Ribbon SBC Edge Configuration with OBS (UDP)

Table of Contents

Document Overview

This document provides a configuration guide for Ribbon SBC Edge Series (Session Border Controller) when connecting to OBS Business Talk (BTIP) SIP trunk.

This configuration guide supports features given in the BTIP North Profile Compliancy and Compliance tests documents.

Ribbon has configured the BTIP side in a such manner it doesn't matter the 3rd party system connected on the SBC.

The SBC Edge is certified by Orange Business Services as a '**certified Enterprise SBC'**.

- For additional information on OBS, please visit https://www.orange-business.com/en/products/business-talk
- For additional information on Ribbon SBC Edge, please visit https://ribboncommunications.com/

Introduction

The interoperability compliance testing focuses on verifying inbound and outbound call flows between Ribbon SBC Edge and OBS.

Audience

This is a technical document intended for telecommunications engineers with the purpose of configuring both the Ribbon SBC and the third-party product. There will be steps that require navigating the third-party and the Ribbon SBC 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.

> 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 provided:

	Equipment	Software Version
Ribbon Communications	Ribbon SBC SWE-Lite	9.0.0
Third-party Equipment	CISCO CUCM	12.5
Other software	VentaFax	7.3.233.582I

Reference Configuration

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

Figure 1: SBC Edge IP Diagram

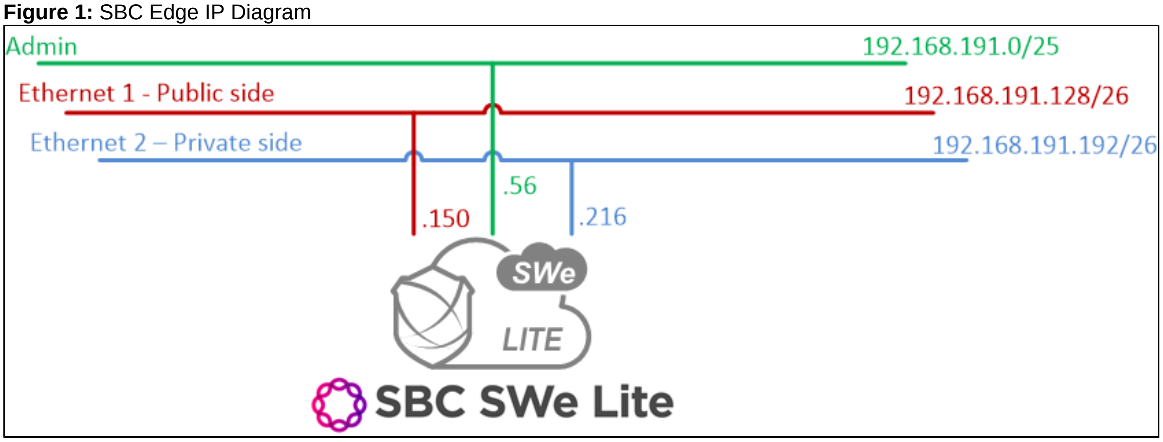
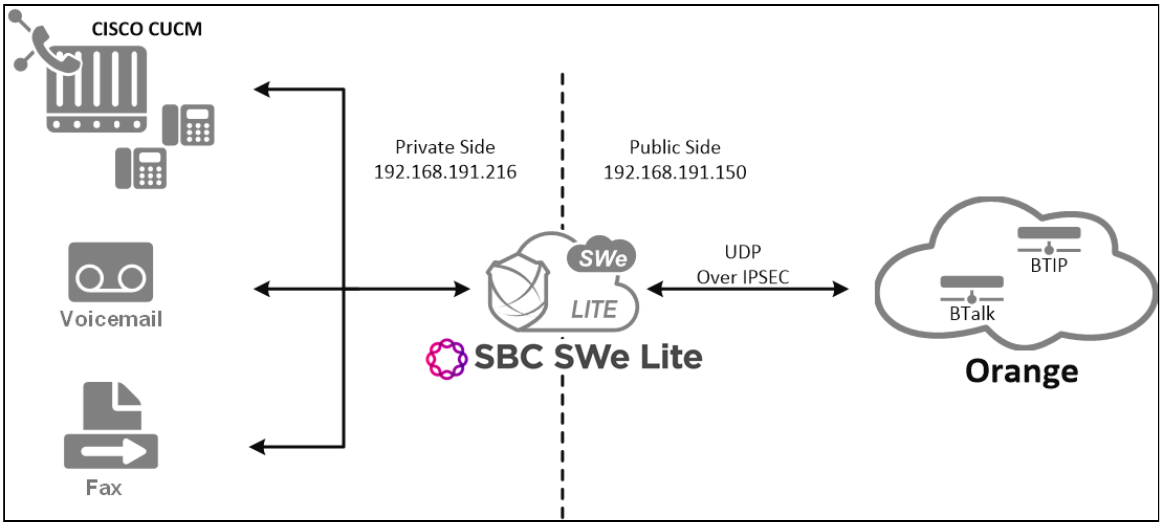


Figure 2: Topology



Support

For any questions regarding this document or the content herein, please contact your maintenance and support provider.

Third-Party Product Features

Table 1: Product Features

- Basic Call
- Long Duration Call + CLIR
- Call Cancellation
- DTMF + Voicemail
- Transfer
  - Supervised + MOH
  - Blind
- Forward
  - Unconditional
  - Busy
  - No Answer
- Busy Call
- Not Answered Call
- Conference X3
- Prehook
  - With Transfer
  - With Forward
- Call Parking
- Call Pickup
- Hunt Group
- Second Line
- CAC
- Emergency Number
- Fax

Prerequisites

Table 2: Prerequisites

- A Valid SBC Edge License
- VentaFax Software
- Voicemail Software

Verify License

A valid SWE-Lite (Key Based) license with the features necessary to run the tests.

Cisco Unified Communications Manager (CUCM)

The following new configurations are included in this section:

1. SIP Trunk
2. Route Group
3. Route List
4. Route Pattern

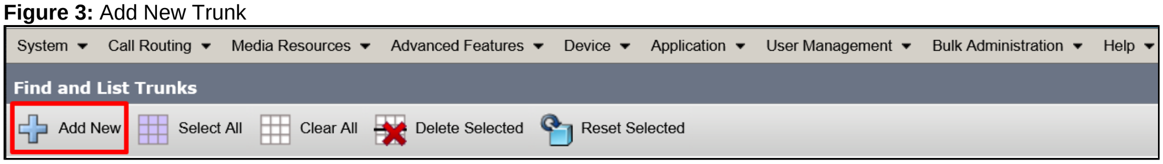
SIP Trunk

SIP trunks allow administrators to connect the Cisco Unified Communications Manager to external devices such as SIP gateways, SIP Proxy Servers, Unified Communications applications, remote clusters, or a Session Management Edition. Ribbon uses the SIP trunk to connect the CUCM to the Ribbon SBC SWE-Lite.

Login to the CUCM as an *admin* user and go to the following path: *Device* > *Trunk*

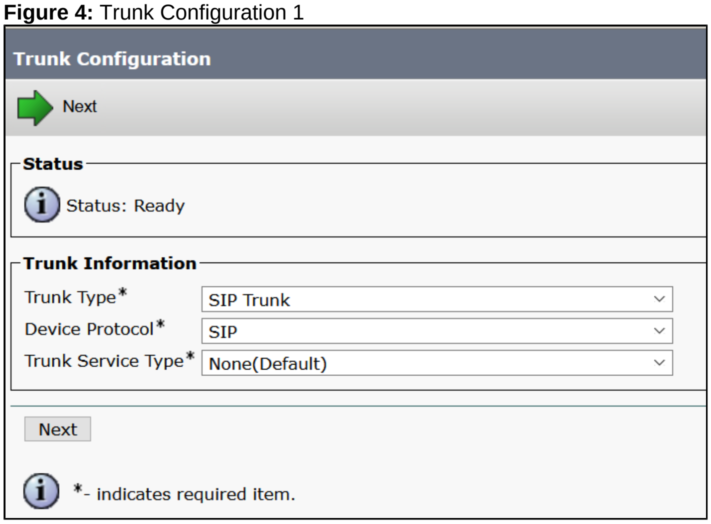
Click on the *Add New* icon to add a new Trunk.

Figure 3: Add New Trunk



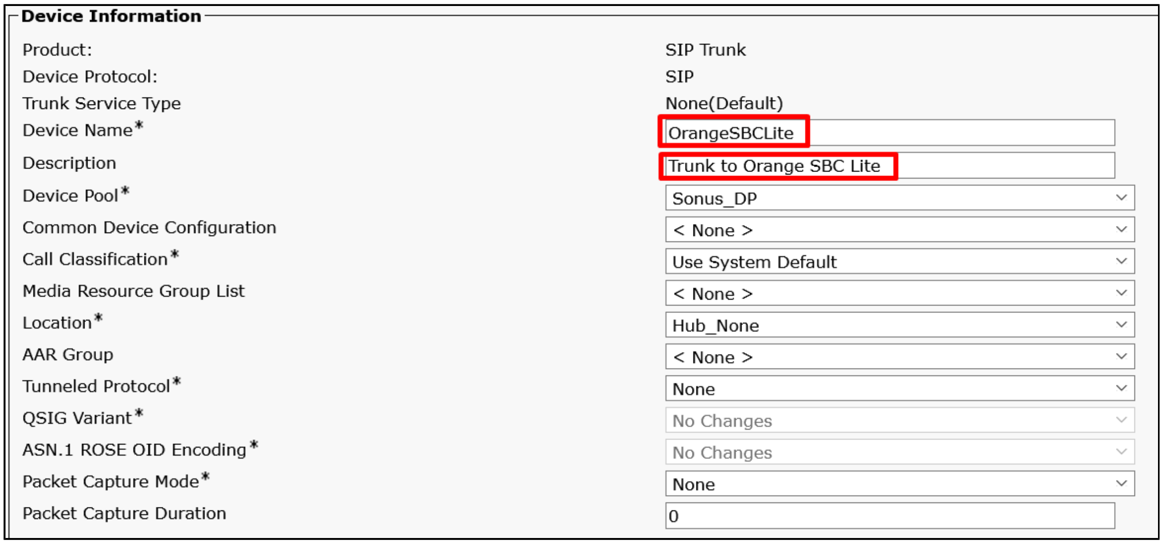
Set the trunk configuration as shown in the figure below.

Figure 4: Trunk Configuration 1



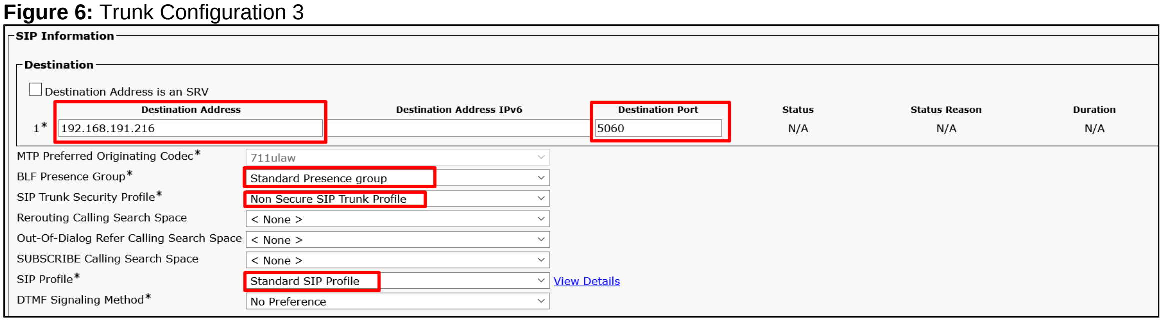
After clicking the *Next* button, a new screen will be shown. Set the device (trunk) name, the profiles, and the destination IP address used by the trunk. Below is an example.

Figure 5: Trunk Configuration 2



The IP address on the *SWE-Lite* towards the *CUCM* is 192.168.191.216.

Figure 6: Trunk Configuration 3



Click the *Save* button.

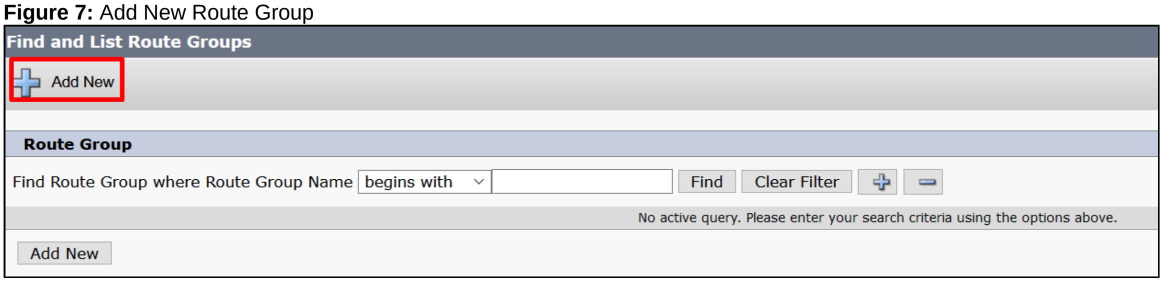
Route Group

In Cisco Unified Communications Manager, use the *Call Routing > Route/Hunt > Route Group* menu path to configure route groups.

A route group allows you to designate the order in which gateways and trunks are selected. It allows you to prioritize a list of gateways and ports for outgoing trunk selection.

Click on the *Add New* icon to add a Route Group.

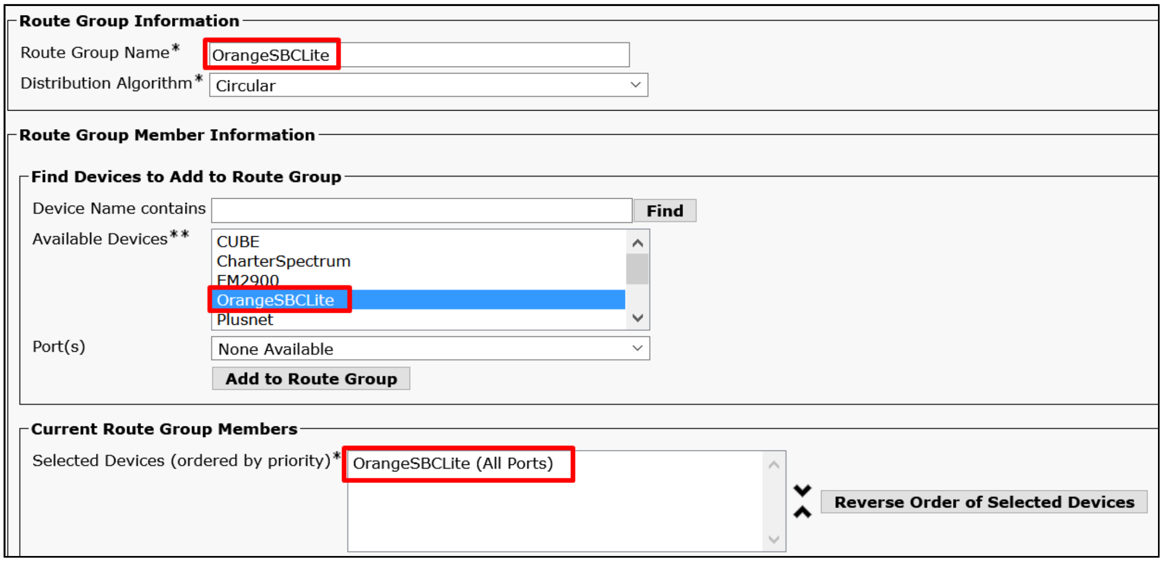
Figure 7: Add New Route Group



Specify the *Route Group name* and select the *devices* that are going to be used by this *Route Group.*

In the example below, the device selected is OrangeSBCLite, created in SIP Trunk above.

Figure 8: Route Group Configuration



Click the *Save* button.

Route List

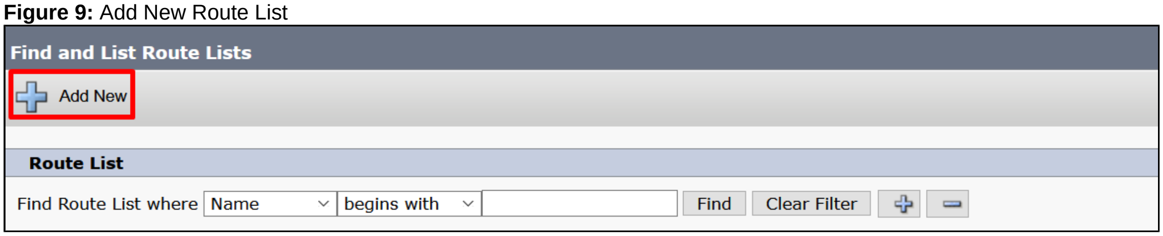
In Cisco Unified Communications Manager Administration, use the *Call Routing > Route/Hunt > Route List* menu path to configure route lists.

A route list associates a set of route groups in a specified priority order. The route list associates the route groups with one or more route patterns and determines the order in which those route groups are accessed. The order controls the progress of the search for available devices for outgoing calls.

A route list can contain only route groups. Each route list should have at least one route group. Each route group includes at least one device.

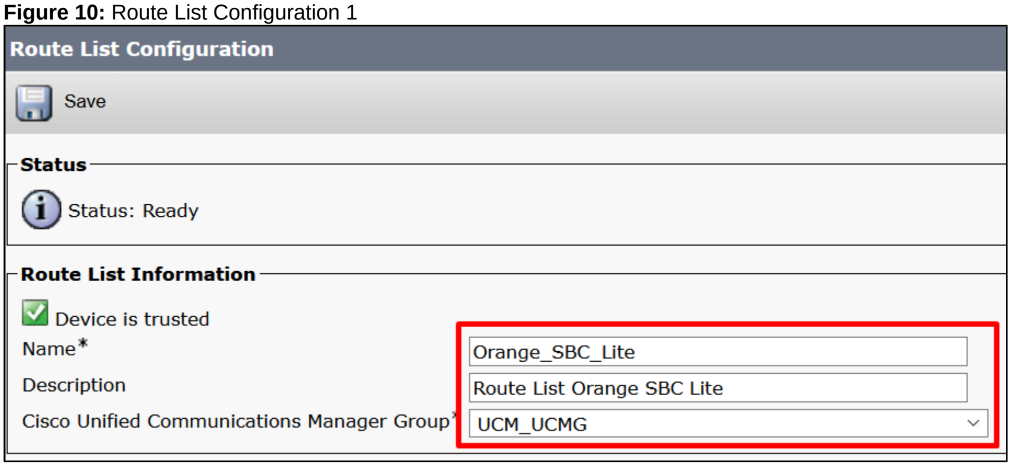
Click on the *Add New* icon to add a Route List.

Figure 9: Add New Route List



In the next screen, specify the Route List name, description, and select the Cisco Unified Communications Manager Group used by the Route List.

Figure 10: Route List Configuration 1

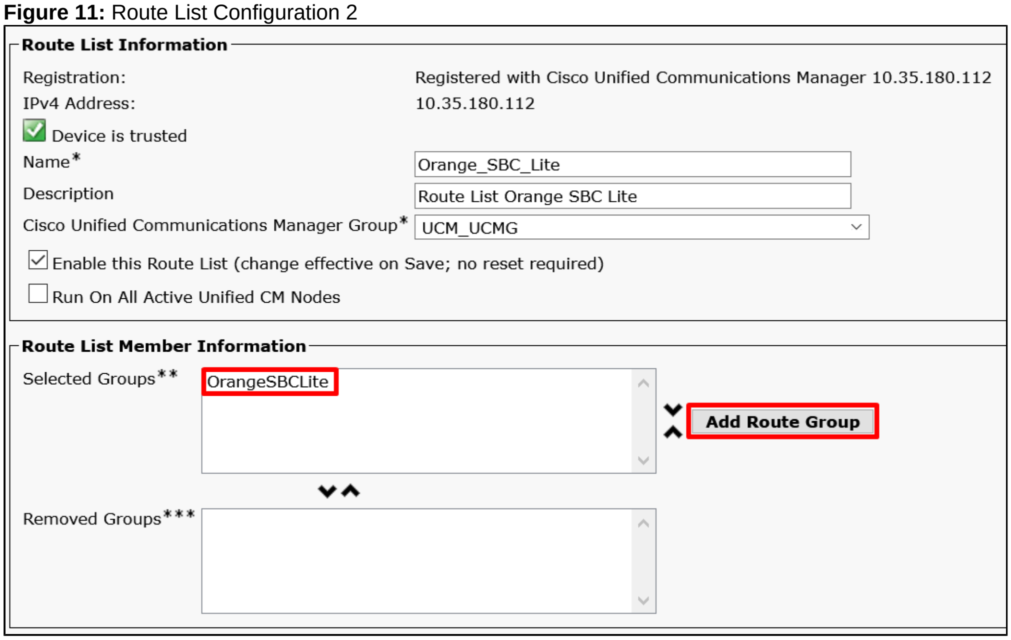


Click the *Save* button.

After saving, you will be able to add the *Route Group* to the *Route List*.

Click the *Add Route Group* icon to add the *Route Group* to the *Route List.*

Figure 11: Route List Configuration 2



Click the *Save* button. At this point the new Routing List has been created.

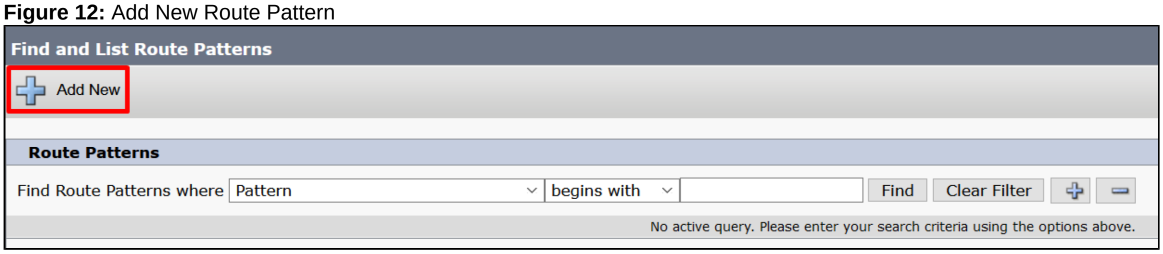
Route Pattern

In Cisco Unified Communications Manager Administration, use the *Call Routing* > *Route/Hunt* > *Route Pattern* menu path to configure route patterns.

A route pattern comprises a string of digits (an address) and a set of associated digit manipulations that can be assigned to a route list or a gateway. Route patterns provide flexibility in network design. They work in conjunction with route filters and route lists to direct calls to specific devices and to include, exclude, or modify specific digit patterns.

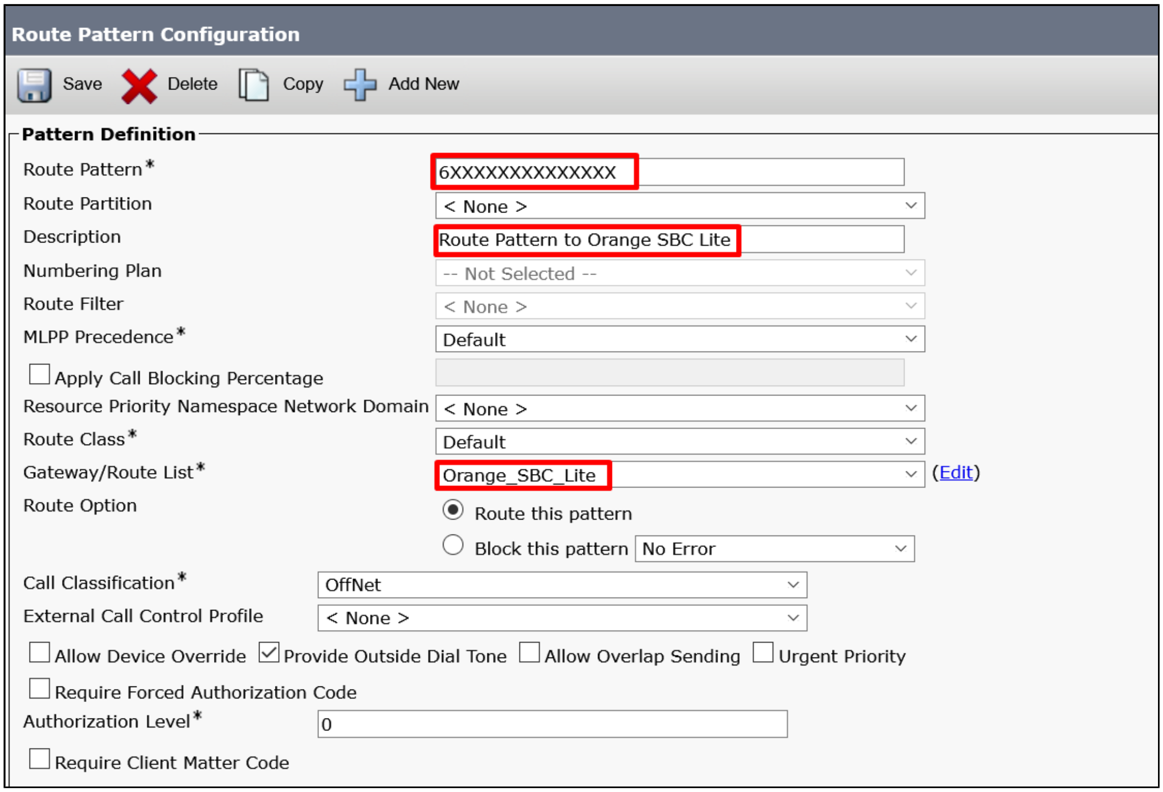
Click the *Add New* icon to add a Route Pattern.

Figure 12: Add New Route Pattern



In the next screen, specify the *Route Pattern, Description,* and *Gateway/Route List.*

Figure 13: Route Pattern Configuration



Cisco Wildcard
The X wildcard matches any single digit in the range 0 through 9. For instance, the route pattern 9XXX routes or blocks all numbers in the range 9000 through 9999.

For more information regarding special characters and settings on the CISCO CUCM, go to Appendix A.

Click the *Save* button. At this point the new Route Pattern has been created.

All traffic matching this route pattern will be routed through the route list *Orange_SBC_Lite.*

SBC SWE-Lite Configuration

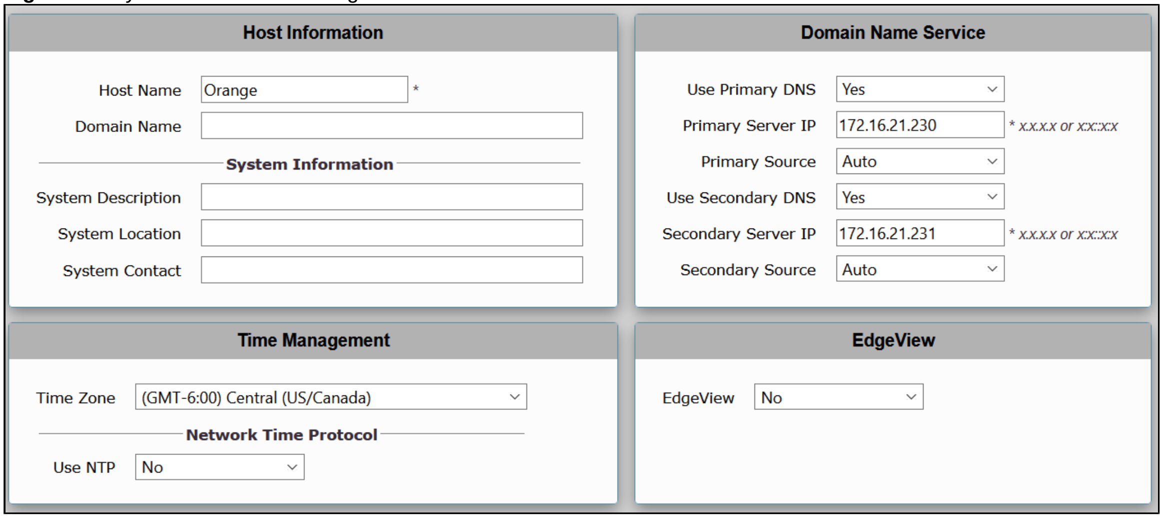
The following new configurations are included in this section:

1. System Settings
2. Network Interfaces
3. Static Routes
4. SIP Profiles
5. SIP Server Tables
6. Message Manipulations
7. Media Profiles
8. Media Lists
9. Q.850 to SIP Override Table
10. Signaling Groups
11. Transformations Tables
12. Call Routing Tables

System Settings

The *System > Node-Level settings* menu path allows you to set the *Host name, the Domain name service*, and *Time management.* Below is an example of the system settings.

Figure 14: System Node-level settings



Network Interfaces

The *Networking Interfaces > Logical Interfaces* menu path allows you to configure the IP addresses (both IPv4 and IPv6) for the Ethernet ports and VLANs.

The SBC SWe Lite supports five system-created logical interfaces (known as **Administrative IP**, **Ethernet 1 IP**, **Ethernet 2 IP**, **Ethernet 3 IP**, and **Et hernet 4 IP**). In addition to the system created logical interfaces, the Ribbon SBC SWe supports user-created VLAN logical sub-interfaces.

Administrative IP

The SBC SWe Lite system supports a logical interface called the Admin IP (Administrative IP, also known as the Management IP). A Static IP or DHCP is used for running Initial Setup of the SBC SWe Lite system.

> **Admin IP**
> The Administrative IP interface should be used for Running Initial Setup, as well as all management related functionality from the web browser.

Ethernet IP

The SBC SWe Lite system has four logical interfaces. In most deployments, one of these logical interfaces (typically **Ethernet 1 IP**) is assigned an IP address used for transporting all the VOIP media packets (e.g., RTP, SRTP) and all protocol packets (e.g., SIP, RTCP, TLS). DNS servers in the customer's network should map the SBC SWe Lite system hostname to this IP address. The hostname, or these IP addresses, may be used by UC-enabling systems such as SIP-phones, IP-PBX and Microsoft Lync Servers and for accessing the SBC SWe Lite WebUI.

In the default software, **Ethernet 1 IP** is enabled and an IPv4 IP address is acquired via a connected DHCP server. This IP address is used for performing Initial Setup on the SBC SWe Lite. See Running Initial Setup for more information. The default IP address for the logical interface named **E thernet 2 IP** is 192.168.129.2. After initial configuration, you may configure this logical interface using Settings or Tasks tabs in the WebUI.

Below are examples of the Admin and Ethernet IP interfaces configuration.

Figure 15: Admin IP Configuration

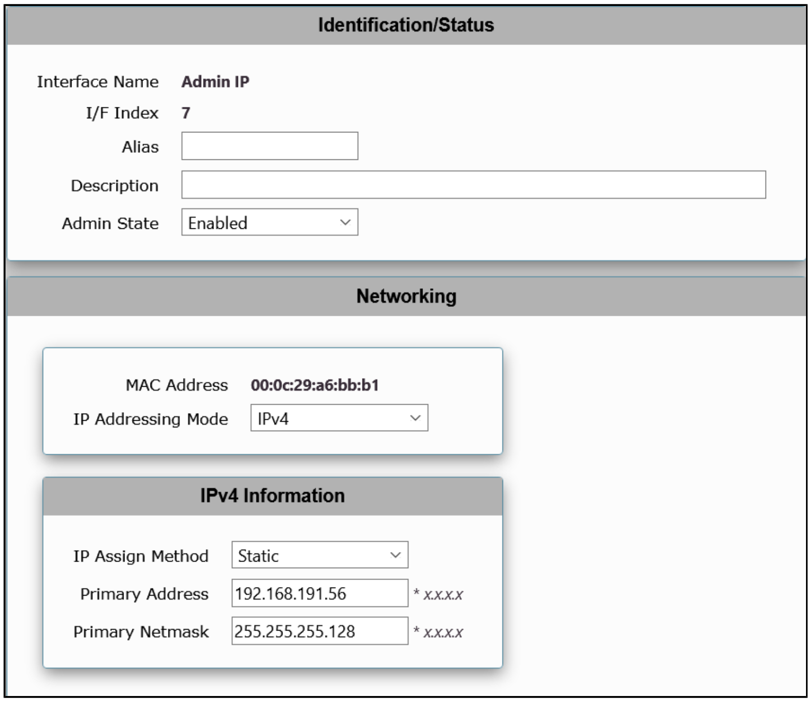
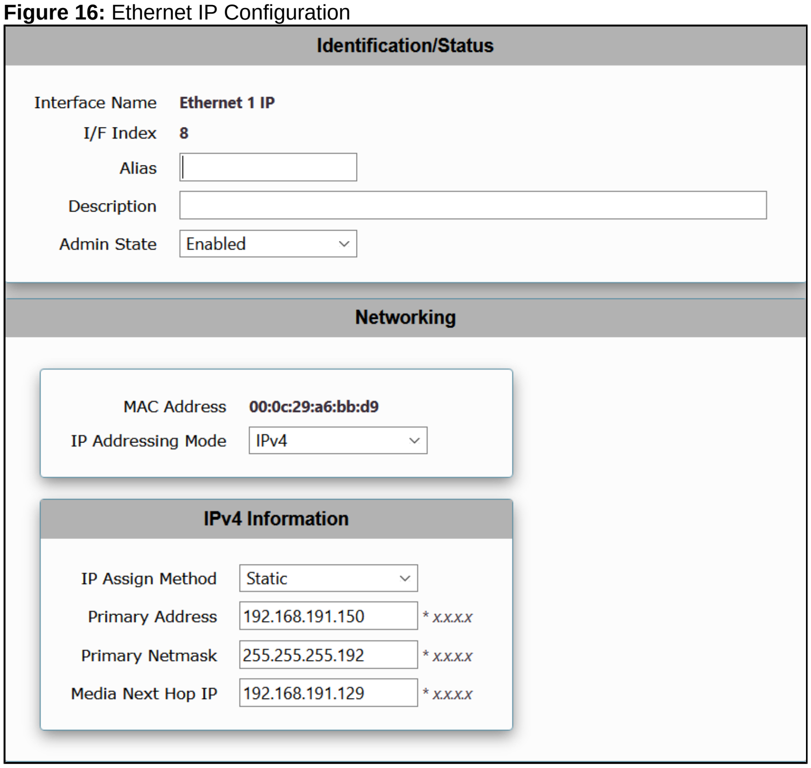


Figure 16: Ethernet IP Configuration



Static Routes

The *Protocols > IP > Static Route Table* menu path allows you to manually specify the next hop routers used to reach other networks. This is also where you specify the default routes for the connected IP networks (which use `0.0.0.0` as the Destination and Mask).

> **DHCP Configuration**
> When DHCP is configured on an interface, the default Static Route (0.0.0.0/0) will be removed and configured dynamically. To view the dynamically created default route, access the WebUI and navigate to **Protocols > IP > Routing Table**.

To add a new *Static Route,* click on the *plus (+)* icon.

Figure 17: Add New Static Route

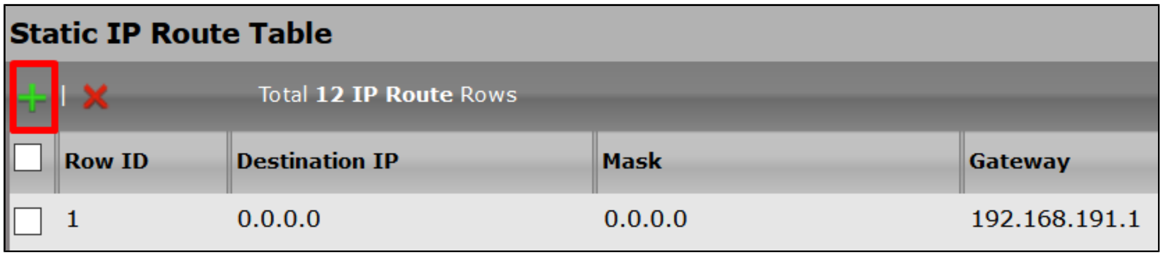
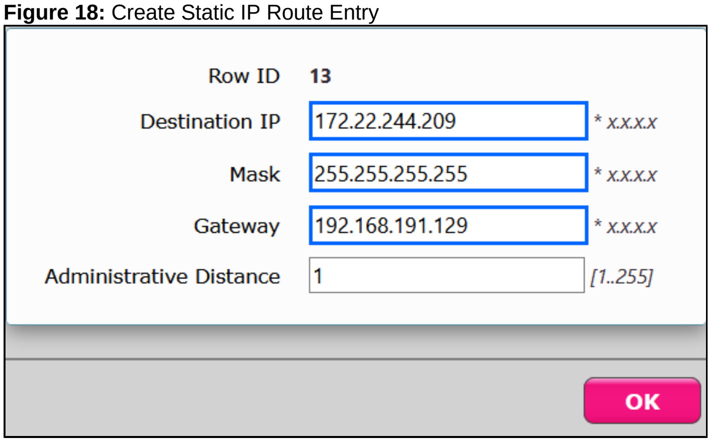


Figure 18: Create Static IP Route Entry



- **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 'default static route'.

- **Gateway**

  Specifies the IP Address of the next-hop router to use for this Static Route.

- **Metric**

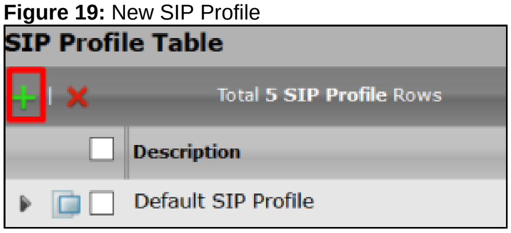
  Specifies the cost of this route and indirectly specifies the preference of the route. Lower values indicate more preferred routes. Typical value is 1 for most static routes, indicating that static routes are preferred to dynamic routes.

SIP Profiles

The *SIP* > *SIP Profiles* menu path controls 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.

To add a new *SIP Profile,* click on the *plus (+)* icon.

Figure 19: New SIP Profile



OBS SIP Profile Configuration

Figure 20: OBS SIP Profile Configuration 1

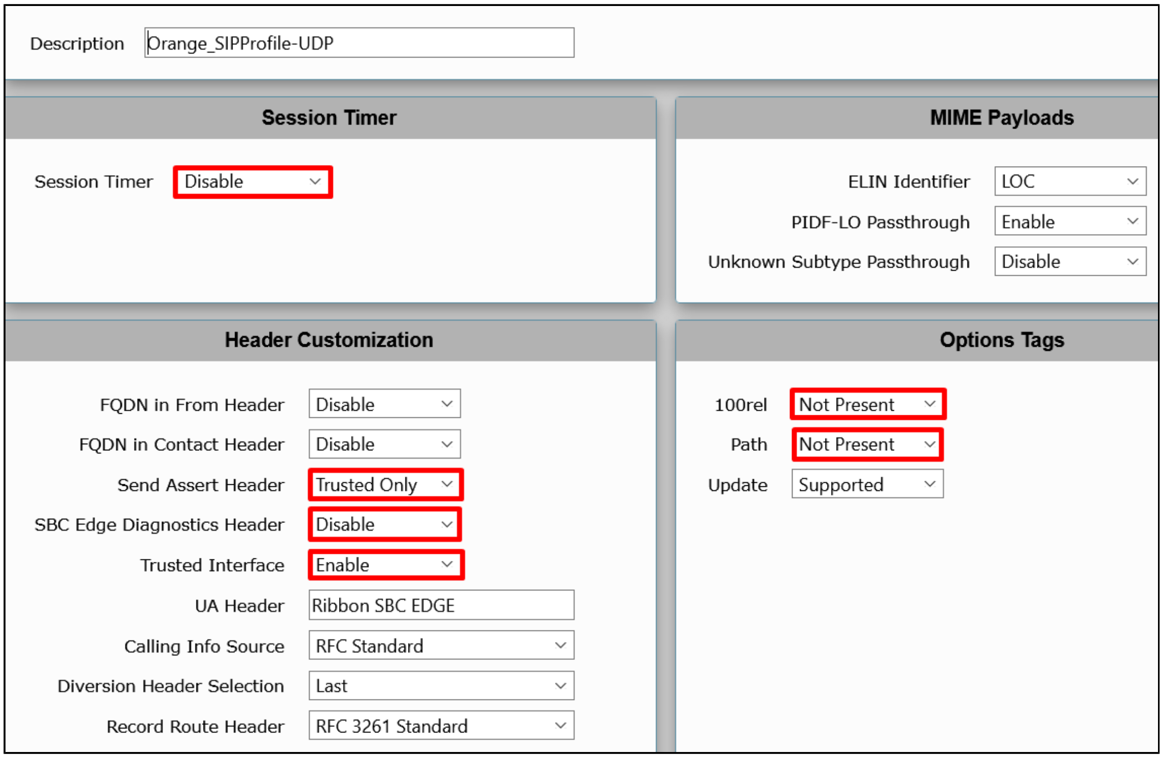
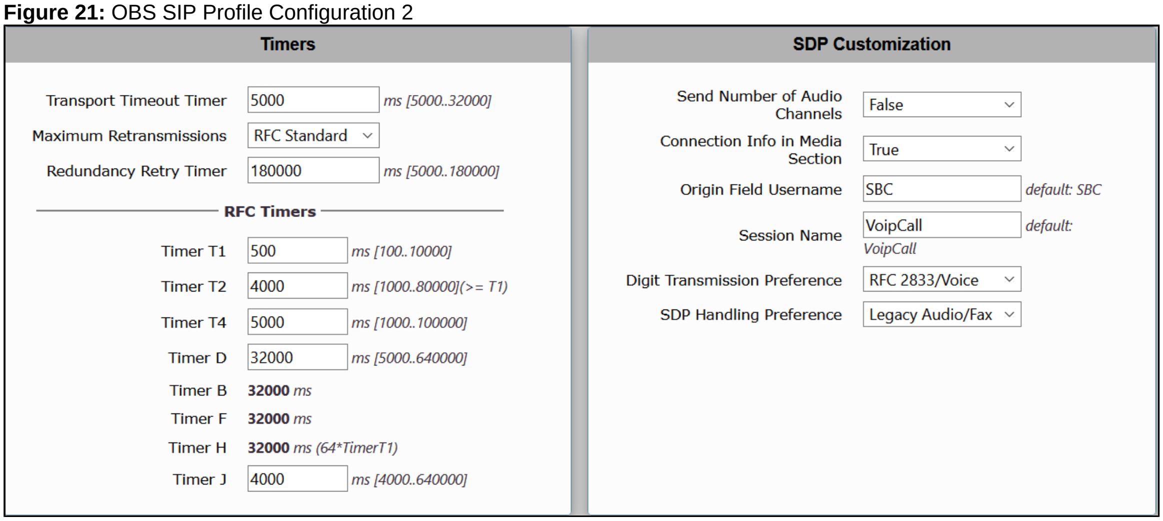


Figure 21: OBS SIP Profile Configuration 2



OBS SIP Profile Configuration
The configuration in red was modified to fulfill OBS requirements. The rest of the features use the default settings.

CUCM SIP Profile Configuration

Figure 22: CUCM SIP Profile Configuration 1

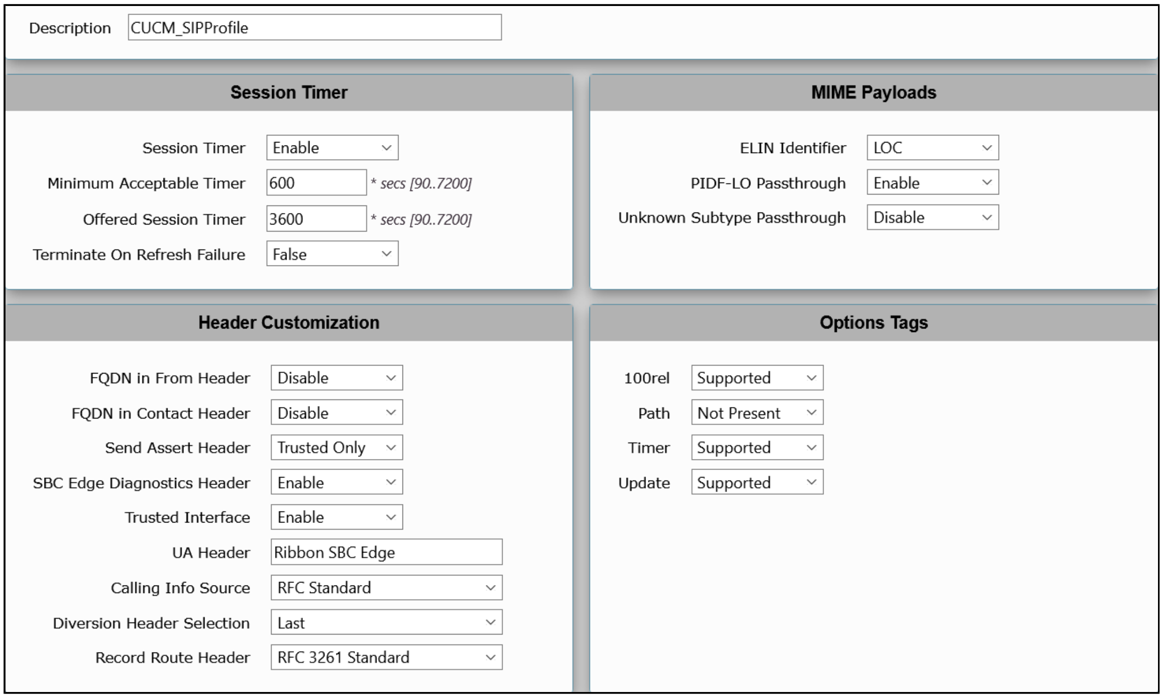
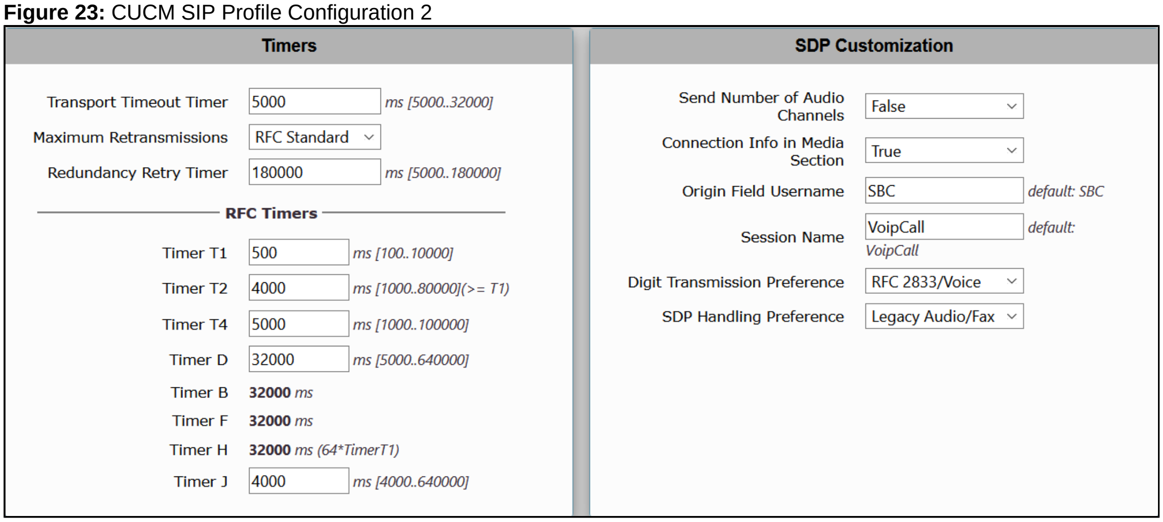


Figure 23: CUCM SIP Profile Configuration 2



> **CUCM SIP Profile Configuration**
> The CUCM SIP Profile uses the default settings

Ventafax SIP Profile Configuration

Figure 24: Ventafax SIP Profile Configuration 1

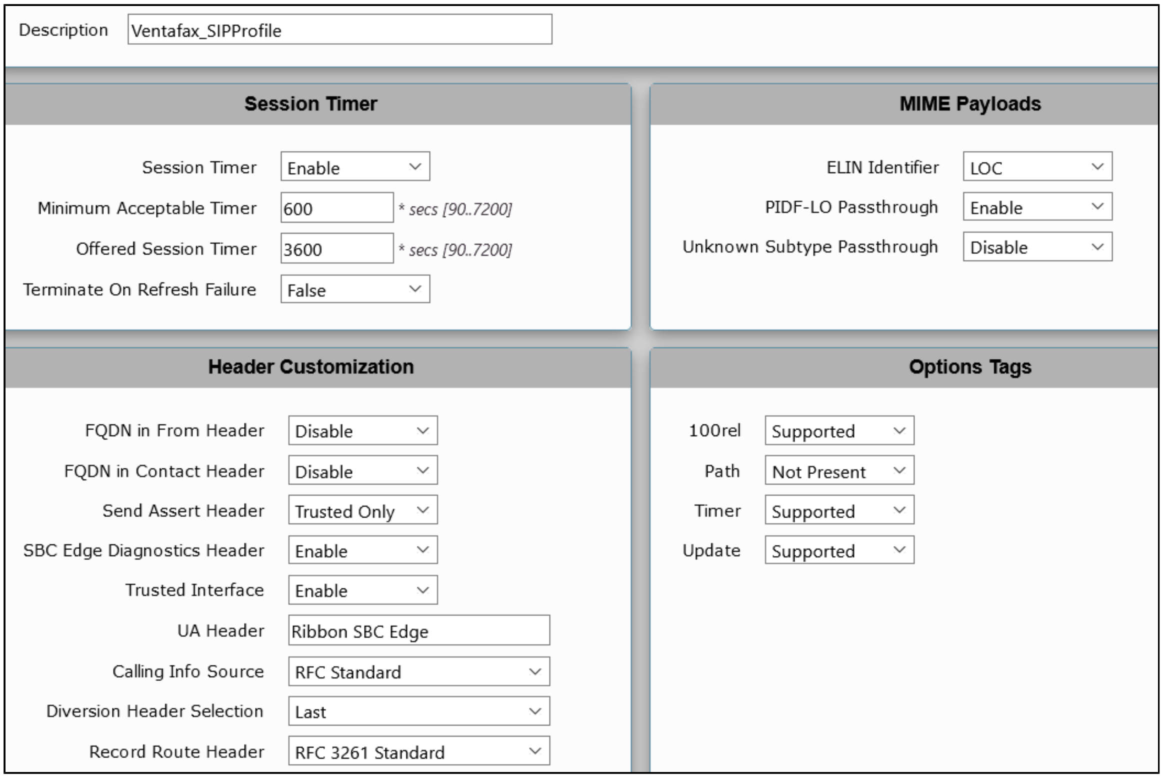
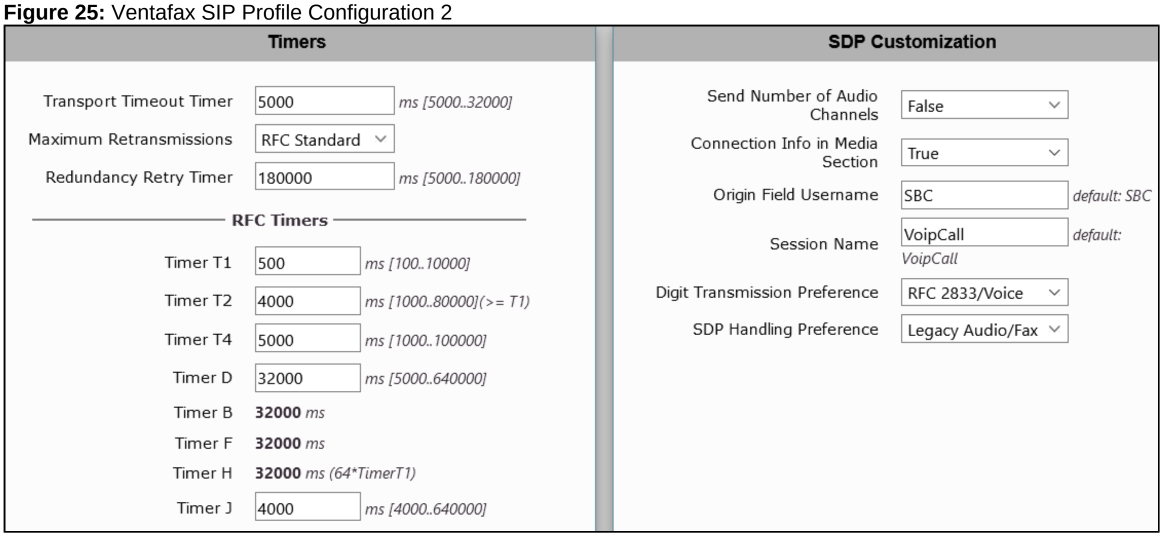


Figure 25: Ventafax SIP Profile Configuration 2



SIP Server Tables

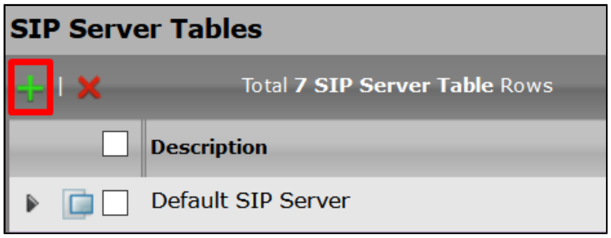
The *SIP > SIP Server Table* menu path contains information about the SIP devices connected to the SBC Edge. The entries in the tables provide information about the IP Addresses, ports, and protocols used to communicate with each server. The Table Entries also contain links to counters that are useful for troubleshooting. The SIP Server supports either an FQDN or IP Address (V4 or V6).

OBS SIP Server Table

BTIP

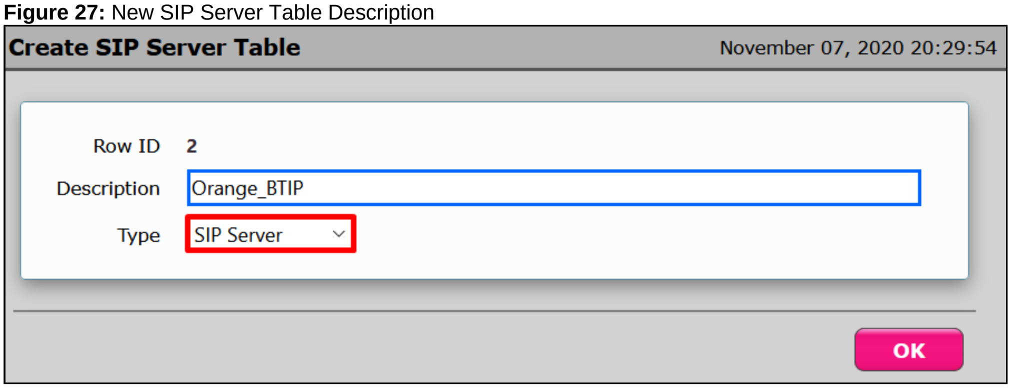
To add a new *SIP Server Table,* click on the *plus (+)* icon*.*

Figure 26: New SIP Server Table



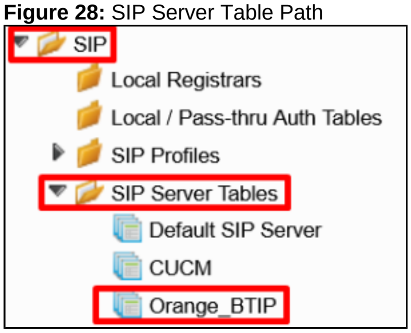
Set a *Description* and select *SIP Server*.

Figure 27: New SIP Server Table Description



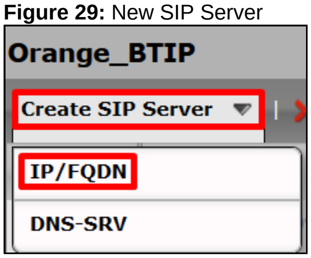
Select the *SIP server table* that has just been created.

Figure 28: SIP Server Table Path



Click on the *Create SIP Server > IP/FQDN* icon to add a new SIP Server.

Figure 29: New SIP Server



Orange BTIP SIP Servers
BTIP uses two SIP Servers, the first one works as an active server and the second one as a backup.

Figure 30: BTIP SIP Server 1

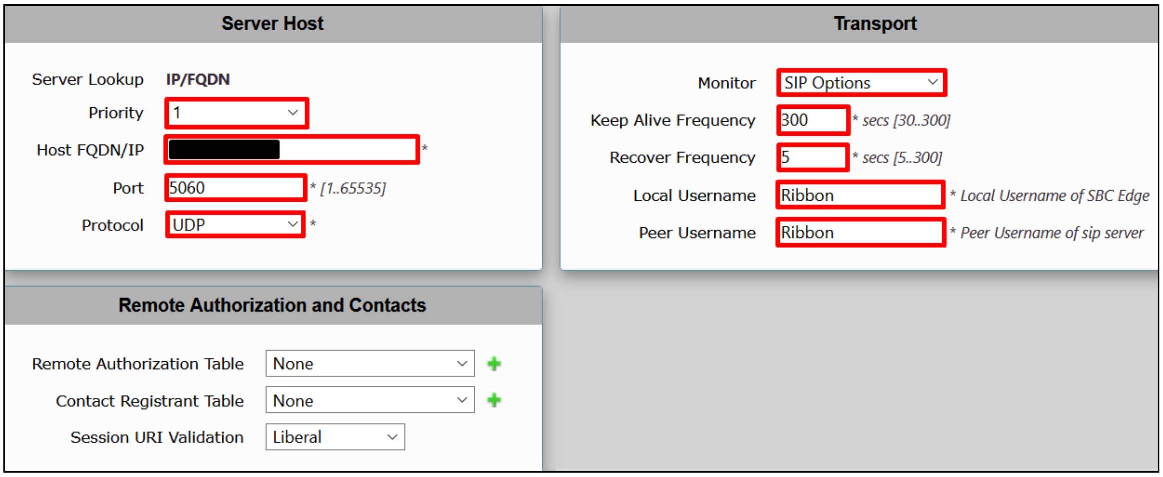
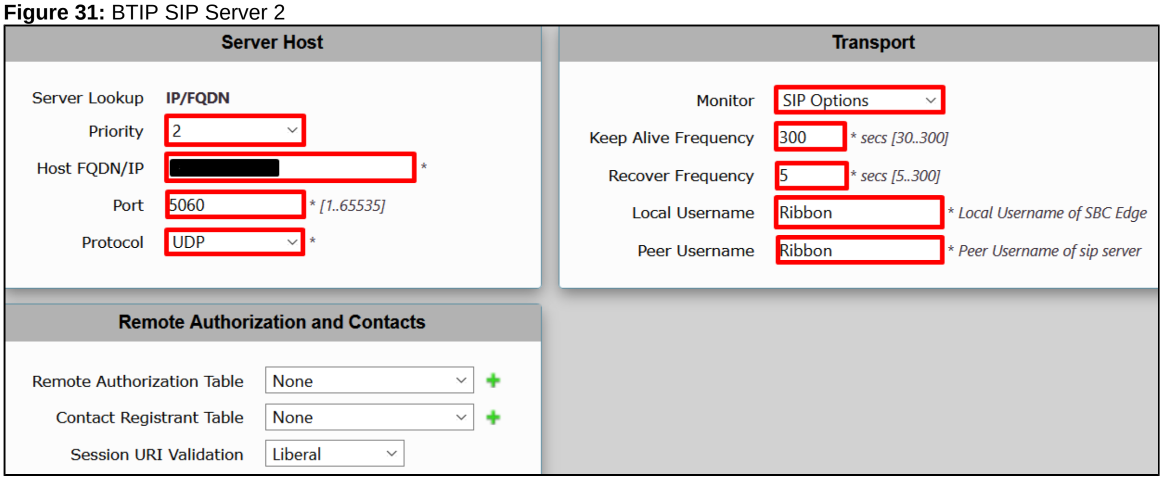


Figure 31: BTIP SIP Server 2

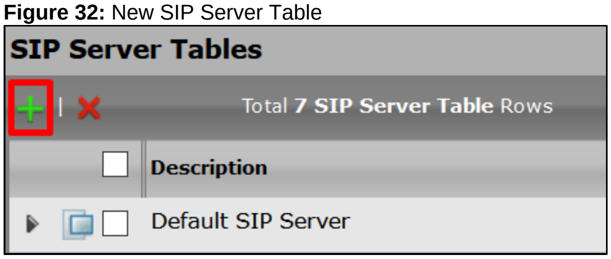


BTIP SIP Servers Configuration
The configuration in red was modified to fulfill OBS requirements. The rest of the features use the default settings.

BTalk

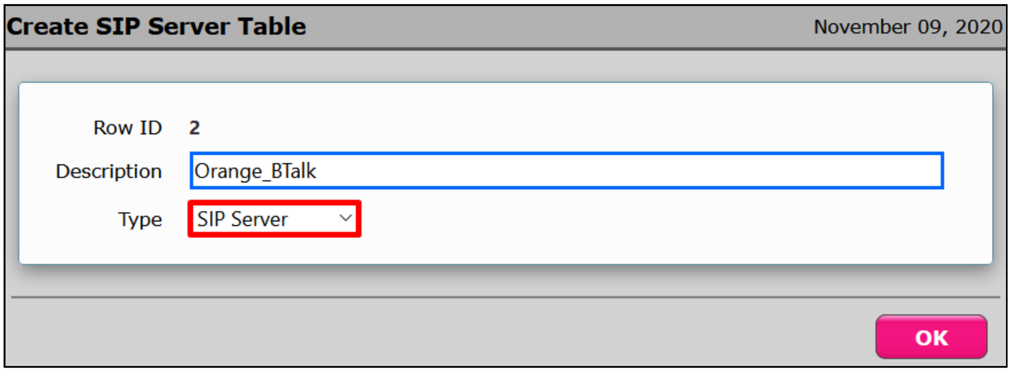
To add a new *SIP Server Table,* click on the *plus (+)* icon*.*

Figure 32: New SIP Server Table



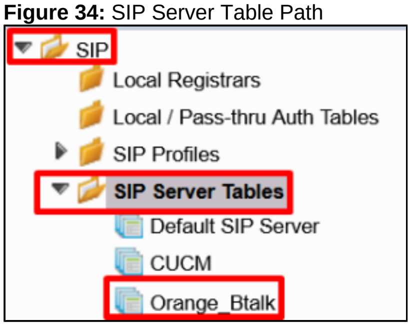
Set a *Description* and select *SIP Server*.

Figure 33: New SIP Server Table Description



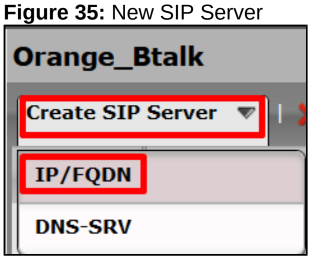
Select the *SIP server table* that has just been created.

Figure 34: SIP Server Table Path



Click on the *Create SIP Server > IP/FQDN* icon to add a new SIP Server.

Figure 35: New SIP Server



Orange BTalk SIP Servers
BTalk uses two SIP Servers, the first one works as an active server and the second one as a backup.

Figure 36: BTalk SIP Server 1

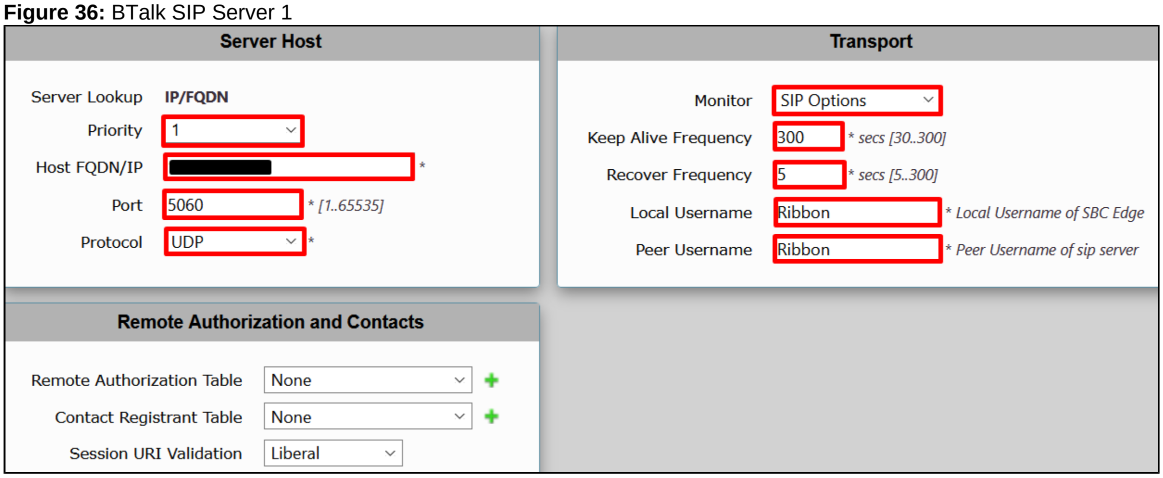
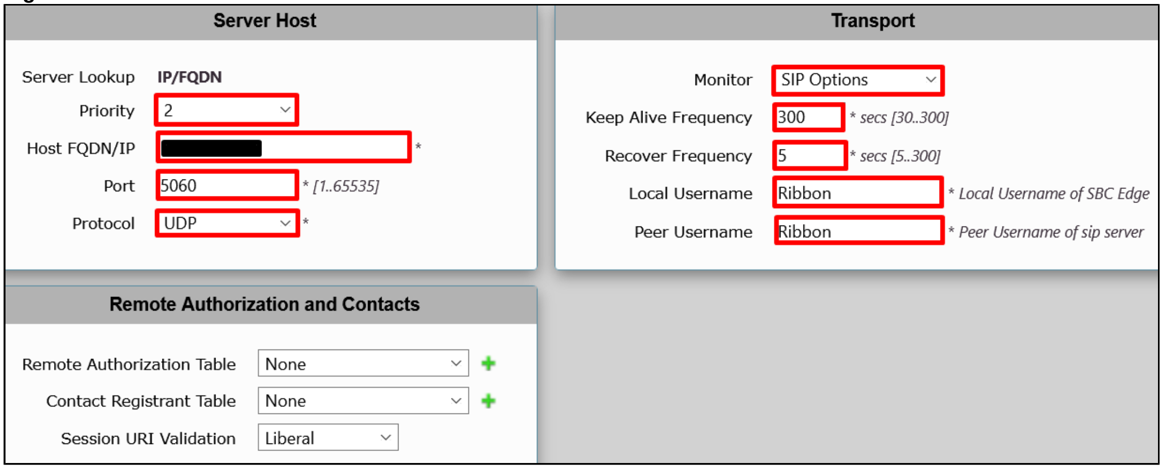


Figure 37: BTalk SIP Server 2

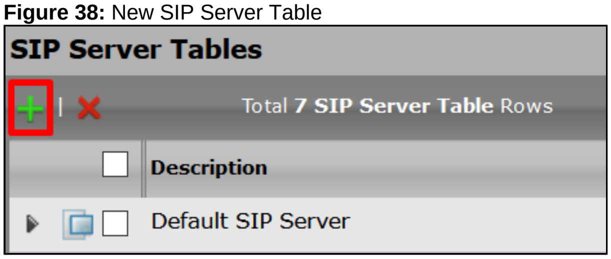


> **BTalk SIP Servers Configuration**
> The configuration in red was modified to fulfill OBS requirements. The rest of the features use the default settings.

CUCM SIP Server Table

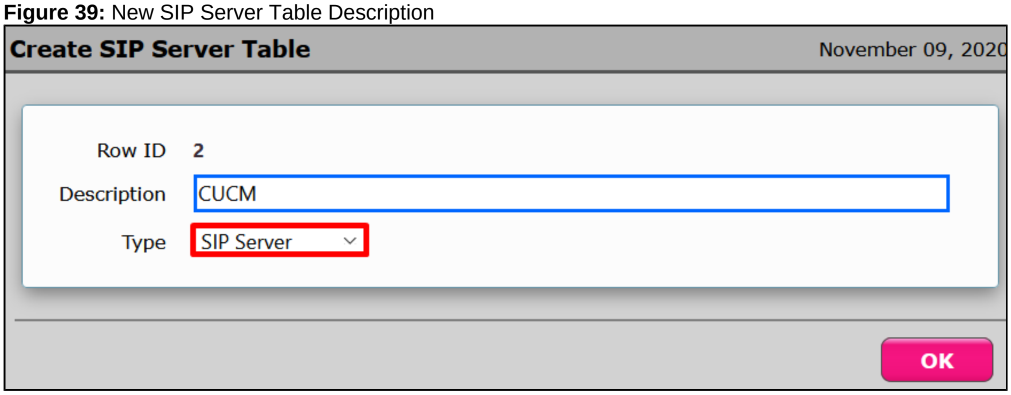
To add a new *SIP Server Table,* click on the *plus (+)* icon.

Figure 38: New SIP Server Table



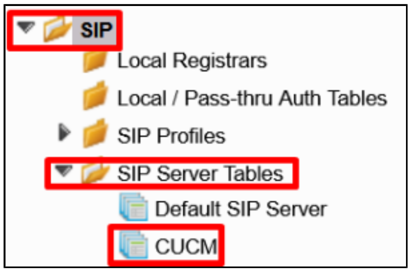
Set a *Description* and select *SIP Server*.

Figure 39: New SIP Server Table Description



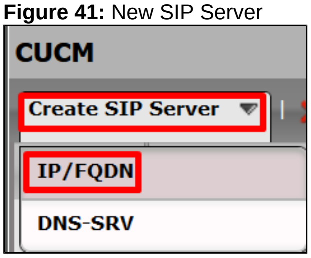
Select the *SIP server table* that has just been created.

Figure 40: SIP Server Table Path



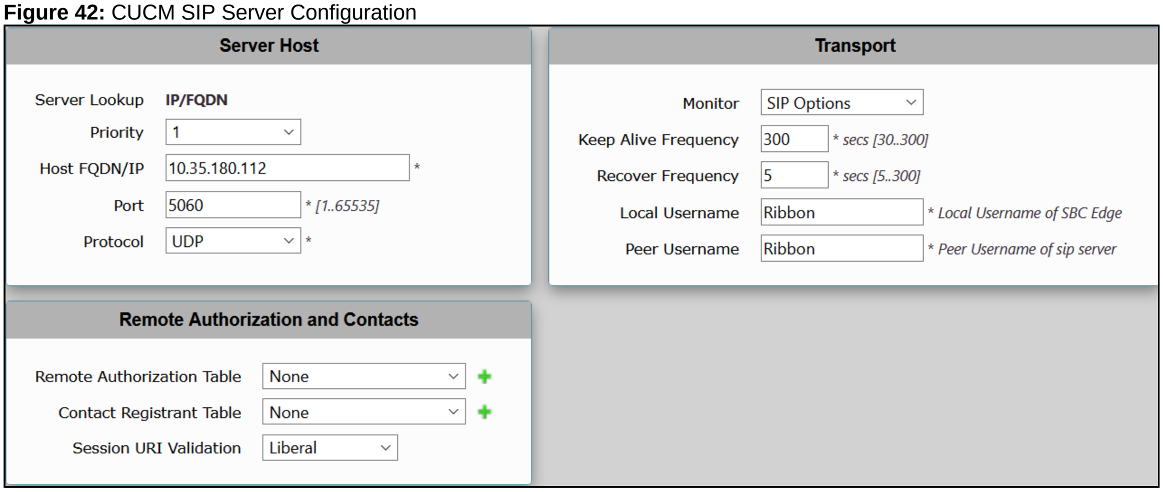
Click on the *Create SIP Server > IP/FQDN* icon to add a new SIP Server.

Figure 41: New SIP Server



The figure below depicts the CUCM SIP Server Configuration.

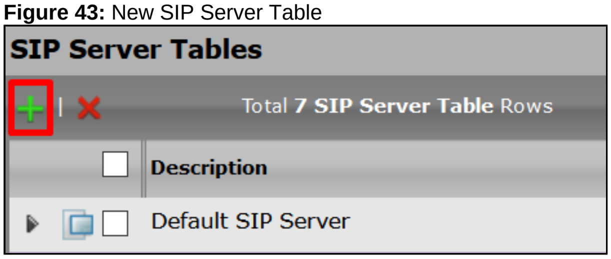
Figure 42: CUCM SIP Server Configuration



Ventafax SIP Server Table

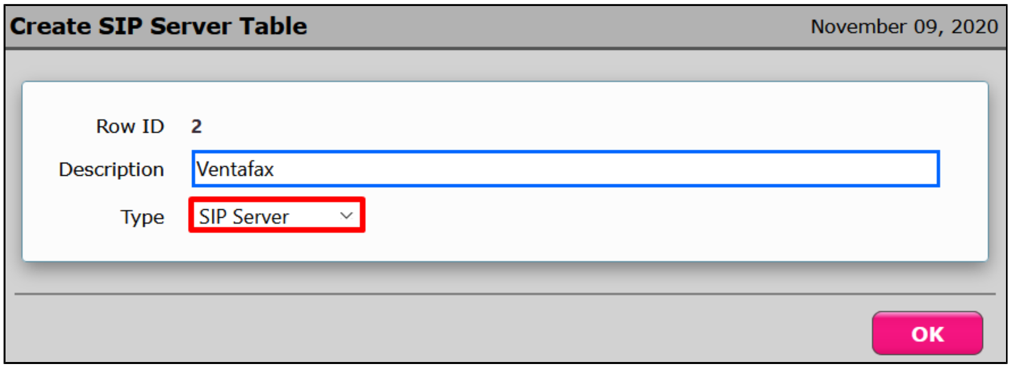
To add a new *SIP Server Table,* click on the *plus (+)* icon*.*

Figure 43: New SIP Server Table



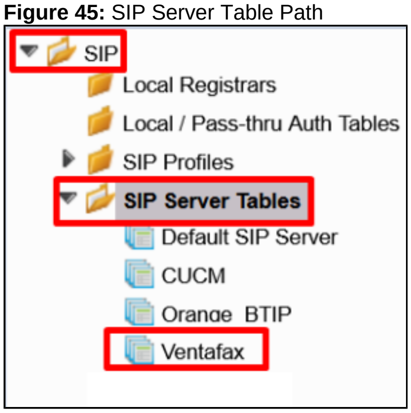
Set a *Description* and select *SIP Server*.

Figure 44: New SIP Server Table Description



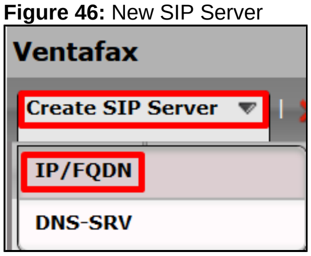
Select the *SIP server table* that has just been created.

Figure 45: SIP Server Table Path



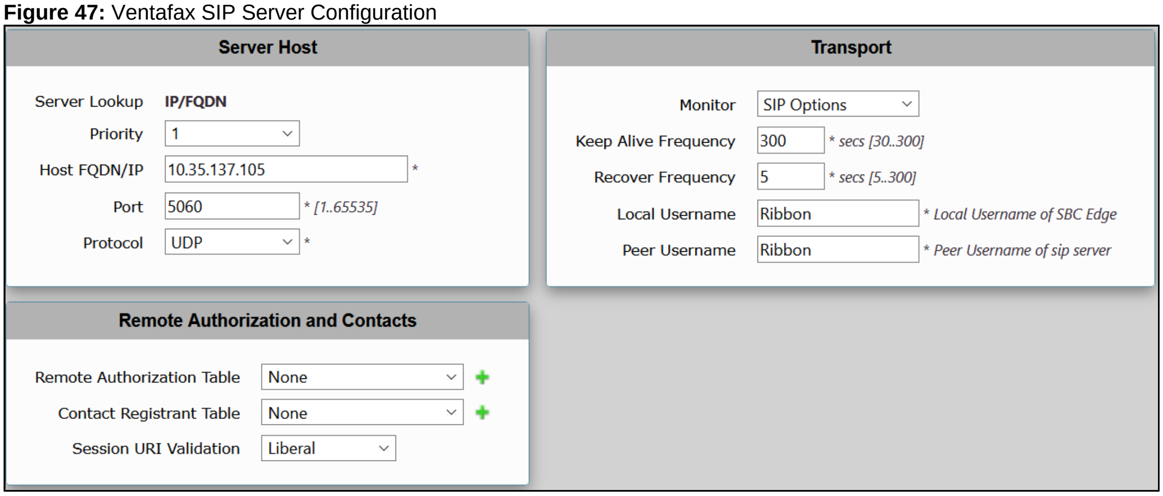
Click on the *Create SIP Server > IP/FQDN* icon to add a new SIP Server.

Figure 46: New SIP Server



The figure below depicts the Ventafax SIP Server Configuration.

Figure 47: Ventafax SIP Server Configuration



Message Manipulations

The *SIP > Message Manipulation* menu path is used to manipulate the incoming or outgoing messages. This feature is intended to enhance interoperability with different vendor equipment and applications, and for correcting any fixable protocol errors in SIP messages on the fly without any changes to firmware/software.

Although SIP is considered a mature protocol, there are still devices running old firmware and systems that interpret the standard in a non-conforming way. In addition, there are cases where a compliant message may be modified to adapt to an application specific requirement.

This capability consists of two components, condition rules and message rules. Condition rules provide a means to identify which messages and what components in the message must be present before any modifications are performed. For example, I want to modify all INVITE messages with a from uri host of "ribbon.net".

The message rule does the actual modification of a message. Once the conditions of a rule have been met, the message rule(s) are applied. Continuing with the example above, a message rule may change the from uri display name to "Ribbon".

> **SIP Message Manipulation**
> For more information regarding SIP Message Manipulation go to Appendix A

Condition Rule Table

Condition rules are simple rules that apply to a specific component of a message (e.g., diversion.uri.host, from.uri.host, etc.) the value of the field specified in the Match Type list box can be matched against a literal value, token, or REGEX.

The Condition Rule Table stores a collection of all the user created Condition Rules.

Match_Content-Type

This Condition Rule matches only if *SG User Value 1 = application/sdp*. This condition is created to identify whether the SDP is present or not in the SIP messages.

> **SG User Value 1**
> The *SG User Value 1* is stored using a Message Rule (*Store_Content-Type*) that will be defined in the next section.
>
> *SG User Value 1* is the predefined name used by the SBC.

To add a new *Condition Rule,* go to *SIP > Message Manipulation > Condition Rule Table* menu path and click on the *plus (+)* icon*.*

Figure 48: Condition Rule Table menu path

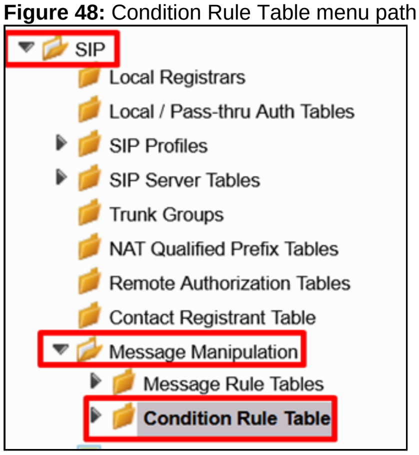
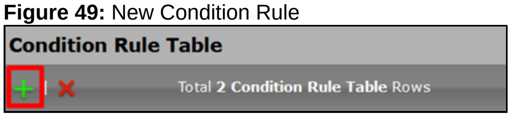
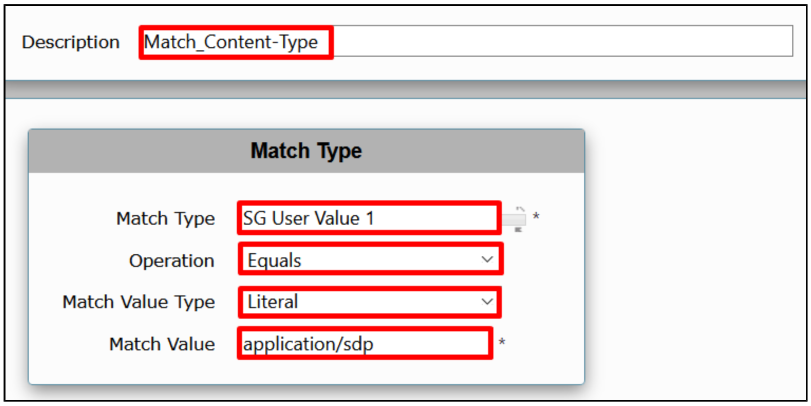


Figure 49: New Condition Rule



Set the new entry as per the following picture.

Figure 50: Match_Content-Type



Match_Anonymous

This *Condition Rule* matches only if *from.displayname = Anonymous*

It compares whether the *display name* that is in the *From* header is equal to *Anonymous*.

> This condition is used by a Message Rule (*Modify_From_Anonymous*) defined in the next section. That rule is used to set the format requested by OBS (*sip:anonymous@anonymous.invalid*)

To add a new *Condition Rule,* go to *SIP* > *Message Manipulation* > *Condition Rule Table* menu path and click on the *plus (+)* icon*.*

Figure 51: Condition Rule Table menu path

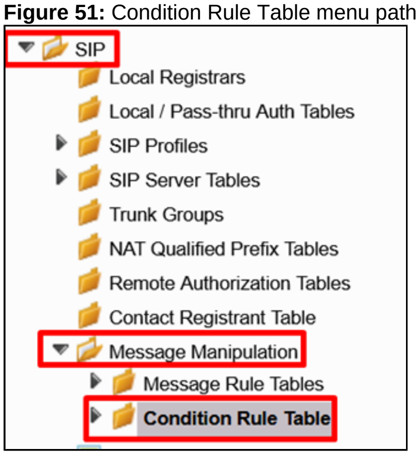
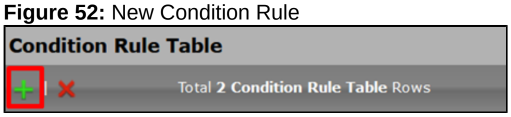
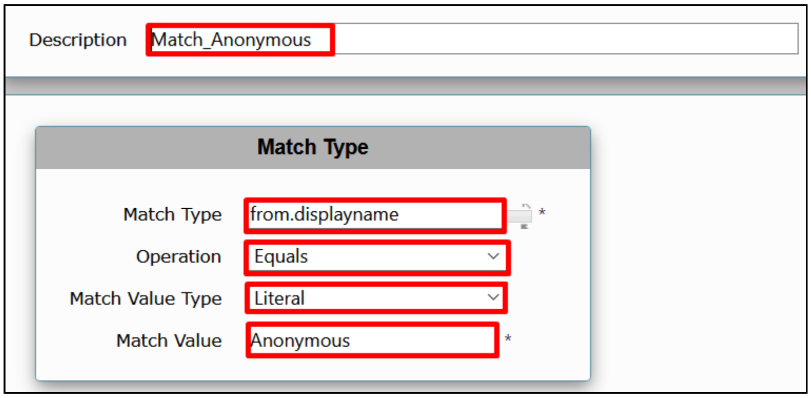


Figure 52: New Condition Rule



Set the new entry as per the following picture.

Figure 53: Match_Anonymous



Message Rule Tables

Message Rule Tables are simply sets of Condition Rules and are applied in SIP Signaling Groups when Message Manipulation is enabled.

The *Message Rule Tables* collect *SIP Messages Manipulations Rules* that are applied according to the *Message Type* set in the Message Rule Tables. The following tables are defined to set the format requested by OBS.

Table Description	Rules	Result Type	Message Type	Comments
Add_P-Early-Media	Add P-Early-Media supported Del_P-Early-Media Add_P-Early-Media sendrecv	Optional	180, 183	This table applies only to 180 and 183 respond messages. This table collects the rules used to insert the P-Early-Media header requested by OBS.
Store_Content-Type	Store Content-Type	Optional	180, 183	This table applies only to 180 and 183 respond messages. This table collects the rules used to store the Content-type header value. This value is used to know whether the SIP message contains an SDP or not.
Store_User-Agent_Value	Store_User-Agent_Value Store_Server_Value	Optional	All	This table applies to all messages. This table collects the rules used to store the IPPBX User-Agent and Server headers values
OBS_SIP_Profile_Adaptation_01	Remove_SGID_From_Header Remove_SGID_To_Header Modify_User-Agent_Header Modify_Server_header Modify_Allow_header	Optional	All	This table applies to all messages. This table collects rules used to set the format requested by OBS.
OBS_SIP_Profile_Adaptation_02	Modify_PAI Add plus P-Asserted-Identity Modify_From_Anonymous	Optional	Requests	This table applies only to request messages. This table collects rules used to set the format requested by OBS.

	Modify_Diversion			

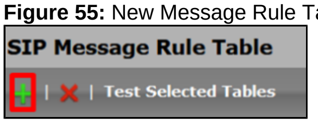
Add_P-Early-Media Table

This table collects the rules that are used to add the *P-Early-Media* header in the SIP 180 and SIP 183 responses.

To add a new *Message Rule Table,* go to the *SIP > Message Manipulation > Message Rule Tables* menu path and click on the *plus (+)* icon*.*

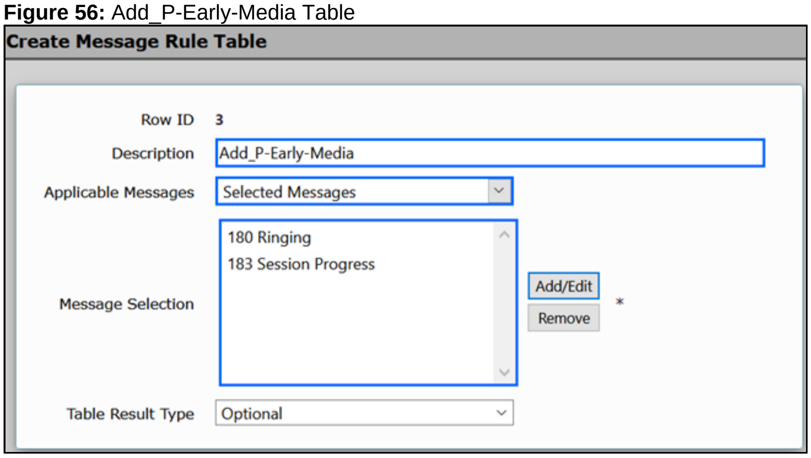
Figure 54: Message Rule Table menu path

Figure 55: New Message Rule Table



Set the new entry as per the following picture.

Figure 56: Add_P-Early-Media Table



Add_P-Early-Media Rules

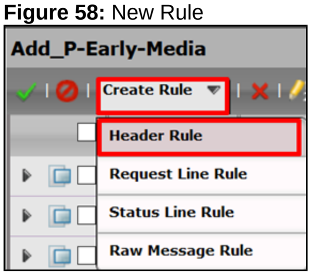
Description	Rule Type	Result Type	Comments
Add P-Early-Media supported	Header Rule	Optional	It adds the P-Early-Media header value = supported
Del_P-Early-Media	Header Rule	Optional	It deletes the P-Early-Media header to avoid duplicate headers
Add_P-Early-Media sendrecv	Header Rule	Optional	It adds the P-Early-Media header value = sendrecv

Add P-Early-Media supported

To add a new *Message Rule,* go to the left menu path and click on the *Add_P-Early-Media* table you created, then click on the *Create Rule > Header Rule* icon*.*

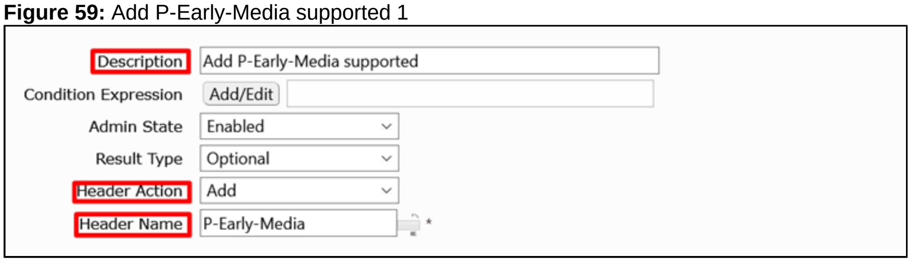
Figure 57: Add_P-Early-Media menu path

Figure 58: New Rule



Set the new entry as per the following picture.

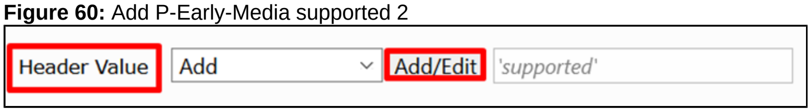
Figure 59: Add P-Early-Media supported 1



Once you select *Add* in the *Header Action* field, the bottom section will change its options.

Select *Add* in the *Header Value* field and click on the *Add/Edit* icon.

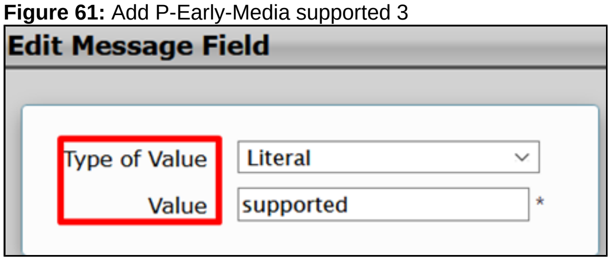
Figure 60: Add P-Early-Media supported 2



Once you click on the *Add/Edit* icon, a popup screen appears.

Set the configuration as per the following picture.

Figure 61: Add P-Early-Media supported 3



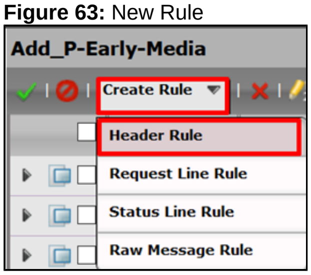
Click on the *Apply* icon to save the changes.

Del_P-Early-Media

To add a new *Message Rule,* go to the left menu path and click on the *Add_P-Early-Media* table you created, then click on the *Create Rule > Header Rule* icon*.*

Figure 62: Add_P-Early-Media menu path

Figure 63: New Rule



Set the new entry as per the following pictures.

For the *Condition Expression* field, click on the *Add/Edit* icon. A popup screen appears. Set the configuration as per the following picture.

Figure 64: Del_P-Early-Media rule 1

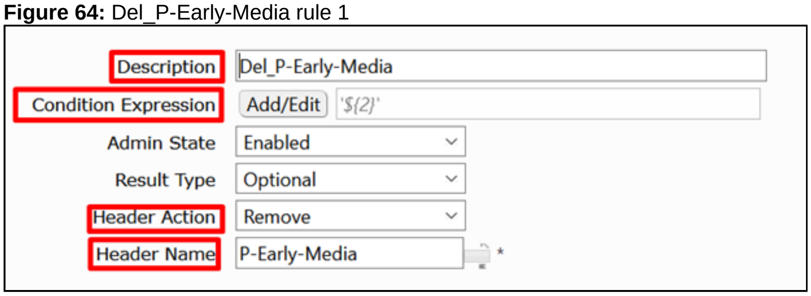
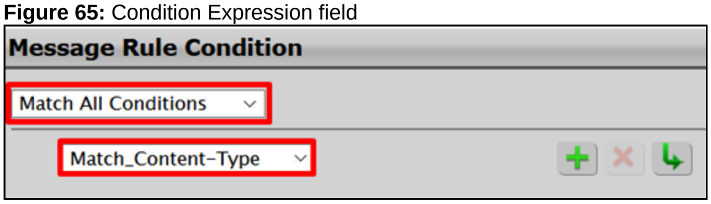


Figure 65: Condition Expression field



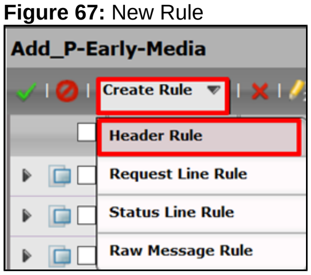
Click on the *Apply* icon to save the changes.

Add_P-Early-Media sendrecv

To add a new *Message Rule,* go to the left menu path and click on the *Add_P-Early-Media* table you created, then click on the *Create Rule > Header Rule* icon*.*

Figure 66: Add_P-Early-Media menu path

Figure 67: New Rule



Set the new entry as per the following pictures.

For the *Condition Expression* field, click on the *Add/Edit* icon. A popup screen appears. Set the configuration as per the following picture.

Figure 68: Add_P-Early-Media sendrecv 1

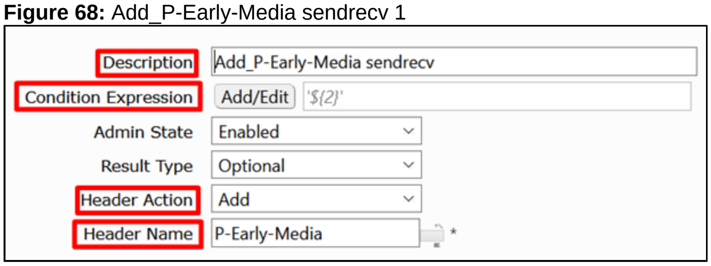
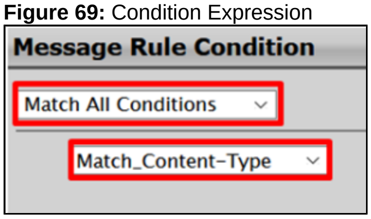


Figure 69: Condition Expression

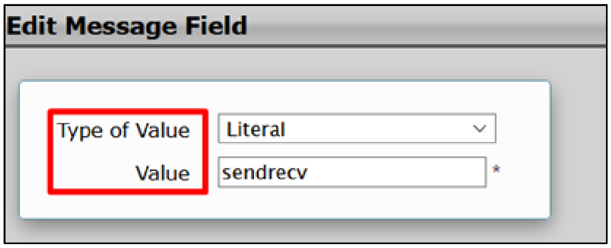


Once you select *Add* in the *Header Action* field, the bottom section will change its options. Select *Add* in the *Header Value* field and click on the *Add/Edit* icon.

Figure 70: Header Value

Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 71: Message Field



Click on the *Apply* icon to save the changes.

Store_Content-Type Table

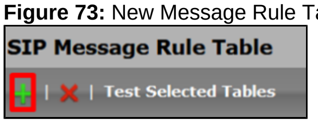
This table collects the rule that is used to store the *Content-Type* value in the *SG User Value 1.* It applies only to *180* and *183* respond messages.

> ⓘ This table must be applied on the Signaling Group facing the *IPPBX*. Set it as Inbound Message Manipulation.

To add a new *Message Rule Table,* go to the *SIP > Message Manipulation > Message Rule Tables* menu path and click on the *plus (+)* icon*.*

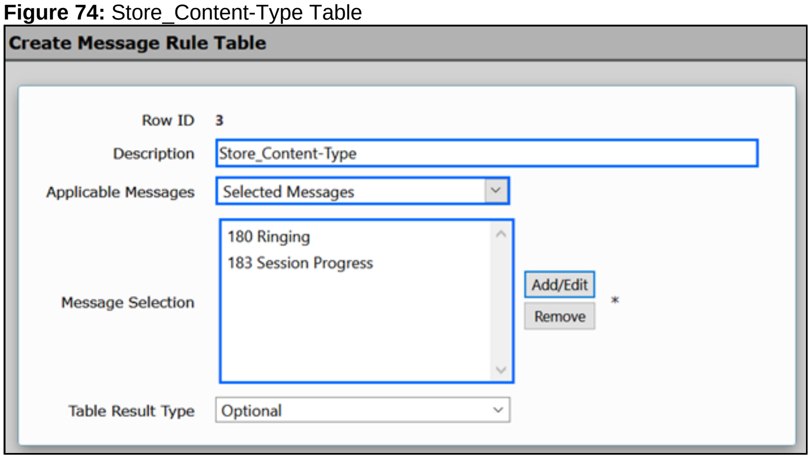
Figure 72: Message Rule Table menu path

Figure 73: New Message Rule Table



Set the new entry as per the following picture.

Figure 74: Store_Content-Type Table



Store_Content-Type Rules

Description	Rule Type	Result Type	Comments

Store Content-Type	Header Rule	Optional	It stores the Content-Type value in the SG User Value 1

Store Content-Type

To add a new *Message Rule,* go to the left menu path and click on the *Store_Content-Type* table you created, then click on the *Create Rule* > *Header Rule* icon*.*

Figure 75: Store_Content-Type menu path

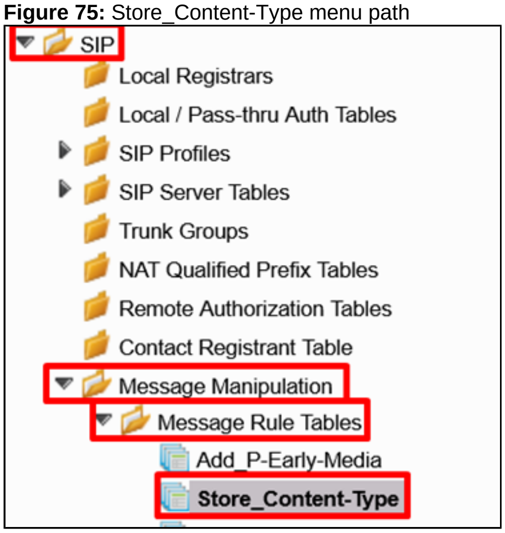
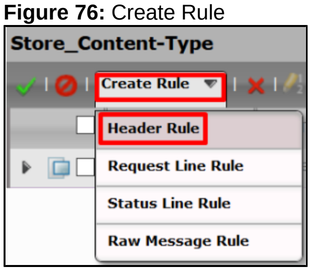


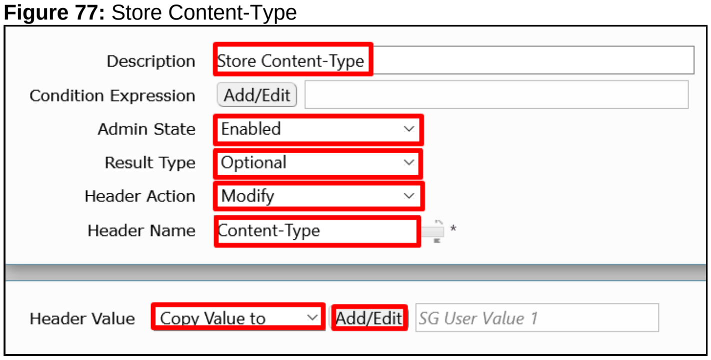
Figure 76: Create Rule



Set the new entry as per the following picture.

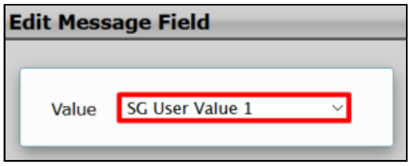
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Copy Value to* in the Header Value field and click on the *Add/Edit* icon.

Figure 77: Store Content-Type



Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 78: Edit Message Field



Click on the *Apply* icon to save the changes.

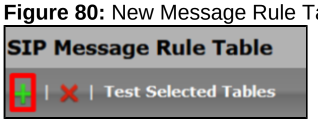
Store_User-Agent Table

This table collects the rules that are used to store the User-Agent and Server headers values sent by the IPPBX.

To add a new *Message Rule Table,* go to the *SIP > Message Manipulation > Message Rule Tables* menu path and click on the *plus (+)* icon.

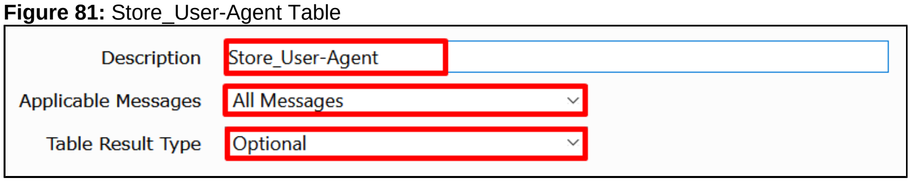
Figure 79: Message Rule Table menu path

Figure 80: New Message Rule Table



Set the new entry as per the following picture.

Figure 81: Store_User-Agent Table



Store_User-Agent Rules

Description	Rule Type	Result Type	Comments
Store_User-Agent_Value	Header Rule	Optional	It stores the User-Agent value in the SG User Value 2
Store_Server_Value	Header Rule	Optional	It stores the Server value in the SG User Value 3

Store_User-Agent_Value

To add a new *Message Rule,* go to the left menu path and click on the *Store_User-Agent* table you created, then click on the *Create Rule > Header Rule* icon*.*

Figure 82: Left Menu Path

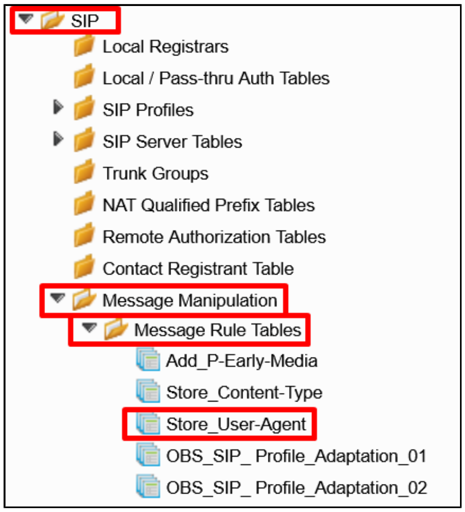
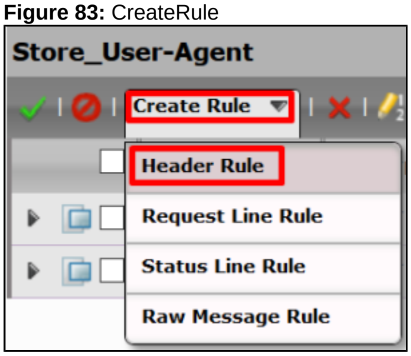


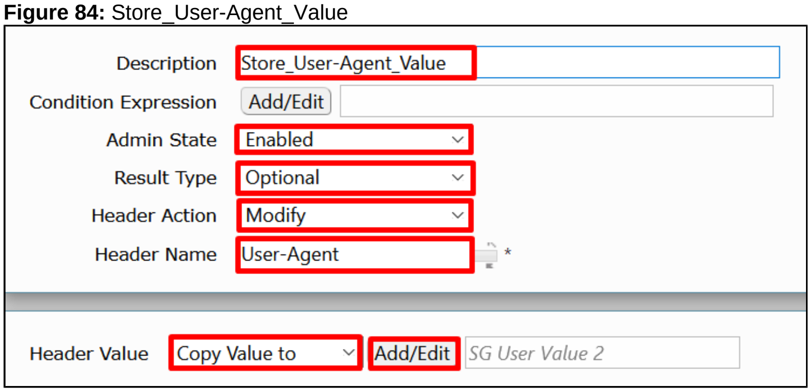
Figure 83: CreateRule



Set the new entry as per the following picture.

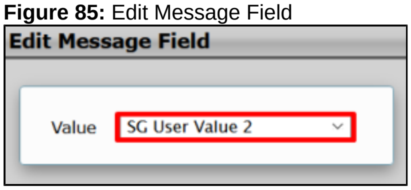
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Copy Value to* in the Header Value field and click on the *Add/Edit* icon.

Figure 84: Store_User-Agent_Value



Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 85: Edit Message Field



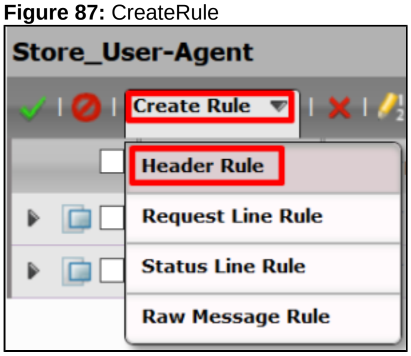
Click on the *Apply* icon to save the changes

Store_Server_Value

To add a new *Message Rule,* go to the left menu path and click on the *Store_User-Agent* table you created, then click on the *Create Rule > Header Rule* icon*.*

Figure 86: Left Menu Path

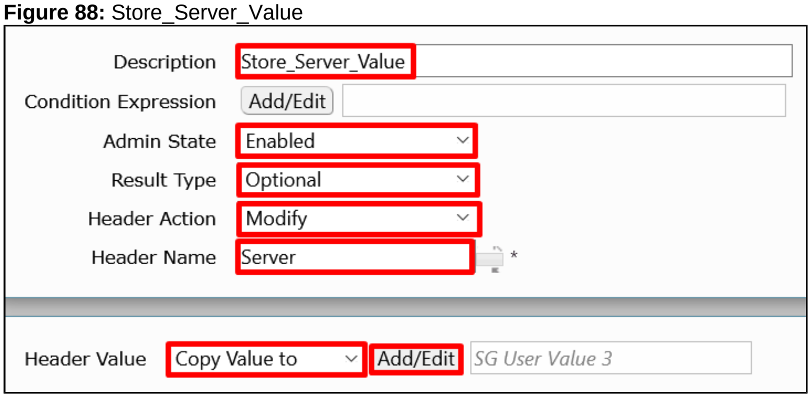
Figure 87: CreateRule



Set the new entry as per the following picture.

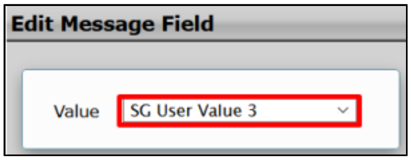
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Copy Value to* in the Header Value field and click on the *Add/Edit* icon.

Figure 88: Store_Server_Value



Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 89: Edit Message Field



Click on the *Apply* icon to save the changes.

OBS_SIP_Profile_Adaptation_01 Table

This table collects rules used to set the format requested by OBS. It applies to all messages.

To add a new *Message Rule Table,* go to the *SIP > Message Manipulation > Message Rule Tables* menu path and click on the *plus (+)* icon.

Figure 90: Message Rule Table menu path

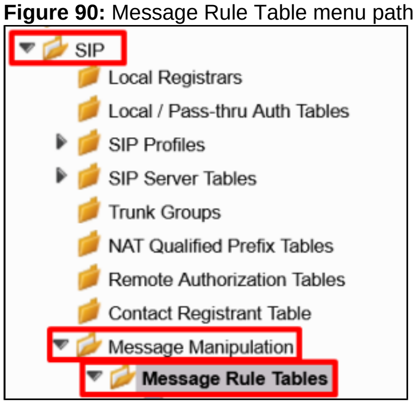
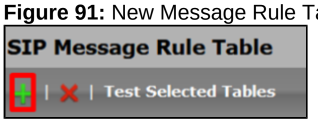
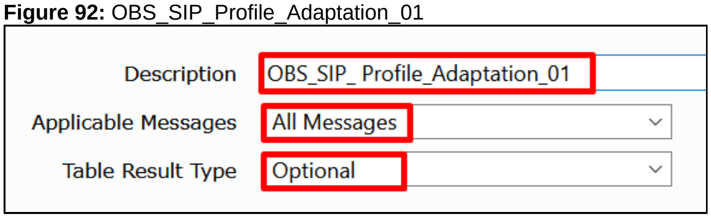


Figure 91: New Message Rule Table



Set the new entry as per the following picture.

Figure 92: OBS_SIP_Profile_Adaptation_01



OBS_SIP_Profile_Adaptation_01 Rules

Description	Rule Type	Result Type	Comments
Remove_SGID_From_Header	Header Rule	Optional	It removes the *SGDI* parameter from the *FROM* header
Remove_SGID_To_Header	Header Rule	Optional	It removes the *SGDI* parameter from the *TO* header
Modify_User-Agent_Header	Header Rule	Optional	It sets the *User-Agent* value as per OBS requirements
Modify_Server_header	Header Rule	Optional	It sets the *Server* value as per OBS requirements
Modify_Allow_header	Header Rule	Optional	It sets the *Allow* value as per OBS requirements

Remove_SGID_From_Header

To add a new *Message Rule*, go to the left menu path and click on the *OBS_SIP_Profile_Adaptation_01* table you created, then click on the *Create Rule > Header Rule* icon.

Figure 93: Left Menu Path

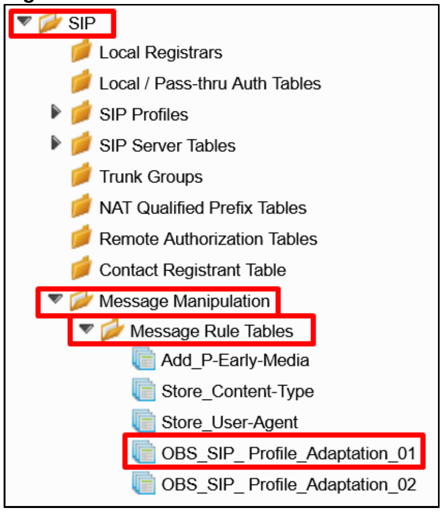
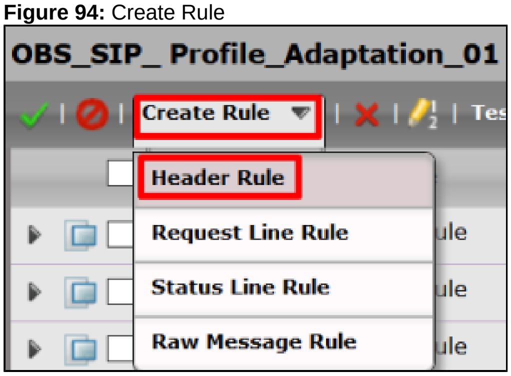


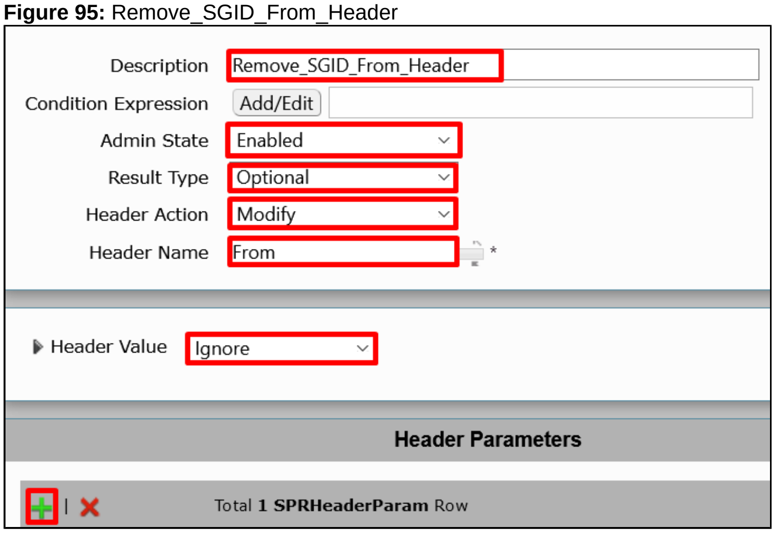
Figure 94: Create Rule



Set the new entry as per the following picture.

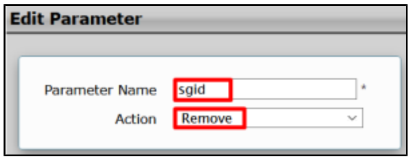
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Ignore* in the Header Value field and click the *plus (+)* icon in the *Header Parameters* section.

Figure 95: Remove_SGID_From_Header



Once you click on the *plus (+)* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 96: Edit Parameter



Click on the *Apply* icon to save the changes.

Remove_SGID_To_Header

To add a new *Message Rule*, go to the left menu path and click on the *OBS_SIP_Profile_Adaptation_01* table you created, then click on the *Create Rule > Header Rule* icon.

Figure 97: Left Menu Path

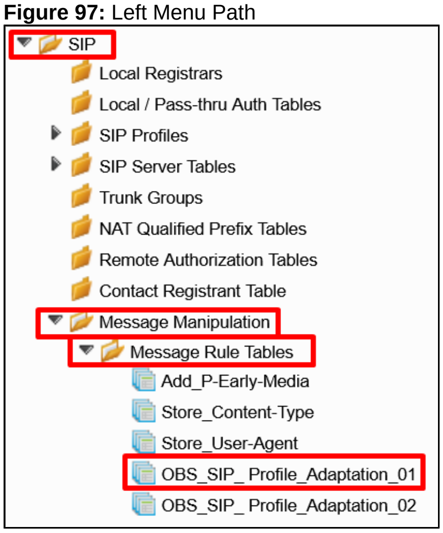
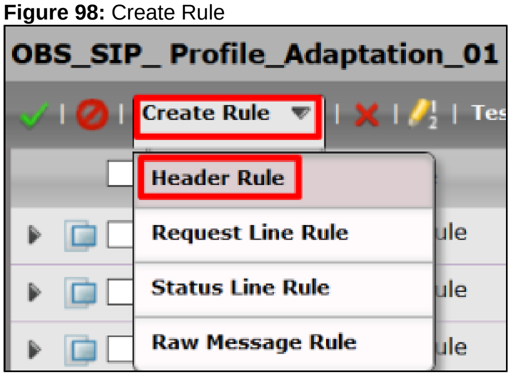


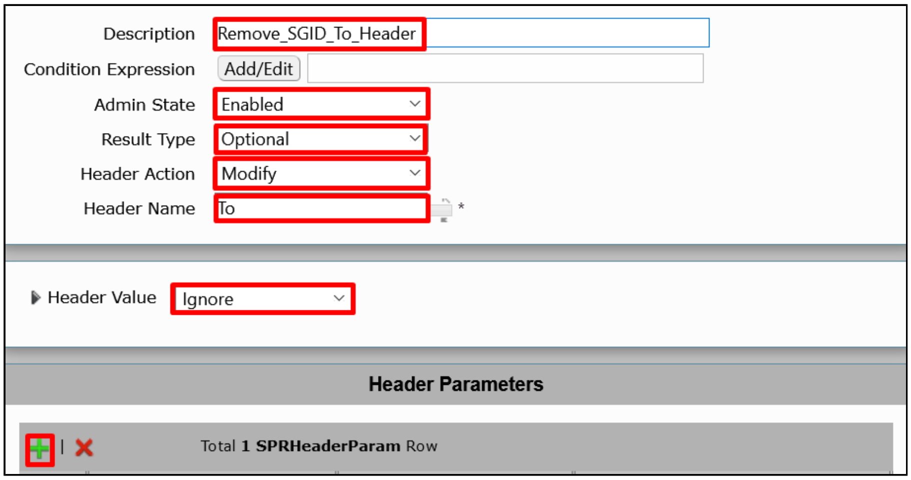
Figure 98: Create Rule



Set the new entry as per the following picture.

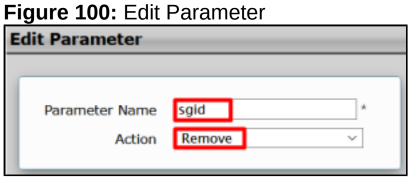
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Ignore* in the Header Value field and click the *plus (+)* icon in the *Header Parameters* section.

Figure 99: Remove_SGID_To_Header



Once you click on the *plus (+)* icon*,* a popup screen appears. Set the configuration as per the following picture.

Figure 100: Edit Parameter



Click on the *Apply* icon to save the changes.

Modify_User-Agent_Header

To add a new *Message Rule*, go to the left menu path and click on the *OBS_SIP_Profile_Adaptation_01* table you created, then click on the *Create Rule* > *Header Rule* icon.

Figure 101: Left Menu Path

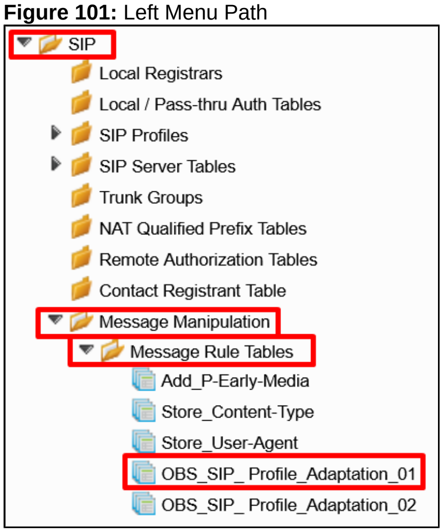
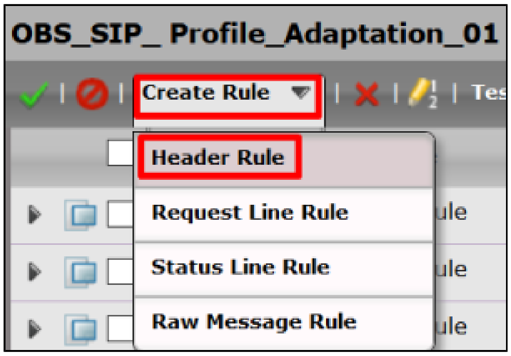


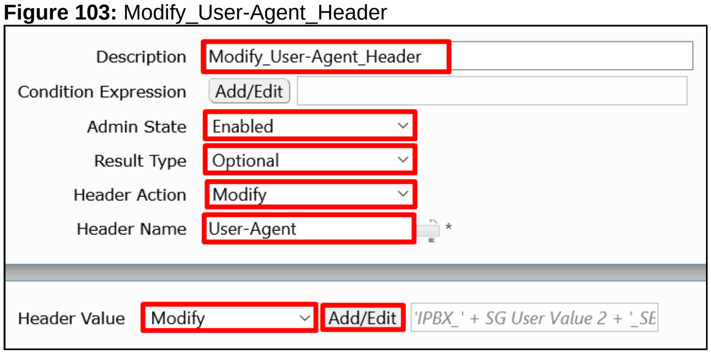
Figure 102: Create Rule



Set the new entry as per the following picture.

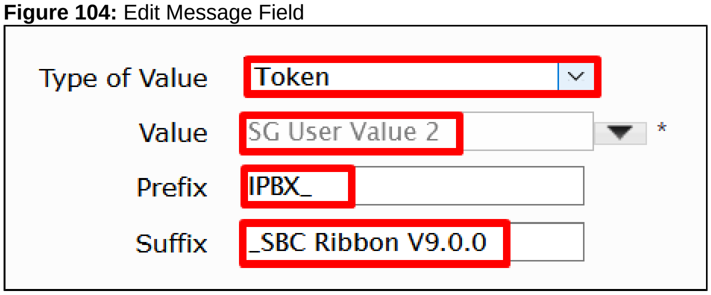
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Modify* in the Header Value field and click on the *Add/Edit* icon.

Figure 103: Modify_User-Agent_Header



Once you click on the *Add/Edit* icon a popup screen appears. Set the configuration as per the following picture.

Figure 104: Edit Message Field



Click on the *Apply* icon to save the changes.

Modify_Server_Header

To add a new *Message Rule*, go to the left menu path and click on the *OBS_SIP_Profile_Adaptation_01* table you created, then click on the *Create Rule > Header Rule* icon.

Figure 105: Left Menu Path

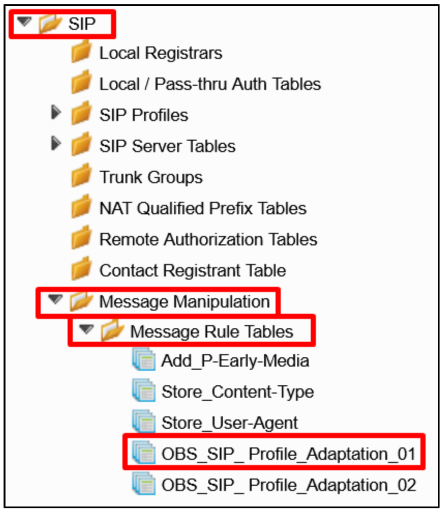
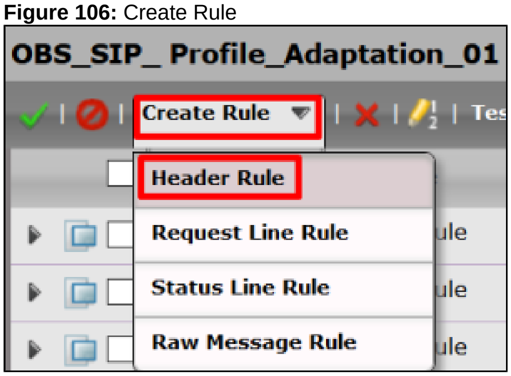


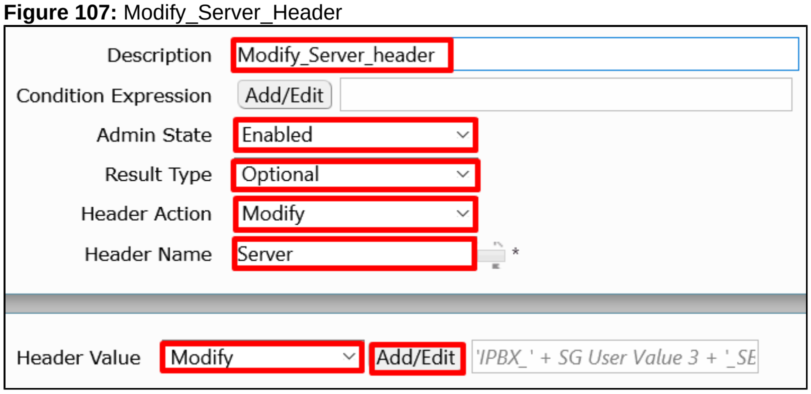
Figure 106: Create Rule



Set the new entry as per the following picture.

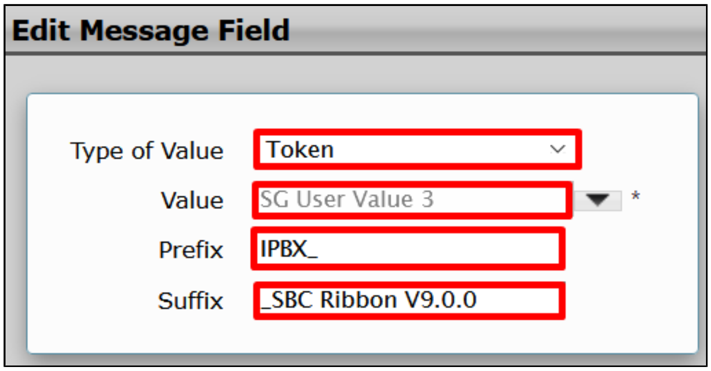
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Modify* in the Header Value field and click on the *Add/Edit* icon.

Figure 107: Modify_Server_Header



Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 108: Edit Message Field



Click on the *Apply* icon to save the changes.

Modify_Allow_header

To add a new *Message Rule*, go to the left menu path and click on the *OBS_SIP_Profile_Adaptation_01* table you created, then click on the *Create Rule > Header Rule* icon.

Figure 109: Left Menu Path

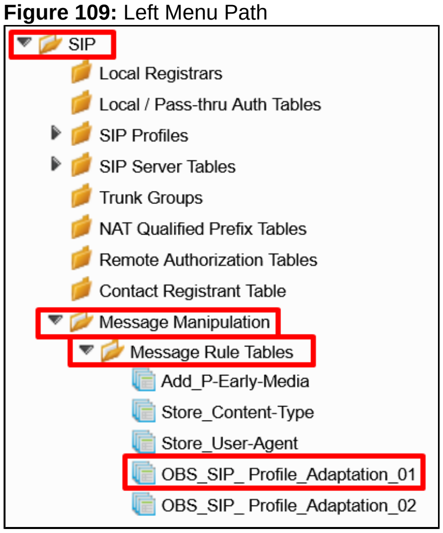
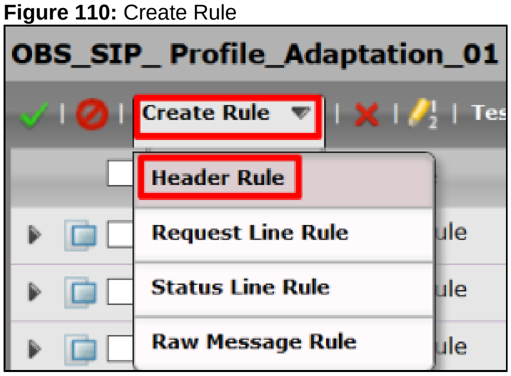


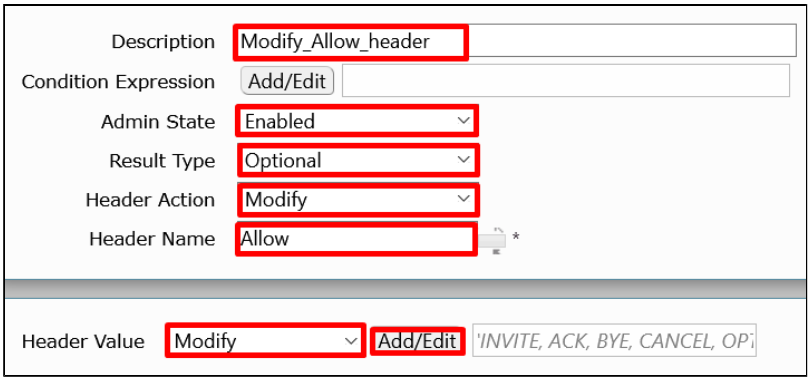
Figure 110: Create Rule



Set the new entry as per the following picture.

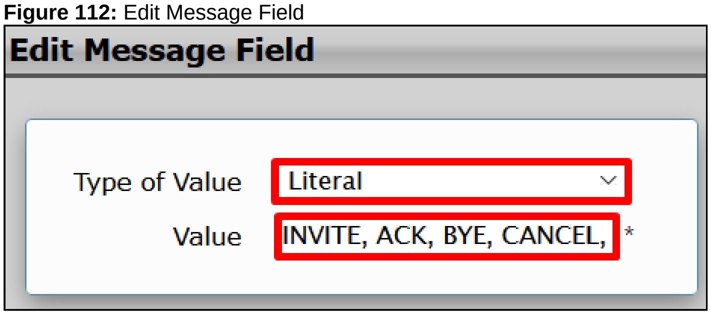
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Modify* in the Header Value field and click on the *Add/Edit* icon.

Figure 111: Modify_Allow_Header



Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 112: Edit Message Field



Edit Message Field
The *Value* field should contains the following information:

INVITE, ACK, BYE, CANCEL, OPTIONS, UPDATE

Click on the *Apply* icon to save the changes.

OBS_SIP_Profile_Adaptation_02 Table

This table collects rules used to set the format requested by OBS. It applies to all messages.

To add a new *Message Rule Table*, go to the *SIP* > *Message Manipulation* > *Message Rule Tables* menu path and click on the *plus (+)* icon.

Figure 113: Message Rule Table menu path

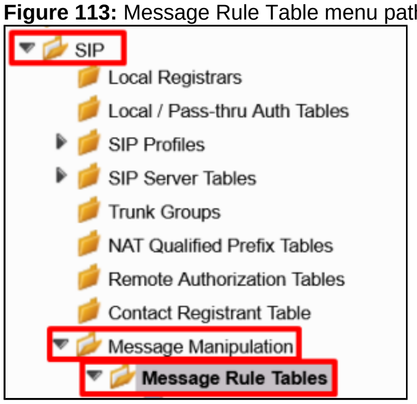
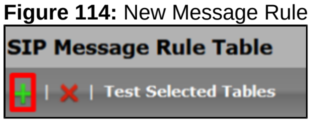
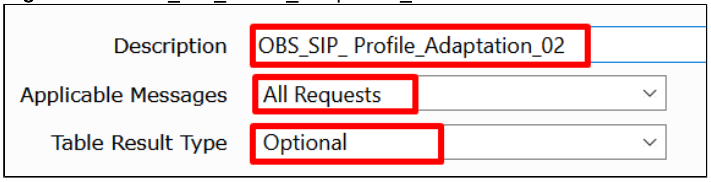


Figure 114: New Message Rule Table



Set the new entry as per the following picture.

Figure 115: OBS_SIP_Profile_Adaptation_02



OBS_SIP_Profile_Adaptation_02 Rules

Description	Rule Type	Result Type	Comments
Modify_PAI	Header Rule	Optional	It sets the host part of the URI as the local SWeLite IP address
Add plus P-Asserted-Identity	Header Rule	Optional	It adds a *plus (+)* in the user part of the URI
Modify_From_Anonymous	Header Rule	Optional	When the SBC receives an *anonymous* call, the FROM header is modified according to OBS requirements
Modify_Diversion	Header Rule	Optional	It adds a *plus (+)* in the user part of the URI and adds the *counter* parameter

Modify_PAI

To add a new *Message Rule*, go to the left menu path and click on the *OBS_SIP_Profile_Adaptation_02* table you created, then click on the *Create Rule > Header Rule* icon.

Figure 116: Left Menu Path

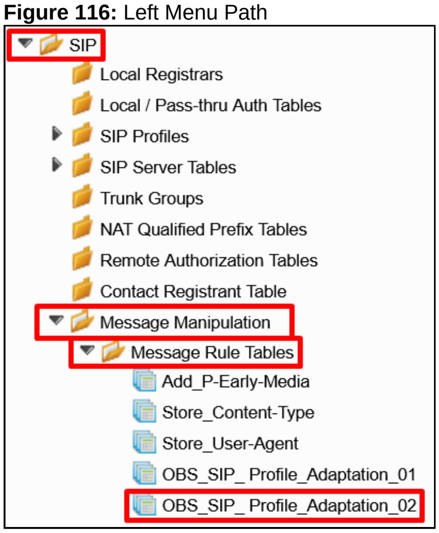
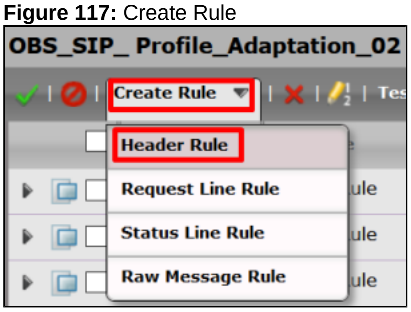
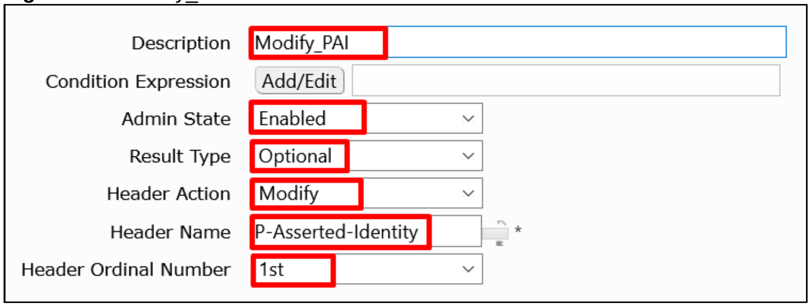


Figure 117: Create Rule



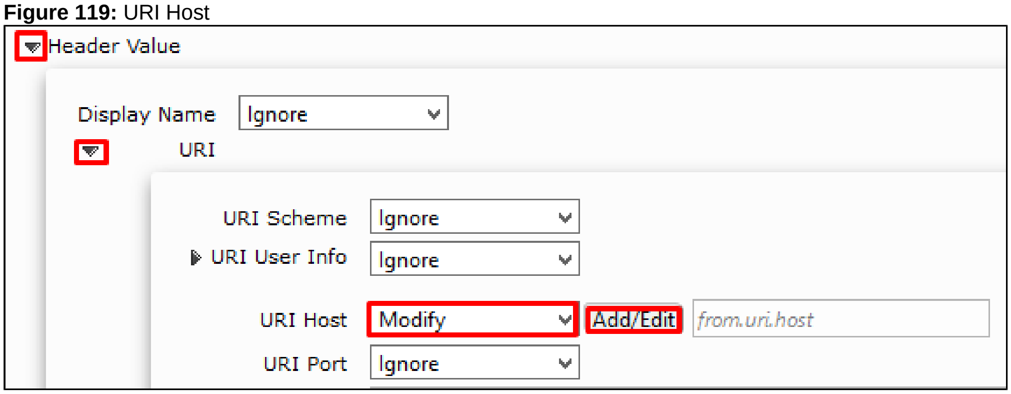
Set the new entry as per the following picture

Figure 118: Modify_PAI



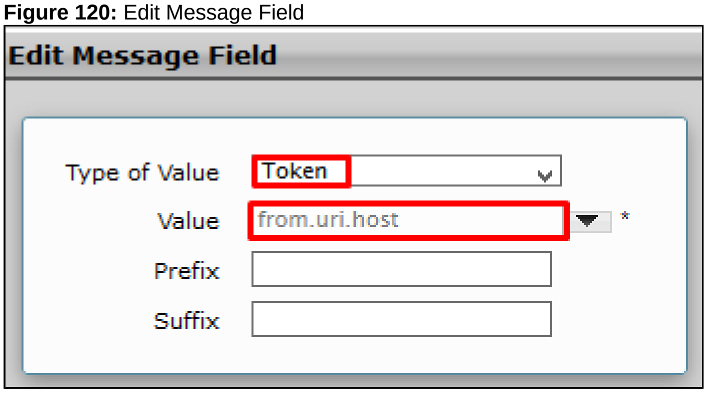
Once you select *Modify* in the Header Action field, the bottom section will change its options. Click on the arrow next to *Header Value,* then click on the arrow next to *URI* . Select *Modify* in the *URI Host* field and click on the *Add/Edit* icon

Figure 119: URI Host



Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 120: Edit Message Field



Click on the *Apply* icon to save the changes.

Add plus P-Asserted-Identity

To add a new *Message Rule*, go to the left menu path and click on the *OBS_SIP_Profile_Adaptation_02* table you created, then click on the *Create Rule > Header Rule* icon.

Figure 121: Left Menu Path

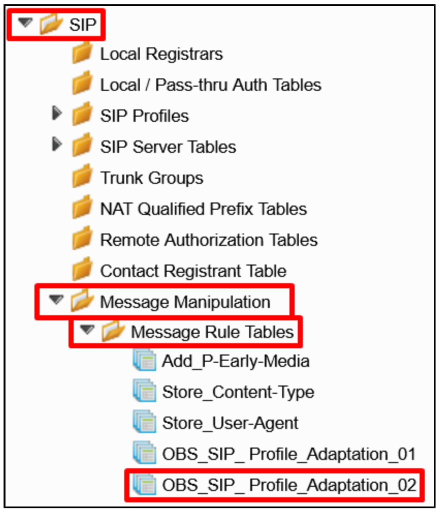
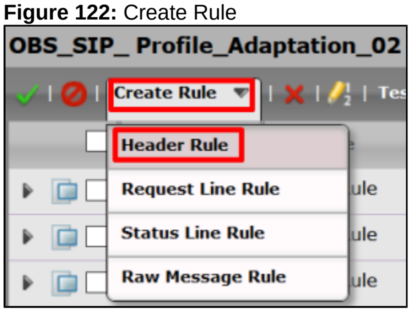


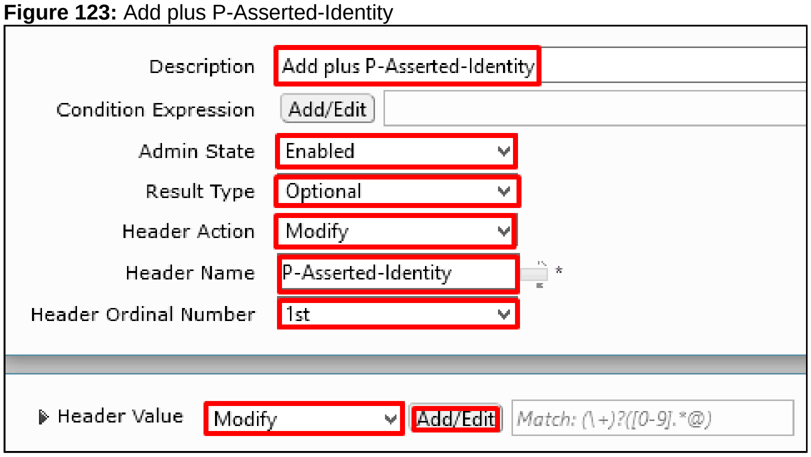
Figure 122: Create Rule



Set the new entry as per the following picture

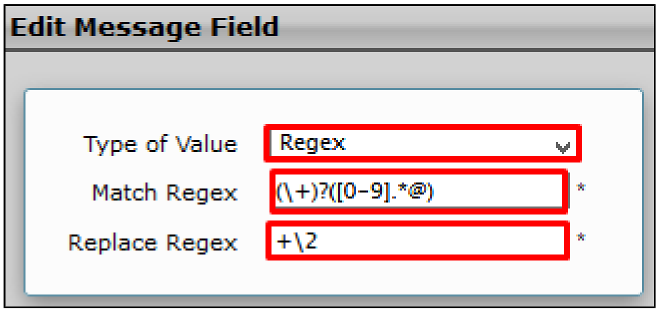
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Modify* in the Header Value field and click on the *Add/Edit* icon.

Figure 123: Add plus P-Asserted-Identity



Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 124: Edit Message Field



Click on the *Apply* icon to save the changes.

Modify_From_Anonymous

To add a new *Message Rule*, go to the left menu path and click on the *OBS_SIP_Profile_Adaptation_02* table you created, then click on the *Create Rule > Header Rule* icon.

Figure 125: Left Menu Path

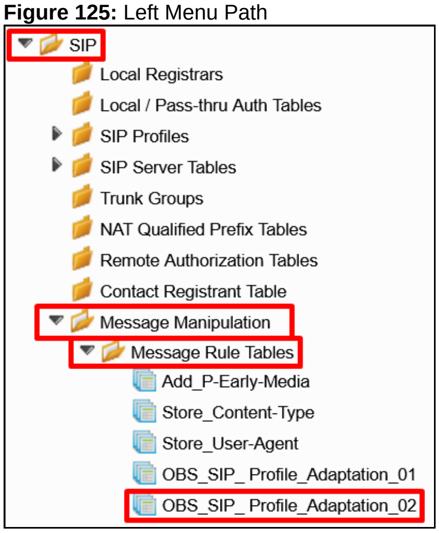
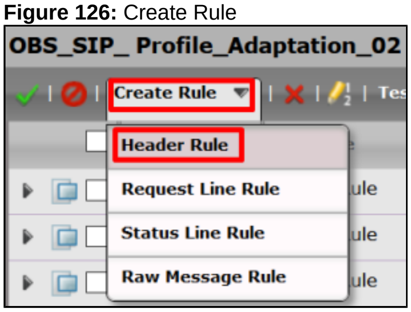
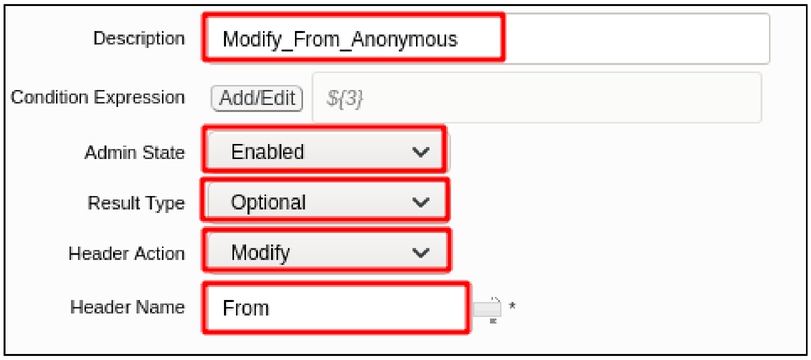


Figure 126: Create Rule



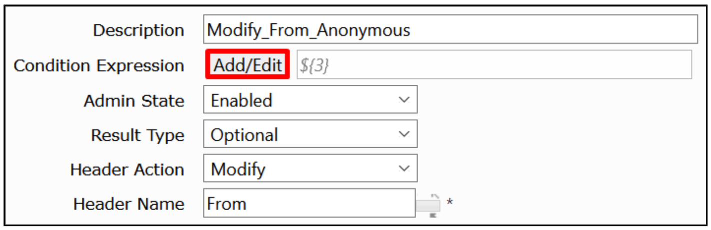
Set the new entry as per the following picture.

Figure 127: Modify_From_Anonymous



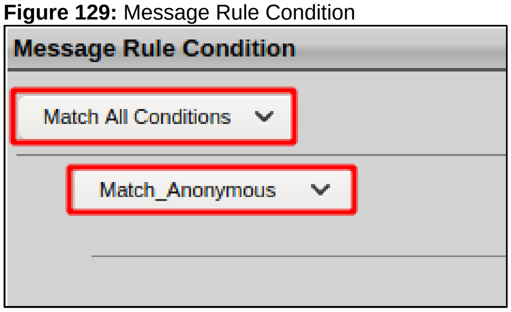
Click on the *Add/Edit* icon next to *Condition Expression* to set the *Message Rule Condition*.

Figure 128: Condition Expression



Set the *Message Rule Condition* as per the following picture

Figure 129: Message Rule Condition

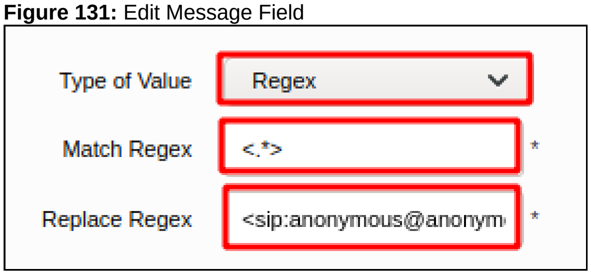


Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Modify* in the Header Value field and click on the *Add/Edit* icon.

Figure 130: Header Value

Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 131: Edit Message Field



Edit Message Field
The *Replace Regex* field should contain the following value:

<sip:anonymous@anonymous.invalid>

Click on the *Apply* icon to save the changes.

Modify_Diversion

To add a new *Message Rule*, go to the left menu path and click on the *OBS_SIP_Profile_Adaptation_02* table you created, then click on the *Create Rule > Header Rule* icon.

Figure 132: Left Menu Path

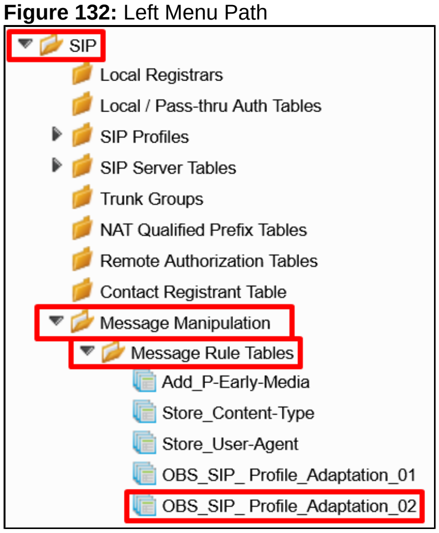
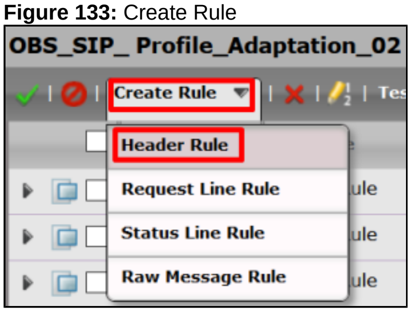


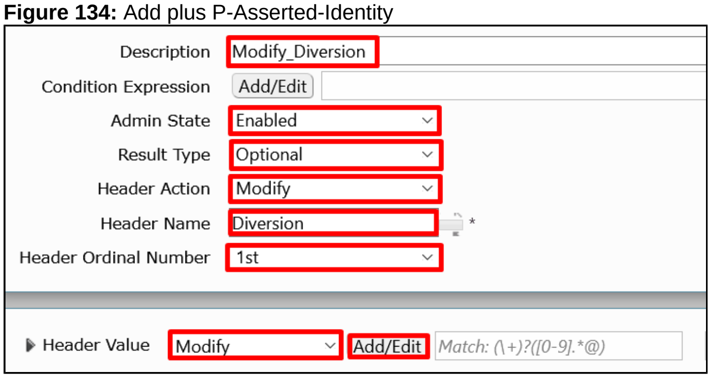
Figure 133: Create Rule



Set the new entry as per the following picture

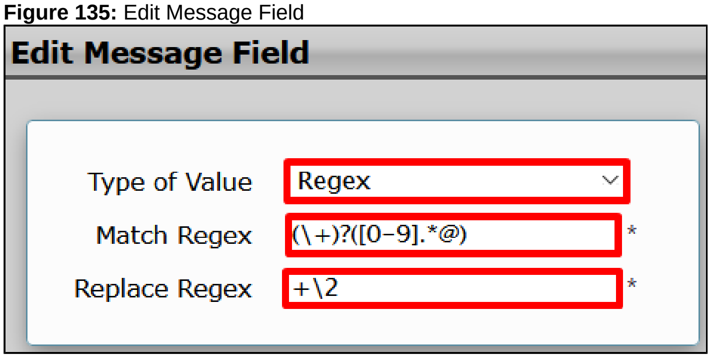
Once you select *Modify* in the Header Action field, the bottom section will change its options. Select *Modify* in the Header Value field and click on the *Add/Edit* icon.

Figure 134: Add plus P-Asserted-Identity



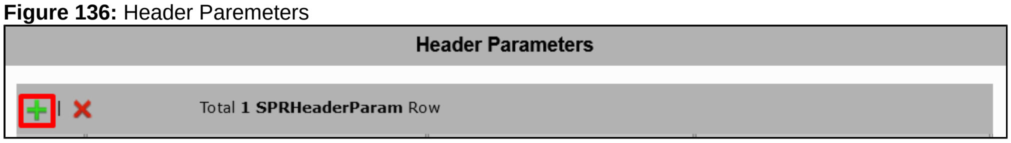
Once you click on the *Add/Edit* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 135: Edit Message Field



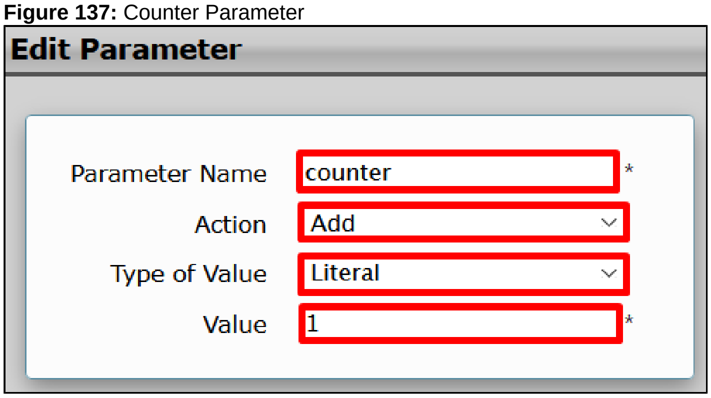
Click on the *plus (+)* icon in the *Header Parameters* section.

Figure 136: Header Paremeters



Once you click on the *plus (+)* icon, a popup screen appears. Set the configuration as per the following picture.

Figure 137: Counter Parameter



Click on the *Apply* icon to save the changes.

Media Profiles

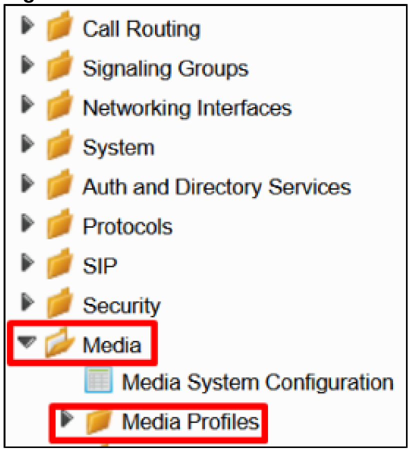
The *Media > Media Profiles* menu path allows you to specify the individual voice and fax compression codecs and their associated settings, for inclusion in a Media List. Different codecs provide varying levels of compression, allowing one to reduce bandwidth requirements at the expense of voice quality.

Table 3: OBS codecs

Description	Codec	Payload Size
G.722	G.722	20 ms
Default G711A	G.711 A-Law	20 ms
G.729	G.729	20 ms
Default G711U	G.711 U-Law	20 ms
T38	T.38 Fax	

To create a new *Media Profile,* go to *Media* > *Media Profiles* on the left menu path.

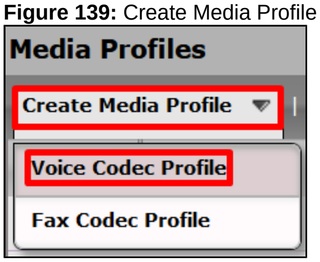
Figure 138: Left Menu Path



G.722

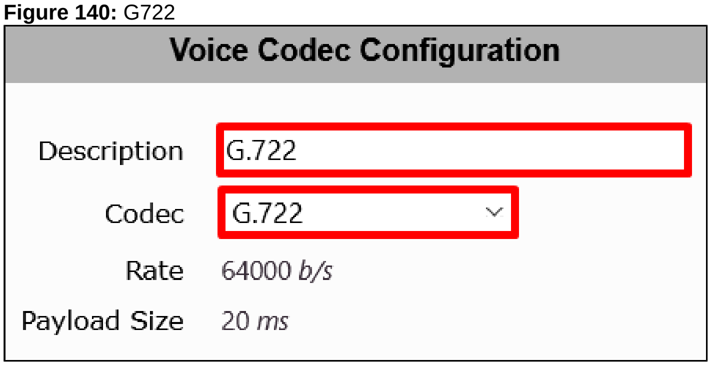
Click on the *Create Media Profile* > *Voice Codec Profile* icon.

Figure 139: Create Media Profile



Set the new *G.722* codec as per the following picture.

Figure 140: G722

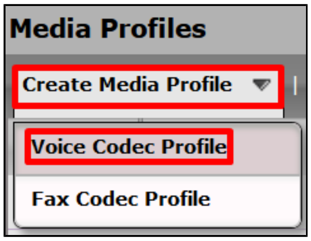


Click on the *Apply* icon to save the changes.

Default G711A

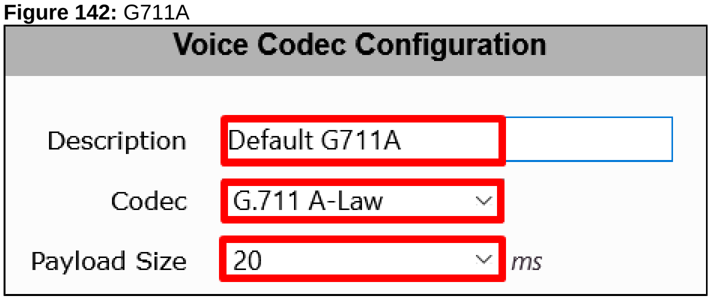
Click on the *Create Media Profile* > *Voice Codec Profile* icon.

Figure 141: Create Media Profile



Set the *G.711 A-law* codec as per the following picture.

Figure 142: G711A

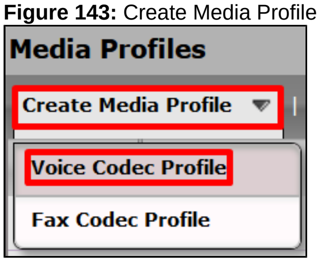


Click on the *Apply* icon to save the changes.

G.729

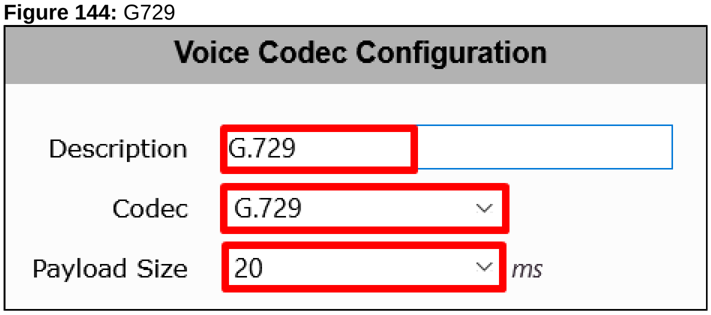
Click on the *Create Media Profile* > *Voice Codec Profile* icon.

Figure 143: Create Media Profile



Set the *G.729* codec as per the following picture.

Figure 144: G729

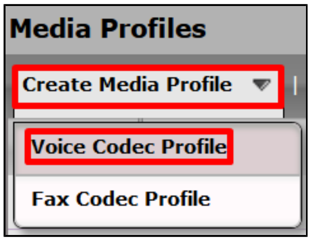


Click on the *Apply* icon to save the changes.

Default G711U

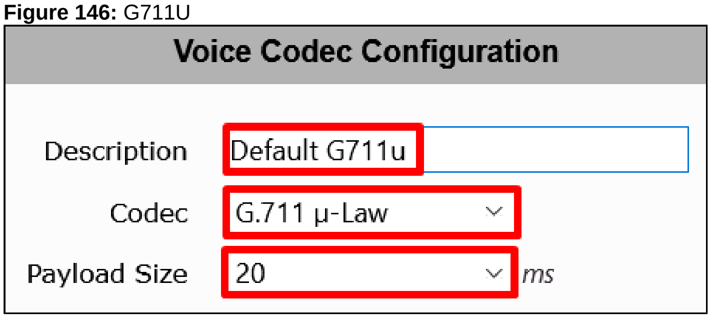
Click on the *Create Media Profile* > *Voice Codec Profile* icon.

Figure 145: Create Media Profile



Set the *G.711 U-law* codec as per the following picture.

Figure 146: G711U

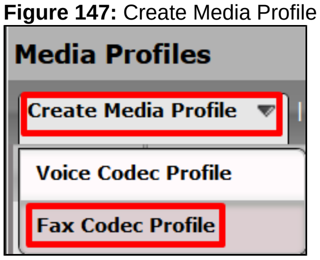


Click on the *Apply* icon to save the changes.

T38

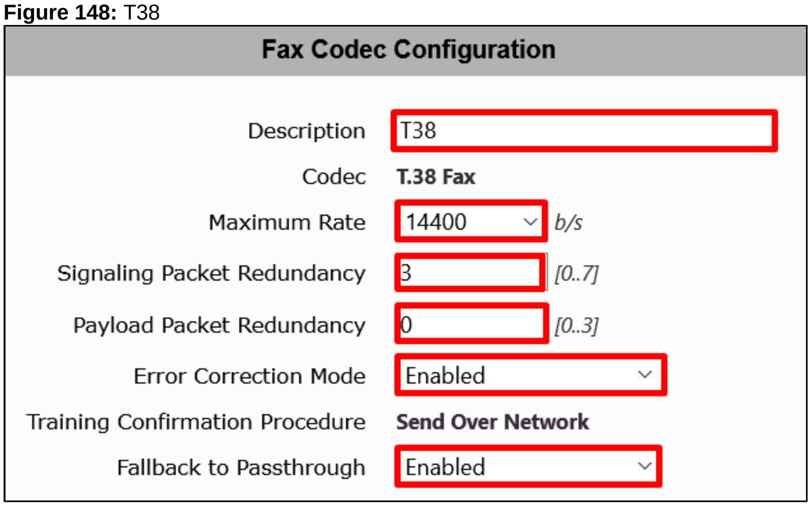
Click on the *Create Media Profile > Fax Codec Profile* icon.

Figure 147: Create Media Profile



Set the *T.38* codec as per the following picture.

Figure 148: T38



Click on the *Apply* icon to save the changes.

Media Lists

The *Media > Media List* menu path allows you to specify a set of codecs and fax profiles that are allowed on a given SIP Signaling Group. They contain one or more Media Profiles, which must first be defined in *Media Profiles*. These lists allow you to accommodate specific transmission requirements, and SIP devices that only implement a subset of the available voice codecs.

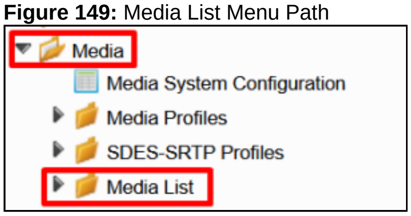
Table 4: Media Lists

Description	Media Profiles List	SDES-SRTP Profile	Media DSCP	Silence Suppression	Modem Passthrough	Fax Passthrough	Fax Tone Detection
CUCM_MediaList	Default G711A G.729	None	46	Disabled	Enabled	Enabled	Enabled
Orange_MediaList-UDP	Default G711A G.729 T38	None	46	Disabled	Enabled	Enabled	Enabled

CUCM_MediaList

To add a *Media List,* go to *Media > Media List* on the left menu path.

Figure 149: Media List Menu Path

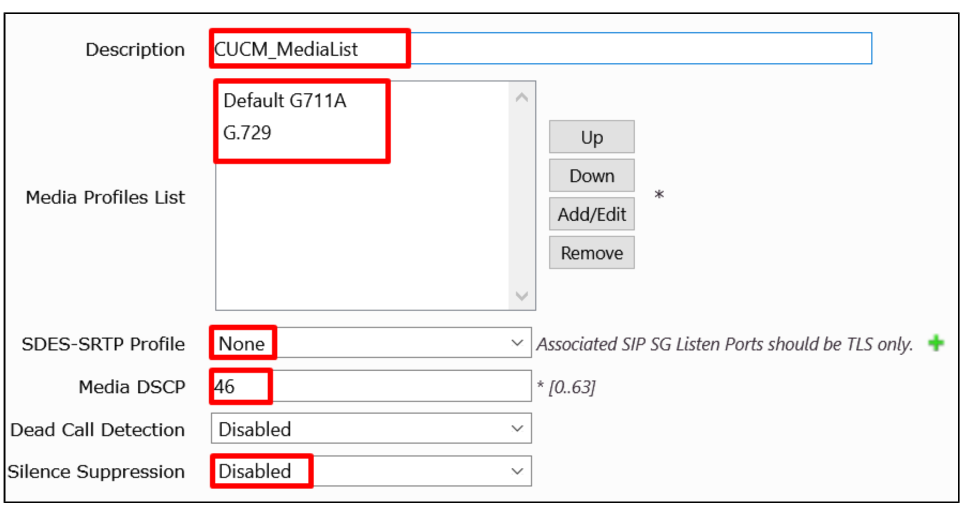


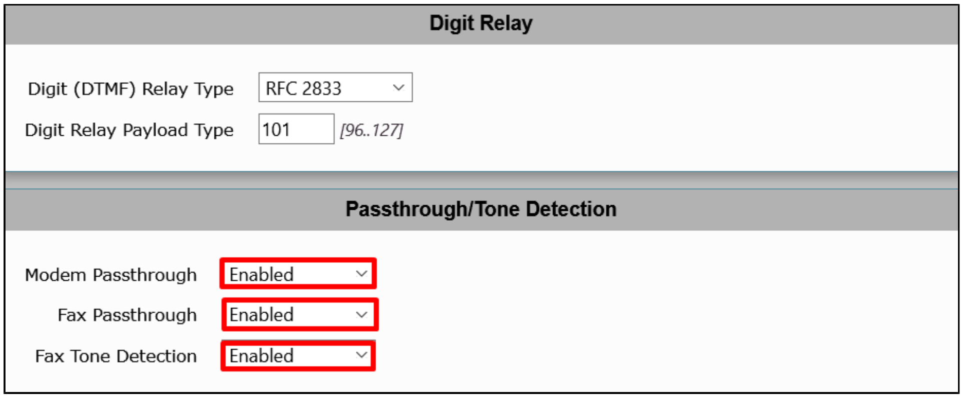
Click on the *plus (+)* icon to add a new entry.

Figure 150: New Media List

Configure the new entry as per the following picture.

Figure 151: CUCM_MediaList



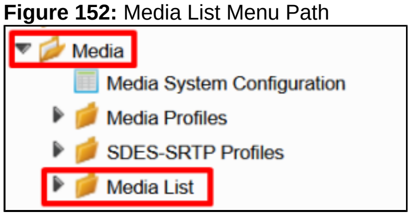


Click on the *Apply* icon to save the changes.

Orange_MediaList-UDP

To add a *Media List,* go to *Media* > *Media List* on the left menu path.

Figure 152: Media List Menu Path

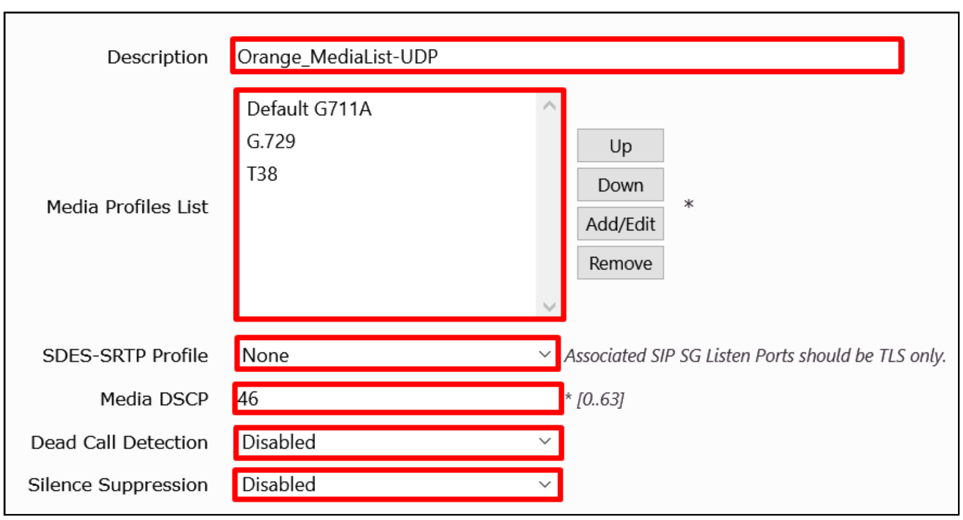


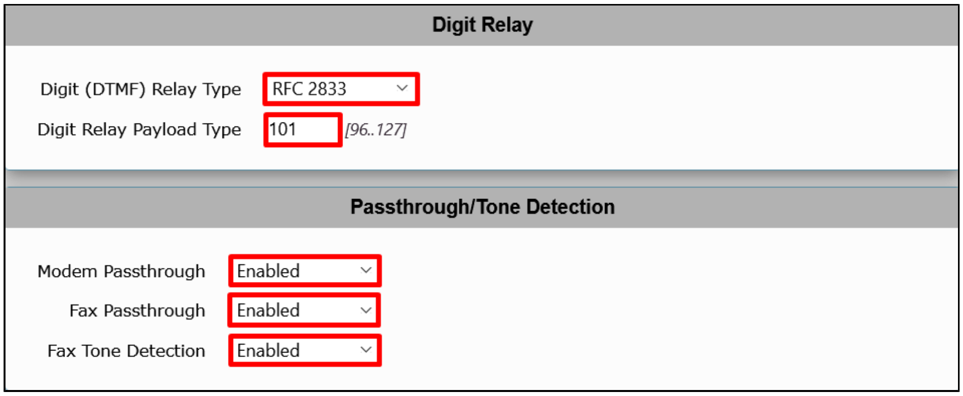
Click on the *plus (+)* icon to add a new entry.

Figure 153: New Media List

Configure the new entry as per the following picture.

Figure 154: Orange_MediaList-UDP





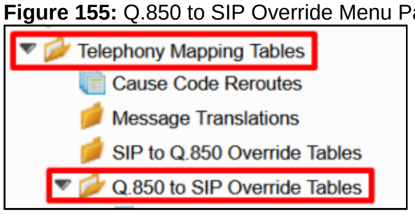
Click on the *Apply* icon to save the changes.

Q.850 to SIP Override Table

SIP and ISDN use different response messages to communicate why a call failed or could not be connected (Q.850 for ISDN and SIP Responses for SIP). By default, the SBC Edge uses RFC 4497 to map these to each other. The *Telephony Mapping Tables > Q.850 to SIP Override Tables* menu path allows you to override one or more of these mappings to a different message, which is useful for inter-operating with nonstandard equipment.

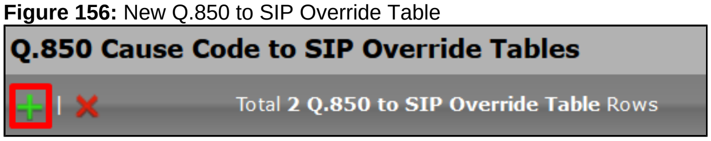
To add a new *Q.850 to SIP Override Table,* go to *Telephony Mapping Tables > Q.850 to SIP Override Tables* on the left menu path.

Figure 155: Q.850 to SIP Override Menu Path



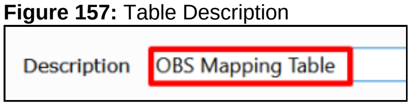
To add a new *Q.850 to SIP Override Table,* click on the *plus (+)* icon.

Figure 156: New Q.850 to SIP Override Table



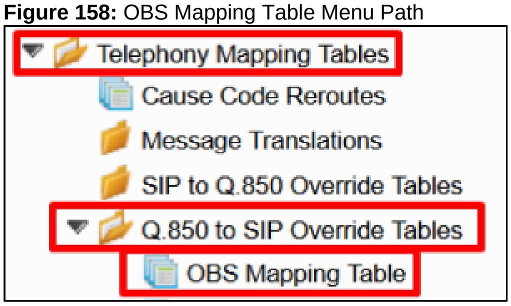
Set the *Description* as per the following picture.

Figure 157: Table Description



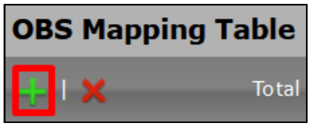
On the left menu path, click on the *OBS Mapping Table.*

Figure 158: OBS Mapping Table Menu Path



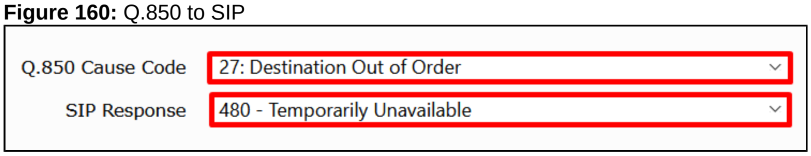
To add a new entry click on the *plus (+)* icon.

Figure 159: New Entry



Configure the new entry as per the following picture.

Figure 160: Q.850 to SIP



Click on the *Apply* icon to save the changes.

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. They are also the location from which *Tone Tables* and *Action Sets* are selected.

From-To_CUCM

Table 5: CUCM Signaling Group Parameters

Description	Call Routing Table	SIP Profile	SIP Server Table	Media List ID	Federated IP/FQDN	Signaling DSCP	Inbound Message Manipulation	Outbound Message Manipulation
From-To_CUCM	To_Orange	CUCM_SIP Profile	CUCM	CUCM_MediaList	<CUCM IP Address>	40	Store_Content-Type Store_User-Agent	

To add a new *Signaling Group*, go to the *Signaling Groups* menu path.

Figure 161: Signaling Groups Menu Path

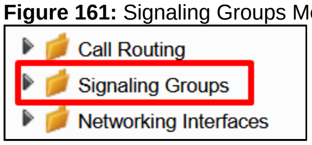


Figure 162: New Signaling Group

Set the new entry as per the following picture.

Figure 163: From-To_CUCM

Description	From-To_CUCM
Admin State	Enabled
Service Status	Up

SIP Channels and Routing

Action Set Table	None
Call Routing Table	To_Orange
No. of Channels	60
SIP Profile	CUCM_SIPProfile
SIP Mode	Basic Call
Agent Type	Back-to-Back User Agent
SIP Server Table	CUCM
Load Balancing	Round Robin
Channel Hunting	Most Idle
Notify Lync CAC Profile	Disable
Challenge Request	Disable
Outbound Proxy IP/FQDN	
Outbound Proxy Port	5060
Call Setup Response Timer	255
Call Proceeding Timer	180
Use Register as Keep Alive	Enable
Forked Call Answered Too Soon	Disable

SIP Recording

SIP Recording Status	Disabled

Media Information

Supported Audio Modes	DSP Proxy Direct Proxy with Local SRTP *
Supported Video/Application Modes	Proxy Direct *
Media List ID	CUCM_MediaList
Proxy Local SRTP Crypto Profile ID	None
Play Ringback	Auto on 180
Tone Table	Default Tone Table
Play Congestion Tone	Disable
Early 183	Enable
Allow Refresh SDP	Enable
Music on Hold	Disabled
RTCP Multiplexing	Disable

Mapping Tables

SIP To Q.850 Override Table	Default (RFC4497)
Q.850 To SIP Override Table	Default (RFC4497)
Pass-thru Peer SIP Response Code	Enable

SIP IP Details

Teams Local Media Optimization	Disable
Signaling/Media Source IP	[redacted]
Signaling DSCP	40

NAT Traversal

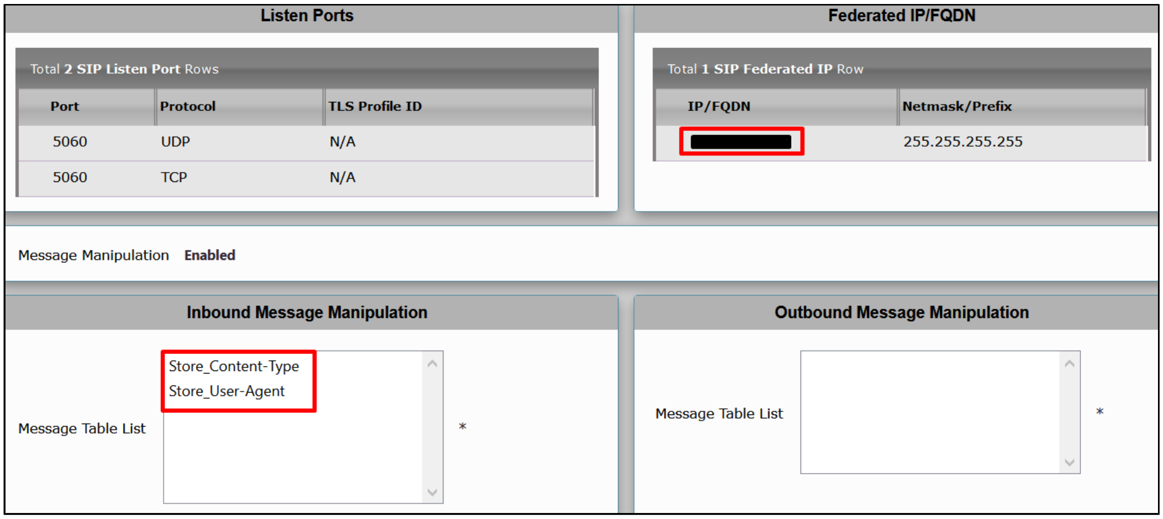
ICE Support	Disabled

Static NAT - Outbound

Outbound NAT Traversal	None

Static NAT - Inbound

Detection	Disabled



Click on the *Apply* icon to save the changes.

From-To_OrangeBTIP

Table 6: From-To_OrangeBTIP Signaling Group Parameters

Description	Call Routing Table	SIP Profile	SIP Server Table	Media List ID	Federated IP/FQDN	Signaling DSCP	Q.850 to SIP Override Table	Outbound Message Manipulation
From-To_OrangeBTIP	To_Private	Orange_SIPProfile-UDP	Orange_BTIP	Orange_MediaList-UDP	<OBS IP Addresses>	46	OBS Mapping Table	OBS_SIP_Profile_Adaptation_02 OBS_SIP_Profile_Adaptation_01 Add_P-Early-Media

To add a new *Signaling Group*, go to *Signaling Groups* menu path.

Figure 164: Signaling Groups Menu Path

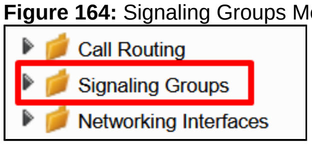
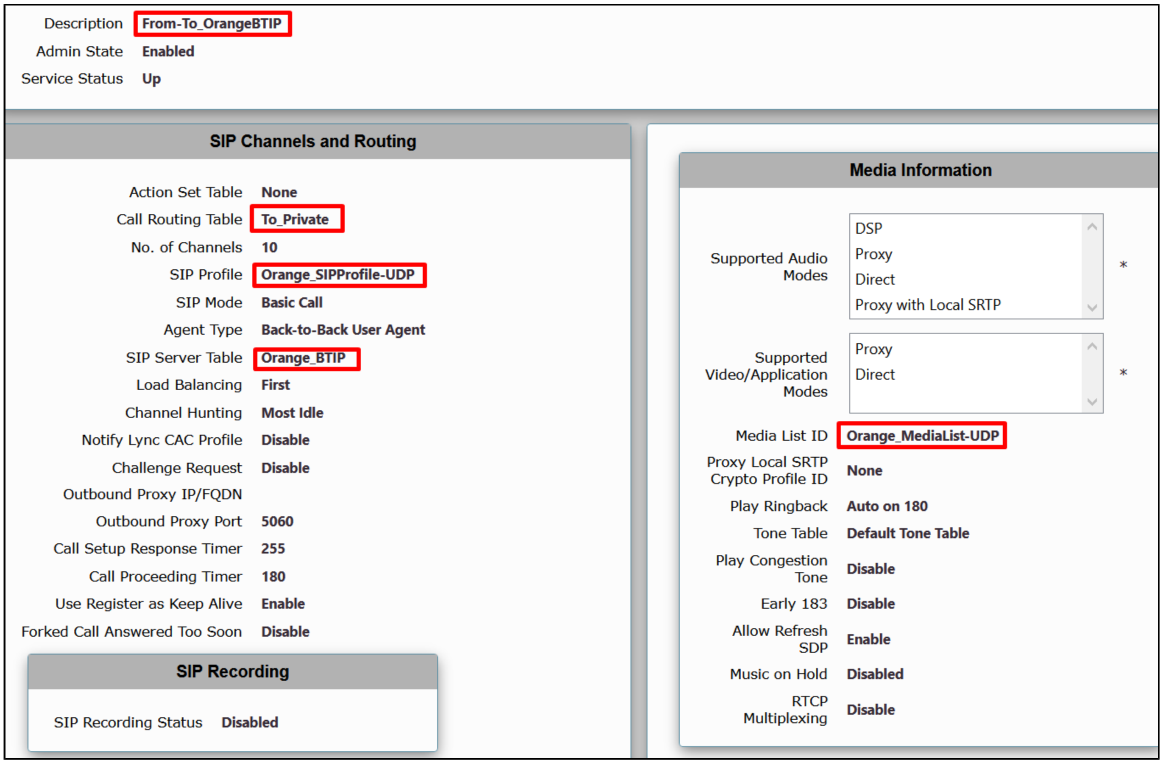
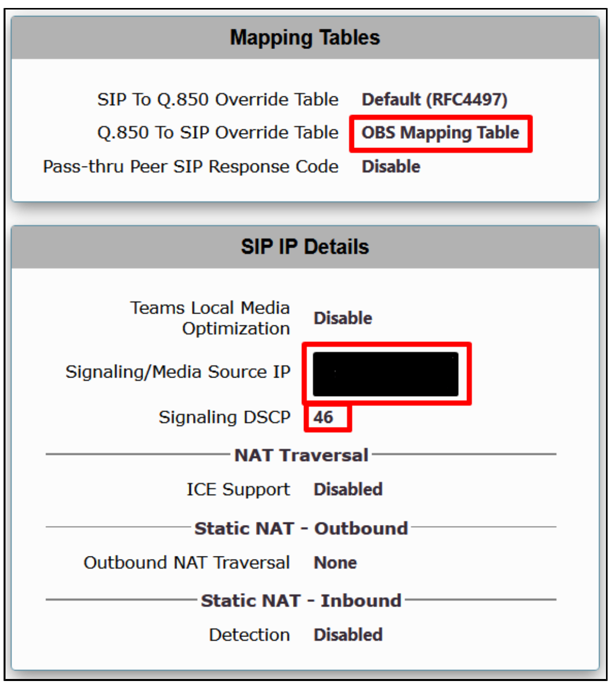


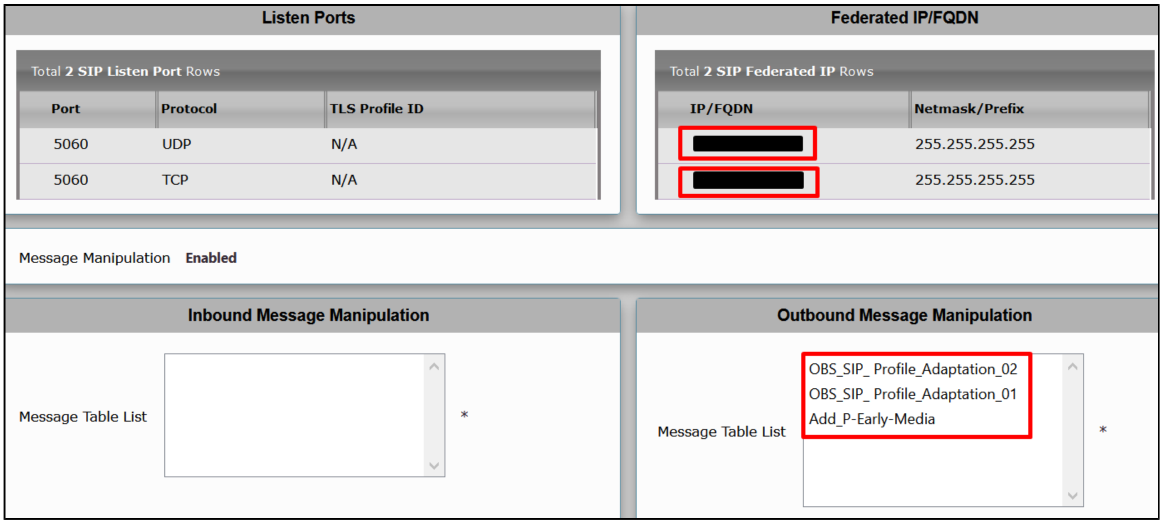
Figure 165: New Signaling Group

Set the new entry as per the following picture.

Figure 166: From-To_OrangeBTIP


Description From-To_OrangeBTIP
Admin State Enabled
Service Status Up
SIP Channels and Routing
Action Set Table None
Call Routing Table To_Private
No. of Channels 10
SIP Profile Orange_SIPProfile-UDP
SIP Mode Basic Call
Agent Type Back-to-Back User Agent
SIP Server Table Orange_BTIP
Load Balancing First
Channel Hunting Most Idle
Notify Lync CAC Profile Disable
Challenge Request Disable
Outbound Proxy IP/FQDN
Outbound Proxy Port 5060
Call Setup Response Timer 255
Call Proceeding Timer 180
Use Register as Keep Alive Enable
Forked Call Answered Too Soon Disable
SIP Recording
SIP Recording Status Disabled
Media Information
Supported Audio Modes DSP Proxy Direct Proxy with Local SRTP *
Supported Video/Application Modes Proxy Direct *
Media List ID Orange_MediaList-UDP
Proxy Local SRTP Crypto Profile ID None
Play Ringback Auto on 180
Tone Table Default Tone Table
Play Congestion Tone Disable
Early 183 Disable
Allow Refresh SDP Enable
Music on Hold Disabled
RTCP Multiplexing Disable


Mapping Tables
SIP To Q.850 Override Table Default (RFC4497)
Q.850 To SIP Override Table OBS Mapping Table
Pass-thru Peer SIP Response Code Disable
SIP IP Details
Teams Local Media Optimization Disable
Signaling/Media Source IP [redacted]
Signaling DSCP 46
NAT Traversal
ICE Support Disabled
Static NAT - Outbound
Outbound NAT Traversal None
Static NAT - Inbound
Detection Disabled



Click on the *Apply* icon to save the changes.

From-To_OrangeBtalk

Table 7: From-To_OrangeBtalk Signaling Group Parameters

Description	Call Routing Table	SIP Profile	SIP Server Table	Media List ID	Federated IP/FQDN	Signaling DSCP	Q.850 to SIP Override Table	Outbound Message Manipulation
From-To_OrangeBtalk	To_Private	Orange_SIPProfile-UDP	Orange_Btalk	Orange_Media List-UDP	<OBS IP Addresses>	46	OBS Mapping Table	OBS_SIP_Profile_Adaptation_02 OBS_SIP_Profile_Adaptation_01 Add_P-Early-Media

To add a new *Signaling Group*, go to *Signaling Groups* menu path.

Figure 167: Signaling Groups Menu Path

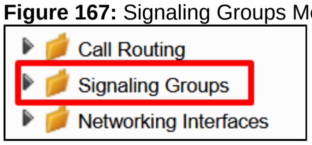


Figure 168: New Signaling Group

Set the new entry as per the following picture.

Figure 169: From-To_OrangeBtalk

Description	From-To_OrangeBtalk
Admin State	Enabled
Service Status	Up

SIP Channels and Routing

Action Set Table	None
Call Routing Table	To_Private
No. of Channels	10
SIP Profile	Orange_SIPProfile-UDP
SIP Mode	Basic Call
Agent Type	Back-to-Back User Agent
SIP Server Table	Orange_Btalk
Load Balancing	First
Channel Hunting	Most Idle
Notify Lync CAC Profile	Disable
Challenge Request	Disable
Outbound Proxy IP/FQDN	
Outbound Proxy Port	5060
Call Setup Response Timer	255
Call Proceeding Timer	180
Use Register as Keep Alive	Enable
Forked Call Answered Too Soon	Disable

SIP Recording

SIP Recording Status	Disabled

Media Information

Supported Audio Modes	DSP Proxy Direct Proxy with Local SRTP *
Supported Video/Application Modes	Proxy Direct *
Media List ID	Orange_MediaList-UDP
Proxy Local SRTP Crypto Profile ID	None
Play Ringback	Auto on 180
Tone Table	Default Tone Table
Play Congestion Tone	Disable
Early 183	Disable
Allow Refresh SDP	Enable
Music on Hold	Disabled
RTCP Multiplexing	Disable

Mapping Tables

SIP To Q.850 Override Table	Default (RFC4497)
Q.850 To SIP Override Table	OBS Mapping Table
Pass-thru Peer SIP Response Code	Disable

SIP IP Details

Teams Local Media Optimization	Disable
Signaling/Media Source IP	[redacted]
Signaling DSCP	46

NAT Traversal

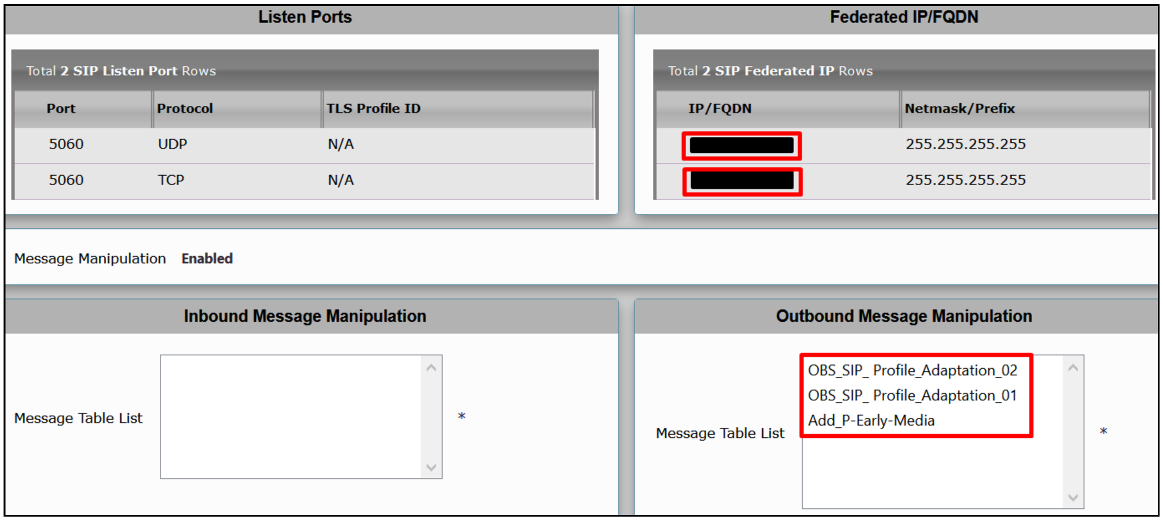
ICE Support	Disabled

Static NAT - Outbound

Outbound NAT Traversal	None

Static NAT - Inbound

Detection	Disabled



Click on the *Apply* icon to save the changes.

Transformations 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.

> **Regular Expressions**
> Regular Expressions (REGEX) is a basic topic to set Transformation Tables. To know more about REGEX go to Appendix A

Table 8: Transformation Tables

Transformation Table	Transformation Entries
CUCM_Prefixes	To_CUCM
Orange_Btalk	Add plus calling number To_Btalk
Orange_BTIP	Add plus Calling number To_BTIP

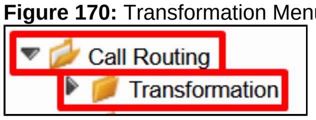
CUCM_Prefixes

Table 9: CUCM_Prefixes entries

Description	Match Type	Input Field		Output Field	
		Type	Value	Type	Value
To_CUCM	Optional	Called Address / Number	(\+?)(33.*)	Called Address / Number	\2

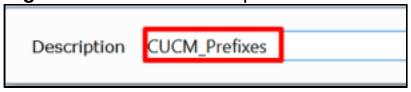
To add a new *Transformation Table,* go to *Call Routing* > *Transformation* on the left menu path.

Figure 170: Transformation Menu Path



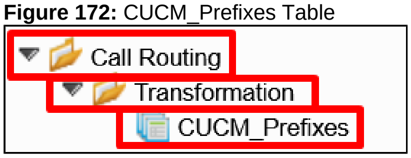
Set the *Description* as per the following picture.

Figure 171: Table Description



On the left menu path, click on the *CUCM_Prefixes Table.*

Figure 172: CUCM_Prefixes Table



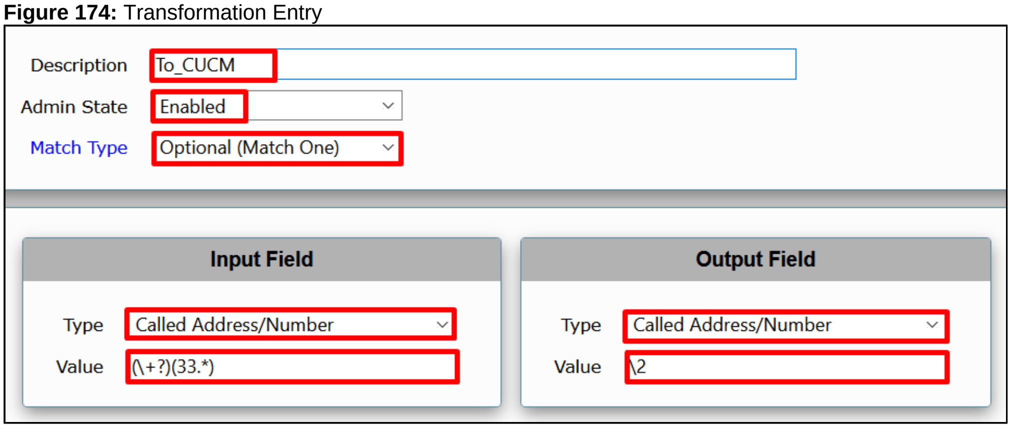
To_CUCM

To add a new entry click on the *plus (+)* icon*.*

Figure 173: New Entry

Configure the new entry as per the following picture.

Figure 174: Transformation Entry



Click on the *Apply* icon to save the changes.

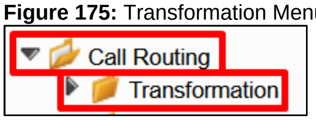
Orange_Btalk

Table 10: Orange_Btalk entries

Description	Match Type	Input Field		Output Field	
		Type	Value	Type	Value
Add plus calling number	Optional	Calling Address / Number	(\+)?(.*)	Calling Address / Number	+\2
To_Btalk	Optional	Called Address / Number	(\+)?(63|64|65|66|67)(.*)	Called Address / Number	+\2\3

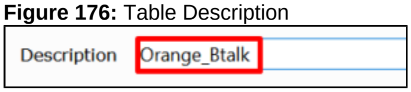
To add a new *Transformation Table,* go to *Call Routing > Transformation* on the left menu path.

Figure 175: Transformation Menu Path



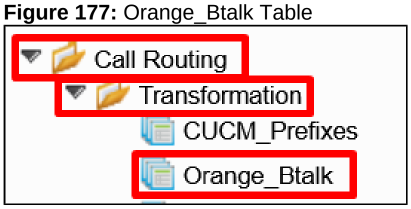
Set the *Description* as per the following picture.

Figure 176: Table Description



On the left menu path, click on the *Orange_Btalk Table.*

Figure 177: Orange_Btalk Table



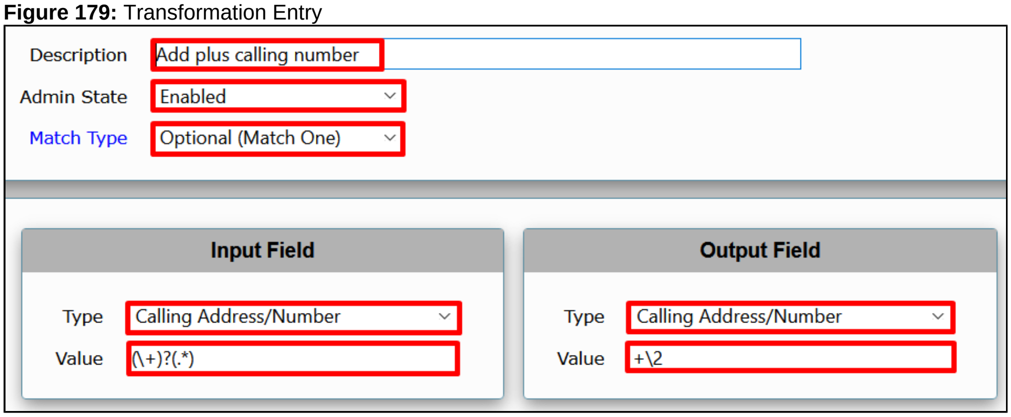
Add plus calling number

To add a new entry click on the *plus (+)* icon.

Figure 178: New Entry

Configure the new entry as per the following picture.

Figure 179: Transformation Entry

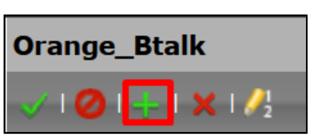


Click on the *Apply* icon to save the changes.

To_Btalk

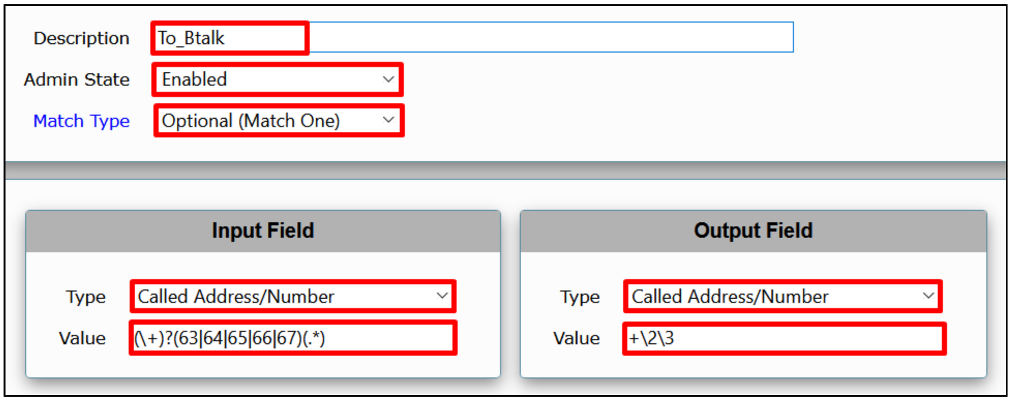
To add a new entry click on the *plus (+)* icon.

Figure 180: New Entry



Configure the new entry as per the following picture.

Figure 181: Transformation Entry



Click on the *Apply* icon to save the changes.

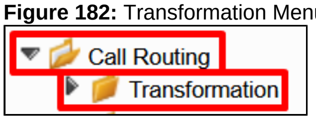
Orange_BTIP

Table 11: Orange_BTIP entries

Description	Match Type	Input Field		Output Field	
		Type	Value	Type	Value
Add plus Calling number	Optional	Calling Address / Number	(\+)?(.*)	Calling Address / Number	+\2
To_BTIP	Optional	Called Address / Number	(\+)?(96|33|039910)(.*)	Called Address / Number	+\2\3

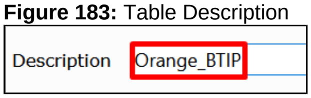
To add a new *Transformation Table,* go to *Call Routing* > *Transformation* on the left menu path.

Figure 182: Transformation Menu Path



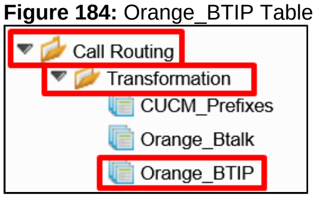
Set the *Description* as per the following picture.

Figure 183: Table Description



On the left menu path, click on the *Orange_BTIP Table.*

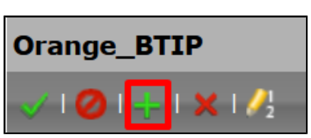
Figure 184: Orange_BTIP Table



Add plus Calling number

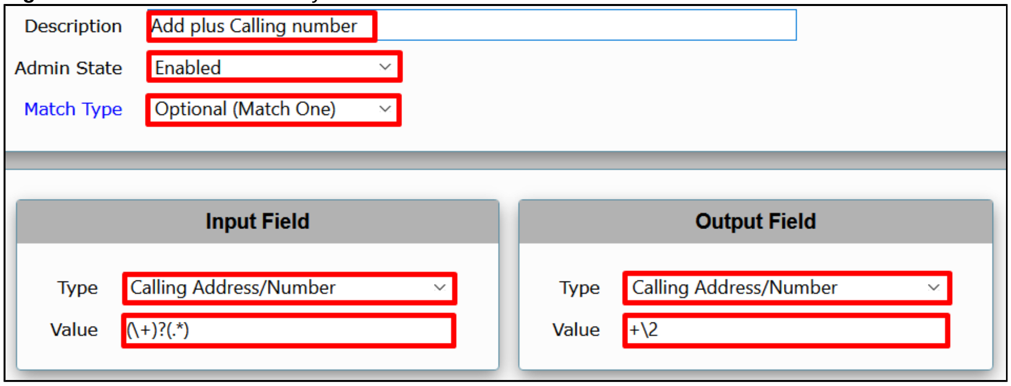
To add a new entry click on the *plus (+)* icon.

Figure 185: New Entry



Configure the new entry as per the following picture.

Figure 186: Transformation Entry

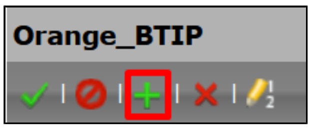


Click on the *Apply* icon to save the changes.

To_BTIP

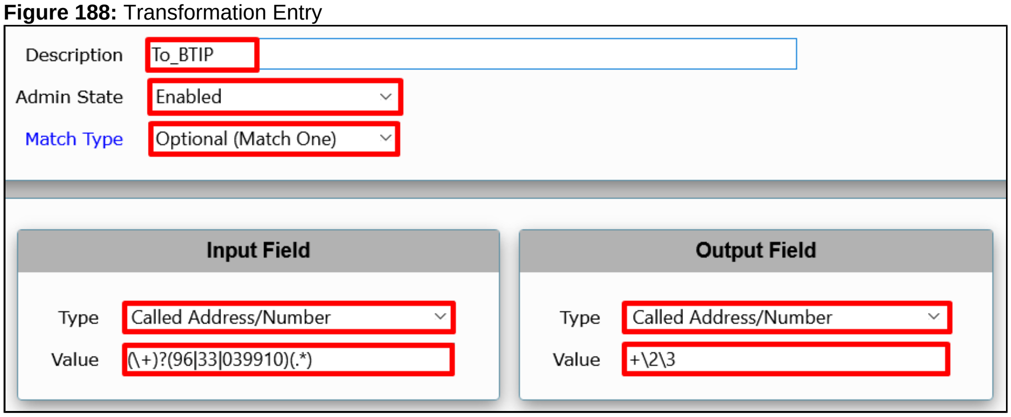
To add a new entry click on the *plus (+)* icon.

Figure 187: New Entry



Configure the new entry as per the following picture.

Figure 188: Transformation Entry



Click on the *Apply* icon to save the changes.

Call Routing Tables

Call Routing allows calls to be carried between signalling groups, thus allowing calls to be carried between ports, and between protocols. Routes are defined by *Call Routing Tables*, which allow for flexible configuration of which calls are carried, and how they are translated. These tables are one of the central connection points of the system, linking *Transformation Tables*, *Message Translations*, *Cause Code Reroute Tables*, *Media Lists* and *Sign aling Groups*.

Table 12: Call Routing Tables

Description	Transformation Table
To_Private	CUCM_Prefixes
To_Orange	Orange_Btalk
	Orange_BTIP

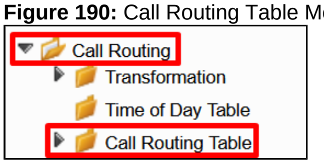
To_Private

Figure 189: Call Route Entry Parameters

Description	Number/Name Transformation Table	Destination Signaling Groups	Audio Stream Mode	Media List
To_CUCM	CUCM_Prefixes	From-To_CUCM	DSP Preferred over Proxy	CUCM_MediaList

To add a new *Call Routing Table,* go to *Call Routing* > *Call Routing Table* on the left menu path.

Figure 190: Call Routing Table Menu Path

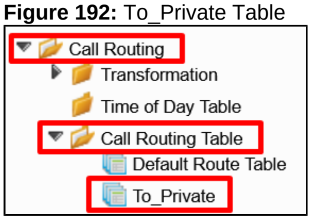


Set the *Description* as per the following picture.

Figure 191: Table Description

On the left menu path, click on the *To_Private Table.*

Figure 192: To_Private Table



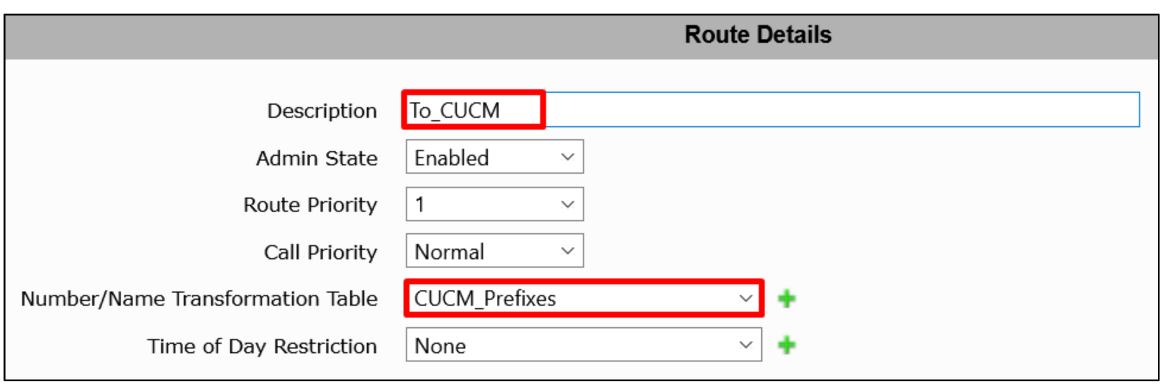
To_CUCM

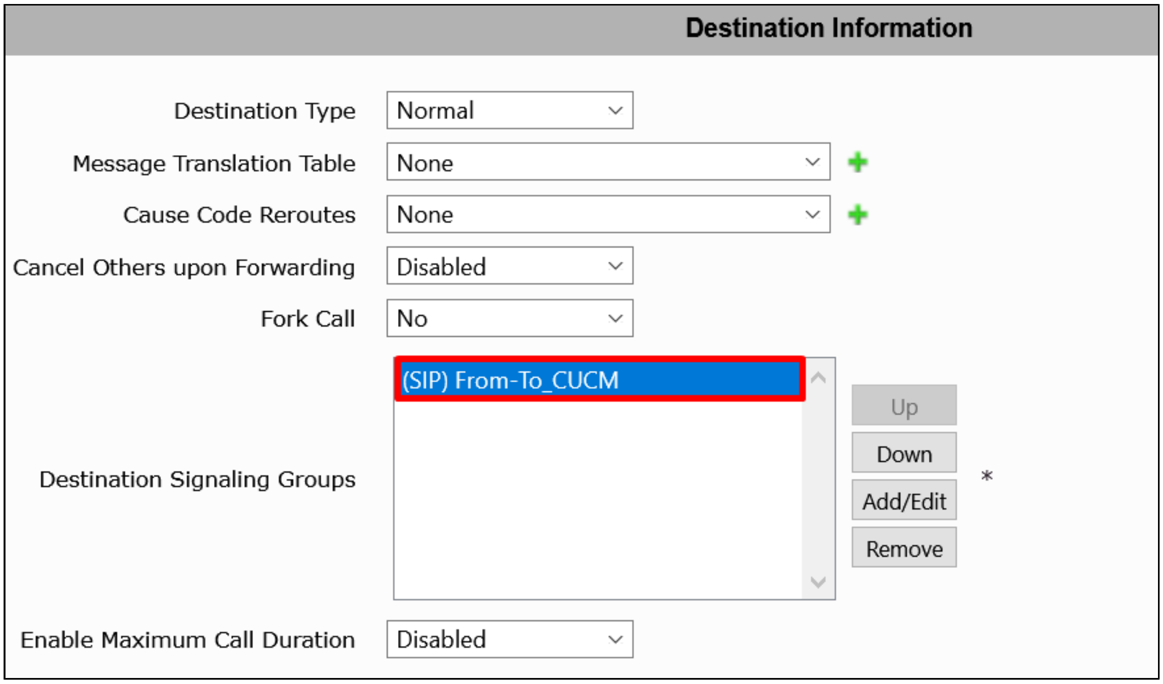
To add a new entry click on the *plus (+)* icon.

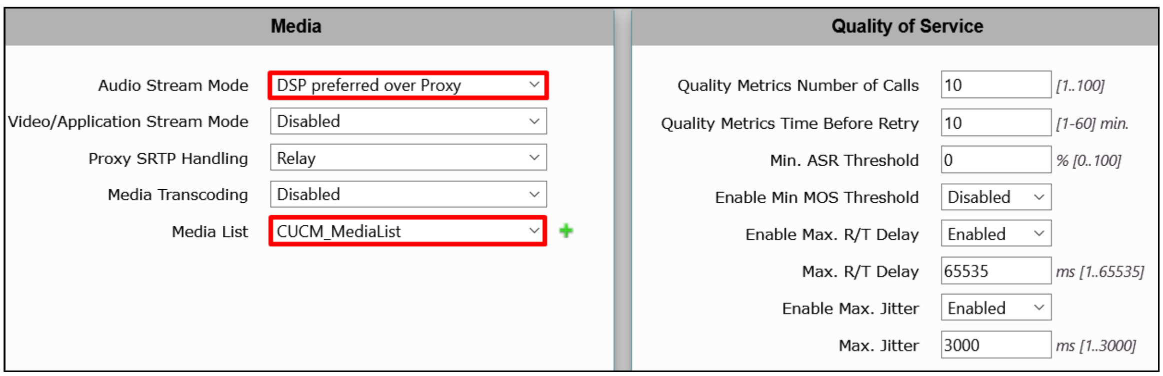
Figure 193: New Entry

Configure the new entry as per the following picture.

Figure 194: Call Route Entry







Click on the *Apply* icon to save the changes.

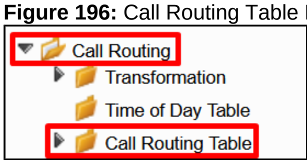
To_Orange

Figure 195: Call Route Entry Parameters

Description	Number/Name Transformation Table	Destination Signaling Groups	Audio Stream Mode	Media Transcoding	Media List
To_OrangeBtalk	Orange_Btalk	From-To_OrangeBtalk	DSP Preferred over Proxy	Enabled	Orange_MediaList-UDP
To_OrangeBTIP	Orange_BTIP	From-To_OrangeBTIP	DSP Preferred over Proxy	Enabled	Orange_MediaList-UDP

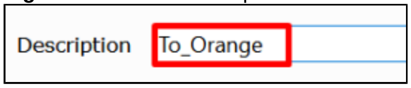
To add a new *Call Routing Table,* go to *Call Routing* > *Call Routing Table* on the left menu path.

Figure 196: Call Routing Table Menu Path



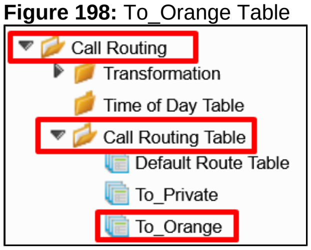
Set the *Description* as per the following picture.

Figure 197: Table Description



On the left menu path, click on the *To_Orange Table.*

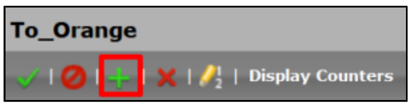
Figure 198: To_Orange Table



To_OrangeBtalk

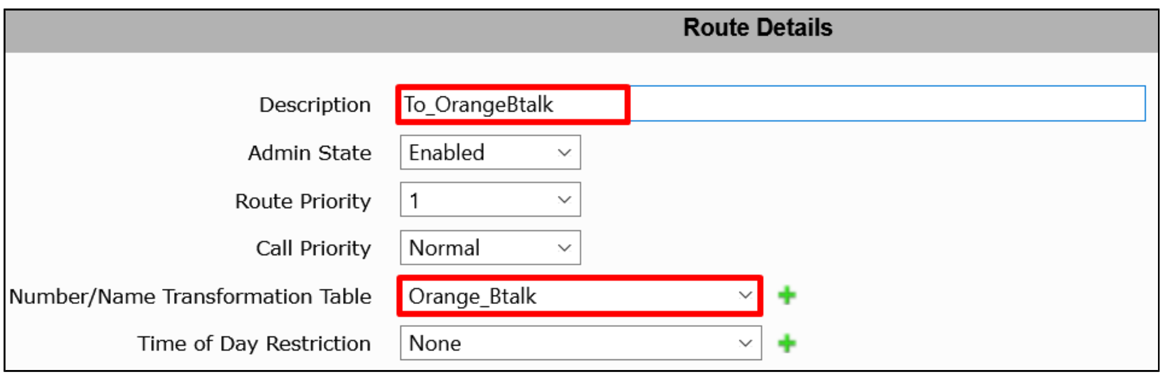
To add a new entry click on the *plus (+)* icon*.*

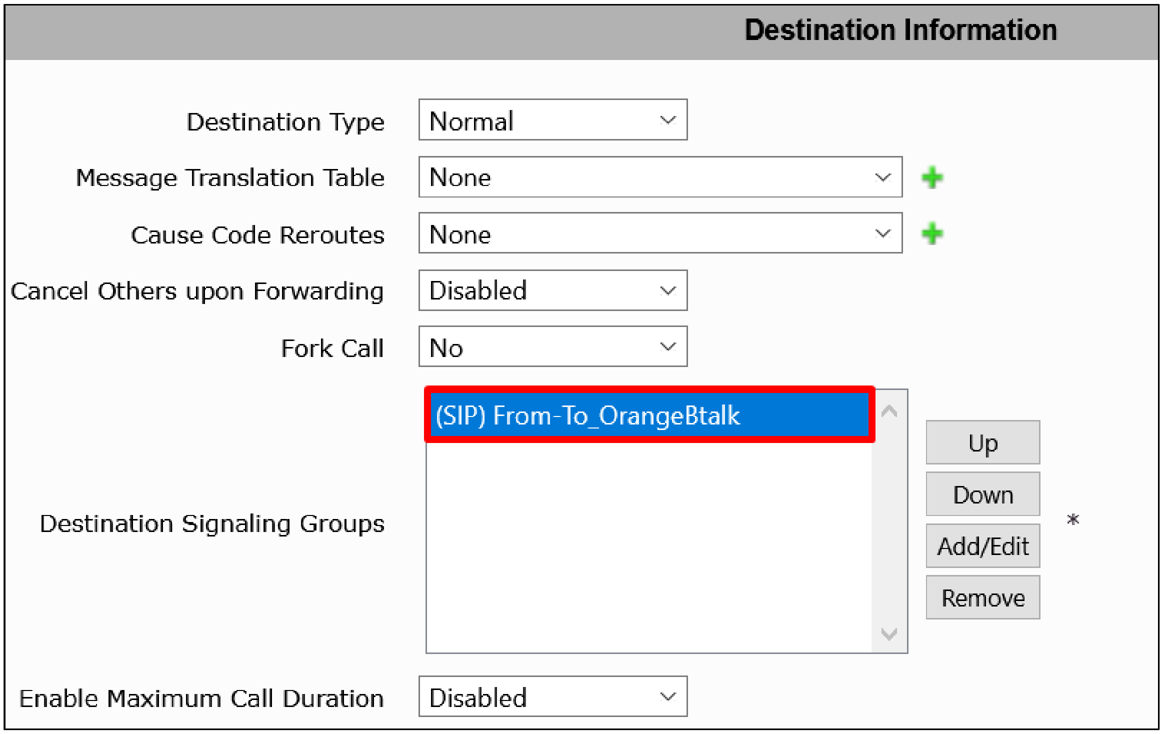
Figure 199: New Entry

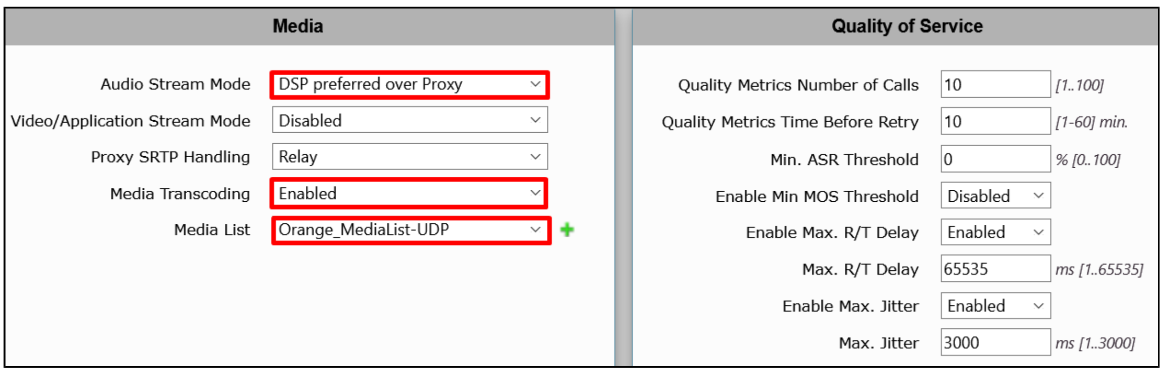


Configure the new entry as per the following picture.

Figure 200: Call Route Entry





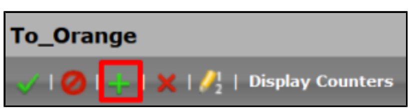


Click on the *Apply* icon to save the changes.

To_OrangeBTIP

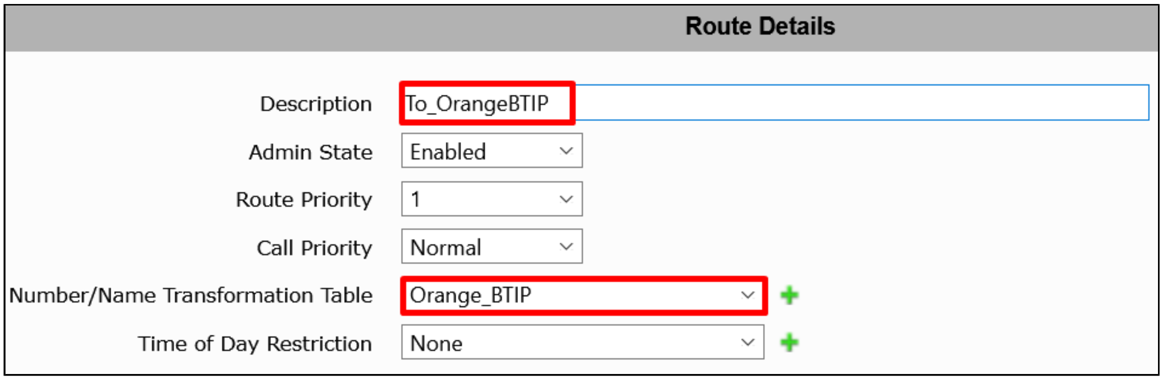
To add a new entry click on the *plus (+)* icon.

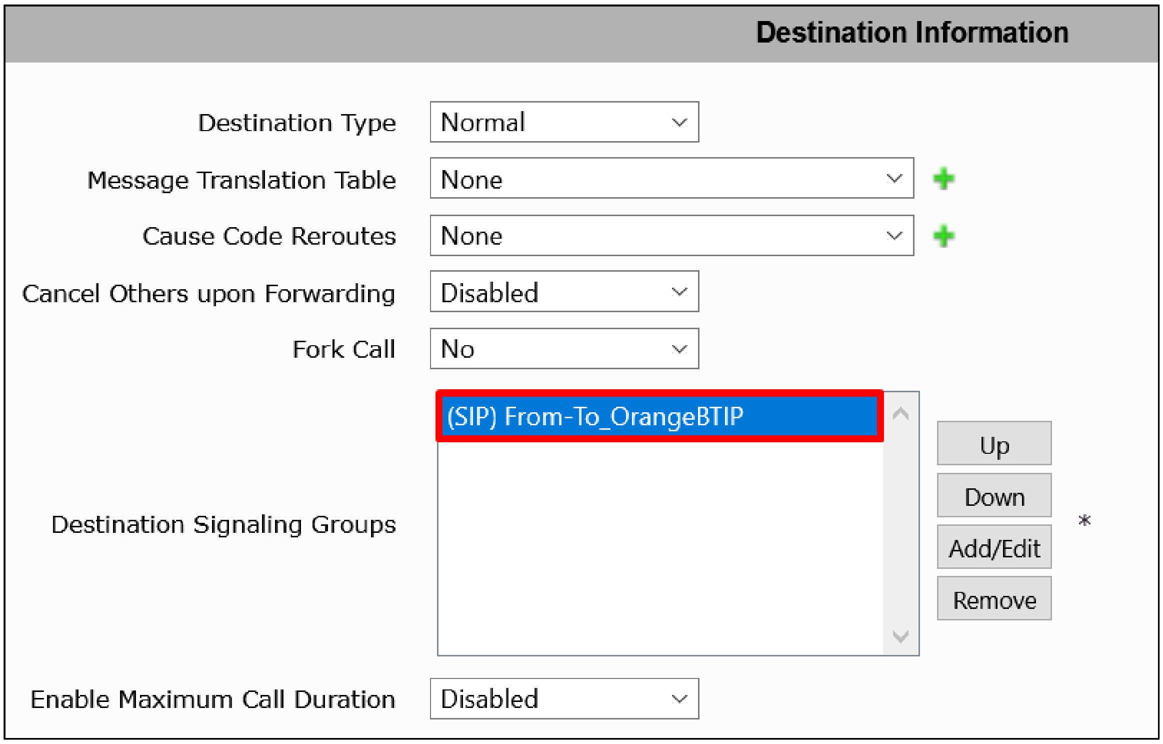
Figure 201: New Entry

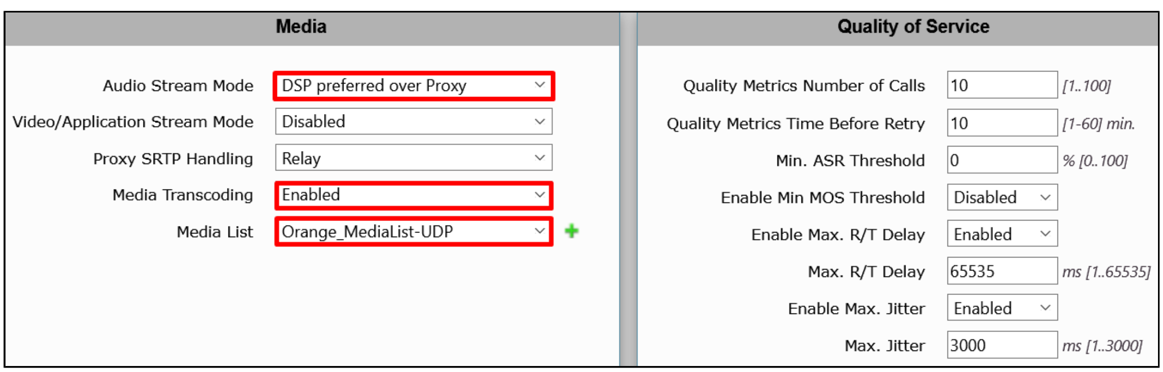


Configure the new entry as per the following picture.

Figure 202: Call Route Entry







Click on the *Apply* icon to save the changes.

Test Results

Table 13: Test Results

Preliminary Phase				
Use Case	**Test ID**	**Test Case**	**Test Result**	**Comments**

Basic Call		BC01	BC01_[Phone_1]_[OFFNET]	OK	
		BC02	BC02_[OFFNET]_[Phone_1]	OK	
Long Duration Call + CLIR		LCLIR01	LCLIR01_[Phone_1]_[OFFNET]	OK	
		LCLIR02	LCLIR02_[OFFNET]_[Phone_1]	OK	
Call Cancellation		CANC01	CANC01_[Phone_1]_[OFFNET]	OK	
		CANC02	CANC02_[OFFNET]_[Phone_1]	OK	
DTMF + Voicemail		DTMF03	DTMF03_[Phone_1]_[OFFNET-IVR]	OK	
		DTMF04	DTMF04_[OFFNET-voicemail]_[Phone_1]	OK	
Transfer	**Supervised + MOH**	TRMOH01	TRMOH01_[OFFNET]_[Phone_1]_[OFFNET]	OK	
	Blind	TRAB01	TRAB01_[OFFNET]_[Phone_1]_[OFFNET]	OK	
		TRAB04	TRAB04_[OFFNET]_[Phone_1]_[OFFNET-IVR]	OK	
Forward	**Unconditional**	FWDU01	FWDU01_[OFFNET]_[Phone_1]_[OFFNET]	OK	
		FWDU04	FWDU04_[OFFNET]_[Phone_1]_[OFFNET-IVR]	OK	
	No Answer	FWDNA01	FWDNA01_[OFFNET]_[Phone_1]_[OFFNET]	OK	
SVAIP		SVAIP02	SVAIP02_[IPBX-ForcedONNET]_[SAN-SVAIP+33296084273]	N/A	Out of scope as it is currently not possible to perform those tests
			Advanced Phase		
Use Case		**Test ID**	**Test Case**	**Test Result**	**Comments**
Busy Call		BUSY01	BUSY01_[Phone_1]_[OFFNET]	OK	
		BUSY02	BUSY02_[OFFNET]_[Phone_1]	OK	
Not Answered Call		NA01	NA01_[Phone_1]_[OFFNET]	OK	
		NA02	NA02_[OFFNET]_[Phone_1]	OK	
Transfer	**Supervised**	TRAS02	TRAS02_[OFFNET]_[Phone_1]_[Phone_2]	OK	
		TRAS03	TRAS03_[Phone_1]_[Phone_2]_[OFFNET]	OK	
	Blind	TRAB02	TRAB02_[OFFNET]_[Phone_1]_[Phone_2]	OK	
		TRAB03	TRAB03_[Phone_1]_[Phone_2]_[OFFNET]	OK	
Forward	**Unconditional**	FWDU02	FWDU02_[OFFNET]_[Phone_1]_[Phone_2]	OK	
	Busy	FWDB02	FWDB02_[OFFNET]_[Phone_1]_[Phone_2]	OK	
	No Answer	FWDNA02	FWDNA02_[OFFNET]_[Phone_1]_[Phone_2]	OK	
		FWDNA03	FWDNA03_[Phone_1]_[Phone_2]_[OFFNET]	OK	
		FWDNA04	FWDNA04_[OFFNET]_[Phone_1]_[OFFNET-IVR]	OK	
Conference X3		CONF01	CONF01_[OFFNET]_[Phone_1]_[OFFNET]	OK	
Prehook	**(with) Transfer Sup.**	PREHOOK01	PREHOOK01_[OFFNET]_[Phone_1]_[OFFNET]	N/A	
		PREHOOK02	PREHOOK02_[OFFNET]_[Phone_1]_[Phone_2]	N/A	
		PREHOOK03	PREHOOK03_[Phone_1]_[Phone_2]_[OFFNET]	N/A	
	(with) Forward	PREHOOK04	PREHOOK04_[OFFNET]_[Phone_1]_[OFFNET]	N/A	

Call Features	**Call Parking**	CPA01	CPA01_[Phone_1]_[OFFNET]_[Phone_2]	OK	
	Call Pickup	PKU01	PKU01_[OFFNET]_[Phone_1]_[Phone_2]	OK	
	Hunt Group	HUG01	HUG01_[OFFNET]_[Phone_1]	OK	
	Second Line	SL01	SL01_[OFFNET]_[Phone_1]	OK	
DTMF		DTMF03	DTMF03_[Phone_1]_[OFFNET-IVR]	OK	
E2E Overflow		OVF01	OVF01_[NBI-Int+670012144326845]_ [cSBCRibbon+33296031233]_[]	OK	
		OVF02	OVF02_[Offnet-Devil+ +960012144326845]_ [cSBCRibbon+33296086974]_[]	OK	
		OVF03	OVF03_[NBI-Fr+33399106845]_ [cSBCRibbon+33296031233]_[]	OK	
		OVF04	OVF04_[OFFNET]_[select device]_[]	N/A	
		OVF05	OVF05_[OFFNET]_[select device]_[]	N/A	
		OVF06	OVF06_[OFFNET]_[select device]_[]	N/A	
		OVF07	OVF07_[NBI-Int+670012144326845]_ [cSBCRibbon+33296039150]_[]	OK	
		OVF08	OVF08_[cSBCRibbon+33296031233]_[Offnet-NBI-Fr+33399106845]_[]	OK	
		OVF09	OVF09_[cSBCRibbon+33296031233]_[Offnet-NBI-Fr+33399106845]_[]	OK	
CAC		CAC01	CAC01_[OFFNET]_[Phone_1]	N/A	
		CAC02	CAC02_[Phone_1]_[OFFNET]	N/A	
		CAC03	CAC03_[Phone_1]_[Phone_2]	N/A	
		CAC04	CAC04_[OFFNET]_[Phone_1]_[Phone_2]	N/A	
		CAC05	CAC05_[OFFNET]_[Phone_1]_[Phone_2]	N/A	
Emergency Number		EMN01	EMN01_[Phone_1]_[OFFNET-EMN]	OK	
		EMN02	EMN02_[Phone_1]_[OFFNET-EMN]	N/A	
		EMN03	EMN03_[Phone_1]_[OFFNET-EMN]	OK	
Attendant Console		AC01	AC01_[OFFNET]_[Phone_1]_[Phone_2]	N/A	
		AC02	AC02_[OFFNET]_[Phone_1]_[Phone_2]	N/A	
		AC03	AC03_[OFFNET]_[Phone_1]_[Phone_2]	N/A	
		AC04	AC04_[OFFNET]_[Phone_1]_[Phone_2]	N/A	
Fax Tests					
Use Case		**Test ID**	**Test Case**	**Test Result**	**Comments**
Fax	**Offnet -> HQ**	Fax_01	Devil+_IPTEL_G3	OK	
		Fax_02	Devil+_IPTEL_SG3	N/A	
		Fax_03	Neo_IPTEL_G3	OK	
		Fax_04	Neo_IPTEL_SG3	N/A	
		Fax_05	NBI-France_IPTEL_G3	OK	
		Fax_06	NBI-France_IPTEL_SG3	N/A	
		Fax_07	NBI-International_IPTEL_G3	OK	
		Fax_08	NBI-International_IPTEL_SG3	N/A	
	HQ -> Offnet	Fax_09	IPTEL_Devil+_G3	OK	
		Fax_10	IPTEL_Devil+_SG3	N/A	
		Fax_11	IPTEL_Neo_G3	OK	

		Fax_12	IPTEL_Neo_SG3	N/A	
		Fax_13	IPTEL_NBI-France_G3	OK	
		Fax_14	IPTEL_NBI-France_SG3	N/A	
		Fax_15	IPTEL_NBI-International_G3	OK	
		Fax_16	IPTEL_NBI-International_SG3	N/A	

Conclusion

These Application Notes describe the configuration steps required for Ribbon to successfully interoperate with OBS. All feature and serviceability test cases were completed and passed with the exceptions/observations noted in Test Results.

Appendix A

- **Cisco CUCM - Special Characters and Settings**
- **Ribbon SBC Edge - Understanding Regular Expressions**
- **Ribbon SBC Edge - SIP Message Manipulation**