MITEL – SIP CoE

Technical
Configuration Notes

Configure MiVoice Office 250 6.0 SP3 for use with BT Wholesale SIP trunking (WSIPT) and BT Global Services One Voice SIP Trunk UK services

AUGUST 2015

SIP COE 15-4940-00387

TECHNICAL CONFIGURATION NOTES

Mitel

NOTICE

The information contained in this document is believed to be accurate in all respects but is not warranted by Mitel Networks™ Corporation (MITEL®). The information is subject to change without notice and should not be construed in any way as a commitment by Mitel or any of its affiliates or subsidiaries. Mitel and its affiliates and subsidiaries assume no responsibility for any errors or omissions in this document. Revisions of this document or new editions of it may be issued to incorporate such changes.

TRADEMARKS

Mitel is a trademark of Mitel Networks Corporation.

Windows and Microsoft are trademarks of Microsoft Corporation.

Other product names mentioned in this document may be trademarks of their respective companies and are hereby acknowledged.

Mitel Technical Configuration Notes:

Configure the MiVoice Office 250 for use with BT Wholesale SIP Trunking (WSIPT) and BT Global Services One Voice SIP trunk UK services
August 2015, 15-4940-00387_3

Overview

This document provides a reference to Mitel Authorized Solutions providers for configuring the MiVoice Office 250 to connect to BT Wholesale. 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	June, 2015	Initial interop with BT Wholesale and MiVoice Office 250 6.0 SP3.
2	July, 2015	Documentation Update
3	August, 2015	Documentation Update

Interop Status

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

	The most common certification which means BT Wholesale 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 BT Wholesale and the MiVoice Office 250.

Manufacturer	Variant	Software Version
Mitel	MiVoice Office 250	6.0 SP3 (Release 76)
Mitel	5340 IP Sets	Minet (06.02.00.06)
BT Wholesale		As of June 2015

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 (000491) for detailed test cases.

Feature	Feature Description	Issues
Basic Call	Making and receiving a call through BT Wholesale 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 Annoucements, Interflow and Overflow call scenarios and DTMF detection.	☑
Packetization	Forcing the MiVoice Office 250 to stream RTP packets at different intervals including 20ms and 30ms.	☑
Dynamic Extension Express	Receiving calls through BT Wholesale and their PSTN gateway to the Dynamic Extension Express. Also moving calls to/from the prime member and group members.	☑
Fax	T.38 and G.711 Fax calls.	☑

☑ - No issues found X - Issues found, cannot recommend to use ⚠ - Issues found

Device Limitations and Known Issues

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

Feature	Problem Description
Unsupervised SIP trunk call transfer from SIP Phone	Tracking DPAR > MN00540088 - MiVoice Office 250 SIP Phone: Sip Trunk Call UNSUPERVISED Transfer Fails

Network Topology

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

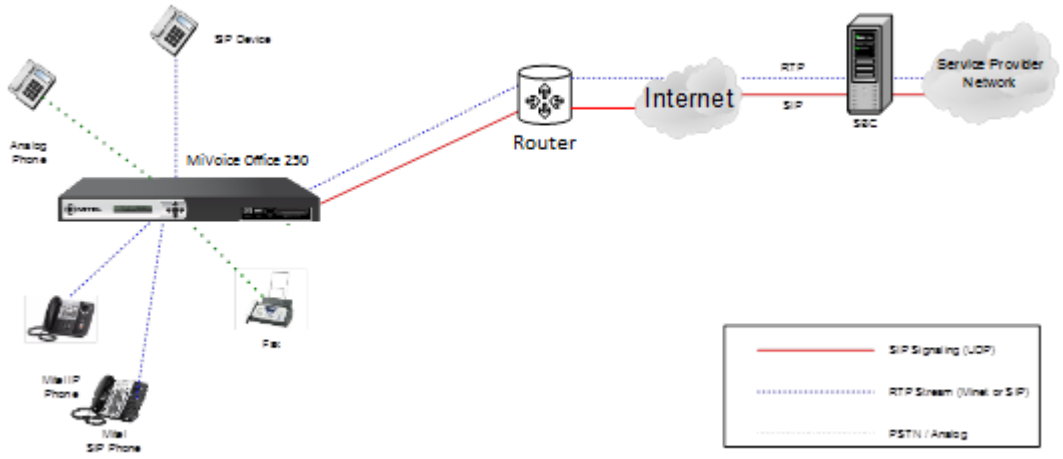


Figure 1 – Network Topology

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 BT Wholesale 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 BT Wholesale without an 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 Enterprise LAN networks can support this level of traffic without any special engineering. Please refer to the MiVO 250 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 BT Wholesale. This can be verified under the Software License form.

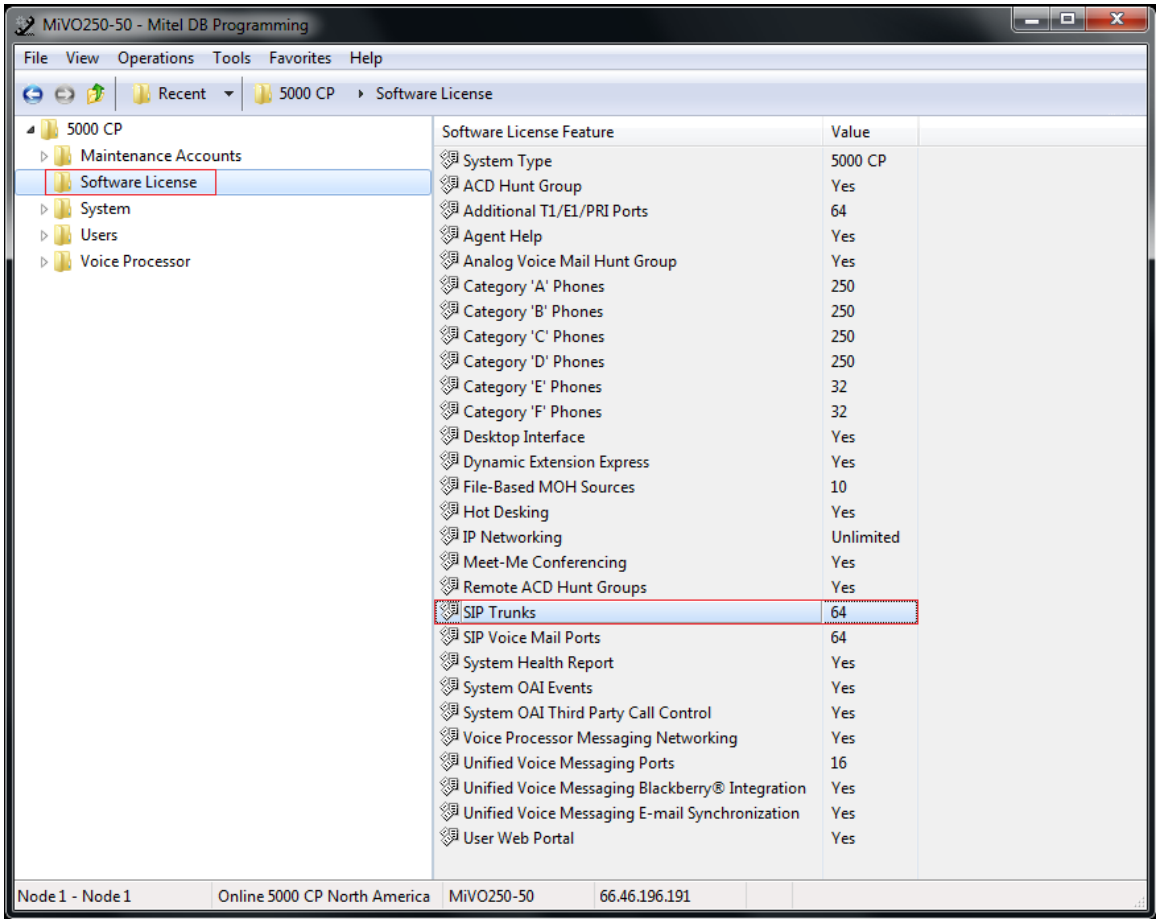


Figure 2 – Software License

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 BT Wholesale, right click in the right hand window panel of the SIP Trunk Groups form and then select “Create SIP Trunk Group”.

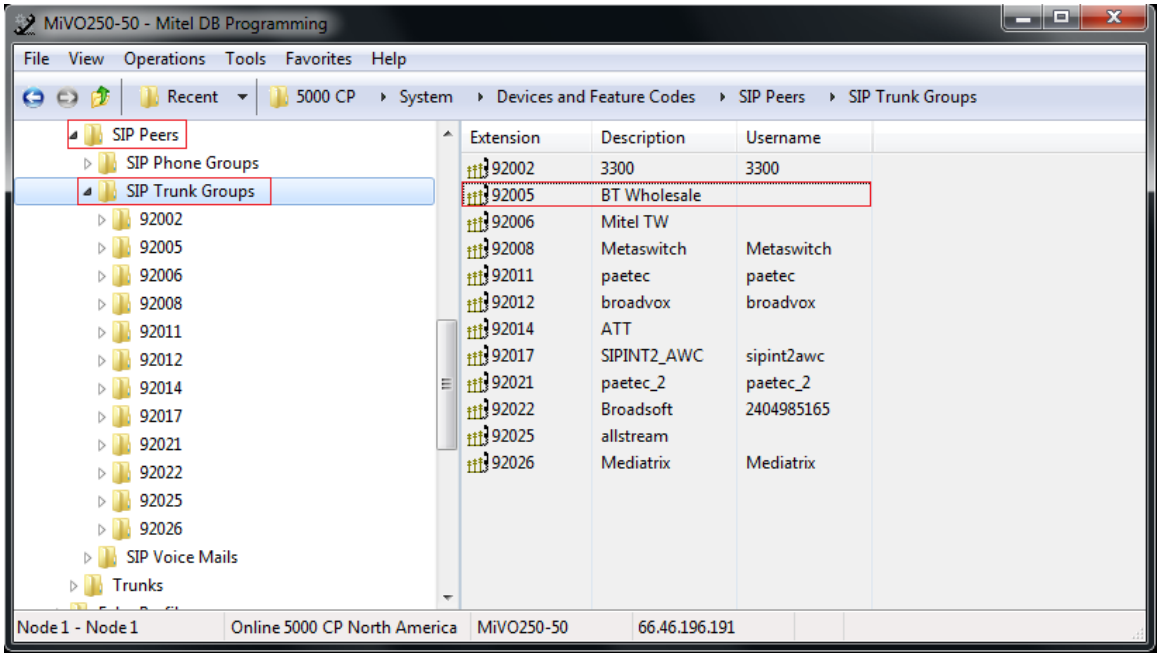


Figure 3 – SIP Trunk Group

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: BT 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.
- **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 MPLS router.
- **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.

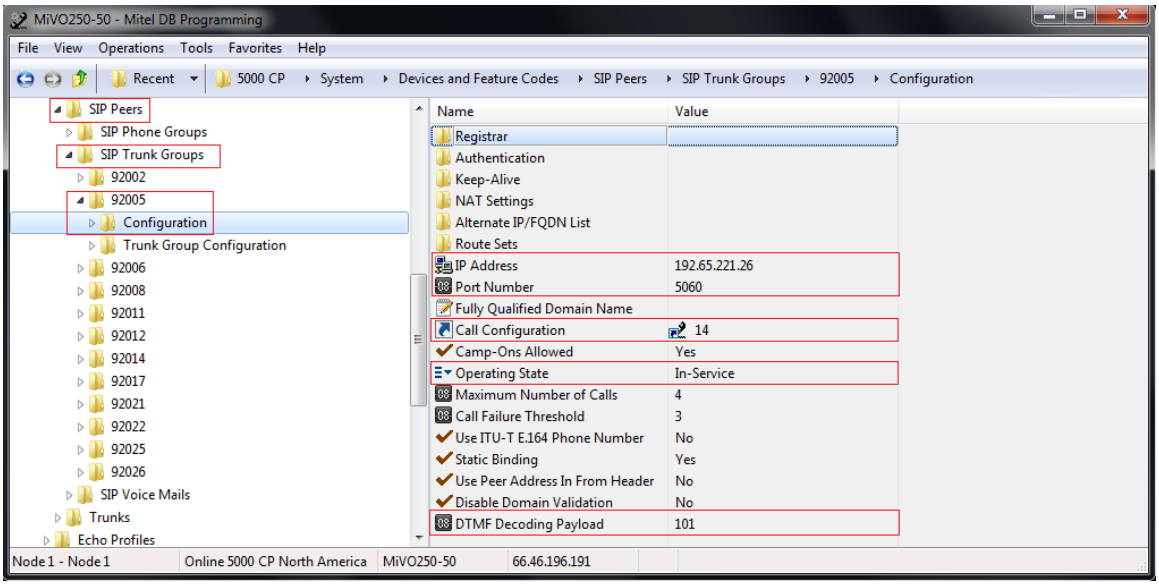


Figure 4: Configured BT Wholesale SIP Trunk

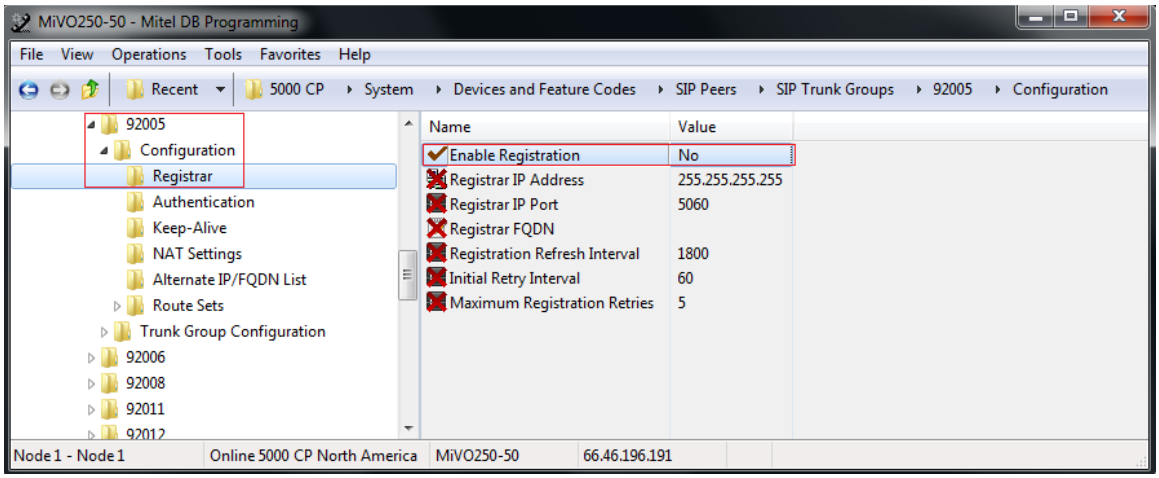


Figure 5: Registration not required for BT Wholesale

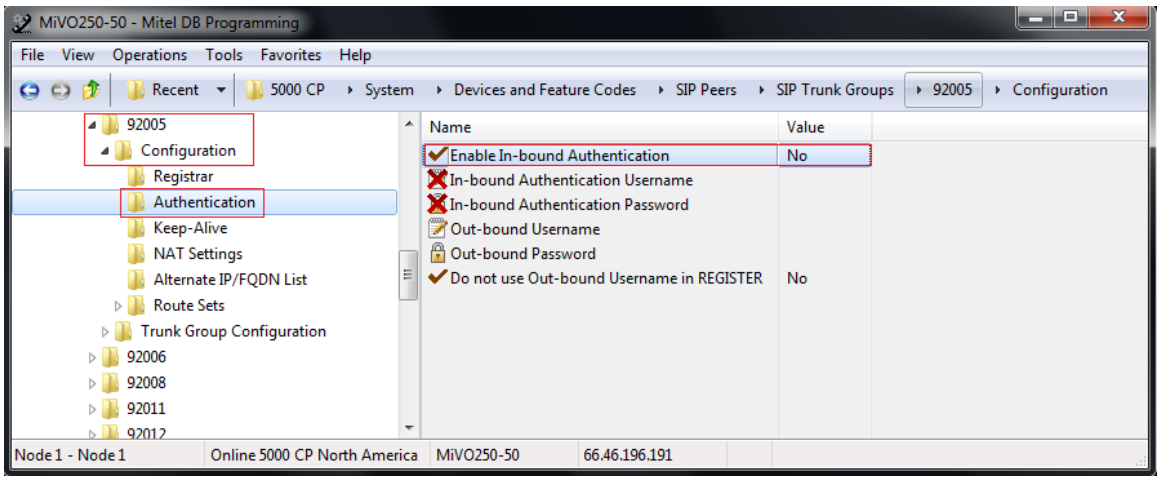
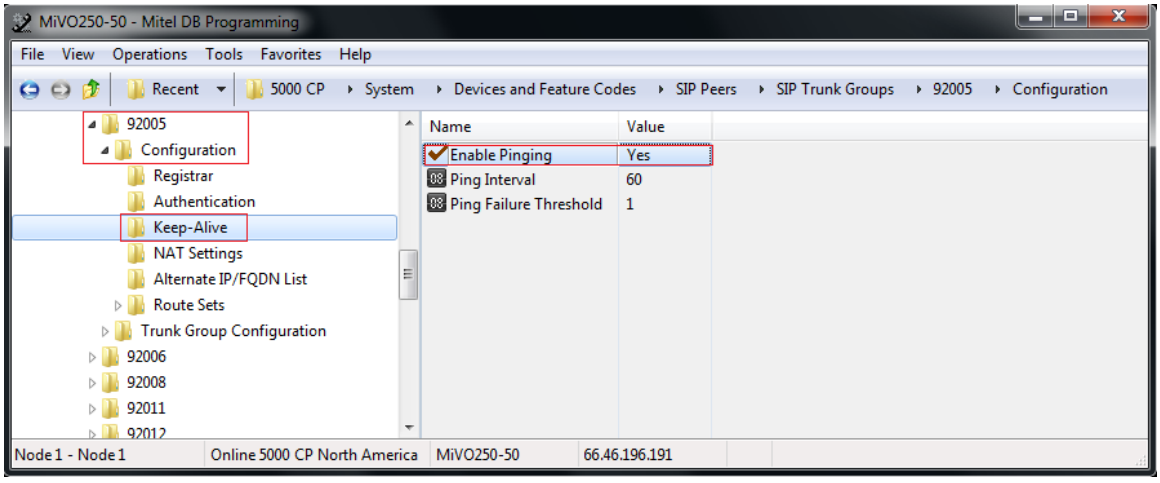
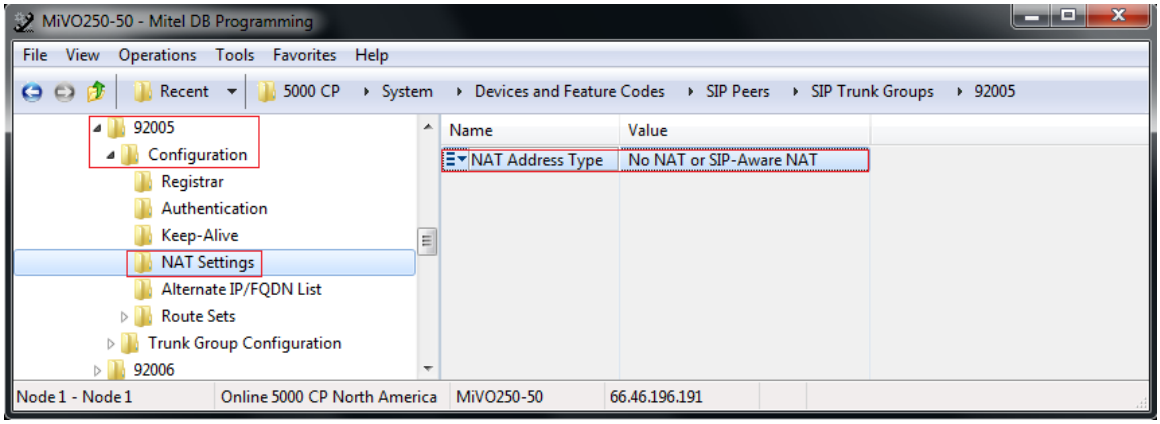


Figure 6: Authentication not required for BT Wholesale





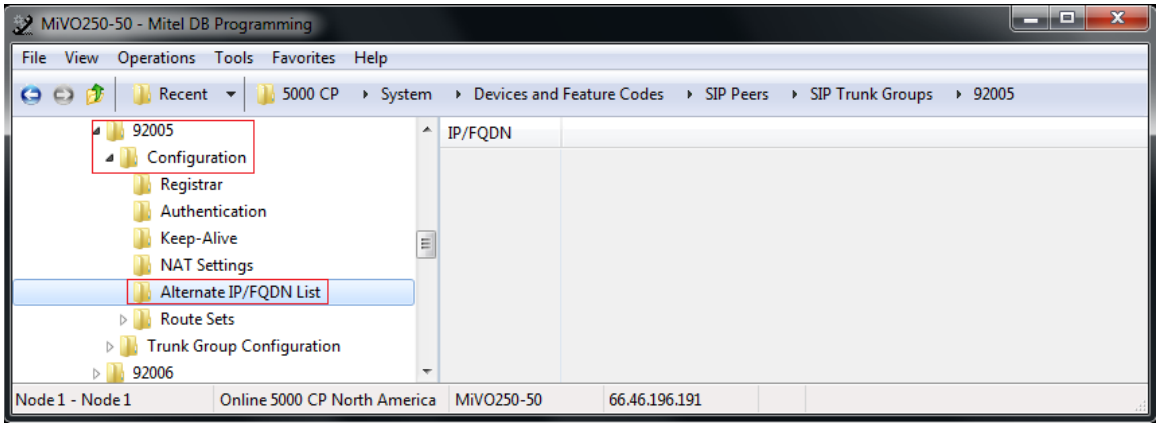


Figure 7: Basic Configuration folder provisioning for BT Wholesale

Programming the Trunk Group Configuration Folder

- Call Routing Table 14 was used to associate and direct incoming calls to IP phone sets (see Figure 11)

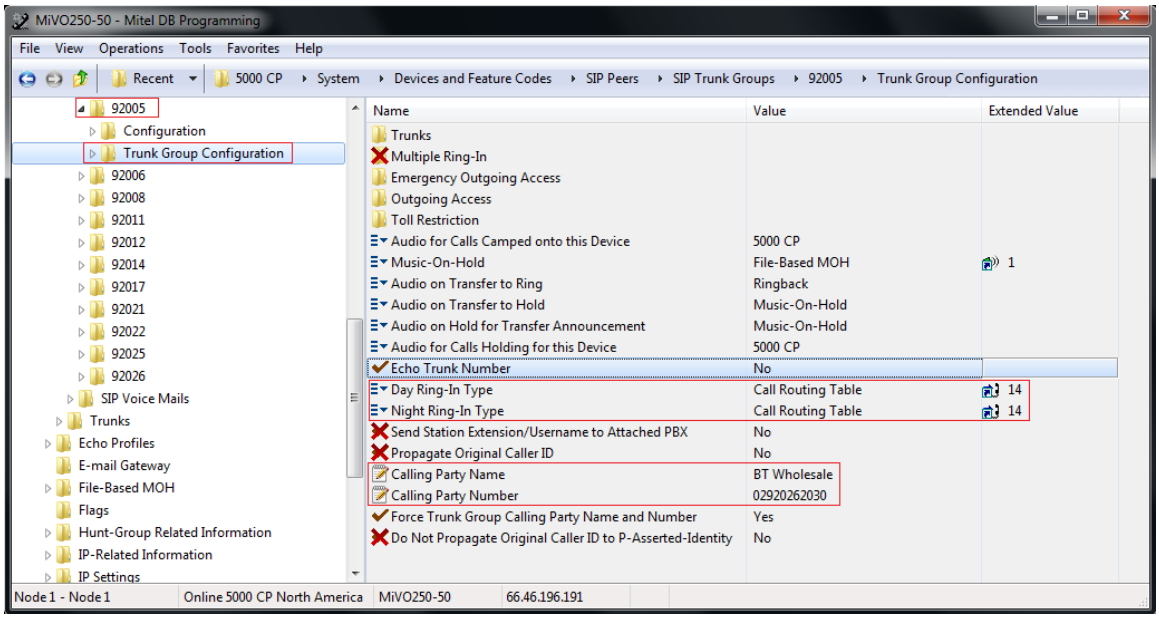


Figure 8: Trunk Group Configuration folder

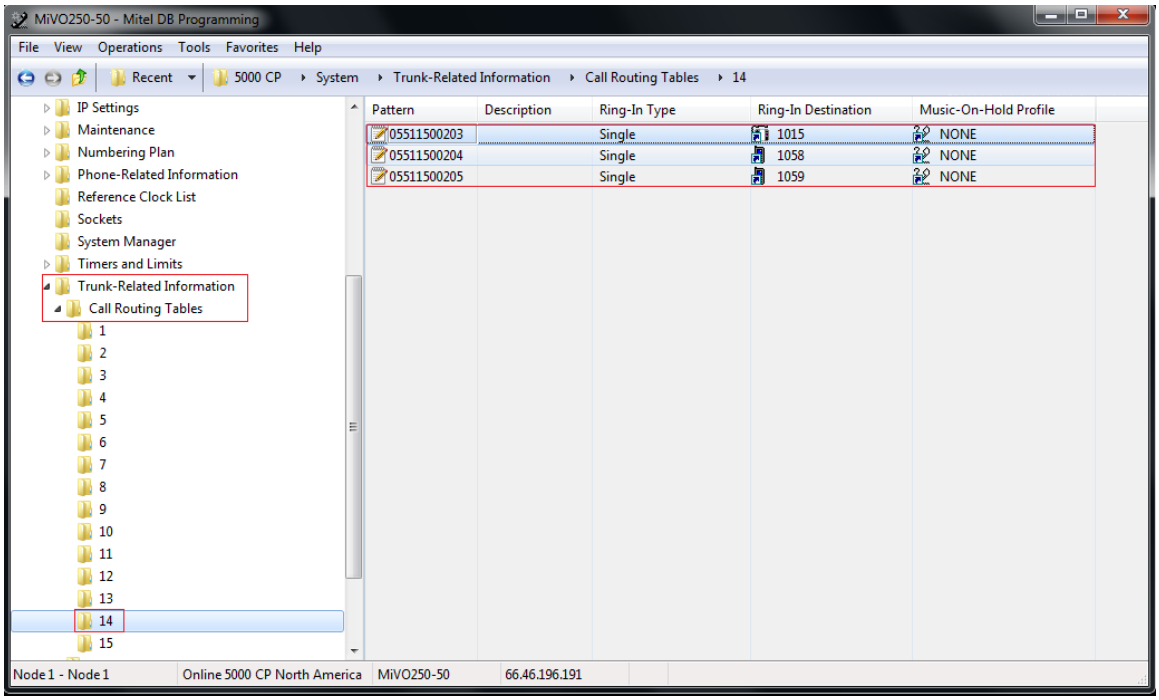


Figure 9: Call Routing Table 14

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 94001–94999;
- 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 BT Wholesale, 4 extensions were created. The number of SIP peer trunks is restricted by the number of available SIP Trunks licenses.

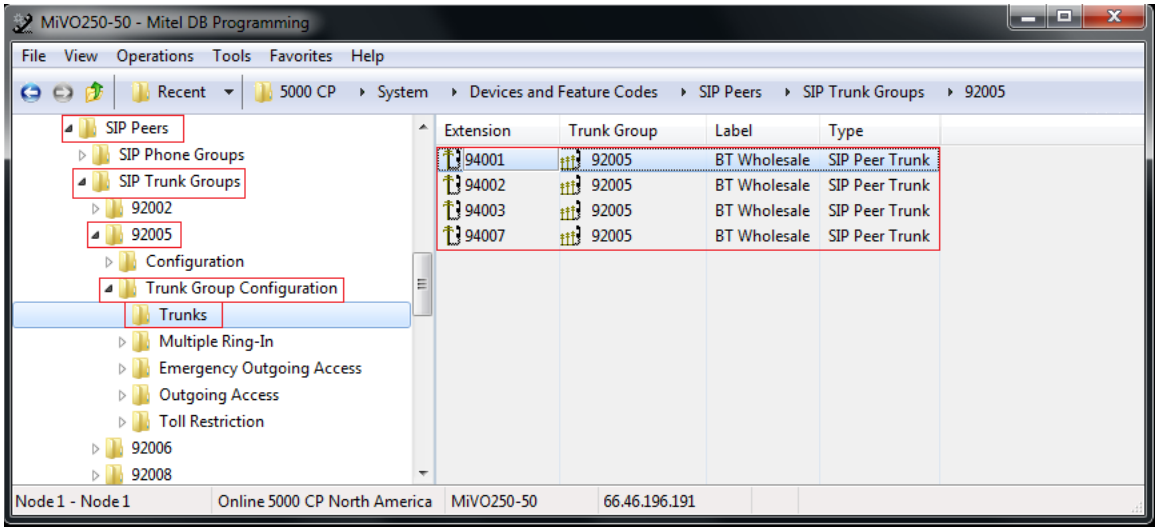


Figure 10: Trunk Extensions

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 14 was used for testing.

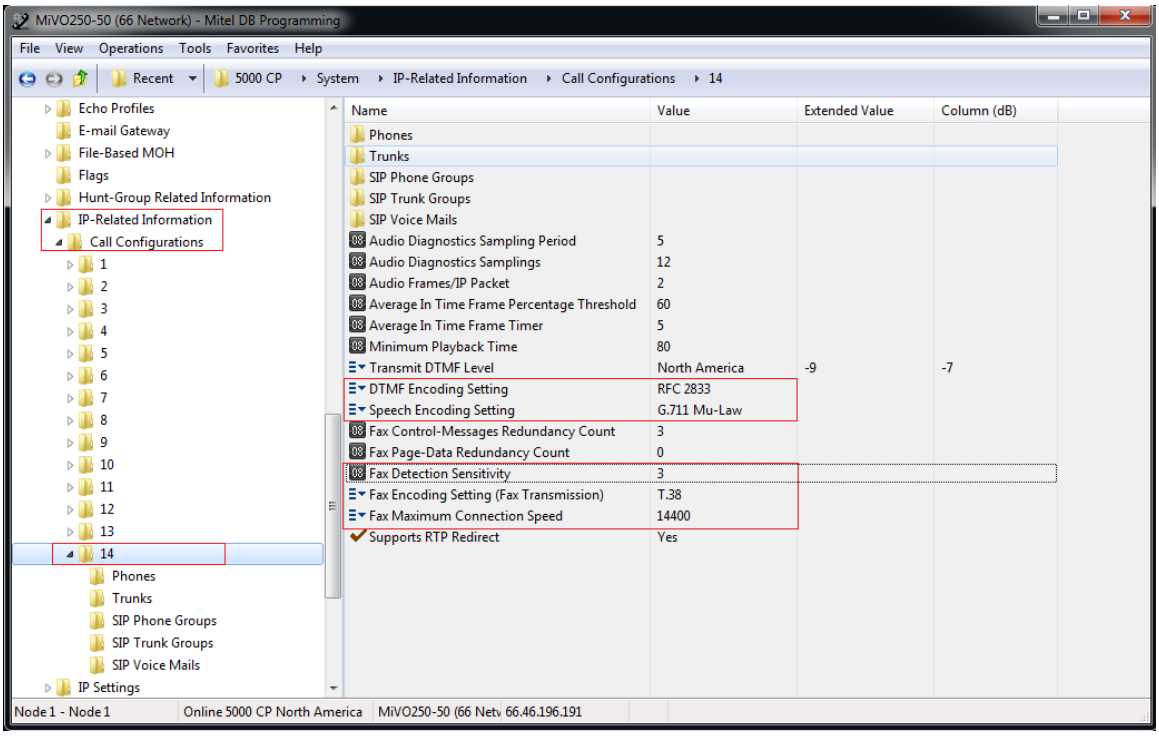


Figure 11: Call Configuration Settings

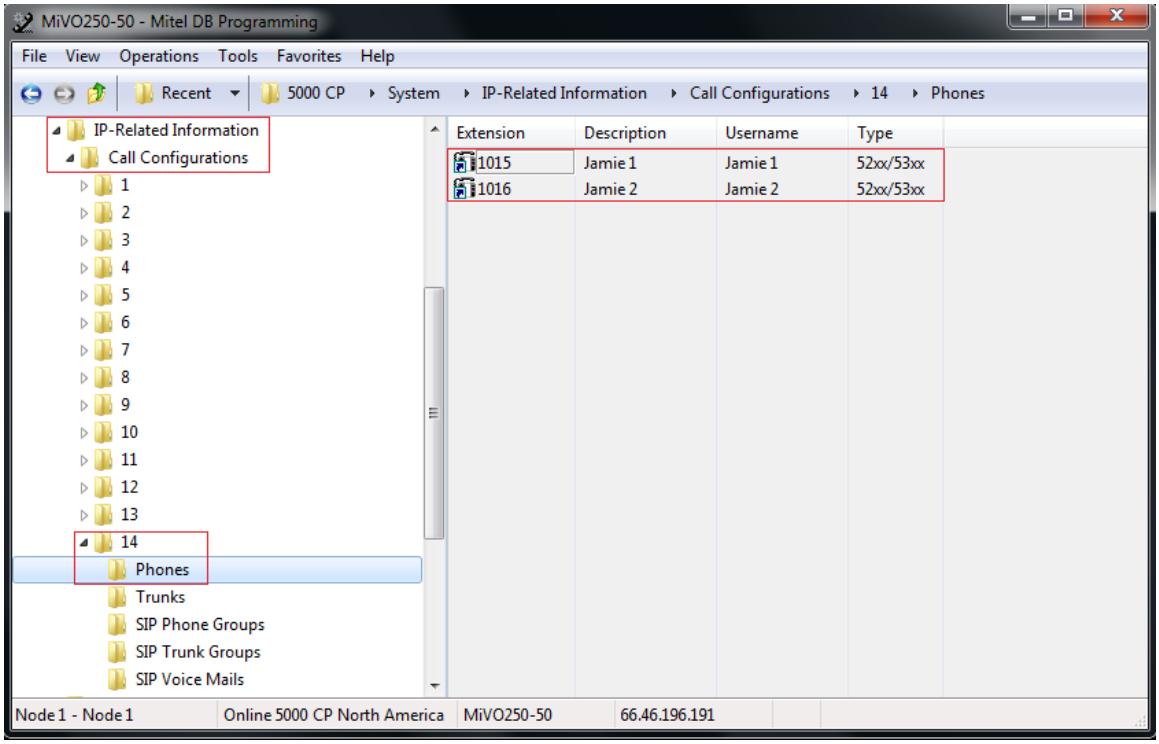


Figure 12: Call Configuration Extensions

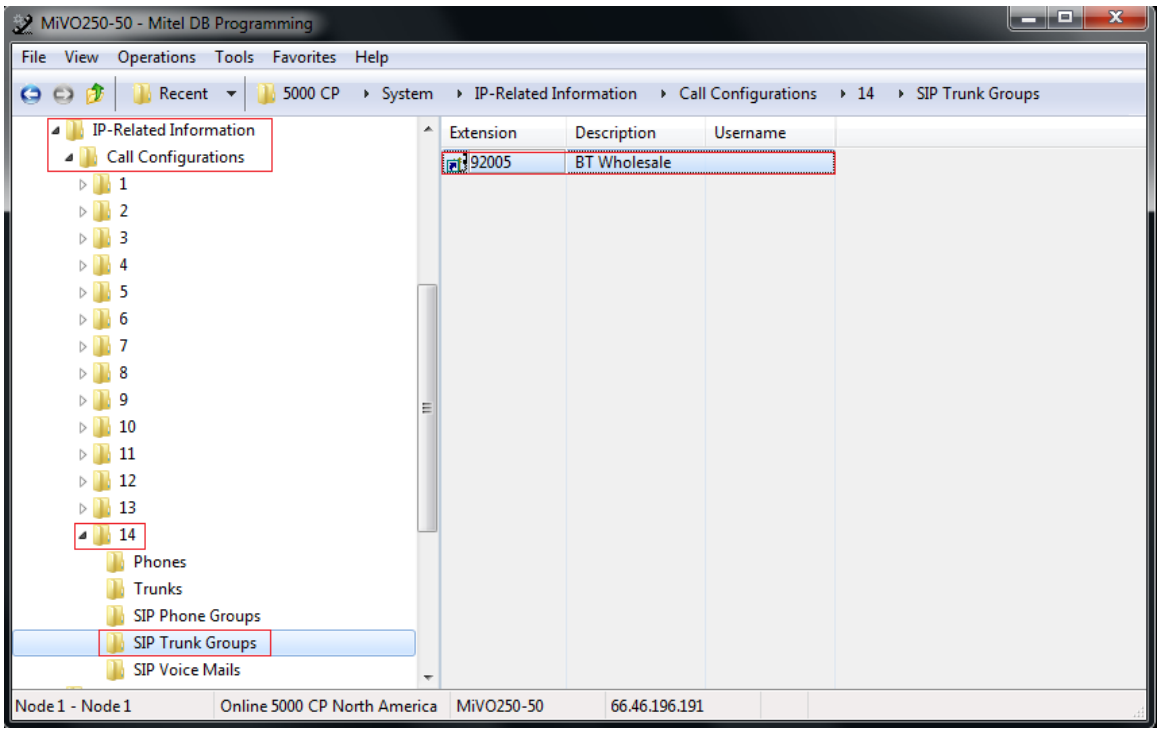


Figure 13: Call Configuration SIP Trunk Association

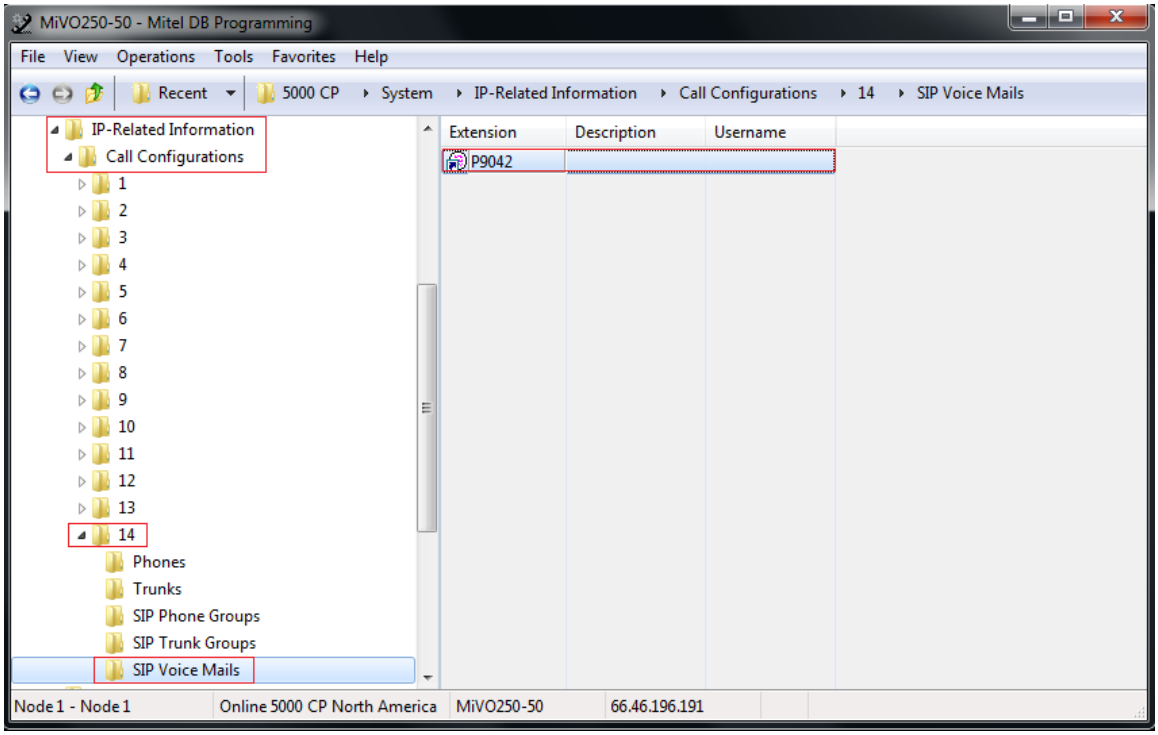


Figure 14: Call Configuration SIP Voice Mail Association

Programming Basic Users and IP/SIP-Phone Sets

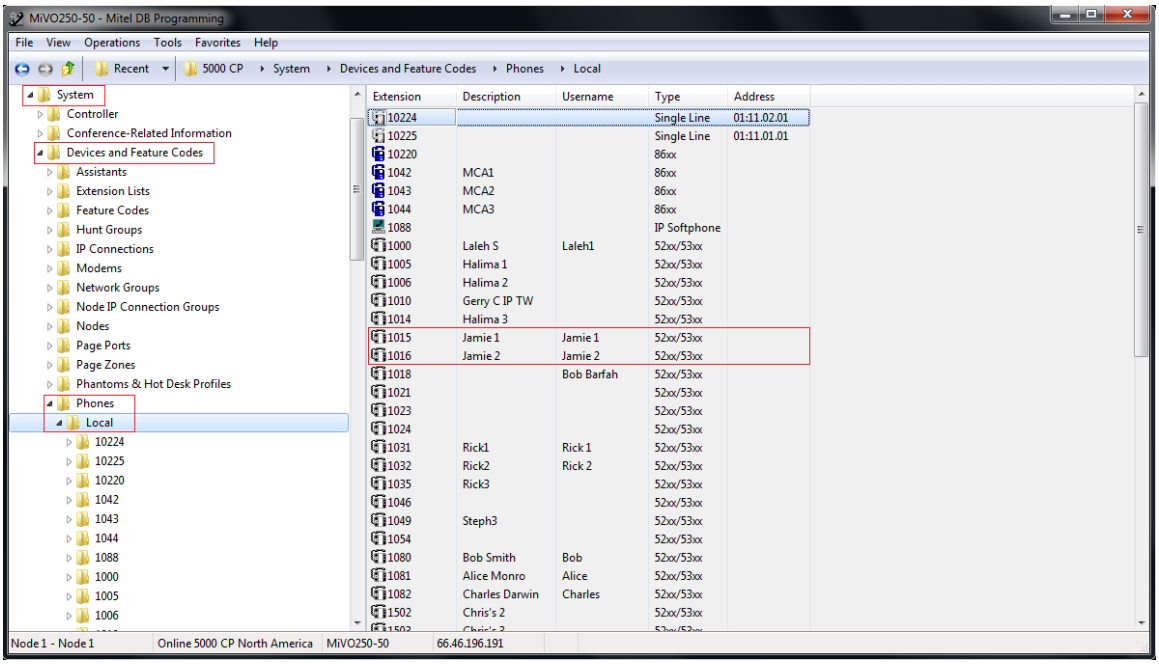


Figure 15: Basic Users

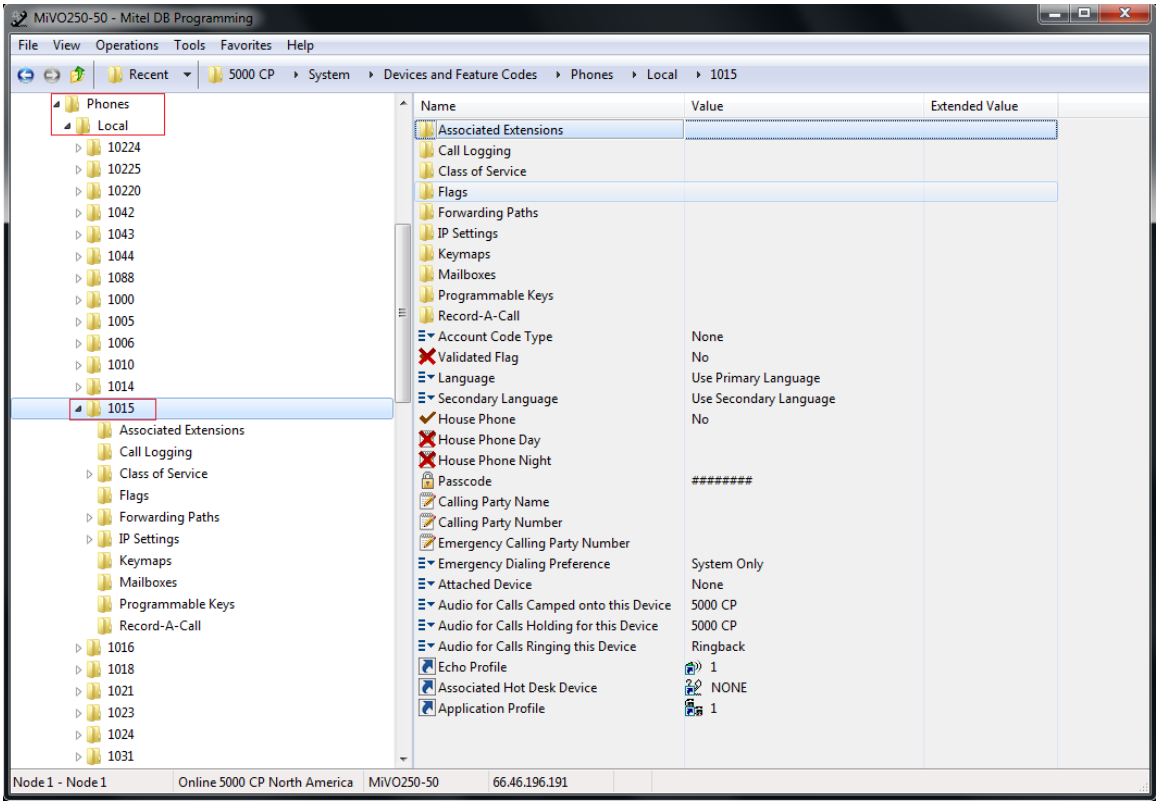


Figure 16: User Example

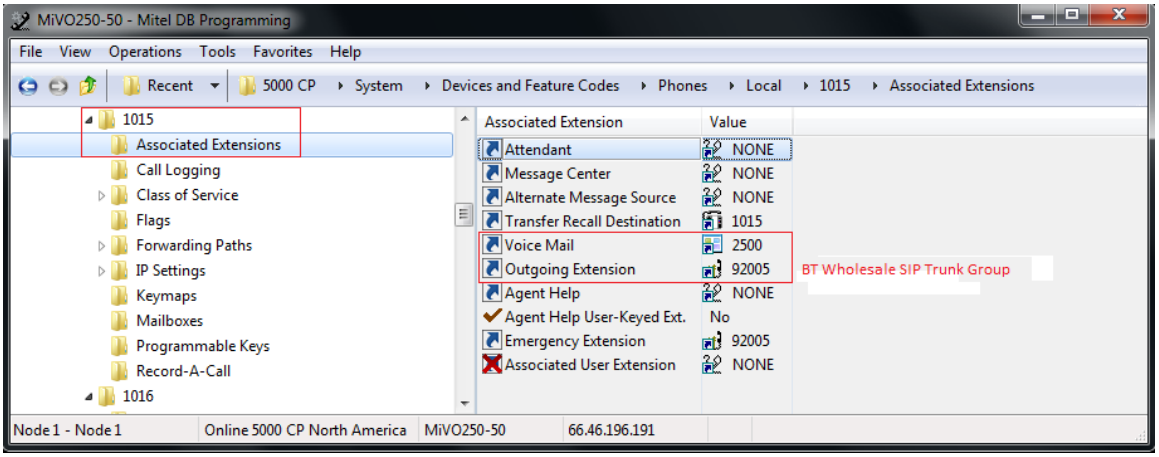


Figure 17: Associated Extensions Programming

Global Headquarters	U.S.	EMEA	CALA	Asia Pacific
Tel: +1(613) 592-2122 Fax: +1(613) 592-4784	Tel: +1(480) 961-9000 Fax: +1(480) 961-1370	Tel: +44(0)1291-430000 Fax: +44(0)1291-430400	Tel: +1(613) 592-2122 Fax: +1(613) 592-7825	Tel: +852 2508 9780 Fax: +852 2508 9232

www.mitel.com

For more information on our worldwide office locations, visit our website at www.mitel.com/offices