Ribbon SBC Edge V8.0.2 IOT SBC1K Deutsche Telekom DeutschlandLAN SIP Trunks

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Document Overview

This document describes configuring the Ribbon **Session Border Controller (SBC) 1000/2000 series** when connecting to **Deutsche Telekom**. For additional information about Ribbon SBCs, visit https://ribboncommunications.com/.

Introduction

The interoperability compliance testing focuses on verifying inbound and outbound call flows between the Ribbon SBC 1000 / 2000 and Deutsche Telekom "DeutschlandLAN" SIP trunks.

Audience

This technical document is provided for use by telecommunications engineers and network administrators that understand networking concepts such as TCP/UDP, IP/Routing, and SIP/RTP, along with experience using industry-standard utilities and tools. The information in this guide describes configuring and operating Ribbon SBCs. Some information describes using third-party products when administering and troubleshooting SBC operation.

> 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 are used in the reference configuration:

	Equipment	Software Version
RIBBON Networks	Ribbon SBC 1000	V8.0.2
Third-party Equipment	DSL Line	N/A
OS	N/A	N/A
Other software	N/A	N/A

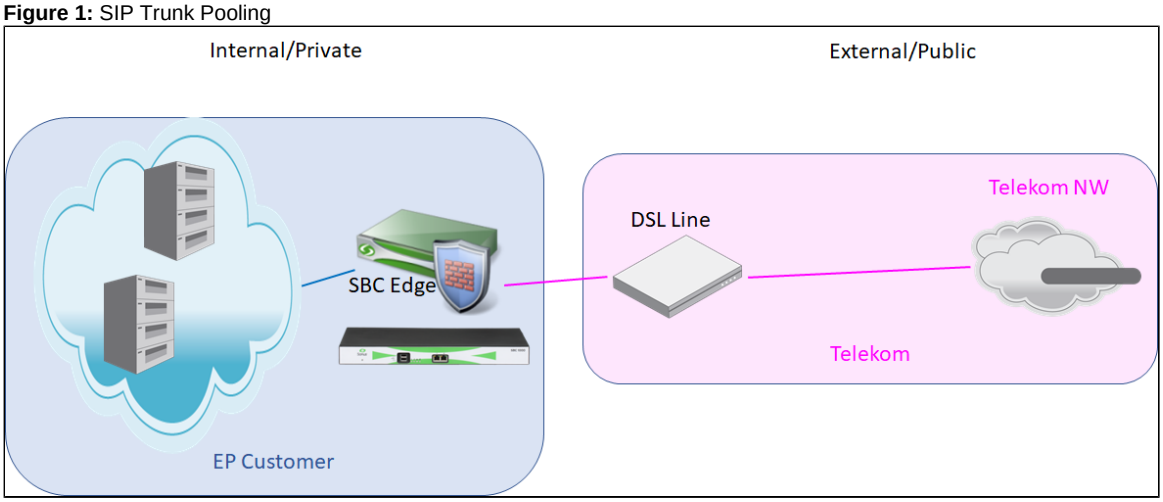
Reference Configuration

The following reference diagrams show connectivity between the Ribbon SBC 1000 / 2000 and third-party equipment that interoperates with the SBC. In this IOT we have two SIP trunks configuration:

1. SIP Trunk Pooling:

- Internet Access and Telephony Services are both from Deutsche Telekom.

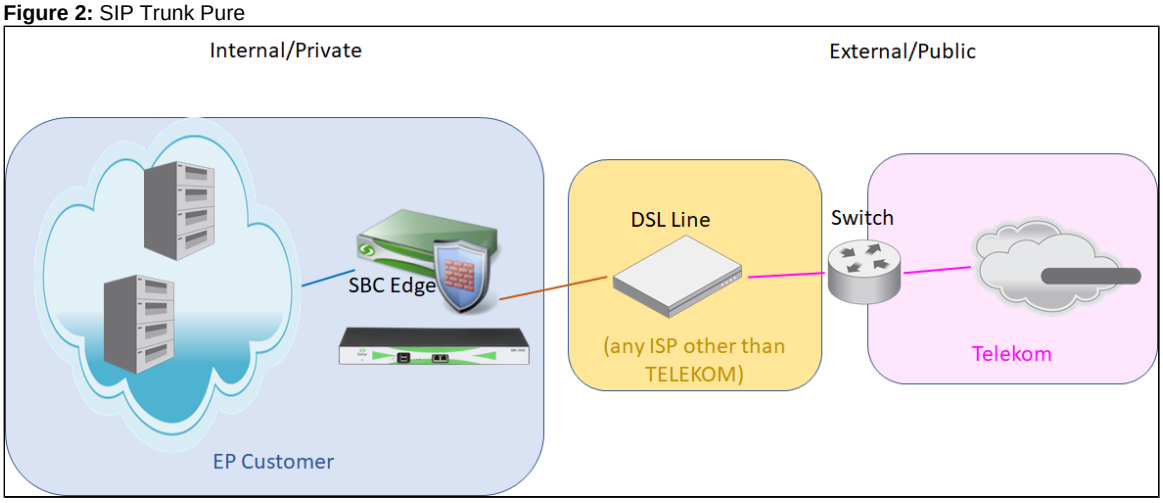
Figure 1: SIP Trunk Pooling



2. SIP Trunk Pure:

- Pure means without internet access from Deutsche Telekom.
- Use the telephony from Deutsche Telekom through a 3rd party ISP.

Figure 2: SIP Trunk Pure



Note
In both cases the general setup is the same, except the ISP is a different one.

For questions about information in this document, contact Ribbon Support in either of the following ways:

- Global Support Assistance Center +1-978-614-8589 or +1-888-391-3434 (English language Support)
- Web: https://ribboncommunications.com/services/ribbon-support-portal-login

Ribbon SBC Edge Configuration

The following steps provide an example of how to configure the Ribbon SBC 1000/2000.

1. Media Profile

Select **Settings > Media > Media Profiles.**

Media Profiles specify the individual voice and fax compression codecs and their associated settings for inclusion into a Media List. Different codecs provide varying levels of compression, allowing the reduction of bandwidth requirements. We deactivated CNG/Fax Tone. Listed below are the media profiles of the voice codecs used for testing the SBC 2000:

Note
The Digit Relay Payload Type must be set to 101.

Figure 3: Media List

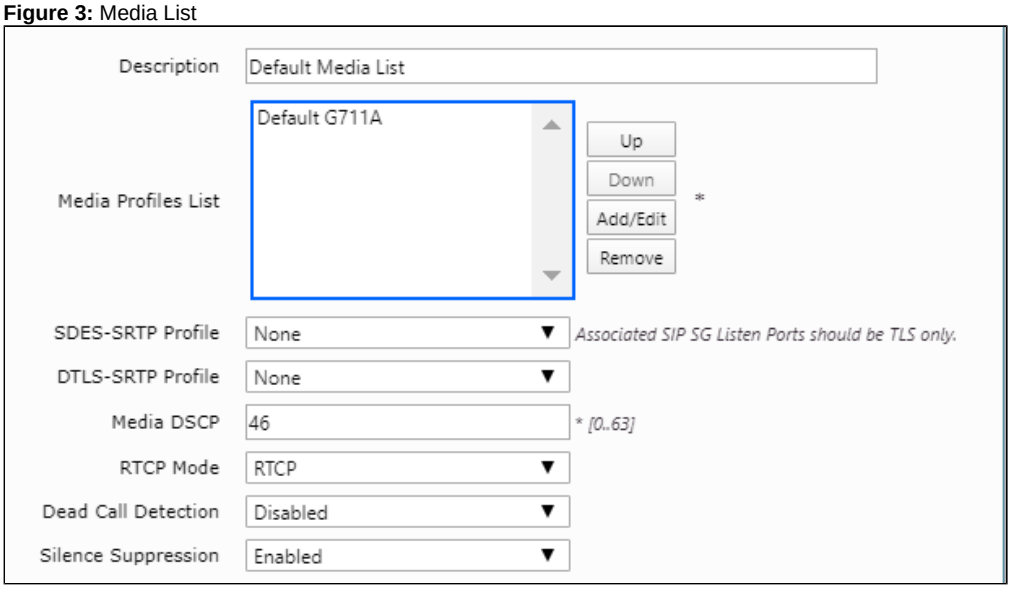
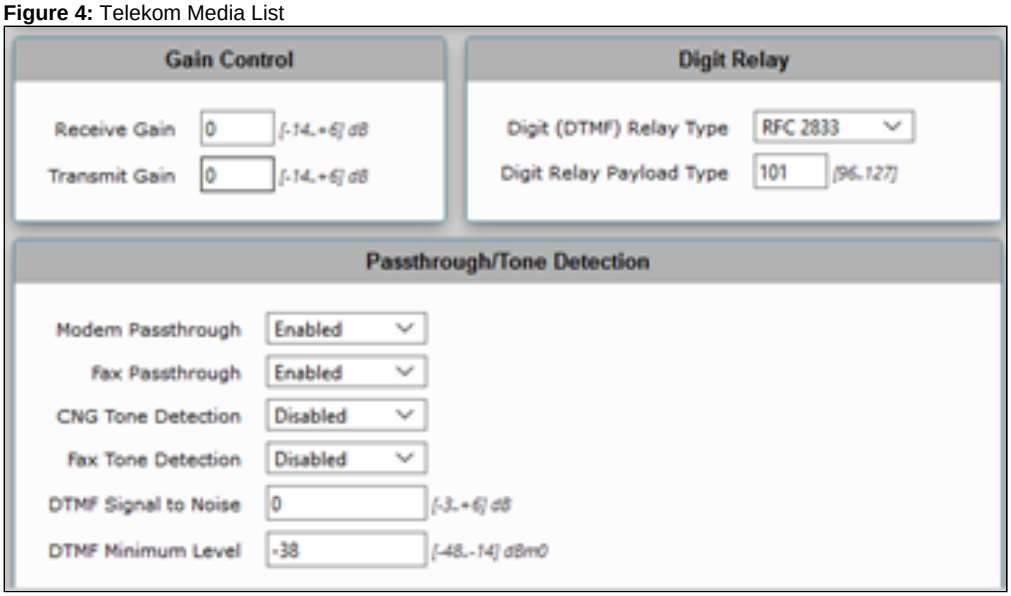


Figure 4: Telekom Media List

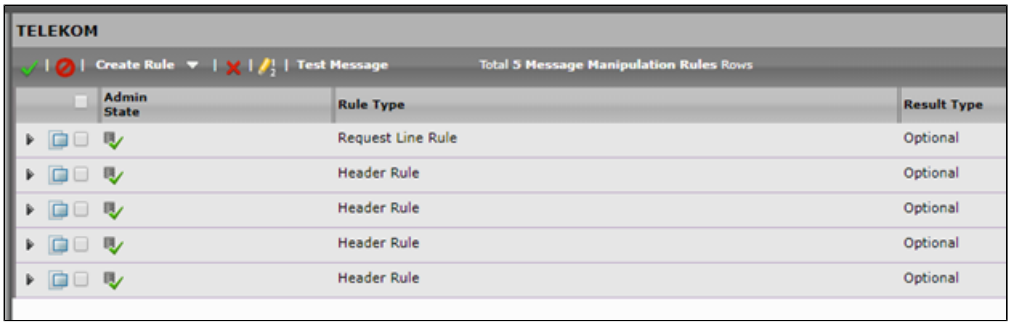


2. Message Manipulation

Configure Message Manipulation to change reg.sip-trunk.telekom.de to sip-trunk.telekom.de in “To”, “From”, “URI”, “PAI” and “PPI” headers.

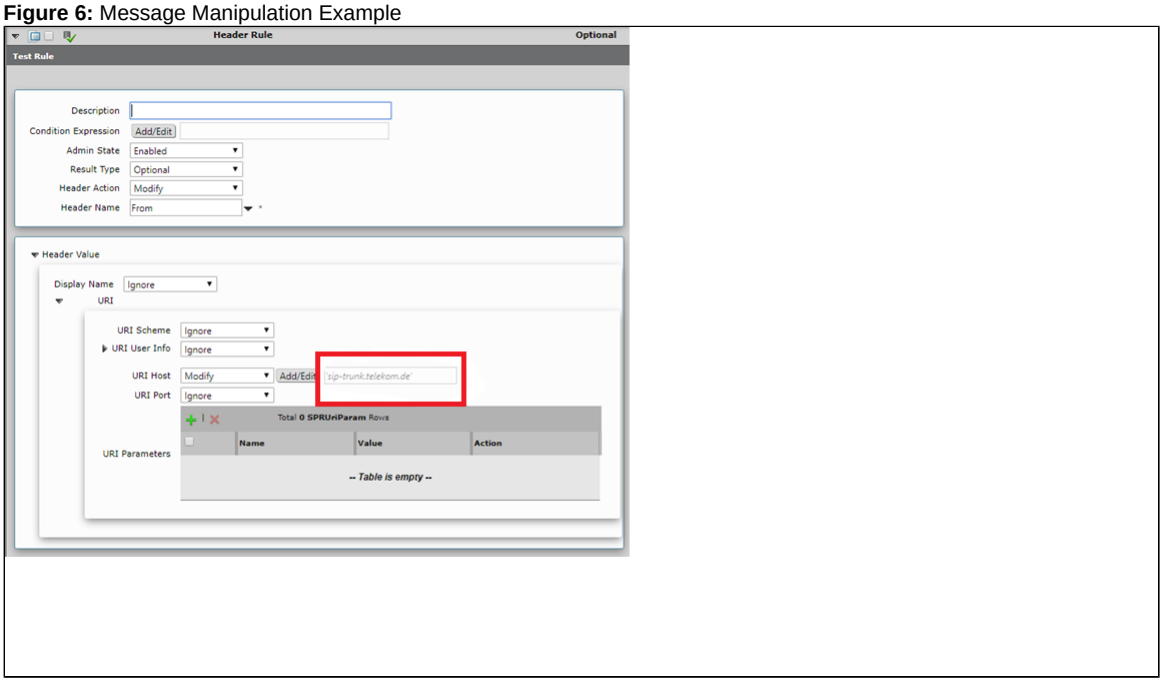
Rule is applied as OUTPUT message manipulation in signaling group sgTELEKOM.

Figure 5: Message Manipulation



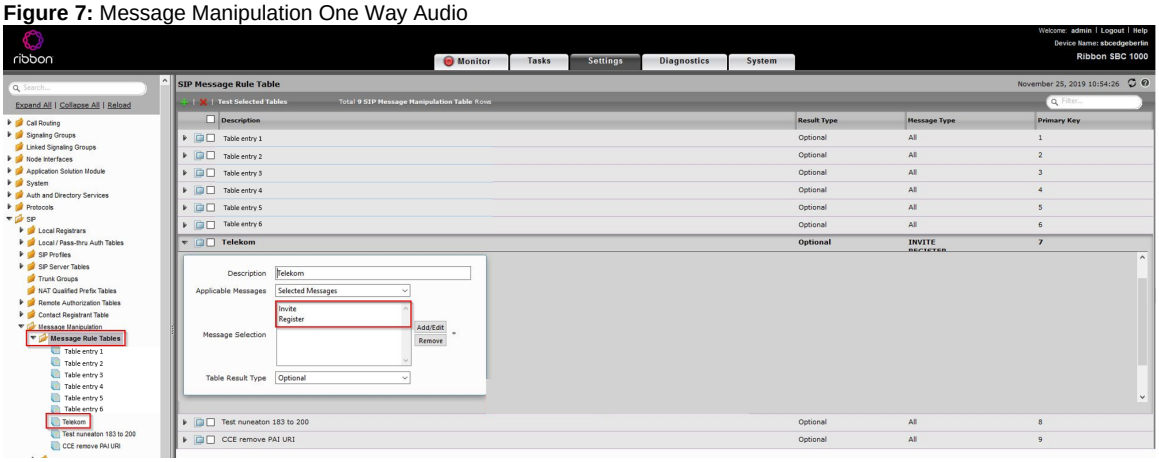
Example rule for URI hostname:

Figure 6: Message Manipulation Example



If you do not configure the "Message Manipulation Table" settings listed in the next image, you will experience faulty calls (1-way audio, then cancel after 10 seconds) for outgoing calls to mobile phones in the Deutsche Telekom network because in PRACK packets, the request URI is also handled unless you limit the table to Register & Invite.

Figure 7: Message Manipulation One Way Audio

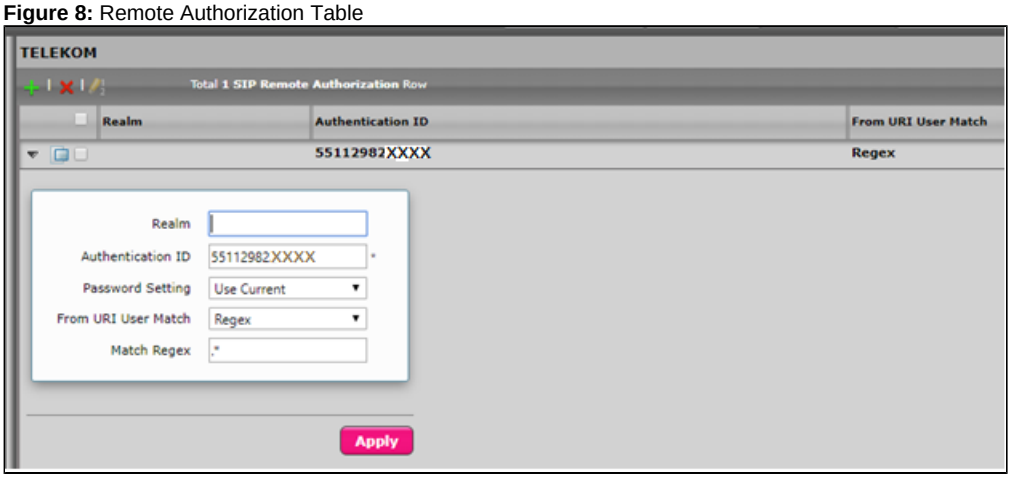


3. Remote Authorization Table

Select **Settings > SIP > Remote Authorization Tables**.

Remote Authorization Tables entries contain information for responses to request message challenges by an upstream server.

Figure 8: Remote Authorization Table



4. SIP Server Table

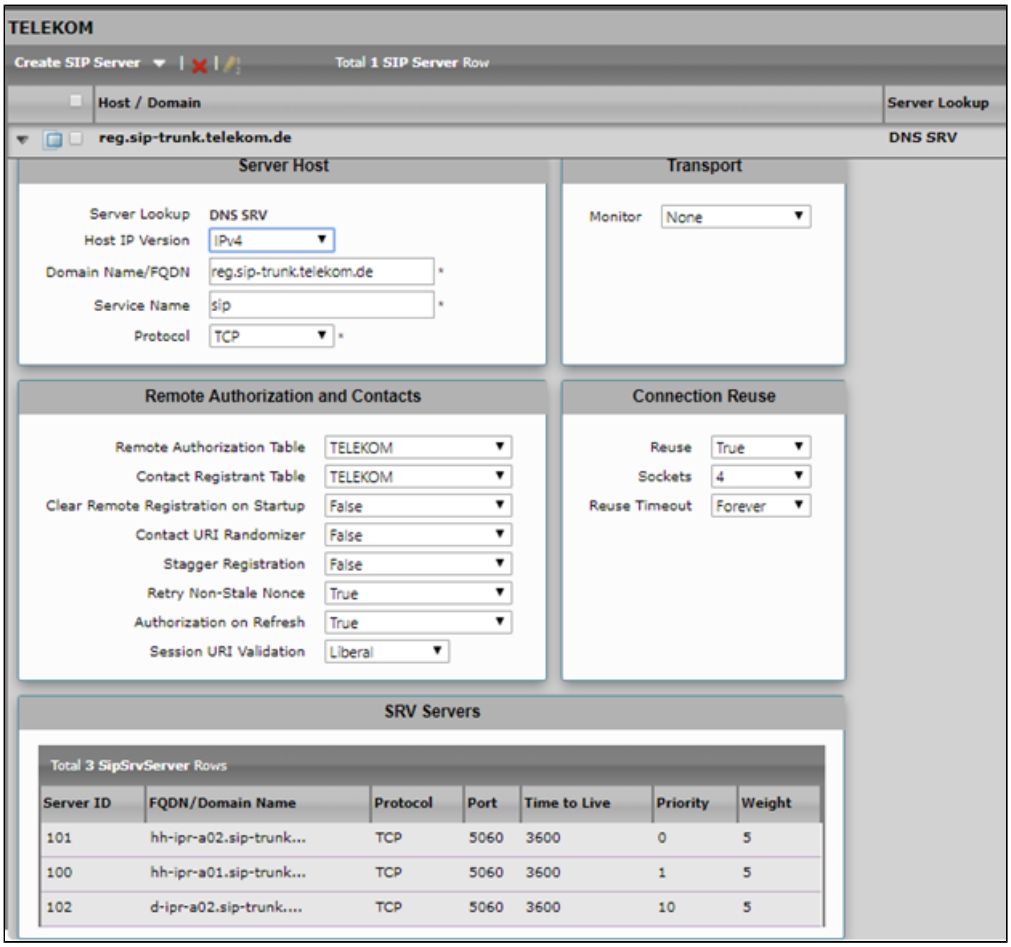
Select **Settings > SIP > SIP Server Tables.**

SIP Server Tables contain information about the SIP devices connected to the SBC Edge. The entries in the tables provide information about the IP Addresses, ports, and protocols used to communicate with each server. The table entries also contain links to counters that are useful for troubleshoot ing.

When you configure a SIP server table entry with a DNS SRV record, Ribbon recommends that you do not configure another SIP server table entry with the IPs or FQDNs that the DNS SRV record resolves.

The SBC does not configure two Signaling Groups (SG) that face the same SIP server with a different Load Balancing setting, especially if the SIP server is sensitive on the SBC connection information (that is, the IP and port number of the SBC to send SIP messages).

Figure 9: Telekom SIP server Table

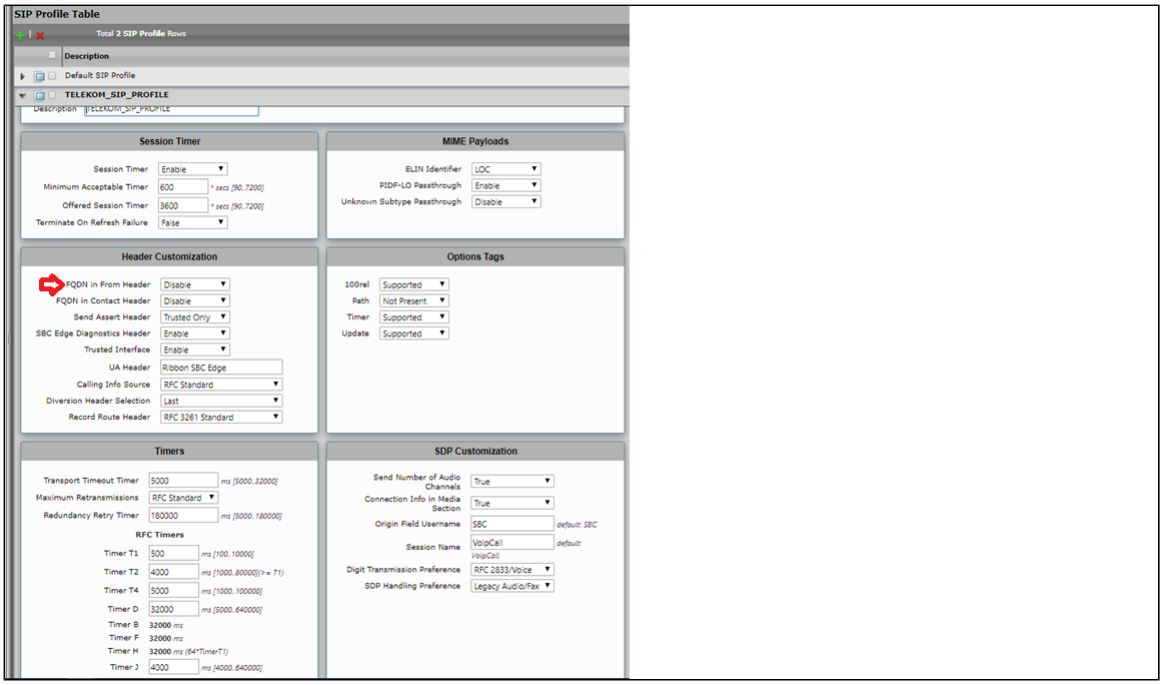


5. SIP Profile

Select **Settings > SIP > SIP Profiles.**

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

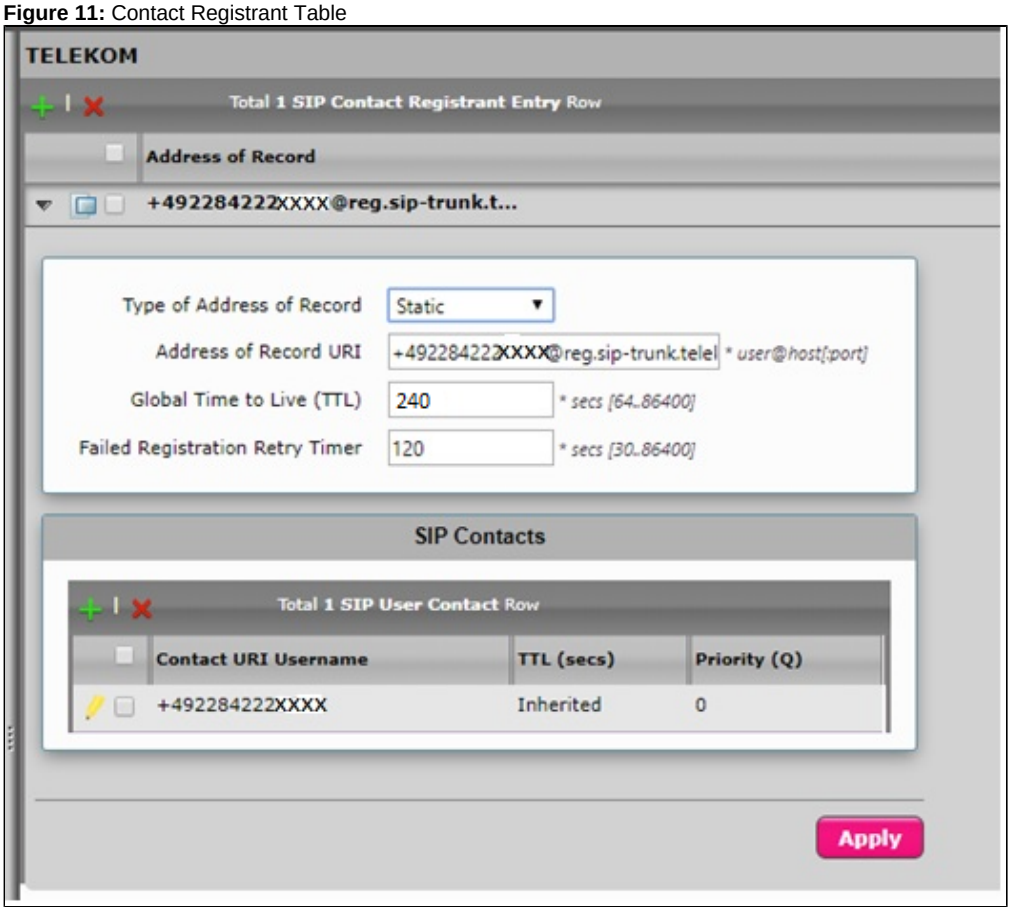
Figure 10: SIP Profile



6. SIP Contact Registration

Contact Registrant Tables manage contacts that are registered to a SIP server. The SIP Server Configuration can specify a Contact Registrant Table. The username portion of the table is used for outbound calls.

Figure 11: Contact Registrant Table



7. SMM Rule

This section is not applicable.

8. Signaling Group

Select **Settings > Signaling Groups.**

Signaling groups allow telephony channels to be grouped together for the purposes of routing and sharing configuration data. Calls are routed to signaling groups along with the location data used in Call Route selection. A signaling group also specifies the location from which Tone Tables and Action Sets are selected. For SIP, signaling groups specify protocol settings and link to server, media, and mapping tables.

Figure 12: Signaling Group

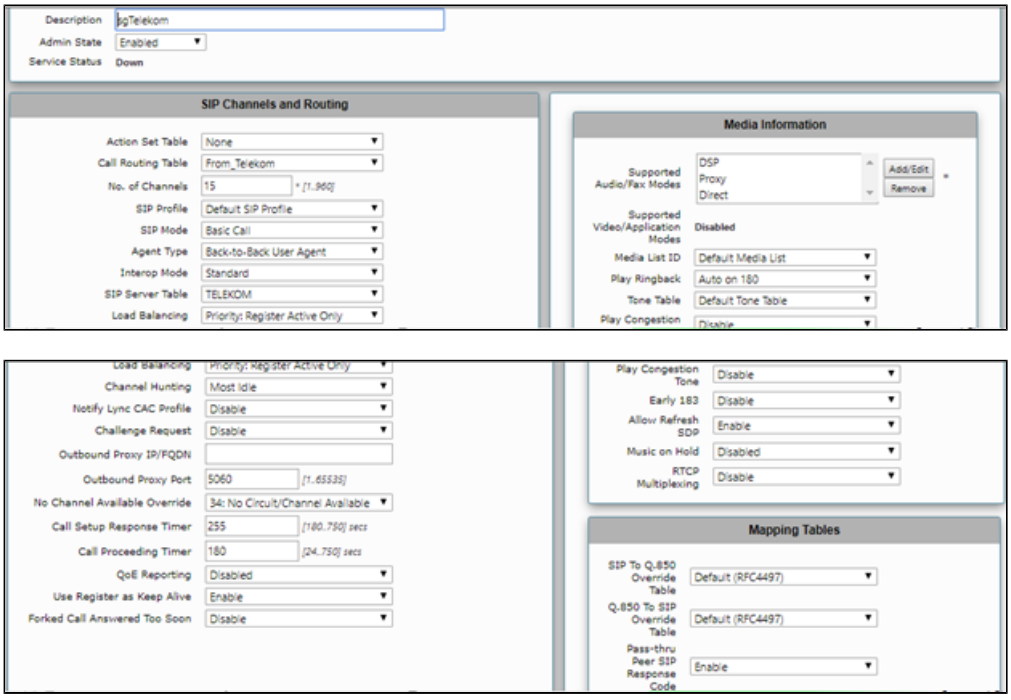
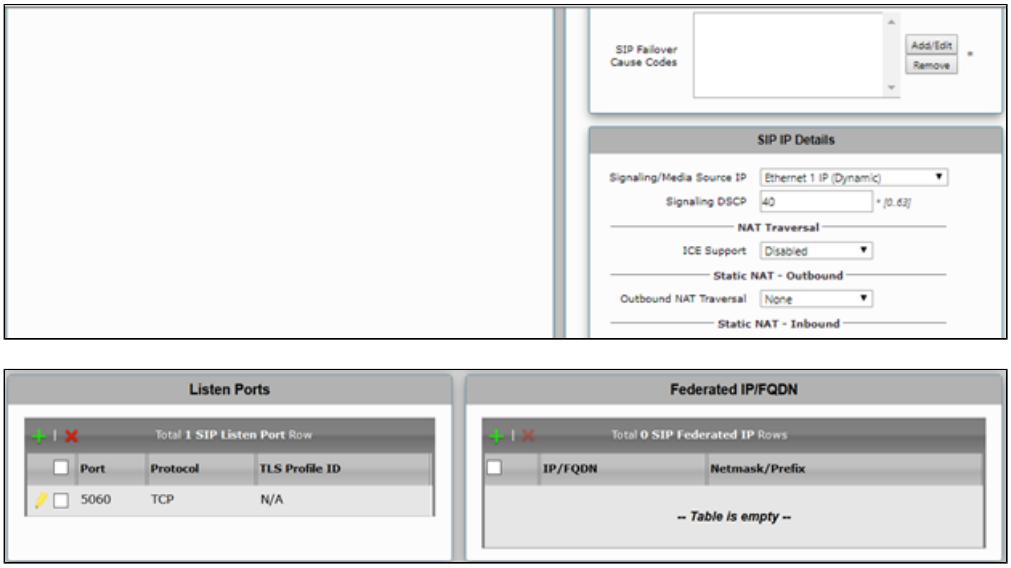
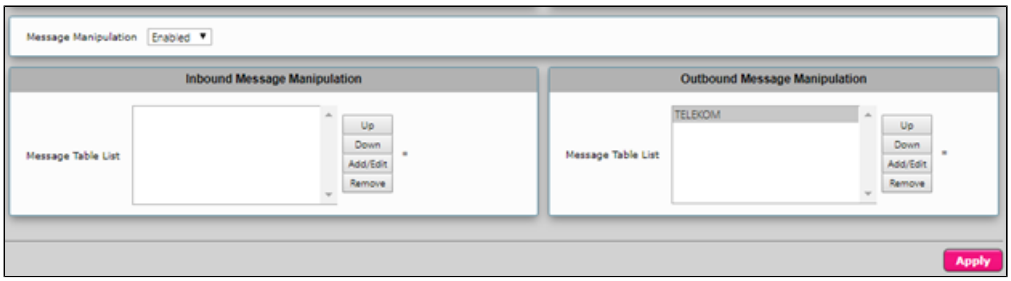


Figure 13: Telekom Signaling Group





9. Known Issues

There is a known limitation in cases where the ISP cuts the internet connection approximately every 24 hours and reassigns the IP.

When the ISP cuts the internet connection and changes the public IP, which can occur every 24 hours for some ISPs, the following has been observed:

- Existing calls may be lost.
- It can take up to 2 minutes until new calls can be established again.

Based on that, we recommend to configure the DSL modem so that the time when the internet connection or change of public IP address happens during the out of office hours or low traffic hours.

Test Results

This section is not applicable.

Conclusion

These Application Notes describe the configuration steps required for **Ribbon SBC 1000 / 2000** to successfully interoperate with **Deutsche Telekom**. All feature and serviceability test cases were completed and passed with the exceptions/observations noted in Test Results.