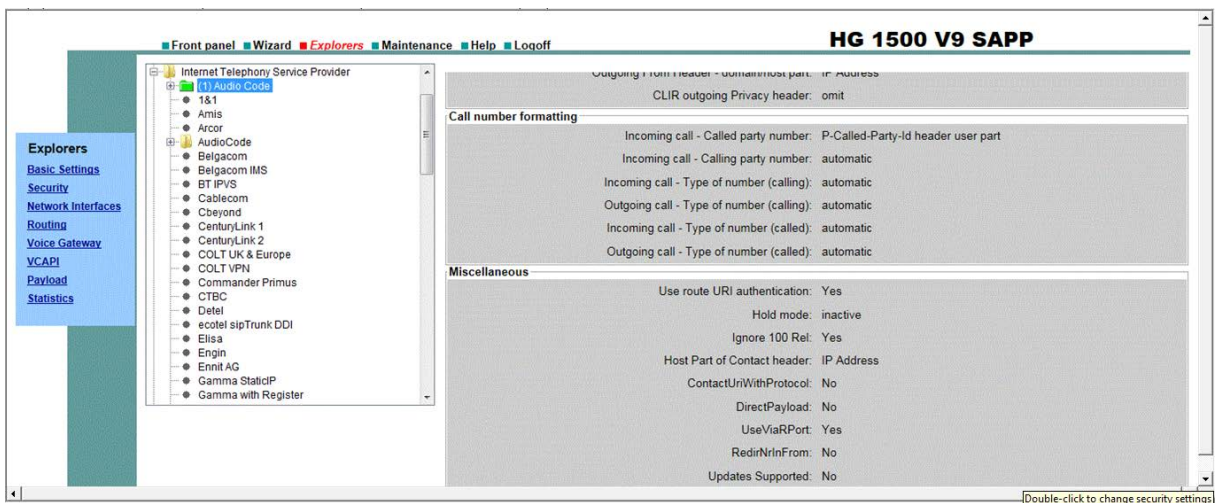
Call number formatting

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

Incoming call - Calling party number: automatic

Incoming call - Type of number (calling): automatic

Figure 3-7: ITSP Parameters - 3



Front panel **Wizard** **Explorers** **Maintenance** **Help** **Logout**

HG 1500 V9 SAPP

Providers

- Internet Telephony Service Provider
 - AudioCode
 - 1&1
 - Amis
 - Arcor
 - AudioCode
 - Belgacom
 - Belgacom IMS
 - BT IPVS
 - Cablecom
 - Cbeyond
 - CenturyLink 1
 - CenturyLink 2
 - COLT UK & Europe
 - COLT VPN
 - Commander Primus
 - CTBC
 - Detel
 - ecotel sipTrunk DDI
 - Elisa
 - Engin
 - Ennit AG
 - Gamma StaticIP
 - Gamma with Register

Explorers

- Basic Settings
- Security
- Network Interfaces
- Routing
- Voice Gateway
- VAPI
- Payload
- Statistics

Call number formatting

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

Incoming call - Calling party number: automatic

Incoming call - Type of number (calling): automatic

Outgoing call - Type of number (calling): automatic

Incoming call - Type of number (called): automatic

Outgoing call - Type of number (called): automatic

Miscellaneous

Use route URI authentication: Yes

Hold mode: inactive

Ignore 100 Rel: Yes

Host Part of Contact header: IP Address

ContactUriWithProtocol: No

DirectIPPayload: No

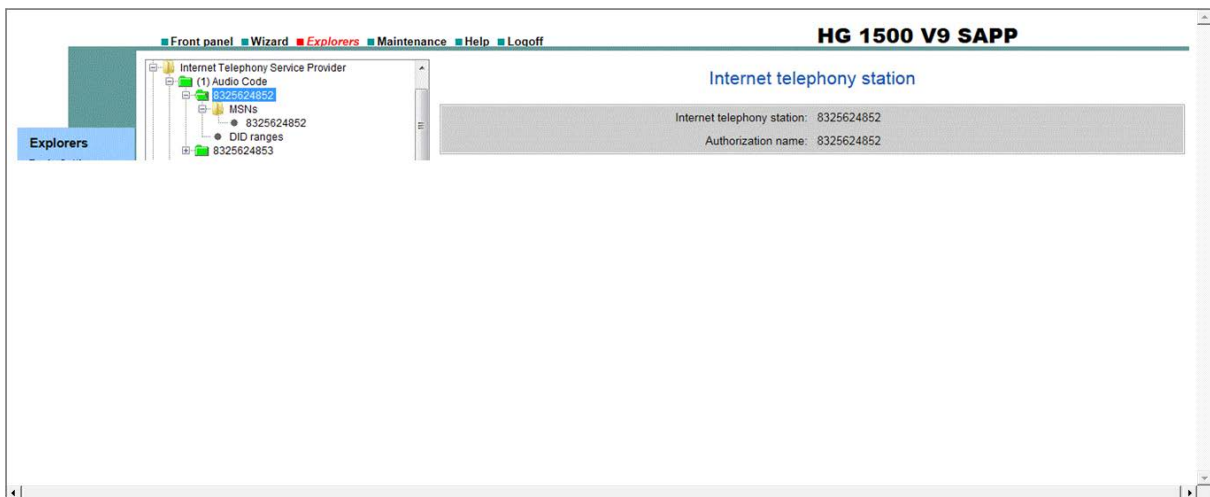
UseViaRPort: Yes

RedirNrnFrom: No

Updates Supported: No

[Double-click to change security settings]

Figure 3-8: Internet Telephony Station



Front panel **Wizard** **Explorers** **Maintenance** **Help** **Logout**

HG 1500 V9 SAPP

Providers

- Internet Telephony Service Provider
 - AudioCode
 - 1&1
 - Amis
 - Arcor
 - AudioCode
 - Belgacom
 - Belgacom IMS
 - BT IPVS
 - Cablecom
 - Cbeyond
 - CenturyLink 1
 - CenturyLink 2
 - COLT UK & Europe
 - COLT VPN
 - Commander Primus
 - CTBC
 - Detel
 - ecotel sipTrunk DDI
 - Elisa
 - Engin
 - Ennit AG
 - Gamma StaticIP
 - Gamma with Register

Explorers

- Basic Settings
- Security
- Network Interfaces
- Routing
- Voice Gateway
- VAPI
- Payload
- Statistics

Internet telephony station

Internet telephony station: 8325624852

Authorization name: 8325624852

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*).

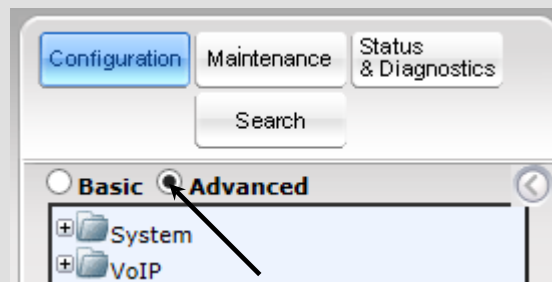
Notes:

- 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:



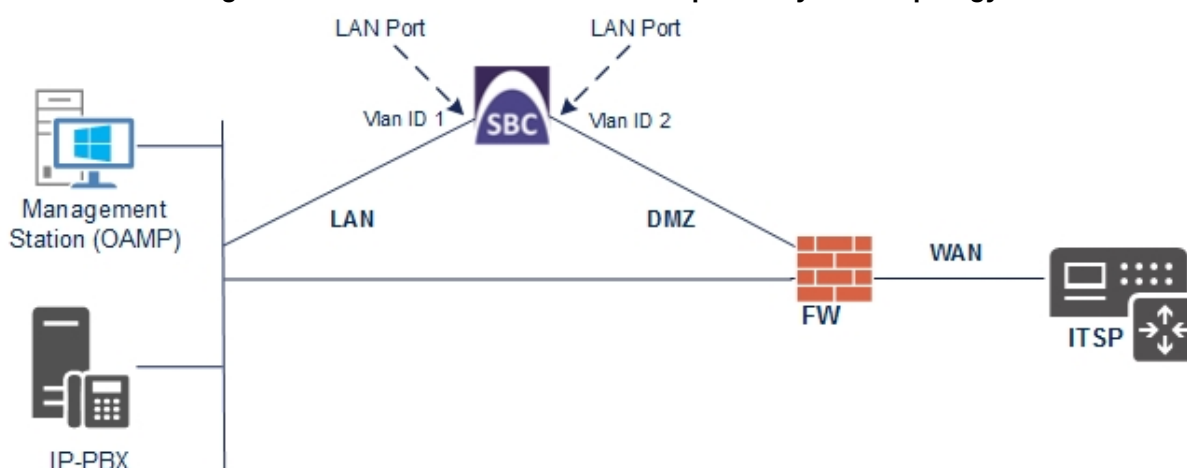
- When the E-SBC is reset, the Navigation tree reverts to Basic-menu display.

4.1 Step 1: IP Network Interfaces Configuration

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

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

Figure 4-1: Network Interfaces in Interoperability Test Topology



4.1.1 Step 1a: Configure VLANs

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

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

➤ **To configure the VLANs:**

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

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

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

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

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

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

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

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

The configured IP network interfaces are shown below:

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

▼ Interface Table

Add +

Edit ✎

Delete 🗑

Show / Hide 📄

▼ All

Search in table

Search 🔍

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

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 57).

4.3 Step 3: Configure Media Realms

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

➤ **To configure Media Realms:**

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

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

Figure 4-5: Configuring Media Realm for LAN

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

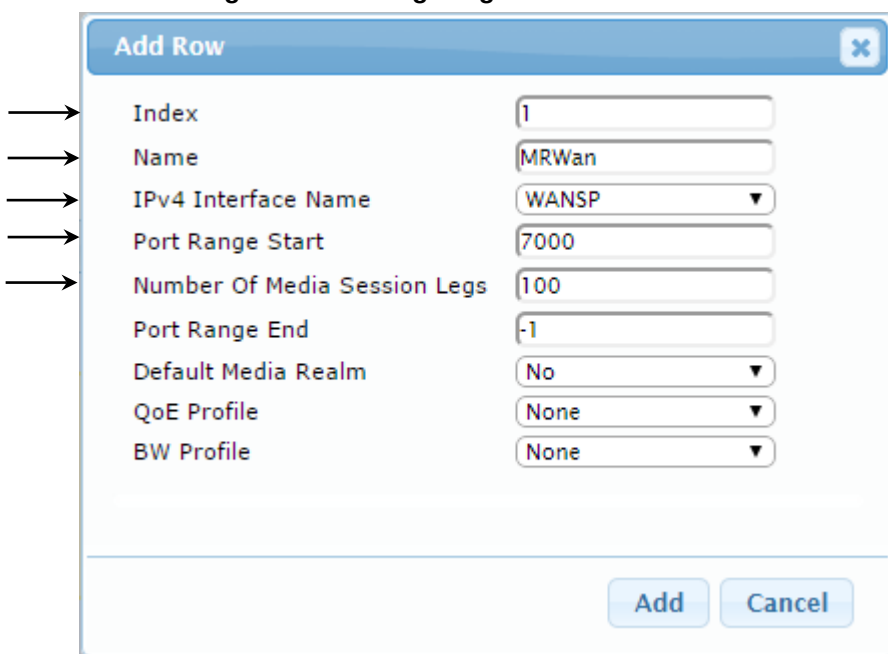
- Index: 0
- Name: MRLan
- IPv4 Interface Name: Voice
- Port Range Start: 6000
- Number Of Media Session Legs: 100
- Port Range End: 6990
- Default Media Realm: No
- QoS Profile: None
- BW Profile: None

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

3. Configure a Media Realm for WAN traffic:

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

Figure 4-6: Configuring Media Realm for WAN



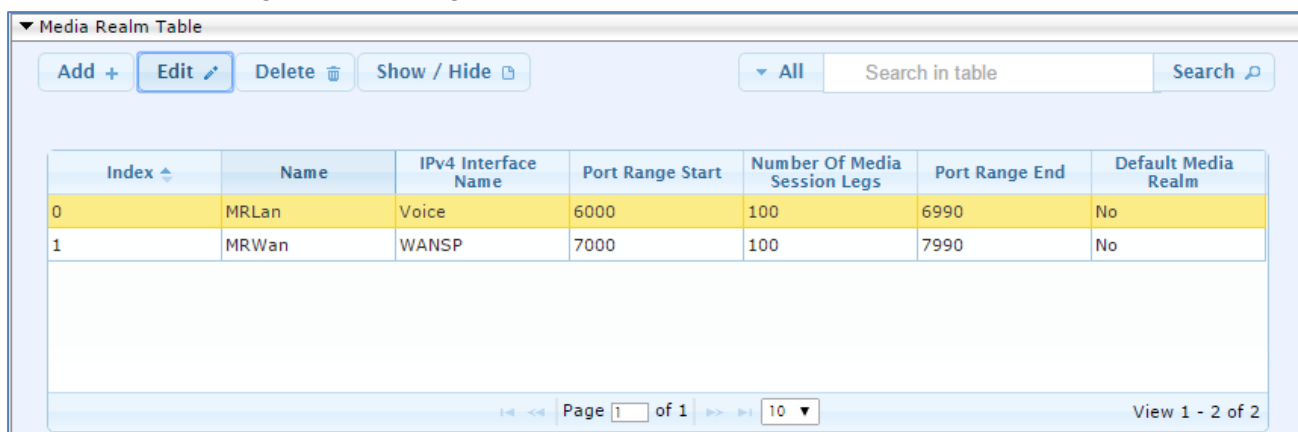
The 'Add Row' dialog box contains the following fields and values:

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

Buttons at the bottom: Add, Cancel.

The configured Media Realms are shown in the figure below:

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



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

Page 1 of 1 | 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 below)
Network Interface	Voice
Application Type	SBC
TLS Port	5060
TCP and UDP	0
Media Realm	MRLan

3. Configure a SIP Interface for the WAN.

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

The configured SIP Interfaces are shown in the figure below:

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

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

Page 1 of 1 10 View 1 - 2 of 2



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

4.5 Step 5: Configure Proxy Sets

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

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

- IP-PBX
- BroadCloud SIP Trunk

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

➤ To configure Proxy Sets:

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

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

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

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

Parameter	Value
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

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

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

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

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

Edit Row

Index

Proxy Address

Transport Type

Save Cancel

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

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

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

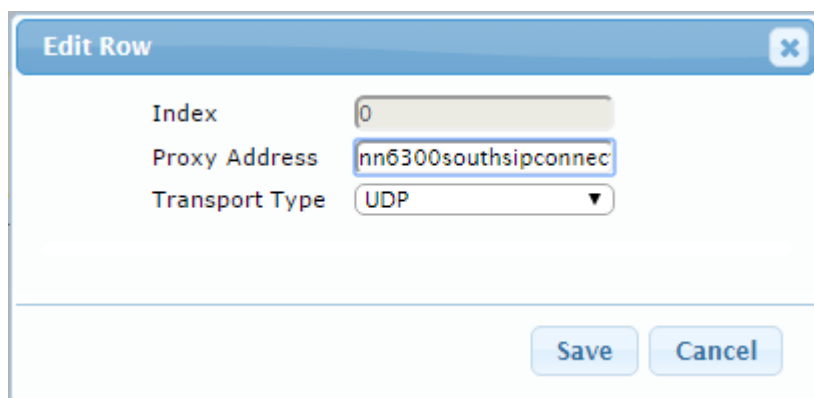
The 'Edit Row' dialog box contains the following parameters and values:

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

Buttons at the bottom: Save, Cancel

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

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

Figure 4-12: Configuring Proxy Address for


The 'Edit Row' dialog box contains the following fields:

- Index:** 0
- Proxy Address:** nn6300southsipconnec
- Transport Type:** UDP

Buttons: 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](#)

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

Page 1 of 1

 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 38)

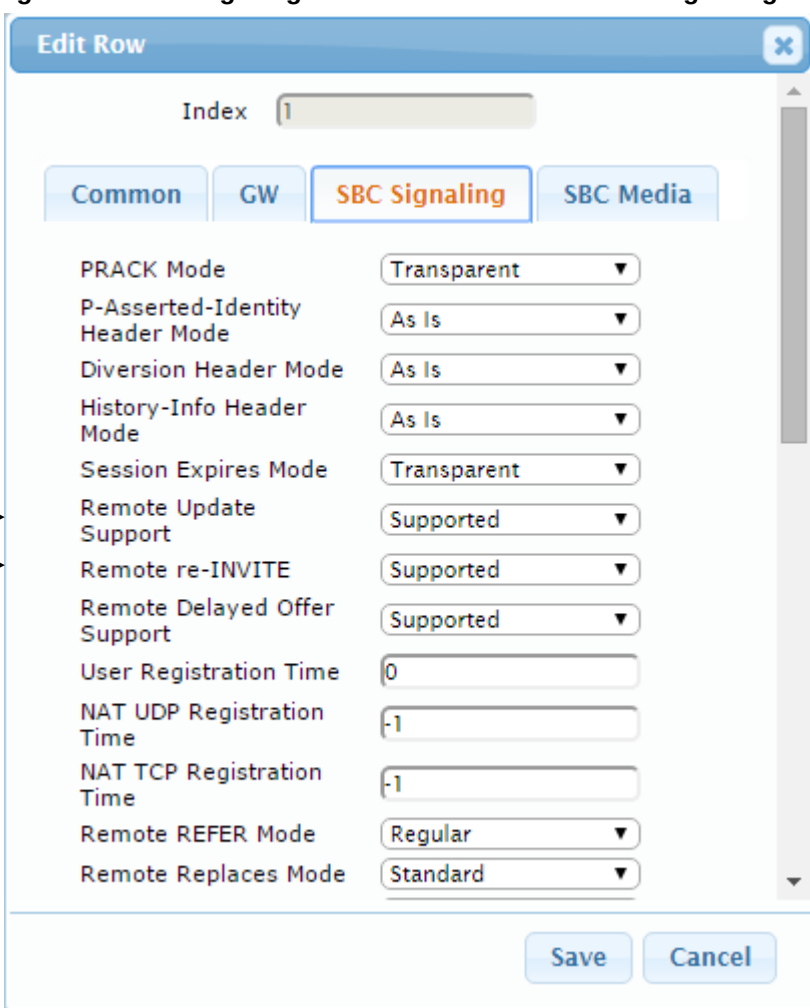
Figure 4-14: Configuring IP Profile for IP-PBX – Common Tab

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

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

Parameter	Value
Remote Update Support	Supported
Remote re-INVITE	Supported

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



Edit Row [X]

Index: 1

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

PRACK Mode	Transparent ▼
P-Asserted-Identity Header Mode	As Is ▼
Diversion Header Mode	As Is ▼
History-Info Header Mode	As Is ▼
Session Expires Mode	Transparent ▼
Remote Update Support	Supported ▼
Remote re-INVITE	Supported ▼
Remote Delayed Offer Support	Supported ▼
User Registration Time	0
NAT UDP Registration Time	-1
NAT TCP Registration Time	-1
Remote REFER Mode	Regular ▼
Remote Replaces Mode	Standard ▼

Save Cancel

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

Parameter	Value
SBC Media Security Mode	RTP

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

The screenshot shows the 'Edit Row' dialog box for configuring the SBC Media tab. The 'Index' is set to 1. 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	Enforce
SDP Remove Crypto Lifetime	No
RFC 2833 Mode	As Is
Alternative DTMF Method	As Is
RFC 2833 DTMF Payload Type	0
Fax Coders	None

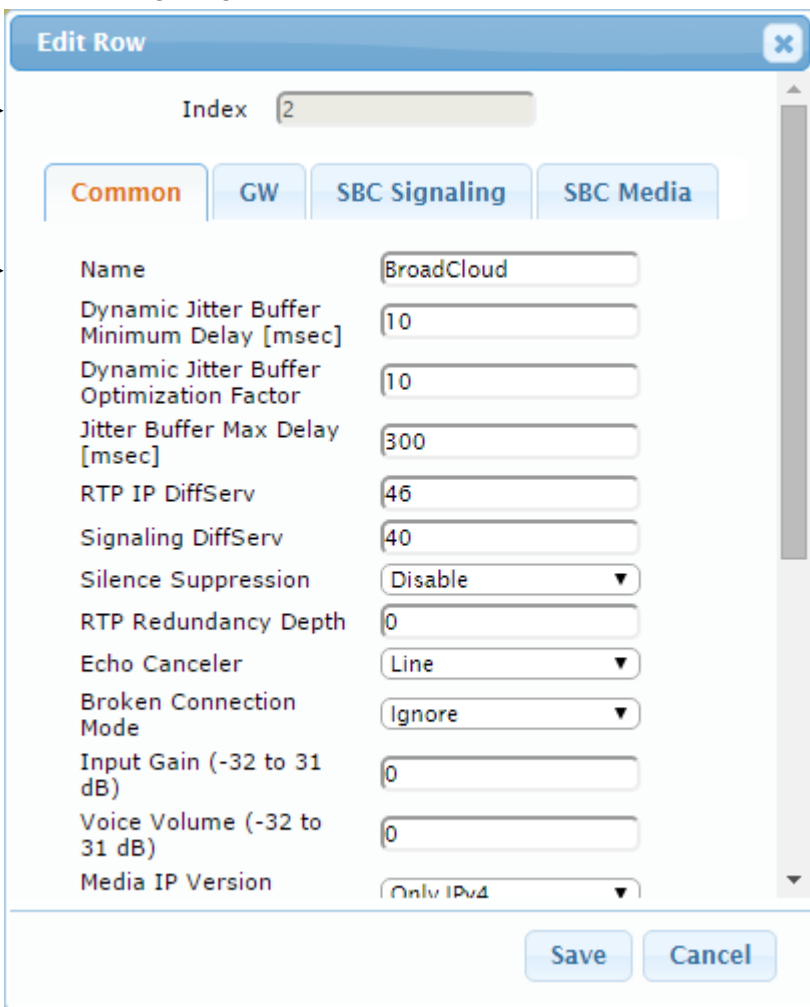
An arrow points to the 'SBC Media Security Mode' parameter, which is set to 'RTP'. The 'Save' and 'Cancel' buttons are at the bottom right.

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

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

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

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



The screenshot shows the 'Edit Row' dialog box for configuring the IP Profile for BroadCloud SIP Trunk. The dialog has a title bar 'Edit Row' with a close button. Below the title bar, there is a field for 'Index' with the value '2'. Below this, there are four tabs: 'Common' (selected), '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
- 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

At the bottom of the dialog, 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	Add (required for anonymous calls)

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

→

Edit Row [X]

Index

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

PRACK Mode

P-Asserted-Identity Header Mode

Diversion Header Mode

History-Info Header Mode

Session Expires Mode

Remote Update Support

Remote re-INVITE

Remote Delayed Offer Support

User Registration Time

NAT UDP Registration Time

NAT TCP Registration Time

Remote REFER Mode

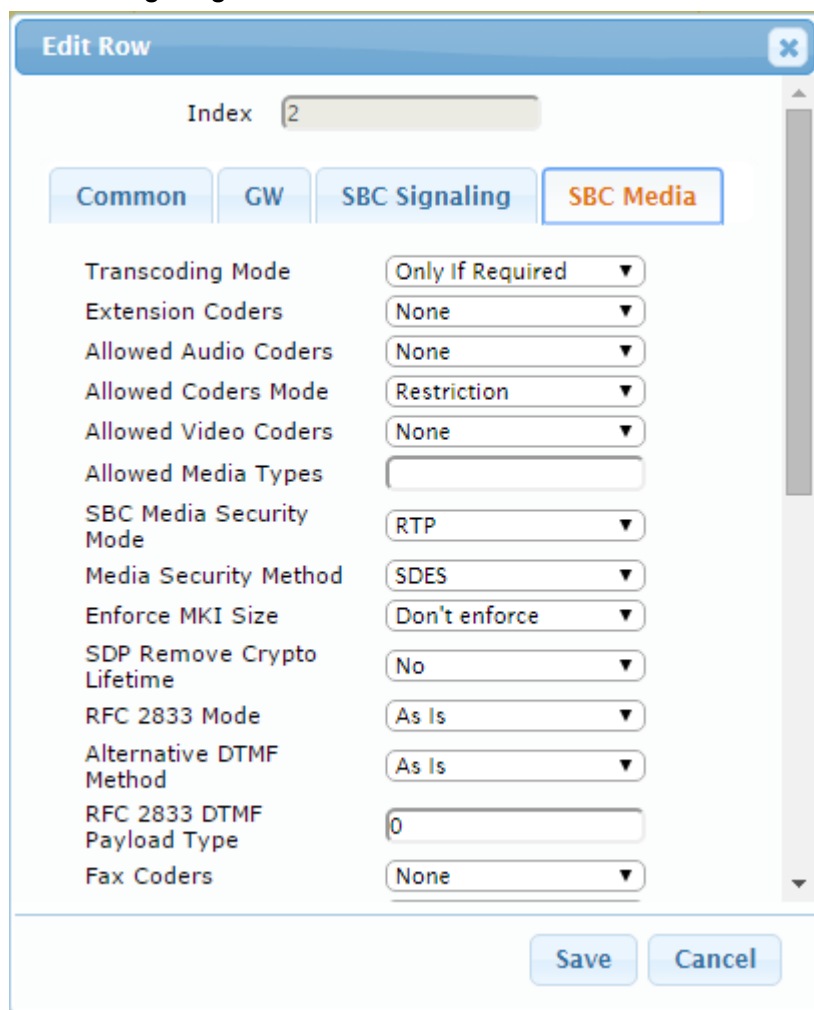
Remote Replaces Mode

Save **Cancel**

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

Parameter	Value
SBC Media Security Mode	RTP

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



Edit Row

Index 2

Common GW SBC Signaling **SBC Media**

Transcoding Mode

Only If Required

Extension Coders

None

Allowed Audio Coders

None

Allowed Coders Mode

Restriction

Allowed Video Coders

None

Allowed Media Types

SBC Media Security Mode

RTP

Media Security Method

SDES

Enforce MKI Size

Don't enforce

SDP Remove Crypto Lifetime

No

RFC 2833 Mode

As Is

Alternative DTMF Method

As Is

RFC 2833 DTMF Payload Type

0

Fax Coders

None

Save

Cancel

4.7 Step 7: Configure IP Groups

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

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

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

➤ To configure IP Groups:

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

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

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

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

The configured IP Groups are shown in the figure below:

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

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

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

This step describes how to configure IP-to-IP call routing rules. These rules define the routes for forwarding SIP messages (e.g., INVITE) received from one IP entity to another. The E-SBC selects the rule whose configured input characteristics (e.g., IP Group) match those of the incoming SIP message. If the input characteristics do not match the first rule in the table, they are compared to the second rule, and so on, until a matching rule is located. If no rule is matched, the message is rejected. The routing rules use the configured IP Groups to denote the source and destination of the call. As configured in Section 4.7 on page 30, 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):

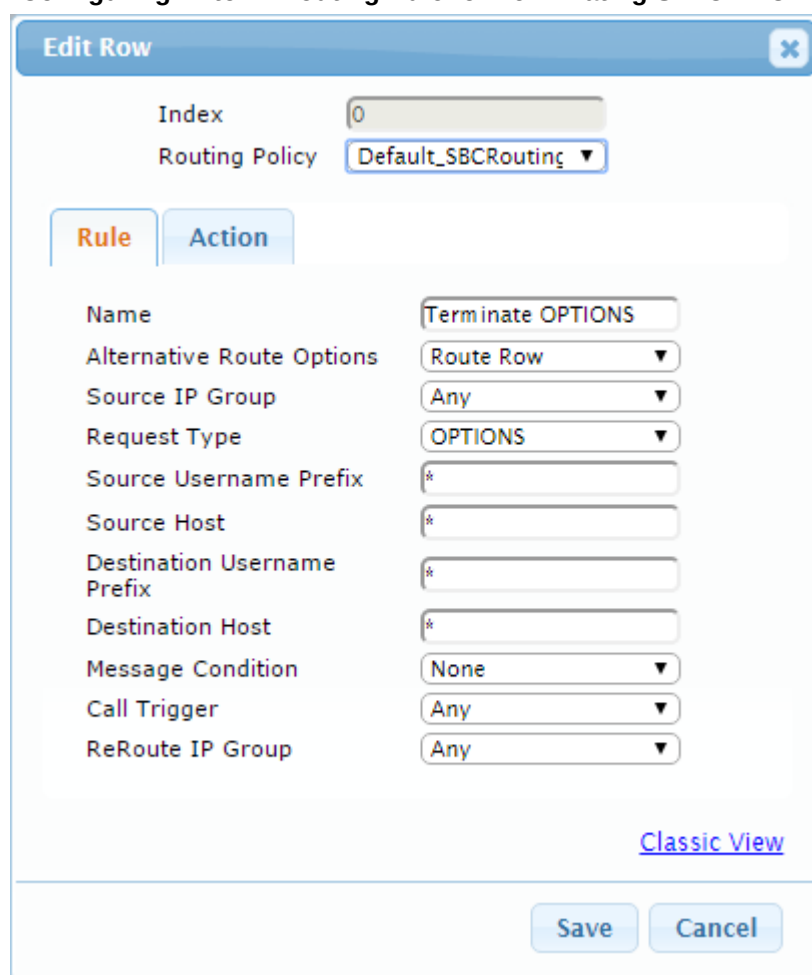
- Terminate SIP OPTIONS messages on the E-SBC
- Calls from IP-PBX to BroadCloud SIP Trunk
- Calls from BroadCloud SIP Trunk to IP-PBX

➤ **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 [X]

Index: 0
Routing Policy: Default_SBCRouting ▼

Rule | **Action**

→ Destination Type: Dest Address ▼

Destination IP Group: None ▼

Destination SIP Interface: None ▼

→ Destination Address: internal

Destination Port: 0

Destination Transport Type: ▼

Call Setup Rules Set ID: -1

Group Policy: None ▼

Cost Group: None ▼

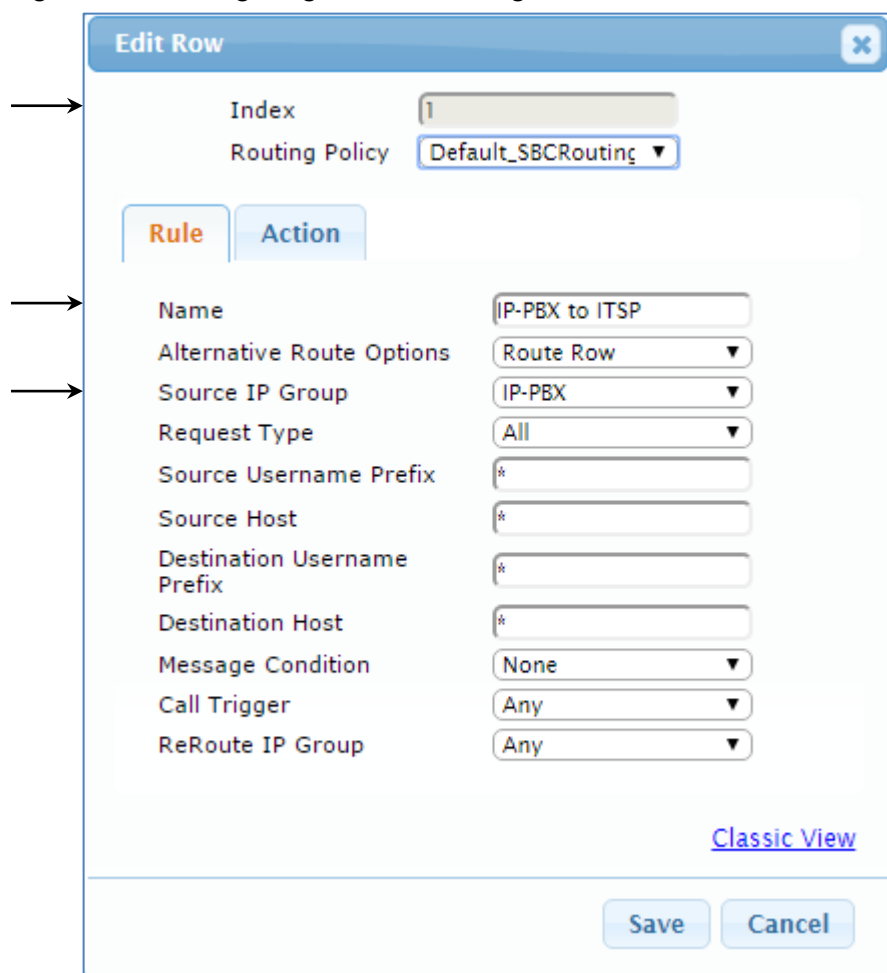
[Classic View](#)

Add Cancel

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

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

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



Edit Row

Index: 1

Routing Policy: Default_SBCRouting

Rule | Action

Name: IP-PBX to ITSP

Alternative Route Options: Route Row

Source IP Group: IP-PBX

Request Type: All

Source Username Prefix: *

Source Host: *

Destination Username Prefix: *

Destination Host: *

Message Condition: None

Call Trigger: Any

ReRoute IP Group: Any

[Classic View](#)

Save Cancel

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

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

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

The screenshot shows the 'Edit Row' dialog box with the 'Action' tab selected. The 'Index' is set to 1 and the 'Routing Policy' is 'Default_SBCRouting'. The 'Destination Type' is 'IP Group', 'Destination IP Group' is 'BroadCloud', and 'Destination SIP Interface' is 'BroadCloud'. Other fields like 'Destination Address', 'Destination Port', 'Destination Transport Type', 'Call Setup Rules Set ID', 'Group Policy', and 'Cost Group' are also visible. Three arrows point to the 'Destination Type', 'Destination IP Group', and 'Destination SIP Interface' fields.

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

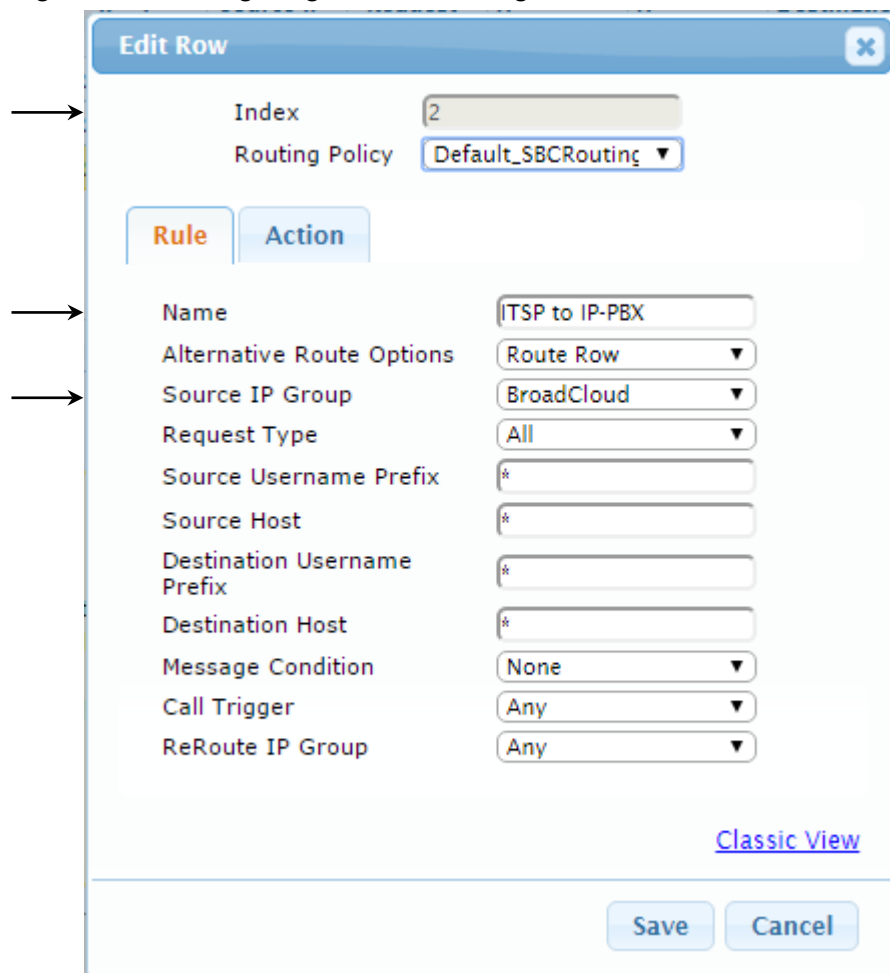
[Classic View](#)

Save Cancel

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

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

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



Edit Row

Index
2
Routing Policy
Default_SBCRouting

Rule

Action

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

[Classic View](#)

Save
Cancel

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

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

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

The screenshot shows the 'Edit Row' dialog box with the 'Action' tab selected. The 'Index' is set to 2 and the 'Routing Policy' is 'Default_SBCRouting'. The 'Destination Type' is 'IP Group', 'Destination IP Group' is 'IP-PBX', and 'Destination SIP Interface' is 'IP-PBX'. Other fields include 'Destination Address', 'Destination Port' (0), 'Destination Transport Type', 'Call Setup Rules Set ID' (-1), 'Group Policy' (None), and 'Cost Group' (None). A 'Classic View' link is at the bottom right, and 'Save' and 'Cancel' buttons are at the bottom.

Index	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	
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 30, IP Group 0 represents IP-PBX, and IP Group 1 represents BroadCloud SIP Trunk.



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

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

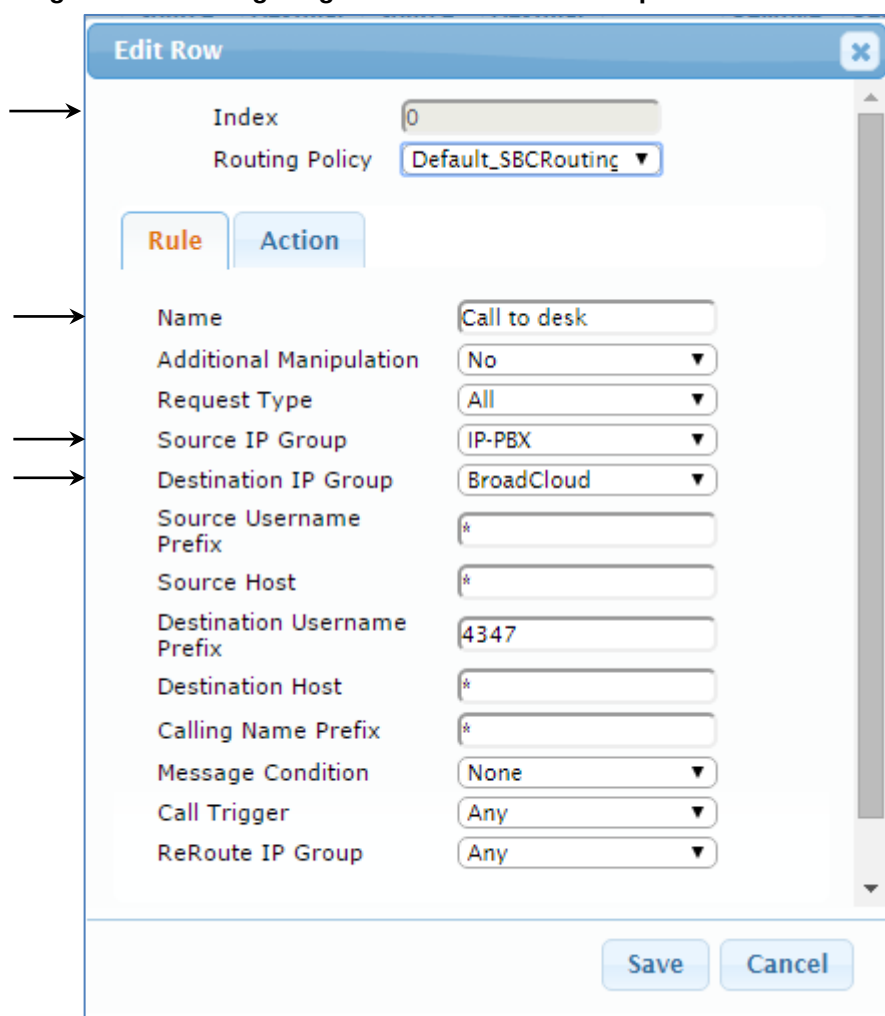
➤ **To configure a number manipulation rule:**

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

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

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

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



Edit Row

Index
0

Routing Policy
Default_SBCRouting

Rule

Action

Name
Call to desk

Additional Manipulation
No

Request Type
All

Source IP Group
IP-PBX

Destination IP Group
BroadCloud

Source Username Prefix
*

Source Host
*

Destination Username Prefix
4347

Destination Host
*

Calling Name Prefix
*

Message Condition
None

Call Trigger
Any

ReRoute IP Group
Any

Save
Cancel

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

Parameter	Value
Manipulated Item	Destination URI
Prefix to Add	0119723976

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

Edit Row

Index: 0
Routing Policy: Default_SBCRouting

Rule | **Action**

Manipulated Item: Destination URI

Remove From Left: 0

Remove From Right: 0

Leave From Right: 255

Prefix to Add: 0119723976

Suffix to Add:

Privacy Restriction Mode: Transparent

[Classic View](#)

Save Cancel

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

▼ IP to IP Outbound Manipulation

Add + Edit ✎ Delete 🗑 Insert + Up ↑ Down ↓

▼ All Search in table Search 🔍

Show / Hide 📄

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

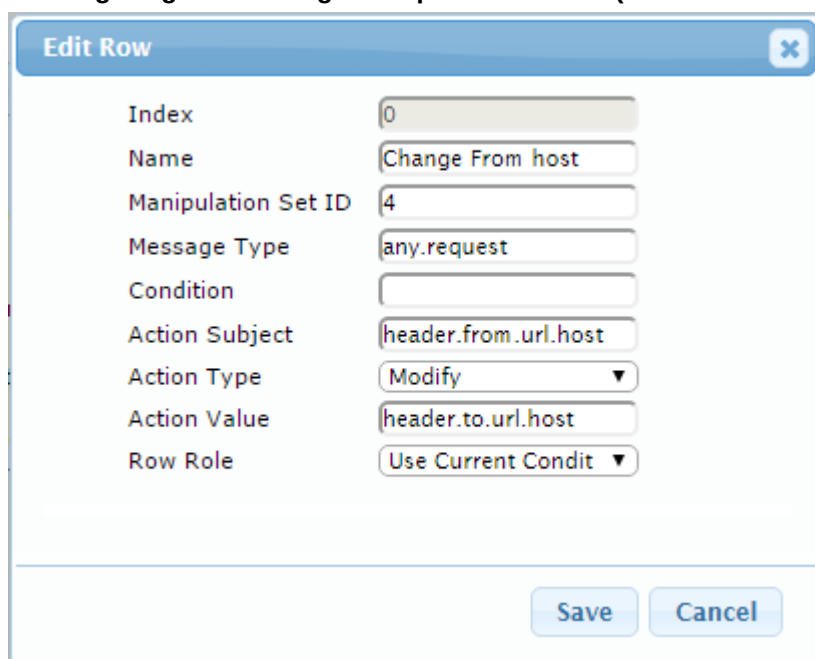
Once you have configured the SIP message manipulation rules, you need to assign them to the relevant IP Group (in the IP Group table) and determine whether they must be applied to inbound or outbound messages.

➤ **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)



Edit Row

Index

0

Name

Change From host

Manipulation Set ID

4

Message Type

any.request

Condition

Action Subject

header.from.url.host

Action Type

Modify

Action Value

header.to.url.host

Row Role

Use Current Condit

Save

Cancel

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

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

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

Edit Row

Index

1

Name

Change P-Asserted host

Manipulation Set ID

4

Message Type

any.request

Condition

header.p-asserted-ident

Action Subject

header.p-asserted-ident

Action Type

Modify

Action Value

header.to.url.host

Row Role

Use Current Condit

Save

Cancel

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

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

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

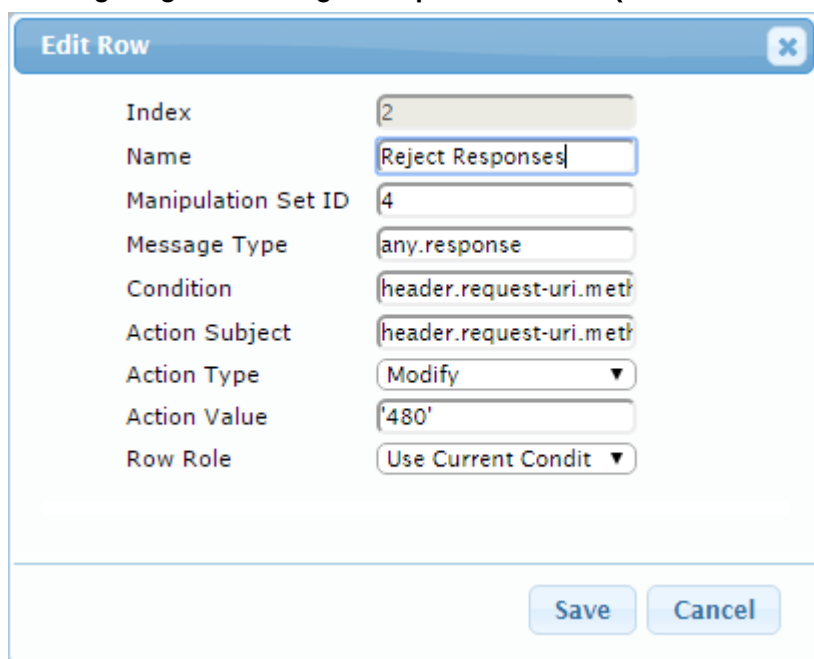
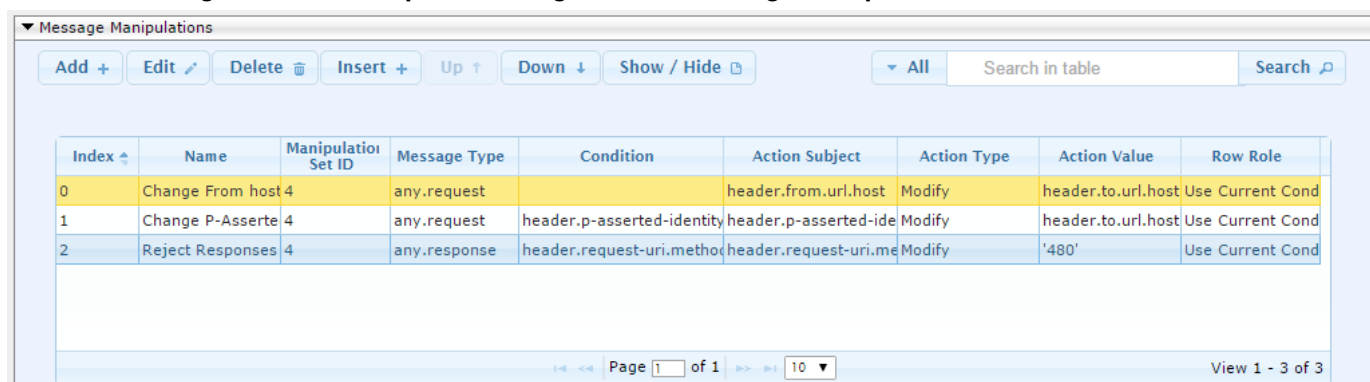


Figure 4-34: Example of Configured SIP Message Manipulation Rules



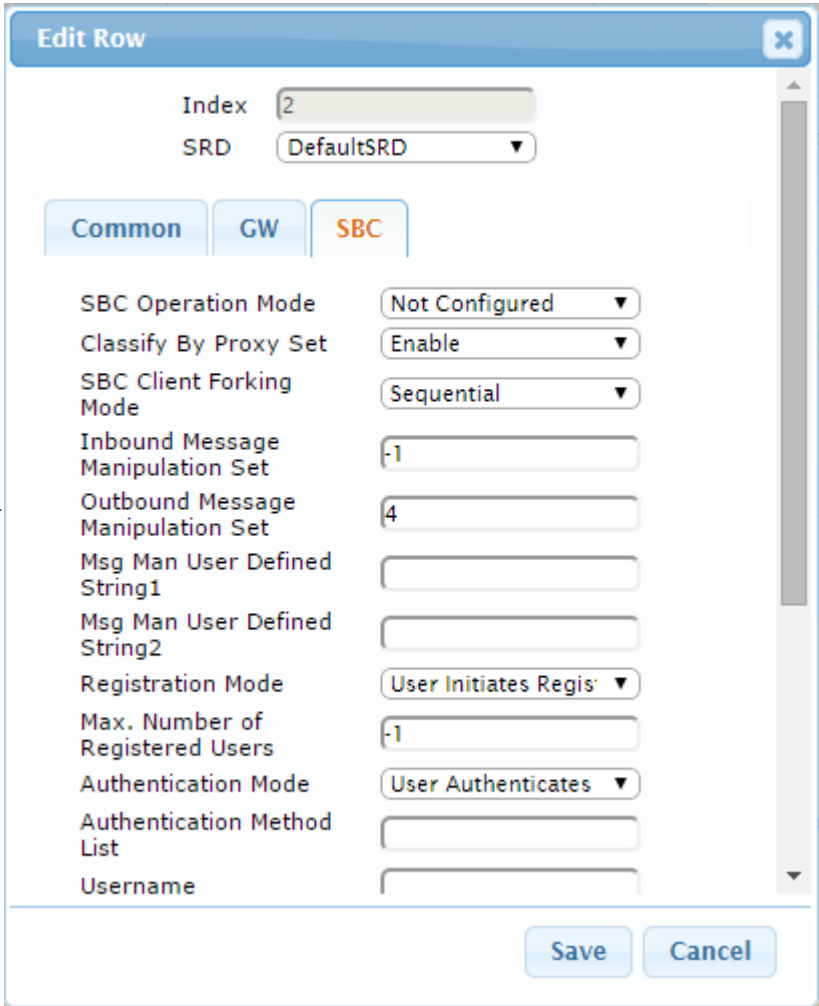
Index	Name	Manipulation Set ID	Message Type	Condition	Action Subject	Action Type	Action Value	Row Role
0	Change From host	4	any.request		header.from.url.host	Modify	header.to.url.host	Use Current Cond
1	Change P-Asserte	4	any.request	header.p-asserted-identity	header.p-asserted-ide	Modify	header.to.url.host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

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

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

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

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



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

Field	Value
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	

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

4. Click **Apply**.

Figure 4-36: Configuring SIP Registration Account

The screenshot shows the 'Account Table' interface. At the top, there are buttons for 'Add +', 'Edit', 'Delete', 'Action', and 'Show / Hide'. Below these is a search bar with 'All' and 'Search in table' options. The main table 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, and Contact User 8325624857. At the bottom, there is a pagination bar showing 'Page 1 of 1' and 'View 1 - 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.

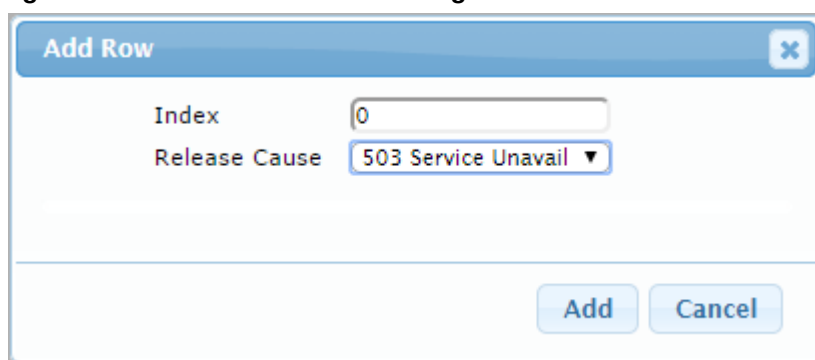
4.12.1 Step 12a: Configure SBC Alternative Routing Reasons

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



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

3. Click **Submit**.

4.13 Step 13: Reset the E-SBC

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

➤ **To save the configuration to flash memory:**

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

Figure 4-38: Resetting the E-SBC

The screenshot shows a web interface for resetting the E-SBC. It is divided into three main sections: 'Reset Configuration', 'LOCK / UNLOCK', and 'Save Configuration'. In the 'Reset Configuration' section, there is a 'Reset Board' button, a 'Burn To FLASH' dropdown menu set to 'Yes', and a 'Graceful Option' dropdown menu set to 'No'. In the 'LOCK / UNLOCK' section, there is a 'Lock' button, a 'Graceful Option' dropdown menu set to 'No', and a 'Gateway Operational State' label showing 'UNLOCKED'. In the 'Save Configuration' section, there is a 'Burn To FLASH' button labeled 'BURN'.

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 17, is shown below:



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

```

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

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

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

[SYSTEM Params]

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

[BSP Params]

PCMLawSelect = 3

```

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

[Analog Params]

[ControlProtocols Params]

```
AdminStateLockControl = 0
```

[MGCP Params]

[MEGACO Params]

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

[PSTN Params]

[SS7 Params]

[Voice Engine Params]

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

[WEB Params]

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

[SIP Params]

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

[SCTP Params]

[IPsec Params]

[Audio Staging Params]

[SNMP Params]

[PhysicalPortsTable]

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

[\PhysicalPortsTable]

[EtherGroupTable]

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

[\EtherGroupTable]

[DeviceTable]

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

[\DeviceTable]

[InterfaceTable]

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

[\InterfaceTable]

[DspTemplates]

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

[ \DspTemplates ]

[ WebUsers ]

FORMAT WebUsers_Index = WebUsers_Username, WebUsers_Password,
WebUsers_Status, WebUsers_PwAgeInterval, WebUsers_SessionLimit,
WebUsers_SessionTimeout, WebUsers_BlockTime, WebUsers_UserLevel,
WebUsers_PwNonce;
WebUsers 0 = "Admin",
"$1$juq+86Wi9veioKH7/aj4q/z8rcWUk5LBl5TBnJqbmJrPzJmAh9HQhofSj4m0jImJiIyIpKD
1oPwm8vL58P749Ks=", 1, 0, 2, 15, 60, 200,
"5defa220d918d4a93d2ecba9436e766a";
WebUsers 1 = "User",
"$1$LKT0pqWhra6p/6Wmq8aZkZTFkpaTnJ+YyJibzJnW04GHhIPVgdyJiIjdjtqM+ffY9fP28PK
q/qvz9PSO/ejp5bY=", 1, 0, 2, 15, 60, 50,
"11bb2bd9dc4e498f75e0277a53e49d5c";

[ \WebUsers ]

[ TLSContexts ]

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

[ \TLSContexts ]

[ IpProfile ]

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

```

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

```

[\IpProfile]

[CpMediaRealm]

```

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

```

[\CpMediaRealm]

[SBCRoutingPolicy]

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

```
[ \SBCRoutingPolicy ]
```

```
[ SRD ]
```

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

```
[ \SRD ]
```

```
[ SIPInterface ]
```

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

```
[ \SIPInterface ]
```

```
[ ProxySet ]
```

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

```
[ \ProxySet ]
```

```
[ IPGroup ]
```



```

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

```

[\IPGroup]

[SBCAlternativeRoutingReasons]

```

FORMAT SBCAlternativeRoutingReasons_Index =
SBCAlternativeRoutingReasons_ReleaseCause;
SBCAlternativeRoutingReasons 0 = 503;

```

[\SBCAlternativeRoutingReasons]

[ProxyIp]

```

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

```

[\ProxyIp]

[Account]

```

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

```

[\Account]

[IP2IPRouting]

```

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

```

```

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

```

[\IP2IPRouting]

[IPOutboundManipulation]

```

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

```

[\IPOutboundManipulation]

[CodersGroup0]

```

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

```

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

```
[ \CodersGroup0 ]
```

```
[ MessageManipulations ]
```

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

```
[ \MessageManipulations ]
```

```
[ GwRoutingPolicy ]
```

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

```
[ \GwRoutingPolicy ]
```

```
[ ResourcePriorityNetworkDomains ]
```

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

```
[ \ResourcePriorityNetworkDomains ]
```

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