

# Configuration Note

*AudioCodes Professional Services - Interoperability Lab*

## Connecting innovaphone IP-PBX with BroadCloud SIP Trunk using Mediant™ SBC

Version 7.2





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## Notice

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

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## Document Revision Record

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## Documentation Feedback

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# 1 Introduction

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

## 1.2 About AudioCodes E-SBC Product Series

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

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

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

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

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## 2 Component Information

### 2.1 IP-PBX Version

Table 2-1: IP-PBX Version

<b>Vendor</b>	innovaphone
<b>Model</b>	IP411 v.11r2 sr10
<b>Protocol</b>	SIP/UDP
<b>Additional Notes</b>	

### 2.2 AudioCodes E-SBC Version

Table 2-2: AudioCodes E-SBC Version

<b>SBC Vendor</b>	AudioCodes
<b>Models</b>	<ul style="list-style-type: none"> <li>▪ Mediant 500 E-SBC</li> <li>▪ Mediant 800 Gateway &amp; E-SBC</li> <li>▪ Mediant 1000B Gateway &amp; E-SBC</li> <li>▪ Mediant 3000 Gateway &amp; E-SBC</li> <li>▪ Mediant 2600 E-SBC</li> <li>▪ Mediant 4000 E-SBC</li> <li>▪ Mediant SW-SBC</li> </ul>
<b>Software Version</b>	SIP_F7.20A.001
<b>Protocol</b>	<ul style="list-style-type: none"> <li>▪ SIP/UDP (to the both BroadCloud SIP Trunk and IP-PBX)</li> </ul>
<b>Additional Notes</b>	None

### 2.3 BroadCloud SIP Trunking Version

Table 2-3: BroadCloud Version

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

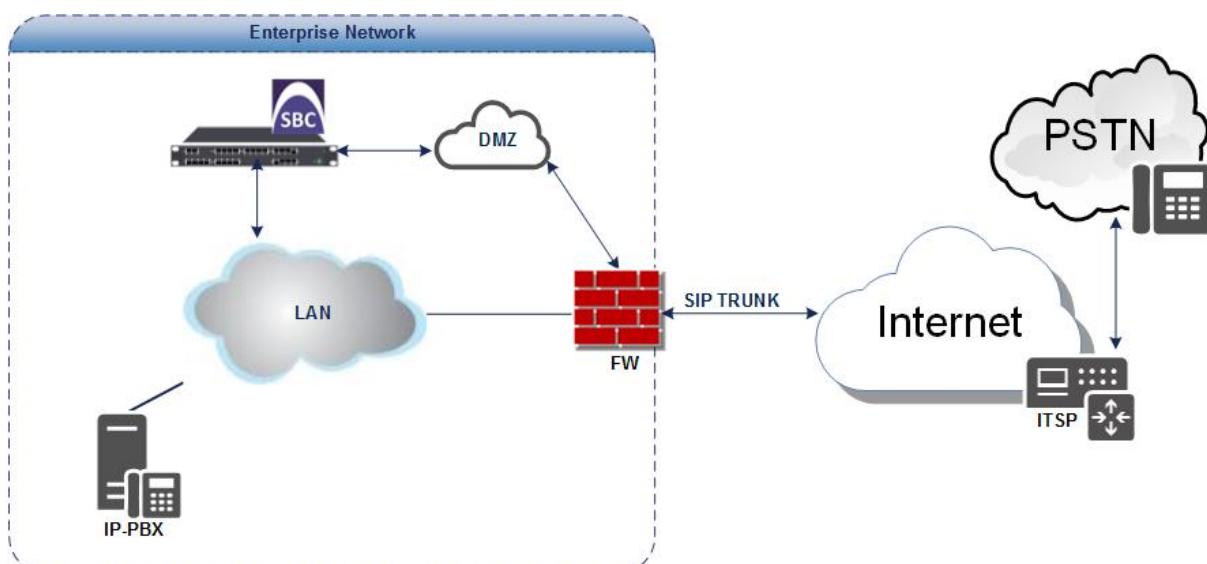
## 2.4 Interoperability Test Topology

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

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

The figure below illustrates this interoperability test topology:

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



## 2.4.1 Environment Setup

The interoperability test topology includes the following environment setup:

**Table 2-4: Environment Setup**

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

## 2.4.2 Known Limitations

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

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## 3 Configuring Unify Innovaphone IP-PBX

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



**Note:** For more complicated configuration parameters, refer to the *Users Manual* for each IP-PBX.

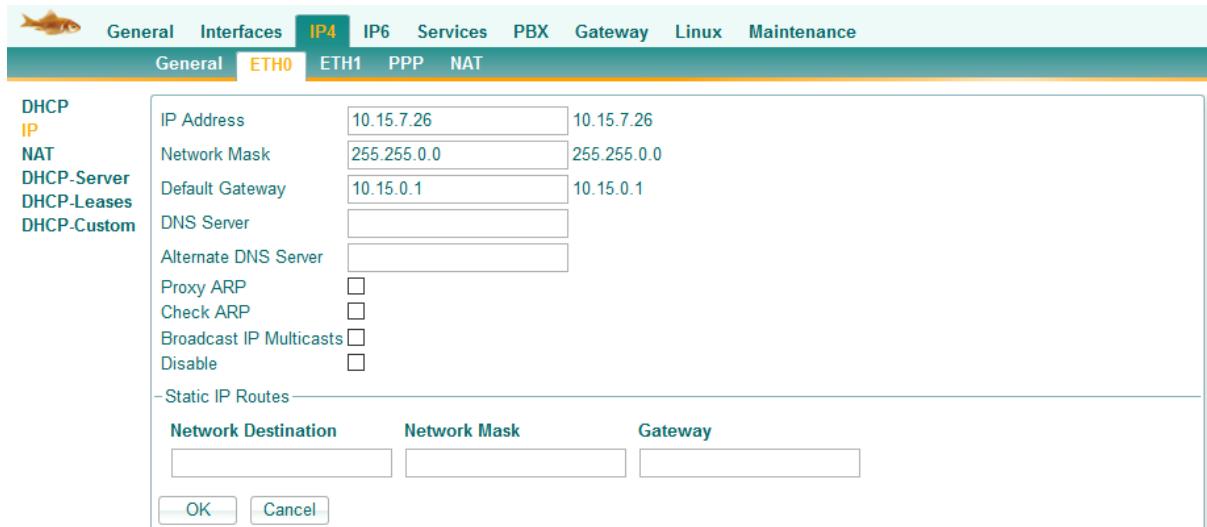
### 3.1 Basic Configuration Parameters

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

Figure 3-1: innovaphone Interface- IP411 Info

The screenshot shows the innovaphone IP411 interface. The top navigation bar includes icons for a fish, General, Interfaces, IP4, IP6, Services, PBX, Gateway, Linux, and Maintenance. Below this is a secondary navigation bar with tabs for Info, Admin, Flash Disk, SSD, License, Kerberos, and Certificates. The 'Info' tab is highlighted. The main content area displays various system parameters:

Version	11r2 sr10 IP411[11.3454], Bootcode[113454], Hardware[400]
SerialNo	00903340064c (ab)
DRAM	1024 MB
FLASH	32 MB
Coder	6 Channels of G.711,G.729,G.723
Conference	0 Channels
Fax	1 Channels
HDLC	4 Channels
Sync	-
Power Source	ETH0
Temperature	39.8° Celsius
SNTP Server	10.15.25.1
Time	04.08.2016 13:24
Uptime	1d 22h 3m 25s

**Figure 3-2: innovaphone Interface- IP411- ETH0**


**IP4** General Interfaces **IP4** IP6 Services PBX Gateway Linux Maintenance

General **ETH0** ETH1 PPP NAT

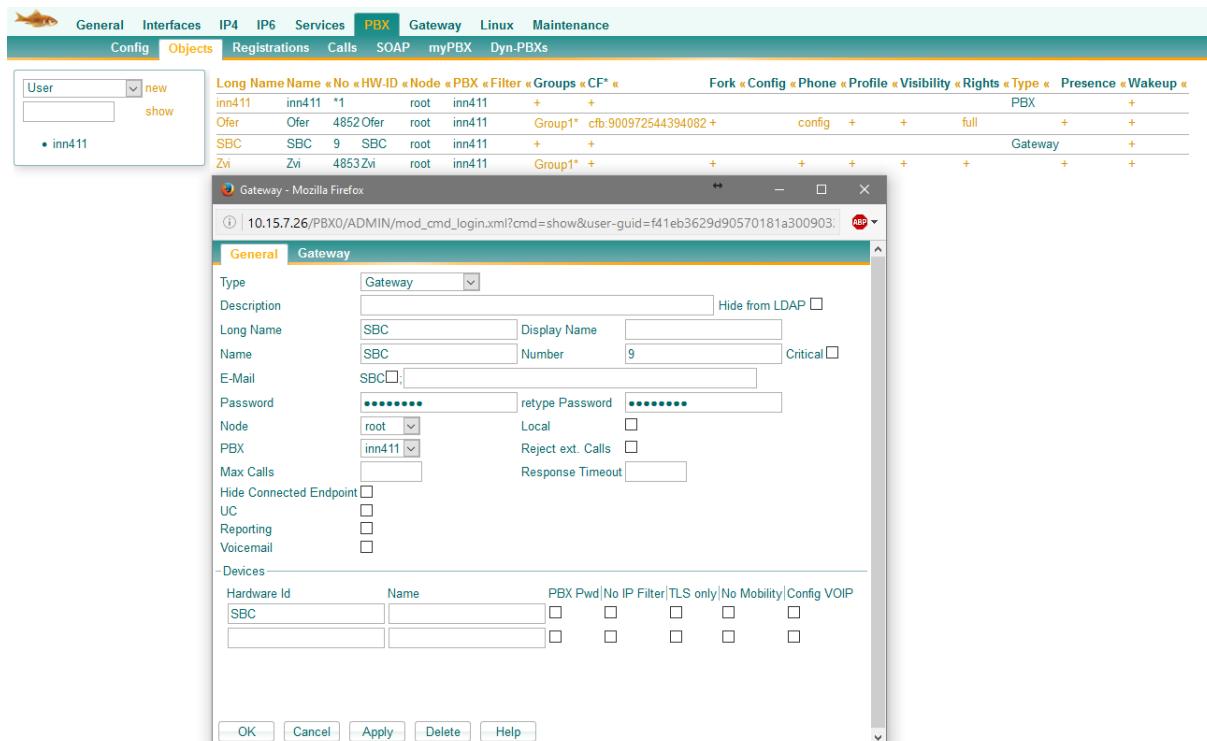
DHCP  
IP  
NAT  
DHCP-Server  
DHCP-Leases  
DHCP-Custom

IP Address: 10.15.7.26  
Network Mask: 255.255.0.0  
Default Gateway: 10.15.0.1  
DNS Server:  
Alternate DNS Server:  
Proxy ARP:   
Check ARP:   
Broadcast IP Multicasts:   
Disable:

- Static IP Routes

Network Destination	Network Mask	Gateway

OK Cancel

**Figure 3-3: innovaphone Interface- PBX**


**General** Interfaces IP4 IP6 Services **PBX** Gateway Linux Maintenance

Config Objects Registrations Calls SOAP myPBX Dyn-PBXs

User new show  
• inn411

Long Name	Name	No	HW-ID	Node	PBX	Filter	Groups	CF*	Fork	Config	Phone	Profile	Visibility	Rights	Type	Presence	Wakeup		
inn411	inn411	*1		root	inn411		+	+										PBX	+
Ofer	Ofer	4852	Ofer	root	inn411	Group1*	cfb:900972544394082	+		config	+	+	full					+	+
SBC	SBC	9	SBC	root	inn411	+	+										Gateway	+	
Zvi	Zvi	4853	Zvi	root	inn411	Group1*	+	+			+	+	+	+	+	+	+	+	

Gateway - Mozilla Firefox

General Gateway

Type: **Gateway**  
 Description:  
 Long Name: SBC  
 Name: SBC Number: 9 Critical:   
 E-Mail: SBC  
 Password:  retype Password:   
 Node: root  
 PBX: inn411  
 Max Calls:  
 Hide Connected Endpoint:   
 UC:   
 Reporting:   
 Voicemail:

Hide from LDAP:

Display Name:   
 Number: 9 Critical:   
 Local:   
 Reject ext. Calls:   
 Response Timeout:

Devices

Hardware Id	Name	PBX Pwd	No IP Filter	TLS only	No Mobility	Config VOIP
SBC		<input type="checkbox"/>				
		<input type="checkbox"/>				

OK Cancel Apply Delete Help

**Figure 3-4: innovaphone Interface- General**

The screenshot displays the 'General' configuration screen for an innovaphone user. The interface is a web-based form with various input fields and checkboxes.

**General Configuration Fields:**

- Type: User
- Description: (empty)
- Long Name: Ofer
- Display Name: Ofer
- Name: Ofer
- Number: 4852
- Critical:
- E-Mail: Ofer@
- Password: \*\*\*\*\*
- retype Password: \*\*\*\*\*
- Node: root
- Local:
- PBX: inn411
- Send Number: (empty)
- URL: (empty)
- Group Indications: (empty)
- Config Template: (empty)

**Device Configuration Table:**

Hardware Id	Name	PBX Pwd	No IP Filter	TLS only	No Mobility	Config VOIP
Ofer	(empty)	<input type="checkbox"/>				
00903340064c-TEL1	(empty)	<input type="checkbox"/>				
(empty)	(empty)	<input type="checkbox"/>				

**Action Buttons:**

OK Cancel Apply Delete Help

**Figure 3-5: innovaphone Interface- Gateway**

10.15.7.26: innovaphone IP411

General Interfaces IP4 IP6 Services PBX **Gateway** Linux Maintenance

General Interfaces SIP **GK** Routes CDR0 CDR1 Calls

**Interface CGPN-In CDPN-In CGPN-Out CDPN-Out Alias Registration Product**

GW1 SBC +	→832562	10.15.7.8
GW2 +	SBC	
GW3 +		
GW4 +		
GW5 +		
GW6 +		
GW7 +		
GW8 +		
GW9 +		
GW10 +		
GW11 +		
GW12 +		
GW13 +		
GW14 +		
GW15 +		
GW16 +		

**GW1 SBC - Mozilla Firefox**

① | 10.15.7.26/RELAY0/mod\_cmd.xml?cmd=xml-ifs&id=GW1&xsl=relay\_edit\_voip.xls

Name: SBC  
 Disable  
Protocol: SIP/UDP  
Mode: Gateway without Registration  
Remote Domain:  
Local Domain:  
 Filter incoming calls  
Proxy: 10.15.7.8  
Mask:  
STUN Server:  
Local Signaling Port:  
  
**Authorization**  
Name:   
Password:  Retype:   
  
**Media Properties**  
General Coder Preference: G711A | Framesize [ms]: 20 | Silence Compression:  Exclusive:   
Local Network Coder: G729A | Framesize [ms]: 20 | Silence Compression:   
Enable T.38:  | Audio FAX support:  | No DTMF Detection:  | Enable PCM:  | Media-Relay:  | Video:  | No ICE:   
SRTP Cipher: AES128/32 | SRTP Key Exchange: No encryption  
Record to (URL):   
  
**SIP Interop Tweaks**  
Accept INVITE's from Anywhere:  (affects registered interfaces only)  
Enforce Sending Complete:  (affects outgoing SIP calls only)  
No Video:   
No Early Media:  (affects outgoing SIP calls only)  
No Inband Information on Error:  (affects incoming SIP calls only)  
No Inband Disconnect:  (affects connected SIP calls only)  
No Remote Hold Signaling:  (affects connected SIP calls only)  
Take Refer-To URI as Remote Target URI:  (affects handling of REFER)

**Figure 3-6: innovaphone Interface- Media Properties**

The screenshot shows the 'Media Properties' configuration page for an interface named 'GW2'. The page includes fields for Name, Disable, Protocol (set to H.323), Mode (set to 'Register as Gateway'), Address (127.0.0.1), and various other settings like Gatekeeper Identifier, STUN Server, and Local Signaling Port. It also includes sections for Authorization (Password and Retype), Alias List (with entries for SBC), and Media Properties (with options for G729A and G711A encoders). At the bottom are buttons for OK, Cancel, Apply, Delete, and Help.

**Figure 3-7: innovaphone Interface- Gateway**

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## 4 Configuring AudioCodes E-SBC

This chapter provides step-by-step procedures on how to configure the 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

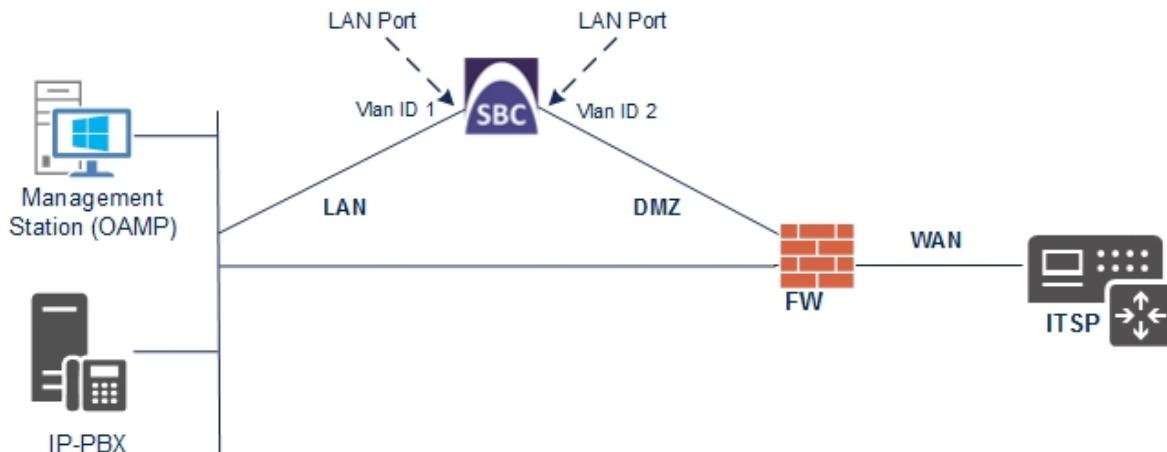
This configuration is done using the E-SBC's embedded Web server (hereafter, referred to as *Web interface*).

## 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, the 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 Devices Table page (**Setup** menu > **IP Network** tab > **Core Entities** folder > **Ethernet Devices**).

There will be one existing row for VLAN ID 1 and underlying interface GROUP\_1.

2. 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 a table titled "Ethernet Devices (2)". The table has columns: INDEX, VLAN ID, UNDERLYING INTERFACE, NAME, and TAGGING. Row 0: INDEX 0, VLAN ID 1, UNDERLYING INTERFACE GROUP\_1, NAME vlan 1, TAGGING Untagged. Row 1: INDEX 1, VLAN ID 2, UNDERLYING INTERFACE GROUP\_2, NAME vlan 2, TAGGING Untagged. The table includes navigation buttons (+ New, Edit, Page 1 of 1, Show 10 records per page) and a search bar.

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 (**Setup** menu > **IP Network** tab > **Core Entities** folder > **IP Interfaces**).
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
Application Type	<b>OAMP + Media + Control</b>
IP Address	<b>10.15.7.8</b> (IP address of E-SBC)
Prefix Length	<b>16</b> (subnet mask in bits for 255.255.0.0)
Default Gateway	<b>10.15.0.1</b>
Name	<b>Voice</b> (arbitrary descriptive name)
Primary DNS Server IP Address	<b>0.0.0.0</b>
Ethernet Device	<b>vlan 1</b>

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

Parameter	Value
Application Type	<b>Media + Control</b>
IP Address	<b>195.189.192.156</b> (WAN IP address)
Prefix Length	<b>25</b> (for 255.255.255.128)
Default Gateway	<b>195.189.192.129</b> (router's IP address)
Name	<b>WANSP</b>
Primary DNS Server IP Address	<b>8.8.8.8</b>
Secondary DNS Server IP Address	<b>0.0.0.0</b>
Ethernet Device	<b>vlan 2</b>

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

The configured IP network interfaces are shown below:

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

IP Interfaces (2)												
		+ New		Edit				Delete				
INDEX		NAME		APPLICATION TYPE		INTERFACE MODE		IP ADDRESS		PREFIX LENGTH		
0	Voice	OAMP + Me	Media + Co	IPv4 Manual	IPv4 Manual	10.15.7.8	195.189.19.	16	0.0.0.0	0.0.0.0	0.0.0.0	vlan 1
1	WANSP	Media + Co	Media + Co	IPv4 Manual	IPv4 Manual	195.189.19.	195.189.19.	25	195.189.19.	8.8.8.8	0.0.0.0	vlan 2

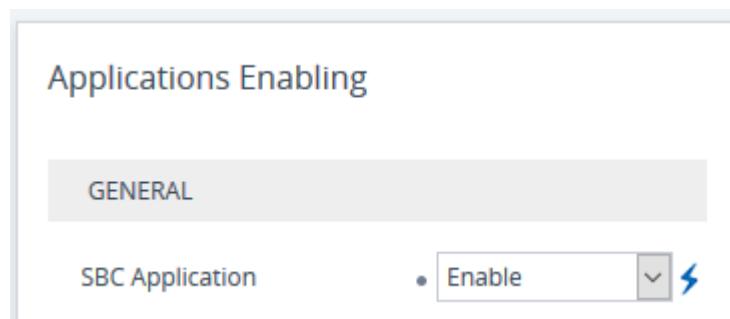
## 4.2 Step 2: Enable the SBC Application

This step describes how to enable the SBC application.

➤ **To enable the SBC application:**

1. Open the Applications Enabling page (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Applications Enabling**).

Figure 4-4: Enabling SBC Application



2. From the 'SBC Application' drop-down list, select **Enable**.
3. Click **Apply**.
4. Reset the E-SBC with a burn to flash for this setting to take effect (see Section 4.13 on page 48).

## 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 (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Media Realms**).
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

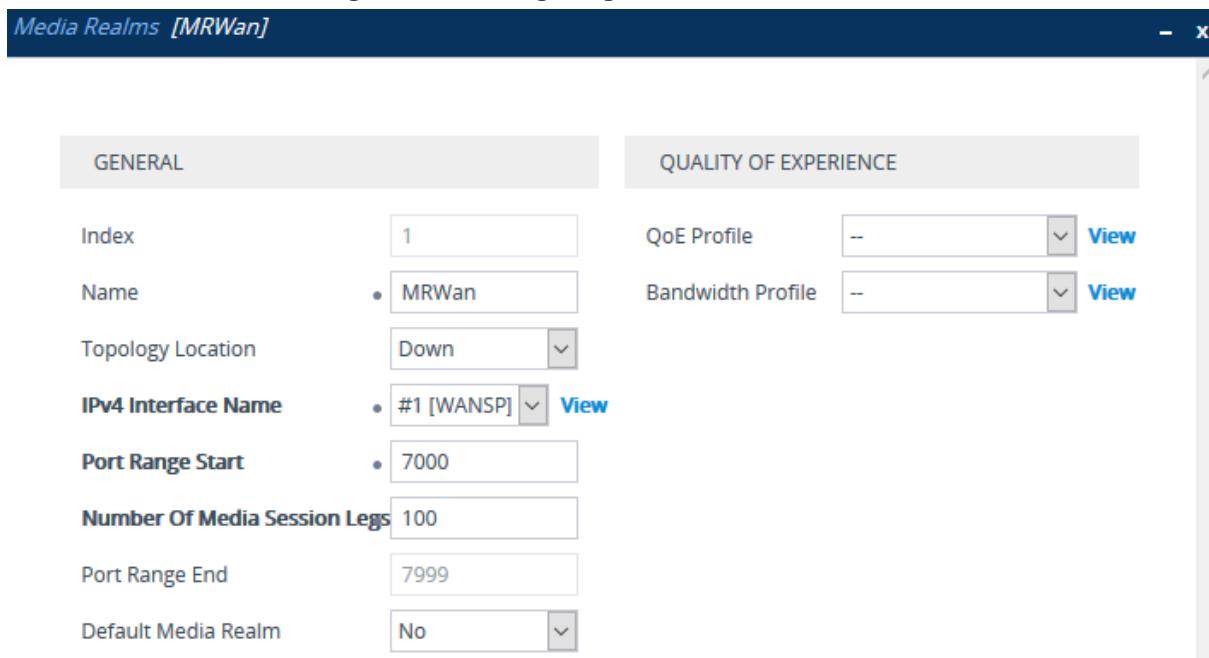
GENERAL		QUALITY OF EXPERIENCE	
Index	0	QoE Profile	-- <a href="#">View</a>
Name	MRLan	Bandwidth Profile	-- <a href="#">View</a>
Topology Location	Down		
IPv4 Interface Name	#0 [Voice] <a href="#">View</a>		
Port Range Start	6000		
Number Of Media Session Legs	100		
Port Range End	6999		
Default Media Realm	Yes		

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**

Media Realms [MRWan]

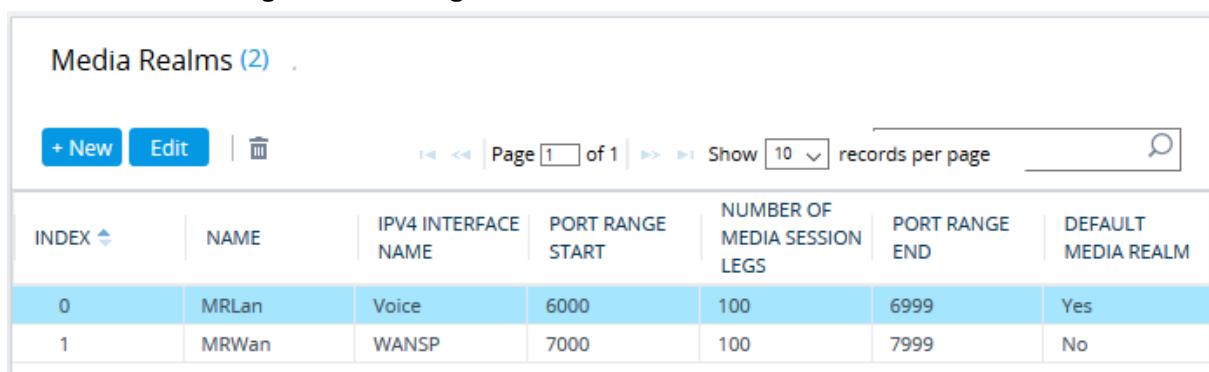


GENERAL		QUALITY OF EXPERIENCE	
Index	1	QoE Profile	-- <a href="#">View</a>
Name	MRWan	Bandwidth Profile	-- <a href="#">View</a>
Topology Location	Down		
IPv4 Interface Name	#1 [WANSP] <a href="#">View</a>		
Port Range Start	7000		
Number Of Media Session Legs	100		
Port Range End	7999		
Default Media Realm	No		

The configured Media Realms are shown in the figure below:

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

Media Realms (2)



Media Realms (2)						
<a href="#">+ New</a>		<a href="#">Edit</a>	<a href="#">Delete</a>	Page <input type="text" value="1"/> of 1   <a href="#">&lt;&lt;</a> <a href="#">&gt;&gt;</a> Show <input type="text" value="10"/> records per page <a href="#">Search</a>		
INDEX	NAME	IPV4 INTERFACE NAME	PORT RANGE START	NUMBER OF MEDIA SESSION LEGS	PORT RANGE END	DEFAULT MEDIA REALM
0	MRlan	Voice	6000	100	6999	Yes
1	MRWan	WANSP	7000	100	7999	No

## 4.4 Step 4: Configure SIP Signaling Interfaces

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

➤ **To configure SIP Interfaces:**

1. Open the SIP Interfaces table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **SIP Interfaces**).
2. Add a SIP Interface for the LAN interface. You can use the default SIP Interface (Index 0), but modify it as shown below:

Parameter	Value
Index	<b>0</b>
Name	<b>IP-PBX</b>
Network Interface	<b>Voice</b>
Application Type	<b>SBC</b>
TLS Port	<b>5060</b>
TCP and UDP	<b>0</b>
Media Realm	<b>MRLan</b>

3. Configure a SIP Interface for the WAN:

Parameter	Value
Index	<b>1</b>
Name	<b>BroadCloud</b>
Network Interface	<b>WANSP</b>
Application Type	<b>SBC</b>
UDP Port	<b>5060</b>
TCP and TLS	<b>0</b>
Media Realm	<b>MRWan</b>

The configured SIP Interfaces are shown in the figure below:

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

SIP Interfaces (2)									
INDEX	NAME	SRD	NETWORK INTERFACE	APPLICATION TYPE	UDP PORT	TCP PORT	TLS PORT	ENCAPSULATION PROTOCOL	MEDIA REALM
0	IP-PBX	Default	Voice	SBC	5060	0	0	No encapsulation	MRLan
1	BroadCloud	Default	WANSP	SBC	5060	0	0	No encapsulation	MRWan

## 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 (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Proxy Sets**).
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
SBC IPv4 SIP Interface	IP-PBX
Proxy Keep Alive	Using Options

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

SRD #0 [DefaultSRD]

GENERAL		REDUNDANCY	
Index	0	Redundancy Mode	(dropdown)
Name	IP-PBX	Proxy Hot Swap	Disable (dropdown)
Gateway IPv4 SIP Interface	(dropdown)	Proxy Load Balancing Method	Disable (dropdown)
SBC IPv4 SIP Interface	#0 [IP-PBX]	Min. Active Servers for Load Balancing	1
TLS Context Name	(dropdown)		

ADVANCED	
Classification Input	IP Address only
DNS Resolve Method	(dropdown)

KEEP ALIVE	
Proxy Keep-Alive	Using OPTIONS
Proxy Keep-Alive Time [sec]	60
Keep-Alive Failure Responses	(dropdown)

Cancel    APPLY

**3.** Configure a Proxy Address Table for Proxy Set for IP-PBX:

**a.** Go to Proxy Address.

Parameter	Value
Index	0
Proxy Address	<b>10.15.7.26:5060</b> (IP-PBX IP address / FQDN and destination port)
Transport Type	UDP

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

+ New    Edit   

INDEX PROXY ADDRESS TRANSPORT TYPE

0	10.15.7.26:5060	UDP
---	-----------------	-----

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

Parameter	Value
Index	1
Name	<b>BroadCloud</b>
SBC IPv4 SIP Interface	<b>BroadCloud</b>
Proxy Keep Alive	<b>Using Options</b>

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

*Proxy Sets [BroadCloud]*

SRD #0 [DefaultSRD]

<b>GENERAL</b>		<b>REDUNDANCY</b>
Index	1	Redundancy Mode
Name	• BroadCloud	Proxy Hot Swap
Gateway IPv4 SIP Interface	--	Proxy Load Balancing Method
SBC IPv4 SIP Interface	• #1 [BroadCloud]	Min. Active Servers for Load Balancing 1
TLS Context Name	--	
<b>ADVANCED</b>		
<b>KEEP ALIVE</b>		
Proxy Keep-Alive	• Using OPTIONS	Classification Input IP Address only
Proxy Keep-Alive Time [sec]	60	DNS Resolve Method SRV
Keep-Alive Failure Responses		
<b>Cancel</b> <b>APPLY</b>		

- a. Configure a Proxy Address Table for Proxy Set 1:  
 b. Go to Proxy Address.

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

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

INDEX	PROXY ADDRESS	TRANSPORT TYPE
0	nn6300southsipconnect.adpt-tech.com	UDP

The configured Proxy Sets are shown in the figure below:

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

INDEX	NAME	SRD	GATEWAY IPV4 SIP INTERFACE	SBC IPV4 SIP INTERFACE	PROXY KEEP-ALIVE TIME [SEC]	REDUNDANCY MODE	PROXY HOT SWAP
0	IP-PBX	DefaultSR	--	IP-PBX	60		Disable
1	BroadCloud	DefaultSR	--	BroadCloud	60		Disable

## 4.6 Step 6: Configure IP Profiles

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

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

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

➤ **To configure IP Profile for the IP-PBX:**

1. Open the IP Profile Settings page (**Setup** menu > **Signaling & Media** tab > **Coders & Profiles** folder > **IP Profiles**).
2. Click **Add**.
3. Configure the parameters as follows:

Parameter	Value
Index	1
Name	IP-PBX
Remote Update Support	Supported
Remote re-INVITE	Supported
SBC Media Security Mode	RTP

**Figure 4-14: Configuring IP Profile for IP-PBX**

The screenshot shows the 'IP Profiles [IP-PBX]' configuration window. It is divided into three main sections: GENERAL, SBC SIGNALING, and MEDIA SECURITY.

**GENERAL:**

- Index: 1
- Name: IP-PBX
- Created by Routing Server: No

**SBC SIGNALING:**

- 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

**MEDIA SECURITY:**

- SBC Media Security Mode: As Is
- Gateway Media Security Mode: Preferable
- Symmetric MKI: Enable
- MKI Size: 1
- SBC Enforce MKI Size: Enforce
- SBC Media Security Method: SDES
- Remote Update Support: Supported
- Remote re-INVITE: Supported
- Remote Delayed Offer Support: Supported
- Remote Representation Mode: According to
- Keep Incoming Via Headers: According to
- Keep Incoming Routing Headers: According to
- Keep User-Agent Header: According to

At the bottom are 'Cancel' and 'APPLY' buttons.

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

1. Click **Add**.
2. Configure the parameters as follows:

Parameter	Value
Index	2
Name	BroadCloud
P-Asserted-Identity Header Mode	<b>Add (required for anonymous calls)</b>
SBC Media Security Mode	RTP

**Figure 4-15: Configuring IP Profile for BroadCloud SIP Trunk**

**IP Profiles [BroadCloud]**

GENERAL
SBC SIGNALING

Index	2	PRACK Mode	Transparent
Name	BroadCloud	P-Asserted-Identity Header Mode	Add
Created by Routing Server	No	Diversion Header Mode	As Is
<b>MEDIA SECURITY</b>		History-Info Header Mode	As Is
SBC Media Security Mode	RTP	Session Expires Mode	Transparent
Gateway Media Security Mode	Preferable	Remote Update Support	Supported
Symmetric MKI	Disable	Remote re-INVITE	Supported
MKI Size	0	Remote Delayed Offer Support	Supported
SBC Enforce MKI Size	Don't enforce	Remote Representation Mode	According to
SBC Media Security Method	SDES	Keep Incoming Via Headers	According to
		Keep Incoming Routing Headers	According to
		Keep User-Agent Header	According to

**Cancel** **APPLY**

## 4.7 Step 8: 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 (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **IP Groups**).
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
Type	Server
Proxy Set	IP-PBX
IP Profile	IP-PBX
Media Realm	MRLan
SIP Group Name	10.15.7.26 (according to IP-PBX requirement)

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

Parameter	Value
Index	1
Name	BroadCloud
Type	Server
Proxy Set	BroadCloud
IP Profile	BroadCloud
Media Realm	MRWan
Outbound Message Manipulation Set	4
SIP Group Name	interop.adpt-tech.com (according to ITSP requirement)

The configured IP Groups are shown in the figure below:

**Figure 4-16: Configured IP Groups in IP Group Table**

IP Groups (2) .

IP Groups (2)											
		+ New		Edit		Delete		Search		Filter	
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	10.15.7.26	Enable	-1	-1
1	BroadCloud	DefaultSRD (#)	Server	Not Configured	BroadCloud	BroadCloud	MRWan	Interop.adpt-tech.	Enable	-1	4

## 4.8 Step 9: 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 31, 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 (**Setup** menu > **Signaling & Media** tab > **SBC** folder > **Routing > IP-to-IP Routing**).
2. Configure a rule to terminate SIP OPTIONS messages received from the LAN:
  - a. Click **Add**.
  - b. Configure the parameters as follows:

Parameter	Value
Index	<b>0</b>
Name	<b>Terminate OPTIONS</b> (arbitrary descriptive name)
Source IP Group	<b>Any</b>
Request Type	<b>OPTIONS</b>
Destination Type	<b>Dest Address</b>
Destination Address	<b>internal</b>
Index	<b>1</b>
Name	<b>IP-PBX to ITSP</b> (arbitrary descriptive name)
Source IP Group	<b>IP-PBX</b>

**Figure 4-17: Configuring IP-to-IP Routing Rule for Terminating SIP OPTIONS**

*/IP-to-IP Routing [Terminate OPTIONS]*

GENERAL		ACTION	
Index	0	Destination Type	• Dest Address
Name	• Terminate OPTIONS	Destination IP Group	--
Alternative Route Options	Route Row	Destination SIP Interface	--
<b>MATCH</b>		Destination Address	• internal
Source IP Group	Any	Destination Port	0
Request Type	• OPTIONS	Destination Transport Type	
Source Username Prefix	*	Call Setup Rules Set ID	-1
Source Host	*	Group Policy	Sequential
Source Tag		Cost Group	--

**Cancel** **APPLY**

3. Configure a rule to route calls from Skype IP-PBX to BroadCloud SIP Trunk:
- a. Click **Add**.

**Figure 4-18: Configuring IP-to-IP Routing Rule for IP-PBX to ITSP**

*/IP-to-IP Routing [IP-PBX to ITSP]*

GENERAL		ACTION	
Index	1	Destination Type	IP Group
Name	• IP-PBX to ITSP	Destination IP Group	• #1 [BroadCloud]
Alternative Route Options	Route Row	Destination SIP Interface	• #1 [BroadCloud]
<b>MATCH</b>		Destination Address	
Source IP Group	• #0 [IP-PBX]	Destination Port	0
Request Type	All	Destination Transport Type	
Source Username Prefix	*	Call Setup Rules Set ID	-1
Source Host	*	Group Policy	Sequential
Source Tag		Cost Group	--

**Cancel** **APPLY**

- b. Configure the parameters as follows:

Parameter	Value
Source IP Group	#0 [IP-PBX]
Destination Type	IP Group
Destination IP Group	#1 [BroadCloud]
Destination SIP Interface	#1 [BroadCloud]

4. To configure rule to route calls from BroadCloud SIP Trunk to IP-PBX:

a. Click **Add**.

b. Configure the parameters as follows:

Parameter	Value
Index	2
Name	ITSP to IP-PBX (arbitrary descriptive name)
Source IP Group	#1 [BroadCloud]
Destination Type	IP Group
Destination IP Group	#0 [IP-PBX]
Destination SIP Interface	#0 [IP-PBX]

Figure 4-19: Configuring IP-to-IP Routing Rule for ITSP to IP-PBX – Rule tab

The screenshot shows the 'IP-to-IP Routing [ITSP to IP-PBX]' configuration window. The 'Rule tab' is selected. The 'ROUTING POLICY' dropdown is set to '#0 [Default\_SBCRoutingPolicy]'. The 'GENERAL' section contains fields for 'Index' (2), 'Name' (ITSP to IP-PBX), and 'Alternative Route Options' (Route Row). The 'ACTION' section contains fields for 'Destination Type' (IP Group), 'Destination IP Group' (#0 [IP-PBX]), 'Destination SIP Interface' (#0 [IP-PBX]), 'Destination Address' (empty), 'Destination Port' (0), 'Destination Transport Type' (empty), 'Call Setup Rules Set ID' (-1), 'Group Policy' (Sequential), and 'Cost Group' (empty). The 'MATCH' section contains fields for 'Source IP Group' (#1 [BroadCloud]), 'Request Type' (All), 'Source Username Prefix' (\*), 'Source Host' (\*), and 'Source Tag' (empty). At the bottom are 'Cancel' and 'APPLY' buttons.

The configured routing rules are shown in the figure below:

Figure 4-20: Configured IP-to-IP Routing Rules in IP-to-IP Routing Table

IP-to-IP Routing (3) .												
		+ New		Edit		Insert		Page 1 of 1		Show 10 records per page		<input type="text"/>
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 OPT	Default_SBCRc	Route Row	Any	OPTIONS	*	*	Dest Address	--	--	internal	
1	IP-PBX to ITSP	Default_SBCRc	Route Row	IP-PBX	All	*	*	IP Group	BroadCloud	BroadCloud		
2	ITSP to IP-PBX	Default_SBCRc	Route Row	BroadCloud	All	*	*	IP Group	IP-PBX	IP-PBX		



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

## 4.9 Step 10: 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 31, 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 table (**Setup** menu > **Signaling & Media** tab > **SBC** folder > **Manipulation** > **Outbound Manipulations**).
2. Click **Add**.
3. Configure the parameters as follows:

Parameter	Value
Index	<b>0</b>
Name	<b>Add + for National Calls</b>
Source IP Group	<b>IP-PBX</b>
Destination IP Group	<b>BroadCloud</b>
Destination Username Prefix	<b>001</b>
Manipulated Item	<b>Destination URI</b>
Remove From Left	<b>2</b>
Prefix to Add	<b>+</b>

**Figure 4-21: Configuring IP-to-IP Outbound Manipulation Rule**

**Outbound Manipulations [Add + for National Calls]**

ROUTING POLICY		Routing Policy #0 [Default_SBCRoutingPolicy] <input type="button" value="▼"/>																																			
<table border="1"> <thead> <tr> <th colspan="2">GENERAL</th> <th>ACTION</th> </tr> </thead> <tbody> <tr> <td>Index</td> <td>0</td> <td>Manipulated Item</td> <td>• Destination URI <input type="button" value="▼"/></td> </tr> <tr> <td>Name</td> <td>• Add + for National Calls</td> <td>Remove From Left</td> <td>• 2 <input type="button" value="▼"/></td> </tr> <tr> <td>Additional Manipulation</td> <td>No <input type="button" value="▼"/></td> <td>Remove From Right</td> <td>0 <input type="button" value="▼"/></td> </tr> <tr> <td>Call Trigger</td> <td>Any <input type="button" value="▼"/></td> <td>Leave From Right</td> <td>255 <input type="button" value="▼"/></td> </tr> <tr> <td colspan="2"></td> <td>Prefix to Add</td> <td>• + <input type="button" value="▼"/></td> </tr> <tr> <td colspan="2"></td> <td>Suffix to Add</td> <td><input type="button" value="▼"/></td> </tr> <tr> <td colspan="2"></td> <td>Privacy Restriction Mode</td> <td>Transparent <input type="button" value="▼"/></td> </tr> <tr> <td colspan="3"></td> <td><input type="button" value="Cancel"/> <input type="button" value="APPLY"/></td> </tr> </tbody> </table>			GENERAL		ACTION	Index	0	Manipulated Item	• Destination URI <input type="button" value="▼"/>	Name	• Add + for National Calls	Remove From Left	• 2 <input type="button" value="▼"/>	Additional Manipulation	No <input type="button" value="▼"/>	Remove From Right	0 <input type="button" value="▼"/>	Call Trigger	Any <input type="button" value="▼"/>	Leave From Right	255 <input type="button" value="▼"/>			Prefix to Add	• + <input type="button" value="▼"/>			Suffix to Add	<input type="button" value="▼"/>			Privacy Restriction Mode	Transparent <input type="button" value="▼"/>				<input type="button" value="Cancel"/> <input type="button" value="APPLY"/>
GENERAL		ACTION																																			
Index	0	Manipulated Item	• Destination URI <input type="button" value="▼"/>																																		
Name	• Add + for National Calls	Remove From Left	• 2 <input type="button" value="▼"/>																																		
Additional Manipulation	No <input type="button" value="▼"/>	Remove From Right	0 <input type="button" value="▼"/>																																		
Call Trigger	Any <input type="button" value="▼"/>	Leave From Right	255 <input type="button" value="▼"/>																																		
		Prefix to Add	• + <input type="button" value="▼"/>																																		
		Suffix to Add	<input type="button" value="▼"/>																																		
		Privacy Restriction Mode	Transparent <input type="button" value="▼"/>																																		
			<input type="button" value="Cancel"/> <input type="button" value="APPLY"/>																																		
<table border="1"> <thead> <tr> <th colspan="2">MATCH</th> </tr> </thead> <tbody> <tr> <td>Request Type</td> <td>All <input type="button" value="▼"/></td> </tr> <tr> <td>Source IP Group</td> <td>#0 [IP-PBX] <input type="button" value="▼"/> <a href="#">View</a></td> </tr> <tr> <td>Destination IP Group</td> <td>#1 [BroadCloud] <input type="button" value="▼"/> <a href="#">View</a></td> </tr> <tr> <td>Source Username Prefix</td> <td>*</td> </tr> </tbody> </table>			MATCH		Request Type	All <input type="button" value="▼"/>	Source IP Group	#0 [IP-PBX] <input type="button" value="▼"/> <a href="#">View</a>	Destination IP Group	#1 [BroadCloud] <input type="button" value="▼"/> <a href="#">View</a>	Source Username Prefix	*																									
MATCH																																					
Request Type	All <input type="button" value="▼"/>																																				
Source IP Group	#0 [IP-PBX] <input type="button" value="▼"/> <a href="#">View</a>																																				
Destination IP Group	#1 [BroadCloud] <input type="button" value="▼"/> <a href="#">View</a>																																				
Source Username Prefix	*																																				

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 4-22: Example of Configured IP-to-IP Outbound Manipulation Rules**

Outbound Manipulations (3)																											
Actions		Manipulation Details																									
		Name		Routing Policy		Additional Manipulation		Source IP Group		Destination IP Group		Source Username Prefix		Destination Username Prefix		Manipulation Item		Remove from Left		Remove from Right		Leave from Right		Prefix to Add		Suffix to Add	
Index	Name	Routing Policy	Additional Manipulation	Source IP Group	Destination IP Group	Source Username Prefix	Destination Username Prefix	Manipulation Item	Remove from Left	Remove from Right	Leave from Right	Prefix to Add	Suffix to Add														
0	Add + for Name	Default_SBC	No	IP-PBX	BroadCloud	*	001	Destination	2	0	255	+															
1	Add 011 to IP	Default_SBC	No	IP-PBX	BroadCloud	*	00	Destination	2	0	255	011															
2	For Anonymous	Default_SBC	No	IP-PBX	BroadCloud	*	*	Source URI	0	0	255																

## 4.10 Step 11: 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.

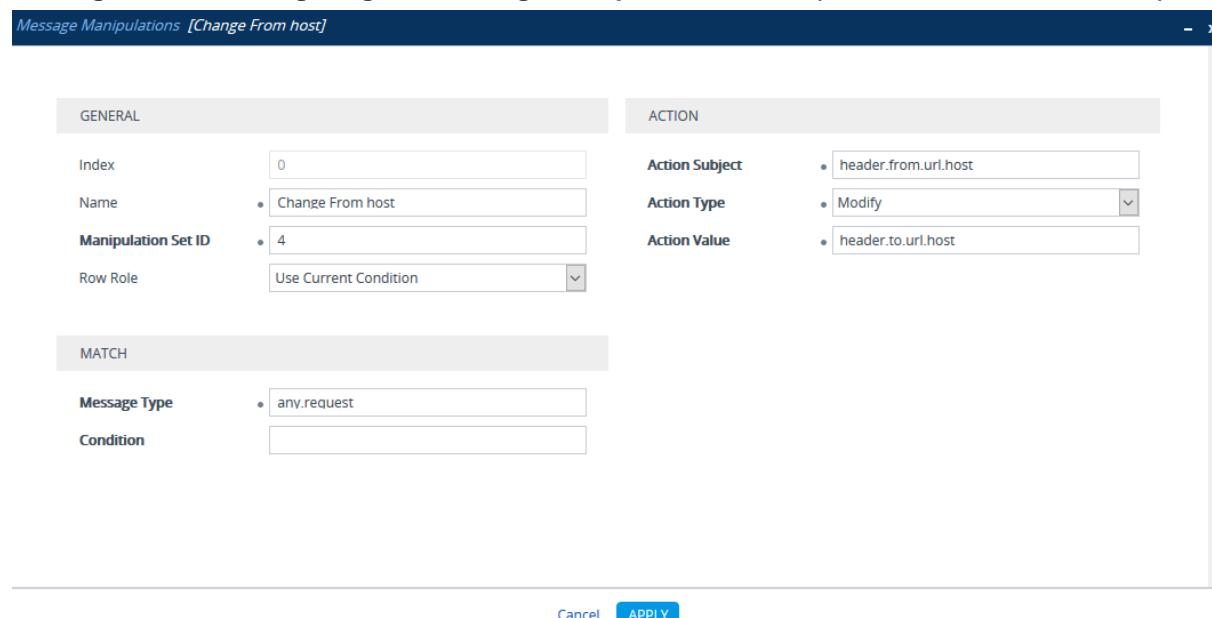
➤ **To configure SIP message manipulation rule:**

1. Open the Message Manipulations page (**Setup** menu > **Signaling & Media** tab > **Message Manipulation** folder > **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	<b>Change From host</b>
Manipulation Set ID	4
Message Type	<b>any.request</b>
Action Subject	<b>header.from.url.host</b>
Action Type	<b>Modify</b>
Action Value	<b>header.to.url.host</b>

**Figure 4-23: Configuring SIP Message Manipulation Rule 0 (for BroadCloud SIP Trunk)**

*Message Manipulations [Change From host]*



The screenshot shows the 'Message Manipulations' configuration window for the 'Change From host' rule. The window has tabs for 'GENERAL', 'ACTION', and 'MATCH'. The 'GENERAL' tab displays parameters: Index (0), Name (Change From host), Manipulation Set ID (4), and Row Role (Use Current Condition). The 'ACTION' tab shows Action Subject (header.from.url.host), Action Type (Modify), and Action Value (header.to.url.host). The 'MATCH' tab shows Message Type (any.request) and an empty Condition field. At the bottom are 'Cancel' and 'APPLY' 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	<b>Change P-Asserted host</b>
Manipulation Set ID	4
Message Type	<b>any.request</b>
Condition	<b>header.p-asserted-identity exists</b>
Action Subject	<b>header.p-asserted-identity</b>
Action Type	<b>Modify</b>
Action Value	<b>header.to.url.host</b>

Figure 4-24: Configuring SIP Message Manipulation Rule 1 (for BroadCloud SIP Trunk)

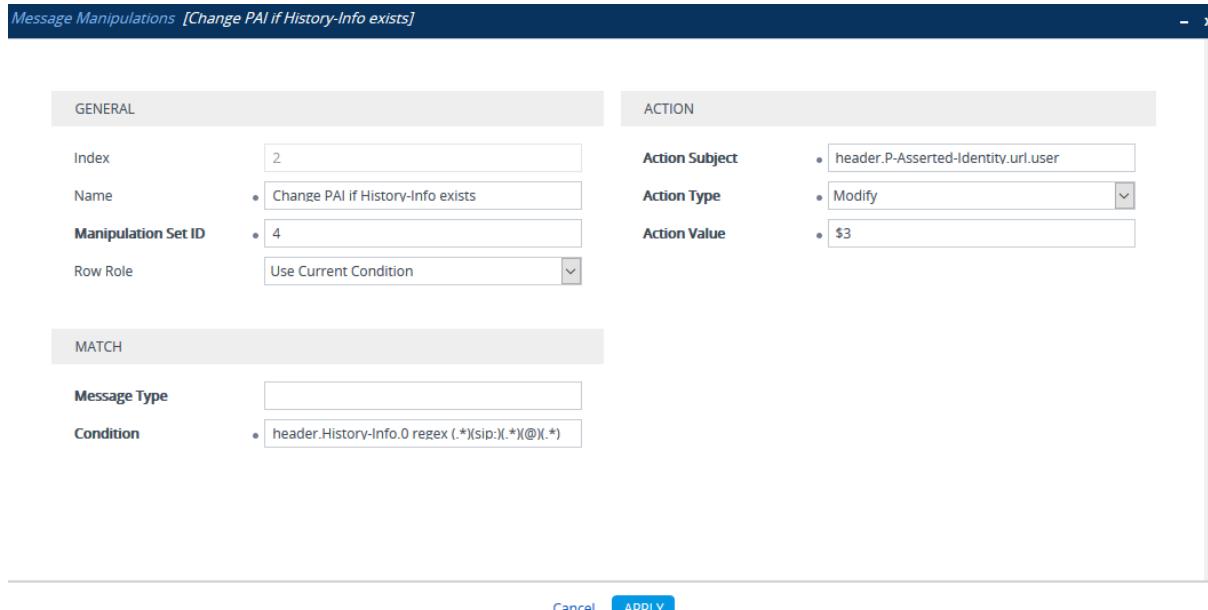
4. Configure another manipulation rule (Manipulation Set 4) for BroadCloud SIP Trunk. This rule is applied to response messages sent to the BroadCloud SIP Trunk IP Group for Rejected Calls initiated by the IP-PBX. This replaces the method type '502' with the value '480', because BroadCloud SIP Trunk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

Parameter	Value
Index	2
Name	<b>Change PAI if History-Info exists</b>
Manipulation Set ID	4
Message Type	
Condition	<b>header.History-Info.0 regex (.*)(sip:)(.*)(@)(.*)</b>
Action Subject	<b>header.P-Asserted-Identity.url.user</b>

Parameter	Value
Action Type	<b>Modify</b>
Action Value	\$3

**Figure 4-25: Configuring SIP Message Manipulation Rule 2 (for BroadCloud SIP Trunk)**

Message Manipulations [Change PAI if History-Info exists]

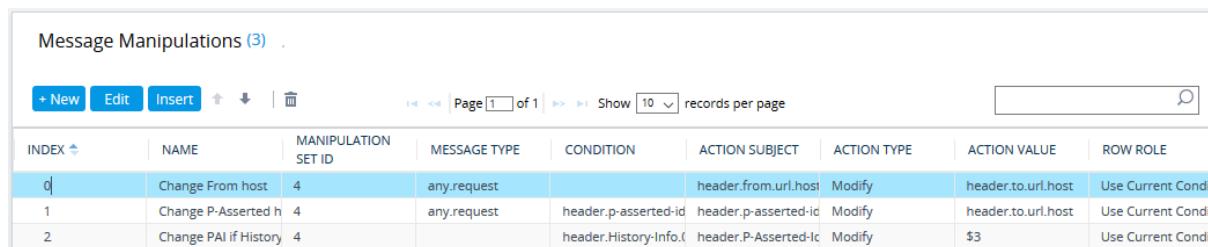


GENERAL	ACTION
Index: 2	Action Subject: header.P-Asserted-Identity.url.user
Name: Change PAI if History-Info exists	Action Type: Modify
Manipulation Set ID: 4	Action Value: \$3
Row Role: Use Current Condition	
MATCH	
Message Type:	
Condition: header.History-Info.0 regex (.*)(sip:)(.*)(@)(.*)	

Cancel **APPLY**

**Figure 4-26: Example of Configured SIP Message Manipulation Rules**

Message Manipulations (3) .



INDEX	NAME	MANIPULATION SET ID	MESSAGE TYPE	CONDITION	ACTION SUBJECT	ACTION TYPE	ACTION VALUE	ROW ROLE
0	Change From host	4	any.request		header.from.url.host	Modify	header.to.url.host	Use Current Condition
1	Change P-Asserted h	4	any.request	header.p-asserted-id	header.p-asserted-id	Modify	header.to.url.host	Use Current Condition
2	Change PAI if History	4		header.History-Info.0	header.P-Asserted-Id	Modify	\$3	Use Current Condition

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

Rule Index	Rule Description	Reason for Introducing Rule
0	This rule applies to messages sent to the BroadCloud SIP Trunk IP Group. This replaces the host part of the SIP From Header with the value from the SIP To Header.	
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.	BroadCloud SIP Trunk required that all messages should be from known hosts.
2	This rule applies to messages sent to the BroadCloud SIP Trunk IP Group for Forward call.	BroadCloud SIP Trunk required that all calls will send with P-Asserted-Identity that contain BroadCloud number.

**5.** Assign Manipulation Set ID 4 to the BroadCloud SIP trunk IP Group.

## 4.11 Step 12: 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 the 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.

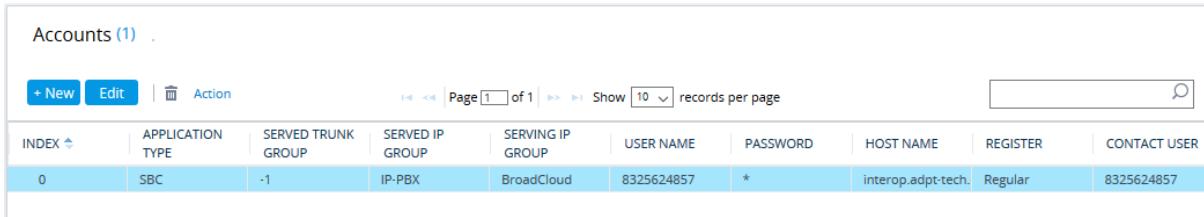
➤ **To configure a registration account:**

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

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

4. Click **Apply**.

**Figure 4-27: Configuring SIP Registration Account**



The screenshot shows a table titled 'Accounts (1)'. The table has columns: INDEX, APPLICATION TYPE, SERVED TRUNK GROUP, SERVED IP GROUP, SERVING IP GROUP, USER NAME, PASSWORD, HOST NAME, REGISTER, and CONTACT USER. The single row contains the values: 0, SBC, -1, IP-PBX, BroadCloud, 8325624857, \*, interop.adpt-tech.com, Regular, and 8325624857 respectively.

## 4.12 Step 13: Miscellaneous Configuration

This section describes miscellaneous E-SBC configuration.

### 4.12.1 Step 13a: 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 (**Setup** menu > **Signaling & Media** tab > **SBC** folder > **Routing** > **Alternative Reasons**).
2. Click **Add**; the following dialog box appears:

**Figure 4-28: SBC Alternative Routing Reasons Table - Add Record**

GENERAL	
Index	0
Release Cause	• 503 Service Unavailable

3. Click **Apply**.

## 4.13 Step 14: 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 (**Setup** menu > **Administration** tab > **Maintenance** folder > **Maintenance Actions**).

**Figure 4-29: Resetting the E-SBC**

Maintenance Actions

RESET DEVICE		LOCK / UNLOCK	
Reset Device	<input type="button" value="Reset"/>	Lock	<input type="button" value="LOCK"/>
Save To Flash	Yes	Graceful Option	No
Graceful Option	No	Gateway Operational State	UNLOCKED

**For Reset Device:** If you choose not to save the device's configuration to flash memory, all changes made since the last time the configuration was saved will be lost after the device is reset.

**For Save Configuration:** Saving configuration to flash memory may cause some temporary degradation in voice quality, therefore, it is recommended to perform this during low-traffic periods

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

## A AudioCodes INI File

The *ini* configuration file of the E-SBC, corresponding to the Web-based configuration as described in Section 4 on page 19, 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 800 E-SBC
;HW Board Type: 69 FK Board Type: 72
;Serial Number: 3887604
;Slot Number: 1
;Software Version: 7.20A.001
;DSP Software Version: 5014AE3_R => 720.23
;Board IP Address: 10.15.7.8
;Board Subnet Mask: 255.255.0.0
;Board Default Gateway: 0.0.0.0
;Ram size: 512M Flash size: 64M Core speed: 300Mhz
;Num of DSP Cores: 3 Num DSP Channels: 30
;Num of physical LAN ports: 12
;Profile: NONE
;;Key features:;Board Type: 72 ;E1Trunks=2 ;T1Trunks=2 ;FXSPorts=8
;FXOPorts=8 ;DSP Voice features: ;Security: IPSEC MediaEncryption
StrongEncryption EncryptControlProtocol ;Channel Type: RTP DspCh=30
IPMediaDspCh=30 ;IP Media: TrunkTesting ;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 ;Control Protocols: MSFT
TRANSCODING=10 FEU=10 TestCall=10 SIPRec=10 CODER-TRANSCODING=10 SBC-
SIGNALING=120 SBC-MEDIA=120 MGCP SIP SBC=120 ;Default features:;Coders:
G711 G726;

----- HW components-----
;
; Slot # : Module type : # of ports
-----
; 1 : FALC56 : 1
; 2 : FXS : 4
; 3 : Empty
-----

[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]

CallProgressTonesFilename = 'usa_tones_13.dat'

[WEB Params]

UseRProductName = 'Mediant 800 E-SBC'
LogoWidth = '145'
UseProductName = 1
HTTPSCipherString = 'RC4:EXP'
;HTTPSPkeyFileName is hidden but has non-default value

[SIP Params]

MEDIACHANNELS = 30
GWDEBUGLEVEL = 5
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 4 = "FE_5_1", 0, 4, "User Port #4", "None", " ";
PhysicalPortsTable 5 = "FE_5_2", 0, 4, "User Port #5", "None", " ";
PhysicalPortsTable 6 = "FE_5_3", 0, 4, "User Port #6", "None", " ";
PhysicalPortsTable 7 = "FE_5_4", 0, 4, "User Port #7", "None", " ";
PhysicalPortsTable 8 = "FE_5_5", 1, 4, "User Port #8", "GROUP_5", "Active";
PhysicalPortsTable 9 = "FE_5_6", 1, 4, "User Port #9", "GROUP_5",
"Redundant";
PhysicalPortsTable 10 = "FE_5_7", 1, 4, "User Port #10", "GROUP_6",
"Active";
PhysicalPortsTable 11 = "FE_5_8", 1, 4, "User Port #11", "GROUP_6",
"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 4 = "GROUP_5", 2, "FE_5_5", "FE_5_6";
EtherGroupTable 5 = "GROUP_6", 2, "FE_5_7", "FE_5_8";
EtherGroupTable 6 = "GROUP_7", 0, "", "";
EtherGroupTable 7 = "GROUP_8", 0, "", "";
EtherGroupTable 8 = "GROUP_9", 0, "", "";
EtherGroupTable 9 = "GROUP_10", 0, "", "";
EtherGroupTable 10 = "GROUP_11", 0, "", "";
EtherGroupTable 11 = "GROUP_12", 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, 10.15.7.8, 16, 0.0.0.0, "Voice", 0.0.0.0,
0.0.0.0, "vlan 1";
InterfaceTable 1 = 5, 10, 195.189.192.156, 25, 195.189.192.129, "WANSP",
8.8.8.8, 0.0.0.0, "vlan 2";

[ \InterfaceTable ]

[ TLSContexts ]

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

[ \TLSContexts ]

[ AudioCodersGroups ]

FORMAT AudioCodersGroups_Index = AudioCodersGroups_Name;
AudioCodersGroups 0 = "AudioCodersGroups_0";
AudioCodersGroups 2 = "AudioCodersGroups_2";

[ \AudioCodersGroups ]

[ AllowedAudioCodersGroups ]

FORMAT AllowedAudioCodersGroups_Index = AllowedAudioCodersGroups_Name;
AllowedAudioCodersGroups 2 = "BroadCloud";

[ \AllowedAudioCodersGroups ]

[ IpProfile ]

FORMAT IpProfile_Index = IpProfile_ProfileName, IpProfile_IpPreference,
IpProfile_CodersGroupName, IpProfile_IsFaxUsed,
IpProfile_JitterBufMinDelay, IpProfile_JitterBufOptFactor,
IpProfile_IPDiffServ, IpProfile_SigIPDiffServ, IpProfile_SCE,
IpProfile_RTPRedundancyDepth, 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_SBCExtensionCodersGroupName, IpProfile_MediaIPVersionPreference,
IpProfile_TranscodingMode, IpProfile_SBCAllowedMediaTypes,
IpProfile_SBCAllowedAudioCodersGroupName,
IpProfile_SBCAllowedVideoCodersGroupName, IpProfile_SBCAllowedCodersMode,
IpProfile_SBCMediaSecurityBehaviour, IpProfile_SBCRFC2833Behavior,
IpProfile_SBCAlternativeDTMFMethod, IpProfile_SBCAssertIdentity,
IpProfile_AMDSensitivityParameterSuit, IpProfile_AMDSensitivityLevel,
IpProfile_AMDMaxGreetingTime, IpProfile_AMDMaxPostSilenceGreetingTime,

```

```

IpProfile_SBCDiversionMode, IpProfile_SBCHistoryInfoMode,
IpProfile_EnableQSIGTunneling, IpProfile_SBCFaxCodersGroupName,
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_SBCPlayRBTTToTransferee, 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_CreatedByRoutingServer, IpProfile_SBCMaxCallDuration,
IpProfile_SBCGenerateRTP, IpProfile_SBCISUPBodyHandling,
IpProfile_SBCISUPVariant, IpProfile_SBCVoiceQualityEnhancement,
IpProfile_SBCMaxOpusBW;
IpProfile 1 = "IP-PBX", 1, "AudioCodersGroups_0", 0, 10, 10, 46, 40, 0, 0,
0, 2, 0, 0, 0, -1, 1, 0, 0, -1, 0, 4, -1, 1, 1, 0, 0, "",
"AudioCodersGroups_0", 0, 0, "", "", "", 0, 0, 0, 0, 0, 0, 8, 300, 400, 0,
0, 0, "", 1, 0, 1, 3, 0, 2, 2, 1, 0, 0, 1, 0, 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, 0, "", 0, 0, 0, 0, 0, 0, 0;
IpProfile 2 = "BroadCloud", 1, "AudioCodersGroups_0", 0, 10, 10, 46, 40, 0,
0, 0, 2, 0, 0, 0, -1, 1, 0, 0, -1, 0, 4, -1, 1, 1, 0, 0, "",
"AudioCodersGroups_2", 0, 0, "", "BroadCloud", "", 0, 2, 0, 0, 1, 0, 8,
300, 400, 0, 0, 0, "", 1, 0, 1, 3, 0, 2, 2, 1, 0, 0, 1, 0, 0, 0, 0, 0,
0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 300, -1, -1,
0, 0, 0, 0, 0, 0, -1, -1, -1, 0, "", 0, 0, 0, 0, 0, 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_TopoLocation;

```

```

CpMediaRealm 0 = "MRLan", "Voice", "", 6000, 100, 6999, 1, "", "", 0;
CpMediaRealm 1 = "MRWan", "WANSP", "", 7000, 100, 7999, 0, "", "", 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, "Default_SBCRoutingPolicy", "";

[ \SRD ]

[ MessagePolicy ]

FORMAT MessagePolicy_Index = MessagePolicy_Name,
MessagePolicy_MaxMessageLength, MessagePolicy_MaxHeaderLength,
MessagePolicy_MaxBodyLength, MessagePolicy_MaxNumHeaders,
MessagePolicy_MaxNumBodies, MessagePolicy_SendRejection,
MessagePolicy_MethodList, MessagePolicy_MethodListType,
MessagePolicy_BodyList, MessagePolicy_BodyListType,
MessagePolicy_UseMaliciousSignatureDB;
MessagePolicy 0 = "Malicious Signature DB Protection", -1, -1, -1, -1, -1,
1, "", 0, "", 0, 1;

[ \MessagePolicy ]

[ SIPInterface ]

FORMAT SIPInterface_Index = SIPInterface_InterfaceName,
SIPInterface_NetworkInterface, SIPInterface_ApplicationType,
SIPInterface_UDPPort, SIPInterface_TCPPort, SIPInterface_TLSPort,
SIPInterface_SRDNName, 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_TopoLocation;
SIPInterface 0 = "IP-PBX", "Voice", 2, 5060, 0, 0, "DefaultSRD", "",
"default", -1, 0, 500, -1, 0, "MRLan", 0, -1, -1, -1, 0, 0;
SIPInterface 1 = "BroadCloud", "WANSP", 2, 5060, 0, 0, "DefaultSRD", "",
"default", -1, 0, 500, -1, 0, "MRWan", 0, -1, -1, -1, 0, 0;

```

```

[ \SIPInterface ]

[ ProxySet ]

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

[ \ProxySet ]

[ IPGroup ]

FORMAT IPGroup_Index = IPGroup_Type, IPGroup_Name, IPGroup_ProxySetName,
IPGroup_SIPGroupName, IPGroup_ContactUser, IPGroup_SipReRoutingMode,
IPGroup_AlwaysUseRouteTable, IPGroup_SRName, 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_AlwaysUseSourceAddr, IPGroup_MsgManUserDef1,
IPGroup_MsgManUserDef2, IPGroup_SIPConnect, IPGroup_SBCPSAPMode,
IPGroup_DTLSContext, IPGroup_CreatedByRoutingServer,
IPGroup_UsedByRoutingServer, IPGroup_SBCOperationMode,
IPGroup_SBCRouteUsingRequestURIPort, IPGroup_SBCKeepOriginalCallID,
IPGroup_TopoLocation, IPGroup_SBCDialPlanName,
IPGroup_CallSetupRulesSetId;
IPGroup 0 = 0, "IP-PBX", "IP-PBX", "", "", -1, 0, "DefaultSRD", "MRlan", 1,
"IP-PBX", -1, -1, 0, 0, "", 0, -1, -1, "", "", "$1$gQ==", 0, "", "", 0,
"", "", 0, 0, "", 0, 0, -1, 0, 0, "", -1;
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, -1, 0, 0, 0, "", -1;

[ \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, "10.15.7.26:5060", 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/LyUiDSAONCFhZGRj", "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,

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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 ]

;
; *** TABLE CodersGroup0 ***
; This table contains hidden elements and will not be exposed.
; This table exists on board and will be saved during restarts.
;

[ \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 2 = "Change PAI if History-Info exists", 4, "",
"header.History-Info.0 regex (.*)(sip:)(.*)(@)(.*)", "header.P-Asserted-
Identity.url.user", 2, "$3", 0;

[ \MessageManipulations ]

[ GwRoutingPolicy ]

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

[ \GwRoutingPolicy ]

[ ResourcePriorityNetworkDomains ]

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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 ]

[ MaliciousSignatureDB ]

FORMAT MaliciousSignatureDB_Index = MaliciousSignatureDB_Name,
MaliciousSignatureDB_Pattern;
MaliciousSignatureDB 0 = "SIPVicious", "Header.User-Agent.content prefix
'friendly-scanner'";
MaliciousSignatureDB 1 = "SIPScan", "Header.User-Agent.content prefix 'sip-
scan'";
MaliciousSignatureDB 2 = "Smap", "Header.User-Agent.content prefix 'smap'";
MaliciousSignatureDB 3 = "Sipsak", "Header.User-Agent.content prefix
'sipsak'";
MaliciousSignatureDB 4 = "Sipcli", "Header.User-Agent.content prefix
'sipcli'";
MaliciousSignatureDB 5 = "Sivus", "Header.User-Agent.content prefix
'SIVuS'";
MaliciousSignatureDB 6 = "Gulp", "Header.User-Agent.content prefix 'Gulp'";
MaliciousSignatureDB 7 = "Sipv", "Header.User-Agent.content prefix 'sipv'";
MaliciousSignatureDB 8 = "Sundayddr Worm", "Header.User-Agent.content
prefix 'sundayddr'";
MaliciousSignatureDB 9 = "VaxIPUserAgent", "Header.User-Agent.content
prefix 'VaxIPUserAgent'";
MaliciousSignatureDB 10 = "VaxSIPUserAgent", "Header.User-Agent.content
prefix 'VaxSIPUserAgent'";
MaliciousSignatureDB 11 = "SipArmyKnife", "Header.User-Agent.content prefix
'siparmyknife';

[ \MaliciousSignatureDB ]

[ AllowedAudioCoders ]

FORMAT AllowedAudioCoders_Index =
AllowedAudioCoders_AllowedAudioCodersGroupName,
AllowedAudioCoders_AllowedAudioCodersIndex, AllowedAudioCoders_CoderID,
AllowedAudioCoders_UserDefineCoder;
AllowedAudioCoders 0 = "BroadCloud", 0, 3, "";

[ \AllowedAudioCoders ]

[ AudioCoders ]

FORMAT AudioCoders_Index = AudioCoders_AudioCodersGroupId,
AudioCoders_AudioCodersIndex, AudioCoders_Name, AudioCoders_pTime,
AudioCoders_rate, AudioCoders_PayloadType, AudioCoders_Sce,
AudioCoders_CoderSpecific;
AudioCoders 0 = "AudioCodersGroups_0", 0, 1, 2, 90, -1, 0, "";
AudioCoders 1 = "AudioCodersGroups_2", 0, 1, 2, 90, -1, 0, "";

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AudioCoders 2 = "AudioCodersGroups_2", 1, 2, 2, 90, -1, 0, "";
AudioCoders 3 = "AudioCodersGroups_2", 2, 3, 2, 19, -1, 0, "";
AudioCoders 4 = "AudioCodersGroups_0", 1, 2, 2, 90, -1, 0, "";

[ \AudioCoders ]
```

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