Ribbon SBC SWe Lite Configuration Guide for SIPREC with a BroadSoft AS

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Document overview

This document outlines the best practices for configuring Ribbon SBC SWe Lite when it is deployed in hosted mode with a BroadSoft Application Server (AS) for SIPREC feature verification.

SIPREC Overview

SIP Recording (SIPREC) is a recording capability which can be utilized for various purposes: to comply with regulation, to monitor quality of service of representatives, to store call information for quality analysis, and so on. The Ribbon SBC SWe Lite supports SIPREC towards multiple recorders based on the Internet Engineering Task Force(IETF) standard.

The Ribbon SBC SWe Lite SIPREC supports the RFC standard for a SIP recording interface. To support SIPREC, the SBC SWe Lite acts as a Session Recording Client (SRC) initiating a Recording Session (RS) towards a Session Recording Server (SRS). The SBC SWe Lite initiates a recording session for all the Communication Sessions (CS) to be recorded over SIP from the SRC to the SRS. The CS output is based on the SBC SWe Lite's Web UI configuration for enabling recording.

SIP Recording is supported on the SBC SWe Lite for the following purposes:

- Storing call information for quality analysis.
- Recording call and media sessions on a third party recording server.
- Checking the call detail records and determine if a call is being recorded or not.
- Providing call detail records for recorded calls.

References
For additional information on the Ribbon SBC support for SIPREC, refer to https://ribboncommunications.com/

Non-Goals

It is not the goal of this guide to provide detailed configurations that will meet the requirements of every customer. Use this guide as a starting point and build your SBC configurations in consultation with network design and deployment engineers.

Audience

This is a technical document intended for telecommunications engineers tasked with configuring the Ribbon SBC SWe Lite. Steps require navigating through Ribbon SBC configuration and require basic knowledge of TCP/UDP, IP/Routing, SIP/RTP, and the SIPREC feature to complete the configuration and any necessary troubleshooting.

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.

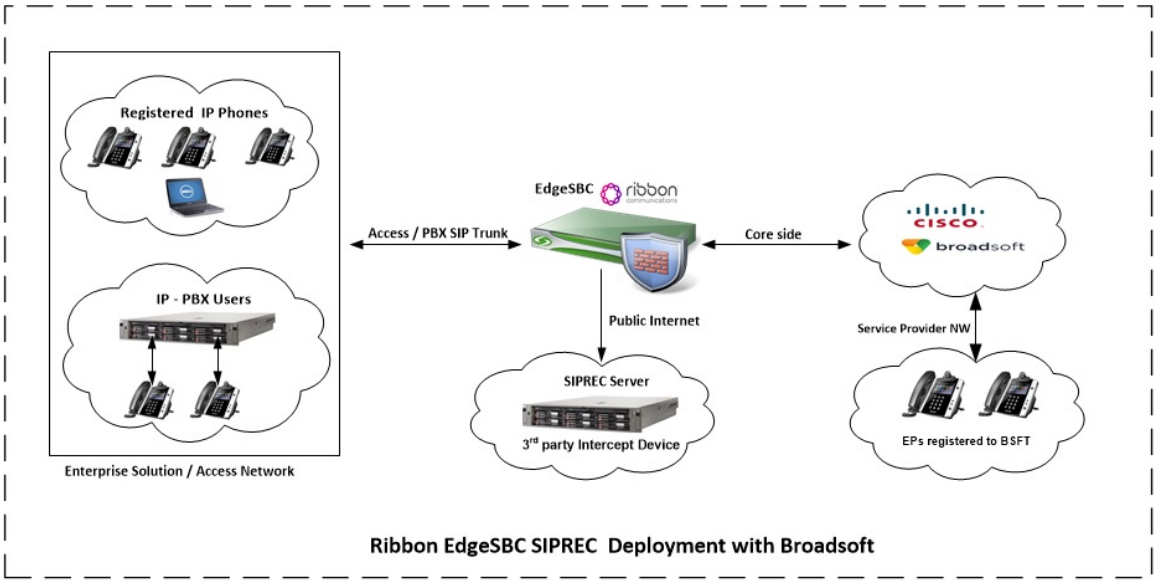
Product and Device Details

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

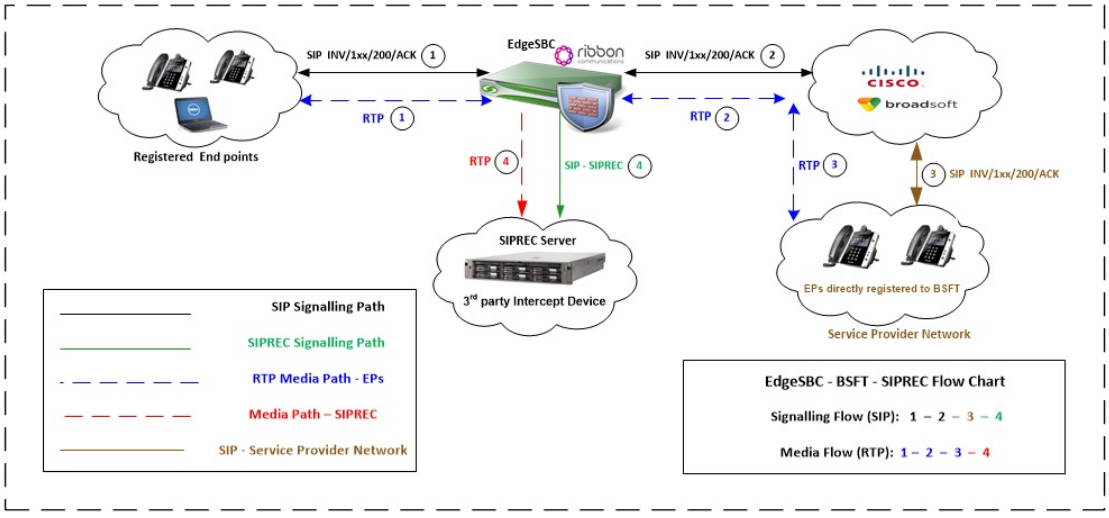
	Equipment	Software Version
Ribbon Communications	Ribbon SBC SWe Lite	V09.00.00_246
BroadSoft	Broadsoft Network Server	Rel_22.0_1.1123
	Broadsoft Application Server	Rel_22.0_1.1123
Third-Party Equipment	Kapanga Softphone	1.00
	Zoiper	5.4.5
	Polycom	5.5.2.12475

	DNS	9.16.5

SBC Edge SIPREC Deployment Topology



Signaling and Media Flow



Accessing the SBC SWe Lite

Open a browser and enter the SBC SWe Lite IP address.

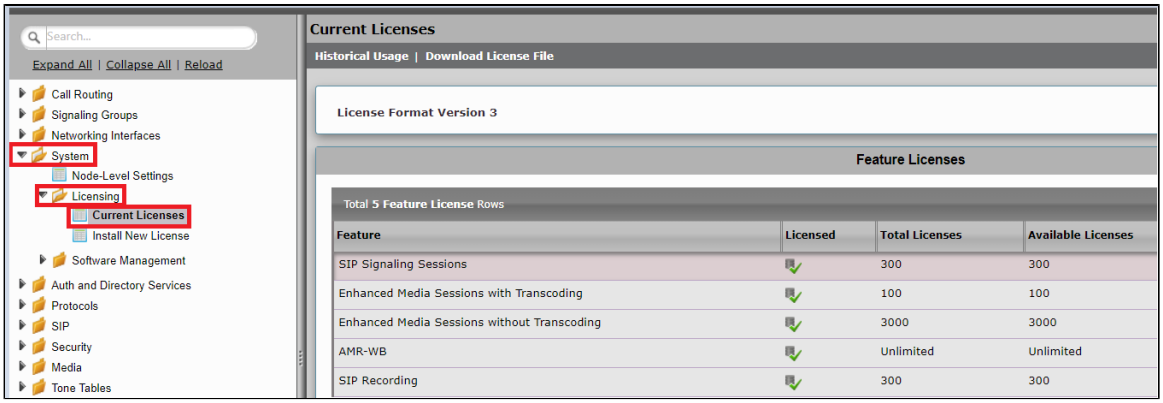
Click on **Enter** and then log in using admin credentials.

SBC SWe Lite Configuration

1. View License

This page describes how you can view the status of each license along with a copy of the license keys installed on your SBC.

Navigate to **System > Licensing > Current Licenses**

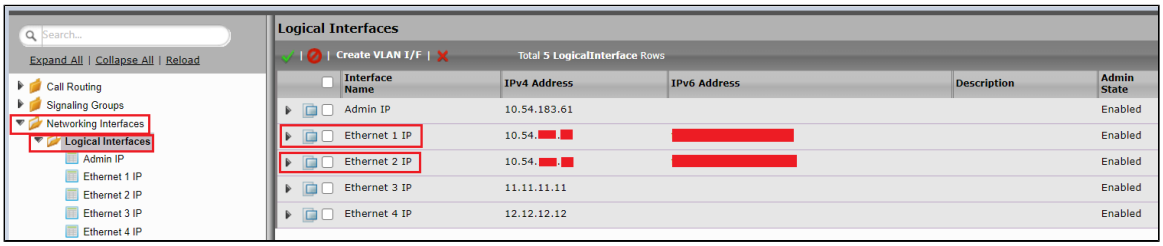


2. Configure Networking Interfaces

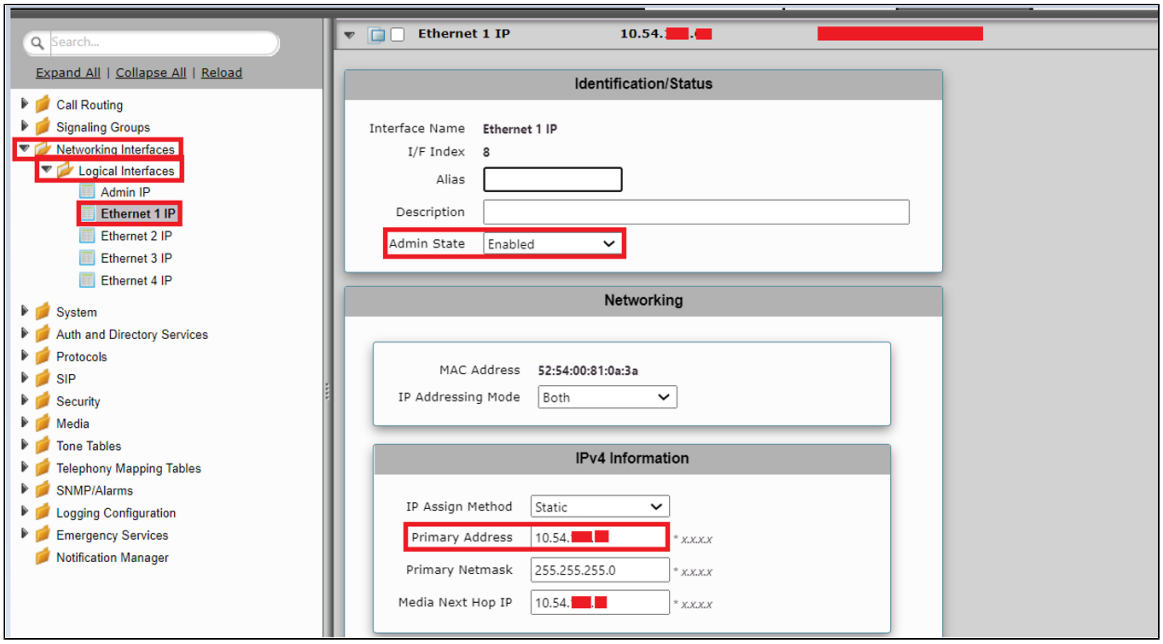
This section contains information about how to manage the way the Ribbon SBC SWe Lite interfaces with the network. The SBC SWe Lite supports five system-created logical interfaces (known as **Administrative IP**, **Ethernet 1 IP**, **Ethernet 2 IP**, **Ethernet 3 IP**, and **Ethernet 4 IP**). In addition to the system-created logical interfaces, the SBC SWe Lite supports user-created VLAN logical sub-interfaces.

Configure Ethernet 1 and Ethernet 2 IPs for SBC SWe Lite as follows:

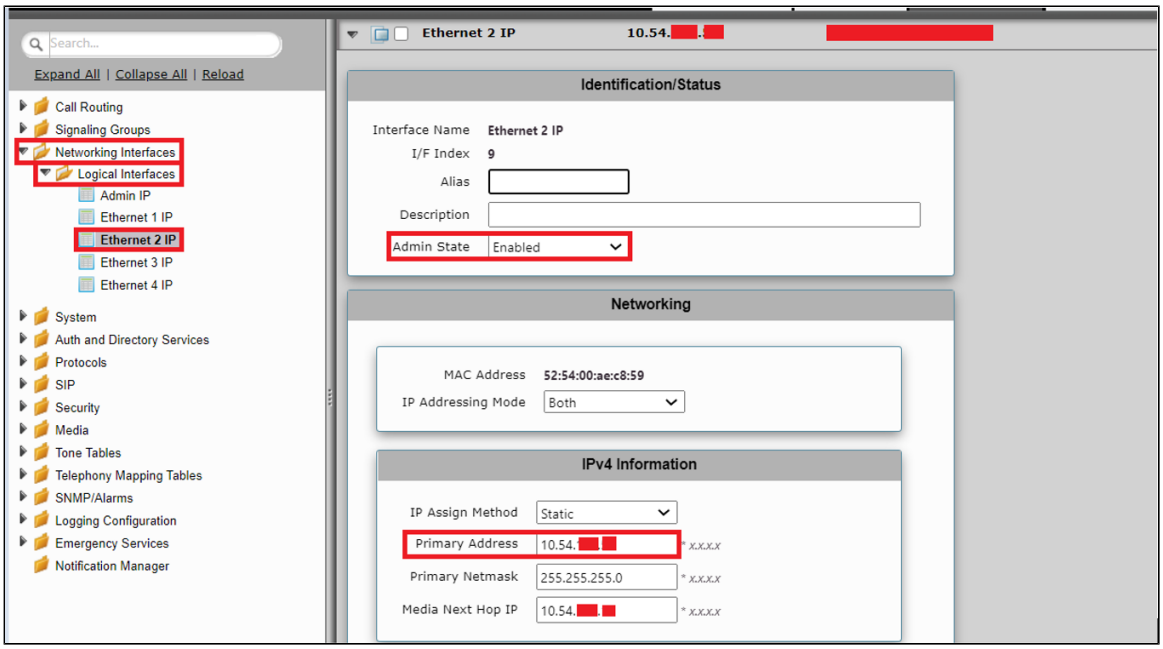
Navigate to **Networking Interfaces > Logical Interfaces**



Ethernet 1 IP



Ethernet 2 IP



3. Configure Static Routes

Static routes are used to create communication to remote networks. In a production environment, static routes are mainly configured for routing from a specific network to another network that can only be accessed through one point or one interface (single path access or default route).

- For smaller networks with just one or two routes, configuring static routing is preferable. This is often more efficient since a link is not being wasted by exchanging dynamic routing information.
- For networks that have a LAN-side gateway on Voice VLAN or Multi-Switch Edge Devices (MSEs) with voice VLAN towards the SBC Edge, static routing configurations are not required.

Destination IP

Specifies the destination IP address

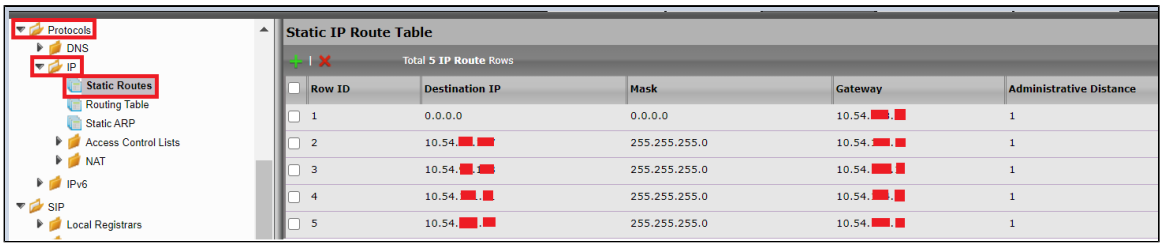
Mask

Specifies the network mask of the destination host or subnet. If the 'Destination IP Address' field and 'Mask' field are both 0.0.0.0, the static route is called the 'default static route'.

Gateway

Specifies the IP address of the next-hop router to use for this static route.

Navigate to **Protocols > IP > Static Routes**



4. Configure a Local Registrar

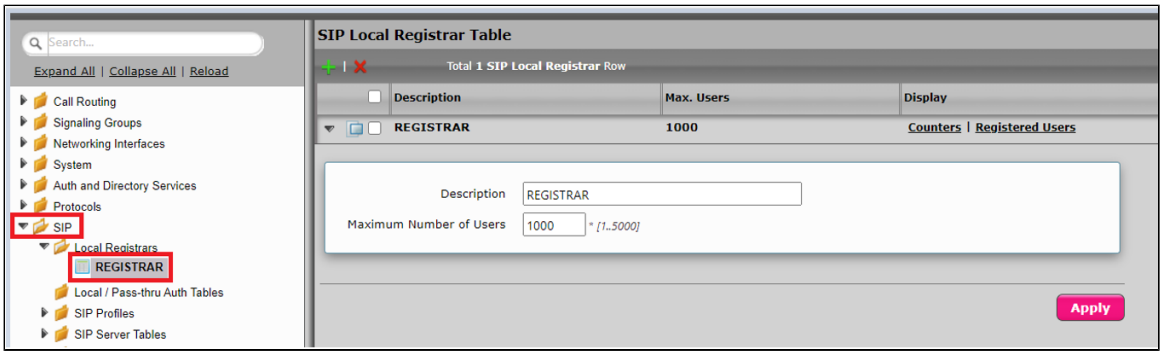
SIP provides a registration function that allows users to upload their current locations for use by proxy servers. Registration creates bindings in a location service for a particular domain that associates an address-of-record URI with one or more contact addresses.

Registration entails sending a REGISTER request to a special type of UAS (User-Agent Server) known as a registrar. A registrar acts as the front-end to the location service for a domain, reading and writing mappings based on the contents of REGISTER requests.

In this interop, the Broadsoft AS handles the registration for its users with authentication.

warning
Registration on SBC Edge with the reg-key parameter will be supported in the upcoming release. During this interop, incoming routes were configured for each user/endpoint as a workaround.

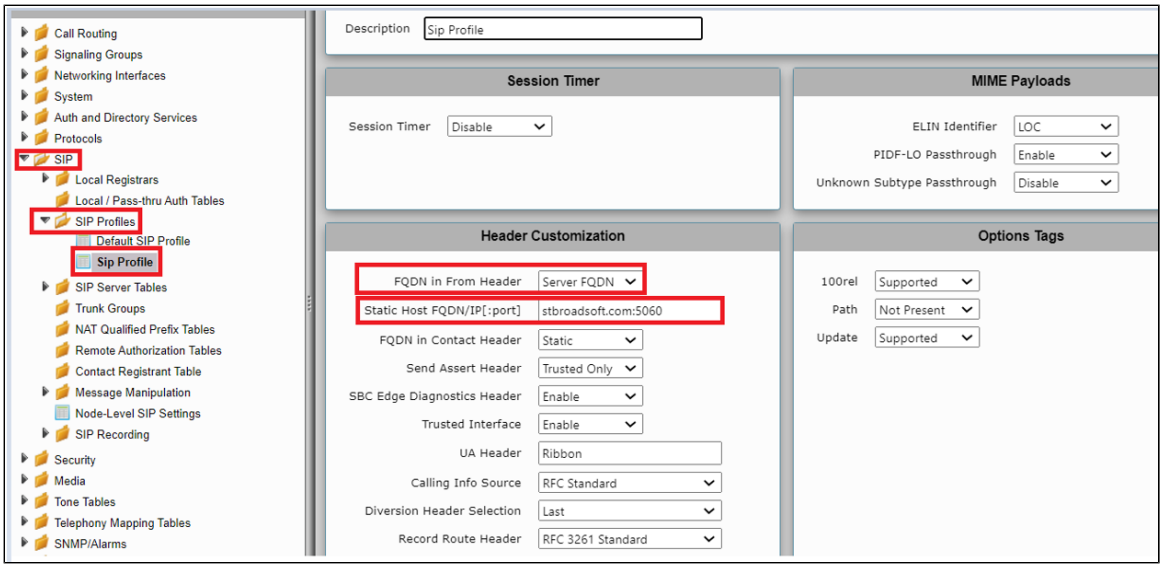
Navigate to **SIP > Local Registrars**



5. Configure a SIP Profile

SIP Profiles control the how the SBC Edge communicates with SIP devices. They control important characteristics such as: session timers, SIP header customization, SIP timers, MIME payloads, and option tags.

Navigate to **SIP > SIP Profiles**



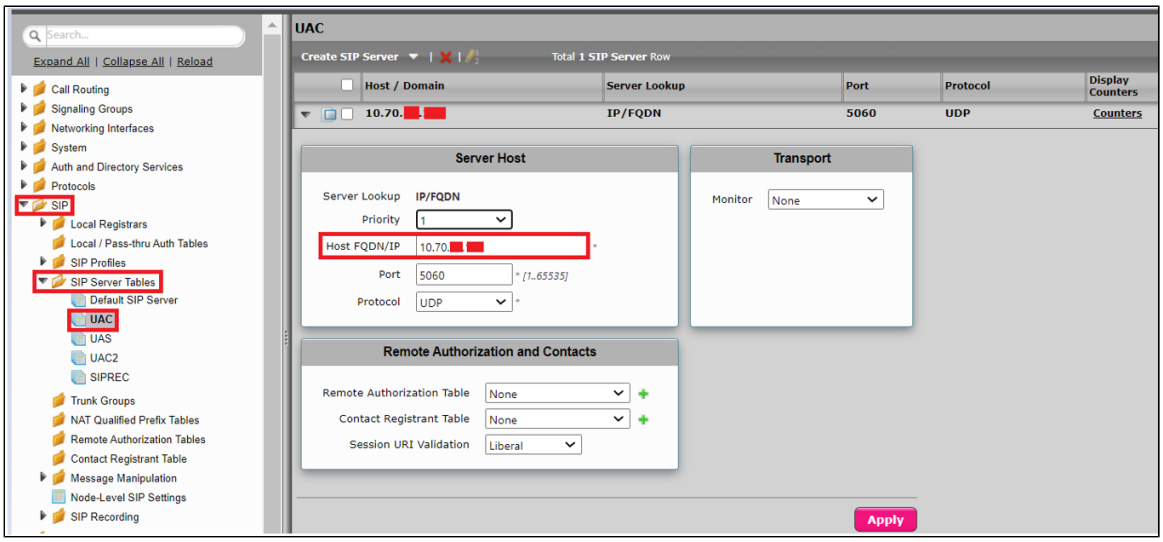
6. Configure SIP Sever Tables

SIP Server Tables contain information about the SIP devices connected to the SBC Edge. The entries in the tables provide information about the IP addresses, ports, and protocols used to communicate with each server.

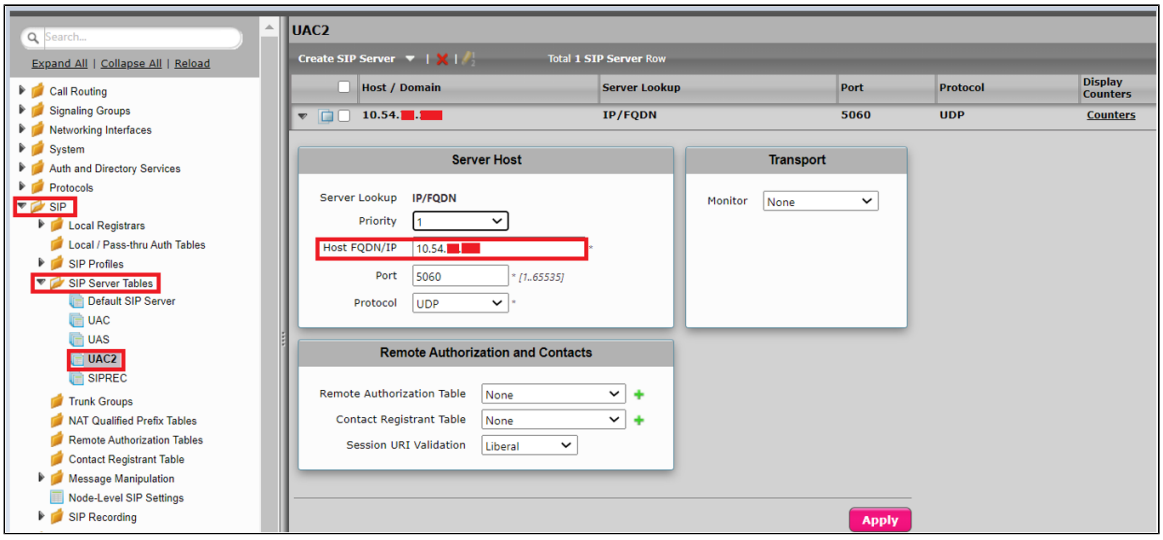
3 SIP devices are used in this case.

Navigate to **SIP > SIP Server Tables**

UAC



UAC2

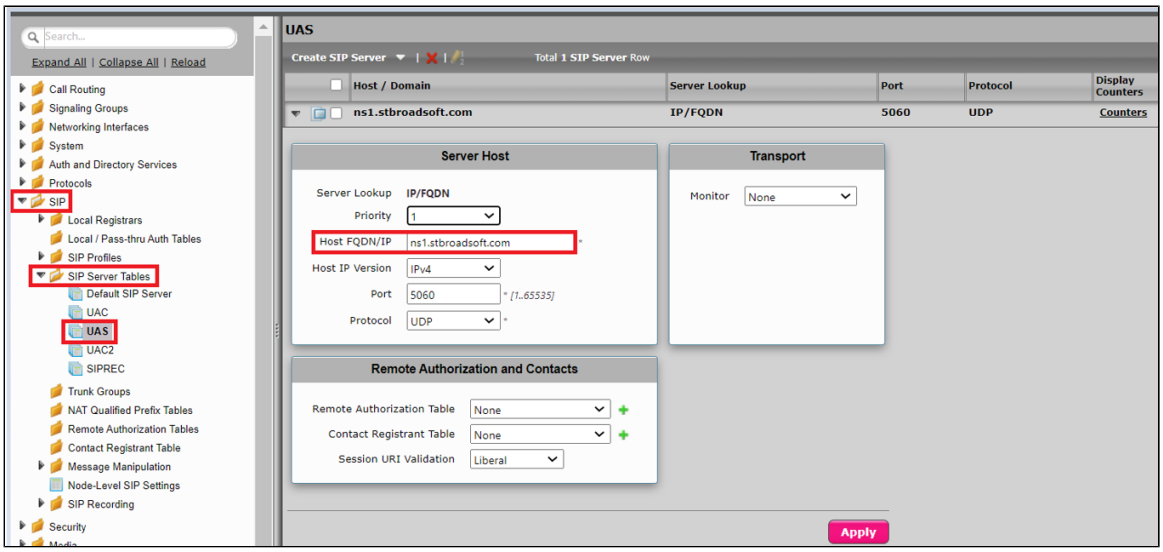


7. BroadSoft Configuration on SBC SWe Lite

7a. SIP Server Table entry for the BroadSoft FQDN

> **warning**
> 3xx SIP response handling on SBC Edge with maddr in the Contact header will be supported in the upcoming release.

Navigate to **SIP > SIP Server Tables**



7b. DNS configuration

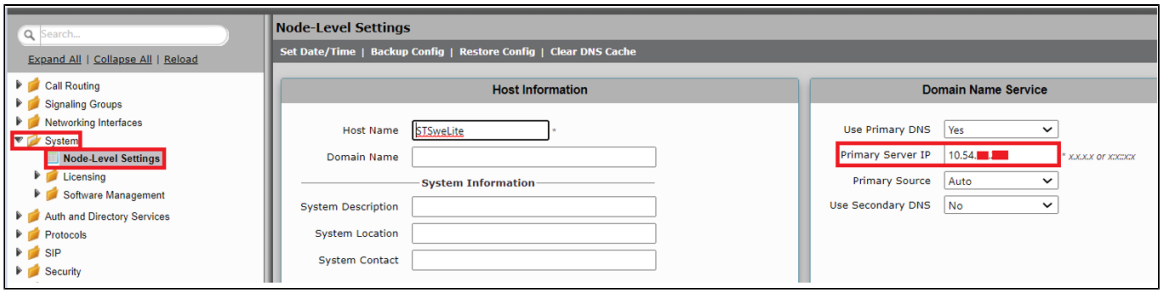
Use Primary DNS

Specifies whether or not the SBC uses DNS. Available options: **Yes** or **No**.

Primary Server IP

Specifies the IPv4 or IPv6 address of the Primary DNS server. Field is displayed when the Use Primary DNS field is set to **Yes**.

Navigate to **System > Node-Level Settings**

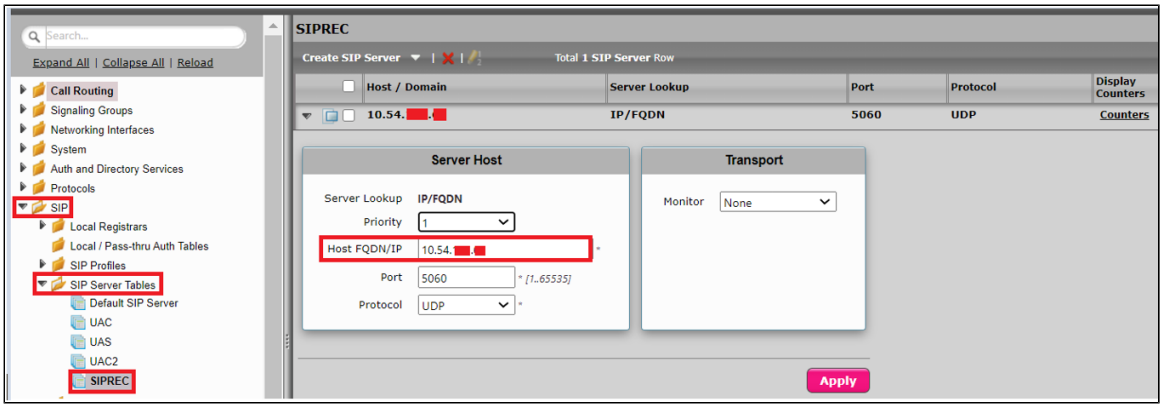


8. SIPREC configuration on SBC SWe Lite

8a. SIP Server Table entry for SIPREC

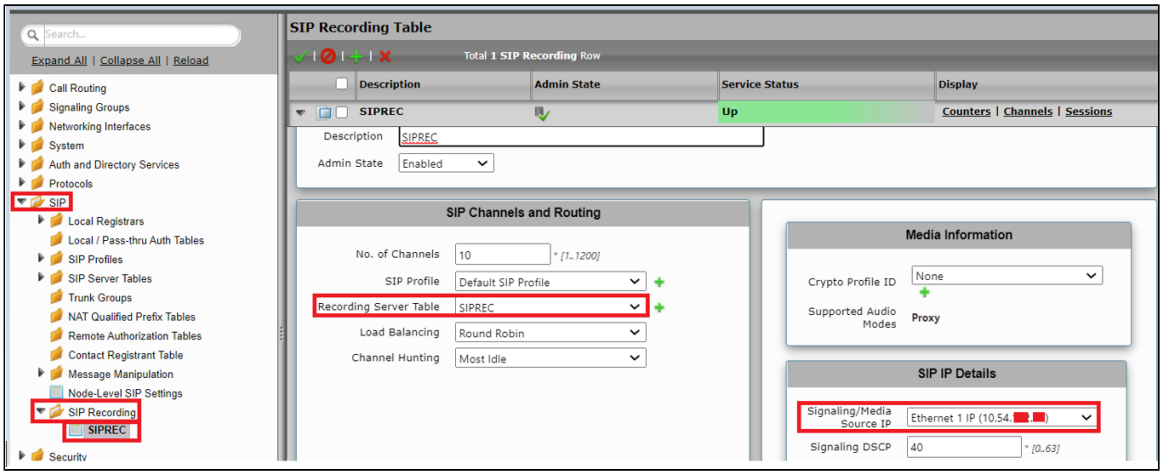
Navigate to **SIP > SIP Server Tables**

SIPREC



8b. SIP Recording Table entry

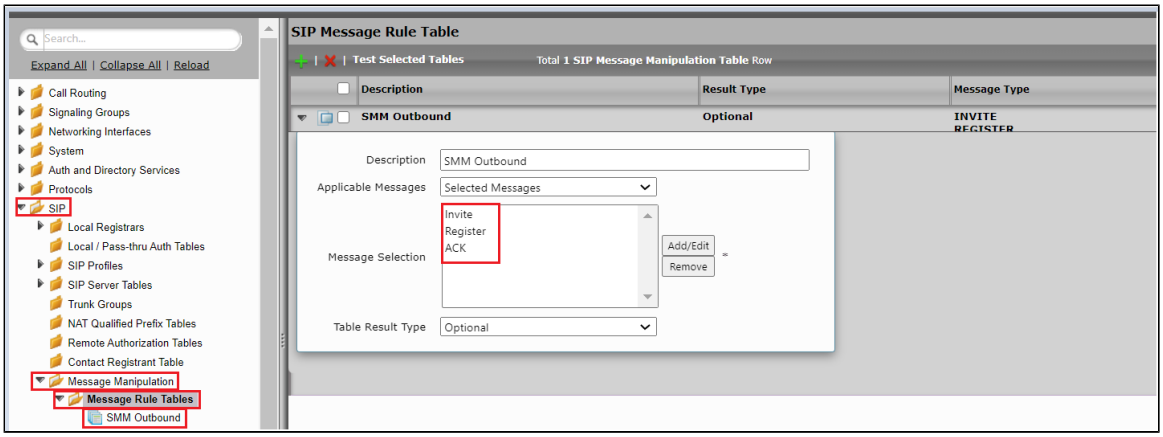
Navigate to **SIP > SIP Recording**



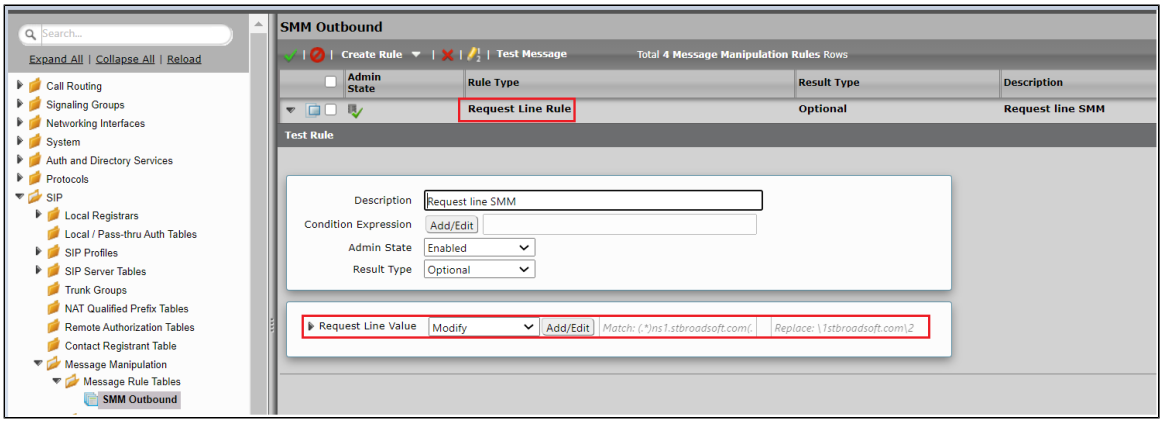
9. Configure SIP Message Rule Table

The SBC Edge allows a maximum of 100 SIP Message Rule Tables and a maximum of 32 SIP Message rules per table. The maximum of 32 SIP Message rules per table includes all SIP rule types: Header, Request, Status, and Raw.

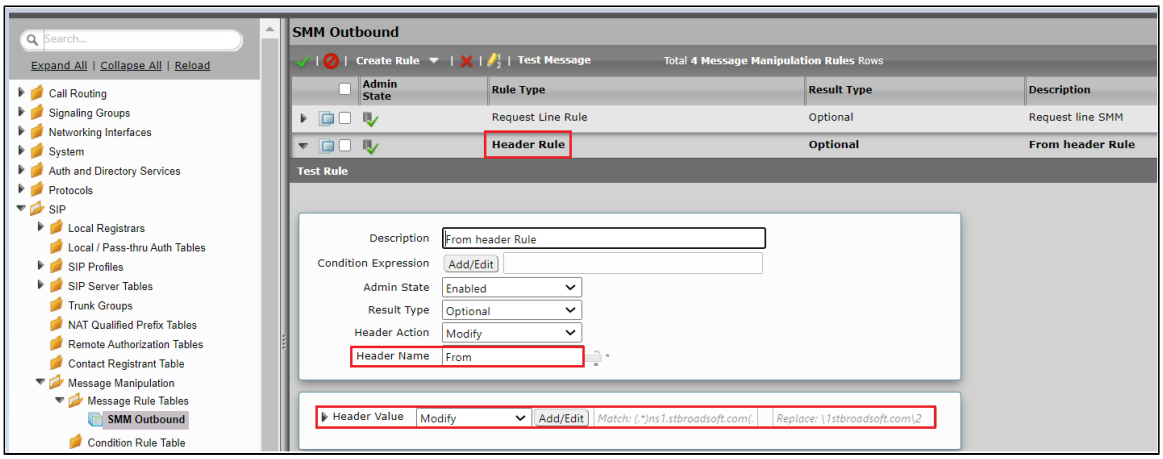
Navigate to **SIP > Message Manipulation > Message Rule Tables**



- Add a Request Line Rule to modify "ns1.stbroadsoft.com" to "stbroadsoft.com" in the "Request Line"



- Add a Header Rule to modify "ns1.stbroadsoft.com" in the "From" header to "stbroadsoft.com"



- Follow the same procedure to add Header Rules for "To" and "PAI" headers

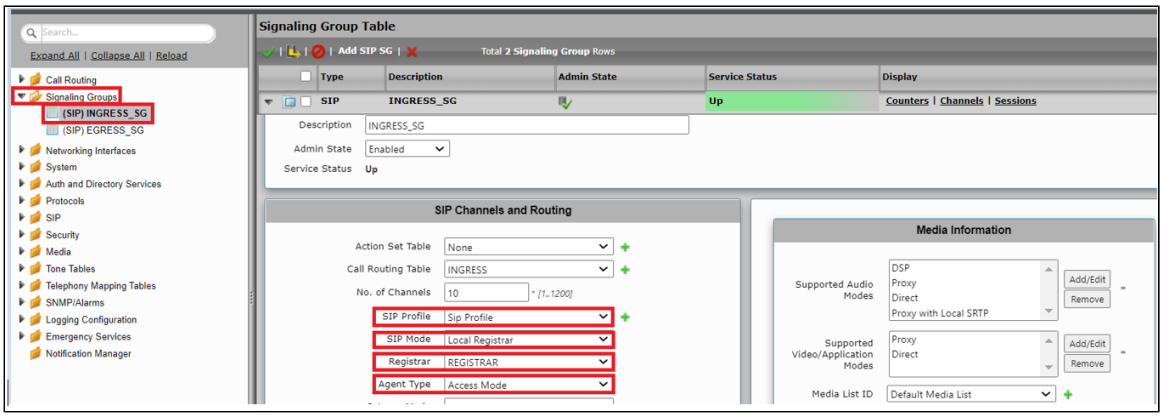
10. Configure Signaling Groups

Signaling groups allow telephony channels to be grouped together for the purposes of routing and shared configuration. They are the entity to which calls are routed, as well as the location from which Call Routes are selected.

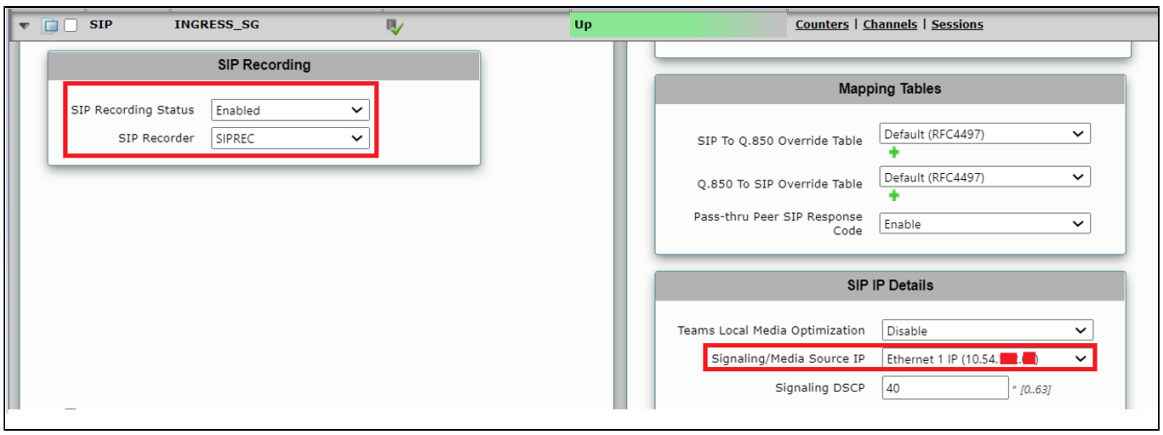
Navigate to **Signaling Groups (Add SIP SG)**

INGRESS_SG

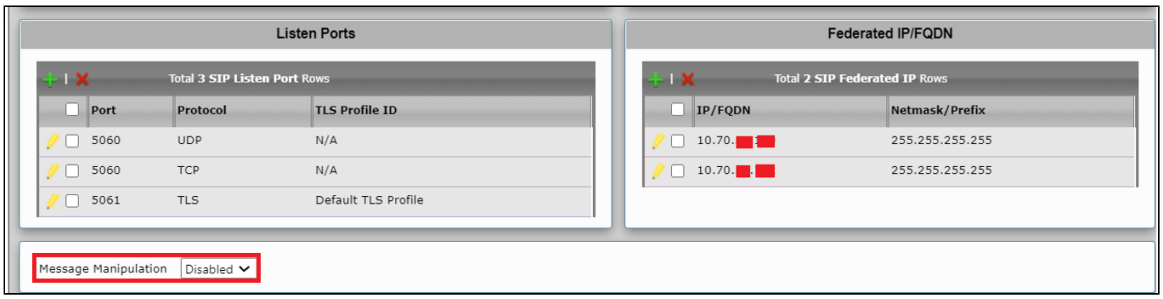
- In **SIP Profile**, choose the "Sip Profile" created in step 5.
- In **SIP Mode**, select **Local Registrar** and attach the SIP Local Registrar created in step 4.
- In Agent Type, select **Access Mode.**



- Enable SIP recording and attach the Recording Server Table created for SIP recording.
- Select Ethernet 1 as the **Signaling/Media Source IP.**

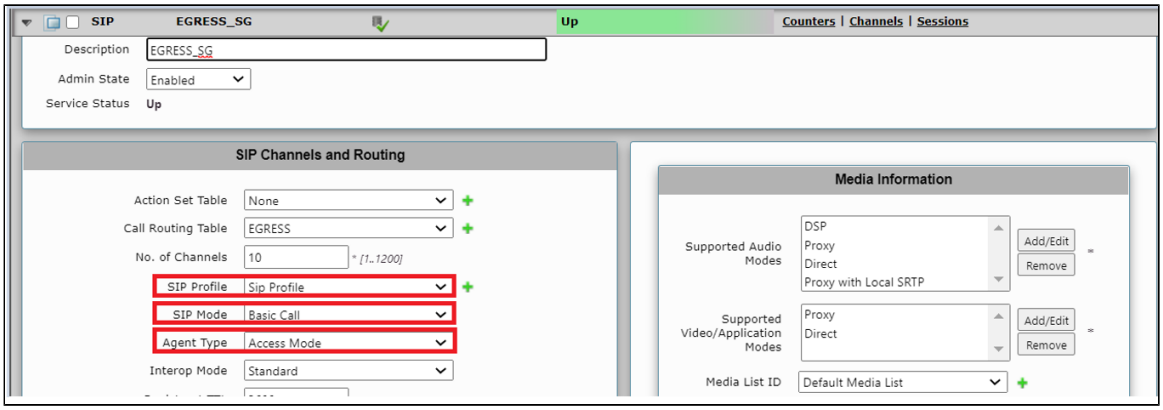


- Configure A1 and A2 IP addresses as the Federated IPs for the INGRESS_SG.

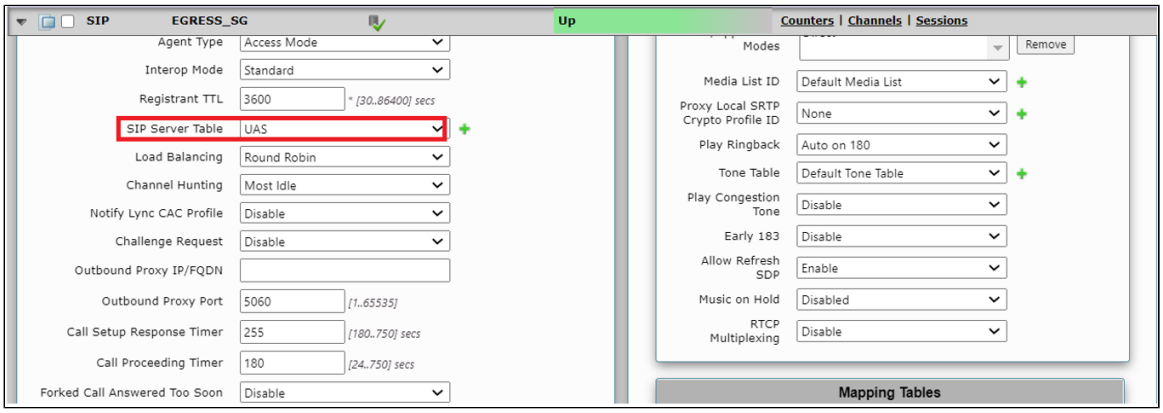


EGRESS SG

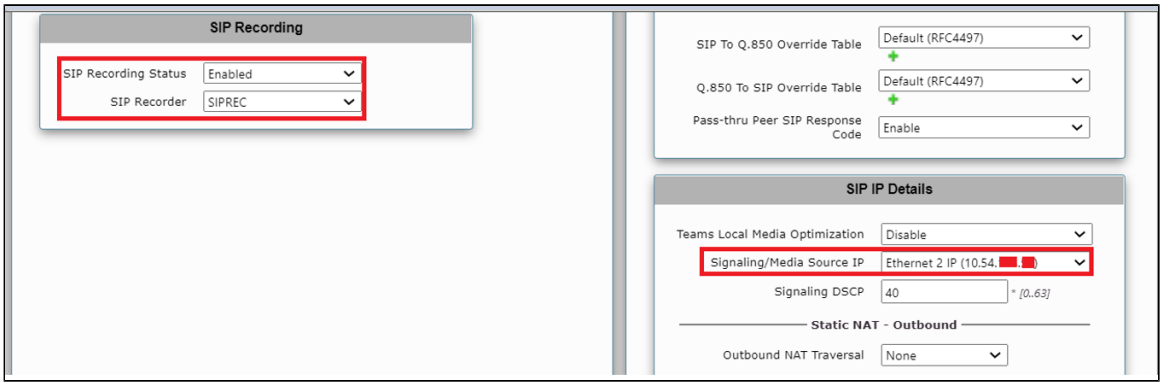
- In **SIP Profile**, choose the "Sip Profile" created in step 5.
- In **SIP Mode**, select **Basic Call**.
- **In Agent Type, select Access Mode** from the drop down.



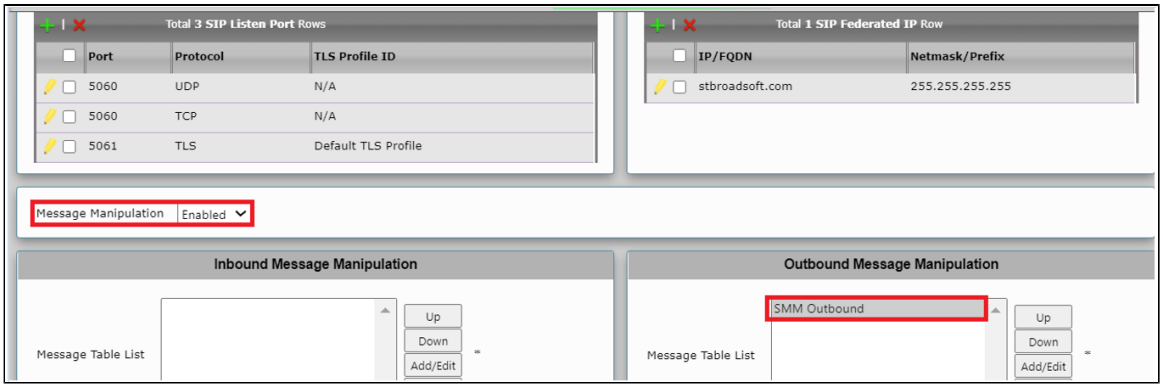
- Select **UAS** as the **SIP Server Table**.



- Enable **SIP Recording Status** and attach the Recording Server Table created for SIP recording.
- Select **Ethernet 2** as the **Signaling/Media Source IP**.



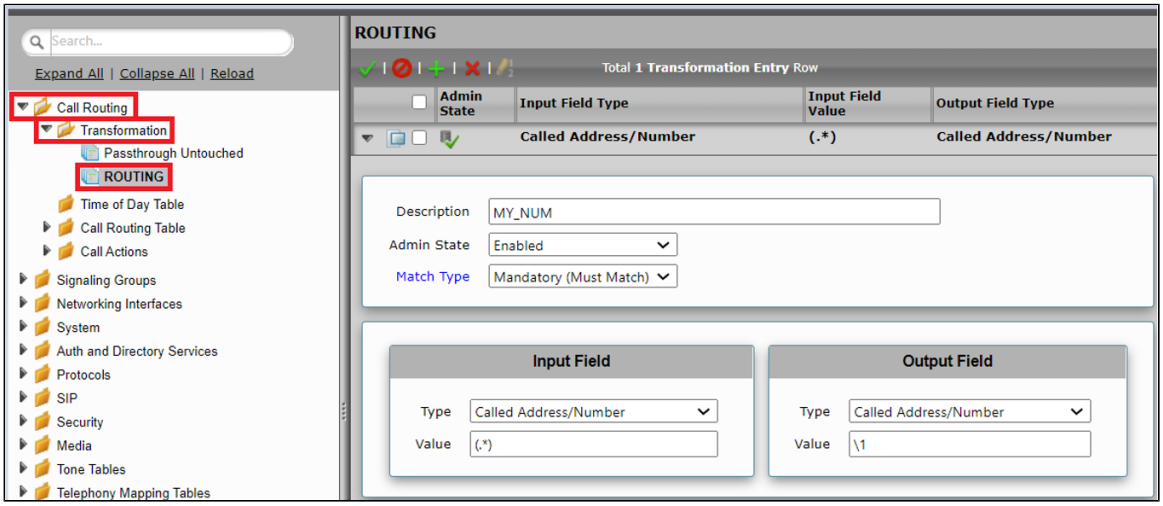
- Enable **Message Manipulation** for the Egress SG.
- Configure "stbroadsoft.com" as the Federated IP/FQDN.



11. Configure Call Routing Transformation Tables

Transformation Tables facilitate the conversion of names, numbers and other fields when routing a call. They can, for example, convert a public PSTN number into a private extension number, or into a SIP address (URI). Every entry in a Call Routing Table requires a Transformation Table, and they are selected from there.

Navigate to **Call Routing > Transformation**



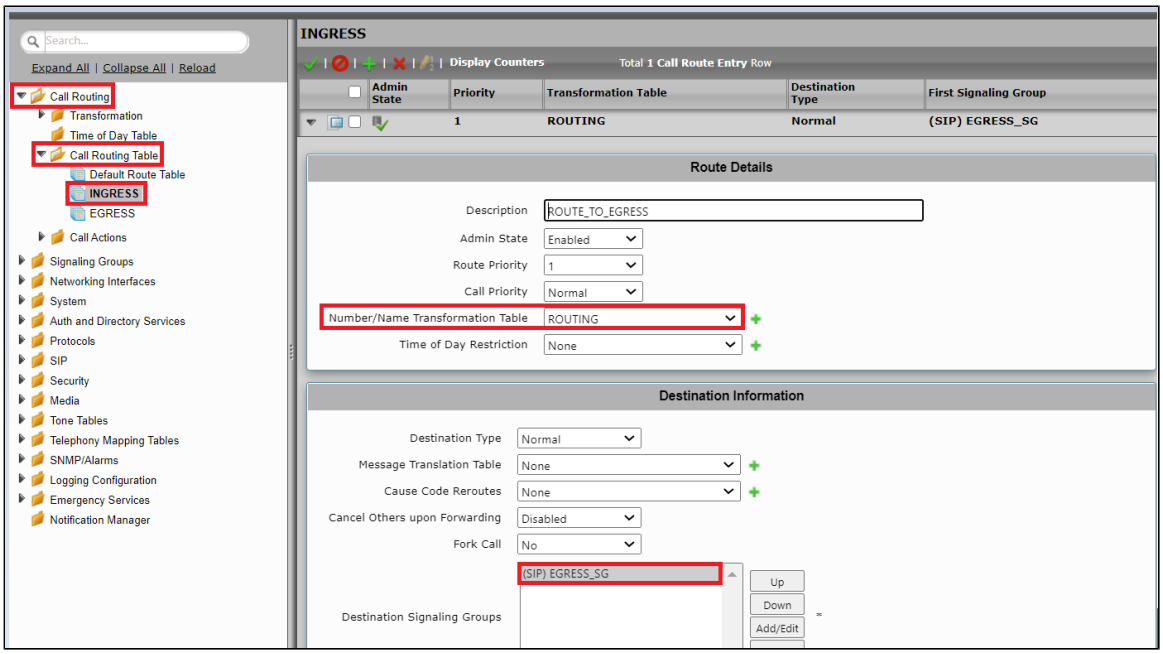
12. Configure Call Routing Tables

Call Routing allows calls to be carried between signaling groups, thus allowing calls to be carried between ports, and between protocols (like ISDN to SIP). Routes are defined by Call Routing Tables, which allow for flexible configuration of which calls are carried, and how they are translated.

Navigate to **Call Routing > Call Routing Table**

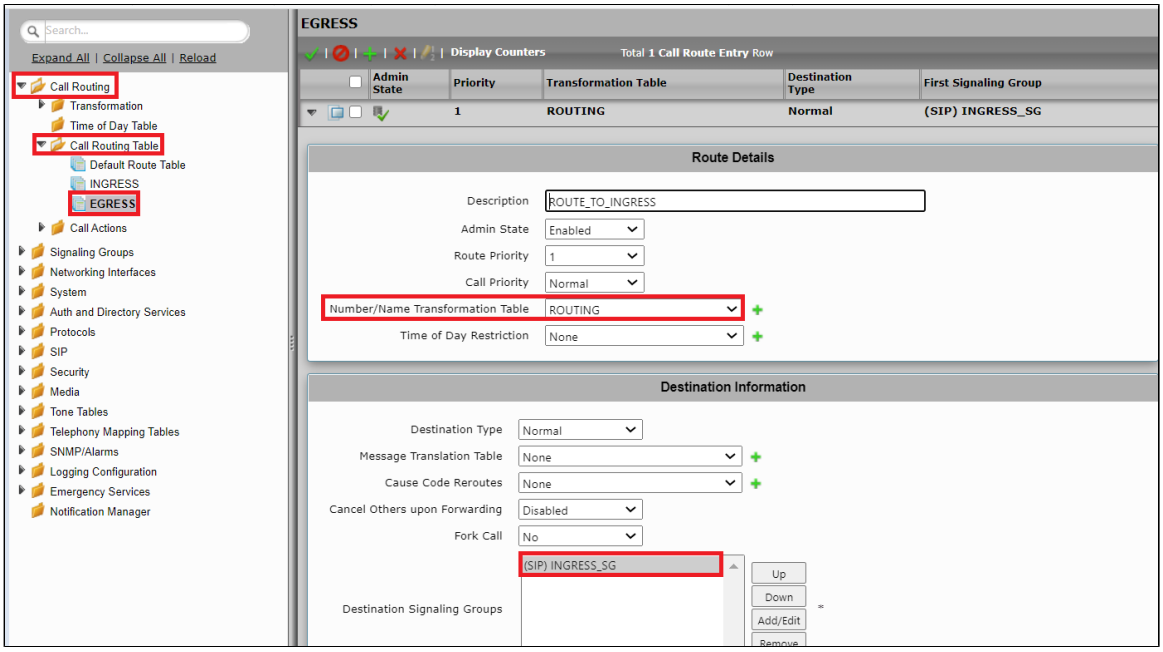
INGRESS

- Attach the Transformation Table entry created in the previous step.
- Select the **Destination Signaling Group** as EGRESS_SG.



EGRESS

- Attach the Transformation Table entry created in the previous step.
- Select the **Destination Signaling Group** as INGRESS_SG.



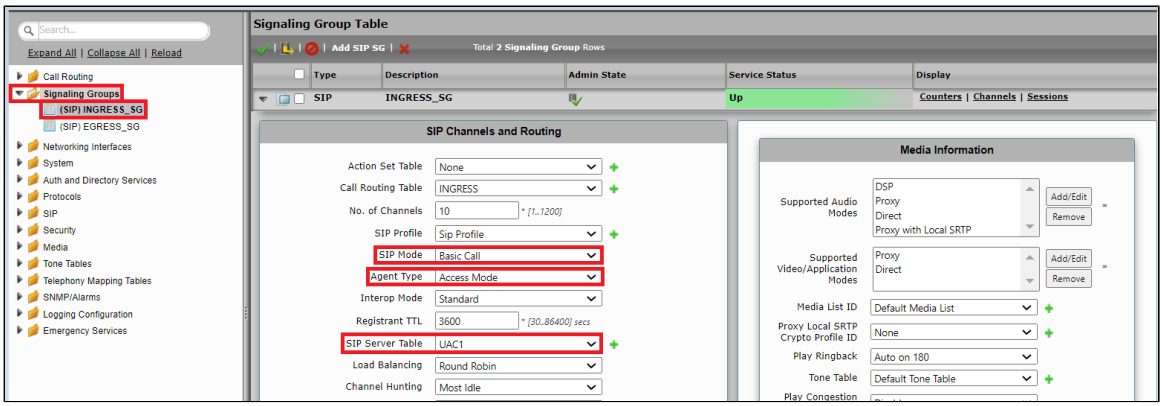
13. Configure Surrogate Registration

This section verifies the DUT's capability to provide a surrogate registration to BroadWorks for a non-registering IP-PBX, trunking gateway, or other device.

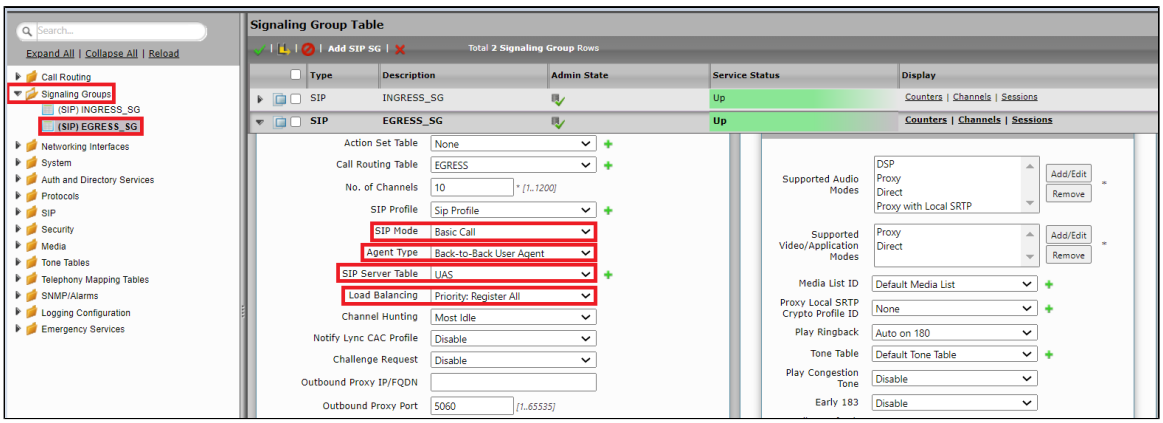
Ensure all the users are configured in SBC SWe Lite if surrogate registration is expected from SBC SWe Lite towards BroadSoft.

> **warning**
> Surrogate registration is currently not supported with redirect 3xx response. During this interop, SBC SWe Lite was pointed directly to the BroadSoft AS.

To configure the profile for surrogate registration, navigate to **Signaling Groups > INGRESS_SG** and make the following changes.



Navigate to **Signaling Groups > EGRESS_SG**



14. GIN Registration

This section verifies the DUT's interoperability with BroadWorks for GIN registration. With GIN registration, the access device, an IP-PBX or PBX-trunking gateway, registers a trunk as a single contact address, which implicitly registers all PBX subscribers. The single register Address of Record (AoR) is the trunk main line or pilot number.

For GIN registration, a PBX sends a REGISTER request to the service provider's registrar for a specially designated AoR, with a specially formatted Contact URI without a user portion and containing a bnc parameter, and with a Require header field containing the value "gin".

The registered contact address is used in the Request-URI for calls from BroadWorks to the DUT. BroadWorks populates the user portion with the specific PBX user's number.

warning
Reg-key support is required for GIN registration of a Pilot number and incoming calls for PBX users. GIN registration will be supported along with reg-key implementation in the upcoming release

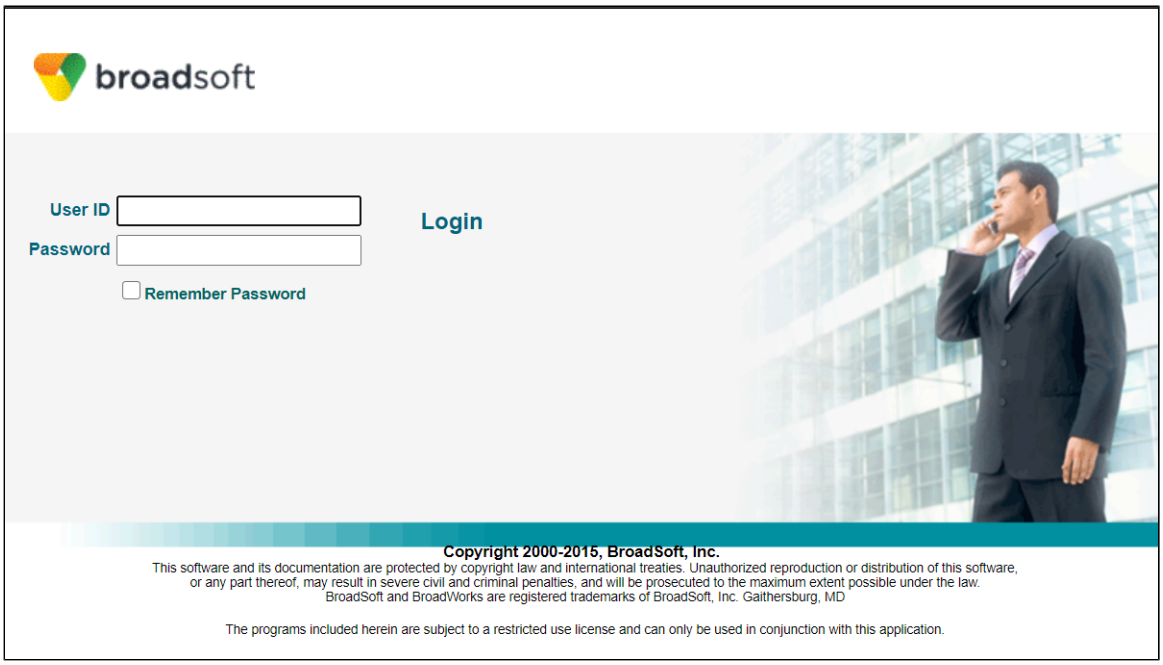
Broadsoft Configuration

1. Network Server

Make sure the SBC SWe Lite SipSg IP (configured towards Broadsoft) is added in the network server in order to receive 3xx Redirect response with multiple AS FQDNs in the Contact header.

1a. Accessing the Broadsoft Network Server

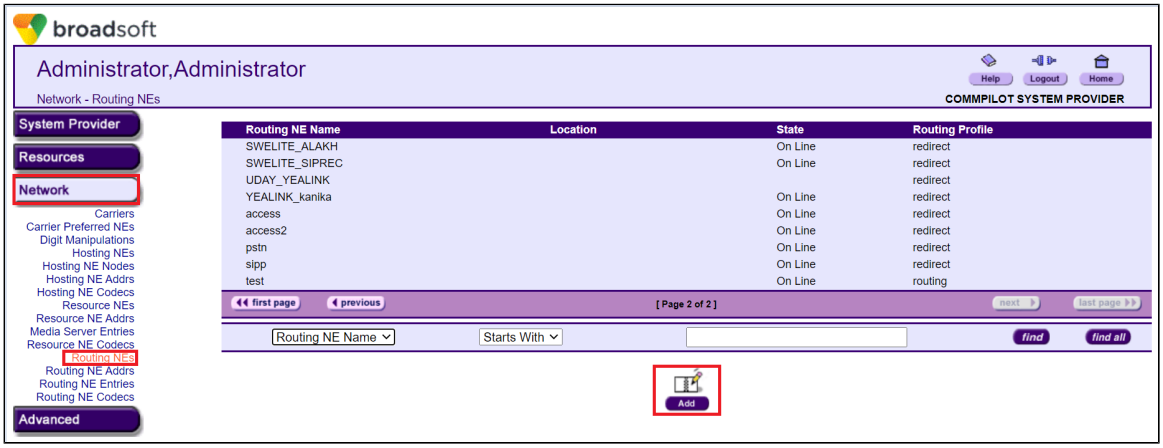
Open a browser and enter the Broadsoft Network Server IP.



Enter the username and password and then click **Login**.

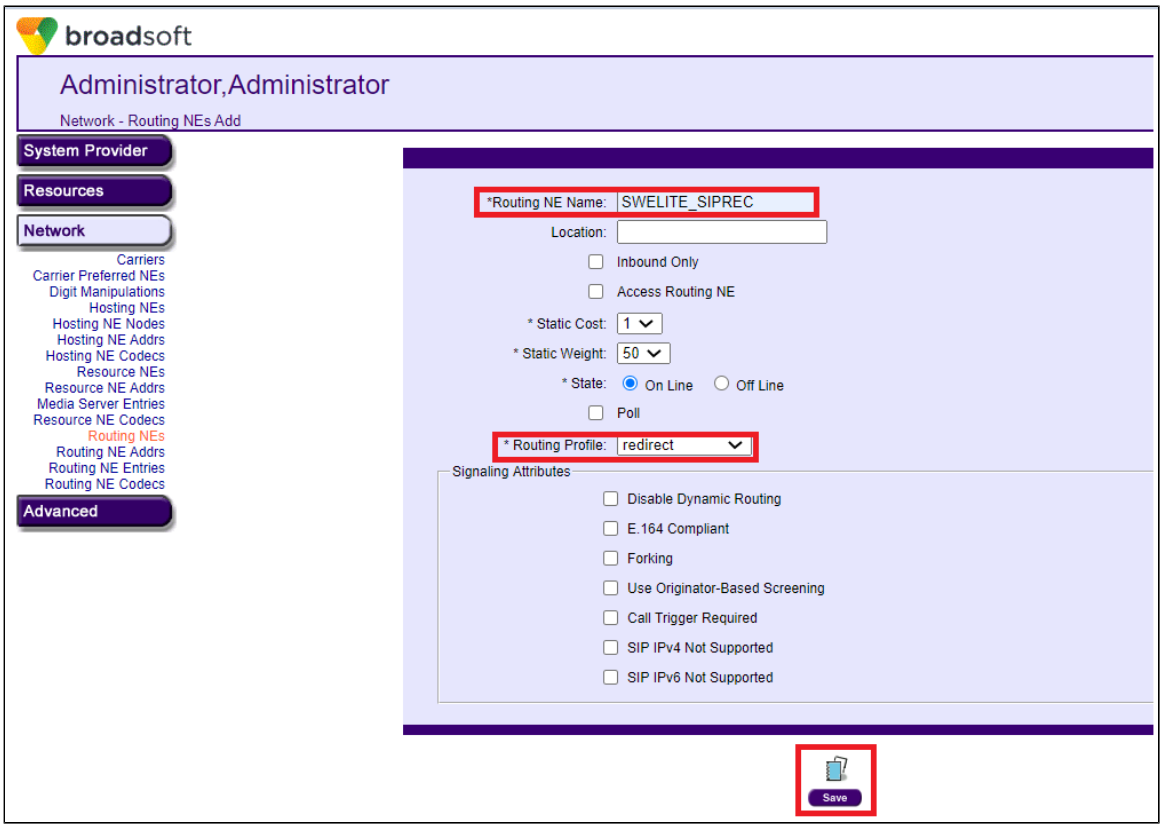
1b. Adding the SBC SWe Lite Sipsg IP

Navigate to **Network > Routing NEs,** click **Add**.

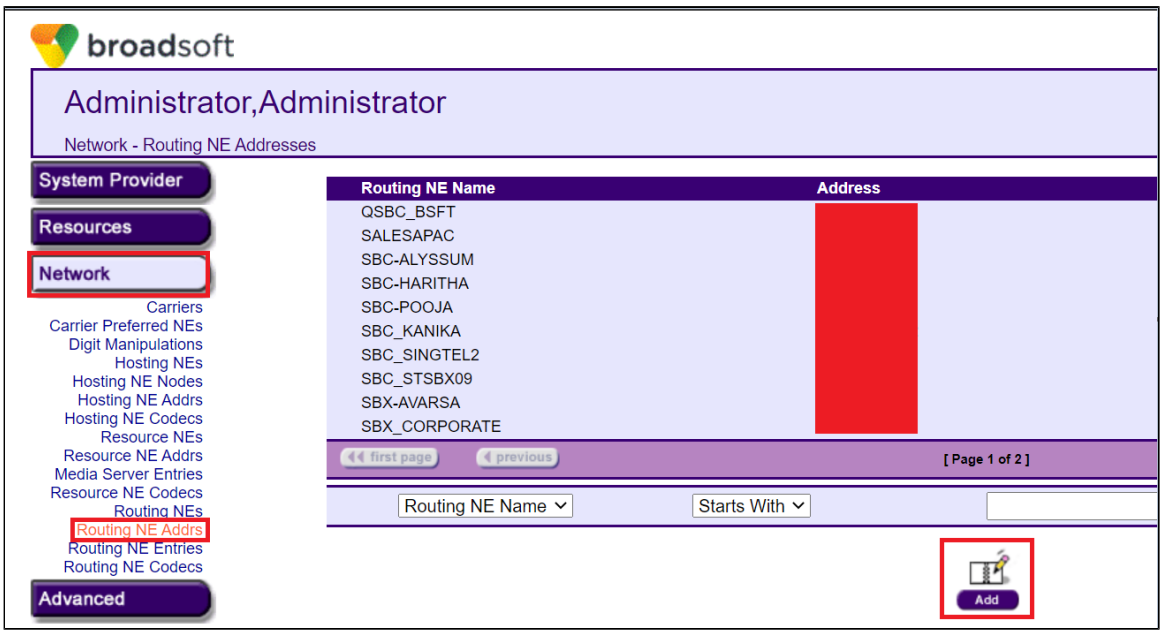


This page allows the user to add routing network elements (NEs). Once added, the routing NE appears on the **Routing NEs** page. A routing NE is a network element that provides connectivity to remote networks, for example, the PSTN. A routing NE is a system provider-owned device. It can either be a network gateway or a proxy server used to "front" network gateways.

Enter the **Routing NE Name**, select the appropriate **Routing Profile,** and click **Save**.



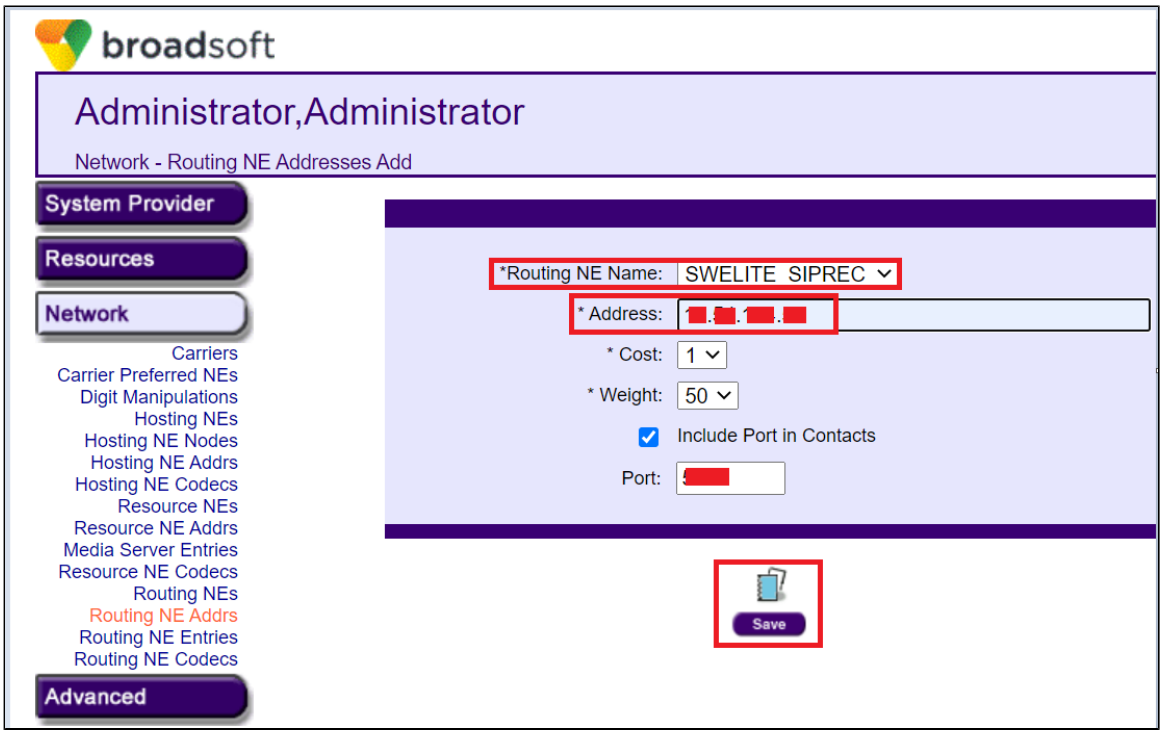
Navigate to **Network > Routing NE Addrs,** click **Add**.



From this screen, add routing network element (NE) addresses. Once added, the routing NE address displays on the **Routing NE Addrs** screen.

To add, select the **Routing NE Name** created in the previous step from the drop down.

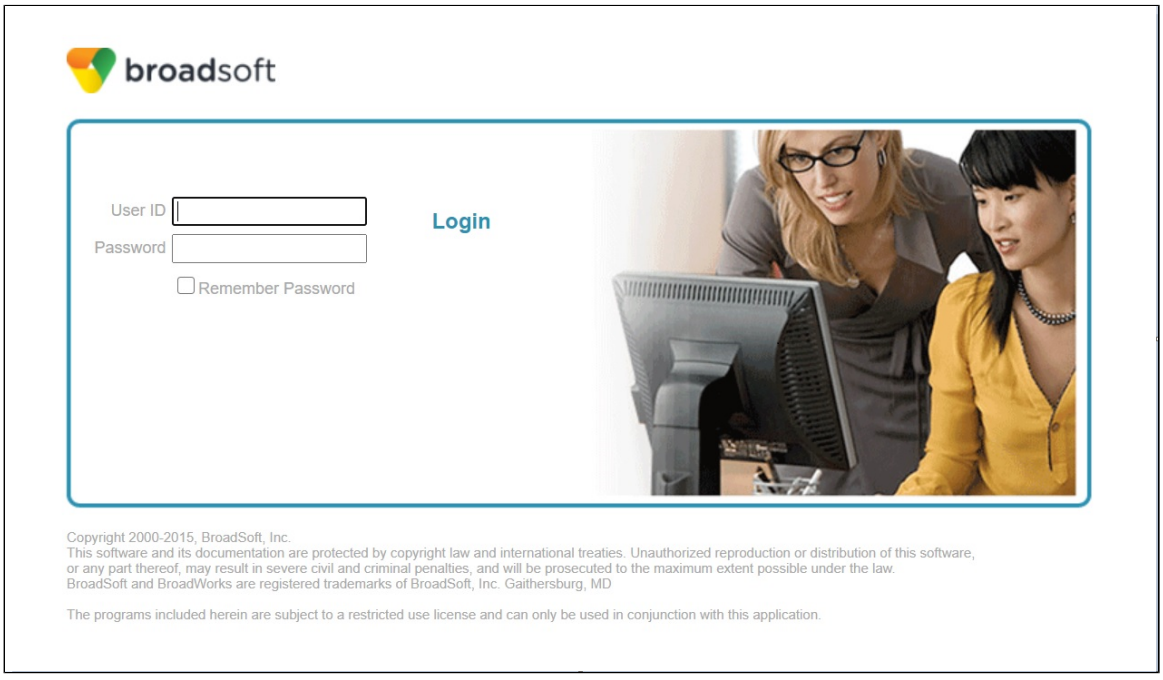
Add the Sipsg IP and port and then click **Save**.



2. Application Server

2a. Accessing the Broadsoft AS to Assign Services to Users

Open a browser and enter the Broadsoft Application Server IP address.



Enter the user credentials and click **Login**.

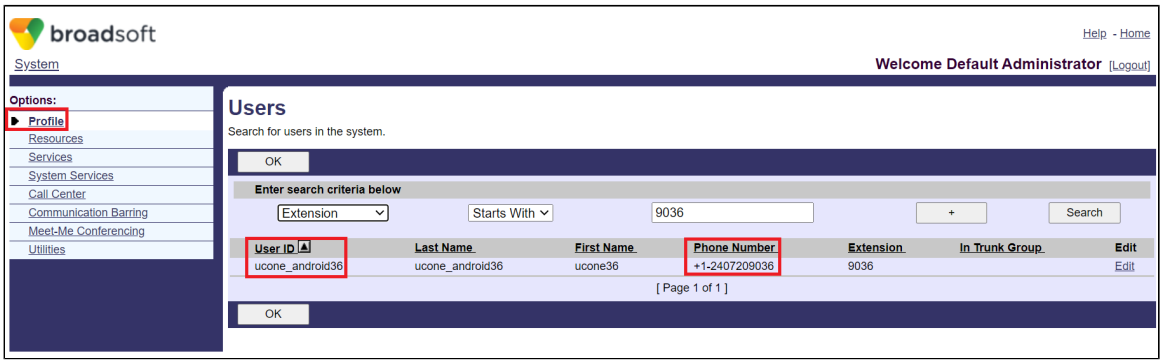
2b. User Search

From the BroadSoft home page, navigate to **Profile > Users**

This page displays users in a group or department. You can display all users or look for specific users.

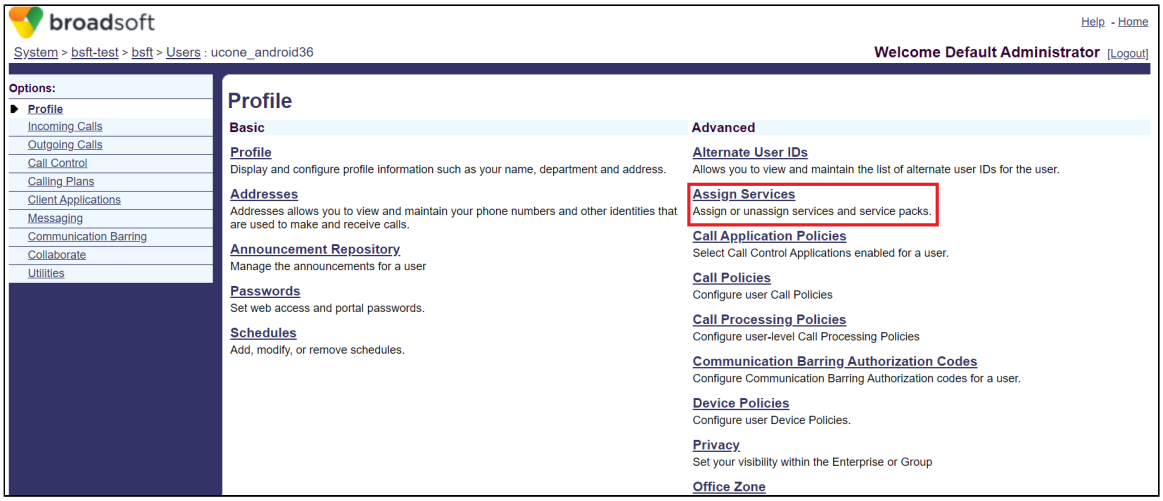
To display all users: Click on **Search**.

Or, you can search for users by User ID, Last Name, First Name, Phone Number, Extension, Department, and whether the user is in a Trunk Group. To display specific users: Enter your search criteria and click **Search**.



2c. Assign Services to the User

Click **Assign Services** to assign or unassign services and service packs to a user. If a service or service pack is unassigned, the service data that has been filled out will be lost.

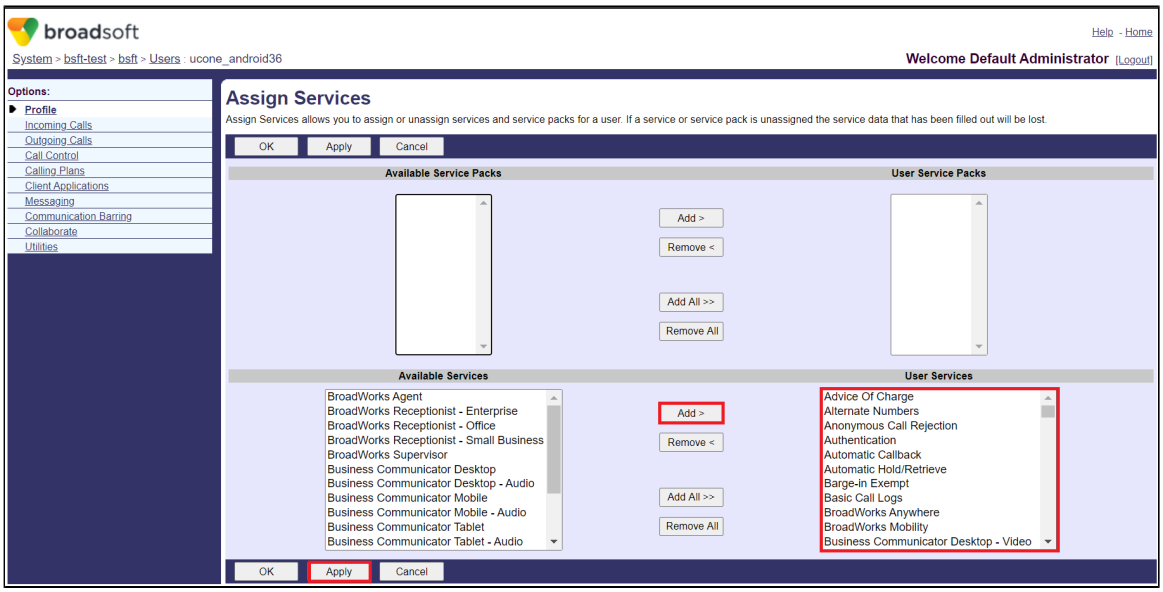


Use this page to display the service packs and individual services available to be assigned to a user.

Using this page, you can also:

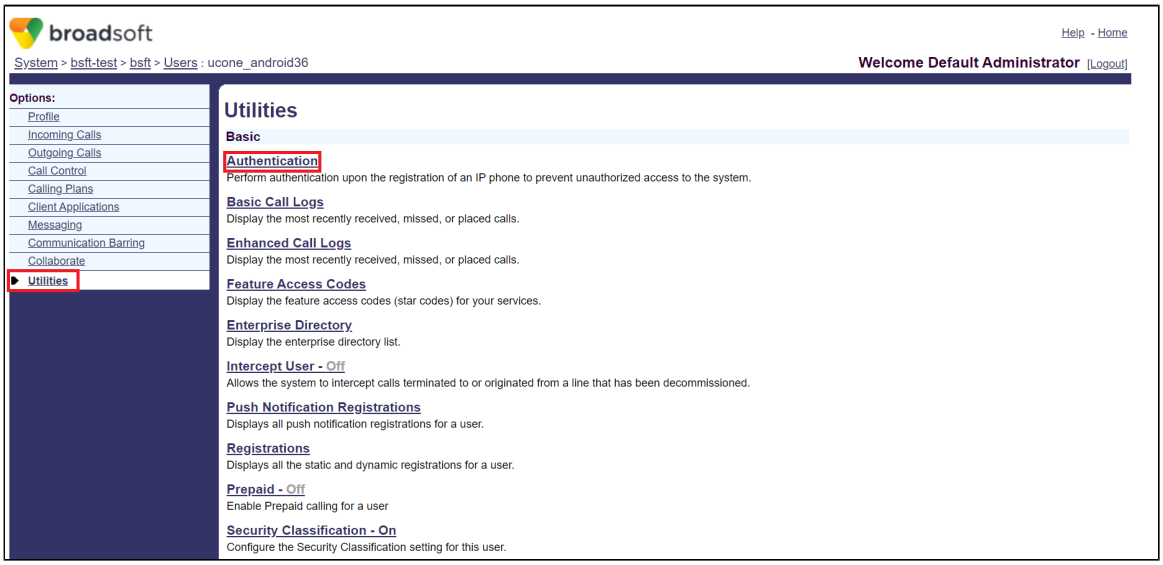
- Assign service packs to a user
- Unassign service packs from a user
- Assign services to a user
- Unassign services from a user

Ensure all the required services like **Authentication**, supplementary services like **Call Forwarding**, **Call Transfer**, **Call Waiting**, and so on, are assigned to the user.



2d. Enable Authentication

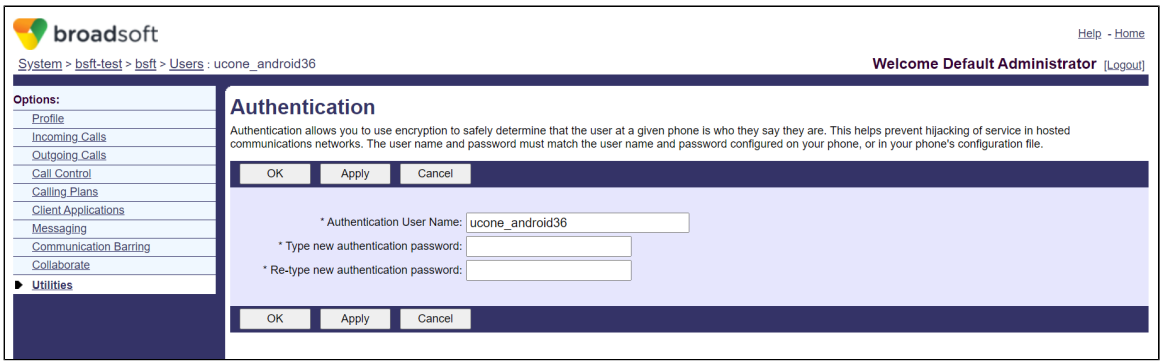
Navigate to **Profile > Users > Utilities.** Click **Authentication**.



Use this page to change the user's authentication password. This password is used to authenticate an IP phone, which allows calls to be made over Internet Protocol (IP) based networks.

The authentication password and user name can be different from the system password and user ID that are used at initial system login. While you can choose to use the same name and password for authentication and initial login, the credentials allow access to different services. The password restrictions may differ.

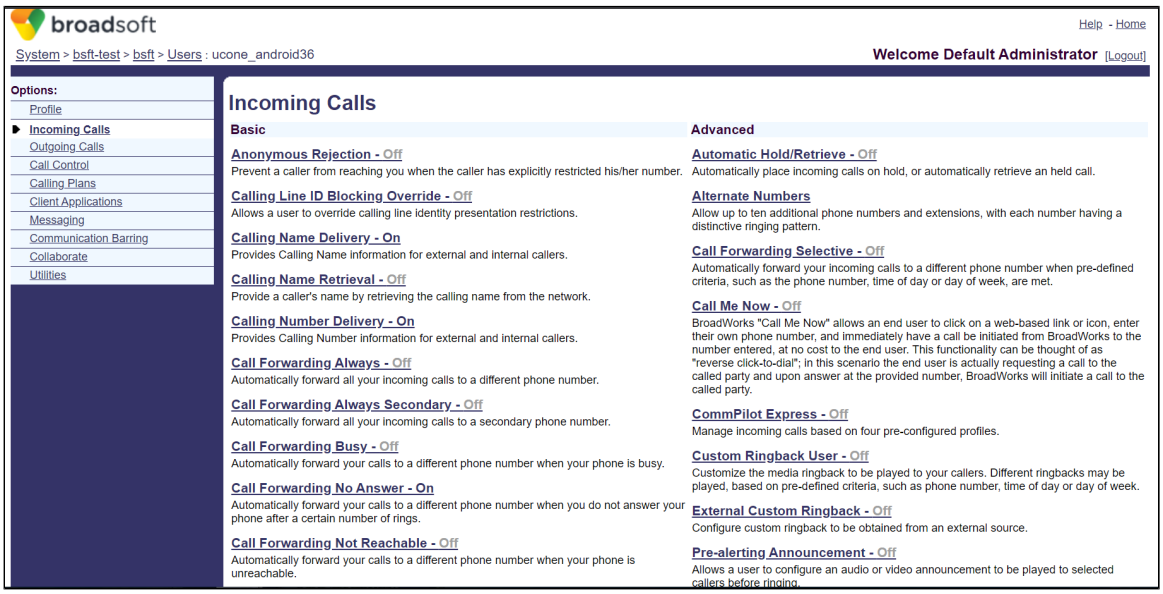
Enter the user name and password. Click **Apply**.



2e. Handling Incoming Calls

As required, enable or disable the services to handle the incoming calls by navigating to **Profile > Users > Incoming Calls**

This page displays menu items used to handle incoming calls. You can activate or deactivate some of the services by turning them on or off on the page for the service. To access the page for a particular service, click on the link for that service.



Features/Services supported on SBC Edge

Sr.no	Features/Services	Supported
1	Basic Registration with Authentication	✓
2	Basic Registration with reg-key	✗
3	3xx Response handling with maddr	✗
4	Basic calls	✓
5	CANCEL Scenario	✓
6	User Busy	✓
7	Session Audit	✓
8	Session Timers	✓
9	Music on Hold	✗
10	Remote Ringback	✗

11	Local Ringback followed by Remote Ringback	✗
12	Call Forward	✓
13	Voice Portal	✓
14	Anonymous call: Trusted and Non-trusted endpoint	✓
15	Calling Name with Unicode Characters	✓
16	DIVERSION Header: Single and Multiple Redirects	✓
17	HISTORY-INFO	✓
18	Blind Transfer	✗
19	Attended Transfer	✗
20	Local Conference	✓
21	Network Conference	✗
22	Surrogate Registration	✗
23	GIN registration	✗

Legend

✓	Supported
✗	Not supported

Conclusion

This document provides detailed description required for the configuration of Ribbon SBC SWe Lite with the SIPREC feature enabled and the configuration of BroadSoft Application Server users in a hosted mode.