Configuration Note

AudioCodes Professional Services – Interoperability Lab

Connecting AudioCodes' SBC to Neustar® STIR/SHAKEN Services

Version 7.2

neustar®

audiocodes

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Related Documentation

Document Name
Mediant 500 E-SBC User's Manual
Mediant 500L E-SBC User's Manual
Mediant 800B E-SBC User's Manual
Mediant 2600 E-SBC User's Manual
Mediant 4000 SBC User's Manual
Mediant 9000 SBC User's Manual
Mediant Software SBC User's Manual
Gateway and SBC CLI Reference Guide
SIP Message Manipulation Reference Guide
AudioCodes Configuration Notes

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1 Introduction

This document provides the recommended guidelines for setting up the AudioCodes Session Border Controller (hereafter, referred to as *SBC*) for interworking with Neustar platform that provides STIR/SHAKEN certificate management, authentication and verification services.

Note: The scope of this document does not fully cover all aspects for deploying the AudioCodes SBC in your environment. For detailed configuration, refer to the device's *User's Manual*. If you have any questions regarding required configuration, please contact your AudioCodes sales representative.

1.1 STIR/SHAKEN Overview

STIR/SHAKEN is defined by the Federal Communications Commission (FCC) as a framework of interconnected standards. Based on common public key cryptography techniques, it essentially provides the basis to ensure the authenticity of a phone call. The framework is thought of as an important first step to combating illegal and unwanted robocalls.

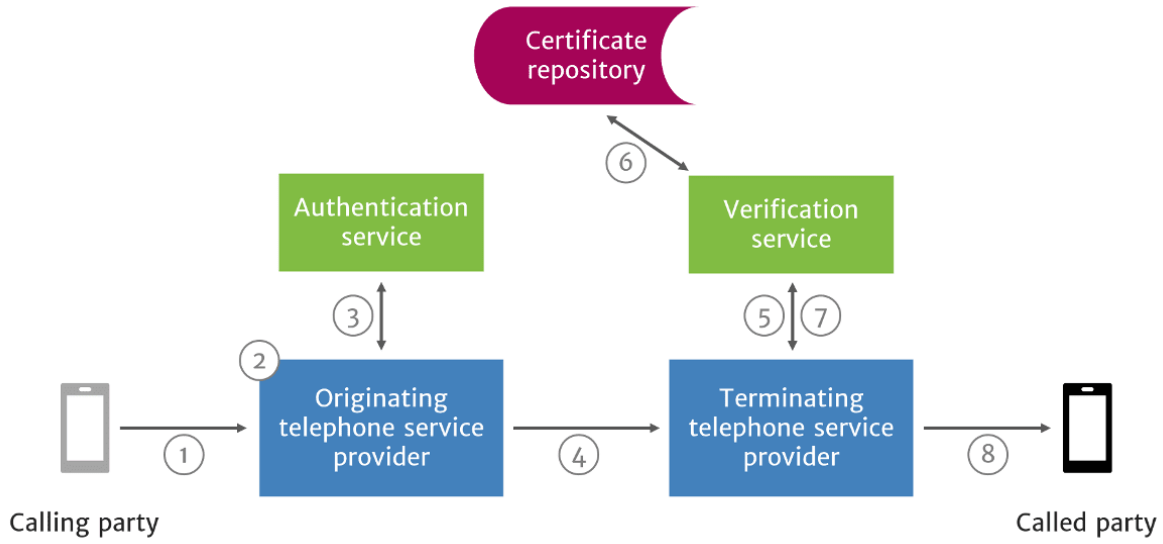
The process underlying STIR/SHAKEN has been in use on the Internet for years, providing token authentication for secure websites, minimizing the spoofing of Internet addresses by bad actors. Recent government, service provider, and enterprise security experts have deemed authentication and validation as a necessary process for reducing the impact of bad actors on the telephone network.

STIR, short for **S**ecure **T**elephony **I**dentity **R**evisited, is the protocol for providing calling party info within a digital signature. This focuses on the end devices and allows for the digital signature to be produced and verified in numerous locations.

SHAKEN stands for **S**ecure **H**andling of **A**sserted information using To**ken**s and focuses on how STIR can be implemented within carrier's networks. Where STIR emphasizes the end devices, SHAKEN addresses deploy ability.

1.1.1 How does STIR/SHAKEN work?

Figure 1-1: STIR/SHAKEN Workflow



1. A SIP INVITE is received by the originating telephone service provider.
2. The originating telephone service provider checks the call source and calling number to determine how to attest for the validity of the calling number:
   - **Full Attestation (A):** The service provider authenticates the calling party AND confirms they are authorized to use this number. An example of this case is a subscriber registered with the originating telephone service provider's softswitch.
   - **Partial Attestation (B):** The service provider verifies the call origination however cannot confirm that the call source is authorized to use the calling number. An example of this use case is a telephone number behind an enterprise PBX.
   - **Gateway Attestation (C):** The service provider authenticates the call's origin however cannot verify the source. An example of this case would be a call received from an international gateway.
3. The originating telephone service provider uses the authentication service to create a SIP Identity header, that contains information on the calling number, called number, date and time, attestation level, and call origination, along with the certificate.
4. The SIP INVITE with the SIP Identity header is sent to the terminating telephone service provider.
5. The SIP INVITE with Identity header is passed to the verification service.
6. The verification service obtains the digital certificate of the originating telephone service provider from the public certificate repository.
7. The verification service returns the results to the terminating service provider's softswitch or SBC.

1.2 About AudioCodes SBC Product Series

AudioCodes' family of SBC devices enables reliable connectivity and security between the Enterprise's and the service provider's VoIP networks.

The SBC provides perimeter defense as a way of protecting Enterprises from malicious VoIP attacks; mediation for allowing the connection of any PBX and/or IP-PBX to any service provider; and Service Assurance for service quality and manageability.

Designed as a cost-effective appliance, the SBC is based on field-proven VoIP and network services with a native host processor, allowing the creation of purpose-built multiservice appliances, providing smooth connectivity to cloud services, with integrated quality of service, SLA monitoring, security and manageability. The native implementation of SBC provides a host of additional capabilities that are not possible with standalone SBC appliances such as VoIP mediation, PSTN access survivability, and third-party value-added services applications. This enables Enterprises to utilize the advantages of converged networks and eliminate the need for standalone appliances.

AudioCodes SBC is available as an integrated solution running on top of its field-proven Mediant Media Gateway and Multi-Service Business Router platforms, or as a software-only solution for deployment with third-party hardware.

2 Interoperability Topology

The interoperability topology contains deployment of AudioCodes SBC at the Originating Service Provider (for authentication) and at the Terminating Service Provider (for verification).

Neustar's SIP-based solution can work in two modes, **SIP Proxy** or **Redirect Server**. SIP Proxy acts as a stateless proxy and forwards all the requests and responses as expected by a stateless SIP proxy. In Redirect Server mode, SIP Proxy responds to incoming INVITE message with any 3XX response for success case and other error responses for error scenarios.

Note: The interoperability tests were done with Neustar SHAKEN services, configured in Redirect Server Mode. Therefore, AudioCodes highly recommend implementing Neustar Redirect Server mode with AudioCodes SBC.

The figures below illustrate this interoperability topology:

Figure 2-1: Originating Service Provider Authenticates via SBC (Neustar in Redirect Server Mode)

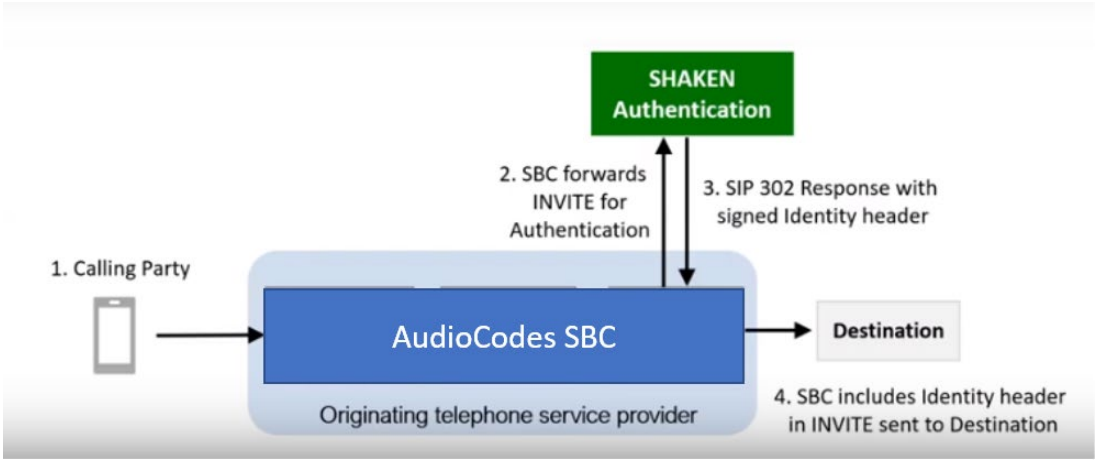
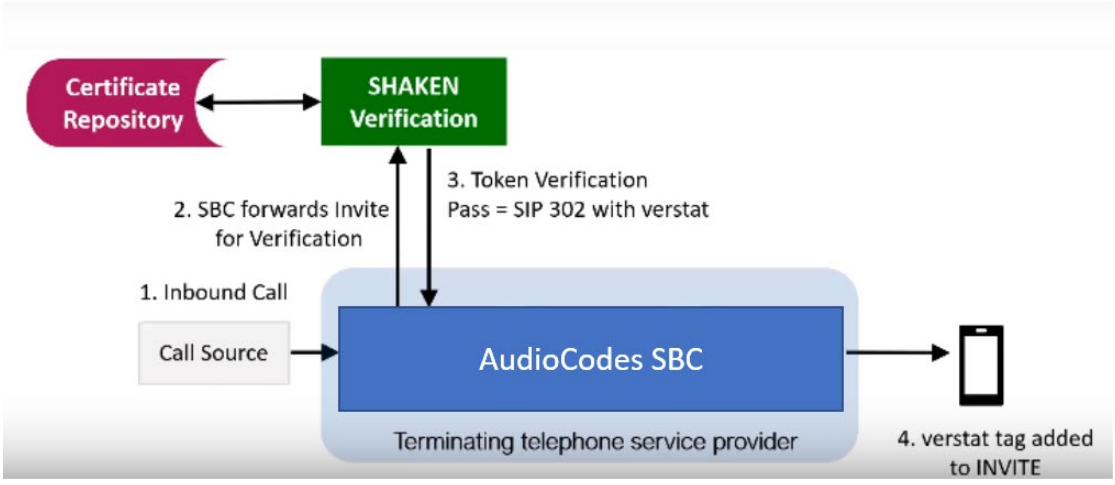


Figure 2-2: Terminating Service Provider Verifies via SBC (Neustar in Redirect Server Mode)



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3 Configuring AudioCodes SBC

This chapter provides step-by-step procedures on how to configure AudioCodes SBC for interworking with Neustar platform for the SHAKEN Services. These configuration procedures are based on the interoperability test topology described in Section 2 on page 9, and includes the following main areas:

- For SBC, located at Originating Service Provider:
  - SBC LAN interface – IP-PBX, originating calls
  - SBC WAN interface – Neustar Authentication Services and SIP Trunking
- For SBC, located at Terminating Service Provider:
  - SBC LAN interface – IP-PBX, terminating calls
  - SBC WAN interface – Neustar Verification Services and SIP Trunking

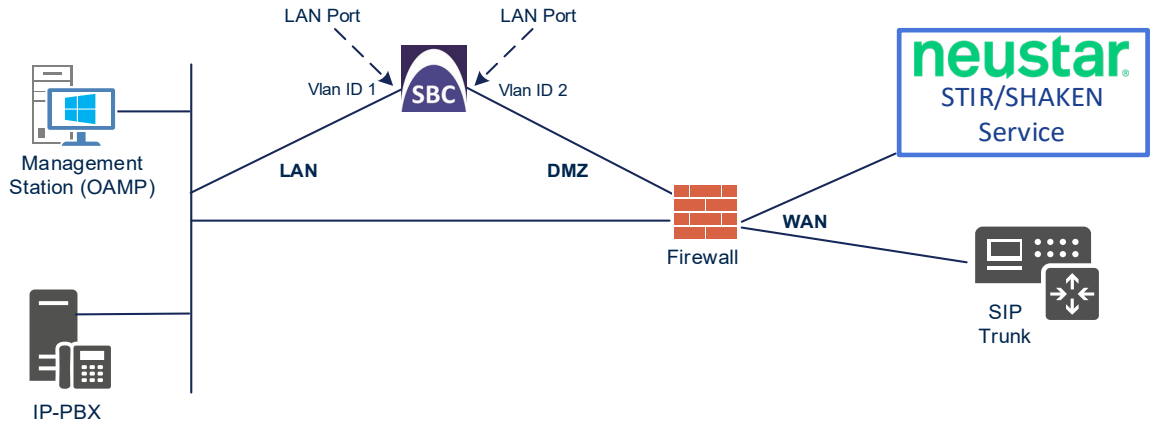
Note: This document describes partial configuration. Your implementation can be different. So, for detailed configuration of other entities in the deployment such as the SIP Trunk Provider and the local IP-PBX, refer to the device's *User's Manual*.

3.1 IP Network Interfaces Configuration

This section describes how to configure the SBC's IP network interfaces. There are several ways to deploy the SBC; however, this interoperability test topology employs the following deployment method:

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

Figure 3-1: Network Interfaces in Interoperability Test Topology



3.1.1 Configure VLANs

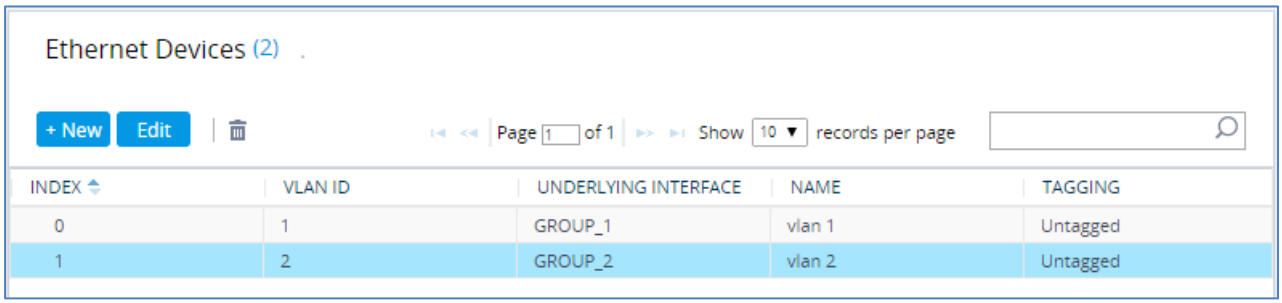
This section describes how to define VLANs for each of the following interfaces:

- LAN (assigned the name "LAN_IF")
- WAN (assigned the name "WAN_IF")

➢ **To configure the VLANs:**

1. Open the Ethernet Device table (**Setup** menu > **IP Network** tab > **Core Entities** folder > **Ethernet Devices**).
2. There will be one existing row for VLAN ID 1 and underlying interface GROUP_1.
3. Add another VLAN ID 2 for the WAN side.

Figure 3-2: Configured VLAN IDs in Ethernet Device



3.1.2 Configure Network Interfaces

This section describes how to configure the IP network interfaces for each of the following interfaces:

- LAN (assigned the name "LAN_IF")
- WAN (assigned the name "WAN_IF")

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

1. Open the IP Interfaces table (**Setup** menu > **IP Network** tab > **Core Entities** folder > **IP Interfaces**).
2. Configure the IP interfaces as follows (your network parameters might be different):

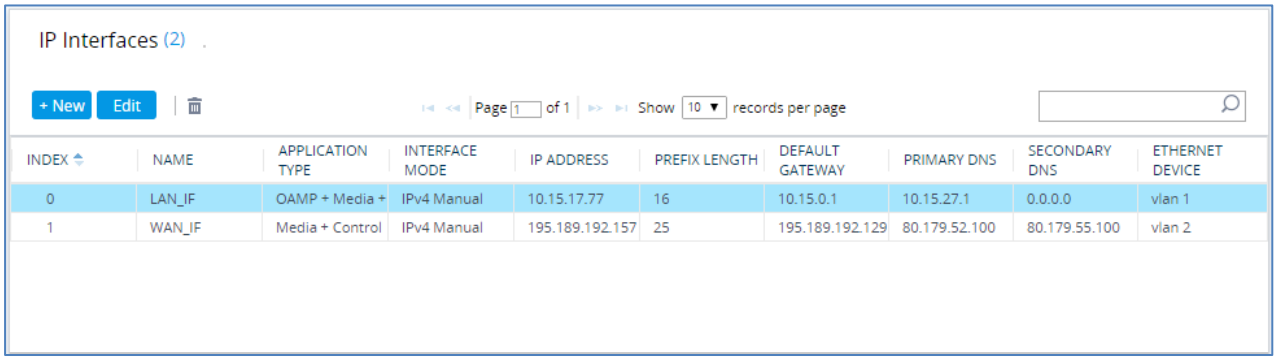
Table 3-1: Configuration Example of the Network Interface Table

Index	Application Types	Interface Mode	IP Address	Prefix Length	Gateway	DNS	I/F Name	Ethernet Device
0	OAMP+ Media + Control	IPv4 Manual	10.15.77.77	16	10.15.0.1	10.15.27.1	LAN_IF	vlan 1
1	Media + Control	IPv4 Manual	195.189.192.157 (DMZ IP address of SBC)	25	195.189.192.129 (router's IP address)	According to your Internet provider's instructions	WAN_IF	vlan 2

Note: Be aware that the SBC's public IP addresses must be provisioned at Neustar side in order to establish communications`.

The configured IP network interfaces are shown below:

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



3.2 Configure Media Realms

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

➢ **To configure Media Realms:**

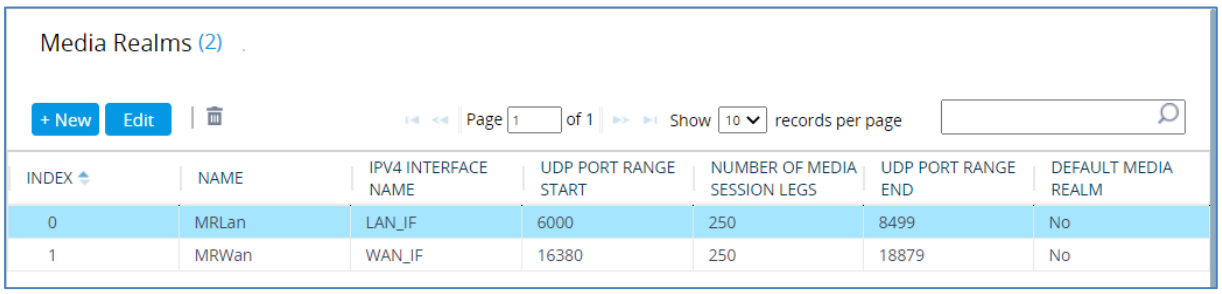
1. Open the Media Realms table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Media Realms**).
2. Configure Media Realms as follows (you can use the default Media Realm (Index 0), but modify it):

Table 3-2: Configuration Example Media Realms in Media Realms Table

Index	Name	Topology Location	IPv4 Interface Name	Port Range Start	Number of Media Session Legs
0	MRLan (arbitrary name)		LAN_IF	6000	100 (media sessions assigned with port range)
1	MRWan (arbitrary name)	Up	WAN_IF	7000	100 (media sessions assigned with port range)

The configured Media Realms are shown in the figure below:

Figure 3-4: Configured Media Realms in Media Realm Table



3.3 Configure SIP Signaling Interfaces

This section describes how to configure SIP Interfaces. For the interoperability test topology, an internal and external SIP interface must be configured for the SBC.

➢ **To configure SIP Interfaces:**

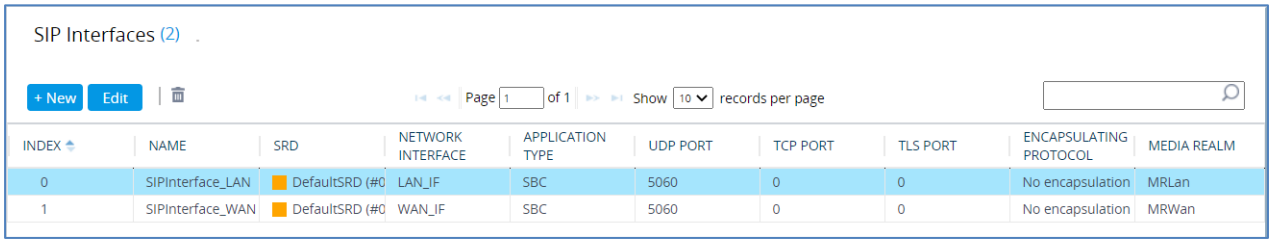
1. Open the SIP Interfaces table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **SIP Interfaces**).
2. Configure SIP Interfaces. You can use the default SIP Interface (Index 0) but modify it as shown in the table below. The table below shows an example of the configuration. You can change some parameters according to your requirements.

Table 3-3: Configuration Example of SIP Signaling Interfaces

Index	Name	Network Interface	Application Type	UDP Port	TCP Port	TLS Port	Media Realm
0	SIPInterface_LAN (arbitrary name)	LAN_IF	SBC	5060 (according to IP-PBX requirement)	0	0	MRLan
1	SIPInterface_WAN (arbitrary name)	WAN_IF	SBC	5060 (according to SIP Trunk requirement)	0	0	MRWan

The configured SIP Interfaces are shown in the figure below:

Figure 3-5: Configured SIP Interfaces in SIP Interface Table



3.4 Configure Proxy Sets and Proxy Address

This section describes how to configure Proxy Sets and Proxy addresses. The Proxy Set defines the destination address (IP address or FQDN) of the IP entity server. Proxy Sets can also be used to configure load balancing between multiple servers.

For the interoperability test topology, following Proxy Sets need to be configured for the following IP entities:

- IP-PBX
- SIP Trunk
- Neustar platforms

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

3.4.1 Configure Proxy Sets

This section describes how to configure proxy sets.

➢ **To configure Proxy Sets for SBC, located at Originating Service Provider:**

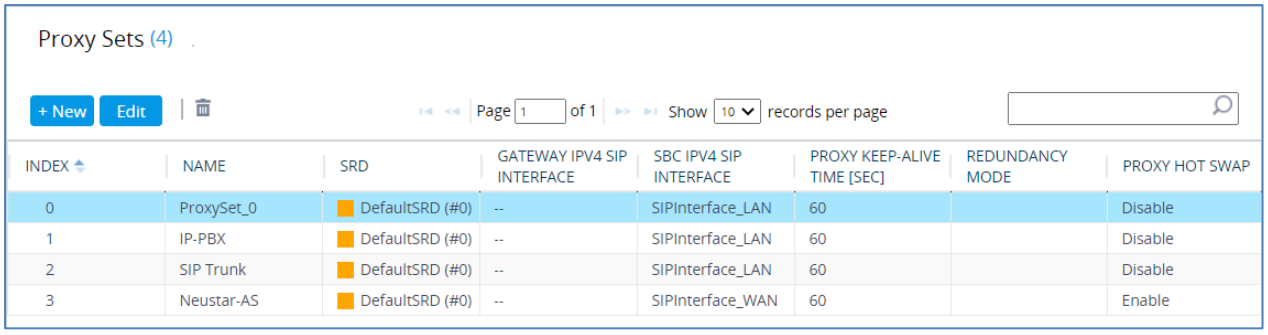
1. Open the Proxy Sets table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder >**Proxy Sets**).
2. Configure Proxy Sets as shown in the table below:

Table 3-4: Configuration Example Proxy Sets in Originating SBC

Index	Name	SBC IPv4 SIP Interface	Proxy Keep-Alive	Proxy Hot Swap
1	IP-PBX (arbitrary name)	SIPInterface_LAN	Using Options	-
2	SIP Trunk (arbitrary name)	SIPInterface_LAN	Using Options	-
3	Neustar-AS (arbitrary name)	SIPInterface_WAN	Using Options	Enable

The configured Proxy Sets at Originating SBC are shown in the figure below:

Figure 3-6: Configured Proxy Sets at Originating SBC



➢ **To configure Proxy Sets for SBC, located at Terminating Service Provider:**

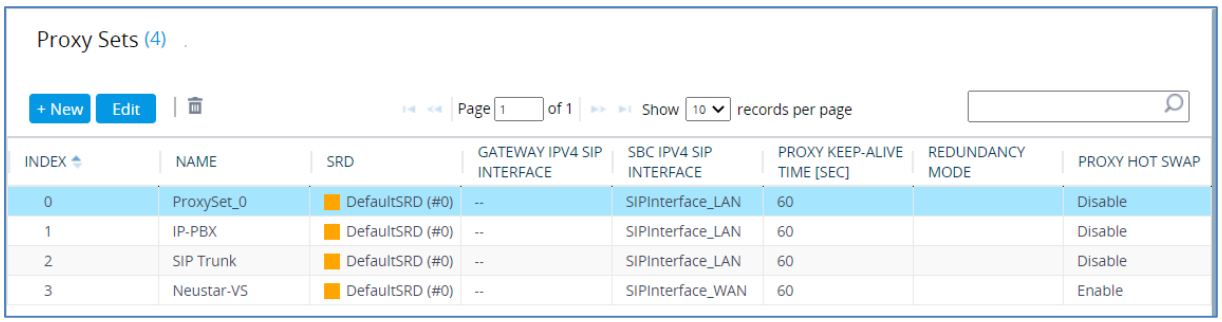
1. Open the Proxy Sets table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder >**Proxy Sets**).
2. Configure Proxy Sets as shown in the table below:

Table 3-5: Configuration Example Proxy Sets in Terminating SBC

Index	Name	SBC IPv4 SIP Interface	Proxy Keep-Alive	Proxy Hot Swap
1	IP-PBX (arbitrary name)	SIPInterface_LAN	Using Options	-
2	SIP Trunk (arbitrary name)	SIPInterface_WAN	Using Options	-
3	Neustar-VS (arbitrary name)	SIPInterface_WAN	Using Options	Enable

The configured Proxy Sets at Terminating SBC are shown in the figure below:

Figure 3-7: Configured Proxy Sets at Terminating SBC



3.4.2 Configure Proxy Addresses

This section describes how to configure proxy addresses.

➢ **To configure a Proxy Address for IP-PBX:**

1. Open the Proxy Sets table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Proxy Sets**) and then click the Proxy Set **IP-PBX**, and then click the **Proxy Address** link located below the table; the Proxy Address table opens.
2. Click **+New**;
3. Configure the IP address of the IP-PBX Proxy Set according to the parameters described in the table below:

Table 3-6: Configuration IP-PBX Proxy Address

Index	Proxy Address	Transport Type
0	{IP-PBX IP address or FQDN}:5060	UDP (according to IP-PBX requirement)

4. Click **Apply** and then save your settings to flash memory.

➢ **To configure a Proxy Address for SIP Trunk:**

1. Open the Proxy Sets table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Proxy Sets**) and then click the Proxy Set **SIP Trunk**, and then click the **Proxy Address** link located below the table; the Proxy Address table opens.
2. Click **+New**;
3. Configure the IP address of the SIP Trunk Proxy Set according to the parameters described in the table below:

Table 3-7: Configuration SIP Trunk Proxy Address

Index	Proxy Address	Transport Type
0	{SIP Trunk IP address or FQDN}:5060	UDP (according to SIP Trunk requirement)

4. Click **Apply** and then save your settings to flash memory.

➢ **To configure a Proxy Address for Neustar AS at Originating SBC:**

1. Open the Proxy Sets table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Proxy Sets**) and then click the Proxy Set **Neustar-AS**, and then click the **Proxy Address** link located below the table; the Proxy Address table opens.
2. Click **+New**;
3. Configure the IP address of the Neustar AS Proxy Set according to the parameters described in the table below:

Table 3-8: Configuration Neustar AS Proxy Address

Index	Proxy Address	Transport Type
0	sipas-uat.ccid.neustar.biz:5060	UDP

4. Click **Apply** and then save your settings to flash memory.

➢ **To configure a Proxy Address for Neustar VS at Terminating SBC:**

1. Open the Proxy Sets table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Proxy Sets**) and then click the Proxy Set **Neustar-VS**, and then click the **Proxy Address** link located below the table; the Proxy Address table opens.
2. Click **+New**;
3. Configure the IP address of the Neustar VS Proxy Set according to the parameters described in the table below:

Table 3-8: Configuration Neustar VS Proxy Address

Index	Proxy Address	Transport Type
0	sipvs-uat.ccid.neustar.biz:5060	UDP

4. Click **Apply** and then save your settings to flash memory.

3.5 Configure IP Profiles

This section describes how to configure IP Profiles. The IP Profile defines a set of call capabilities relating to signaling (e.g., SIP message terminations such as 3xx) and media (e.g., coder and transcoding method).

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

- For SBC, located at Originating Service Provider:
  - IP-PBX
  - SIP Trunk
- For SBC, located at Terminating Service Provider:
  - SIP Trunk

Note: This section shows only partial configuration. Your implementation can be different and additional parameters maybe needed to be configured for each entity. For detailed configuration, refer to the device's *User's Manual*.

➢ To configure IP Profile for the IP-PBX in the Originating SBC:

1. Open the IP Profiles table (**Setup** menu > **Signaling & Media** tab > **Coders & Profiles** folder > **IP Profiles**).
2. Click **New**, and then configure the parameters as follows:

Parameter	Value
General	
Index	**1**
Name	**IP-PBX**
SBC Forward and Transfer	
Remote 3xx Mode	**Handle Locally** (required, for terminating SIP 3xx responses from Neustar AS platform)

3. Click **Apply**.

➢ To configure an IP Profile for the SIP Trunk in the Originating SBC:

1. Click **New**, and then configure the parameters as follows:

Parameter	Value
General	
Index	**2**
Name	**SIP Trunk**
SBC Signaling	
P-Asserted-Identity Header Mode	**Add**

2. Click **Apply**.

➢ **To configure an IP Profile for the SIP Trunk in the Terminating SBC:**

1. Click **New**, and then configure the parameters as follows:

Parameter	Value
General	
Index	**1**
Name	**SIP Trunk**
SBC Forward and Transfer	
Remote 3xx Mode	**Handle Locally** (required, for terminating SIP 3xx responses from Neustar VS platform)

2. Click **Apply**.

3.6 Configure IP Groups

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

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

- IP-PBX
- SIP Trunk
- Neustar platforms

➢ **To configure IP Groups in the Originating SBC:**

1. Open the IP Groups table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **IP Groups**).
2. Add an IP Group for the IP-PBX:

Parameter	Value
Index	**1**
Name	**IP-PBX**
Type	**Server**
Proxy Set	**IP-PBX**
IP Profile	**IP-PBX**
Media Realm	**MRLan**
SIP Group Name	(according to ITSP requirement)

3. Configure an IP Group for the SIP Trunk:

Parameter	Value
Index	**2**
Name	**SIP Trunk**
Topology Location	**Up**
Type	**Server**
Proxy Set	**SIP Trunk**
IP Profile	**SIP Trunk**
Media Realm	**MRWan**
SIP Group Name	(according to ITSP requirement)

4. Configure an IP Group for the Neustar AS platform:

Parameter	Value
Index	**3**
Name	**Neustar**
Topology Location	**Up**
Type	**Server**
Proxy Set	**Neustar-AS**
Media Realm	**MRWan**
SIP Group Name	(according to ITSP requirement)
Always Use Src Address	**Yes**

➢ **To configure IP Groups in the Terminating SBC:**

1. Open the IP Groups table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **IP Groups**).
2. Add an IP Group for the IP-PBX:

Parameter	Value
Index	**1**
Name	**IP-PBX**
Type	**Server**
Proxy Set	**IP-PBX**
Media Realm	**MRLan**
SIP Group Name	(according to ITSP requirement)

3. Configure an IP Group for the SIP Trunk:

Parameter	Value
Index	**2**
Name	**SIP Trunk**
Topology Location	**Up**
Type	**Server**
Proxy Set	**SIP Trunk**
IP Profile	**SIP Trunk**
Media Realm	**MRWan**
SIP Group Name	(according to ITSP requirement)

4. Configure an IP Group for the Neustar VS platform:

Parameter	Value
Index	**3**
Name	**Neustar-VS**
Topology Location	**Up**
Type	**Server**
Proxy Set	**Neustar-VS**
Media Realm	**MRWan**
SIP Group Name	(according to ITSP requirement)
Always Use Src Address	**Yes**

3.7 Configure IP-to-IP Call Routing Rules

This section describes how to configure IP-to-IP call routing rules. These rules define the routes for forwarding SIP messages (e.g., INVITE) received from one IP entity to another. The SBC selects the rule whose configured input characteristics (e.g., IP Group) match those of the incoming SIP message. If the input characteristics do not match the first rule in the table, they are compared to the second rule, and so on, until a matching rule is located. If no rule is matched, the message is rejected. The routing rules use the configured IP Groups (as configured in Section 3.6 on page 17,) to denote the source and destination of the call.

For the interoperability test topology, the following IP-to-IP routing rules need to be:

- For SBC, located at Originating Service Provider:
  - Terminate SIP OPTIONS messages on the SBC that are received from any entity
  - All messages (before authentication) send to Neustar AS
  - All messages based on 302 Response (after authentication) send to SIP Trunk
- For SBC, located at Terminating Service Provider:
  - Terminate SIP OPTIONS messages on the SBC that are received from any entity
  - All messages with Identity Header (after authentication) send to Neustar VS for verification
  - All messages based on 302 Response (after verification) send to IP-PBX

3.7.1 Configure IP-to-IP Call Routing Rules for Originating SBC

This section describes how to configure IP-to-IP call routing rules for the originating SBC.

➢ **To configure IP-to-IP routing rules for Originating SBC:**

1. Open the IP-to-IP Routing table (**Setup** menu > **Signaling & Media** tab > **SBC** folder > **Routing** > **IP-to-IP Routing**).
2. Configure routing rules as shown in the table below:

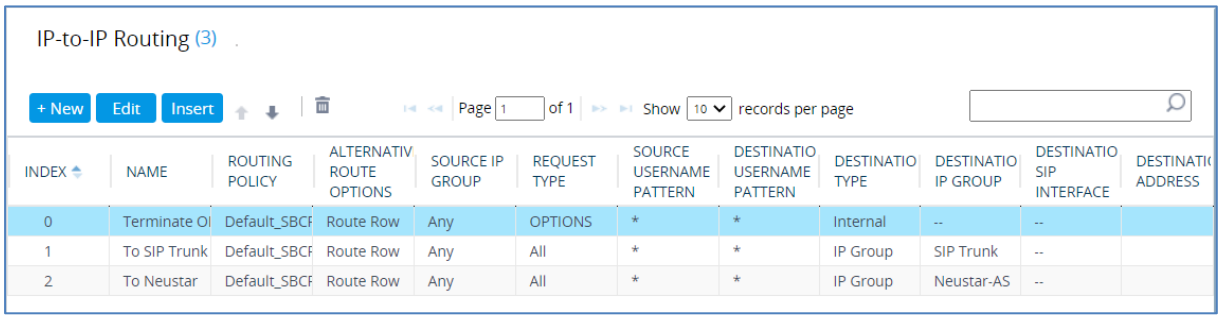
Table 3-1: Originating SBC IP-to-IP Call Routing Rules

Index	Name	Source IP Group	Request Type	Call Trigger	Dest Type	Dest IP Group	Internal Action
0	Terminate OPTIONS	Any	OPTIONS		Internal		Reply (Response='200')
1	To SIP Trunk (arbitrary name)	Any		3xx	IP Group	SIP Trunk	
2	To Neustar-AS (arbitrary name)	Any			IP Group	Neustar -AS	

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

The configured routing rules are shown in the figure below:

Figure 3-8: Example of the Configured IP-to-IP Routing Rules in the Originating SBC



3.7.2 Configure IP-to-IP Call Routing Rules for Terminating SBC

This section describes how to configure IP-to-IP call routing rules for Terminating SBC.

➢ **To configure IP-to-IP routing rules for Terminating SBC:**

1. Open the IP-to-IP Routing table (**Setup** menu > **Signaling & Media** tab > **SBC** folder > **Routing** > **IP-to-IP Routing**).
2. Configure routing rules as shown in the table below:

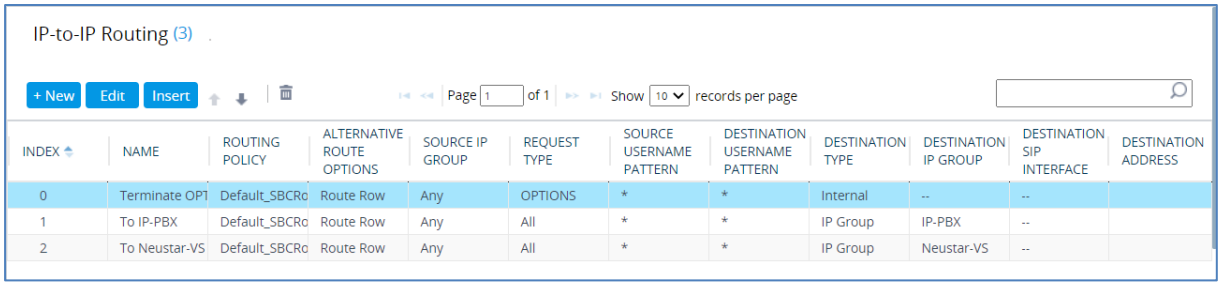
Table 3-2: Terminating SBC IP-to-IP Call Routing Rules

Index	Name	Source IP Group	Request Type	Call Trigger	Dest Type	Dest IP Group	Internal Action
0	Terminate OPTIONS	Any	OPTIONS		Internal		Reply (Response='200')
1	To IP-PBX (arbitrary name)	Any		3xx	IP Group	SIP Trunk	
2	To Neustar-VS (arbitrary name)	Any			IP Group	Neustar-VS	

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

The configured routing rules are shown in the figure below:

Figure 3-9: Example of the Configured IP-to-IP Routing Rules in the Terminating SBC



3.8 Configure Message Manipulation Rules

This section describes how to configure SIP message manipulation rules. SIP message manipulation rules can include insertion, removal, and/or modification of SIP headers. Manipulation rules are grouped into Manipulation Sets, enabling you to apply multiple rules to the same SIP message (IP entity).

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

For the interoperability test topology, the following rules were configured for removing Verstat and Tagging Headers from the messages, sent to the IP-PBX. If this is not required, skip this section.

3.8.1 Configure Message Manipulation Rules for Originating SBC

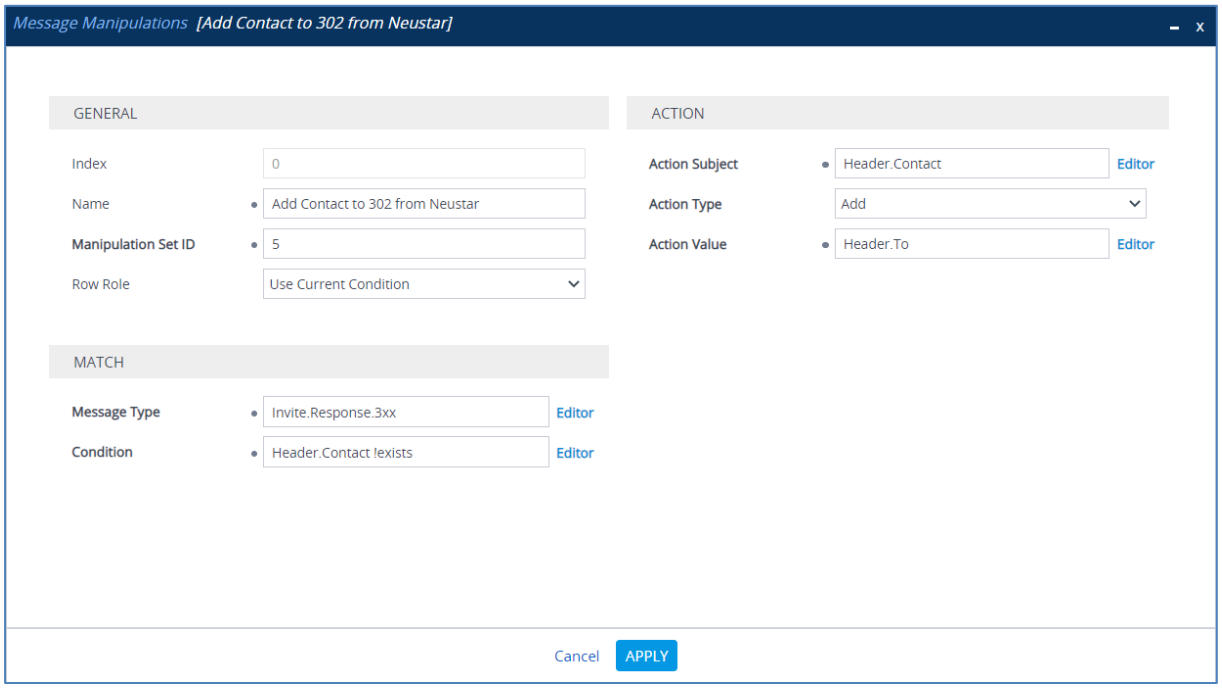
This section describes how to configure Message Manipulation Rules for the Originating SBC.

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

1. Open the Message Manipulations page (**Setup** menu > **Signaling & Media** tab > **Message Manipulation** folder > **Message Manipulations**).
2. Configure a new manipulation rule (Manipulation Set 5) for Neustar-AS. This rule applies to messages received from Neustar-AS IP Group. This will add SIP Contact Header (if it isn't existing) with the value from SIP To Header to the SIP 302 responses from Neustar AS. This rule needed because Neustar AS service can be configured to not send Contact Header in the SIP 302 response.

Parameter	Value
Index	**0**
Name	**Add Contact to 302 from Neustar**
Manipulation Set ID	**5**
Message Type	**Invite.Response.3xx**
Condition	**Header.Contact !exists**
Action Subject	**Header.Contact**
Action Type	**Add**
Action Value	**Header.To**

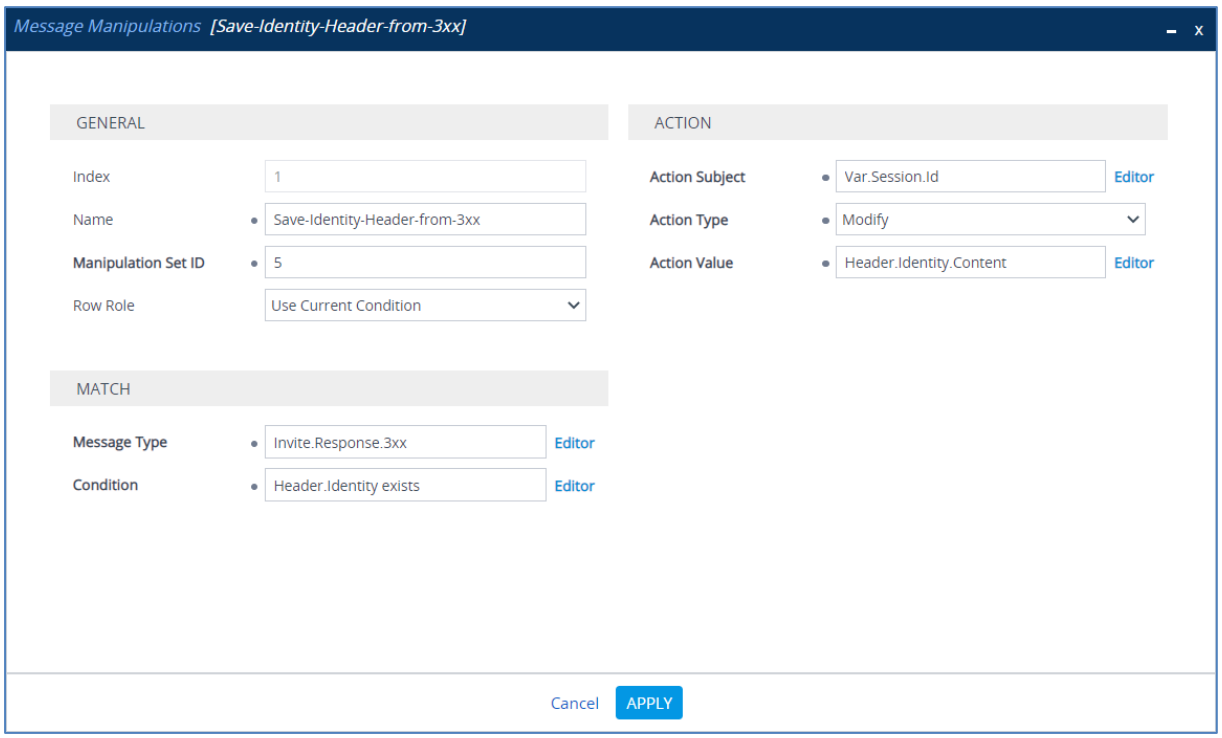
Figure 3-10: Configuring SIP Message Manipulation Rule 0 (for Neustar-AS)



3. Configure another manipulation rule (Manipulation Set 5) for Neustar-AS. This rule applies to messages received from Neustar-AS IP Group. This save the content of the SIP Identity Header (if it exists) from the SIP 302 response for further usage.

Parameter	Value
Index	**1**
Name	**Save-Identity-Header-from-3xx**
Manipulation Set ID	**5**
Message Type	**Invite.Response.3xx**
Condition	**Header.Identity exists**
Action Subject	**Var.Session.Id**
Action Type	**Modify**
Action Value	**Header.Identity.Content**

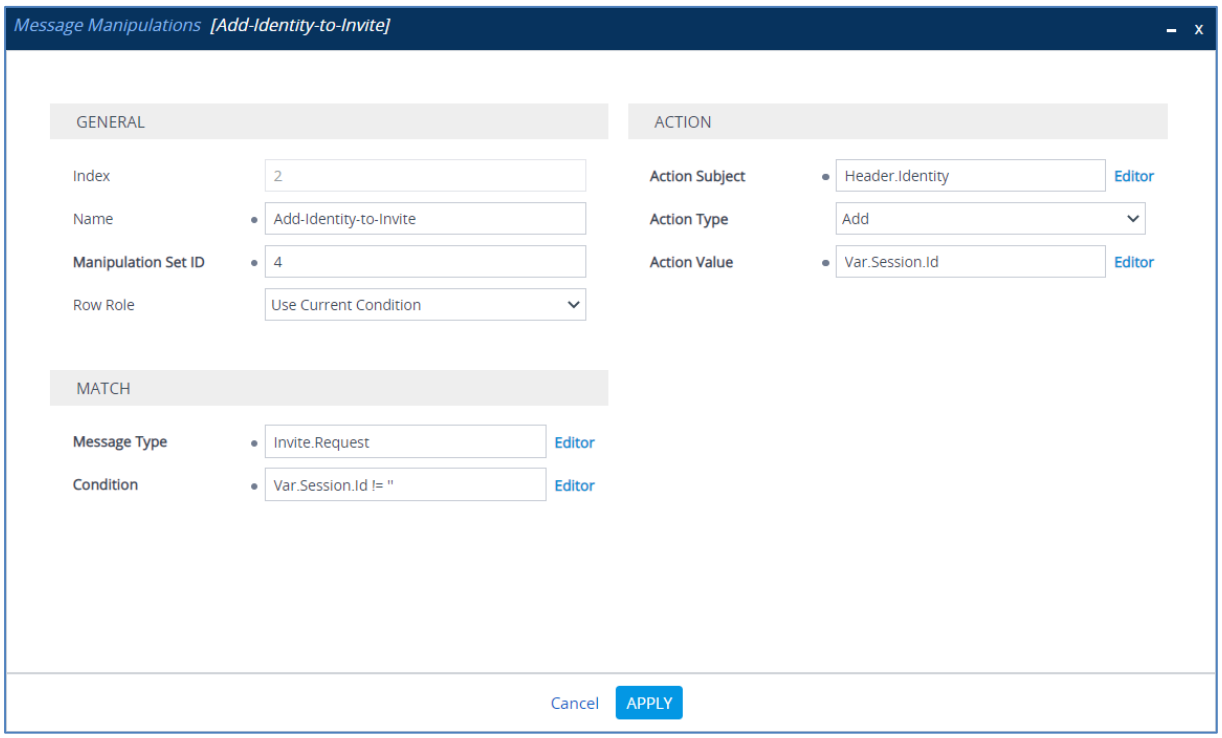
Figure 3-11: Configuring SIP Message Manipulation Rule 1 (for Neustar-AS)



4. Configure another manipulation rule (Manipulation Set 4) for SIP Trunk. This rule is applied to any request messages sent to the SIP Trunk IP Group. This add SIP Identity Header to all messages sent to SIP Trunk, with the content, saved from the SIP 302 response.

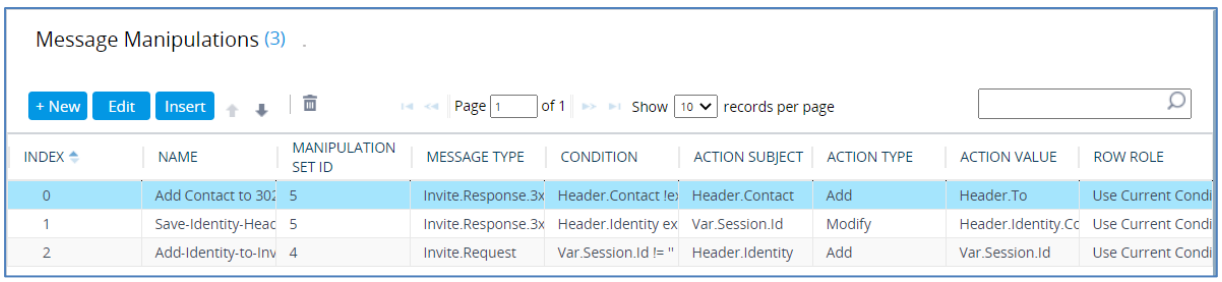
Parameter	Value
Index	**2**
Name	**Add-Identity-to-Invite**
Manipulation Set ID	**4**
Message Type	**Invite.Request**
Condition	**Var.Session.Id != ''**
Action Subject	**Header.Identity**
Action Type	**Add**
Action Value	**Var.Session.Id**

Figure 3-12: Configuring SIP Message Manipulation Rule 2 (for SIP Trunk)



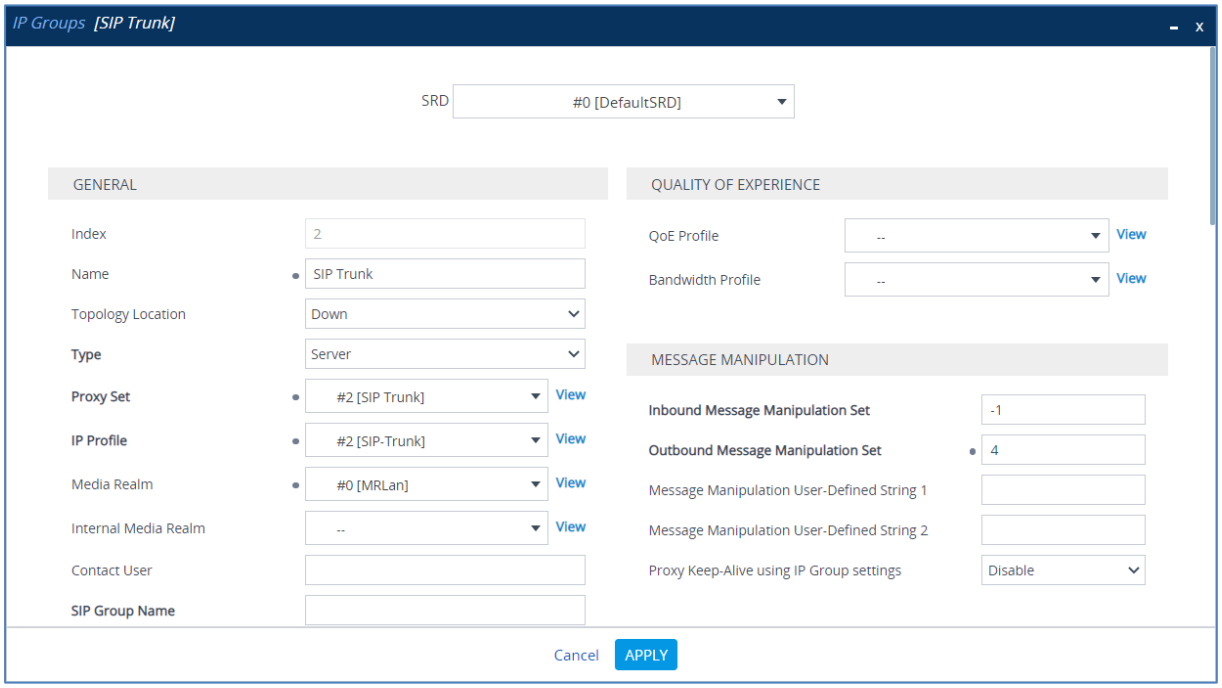
The examples of the message manipulation rules are shown in the figure below:

Figure 3-13: Example of Configured SIP Message Manipulation Rules for Originating SBC



5. Assign Manipulation Set ID 4 to the SIP trunk IP Group:
   a. Open the IP Groups table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **IP Groups**).
   b. Select the row of the SIP trunk IP Group, and then click **Edit**.
   c. Set the 'Outbound Message Manipulation Set' field to **4**.

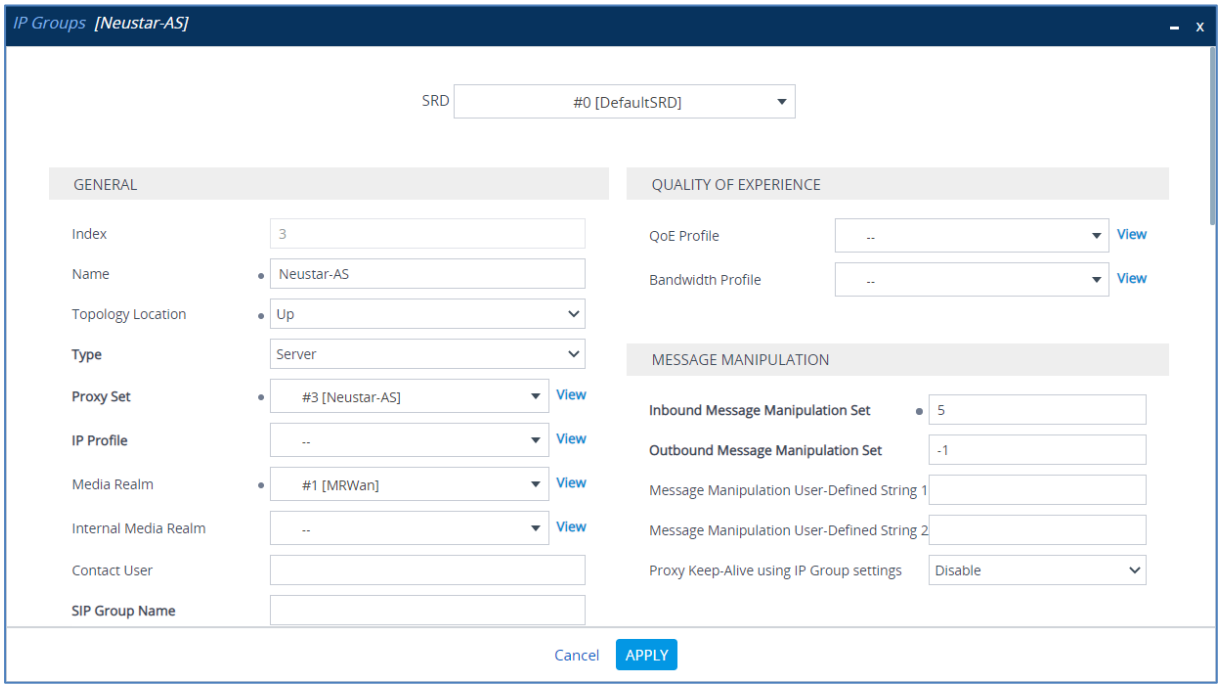
Figure 3-14: Assigning Manipulation Set to the SIP Trunk IP Group



   d. Click **Apply**.

6. Assign Manipulation Set ID 5 to the Neustar-AS IP Group:
   a. Open the IP Groups table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **IP Groups**).
   b. Select the row of the Neustar-AS IP Group, and then click **Edit**.
   c. Set the 'Inbound Message Manipulation Set' field to **5**.

Figure 3-15: Assigning Manipulation Set 5 to the Neustar-AS IP Group



   d. Click **Apply**.

3.8.2 Configure Message Manipulation Rules for Terminating SBC

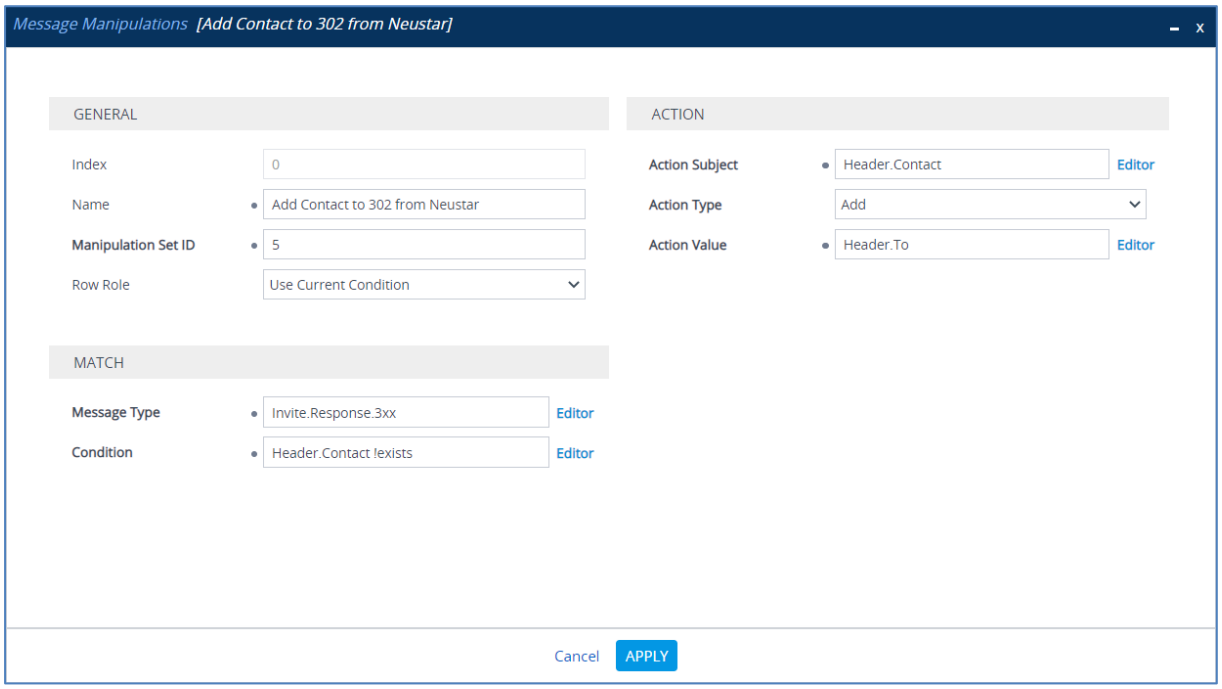
This section describes how to configure message manipulation rules for the Terminating SBC.

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

1. Open the Message Manipulations page (**Setup** menu > **Signaling & Media** tab > **Message Manipulation** folder > **Message Manipulations**).
2. Configure a new manipulation rule (Manipulation Set 5) for Neustar-VS. This rule applies to messages received from Neustar-VS IP Group. This will add SIP Contact Header (if it isn't existing) with the value from SIP To Header to the SIP 302 responses from Neustar VS. This rule needed because Neustar VS service can be configured to not send Contact Header in the SIP 302 response.

Parameter	Value
Index	**0**
Name	**Add Contact to 302 from Neustar**
Manipulation Set ID	**5**
Message Type	**Invite.Response.3xx**
Condition	**Header.Contact !exists**
Action Subject	**Header.Contact**
Action Type	**Add**
Action Value	**Header.To**

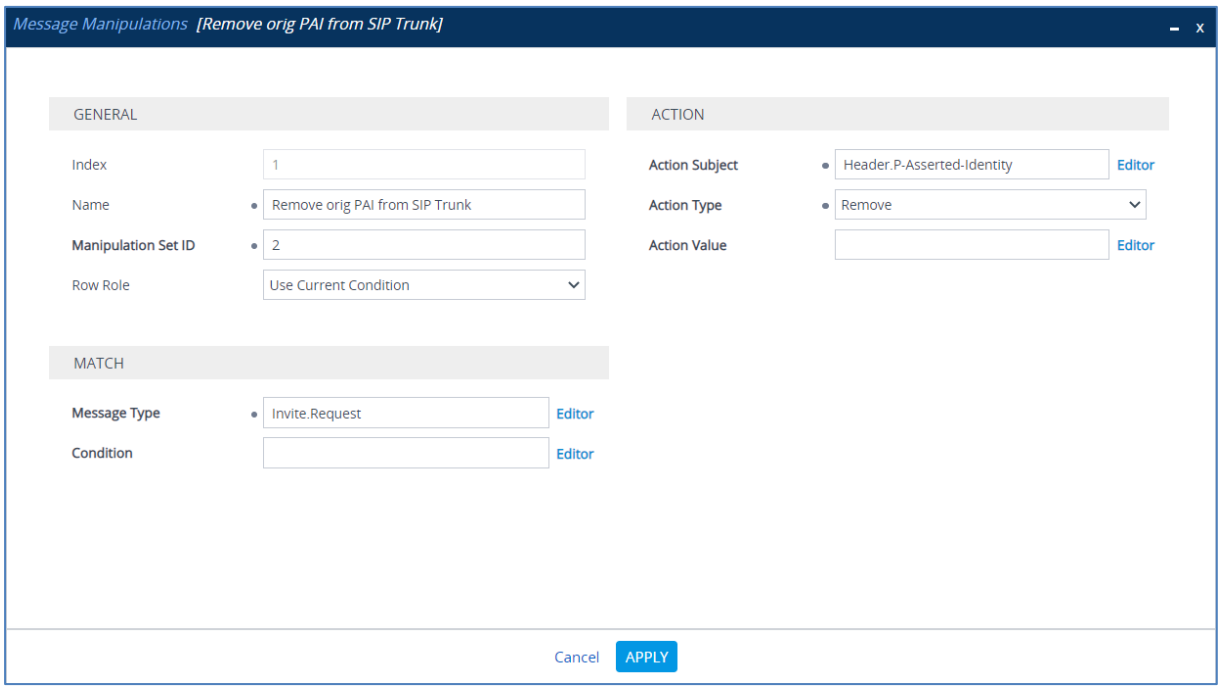
Figure 3-16: Configuring SIP Message Manipulation Rule 0 (for Neustar-VS)



3. Configure another manipulation rule (Manipulation Set 2) for SIP Trunk. This rule applies to messages received from the SIP Trunk IP Group. This removes the SIP P-Asserted-Identity Header from Invite messages.

Parameter	Value
Index	**1**
Name	**Remove orig PAI from SIP Trunk**
Manipulation Set ID	**2**
Message Type	**Invite.Request**
Action Subject	**Header.P-Asserted-Identity**
Action Type	**Remove**

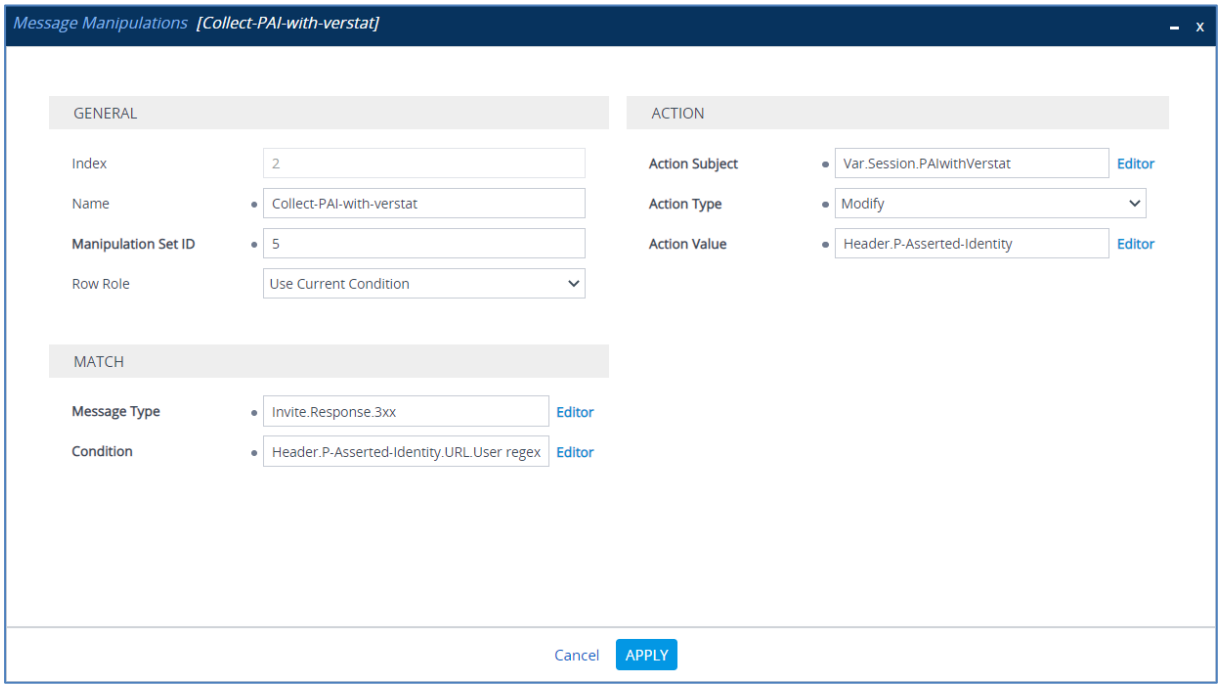
Figure 3-17: Configuring SIP Message Manipulation Rule 1 (for SIP Trunk)



4. Configure another manipulation rule (Manipulation Set 5) for Neustar. This rule is applied to any 3xx responses received from the Neustar-VS IP Group. This saves the content of the user part of the SIP P-Asserted-Identity Header received from Neustar-VS (if it contains string ';verstat=TN-Validation-Passed') for further usage.

Parameter	Value
Index	**2**
Name	**Collect-PAI-with-verstat**
Manipulation Set ID	**5**
Message Type	**Invite.Response.3xx**
Condition	**Header.P-Asserted-Identity.URL.User regex (.*)(;verstat=TN-Validation-Passed)**
Action Subject	**Var.Session.PAIwithVerstat**
Action Type	**Modify**
Action Value	**Header.P-Asserted-Identity**

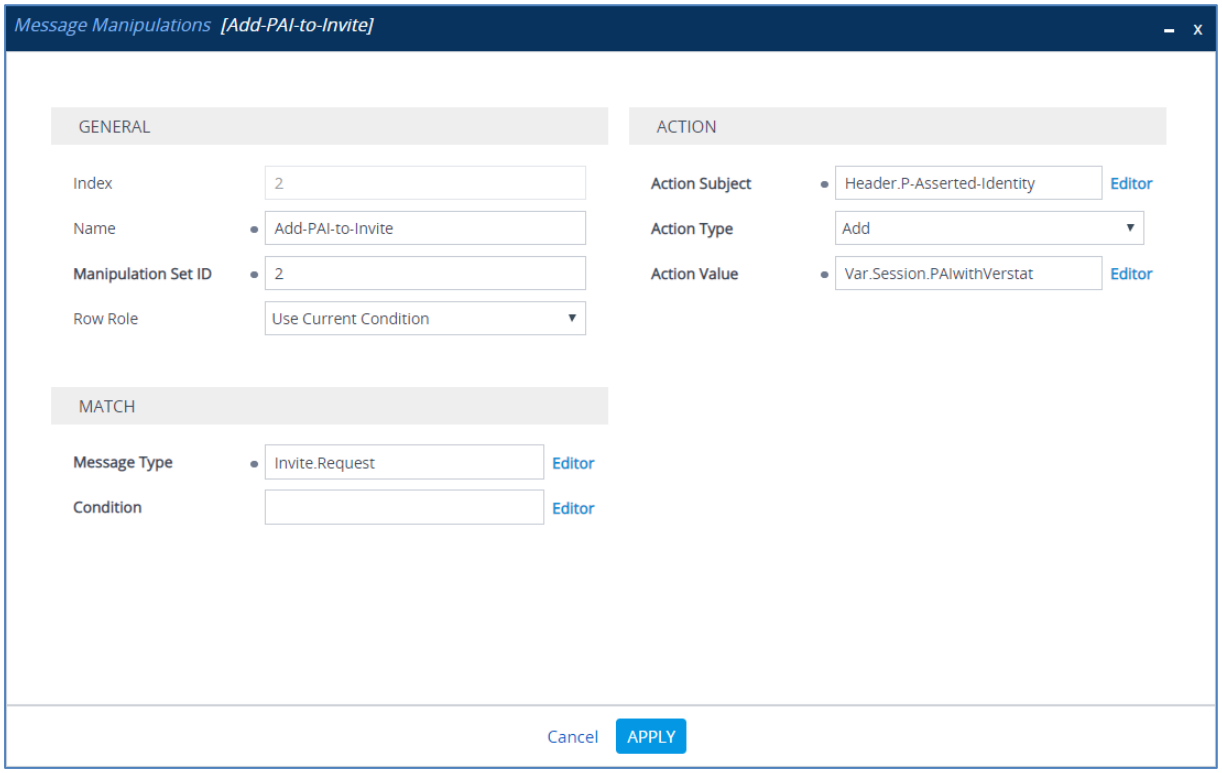
Figure 3-18: Configuring SIP Message Manipulation Rule 2 (for Neustar-VS)



5. Configure another manipulation rule (Manipulation Set 2) for IP-PBX. This rule is applied to messages sent to the IP-PBX IP Group. This adds the SIP P-Asserted-Identity Header to all INVITE request messages sent to the IP-PBX, with the content, saved from the SIP 302 response.

Parameter	Value
Index	**3**
Name	**Add-PAI-to-Invite**
Manipulation Set ID	**2**
Message Type	**Invite.Request**
Action Subject	**Header.P-Asserted-Identity**
Action Type	**Add**
Action Value	**Var.Session.PAIwithVerstat**

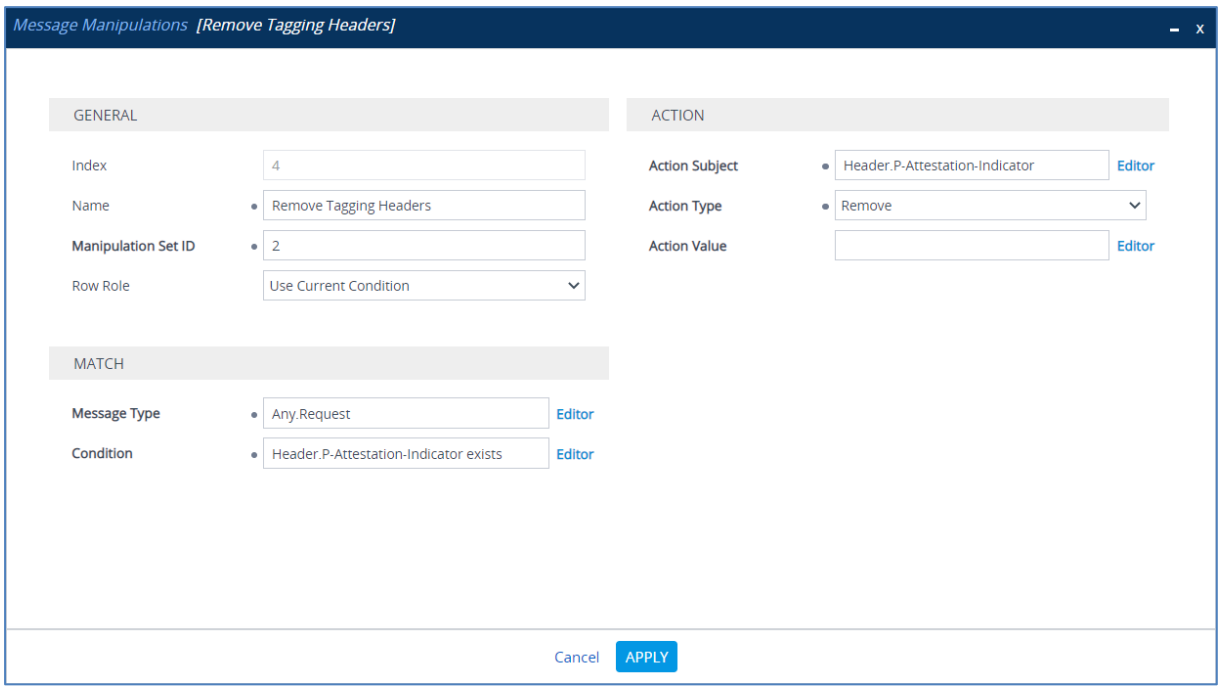
Figure 3-19: Configuring SIP Message Manipulation Rule 3 (for IP-PBX)



6. If it's required by the customer, configure another manipulation rule (Manipulation Set 2) for IP-PBX. This rule is applied to messages sent to the IP-PBX IP Group. This removes the SIP P-Attestation-Indicator Header (if it's exists), contains validation tag from any messages sent to the IP-PBX.

Parameter	Value
Index	**4**
Name	**Remove Tagging Headers**
Manipulation Set ID	**2**
Message Type	**Any.Request**
Condition	**Header.P-Attestation-Indicator exists**
Action Subject	**Header.P-Attestation-Indicator**
Action Type	**Remove**

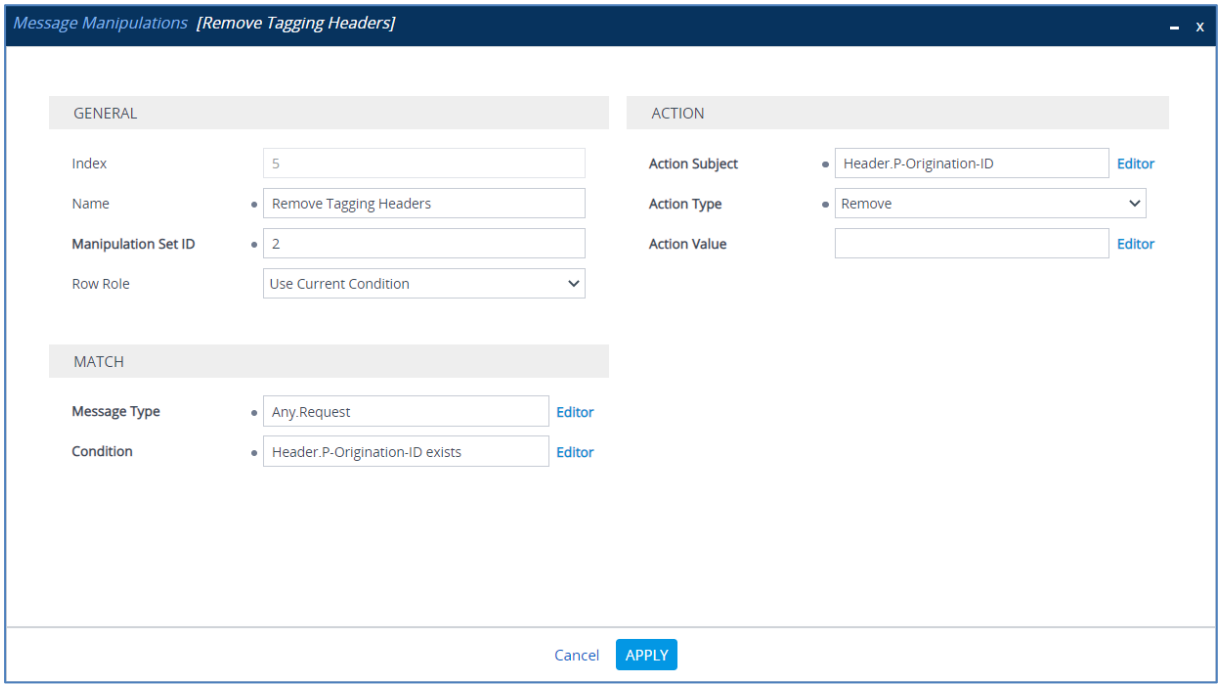
Figure 3-20: Configuring SIP Message Manipulation Rule 4 (for IP-PBX)



7. If it's required by the customer, configure another manipulation rule (Manipulation Set 2) for IP-PBX. This rule is applied to messages sent to the IP-PBX IP Group. This removes the SIP P-Origination-ID Header (if it's exists), contains validation tag from any messages sent to the IP-PBX.

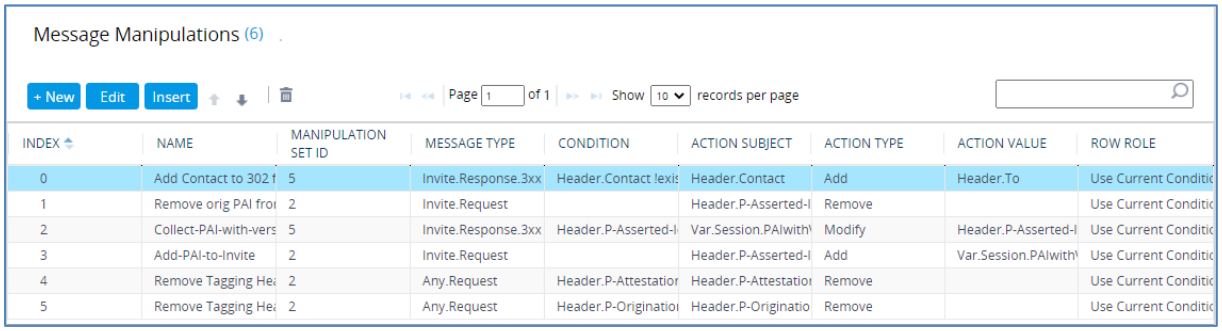
Parameter	Value
Index	**5**
Name	**Remove Tagging Headers**
Manipulation Set ID	**2**
Message Type	**Any.Request**
Condition	**Header.P-Origination-ID exists**
Action Subject	**Header.P-Origination-ID**
Action Type	**Remove**

Figure 3-21: Configuring SIP Message Manipulation Rule 5 (for IP-PBX)



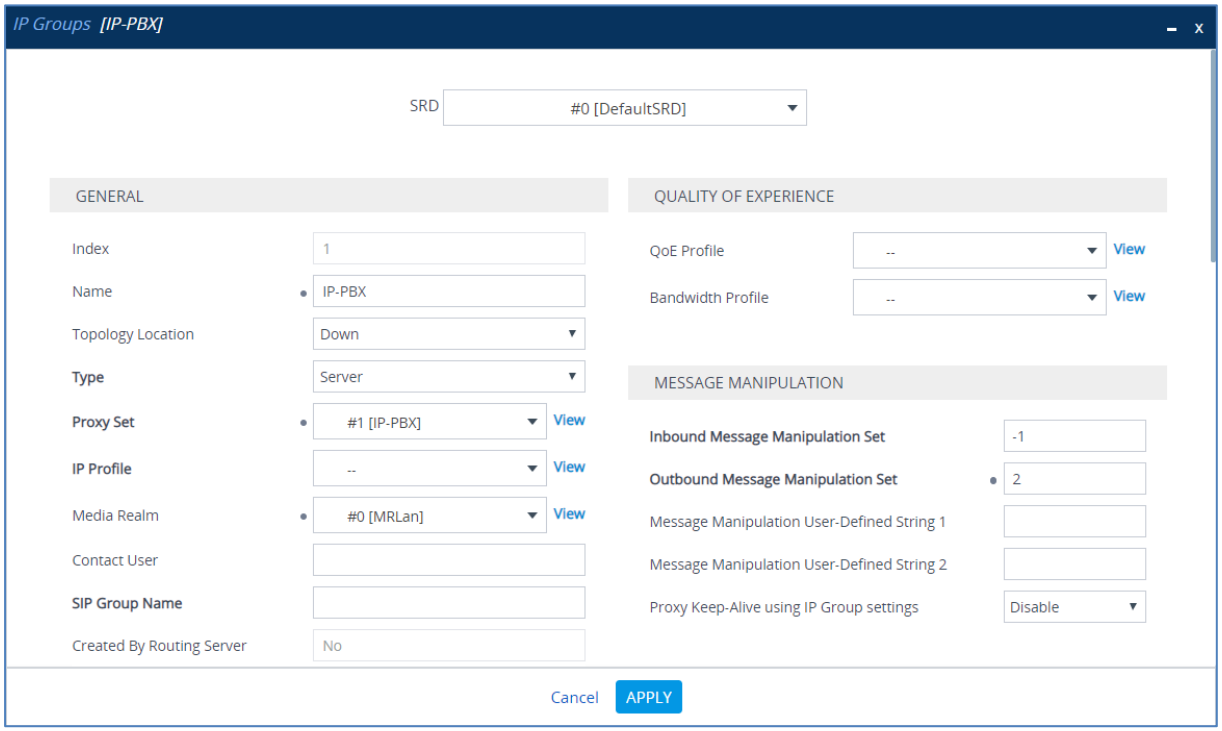
The examples of the message manipulation rules are shown in the figure below:

Figure 3-22: Example of Configured SIP Message Manipulation Rules for Terminating SBC



8. Assign Manipulation Set ID 2 to the IP-PBX IP Group:
   a. Open the IP Groups table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **IP Groups**).
   b. Select the row of the IP-PBX IP Group, and then click **Edit**.
   c. Set the 'Outbound Message Manipulation Set' field to **2**.

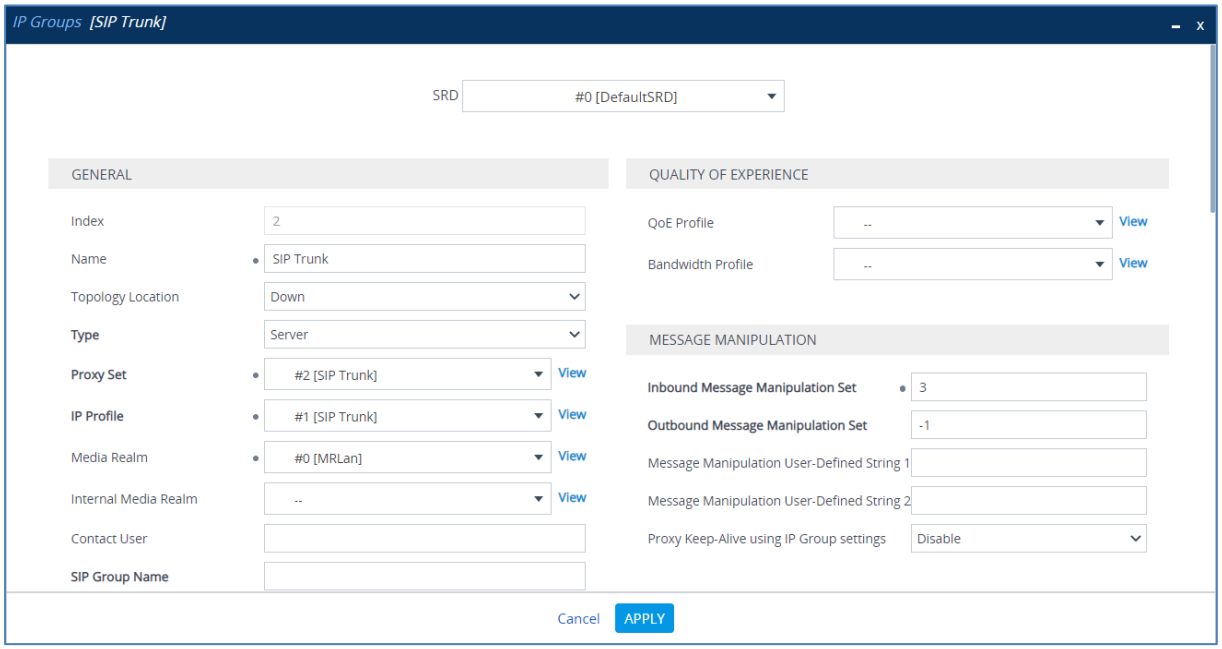
Figure 3-23: Assigning Manipulation Set to the IP-PBX IP Group



   d. Click **Apply**.

9. Assign Manipulation Set ID 3 to the SIP Trunk IP Group:
   a. Open the IP Groups table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **IP Groups**).
   b. Select the row of the SIP Trunk IP Group, and then click **Edit**.
   c. Set the 'Inbound Message Manipulation Set' field to **3**.

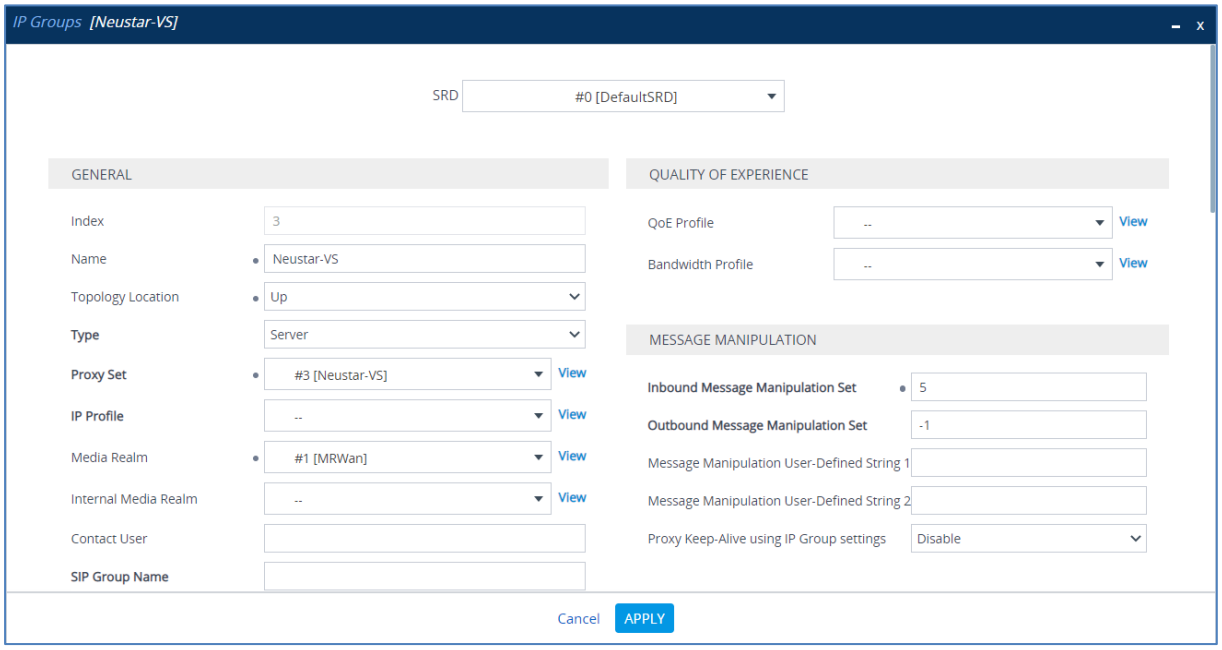
Figure 3-24: Assigning Manipulation Set 3 to the SIP Trunk IP Group



   d. Click **Apply**.

10. Assign Manipulation Set ID 5 to the Neustar-VS IP Group:
    a. Open the IP Groups table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **IP Groups**).
    b. Select the row of the Neustar-VS IP Group, and then click **Edit**.
    c. Set the 'Inbound Message Manipulation Set' field to **5**.

Figure 3-25: Assigning Manipulation Set 5 to the Neustar-VS IP Group



d. Click **Apply**.

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