

Configuration Note

AudioCodes Professional Services - Interoperability Lab

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

Version 7.0

Panasonic®

broadsoft
broadcloud®

 HD VoIP
Sounds Better

 **AudioCodes**

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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 (referred to in this document as *E-SBC*) for interworking between BroadCloud's SIP Trunk and Panasonic's 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	Panasonic
Model	<ul style="list-style-type: none"> ▪ KX-NS500 ▪ KX-NS1000
Software Version	004.20043
Model	<ul style="list-style-type: none"> ▪ KX-TDE100 ▪ KX-TDE200 ▪ KX-TDE600 ▪ KX-NCP500 ▪ KX-NCP1000
Software Version	8.01
Protocol	SIP/UDP
Additional Notes	None

2.2 AudioCodes E-SBC Version

Table 2-2: AudioCodes E-SBC Version

SBC Vendor	AudioCodes
Models	<ul style="list-style-type: none"> ▪ Mediant 500 E-SBC ▪ Mediant 800 Gateway & E-SBC ▪ Mediant 1000B Gateway & E-SBC ▪ Mediant 3000 Gateway & E-SBC ▪ Mediant 2600 E-SBC ▪ Mediant 4000 E-SBC
Software Version	SIP_F7.00A.035.006
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

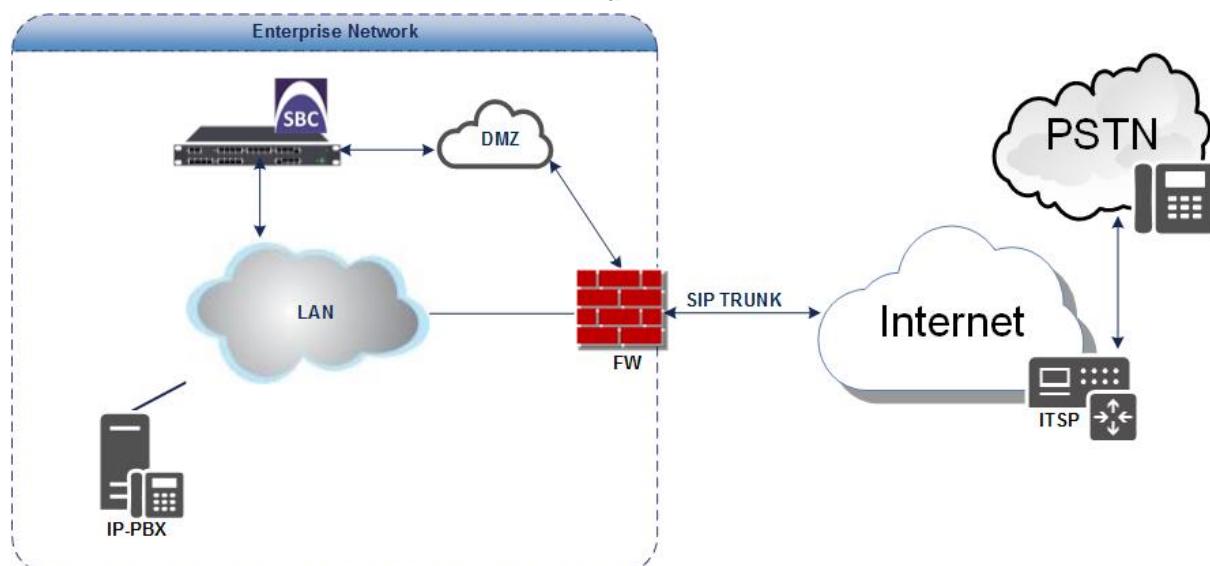
2.4 Interoperability Test Topology

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	<ul style="list-style-type: none">§ IP-PBX is located on the Enterprise's LAN§ BroadCloud SIP Trunk is located on the WAN
Signaling Transcoding	<ul style="list-style-type: none">§ IP-PBX operates with SIP-over-UDP transport type§ BroadCloud SIP Trunk operates with SIP-over-UDP transport type
Codecs Transcoding	<ul style="list-style-type: none">§ 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	<ul style="list-style-type: none">§ 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 Panasonic IP-PBX

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



Note:

- For more advanced configuration, refer to the *User Manual* of each IP-PBX.
- Throughout this chapter, screenshots of the KX-NS500 are shown as an example.

3.1 Configuring Basic Configuration Parameters

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

To configure Panasonic IP-PBX:

- Open the Main Web Maintenance Console on the IP-PBX:

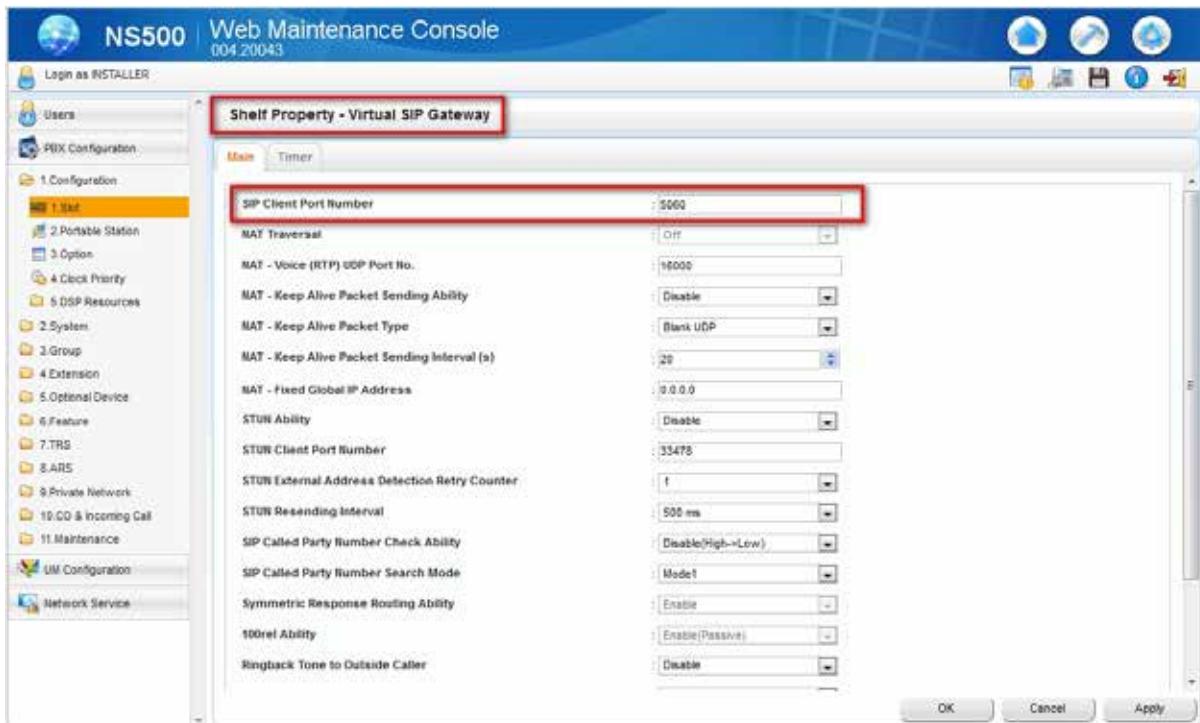
Figure 3-1: Home Page of the Panasonic Web Maintenance Console



Note: 'Virtual Slot' should be configured to be **Out Of Service** for most general parameters (local SIP port, destination IP and port).

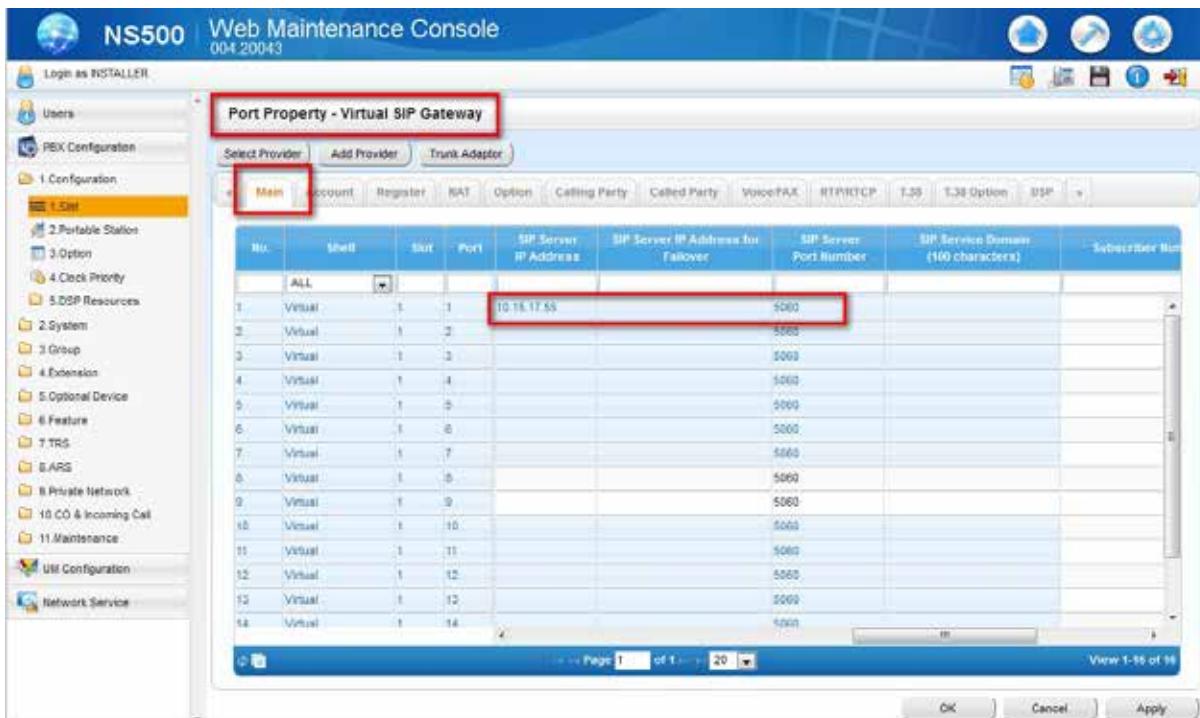
2. Under **1.Configuration > 1.Slot > Shelf Property > Main**, define the IP-PBX's local SIP Port:

Figure 3-2: SIP Listening Port



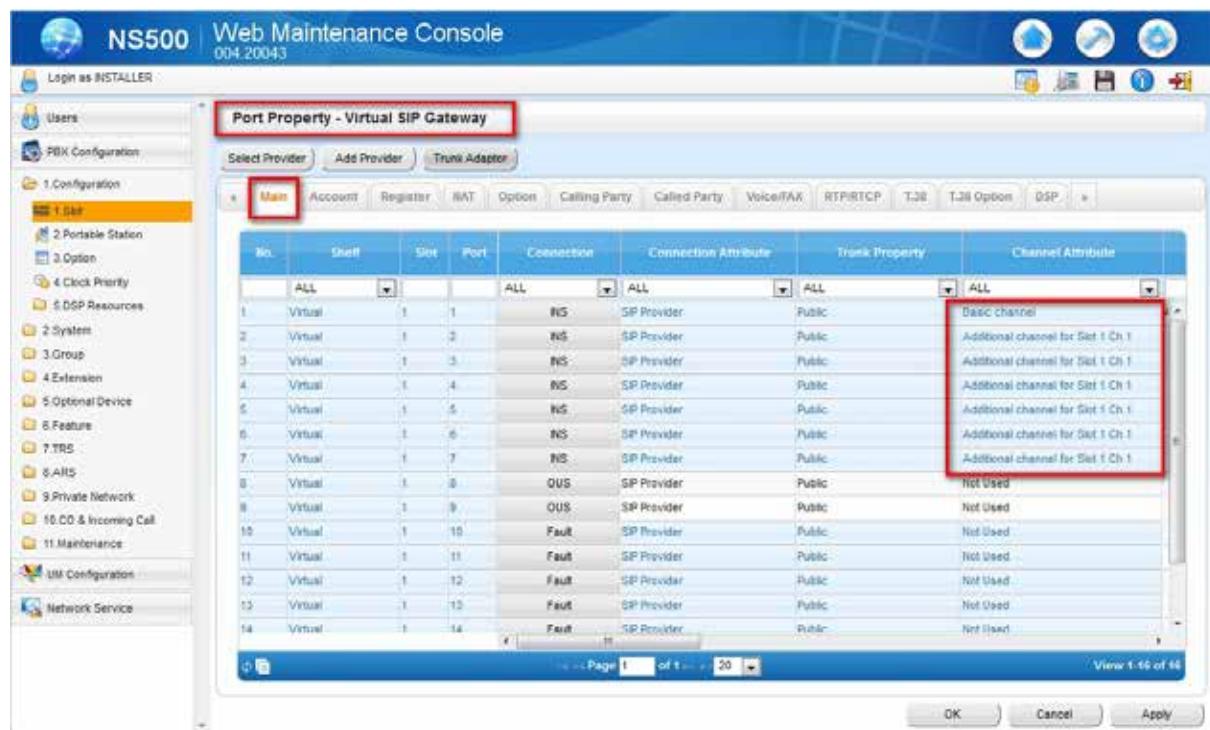
3. Under **1.Configuration > 1.Slot > Port Property > Main**, configure the destination (AudioCodes' E-SBC) IP address and SIP Port:

Figure 3-3: Destination (AudioCodes' E-SBC) IP Address and Port



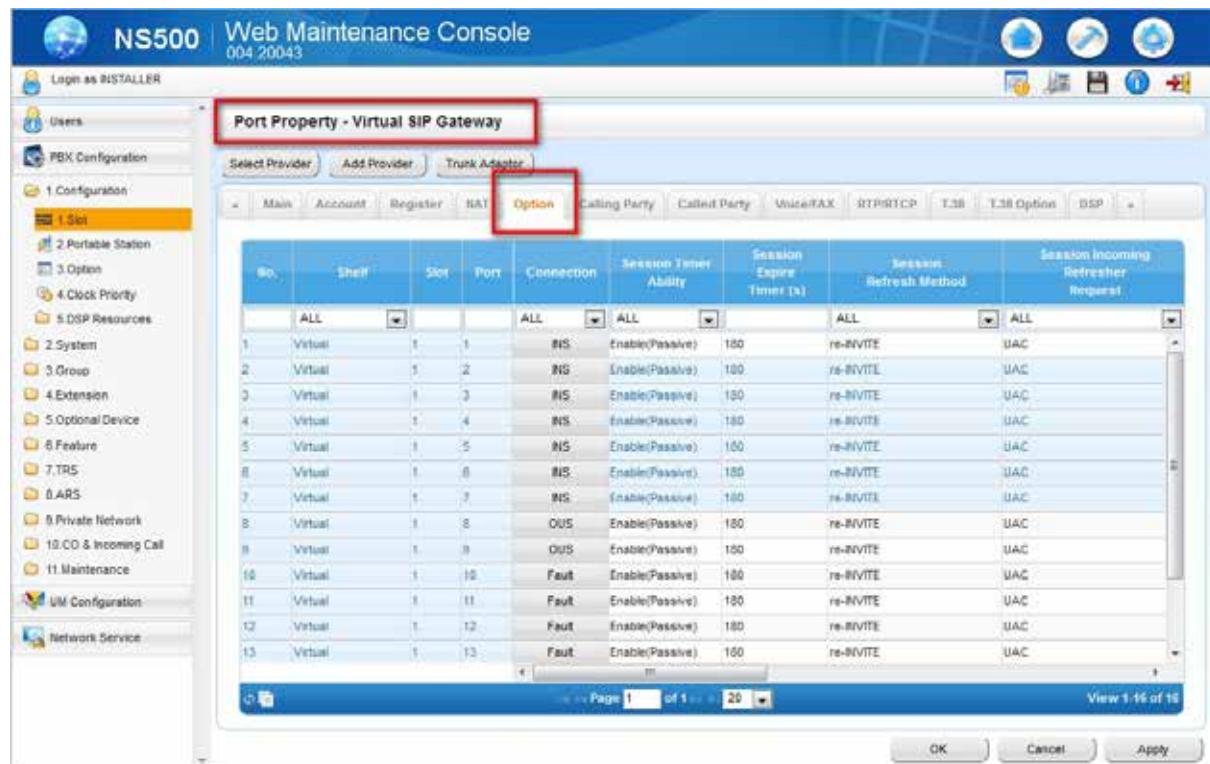
4. Under **1.Configuration > 1.Slot > Port Property > Main**, configure the number of channels for analog phones. Note that for each call made via the PBX, two channels must be configured.

Figure 3-4: Channels for Analog Phones



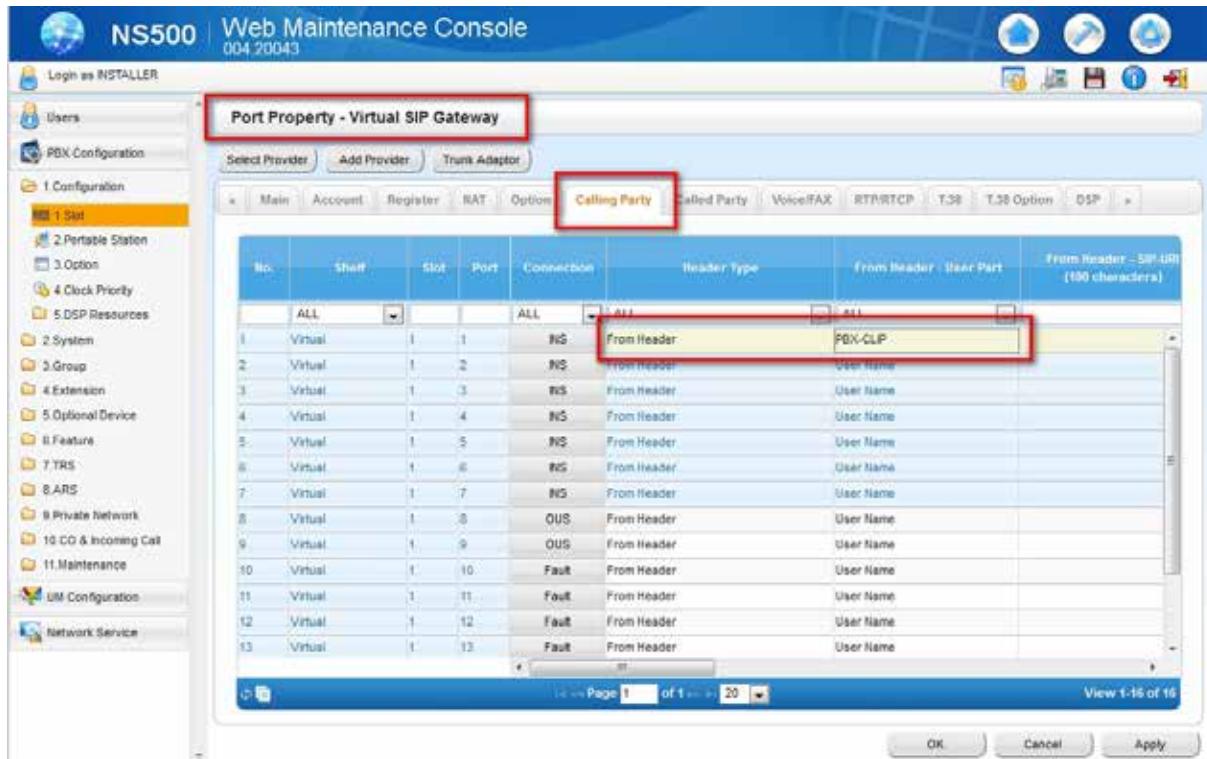
5. Under **1.Configuration > 1.Slot > Port Property > Option**, enable or disable 'Session Timer' and its value, as shown below:

Figure 3-5: Session Timer



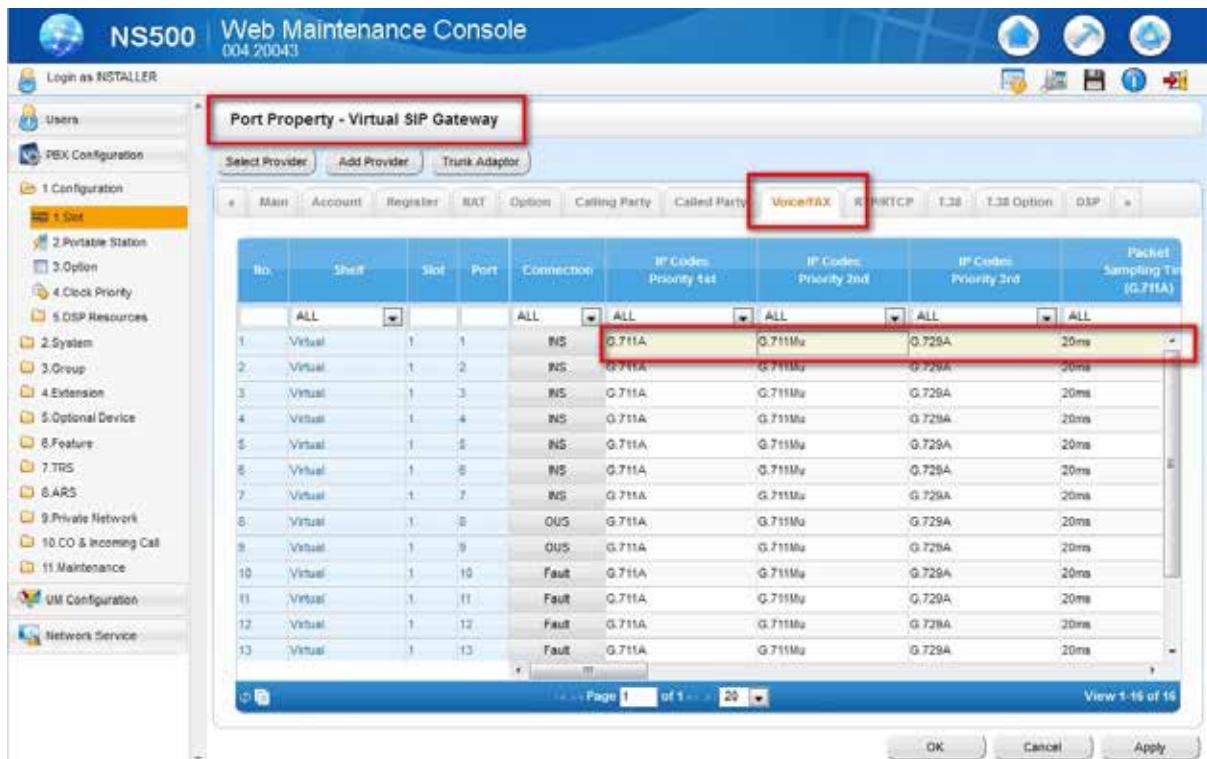
6. Under **1.Configuration > 1.Slot > Port Property > Calling Party**, configure the format of the calling party presentation, as shown below:

Figure 3-6: Calling Name Presentation



7. Under **1.Configuration > 1.Slot > Port Property > Voice/FAX**, configure appropriated coders, fax and DTMF behavior per channel, as shown below:

Figure 3-7: Configuring Coders, Fax and DTMF Behavior



8. Under **4.Extension > 1.Wired Extension > 1.Extension Settings**, configure extension number, name and presentation per channel, as shown below:

Figure 3-8: Configuring Extensions

No.	Extension Number	Extension Name (20 characters)	CLIP ID	CLIP on Extension/CO	CLR	COLR
27	127			Extension	Disable	Disable
28	128			Extension	Disable	Disable
29	129			Extension	Disable	Disable
30	4852	PBX User 1	0325624852	Extension	Disable	Disable
31	131			Extension	Disable	Disable
32	4853	PBX User 2	0325624853	Extension	Disable	Disable
33	133			Extension	Disable	Disable
34	134			Extension	Disable	Disable
35	135			Extension	Disable	Disable
36	136			Extension	Disable	Disable
37	137			Extension	Disable	Disable
38	138			Extension	Disable	Disable
39	139			Extension	Disable	Disable
40	140			Extension	Disable	Disable

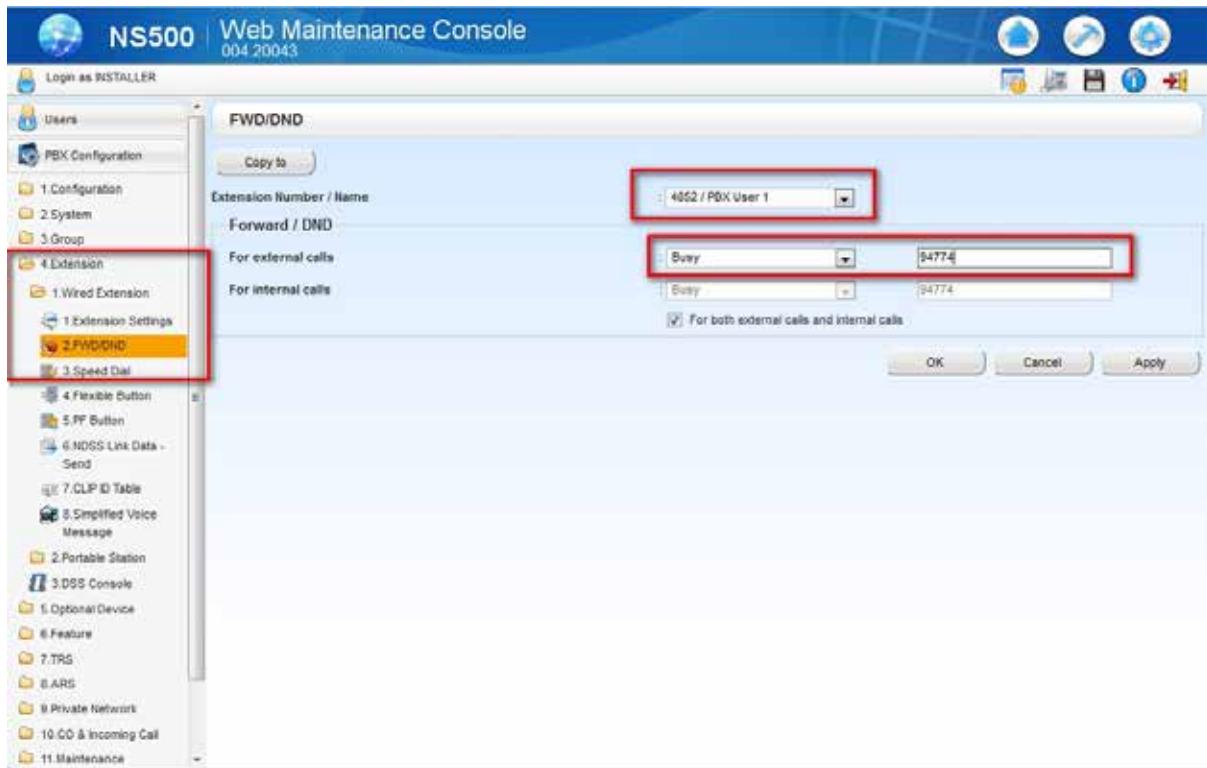
9. Under **4.Extension > 1.Wired Extension > 1.Extension Settings**, enable or disable Call Waiting per extension, as shown below:

Figure 3-9: Enabling Call Waiting

No.	Extension Number	Extension Name (20 characters)	Manual C. Waiting for Extension Call	Automatic C. Waiting	Pickup List Set	Picked List No.
27	127		ALL	Off	Off	Off
28	128		ALL	Off	Off	Off
29	129		ALL	Off	Off	Off
30	4852	PBX User 1	ALL	Off	Off	Off
31	131		ALL	Off	Off	Off
32	4853	PBX User 2	ALL	On	Off	Off
33	133		ALL	Off	Off	Off
34	134		ALL	Off	Off	Off
35	135		ALL	Off	Off	Off
36	136		ALL	Off	Off	Off
37	137		ALL	Off	Off	Off
38	138		ALL	Off	Off	Off
39	139		ALL	Off	Off	Off

10. Under **4.Extension > 1.Wired Extension > 2.FWD/DND**, configure Call Forward behavior per extension, as shown below:

Figure 3-10: Configuring Call Forwarding



11. Under **10.CO & Incoming Call > 3.DDI/DID Table**, configure an internal number translation for each extension (for example, from a full number to a 4-digits number), as shown below:

Figure 3-11: Configuring Incoming Call Translation

The screenshot shows the 'DDI / DID Table' configuration page in the NS500 Web Maintenance Console. The left sidebar navigation tree is highlighted with a red box, showing the path: 10.CO & Incoming Call > 3.DDI/DID Table. The main table displays two entries for extension 4052. The first entry maps '8325624052' to '4052'. The second entry maps '8325624053' to '4053'. The table has columns for 'INR / DID Number (23 digits)', 'DDI / DID Name (20 characters)', 'DDI / DID Destination - Day', 'DDI / DID Destination - Night', 'DDI / DID Destination - Break', and 'DDI / DID Destination - Night'. The bottom right of the window contains 'OK', 'Cancel', and 'Apply' buttons.

#	INR / DID Number (23 digits)	DDI / DID Name (20 characters)	DDI / DID Destination - Day	DDI / DID Destination - Night	DDI / DID Destination - Break	DDI / DID Destination - Night
1	8325624052		4052			
2	8325624053		4053			
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

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 include the following main areas:

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

Configuration is performed using the E-SBC's embedded Web server (referred to in this document as the *Web interface*).

Note:

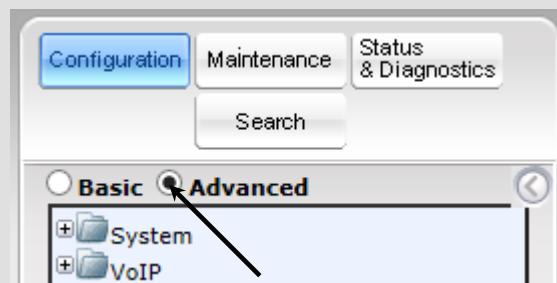
- To implement the IP-PBX and the BroadCloud SIP Trunk based on the configuration described in this section, AudioCodes E-SBC must be installed with a Software License Key that includes the following software features:

- ✓ 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 of connecting the SIP Trunk to the IP-PBX environment. Comprehensive security measures should be implemented in line with 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, make sure the E-SBC's Web interface navigation tree is in **Advanced** display mode. To do this, select the **Advanced** option, as shown below:



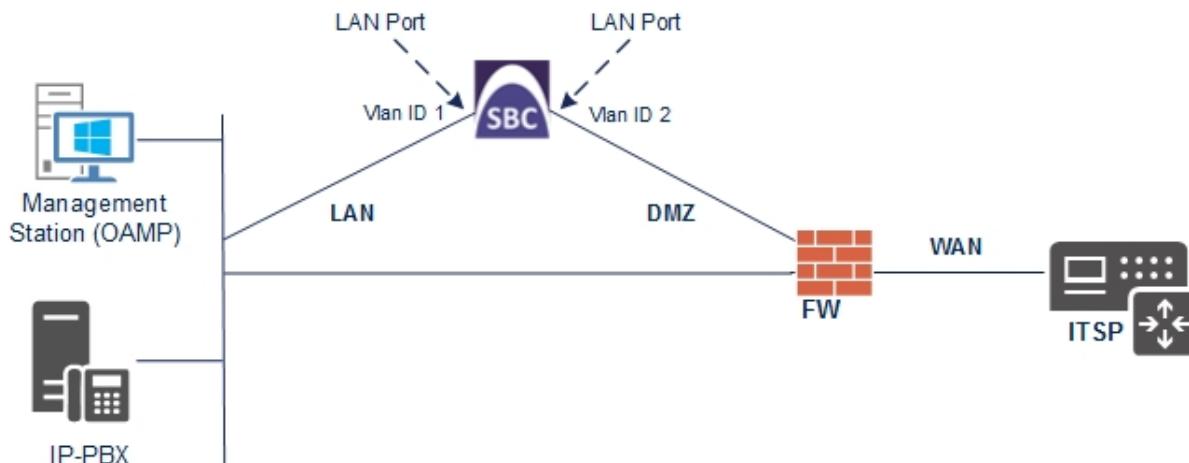
- Note that when the E-SBC is reset, the navigation tree reverts to the **Basic** display.

4.1 Step 1: Configure IP Network Interfaces

This step describes how to configure the E-SBC's IP network interfaces. There are several ways to deploy the E-SBC though 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).
- 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")

Ø To configure the VLANs:

1. Open the Ethernet Device Table page (**Configuration** tab > **VoIP** menu > **Network** > **Ethernet Device Table**).
2. View 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 a web-based configuration interface for the Ethernet Device Table. At the top, there are buttons for 'Add', 'Edit', 'Delete', 'Show / Hide', and search functions. Below this is a table with columns: Index, VLAN ID, Underlying Interface, Name, and Tagging. Two rows are visible: Row 0 has Index 1, VLAN ID 1, Underlying Interface GROUP_1, Name vlan 1, and Tagging Untagged. Row 1 has Index 2, VLAN ID 2, Underlying Interface GROUP_2, Name vlan 2, and Tagging Untagged. At the bottom of the table, there are navigation buttons for pages and a message indicating 1-2 of 2 rows.

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")

Ø 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	10.15.17.10 (IP address of the 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 🔎	
Index	Interface 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.

Ø **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.

Ø 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
Media Realm Name	MRLan (descriptive name)
IPv4 Interface Name	Voice
Port Range Start	16000 (as required by the IP-PBX)
Number of Media Session Legs	100 (media sessions assigned with port range)

Figure 4-5: Configuring Media Realm for LAN

Edit Row

Index	<input type="text" value="0"/>
Name	<input type="text" value="MRLan"/>
IPv4 Interface Name	<input type="text" value="Voice"/>
Port Range Start	<input type="text" value="16000"/>
Number Of Media Session Legs	<input type="text" value="100"/>
Port Range End	<input type="text" value="16990"/>
Default Media Realm	<input type="text" value="No"/>
QoE Profile	<input type="text" value="None"/>
BW Profile	<input type="text" value="None"/>

Save **Cancel**

3. Configure a Media Realm for WAN traffic:

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

Figure 4-6: Configuring Media Realm for WAN

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

Add **Cancel**

The configured Media Realms are shown in the figure below:

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

Media Realm Table						
	Add +	Edit ↎	Delete 🗑	Show / Hide ⚙	All	Search in table
Index	0	MRLan	Voice	16000	100	16990
	1	MRWan	WANSP	7000	100	7990
Page <input type="text" value="1"/> of 1 <> 10 View 1 - 2 of 2						

4.4 Step 4: Configure SIP Signaling Interfaces

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

Ø **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 the 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 the 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	Encapsulatin Protocol	Media Realm
0	IP-PBX	DefaultSRD	Voice	SBC	5060	0	0	No encapsulati	MRLan
1	BroadCloud	DefaultSRD	WANSP	SBC	5060	0	0	No encapsulati	MRWan



Note: Unlike in previous software releases where configuration entities (e.g., SIP Interface, Proxy Sets, and IP Groups) were associated with each other using table row indices, Version 7.0 uses the string **names** of the configuration entities. It's therefore recommended to configure each configuration entity with a meaningful name 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 later be applied to the VoIP network by assigning them to IP Groups.

Ø To configure Proxy Sets:

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

Parameter	Value
Proxy Set ID	0
Proxy Name	IP-PBX
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 a proxy set. The fields include:

- 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: (dropdown menu)
- Proxy Load Balancing Method: Disable
- DNS Resolve Method: (dropdown menu)
- Proxy Hot Swap: Disable
- Keep-Alive Failure Responses: (dropdown menu)
- Classification Input: IP Address only
- TLS Context Name: None

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

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

Parameter	Value
Index	0
Proxy Address	10.15.25.12:5060 (IP-PBX IP address / FQDN and destination port)
Transport Type	UDP

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

The screenshot shows the 'Edit Row' dialog for a proxy address. The fields include:

- Index: 0
- Proxy Address: 10.15.25.12:5060
- Transport Type: UDP

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

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

Parameter	Value
Proxy Set ID	1
Proxy Name	BroadCloud
SBC IPv4 SIP Interface	BroadCloud
Proxy Keep Alive	Using Options

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

Edit Row
X

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

Save
Cancel

- a. Configure a Proxy Address Table for Proxy Set 1:
- b. Go 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 dialog box has a blue header bar with the text "Edit Row". Below it is a form with three fields: "Index" (set to 0), "Proxy Address" (set to nn6300southsipconnec), and "Transport Type" (set to UDP). At the bottom right are two buttons: "Save" and "Cancel".

The configured Proxy Sets are shown in the figure below:

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

The table has columns: Index, Name, SRD, Gateway IPv4 SIP Interface, SBC IPv4 SIP Interface, Proxy Keep-Alive Time [sec], Redundancy Mode, and Proxy Hot Swap. There are two rows:

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

At the bottom, there are navigation buttons for Page 1 of 1, a page size dropdown set to 10, and a message "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

Ø 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

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

Edit Row
×

Index	<input type="text" value="1"/>																										
Common GW SBC Signaling SBC Media																											
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Name</td> <td style="width: 85%;"><input type="text" value="IP-PBX"/></td> </tr> <tr> <td>Dynamic Jitter Buffer Minimum Delay [msec]</td> <td><input type="text" value="10"/></td> </tr> <tr> <td>Dynamic Jitter Buffer Optimization Factor</td> <td><input type="text" value="10"/></td> </tr> <tr> <td>Jitter Buffer Max Delay [msec]</td> <td><input type="text" value="300"/></td> </tr> <tr> <td>RTP IP DiffServ</td> <td><input type="text" value="46"/></td> </tr> <tr> <td>Signaling DiffServ</td> <td><input type="text" value="40"/></td> </tr> <tr> <td>Silence Suppression</td> <td><input type="text" value="Disable"/></td> </tr> <tr> <td>RTP Redundancy Depth</td> <td><input type="text" value="0"/></td> </tr> <tr> <td>Echo Canceler</td> <td><input type="text" value="Line"/></td> </tr> <tr> <td>Broken Connection Mode</td> <td><input type="text" value="Ignore"/></td> </tr> <tr> <td>Input Gain (-32 to 31 dB)</td> <td><input type="text" value="0"/></td> </tr> <tr> <td>Voice Volume (-32 to 31 dB)</td> <td><input type="text" value="0"/></td> </tr> <tr> <td>Media IP Version</td> <td><input type="text" value="Only IPv4"/></td> </tr> </table>		Name	<input type="text" value="IP-PBX"/>	Dynamic Jitter Buffer Minimum Delay [msec]	<input type="text" value="10"/>	Dynamic Jitter Buffer Optimization Factor	<input type="text" value="10"/>	Jitter Buffer Max Delay [msec]	<input type="text" value="300"/>	RTP IP DiffServ	<input type="text" value="46"/>	Signaling DiffServ	<input type="text" value="40"/>	Silence Suppression	<input type="text" value="Disable"/>	RTP Redundancy Depth	<input type="text" value="0"/>	Echo Canceler	<input type="text" value="Line"/>	Broken Connection Mode	<input type="text" value="Ignore"/>	Input Gain (-32 to 31 dB)	<input type="text" value="0"/>	Voice Volume (-32 to 31 dB)	<input type="text" value="0"/>	Media IP Version	<input type="text" value="Only IPv4"/>
Name	<input type="text" value="IP-PBX"/>																										
Dynamic Jitter Buffer Minimum Delay [msec]	<input type="text" value="10"/>																										
Dynamic Jitter Buffer Optimization Factor	<input type="text" value="10"/>																										
Jitter Buffer Max Delay [msec]	<input type="text" value="300"/>																										
RTP IP DiffServ	<input type="text" value="46"/>																										
Signaling DiffServ	<input type="text" value="40"/>																										
Silence Suppression	<input type="text" value="Disable"/>																										
RTP Redundancy Depth	<input type="text" value="0"/>																										
Echo Canceler	<input type="text" value="Line"/>																										
Broken Connection Mode	<input type="text" value="Ignore"/>																										
Input Gain (-32 to 31 dB)	<input type="text" value="0"/>																										
Voice Volume (-32 to 31 dB)	<input type="text" value="0"/>																										
Media IP Version	<input type="text" value="Only IPv4"/>																										
Save Cancel																											

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

Parameter	Value
Remote Update Support	Supported
Remote re-INVITE Support	Supported

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

The screenshot shows a configuration dialog box titled "Edit Row". At the top, there is a field labeled "Index" with the value "1". Below this are four tabs: "Common", "GW", "SBC Signaling" (which is highlighted in orange), and "SBC Media". The main area contains a list of parameters and their corresponding values. Most values are dropdown menus, except for "User Registration Time", "NAT UDP Registration Time", and "NAT TCP Registration Time", which are input fields. The parameters and their values are:

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

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

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

Parameter	Value
Media Security Behavior	RTP

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

Edit Row X

Index:

Common
GW
SBC Signaling
SBC Media

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

Save
Cancel

Q To configure an IP Profile for the BroadCloud SIP Trunk:

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

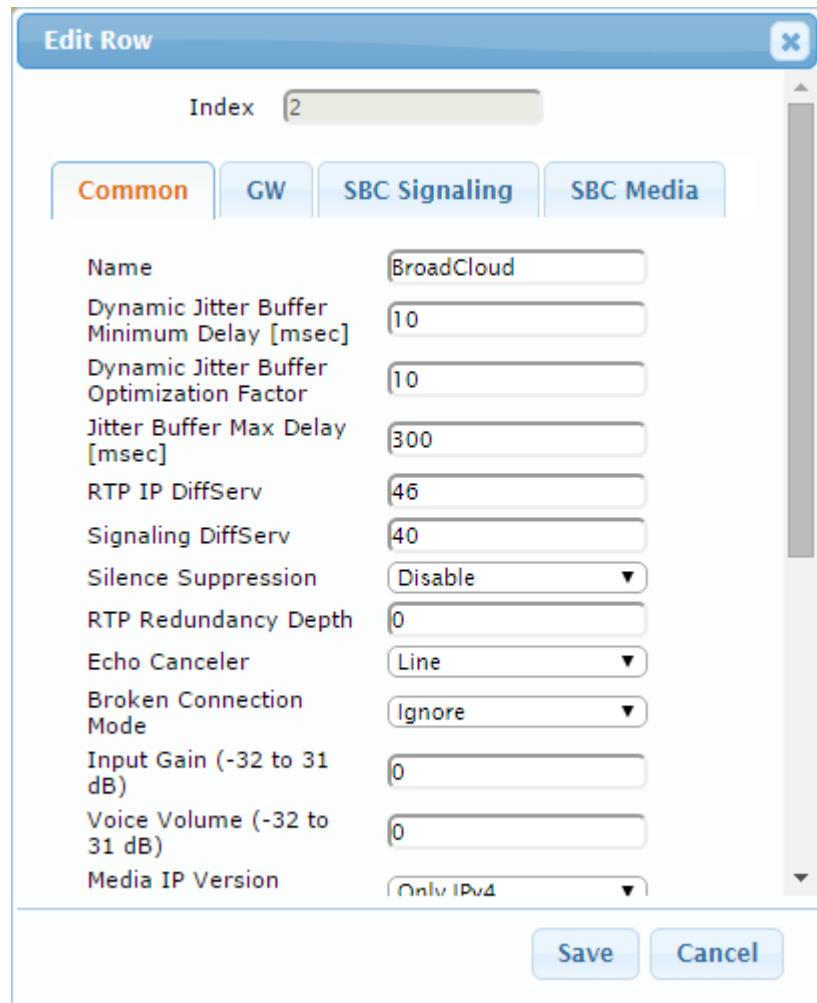
Parameter	Value
Index	2
Profile Name	BroadCloud

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

Figure 4-17 shows the configuration interface for an IP Profile named "BroadCloud" on the "Common" tab. The "Index" is set to 2. The configuration fields include:

Parameter	Value
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

Buttons at the bottom: Save and Cancel.



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

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

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

Edit Row

Index 2

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

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

Save **Cancel**

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

Parameter	Value
Media Security Behavior	RTP

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

The screenshot shows the 'Edit Row' dialog for configuring an IP profile. The 'Index' is set to 2. The 'SBC Media' tab is active. The configuration parameters 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	(empty)
SBC Media Security Mode	RTP
Media Security Method	SDES
Enforce MKI Size	Don't enforce
SDP Remove Crypto Lifetime	No
RFC 2833 Mode	As Is
Alternative DTMF Method	As Is
RFC 2833 DTMF Payload Type	0
Fax Coders	None

Buttons at the bottom: 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 to denote 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 the LAN
- BroadCloud SIP Trunk located on the WAN

Ø 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
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
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 Manipulat Set	Outbound Message Manipulati Set
0	IP-PBX	DefaultSF Server	Not Configu	IP-PBX	IP-PBX	MRLan	10.15.25.12	Enable	-1	-1	
1	BroadCloud	DefaultSF Server	Not Configu	BroadCloud	BroadCloud	MRWan	interop.adpt-te	Enable	-1	4	

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 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 the IP-PBX (LAN) and the BroadCloud SIP Trunk (WAN):

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

Ø 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

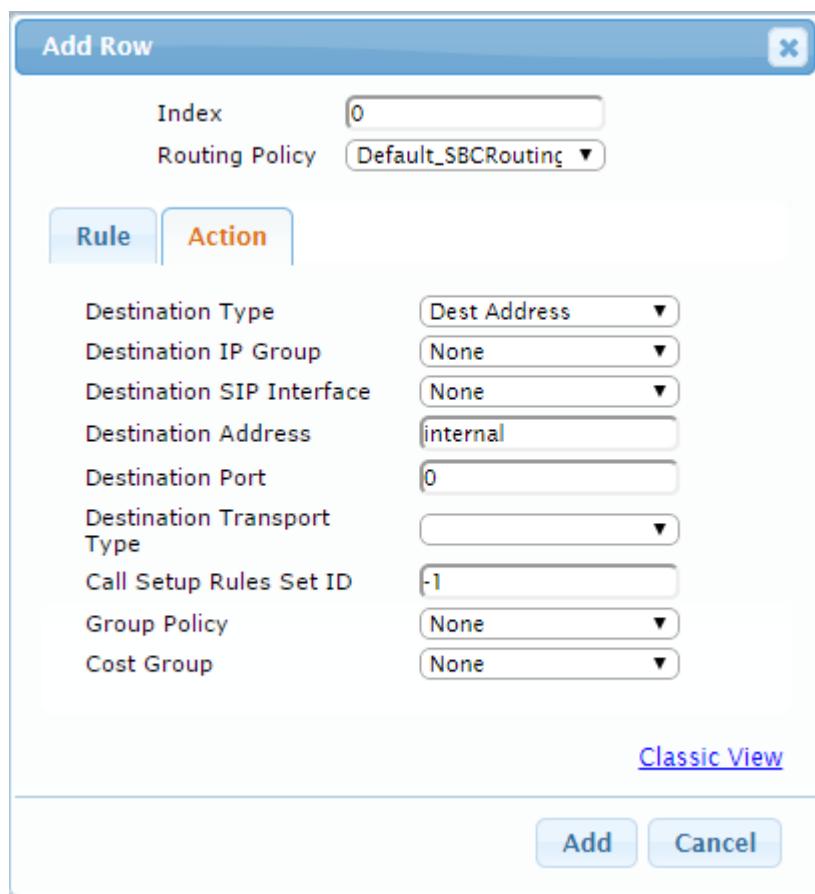
Figure 4-21: Configuring IP-to-IP Routing Rule for Terminating SIP OPTIONS – Rule Tab

The screenshot shows the 'Edit Row' dialog box for configuring a routing rule. The 'Rule' tab is selected. The 'Index' is set to 0 and the 'Routing Policy' is set to 'Default_SBCRouting'. The 'Action' tab is selected, showing parameters for terminating SIP OPTIONS. The 'Name' is 'Terminate OPTIONS', 'Alternative Route Options' is 'Route Row', 'Source IP Group' is 'Any', 'Request Type' is 'OPTIONS', 'Source Username Prefix' is '*', 'Source Host' is '*', 'Destination Username Prefix' is '*', 'Destination Host' is '*', 'Message Condition' is 'None', 'Call Trigger' is 'Any', and 'ReRoute IP Group' is 'Any'. At the bottom are 'Save' and 'Cancel' buttons.

- a. 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



The screenshot shows the 'Add Row' dialog box for configuring a routing rule. The 'Action' tab is selected. The 'Index' field is set to 0 and 'Routing Policy' is set to Default_SBCRouting. The 'Destination Type' is set to Dest Address, and the 'Destination Address' is internal. Other fields like Destination IP Group, SIP Interface, Port, Transport Type, Call Setup Rules Set ID, Group Policy, and Cost Group are all set to None.

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

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

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

The screenshot shows the 'Edit Row' dialog box for configuring a routing rule. The 'Rule' tab is active. Key configuration parameters include:

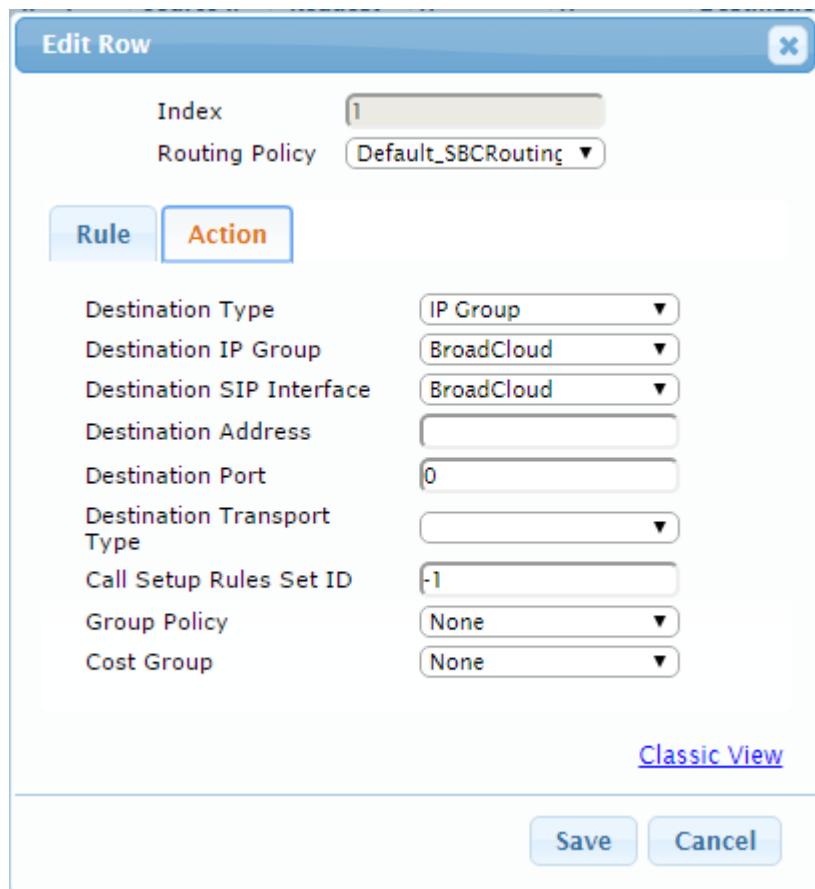
- Name: IP-PBX to ITSP
- Alternative Route Options: Route Row
- Source IP Group: IP-PBX
- Request Type: All
- Source Username Prefix: *
- Source Host: *
- Destination Username Prefix: *
- Destination Host: *
- Message Condition: None
- Call Trigger: Any
- ReRoute IP Group: Any

Buttons at the bottom: Save, Cancel, Classic View.

- a. 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' field is set to 1 and the 'Routing Policy' is set to Default_SBCRouting. The configuration fields include:

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

At the bottom, there are 'Save' and 'Cancel' buttons, and a link to 'Classic View'.

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

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

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

The screenshot shows the 'Edit Row' dialog box for configuring a routing rule. The 'Rule' tab is active. Key configuration parameters include:

- 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

Buttons at the bottom include [Classic View](#), [Save](#), and [Cancel](#).

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

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

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

Edit Row
X

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

Page
1
of 1
10
▼

View 1 - 3 of 3



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

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

This step describes how to configure IP-to-IP manipulation rules. These rules manipulate the source and / or destination number. The manipulation rules use the configured IP Groups to denote the source and destination of the call. As configured in Section 4.7 on page 31, IP Group 0 represents the 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 a specific destination username prefix.

Ø **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
<input checked="" type="radio"/> Rule <input type="radio"/> 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

Index: 0
Routing Policy: Default_SBCRouting

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

Inde:	Name	Routing Policy	Additio n Maniplu	Source IP Group	Destinatio n IP Group	Source Usernam e Prefix	Destinat Usernam e Prefix	Manipula Item	Remove From Left	Remove From Right	Leave From Right	Prefix to Add	Suffix to Add
0	Call to desk	Default_SBC	No	IP-PBX	BroadCloud	*	4347	Destinatio n 0	0	255	01197239		
1	Call to mobile	Default_SBC	No	IP-PBX	BroadCloud	*	4774	Destinatio n 1	0	255	01197254		
2	For Anonymous	Default_SBC	No	IP-PBX	BroadCloud	*	*	Source UR 0	0	255			

Page 1 of 1 | Page 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.

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

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

Parameter	Value
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

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

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

Action Subject	header.request-uri.methodtype
Action Type	Modify
Action Value	'480'

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

Edit Row

Index	2
Name	Reject Responses
Manipulation Set ID	4
Message Type	any.response
Condition	header.request-uri.met
Action Subject	header.request-uri.met
Action Type	Modify
Action Value	'480'
Row Role	Use Current Condit

Save **Cancel**

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

Message Manipulations

Index	Name	Manipulation Set ID	Message Type	Condition	Action Subject	Action-Type	Action Value	Row Role
0	Change From host 4	4	any.request		header.from.url.host	Modify	header.to.url.host	Use Current Cond
1	Change P-Asserte 4	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.method	header.request-uri.met	Modify	'480'	Use Current Cond

Page 1 of 1 10 View 1 - 3 of 3

The table displayed below includes SIP message manipulation rules which Manipulation Set ID 4 groups together and which are executed for messages sent to the BroadCloud SIP Trunk IP Group.

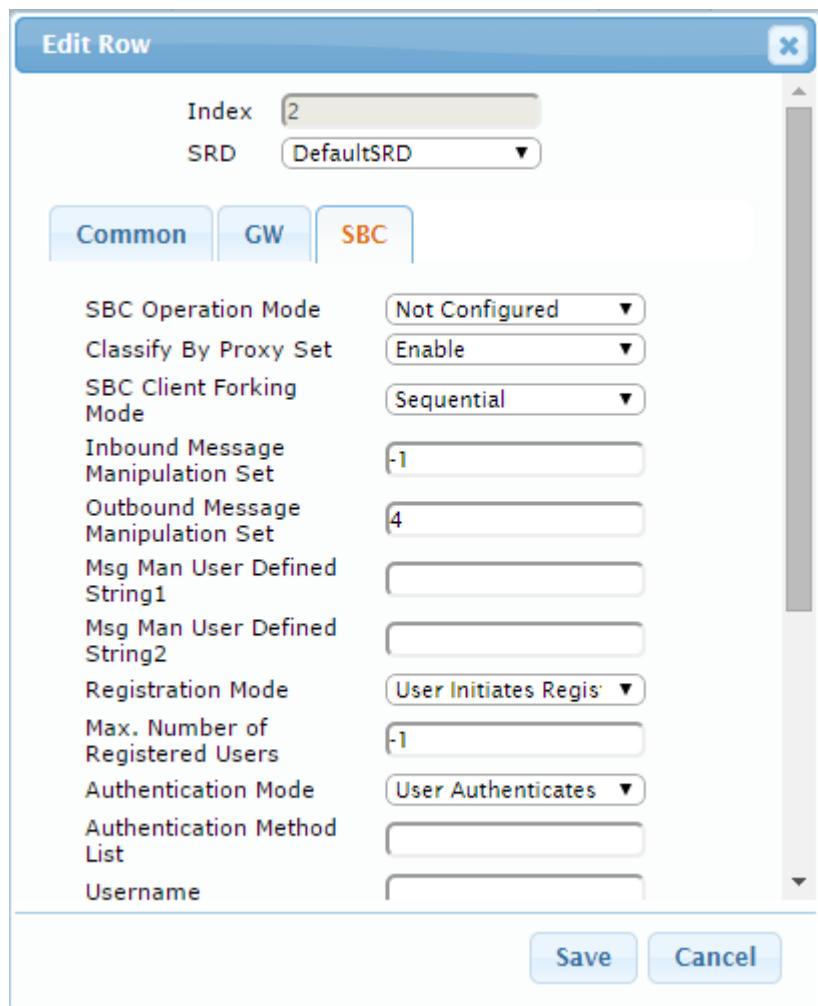
These rules are specifically required to enable correct interworking between BroadCloud SIP Trunk and IP-PBX.

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 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 when a call is made to an unavailable destination and BroadCloud SIP Trunk does not recognize '502' method type.

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

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



The screenshot shows the 'Edit Row' dialog box for the IP Group Table. The 'SBC' tab is active. The 'Outbound Message Manipulation Set' field is set to 4. Other fields include Index (2), SRD (DefaultSRD), SBC Operation Mode (Not Configured), Classify By Proxy Set (Enable), SBC Client Forking Mode (Sequential), Inbound Message Manipulation Set (-1), and Registration Mode (User Initiates Regis.).

Setting	Value
Index	2
SRD	DefaultSRD
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	

- e. Click **Submit**.

4.11 Step 11: Configure Registration Accounts

This step describes how to configure SIP registration accounts 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 the IP-PBX IP Group and the Serving IP Group is BroadCloud SIP Trunk IP Group.

Ø 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 provided information, 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' configuration page. At the top, there are buttons for 'Add +', 'Edit', 'Delete', 'Action', 'Show / Hide', and search functions. Below the header is a table with the following data:

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

At the bottom of the table, there are navigation links for pages and a total count of 10 pages, with the current page being 1. A status message 'View 1 - 1 of 1' is also visible.

4.12 Step 12: Configure Miscellaneous E-SBC Settings

This section describes how to configure miscellaneous E-SBC settings.

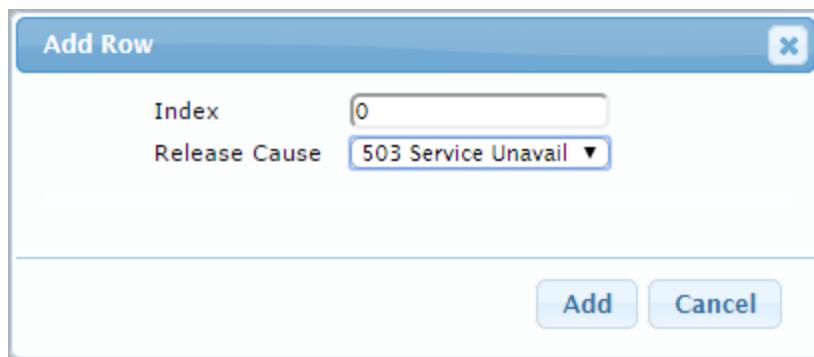
4.12.1 Step 12a: Configure SBC Alternative Routing Reasons

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, the E-SBC attempts to locate an alternative route for the call.

Ø **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 is displayed:

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



The screenshot shows a modal dialog box titled "Add Row". Inside the dialog, there are two input fields: "Index" with the value "0" and "Release Cause" with the dropdown option "503 Service Unavail". At the bottom of the dialog are two buttons: "Add" and "Cancel".

3. Click **Add**.

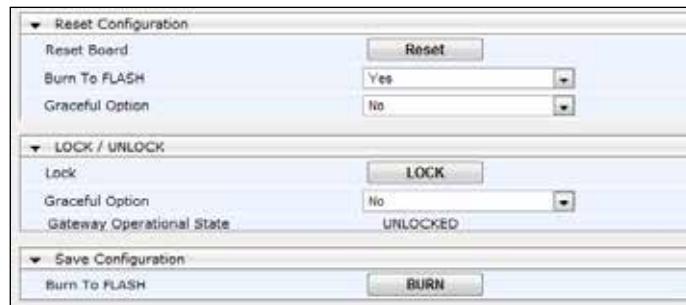
4.13 Step 13: Reset the E-SBC

After completing 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.

Ø **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



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 E-SBC's *ini* configuration file, corresponding to the Web-based configuration as described in Section 4, 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: 74
;Serial Number: 5299378
;Slot Number: 1
;Software Version: 7.00A.035.006
;DSP Software Version: 5014AE3_R => 700.40
;Board IP Address: 10.15.17.55
;Board Subnet Mask: 255.255.0.0
;Board Default Gateway: 10.15.0.1
;Ram size: 369M  Flash size: 64M  Core speed: 500Mhz
;Num of DSP Cores: 3  Num DSP Channels: 30
;Num of physical LAN ports: 4
;Profile: NONE
;;Key features:;Board Type: 74 ;IP Media: Conf VXML
VoicePromptAnnounc(H248.9) CALEA TrunkTesting POC ;Channel Type: DspCh=30
IPMediaDspCh=30 ;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 ;DSP Voice features: IpmDetector RTCP-XR
AMRPolicyManagement ;E1Trunks=1 ;FXSPorts=8 ;FXOPorts=0 ;BRITrunks=5
;Security: IPSEC MediaEncryption StrongEncryption EncryptControlProtocol
;DATA features: ;QOE features: VoiceQualityMonitoring MediaEnhancement
;Control Protocols: MSFT CLI TRANSCODING=30 FEU=100 TestCall=100 MGCP
MEGACO H323 SIP TPNCP SASurvivability SBC=50 ;Default features:;Coders:
G711 G726;

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


[SYSTEM Params]

SyslogServerIP = 10.15.17.100
EnableSyslog = 1
;NTPServerIP_abs is hidden but has non-default value
NTPServerUTCOffset = 7200
;VpFileLastUpdateTime is hidden but has non-default value
NTPServerIP = '10.15.25.1'

```

```
;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]  
  
ENABLEMEDIASECURITY = 1  
CallProgressTonesFilename = 'usa_tones_13.dat'  
  
[WEB Params]  
  
UseRProductName = 'Mediant 800 E-SBC'  
WebLogoText = 'BroadCloud'  
UseWeblogo = 1  
;UseLogoInWeb is hidden but has non-default value  
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, 10.15.17.55, 16, 10.15.0.1, "Voice",
10.15.25.1, 0.0.0.0, "vlan 1";
InterfaceTable 1 = 5, 10, 195.189.192.139, 25, 195.189.192.129, "WANSP",
80.179.52.100, 80.179.55.100, "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",
"$1$hbGzsL2477/p67a29KP0pvCkpqL9+/+rpPmprZaRlJCv18KQmJuSz52enJvShIqBh42Gh
oCMjtiJ34yGovD18Pw=", 1, 0, 2, 15, 60, 200,
"e4cd1118cb1cb9e6bfcb32988cb8a667";
WebUsers 1 = "User",
"$1$nKmorK2Sx8GXlpCRlp2RycqUy5ac0tSF1oGE1NSNjoqD2tiH3Pn1o6am9fShraz7+v///
PzmsOXj5eTls+6/e4=", 1, 0, 2, 15, 60, 50,
"b2873413d626646820e3070f0a994893";

[ \WebUsers ]

[ TLSContexts ]

FORMAT TLSContexts_Index = TLSContexts_Name, TLSContexts_TLSVersion,
TLSContexts_ServerCipherString, TLSContexts_ClientCipherString,
TLSContexts_OcspEnable, TLSContexts_OcspServerPrimary,
TLSContexts_OcspServerSecondary, TLSContexts_OcspServerPort,
TLSContexts_OcspDefaultResponse;
TLSContexts 0 = "default", 0, "RC4:EXP", "ALL:!ADH", 0, 0.0.0.0, 0.0.0.0,
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_SBCDiversionMode, 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_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 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, 0, 0, 1, 3, 0, 2, 2, 1, 0, 0, 1, 0,
1, 1, 1, 1, 0, 0, 1, 0, 0, 0, 1, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
0, 0, 300, -1, -1, 0, 0, 0, 0, 0, -1, -1, -1, -1, 0, "", 0;

```

```

IpProfile 2 = "BroadCloud", 1, 0, 0, 10, 10, 46, 40, 0, 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, 0, 0, 1, 3, 0, 2, 2, 1, 0, 0, 1,
0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1,
0, 0, 0, 300, -1, -1, 0, 0, 0, 0, 0, -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", "", 16000, 100, 16990, 0, "", "";
CpMediaRealm 1 = "MRWan", "WANSP", "", 7000, 100, 7990, 0, "", "";

[ \CpMediaRealm ]

[ SBCRoutingPolicy ]

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

[ \SBCRoutingPolicy ]

[ SRD ]

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

[ \SRD ]

[ SIPInterface ]

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

```

```

[ \SIPInterface ]

[ ProxySet ]

FORMAT ProxySet_Index = ProxySet_ProxyName,
ProxySet_EnableProxyKeepAlive, ProxySet_ProxyKeepAliveTime,
ProxySet_ProxyLoadBalancingMethod, ProxySet_IsProxyHotSwap,
ProxySet_SRDNName, 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_SRDNName, IPGroup_MediaRealm,
IPGroup_ClassifyByProxySet, IPGroup_ProfileName,
IPGroup_MaxNumOfRegUsers, IPGroup_InboundManSet, IPGroup_OutboundManSet,
IPGroup_RegistrationMode, IPGroup_AuthenticationMode, IPGroup_MethodList,
IPGroup_EnableSBCClientForking, IPGroup_SourceUriInput,
IPGroup_DestUriInput, IPGroup_ContactName, IPGroup_Username,
IPGroup_Password, IPGroup_UUIFormat, IPGroup_QOEProfile,
IPGroup_BWProfile, IPGroup_MediaEnhancementProfile,
IPGroup_AlwaysUseSourceAddr, IPGroup_MsgManUserDef1,
IPGroup_MsgManUserDef2, IPGroup_SIPConnect, IPGroup_SBCPSAPMode,
IPGroup_DTLSContext, IPGroup_CreatedByRoutingServer,
IPGroup_UsedByRoutingServer, IPGroup_SBCOperationMode,
IPGroup_SBCRouteUsingRequestURIPort;
IPGroup 0 = 0, "IP-PBX", "IP-PBX", "10.15.25.12", "", -1, 0,
"DefaultSRD", "MRLan", 1, "IP-PBX", -1, -1, -1, 0, 0, "", 0, -1, -1, "",
"", "$1$gQ==", 0, "", "", "", 0, "", 0, 0, "", 0, 0, -1, 0;
IPGroup 1 = 0, "BroadCloud", "BroadCloud", "interop.adpt-tech.com", "", -1,
0, "DefaultSRD", "MRWan", 1, "BroadCloud", -1, -1, 4, 0, 0, "", 0, -1,
-1, "", "", "$1$gQ==", 0, "", "", 0, "", "", 0, 0, "", 0, 0, -1, 0;

[ \IPGroup ]

[ SBCAlternativeRoutingReasons ]

FORMAT SBCAlternativeRoutingReasons_Index =
SBCAlternativeRoutingReasons_ReleaseCause;
SBCAlternativeRoutingReasons 0 = 503;

[ \SBCAlternativeRoutingReasons ]

[ ProxyIp ]

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FORMAT ProxyIp_Index = ProxyIp_ProxySetId, ProxyIp_ProxyIpIndex,
ProxyIp_IpAddress, ProxyIp_TransportType;
ProxyIp 0 = "0", 0, "10.15.25.12:5060", 0;
ProxyIp 1 = "1", 0, "nn6300southsipconnect.adpt-tech.com", 0;

[ \ProxyIp ]

[ Account ]

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

[ \Account ]

[ IP2IPRouting ]

FORMAT IP2IPRouting_Index = IP2IPRouting_RouteName,
IP2IPRouting_RoutingPolicyName, IP2IPRouting_SrcIPGroupName,
IP2IPRouting_SrcUsernamePrefix, IP2IPRouting_SrcHost,
IP2IPRouting_DestUsernamePrefix, IP2IPRouting_DestHost,
IP2IPRouting_RequestType, IP2IPRouting_MessageConditionName,
IP2IPRouting_ReRouteIPGroupName, IP2IPRouting_Trigger,
IP2IPRouting_CallSetupRulesSetId, IP2IPRouting_DestType,
IP2IPRouting_DestIPGroupName, IP2IPRouting_DestSIPInterfaceName,
IP2IPRouting_DestAddress, IP2IPRouting_DestPort,
IP2IPRouting_DestTransportType, IP2IPRouting_AltRouteOptions,
IP2IPRouting_GroupPolicy, IP2IPRouting_CostGroup;
IP2IPRouting 0 = "Terminate OPTIONS", "Default_SBCRoutingPolicy", "Any",
"**", "**", "**", 6, "", "Any", 0, -1, 1, "", "", "internal", 0, -1, 0,
0, "";
IP2IPRouting 1 = "IP-PBX to ITSP", "Default_SBCRoutingPolicy", "IP-PBX",
"**", "**", "**", "**", 0, "", "Any", 0, -1, 0, "BroadCloud", "BroadCloud",
"", 0, -1, 0, 0, "";
IP2IPRouting 2 = "ITSP to IP-PBX", "Default_SBCRoutingPolicy",
"BroadCloud", "**", "**", "**", "**", 0, "", "Any", 0, -1, 0, "IP-PBX", "IP-
PBX", "", 0, -1, 0, 0, "";

[ \IP2IPRouting ]

[ IPOutboundManipulation ]

FORMAT IPOutboundManipulation_Index =
IPOutboundManipulation_ManipulationName,
IPOutboundManipulation_RoutingPolicyName,
IPOutboundManipulation_IsAdditionalManipulation,
IPOutboundManipulation_SrcIPGroupName,
IPOutboundManipulation_DestIPGroupName,
IPOutboundManipulation_SrcUsernamePrefix, IPOutboundManipulation_SrcHost,
IPOutboundManipulation_DestUsernamePrefix,
IPOutboundManipulation_DestHost,
IPOutboundManipulation_CallingNamePrefix,
IPOutboundManipulation_MessageConditionName,
IPOutboundManipulation_RequestType,
IPOutboundManipulation_ReRouteIPGroupName,
IPOutboundManipulation_Trigger, IPOutboundManipulation_ManipulatedURI,

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IPOutboundManipulation_RemoveFromLeft,
IPOutboundManipulation_RemoveFromRight,
IPOutboundManipulation_LeaveFromRight, IPOutboundManipulation_Prefix2Add,
IPOutboundManipulation_Suffix2Add,
IPOutboundManipulation_PrivacyRestrictionMode;
IPOutboundManipulation 0 = "Call to desk", "Default_SBCRoutingPolicy", 0,
"IP-PBX", "BroadCloud", "*", "*", "4347", "*", "*", "", 0, "Any", 0, 1,
0, 0, 255, "0119723976", "", 0;
IPOutboundManipulation 1 = "Call to mobile", "Default_SBCRoutingPolicy",
0, "IP-PBX", "BroadCloud", "*", "*", "4774", "*", "*", "", 0, "Any", 0,
1, 1, 0, 255, "011972546262", "", 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 2 = "Reject Responses", 4, "any.response",
"header.request-uri.methodtype=='502'", "header.request-uri.methodtype",
2, "'480'", 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 ]
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