
Ribbon EdgeMarc IAD and SBC SWe Configuration with Broadsoft

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Document Overview

This document provides a configuration guide for the Ribbon EdgeMarc Series (Session Border Controller) when connecting to Broadsoft.

This configuration guide supports features in the Hawaiian Telecom IAD Test plan.

- For additional information on Broadsoft , refer to <https://xchange.broadsoft.com/>
- For additional information on the Ribbon SBCs, refer to <https://ribboncommunications.com/>

Introduction

The interoperability compliance testing focuses on verifying inbound and outbound calls flows between the Ribbon EdgeMarc and Broadsoft.

Audience

This is a technical document intended for telecommunications engineers with the purpose of configuring both the Ribbon SBCs and the third-party product. There are steps that require navigating the third-party as well as the Ribbon SBCs' Command Line Interface (CLI). Understanding the basic concepts of TCP/UDP, IP/Routing, and SIP/RTP are also necessary to complete the configuration and for troubleshooting, if necessary.



Note

This configuration guide is offered as a convenience to Ribbon customers. The specifications and information regarding the product in this guide are subject to change without notice. All statements, information, and recommendations in this guide are believed to be accurate but are presented without warranty of any kind, express or implied, and are provided "AS IS". Users must take full responsibility for the application of the specifications and information in this guide.

Requirements

The following equipment and software were used for the sample configuration:

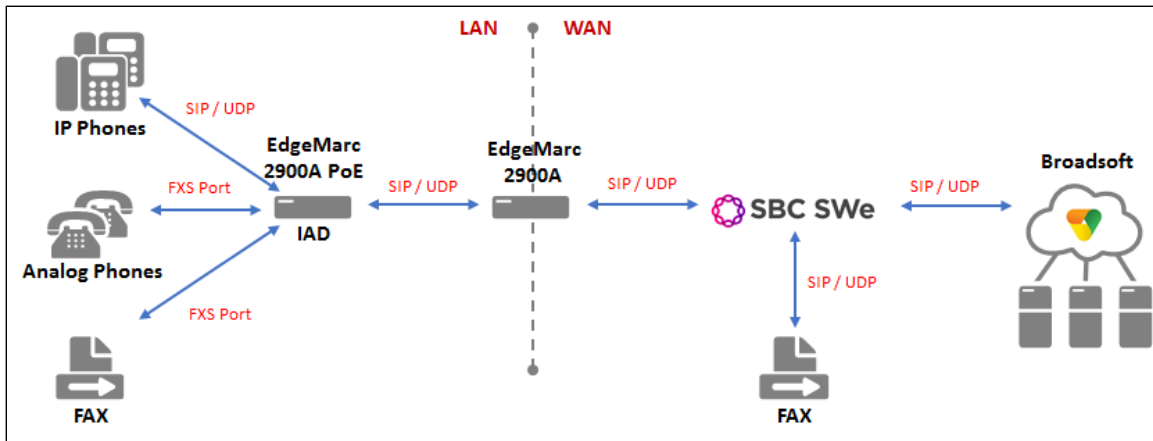
Table 1: Requirements

	Equipment	Software Version
Ribbon Networks	Ribbon EdgeMarc 2900A Ribbon EdgeMarc 2900aPoE Ribbon SBC SWe Ribbon EdgeView	V15.3.0 V15.5.0 V07.02.01R002 V15.2.2
Third-party Equipment	Polycom Phones VVX411 Broadsoft Analog Phones Fax Machine	5.6.1.1740 Rel_22.0_1.1123 Sharp UX-P115

Reference Configuration

The following reference configuration shows connectivity between the third-party and the Ribbon EdgeMarc.

Figure 1: Reference Configuration



Support

For any questions regarding this document, contact your maintenance and support provider.

Third-Party Product Features

- **Network**
 - WAN VLAN
 - LAN VLAN
- **DHCP**
 - Options
- **NAT**
 - Port Forwarding
- **SIP UA / FAX**
 - T.38 / G.711
 - Analog Gateway FAX
- **Security**
 - Firewall
 - Trusted Hosts
- **Survivability**
 - SIP Server Reachability
- **Test UA**
- **Traffic Shaper**
 - Class of Service
 - Call Admission Control
- **System**
 - Backup / Restore
 - Proxy ARP
 - Syslog - MOS
 - Upgrade Firmware
- **EdgeView**
 - Discover
 - Monitor
 - Test UA
 - Change Parameter
 - Remote Backup / Restore
 - Load Template

Verify License

There is no special licensing required for this test.

Broadsoft Configuration.

This section includes the following new configurations:

- [Domain](#)
- [Group](#)
- [Enterprise](#)

- Assign Numbers
- Assign Group Numbers
- Assign Group Services
- Users
 - User Phone Number
 - Assign User Services



Broadworks Service Guide

See [Appendix A](#) for further information regarding how to configure Broadworks services.



Polycom VVX Phones Configuration Guide

See [Appendix A](#) for further information regarding how to configure Polycom VVX phones.

Domain

1. Log into Broadsoft XSP as the Admin user.
2. Select **System > Resources > Domain** and click **Add** to configure a new Domain in the system.
3. Fill in the Domain information and click **OK** to confirm the changes.

Figure 2: Domain

Enterprise

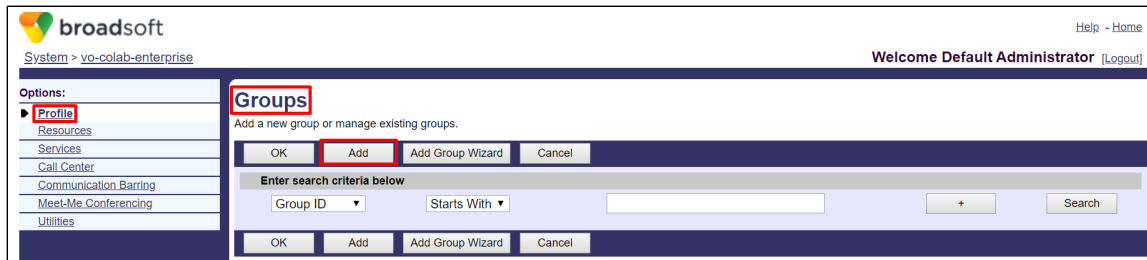
1. Select **System > Enterprises** and click **Add** to configure a new Enterprise.
2. Fill in the Enterprise information and click **OK** to confirm the changes.

Figure 3: Enterprise

Group

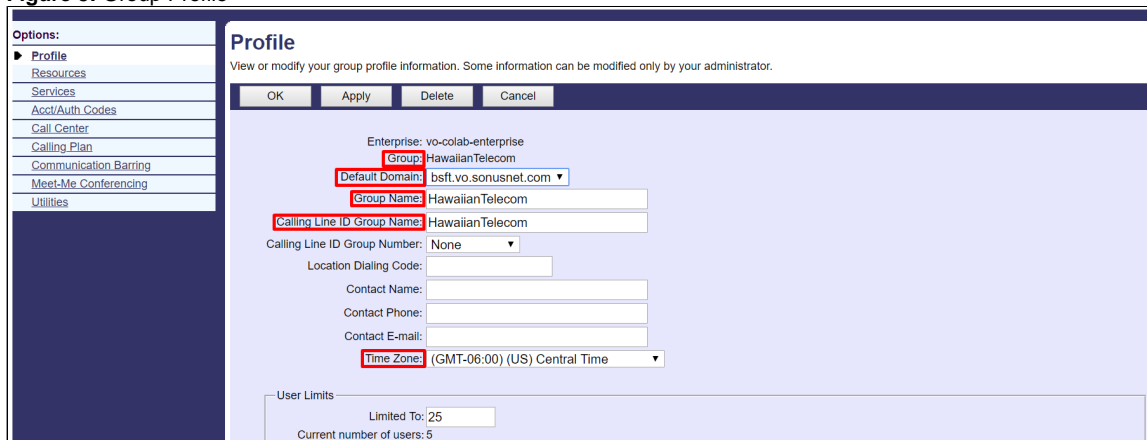
1. Select **System > Enterprise > Groups > Profile** and click **Add** to configure a new Group.

Figure 4: Group



2. Fill in the Group profile information and click **OK** to confirm the changes. In this example we used the Group name *Hawaiian Telecom*.

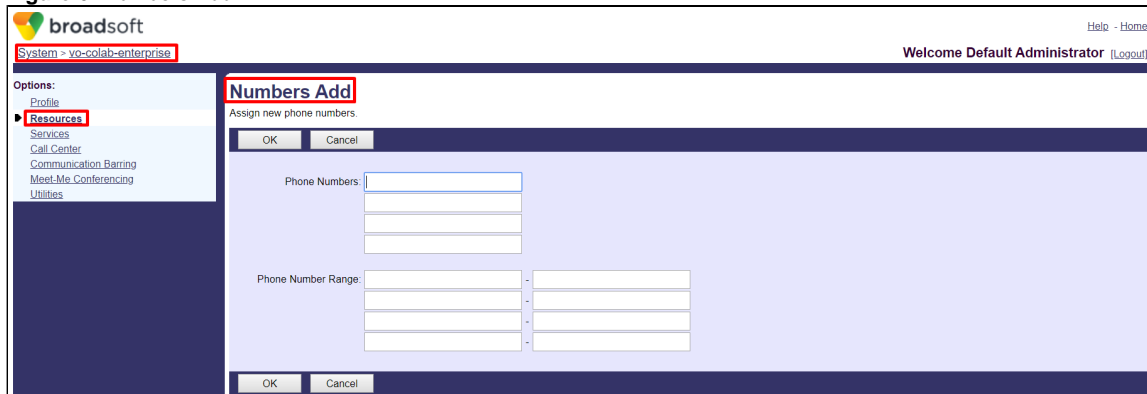
Figure 5: Group Profile



Assign Numbers

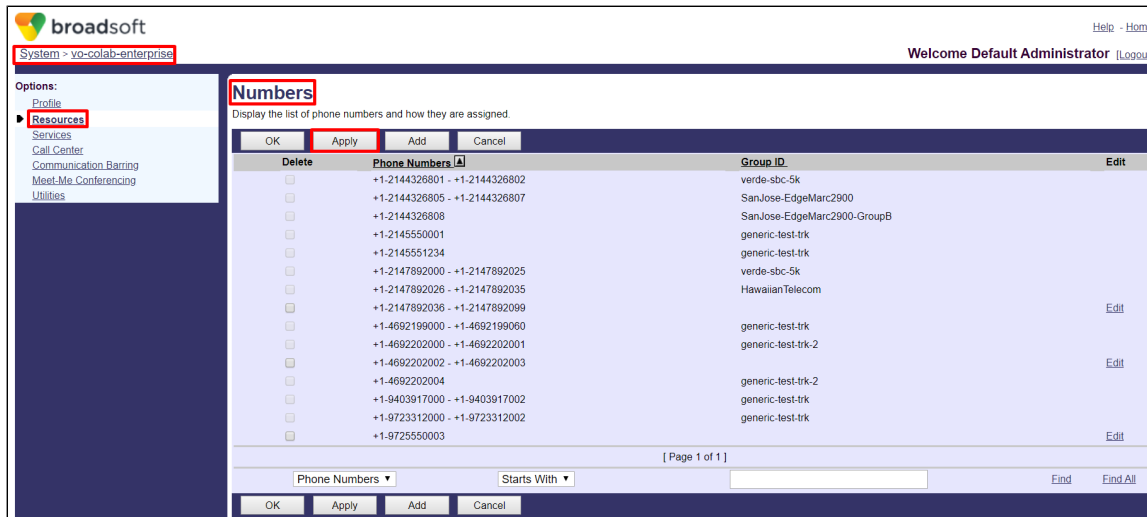
1. Select **System > Enterprise > Resources > Numbers** and click **Add** to configure the Numbers.
2. Fill in the Number Add information and click **OK** to confirm the changes.

Figure 6: Numbers Add



3. Click **Apply** on the Numbers page.

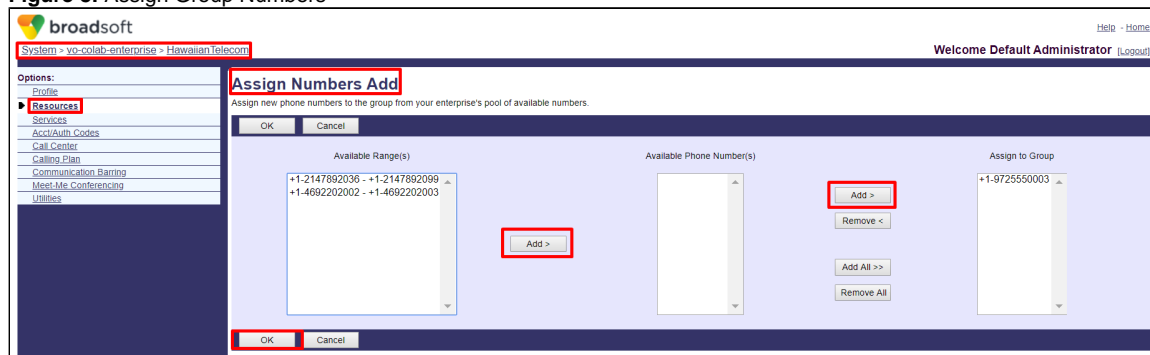
Figure 7: Numbers



Assign Group Numbers

Select **System > Enterprise > Hawaiian Telecom > Resources > Assign Numbers** and click **Add** to configure the group Numbers.

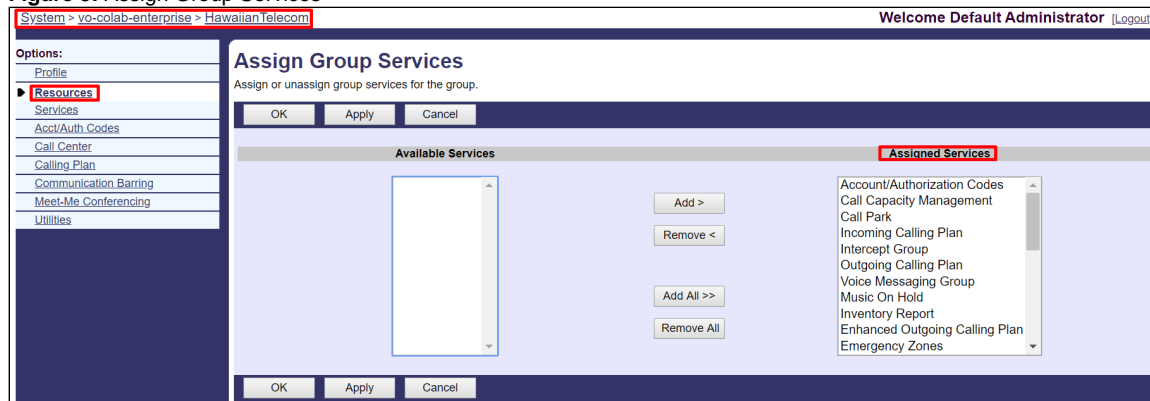
Figure 8: Assign Group Numbers



Assign Group Services

Select **System > Enterprise > Hawaiian Telecom > Resources > Assign Group Services** to assign or unassign services for the group.

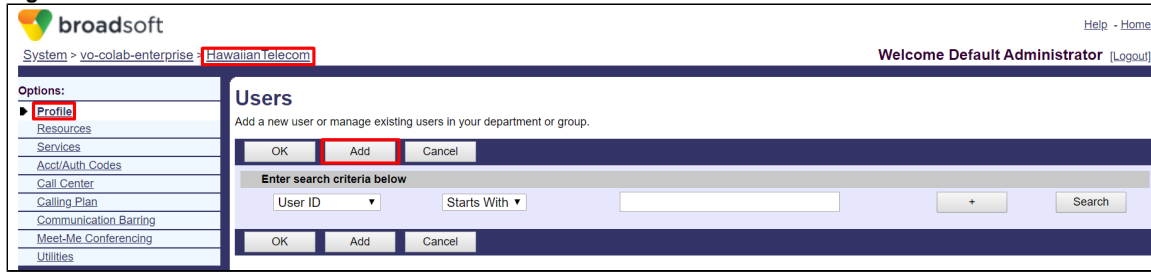
Figure 9: Assign Group Services



Users

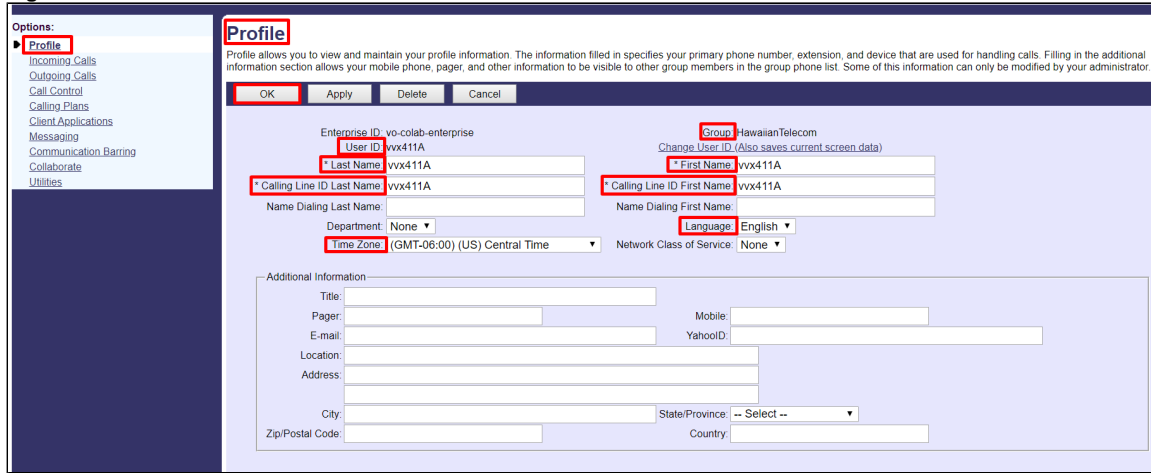
1. Select **System > Enterprise > Hawaiian Telecom > Profile > Users** and click **Add** to configure a new User for the Hawaiian Telecom group.

Figure 10: Users



2. Fill in the User profile information and click on the **OK** icon to confirm the changes. In this example we used the User name **vx411A**.

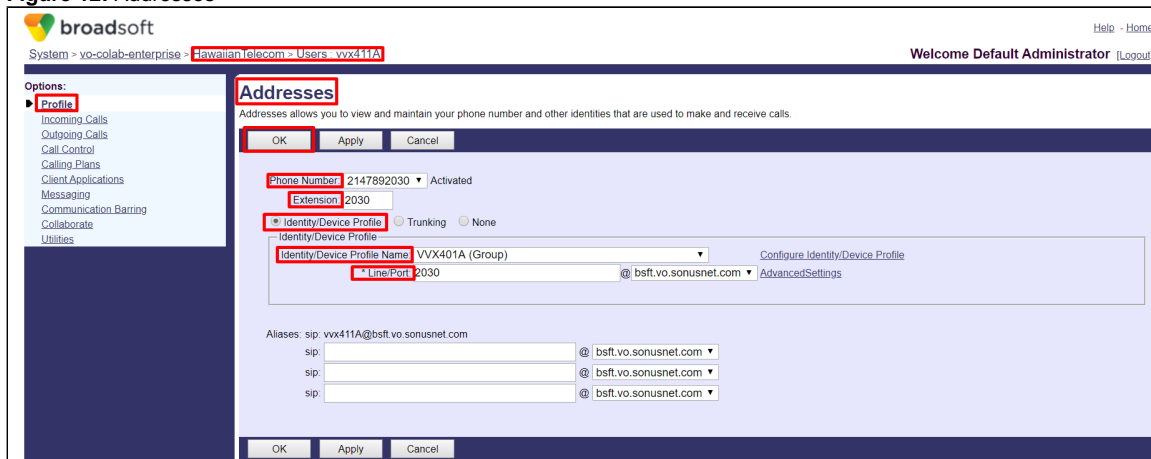
Figure 11: User Profile



User Phone Number

1. Select **System > Enterprise > Hawaiian Telecom > Users > vx411A > Profile > Addresses** to view and maintain your phone number and other identities that make and receive calls.
2. Fill in the Addresses information and click **OK** to confirm the changes.

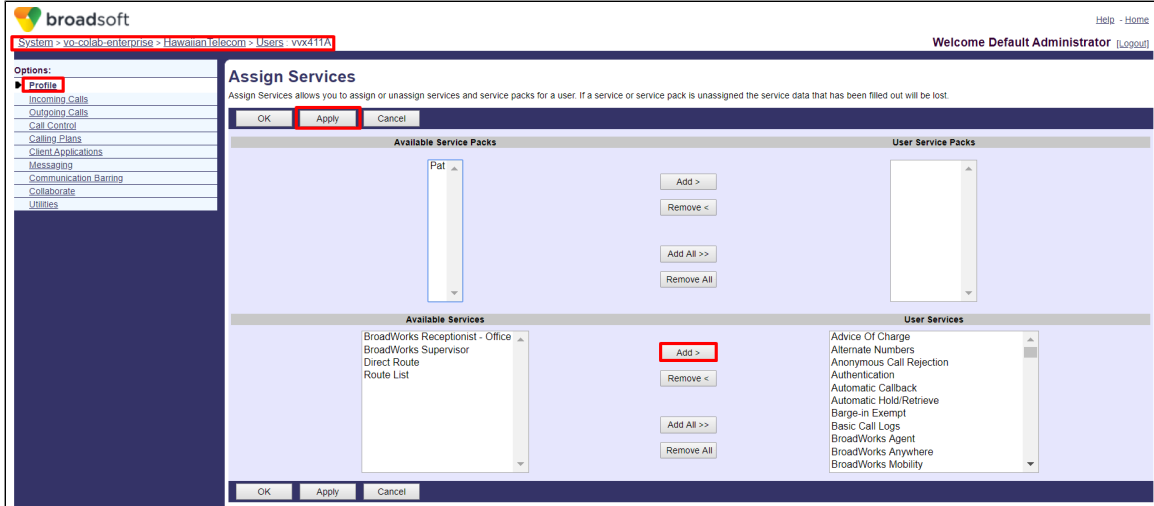
Figure 12: Addresses



Assign User Services

Select **System > Enterprise > Hawaiian Telecom > Users > vx411A > Profile > Assign Services** to assign or unassign services for the User.

Figure 13: User Services



EdgeMarc 2900A Configuration

- Network
 - LAN and WAN Interfaces
 - Static Routes
- VoIP
 - VoIP Settings
 - SIP Settings
 - B2BUA

Network

LAN and WAN Interfaces

Log into the EdgeMarc as the root user and click **Network** to configure the LAN and WAN interfaces.

Figure 14: EdgeMarc Network LAN Interface

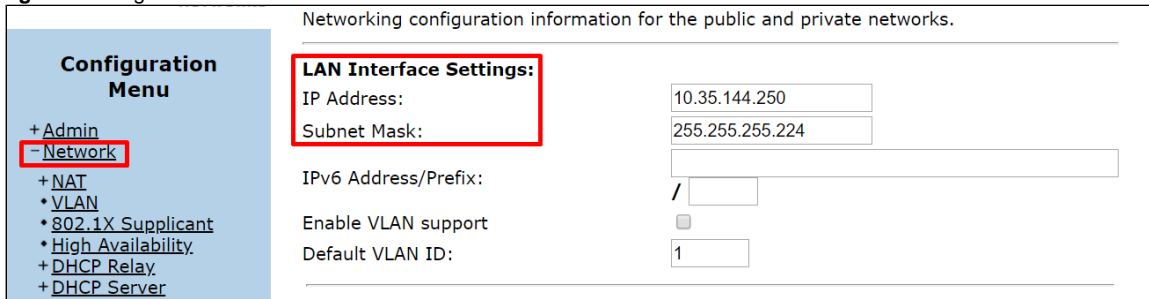


Figure 15: EdgeMarc Network WAN Interface

WAN Interface IPv4 Settings:

Select the type of IPv4 WAN Interface to use:

- Disabled
- PPPoE
- DHCP
- Static IP

IP Address:

Subnet Mask:

Network Settings:

Default Gateway:

Static Routes

Select **Network > Static Routes** to configure the routes.

Figure 16: EdgeMarc Network WAN Interface

The screenshot shows the 'Static Routes' configuration page in the EdgeMarc Network WAN Interface. The page includes a configuration menu on the left, a main content area with a description, a table of static routes, and an 'Add a Static Route' form.

Configuration Menu

- + Admin
- Network
- + NAT
- VLAN
- 802.1X Supplicant
- High Availability
- + DHCP Relay
- + DHCP Server
- + Traffic Shaper
- Pass-Through Rules
- Subinterfaces
- Proxy ARP
- Switch Ports
- Static Routes
- Dynamic DNS
- Network Information
- Network Restart
- Network Test Tools
- + WAN Failover
- Router Advertisement
- IP Multicast

Static Routes

The Static Routes page is used to add or delete static routes to hosts or networks. You may add up to 75 static routes.

	IP Network	Network Mask	Gateway
<input type="checkbox"/>	172.24.29.232	255.255.255.248	10.35.144.225
<input type="checkbox"/>	10.128.176.31	255.255.255.0	10.35.144.225
<input type="checkbox"/>	172.24.26.0	255.255.255.0	10.35.144.225

Add a Static Route

IP Network:

Network Mask:

Gateway:

VoIP

VoIP Settings

1. Login as the root user and click **VoIP** to configure the VoIP features.
2. Enable the B2BUA feature by checking the **Route all SIP signalling through B2BUA** box.

Figure 17: VoIP

Configuration Menu

- + [Admin](#)
- + [Network](#)
- + [Users](#)
- + [Security](#)
- [SD-WAN](#)
- [VoIP](#)
- [H.323](#)
- + [SIP](#)
- [Survivability](#)
- [Clients List](#)
- [Test UA](#)
- + [VPN](#)

VoIP ALG allows the system to recognize and register network devices.

Enable LLDP:

LLDP Broadcast Interval (sec):

IPv4 only.

TFTP Server IP address:

In some cases, the ALG addresses will not correspond to the addresses of the LAN or the WAN ports. The addresses will be alias addresses that have been configured on the ports. In general, the user should leave this feature disabled.

Use ALG Alias IP Addresses:

ALG LAN Interface IP Address: 10.35.144.250

ALG LAN Interface IPv6 Address:

ALG WAN Interface IP Address: 10.10.211.231

ALG WAN Interface IPv6 Address:

Public NAT WAN IP address:

Private NAT LAN IP address:

Do strict RTP source check:

Enable Client List lockdown:

Allow Shared Usernames:

Strip G.729 from calls:

Route all SIP signalling through B2BUA:

SIP Settings

1. Select **VoIP > SIP** to configure the SIP settings.
2. Configure the SIP server and the custom domain if needed.

Figure 18: SIP

Configuration Menu

- + [Admin](#)
- + [Network](#)
- + [Users](#)
- + [Security](#)
- [SD-WAN](#)
- [VoIP](#)
- [H.323](#)
- [SIP](#)
- [ALG](#)
- [B2BUA](#)
- + [SIP UA](#)
- [SIP GW](#)
- [Trunking Group Availability](#)
- [Survivability](#)
- [Clients List](#)
- [Test UA](#)

SIP protocol settings.

The SIP Server settings specify the address and port that all client traffic shall be forwarded to.

SIP Server Address:

SIP Server Port:

SIP Server Transport:

Enable SRTP:

Exclude sips headers for TLS Transport:

Use Custom Domain:

SIP Server Domain:

List of SIP Servers:

Enable Multi-homed Outbound Proxy Mode:

Enable Transparent Proxy Mode:

Limit Outbound to listed SIP Servers:

Limit Inbound to listed SIP Servers:

Include UPDATE In Allow:

PRACK Support:

B2BUA

1. Select **VoIP > SIP > B2BUA** to configure the B2BUA settings.
2. Configure a Trunk Device if needed and click **Update**.

Figure 19: Trunk Devices

- + Admin
- + Network
- + Users
- + Security
- + SD-WAN
- VoIP
- H.323
- SIP
- ALG
- B2BUA
- + SIP UA
- + SIP GW
- Trunking_Group
- Availability
- Survivability
- Clients List
- Test UA
- + VPN

Trunking Devices

Name	Address	Port	Group	Username	Registration Status	Transport	S RTP
✘ CUCM12	10.35.180.112	5060				UDP	Disabled
✘ IAD	10.35.144.249	5060				UDP	Disabled

New Entry

Name:

Model:

Address(IP/FQDN):
Use DNS SRV:

Port:

Transport:

SRTP:

Username:

Password:

Authenticate Registration:

3. Configure an Action if needed and click **Update**.

Figure 20: Action

Actions

Name	Send	Prio	Hunt	Header	Refer-To-ReINV
✘ ToIAD	✓				

New Entry

Name:

Send To:

Trunking Device:

Client:

URI:

Response:

Prioritize:

Refer to Re-INVITE:

Serial Hunting:

Header Manipulations:

Header	Value
Header: <input type="text" value="Request-URI"/>	<input type="button" value="Add"/>
Value: <input type="text"/>	

4. Configure a Match if needed and click **Update**.

Figure 21: Match

Match									
	Direction	Mode	Def	Called		Calling		Source	Action
				Match	Pattern	Match	Pattern		
<input checked="" type="checkbox"/>	Outbound	BothModes		matches	.			Any	default
<input checked="" type="checkbox"/>	Inbound	BothModes		matches	214432684.			Any	ToIAD
<input checked="" type="checkbox"/>	Inbound	BothModes		matches	6845			Any	ToIAD
New Entry									
Direction:		Inbound							
Mode:		BothModes							
<input type="radio"/> default									
<input checked="" type="radio"/> Pattern:		Called							
Called Party:				matches	214432684.				
Calling Party:				matches					
Source:		Any							
Action:		ToIAD							
Update									

EdgeMarc 2900A PoE IAD Configuration

- IAD Network
 - LAN and WAN Interfaces
 - Static Routes
- IAD VoIP
 - VoIP Settings
 - SIP Settings
 - B2BUA
 - SIP UA

IAD Network

LAN and WAN Interfaces

Log into the IAD as the root user and click **Network** to configure the LAN and WAN interfaces.

Figure 22: IAD LAN Interface

The screenshot shows the 'Network' configuration page in the IAD web interface. On the left is a 'Configuration Menu' with 'Network' selected. The main area is titled 'LAN Interface Settings' and contains the following fields:

- IP Address:** 192.168.6.1
- Subnet Mask:** 255.255.255.0
- IPv6 Address/Prefix:** (empty field)
- Enable VLAN support:** (checkbox, unchecked)
- Default VLAN ID:** 1

Figure 23: IAD WAN Interface

WAN Interface IPv4 Settings:
 Select the type of IPv4 WAN Interface to use:

Disabled
 PPPoE
 DHCP
 Static IP
 VLAN

IP Address:
 Subnet Mask:

Network Settings:
 Default Gateway:

Static Routes

Select **Network > Static Routes** to configure the routes if needed.

Figure 24: Static Routes

Static Routes [Help](#)

The Static Routes page is used to add or delete static routes to hosts or networks. You may add up to 75 static routes.

Static Routes		
Select: All None		Delete
IP Network	Network Mask	Gateway
The list is currently empty		

Add a Static Route

IP Network:
 Network Mask:
 Gateway:

[Add](#) [Reset](#)

VoIP

VoIP Settings

1. Login as the root user and click **VoIP** to configure the VoIP features.
2. Enable the B2BUA feature by checking the **Route all SIP signalling through B2BUA** box.

Figure 25: VoIP

Configuration Menu

- + Admin
- + Network
- + Users
- + Security
- SD-WAN
- VoIP**
- H.323
- + SIP
- Survivability
- Clients List
- Test UA
- + VPN
- + Switch

VoIP ALG allows the system to recognize and register network devices.

Enable LLDP:

LLDP Broadcast Interval (sec):

IPv4 only.

TFTP Server IP address:

In some cases, the ALG addresses will not correspond to the addresses of the LAN or the WAN ports. The addresses will be alias addresses that have been configured on the ports. In general, the user should leave this feature disabled.

Use ALG Alias IP Addresses:

ALG LAN Interface IP Address: 192.168.6.1

ALG LAN Interface IPv6 Address:

ALG WAN Interface IP Address: 10.35.144.249

ALG WAN Interface IPv6 Address:

Public NAT WAN IP address:

Private NAT LAN IP address:

Do strict RTP source check:

Enable Client List lockdown:

Allow Shared Usernames:

Strip G.729 from calls:

B2BUA Options:

Route all SIP signalling through B2BUA:

SIP Settings

1. Select **VoIP > SIP** to configure the SIP settings.
2. Configure the SIP server and the custom domain if needed.

Figure 26: SIP

Configuration Menu

- + Admin
- + Network
- + Users
- + Security
- SD-WAN
- VoIP**
- H.323
- SIP**
- ALG
- B2BUA
- + SIP UA
- SIP GW
- Trunking Group
- Availability
- Survivability
- Clients List
- Test UA
- + VPN
- + Switch

SIP protocol settings.

The SIP Server settings specify the address and port that all client traffic shall be forwarded to.

SIP Server Address:

SIP Server Port:

SIP Server Transport:

Exclude sips headers for TLS Transport:

Use Custom Domain:

SIP Server Domain:

List of SIP Servers:

Enable Multi-homed Outbound Proxy Mode:

Enable Transparent Proxy Mode:

Limit Outbound to listed SIP Servers:

Limit Inbound to listed SIP Servers:

Include UPDATE In Allow:

PRACK Support:

B2BUA

1. Select **VoIP > SIP > B2BUA** to configure the B2BUA settings.
2. Configure a Trunk Device if needed and click **Update**.

Figure 27: Trunk Devices

Configuration Menu

- + Admin
- + Network
- + Users
- + Security
- + SD-WAN
- **VoIP**
 - H.323
 - **SIP**
 - ALG
 - **B2BUA**
 - + SIP UA
 - + SIP GW
 - Trunking Group
- Availability
- Survivability
- Clients List
- Test UA
- + VPN
- + Switch

In order for changes to this page to be applied, you must click the "Submit" or "Apply Later" button at the bottom of the page

Trunking Devices

Name	Address	Port	Group	Username	Registration Status	Transport
EW_UA	192.168.6.252	1025				UDP
✖ ventafax	192.168.6.200	5060				UDP

New Entry

Name: **Model:** Generic PBX

Address(IP/FQDN): Use DNS SRV:

Port: **Transport:** UDP

Source FQDN:

Username: Password:

Authenticate Registration:

3. Configure an Action if needed and click **Update**.

Figure 28: Action

Actions

Name	Send	Prio	Hunt	Header	Refer-To-ReINV
✖ ToVentafax	✓				

New Entry

Name:

Send To:

- Trunking Device:
- Client:
- URI:
- Response:

Prioritize: Refer to Re-INVITE:

Serial Hunting:

Header Manipulations:

Header	Value
Header: <input type="text" value="Request-URI"/>	<input type="text"/>

Value:

4. Configure a Match if needed and click **Update**.


Figure 29: Match

	Direction	Mode	Def	Called		Calling		Source	Action
				Match	Pattern	Match	Pattern		
<input checked="" type="checkbox"/>	Outbound	BothModes		matches	.			Any	default
<input checked="" type="checkbox"/>	Inbound	BothModes		matches	1111			Any	ToVentafax
New Entry									
Direction:		Outbound							
Mode:		BothModes							
<input type="radio"/> default									
Pattern:		Called							
Called Party:				matches					
Calling Party:				matches					
Source:		Any							
Action:		default							
Update									

SIP UA

1. Select **VoIP > SIP > SIP UA** to configure the FSX/Phone port settings.
2. Configure the Global configuration as needed.
3. Configure the Ports.

Figure 30: Global Configuration



FXS/Phone Port Settings - Basic

[Help](#)

SIP UA allows voice call from Analog port to IP or PSTN
UA is currently bound to 192.168.6.252:5060

Configuration Menu

- + Admin
- + Network
- + Users
- + Security
- SD-WAN
- VoIP**
- H.323
- SIP**
- ALG
- B2BUA
- SIP UA**

Global configuration:

Enable SIPUA:

Use SIP Username for SIP authentication:

Codec Preference: G.711 ulaw

Use Preferred codec only:

Use REFER for transfer:

Register with proxy:

Port Level Basic Configuration

Figure 31: Port Level Configuration

Port Level Basic Configuration

Port 1 Configuration: (Registered)

Hook state: **On-hook**

SIP Display name:

6846

SIP Username:

6846

SIP Authentication name:

6846

Password:

is set

Edit Password:

Password:

Confirm Password:



FXS/Phone Port Settings

Bind the FXS ports to the LAN interface. Perform this configuration under the Advanced options.

SBC SWe Configuration

Complete Configuration

```
##### EdgeMarc Configuration #####
#-----IP Interface Group-----#
set addressContext default ipInterfaceGroup IPIG0 ipInterface IPIF0 portName pkt0
set addressContext default ipInterfaceGroup IPIG0 ipInterface IPIF0 ipAddress 10.10.216.160
set addressContext default ipInterfaceGroup IPIG0 ipInterface IPIF0 prefix 26
set addressContext default ipInterfaceGroup IPIG0 ipInterface IPIF0 mode inService
set addressContext default ipInterfaceGroup IPIG0 ipInterface IPIF0 state enabled
#-----IP Static Routes-----#
set addressContext default staticRoute 0.0.0.0 0 10.10.216.129 IPIG0 IPIF0

#-----Codec Entries-----#
set profiles media codecEntry G711-DEFAULT codec g711
set profiles media codecEntry G711-DEFAULT packetSize 10
set profiles media codecEntry G711-DEFAULT fax failureHandling continue
set profiles media codecEntry G711-DEFAULT fax toneTreatment faxRelayOrFallbackToG711
set profiles media codecEntry G711-DEFAULT fax honorToneDetection disable
set profiles media codecEntry G711-DEFAULT modem failureHandling continue
set profiles media codecEntry G711-DEFAULT modem toneTreatment applyFaxTreatment
set profiles media codecEntry G711-DEFAULT modem honorToneDetection disable
set profiles media codecEntry G711-DEFAULT law deriveFromOtherLeg
set profiles media codecEntry G711-DEFAULT dtmf relay rfc2833
set profiles media codecEntry G711-DEFAULT dtmf removeDigits enable

set profiles media codecEntry G729A-DEFAULT codec g729a
set profiles media codecEntry G729A-DEFAULT packetSize 20
set profiles media codecEntry G729A-DEFAULT preferredRtpPayloadType 128
set profiles media codecEntry G729A-DEFAULT fax failureHandling continue
set profiles media codecEntry G729A-DEFAULT fax toneTreatment faxRelayOrFallbackToG711
set profiles media codecEntry G729A-DEFAULT modem failureHandling continue
set profiles media codecEntry G729A-DEFAULT modem toneTreatment applyFaxTreatment
set profiles media codecEntry G729A-DEFAULT dtmf relay rfc2833
set profiles media codecEntry G729A-DEFAULT dtmf removedDigits enable

set profiles media codecEntry G729AB-DEFAULT codec g729ab
```

```

set profiles media codecEntry G729AB-DEFAULT packetSize 20
set profiles media codecEntry G729AB-DEFAULT preferredRtpPayloadType 128
set profiles media codecEntry G729AB-DEFAULT fax failureHandling continue
set profiles media codecEntry G729AB-DEFAULT fax toneTreatment faxRelayOrFallbackToG711
set profiles media codecEntry G729AB-DEFAULT modem failureHandling continue
set profiles media codecEntry G729AB-DEFAULT modem toneTreatment applyFaxTreatment
set profiles media codecEntry G729AB-DEFAULT dtmf relay rfc2833
set profiles media codecEntry G729AB-DEFAULT dtmf removeDigits enable
#-----Packet Service Profile-----#
set profiles media packetServiceProfile EM2900_PSP silenceInsertionDescriptor g711SidRtpPayloadType 13
set profiles media packetServiceProfile EM2900_PSP codec codecEntry1 G711-DEFAULT
set profiles media packetServiceProfile EM2900_PSP codec codecEntry2 G729A-DEFAULT
set profiles media packetServiceProfile EM2900_PSP codec codecEntry3 G729AB-DEFAULT
#-----IP Signaling profiles-----#
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes flags disableMediaLockDown enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes flags endToEndReInvite enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes flags includeTransportTypeInContactHeader
enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes flags storePChargingVector enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes optionTagInSupportedHeader
suppressReplaceTag enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes relayFlags dialogEventPackage enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes relayFlags notify enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes relayFlags regEventPackage enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes relayFlags refer enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes relayFlags statusCode3xx enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes relayFlags statusCode4xx6xx enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes transparencyFlags authcodeHeaders enable
set profiles signaling ipSignalingProfile EM2900_IPSP commonIpAttributes transparencyFlags mwiBody enable
set profiles signaling ipSignalingProfile EM2900_IPSP egressIpAttributes flags disable2806Compliance enable
set profiles signaling ipSignalingProfile EM2900_IPSP egressIpAttributes flags sameCallIdForRequiredAuthorization
enable
set profiles signaling ipSignalingProfile EM2900_IPSP egressIpAttributes privacy privacyInformation pAssertedId
set profiles signaling ipSignalingProfile EM2900_IPSP egressIpAttributes sipHeadersAndParameters flags
transparencyForDestinationTrunkGroupParameter disable
set profiles signaling ipSignalingProfile EM2900_IPSP egressIpAttributes sipHeadersAndParameters flags endToEndAck
enable
#-----Transparency profile-----#
set profiles services transparencyProfile INGRESS_TP state enabled
set profiles services transparencyProfile INGRESS_TP sipHeader Call-Info
set profiles services transparencyProfile INGRESS_TP sipMessageBody all
set profiles services transparencyProfile INGRESS_TP sipMessageBody message/sipfrag
#-----E164Profile-----#
set profiles signaling E164Profile INTG_E164 sonusE164ProfCharStar allow
set profiles signaling E164Profile INTG_E164 sonusE164ProfCharHash allow
#-----elementRoutingPriority-----#
set profiles callRouting elementRoutingPriority INTG_ERP entry nationalType 1 entityType none
set profiles callRouting elementRoutingPriority INTG_ERP entry nationalType 2 entityType trunkGroup
set profiles callRouting elementRoutingPriority INTG_ERP entry internationalType 1 entityType none
set profiles callRouting elementRoutingPriority INTG_ERP entry internationalType 2 entityType trunkGroup
set profiles callRouting elementRoutingPriority INTG_ERP entry userName 1 entityType none
set profiles callRouting elementRoutingPriority INTG_ERP entry userName 2 entityType trunkGroup
#-----Prefix Profile-----#
set profiles digitParameterHandling prefixProfile INTG_PP entry "#" 0 1 31 callType nationalType
set profiles digitParameterHandling prefixProfile INTG_PP entry "#" 0 1 31 digitType unknown
set profiles digitParameterHandling prefixProfile INTG_PP entry "#" 0 1 31 natureOfAddress none
set profiles digitParameterHandling prefixProfile INTG_PP entry "#" 0 1 31 numberingPlanIndicator none
set profiles digitParameterHandling prefixProfile INTG_PP entry "#" 0 1 31 numberLeadingPrefixDigits 0
set profiles digitParameterHandling prefixProfile INTG_PP entry "#" 0 1 31 numberLeadingPrefixDigitsToStrip 0
set profiles digitParameterHandling prefixProfile INTG_PP entry "#" 0 1 31 applyDmRule disable
set profiles digitParameterHandling prefixProfile INTG_PP entry "#" 0 1 31 determineArea disable
set profiles digitParameterHandling prefixProfile INTG_PP entry % 0 1 31 callType nationalType
set profiles digitParameterHandling prefixProfile INTG_PP entry % 0 1 31 digitType unknown
set profiles digitParameterHandling prefixProfile INTG_PP entry % 0 1 31 natureOfAddress none
set profiles digitParameterHandling prefixProfile INTG_PP entry % 0 1 31 numberingPlanIndicator none
set profiles digitParameterHandling prefixProfile INTG_PP entry % 0 1 31 numberLeadingPrefixDigits 0
set profiles digitParameterHandling prefixProfile INTG_PP entry % 0 1 31 numberLeadingPrefixDigitsToStrip 0
set profiles digitParameterHandling prefixProfile INTG_PP entry % 0 1 31 applyDmRule disable
set profiles digitParameterHandling prefixProfile INTG_PP entry % 0 1 31 determineArea disable
set profiles digitParameterHandling prefixProfile INTG_PP entry * 0 1 31 callType nationalType
set profiles digitParameterHandling prefixProfile INTG_PP entry * 0 1 31 digitType unknown

```



```

set profiles digitParameterHandling prefixProfile INTG_PP entry 7 0 1 31 natureOfAddress none
set profiles digitParameterHandling prefixProfile INTG_PP entry 7 0 1 31 numberingPlanIndicator none
set profiles digitParameterHandling prefixProfile INTG_PP entry 7 0 1 31 numberLeadingPrefixDigits 0
set profiles digitParameterHandling prefixProfile INTG_PP entry 7 0 1 31 numberLeadingPrefixDigitsToStrip 0
set profiles digitParameterHandling prefixProfile INTG_PP entry 7 0 1 31 applyDmRule disable
set profiles digitParameterHandling prefixProfile INTG_PP entry 7 0 1 31 determineArea disable
set profiles digitParameterHandling prefixProfile INTG_PP entry 8 0 1 31 callType nationalType
set profiles digitParameterHandling prefixProfile INTG_PP entry 8 0 1 31 digitType unknown
set profiles digitParameterHandling prefixProfile INTG_PP entry 8 0 1 31 natureOfAddress none
set profiles digitParameterHandling prefixProfile INTG_PP entry 8 0 1 31 numberingPlanIndicator none
set profiles digitParameterHandling prefixProfile INTG_PP entry 8 0 1 31 numberLeadingPrefixDigits 0
set profiles digitParameterHandling prefixProfile INTG_PP entry 8 0 1 31 numberLeadingPrefixDigitsToStrip 0
set profiles digitParameterHandling prefixProfile INTG_PP entry 8 0 1 31 applyDmRule disable
set profiles digitParameterHandling prefixProfile INTG_PP entry 8 0 1 31 determineArea disable
set profiles digitParameterHandling prefixProfile INTG_PP entry 9 0 1 31 callType nationalType
set profiles digitParameterHandling prefixProfile INTG_PP entry 9 0 1 31 digitType unknown
set profiles digitParameterHandling prefixProfile INTG_PP entry 9 0 1 31 natureOfAddress none
set profiles digitParameterHandling prefixProfile INTG_PP entry 9 0 1 31 numberingPlanIndicator none
set profiles digitParameterHandling prefixProfile INTG_PP entry 9 0 1 31 numberLeadingPrefixDigits 0
set profiles digitParameterHandling prefixProfile INTG_PP entry 9 0 1 31 numberLeadingPrefixDigitsToStrip 0
set profiles digitParameterHandling prefixProfile INTG_PP entry 9 0 1 31 applyDmRule disable
set profiles digitParameterHandling prefixProfile INTG_PP entry 9 0 1 31 determineArea disable

```

#-----Numbering Plan-----#

```
set profiles digitParameterHandling numberingPlan INTG_NP prefixProfile INTG_PP
```

#-----sipAdaptorProfile-----#

```

set profiles signaling sipAdaptorProfile INGRESS_SMM state enabled
set profiles signaling sipAdaptorProfile INGRESS_SMM advancedSMM disabled
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 applyMatchHeader one
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 1 type message
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 1 message
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 1 message messageTypes requestAll
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 2 type header
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 2 header
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 2 header name Request-line
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 2 header condition exist
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 2 header hdrInstance all
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 3 type token
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 3 token
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 3 token condition regex-match
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 3 token tokenType uriusername
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 3 token regexp
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 criterion 3 token regexp string %23
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 type token
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 operation regsub
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 from
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 from type value
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 from value "#"
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 to
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 to type token
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 to tokenValue uriusername
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 regexp
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 regexp string %23
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 1 action 1 regexp matchInstance all
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 applyMatchHeader one
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 1 type message
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 1 message
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 1 message messageTypes requestAll
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 2 type header
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 2 header
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 2 header name To
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 2 header condition exist
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 2 header hdrInstance all
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 3 type token
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 3 token
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 3 token condition regex-match
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 3 token tokenType uriusername
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 3 token regexp
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 criterion 3 token regexp string %23
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 type token
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 operation regsub

```

```

set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 from
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 from type value
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 from value "#"
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 to
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 to type token
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 to tokenValue uriusername
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 regexp
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 regexp string %23
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 2 action 1 regexp matchInstance all
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 applyMatchHeader one
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 criterion 1 type message
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 criterion 1 message
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 criterion 1 message messageTypes request
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 criterion 1 message methodTypes refer
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 criterion 2 type header
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 criterion 2 header
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 criterion 2 header name Refer-To
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 criterion 2 header condition exist
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 criterion 2 header hdrInstance all
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 type header
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 operation regsub
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 headerInfo fieldValue
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 from
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 from type value
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 from value >
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 to
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 to type header
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 to value Refer-To
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 regexp
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 regexp string ";user.*"
set profiles signaling sipAdaptorProfile INGRESS_SMM rule 3 action 1 regexp matchInstance all
#-----ZONE-----#
set addressContext default zone INZONE id 2
set addressContext default zone INZONE remoteDeviceType accessDevice

#-----SIP signaling ports-----#
set addressContext default zone INZONE sipSigPort 2 ipInterfaceGroupName IPIG0
set addressContext default zone INZONE sipSigPort 2 ipAddressV4 10.10.216.160
set addressContext default zone INZONE sipSigPort 2 portNumber 5060
set addressContext default zone INZONE sipSigPort 2 mode inService
set addressContext default zone INZONE sipSigPort 2 state enabled
set addressContext default zone INZONE sipSigPort 2 transportProtocolsAllowed sip-udp

#-----IPPEERs-----#
set addressContext default zone INZONE ipPeer EM ipAddress 10.10.211.231
set addressContext default zone INZONE ipPeer EM ipPort 5060
set addressContext default zone INZONE ipPeer EM policy description ""
set addressContext default zone INZONE ipPeer EM policy sip fqdn ""
set addressContext default zone INZONE ipPeer EM policy sip fqdnPort 0

#----- sipTrunkGroup-----#
set addressContext default zone INZONE sipTrunkGroup EM2900 state enabled
set addressContext default zone INZONE sipTrunkGroup EM2900 mode inService
set addressContext default zone INZONE sipTrunkGroup EM2900 policy carrier 0000
set addressContext default zone INZONE sipTrunkGroup EM2900 policy country 1
set addressContext default zone INZONE sipTrunkGroup EM2900 policy localizationVariant northAmerica
set addressContext default zone INZONE sipTrunkGroup EM2900 policy tgIPVersionPreference both-ipv4-and-ipv6
set addressContext default zone INZONE sipTrunkGroup EM2900 policy preferredIdentity disable
set addressContext default zone INZONE sipTrunkGroup EM2900 policy digitParameterHandling numberingPlan INTG_NP
set addressContext default zone INZONE sipTrunkGroup EM2900 policy callRouting elementRoutingPriority INTG_ERP
set addressContext default zone INZONE sipTrunkGroup EM2900 policy media packetServiceProfile EM2900_PSP
set addressContext default zone INZONE sipTrunkGroup EM2900 policy services classOfService DEFAULT_IP
set addressContext default zone INZONE sipTrunkGroup EM2900 policy signaling ipSignalingProfile EM2900_IPSP
set addressContext default zone INZONE sipTrunkGroup EM2900 policy featureControlProfile DEFAULT_IP
set addressContext default zone INZONE sipTrunkGroup EM2900 policy ingress flags
nonZeroVideoBandwidthBasedRoutingForSip enable
set addressContext default zone INZONE sipTrunkGroup EM2900 policy ingress flags
nonZeroVideoBandwidthBasedRoutingForH323 disable
set addressContext default zone INZONE sipTrunkGroup EM2900 policy ingress flags hdPreferredRouting disable
set addressContext default zone INZONE sipTrunkGroup EM2900 policy ingress flags hdSupportedRouting disable
set addressContext default zone INZONE sipTrunkGroup EM2900 signaling messageManipulation inputAdapterProfile
INGRESS_SMM

```

```
set addressContext default zone INZONE sipTrunkGroup EM2900 signaling methods subscribe allow
set addressContext default zone INZONE sipTrunkGroup EM2900 signaling registration requireRegistration supported
set addressContext default zone INZONE sipTrunkGroup EM2900 signaling registration expires 3600
set addressContext default zone INZONE sipTrunkGroup EM2900 signaling rel100Support disabled
set addressContext default zone INZONE sipTrunkGroup EM2900 signaling relayNonInviteRequest enabled
set addressContext default zone INZONE sipTrunkGroup EM2900 signaling El64Profiles e164LocalProfile INTG_E164
set addressContext default zone INZONE sipTrunkGroup EM2900 signaling El64Profiles e164GlobalProfile INTG_E164
set addressContext default zone INZONE sipTrunkGroup EM2900 services transparencyProfile INGRESS_TP
set addressContext default zone INZONE sipTrunkGroup EM2900 services dialogEventNotificationSupported enabled
set addressContext default zone INZONE sipTrunkGroup EM2900 media directMediaAllowed disabled
set addressContext default zone INZONE sipTrunkGroup EM2900 media mediaIpInterfaceGroupName IPIGO
set addressContext default zone INZONE sipTrunkGroup EM2900 ingressIpPrefix 10.10.211.231 32
```

```
##### Broadsoft Configuration #####
```

```
#-----IP Interface Group-----#
```

```
set addressContext default ipInterfaceGroup IPIG1 ipInterface IPIF1 portName pkt1
set addressContext default ipInterfaceGroup IPIG1 ipInterface IPIF1 ipAddress 10.10.216.210
set addressContext default ipInterfaceGroup IPIG1 ipInterface IPIF1 prefix 26
set addressContext default ipInterfaceGroup IPIG1 ipInterface IPIF1 mode inService
set addressContext default ipInterfaceGroup IPIG1 ipInterface IPIF1 state enabled
```

```
#-----IP Static Routes-----#
```

```
set addressContext default staticRoute 0.0.0.0 0 10.10.216.193 IPIG1 IPIF1
```

```
#-----Packet Service Profile-----#
```

```
set profiles media packetServiceProfile OUTG_PSP silenceInsertionDescriptor g711SidRtpPayloadType 13
set profiles media packetServiceProfile OUTG_PSP codec codecEntry1 G711-DEFAULT
set profiles media packetServiceProfile OUTG_PSP codec codecEntry2 G729A-DEFAULT
set profiles media packetServiceProfile OUTG_PSP codec codecEntry3 G729AB-DEFAULT
```

```
#-----IP Signaling profiles-----#
```

```
set profiles signaling ipSignalingProfile OUTG_IPSP commonIpAttributes flags endToEndReInvite enable
set profiles signaling ipSignalingProfile OUTG_IPSP commonIpAttributes flags storePChargingVector enable
set profiles signaling ipSignalingProfile OUTG_IPSP commonIpAttributes relayFlags dialogEventPackage enable
set profiles signaling ipSignalingProfile OUTG_IPSP commonIpAttributes relayFlags notify enable
set profiles signaling ipSignalingProfile OUTG_IPSP commonIpAttributes relayFlags regEventPackage enable
set profiles signaling ipSignalingProfile OUTG_IPSP commonIpAttributes relayFlags statusCode4xx6xx enable
set profiles signaling ipSignalingProfile OUTG_IPSP commonIpAttributes transparencyFlags authCodeHeaders enable
set profiles signaling ipSignalingProfile OUTG_IPSP commonIpAttributes transparencyFlags mwiBody enable
set profiles signaling ipSignalingProfile OUTG_IPSP egressIpAttributes flags disable2806Compliance enable
set profiles signaling ipSignalingProfile OUTG_IPSP egressIpAttributes flags sameCallIdForRequiredAuthorization
disable
set profiles signaling ipSignalingProfile OUTG_IPSP egressIpAttributes privacy privacyInformation pAssertedId
set profiles signaling ipSignalingProfile OUTG_IPSP egressIpAttributes sipHeadersAndParameters flags
transparencyForDestinationTrunkGroupParameter disable
```

```
#-----Transparency profile-----#
```

```
set profiles services transparencyProfile EGRESS_TP state enabled
set profiles services transparencyProfile EGRESS_TP sipHeader From
set profiles services transparencyProfile EGRESS_TP sipHeader Call-Info
set profiles services transparencyProfile EGRESS_TP sipMessageBody all
```

```
#-----elementRoutingPriority-----#
```

```
set profiles callRouting elementRoutingPriority OUTG_ERP entry nationalType 1 entityType none
set profiles callRouting elementRoutingPriority OUTG_ERP entry nationalType 2 entityType trunkGroup
set profiles callRouting elementRoutingPriority OUTG_ERP entry internationalType 1 entityType none
set profiles callRouting elementRoutingPriority OUTG_ERP entry internationalType 2 entityType trunkGroup
set profiles callRouting elementRoutingPriority OUTG_ERP entry userName 1 entityType none
set profiles callRouting elementRoutingPriority OUTG_ERP entry userName 2 entityType trunkGroup
```

```
#-----Prefix Profile-----#
```

```
set profiles digitParameterHandling prefixProfile OUTG_PP entry + 0 1 31 callType internationalType
set profiles digitParameterHandling prefixProfile OUTG_PP entry + 0 1 31 digitType international
set profiles digitParameterHandling prefixProfile OUTG_PP entry + 0 1 31 natureOfAddress international
set profiles digitParameterHandling prefixProfile OUTG_PP entry + 0 1 31 numberingPlanIndicator none
set profiles digitParameterHandling prefixProfile OUTG_PP entry + 0 1 31 numberLeadingPrefixDigits 1
set profiles digitParameterHandling prefixProfile OUTG_PP entry + 0 1 31 numberLeadingPrefixDigitsToStrip 1
set profiles digitParameterHandling prefixProfile OUTG_PP entry + 0 1 31 applyDmRule disable
set profiles digitParameterHandling prefixProfile OUTG_PP entry + 0 1 31 determineArea disable
set profiles digitParameterHandling prefixProfile OUTG_PP entry 0 0 1 31 callType nationalType
set profiles digitParameterHandling prefixProfile OUTG_PP entry 0 0 1 31 digitType unknown
set profiles digitParameterHandling prefixProfile OUTG_PP entry 0 0 1 31 natureOfAddress none
```



```

set profiles digitParameterHandling prefixProfile OUTG_PP entry 9 0 1 31 numberingPlanIndicator none
set profiles digitParameterHandling prefixProfile OUTG_PP entry 9 0 1 31 numberLeadingPrefixDigits 0
set profiles digitParameterHandling prefixProfile OUTG_PP entry 9 0 1 31 numberLeadingPrefixDigitsToStrip 0
set profiles digitParameterHandling prefixProfile OUTG_PP entry 9 0 1 31 applyDmRule disable
set profiles digitParameterHandling prefixProfile OUTG_PP entry 9 0 1 31 determineArea disable
#-----Numbering Plan-----#
set profiles digitParameterHandling numberingPlan OUTG_PP prefixProfile OUTG_PP
#-----sipAdaptorProfile-----#
set profiles signaling sipAdaptorProfile IP2FQDN state enabled
set profiles signaling sipAdaptorProfile IP2FQDN advancedSMM disabled
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 applyMatchHeader one
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 1 type message
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 1 message
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 1 message messageTypes requestAll
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 2 type header
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 2 header
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 2 header name Request-line
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 2 header condition exist
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 2 header hdrInstance all
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 3 type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 3 token
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 3 token condition has-value
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 3 token tokenType urihostname
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 criterion 3 token value 10.35.176.81
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 operation regsub
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 from
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 from type value
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 from value bsft.vo.sonusnet.com
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 to
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 to type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 to tokenValue urihostname
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 regexp
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 regexp string "10\.35\.176\.81"
set profiles signaling sipAdaptorProfile IP2FQDN rule 1 action 1 regexp matchInstance all
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 applyMatchHeader one
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 1 type message
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 1 message
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 1 message messageTypes requestAll
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 2 type header
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 2 header
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 2 header name To
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 2 header condition exist
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 2 header hdrInstance all
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 3 type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 3 token
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 3 token condition has-value
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 3 token tokenType urihostname
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 criterion 3 token value 10.35.176.81
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 operation regsub
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 from
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 from type value
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 from value bsft.vo.sonusnet.com
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 to
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 to type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 to tokenValue urihostname
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 regexp
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 regexp string "10\.35\.176\.81"
set profiles signaling sipAdaptorProfile IP2FQDN rule 2 action 1 regexp matchInstance all
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 applyMatchHeader one
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 1 type message
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 1 message
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 1 message messageTypes requestAll
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 2 type header
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 2 header
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 2 header name From
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 2 header condition exist
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 2 header hdrInstance all
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 3 type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 3 token
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 3 token condition has-value

```

```

set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 3 token tokenType urihostname
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 criterion 3 token value 10.35.176.81
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 operation regsub
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 from
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 from type value
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 from value bsft.vo.sonusnet.com
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 to
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 to type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 to tokenValue urihostname
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 regexp
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 regexp string "10\.35\.176\.81"
set profiles signaling sipAdaptorProfile IP2FQDN rule 3 action 1 regexp matchInstance all
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 applyMatchHeader one
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 1 type message
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 1 message
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 1 message messageTypes requestAll
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 2 type header
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 2 header
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 2 header name From
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 2 header condition exist
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 2 header hdrInstance all
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 3 type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 3 token
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 3 token condition has-value
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 3 token tokenType urihostname
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 criterion 3 token value 10.10.216.210
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 operation regsub
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 from
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 from type value
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 from value bsft.vo.sonusnet.com
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 to
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 to type token
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 to tokenValue urihostname
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 regexp
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 regexp string "10\.10\.216\.210"
set profiles signaling sipAdaptorProfile IP2FQDN rule 4 action 1 regexp matchInstance all

#-----ZONE-----#
set addressContext default zone OUTZONE id 3

#-----SIP signaling ports-----#
set addressContext default zone OUTZONE sipSigPort 3 ipInterfaceGroupName IPIG1
set addressContext default zone OUTZONE sipSigPort 3 ipAddressV4 10.10.216.210
set addressContext default zone OUTZONE sipSigPort 3 portNumber 5060
set addressContext default zone OUTZONE sipSigPort 3 mode inService
set addressContext default zone OUTZONE sipSigPort 3 state enabled
set addressContext default zone OUTZONE sipSigPort 3 transportProtocolsAllowed sip-udp,sip-tcp

#-----IPPEERS-----#
set addressContext default zone OUTZONE ipPeer AS1 ipAddress 10.35.176.81
set addressContext default zone OUTZONE ipPeer AS1 ipPort 5060
set addressContext default zone OUTZONE ipPeer AS1 policy description ""
set addressContext default zone OUTZONE ipPeer AS1 policy sip fqdn ""
set addressContext default zone OUTZONE ipPeer AS1 policy sip fqdnPort 0

#----- sipTrunkGroup-----#
set addressContext default zone OUTZONE sipTrunkGroup OUTG state enabled
set addressContext default zone OUTZONE sipTrunkGroup OUTG mode inService
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy carrier 0000
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy country 1
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy localizationVariant northAmerica
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy tgIPVersionPreference both-ipv4-and-ipv6
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy preferredIdentity disable
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy digitParameterHandling numberingPlan OUTG_NP
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy callRouting elementRoutingPriority OUTG_ERP
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy media packetServiceProfile OUTG_PSP
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy services classOfService DEFAULT_IP
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy signaling ipSignalingProfile OUTG_IPSP
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy featureControlProfile DEFAULT_IP
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy ingress flags

```

```

nonZeroVideoBandwidthBasedRoutingForSip enable
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy ingress flags
nonZeroVideoBandwidthBasedRoutingForH323 disable
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy ingress flags hdPreferredRouting disable
set addressContext default zone OUTZONE sipTrunkGroup OUTG policy ingress flags hdSupportedRouting disable
set addressContext default zone OUTZONE sipTrunkGroup OUTG signaling messageManipulation outputAdapterProfile
IP2FQDN
set addressContext default zone OUTZONE sipTrunkGroup OUTG signaling rel100Support disabled
set addressContext default zone OUTZONE sipTrunkGroup OUTG signaling relayNonInviteRequest enabled
set addressContext default zone OUTZONE sipTrunkGroup OUTG signaling usePortRangeFlag disabled
set addressContext default zone OUTZONE sipTrunkGroup OUTG services transparencyProfile EGRESS_TP
set addressContext default zone OUTZONE sipTrunkGroup OUTG services dialogEventNotificationSupported enabled
set addressContext default zone OUTZONE sipTrunkGroup OUTG media mediaIpInterfaceGroupName IPIG1
set addressContext default zone OUTZONE sipTrunkGroup OUTG ingressIpPrefix 10.35.176.81 32

##### FAX Configuration #####
#-----IPPEERS-----#
set addressContext default zone OUTZONE ipPeer ventafax105 ipAddress 10.35.137.105
set addressContext default zone OUTZONE ipPeer ventafax105 ipPort 5060
set addressContext default zone OUTZONE ipPeer ventafax105 policy description ""
set addressContext default zone OUTZONE ipPeer ventafax105 policy sip fqdn ""
set addressContext default zone OUTZONE ipPeer ventafax105 policy sip fqdnPort 0

#----- sipTrunkGroup-----#
set addressContext default zone OUTZONE sipTrunkGroup FAX state enabled
set addressContext default zone OUTZONE sipTrunkGroup FAX mode inService
set addressContext default zone OUTZONE sipTrunkGroup FAX policy carrier 0000
set addressContext default zone OUTZONE sipTrunkGroup FAX policy country 1
set addressContext default zone OUTZONE sipTrunkGroup FAX policy localizationVariant northAmerica
set addressContext default zone OUTZONE sipTrunkGroup FAX policy tgIPVersionPreference both-ipv4-and-ipv6
set addressContext default zone OUTZONE sipTrunkGroup FAX policy preferredIdentity disable
set addressContext default zone OUTZONE sipTrunkGroup FAX policy digitParameterHandling numberingPlan OUTG_NP
set addressContext default zone OUTZONE sipTrunkGroup FAX policy callRouting elementRoutingPriority DEFAULT_IP
set addressContext default zone OUTZONE sipTrunkGroup FAX policy media packetServiceProfile OUTG_PSP
set addressContext default zone OUTZONE sipTrunkGroup FAX policy services classOfService DEFAULT_IP
set addressContext default zone OUTZONE sipTrunkGroup FAX policy signaling ipSignalingProfile DEFAULT_SIP
set addressContext default zone OUTZONE sipTrunkGroup FAX policy featureControlProfile DEFAULT_IP
set addressContext default zone OUTZONE sipTrunkGroup FAX policy ingress flags
nonZeroVideoBandwidthBasedRoutingForSip enable
set addressContext default zone OUTZONE sipTrunkGroup FAX policy ingress flags
nonZeroVideoBandwidthBasedRoutingForH323 disable
set addressContext default zone OUTZONE sipTrunkGroup FAX policy ingress flags hdPreferredRouting disable
set addressContext default zone OUTZONE sipTrunkGroup FAX policy ingress flags hdSupportedRouting disable
set addressContext default zone OUTZONE sipTrunkGroup FAX media mediaIpInterfaceGroupName IPIG1
set addressContext default zone OUTZONE sipTrunkGroup FAX ingressIpPrefix 10.35.137.105 32

##### callRouting #####
#-----routingLabels-----#
set global callRouting routingLabel TO_AS1 overflowNumber ""
set global callRouting routingLabel TO_AS1 overflowNOA none
set global callRouting routingLabel TO_AS1 overflowNPI none
set global callRouting routingLabel TO_AS1 routePrioritizationType sequence
set global callRouting routingLabel TO_AS1 action routes
set global callRouting routingLabel TO_AS1 numRoutesPerCall 10
set global callRouting routingLabel TO_AS1 routingLabelRoute 0 routeType trunkGroup
set global callRouting routingLabel TO_AS1 routingLabelRoute 0 trunkGroup OUTG
set global callRouting routingLabel TO_AS1 routingLabelRoute 0 ipPeer AS1
set global callRouting routingLabel TO_AS1 routingLabelRoute 0 proportion 0
set global callRouting routingLabel TO_AS1 routingLabelRoute 0 cost 1000000
set global callRouting routingLabel TO_AS1 routingLabelRoute 0 inService inService
set global callRouting routingLabel TO_AS1 routingLabelRoute 0 testing normal

set global callRouting routingLabel TO_EM overflowNumber ""
set global callRouting routingLabel TO_EM overflowNOA none
set global callRouting routingLabel TO_EM overflowNPI none
set global callRouting routingLabel TO_EM routePrioritizationType sequence
set global callRouting routingLabel TO_EM action routes
set global callRouting routingLabel TO_EM numRoutesPerCall 10
set global callRouting routingLabel TO_EM routingLabelRoute 0 routeType trunkGroup
set global callRouting routingLabel TO_EM routingLabelRoute 0 trunkGroup EM2900
set global callRouting routingLabel TO_EM routingLabelRoute 0 ipPeer EM

```

```

set global callRouting routingLabel TO_EM routingLabelRoute 0 proportion 0
set global callRouting routingLabel TO_EM routingLabelRoute 0 cost 1000000
set global callRouting routingLabel TO_EM routingLabelRoute 0 inService inService
set global callRouting routingLabel TO_EM routingLabelRoute 0 testing normal

set global callRouting routingLabel TO_VENTAFAX105 overflowNumber ""
set global callRouting routingLabel TO_VENTAFAX105 overflowNOA none
set global callRouting routingLabel TO_VENTAFAX105 overflowNPI none
set global callRouting routingLabel TO_VENTAFAX105 routePrioritizationType sequence
set global callRouting routingLabel TO_VENTAFAX105 action routes
set global callRouting routingLabel TO_VENTAFAX105 numRoutesPerCall 10
set global callRouting routingLabel TO_VENTAFAX105 routingLabelRoute 0 routeType trunkGroup
set global callRouting routingLabel TO_VENTAFAX105 routingLabelRoute 0 trunkGroup FAX
set global callRouting routingLabel TO_VENTAFAX105 routingLabelRoute 0 ipPeer ventafax105
set global callRouting routingLabel TO_VENTAFAX105 routingLabelRoute 0 proportion 0
set global callRouting routingLabel TO_VENTAFAX105 routingLabelRoute 0 cost 1000000
set global callRouting routingLabel TO_VENTAFAX105 routingLabelRoute 0 inService inService
set global callRouting routingLabel TO_VENTAFAX105 routingLabelRoute 0 testing normal

#-----routes-----#
set global callRouting route trunkGroup EM2900 HAWAIIAN standard Sonus_NULL Sonus_NULL all all ALL none Sonus_NULL
routingLabel TO_AS1
set global callRouting route trunkGroup FAX HAWAIIAN standard Sonus_NULL Sonus_NULL all all ALL none Sonus_NULL
routingLabel TO_EM
set global callRouting route trunkGroup EM2900 HAWAIIAN standard 49 1 all all ALL none Sonus_NULL routingLabel
TO_VENTAFAX105

```

Test Results

2.1 Network

This section validates functionality located on the IAD Network page.

WAN LAN

This subsection verifies the WAN VLAN header interoperability (for IADs with EOC circuits only).

Table 2: WAN LAN

Cas e #	Descr iption	Action	Expected Results	Observed Results	P /F
2.1. 1.1	SIP (EOC Only)	Actions: <ol style="list-style-type: none"> 1. Connect or provision at least one phone on a switch behind IAD. 2. Mirror port on a switch for the IAD WAN interface or connect hub to the IAD WAN interface. 3. Capture signaling for approximately 30 seconds. 	Verify: SIP signaling packets sent from IAD contain a header with VLAN ID = 3.	We do not have an EOC.	N /A
2.1. 1.2	RTP (EOC Only)	Actions: <ol style="list-style-type: none"> 1. Connect or provision at least one phone on a switch behind IAD. 2. Mirror port on a switch for the IAD WAN interface or connect hub to the IAD WAN interface. 3. Capture signaling for approximately 5 seconds while placing the call from a phone out to PSTN. 	Verify: RTP packets sent from IAD contain a header with VLAN ID = 3.	We do not have an EOC.	N /A

2.1.1.3	Data (EOC Only)	Actions: <ol style="list-style-type: none"> 1. Connect and startup at least one PC on a switch behind IAD. 2. Mirror port on a switch for the IAD WAN interface or connect hub to the IAD WAN interface. 3. Capture signaling for approximately 5-10 seconds while browsing out to the internet from PC. 	Verify: HTTP packets sent thru IAD contain a header with VLAN ID = 3.	We do not have an EOC.	N/A
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LAN VLAN

This subsection verifies the LAN VLAN / DHCP interoperability.

Table 3: LAN VLAN

Case #	Description	Action	Expected Results	Observed Results	P/F
2.1.1.4	VLAN 10	Actions: <ol style="list-style-type: none"> 1. Connect and startup at least one PC on a switch or behind a phone. 2. Use a PC to browse out to the internet. 	Verify: <ul style="list-style-type: none"> • PC has an IP address between 192.168.1.20 and 192.168.1.200. • PC can successfully browse out to internet. 	N/A	P
2.1.1.5	VLAN 20	Actions: <ol style="list-style-type: none"> 1. Connect and startup at least one phone on a switch behind IAD. 2. Establish a call out to PSTN. 	Verify: <ul style="list-style-type: none"> • Phone has an IP address between 172.20.20.20 and 172.20.20.200. • Phone can register and establish a call to the PSTN. 	N/A	P
2.1.1.6	VLAN 30	Actions: <ol style="list-style-type: none"> 1. Connect a PC to the management port on a switch (port 48 on SG500-52P; otherwise G2). 2. Set a PC IP address to 10.30.30.10 or higher. 3. Browse from a PC to IAD management IP address (10.30.30.1) and log into the IAD GUI. 	Verify: PC can browse to an IAD management IP address (10.30.30.1) and login to the IAD GUI is successful.	N/A	P

2.2 DHCP

This section verifies the DHCP interoperability. Some DHCP interoperability is verified in the preceding LAN VLAN section.

Options

This subsection verifies the DHCP interoperability.

Table 4: Options

Case #	Description	Action	Expected Results	Observed Results	P/F
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2.2.1.1	Option 66	<p>Actions:</p> <ol style="list-style-type: none"> 1. Factory default Polycom phone. 2. Place phone on a switch behind IAD. 	<p>Verify:</p> <p>Phone is provided provisioning server info from the IAD through DHCP option 66.</p>	It was verified using PCAP file.	P
2.2.1.2	Option 42	<p>Actions:</p> <ol style="list-style-type: none"> 1. Factory default Polycom phone. 2. Place phone a on switch behind IAD. 	<p>Verify:</p> <p>Phone is provided NTP server = btrp.hawaiiintel.net from the IAD through DHCP.</p>	It was verified using PCAP file.	P
2.2.1.3	Time Offset	<p>Actions:</p> <ol style="list-style-type: none"> 1. Factory default Polycom phone. 2. Place phone on a switch behind IAD. 	<p>Verify:</p> <p>Phone is provided time offset (-10) from the IAD through DHCP.</p>	It was verified using PCAP file.	P

2.3 NAT

This section verifies the NAT interoperability.

Port Forwarding

This subsection verifies the interoperability with the NAT – Port Forwarding feature.

Table 5: Port Forwarding

C a s e #	D e s c r i p t i o n	A c t i o n	E x p e c t e d R e s u l t s	O b s e r v e d R e s u l t s	P / F
2. 3. 1.1	SIP	<p>Actions:</p> <ol style="list-style-type: none"> 1. Log into the IAD GUI and select Configuration Menu > Network > NAT > Port Forwarding. 2. Add the Port Forwarding Rule to DUT. 3. Use browser to access. 	<p>Verify:</p> <p>SIP signaling packets sent from the IAD contain header with VLAN ID = 3.</p>	It was testing by mapping the WAN IP address and port 9090 to the Polycom phone behind the IAD, so login to the Polycom GUI was possible using the WAN IP:9090 address.	P

2.4 SIP UA / FAX

This section verifies the interoperability with the SIP UA and faxing functionality.

T.38 / G.711

This subsection verifies the T.38 and G.711 interoperability.

Table 6: T.38 / G.711

Case #	Description	Action	Expected Results	Observed Results	P /F
2.4.1.1	G.711 / ECM-On / 14.4 / PSTN-to-VoIP / 1-Page	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 (Normal) Actions: Send 1 page fax from PSTN based fax machine to VoIP based fax machine.	Verify: 1 page received.	N/A	P
2.4.1.2	G.711 / ECM-Off / 9.6 / PSTN-to-VoIP / 5-Page	Configure fax machine as follows: 1. ECM = Off 2. Speed = 9.6 Actions: Send 5 page fax from PSTN based fax machine to VoIP based fax machine.	Verify: 5 pages received.	N/A	P
2.4.1.3	G.711 / ECM-On / 14.4 / PSTN-to-VoIP / 10-Page	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 (Normal) Actions: Send 10 page fax from PSTN based fax machine to VoIP based fax machine.	Verify: 10 pages received.	N/A	P
2.4.1.4	T.38 / ECM-On / 14.4 / VoIP-to-VoIP / 5-Page	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 Actions: Send 5 page fax from VoIP based fax machine to VoIP based fax machine.	Verify: 5 pages received.	N/A	P
2.4.1.5	T.38 / ECM-Off / 9.6 / VoIP-to-VoIP / 5-Page	Configure fax machine as follows: 1. ECM = Off 2. Speed = 9.6 Actions: Send 5 page fax from VoIP based fax machine to VoIP based fax machine.	Verify: 5 pages received.	N/A	P
2.4.1.6	T.38 / ECM-On / 14.4 / VoIP-to-PSTN / 1-Page	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 Actions: Send 1 page fax from VoIP based fax machine to PSTN based fax machine.	Verify: 1 page received.	N/A	P
2.4.1.7	T.38 / ECM-Off / 9.6 / PSTN-to-VoIP / 5-Page	Configure fax machine as follows: 1. ECM = Off 2. Speed = 9.6 Actions: Send 5 page fax from PSTN based fax machine to VoIP based fax machine.	Verify: 5 pages received.	N/A	P

2.4.1.8	T.38 / ECM-On / 14.4 / PSTN-to-VoIP / 10-Pages	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 Actions: Send 10 page fax from PSTN based fax machine to VoIP based fax machine.	Verify: 10 pages received.	N/A	P
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4570 Analog Gateway Fax

This subsection verifies the 4570 Analog Gateway fax interoperability.

Table 7: 4570 Analog Gateway Fax

Case #	Description	Action	Expected Results	Observed Results	P /F
2.4.1.9	ATA to PSTN	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 Actions: Send 5 page fax from 4570 ATA based fax machine to PSTN based fax machine.	Verify: 5 pages received.	N/A	P
2.4.1.10	PSTN to ATA	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 Actions: Send 5 page fax from PSTN based fax machine to 4570 ATA based fax machine.	Verify: 5 pages received.	N/A	P
2.4.1.11	ATA to ALG	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 Actions: Send 5 page fax from 4570 ATA based fax machine to ALG based fax machine.	Verify: 5 pages received.	N/A	P
2.4.1.12	ALG to ATA	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 Actions: Send 5 page fax from ALG based fax machine to 4570 ATA based fax machine.	Verify: 5 pages received at VoIP fax machine.	N/A	P
2.4.1.13	ALG to PSTN	Configure fax machine as follows: 1. ECM = On 2. Speed = 14.4 Actions: Send 5 page fax from ALG based fax machine with 4570 ATA to PSTN based fax machine.	Verify: 5 pages received.	N/A	P

2.4.1.14	PSTN to ALG	<p>Configure fax machine as follows:</p> <ol style="list-style-type: none"> 1. ECM = On 2. Speed = 14.4 <p>Actions:</p> <p>Send 5 page fax from PSTN based fax machine to ALG based fax machine with 4570 ATA.</p>	<p>Verify:</p> <p>5 pages received.</p>	N/A	P
2.4.1.15	ATA to ATA	<p>Configure fax machine as follows:</p> <ol style="list-style-type: none"> 1. ECM = On 2. Speed = 14.4 <p>Actions:</p> <p>Send 5 page fax from VoIP based fax machine to PSTN based fax machine.</p>	<p>Verify:</p> <p>5 pages received.</p>	N/A	P
2.4.1.16	ALG to ALG	<p>Configure fax machine as follows:</p> <ol style="list-style-type: none"> 1. ECM = On 2. Speed = 14.4 <p>Actions:</p> <p>Send 5 page fax from VoIP based fax machine to PSTN based fax machine.</p>	<p>Verify:</p> <p>5 pages received.</p>	N/A	P

2.5 Security

This section verifies the security interoperability.

Firewall

This subsection verifies the firewall interoperability.

Table 8: Firewall

Case #	Description	Action	Expected Results	Observed Results	P /F
2.5.1.1	HTTP	<p>Actions:</p> <ol style="list-style-type: none"> 1. Browse to the WAN IP address of the IAD from the PC not behind IAD. 2. Browse through all tabs of the IAD GUI. 	<p>Verify:</p> <ul style="list-style-type: none"> • IAD GUI can be reached through HTTP. • All IAD GUI tabs can be accessed. 	N/A	P
2.5.1.2	SSH	<p>Actions:</p> <p>Establish an SSH connection to the WAN IP address of the IAD from the PC not behind IAD.</p>	<p>Verify:</p> <p>SSH connection can be established via WAN IP address of IAD from PC not behind IAD.</p>	N/A	P
2.5.1.3	SNMP	This is a place holder for a future test.	Currently the SNMP is enabled but configured on IAD.	N/A	N /A

Trusted Hosts

This subsection verifies the Trusted Hosts interoperability.

Table 9: Trusted Hosts

Case #	Description	Action	Expected Results	Observed Results	P /F
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2.5.1.4	HTTP	<p>Actions:</p> <p>Attempt to browse to the WAN IP address of the IAD from a PC with an IP address not listed in Trusted Hosts.</p>	<p>Verify:</p> <p>The attempt to browse should time-out (no response from IAD).</p>	The untrusted IP address is 10.10.216.47.	P
2.5.1.5	SSH	<p>Actions:</p> <p>Attempt to establish an SSH connection to the WAN IP address of the IAD from a PC not listed in Trusted Hosts.</p>	<p>Verify:</p> <p>The attempt should time-out (fail) as no response should be received.</p>	The untrusted IP address is 10.10.216.47.	P
2.5.1.6	SNMP	This is a place holder for a future test.	SNMP enabled but configured on IAD at this time.	N/A	N/A

2.6 Survivability

This section verifies the survivability interoperability.

SIP Server Reachability

This subsection verifies the SIP server reachability interoperability.

Table 10: SIP Server Reachability

Case #	Description	Action	Expected Results	Observed Results	P/F
2.6.1.1	Keepalives	<p>Actions:</p> <ol style="list-style-type: none"> Ensure Configuration Menu > Survivability page is configured as described in section 2.2.4.4.4 of HPBX LLD. Place one or more phones on the switch behind IAD. 	<p>Verify:</p> <ul style="list-style-type: none"> IAD sends keepalive messages every 5 seconds. IAD marks the SIP server as down 6 seconds after missed SIP message. IAD marks the SIP server up (after being down) on the 10 successfully received response. IAD interprets error code 403 as success. 	N/A	P
2.6.1.2	Register Rate-Pacing	<p>Actions:</p> <ol style="list-style-type: none"> Ensure Configuration Menu > Survivability > Register Rate-Pacing parameters are configured as described in section 2.2.4.4.4 of HPBX LLD. Place phone one or more phones on the switch behind IAD. 	<p>Verify:</p> <p>The 200 OK response sent back to a phone respective to a REGISTER initiated by the phone has Expires = 30 (not 1800), which means the IAD does not perform register rate-pacing and allows the SBC to dictate the registration interval.</p>	N/A	P

2.7 Test UA

This section is a place holder for a possible future test. Currently, this functionality is verified in the Edgeview section below.

Table 11: Test UA

Case #	Description	Action	Expected Results	Observed Results	P/F
N/A	N/A	N/A	N/A	N/A	N/A

2.8 Traffic Shaper

This section verifies the Traffic Shaper interoperability.

Table 12: Traffic Shaper

Case #	Description	Action	Expected Results	Observed Results	P /F
2.8.1.1	DSL	<p>Actions:</p> <ol style="list-style-type: none"> 1. Ensure Traffic Shaping is enabled and configured per section 2.2.4.5.3 of HPBX LLD. 2. Place a PC on the switch behind IAD with DSL. 3. From a PC, perform the bandwidth speed test (or establish a large FTP upload and a large FTP download) while performing 2 to 3 simultaneous test calls. 	<p>Verify:</p> <ul style="list-style-type: none"> • Test calls completed successfully with 4.0 or higher MOS. • Bandwidth test or FTP transfer completed successfully. 	We do not have a DSL.	N /A
2.8.1.2	EoC	<p>Actions:</p> <ol style="list-style-type: none"> 1. Ensure Traffic Shaping is enabled and configured per section 2.2.4.5.3 of HPBX LLD. 2. Place a PC on the switch behind IAD with EOC. 3. From a PC, perform the bandwidth speed test (or establish a large FTP upload and a large FTP download) while performing 2 to 3 simultaneous test calls. 	<p>Verify:</p> <ul style="list-style-type: none"> • Test calls completed successfully with 4.0 or higher MOS. • Bandwidth test or FTP transfer completed successfully. 	We do not have an EoC.	N /A

Class of Service

This section verifies the Class of Service interoperability.

Table 13: Class of Service

Case #	Description	Action	Expected Results	Observed Results	P /F
2.8.1.3	LAN / WAN Markings	<p>Actions:</p> <ol style="list-style-type: none"> 1. Place one or more Phones on the switch connected to IAD. 2. Place a PC on the switch behind IAD. 3. Perform the following simultaneously: <ul style="list-style-type: none"> • Establish a test call from the phone behind IAD out to the phone not behind IAD. • Execute bandwidth speed test from the PC behind IAD. • Execute tcpdump command on the LAN interface of IAD. • Execute tcpdump command on the WAN interface of IAD. 	<p>Verify:</p> <ul style="list-style-type: none"> • SIP and RTP packets sent to a phone through the LAN interface of IAD are marked with DSCP 46 and include VLAN ID = 20. • Data packets sent to a PC through the LAN interface are not marked with DSCP 46 (that is, best effort) and include VLAN ID = 10. • SIP / RTP packets sent through the WAN interface of IAD are marked with DSCP 46 and (if IAD has EoC circuit) include VLAN ID = 3. • Data packets sent through the WAN interface are not marked with DSCP 46 (that is, best effort) and (if IAD has EoC circuit) include VLAN ID = 3. 	N/A	P

2. 8. 1.4	CoS	<p>Actions:</p> <ol style="list-style-type: none"> 1. Place one or more Phones on the switch connected to IAD. 2. Place a PC on the switch behind IAD. 3. Delete CoS settings from IAD as shown. 4. Perform bandwidth speed test from the PC behind IAD. 5. Record download speed from the bandwidth speed test results (should match access method). 6. Restore CoS settings on the IAD per section 2.2.4.5.3 in HPBX LLD. 7. Establish approximately 75% of the max number of simultaneous calls using G.711 (that is, DSL = 8) from the phone(s) behind IAD out to phones not behind IAD. 8. Perform a bandwidth speed test from the PC behind IAD. 9. Record download speed of the bandwidth speed test results. 	<p>Verify:</p> <ul style="list-style-type: none"> • Download bandwidth test results taken after removing CoS match access method (that is, approximately 1000k for DSL). • Download bandwidth test results taken after re-adding CoS should be limited to 25% of access method (that is, approximately 250k for DSL). 	<p>There are only three phones to place simultaneous calls, so the data bandwidth was set as 87%.</p>	P
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Call Admission Control

This subsection verifies the CAC interoperability.

Table 14: Call Admission Control

Case #	Description	Action	Expected Results	Observed Results	P /F

<p>2. 8. 1.5</p>	<p>CAC - PSTN</p>	<p>Configuration: Ensure Enable Call Admission Control on Traffic Shaper page is checked.</p> <p>Actions:</p> <ol style="list-style-type: none"> 1. SSH to IAD and monitor the /var/log /messages file. 2. Establish a call from the phone behind IAD to the PSTN phone. 3. Verify CAC is incremented in messages file. 4. Release call to the PSTN phone from the IP phone. 5. Verify CAC is decremented. 6. Establish call to the phone behind IAD from the PSTN phone. 7. Verify CAC is incremented in messages file. 8. Release a call from PSTN phone. 9. Verify CAC is decremented. 	<p>Verify:</p> <ul style="list-style-type: none"> • When a call is established, CAC is incremented in messages file. • When a call is released, CAC is decremented in messages file. 	<p>Active calls were incremented/decremented in the message file.</p>	<p>P</p>
<p>2. 8. 1.6</p>	<p>CAC – Single IAD</p>	<p>Configuration: Ensure Enable Call Admission Control on Traffic Shaper page is checked.</p> <p>Actions:</p> <ol style="list-style-type: none"> 1. SSH to IAD and monitor the /var/log /messages file. 2. Establish a call from phone A behind IAD to phone B behind same IAD. 3. Verify CAC is not incremented in messages file. 4. Release a call from phone A. 	<p>Verify: When a call is established between phones behind the same IAD, CAC is not incremented or decremented in messages file.</p>	<p>Direct Media was enabled on the SBC Core, so no configuration is needed in the EM.</p>	<p>P</p>

2.8.1.7	CAC – Multiple IADs	<p>Configuration:</p> <p>Ensure Enable Call Admission Control on Traffic Shaper page is checked.</p> <p>Actions:</p> <ol style="list-style-type: none"> 1. SSH to IAD and monitor the /var/log /messages file. 2. Establish a call from phone A behind IAD (A) to phone B behind another IAD (B). 3. Verify CAC is incremented in messages file of IAD (A). 4. Release call phone A. 5. Verify CAC is decremented. 6. Establish a call from phone A behind IAD (A) to phone B behind another IAD (B). 7. Verify CAC is incremented in messages file. 8. Release a call from PSTN phone B. 9. Verify CAC is decremented. 	<p>Verify:</p> <ul style="list-style-type: none"> • When a call is established, CAC is incremented in messages file. • When a call is released, CAC is decremented in messages file. 	A second EM was used to simulate a different IAD.	P
2.8.1.8	CAC – Local Hold	<p>Configuration:</p> <p>Ensure Enable Call Admission Control on Traffic Shaper page is checked.</p> <p>Actions:</p> <ol style="list-style-type: none"> 1. SSH to IAD and monitor the /var/log /messages file. 2. Establish a call from phone A behind IAD to phone B behind different IAD or to PSTN. 3. From phone A, place call on hold. 4. Resume call on phone A. 5. Release call from phone A. 	<p>Verify:</p> <ul style="list-style-type: none"> • When a call is established, CAC is incremented. • When a call is held, CAC is decremented. • When a call resumes, CAC is incremented. • When a call is released, CAC is decremented. 	N/A	P
2.8.1.9	CAC Exceeded Outbound	<p>Configuration:</p> <ol style="list-style-type: none"> 1. Set CAC max on the Traffic Shaper page to max = 2 calls. 2. Ensure Enable Call Admission Control is checked. <p>Actions:</p> <ol style="list-style-type: none"> 1. SSH to IAD and monitor the /var/log /messages file. 2. Attempt to establish 3 calls from the phones behind IAD out to phones not behind DUT (that is, PSTN phones or phones not behind other IADs). 	<p>Verify:</p> <p>Busy tone is heard when attempting to establish the third call and the messages file reports CAC exceeded message.</p>	<p>CAC is not working as expected, so the case 200115-297792 was opened for this issue.</p> <p>Note: Jira EM-24480 was created for this issue.</p>	F

2. 8. 1. 10	CAC Exceed ded Inbound	<p>Configuration:</p> <ol style="list-style-type: none"> 1. Set CAC max on the Traffic Shaper page to max = 2 calls. 2. Ensure Enable Call Admission Control is checked. <p>Actions:</p> <ol style="list-style-type: none"> 1. SSH to IAD and monitor the /var/log /messages file. 2. Attempt to establish 3 calls from phones not behind IAD in to phones behind DUT. 	<p>Verify:</p> <p>Treatment or VM is heard when attempting to establish the third call and the messages file reports CAC exceeded message.</p>	<p>CAC is not working as expected, so the case 200115-297792 was opened for this issue.</p> <p>Note: Jira EM-24480 was created for this issue.</p>	F
2. 8. 1. 11	CAC Reboot	<p>Configuration:</p> <p>Ensure Enable Call Admission Control is checked.</p> <p>Actions:</p> <ol style="list-style-type: none"> 1. SSH to IAD and monitor the /var/log /messages file. 2. Establish call from phone A behind IAD to phone B on PSTN phone or behind another IAD. 3. Verify CAC is incremented in the /var/log /messages file. 4. Remove power / Ethernet cable on phone A. 5. Hang up after 20-30 seconds. 6. Verify CAC is decremented in the /var/log /messages file. 	<p>Verify:</p> <ul style="list-style-type: none"> • When call is established, CAC is incremented. • When phone is rebooted, CAC is not incremented or decremented. • When phone B is hung up, CAC is decremented. 	N/A	P

2.9 System

This section verifies the interoperability with System features.

Backup / Restore

This subsection verifies the backup interoperability.

Table 15: Backup / Restore

Case #	Description	Action	Expected Results	Observed Results	P /F
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2.9 . 1.1	Backup / Restore	<p>Actions:</p> <ol style="list-style-type: none"> 1. Log into IAD. 2. Select Configuration Menu > System > Backup / Restore page and create a backup. 3. After creating a backup successfully, change any parameter of choice on the IAD. 4. Select Configuration Menu > System > Backup / Restore page and restore the backup created in this procedure. 	<p>Verify:</p> <ul style="list-style-type: none"> • Backup completes successful. • Restore completes successful. • Parameter changed in action step 3 changes back to original value after the restore. 	N/A	P
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Proxy ARP

This subsection verifies the proxy ARP interoperability.

Table 16: Proxy ARP

Case #	Description	Action	Expected Results	Observed Results	P/F
2. 9 1 2	Proxy ARP	<p>Actions:</p> <ol style="list-style-type: none"> 1. Configure the Proxy ARP feature per section 2.2.4.5.5 of HPBX LLD using a PC as the Proxy ARP device. 2. From a PC not behind IAD, attempt to ping the PC configured as Proxy ARP device. 	<p>Verify:</p> <p>Successfully receive a response from the device configured as Proxy ARP device (that is, PC).</p>	Arping was sent from another EM connected to the WAN interface of the IAD. IAD's MAC address is used as a source address of the ARP response when pinging the PC behind the IAD.	P

Syslog - MOS

This is a place holder for a possible future test to verify the MOS interoperability. MOS functionality is currently covered in the EdgeView section.

Table 17: Syslog - MOS

Case #	Description	Action	Expected Results	Observed Results	P/F
N/A	N/A	N/A	N/A	N/A	N/A

Upgrade Firmware

This subsection verifies the upgrade interoperability.

Table 18: Upgrade Firmware

Case #	Description	Action	Expected Results	Observed Results	P/F
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2.9.1.3	Down grade	Actions: 1. Select Configuration Menu > System > Upgrade Firmware page and downgrade IAD to version 11.6.9.	Verify: <ul style="list-style-type: none"> Verify downpgrade completes successfully. Verify IAD can successfully pass phone registrations and calls after upgrade. 	N/A	P
2.9.1.4	Upgr ade	Actions: 1. Select Configuration Menu > System > Upgrade Firmware page and upgrade IAD to version 11.6.14.	Verify: <ul style="list-style-type: none"> Verify upgrade completes successfully. Verify IAD can successfully pass phone registrations and calls after upgrade. 	N/A	P

2.10 EdgeView

This section verifies the EdgeView interoperability.

Discover

This subsection verifies the EdgeMarc / EdgeView discovery interoperability.

Table 19: Discover

Case #	Description	Action	Expected Results	Observed Results	P /F
2.10.1.1	Discover / Move	Actions: 1. Ensure Configuration Menu > System > Services Configuration > Enable Remote System Logging is enabled and Remote Syslog Hosts field is populated with EV IP address. 2. Create new group on EV. 3. Move EM to new group.	Verify: <ul style="list-style-type: none"> IAD displays in the <i>Unknown</i> group of EV device list. New group can be created on EV. EM can be moved to new group. 	N/A	P

Monitor

This subsection verifies the EdgeView monitoring interoperability.

Table 20: Monitor

Case #	Description	Action	Expected Results	Observed Results	P /F
2.10.1.2	Monitor	Actions: 1. Log into EV and navigate to IAD in device list. 2. Test IAD from EV.	Verify: <ul style="list-style-type: none"> SSH access is successful. SNMP is successful. 	SNMP was configured in the EdgeMarc and SNMP traps are sent to the EdgeView.	P

Test UA

This subsection verifies Outlook Integration interoperability.

Table 21: Test UA

Case #	Description	Action	Expected Results	Observed Results	P /F
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2.1 0.1. 3	MOS	<p>Actions:</p> <ol style="list-style-type: none"> 1. Configure the Test UA feature on two IADs (see section 2.2.4.5.1 of HPBX LLD for configuration instructions). 2. Using EV, perform a test call between two IADs. 	<p>Verify:</p> <p>Test call completed successfully with 3.9 or higher MOS.</p>	The managing Test UA feature is not supported by the EdgeView 15.x and later versions.	N /A
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Change Parameter

Table 22: Change Parameter

Case #	Description	Action	Expected Results	Observed Results	P /F
2.10.1.4	Change Single Parameter	<p>Actions:</p> <ol style="list-style-type: none"> 1. Log into EV and locate IAD in device list. 2. Change a single parameter on IAD. 	<p>Verify:</p> <p>A single parameter was changed successfully.</p>	N/A	P

Remote Backup / Restore

This subsection verifies the EdgeView Remote Backup and Remote Restore interoperability.

Table 23: Remote Backup / Restore

Case #	Description	Action	Expected Results	Observed Results	P /F
2.10.1.5	Remote Backup / Restore - Immediate	<p>Actions:</p> <ol style="list-style-type: none"> 1. Log into EV and locate IAD in device list. 2. Backup IAD immediately. 3. Make change to any parameter on IAD configuration and save change to IAD. 4. Restore IAD configuration. 	<p>Verify:</p> <ul style="list-style-type: none"> • Backup completes successfully. • IAD config change is saved. • Restore completes successfully. • Change made to IAD config was removed in restore. 	N/A	P
2.10.1.6	Remote Backup / Restore - Scheduled	<p>Actions:</p> <ol style="list-style-type: none"> 1. Log into EV and locate IAD in device list. 2. Schedule IAD backup. 3. Make change to any parameter on IAD configuration and save change to IAD. 4. Restore (and load) backup configuration. 	<p>Verify:</p> <ul style="list-style-type: none"> • Backup completes successfully. • IAD config change is saved. • Restore completes successfully. • Change made to IAD config was removed in restore. 	N/A	P

Load Template

This subsection verifies the template loading interoperability.

Table 24: Load Template

Case #	Description	Action	Expected Results	Observed Results	P /F
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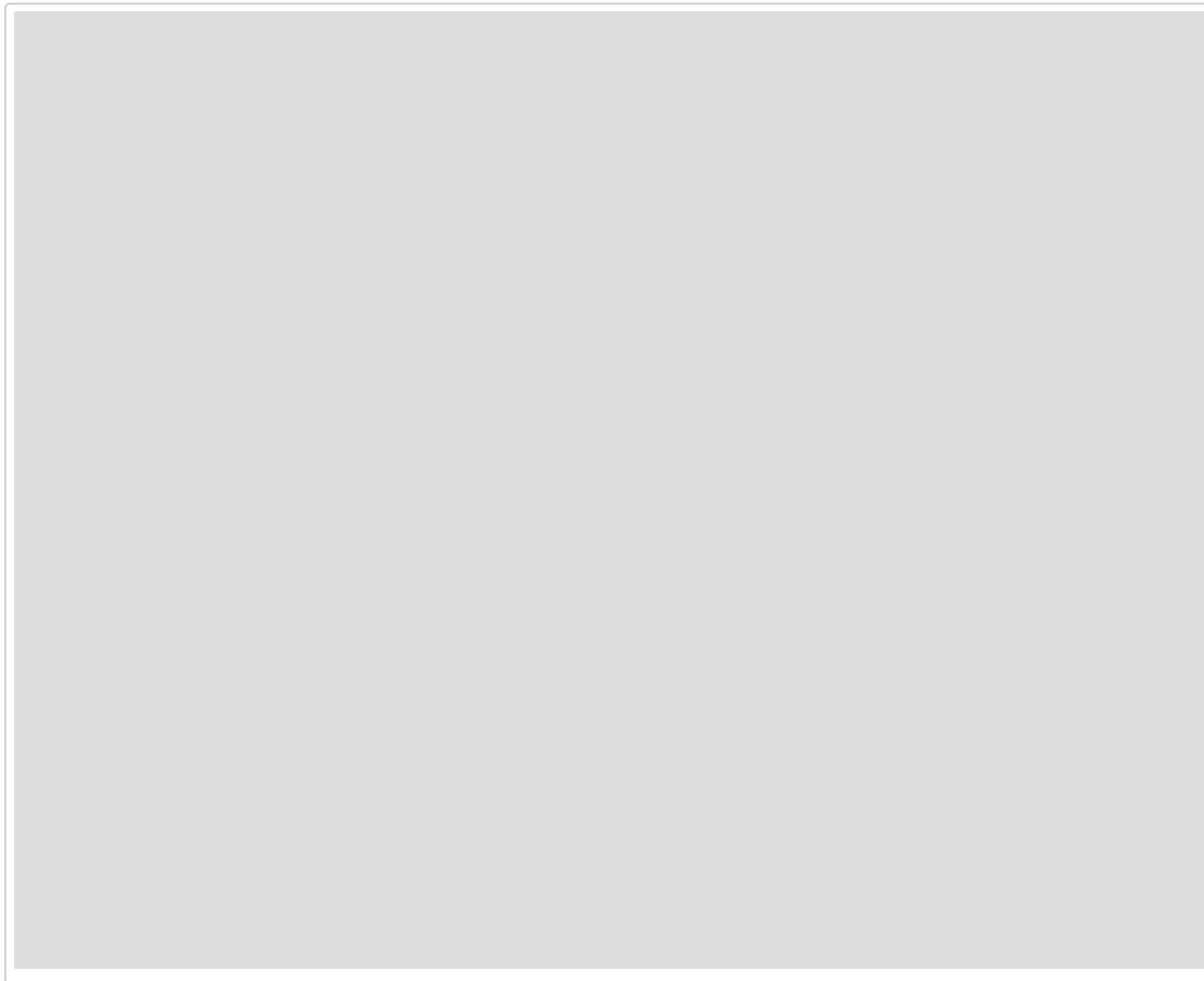
2.10 .1.7	Upload Templa te	Actions: 1. Create template on EV. 2. Configure IAD only with IP address information. 3. Upload template to IAD.	Verify: <ul style="list-style-type: none"> • Template can be created on EV. • IP address information is configured on IAD. • Each page of IAD configuration reflects expected parameters following the template upload. 	The managing Template feature is not supported by the EdgeView 15.x.	N /A
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Conclusion

These Application Notes describe the configuration steps required for the Ribbon EdgeMarc 2900A and Ribbon SWe to successfully interoperate with Broadsoft. All feature and serviceability test cases were completed and passed with the exceptions and observations noted in [Test Results](#).

Appendix A

Broadworks Service Guide



Broadworks - Polycom UC Software VVX and Trio Phones Guide

