

Swisscom SIP Trunk "Enterprise SIP" using AudioCodes Mediant™ BRI/PRI Gateway

Version 7.2



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Documentation Feedback

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1 Introduction

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

1.1 Intended Audience

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



Note: All references to **Swisscom SIP Trunk** in this document refer to **Swisscom SIP Trunk "Enterprise SIP Standard"**.

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2 Component Information

2.1 AudioCodes Gateway Version

Table 2-1: AudioCodes Gateway Version

Gateway Vendor	AudioCodes
Models	<ul style="list-style-type: none"> ▪ Mediant 500L Gateway ▪ Mediant 500 Gateway ▪ Mediant 800 Gateway ▪ Mediant 1000B Gateway
Software Version	SIP_7.20A.104.001
Protocol	<ul style="list-style-type: none"> ▪ SIP/UDP (to the Swisscom SIP Trunk) ▪ Euro-ISDN over BRI/PRI (to the PSTN PBX)
Additional Notes	None

2.2 Swisscom SIP Trunking Version

Table 2-2: Swisscom Version

Vendor/Service Provider	Swisscom (Switzerland) Ltd.
SSW Model/Service	Swisscom SIP Trunk "Enterprise SIP Standard"
Software Version	<ul style="list-style-type: none"> ▪ E-SBC: 15.5(3)M ▪ Core-SBC: SCZ730m2p ▪ A2: 19.01.2
Protocol	SIP
Additional Notes	None

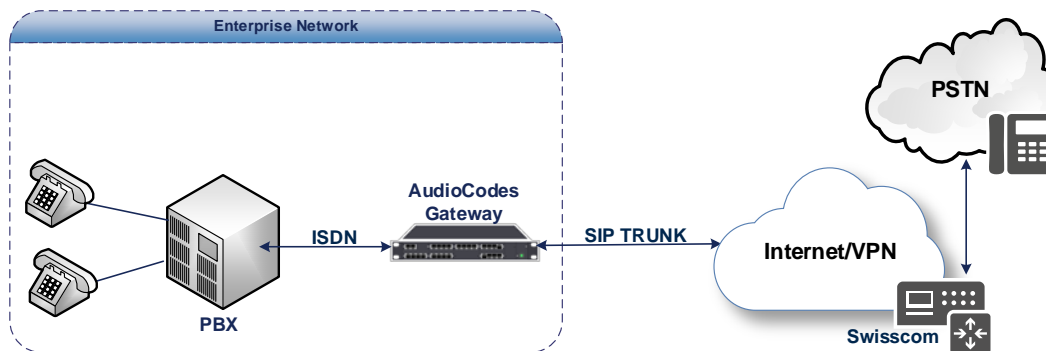
2.3 Interoperability Test Topology

The interoperability testing between AudioCodes Gateway and Swisscom SIP Trunk 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 an AudioCodes Gateway.

The figure below illustrates this test topology:

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



3 Configuring AudioCodes Media Gateway

This chapter provides step-by-step procedures on how to configure the AudioCodes Media Gateway for interworking with the Swisscom SIP Trunk. These configuration procedures are based on the test topology described in Section 2.3 on page 10, and includes the following main areas:

- Gateway IP interface - Swisscom SIP Trunking environment
- Gateway ISDN interface - PBX environment

This configuration is mostly done using the Gateway's embedded Web server (hereafter, referred to as *Web interface*).



Notes:

- For implementing Swisscom SIP Trunk based on the configuration described in this section in combination with a SIP PBX, the AudioCodes Media Gateway must be installed with the relevant SBC Software License Keys.
- For information about the License Key, contact your AudioCodes sales representative.
- 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.

3.1 Step 1: IP Network Interface Configuration

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

➤ **To configure the IP network interface:**

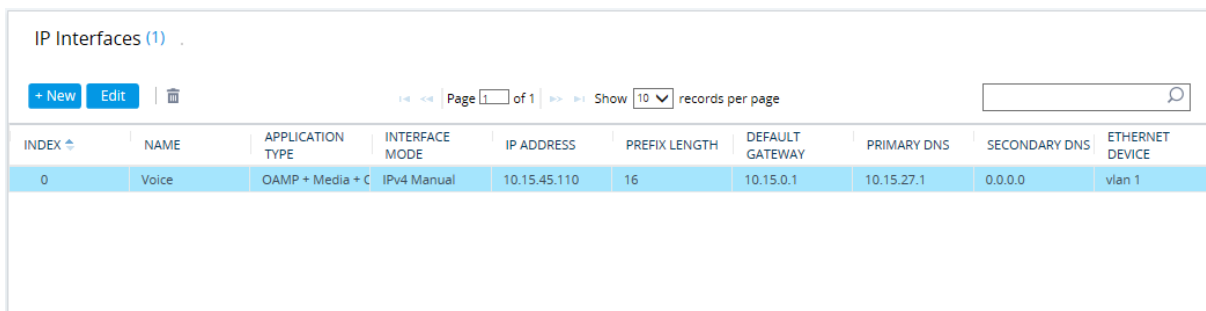
1. Open the IP Interfaces table (**Setup** menu > **IP Network** tab > **Core Entities** folder > **IP Interfaces**).
2. Modify the existing LAN network interface:
 - a. Select the 'Index' radio button of the **OAMP + Media + Control** table row, and then click **Edit**.
 - b. Configure the interface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

Parameter	Value
Name	LAN_IF (arbitrary descriptive name)
Ethernet Device	vlan 1
IP Address	10.15.45.110
Prefix Length	16 (subnet mask in bits for 255.255.0.0)
Default Gateway	10.15.0.1
Primary DNS	10.15.27.1

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

The configured IP network interface is shown below:

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



INDEX ↕	NAME	APPLICATION TYPE	INTERFACE MODE	IP ADDRESS	PREFIX LENGTH	DEFAULT GATEWAY	PRIMARY DNS	SECONDARY DNS	ETHERNET DEVICE
0	Voice	OAMP + Media + C	IPv4 Manual	10.15.45.110	16	10.15.0.1	10.15.27.1	0.0.0.0	vlan 1

3.2 Step 2: Configure Media Realm

This step describes how to configure Media Realms.

➤ **To configure Media Realms:**

1. Open the Media Realms table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Media Realms**).
2. Add a Media Realm for the LAN interface. You can use the default Media Realm (Index 0), but modify it as shown below:

Parameter	Value
Index	0
Name	MR_LAN (descriptive name)
IPv4 Interface Name	Voice
Port Range Start	6000 (represents lowest UDP port number used for media on LAN)
Number of Media Session Legs	100 (media sessions assigned with port range)

Figure 3-2: Configuring Media Realm

3.3 Step 3: Configure SIP Signaling Interface

This step describes how to configure SIP Interfaces.

➤ **To configure SIP Interfaces:**

1. Open the SIP Interfaces table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **SIP Interfaces**).
2. Add a SIP Interface for the LAN interface. You can use the default SIP Interface (Index 0), but modify it as shown below:

Parameter	Value
Index	0
Name	SI_LAN (see note at the end of this section)
Network Interface	Voice
Application Type	GW
UDP Port	5060
TCP Port	5060
TLS Port	0
Media Realm	MR_LAN

Figure 3-3: Configuring SIP-Interface



Note: Current software releases use the string **names** of the configuration entities (e.g., SIP Interface, Proxy Sets, and IP Groups). Therefore, it is recommended to configure each configuration entity with meaningful names for easy identification.

3.4 Step 4: Configure Proxy Set

This step describes how to configure the 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 Swisscom SIP Trunk. The Proxy Sets will be later applying to the VoIP network by assigning them to IP Groups.

➤ **To configure the Proxy Set:**

1. Open the Proxy Sets table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **Proxy Sets**).
2. Add a Proxy Set for the Swisscom SIP Trunk as shown below:

Parameter	Value
Index	1
Name	PS_SIP-TRUNK
Gateway IPv4 SIP Interface	SI_LAN
Proxy Keep-Alive	Using Options
Proxy Keep-Alive Time [sec]	10
Redundancy Mode	Homing

Figure 3-4: Configuring Proxy Set for Swisscom SIP Trunk

Proxy Sets: [PS_SIP-TRUNK]

SRD: #0 [SRD_LAN]

GENERAL

Index: 1

Name: PS_SIP-TRUNK

Gateway IPv4 SIP Interface: #0 [SI_LAN] [View](#)

SBC IPv4 SIP Interface: -- [View](#)

TLS Context Name: -- [View](#)

REDUNDANCY

Redundancy Mode: Homing

Proxy Hot Swap: Disable

Proxy Load Balancing Method: Disable

Min. Active Servers for Load Balancing: 1

KEEP ALIVE

Proxy Keep-Alive: Using OPTIONS

Proxy Keep-Alive Time [sec]: 10

ADVANCED

Classification Input: IP Address only

DNS Resolve Method:

Cancel APPLY

3. Select the index row of the Proxy Set that you added, and then click the **Proxy Address** link located below the table; the Proxy Address table opens.
4. Click **New**.

5. Configure the address of the Proxy Set according to the parameters described in the table below.

Parameter	Value
Index	0
Proxy Address	10.254.150.52:5060
Transport Type	TCP
Parameter	Value
Index	1
Proxy Address	10.254.150.52:5060
Transport Type	UDP

- c. Click **Apply**.

3.5 Step 5: Configure Coders

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

- **To set coders for the Swisscom SIP Trunk:**

1. Open the Coder Groups table (**Setup** menu > **Signaling & Media** tab > **Coders & Profiles** folder > **Coder Groups**).
2. Configure a Coder Group for Swisscom:

Coder Name	Payload Type
G.711A-law	8
G.729	18
T.38	N/A

Figure 3-5: Configuring Coders for Swisscom SIP Trunk

Coder Groups

Coder Group Name:

Coder Name	Packetization Time	Rate	Payload Type	Silence Suppression	Coder Specific
G.711A-law	20	64	8	Disabled	<input type="text"/>
G.729	20	8	18	Disabled	<input type="text"/>
T.38	N/A	N/A	N/A	N/A	<input type="text"/>

3.6 Step 6: Configure IP Profile

This step describes how to configure the IP Profile. The IP Profile defines a set of call capabilities relating to signaling and media.

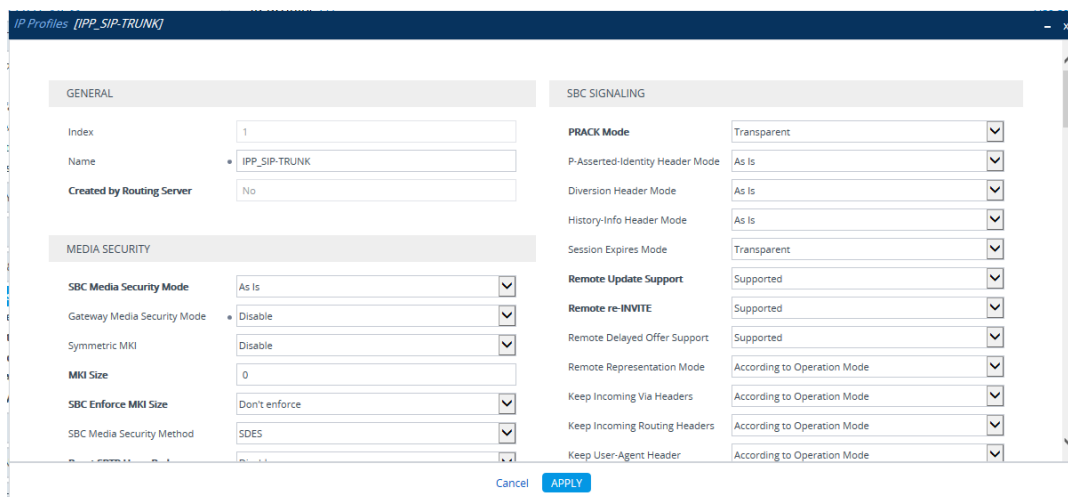
In this interoperability test topology, the IP Profile needs to be configured for the Swisscom SIP trunk IP entity:

➤ **To configure the IP Profile for the Swisscom SIP trunk:**

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	IPP_SIP-TRUNK
Media Security	
Gateway Media Security Mode	Disable
GATEWAY	
Early Media	Enable
Early 183	Enable
Coders Group	AudioCodersGroups_0
GATEWAY DTMF	
Is DTMF Used	Enable
GATEWAY FAX AND MODEM	
Fax Signaling Method	No Fax

Figure 3-6: Configuring IP Profile for Skype for Business Server 2015



3.7 Step 7: Configure IP Group

This step describes how to configure the 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 is configured for the Swisscom SIP Trunk.

➤ **To configure the IP Group:**

1. Open the IP Groups table (**Setup** menu > **Signaling & Media** tab > **Core Entities** folder > **IP Groups**).
2. Add an IP Group for the Swisscom SIP Trunk as shown below:

Parameter	Value
Index	1
Type	Server
Description	IPG_SIP-TRUNK (arbitrary descriptive name)
Proxy Set ID	PS_SIP-TRUNK
IP Profile	IPP_SIP-TRUNK
Media Realm Name	MR_LAN
SIP Group Name	10.254.150.52

Figure 3-7: Configuring IP Group for Swisscom

3.8 Step 8: Configure PSTN Trunk Settings

This step describes how to configure PSTN trunk settings for BRI and PRI PSTN interfaces.

3.8.1 Step 8a: Configure the BRI PSTN Interface

This step describes how to configure the BRI PSTN Interface. Skip to the next step if you have a PRI interface.

To configure the BRI PSTN interface:

1. Open the Trunk Settings page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **Trunks & Groups** > **Trunks**).
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
Local ISDN Ringback Tone Source	Gateway
ISDN Transfer Capabilities	Audio 3.1
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 3-8: Configuring BRI PSTN Interface

Trunk Settings

<div style="background-color: #f0f0f0; padding: 5px; margin-bottom: 5px;">GENERAL</div> <p>Module ID: 1</p> <p>Trunk ID: 2</p> <p>Trunk Configuration State: Active</p> <p>Protocol Type: BRI EURO ISDN</p>	<div style="background-color: #f0f0f0; padding: 5px; margin-bottom: 5px;">ADVANCED SETTINGS</div> <p>PSTN Alert Timeout: -1</p> <p>Local ISDN Ringback Tone Source: Gateway</p> <p>Set PI in Rx Disconnect Message: Not Configured</p> <p>ISDN Transfer Capabilities: Audio 3.1</p> <p>Progress Indicator to ISDN: Not Configured</p> <p>Select Receiving of Overlap Dialing: Local Receiving</p> <p>B-channel Negotiation: Not Configured</p> <p>Out-Of-Service Behavior: Not Configured</p> <p>Remove Calling Name: Use Global Parameter</p> <p>Play Ringback Tone to Trunk: Play Local Until Remote M</p> <p>Call Rerouting Mode: ISDN Rerouting Enabled</p> <p>ISDN Duplicate Q931 BuffMode: 0</p> <p>Trunk Name: </p>
<div style="background-color: #f0f0f0; padding: 5px; margin-bottom: 5px;">BRI CONFIGURATION</div> <p>Auto Clock Trunk Priority: 0</p> <p>Trace Level: No Trace</p> <p>ISDN Termination Side: Network side</p> <p>BRI Layer2 Mode: Point To Point</p> <p>Q931 Layer Response Behavior: 0x8000000</p> <p>Outgoing Calls Behavior: 0x402</p> <p>Incoming Calls Behavior: 0x80011000</p> <p>General Call Control Behavior: 0x0</p> <p>ISDN NS Behaviour 2: 0x0</p>	

Submit
Stop Trunk

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

3.8.2 Step 8b: Configure the PRI PSTN Interface

This step describes how to configure the PRI PSTN Interface.

To configure the PRI PSTN interface:

1. Open the Trunk Settings page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **Trunks & Groups** > **Trunks**).
2. Configure following parameters:

Parameter	Value
Protocol Type	E1 EURO ISDN
Clock Master	Generated
Line Code	HDB3
Framing Method	E1 Framing MFF CRC4 Ext
ISDN Termination Side	Network side
Outgoing Calls Behavior	0x402
Incoming Calls Behavior	0x80011000
Transfer Mode	ECT
Local ISDN Ringback Tone Source	Gateway
ISDN Transfer Capabilities	Audio 3.1
Select Receiving of Overlap Dialing	Local Receiving
Play Ringback Tone to Trunk	Play Local Until Remote Media Arrive
B-channel Negotiation	Preferred
Call Rerouting Mode	ISDN Rerouting Enabled

Figure 3-9: Configuring PRI PSTN Interface

Trunk Settings

<div style="background-color: #f0f0f0; padding: 2px; margin-bottom: 5px;">GENERAL</div> <p>Module ID: 1</p> <p>Trunk ID: 1</p> <p>Trunk Configuration State: Active</p> <p>Protocol Type: E1 EURO ISDN</p>	<div style="background-color: #f0f0f0; padding: 2px; margin-bottom: 5px;">ADVANCED SETTINGS</div> <p>PSTN Alert Timeout: -1</p> <p>Transfer Mode: Disable</p> <p>Local ISDN Ringback Tone Source: PBX</p> <p>Set PI in Rx Disconnect Message: Not Configured</p> <p>ISDN Transfer Capabilities: Not Configured</p> <p>Progress Indicator to ISDN: Not Configured</p> <p>Select Receiving of Overlap Dialing: None</p> <p>B-channel Negotiation: Not Configured</p> <p>Out-Of-Service Behavior: Not Configured</p> <p>Remove Calling Name: Use Global Parameter</p> <p>Play Ringback Tone to Trunk: Not Configured</p> <p>Call Rerouting Mode: None</p> <p>ISDN Duplicate Q931 BuffMode: 0</p> <p>Trunk Name: </p>
<div style="background-color: #f0f0f0; padding: 2px; margin-bottom: 5px;">TRUNK CONFIGURATION</div> <p>Clock Master: Generated</p> <p>Auto Clock Trunk Priority: 0</p> <p>Line Code: HDB3</p> <p>Line Build Out Loss: 0 dB</p> <p>Trace Level: No Trace</p> <p>Line Build Out Overwrite: OFF</p> <p>Framing Method: E1 FRAMING MFF CRC4 EX</p>	
<div style="background-color: #f0f0f0; padding: 2px; margin-bottom: 5px;">ISDN CONFIGURATION</div> <p>ISDN Termination Side: Network side</p> <p>Q931 Layer Response Behavior: rx0</p>	

Submit
Stop Trunk
Deactivate Trunk
Create Loopback

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

3.8.3 Step 8c: Configure the TDM Bus

This step describes how to configure the Gateway's TDM bus.

➤ **To configure the TDM bus:**

1. Open the TDM Bus Settings page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **TDM Bus Settings**).
2. Configure the TDM bus parameters per your deployment requirements. Below is an example:

Parameter	Value
TDM Bus Clock Source	Internal
PCM Law Select	ALaw

Figure 3-10: TDM Bus Settings Page

TDM Bus Settings

GENERAL

TDM Bus Clock Source: Internal ⚡

TDM Bus PSTN Auto FallBack Clock: Disable ⚡

TDM Bus PSTN Auto Clock Reverting: Disable ⚡

TDM Bus Local Reference: 1

DIGITAL PCM

PCM Law Select: • ALaw ⚡

Idle PCM Pattern: 213 ⚡

Idle ABCD Pattern: 0x0F ⚡

3.9 Step 9: Configure Trunk Group Parameters

This step describes 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.

3.9.1 Step 9a: Configure the BRI Trunk Group

This step describes how to configure the BRI Trunk Group. Skip to the next step if you have a PRI interface.

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

1. Open the Trunk Group Table page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **Trunks & Groups** > **Trunk Groups**).
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 Swisscom and the PBX.

Figure 3-11: Configuring BRI Trunk Group Table

Trunk Group Table

Add Phone Context As Prefix Disable
Trunk Group Index 1-12

Group Index	Module	From Trunk	To Trunk	Channels	Phone Number	Trunk Group ID	Tel Profile Name
1	Module 1 BRI	1	1	1-2	A1000	1	None

3.9.2 Step 9b: Configure the PRI Trunk Group

This section shows how to configure the PRI Trunk Group.

To configure the PRI Trunk Group Table:

1. Open the Trunk Group Table page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **Trunks & Groups** > **Trunk Groups**).
2. Configure each Trunk Group as required. If more than one PRI port is available, on line 1 of the table above, set "To Trunk" to the last PRI port to be used for incoming / outgoing calls between Swisscom and the PBX.

Figure 3-12: Configuring PRI Trunk Group Table

Trunk Group Table

Add Phone Context As Prefix Disable
Trunk Group Index 1-12

Group Index	Module	From Trunk	To Trunk	Channels	Phone Number	Trunk Group ID	Tel Profile Name
1	Module 1 PRI	1	1	1-31	A1000	1	None

3.9.3 Step 9c: Configure Trunk Group Settings

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

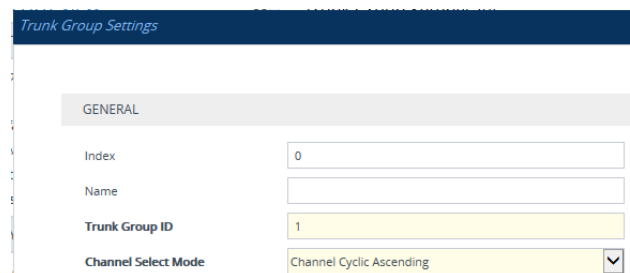
- Channel Select Mode by which IP-to-Tel calls are assigned to the Trunk Group's channels

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

1. Open the Trunk Group Table page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **Trunks & Groups** > **Trunk Group Settings**).
2. Click **New**.
3. Configure the following parameters:

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

Figure 3-13: Configuring Trunk Group Settings



The screenshot shows the 'Trunk Group Settings' page with the 'GENERAL' tab selected. The fields are as follows:

Index	<input type="text" value="0"/>
Name	<input type="text"/>
Trunk Group ID	<input type="text" value="1"/>
Channel Select Mode	<input type="text" value="Channel Cyclic Ascending"/>

3.10 Step 10: 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.

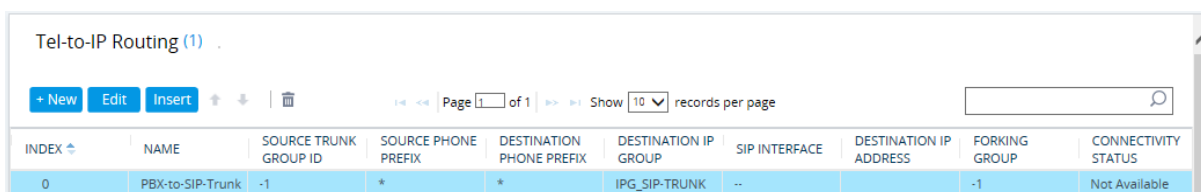
3.10.1 Step 10a: Configure Tel-to-IP Routing

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

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

1. Open the Outbound IP Routing Table page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **Routing** > **Tel -> IP Routing**).
2. Click **New**.
3. Configure a rule for all incoming IP calls. Route them to 'Destination IP Group' **IPG_SIP-TRUNK** (connected to the Swisscom).
4. Click **Apply**.

Figure 3-14: Configured Tel-to-IP Routing Rules



INDEX	NAME	SOURCE TRUNK GROUP ID	SOURCE PHONE PREFIX	DESTINATION PHONE PREFIX	DESTINATION IP GROUP	SIP INTERFACE	DESTINATION IP ADDRESS	FORKING GROUP	CONNECTIVITY STATUS
0	PBX-to-SIP-Trunk	-1	*	*	IPG_SIP-TRUNK	--		-1	Not Available

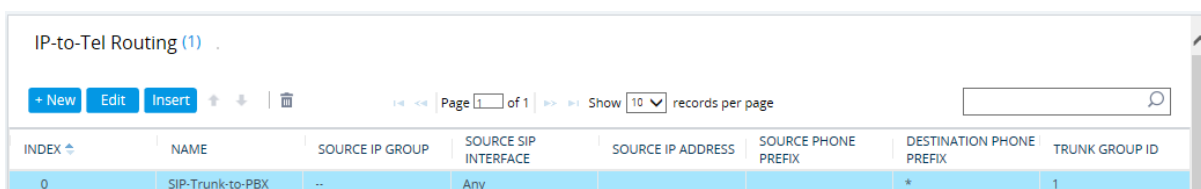
3.10.2 Step 10b: Configure IP-to-Tel Routing

This step describes how to configure Mediant BRI/PRI Gateway IP-to-Tel Routing, whereby all calls from the Swisscom 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 (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **Routing** > **IP -> Tel Routing**).
2. Click **New**.
3. Configure a rule for all incoming IP calls, with any destination prefix assigned and route them to 'Trunk Group ID' **1** (connected to the PBX).
4. Click **Apply**.

Figure 3-15: Configured IP-to-Tel Routing Rules



INDEX	NAME	SOURCE IP GROUP	SOURCE SIP INTERFACE	SOURCE IP ADDRESS	SOURCE PHONE PREFIX	DESTINATION PHONE PREFIX	TRUNK GROUP ID
0	SIP-Trunk-to-PBX	--	Any			*	1

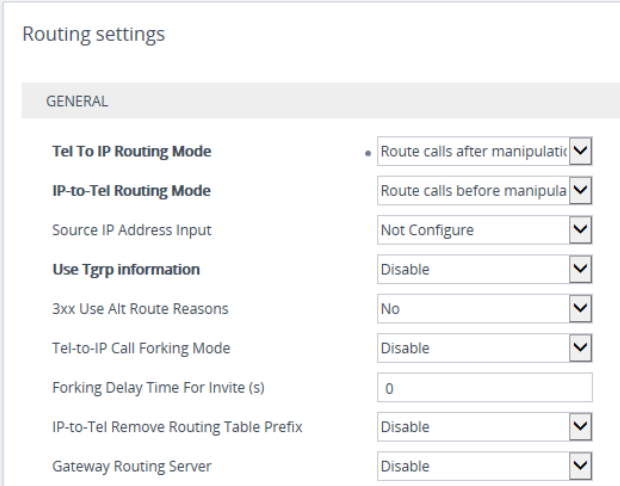
3.10.3 Step 10c: Configure Routing settings

This section identifies the device configuration needed in the Routing settings

➤ **To configure Routing settings:**

1. Open the Routing settings page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **Routing** > **Routing Settings**).
2. From the 'Tel to IP Routing Mode' drop-down list, select **Route calls after manipulation**.
3. Click **Apply**.

Figure 3-16: Routing settings Page



The screenshot shows the 'Routing settings' page with the 'GENERAL' tab selected. The page contains several configuration options, each with a dropdown menu or a text input field. The 'Tel To IP Routing Mode' dropdown is currently set to 'Route calls after manipulation'.

Configuration Option	Value
Tel To IP Routing Mode	Route calls after manipulation
IP-to-Tel Routing Mode	Route calls before manipulation
Source IP Address Input	Not Configure
Use Tgrp information	Disable
3xx Use Alt Route Reasons	No
Tel-to-IP Call Forking Mode	Disable
Forking Delay Time For Invite (s)	0
IP-to-Tel Remove Routing Table Prefix	Disable
Gateway Routing Server	Disable

3.11 Step 11: Configure Normalization Rules for E.164 Format for PBX/PSTN Connectivity

Swisscom 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 Swisscom 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 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

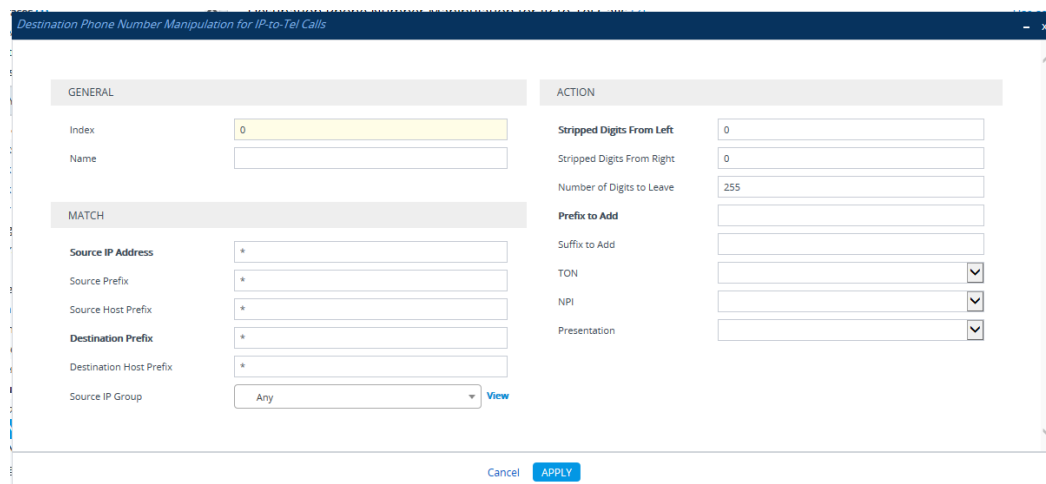
For IP-to-Tel calls:

- 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 (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **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 **New** button; the following screen is displayed:

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



3. Configure the matching characteristics.
4. Configure the manipulation actions.
5. Click **Apply** to submit your changes.

3.11.1 Number Manipulation Examples

Two examples are provided below for number manipulation.

3.11.1.1 Number Manipulation IP to Tel Example

The example below shows a manipulation rule that removes "+41" from the destination number when the destination number prefix "+41".

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

3.11.1.2 Number Manipulation Tel to IP Example

The example below shows a National manipulation rule that removes the "0" prefix and adds "+41" to the destination number, when the destination number prefix is "0[1-9]".

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



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

3.12 Step 12: 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 GW and determine whether they are applied to inbound or outbound messages.

- **To configure SIP message manipulation rule:**
 1. Open the Message Manipulations page (**Setup** menu > **Signaling & Media** tab > **Message Manipulation** folder > **Message Manipulations**).
 2. Configure new manipulation rules (Manipulation Set 1) for Swisscom SIP Trunk according to the table below:

Index	MMS Rule Name	Specific Configuration					
		Set ID	Message Type	Condition	Action Subject	Action Type	Action Value
0	Options Request-URI	1	options.request		header.request-uri.url.host	Modify	param.message.address.dst.address
1	Set Contact-User to Anonymous	1	invite.request	header.privacy regex (id)	header.contact.url.user	Modify	'anonymous'
2	Edit Diversion-Header	1	invite.request	header.diversion exists AND header.diversion regex (<tel:)(.*)>(.*)	header.diversion	Modify	'<sip:+\$2+'@'+header.contact.url.host+\$3
3	Edit PAI if anonymous	1	invite.request	header.diversion exists AND header.diversion regex (<sip:)(.*)>(@.*) AND header.privacy=='id'	header.p-asserted-identity	Modify	'<sip:+\$2+'@'+header.contact.url.host+'>'
4	Remove T.38 from SDP	1	invite.request	body.sdp regex (.*)(m=image)(.*)	body.sdp	Modify	\$1

Figure 3-20: Configured SIP Message Manipulation Rules

Message Manipulations (5)

+ New Edit Insert [Icons] Page 1 of 1 Show 10 records per page [Search]

INDEX	NAME	MANIPULATION SET ID	MESSAGE TYPE	CONDITION	ACTION SUBJECT	ACTION TYPE	ACTION VALUE	ROW ROLE
0	Options Request-UR	1	OPTIONS.request		header.request-uri.u	Modify	param.message.add	Use Current Condit
1	Set Contact-User to	1	invite.request	header.privacy regex	header.contact.url.lu	Modify	'anonymous'	Use Current Condit
2	Edit Diversion-Head	1	invite.request	header.diversion exi	header.diversion	Modify	'<sip:+\$2+'@'+head	Use Current Condit
3	Edit PAI if anonymou	1	invite.request	header.diversion exi	header.p-asserted-ic	Modify	'<sip:+\$2+'@'+head	Use Current Condit
4	Remove T.38 from S	1	invite.request	body.sdp regex (.*)r	body.sdp	Modify	\$1	Use Current Condit

3. Assign Manipulation Set ID 1 to the GW 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://10.15.45.110/AdminPage).
 - c. In the left pane of the page that opens, click **ini Parameters**.
 - d. In the 'Parameter Name' Enter **GWOUTBOUNDMANIPULATIONSET** and in the 'Enter Value' enter 1.
 - e. Click **Apply New Value**.

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

The screenshot shows a web interface for configuring parameters. On the left, there is a navigation menu with the following items: 'Image Load to Device', 'ini Parameters' (which is highlighted), and 'Back to Main'. The main area of the page is titled 'Parameter Name:' and contains a text input field with the value 'GWOUTBOUNDMANIPULATIONSET'. To the right of this field is an 'Enter Value:' field with the value '1'. A button labeled 'Apply New Value' is located to the right of the 'Enter Value' field. Below the main configuration area is an 'Output Window' displaying the following text: 'Parameter Name: GWOUTBOUNDMANIPULATIONSET', 'Parameter New Value: 1', and 'Parameter Description: Outbound manipulation set ID for GW - If configured, applies for all outgoing INVITE requests.'

3.13 Step 13: Configure Miscellaneous Settings

This step describes miscellaneous Gateway configuration

3.13.1 Step 13a: Configure Session-Expires

This step describes how to configure Gateway Session-Expires times.

1. Open the Gateway General Settings page (**Setup** menu > **Signaling & Media** tab > **SIP Definitions** folder > **SIP Definitions General Settings**).
2. From the 'Session-Expires' set it to **1800**.
3. From the 'Minimum Session-Expires' set it to **360**.
4. Click **Apply**.

Figure 3-22: General Settings Page

GATEWAY SESSION EXPIRES	
Session-Expires Time	<input type="text" value="1800"/>
Minimum Session-Expires	<input type="text" value="360"/>
Session Expires Method	<input type="text" value="re-INVITE"/> ▼
Session Expires Disconnect Time	<input type="text" value="32"/>

3.13.2 Step 13b: Configure Asserted Identity Mode

1. Open the Message Structure page (**Setup** menu > **Signaling & Media** tab > **SIP Definitions** folder > **Message Structure**).
2. From the 'Asserted Identity Mode' dropdown, select **Add P-Asserted-Identity**.
3. Click **Apply**.

Figure 3-23: Message Structure Page

GATEWAY SETTINGS	
Enable Remote Party ID	<input type="text" value="Disable"/> ▼
Enable P-Associated-URI Header	<input type="text" value="Disable"/> ▼
Subject	<input type="text"/>
Enable History-Info Header	<input type="text" value="Disable"/> ▼
Enable Contact Restriction	<input type="text" value="Disable"/> ▼
User-Agent Information	<input type="text"/>
Transferred Prefix IP-to-Tel	<input type="text"/>
X-Channel Header	<input type="text" value="Disable"/> ▼
Asserted Identity Mode	<input type="text" value="Add P-Asserted-Identity"/> ▼
Enable P-Charging Vector	<input type="text" value="Disable"/> ▼
User To User Network ID	<input type="text" value="0"/>

3.13.3 Step 13c: Configure Gateway General Settings

This step identifies the device configuration needed in the Gateway General Settings configuration.

To configure the Gateway General Settings:

1. Open the SIP Proxy & Registration Parameters page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **Gateway General Settings**).
2. From the 'Fax Signaling Method' drop-down list, select **Fax Fallback**.
3. Click **Apply**.

Figure 3-24: Gateway General Settings Page

The screenshot shows the 'Gateway General Settings' page with a 'FAX' section. The settings are as follows:

FAX	
Fax Signaling Method	Fax Fallback
Detect Fax on Answer Tone	Initiate T.38 on Preamble
SIP T.38 Version	Not Configured
T.38 Fax Session	Disable
T.38 Fax Max Buffer	3000

3.13.4 Step 13d: Configure DTMF & Dialing

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

To configure the DTMF & Dialing parameters:

1. Open the SIP DTMF & Dialing page (**Setup** menu > **Signaling & Media** tab > **Gateway** folder > **DTMF and Supplementary** > **DTMF & Dialing**).
2. From the 'RFC 2833 Payload Type' set it to **101**.
3. Click **Apply**.

Figure 3-25: DTMF & Dialing Page

The screenshot shows the 'DTMF & Dialing' page with a 'GENERAL' section. The settings are as follows:

GENERAL	
Max Digits In Phone Num	30
Inter Digit Timeout for Overlap Dialing [sec]	4
Declare RFC 2833 in SDP	Yes
1st Tx DTMF Option	
2nd Tx DTMF Option	
RFC 2833 Payload Type	101
Default Destination Number	1000

3.13.5 Step 13e: Configure Fax Parameters

This step identifies the device configuration needed in the Fax configuration.

➤ **To configure the Fax parameters:**

1. Open the Fax/Modem/CID Settings page (**Setup** menu > **Signaling & Media** tab > **Media** folder > **Fax/Modem/CID Settings**).
2. From the 'Fax Transport Mode' drop-down list, select **Disable**.
3. From the 'V.22 Modem Transport Type' drop-down list, select **Disable**.
4. From the 'V.23 Modem Transport Type' drop-down list, select **Disable**.
5. From the 'V.32 Modem Transport Type' drop-down list, select **Disable**.
6. From the 'V.34 Modem Transport Type' drop-down list, select **Disable**.
7. Click **Apply**.

Figure 3-26: Fax Settings Page

Fax/Modem/CID Settings

GENERAL

Fax Transport Mode	• Disable <input type="button" value="v"/>
T.38 Version	T.38 version 0 <input type="button" value="v"/>
Caller ID Transport Type	Mute <input type="button" value="v"/>
Caller ID Type	Standard Bellcore <input type="button" value="v"/>
V.21 Modem Transport Type	Disable <input type="button" value="v"/>
V.22 Modem Transport Type	• Disable <input type="button" value="v"/>
V.23 Modem Transport Type	• Disable <input type="button" value="v"/>
V.32 Modem Transport Type	• Disable <input type="button" value="v"/>
V.34 Modem Transport Type	• Disable <input type="button" value="v"/>
Fax CNG Mode	Doesn't send T.38 re-INVITE <input type="button" value="v"/>
CNG Detector Mode	Disable <input type="button" value="v"/>
CED Transfer Mode	Fax Relay or VBD <input type="button" value="v"/>

3.13.6 Step 13f: Configure Parameters using the AdminPage

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

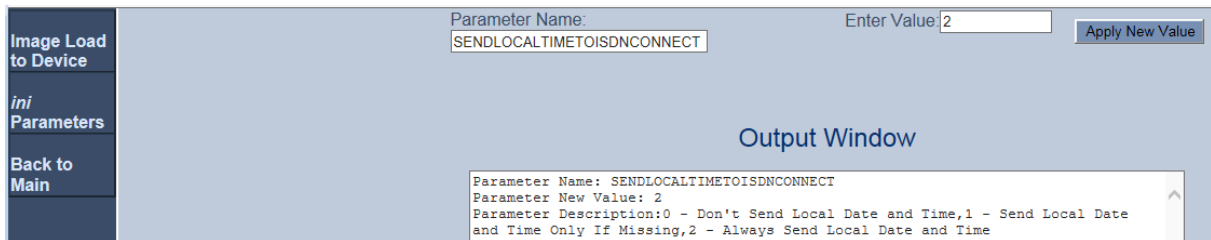
➤ **To configure Parameters using the AdminPage:**

1. Open the Admin page.
2. Append the case-sensitive suffix 'AdminPage' to the device's IP address in your Web browser's URL field (e.g., <http://10.15.45.110/AdminPage>).
3. In the left pane of the page that opens, click **ini Parameters**.
4. Enter these values in the 'Parameter Name' and 'Enter Value' fields:

Parameter	Value	Parameter description
SendLocalTimeToISDNConnect	2	The device always sends its local date and time (obtained from its internal clock) in Connect messages.
TransparentCoderOnDataCall	1	If the transfer capability of a call from ISDN is "data", open with the transparent coder.

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

Figure 3-27: Configuring a Parameter in AdminPage



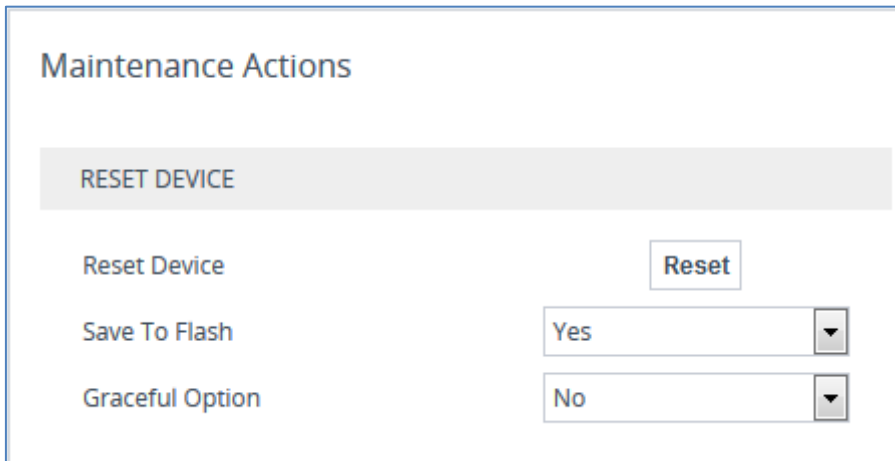
3.14 Step 14: Reset the Gateway

After you have completed the configuration of the Gateway described in this step, 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 (**Setup** menu > **Administration** tab > **Maintenance** folder > **Maintenance Actions**).

Figure 3-28: Resetting the Gateway



The screenshot shows the 'Maintenance Actions' page. At the top, there is a header 'Maintenance Actions'. Below it, a grey bar contains the text 'RESET DEVICE'. Underneath, there are three rows of configuration options:

- 'Reset Device' with a 'Reset' button to its right.
- 'Save To Flash' with a dropdown menu showing 'Yes'.
- 'Graceful Option' with a dropdown menu showing 'No'.

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

A AudioCodes INI File

The *ini* configuration file of the Gateway with BRI, corresponding to the Web-based configuration as described in Section 3 on page 11, is shown below:



Note: To load or save an *ini* file, use the Configuration File page (**Setup** menu > **Administration** tab > **Maintenance** folder > **Configuration File**).

```

;*****
;** Ini File **
;*****

;Board: M800
;HW Board Type: 69  FK Board Type: 72
;Serial Number: 3161551
;Slot Number: 1
;Software Version: 7.20A.104.001
;DSP Software Version: 5014AE3_R => 721.09
;Board IP Address: 10.15.45.110
;Board Subnet Mask: 255.255.0.0
;Board Default Gateway: 10.15.0.1
;Ram size: 512M  Flash size: 64M  Core speed: 300Mhz
;Num of DSP Cores: 1  Num DSP Channels: 30
;Num of physical LAN ports: 12
;Profile: NONE
;;;Key features:;Board Type: M800 ;E1Trunks=2 ;T1Trunks=2 ;BRITrunks=8
;Security: IPSEC MediaEncryption StrongEncryption EncryptControlProtocol
;Channel Type: RTP DspCh=30 IPMediaDspCh=30 ;DATA features: ;QOE
features: VoiceQualityMonitoring MediaEnhancement ;DSP Voice features:
IpmDetector RTCP-XR ;IP Media: VXML ;Coders: G723 G729 G728 NETCODER GSM-
FR GSM-EFR AMR EVRC-QCELP G727 ILBC EVRC-B AMR-WB G722 EG711 MS_RTA_NB
MS_RTA_WB SILK_NB SILK_WB SPEEX_NB SPEEX_WB OPUS_NB OPUS_WB ;Control
Protocols: MGCP SIP TPNCP CLI FEU=10 TestCall=10 EMS ;Default
features:;Coders: G711 G726;

;-----  HW components-----
;
; Slot # : Module type : # of ports
;-----
;      1 : BRI           : 4
;      2 : Empty
;      3 : Empty
;-----
;-----  HW components -----
;
; Slot # : Module type : # of ports : # of DSPs
;-----
;      1 : FALC56       :           1 :           2
;      2 : BRI          :           4 :           2
;      3 : Empty
;      4 : Empty
;      5 : Empty
;      6 : Empty
;-----

```

```
[SYSTEM Params]

SyslogServerIP = 10.254.100.51
EnableSyslog = 1
;IniFileLastUpdateTime is hidden but has non-default value
;IniFileTemplateLastUpdateTime is hidden but has non-default value
;VpFileLastUpdateTime is hidden but has non-default value
TR069ACSPASSWORD = '$1$gQ=='
TR069CONNECTIONREQUESTPASSWORD = '$1$gQ=='
NTPServerIP = '0.0.0.0'
;LastConfigChangeTime is hidden but has non-default value
;BarrierFilename is hidden but has non-default value

[BSP Params]

PCMLawSelect = 1
UdpPortSpacing = 10
EnterCpuOverloadPercent = 99
ExitCpuOverloadPercent = 95

[Analog Params]

PolarityReversalType = 1
MinFlashHookTime = 100

[ControlProtocols Params]

AdminStateLockControl = 0

[MGCP Params]

[MEGACO Params]

EP_Num_0 = 0
EP_Num_1 = 1
EP_Num_2 = 1
EP_Num_3 = 0
EP_Num_4 = 0

[PSTN Params]

ProtocolType_1 = 50
ClockMaster = 1
TerminationSide = 1
FramingMethod_1 = 0
LineCode_1 = 0
ISDNIBehavior_1 = 134217728
ISDNInCallsBehavior = 2147553280
ISDNOutCallsBehavior = 1026

[SS7 Params]
```

```
[Voice Engine Params]

FaxTransportMode = 0
V22ModemTransportType = 0
V23ModemTransportType = 0
V32ModemTransportType = 0
V34ModemTransportType = 0
RFC2833TxPayloadType = 101
CallProgressTonesFilename = 'switzerland.dat'

[WEB Params]

LogoWidth = '145'
HTTPSCipherString = 'RC4:EXP'
;HTTPSPkeyFileName is hidden but has non-default value
;HTTPSCertFileName is hidden but has non-default value

[SIP Params]

ROUTEMODETEL2IP = 1
GWDEBUGLEVEL = 5
ISDNRXOVERLAP = 1
SIPSESSIONEXPIRES = 1800
ASSERTEDIDMODE = 1
TRANSPARENTCODERONDATACALL = 1
MINSE = 360
ISFAXUSED = 3
LOCALISDNRBSOURCE = 1
ISDNTRANSFERCAPABILITY = 0
PLAYRBTONE2TRUNK = 3
MSLDAPPRIMARYKEY = 'telephoneNumber'
CALLREROUTINGMODE = 1
SENDLOCALTIMETOISDNCONNECT = 2
GWOUTBOUNDMANIPULATIONSET = 1
ENERGYDETECTORCMD = 587202560
ANSWERDETECTORCMD = 10485760
;GWAPPCONFIGURATIONVERSION is hidden but has non-default value

[SCTP Params]

[VXML Params]

[IPsec Params]

[SNMP Params]

[ TLSContexts ]

FORMAT TLSContexts_Index = TLSContexts_Name, TLSContexts_TLSVersion,
TLSContexts_DTLSVersion, TLSContexts_ServerCipherString,
TLSContexts_ClientCipherString, TLSContexts_RequireStrictCert,
TLSContexts_OcspEnable, TLSContexts_OcspServerPrimary,
```

```

TLSContexts_OcspServerSecondary, TLSContexts_OcspServerPort,
TLSContexts_OcspDefaultResponse, TLSContexts_DHKeySize;
TLSContexts 0 = "default", 0, 0, "RC4:AES128", "DEFAULT", 0, 0, , , 2560,
0, 1024;

[ \TLSContexts ]

[ AudioCodersGroups ]

FORMAT AudioCodersGroups_Index = AudioCodersGroups_Name;
AudioCodersGroups 0 = "AudioCodersGroups_0";

[ \AudioCodersGroups ]

[ IpProfile ]

FORMAT IpProfile_Index = IpProfile_ProfileName, IpProfile_IpPreference,
IpProfile_CodersGroupName, IpProfile_IsFaxUsed,
IpProfile_JitterBufMinDelay, IpProfile_JitterBufOptFactor,
IpProfile_IPDiffServ, IpProfile_SigIPDiffServ, IpProfile_SCE,
IpProfile_RTPRedundancyDepth, IpProfile_CNGmode,
IpProfile_VxxTransportType, IpProfile_NSEMode, IpProfile_IsDTMFUsed,
IpProfile_PlayRBTone2IP, IpProfile_EnableEarlyMedia,
IpProfile_ProgressIndicator2IP, IpProfile_EnableEchoCanceller,
IpProfile_CopyDest2RedirectNumber, IpProfile_MediaSecurityBehaviour,
IpProfile_CallLimit, IpProfile_DisconnectOnBrokenConnection,
IpProfile_FirstTxDtmfOption, IpProfile_SecondTxDtmfOption,
IpProfile_RxDTMFOption, IpProfile_EnableHold, IpProfile_InputGain,
IpProfile_VoiceVolume, IpProfile_AddIEInSetup,
IpProfile_SBCExtensionCodersGroupName,
IpProfile_MediaIPVersionPreference, IpProfile_TranscodingMode,
IpProfile_SBCAllowedMediaTypes, IpProfile_SBCAllowedAudioCodersGroupName,
IpProfile_SBCAllowedVideoCodersGroupName, IpProfile_SBCAllowedCodersMode,
IpProfile_SBCMediaSecurityBehaviour, IpProfile_SBCRFC2833Behavior,
IpProfile_SBCAlternativeDTMFMethod, IpProfile_SBCAssertIdentity,
IpProfile_AMDSensitivityParameterSuit, IpProfile_AMDSensitivityLevel,
IpProfile_AMDMaxGreetingTime, IpProfile_AMDMaxPostSilenceGreetingTime,
IpProfile_SBCDiversionsMode, IpProfile_SBCHistoryInfoMode,
IpProfile_EnableQSIGTunneling, IpProfile_SBCFaxCodersGroupName,
IpProfile_SBCFaxBehavior, IpProfile_SBCFaxOfferMode,
IpProfile_SBCFaxAnswerMode, IpProfile_SbcPrackMode,
IpProfile_SBCSessionExpiresMode, IpProfile_SBCRemoteUpdateSupport,
IpProfile_SBCRemoteReinviteSupport,
IpProfile_SBCRemoteDelayedOfferSupport, IpProfile_SBCRemoteReferBehavior,
IpProfile_SBCRemote3xxBehavior, IpProfile_SBCRemoteMultiple18xSupport,
IpProfile_SBCRemoteEarlyMediaResponseType,
IpProfile_SBCRemoteEarlyMediaSupport, IpProfile_EnableSymmetricMKI,
IpProfile_MKISize, IpProfile_SBCEnforceMKISize,
IpProfile_SBCRemoteEarlyMediaRTP, IpProfile_SBCRemoteSupportsRFC3960,
IpProfile_SBCRemoteCanPlayRingback, IpProfile_EnableEarly183,
IpProfile_EarlyAnswerTimeout, IpProfile_SBC2833DTMFPayloadType,
IpProfile_SBCUserRegistrationTime, IpProfile_ResetSRTPStateUponRekey,
IpProfile_AmdMode, IpProfile_SBCReliableHeldToneSource,
IpProfile_GenerateSRTPKeys, IpProfile_SBCPlayHeldTone,
IpProfile_SBCRemoteHoldFormat, IpProfile_SBCRemoteReplacesBehavior,
IpProfile_SBCSDPptimeAnswer, IpProfile_SBCPreferredPTime,
IpProfile_SBCUseSilenceSupp, IpProfile_SBCRTPRedundancyBehavior,
IpProfile_SBCPlayRBTToTransferee, IpProfile_SBCRTCPMode,
IpProfile_SBCJitterCompensation,
IpProfile_SBCRemoteRenegotiateOnFaxDetection,
IpProfile_JitterBufMaxDelay,
IpProfile_SBCUserBehindUdpNATRegistrationTime,
    
```



```

IpProfile_SBCUserBehindTcpNATRegistrationTime,
IpProfile_SBCSDPHandlerRTCPAttribute,
IpProfile_SBCRemoveCryptoLifetimeInSDP, IpProfile_SBCIceMode,
IpProfile_SBCRTCPMux, IpProfile_SBCMediaSecurityMethod,
IpProfile_SBCHandleXDetect, IpProfile_SBCRTCPFeedback,
IpProfile_SBCRemoteRepresentationMode, IpProfile_SBCKeepVIAHeaders,
IpProfile_SBCKeepRoutingHeaders, IpProfile_SBCKeepUserAgentHeader,
IpProfile_SBCRemoteMultipleEarlyDialogs,
IpProfile_SBCRemoteMultipleAnswersMode, IpProfile_SBCDirectMediaTag,
IpProfile_SBCAdaptRFC2833BWTtoVoiceCoderBW,
IpProfile_CreatedByRoutingServer, IpProfile_SBCFaxReroutingMode,
IpProfile_SBCMaxCallDuration, IpProfile_SBCGenerateRTP,
IpProfile_SBCISUPBodyHandling, IpProfile_SBCISUPVariant,
IpProfile_SBCVoiceQualityEnhancement, IpProfile_SBCMaxOpusBW;
IpProfile 1 = "IPP_SIP-TRUNK", 1, "AudioCodersGroups_0", 0, 10, 10, 46,
24, 0, 0, 0, 0, 0, 1, 0, 1, -1, 1, 0, 2, -1, 1, 4, -1, 1, 1, 0, 0, "",
"", 0, 0, "", "", "", 0, 0, 0, 0, 0, 0, 8, 300, 400, 0, 0, 0, "", 0, 0,
1, 3, 0, 2, 2, 1, 0, 0, 1, 0, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 1,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 250, -1, -1, 0, 0, 0, 0, 0, 0, 0, -1,
-1, -1, -1, 0, "", 0, 0, 0, 0, 0, 0, 0, 0, 0;

[ \IpProfile ]

[ CpMediaRealm ]

FORMAT CpMediaRealm_Index = CpMediaRealm_MediaRealmName,
CpMediaRealm_IPv4IF, CpMediaRealm_IPv6IF, CpMediaRealm_PortRangeStart,
CpMediaRealm_MediaSessionLeg, CpMediaRealm_PortRangeEnd,
CpMediaRealm_IsDefault, CpMediaRealm_QoeProfile, CpMediaRealm_BWProfile,
CpMediaRealm_TopologyLocation;
CpMediaRealm 0 = "MR_LAN", "NETIF_LAN", "", 6000, 521, 11209, 1, "", "",
0;

[ \CpMediaRealm ]

[ SBCRoutingPolicy ]

FORMAT SBCRoutingPolicy_Index = SBCRoutingPolicy_Name,
SBCRoutingPolicy_LCREnable, SBCRoutingPolicy_LCRAverageCallLength,
SBCRoutingPolicy_LCRDefaultCost, SBCRoutingPolicy_LdapServerGroupName;
SBCRoutingPolicy 0 = "Default_SBCRoutingPolicy", 0, 1, 0, "";

[ \SBCRoutingPolicy ]

[ SRD ]

FORMAT SRD_Index = SRD_Name, SRD_BlockUnRegUsers, SRD_MaxNumOfRegUsers,
SRD_EnableUnAuthenticatedRegistrations, SRD_SharingPolicy,
SRD_UsedByRoutingServer, SRD_SBCOperationMode, SRD_SBCRoutingPolicyName,
SRD_SBCDialPlanName;
SRD 0 = "SRD_LAN", 0, -1, 1, 0, 0, 0, "Default_SBCRoutingPolicy", "";

[ \SRD ]

[ SIPInterface ]

```

```

FORMAT SIPInterface_Index = SIPInterface_InterfaceName,
SIPInterface_NetworkInterface, SIPInterface_ApplicationType,
SIPInterface_UDPPort, SIPInterface_TCPPort, SIPInterface_TLSPort,
SIPInterface_SRDName, SIPInterface_MessagePolicyName,
SIPInterface_TLSContext, SIPInterface_TLSMutualAuthentication,
SIPInterface_TCPKeepaliveEnable,
SIPInterface_ClassificationFailureResponseType,
SIPInterface_PreClassificationManSet, SIPInterface_EncapsulatingProtocol,
SIPInterface_MediaRealm, SIPInterface_SBCDirectMedia,
SIPInterface_BlockUnRegUsers, SIPInterface_MaxNumOfRegUsers,
SIPInterface_EnableUnAuthenticatedRegistrations,
SIPInterface_UsedByRoutingServer, SIPInterface_TopologyLocation;
SIPInterface 0 = "SI_LAN", "NETIF_LAN", 0, 5060, 5060, 0, "SRD_LAN", "",
"default", -1, 0, 500, -1, 0, "MR_LAN", 0, -1, -1, -1, 0, 0;

[ \SIPInterface ]

[ ProxySet ]

FORMAT ProxySet_Index = ProxySet_ProxyName,
ProxySet_EnableProxyKeepAlive, ProxySet_ProxyKeepAliveTime,
ProxySet_ProxyLoadBalancingMethod, ProxySet_IsProxyHotSwap,
ProxySet_SRDName, ProxySet_ClassificationInput, ProxySet_TLSContextName,
ProxySet_ProxyRedundancyMode, ProxySet_DNSResolveMethod,
ProxySet_KeepAliveFailureResp, ProxySet_GWIPv4SIPInterfaceName,
ProxySet_SBCIPv4SIPInterfaceName, ProxySet_GWIPv6SIPInterfaceName,
ProxySet_SBCIPv6SIPInterfaceName, ProxySet_MinActiveServersLB,
ProxySet_SuccessDetectionRetries, ProxySet_SuccessDetectionInterval,
ProxySet_FailureDetectionRetransmissions;
ProxySet 0 = "PS_DEFAULT", 0, 60, 0, 0, "SRD_LAN", 0, "", -1, -1, "",
"SI_LAN", "", "", "", 1, 1, 10, -1;
ProxySet 1 = "PS_SIP-TRUNK", 1, 10, 0, 0, "SRD_LAN", 1, "", 1, -1, "",
"SI_LAN", "", "", "", 1, 1, 10, -1;

[ \ProxySet ]

[ IPGroup ]

FORMAT IPGroup_Index = IPGroup_Type, IPGroup_Name, IPGroup_ProxySetName,
IPGroup_SIPGroupName, IPGroup_ContactUser, IPGroup_SipReRoutingMode,
IPGroup_AlwaysUseRouteTable, IPGroup_SRDName, IPGroup_MediaRealm,
IPGroup_ClassifyByProxySet, IPGroup_ProfileName,
IPGroup_MaxNumOfRegUsers, IPGroup_InboundManSet, IPGroup_OutboundManSet,
IPGroup_RegistrationMode, IPGroup_AuthenticationMode, IPGroup_MethodList,
IPGroup_EnableSBCClientForking, IPGroup_SourceUriInput,
IPGroup_DestUriInput, IPGroup_ContactName, IPGroup_Username,
IPGroup_Password, IPGroup_UUIFormat, IPGroup_QOEProfile,
IPGroup_BWProfile, IPGroup_AlwaysUseSourceAddr, IPGroup_MsgManUserDef1,
IPGroup_MsgManUserDef2, IPGroup_SIPConnect, IPGroup_SBCPSAPMode,
IPGroup_DTLSContext, IPGroup_CreatedByRoutingServer,
IPGroup_UsedByRoutingServer, IPGroup_SBCOperationMode,
IPGroup_SBCRouteUsingRequestURIPort, IPGroup_SBCKeepOriginalCallID,
IPGroup_TopologyLocation, IPGroup_SBCDialPlanName,
IPGroup_CallSetupRulesSetId;
IPGroup 0 = 0, "IPG_DEFAULT", "PS_DEFAULT", "", "", -1, 0, "SRD_LAN", "",
0, "", -1, -1, -1, 0, 0, "", 0, -1, -1, "", "", "$1$gQ==", 0, "", "", 0,
"", "", 0, 0, "default", 0, 0, -1, 0, 0, 0, "", -1;
IPGroup 1 = 0, "IPG_SIP-TRUNK", "PS_SIP-TRUNK", "10.254.150.52", "", -1,
0, "SRD_LAN", "MR_LAN", 1, "IPP_SIP-TRUNK", -1, -1, -1, 0, 0, "", 0, -1,
-1, "", "", "$1$gQ==", 0, "", "", 0, "", "", 0, 0, "default", 0, 0, -1,
0, 0, 0, "", -1;
    
```

```

[ \IPGroup ]

[ PREFIX ]

FORMAT PREFIX_Index = PREFIX_RouteName, PREFIX_DestinationPrefix,
PREFIX_DestAddress, PREFIX_SourcePrefix, PREFIX_ProfileName,
PREFIX_MeteringCodeName, PREFIX_DestPort, PREFIX_DestIPGroupName,
PREFIX_TransportType, PREFIX_SrcTrunkGroupID,
PREFIX_DestSIPInterfaceName, PREFIX_CostGroup, PREFIX_ForkingGroup,
PREFIX_CallSetupRulesSetId, PREFIX_ConnectivityStatus;
PREFIX 0 = "PBX-to-SIP-Trunk", "*", "", "*", "", "", 0, "IPG_SIP-TRUNK",
-1, -1, "", "", -1, -1, "Not Available";

[ \PREFIX ]

[ TrunkGroup ]

FORMAT TrunkGroup_Index = TrunkGroup_TrunkGroupNum,
TrunkGroup_FirstTrunkId, TrunkGroup_FirstBChannel,
TrunkGroup_LastBChannel, TrunkGroup_FirstPhoneNumber,
TrunkGroup_ProfileName, TrunkGroup_LastTrunkId, TrunkGroup_Module;
TrunkGroup 1 = 2, 0, 1, 2, "B100", "", 1, 2;

[ \TrunkGroup ]

[ NumberMapIp2Tel ]

FORMAT NumberMapIp2Tel_Index = NumberMapIp2Tel_ManipulationName,
NumberMapIp2Tel_DestinationPrefix, NumberMapIp2Tel_SourcePrefix,
NumberMapIp2Tel_SourceAddress, NumberMapIp2Tel_SrcHost,
NumberMapIp2Tel_DestHost, NumberMapIp2Tel_NumberType,
NumberMapIp2Tel_NumberPlan, NumberMapIp2Tel_RemoveFromLeft,
NumberMapIp2Tel_RemoveFromRight, NumberMapIp2Tel_LeaveFromRight,
NumberMapIp2Tel_Prefix2Add, NumberMapIp2Tel_Suffix2Add,
NumberMapIp2Tel_IsPresentationRestricted, NumberMapIp2Tel_SrcIPGroupName;
NumberMapIp2Tel 0 = "Dst-In-National", "+41", "*", "*", "*", "*", 255,
255, 3, 0, 255, "0", "", 255, "Any";
NumberMapIp2Tel 1 = "Dst-In-International", "+", "*", "*", "*", "*", 255,
255, 1, 0, 255, "00", "", 255, "Any";

[ \NumberMapIp2Tel ]

[ NumberMapTel2Ip ]

FORMAT NumberMapTel2Ip_Index = NumberMapTel2Ip_ManipulationName,
NumberMapTel2Ip_DestinationPrefix, NumberMapTel2Ip_SourcePrefix,
NumberMapTel2Ip_NumberType, NumberMapTel2Ip_NumberPlan,
NumberMapTel2Ip_RemoveFromLeft, NumberMapTel2Ip_RemoveFromRight,
NumberMapTel2Ip_LeaveFromRight, NumberMapTel2Ip_Prefix2Add,
NumberMapTel2Ip_Suffix2Add, NumberMapTel2Ip_IsPresentationRestricted,
NumberMapTel2Ip_SrcTrunkGroupID, NumberMapTel2Ip_DestIPGroupName;
NumberMapTel2Ip 0 = "Dst-Out-International", "00", "*", 255, 255, 2, 0,
255, "+", "", 255, -1, "Any";
NumberMapTel2Ip 1 = "Dst-Out-National", "0[1-9]", "*", 255, 255, 1, 0,
255, "+41", "", 255, -1, "Any";

```

```

NumberMapTel2Ip 2 = "Dst-Out-NoZero", "[1-9]xx.", "*", 255, 255, 0, 0,
255, "+41", "", 255, -1, "Any";

[ \NumberMapTel2Ip ]

[ SourceNumberMapIp2Tel ]

FORMAT SourceNumberMapIp2Tel_Index =
SourceNumberMapIp2Tel_ManipulationName,
SourceNumberMapIp2Tel_DestinationPrefix,
SourceNumberMapIp2Tel_SourcePrefix, SourceNumberMapIp2Tel_SourceAddress,
SourceNumberMapIp2Tel_SrcHost, SourceNumberMapIp2Tel_DestHost,
SourceNumberMapIp2Tel_NumberType, SourceNumberMapIp2Tel_NumberPlan,
SourceNumberMapIp2Tel_RemoveFromLeft,
SourceNumberMapIp2Tel_RemoveFromRight,
SourceNumberMapIp2Tel_LeaveFromRight, SourceNumberMapIp2Tel_Prefix2Add,
SourceNumberMapIp2Tel_Suffix2Add,
SourceNumberMapIp2Tel_IsPresentationRestricted,
SourceNumberMapIp2Tel_SrcIPGroupName;
SourceNumberMapIp2Tel 0 = "Src-In-National", "*", "+41", "*", "*", "*",
255, 255, 3, 0, 255, "0", "", 255, "Any";
SourceNumberMapIp2Tel 1 = "Src-In-International", "*", "+", "*", "*",
"*, 255, 255, 1, 0, 255, "00", "", 255, "Any";
SourceNumberMapIp2Tel 2 = "Src-In-Anonymous", "*", "anonymous", "*", "*",
"*, 255, 255, 0, 0, 0, "", "", 1, "Any";

[ \SourceNumberMapIp2Tel ]

[ SourceNumberMapTel2Ip ]

FORMAT SourceNumberMapTel2Ip_Index =
SourceNumberMapTel2Ip_ManipulationName,
SourceNumberMapTel2Ip_DestinationPrefix,
SourceNumberMapTel2Ip_SourcePrefix, SourceNumberMapTel2Ip_NumberType,
SourceNumberMapTel2Ip_NumberPlan, SourceNumberMapTel2Ip_RemoveFromLeft,
SourceNumberMapTel2Ip_RemoveFromRight,
SourceNumberMapTel2Ip_LeaveFromRight, SourceNumberMapTel2Ip_Prefix2Add,
SourceNumberMapTel2Ip_Suffix2Add,
SourceNumberMapTel2Ip_IsPresentationRestricted,
SourceNumberMapTel2Ip_SrcTrunkGroupID;
SourceNumberMapTel2Ip 0 = "Src-Out-International", "*", "00", 255, 255,
2, 0, 255, "+", "", 255, -1;
SourceNumberMapTel2Ip 1 = "Src-Out-National", "*", "0", 255, 255, 1, 0,
255, "+41", "", 255, -1;
SourceNumberMapTel2Ip 2 = "Src-Out-NoZero", "*", "[1-9]xx.", 255, 255, 0,
0, 255, "+41", "", 255, -1;

[ \SourceNumberMapTel2Ip ]

[ PstnPrefix ]

FORMAT PstnPrefix_Index = PstnPrefix_RouteName, PstnPrefix_DestPrefix,
PstnPrefix_TrunkGroupId, PstnPrefix_SourcePrefix,
PstnPrefix_SourceAddress, PstnPrefix_ProfileName,
PstnPrefix_SrcIPGroupName, PstnPrefix_DestHostPrefix,
PstnPrefix_SrcHostPrefix, PstnPrefix_SrcSIPInterfaceName,
PstnPrefix_TrunkId, PstnPrefix_CallSetupRulesSetId, PstnPrefix_DestType;
PstnPrefix 0 = "SIP-Trunk-to-PBX", "*", 2, "", "", "", "", "", "Any",
-1, -1, 0;
    
```

```
[ \PstnPrefix ]

[ CauseMapIsdn2Sip ]

FORMAT CauseMapIsdn2Sip_Index = CauseMapIsdn2Sip_IsdnReleaseCause,
CauseMapIsdn2Sip_SipResponse;
CauseMapIsdn2Sip 0 = 21, 603;

[ \CauseMapIsdn2Sip ]

[ ProxyIp ]

FORMAT ProxyIp_Index = ProxyIp_ProxySetId, ProxyIp_ProxyIpIndex,
ProxyIp_IpAddress, ProxyIp_TransportType;
ProxyIp 0 = "1", 0, "10.254.150.52:5060", 1;
ProxyIp 1 = "1", 1, "10.254.150.52:5060", 0;

[ \ProxyIp ]

[ RedirectNumberMapIp2Tel ]

FORMAT RedirectNumberMapIp2Tel_Index =
RedirectNumberMapIp2Tel_ManipulationName,
RedirectNumberMapIp2Tel_DestinationPrefix,
RedirectNumberMapIp2Tel_RedirectPrefix,
RedirectNumberMapIp2Tel_SourceAddress, RedirectNumberMapIp2Tel_SrcHost,
RedirectNumberMapIp2Tel_DestHost, RedirectNumberMapIp2Tel_NumberType,
RedirectNumberMapIp2Tel_NumberPlan,
RedirectNumberMapIp2Tel_RemoveFromLeft,
RedirectNumberMapIp2Tel_RemoveFromRight,
RedirectNumberMapIp2Tel_LeaveFromRight,
RedirectNumberMapIp2Tel_Prefix2Add, RedirectNumberMapIp2Tel_Suffix2Add,
RedirectNumberMapIp2Tel_IsPresentationRestricted;
RedirectNumberMapIp2Tel 0 = "Rn-In-National", "*", "+41", "*", "*", "*",
0, 0, 3, 0, 255, "0", "", 255;
RedirectNumberMapIp2Tel 1 = "Rn-In-International", "*", "+", "*", "*",
"*, 0, 0, 1, 0, 255, "00", "", 255;

[ \RedirectNumberMapIp2Tel ]

[ RedirectNumberMapTel2Ip ]

FORMAT RedirectNumberMapTel2Ip_Index =
RedirectNumberMapTel2Ip_ManipulationName,
RedirectNumberMapTel2Ip_DestinationPrefix,
RedirectNumberMapTel2Ip_RedirectPrefix,
RedirectNumberMapTel2Ip_NumberType, RedirectNumberMapTel2Ip_NumberPlan,
RedirectNumberMapTel2Ip_RemoveFromLeft,
RedirectNumberMapTel2Ip_RemoveFromRight,
RedirectNumberMapTel2Ip_LeaveFromRight,
RedirectNumberMapTel2Ip_Prefix2Add, RedirectNumberMapTel2Ip_Suffix2Add,
RedirectNumberMapTel2Ip_IsPresentationRestricted,
RedirectNumberMapTel2Ip_SrcTrunkGroupID;
RedirectNumberMapTel2Ip 0 = "Rn-Out-International", "*", "00", 255, 255,
2, 0, 255, "+", "", 255, -1;
```

```

RedirectNumberMapTel2Ip 1 = "Rn-Out-National", "*", "0", 255, 255, 1, 0,
255, "+41", "", 255, -1;
RedirectNumberMapTel2Ip 2 = "Rn-Out-NoZero", "*", "[1-9]xx.#", 255, 255,
0, 0, 255, "+41", "", 255, -1;

[ \RedirectNumberMapTel2Ip ]

[ CodersGroup0 ]

;
; *** TABLE CodersGroup0 ***
; This table contains hidden elements and will not be exposed.
; This table exists on board and will be saved during restarts.
;

[ \CodersGroup0 ]

[ MessageManipulations ]

FORMAT MessageManipulations_Index =
MessageManipulations_ManipulationName, MessageManipulations_ManSetID,
MessageManipulations_MessageType, MessageManipulations_Condition,
MessageManipulations_ActionSubject, MessageManipulations_ActionType,
MessageManipulations_ActionValue, MessageManipulations_RowRole;
MessageManipulations 0 = "Options Request-URI", 1, "OPTIONS.request", "",
"header.request-uri.url.host", 2, "param.message.address.dst.address", 0;
MessageManipulations 1 = "Set Contact-User to Anonymous", 1,
"invite.request", "header.privacy regex (id)", "header.contact.url.user",
2, "'anonymous'", 0;
MessageManipulations 2 = "Edit Diversion-Header", 1, "invite.request",
"header.diversion exists AND header.diversion regex (<tel:)(.*)>(.*)",
"header.diversion", 2, "'<sip:'+$2+'@'+header.contact.url.host+$3", 0;
MessageManipulations 3 = "Edit PAI if anonymous", 1, "invite.request",
"header.diversion exists AND header.diversion regex (<sip:)(.*)>(@.*) AND
header.privacy='id'", "header.p-asserted-identity", 2,
"'<sip:'+$2+'@'+header.contact.url.host+'>'", 0;
MessageManipulations 4 = "Remove T.38 from SDP", 1, "invite.request",
"body.sdp regex (.*) (m=image)(.*)", "body.sdp", 2, "$1", 0;

[ \MessageManipulations ]

[ GwRoutingPolicy ]

FORMAT GwRoutingPolicy_Index = GwRoutingPolicy_Name,
GwRoutingPolicy_LCREnable, GwRoutingPolicy_LCRAverageCallLength,
GwRoutingPolicy_LCRDefaultCost, GwRoutingPolicy_LdapServerGroupName;
GwRoutingPolicy 0 = "GwRoutingPolicy", 0, 1, 0, "";

[ \GwRoutingPolicy ]

[ ResourcePriorityNetworkDomains ]

FORMAT ResourcePriorityNetworkDomains_Index =
ResourcePriorityNetworkDomains_Name,
ResourcePriorityNetworkDomains_Ip2TelInterworking;
ResourcePriorityNetworkDomains 1 = "dsn", 1;
    
```

```
ResourcePriorityNetworkDomains 2 = "dod", 1;
ResourcePriorityNetworkDomains 3 = "drsn", 1;
ResourcePriorityNetworkDomains 5 = "uc", 1;
ResourcePriorityNetworkDomains 7 = "cuc", 1;

[ \ResourcePriorityNetworkDomains ]

[ AudioCoders ]

FORMAT AudioCoders_Index = AudioCoders_AudioCodersGroupId,
AudioCoders_AudioCodersIndex, AudioCoders_Name, AudioCoders_pTime,
AudioCoders_rate, AudioCoders_PayloadType, AudioCoders_Sce,
AudioCoders_CoderSpecific;
AudioCoders 0 = "AudioCodersGroups_0", 0, 1, 2, 90, -1, 0, "";
AudioCoders 1 = "AudioCodersGroups_0", 1, 3, 2, 19, -1, 0, "";
AudioCoders 2 = "AudioCodersGroups_0", 2, 4, 255, 255, -1, 0, "";

[ \AudioCoders ]
```

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