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Mitel Technical Configuration Notes - ANXXXXX

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Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services

Description:

This technical configuration note describes configuring MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services.

Environment:

MiVoice Office 250 6.3 SP1 (6.3.7.58), MiVoice Border Gateway 10.1.0.244, Mitel 69xx Phone 5.1.0.227 and Mitel 68XX Phone 5.1.0.227

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Version Information

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MiVoice Office 250 6.3 SP1 with MBG

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Overview

This document provides a reference to Mitel Authorized Solutions providers for configuring the MiVoice Office 250 to connect to TelNet Worldwide. The different devices can be configured in various configurations depending on your VoIP solution. This document covers a basic setup with required option setup.

Interop History

Version	Date	Reason
1	November, 2018	Initial interop with TelNet Worldwide and MiVoice Office 250 6.3 SP1 and MBG.

Interop Status

The Interop of TelNet Worldwide has been given a Certification status. This service provider or trunking device will be included in the SIP CoE Reference Guide. The status TelNet Worldwide achieved is:

COMPATIBLE	The most common certification which means TelNet Worldwide has been tested and/or validated by the Mitel SIP CoE team. Product support will provide all necessary support related to the interop, but issues unique or specific to the 3rd party will be referred to the 3rd party as appropriate.

Software & Hardware Setup

This was the test setup to generate a basic SIP call between TelNet Worldwide and the MiVoice Office 250.

Manufacturer	Variant	Software Version
Mitel	MiVoice Office 250	6.3 SP1 (6.3.7.58)
Mitel	5320e IP Sets	Minet (06.05.00.11)
Mitel	69XX and 68XX SIP Phones	5.1.0.227
Mitel	MiVoice Border Gateway	10.1.0.244
BroadSoft	Broadworks	V20SP1
Oracle SBC	NetNet 4500	7.2.0 MR-6 Patch 9

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Tested Features

This is an overview of the features tested during the Interop test cycle and not a detailed view of the test cases. Please see the SIP Trunk Side Interoperability Test Plans (000506) for detailed test cases.

Feature	Feature Description	Issues
Basic Call	Making and receiving a call through TelNet Worldwide and their PSTN gateway, call holding, transferring, conferencing, busy calls, long call durations, various codecs.	☑
Automatic Call Distribution	Making calls to an ACD environment with Call Routing Announcements, Interflow and Overflow call scenarios and DTMF detection.	☑
Packetization	Forcing the MiVoice Office 250 to stream RTP packets through its Processor Expansion card at different intervals including 20ms and 30ms.	☑
Dynamic Extension Express	Receiving calls through TelNet Worldwide and their PSTN gateway to a DEE. Also moving calls to/from the prime member and group members.	☑
Fax	T.38 and G.711 Fax calls.	☑
E.164 calling	Make calls using E.164 format	☑
Teleworker	Making and receiving a call Service Provider TelNet Worldwide and their PSTN gateway to and from Teleworker extensions.	☑

☑ - No issues found   ✗ - Issues found, cannot recommend using   ⚠ - Issues found

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Device Limitations and Known Issues

This is a list of problems or not supported features when TelNet Worldwide is connected to the MiVoice Office 250.

Feature	Problem Description
Codec G722/G722.1	TelNet Worldwide does not support wideband G722/G722.1 Codec. **Recommendation:** Contact TelNet Worldwide for more information.
TLS	TelNet Worldwide does not support TLS **Recommendation:** Contact TelNet Worldwide for more information.
Video Calls	TelNet Worldwide does not support video calls. **Recommendation:** Contact TelNet Worldwide for more information.
DTMF (INFO)	DTMF via SIP INFO is not Supported by TelNet Worldwide **Recommendation**: Contact TelNet Worldwide for more information.
Session Timer	Session timer is not supported by MiVoice Office 250.No option to configure session timer to 1800 sec. **Recommendation**: Contact Mitel for more information.
Unsupervised Transfer to PSTN	Unsupervised Transfer Is Failing to the PSTN Number on MiVoice Office 250 (DPAR ID **MN00673871**). **Recommendation**: Contact Mitel for more information.

Network Topology

This diagram shows how the testing network is configured for reference.
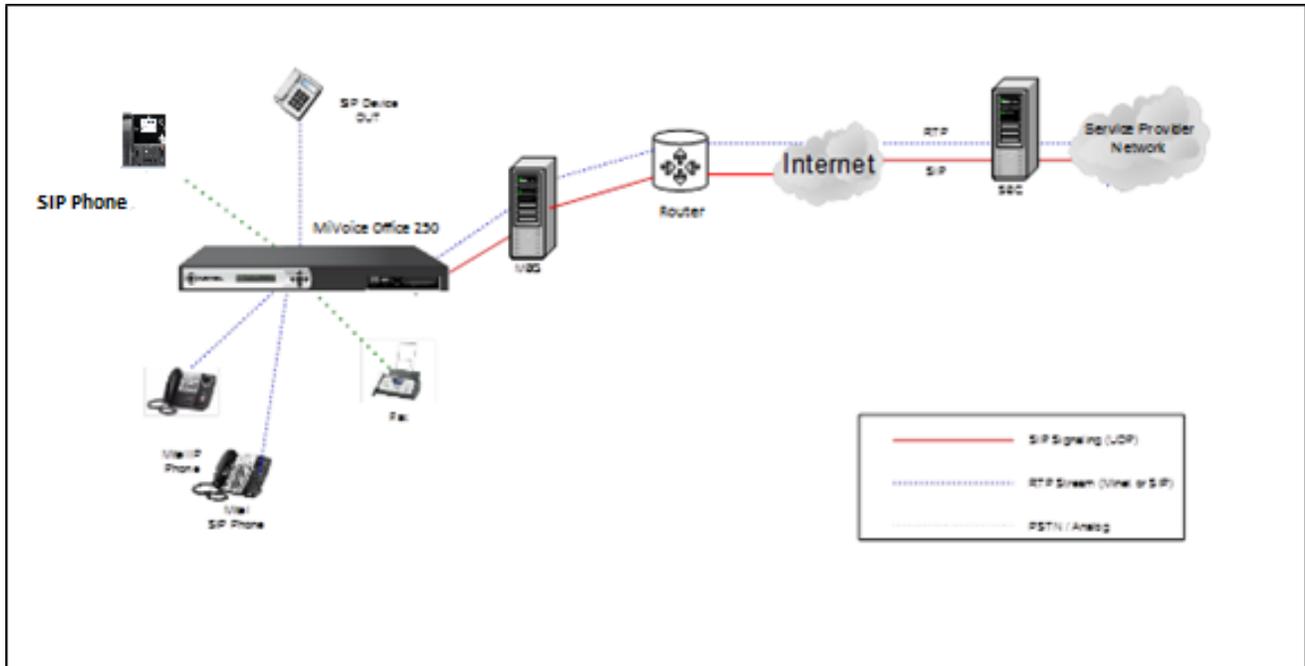

Figure 1 – Network Topology

Configuration Notes

This section is a description of how the SIP Interop was configured. These notes should give a guideline of how a device can be configured in a customer environment and how TelNet Worldwide and MiVoice Office 250 programming was configured in our test environment.

> Disclaimer: Although Mitel has attempted to setup the interop testing facility as closely as possible to a customer premise environment, implementation setup could be different onsite. YOU MUST EXERCISE YOUR OWN DUE DILIGENCE IN REVIEWING, planning, implementing, and testing a customer configuration.

MiVoice Office 250 Configuration Notes

The following steps show how to program a MiVoice Office 250 to interconnect with TelNet Worldwide using MBG

Network Requirements

- There must be adequate bandwidth to support the voice over IP. As a guide, the Ethernet bandwidth is approx 85 Kb/s per G.711 voice session and 29 Kb/s per G.729 voice session (assumes 20ms packetization). As an example, for 20 simultaneous SIP sessions, the Ethernet bandwidth consumption will be approx 1.7 Mb/s for G.711 and 0.6Mb/s. Almost all

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Enterprise LAN networks can support this level of traffic without any special engineering. Please refer to the MiVO250 Engineering guidelines for further information.
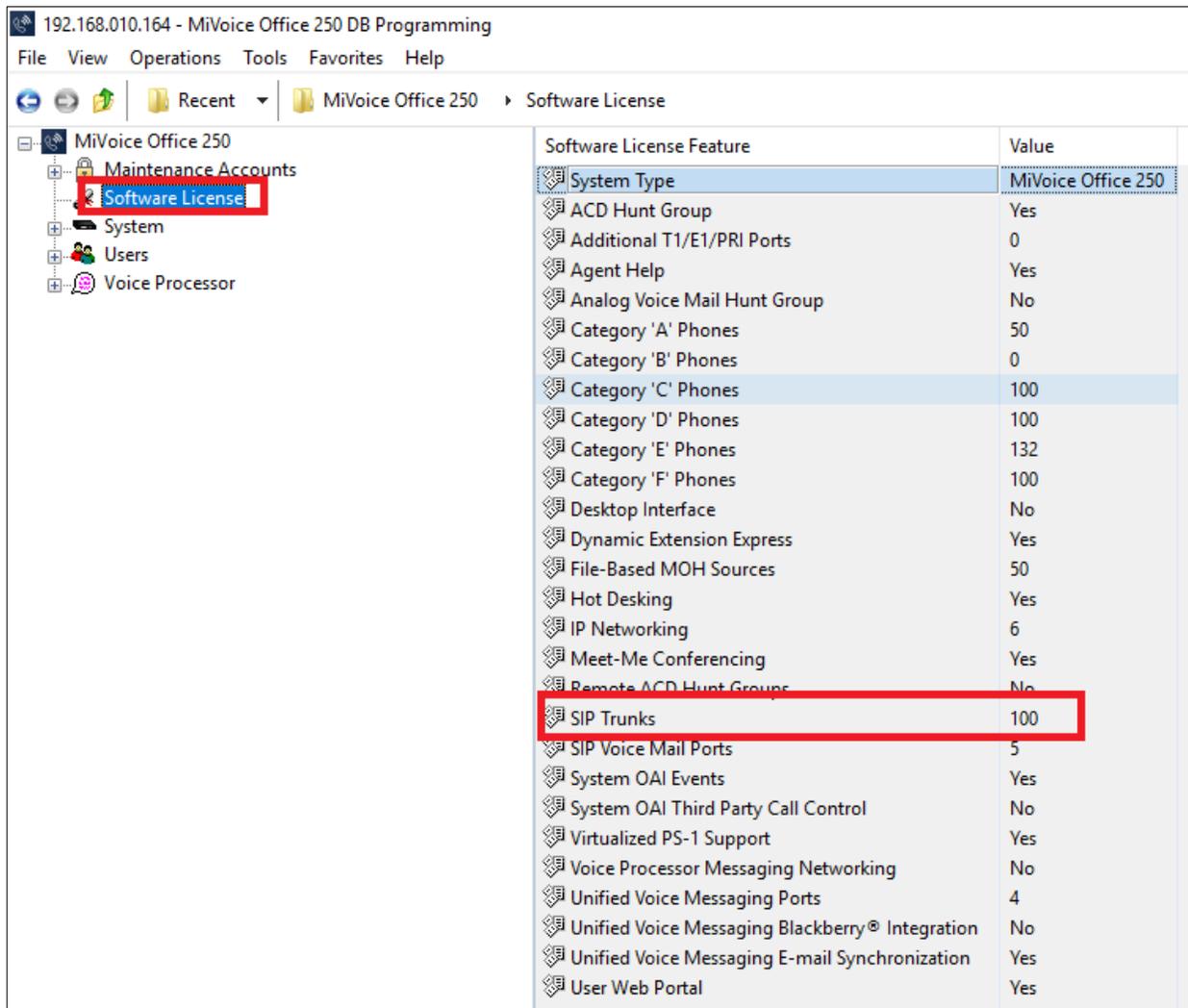
- For high quality voice, the network connectivity must support a voice-quality grade of service (packet loss <1%, jitter < 30ms, one-way delay < 80ms).

Assumptions for the MiVoice Office 250 Programming

- The SIP signaling connection uses UDP on Port 5060

Licensing and Option Selection – SIP Licensing

Ensure that the MiVoice Office 250 is equipped with enough SIP trunking licenses for the connection to TelNet Worldwide. This can be verified under the Software License form.

Figure 2 – Software License

Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services

Creating and Configuring a SIP Peer Trunk Group

To support SIP trunks through a SIP trunk service provider, you will need to create a SIP trunk group.

To create a SIP trunk group for TelNet Worldwide, right click in the right-hand window panel of the SIP Trunk Groups form and then select "Create SIP Trunk Group".
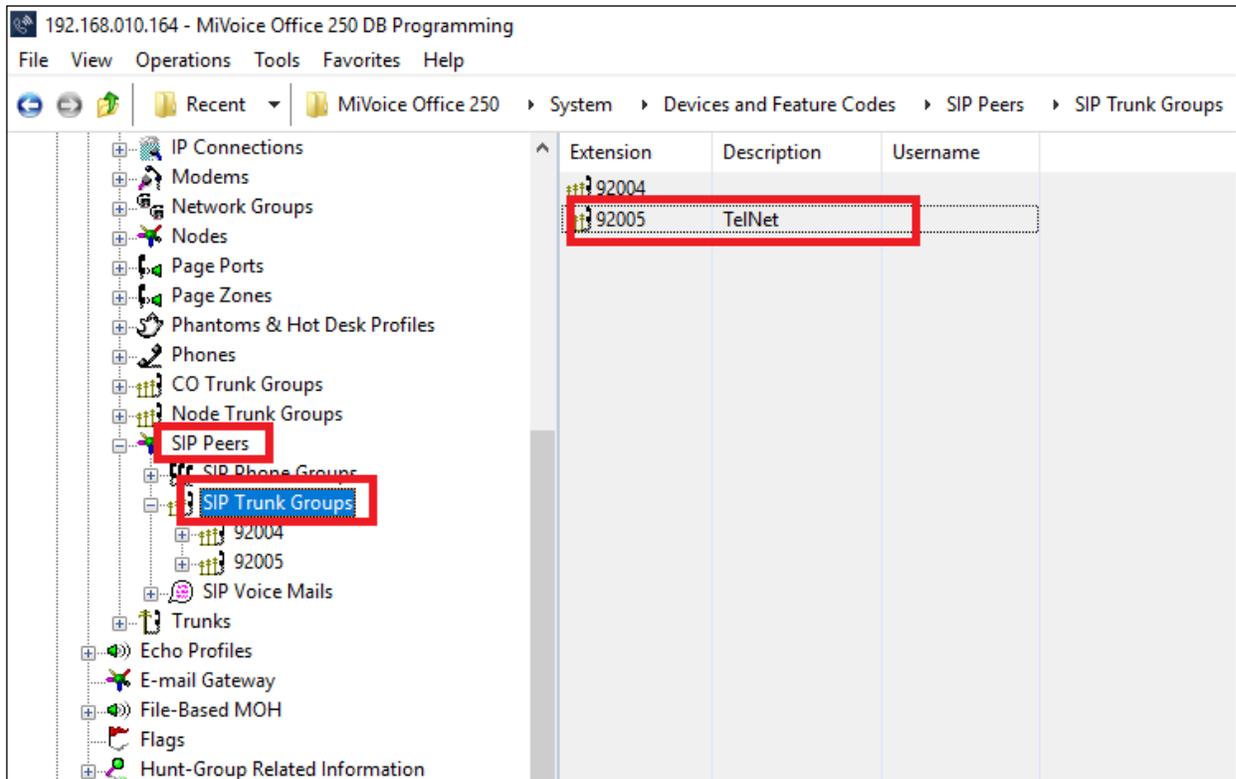

Figure 3 – SIP Trunk Group

Program the Configuration folder as described below:

- **Registration**: If the SIP peer does not require registration, the fields in this folder do not need to be configured. The Enable Registration option is set to No by default and the remaining fields appear with a red "X."
- **Authentication**:
  - *Username*: This field applies only if the SIP peer requires registration or call authentication.
  - *Password*: This field applies only if the SIP peer requires registration or call authentication.

Note: TelNet Worldwide does not support SIP trunk registration or call-by-call authentication.

- **Keep-Alive**: The Keep-Alive option keeps refreshing the NAT bindings for any Firewall/NAT in the path. It also helps in determining whether the SIP peer is reachable or not.

Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services

- **NAT Settings**: Specifies the NAT address type. The default is "No NAT or SIP-Aware NAT" (for systems that are using a SIP-aware firewall). If you are not using a SIP-aware firewall, you must change the setting to "Non-SIP-Aware NAT".
- **Alternate IP/FQDN List**: Some providers use multiple IP addresses to send SIP messages to the MiVoice Office 250. You must add All IP addresses or FQDNs other than the primary IP/FQDN to the list for all calls to be successful.
- **Route Sets**: Typically, not used in a basic configuration
- **IP Address**: Indicates the IP address of the TelNet Worldwide.
- **Port Number**: Indicates the port that the system listens on the system for SIP peer messages. The range is 0–65535.
- **Fully Qualified Domain Name**: Indicates the domain name of the SIP peer trunk group.
- **Call Configuration**: Clicking **Call Configuration** takes you to the Call Configuration folder (System\IP-Related Information\Call Configurations*<call configuration number>*).
- **Operating State**: Indicates the operating state of the SIP peer.
- **Maximum Number of Calls**: Indicates the maximum number of concurrent calls that are permitted towards the SIP peer. DB Programming restricts this field based on the number of the SIP Trunks and SIP trunk licenses.
- **Use ITU-T E.164 Phone Number**: If set to Yes, the MiVoice Office handles ITU-T E.164 formatted phone numbers as part of the incoming SIP INVITE messages from the SIP peer.
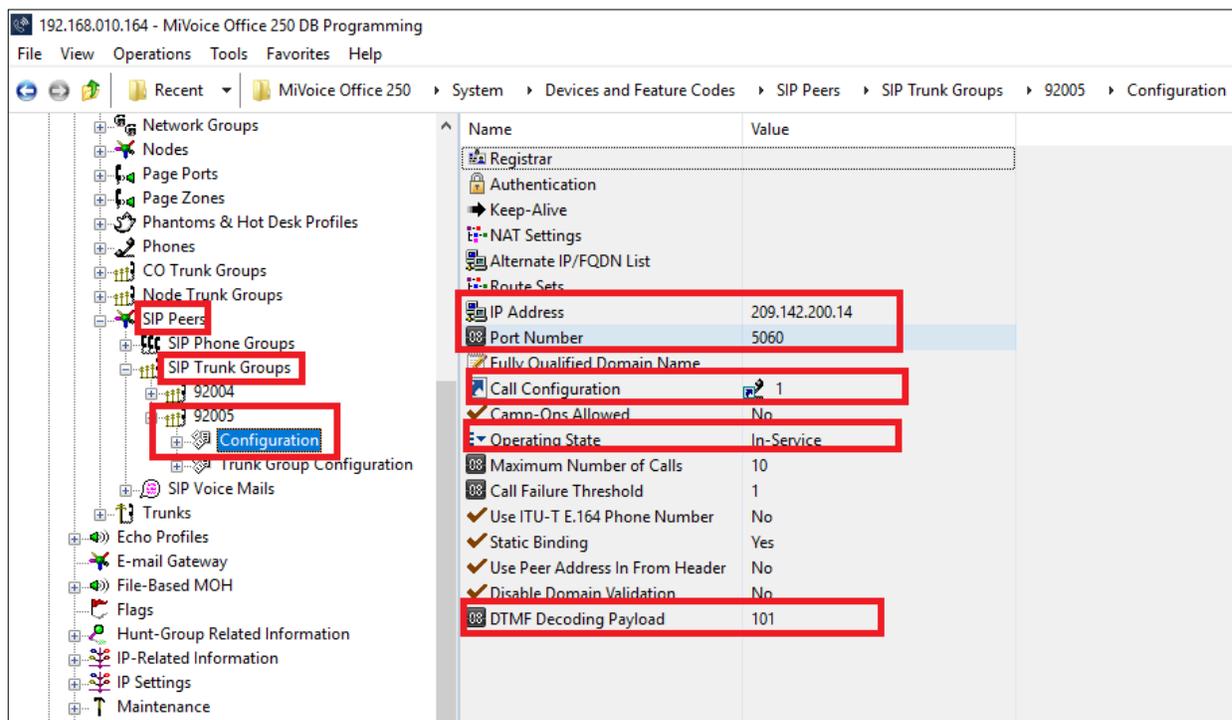
Figure 4: Configured SIP Trunk

Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide
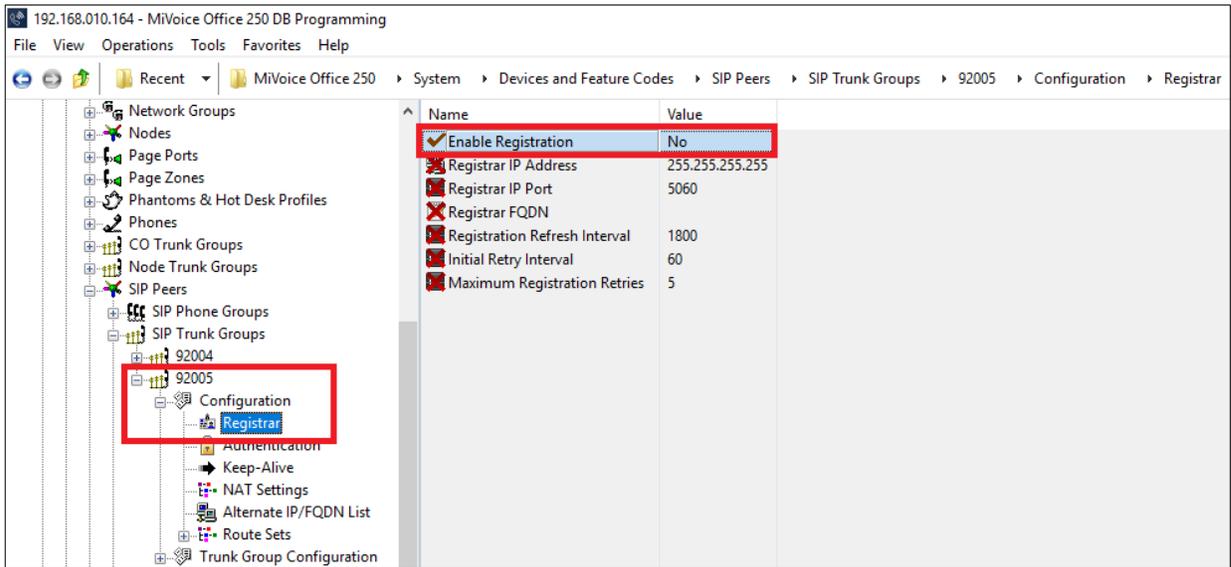SIP trunk services

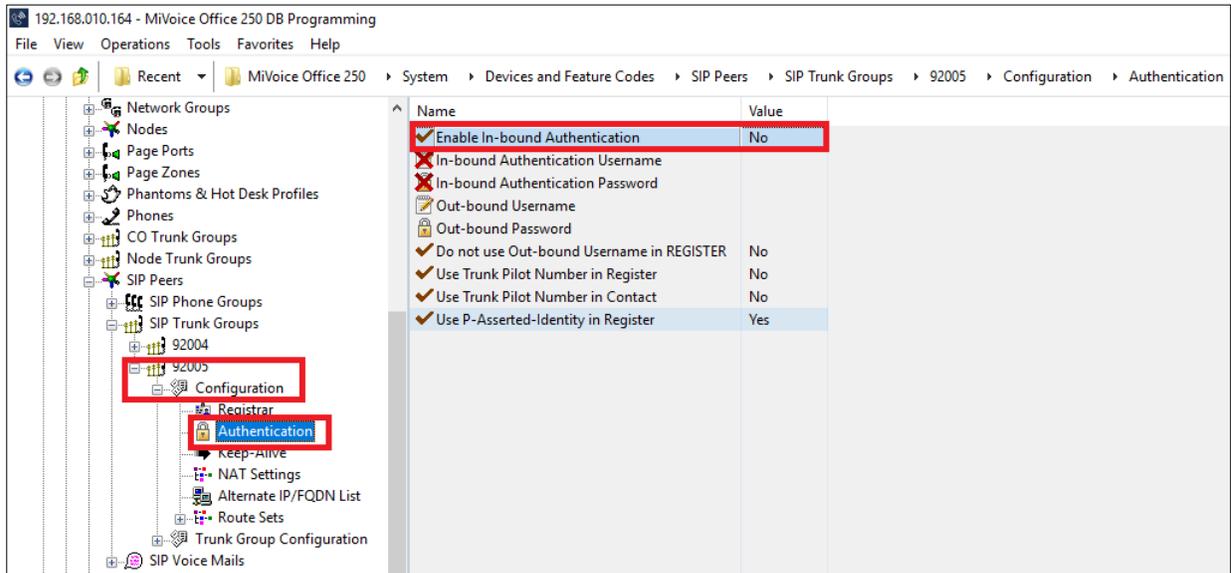*Figure 5: Registration not required for TelNet Worldwide*

Figure 6: Authentication not required for TelNet Worldwide

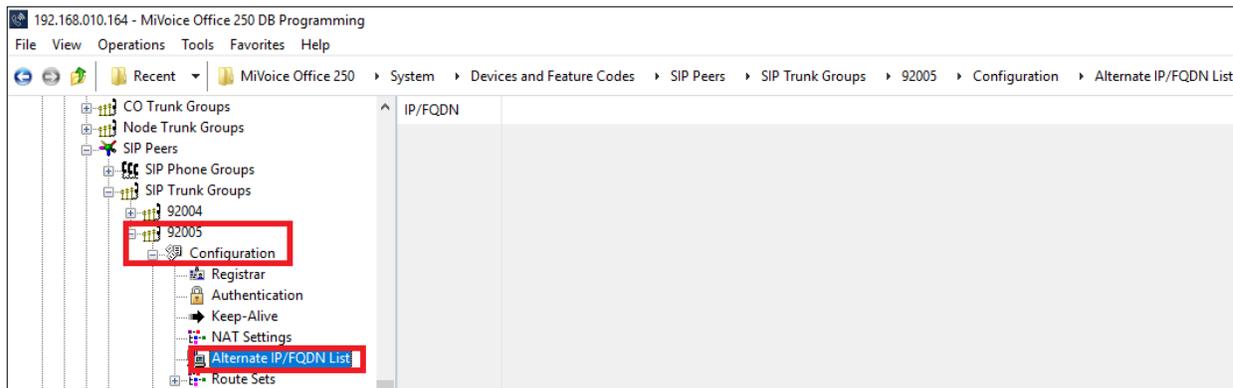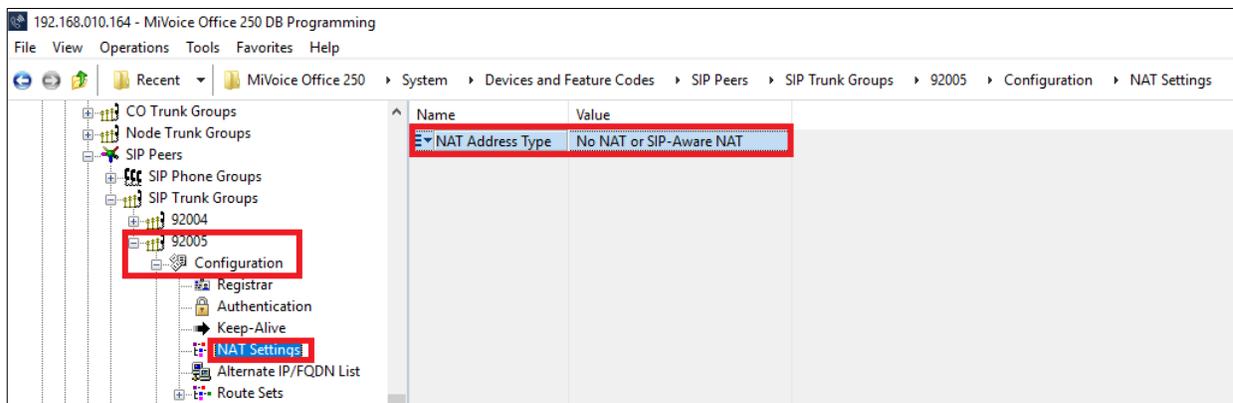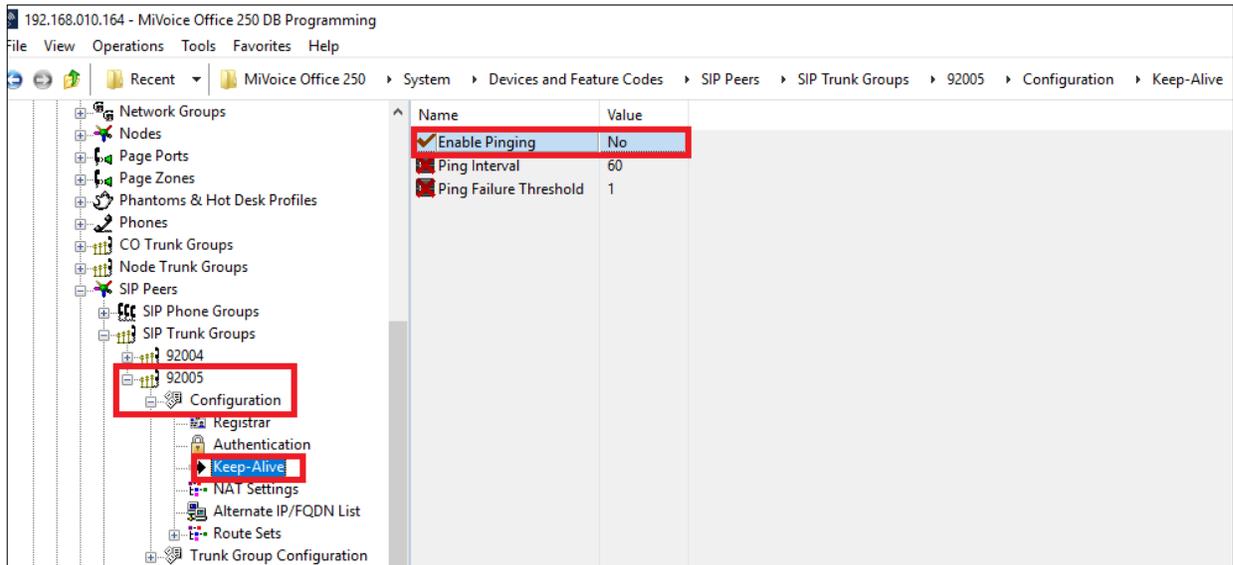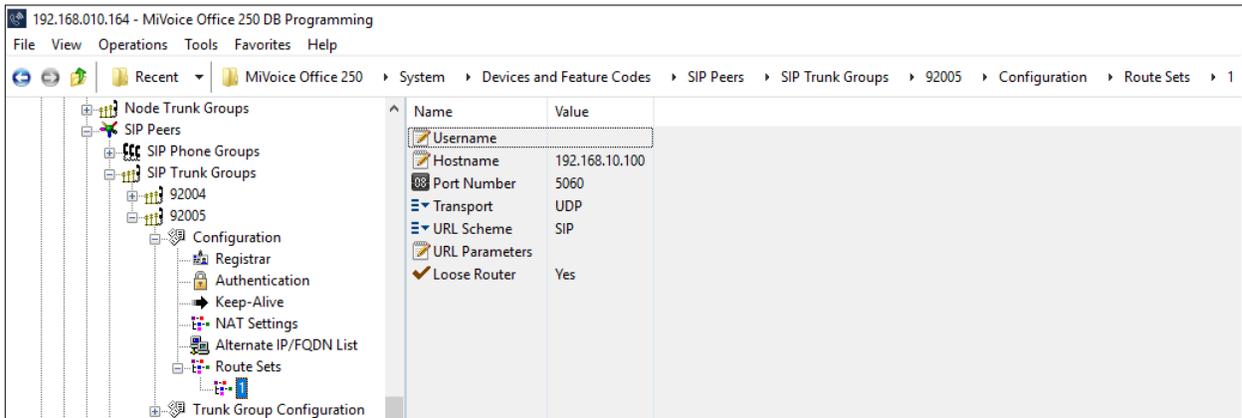Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services

Figure 7: Basic Configuration folder provisioning for TelNet Worldwide

Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services

Create Route Set for MBG

Add to Route Sets List: Under SIP Peer – SIP Trunk Group – Configuration, add route set using IP address of the MBG (MiVoice Border Gateway)
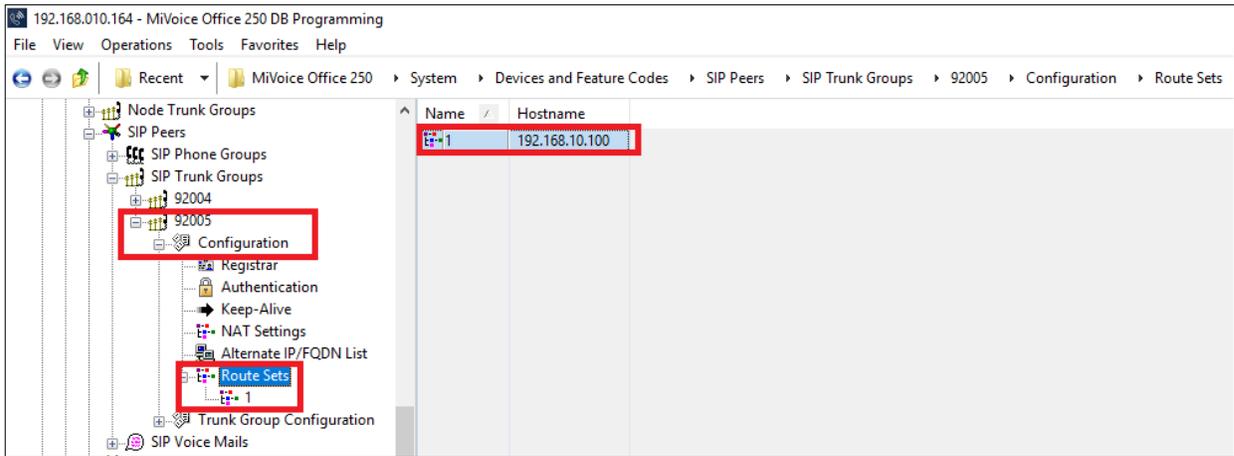
Figure 8: MBG IP Address

Figure 9: MBG Route Sets for TelNet Worldwide

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- Call Routing Table 14 was used to associate and direct incoming calls to IP phone sets (see Figure 10)
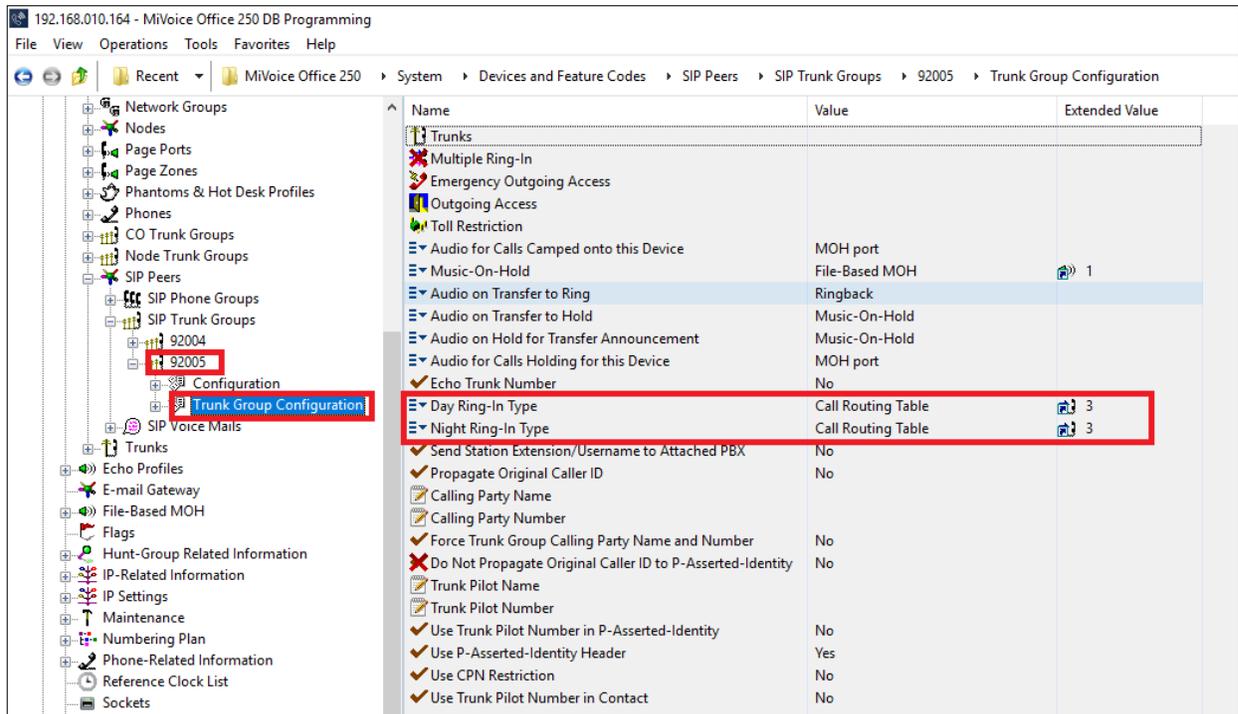
Figure 10: Trunk Group Configuration folder
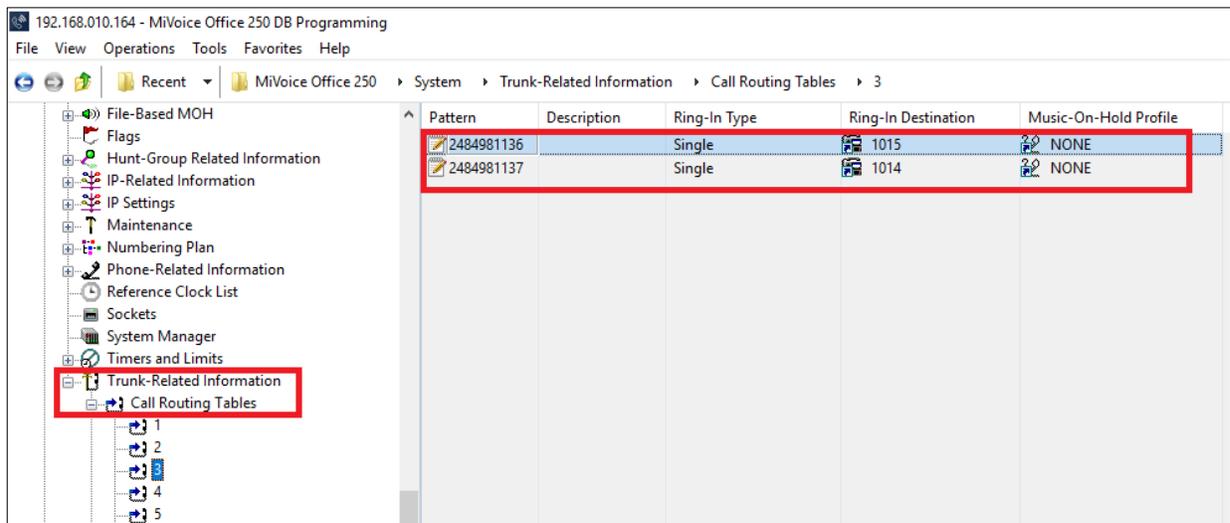
Figure 11: Call Routing Table 3

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Create the SIP peer trunks as follows:

- Double-click **Trunks**.
- Right-click the right pane, and the select **Create SIP Peer Trunk**. The Create SIP Peer Trunk Extension dialog box appears.
- Select the extension number you want to use for the item in the Starting Extension field. The recommended range is 94000–94999;
- Indicate the number of extensions you want to create in the Number of Extensions field. If the system is set to have more than one extension, the new trunks are assigned sequentially to the next available numbers.
- Click **OK**. For the TelNet Worldwide, 7 extensions were created. The number of SIP peer trunks is restricted by the number of available SIP Trunks licenses.
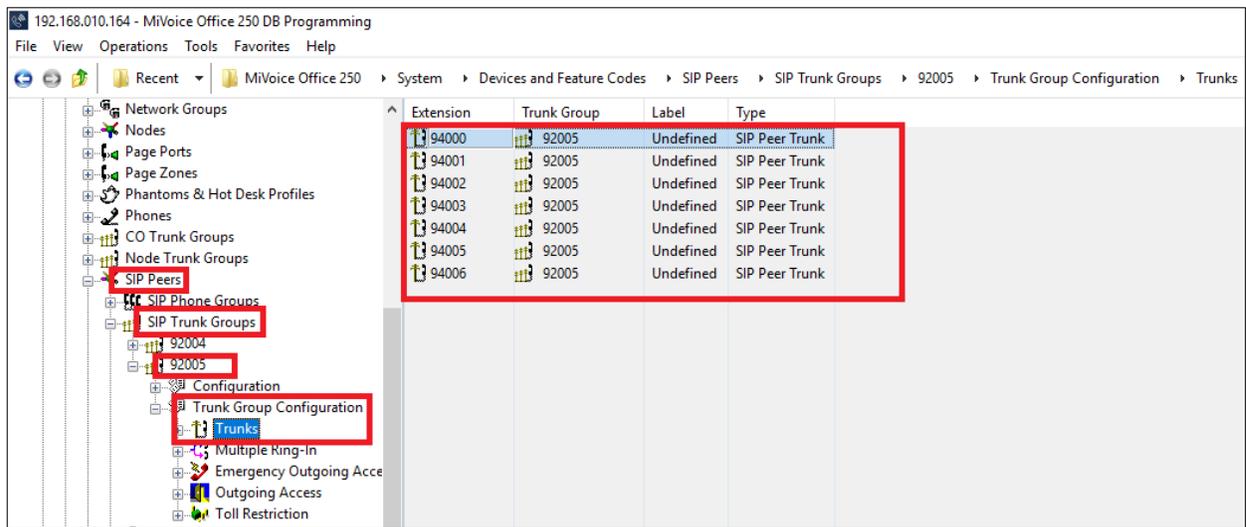
Figure 12: Trunk Extensions

IP Call Configurations

Call configurations define the settings that IP endpoints and gateways use when connected to calls. You can assign multiple devices to a specific call configuration.

By default, all IP devices are placed in Call Configuration 1, which is programmable. You do not need to add SIP endpoints to Call Configurations, because these devices negotiate call configurations before establishing a connection. You can program up to 25 different Call Configurations. Call Configuration 1 was used for testing.

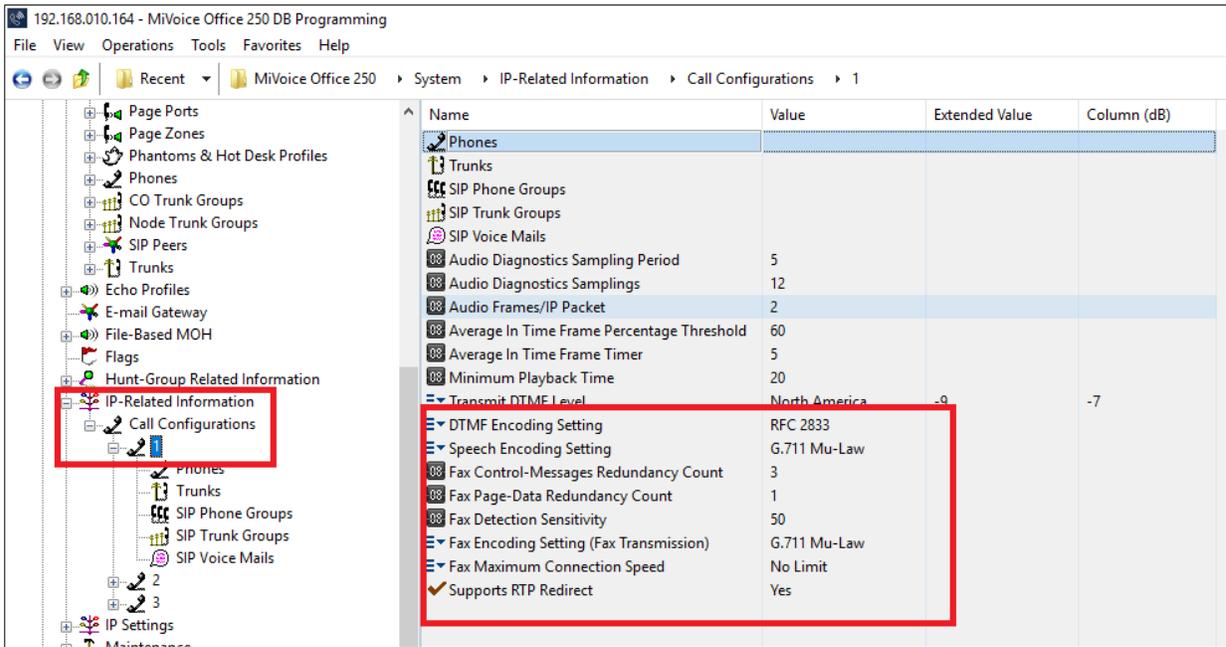Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services

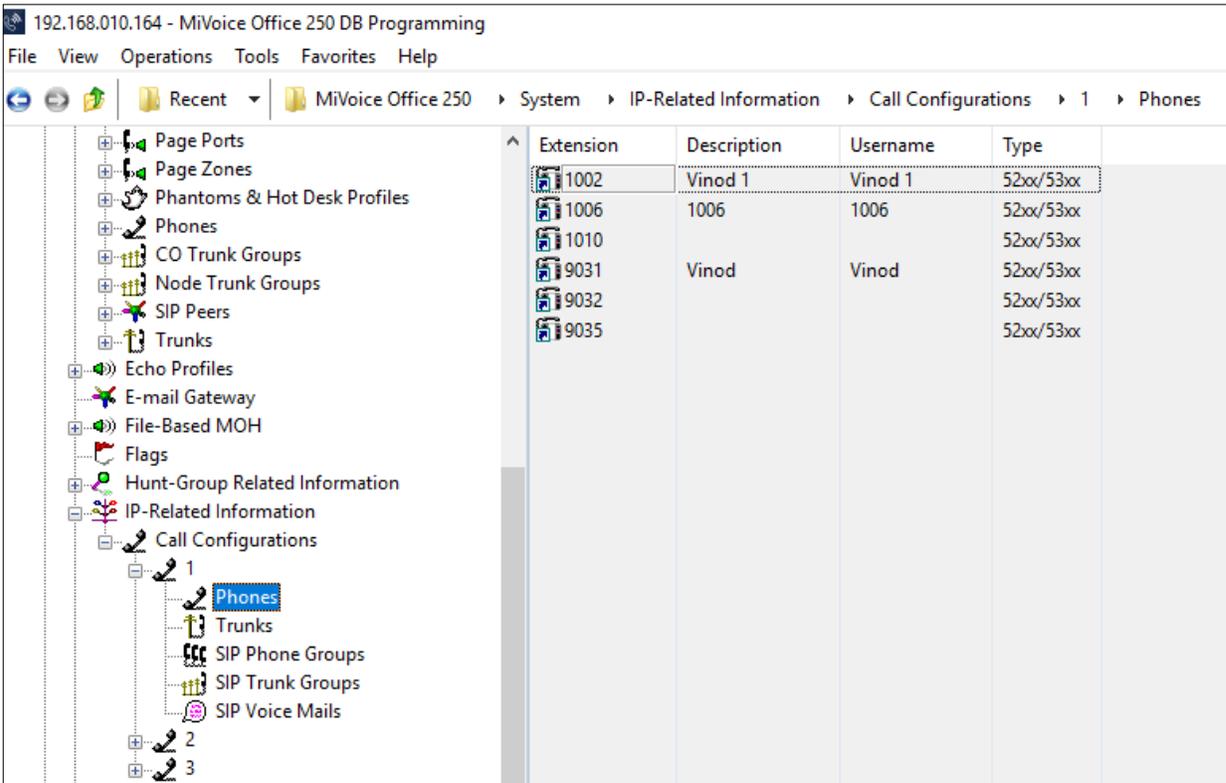Figure 13: Call Configuration Settings

Figure 14: Call Configuration Extensions

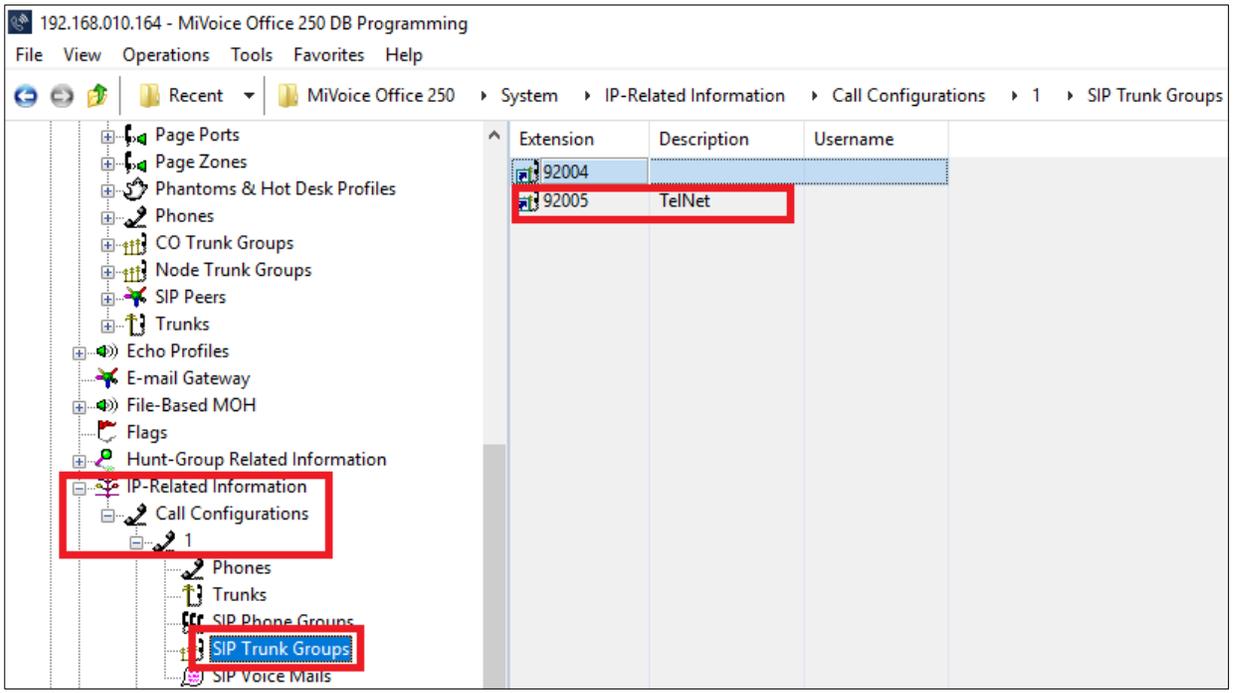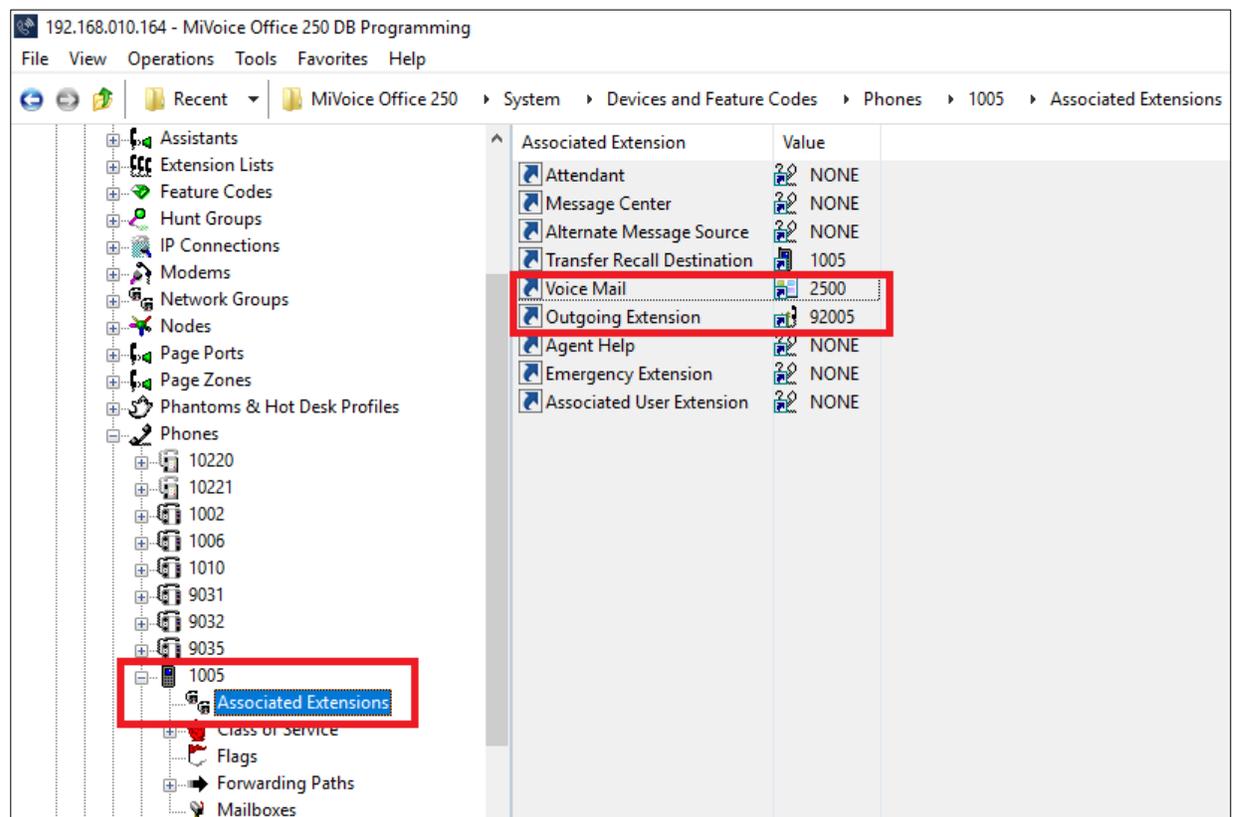Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services

Figure 15: Call Configuration SIP Trunk Association

Programming Basic Users and IP/SIP-Phone Sets

Figure 16: Basic Users

Figure 17: User Example

Figure 18: Associated Extensions Programming

MiVoice Border Gateway Configuration Notes

This section explains how to configure MiVoice Border Gateway (MBG).

First you need to add the MiVoice Office 250 where MBG will forward SIP messages to and then to configure the SIP trunk.

To do this:

- Login to the MBG and click on the 'MiVoice Border Gateway' link then 'Service Configuration' drop-down menu and select 'ICPs' (see figure 19).
- On the ICP page click on the '+' symbol and add the MiVoice Office 250 to the MBG (see Figure 20 and Figure 21).
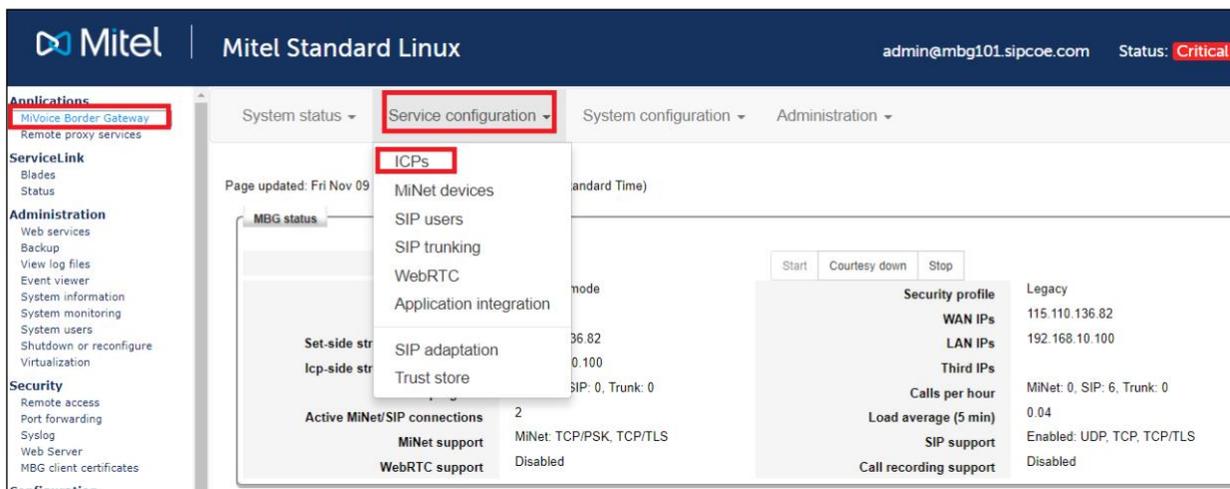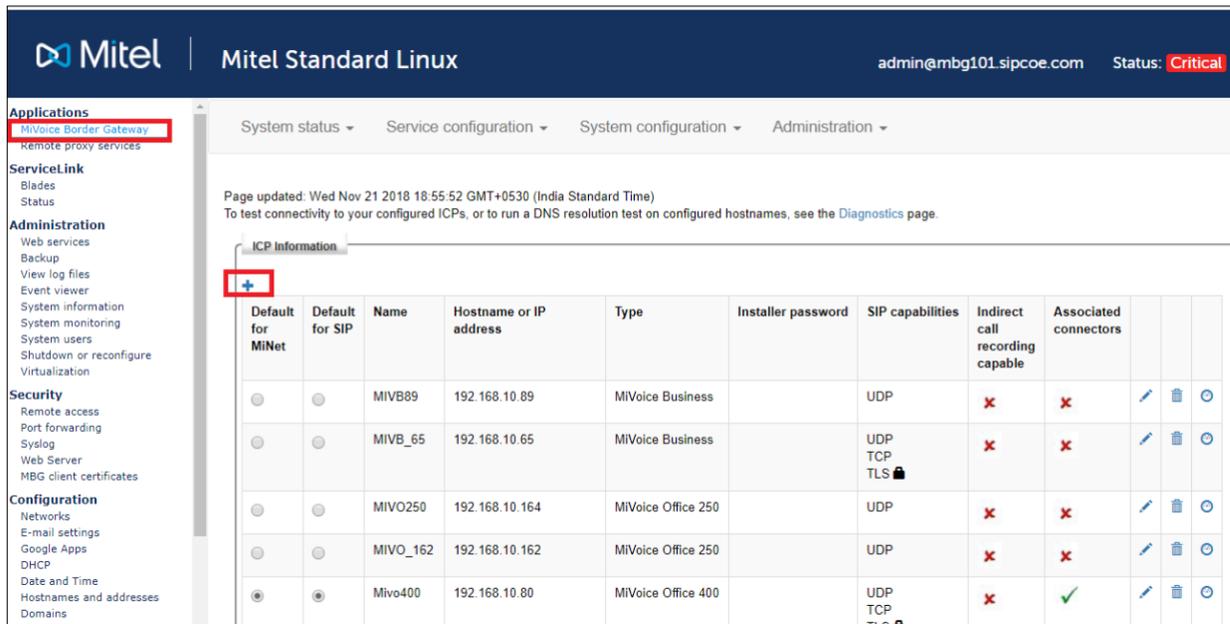

Figure 16– Adding ICP to MBG

Figure 20– ICP List Page

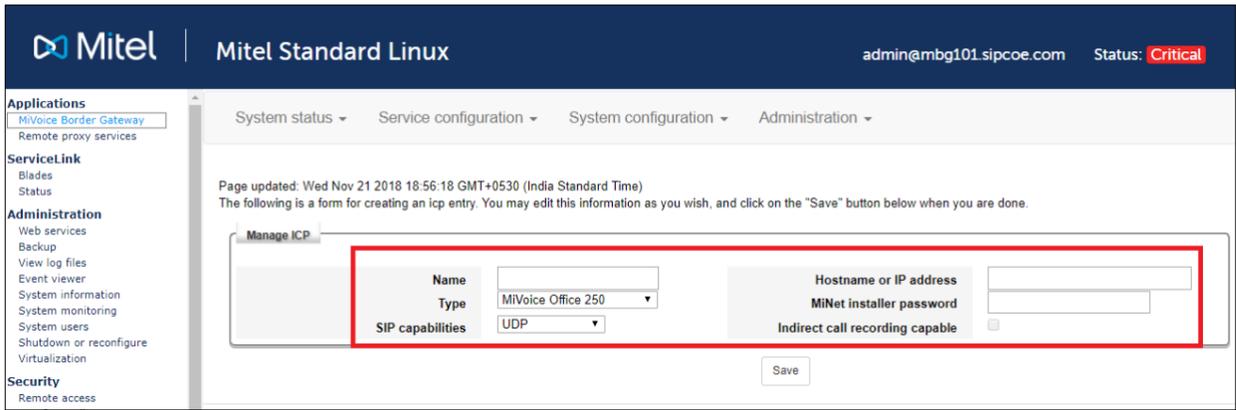## Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services

Figure 21– ICP Configuration Page

- Under the 'System Configuration' -> 'Settings' form, ensure that SIP support is enabled (see Figure 22 and Figure 23).
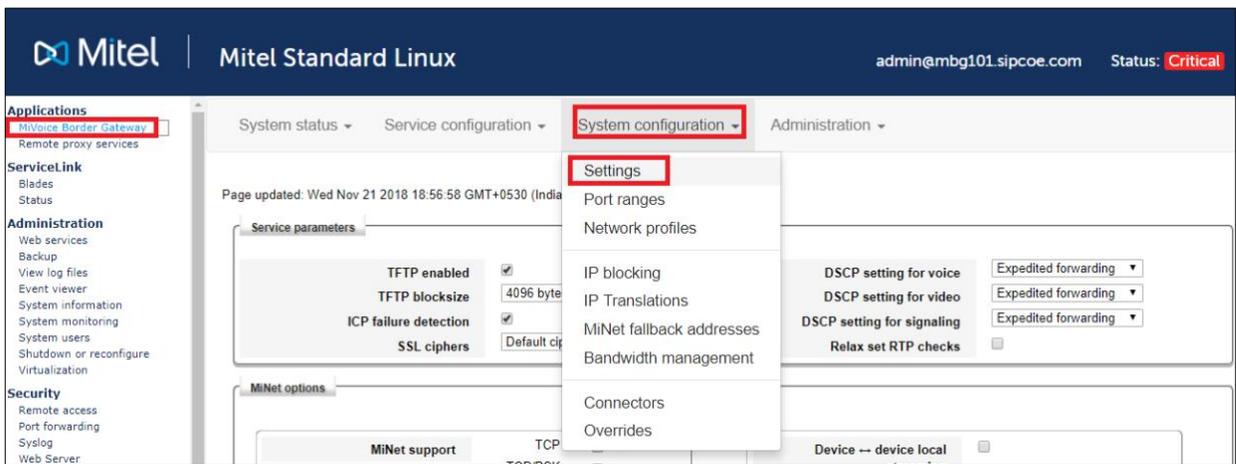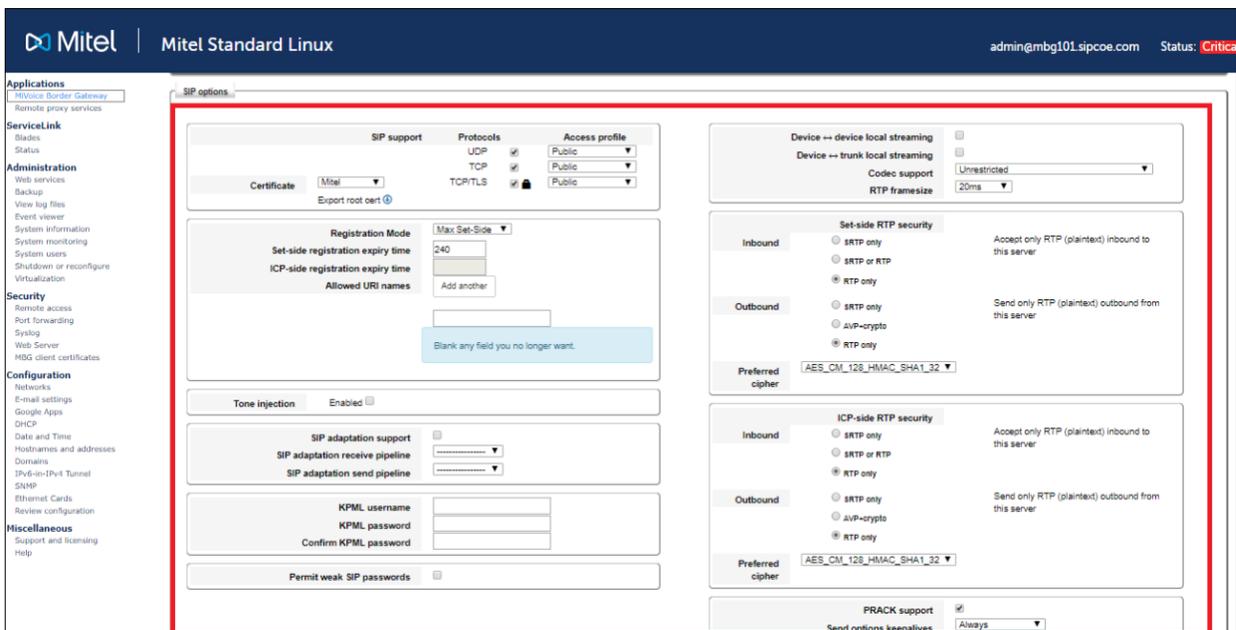

Figure 22– MBG Settings Menu

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Figure 23– MBG Settings Form

- To configure the SIP trunks, click on the 'Service Configuration' menu and select 'SIP Trunks' (see Figure 24).
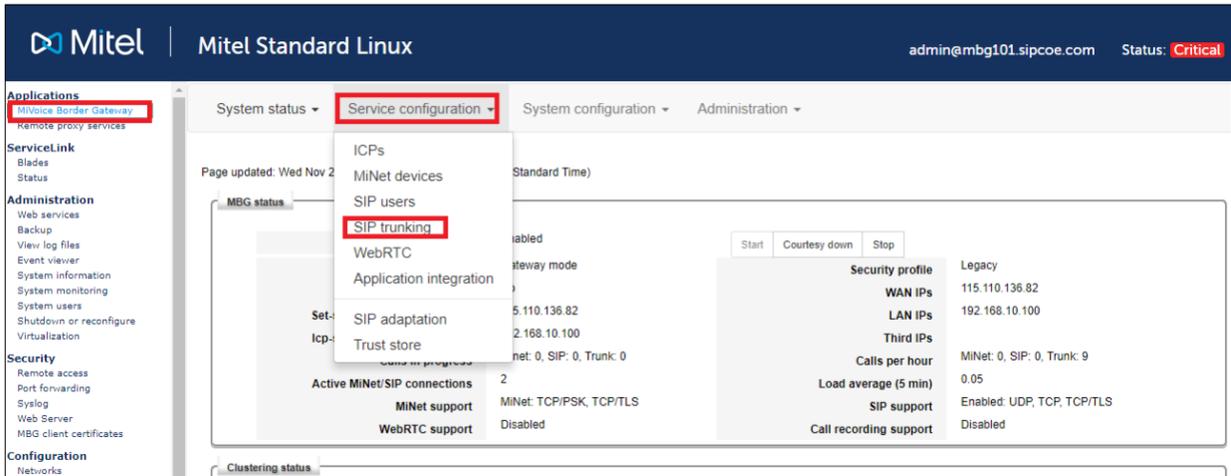

Figure 2417 – MBG SIP Trunking

- On the SIP trunks page click on the '+' symbol and add the service provider (see Figure 25 and Figure 26).
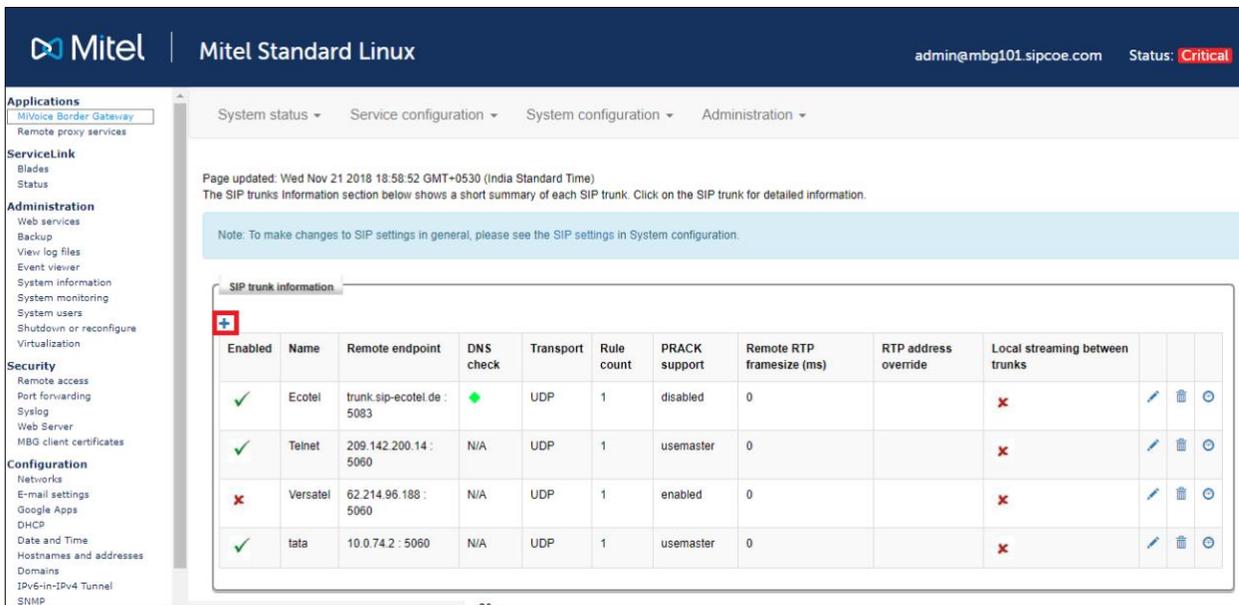

Figure 25– MBG SIP Trunk Configuration

Configure MiVoice Office 250 6.3 SP1 with MBG for use with TelNet Worldwide SIP trunk services
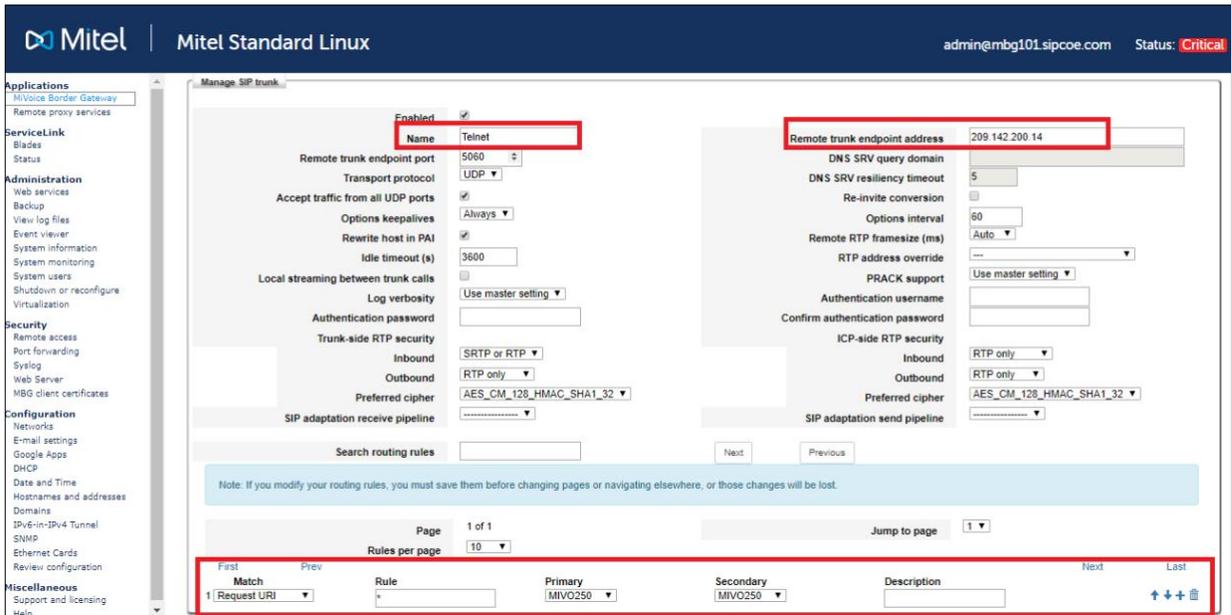
Figure 26 – MBG SIP Trunk Configuration

Enter the SIP trunk's details as shown in **26**:

> **Name** – is the name of the trunk.

> **Remote trunk endpoint address** – the public IP address of the provider's switch or gateway (this address should be given to you by the provider.

> **Local/Remote RTP framesize (ms)** – is the packetization rate you want to set on this trunk. This option is typically set to Auto.

> **PRACK support** – Leave this option at the default setting.

> **Routing rule one** – Allows routing of any digits to the selected MiVoice Office 250 switch.

> The rest of the settings are optional and could be configured as required.

> Click **Save** button

Check status: click **System status** tab and then click **SIP Trunks**

Figure 27 – SIP Trunk Status