

Connecting Toshiba's CIX 200 IP PBX to BroadCloud[®] SIP Trunk using AudioCodes' Mediant[™] E-SBC

Version 7.0



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Notice

This document shows how to connect Toshiba's CIX 200 IP PBX and BroadCloud SIP Trunk using AudioCodes' Mediant E-SBC product series.

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1 Introduction

This *Configuration Note* shows how to set up AudioCodes' Enterprise Session Border Controller (in this document referred to as *E-SBC*) for interworking between BroadCloud's SIP Trunk and the Toshiba CIX 200 IP PBX environment.

1.1 Intended Audience

The document is intended for engineers, or AudioCodes and BroadCloud Partners, responsible for installing and configuring BroadCloud's SIP Trunk and the Toshiba CIX 200 IP PBX, to enable 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 Toshiba CIX 200 IP PBX Version

Table 2-1: Toshiba CIX 200 IP PBX Version

Vendor	Toshiba
Model	CIX 200
Software Version	AR5.20 MT032.00
Protocol	SIP/UDP
Additional Notes	None

2.2 AudioCodes E-SBC Version

Table 2-2: AudioCodes E-SBC Version

SBC Vendor	AudioCodes
Models	Mediant 500 E-SBC Mediant 800 Gateway & E-SBC Mediant 1000B Gateway & E-SBC Mediant 3000 Gateway & E-SBC Mediant 2600 E-SBC Mediant 4000 E-SBC
Software Version	SIP_F7.00A.035.012
Protocol	SIP/UDP (to the both BroadCloud SIP Trunk and IP PBX)
Additional Notes	None

2.3 BroadCloud SIP Trunking Version

Table 2-3: BroadCloud Version

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

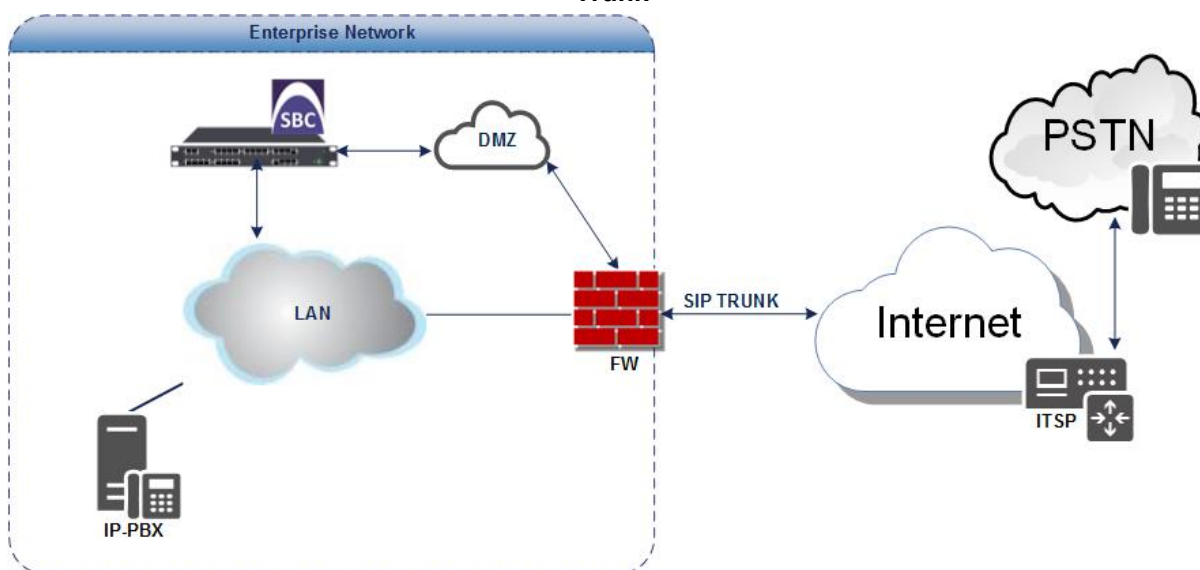
2.4 Interoperability Test Topology

Interoperability testing between AudioCodes' E-SBC and BroadCloud SIP Trunk with the Toshiba CIX 200 IP PBX was performed using the following topology setup:

- Enterprise deployed with the Toshiba CIX 200 IP PBX in its private network for enhanced communication within the enterprise.
- Enterprise wants 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 the 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 located on the enterprise's LANBroadCloud SIP Trunk located on the WAN
Signaling Transcoding	<ul style="list-style-type: none">IP PBX operates with SIP-over-UDP transport typeBroadCloud 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 coderBroadCloud 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 typeBroadCloud SIP Trunk operates with RTP media type

2.4.2 Known Limitations

There were no limitations observed in the interoperability tests performed for the AudioCodes E-SBC interworking between the Toshiba CIX 200 IP PBX and BroadCloud's SIP Trunk.

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3 Configuring Toshiba's IP PBX

This section shows how to configure basic parameters of the Toshiba CIX 200 IP PBX to operate with AudioCodes E-SBC.



Note: For the advanced configuration parameters, see each IP PBX's *User's Manual*.

3.1 Basic Configuration Parameters

The screenshots below show the main parameters that must be configured on the Toshiba CIX 200 IP PBX in order to operate with AudioCodes' E-SBC.

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

➤ **To configure Toshiba CIX 200 IP PBX:**

The Toshiba CIX 200 IP PBX can be configured with Toshiba's Admin tool called eManager. It can be run on a standalone PC or can be installed on a server and accessed using HTTP.



Note: Save your current configuration file before proceeding.

■ **Incoming Line Group**

- Define the incoming line group for which to receive the incoming calls over the SIP Trunks. Click the **Trunk** tab and then **ILG**. Fill out the required details as shown in the example diagram below.
 - ◆ 01 Group Type = SIP
 - ◆ 03 CO Service Type = DID
 - ◆ 11 DID Digits = Number of DID digits to be matched.
- When completed, click **Submit**.

Figure 3-1: Incoming Line Group

304 INCOMING LINE GROUP ASSIGNMENT			
Group Number	10		
01 Group Type	SIP	02 Line Type	CO
03 CO Service Type	DID	04 Private Service Type	Standard
05 GCO Key Number	10	06 Pool Key Number	0
07 COS Day1	1	COS Day2	1
08 DRL Day1	1	DRL Day2	1
09 FRL Day1	1	FRL Day2	1
10 QPL Day1	1	QPL Day2	1
11 DID Digits	7	12 Speech/3.1KHz	Audio
13 Delay1 Ringing Timer	12	14 Delay2 Ringing Timer	24
15 Interdigit 1 Timer	15	16 Interdigit 2 Timer	5
17 Auto Campon	Enable	18 Calling Number ID	User Provided
19 Intercept	Disable	20 Send Dial Tone	Enable
21 TGAC Override	Disable	22 Network COS	1
23 LCR Group	1	24 Change COS Override Code	Disable
25 Register Speed Dial Codes	Disable	26 Originator Invoke OCA	Disable
27 Senderized Tone Mode	Dial Tone	28 Emergency Call Group	1
29 Tenant Number	1	30 Call-By-Call Cause	UserBusy

Submit Print Refresh Get Default Create Copy Delete

■ **Outgoing Line Group**

- Define an outgoing line group for which to send outbound SIP calls. Click **Trunk** and then **OLG**. Fill out the required details as shown in the example diagram.
 - ◆ Assign an ILG number
 - ◆ Set 01 Group Type = SIP
- When complete click **Submit**.

Figure 3-2: Outgoing Line Group

306 OUTGOING LINE GROUPS			
Group Number	10		
01 Group Type	SIP	02 Trunk Type	CO/DID
03 Service Type	Standard	04 GCO Key1 Number	10
06 Pool Key1 Number	0	07 Pool Key2 Number	0
08 COS Day1	1	COS Day2	1
09 FRL Day1	1	FRL Day2	1
10 QPL Day1	1	QPL Day2	1
11 Speech/3.1KHz	Audio	12 MOH Source	Internal
13 Account Code	<input type="radio"/> Enable <input checked="" type="radio"/> Disable		
14 Destination Restriction	<input type="radio"/> Enable <input checked="" type="radio"/> Disable		
15 Credit Card Calling	<input type="radio"/> Enable <input checked="" type="radio"/> Disable		
16 Send CESID	<input type="radio"/> Enable <input checked="" type="radio"/> Disable		
17 QSIG Sending Type	Cut Through	18 Network COS	1
19 Recall on AC15	Disable		

Submit Print Refresh Get Default Create Copy Delete

■ Channel Group for SIP Trunk

Define the channel group for the SIP Trunk. Click **IP-Telephony** and then **SIP Trunking**.

- Assign an ILG number
- Set 01 Equipment = The Equipment number
- Set 02 LAN Interface Number = The LAN interface Number
- Set 03 SIP Trunk Channels = Total number of ports on this card
- Set 04 RBT on Incoming Call = Enable

Figure 3-3: Channel Group for SIP Trunk

3.2 System Level Configuration Parameters

This section identifies the device-specific parameters, including registration and authentication. These settings must be unique across devices to be matched with the settings for a BroadCloud subscriber.

■ Service Definition for SIP Trunk

- Define the Service Definition for the SIP Trunk. Click **IP-Trunking** and then **SIP Trunking**. Select the required SIP trunk channel group. Click the **Service Definition** tab. Fill in the required details as shown in the diagram.
 - ◆ Set,
 - ◆ 01 Registration Mode = None
 - ◆ 02 ILG = The ILG number created in the previous section.
 - ◆ 03 OLG = The OLG number created in the previous section.
 - ◆ 04 Effective Channel Number = The number of SIP trunks provisioned on Service provider Portal.
 - ◆ 05 Domain Name = (i.e., interop.adpt-tech.com)
 - ◆ 06 SIP server = (AudioCodes IP)
 - ◆ 09 Registration Period = 3600
 - ◆ 12 Network Transfer = Enable
 - ◆ 13 User Agent Header = Enable
 - ◆ 17 Primary Audio Codec = G711a
 - ◆ 18 Secondary Audio Codec = G729a
 - ◆ 19 DTMF Transmission Method RFC2833

Follow the example configuration for the remaining settings.

Figure 3-4: Example Configuration

The screenshot shows the 'Service Definition' tab in the Network Manager. The page title is '327 SIP TRUNK SERVICE KIND ASSIGNMENT'. It contains various configuration fields:

- 00 SIP Trunk Service Kind Table Index: 1
- 01 Registration Mode: None
- 02 ILG: 10
- 03 OLG: 10
- 04 Effective Channel Number: 10
- 05 Domain Name: (empty)
- 06 SIP Server: 192.168.2.34
- 07 Primary Voice Packet Configuration: 1
- 08 Secondary Voice Packet Configuration: 3
- 09 Registration Period: 3600
- 10 TimerB: 5
- 11 Recovery Timer: 60
- 12 Network Transfer: Enable
- 13 User Agent Header: Enable
- 14 Server Header: Enable
- 15 Protocol Option: Disable
- 16 Session Timer: 1800
- 17 Primary Audio Codec: G.711a
- 18 Secondary Audio Codec: G.729a
- 19 DTMF Transmission Method: RFC2833
- 20 RTCP Support: Enable
- 21 T.38 Support: Disable
- 22 SIP Server Caches: 10
- 23 Diffserv for Media: Disable
- 24 TOS Field Type for Media: TOS
- 25 TOS Precedence Type for Media: Critical/ESP
- TOS Delay Type for Media: Normal
- TOS Throughput Type for Media: Normal

Buttons at the bottom include: Submit, Print, Refresh, Get Default, Create, Delete.

■ **Service Assignment for the SIP trunk**

Define the Service Assignment for the trunk group. Click IP-Telephony and then SIP Trunking. Select the required SIP Trunk channel group. Click Service Assignment tab. Fill out the required details as shown in the diagram.

- Set 00 Chanel Group = the channel group created in the previous section.
- Set 02 Service Index = Service number

The example configuration is shown below.

Figure 3-5: Service Assignment for the SIP trunk

The screenshot shows the 'Service Assignment' tab. It contains the following configuration:

- 00 Channel Group: 1
- 328 SIP TRUNK SERVICE ASSIGNMENT
- 02 Service Index: 1

A 'Set' button is located next to the Service Index field. Below the configuration is a table:

Service No.	Service Index
1	1
2	<Empty>
3	<Empty>

■ **URI Definitions**

Define the URI definitions. Define the Service Assignment for the trunk group. Click **IP-Telephony** and then SIP Trunking. Select the required SIP Trunk channel group. Click the **URI definitions** tab. Fill out the required details as shown in the diagram.

Enter the SIP Trunk Group URI and authentication details and all SIP Trunk DDI User details.

Note that the trunk users (441234567891 for example) use the same authentication details as the trunk group 441234567890 uses. You must enter the URI for the SIP Trunk Group and each SIP Trunking DDI user with the SIP Trunk Group Authentication details as shown below:

Figure 3-6: URI Definitions

Index	URI	User Name	Password	Reg. Channel Group	Attribution
1	441234567890	441234567890	password	1	main
2	441234567891	441234567890	password	1	main

■ **PBX Station Configuration**

- Extension number User's Display Name User's DDI to present CLID
- Extension number User's Display Name User's DDI to present CLID

To configure the handsets for inbound/outbound calls with correct CLI presentation, click the **Station** tab and then **Station Assignment**. Below is the example configuration for a PBX handset. Enter the user-specific details for the extension, for example, Name to Display and Network Calling number, etc., and click **Submit**.

Figure 3-7: Example Configuration for a PBX Handset

The screenshot shows the configuration page for a handset, titled "260 Full IP Station Assignment". The "Basic" tab is selected. At the top, the "Prime DN" field contains the value "891". Below this, there are two columns of configuration parameters, each with a label, a value, and a control (text box or dropdown menu). At the bottom, there is a row of buttons: Submit, Print, Refresh, Get Default, Change DN, Selective Copy, PDN Table View, Create, and Delete. Three callout boxes with arrows point to specific fields: "Extension number" points to the Prime DN field; "User's Display name" points to the "10 Name to Display" field (containing "Smith"); and "User DDI to present CLID" points to the "42 Network Calling Number" field (containing "441234567891").

Parameter	Value
Prime DN	891
02 PDN Equipment Number	0000
01 Type	IPT
03 LAN Interface Number	1
05 COS Day1	2
06 DRL Day1	1
07 FRL Day1	1
08 LCR Group	1
09 QPL Day1	1
10 Name to Display	Smith
11 Dialing Progress Tone	Dial Tone
12 System Call Forward	
13 Call Pickup	Permitted
14 Bearer Capability	Audio
15 Display DN	
16 CESID	
17 Emergency Call Group	1
18 Remote CF/DND Password	
19 VMID Code	
20 VM MW Center Part	
21 Travel COS Change	Disable
22 TGAC Override	Disable
23 Service Tones	Enable
24 Call Waiting Tone	Enable
25 Dial Directory	Enable
26 Door Over DND	Not Override
27 Set System Speed Dial	Disable
28 Network COS	1
29 Auto OCA	Enable
30 Originate OCA	Enable
31 RSTU Supervision	Received
32 Station SpDial Bins	0=none
33 Call Forward Dial Tone	Enable
34 Dialing Digit Restriction	Disable
35 CO Park & Hold	Disable
36 MW & DND Dial Tone	Enable
37 Activate Message Waiting	Enable
38 Tenant Number	1
39 Hook-Switch Recall	Enable
40 Auto-Campon to PDN	Enable
41 LCR PDN Code	ThreeDigits
42 Network Calling Number	441234567891
43 Security Code	
44 My Phone Manager Level	Normal
45 Speaker OCA	Disable
49 IP Phone Login Password	Disable
50 Transfer Registration	Disable
51 Station Connecting Equipment	010301
52 Calling Name Type	DEFAULT
53 Specified Caller Id	Disable
54 Simple System SpeedDial	Disable

In the above configuration, the last three digits will be matched to route the incoming call to the extension user.

4 Configuring AudioCodes E-SBC

This section shows how to configure AudioCodes' E-SBC for interworking between the Toshiba CIX 200 IP PBX and the BroadCloud SIP Trunk. The 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 – Toshiba CIX 200 IP PBX environment

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

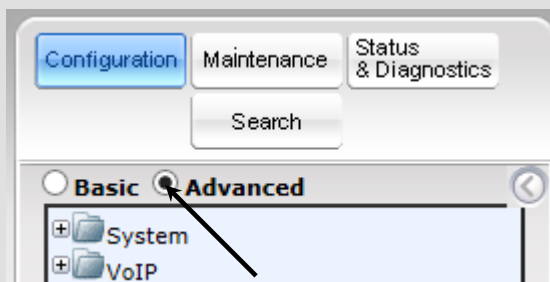
Note:

- To implement the Toshiba CIX 200 IP PBX and BroadCloud SIP Trunk based on the configuration described in this section, AudioCodes' E-SBC must be installed with a Software License Key that includes the following software features:

- ✓ SBC
- ✓ Security
- ✓ DSP
- ✓ RTP
- ✓ SIP

For more information about the Software License Key, contact your AudioCodes sales representative.

- The scope of this interoperability test and document does **not** cover all security aspects for connecting the SIP Trunk to the Toshiba CIX 200 IP PBX environment. Comprehensive security measures should be implemented per your organization's security policies. For security recommendations on AudioCodes' products, refer to the *Recommended Security Guidelines* document.
- Before you begin configuring the E-SBC, ensure that the E-SBC's Web interface Navigation tree is in **Advanced** display mode. To do this, select the **Advanced** option, as shown below:



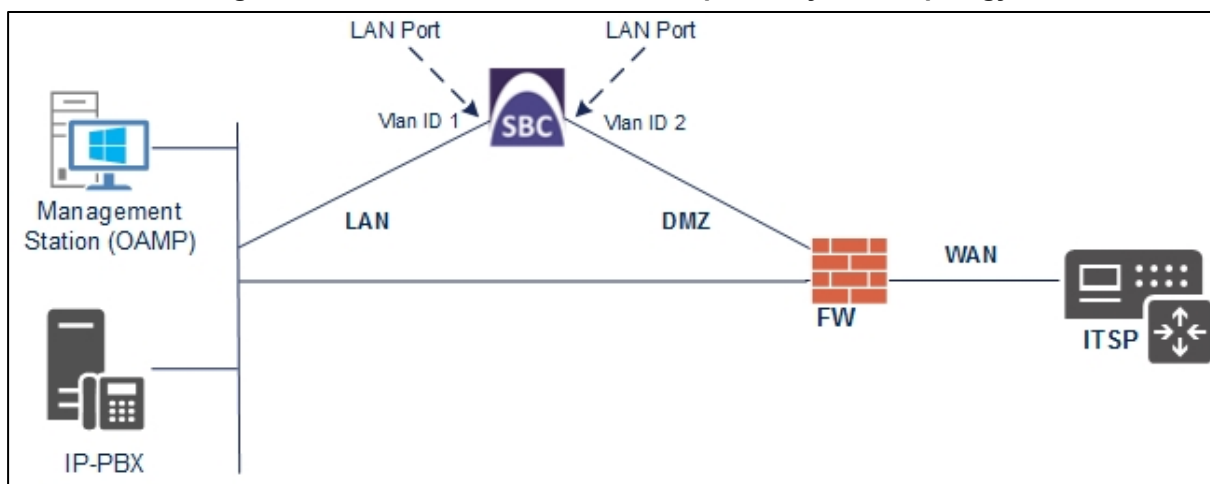
When the E-SBC is reset, the Navigation tree reverts to **Basic** display.

4.1 Step 1: Configure IP Network Interfaces

This step shows how to configure the E-SBC's IP network interfaces. Multiple methods can be used to deploy the E-SBC. This interoperability test topology employs the following deployment method:

- E-SBC interfaces with the following IP entities:
 - Toshiba CIX 200 IP PBX, located on the LAN
 - BroadCloud SIP Trunk, located on the WAN
- E-SBC connects to the WAN through a DMZ network
- Physical connection: The type of physical connection to the LAN depends on the method used to connect to the enterprise's network. In the interoperability test topology, E-SBC connects to the LAN and WAN using dedicated LAN ports (i.e., two ports and two network cables are used).
- E-SBC also uses two logical network interfaces:
 - LAN (VLAN ID 1)
 - WAN (VLAN ID 2)

Figure 4-1: Network Interfaces in Interoperability Test Topology



4.1.1 Step 1a: Configure VLANs

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

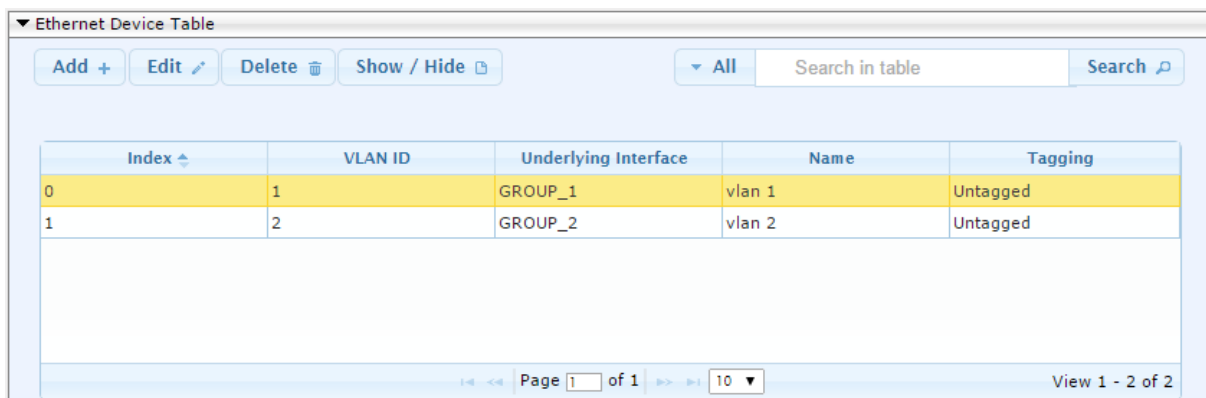
- LAN VoIP (assigned the name "Voice")
- WAN VoIP (assigned the name "WANSP")

➤ **To configure the VLANs:**

1. Open the Ethernet Device Table page (**Configuration** tab > **VoIP** menu > **Network** > **Ethernet Device Table**).
2. 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



4.1.2 Step 1b: Configure Network Interfaces

This step shows how to configure the IP network interfaces for each of the following interfaces:

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

➤ **To configure the IP network interfaces:**

1. Open the IP Interfaces Table page (**Configuration** tab > **VoIP** menu > **Network** > **IP Interfaces Table**).
2. Modify the existing LAN network interface:
 - a. Select the 'Index' radio button of the **OAMP + Media + Control** table row, and then click **Edit**.

- b. Configure the interface as follows:

Parameter	Value
IP Address	10.234.68.240 (IP address of E-SBC)
Prefix Length	15 (subnet mask in bits for 255.255.255.0)
Default Gateway	10.234.68.1
VLAN ID	1
Interface Name	Voice (arbitrary descriptive name)
Primary DNS Server IP Address	10.234.35.20
Underlying Device	vlan 1

3. Add a network interface for the WAN side:

- a. Enter **1**, and then click **Add Index**.

- a. Configure the interface as follows:

Parameter	Value
Application Type	Media + Control
IP Address	194.73.218.98 (WAN IP address)
Prefix Length	3 (for 255.255.255.128)
Default Gateway	194.73.218.97 (router's IP address)
VLAN ID	2
Interface Name	WANSP
Primary DNS Server IP Address	8.8.8.8
Secondary DNS Server IP Address	0.0.0.0
Underlying Device	vlan 2

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

The configured IP network interfaces are shown below:

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

Index	Interface Name	Application Type	Interface Mode	IP Address	Prefix Length	Default Gateway	Primary DNS	Secondary DNS	Underlying Device
0	Voice	OAMP + Media + Cg IPv4 Manual	IPv4 Manual	10.234.68.240	15	10.234.68.1	10.234.35.20	0.0.0.0	vlan 1
1	WANSP	Media + Control	IPv4 Manual	194.73.218.98	3	194.73.218.97	8.8.8.8	0.0.0.0	vlan 2

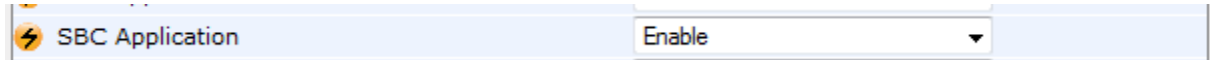
4.2 Step 2: Enable the SBC Application

This step shows how to enable the SBC application.

➤ **To enable the SBC application:**

1. Open the Applications Enabling page (**Configuration** tab > **VoIP** menu > **Applications Enabling** > **Applications Enabling**).

Figure 4-4: Enabling SBC Application



2. From the 'SBC Application' drop-down list, select **Enable**.
3. Click **Submit**.
4. Reset the E-SBC with a burn to flash for this setting to take effect (see Section 4.13 on page 55).

4.3 Step 3: Configure Media Realms

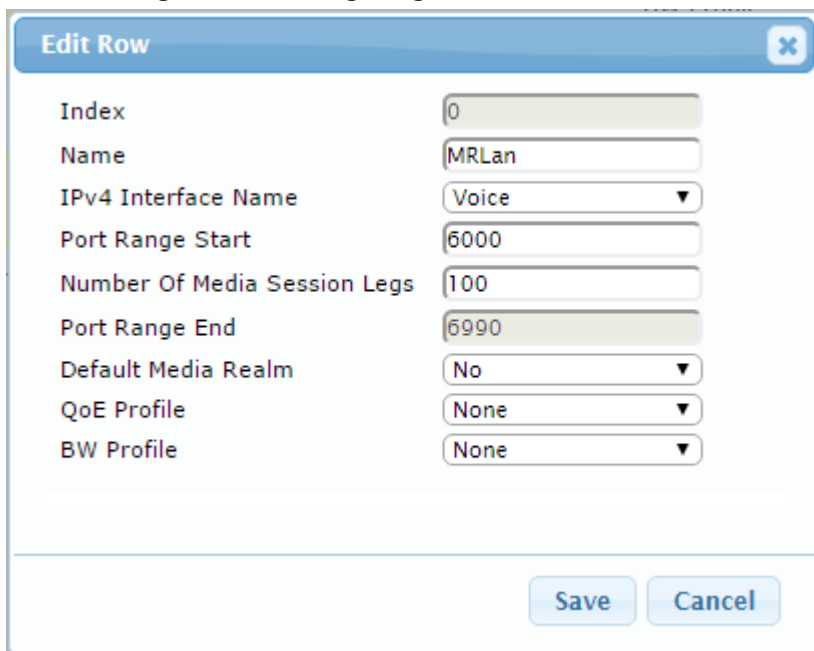
This step shows how to configure Media Realms. The simplest configuration is to create two Media Realms - one for internal (LAN) traffic and one for external (WAN) traffic.

➤ **To configure Media Realms:**

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

Parameter	Value
Index	0
Media Realm Name	MRLan (descriptive name)
IPv4 Interface Name	Voice
Port Range Start	6000 (as required by the Toshiba CIX 200 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="6000"/>
Number Of Media Session Legs	<input type="text" value="100"/>
Port Range End	<input type="text" value="6990"/>
Default Media Realm	<input type="text" value="No"/>
QoE Profile	<input type="text" value="None"/>
BW Profile	<input type="text" value="None"/>

- Configure a Media Realm for WAN traffic:

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

Figure 4-6: Configuring Media Realm for WAN

The configured Media Realms are shown in the figure below:

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

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

4.4 Step 4: Configure SIP Signaling Interfaces

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

➤ **To configure SIP Interfaces:**

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

Parameter	Value
Index	0
Interface Name	IP-PBX (see Note below)
Network Interface	Voice
Application Type	SBC
UDP Port	5060
TCP and TLS	0
Media Realm	MRLan

3. Configure a SIP Interface for the WAN:

Parameter	Value
Index	1
Interface Name	BroadCloud (see Note 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

Index	Name	SRD	Network Interface	Application Type	UDP Port	TCP Port	TLS Port	Encapsulating Protocol	Media Realm
0	IP-PBX	DefaultSRD	Voice	SBC	5060	0	0	No encapsulation	MRlan
1	BroadCloud	DefaultSRD	WANSP	SBC	5060	0	0	No encapsulation	MRwan



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

4.5 Step 5: Configure Proxy Sets

This step shows 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:

- Toshiba CIX 200 IP PBX
- BroadCloud SIP Trunk

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

➤ **To configure Proxy Sets:**

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

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

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

Edit Row
✕

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

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

Parameter	Value
Index	0
Proxy Address	10.234.68.129:5060 (IP PBX IP address / FQDN and destination port)
Transport Type	UDP

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

The screenshot shows a dialog box titled "Edit Row" with a close button (X) in the top right corner. It contains three input fields: "Index" with the value "0", "Proxy Address" with the value "10.234.68.129:5060", and "Transport Type" with a dropdown menu showing "UDP". At the bottom right, there are two buttons: "Save" and "Cancel".

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

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

Save Cancel

- 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

Index	0
Proxy Address	nn6300southsipconnec
Transport Type	UDP

Save Cancel

The configured Proxy Sets are shown in the figure below:

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

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

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

At the bottom of the table, there is a pagination control showing "Page 1 of 1" and a dropdown menu set to "10". The text "View 1 - 2 of 2" is also visible at the bottom right.

4.6 Step 6: Configure IP Profiles

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

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

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

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

1. Open the IP Profile Settings page (**Configuration** tab > **VoIP** > **Coders and Profiles** > **IP Profile Settings**).
2. Click **Add**.
3. Click the **Common** tab, and then configure the parameters as follows:

Parameter	Value
Index	1
Name	IP-PBX

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

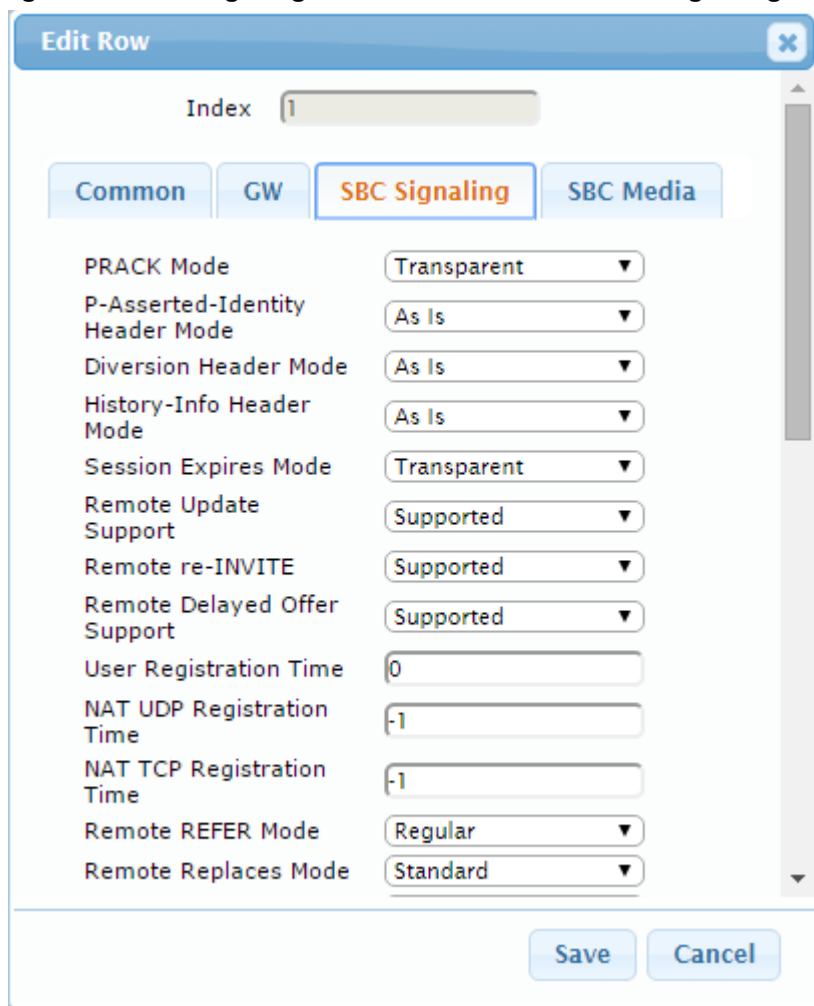
The screenshot shows the 'Edit Row' dialog box with the following configuration:

- Index: 1
- Common tab selected
- Name: IP-PBX
- Dynamic Jitter Buffer Minimum Delay [msec]: 10
- Dynamic Jitter Buffer Optimization Factor: 10
- Jitter Buffer Max Delay [msec]: 300
- RTP IP DiffServ: 46
- Signaling DiffServ: 40
- Silence Suppression: Disable
- RTP Redundancy Depth: 0
- Echo Canceler: Line
- Broken Connection Mode: Ignore
- Input Gain (-32 to 31 dB): 0
- Voice Volume (-32 to 31 dB): 0
- Media IP Version: Only IPv4

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

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

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



- 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
✕

Index

Common

GW

SBC Signaling

SBC Media

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

- **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

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

- Name: BroadCloud
- Dynamic Jitter Buffer Minimum Delay [msec]: 10
- Dynamic Jitter Buffer Optimization Factor: 10
- Jitter Buffer Max Delay [msec]: 300
- RTP IP DiffServ: 46
- Signaling DiffServ: 40
- Silence Suppression: Disable
- RTP Redundancy Depth: 0
- Echo Canceler: Line
- Broken Connection Mode: Ignore
- Input Gain (-32 to 31 dB): 0
- Voice Volume (-32 to 31 dB): 0
- Media IP Version: Only IPv4

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

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

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

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

The screenshot shows the 'Edit Row' configuration window for index 2. The 'SBC Signaling' tab is active. The parameters and their values are as follows:

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

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

Parameter	Value
Media Security Behavior	RTP

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

Edit Row [Close]

Index:

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

Transcoding Mode	<input type="text" value="Only If Required"/>
Extension Coders	<input type="text" value="None"/>
Allowed Audio Coders	<input type="text" value="None"/>
Allowed Coders Mode	<input type="text" value="Restriction"/>
Allowed Video Coders	<input type="text" value="None"/>
Allowed Media Types	<input type="text"/>
SBC Media Security Mode	<input type="text" value="RTP"/>
Media Security Method	<input type="text" value="SDES"/>
Enforce MKI Size	<input type="text" value="Don't enforce"/>
SDP Remove Crypto Lifetime	<input type="text" value="No"/>
RFC 2833 Mode	<input type="text" value="As Is"/>
Alternative DTMF Method	<input type="text" value="As Is"/>
RFC 2833 DTMF Payload Type	<input type="text" value="0"/>
Fax Coders	<input type="text" value="None"/>

[Save] [Cancel]

4.7 Step 7: Configure IP Groups

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

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

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

➤ **To configure IP Groups:**

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

Parameter	Value
Index	0
Name	IP-PBX
Type	Server
Proxy Set	IP-PBX
IP Profile	IP-PBX
Media Realm	MRLan
SIP Group Name	

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

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

The configured IP Groups are shown in the figure below:

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

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

Index	Name	SRD	Type	SBC Operation Mode	Proxy Set	IP Profile	Media Realm	SIP Group Name	Classify By Proxy Set	Inbound Message Manipulation Set	Outbound Message Manipulation Set
0	IP-PBX	<input type="checkbox"/> DefaultSRD	Server	Not Configure	IP-PBX	IP-PBX	MRLan		Enable	-1	-1
1	BroadCloud	<input type="checkbox"/> DefaultSRD	Server	Not Configure	BroadCloud	BroadCloud	MRWan	interop.adpt-	Enable	-1	4

At the bottom of the table, there is a pagination control showing 'Page 1 of 1' and a dropdown menu set to '10'. The status 'View 1 - 2 of 2' is also visible.

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

This step shows 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 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' configuration window for a routing rule. At the top, the 'Index' is set to 0 and the 'Routing Policy' is 'Default_SBCRouting'. Below this, there are two tabs: 'Rule' (selected) and 'Action'. Under the 'Rule' tab, the following parameters are configured:

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

At the bottom right of the configuration area, there is a link for 'Classic View'. At the very bottom of the window, there are 'Save' and 'Cancel' buttons.

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

Parameter	Value
Destination Type	Dest Address
Destination Address	internal

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

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

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

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

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

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

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

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

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

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

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

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

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

Edit Row
✕

Index

Routing Policy

Rule

Action

Destination Type

Destination IP Group

Destination SIP Interface

Destination Address

Destination Port

Destination Transport Type

Call Setup Rules Set ID

Group Policy

Cost Group

[Classic View](#)

Save

Cancel

The configured routing rules are shown in the figure below:

Figure 4-27: Configured IP-to-IP Routing Rules in IP-to-IP Routing Table

IP-to-IP Routing Table

Add +
Edit ✎
Delete 🗑
Insert +
Up ↑
Down ↓
▼ All
Search in table
Search 🔍

Show / Hide 📄

Index	Name	Routing Policy	Alternative Route Options	Source IP Group	Request Type	Source Username Prefix	Destination Username Prefix	Destination Type	Destination IP Group	Destination SIP Interface	Destination Address
0	Terminate OPTI	Default_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 shows 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 you environment dial plan.

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

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

1. Open the IP-to-IP Outbound Manipulation page (**Configuration** tab > **VoIP** menu > **SBC** > **Manipulations SBC** > **IP-to-IP Outbound**).
2. Click **Add**.
3. Click the **Rule** tab, and then configure the parameters as follows:

Parameter	Value
Index	0
Name	Add + for National Calls
Source IP Group	IP-PBX
Destination IP Group	BroadCloud
Destination Username Prefix	001

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

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

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

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

Edit Row
✕

Index

Routing Policy

Rule

Action

Manipulated Item

Remove From Left

Remove From Right

Leave From Right

Prefix to Add

Suffix to Add

Privacy Restriction Mode

[Classic View](#)

Save

Cancel

5. Click **Submit**.

The figure below shows an example of configured IP-to-IP outbound manipulation rules for calls between IP-PBX IP Group and BroadCloud SIP Trunk IP Group:

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

Index	Name	Routing Policy	Additional Manipulation	Source IP Group	Destination IP Group	Source Username Prefix	Destination Username Prefix	Manipulated Item	Remove From Left	Remove From Right	Leave From Right	Prefix to Add	Suffix to Add
0	Add + for Nat	Default_SBCR	No	IP-PBX	BroadCloud	*	001	Destination URI	2	0	255	+	
1	Outgoing_Tos	Default_SBCR	No	IP-PBX	BroadCloud	44207993025		Source URI	0	0	0	8325624852	
2	Outgoing_Tos	Default_SBCR	No	IP-PBX	BroadCloud	44207993025	*	Source URI	0	0	0	8325624853	
3	Incoming_Tos	Default_SBCR	No	BroadCloud	IP-PBX	*	8325624852	Destination URI	0	0	0	44207993025	
4	Incoming_Tos	Default_SBCR	No	BroadCloud	IP-PBX	*	8325624853	Destination URI	0	0	0	44207993025	
5	For Anonymo	Default_SBCR	No	IP-PBX	BroadCloud	*	*	Source URI	0	0	255		

4.10 Step 10: Configure Message Manipulation Rules

This step shows 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).

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

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

1. Open the Message Manipulations page (**Configuration** tab > **VoIP** menu > **SIP Definitions** > **Msg Policy & Manipulation** > **Message Manipulations**).
2. Configure a new manipulation rule (Manipulation Set 4) for BroadCloud SIP Trunk. This rule applies to messages sent to the BroadCloud SIP Trunk IP Group. This replaces the host part of the SIP From Header with the value from the SIP To Header.

Parameter	Value
Index	0
Name	Change From host
Manipulation Set ID	4
Message Type	any.request
Action Subject	header.from.url.host
Action Type	Modify
Action Value	header.to.url.host

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

Edit Row
✕

Index	<input type="text" value="0"/>
Name	<input type="text" value="Change From host"/>
Manipulation Set ID	<input type="text" value="4"/>
Message Type	<input type="text" value="any.request"/>
Condition	<input type="text" value=""/>
Action Subject	<input type="text" value="header.from.url.host"/>
Action Type	<input style="border-bottom: none; border-top: none; border-left: none; border-right: none; background-color: #f0f0f0; width: 100%;" type="text" value="Modify"/>
Action Value	<input type="text" value="header.to.url.host"/>
Row Role	<input style="border-bottom: none; border-top: none; border-left: none; border-right: none; background-color: #f0f0f0; width: 100%;" type="text" value="Use Current Condit"/>

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

Parameter	Value
Index	1
Manipulation Name	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)

Figure 4-33: Example of Configured SIP Message Manipulation Rules

Index	Name	Manipulation Set ID	Message Type	Condition	Action Subject	Action Type	Action Value	Row Role
0	Change From host	4	any.request		header.from.url.host	Modify	header.to.url.host	Use Current Condition
1	Change P-Asserted host	4	any.request	header.p-asserted-identity exists	header.p-asserted-identity	Modify	header.to.url.host	Use Current Condition

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.

See the *User's Manual* for details about the full capabilities of header manipulation.

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

4. 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 4-34: Assigning Manipulation Set 4 to the BroadCloud SIP Trunk IP Group

- e. Click **Submit**.

4.11 Step 11: Configure Registration Accounts

This step shows how to configure SIP registration accounts. This is required so that the E-SBC can register with the BroadCloud SIP Trunk on behalf of IP PBX. The BroadCloud SIP Trunk requires registration and authentication to provide service.

In the interoperability test topology, the Served IP Group is IP PBX IP Group and the Serving IP Group is BroadCloud SIP Trunk IP Group.

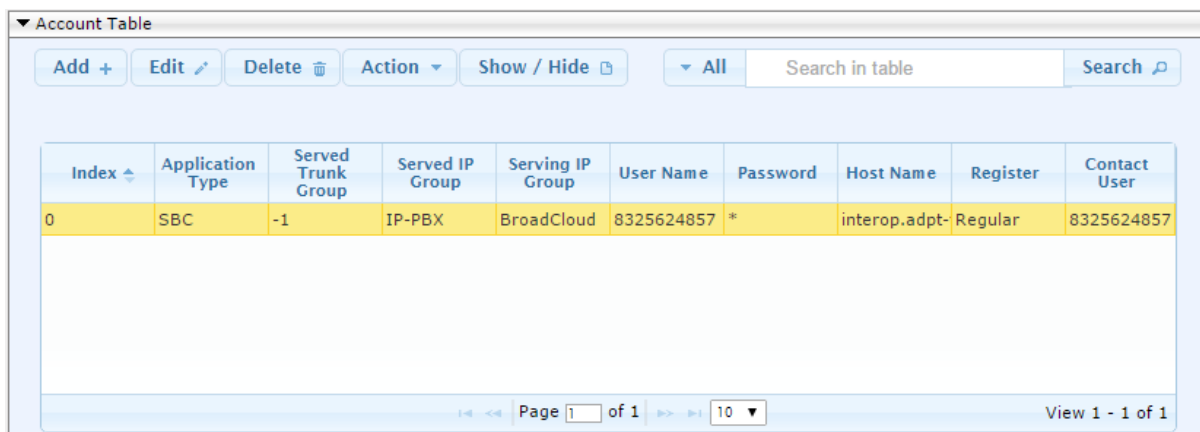
➤ **To configure a registration account:**

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

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

4. Click **Apply**.

Figure 4-35: Configuring SIP Registration Account



4.12 Step 12: Configure Miscellaneous Settings

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

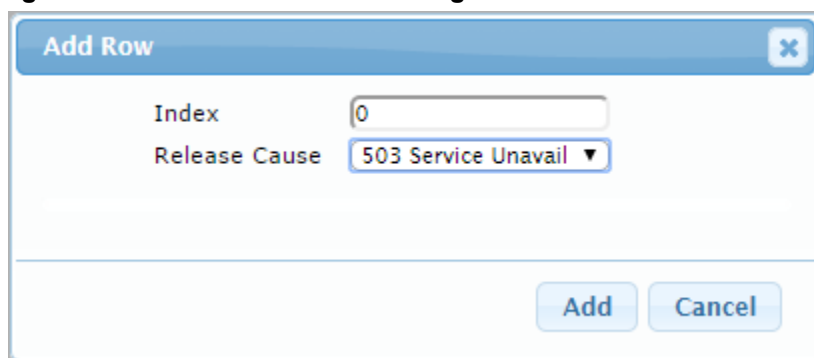
4.12.1 Step 12a: Configure SBC Alternative Routing Reasons

This step shows 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.

➤ **To configure SIP reason codes for alternative IP routing:**

1. Open the SBC Alternative Routing Reasons page (**Configuration** tab > **VoIP** menu > **SBC** > **Routing SBC** > **SBC Alternative Routing Reasons**).
2. Click **Add**; the following dialog box appears:

Figure 4-36: SBC Alternative Routing Reasons Table - Add Record



Add Row	
Index	<input type="text" value="0"/>
Release Cause	<input type="text" value="503 Service Unavail"/>
<input type="button" value="Add"/> <input type="button" value="Cancel"/>	

3. Click **Submit**.

4.13 Step 13: Reset the E-SBC

After completing configuration of the E-SBC as shown in this section, save ("burn") the configuration to the E-SBC's flash memory with a reset for the settings to take effect.

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

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

Figure 4-37: Resetting the E-SBC

The screenshot displays a web-based configuration interface for the E-SBC, organized into three main sections:

- Reset Configuration:** Contains a "Reset Board" button, a "Burn To FLASH" dropdown menu set to "Yes", and a "Graceful Option" dropdown menu set to "No".
- LOCK / UNLOCK:** Contains a "Lock" button, a "Graceful Option" dropdown menu set to "No", and a "Gateway Operational State" field showing "UNLOCKED".
- Save Configuration:** Contains a "Burn To FLASH" button labeled "BURN".

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

This page is intentionally left blank.

A AudioCodes' ini File

The *ini* configuration file of the E-SBC, corresponding to the Web-based configuration as described in Section 4 on page 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 500 E-SBC
;HW Board Type: 69 FK Board Type: 85
;Serial Number: 8951962
;Slot Number: 1
;Software Version: 7.00A.049.003
;DSP Software Version: 5011AE3_R => 700.44
;Board IP Address: 10.234.68.240
;Board Subnet Mask: 255.254.0.0
;Board Default Gateway: 10.234.68.1
;Ram size: 496M Flash size: 128M Core speed: 300Mhz
;Num of DSP Cores: 0 Num DSP Channels: 0
;Num of physical LAN ports: 4
;Profile: NONE
;;;Key features;;Board Type: 85 ;Security: IPSEC MediaEncryption
StrongEncryption EncryptControlProtocol ;DSP Voice features: ;DATA
features: ;Channel Type: RTP DspCh=60 IPMediaDspCh=60 ;HA ;Coders: G723
G729 G728 NETCODER GSM-FR GSM-EFR AMR EVRC-QCELP G727 ILBC EVRC-B AMR-WB
G722 EG711 MS_RTA_NB MS_RTA_WB SILK_NB SILK_WB SPEEX_NB SPEEX_WB OPUS_NB
OPUS_WB ;Control Protocols: CLI TRANSCODING=60 CODER-TRANSCODING=60 SBC-
SIGNALING=60 SBC-MEDIA=60 WebRTC MGCP SIP SBC=60 ;Default features;;Coders:
G711 G726;

;----- HW components-----
;
; Slot # : Module type : # of ports
;-----
;-----

[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 500 E-SBC'
LogoWidth = '145'
UseProductName = 1
HTTPSCipherString = 'RC4:EXP'

[SIP Params]

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, 10.234.68.240, 15, 10.234.68.1, "Voice",
10.234.35.20, 0.0.0.0, "vlan 1";
InterfaceTable 1 = 5, 10, 194.73.218.98, 3, 194.73.218.97, "WANSP",
8.8.8.8, 0.0.0.0, "vlan 2";

[ \InterfaceTable ]

[ DspTemplates ]

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

[ \DspTemplates ]

[ WebUsers ]

FORMAT WebUsers_Index = WebUsers_Username, WebUsers_Password,
WebUsers_Status, WebUsers_PwAgeInterval, WebUsers_SessionLimit,
WebUsers_SessionTimeout, WebUsers_BlockTime, WebUsers_UserLevel,
```

```

WebUsers_PwNonce;
WebUsers 0 = "Admin",
"$1$jjuq+86Wi9veioKH7/aj4q/z8rcWUk5LB15TBnJqbmJrPzJmAh9HQhofSj4mOjImJiIyIpKD
1oPwM8vL58P749Ks=", 1, 0, 2, 15, 60, 200,
"5defa220d918d4a93d2ecba9436e766a";
WebUsers 1 = "User",
"$1$lKT0pqWhra6p/6Wmq8azkzTFkpaTnJ+YyJibzJnW04GHhIPVgdyJiIjdjtqM+ffY9fP28PK
q/qvz9PSo/ejp5bY=", 1, 0, 2, 15, 60, 50,
"11bb2bd9dc4e498f75e0277a53e49d5c";

[ \WebUsers ]

[ TLSContexts ]

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

[ \TLSContexts ]

[ IpProfile ]

FORMAT IpProfile_Index = IpProfile_ProfileName, IpProfile_IpPreference,
IpProfile_CodersGroupID, IpProfile_IsFaxUsed, IpProfile_JitterBufMinDelay,
IpProfile_JitterBufOptFactor, IpProfile_IPDiffServ,
IpProfile_SigIPDiffServ, IpProfile_SCE, IpProfile_RTPRedundancyDepth,
IpProfile_RemoteBaseUDPPort, IpProfile_CNGmode, IpProfile_VxxTransportType,
IpProfile_NSEMode, IpProfile_IsDTMFUsed, IpProfile_PlayRBTone2IP,
IpProfile_EnableEarlyMedia, IpProfile_ProgressIndicator2IP,
IpProfile_EnableEchoCanceller, IpProfile_CopyDest2RedirectNumber,
IpProfile_MediaSecurityBehaviour, IpProfile_CallLimit,
IpProfile_DisconnectOnBrokenConnection, IpProfile_FirstTxDtmfOption,
IpProfile_SecondTxDtmfOption, IpProfile_RxDTMFOption, IpProfile_EnableHold,
IpProfile_InputGain, IpProfile_VoiceVolume, IpProfile_AddIEInSetup,
IpProfile_SBCExtensionCodersGroupID, IpProfile_MediaIPVersionPreference,
IpProfile_TranscodingMode, IpProfile_SBCAllowedMediaTypes,
IpProfile_SBCAllowedCodersGroupID, IpProfile_SBCAllowedVideoCodersGroupID,
IpProfile_SBCAllowedCodersMode, IpProfile_SBCMediaSecurityBehaviour,
IpProfile_SBCRFC2833Behavior, IpProfile_SBCAlternativeDTMFMethod,
IpProfile_SBCAssertIdentity, IpProfile_AMDSensitivityParameterSuit,
IpProfile_AMDSensitivityLevel, IpProfile_AMDMaxGreetingTime,
IpProfile_AMDMaxPostSilenceGreetingTime, IpProfile_SBCDiversionsMode,
IpProfile_SBCHistoryInfoMode, IpProfile_EnableQSIGTunneling,
IpProfile_SBCFaxCodersGroupID, IpProfile_SBCFaxBehavior,
IpProfile_SBCFaxOfferMode, IpProfile_SBCFaxAnswerMode,
IpProfile_SbcPrackMode, IpProfile_SBCSessionExpiresMode,
IpProfile_SBCRemoteUpdateSupport, IpProfile_SBCRemoteReinviteSupport,
IpProfile_SBCRemoteDelayedOfferSupport, IpProfile_SBCRemoteReferBehavior,
IpProfile_SBCRemote3xxBehavior, IpProfile_SBCRemoteMultiple18xSupport,
IpProfile_SBCRemoteEarlyMediaResponseType,
IpProfile_SBCRemoteEarlyMediaSupport, IpProfile_EnableSymmetricMKI,
IpProfile_MKISize, IpProfile_SBCEnforceMKISize,
IpProfile_SBCRemoteEarlyMediaRTP, IpProfile_SBCRemoteSupportsRFC3960,
IpProfile_SBCRemoteCanPlayRingback, IpProfile_EnableEarly183,
IpProfile_EarlyAnswerTimeout, IpProfile_SBC2833DTMFPayloadType,
IpProfile_SBCUserRegistrationTime, IpProfile_ResetSRTPStateUponRekey,
    
```

```

IpProfile_AmdMode, IpProfile_SBCReliableHeldToneSource,
IpProfile_GenerateSRTPKeys, IpProfile_SBCPlayHeldTone,
IpProfile_SBCRemoteHoldFormat, IpProfile_SBCRemoteReplacesBehavior,
IpProfile_SBCSDPptimeAnswer, IpProfile_SBCPreferredPTime,
IpProfile_SBCUseSilenceSupp, IpProfile_SBCRTPRedundancyBehavior,
IpProfile_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, 1, 0, 1, 3, 0, 2, 2, 1, 0, 0, 1, 0, 1,
1, 1, 1, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0,
300, -1, -1, 0, 0, 0, 0, 0, 0, -1, -1, -1, -1, -1, 0, "", 0;
IpProfile 2 = "BroadCloud", 1, 0, 0, 10, 10, 46, 40, 0, 0, 0, 0, 2, 0, 0,
0, 0, -1, 1, 0, 0, -1, 0, 4, -1, 1, 1, 0, 0, "", -1, 0, 0, "", -1, -1, 0,
2, 0, 0, 1, 0, 8, 300, 400, 0, 0, 0, -1, 1, 0, 1, 3, 0, 2, 2, 1, 0, 0, 1,
0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0,
0, 0, 300, -1, -1, 0, 0, 0, 0, 0, 0, -1, -1, -1, -1, -1, 0, "", 0;

[ \IpProfile ]

[ CpMediaRealm ]

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

[ \CpMediaRealm ]

[ SBCRoutingPolicy ]

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

[ \SBCRoutingPolicy ]

[ SRD ]

FORMAT SRD_Index = SRD_Name, SRD_BlockUnRegUsers, SRD_MaxNumOfRegUsers,
SRD_EnableUnAuthenticatedRegistrations, SRD_SharingPolicy,
SRD_UsedByRoutingServer, SRD_SBCOperationMode, SRD_SBCRoutingPolicyName,
SRD_SBCDialPlanName;

```

```

SRD 0 = "DefaultSRD", 0, -1, 1, 0, 0, 0, "Default_SBCRoutingPolicy", "";

[ \SRD ]

[ SIPInterface ]

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

[ \SIPInterface ]

[ ProxySet ]

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

[ \ProxySet ]

[ IPGroup ]

FORMAT IPGroup_Index = IPGroup_Type, IPGroup_Name, IPGroup_ProxySetName,
IPGroup_SIPGroupName, IPGroup_ContactUser, IPGroup_SipReRoutingMode,
IPGroup_AlwaysUseRouteTable, IPGroup_SRDName, IPGroup_MediaRealm,
IPGroup_ClassifyByProxySet, IPGroup_ProfileName, IPGroup_MaxNumOfRegUsers,
IPGroup_InboundManSet, IPGroup_OutboundManSet, IPGroup_RegistrationMode,
IPGroup_AuthenticationMode, IPGroup_MethodList,
IPGroup_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_SBCKeepOriginalCallID,
    
```

```

IPGroup_SBCDialPlanName;
IPGroup 0 = 0, "IP-PBX", "IP-PBX", "10.234.68.227", "", -1, 0,
"DefaultSRD", "MRLan", 1, "IP-PBX", -1, -1, -1, 0, 0, "", 0, -1, -1, "",
"", "$1$gQ==", 0, "", "", "", 0, "", "", 0, 0, "", 0, 0, -1, 0, 0, "";
IPGroup 1 = 0, "BroadCloud", "BroadCloud", "interop.adpt-tech.com", "", -1,
0, "DefaultSRD", "MRWan", 1, "BroadCloud", -1, -1, 4, 0, 0, "", 0, -1, -1,
"", "", "$1$gQ==", 0, "", "", "", 0, "", "", 0, 0, "", 0, 0, -1, 0, 0, "";

[ \IPGroup ]

[ SBCAlternativeRoutingReasons ]

FORMAT SBCAlternativeRoutingReasons_Index =
SBCAlternativeRoutingReasons_ReleaseCause;
SBCAlternativeRoutingReasons 0 = 503;

[ \SBCAlternativeRoutingReasons ]

[ ProxyIp ]

FORMAT ProxyIp_Index = ProxyIp_ProxySetId, ProxyIp_ProxyIpIndex,
ProxyIp_IpAddress, ProxyIp_TransportType;
ProxyIp 0 = "0", 0, "10.234.68.129:5060", 0;
ProxyIp 1 = "1", 0, "nn6300southsipconnect.adpt-tech.com", 0;

[ \ProxyIp ]

[ Account ]

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

[ \Account ]

[ IP2IPRouting ]

FORMAT IP2IPRouting_Index = IP2IPRouting_RouteName,
IP2IPRouting_RoutingPolicyName, IP2IPRouting_SrcIPGroupName,
IP2IPRouting_SrcUsernamePrefix, IP2IPRouting_SrcHost,
IP2IPRouting_DestUsernamePrefix, IP2IPRouting_DestHost,
IP2IPRouting_RequestType, IP2IPRouting_MessageConditionName,
IP2IPRouting_ReRouteIPGroupName, IP2IPRouting_Trigger,
IP2IPRouting_CallSetupRulesSetId, IP2IPRouting_DestType,
IP2IPRouting_DestIPGroupName, IP2IPRouting_DestSIPInterfaceName,
IP2IPRouting_DestAddress, IP2IPRouting_DestPort,
IP2IPRouting_DestTransportType, IP2IPRouting_AltRouteOptions,
IP2IPRouting_GroupPolicy, IP2IPRouting_CostGroup, IP2IPRouting_DestTags,
IP2IPRouting_SrcTags;
IP2IPRouting 0 = "Terminate OPTIONS", "Default_SBCRoutingPolicy", "Any",
"*, *, *, *, 6, "", "Any", 0, -1, 1, "", "", "internal", 0, -1, 0,
0, "", "", "";
IP2IPRouting 1 = "IP-PBX to ITSP", "Default_SBCRoutingPolicy", "IP-PBX",
"*, *, *, *, 0, "", "Any", 0, -1, 0, "BroadCloud", "BroadCloud", "",

```

```

0, -1, 0, 0, "", "", "";
IP2IPRouting 2 = "ITSP to IP-PBX", "Default_SBCRoutingPolicy",
"BroadCloud", "*", "*", "*", "*", 0, "", "Any", 0, -1, 0, "IP-PBX", "IP-
PBX", "", 0, -1, 0, 0, "", "", "";

[ \IP2IPRouting ]

[ IPOutboundManipulation ]

FORMAT IPOutboundManipulation_Index =
IPOutboundManipulation_ManipulationName,
IPOutboundManipulation_RoutingPolicyName,
IPOutboundManipulation_IsAdditionalManipulation,
IPOutboundManipulation_SrcIPGroupName,
IPOutboundManipulation_DestIPGroupName,
IPOutboundManipulation_SrcUsernamePrefix, IPOutboundManipulation_SrcHost,
IPOutboundManipulation_DestUsernamePrefix, IPOutboundManipulation_DestHost,
IPOutboundManipulation_CallingNamePrefix,
IPOutboundManipulation_MessageConditionName,
IPOutboundManipulation_RequestType,
IPOutboundManipulation_ReRouteIPGroupName, IPOutboundManipulation_Trigger,
IPOutboundManipulation_ManipulatedURI,
IPOutboundManipulation_RemoveFromLeft,
IPOutboundManipulation_RemoveFromRight,
IPOutboundManipulation_LeaveFromRight, IPOutboundManipulation_Prefix2Add,
IPOutboundManipulation_Suffix2Add,
IPOutboundManipulation_PrivacyRestrictionMode,
IPOutboundManipulation_DestTags, IPOutboundManipulation_SrcTags;
IPOutboundManipulation 0 = "Add + for National Calls",
"Default_SBCRoutingPolicy", 0, "IP-PBX", "BroadCloud", "*", "*", "001",
"*, "*", "", 0, "Any", 0, 1, 2, 0, 255, "+", "", 0, "", "";
IPOutboundManipulation 1 = "Outgoing_Toshiba_Ext256",
"Default_SBCRoutingPolicy", 0, "IP-PBX", "BroadCloud", "442079930256", "*",
"", "*", "*", "", 0, "Any", 0, 0, 0, 0, 0, "8325624852", "", 0, "", "";
IPOutboundManipulation 2 = "Outgoing_Toshiba_Ext251",
"Default_SBCRoutingPolicy", 0, "IP-PBX", "BroadCloud", "442079930251", "*",
"*, "*", "*", "", 0, "Any", 0, 0, 0, 0, 0, "8325624853", "", 0, "", "";
IPOutboundManipulation 3 = "Incoming_Toshiba_Ext256",
"Default_SBCRoutingPolicy", 0, "BroadCloud", "IP-PBX", "*", "*",
"8325624852", "*", "*", "", 0, "Any", 0, 1, 0, 0, 0, "442079930256", "", 0,
"", "";
IPOutboundManipulation 4 = "Incoming_Toshiba_Ext251",
"Default_SBCRoutingPolicy", 0, "BroadCloud", "IP-PBX", "*", "*",
"8325624853", "*", "*", "", 0, "Any", 0, 1, 0, 0, 0, "442079930251", "", 0,
"", "";
IPOutboundManipulation 5 = "For Anonymous", "Default_SBCRoutingPolicy", 0,
"IP-PBX", "BroadCloud", "*", "*", "*", "*", "*", "", 0, "Any", 0, 0, 0, 0,
255, "", "", 2, "", "";

[ \IPOutboundManipulation ]

[ CodersGroup0 ]

FORMAT CodersGroup0_Index = CodersGroup0_Name, CodersGroup0_pTime,
CodersGroup0_rate, CodersGroup0_PayloadType, CodersGroup0_Sce,
CodersGroup0_CoderSpecific;
CodersGroup0 0 = "g711Alaw64k", 20, 255, -1, 0, "";

[ \CodersGroup0 ]
    
```



```
[ CodersGroup1 ]

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

[ \CodersGroup1 ]

[ CodersGroup2 ]

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

[ \CodersGroup2 ]

[ CodersGroup4 ]

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

[ \CodersGroup4 ]

[ AllowedCodersGroup1 ]

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

[ \AllowedCodersGroup1 ]

[ AllowedCodersGroup2 ]

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

[ \AllowedCodersGroup2 ]

[ MessageManipulations ]

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

[ \MessageManipulations ]

[ GwRoutingPolicy ]

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

[ \GwRoutingPolicy ]

[ ResourcePriorityNetworkDomains ]

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

[ \ResourcePriorityNetworkDomains ]
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