Configuration Note

AudioCodes Professional Services - Interoperability Lab

Vodafone SIP Trunk using AudioCodes Mediant™ MSBR BRI Gateway

Version 6.8

HD VoIP Sounds Better

AudioCodes

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Notice

This document describes how to connect the Vodafone SIP Trunk using AudioCodes Mediant Gateway product series.

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1 Introduction

This Configuration Note describes how to set up AudioCodes Gateway for interworking between Vodafone's SIP Trunk environments.

1.1 Intended Audience

The document is intended for engineers, or AudioCodes and Vodafone Partners who are responsible for installing and configuring Vodafone's SIP Trunk for enabling VoIP calls using the AudioCodes Gateway.

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2 Component Information

2.1 AudioCodes MSBR Gateway Version

Table 2-1: AudioCodes MSBR Gateway Version

SBC Vendor	AudioCodes
Models	▪ Mediant 500L MSBR & GW ▪ Mediant 500 MSBR & GW ▪ Mediant 800 MSBR & GW
Software Version	SIP_6.80A.335.005
Protocol	▪ SIP/UDP (to the Vodafone SIP Trunk) ▪ Euro-ISDN over BRI (to the PSTN PBX)
Additional Notes	None

2.2 Vodafone SIP Trunking Version

Table 2-2: Vodafone Anlagen-Anschluss Plus

Vendor/Service Provider	Vodafone
Protocol	SIP
Additional Notes	http://www.vodafone.de/media/downloads/pdf/VF-SIP-Trunking-local-gateway-Interface-Specification-V1.0.pdf

2.3 Unify IP-PBX Version

Table 2-3: Unify IP-PBX Version

Vendor	Unify
Model	OpenScape Business V2 X5
Software Version	v2_R2.1.0_269
Protocol	SIP
Additional Notes	None

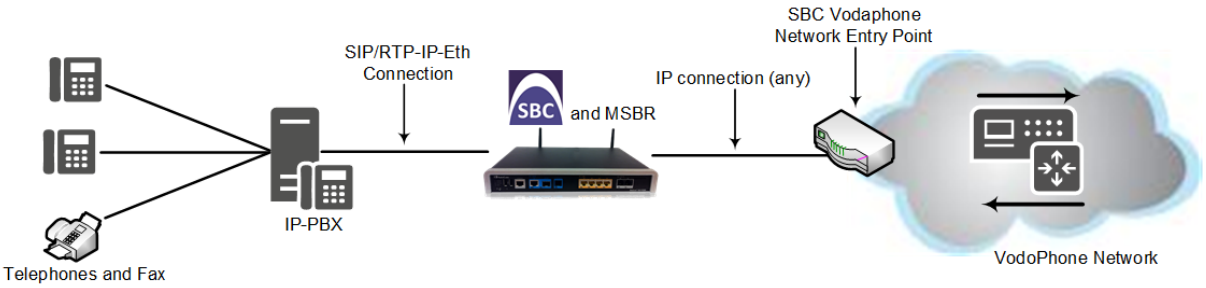
2.4 Interoperability Test Topology

The interoperability testing between AudioCodes Gateway and Vodafone Anlagen-Anschluss Plus was done using the following topology setup:

- Enterprise ISDN PBX
- AudioCodes Gateway is implemented to interconnect between the Enterprise PBX and the SIP Trunk using a MSBR with xDSL

The figure below illustrates this test topology:

Figure 2-1: Test Topology between ISDN PBX with Vodafone SIP Trunk



3 Configuring AudioCodes Gateway

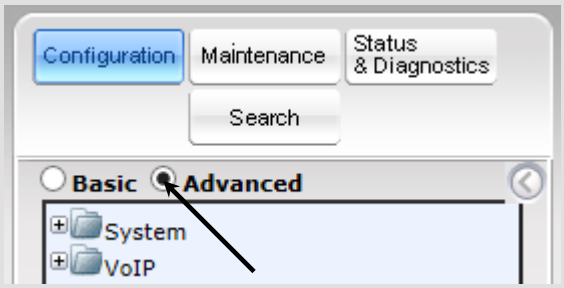
This chapter provides step-by-step procedures on how to configure the AudioCodes MSBR Gateway for interworking with the Vodafone SIP Trunk. These configuration procedures are based on the test topology described in Section 2.4 on page 10, and includes the following main areas:

- Gateway MSBR WAN interface - Vodafone SIP Trunking environment
- Gateway ISDN interface - PBX environment

This configuration is mostly used for the Gateway's embedded Web server (hereafter, referred to as *Web interface*). The WAN data interface was configured through the Command-line interface (hereafter, referred to as CLI).

Notes:

- For implementing Vodafone SIP Trunk based on the configuration described in this section, the AudioCodes MSBR Gateway must be installed with a Software License Key.
- The scope of this interoperability test and document does **not** cover all security aspects for connecting the SIP Trunk environment. Comprehensive security measures should be implemented per your organization's security policies. For security recommendations on AudioCodes' products, refer to the *Recommended Security Guidelines* document.
- Before you begin configuring the Gateway, ensure that the Gateway's Web interface Navigation tree is in Advanced-menu display mode. To do this, select the Advanced option, as shown below:



- When the Gateway is reset, the Navigation tree reverts to Basic-menu display.

3.1 Step 1: IP Network Interfaces Configuration

This section describes how to configure the device's IP network interface.

3.1.1 Step 1a: Configure LAN IP Network Interface

This step describes how to configure the IP network interface for the LAN VoIP interface (assigned the name "Voice").

➢ **To configure the LAN IP network interface:**

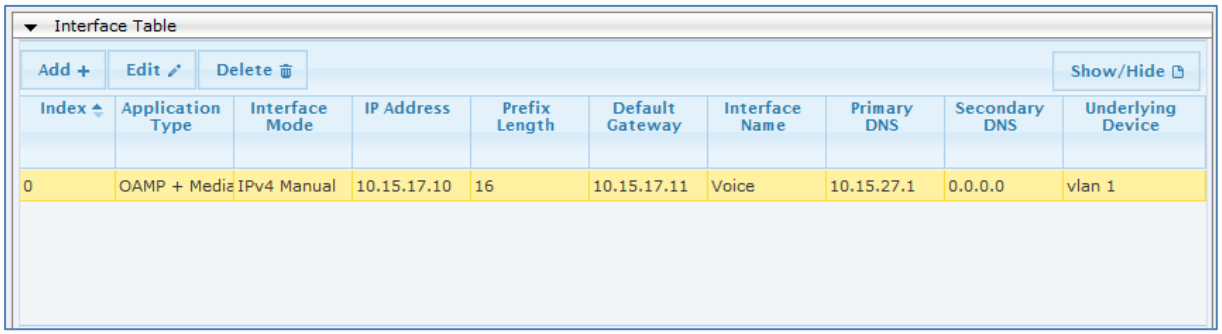
1. Open the IP Interfaces Table page (**Configuration** tab > **VoIP** menu > **Network** > **IP Interfaces Table**).
2. Modify the existing LAN network interface:
   a. Select the 'Index' radio button of the **OAMP + Media + Control** table row, and then click **Edit**.
   b. Configure the interface as follows:

Parameter	Value
IP Address	**10.15.17.10** (LAN IP address of Gateway)
Prefix Length	**16** (subnet mask in bits for 255.255.0.0)
Default Gateway	**10.15.17.11** (MSBR Data vlan 1 IP address)
Interface Name	**Voice** (arbitrary descriptive name)
Primary DNS Server IP Address	**10.15.27.1**
Underlying Device	**vlan 1**

3. Click **Apply**, and then **Done**.

The configured IP network interface is shown below:

Figure 3-1: Configured Network Interface in IP Interfaces Table



3.1.2 Step 1b: Configure WAN IP Network Interface

This step describes how to configure the IP network interface for the WAN data Interface. Configuration of the WAN data interface depends on the physical interface. The example below describes a VDSL connection type.

➢ **To configure the WAN IP network interface:**

1. Access the device's CLI (either through Telnet/SSH or console).
2. Access the Enable Mode (# prompt)
3. Enter the following commands to set the VDSL configuration:

```
configure data
   interface dsl 0/2
    mode VDSL
    auto-switch-attempts vdsl 3 vdsl-v43 0 adsl 3
    no shutdown
   exit
   interface EFM 0/2
    no ip address
    no service dhcp
    ip dns server auto
    no shutdown
   exit
   interface ATM 0/0
     encapsulation ethoa-snap
     pvc 1/32
     ubr
     no ip address
     ip dns server auto
     napt
     firewall enable
     mtu auto
   exit
   interface pppoe 0
    firewall enable
    napt
    mtu auto
    ppp user vodafone.dsl/YOURUSER pass YOURPASS
    ppp authentication chap
    ppp authentication ms-chap
    ppp authentication ms-chap-v2
    ppp authentication pap
    ppp lcp-echo 6 5
    no ppp compression
    ip address auto
    ip dns server auto
    underlying EFM 0/2
    no shutdown
   exit
   interface pppoe 1
    firewall enable
    napt
```

```
    mtu auto
    ppp user vodafone.dsl/YOURUSER pass YOURPASS
    ppp authentication chap
    ppp authentication ms-chap
    ppp authentication ms-chap-v2
    ppp authentication pap
    ppp lcp-echo 6 5
    no ppp compression
    ip address auto
    ip dns server auto
    underlying ATM 0/0
    no shutdown
   exit
```

4. Enter the following commands to configure default routes.

```
ip route 0.0.0.0 0.0.0.0 PPPOE 0 1
ip route 0.0.0.0 0.0.0.0 PPPOE 1 1
exit
```

5. Enter the following command to burn the configuration.

```
write
```

3.2 Step 2: Signaling Routing Domains Configuration

This section describes how to configure Signaling Routing Domain (SRD) which represents a logical VoIP network. Each logical or physical connection requires an SRD. For example, the Gateway interfaces with the WAN.

The SRD is composed of the following:

- **Media Realm:** Defines a UDP port range for RTP/SRTP (media) traffic on a specific logical IP network interface of the Gateway.
- **SIP Interface:** Defines a listening port and type (UDP, TCP, or TLS) for SIP signaling traffic on a specific logical IP network interface of the Gateway.

3.2.1 Step 2a: Configure a Media Realm

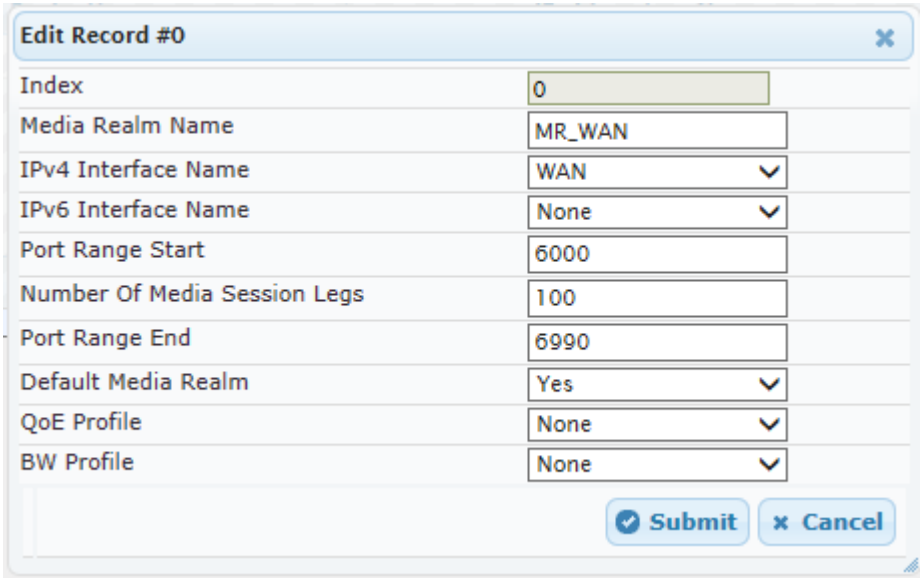
This step describes how to configure a Media Realm. The configuration is to create one Media Realm for external (WAN) traffic.

➢ **To configure a Media Realm:**

1. Open the Media Realm Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **Media Realm Table**).
2. Configure a Media Realm for WAN traffic:

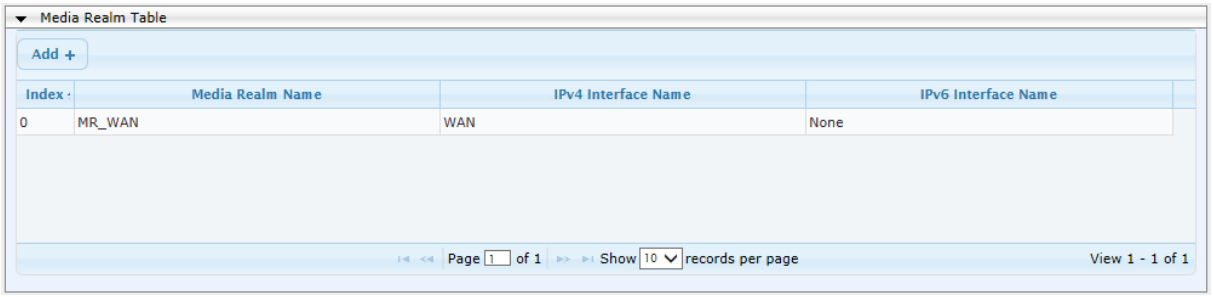
Parameter	Value
Index	**0**
Media Realm Name	**MR_WAN** (arbitrary name)
IPv4 Interface Name	**WAN** (a reserved word for MSBR WAN I/F)
Port Range Start	**6000** (represents the lowest UDP port number used for media on the WAN)
Number of Media Session Legs	**100** (media sessions assigned with port range)

Figure 3-2: Configuring Media Realm for WAN



The configured Media Realm is shown in the figure below:

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



3.2.2 Step 2b: Configure an SRD

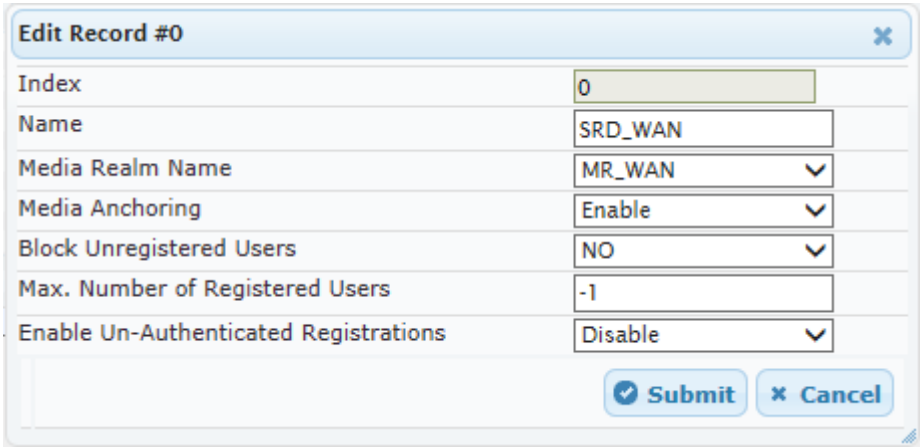
This step describes how to configure an SRD.

➢ **To configure an SRD:**

1. Open the SRD Settings page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **SRD Table**).
2. Configure an SRD for the Gateway's external interface (toward the Vodafone SIP Trunk):

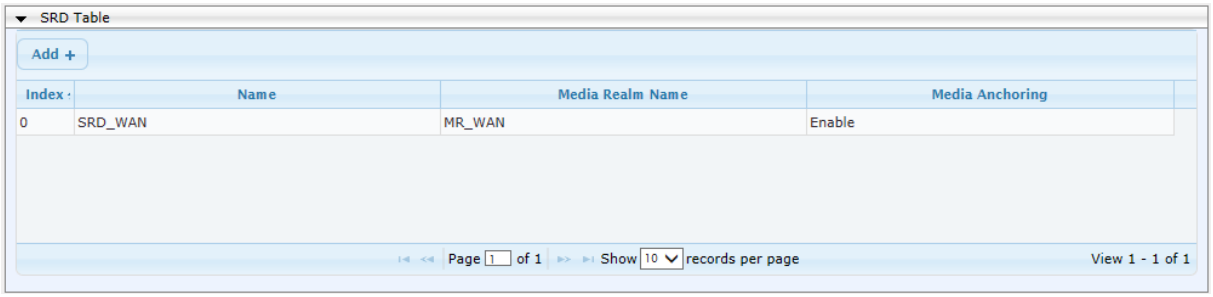
Parameter	Value
Index	**0**
Name	**SRD_WAN**
Media Realm Name	**MR_WAN**

Figure 3-4: Configuring WAN SRD



The configured SRD is shown in the figure below:

Figure 3-5: Configured SRDs in SRD Table



3.2.3 Step 2c: Configure a SIP Signaling Interface

This step describes how to configure a SIP Interface. For the interoperability test topology, an external SIP Interface must be configured for the Gateway.

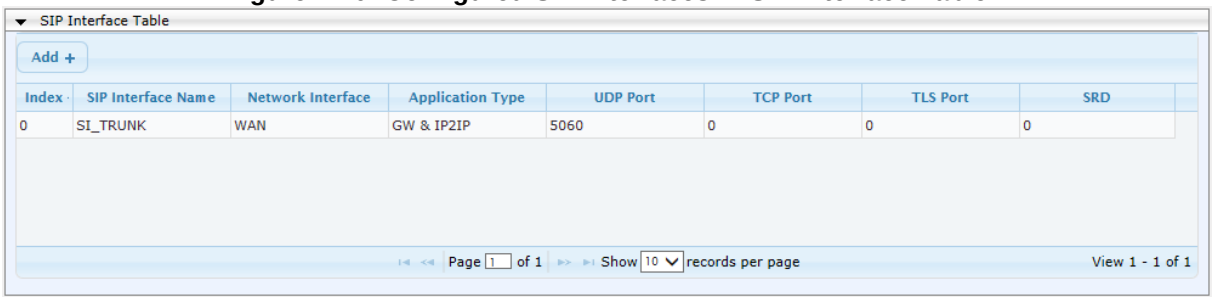
➢ **To configure a SIP Signaling Interface:**

1. Open the SIP Interface Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **SIP Interface Table**).
2. Configure a SIP interface for the WAN:

Parameter	Value
Index	**0**
Interface Name	**SI_TRUNK** (arbitrary descriptive name)
Network Interface	**WAN**
Application Type	**GW & IP2IP**
UDP Port	**5060**
TCP and TLS Ports	**0**
SRD	**0**

The configured SIP Interface is shown in the figure below:

Figure 4-10: Configured SIP Interfaces in SIP Interface Table



3.3 Step 3: Configure a Proxy Set

This step describes how to configure a Proxy Set. The Proxy Set defines the destination address (IP address or FQDN) of the IP entity server.

For the test topology, the Proxy Set needs to be configured for the Vodafone SIP Trunk.

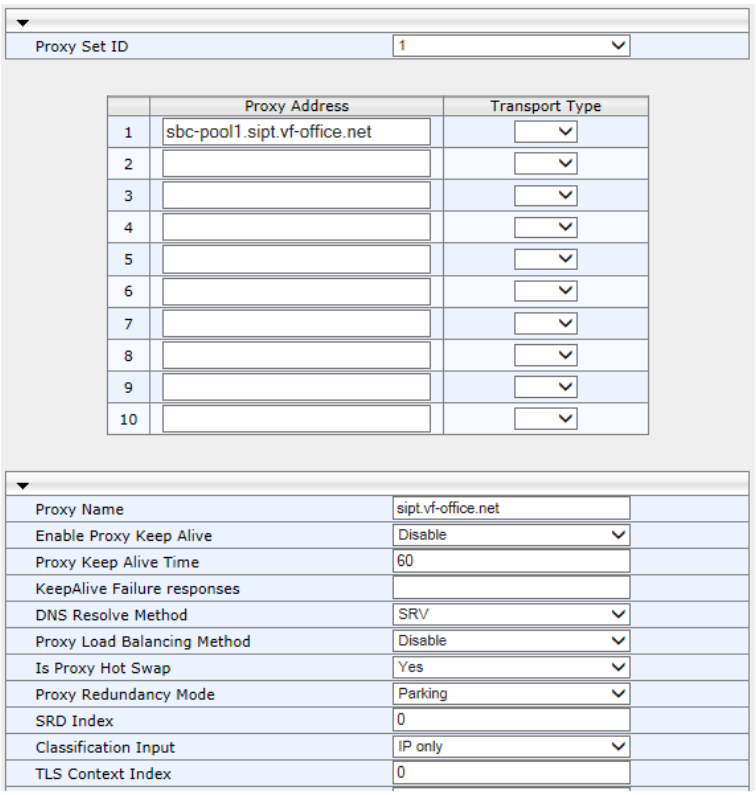
The Proxy Set will be later applying to the VoIP network by assigning them to IP Groups.

➢ **To configure a Proxy Set:**

1. Open the Proxy Sets Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **Proxy Sets Table**).
2. Add a Proxy Set for the Vodafone SIP Trunk as shown below:

Parameter	Value
Proxy Set ID	**1**
Proxy Address	**sbc-pool1.sipt.vf-office.net**
Proxy Name	**sipt.vf-office.net** (arbitrary descriptive name)
Enable Proxy Keep Alive	**Using Options**
DNS Resolve Method	**SRV**
Is Proxy Hot Swap	**Yes**
Proxy Redundancy Mode	**Parking**
SRD Index	**0**

Figure 3-6: Configuring a Proxy Set for Vodafone SIP Trunk



3.4 Step 4: Configure an IP Group

This step describes how to configure an IP Group. The IP Group represents an IP entity on the network with which the Gateway communicates. This can be a server (e.g., IP PBX or ITSP) 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. In this test topology, IP Group configured for the Vodafone SIP Trunk.

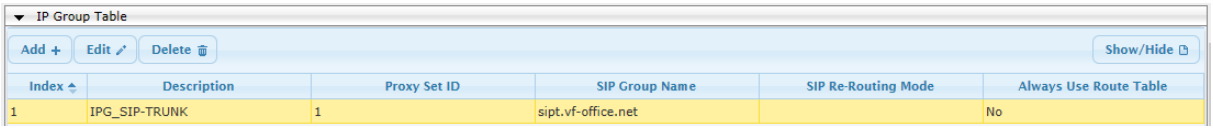
➢ **To configure an IP Group:**

1. Open the IP Group Table page (**Configuration** tab > **VoIP** menu > **VoIP Network** > **IP Group Table**).
2. Add an IP Group for the Vodafone SIP Trunk as shown below:

Parameter	Value
Index	**1**
Type	**Server**
Description	**IPG_SIP-TRUNK** (arbitrary descriptive name)
Proxy Set ID	**1**
SIP Group Name	**sipt.vf-office.net**
SRD	**0**
Media Realm Name	**MR_WAN**
IP Profile ID	**1**

The configured IP Group is shown in the figure below:

Figure 3-7: Configured IP Groups in IP Group Table



3.5 Step 5: Configure Coders

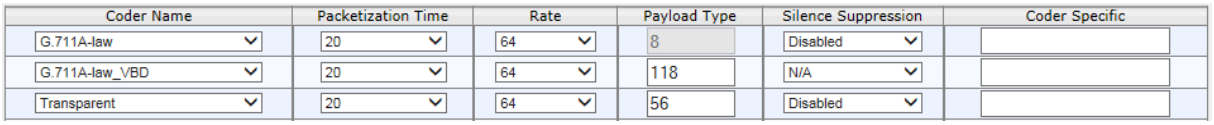
The procedure below describes how to configure Coders to ensure that Voice and FAX are negotiated with the Vodafone SIP Trunk while use the coders in specific order.

➢ **To set coders for the Vodafone SIP Trunk:**

1. Open the Coders Group page (**Configuration** tab > **VoIP** menu > **Coders and Profiles > Coders**).
2. Configure Coders as follows:

Coder Name	Payload Type
G.711A-law	**8**
G.711A-Law_VBD	**118**
Transparent	**56**

Figure 3-8: Configuring Coders for Vodafone SIP Trunk



3.6 Step 6: Configure PSTN Trunk Settings

This step shows how to configure PSTN trunk settings.

3.6.1 Step 6a: Configure the BRI PSTN Interface

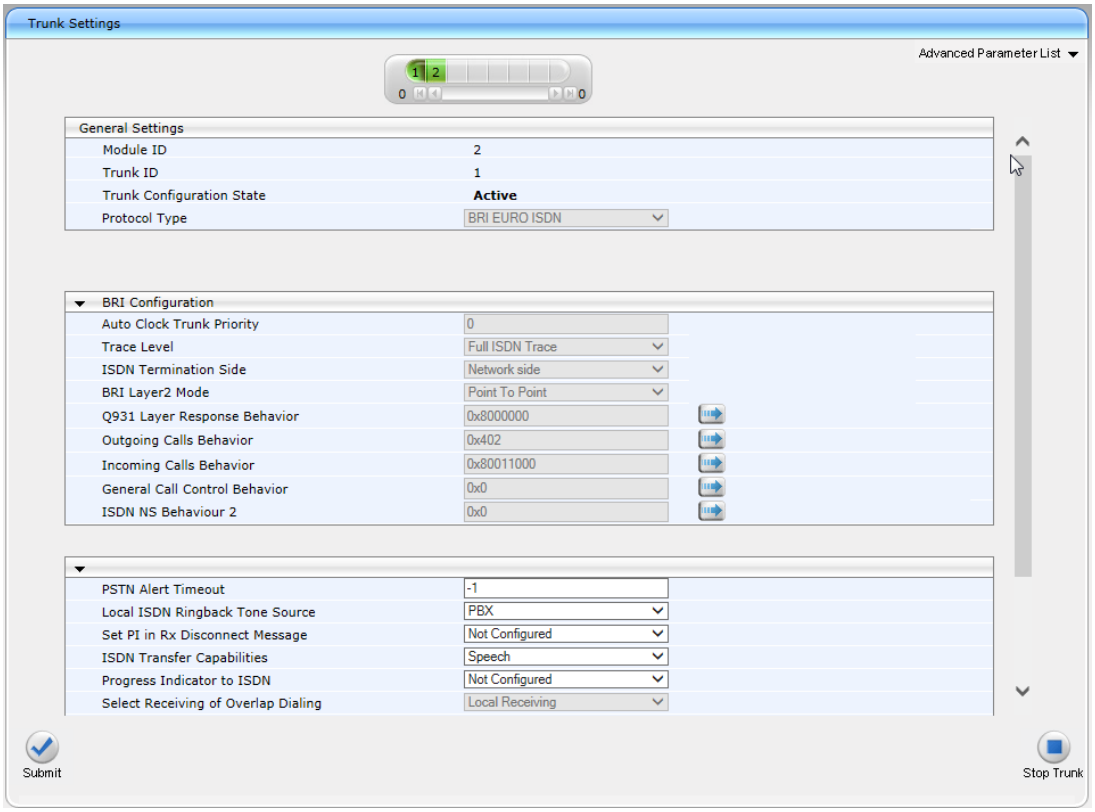
This step shows how to configure the BRI PSTN Interface.

➢ **To configure the BRI PSTN interface:**

1. Open the Trunk Settings page (**Configuration** tab > **VoIP** > **PSTN** > **Trunk Settings**).
2. Configure following parameters:

Parameter	Value
Protocol Type	**BRI EURO ISDN**
ISDN Termination Side	**Network side (for BRI PBX connection)**
BRI Layer2 Mode	**Point To Point**
Q931 Layer Response Behavior	**0x8000000**
Outgoing Calls Behavior	**0x402**
Incoming Calls Behavior	**0x80011000**
ISDN Transfer Capabilities	**Speech**
Select Receiving of Overlap Dialing	**Local Receiving**
Play Ringback Tone to Trunk	**Play Local Until Remote Media Arrive**
Call Rerouting Mode	**ISDN Rerouting Enabled**

Figure 3-9: Configuring BRI PSTN Interface



3. Repeat for all BRI ports available on the device.

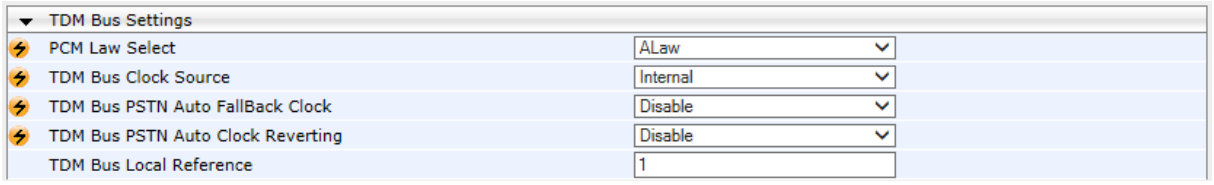
3.6.2 Step 6b: Configure the TDM Bus

This section shows how to configure the Gateway's TDM bus.

➢ **To configure the TDM bus:**

1. Open the TDM Bus Settings page (**Configuration** tab > **VoIP** menu > **TDM** > **TDM Bus Settings**).

Figure 3-10: TDM Bus Settings Page



2. Configure the TDM bus parameters per your deployment requirements. Below is example:

Figure 3-11: TDM Bus Settings

Parameter	Value
PCM Law Select	**ALaw**
TDM Bus Clock Source	**Internal**

3.7 Step 7: Configure Trunk Group Parameters

This step shows how to configure the device's channels, which includes assigning them to Trunk Groups. A Trunk Group is a logical group of physical trunks and channels. A Trunk Group can include multiple trunks and ranges of channels. To enable and activate the device's channels, Trunk Groups must be configured. Channels not configured in this table are disabled. After configuring Trunk Groups, use them to route incoming IP calls to the Tel side, represented by a specific Trunk Group (ID). You can also use Trunk Groups for routing Tel calls to the IP side.

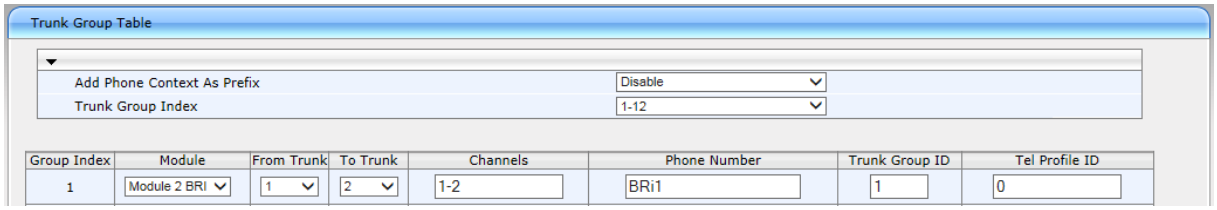
3.7.1 Step 7a: Configure the BRI Trunk Group

This section shows how to configure the BRI Trunk Group. If your device does not have BRI, skip this step.

➢ **To configure the BRI Trunk Group Table:**

1. Open the Trunk Group Table page (Configuration tab > VoIP > GW and IP to IP > Trunk Group > Trunk Group).

Figure 3-12: Configuring BRI Trunk Group Table



2. Configure each Trunk Group as required. If more than one BRI port is available, on line 1 of the table above, set “To Trunk” to the last BRI port to be used for incoming / outgoing calls between Vodafone and the PBX.

3.7.2 Step 7b: Configure Trunk Group Settings

The Trunk Group Settings page allows you to configure the following per trunk group:

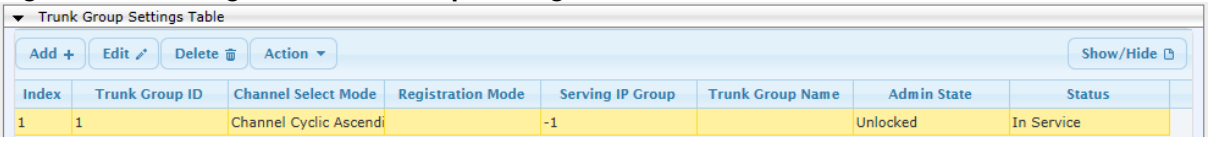
- Channel Select Mode by which IP-to-Tel calls are assigned to the Trunk Group's channels

➢ **To configure the Trunk Group Settings:**

1. Open the Trunk Group Table page (**Configuration** tab > VoIP > GW and IP to IP > Trunk Group > Trunk Group Settings).
2. Configure the following parameters:

Parameter	Value
Trunk Group ID	**1**
Channel Select Mode	**Channel Cyclic Ascending**

Figure 3-13: Configured Trunk Group Settings



3.8 Step 8: Configure Routing Rules

This step describes how to configure IP-to-Tel and Tel-to-IP call routing rules. These rules define the routes for forwarding SIP messages (e.g., INVITE) received from one IP entity to the Trunk Group and vice versa.

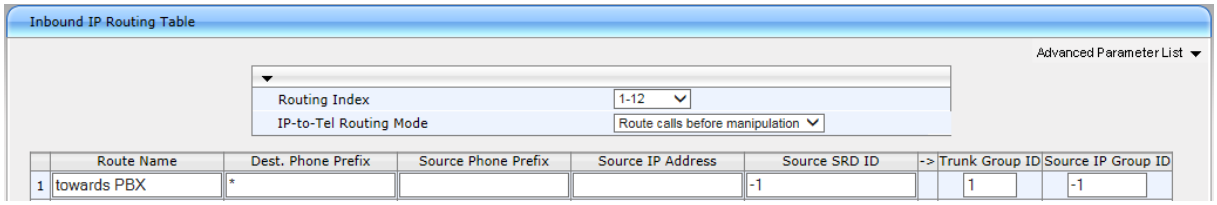
3.8.1 Step 8a: Configure Inbound IP Routing

This section describes how to configure Mediant BRI/PRI Gateway Inbound (IP-to-Tel) Routing, where all calls from the Vodafone SIP Trunk are routed to Trunk Group 1.

➢ **To configure IP-to-Tel or Inbound IP Routing Rules:**

1. Open the Inbound IP Routing Table page (**Configuration** tab > **VoIP** menu > **GW and IP to IP** > **Routing** > **IP to Hunt Group Routing**).

Figure 3-14: Configuring Inbound IP Routing Rules



2. Configure a rule for all incoming IP calls, with any destination prefix assigned, route them to 'Trunk Group ID' **1** (connected to the PBX).
3. Click **Submit** to apply.

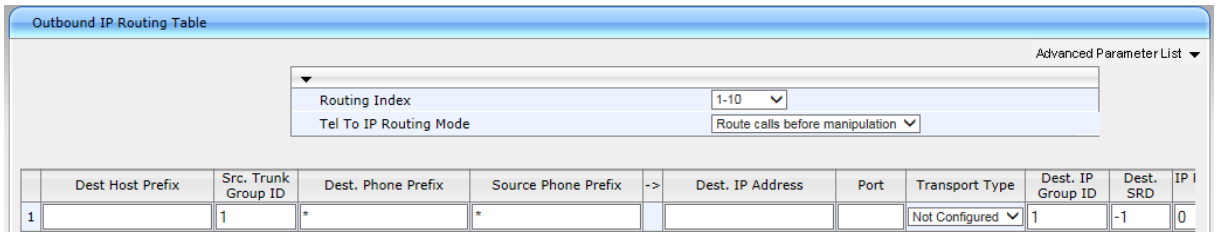
3.8.2 Step 8b: Configure Outbound IP Routing

This section describes how to configure Mediant BRI/PRI Gateway Outbound (Tel-to-IP) Routing, where all calls from the Trunk Group 1 (i.e., PSTN) are routed to the Vodafone SIP Trunk.

➢ **To configure Tel-to-IP or Outbound IP Routing Rules:**

1. Open the Outbound IP Routing Table page (**Configuration** tab > **VoIP** menu > **GW and IP to IP** > **Routing** > **Tel to IP Routing**).

Figure 3-15: Configuring Inbound IP Routing Rules



2. Configure a rule for all incoming IP calls, with 'Trunk Group ID' **1**, route them to 'Dest. IP Group ID' **1** (connected to the Vodafone).
3. Click **Submit** to apply.

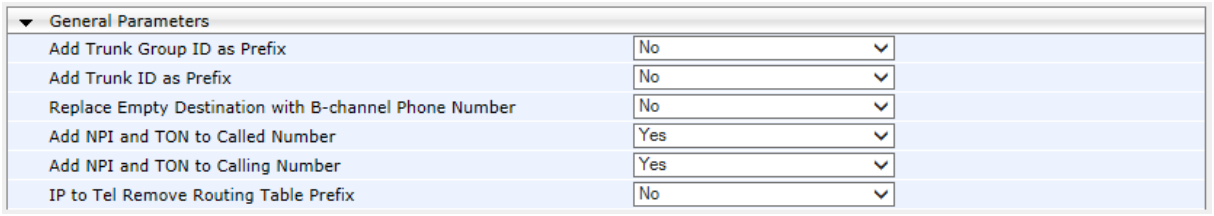
3.8.3 Step 8c: Configure Routing General Parameters

This section identifies the device configuration needed in the Routing General Parameters configuration.

➢ **To configure Routing General Parameters:**

1. Open the Routing General Parameters page (**Configuration** tab > **VoIP** menu > **> GW and IP to IP > Routing > Routing General Params**).

Figure 3-16: General Parameters Page



2. From the 'Add NPI and TON to Called Number' dropdown, select **Yes**. As a consequence of this setting the called number will receive a two digit prefix to indicate which NPI and TON was signaled by the PBX for the called number. This prefix is used in the number manipulation rules shown in Step 9.
3. From the 'Add NPI and TON to Calling Number' dropdown, select **Yes**. As a consequence of this setting the calling number will receive a two digit prefix to indicate which NPI and TON was signaled by the PBX for the calling number. This prefix is used in the number manipulation rules shown in Step 9.
4. Click **Submit**.

3.9 Step 9: Configure Normalization Rules for E.164 Format for PBX/PSTN Connectivity

Vodafone implements the standard E.164 format, while the PBX or PSTN implements other number formats for dialing. If the Gateway is connected to a PBX or directly to the PSTN, it may need to perform number manipulations for the called and/or calling number to match the PBX or PSTN dialing rules or to match Vodafone E.164 format.

The Gateway entity must therefore be configured with manipulation rules to translate (i.e., normalize) numbers dialed in standard E.164 format to various formats, and vice versa. Manipulation must be performed for outbound calls and inbound calls.

Number manipulation (and mapping of NPI/TON to SIP messages) rules are configured in the following Manipulation Tables:

For Tel-to-IP calls:

- Destination Phone Number Manipulation Table for Tel-to-IP Calls
- Source Phone Number Manipulation Table for Tel-to-IP Calls

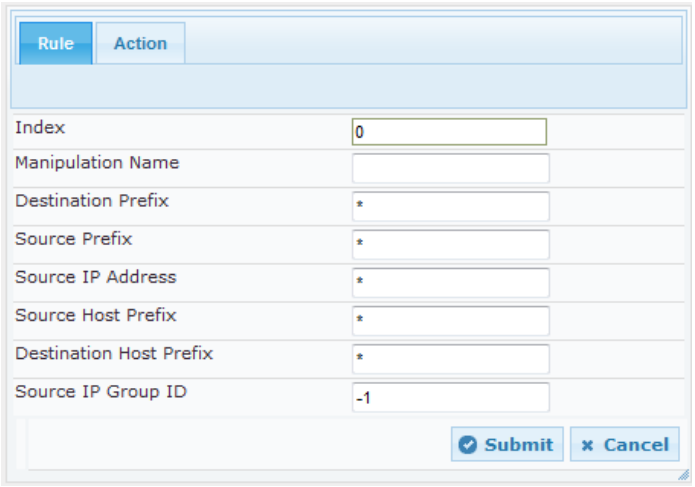
For IP-to-Tel calls:

- Destination Phone Number Manipulation Table for IP-to-Tel Calls
- Source Phone Number Manipulation Table for IP-to-Tel Calls

➢ **To configure number manipulation rules:**

1. Open the required Number Manipulation page (**Configuration** tab > **VoIP** menu > **GW and IP to IP** submenu > **Manipulations** > **Dest Number IP->Tel** or **Dest Number Tel->IP** or **Source Number IP->Tel** or **Source Number Tel->IP**); the relevant Manipulation table page is displayed.
2. Click the **Add** button; this screen is displayed:

Figure 3-17: Example Dest Number IP->Tel Number Manipulation Rule



3. Click the **Rule** tab, and then configure the matching characteristics.
4. Click the **Action** tab, and then configure the manipulation operation.
5. Click **Submit** to apply your changes.

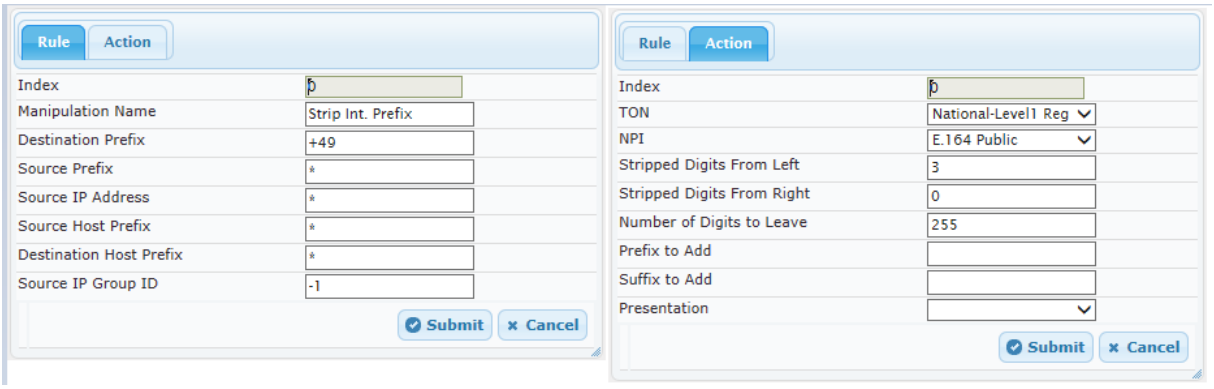
3.9.1 Number Manipulation Examples

Two examples are provided below for number manipulation.

3.9.1.1 Number Manipulation IP to Tel Example

The example below shows a manipulation rule that removes "+49" from the destination number when the destination number prefix "+49". In addition, it assigns TON as **National-Level1 Regional** and NPI as **E.164 Public**.

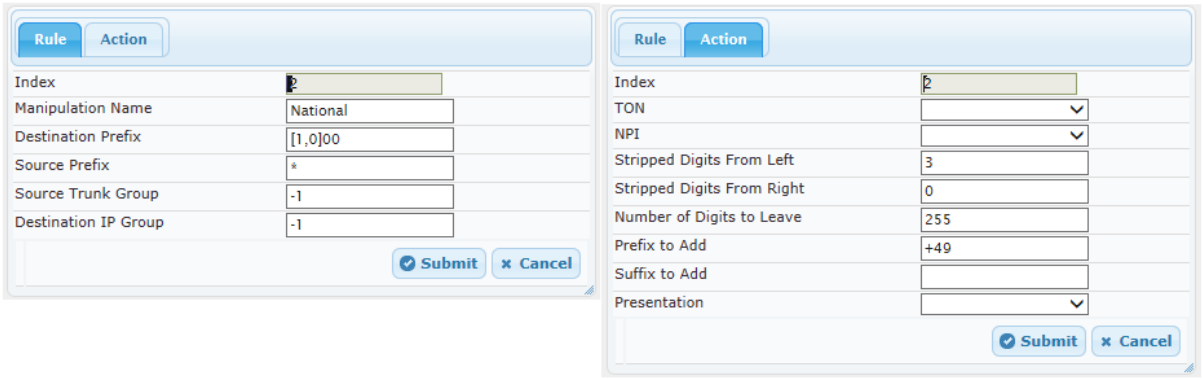
Figure 3-18: Destination Number Manipulation Rule for IP→Tel Calls



3.9.1.2 Number Manipulation Tel to IP Example

The example below shows a National manipulation rule that removes the "100" or "000" prefix and adds "+49" to the destination number, when the destination number prefix is "100" or "000".

Figure 3-19: Destination Number Manipulation Rule for Tel→IP Calls



Note: Adapt the Manipulation Table according to your environment's dial plan.

3.10 Step 10: Configure Message Manipulation Rules

This step 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 Gateway and determine whether they are applied to inbound or outbound messages.

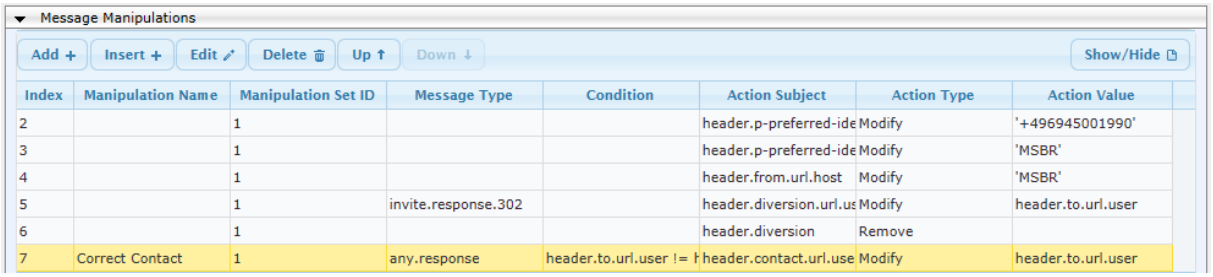
➢ **To configure SIP message manipulation rules:**

1. Open the Message Manipulations page (**Configuration** tab > **VoIP** menu > **SIP Definitions** > **Msg Policy & Manipulation** > **Message Manipulations**).
2. Configure new manipulation rules (Manipulation Set 1) for Vodafone SIP Trunk according to the table below:

Index	MMS Rule Name	Specific Configuration					
		Set ID	Message Type	Condition	Action Subject	Action Type	Action Value
2		1			header.p-preferred-identity.url.user	Modify	'+496945001990'
3		1			header.p-preferred-identity.url.host	Modify	'MSBR'
4		1			header.from.url.host	Modify	'MSBR'
5		1			header.diversion.url.user	Modify	header.to.url.user
6		1			header.diversion	Remove	
7	Correct Contact	1	any.response	header.to.url.user != header.contact.url.user and header.to.url.user contains header.contact.url.user	header.contact.url.user	Modify	header.to.url.user

Note: The +496945001990 number represents the pilot number for the customer's SIP trunk.

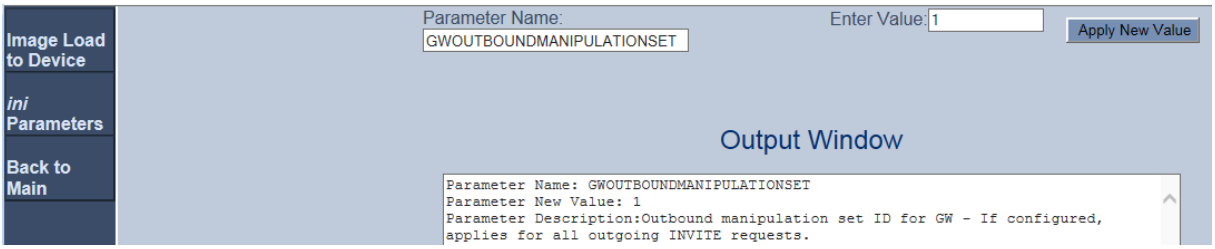
Figure 3-20: Configured SIP Message Manipulation Rules



3. Assign Manipulation Set ID 1 to the Gateway outbound messages:
   a. Open the Admin page.
   b. Append the case-sensitive suffix 'AdminPage' to the device's IP address in your Web browser's URL field (e.g., http://10.15.17.10/AdminPage).
   c. In the left pane of the page that opens, click ***ini* Parameters**.

d. In the 'Parameter Name' field, enter "GWOUTBOUNDMANIPULATIONSET".
e. In the 'Enter Value' field, enter "1**".**

Figure 3-21: Assigning Manipulation Set 1 to the GWOUTBOUNDMANIPULATIONSET



f. Click **Apply New Value**.

3.11 Step 11: Configure Miscellaneous Settings

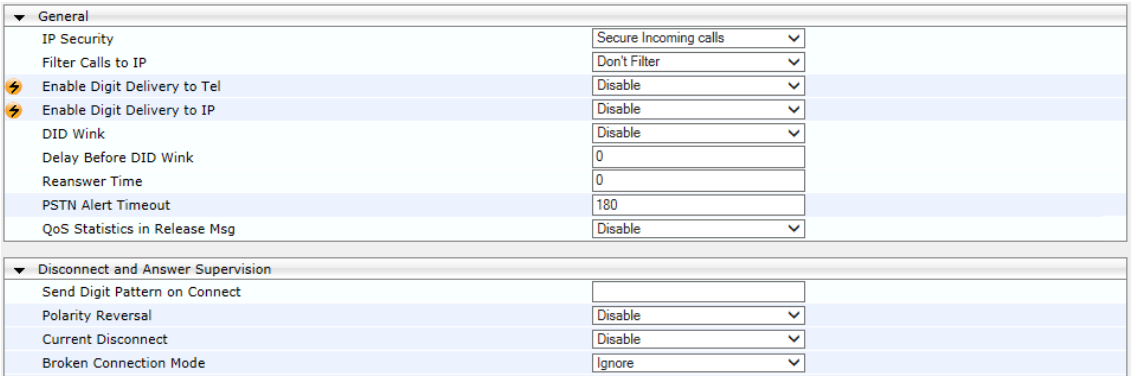
This section describes how to configure miscellaneous Gateway settings.

3.11.1 Step 11a: Configure Advanced Parameters

This step identifies the device configuration needed in the Advanced Parameters configuration.

1. Open the Advanced Parameters page (**Configuration** tab > **VoIP** menu > **SIP Definitions** > **Advanced Parameters**).

Figure 3-22: Advanced Parameters Page



2. From the 'IP Security' dropdown, select **Secure Incoming calls.**
3. From the 'Broken Connection Mode' dropdown, select **Ignore.**
4. Click **Submit**.

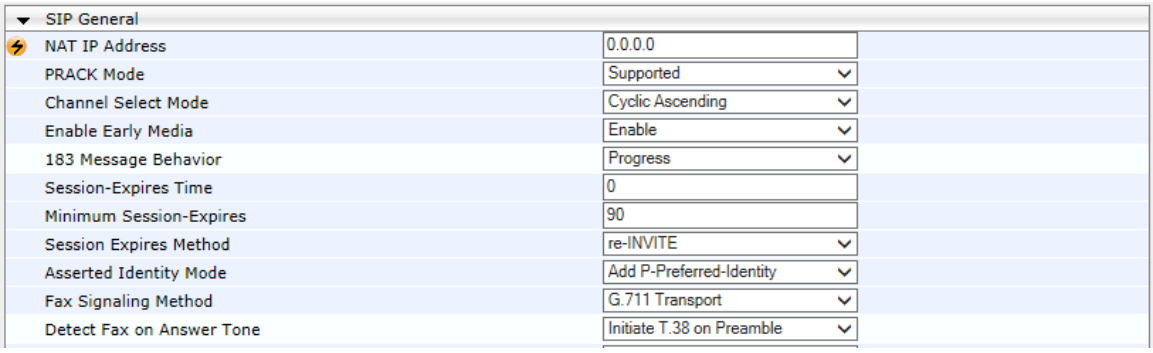
3.11.2 Step 11b: Configure SIP General Parameters

This step identifies the device configuration needed in the SIP General Parameters configuration.

➢ **To configure the SIP General parameters:**

1. Open the SIP Proxy & Registration Parameters page (**Configuration** tab > **VoIP** > **SIP Definitions** > **General Parameters**).

Figure 3-23: General Parameters Page



2. From the 'Enable Early Media' dropdown, select **Enable**.
3. From the 'Asserted Identity Method' dropdown, select **Add P-Preferred-Identity**.
4. From the 'Fax Signaling Method' dropdown, select **G.711 Transport**.
5. Click **Submit**.

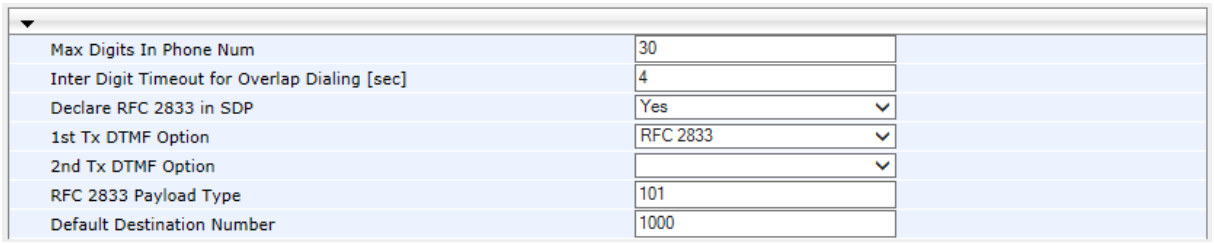
3.11.3 Step 11c: Configure DTMF & Dialing Parameters

This step identifies the device configuration needed in the DTMF & Dialing configuration.

➢ **To configure the DTMF & Dialing parameters:**

1. Open the SIP DTMF & Dialing Parameters page (**Configuration** tab > **VoIP** > **GW and IP to IP** > **DTMF and Supplementary > DTMF & Dialing**).

Figure 3-24: DTMF & Dialing Page



2. From the '1st Tx DTMF Option' drop-down list, select **RFC 2833**.
3. From the 'RFC 2833 Payload Type' drop-down list, select **101**.
4. Click **Submit**.

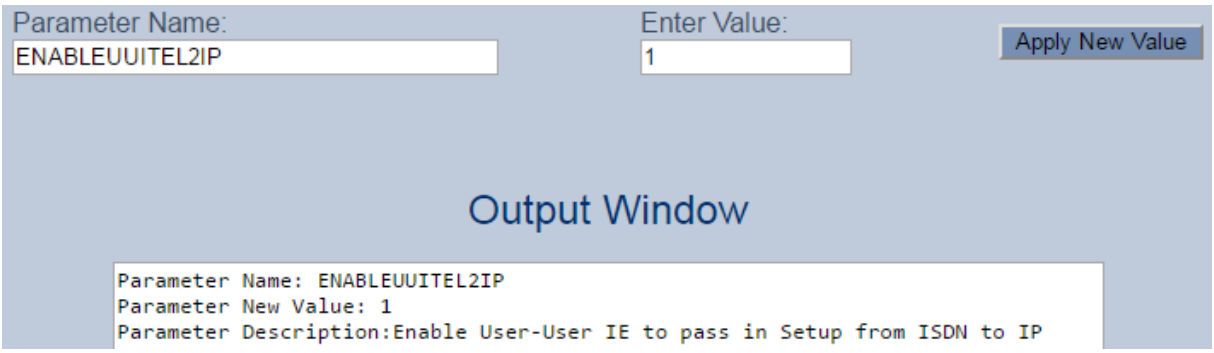
3.11.4 Step 11d: Configure Parameters using the AdminPage

This step describes how to configure additional Gateway parameters needed using the AdminPage.

➢ **To configure parameters using the AdminPage:**

1. Open the AdminPage.
2. Append the case-sensitive suffix 'AdminPage' to the device's IP address in your Web browser's URL field (e.g., http://10.15.17.10/AdminPage).
3. In the left pane of the page that opens, click ***ini* Parameters**.

Figure 3-25: Configuring a Parameter in AdminPage



4. Enter these values in the 'Parameter Name' and 'Enter Value' fields:

Parameter	Value	Parameter Description
EnableUUITel2IP	**1**	Enable User-User IE to pass in Setup from ISDN to IP.
TransparentCoderOnDataCall	**1**	In case the transfer capability of a call from ISDN is data open with transparent coder.

AddNPIandTON2RedirectNumber	**1**	Add NPI and TON as prefix to Redirect number.
ISO8859CharacterSet	**0**	Defines the ISO 8859-character set type for representing the alphanumeric string of the calling name.

5. Click the **Apply New Value** button for each parameter.

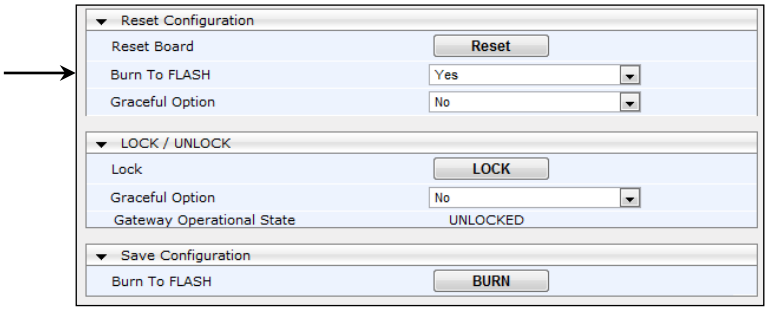
3.12 Step 12: Reset the Gateway

After you have completed the configuration of the Gateway described in this chapter, save ("burn") the configuration to the Gateway's flash memory with a reset for the settings to take effect.

➢ **To save the configuration to flash memory:**

1. Open the Maintenance Actions page (**Maintenance** tab > **Maintenance** menu > **Maintenance Actions**).

Figure 3-26: Resetting the Gateway



2. Ensure that the 'Burn to FLASH' field is set to **Yes** (default).
3. Click the **Reset** button.

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A AudioCodes CLI Script File

The AudioCodes MSBR CLI example script file is shown below:

```
# Running Configuration Mediant 500L - MSBR


## VoIP Configuration

  configure voip
   tls 0
    name default
    tls-version tls-v1.2
    ciphers-server "ALL:!aNULL:!ADH:!eNULL:!LOW:!EXP:+HIGH:+MEDIUM"
    ciphers-client "ALL:!aNULL:!ADH:!eNULL:!LOW:!EXP:+HIGH:+MEDIUM"
    ocsp-server disable
    ocsp-port 2560
    ocsp-default-response reject
   exit
   coders-and-profiles coders-group-0 0
    name "g711Alaw64k"
    p-time 20
    rate 0
    activate
   exit
   coders-and-profiles coders-group-0 1
    name "g711AlawVbd"
    p-time 20
    rate 0
    payload-type 118
    activate
   exit
   coders-and-profiles coders-group-0 2
    name "Transparent"
    p-time 20
    rate 0
    payload-type 56
    activate
   exit
   interface network-dev 0
    name "vlan 1"
    activate
   exit
   interface network-if 0
    ip-address 10.15.17.10
    prefix-length 16
    gateway 10.15.17.11
    name "Voice"
    primary-dns 10.15.27.1
    underlying-dev "vlan 1"
    activate
   exit
   access-list 0
    source-ip "145.253.48.138"
    prefixLen 32
```

```
 use-specific-interface enable
 network-interface-name "WAN"
 activate
exit
access-list 1
 source-ip "139.7.154.22"
 prefixLen 32
 use-specific-interface enable
 network-interface-name "WAN"
 activate
exit
access-list 2
 source-ip "116.31.116.21"
 prefixLen 32
 use-specific-interface enable
 network-interface-name "WAN"
 allow-type "Block"
 activate
exit
voip-network realm 0
 name "MR_WAN"
 ipv4if "WAN"
 port-range-start 6000
 session-leg 100
 port-range-end 6990
 is-default true
 activate
exit
voip-network srd 0
 name "SRD_WAN"
 media-realm-name "MR_WAN"
 enable-un-auth-registrs disable
 activate
exit
voip-network sip-interface 0
 interface-name "SI_TRUNK"
 network-interface "WAN"
 tcp-port 0
 tls-port 0
 activate
exit
voip-network proxy-set 0
 proxy-name ""
 activate
exit
voip-network proxy-set 1
 proxy-name "sipt.vf-office.net"
 is-proxy-hot-swap yes
 tls-context-index "0"
 proxy-redundancy-mode parking
 dns-resolve-method srv
 activate
exit
voip-network ip-group 1
 description "IPG_SIP-TRUNK"
 proxy-set-id 1
```

```
 sip-group-name "sipt.vf-office.net"
 media-realm-name "MR_WAN"
 ip-profile-id 1
 outbound-mesg-manipulation-set 1
 activate
exit
interface bri 2/1
 call-re-rte-mode isdn-rerouting-enabled
 ovrlp-rcving-type local-receiving
 isdn-xfer-cab speech
 play-rbt-to-trk play-local-until-remote-media-arrives
 isdn-termination-side network-termination-side
 isdn-bits-ns-behavior 134217728
 isdn-bits-incoming-calls-behavior 2147553280
 isdn-bits-outgoing-calls-behavior 1026
 trace-level full-isdn
 protocol 50
 activate
exit
interface bri 2/2
 call-re-rte-mode isdn-rerouting-enabled
 ovrlp-rcving-type local-receiving
 isdn-xfer-cab speech
 play-rbt-to-trk play-local-until-remote-media-arrives
 isdn-termination-side network-termination-side
 isdn-bits-ns-behavior 134217728
 isdn-bits-incoming-calls-behavior 2147553280
 isdn-bits-outgoing-calls-behavior 1026
 trace-level full-isdn
 protocol 50
 activate
exit
gw hunt-or-trunk-group trunk-group 0
 trunk-group-id 1
 first-trunk-id 1
 first-b-channel 1
 last-b-channel 2
 first-phone-number "BRi1"
 last-trunk-id 2
 module 2
 activate
exit
gw routing tel2ip-routing 0
 route-name "towards SIP trunk"
 ip-profile-id 0
 dst-ip-group-id 1
 src-trunk-group-id 1
 activate
exit
gw routing ip2tel-routing 0
 route-name "towards PBX"
 dst-phone-prefix "*"
 trunk-group-id 1
 activate
exit
gw routing general-setting
```

```
 npi-n-ton-to-cld-nb 1
 npi-n-ton-to-cng-nb 1
 activate
exit
gw manipulations src-number-map-tel2ip 0
 manipulation-name "Empty SRC"
 src-prefix "xxBRi"
 num-of-digits-to-leave 0
 prefix-to-add "+496945001990"
 activate
exit
gw manipulations src-number-map-tel2ip 1
 manipulation-name "Default"
 num-of-digits-to-leave 2
 prefix-to-add "+49694500199"
 activate
exit
gw manipulations src-number-map-ip2tel 0
 manipulation-name "Subscriber NPI/TON"
 src-prefix "+4969"
 ton subscriber-level0-regional
 npi e164-public
 remove-from-left 5
 activate
exit
gw manipulations src-number-map-ip2tel 1
 manipulation-name "National NPI/TON"
 src-prefix "+49"
 ton national-level1-regional
 npi e164-public
 remove-from-left 3
 activate
exit
gw manipulations src-number-map-ip2tel 2
 manipulation-name "Internation. NPI/TON"
 src-prefix "+"
 ton international-level2-regional
 npi e164-public
 remove-from-left 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 0
 manipulation-name "302 div Internat."
 dst-prefix "RN"
 redirect-prefix "00"
 ton international-level2-regional
 npi e164-public
 remove-from-left 2
 prefix-to-add "+"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 1
 manipulation-name "302 div National"
 dst-prefix "RN"
 redirect-prefix "0"
```

```
 ton national-level1-regional
 npi e164-public
 remove-from-left 1
 prefix-to-add "+49"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 2
 manipulation-name "302 div unknown"
 dst-prefix "RN"
 redirect-prefix ""
 prefix-to-add "+49"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 5
 manipulation-name "302 div-TO Internat."
 dst-prefix "DN"
 redirect-prefix "00"
 ton international-level2-regional
 npi e164-public
 remove-from-left 2
 prefix-to-add "+"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 6
 manipulation-name "302 div-TO National"
 dst-prefix "DN"
 redirect-prefix "0"
 ton national-level1-regional
 npi e164-public
 remove-from-left 1
 prefix-to-add "+49"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 7
 manipulation-name "Dest Subscriber"
 dst-prefix "DN"
 redirect-prefix "x"
 ton subscriber-level0-regional
 npi e164-public
 prefix-to-add "+49<Vorwahl>"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 10
 manipulation-name "Dest International"
 redirect-prefix "[1,0]000"
 ton international-level2-regional
 npi e164-public
 remove-from-left 4
 prefix-to-add "+"
 src-trunk-group-id 1
 activate
```

```
exit
gw manipulations redirect-number-map-tel2ip 11
 manipulation-name "Dest National"
 redirect-prefix "[1,0]00"
 ton national-level1-regional
 npi e164-public
 remove-from-left 3
 prefix-to-add "+49"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 12
 manipulation-name "Dest Special Numbers"
 redirect-prefix "[1,0]011"
 ton unknown
 npi e164-public
 remove-from-left 2
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 13
 manipulation-name "Dest Subscriber"
 redirect-prefix "[1,0]0"
 ton subscriber-level0-regional
 npi e164-public
 remove-from-left 2
 prefix-to-add "+49<Vorwahl>"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 14
 manipulation-name "TON international"
 redirect-prefix "11"
 remove-from-left 2
 prefix-to-add "+"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 15
 manipulation-name "TON national"
 redirect-prefix "12"
 remove-from-left 2
 prefix-to-add "+49"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 16
 manipulation-name "TON subscriber"
 redirect-prefix "14"
 remove-from-left 2
 prefix-to-add "+49<Vorwahl>"
 src-trunk-group-id 1
 activate
exit
gw manipulations redirect-number-map-tel2ip 17
 manipulation-name "unknown"
```

```
 remove-from-left 2
 activate
exit
gw manipulations general-setting
 outbound-map-set 1
 activate
exit
gw manipulations dst-number-map-tel2ip 1
 manipulation-name "International"
 dst-prefix "[1,0]000"
 remove-from-left 4
 prefix-to-add "+"
 activate
exit
gw manipulations dst-number-map-tel2ip 2
 manipulation-name "National"
 dst-prefix "[1,0]00"
 remove-from-left 3
 prefix-to-add "+49"
 activate
exit
gw manipulations dst-number-map-tel2ip 3
 manipulation-name "Special Number Codes"
 dst-prefix "[1,0]011"
 remove-from-left 2
 activate
exit
gw manipulations dst-number-map-tel2ip 4
 manipulation-name "Short Codes"
 dst-prefix "[1,0]0[*,#]"
 remove-from-left 2
 activate
exit
gw manipulations dst-number-map-tel2ip 5
 manipulation-name "Subscriber"
 dst-prefix "[1,0]0"
 remove-from-left 2
 prefix-to-add "+4969"
 activate
exit
gw manipulations dst-number-map-tel2ip 6
 manipulation-name "int TON"
 dst-prefix "11"
 remove-from-left 2
 prefix-to-add "+"
 activate
exit
gw manipulations dst-number-map-tel2ip 7
 manipulation-name "nat. TON"
 dst-prefix "12"
 remove-from-left 2
 prefix-to-add "+49"
 activate
exit
gw manipulations dst-number-map-tel2ip 8
 manipulation-name "lokal TON"
```

```
 dst-prefix "14"
 remove-from-left 2
 prefix-to-add "+4969"
 activate
exit
gw manipulations dst-number-map-tel2ip 9
 manipulation-name "alles andere"
 remove-from-left 2
 activate
exit
gw manipulations dst-number-map-ip2tel 0
 manipulation-name "Strip Int. Prefix"
 dst-prefix "+49"
 ton national-level1-regional
 npi e164-public
 remove-from-left 3
 activate
exit
gw hunt-or-trunk-group trunk-group-setting 1
 trunk-group-id 1
 channel-select-mode channel-cyclic-ascending
 registration-mode per-account
 activate
exit
gw dtmf-and-suppl dtmf-and-dialing
 dtmf-options 0
  type rfc-2833
  activate
 exit
 telephony-events-payload-type-tx 101
 activate
exit
gw digitalgw rp-network-domains 1
 name "dsn"
 activate
exit
gw digitalgw rp-network-domains 2
 name "dod"
 activate
exit
gw digitalgw rp-network-domains 3
 name "drsn"
 activate
exit
gw digitalgw rp-network-domains 5
 name "uc"
 activate
exit
gw digitalgw rp-network-domains 7
 name "cuc"
 activate
exit
gw digitalgw digital-gw-parameters
 np-n-ton-2-redirnb enable
 answer-detector-cmd 10486144
 uui-ie-for-tel2ip standard
```

```
 energy-detector-cmd 587202560
 iso8859-charset no-accented
 transparent-coder-on-data-call on
 activate
exit
ldap
 ldap-search-server-method sequentialy
 activate
exit
media udp-port-configuration
 udp-port-spacing 10
 activate
exit
media security
 media-sec-bhvior preferable-single-media
 activate
exit
media RTP-payload-types
 telephony-events-payload-type-tx 101
 activate
exit
qos vlan-mapping 0
 diff-serv 46
 vlan-priority 6
 activate
exit
qos vlan-mapping 1
 diff-serv 48
 vlan-priority 6
 activate
exit
qos vlan-mapping 2
 diff-serv 26
 vlan-priority 4
 activate
exit
qos vlan-mapping 3
 diff-serv 10
 vlan-priority 2
 activate
exit
qos application-mapping
 control-qos 48
 activate
exit
sbc manipulations message-manipulations 2
 manipulation-set-id 1
 action-subject "header.p-preferred-identity.url.user"
 action-type modify
 action-value "'+496945001990'"
 activate
exit
sbc manipulations message-manipulations 3
 manipulation-set-id 1
 action-subject "header.p-preferred-identity.url.host"
 action-type modify
```

```
    action-value "'MSBR'"
    activate
   exit
   sbc manipulations message-manipulations 4
    manipulation-set-id 1
    action-subject "header.from.url.host"
    action-type modify
    action-value "'MSBR'"
    activate
   exit
   sbc manipulations message-manipulations 5
    manipulation-set-id 1
    message-type "invite.response.302"
    action-subject "header.diversion.url.user"
    action-type modify
    action-value "header.to.url.user"
    activate
   exit
   sbc manipulations message-manipulations 6
    manipulation-set-id 1
    action-subject "header.diversion"
    action-type remove
    activate
   exit
   sbc manipulations message-manipulations 7
    manipulation-name "Correct Contact"
    manipulation-set-id 1
    message-type "any.response"
    condition "header.to.url.user != header.contact.url.user and
header.to.url.user contains header.contact.url.user"
    action-subject "header.contact.url.user"
    action-type modify
    action-value "header.to.url.user"
    activate
   exit
   services least-cost-routing routing-rule-groups 0
    lcr-default-cost highest-cost
    activate
   exit
   sip-definition proxy-and-registration
    dns-query srv
    registration-time 600
    activate
   exit
   sip-definition general-settings
    asserted-identity-m add-p-preferred-identity
    crypto-life-time-in-sdp on
    early-media on
    fax-sig-method g.711-transport
    activate
   exit
   sip-definition advanced-settings
    disc-broken-conn ignore
    set ldap-primary-key "telephoneNumber"
    ip-security secure-incoming-calls
    activate
   exit
```

```
    tdm
     pcm-law-select alaw
     activate
    exit
    voip-network proxy-ip 0
     proxy-address "sbc-pool1.sipt.vf-office.net"
     proxy-set-id 1
     activate
    exit
   exit

## System Configuration

   configure system
    cli-terminal
     wan-ssh-allow off
     ssh on
     override-ssh-acl-for-lan on
     activate
    exit
    clock
     summer-time
      summer-time on
      set end "10:SUN/05:03:00"
      set start "03:SUN/05:02:00"
      activate
     exit
    exit
    logging
     syslog on
     debug-level detailed
     syslog-ip 192.168.1.21
     activate
    exit
    ntp
     set secondary-server "1.europe.pool.ntp.org"
     set primary-server "ntp1.t-online.de"
     utc-offset 3600
     activate
    exit
    radius
     set shared-secret "$1$woS2sLC0opqIjoKZng=="
     activate
    exit
    snmp
     no activate-keep-alive-trap
     activate
    exit
    web
     wan-https-allow off
     override-web-acl-for-lan on
     set https-cipher-string
"ALL:!aNULL:!ADH:!eNULL:!LOW:!EXP:+HIGH:+MEDIUM"
     activate
    exit
   hostname "Mediant 500L - MSBR"
   configuration-version 2017050201
```

```
exit
configure data
 interface GigabitEthernet 0/0
  no ip address
  mtu auto
  desc "WAN Copper"
  no ipv6 enable
  speed auto
  duplex auto
  no service dhcp
  ip dns server static
  no shutdown
 exit
 interface dsl 0/2
  #DSL configuration is automatic
  #Termination cpe
  mode ADSL
  auto-switch-attempts vdsl 3 vdsl-v43 0 adsl 3
  no shutdown
 exit
 interface EFM 0/2
 #This interface is DISABLED due to physical layer configuration
  no ip address
  mtu 1568
  desc "VDSL"
  no ipv6 enable
  no service dhcp
  ip dns server static
  no shutdown
 exit
 interface GigabitEthernet 1/1
  speed auto
  duplex auto
  switchport mode trunk
  switchport trunk native vlan 1
  no shutdown
 exit
 interface GigabitEthernet 1/2
  speed auto
  duplex auto
  switchport mode trunk
  switchport trunk native vlan 1
  no shutdown
 exit
 interface GigabitEthernet 1/3
  speed auto
  duplex auto
  switchport mode trunk
  switchport trunk native vlan 1
  no shutdown
 exit
 interface GigabitEthernet 1/4
  speed auto
  duplex auto
  switchport mode trunk
  switchport trunk native vlan 1
```

```
 no shutdown
exit
interface ATM 0/0
  encapsulation ethoa-snap
  pvc 1/32
  ubr
  no ip address
  no ipv6 enable
  ip dns server auto
  napt
  firewall enable
  mtu auto
exit
interface VLAN 1
 ip address 192.168.1.200 255.255.255.0
 mtu auto
 desc "LAN switch VLAN 1"
 no ipv6 enable
 no service dhcp
 ip dns server static
 no napt
 no firewall enable
 no link-state monitor
 no shutdown
exit
interface pppoe 0
 #This interface is DISABLED due to physical layer configuration
 firewall enable
 napt
 mtu auto
 ppp user vodafone.dsl/YOURUSER pass YOURPASS
 ppp authentication chap
 ppp authentication ms-chap
 ppp authentication ms-chap-v2
 ppp authentication pap
 ppp lcp-echo 6 5
 no ppp compression
 ip address auto
 no ipv6 address
 ip dns server auto
 underlying EFM 0/2
 no shutdown
exit
interface pppoe 1
 firewall enable
 napt
 mtu auto
 ppp user vodafone.dsl/YOURUSER pass YOURPASS
 ppp authentication chap
 ppp authentication ms-chap
 ppp authentication ms-chap-v2
 ppp authentication pap
 ppp lcp-echo 6 5
 no ppp compression
 ip address auto
 no ipv6 address
```

```
    ip dns server auto
    underlying ATM 0/0
    no shutdown
   exit
   interface pppoe 2
    firewall enable
    napt
    mtu auto
    ppp user vodafone.dsl/YOURUSER pass YOURPASS
    ppp authentication chap
    ppp authentication ms-chap
    ppp authentication ms-chap-v2
    ppp authentication pap
    ppp lcp-echo 6 5
    no ppp compression
    ip address auto
    no ipv6 address
    ip dns server auto
    underlying GigabitEthernet 0/0
    no shutdown
   exit
   ip nat translation udp-timeout 120
   ip nat translation tcp-timeout 3600
   ip nat translation icmp-timeout 6
   # Note: The following WAN ports are in use by system services,
   #       conflicting rules should not be created:
   #         Ports 82 - 82 --> TR069
   #  A       Ports 6000 - 6990 --> RealmPortPool::MR_WAN
   #         Ports 5060 - 5060 --> SIPUDP#0
   # Note: The following NAT rules are in effect for system services,
   #       conflicting rules should not be created:
   #         RealmPortPool::MR_WAN: LAN ports 6000-6990 to WAN IP
176.95.129.188 ports 6000-6990, interface PPPOE 1
   #         SIPUDP#0: LAN ports 5060-5060 to WAN IP 176.95.129.188 ports
5060-5060, interface PPPOE 1
   ip route 0.0.0.0 0.0.0.0 PPPOE 0 1
   ip route 0.0.0.0 0.0.0.0 PPPOE 1 1
   ip route 0.0.0.0 0.0.0.0 PPPOE 2 1
   ip domain name home
   ip domain localhost msbr
   pm sample-interval minute 5
   pm sample-interval seconds 15
  exit
```

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