Mitel Technical Configuration Notes –
HO5137

October 20, 2023

MiVO400 - Configure the MiVoice Office 400 7.1 for use with Ascom IP-DECT

Description: This document provides a reference to Mitel Authorized Solutions Providers for configuring the MiVoice Office 400 to host the Ascom IP-DECT.

Environment: MiVoice Office 400 7.1 (9335a1), 69XX 6.3.0.1033, 69XXw 6.3.2.85, ASCOM IP-DECT 11.9.11 and ASCOM D83 – 1.6.3

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Overview

This document provides a reference to Mitel Authorized Solutions Providers for configuring the MiVoice Office 400 to host the ASCOM IP-DECT. The different devices can be configured in various configurations depending on your VoIP solution. This document covers a basic ASCOM IP-DECT setup as Endpoint with required options setup.

Interop History

Version	Date	Reason
1	October, 2023	Interop with MiVoice Office 400 7.1 and ASCOM IP-DECT (11.9.11)

Interop Status

The Interop of the ASCOM IP-DECT has been given a Certification status. This device will be included in the SIP CoE Reference Guide. The status of ASCOM IP-DECT achieved is:

COMPATIBLE	The most common certification which means the device/service 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

The test setup generated basic SIP calls between the ASCOM IP-DECT and the MiVoice Office 400.

Note: Although this testing was performed on the below tested variants, the scope of this testing can be extended to other product variants that work with the same firmware. The list of components for which this testing can be considered applicable is given in the "Additional Applicable Variants" column of the following table –

Manufacturer	Tested Variants	Software Version	Additional Applicable Variants
Mitel	MiVoice Office 400	7.1 (9335a1)	NA
Ascom	ASCOM IP-DECT IPBS3	11.9.11	NA
Mitel	69XX	6.3.0.1033	68XX
Mitel	69XXw	6.3.2.85	NA
Mitel	MiVoice Border Gateway	11.5.2.31	NA
Mitel	Micollab	9.7.1.110-01	NA
Ascom	D83 Protector	1.6.3	NA

Tested Features

Listed below 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 Line Side Interoperability Test Plans for detailed test cases.

Feature	Feature Description	Issues
Registration/Authentication	Device registration w/o authentication	☑
Basic Call	Making and receiving a call	☑
DTMF Signal	Sending DTMF after call setup (i.e. mailbox password)	☑
Call Hold	Putting a call on hold	☑
Call Transfer	Transferring a call to another destination	☑
Call Forward	Forwarding a call to another destination	☑
DND using FAC	Enabling Do Not Disturb	☑
Conference	Conferencing multiple calls together	☑
Redial	Last Number Redial	☑
TLS/SRTP	Basic incoming/outgoing calls.	☑
MWI	Message Waiting Indication	☑
Conference	Conferencing multiple calls together	✗
G.711/T.38 Fax	Fax Messages	✗
Call Waiting	Call waiting between the calls	✗
Resiliency	The device able to handle Server failure to another server	✗
Video	Video Capabilities	✗

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

Resiliency

The following table lists the scenarios of resilience supported by this device when connected to the MiVoice Office 400 7.1.

Device	Scenario 1	Scenario 2	Scenario 3	Scenario 4
ASCOM IP-DECT	Not Supported	Not Supported	Not Supported	Not Supported

☑ - *No issues found*   ✗ - *Issues found, cannot recommend use*   ⚠ - *Issues found*

Note: Refer to list of device limitations and known issues later in the document for recommendations.

The various scenarios are described below. The scenario names are a convenience for understanding this section of the configuration guide.

Scenario 1: Resiliency is achieved by utilizing the ability of DNS servers to provide multiple IP addresses against a single FQDN. This is generally achieved by using DNS SRV or A records. This scenario requires nothing from a SIP Endpoint except that it supports standard DNS behavior.

Scenario 2: The device has inherent knowledge of the primary and secondary 3300 ICPs and will switch between them if a SIP request (**REGISTER**, **INVITE**, or **SUBSCRIBE**) times out. The behavior will be characterized based on whether the device returns to primary ICP and when this occurs. This scenario has some dependency on user action to detect a failure, especially if configured with a long registration expiry time, so the chance of a user experiencing a long delay in making a call goes up.

Scenario 3: The behavior of the device is the same as that of scenario 2, except that the device will "ping" the currently active server with an **OPTIONS** request. If the **OPTIONS** request times out, the device will switch to the alternate server for all future requests. The intent of this scenario is to provide much faster failure detection by the device. This will allow devices to failover to their alternate ICP much more quickly, and much more unnoticeably. (If the device can detect a failure of the primary ICP, and can failover immediately, the chance that the user even notices a lack of service falls dramatically.)

Scenario 4: The device will support a new SIP header designed specifically for resiliency. The P-Alternate-Server header must be included in a 200 OK or 301 Moved Permanently response. This header will include d that designates the potential servers and which server the UA must use.

Device Limitations

This is a list of problems or not supported features when the Ascom IP-DECT is connected to the MiVoice Office 400.

Feature	Problem Description
Resiliency	MiVoice Office 400 does not support third party SIP devices resiliency. **Recommendations**: Please contact Mitel support for more information on this.
Video	ASCOM IP-DECT does not support Video calling. **Recommendation:** This is a known limitation. ASCOM IP-DECT does not support Video.
Call Waiting	MiVoice Office 400 does not support third party SIP devices Call Waiting. **Recommendations:** Please contact Mitel support for more information on this.
Conference	Conference cannot be initiated from Ascom IP-DECT handset. **Recommendation:** This is a known limitation. ASCOM IP-DECT does not Support Local Conference

Network Topology

This diagram shows how the testing network is configured for reference.
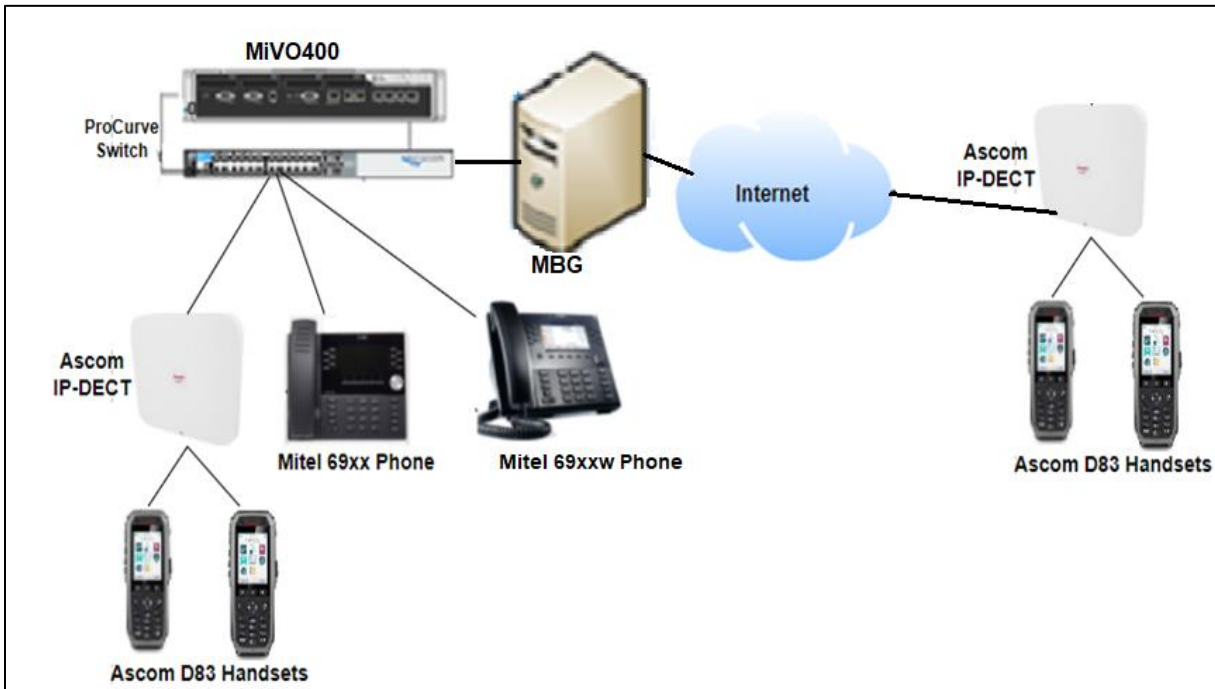
Figure 1 – Network Topology

Configuration Notes

This section is a description of how the SIP Interop was configured. These notes should give a guideline as to how a device can be configured in a customer environment and how the ASCOM IP-DECT was configured in our test environment.

We recommend that the ASCOM IP-DECT is configured in Device Based mode. You will configure the Device Based mode in the SIP Device Capabilities Form as described in this section.

> *Disclaimer: Although Mitel has attempted to set up 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.*

MiVO 400 Configuration Notes

The following steps show how to program a MiVoice Office 400 to connect with the ASCOM IP-DECT.

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 3300 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 MiVO 400 Programming

- The SIP signaling connection uses UDP on Port 5060.

Licensing and Option Selection – SIP Licensing

Ensure that Mitel MiVoice Office 400 is equipped with enough SIP Access Channel licenses for the connection to SIP Endpoints

Figure 2 – Software License

Creating Users on MiVoice Office 400 for the ASCOM IP-DECT
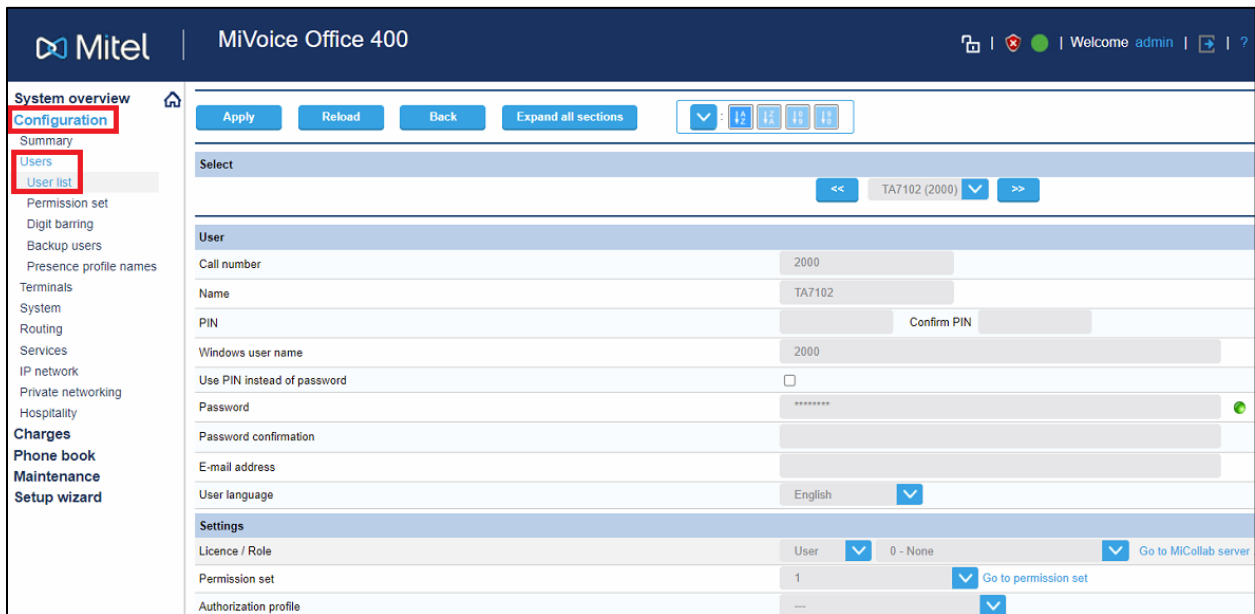
To assign and register Mitel SIP phones/Analog phones to MiVoice Office 400, make sure you create Users under Configuration → Users → User list.

Click on New and provide the Call number as shown below in Figure → Click on Apply.

Below page will open

Figure 3 – User Details

Scroll down the above page and click on Create and assign terminal as shown below. A pop window will come to select terminal interface, select Standard SIP from drop down menu.
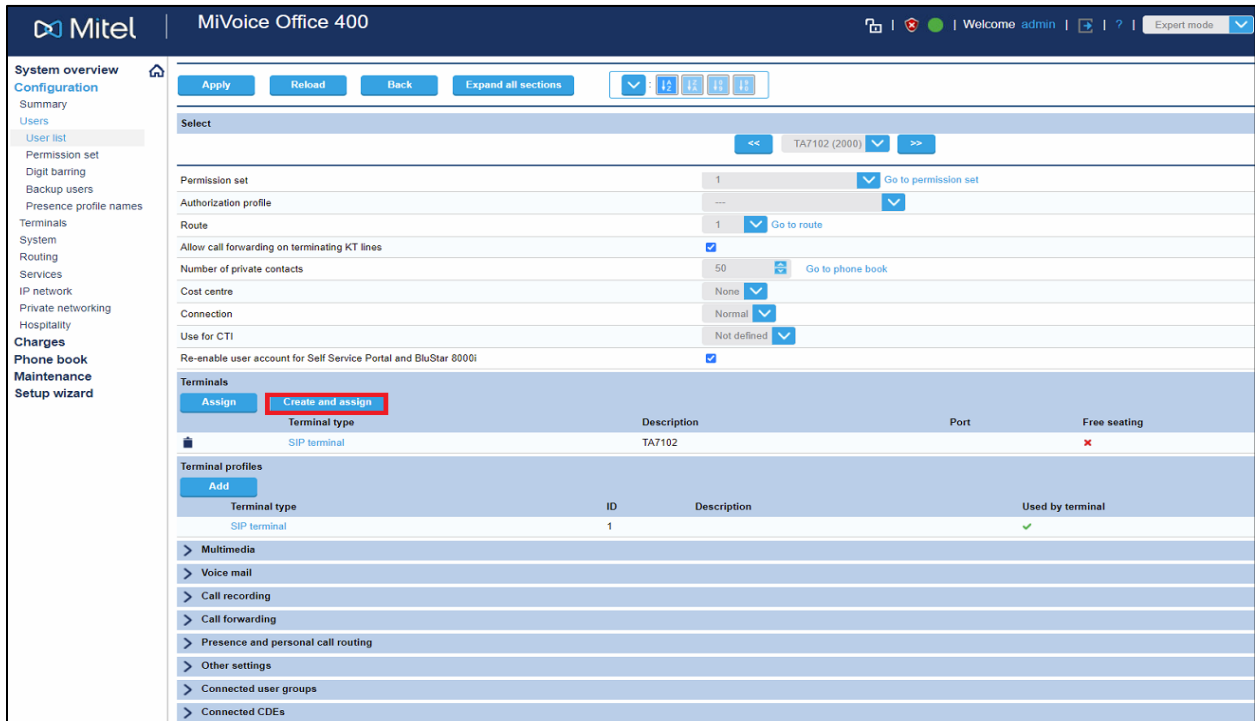
Figure 4 – Create and Assign Terminals

Enable Force UDP Usage and Provide SIP Username and SIP Password as shown below.

Same Username and Password must be configured in ASCOM IP-DECT for the extension. Click on Apply.
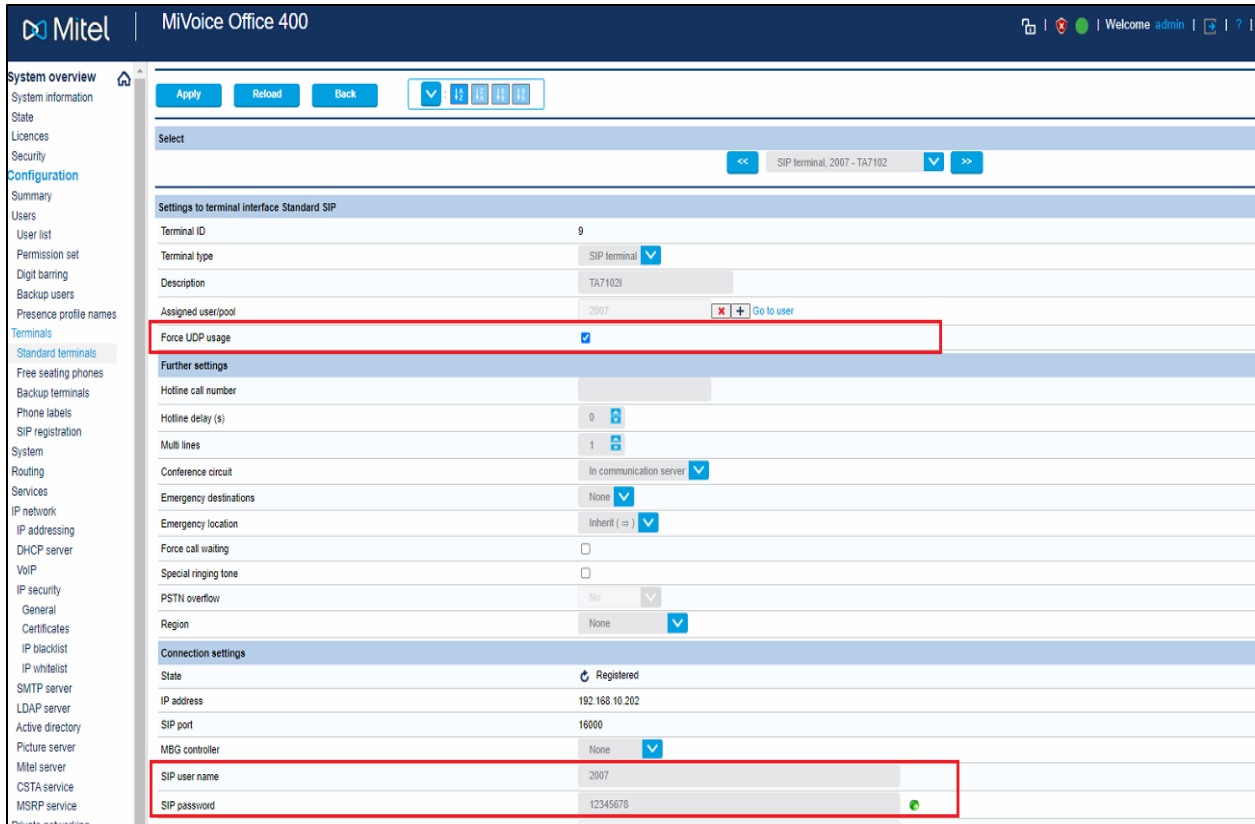
Figure 5 – Create and Assign Terminals

Enable TLS/SRTP Configuration

Check Under License--> Secure VOIP-->Enable.
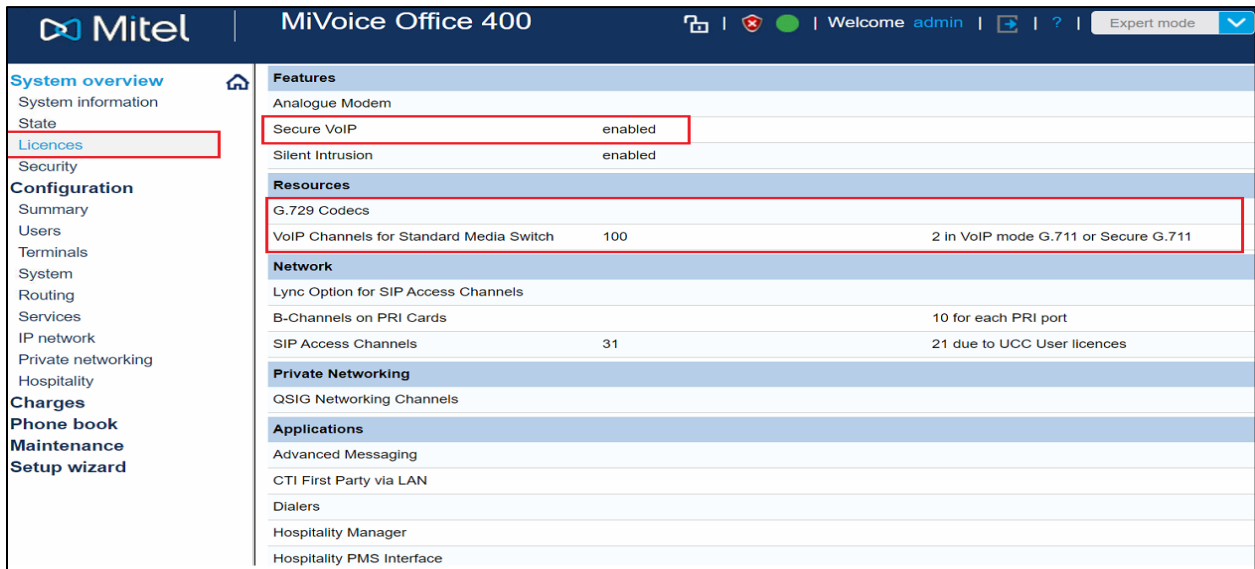
Figure 6 – SRTP License

For User, SIP Terminal-->Transport Protocol-->persistent TLS and Enable Use SAVP for SRTP

Figure 7 – User Configuration

System-->Media Resources-->Secure G711/G729
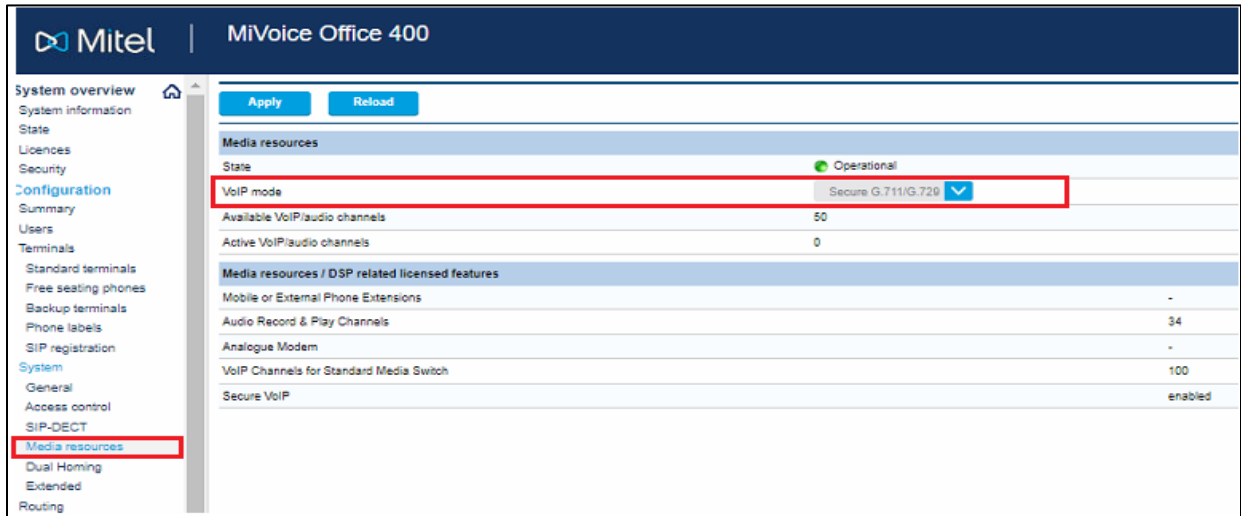
Figure 8 – Media Resources

IP Network-->IP Security-->General-->Enable VOIP Encryption
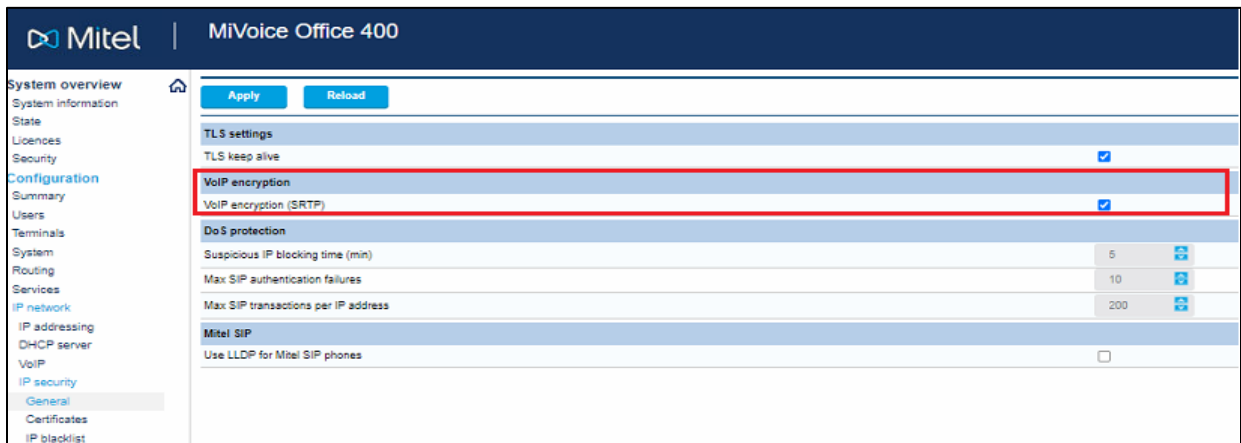
Figure 9 – Enable VOIP Encryption

Ascom IP-DECT Base Station Configuration Notes

The configuration notes below cover basic necessary settings to log in to an Ascom IP-DECT base station and MiVB. For additional configuration of Ascom IP-DECT base station functionality refer to "Installation & Operation Manual Ascom IP-DECT guide".

Accessing Ascom IP-DECT Base Station WEB GUI

First connect the base station to a private network via standard ethernet cable and next use the IP search function on the handset to determine the IP address of the base station.

Default Ascom IP: 192.168.0.1

Ascom IP-DECT base station is configured with the following settings in test environment.

IP Address: 192.168.10.20

Username: **Default username and password**

Open a supported web browser and direct it to the IP address of the IP-DECT base station. For example, enter the following URL: http://192.168.10.20.

The browser prompts for authentication:

Figure 10 – Login Page

The browser displays the welcome page of the IP-DECT general interface. It lists the base station information.
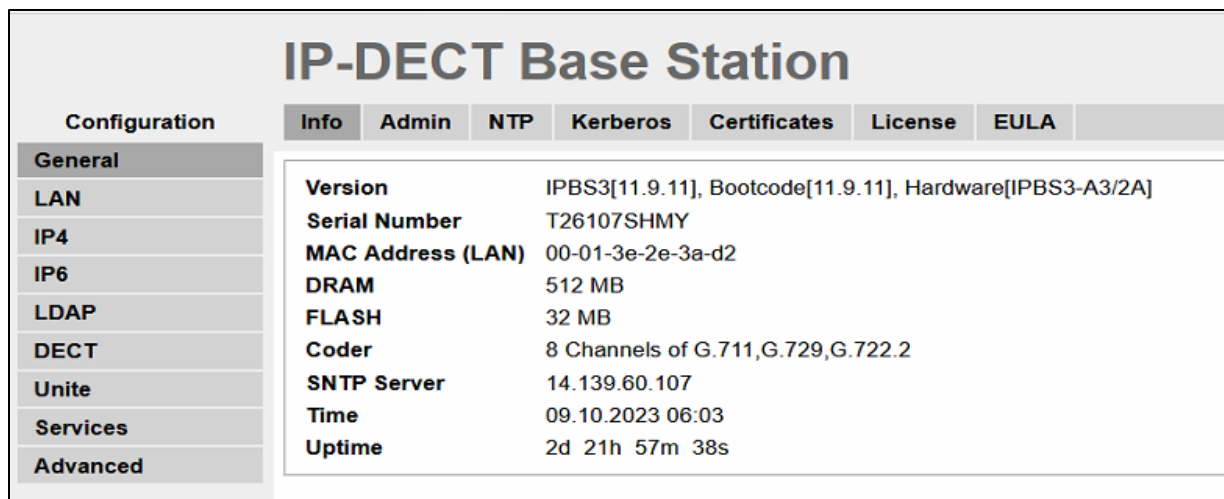
Figure 11 – Ascom IP-DECT base station information

Configure Ascom IP-DECT System Parameters

From the General interface, perform the following configuration.

Click on **DECT** tab and configure the system as per the screen shot below.
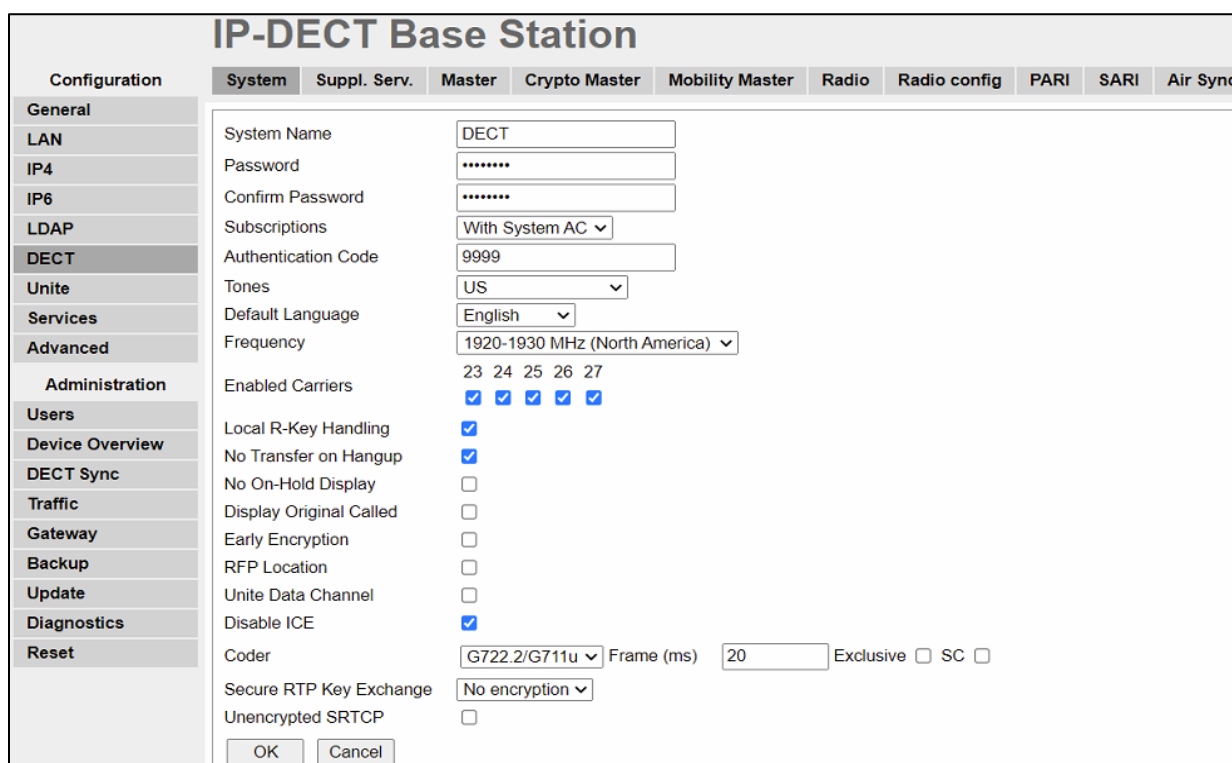
Figure 12 – System Tab

Note - DECT frequency setting is used "**North America**" in the test environment as a part of this Interop testing and that settings must be adjusted to the region where the system is deployed.

Next enable Supplementary Services

Figure 13 – Supplementary Services Tab

Note: FAC codes should not be overlapping with Mivo400 Server FAC. Dect always takes FAC configured in DECT Configuration as Consideration

Configure PARI

It is only necessary to change the PARI if there are other IP-DECT systems within radio coverage using the same System id. See Figure 14

Figure 14 – Configure PARI

Configure SARI

Click on the SARI tab. The SARI is an Ascom provided activation code which is needed for the system to function. Contact Ascom to obtain a SARI. Enter the SARI value (note the actual value has been hidden on the screen shown below for security reasons). Click the OK button to continue.

Figure 15 – Configure PARI

Configure Air Sync

At least one Radio must be in Sync Master mode, additional Radios can also be in Sync Master mode for backup reasons. Avoid configuring the Pari Master as Sync Master.

Click on the Air Sync tab and select Master from the Sync Mode dropdown box. Click the Resynchronize on command radio button. Click the OK button to continue. See Figure 16

Figure 16 – Configure Air Sync

Go to Master tab → Select transport protocol to SIP/UDP and then provide the MiVB IP/FQDN as Proxy → Click on OK.

Figure 17 – Master Tab

Adding Ascom D83 Handsets

Click on **Users** and add the Ascom D83 handsets by clicking on **New**.
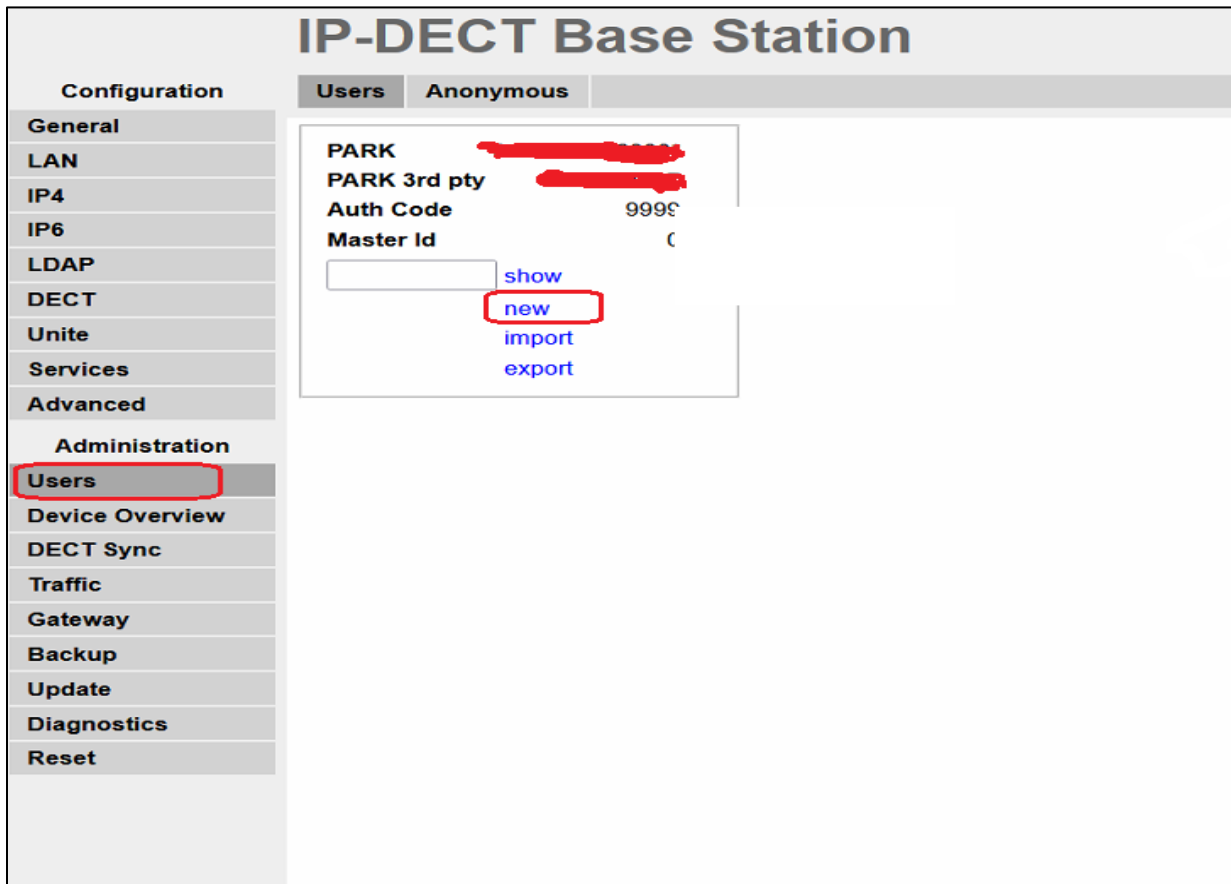
Figure 18– Adding Users

Enter the user necessary details and IPEI of the D83 handsets. The IPEI is printed on a label located under the handset batteries.
Click **OK.**

Figure 19 – Users Details

Check the status of registration for the users and D83 handsets on the IP-DECT base station.

Figure 20 – Registration Status

Advanced Configuration

Figure 21 – Advanced Configuration

Note: Enabling "No Validation of Request URI" was required in the test environment. Normally, this is not a recommended setting.

TLS Configuration

General → Certificates → upload Mivo400 Server Certificate

Figure 22 – Certificate Configuration

DECT → Dect System Configuration

Figure 23 – Certificate Configuration

Note – Mivo400 does not support Secure RTP Cipher set to AES 128/32.

Go to Master tab → Select transport protocol to SIP/TLS and then provide the MiVB IP/FQDN as Proxy → Click on OK

Figure 24 – Master Tab

Note: Subscription TTL: Factory default is 3600. This is recommended to avoid using unnecessary short keep alive.

MiVoice Border Gateway Setup Notes (for TW)

The following steps show how to program the MiVoice Border Gateway (MBG) server to allow connections between the Ascom IPBS3 and the MiVoice Office 400 for teleworking.

Network Requirements

Please refer to the Multi-Protocol Border Gateway Engineering guidelines for further information.

Assumptions for MBG Configuration

MiVO 400 configuration completed as per instructions in previous section.

The SIP signaling connection between the MiVO 400 and MBG server uses UDP on Port 5060.

MBG server installed and configured for SIP clients' support.

Adding ICP for MiVoice Office 400

Select MiVoice Border Gateway → Network → ICPs and click + (Add an ICP) and enter ICP information (name, IP address, type) and select Save.

Figure 25 – Adding ICP

Adding SIP devices

Navigate to MiVoice Border Gateway → Teleworking → SIP →Click + (Add) a SIP Device as shown below. In the opened form, enter the data to create the new SIP device in MBG.

Enter all the required information. Set side credentials must match username and password provisioned on the phone. ICP side credentials must match Login PIN/password and Number provisioned on the MiVO 400. Click Save when you are done.

Figure 26 – SIP Device

Figure 27 – SIP Device Details