



TELNET

TelNet Worldwide, Inc.  
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## Mitel Technical Configuration Notes - ANXXXXX

MT AppNote xxxxx (AN xxxxx)  
rev. 2018-12-12

### **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

Mitel 15

MiVoice Office 250 6.3 SP1 with MBG

Version: SIP COE 15-4940-XXXX

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

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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:

	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.
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## 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

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

## 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.	<input checked="" type="checkbox"/>
Automatic Call Distribution	Making calls to an ACD environment with Call Routing Announcements, Interflow and Overflow call scenarios and DTMF detection.	<input checked="" type="checkbox"/>
Packetization	Forcing the MiVoice Office 250 to stream RTP packets through its Processor Expansion card at different intervals including 20ms and 30ms.	<input checked="" type="checkbox"/>
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.	<input checked="" type="checkbox"/>
Fax	T.38 and G.711 Fax calls.	<input checked="" type="checkbox"/>
E.164 calling	Make calls using E.164 format	<input checked="" type="checkbox"/>
Teleworker	Making and receiving a call Service Provider TelNet Worldwide and their PSTN gateway to and from Teleworker extensions.	<input checked="" type="checkbox"/>

- 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. <b>Recommendation:</b> Contact TelNet Worldwide for more information.
TLS	TelNet Worldwide does not support TLS <b>Recommendation:</b> Contact TelNet Worldwide for more information.
Video Calls	TelNet Worldwide does not support video calls. <b>Recommendation:</b> Contact TelNet Worldwide for more information.
DTMF (INFO)	DTMF via SIP INFO is not Supported by TelNet Worldwide <b>Recommendation:</b> 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. <b>Recommendation:</b> Contact Mitel for more information.
Unsupervised Transfer to PSTN	Unsupervised Transfer Is Failing to the PSTN Number on MiVoice Office 250 (DPAR ID <b>MN00673871</b> ). <b>Recommendation:</b> Contact Mitel for more information.

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

## Network Topology

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

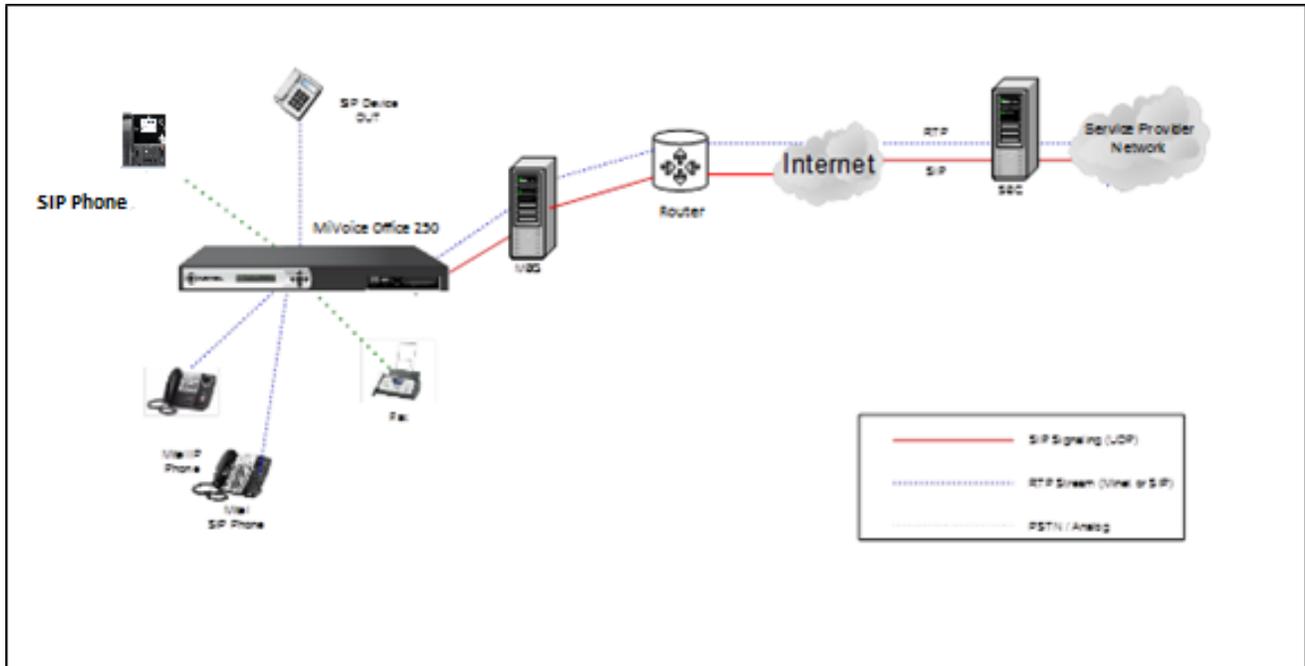


Figure 1 – Network Topology

## 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

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

Enterprise LAN networks can support this level of traffic without any special engineering. Please refer to the MiVO250 Engineering guidelines for further information.

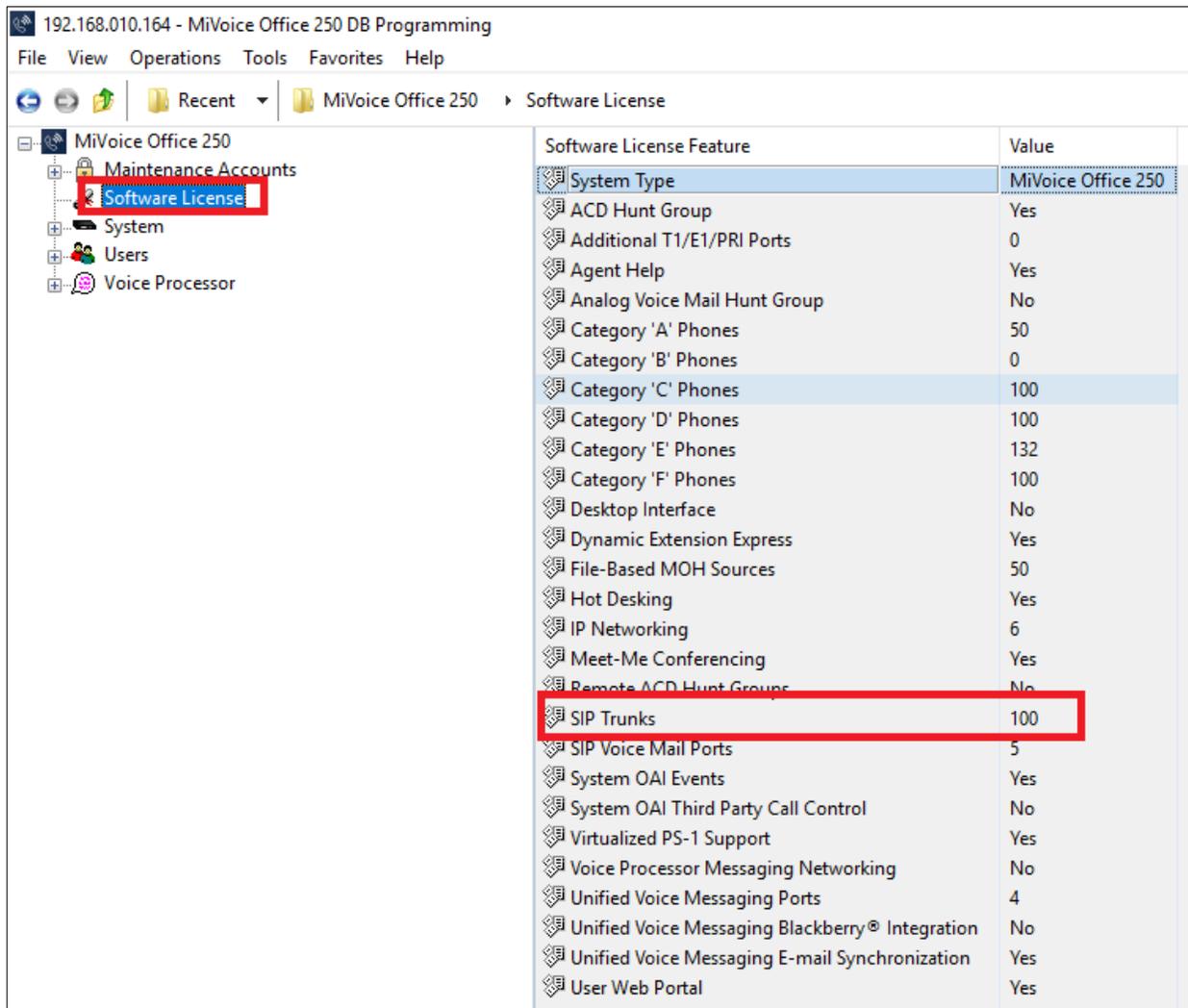
- For high quality voice, the network connectivity must support a voice-quality grade of service (packet loss <1%, jitter < 30ms, one-way delay < 80ms).

### 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.



Software License Feature	Value
System Type	MiVoice Office 250
ACD Hunt Group	Yes
Additional T1/E1/PRI Ports	0
Agent Help	Yes
Analog Voice Mail Hunt Group	No
Category 'A' Phones	50
Category 'B' Phones	0
Category 'C' Phones	100
Category 'D' Phones	100
Category 'E' Phones	132
Category 'F' Phones	100
Desktop Interface	No
Dynamic Extension Express	Yes
File-Based MOH Sources	50
Hot Desking	Yes
IP Networking	6
Meet-Me Conferencing	Yes
Remote ACD Hunt Groups	No
SIP Trunks	100
SIP Voice Mail Ports	5
System OAI Events	Yes
System OAI Third Party Call Control	No
Virtualized PS-1 Support	Yes
Voice Processor Messaging Networking	No
Unified Voice Messaging Ports	4
Unified Voice Messaging Blackberry® Integration	No
Unified Voice Messaging E-mail Synchronization	Yes
User Web Portal	Yes

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”.

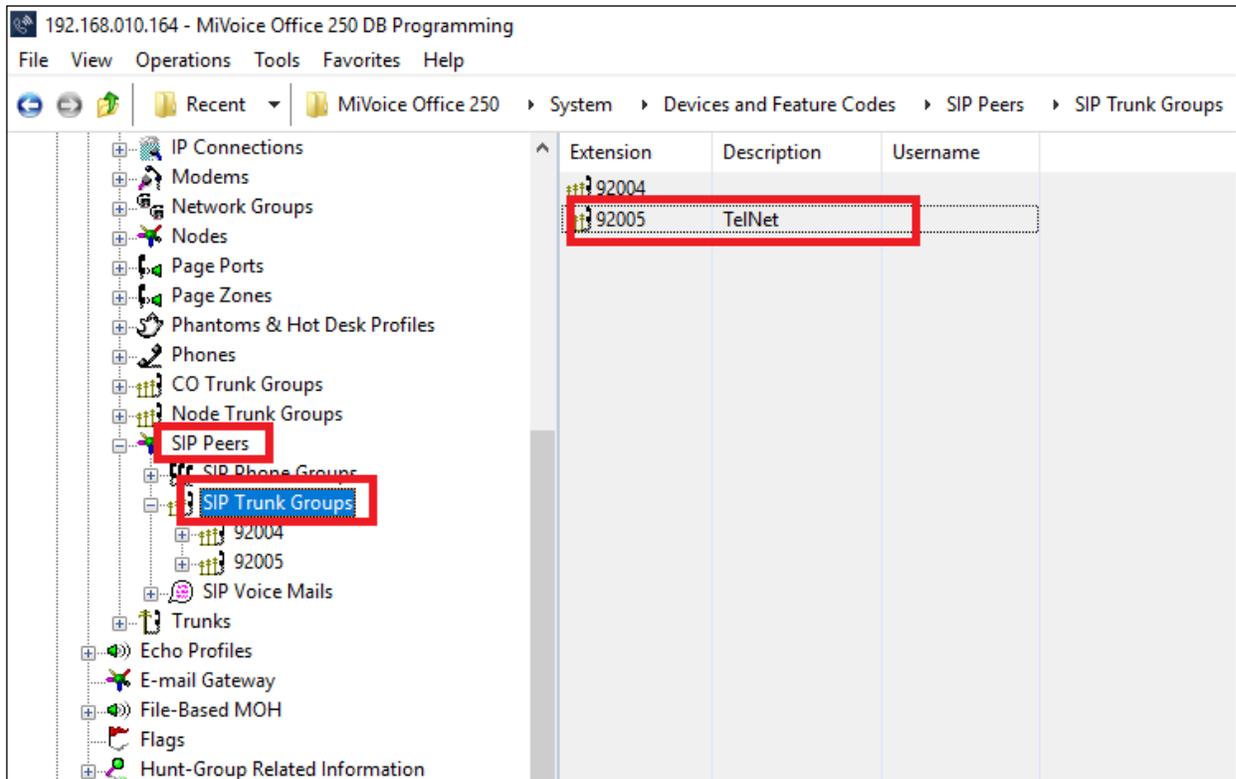


Figure 3 – SIP Trunk Group

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.

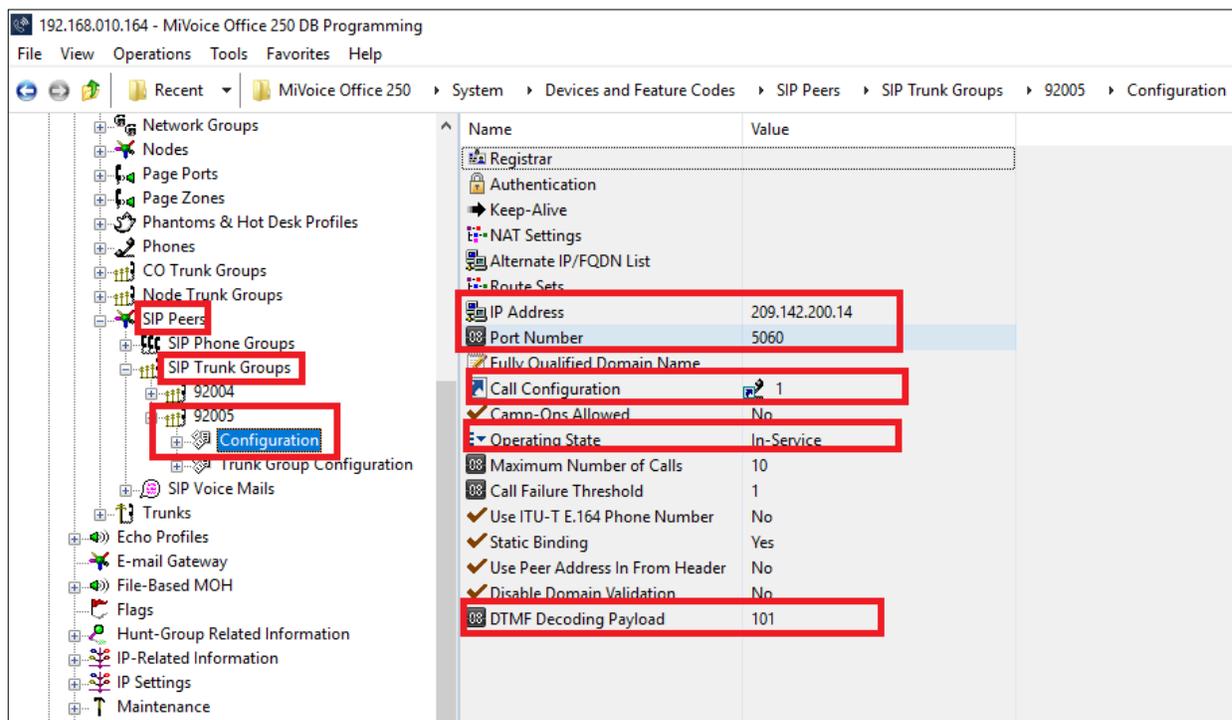


Figure 4: Configured SIP Trunk

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

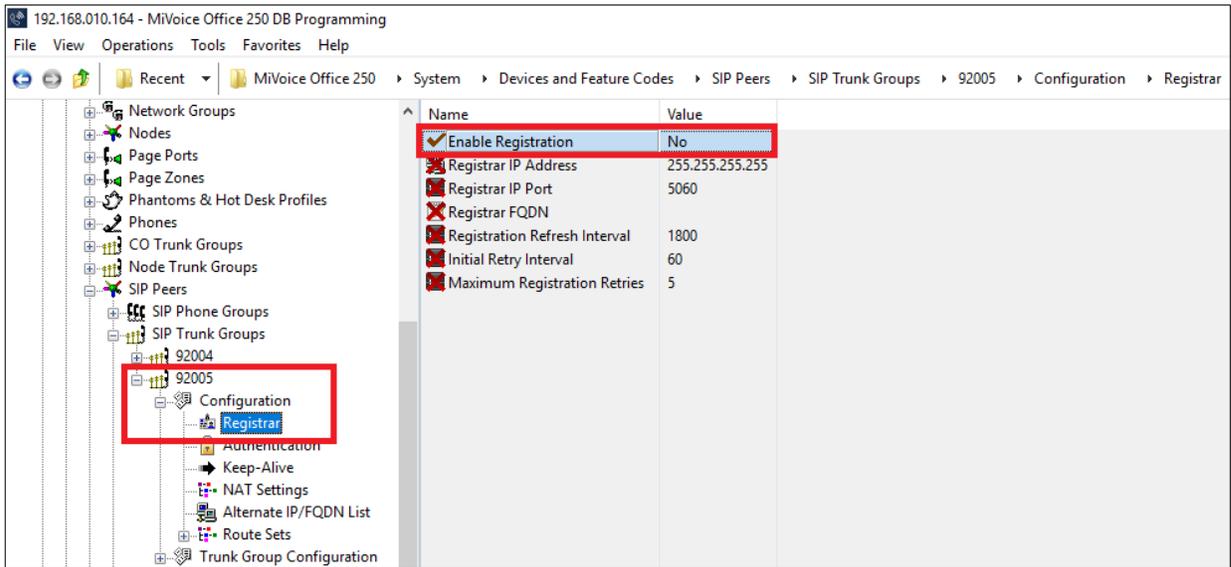


Figure 5: Registration not required for TelNet Worldwide

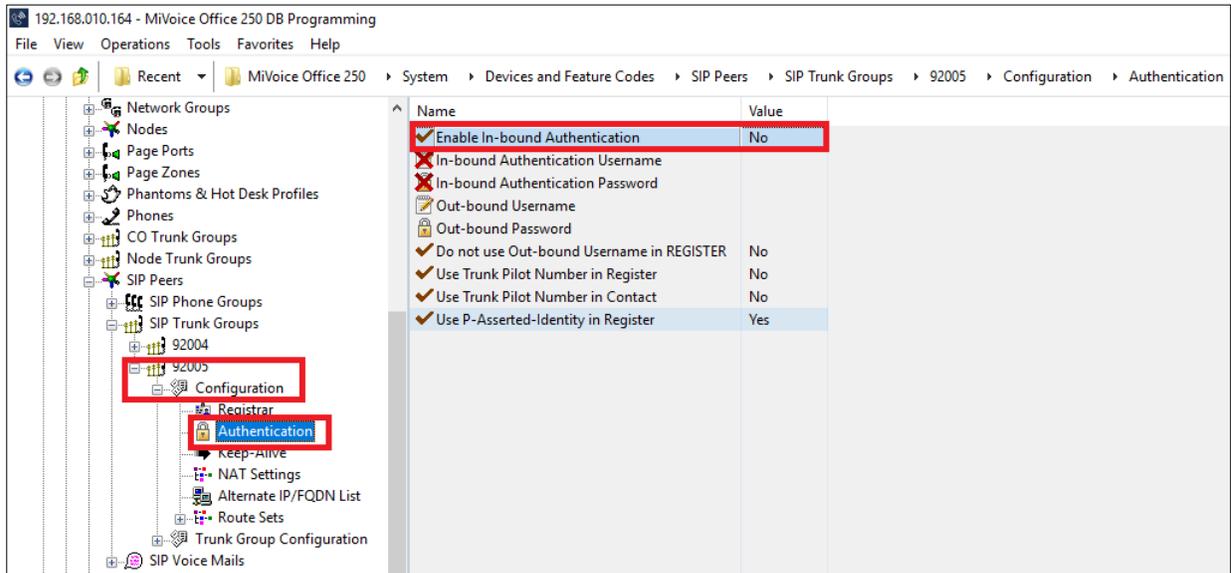


Figure 6: Authentication not required for TelNet Worldwide

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

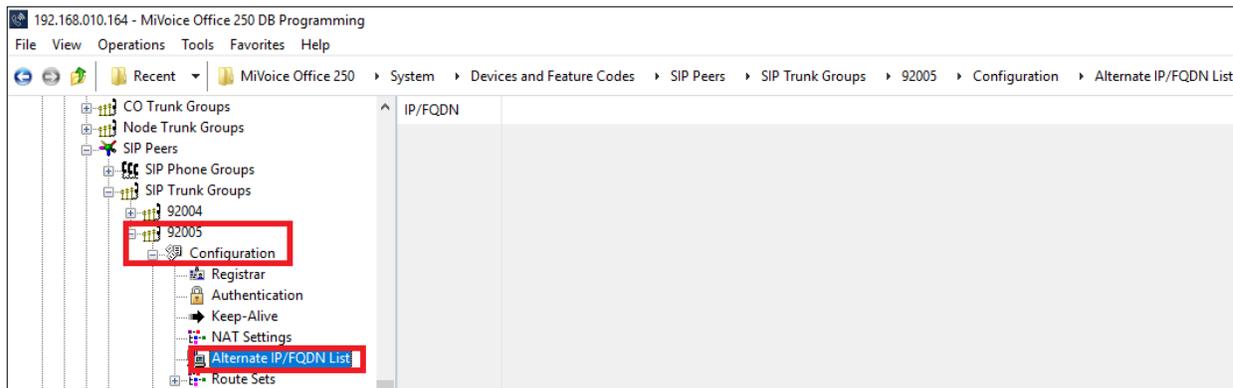
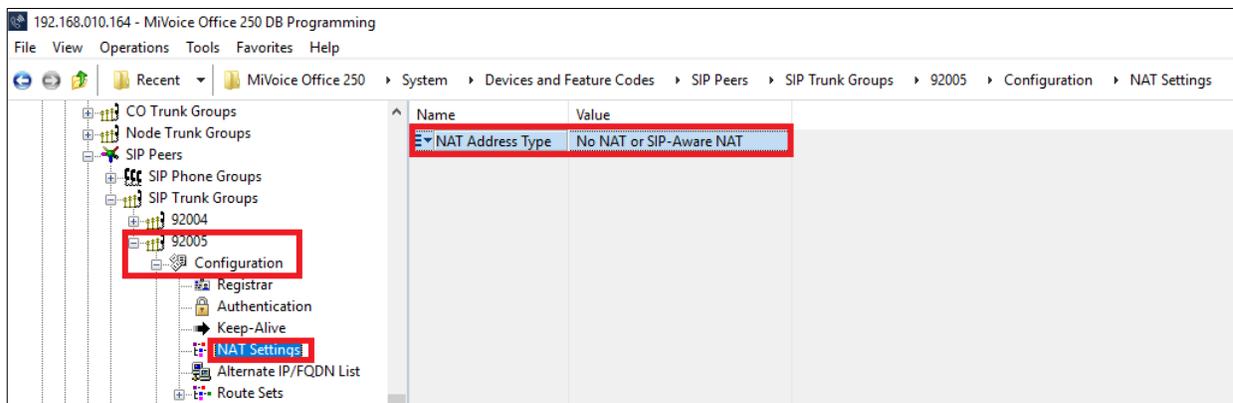
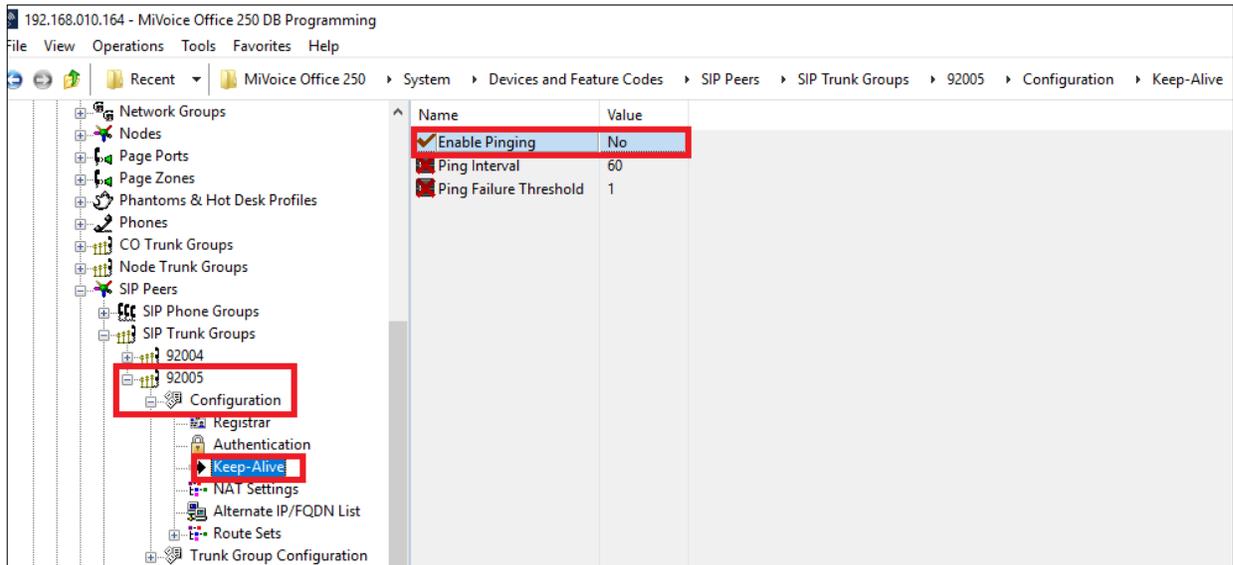


Figure 7: Basic Configuration folder provisioning for TelNet Worldwide

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)

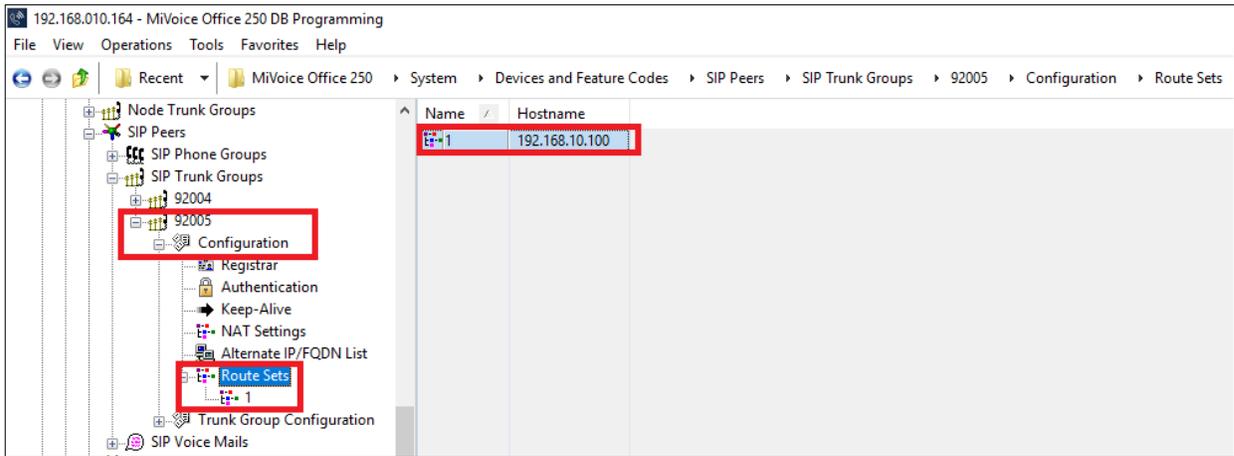


Figure 8: MBG IP Address

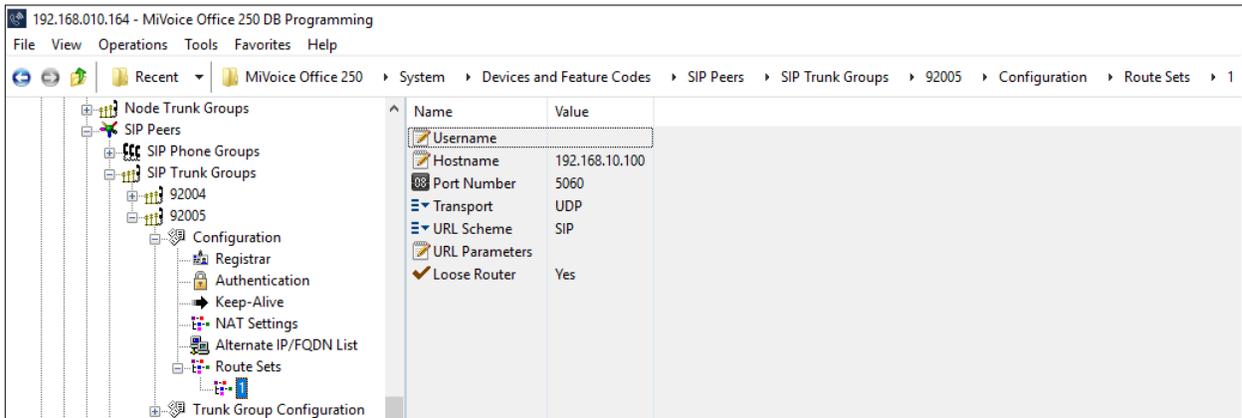


Figure 9: MBG Route Sets for TelNet Worldwide

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

## Programming the Trunk Group Configuration Folder

- Call Routing Table 14 was used to associate and direct incoming calls to IP phone sets (see Figure 10)

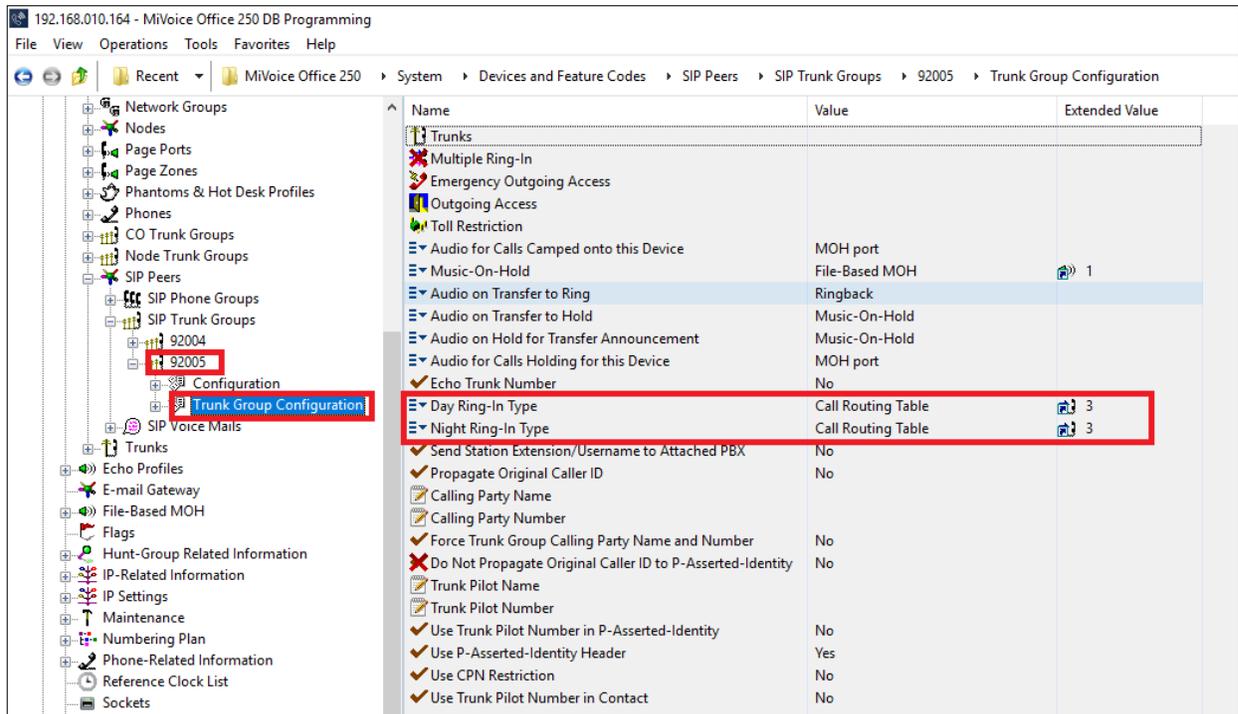


Figure 10: Trunk Group Configuration folder

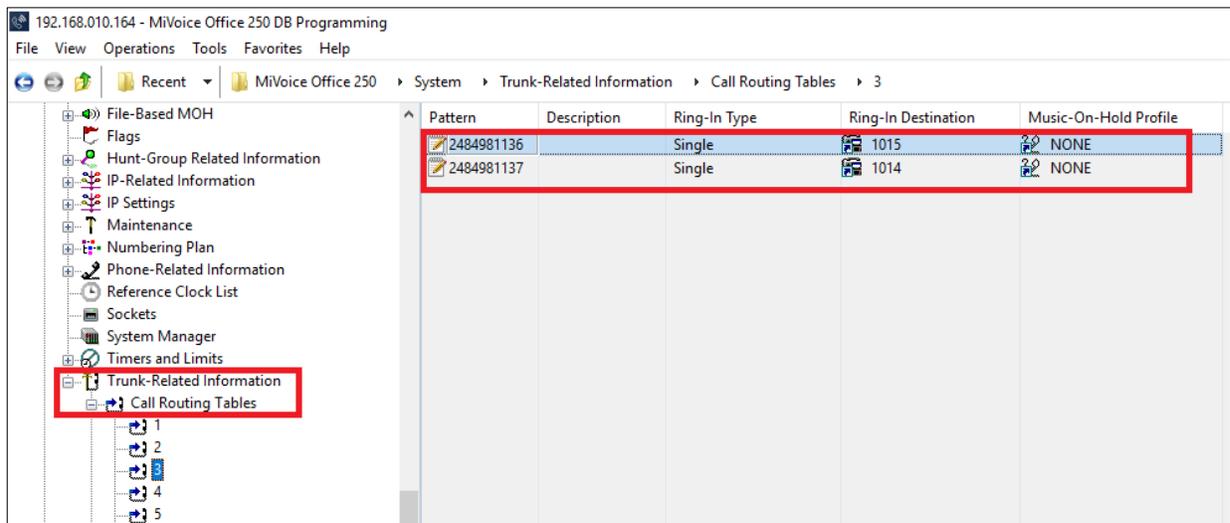


Figure 11: Call Routing Table 3

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

Create the SIP peer trunks as follows:

- Double-click **Trunks**.
- Right-click the right pane, and 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.

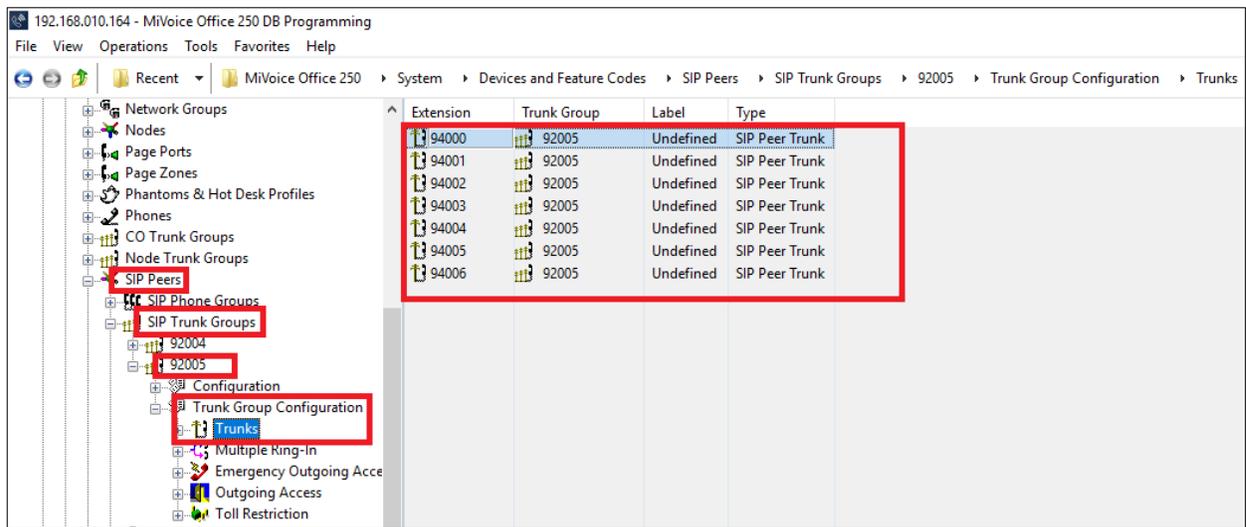


Figure 12: Trunk Extensions

## 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

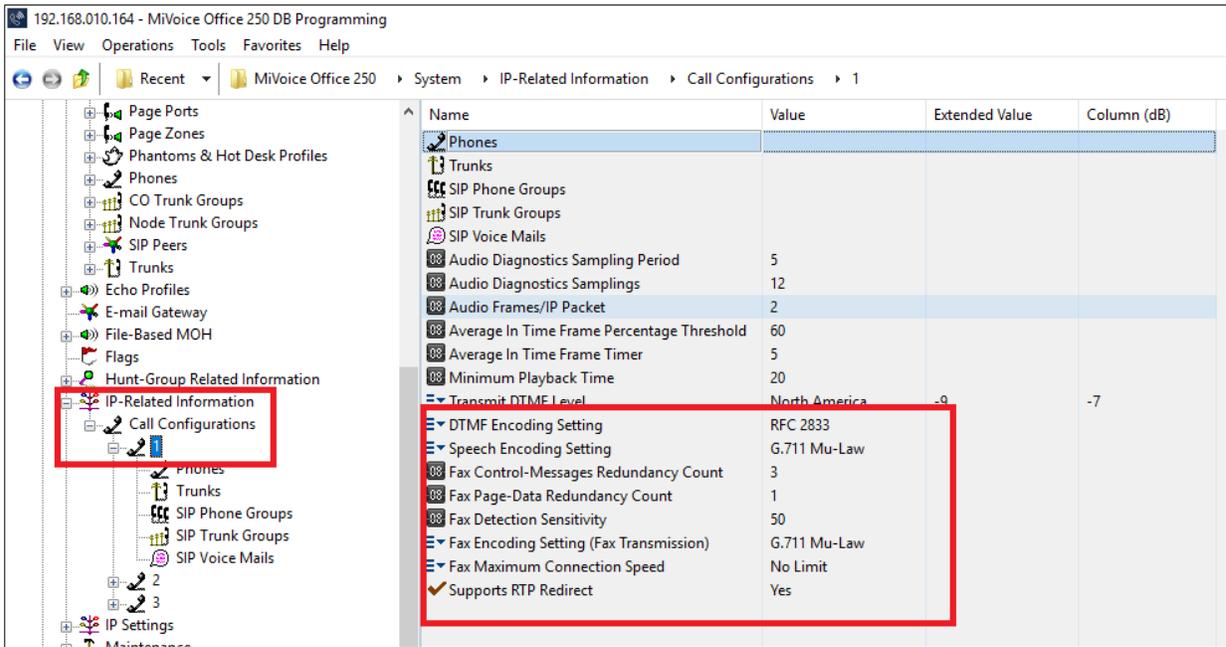


Figure 13: Call Configuration Settings

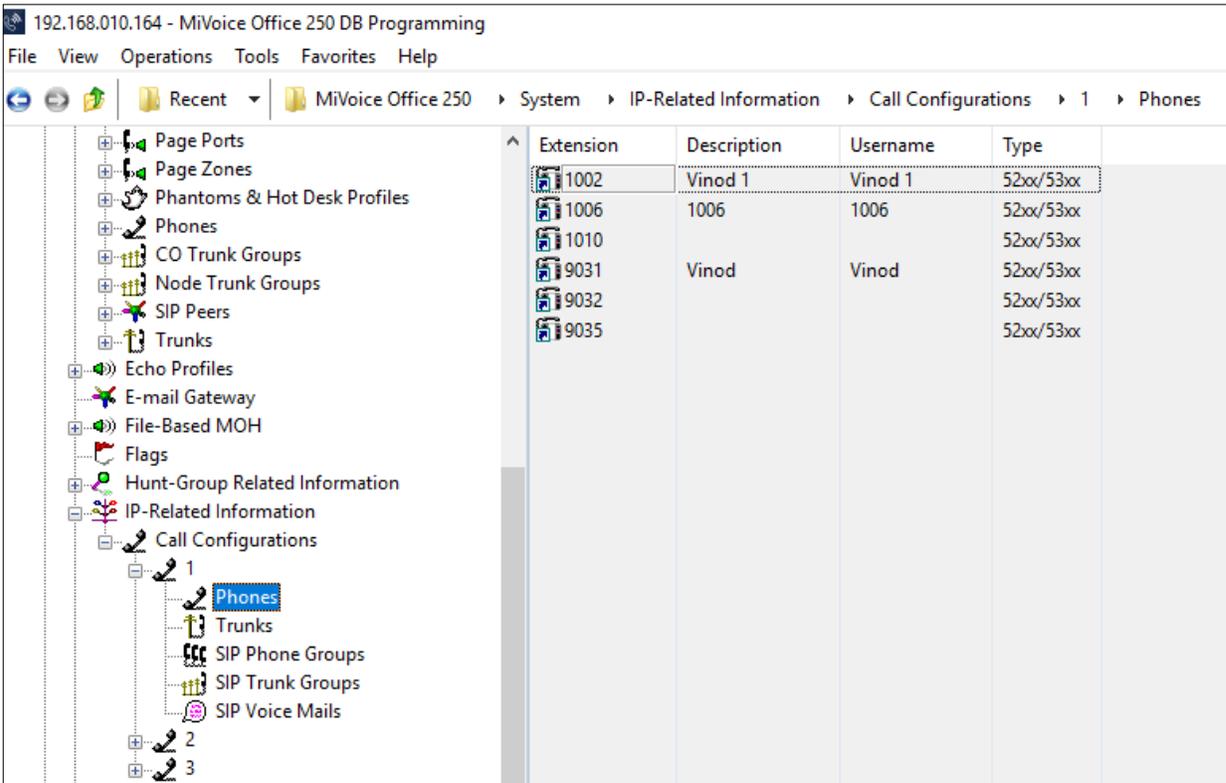


Figure 14: Call Configuration Extensions

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

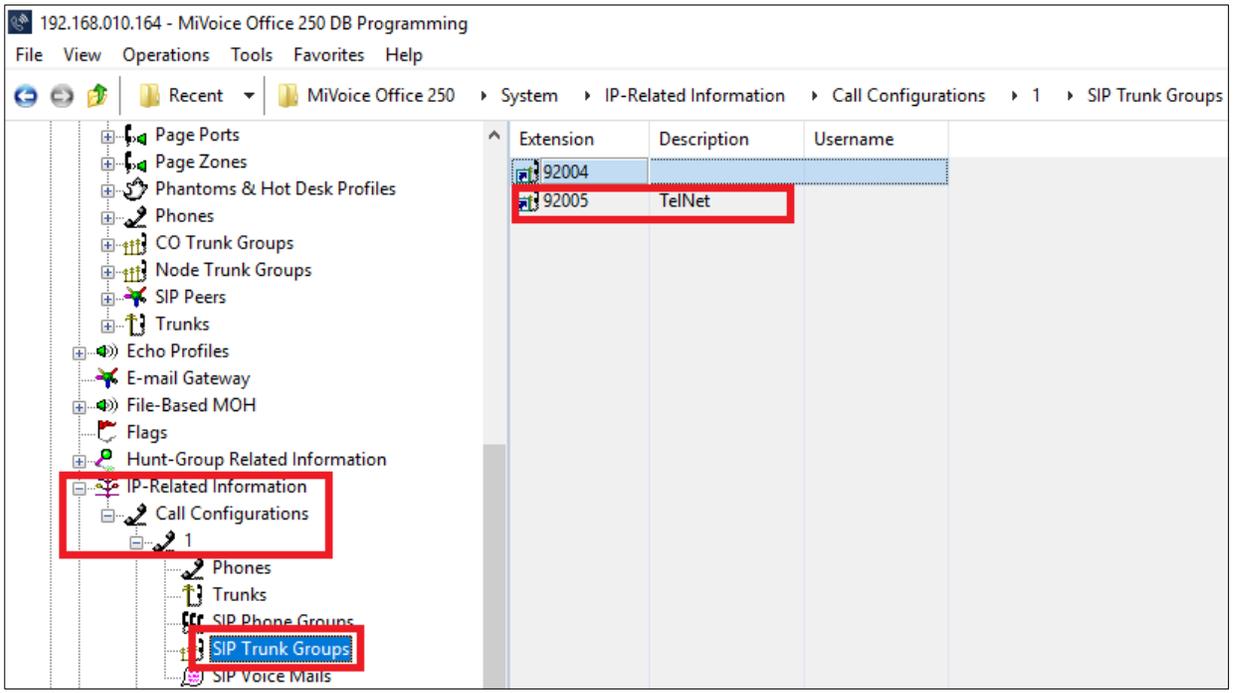


Figure 15: Call Configuration SIP Trunk Association

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

Programming Basic Users and IP/SIP-Phone Sets

192.168.010.164 - MiVoice Office 250 DB Programming

File View Operations Tools Favorites Help

Recent MiVoice Office 250 System Devices and Feature Codes Phones

MiVoice Office 250

- Maintenance Accounts
- Software License
- System
- App Suite Server Configuration
- CloudLink Gateway
- Controller
- Conference-Related Information
- Devices and Feature Codes
- Assistants
- Extension Lists
- Feature Codes
- Hunt Groups
- IP Connections
- Modems
- Network Groups
- Nodes
- Page Ports
- Page Zones
- Phantoms & Hot Desk Profiles
- Phones

Extension	Description	Username	Type	Address
10220			Single Line	01:11.01.01
10221			Single Line	01:11.02.01
1002	Vinod 1	Vinod 1	52xx/53xx	
1006	1006	1006	52xx/53xx	
1010			52xx/53xx	
9031	Vinod	Vinod	52xx/53xx	
9032			52xx/53xx	
9035			52xx/53xx	
1005			SIP Phone	
1007			SIP Phone	
1008			SIP Phone	
1011			SIP Phone	
1012			SIP Phone	
2001			SIP Phone	
9034			SIP Phone	
1014			69xx SIP Phone	
1015			69xx SIP Phone	

Figure 16: Basic Users

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

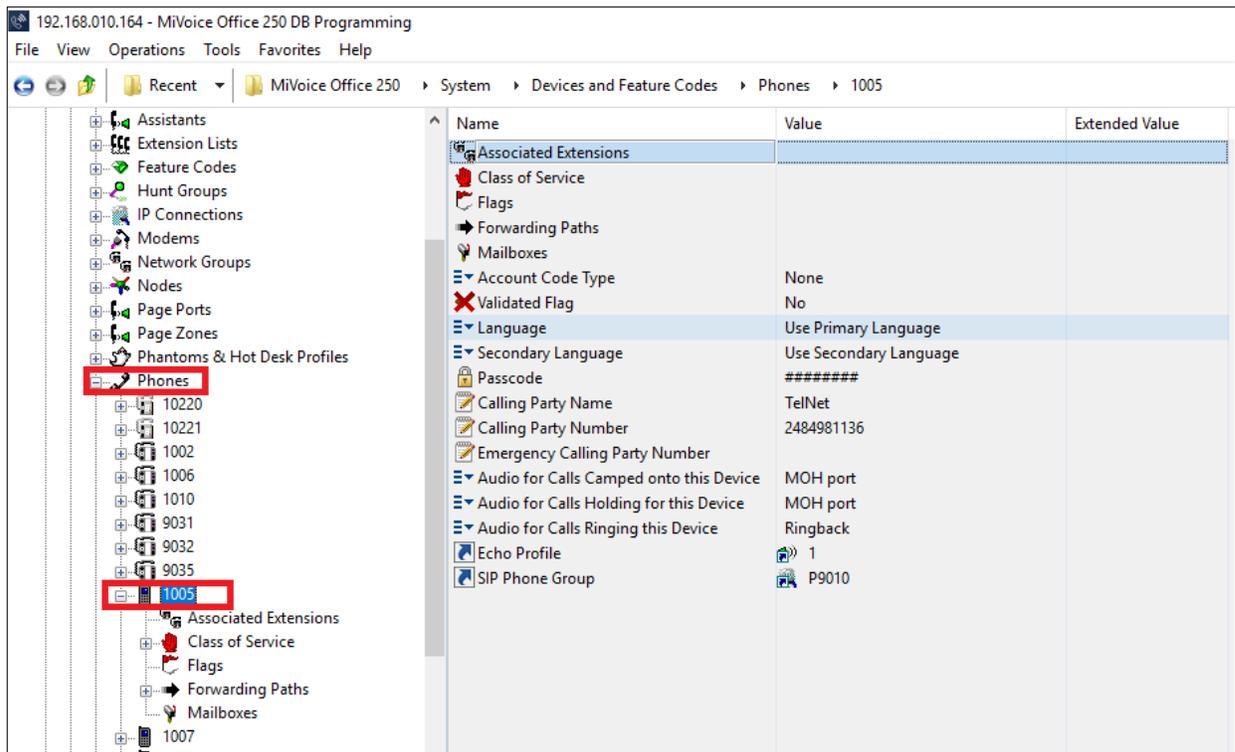


Figure 17: User Example

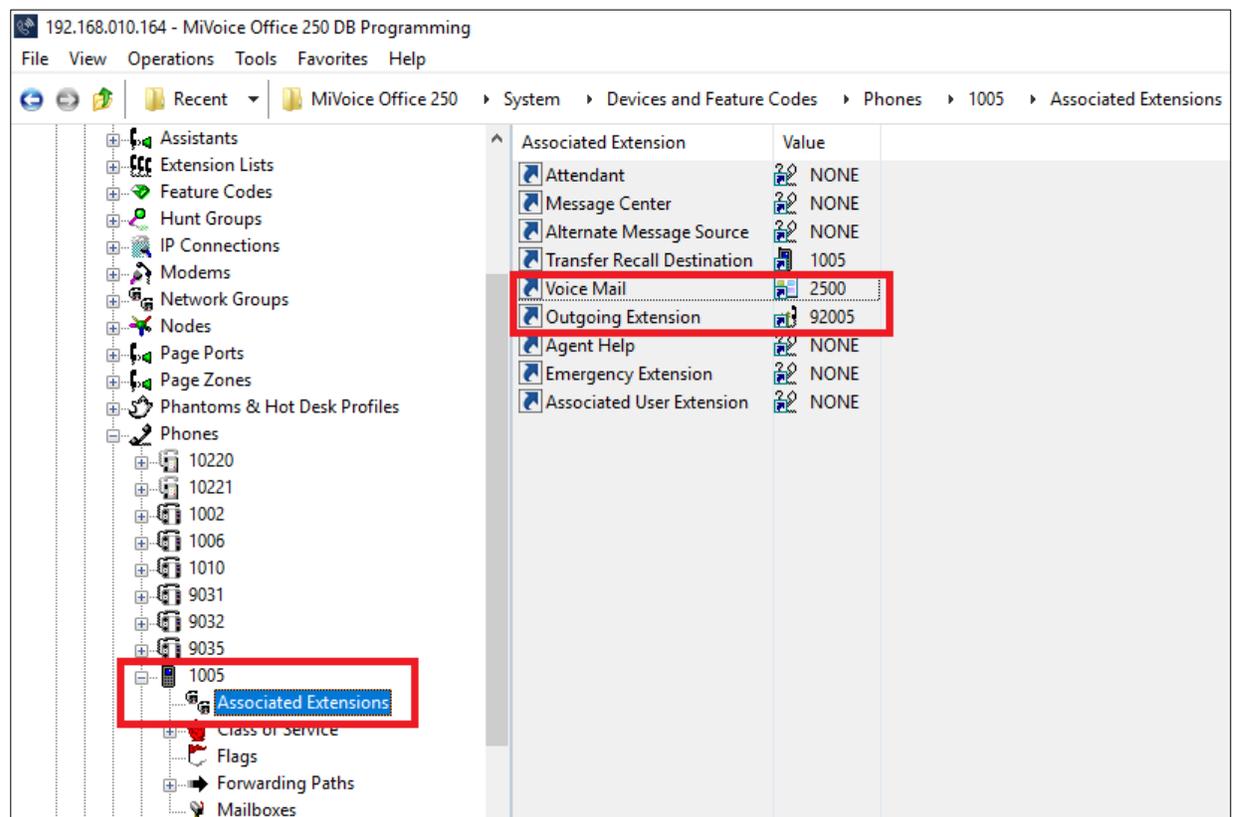


Figure 18: Associated Extensions Programming

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

## 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).

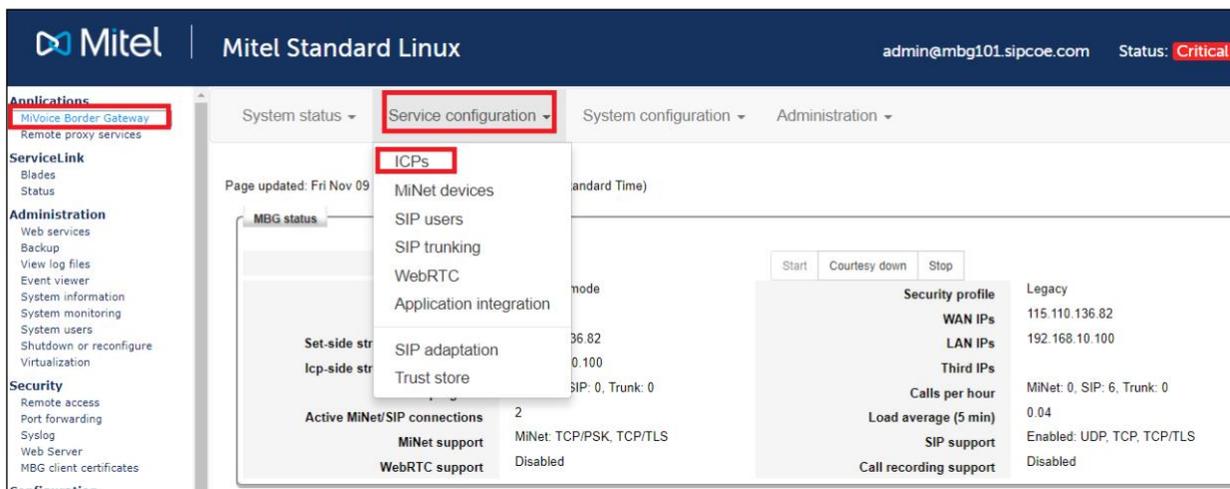


Figure 16– Adding ICP to MBG

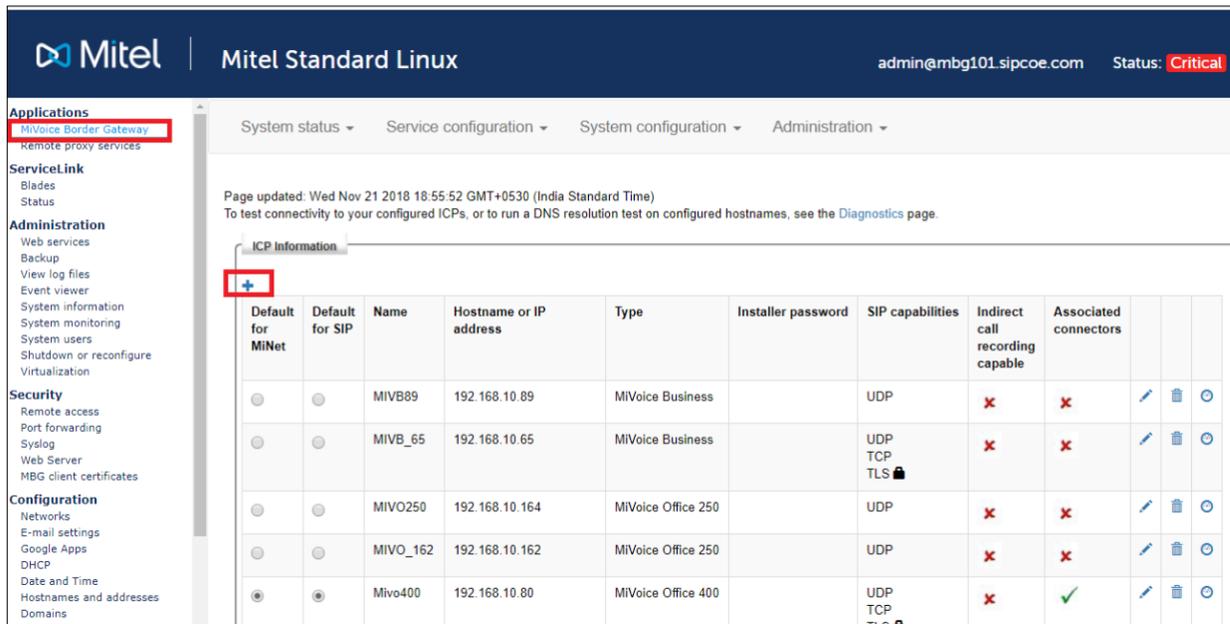


Figure 20– ICP List Page

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

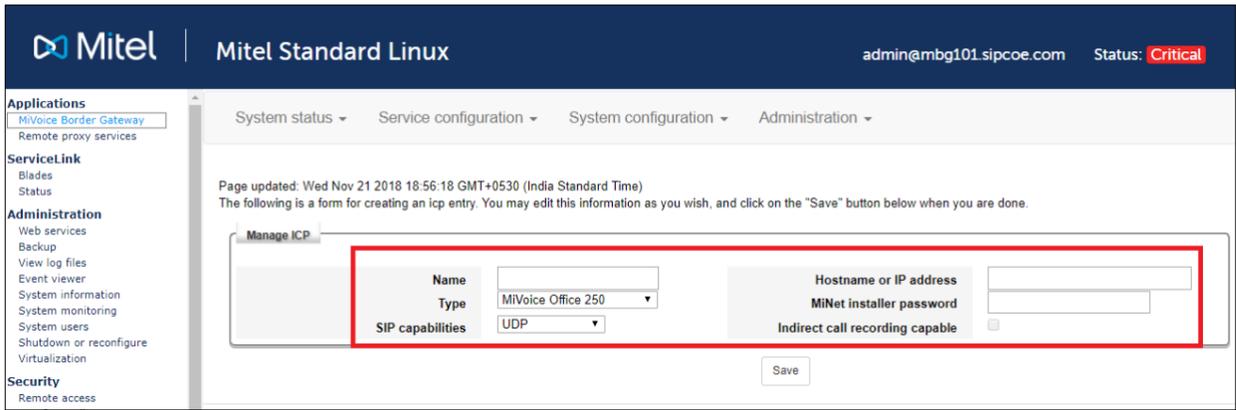


Figure 21– ICP Configuration Page

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

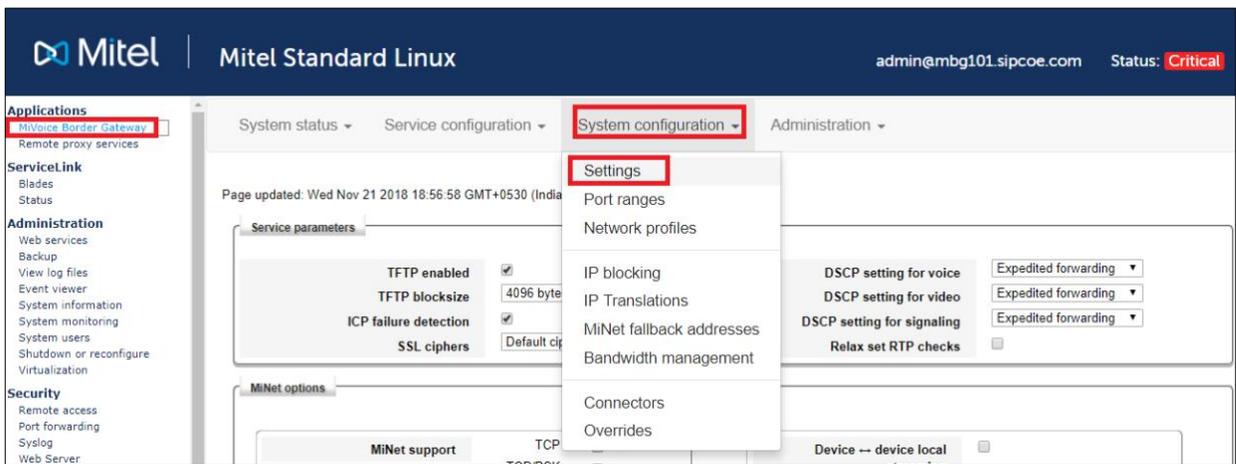
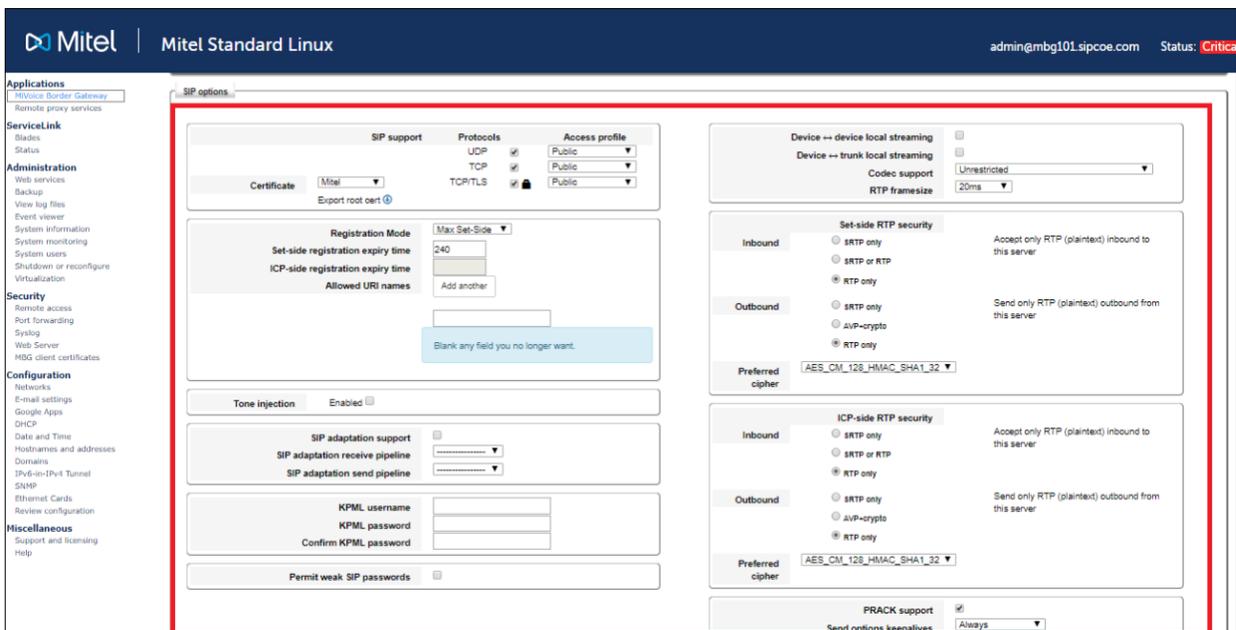


Figure 22– MBG Settings Menu



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

Figure 23– MBG Settings Form

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

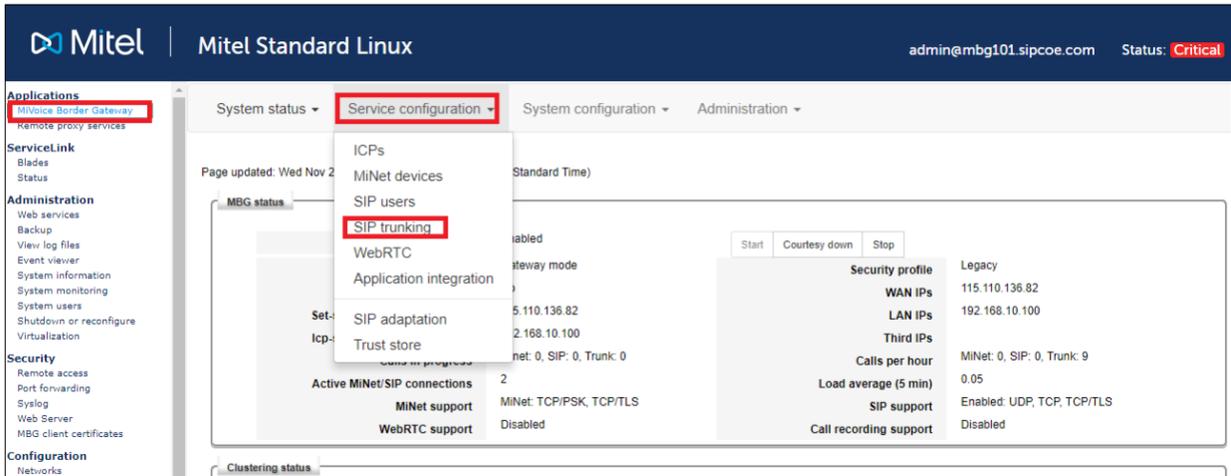


Figure 2417 – MBG SIP Trunking

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

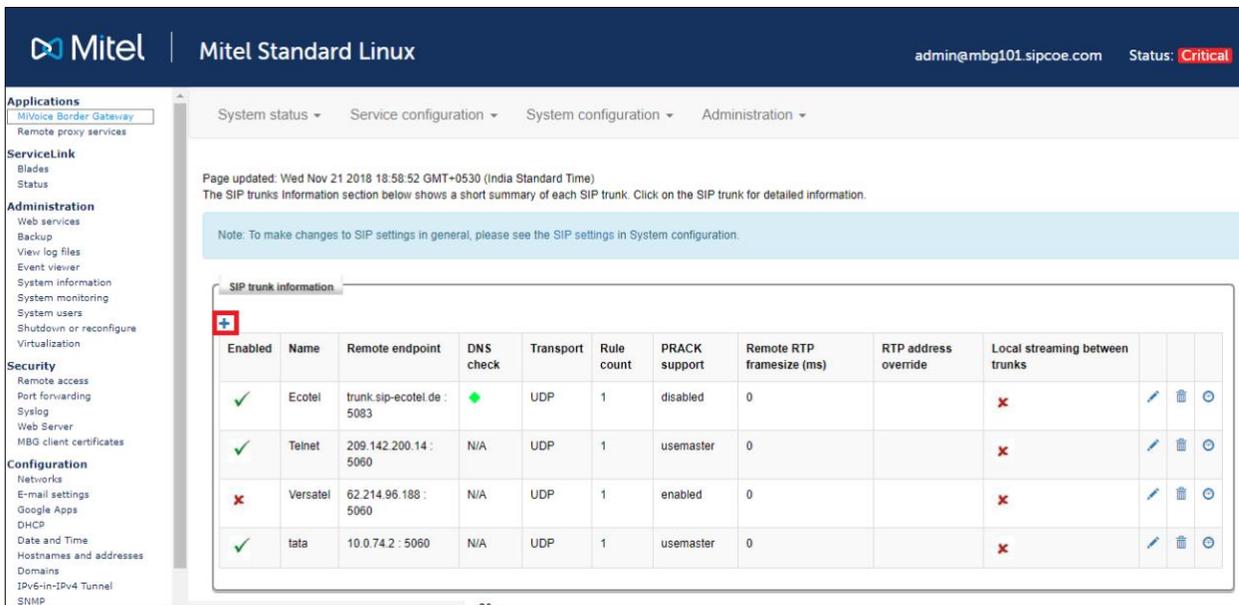


Figure 25– MBG SIP Trunk Configuration

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

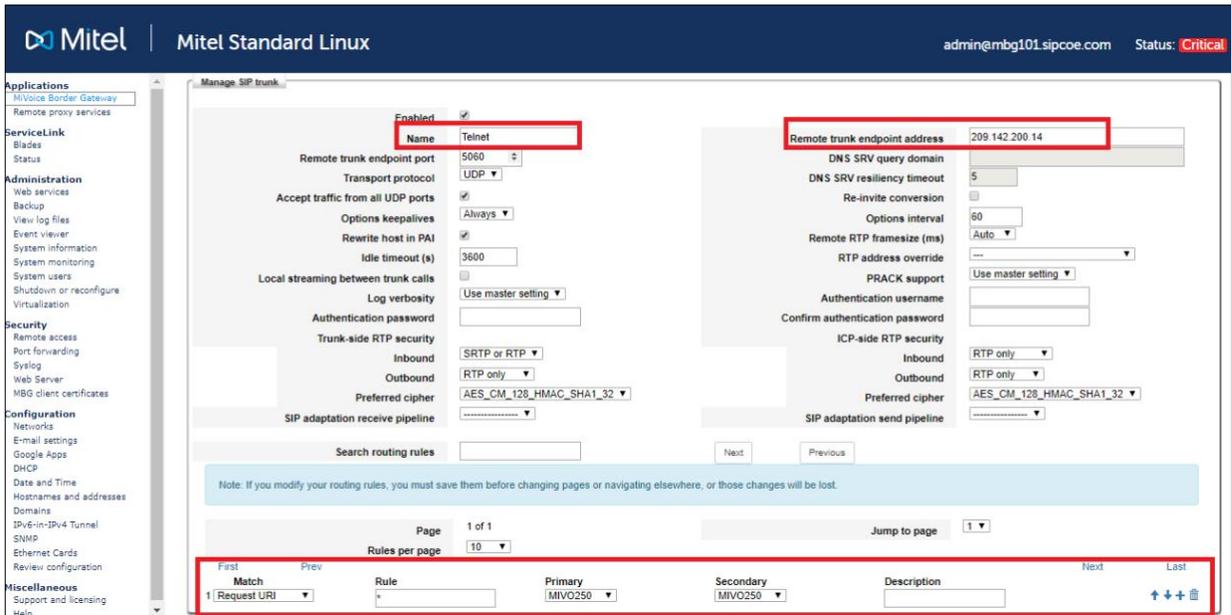


Figure 26 – MBG SIP Trunk Configuration

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