Configure Mitel 6863/6865 SIP Phone to use with MiVoice Business 8.0 SP2

FEBRUARY 2018
SIP COE – HO2459
TECHNICAL CONFIGURATION NOTES
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Mitel Technical Configuration Notes:

Configure Mitel 6863/6865 SIP Phone to use with MiVoice Business 8.0 SP2
March 2018 – HO2459

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Overview

This document provides a reference to Mitel Authorized Solutions providers for configuring the MiVoice Business to host the Mitel 6863/6865 SIP Phone. 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

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>February, 2014</td>
<td>Interop with MCD 6.0 (12.0.1.24) and Aastra 6867i SIP desk phone</td>
</tr>
<tr>
<td>2</td>
<td>December, 2017</td>
<td>Interop with MiVoice Business 8.0 SP2 (14.0.2.26) and Mitel 6865 SIP Phone</td>
</tr>
</tbody>
</table>

Interop Status

The Interop of Mitel 6863/6865 SIP Phone with MiVoice Business has been given a Certification status. This device will be included in the SIP COE Reference Guide. The status the Mitel 6865 SIP Phone set 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.

Although the Interop testing was executed using the Mitel 6865 SIP Phone, this certification is applicable to any Mitel 6865 or 6863 series SIP Phone running the same firmware as tested.

Software & Hardware Setup

The table below provides the hardware and software specifications used.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Variant</th>
<th>Software Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitel</td>
<td>MiVoice Business</td>
<td>8.0 SP2 (14.0.2.26)</td>
</tr>
<tr>
<td>Mitel</td>
<td>6865 SIP Set</td>
<td>5.0.0.146</td>
</tr>
<tr>
<td>Mitel</td>
<td>6867 and 6873 SIP Set</td>
<td>5.0.0.146</td>
</tr>
<tr>
<td>Mitel</td>
<td>6920 Mitel IP Phone</td>
<td>Main Load: 01.02.00.094</td>
</tr>
<tr>
<td>Mitel</td>
<td>MiCollab Desktop Client (Windows)</td>
<td>7.3.0.254</td>
</tr>
<tr>
<td>Mitel</td>
<td>MiCollab Server</td>
<td>MiCollab 8.0.0.202</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mitel Standard Linux-10.5.21</td>
</tr>
<tr>
<td>Mitel</td>
<td>MiVoice Border Gateway (Teleworker)</td>
<td>10.0.0.116</td>
</tr>
</tbody>
</table>
Tested Features

This is an overview of the features tested during the Interop test cycle and not a detailed view of the test cases.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Feature Description</th>
<th>Execution Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Register/Deregister</td>
<td>Registration/Deregistration (authentication) with the MiVoice Business</td>
<td>✅</td>
</tr>
<tr>
<td>Basic Call</td>
<td>Making and receiving a call</td>
<td>✅</td>
</tr>
<tr>
<td>PRACK Support</td>
<td>Making and receiving a call with Provisional Response Acknowledgement messaging</td>
<td>✅</td>
</tr>
<tr>
<td>Call Hold/Retrieve</td>
<td>Putting a call on hold/retrieve w/o MOH</td>
<td>✅</td>
</tr>
<tr>
<td>Call Transfer</td>
<td>Transferring a call to another destination</td>
<td>✅</td>
</tr>
<tr>
<td>Call Forward (ESM)</td>
<td>Forwarding calls to another destination using ESM</td>
<td>✅</td>
</tr>
<tr>
<td>Conference</td>
<td>Conferencing multiple calls together</td>
<td>✅</td>
</tr>
<tr>
<td>Receive Page</td>
<td>Auto answer</td>
<td>✅</td>
</tr>
<tr>
<td>Call Park</td>
<td>Call Park to other DN</td>
<td>✅</td>
</tr>
<tr>
<td>Redial</td>
<td>Last Number Redial</td>
<td>✅</td>
</tr>
<tr>
<td>Voicemail</td>
<td>Access Voice mail</td>
<td>✅</td>
</tr>
<tr>
<td>Forwarding</td>
<td>Forward calls using device based setup</td>
<td>✅</td>
</tr>
<tr>
<td>Video</td>
<td>Video calls between endpoints</td>
<td>❌</td>
</tr>
<tr>
<td>Fax</td>
<td>Sending and receiving Fax including T.38</td>
<td>❌</td>
</tr>
<tr>
<td>Teleworker</td>
<td>Mitel remote connectivity with Teleworker</td>
<td>✅</td>
</tr>
<tr>
<td>Personal Ring Group</td>
<td>Multiple sets ringing when one number dialed</td>
<td>✅</td>
</tr>
<tr>
<td>Different Port support</td>
<td>Device being able to support a different local SIP port</td>
<td>✅</td>
</tr>
<tr>
<td>MiCollab Basic Call</td>
<td>Basic Call, Hold Resume, Conference, Transfer and Forwarding using MiCollab softphone/Desk phone, Mitel 6865 SIP Phone and Mitel Phones</td>
<td>✅</td>
</tr>
<tr>
<td>Resiliency</td>
<td>Basic calls through a secondary SIP server</td>
<td>✅</td>
</tr>
<tr>
<td>TLS/SRTP</td>
<td>Basic Calls with encrypted signaling and media</td>
<td>▲</td>
</tr>
</tbody>
</table>

- No issues found  ✗ - Issues found, cannot recommend to use  △ - Issues found  ❌ - Not tested/applicable
Resiliency

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

<table>
<thead>
<tr>
<th>Device</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
<th>Scenario 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitel 6865 SIP Phone</td>
<td>✔️</td>
<td>✔️</td>
<td>Not Supported</td>
<td>Not Supported</td>
</tr>
</tbody>
</table>

✓ - No issues found  ☒ - Issues found, cannot recommend to use  ⚠ - Issues found

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

Scenario 1 – Bronze: 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 – Silver: The device has inherent knowledge of the primary and secondary Mitel Voice Business and will switch between them if a SIP request (REGISTER, INVITE, or SUBSCRIBE) times out. Behavior will be characterized based on whether the device returns to primary Mitel Voice Business 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 making a call goes up.

Scenario 3 – Gold: 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 Mitel Voice Business much more quickly, and much more unnoticeably. (If the device can detect a failure of the primary Mitel Voice Business, and can failover immediately, the chance that the user even notices a lack of service falls dramatically.)

Scenario 4 – Platinum: 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 data that designates the potential servers and which server the UA must use.
Device Limitations and Known Issues

This is a list of issues or not supported features using the Mitel 6865 SIP Phone with MiVoice Business.

<table>
<thead>
<tr>
<th>Features</th>
<th>Problem Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resiliency</td>
<td>• Resiliency – Mitel 6865 SIP Phone Does Not support Gold and Platinum resiliency&lt;br&gt;<strong>Recommendation:</strong> Resiliency-Bronze and Resiliency-Silver can be used.</td>
</tr>
<tr>
<td>TLS/SRTP</td>
<td>• TLS connections can't be made with MiVB using sip: URI scheme. Enable sips on the phone using the parameter &lt;sip send sips over tls: 1&gt; to use TLS.&lt;br&gt;<strong>Recommendation:</strong> Defect has already been raised with ID: DTP-29657, Contact Mitel Support for more information&lt;br&gt;• Persistent TLS connection disrupts and there are periodic register refresh messages from 6865 SIP Phone. Disable persistent TLS:&lt;br&gt;sips persistent tls: 0&gt; to stay connected.&lt;br&gt;<strong>Recommendation:</strong> Defect has already been raised with ID: DTP-30079, Contact Mitel Support for more information&lt;br&gt;• Consult transfer from Mitel 6920 IP phone to 6865 SIP phones over TLS results in no voice between two 6865 devices. Disable multiple M-Line for this case to work&lt;br&gt;<strong>Recommendation:</strong> Disable multiple M-Line for this case to work</td>
</tr>
<tr>
<td>Wideband Codec</td>
<td>• Mitel 6865 SIP Phone does not support g722.1&lt;br&gt;<strong>Recommendation:</strong> Contact Mitel Support for further information if this codec is required.</td>
</tr>
</tbody>
</table>
Network Topology

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

This section is a description of how the SIP Interop network was configured. These notes provide a guideline as to how a device can be configured in a customer environment and how the MiVoice Business 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 Business Configuration Notes

The following steps show how to configure a MiVoice Business to host Mitel 6865 SIP Phone

Network Requirements

- There must be adequate bandwidth to support the VoIP network. 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 MiVoice Business Engineering guidelines on the Mitel eDocs Website (http://edocs.mitel.com) 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 Business Programming

- The SIP signaling connection uses UDP on port 5060.
Licensing and Option Selection – SIP Licensing

Ensure that the MiVoice Business is equipped with enough IP Users licenses for the connection of SIP end points. This can be verified within the License and Option Selection form. See Figure 2.

Figure 2 – License and Option Selection
Multiline IP Set Configuration

On the MiVoice Business, a SIP device can be programmed either in the User Configuration form or the Multiline IP Set Configuration form and are programmed as a "Generic SIP Phone". Enterprise Manager can also be used to provision where this application is installed.

The User PIN is the SIP authentication password and the Number is the Directory Number (DN is a telephone number). The Number and User PIN must match the information in the Mitel 6865 SIP Phone settings. All other field names should be programmed per the site requirements or left at default. See an example in below Figures 3,4,5

Figure 3 – Multiline IP Set Configuration
Figure 4 – Multiline IP Set Configuration Continue
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Hot Desk User License</td>
<td>Change to [No] Yes</td>
</tr>
<tr>
<td>Hot Desk User External Dialing Prefix</td>
<td>-</td>
</tr>
<tr>
<td>Hot Desk User External Number</td>
<td>-</td>
</tr>
<tr>
<td>Language</td>
<td>English</td>
</tr>
<tr>
<td>Max Call History Records</td>
<td>-</td>
</tr>
<tr>
<td>MAC Address</td>
<td>-</td>
</tr>
<tr>
<td>Tenant Number</td>
<td>1</td>
</tr>
<tr>
<td>Lock Default Configuration</td>
<td>-</td>
</tr>
<tr>
<td>HTML Infrastructure License</td>
<td>-</td>
</tr>
<tr>
<td>HTML GUI Application</td>
<td>-</td>
</tr>
<tr>
<td>New Page Application 1</td>
<td>-</td>
</tr>
<tr>
<td>New Page Application 2</td>
<td>-</td>
</tr>
<tr>
<td>New Page Application 3</td>
<td>-</td>
</tr>
<tr>
<td>Notification Application 1</td>
<td>-</td>
</tr>
<tr>
<td>Notification Application 2</td>
<td>-</td>
</tr>
<tr>
<td>Notification Application 3</td>
<td>-</td>
</tr>
<tr>
<td>Branding Application</td>
<td>-</td>
</tr>
<tr>
<td>Screen Saver Application</td>
<td>-</td>
</tr>
<tr>
<td>Service Level</td>
<td>Full</td>
</tr>
<tr>
<td>Pin Security Status</td>
<td>Weak or Expired</td>
</tr>
</tbody>
</table>

**Figure 5 – Multiline IP Set Configuration Continue**
Class of Service Assignment

The Class of Service Options form is used to create or edit the Class of Service and specify its options. Classes of Service, identified by Class of Service numbers, are referenced by the Station Attributes form for the SIP device.

Many different options may be required for your site deployment, but the options below are required to be changed from the default for a Generic SIP Device to work with the MiVoice Business. (See example in Figure 6,7,8,9)

Under General tab:

Navigate to section Campon and ensure:

- Auto Campon Timer is **blanked (no value)**

Navigate to section HCI and ensure:

- HCI/CTI/TAPI Call Control Allowed set to **Yes**
- HCI/CTI/TAPI Monitor Allowed set to **Yes**

Navigate to section Trunk and ensure:

- Public Network Access via DPNSS set to **Yes**

Under Advanced tab:

Navigate to section Conference and ensure:

- Conference Call set to **Yes**

Navigate to section Message Waiting and ensure:

- Message Waiting set to **Yes**
### Figure 6 – Class of Service

<table>
<thead>
<tr>
<th>Class Of Service Number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>58855MVB</td>
</tr>
</tbody>
</table>

- **ACD Agent Behavior on No Answer**: Logout
- **ACD Agent No Answer Timer**: 15
- **ACD Make Busy on Logs**: No
- **ACD Silent Monitor Accept**: No
- **ACD Silent Monitor Accept Monitoring Non-Prime Lines**: No
- **ACD Silent Monitor Allocated**: No
- **ACD Silent Monitor Notification**: No
- Follow 2nd Alternate Route for Recall to Busy ACD Agent: No
Figure 7 – Class of Service Continue
Figure 8 – Class of Service Continue
Figure 9 – Class of Service Continue
SIP Device Capabilities

This form provides configuration options that can be applied to various types of SIP devices. The association between the SIP device and the form is like how the Class of Service options work. The SIP Device Capabilities number provides a SIP profile that can be applied to particular SIP devices to allow for alternate capabilities as recommended through the Mitel interop process.

In the SIP Device Capabilities form, program a SIP Device Capabilities Number for the Mitel 6865 SIP Phone. The form below depicts how the options were set for the interop testing.

Figure 10 – SIP Device Capabilities - Basic
Set SDP Options as shown in Figure 11.

Figure 11 – SIP Device Capabilities – SDP Options

Set Signaling and Header Manipulation as shown in Figure 12.
Settings for the Timers are important part for the SIP devices configuration. Set Registration Period, Subscription Period and Session Timer to match those configured in the Mitel 6865 SIP Phone and per the site requirements. See an example in Figure 13.

The settings on all other tabs of SIP Device Capabilities form remain unchanged, at their default values.
Figure 13 – SIP Device Capabilities – Timers
Station Attributes

Use the Station Attributes form to assign the previously configured Class of Service and SIP Device Capability number to each of the Mitel 6865 SIP Phone in the MiVoice Business. This form utilizes Range Programming.

Select the Mitel 6865 SIP Phone’s number then select Change. Enter the previously configured SIP Device Capability number and Class of Service for Day, Night 1 & Night 2. See an example in Figure 14 below.

![Figure 14 – Station Attributes](image-url)
MiCollab Server Configuration Notes

Configuring network element

Open MiCollab Sever Manager, under application, click on user and services and then Click on Network element tab. See the figure below:

![MiCollab Server Configuration](image)

**Figure 15 – Network Elements**

Click on Add tab as shown above and new window will open. Provide Details of MiVoice Business as shown below: System login user name and password will be same as MiVB admin user name and password.
Creating User

Open MiCollab Sever Manager, under application, click on user and services and then click on Users tab. See the figure below:
Figure 17 – Users

Click on Add, new window will open and provide all required user information as shown below:
Go to Phone Tab and Click add new phone. Below page will open and provide all the information shown below.
Go to MiCollab Client tab and provide the details as shown below:
Figure 20 – MiCollab Client

Now open the MiCollab Desktop Client and use the same credentials as given above for login.

After Login, the window will appear as shown below
Figure 21 – MiCollab Desktop Client
**Mitel 6865 SIP Phone Configuration Notes**

The following steps show the basics of how to program the Mitel 6865 SIP Phone to interconnect with the MiVoice Business.

The configuration settings below are the main reference points and by no means be considered as the comprehensive configuration instructions.

**Configuring Mitel 6865 SIP Phone**

Mitel 6865 SIP Phones are configured using a combination of configuration menus accessed through the phone and/or using web browser based configuration. The phones can use DHCP or the IP addresses can be entered manually.

**Initial Phone Configuration Parameters**

Connect the Mitel 6865 SIP Phone to the network and a power. By default, the phone will automatically request IP network settings from the LAN using DHCP.

Once the Mitel 6865 has completed its initial start-up determine the IP address assigned to the Mitel 6865. This can be done by entering the option menu on the Mitel 6865 and selecting the Phone Status menu and the the IP&MAC Addresses menu, after determining the IP address connect to the Mitel 6865 using a web browser and the IP address.

Figure 22, 23 show a partial example of the basic settings to allow the Mitel 6865 to connect to the Mitel MiVoice Business

The following is a list is only a general guide of the SIP settings that were modified during interop testing:

For Global SIP Settings open Phone web page using [http://xxx.xxx.xxx.xxx](http://xxx.xxx.xxx.xxx), provide username as admin and password 22222. Provide the details as mentioned below

**Basic SIP Authentication Settings**

Screen Name - To be shown on the set display.
Phone Number – As assigned in the MiVoice Business
Caller ID – To be displayed at to the called party

**If authentication is used**:

Authentication Name – Must match the authentication name entered in the MiVoice Business.
Password - Must match the password entered in the MiVoice Business.

**Basic SIP Network Settings**

Proxy Server – Address of the MiVoice Business
Proxy Port - 5060
Registrar Server – Address of the MiVoice Business
Registrar Port - 5060

**Advanced SIP Settings**

Explicit MWI Subscription - Enabled

Codec 1 – Set to basic or all

For Line 1 Settings:

**Basic SIP Authentication Settings**

Screen Name - To be shown on the set display.
Phone Number – As assigned in the MiVoice Business
Caller ID – To be displayed at to the called party

**If authentication is used:**
Authentication Name – Must match the authentication name entered in the MiVoice Business.
Password - Must match the password entered in the MiVoice Business.

**Basic SIP Network Settings**
Proxy Server – Address of the MiVoice Business
Proxy Port - 5060
Registrar Server – Address of the MiVoice Business
Registrar Port – 5060

---

**Figure 22 – Mitel 6865 SIP Phone Global SIP Configuration**
Figure 23 – Mitel 6865 SIP Phone Global SIP Configuration
**MiVoice Border Gateway Setup Notes (Optional)**

The following steps show how to program the MiVoice Border Gateway (MBG) server to allow connections between the Mitel 6865 SIP Phone and the MiVB for teleworking.

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

**Assumptions for MBG Configuration**
- MiVB configuration completed as per instructions in previous section.
- The SIP signaling connection between the MiVB and MBG server uses UDP on Port 5060.
- MBG server installed and configured for SIP clients’ support.

**MiVoice Business**

Select **Service configuration > ICPs** and click **+ (Add an ICP)** and enter ICP information (name, IP address, type) and select **Save**.
Figure 24 – Setting up Default ICP

Adding SIP devices

Navigate to **Service configuration > SIP devices**. 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 required information. Set side credentials must match username and password provisioned on the phone. ICP side credentials must match Login PIN and Number provisioned on the MiVB. Since PRACK is disabled on master setting, if PRACK is enabled on MiVB, then you must enable it. Click **Save** when you are done.
Figure 25 – Entering SIP Device Details
Figure 26 – SIP devices