



Application Notes for configuring Fijowave Business DECT with Avaya IP Office IP500 V2 R10.1 using a WAN connection – Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning Fijowave's Business DECT to interoperate with Avaya IP Office IP500 V2 R10.1 by connecting over the WAN to the LAN2/WAN port on Avaya IP Office.

Readers should pay particular attention to the scope of testing as outlined in **Section 2.1**, as well as observations noted in **Section 2.2** to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps for provisioning Fijowave's Business DECT to interoperate with Avaya IP Office IP500 V2 Standalone R10.1 by connecting over the Wide Area Network (WAN) to the LAN2/WAN port on IP Office. Fijowave's DECT handsets are configured to register with Avaya IP Office via SIP protocol and are also subscribed to the base station via DECT. Each handset is configured as a SIP user on Avaya IP Office. The Fijowave DECT handsets then behave as third-party SIP extensions on Avaya IP Office with the ability to make/receive internal and external calls. Voicemail and Message Waiting are also available as well as other Avaya IP Office features using the Avaya IP Office 'short codes'.

2. General Test Approach and Test Results

The interoperability compliance testing evaluates the ability of Fijowave DECT handsets to register with IP Office over the WAN and to make and receive calls to and from Avaya Digital, H.323 and SIP deskphones. Avaya IP Office Voicemail Pro was utilised to allow callers to leave voicemail messages and to demonstrate Message Waiting Indication (MWI) on the Fijowave handsets. The DECT handsets connected to IP Office over the WAN and UDP was used as the SIP transport protocol.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

Avaya's formal testing and Declaration of Conformity is provided only on the headsets/Smartphones that carry the Avaya brand or logo. Avaya may conduct testing of non-Avaya headset/handset to determine interoperability with Avaya phones. However, Avaya does not conduct the testing of non-Avaya headsets/Smartphones for: Acoustic Pressure, Safety, Hearing Aid Compliance, EMC regulations, or any other tests to ensure conformity with safety, audio quality, long-term reliability or any regulation requirements. As a result, Avaya makes no representations whether a particular non-Avaya headset will work with Avaya's telephones or with a different generation of the same Avaya telephone.

Since there is no industry standard for handset interfaces, different manufacturers utilize different handset/headset interfaces with their telephones. Therefore, any claim made by a headset vendor that its product is compatible with Avaya telephones does not equate to a guarantee that the headset will provide adequate safety protection or audio quality.

This test was conducted in a lab environment where the DECT endpoints were connected to IP Office over a public WAN. The testing focused on the standards-based interface between the Avaya solution and the third party solution.

Readers should be aware that network behaviors (e.g. jitter, packet loss, delay, speed, etc.) can vary significantly from one location to another, and may affect the reliability or performance of the overall solution. Different network elements (e.g. session border controllers, soft switches, firewalls, NAT appliances, etc.) can also affect how the solution performs.

If a customer is considering the implementation of this solution over a WAN, the customer should evaluate and discuss the network characteristics with their WAN service provider and network organizations, and evaluate if the solution is viable to be deployed over a WAN.

The network characteristics required to support this solution are outside the scope of these Application Notes. Readers should consult the appropriate Avaya and third party documentation for the product network requirements. Avaya makes no guarantee that this solution will work in all potential deployment configurations.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and Fijowave Business DECT did not include use of any specific encryption features as requested by Fijowave.

2.1. Interoperability Compliance Testing

The compliance testing included the test scenarios shown below. Note that when applicable, all tests were performed with Avaya SIP deskphones, Avaya H.323 deskphones, Fijowave DECT handsets and PSTN endpoints.

- Registration of handsets
- Basic Calls
- Call Waiting/Hold and Retrieve
- Attended and Blind Transfer
- Call Forwarding Unconditional, No Reply and Busy
- Call Park/Pickup
- Mobile Twinning
- Conference
- Calling Line Name/Identification
- Codec Support
- DTMF Support

- Message Waiting Indication
- Serviceability testing

2.2. Test Results

All test cases passed successfully.

2.3. Support

Support from Avaya is available by visiting the website <http://support.avaya.com> and a list of product documentation can be found in **Section 9** of these Application Notes. Technical support for the Fijowave Business DECT product can be obtained as follows:

- Web: <http://www.fijowave.com>
- Email: mail@fijowave.com
- Help desk: +353 1 525 3072

3. Reference Configuration

The configuration in **Figure 1** will be used to test that Fijowave Business DECT handsets can interoperate with Avaya IP Office IP500V2 using the WAN connection.

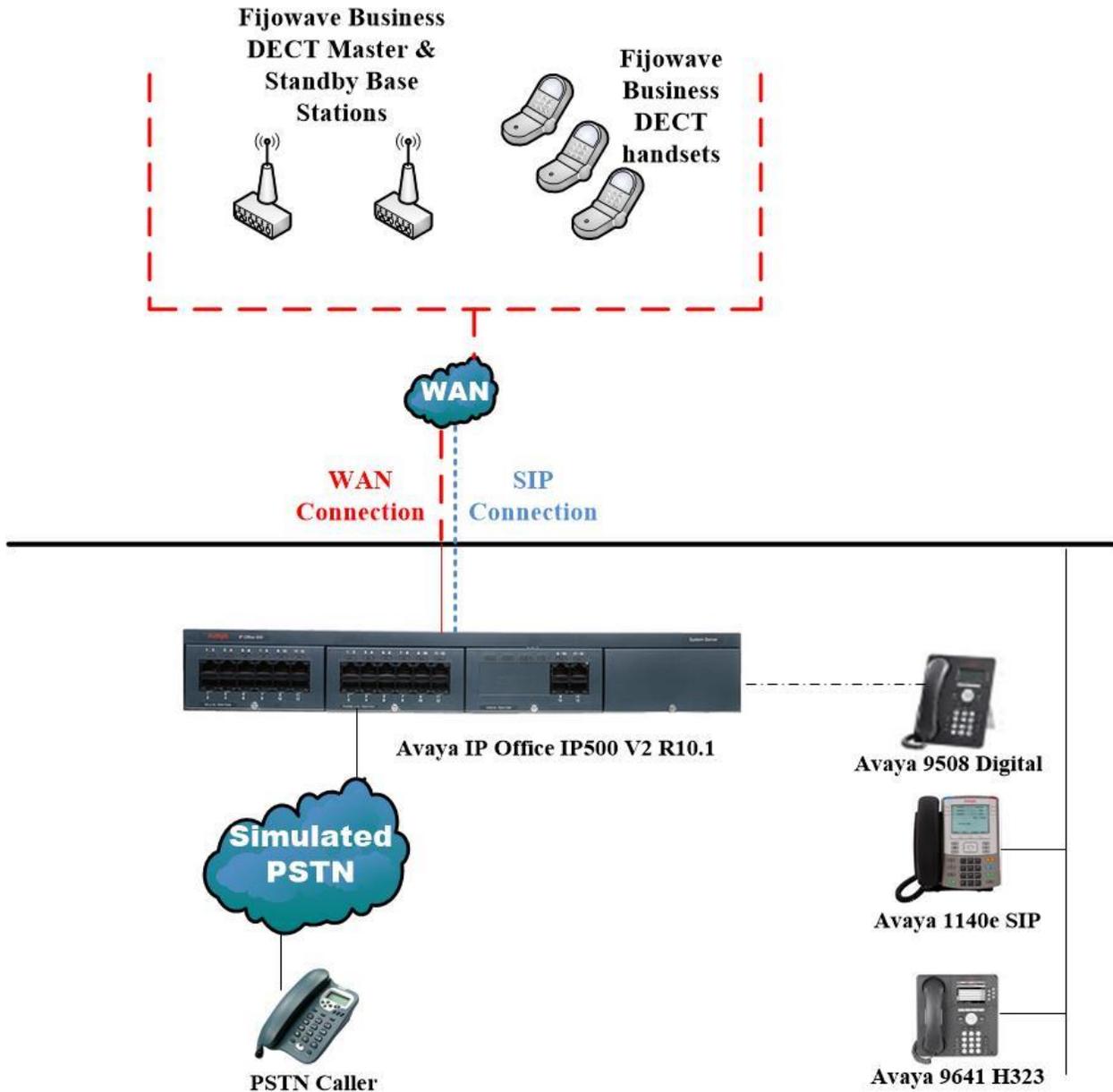


Figure 1: Connection of Fijowave with Avaya IP Office IP 500 V2 over the WAN

4. Equipment and Software Validated

The following equipment and software was used for the compliance test.

| Equipment/Software | Release/Version |
|---|--|
| Avaya IP Office IP500 V2 Standalone | R10.1.0.0 Build 237 |
| Avaya IP Office Manager running on a Windows 7 PC | R10.1.0.0 Build 237 |
| Avaya 9641 H323 Deskphone | R6.6115 |
| Avaya 1140e SIP Deskphone | R04.04.28.00 |
| Avaya 9508 Digital Deskphone | V0.6 |
| Fijowave DECT Base Station | Multi-Cell 220: s/n 15220000146 s/n 15220000143 s/n 15220000641 Software: V380 B10 |
| Fijowave DECT Handsets | s/n 17310001954 s/n 17310000294 s/n 17310000291 Software: V380 B10 |

Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 only.

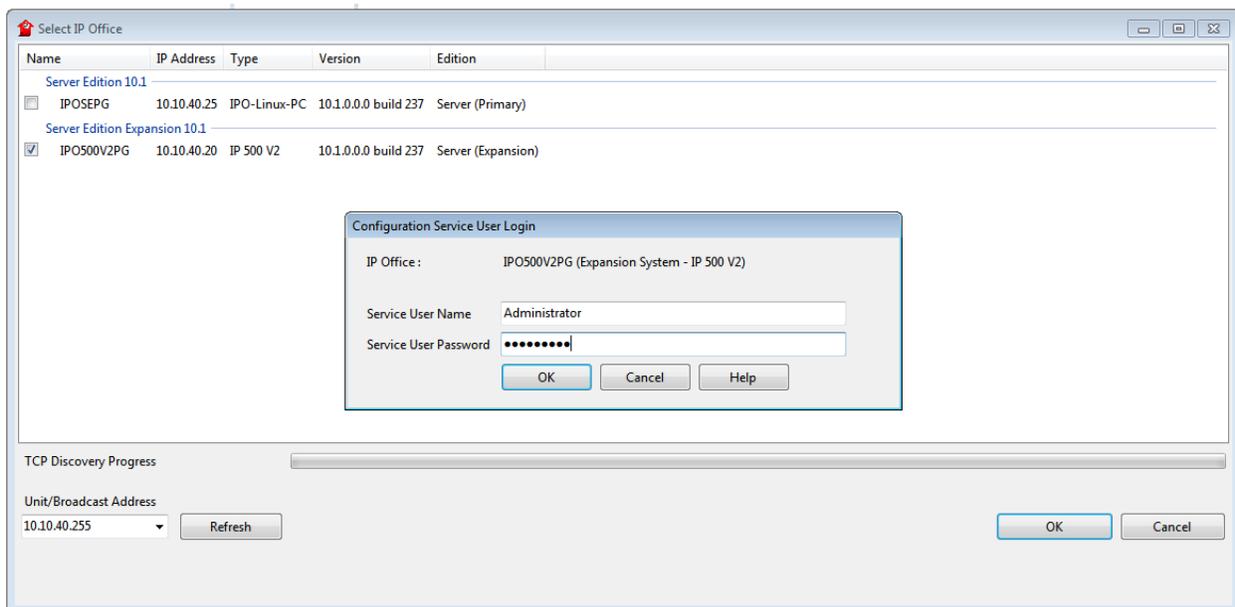
5. Configure Avaya IP Office

Configuration and verification operations on the Avaya IP Office illustrated in this section were all performed using Avaya IP Office Manager. The information provided in this section describes the configuration of the Avaya IP Office for this solution. It is implied a working system is already in place. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration operations described in this section can be summarized as follows:

- Launch Avaya IP Office Manager.
- Display WAN Configuration.
- Configure New SIP User.
- Save Configuration.

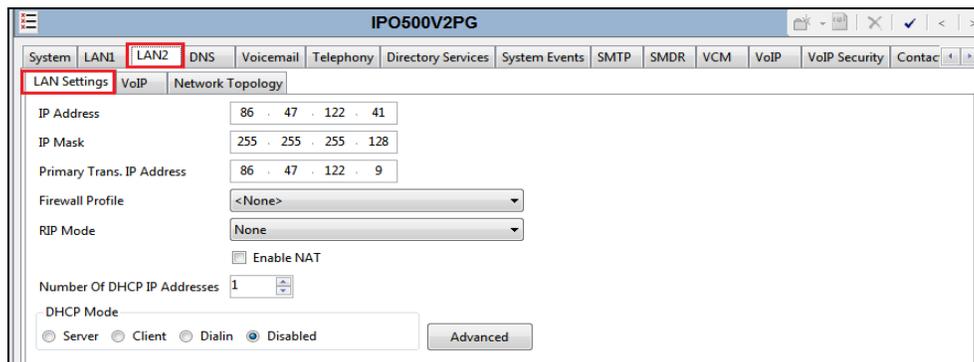
5.1. Launch Avaya IP Office Manager

From the Avaya IP Office Manager PC, go to **Start** → **Programs** → **IP Office** → **Manager** to launch the Manager application or use the shortcut on the desktop (not shown). Tick the required server to log in to, this will be the IP Office IP500 V2 and log in to Avaya IP Office using the appropriate credentials to receive its configuration.



5.2. Display WAN Configuration

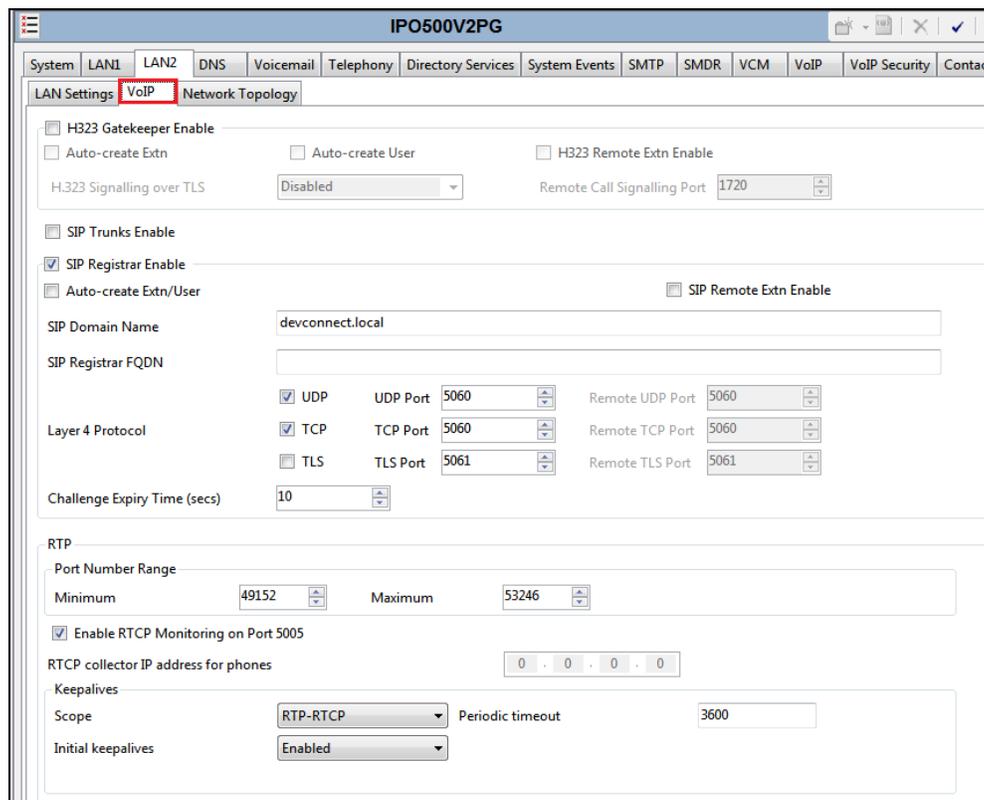
Once logged in navigate to **System** in the left window and this will display the IP Office system properties in the main window. Select the **LAN1** tab in the main window and within that tab select the **LAN Settings** tab. This displays the **IP Address** information for the DECT base station to register to in **Section 6.2**.



The screenshot shows the IP Office configuration interface for device IPO500V2PG. The 'LAN2' tab is selected in the top navigation bar. Under the 'LAN Settings' sub-tab, the following configuration is visible:

- IP Address: 86 . 47 . 122 . 41
- IP Mask: 255 . 255 . 255 . 128
- Primary Trans. IP Address: 86 . 47 . 122 . 9
- Firewall Profile: <None>
- RIP Mode: None
- Enable NAT:
- Number Of DHCP IP Addresses: 1
- DHCP Mode: Server Client Dialin Disabled

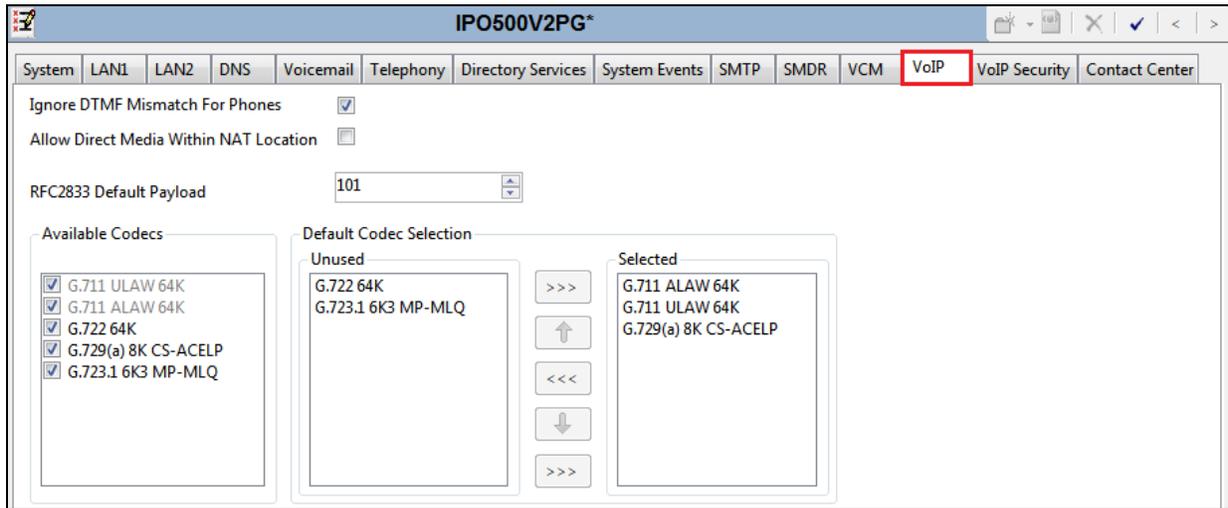
Selecting the **VoIP** tab displays the **Domain Name** and the **UDP** and **TCP Port** details used in the configuration of the DECT base station in **Section 6.2**. Ensure that **SIP Registrar Enable** is ticked as shown below.



The screenshot shows the IP Office configuration interface for device IPO500V2PG with the 'VoIP' tab selected. The 'SIP Registrar Enable' checkbox is checked. The configuration details are as follows:

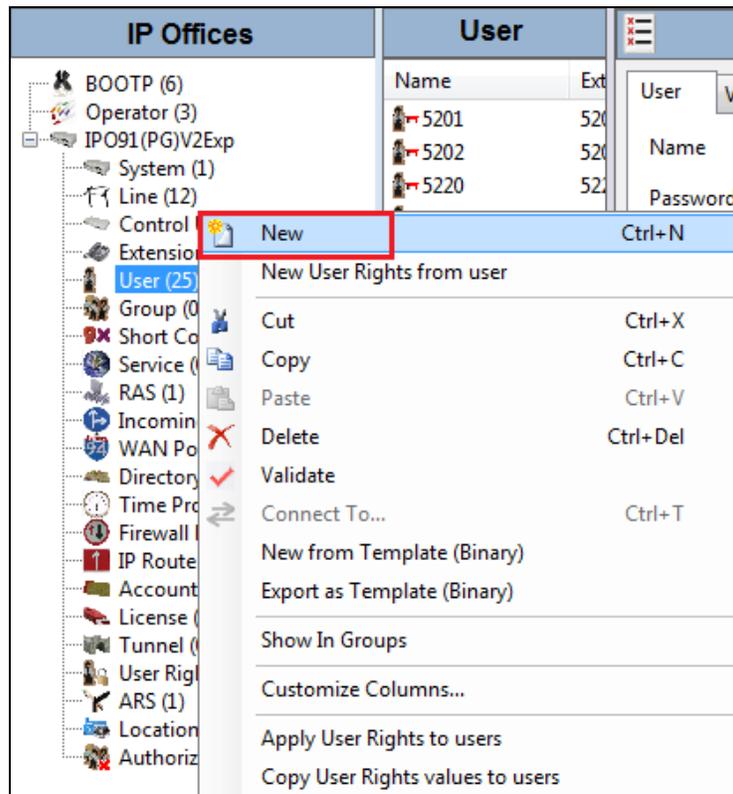
- H323 Gatekeeper Enable
- Auto-create Extn Auto-create User H323 Remote Extn Enable
- H.323 Signalling over TLS: Disabled
- Remote Call Signalling Port: 1720
- SIP Trunks Enable
- SIP Registrar Enable
- Auto-create Extn/User SIP Remote Extn Enable
- SIP Domain Name: devconnect.local
- SIP Registrar FQDN: [Empty]
- Layer 4 Protocol:
 - UDP UDP Port: 5060 Remote UDP Port: 5060
 - TCP TCP Port: 5060 Remote TCP Port: 5060
 - TLS TLS Port: 5061 Remote TLS Port: 5061
- Challenge Expiry Time (secs): 10
- RTP:
 - Port Number Range: Minimum 49152, Maximum 53246
 - Enable RTCP Monitoring on Port 5005
 - RTCP collector IP address for phones: 0 . 0 . 0 . 0
 - Keepsalives:
 - Scope: RTP-RTCP
 - Periodic timeout: 3600
 - Initial keepsalives: Enabled

Click on the **VoIP** tab, the **Codec Selection** is displayed and the various codecs can be chosen as shown below.



5.3. Configure New SIP User

From the left window right click on **Users** and select **New** as shown below, this will allow a new user to be added to IP Office, this new user will be a SIP user.



Within the **User** tab at the top of the screen, enter a suitable **Name** and **Password** for the user. Add the **Extension** number as shown below.

5280: 5280

User Voicemail DND Short Codes Source Numbers Telephony Forwarding Dial In Voice Recording Button Programming Menu Programming

Name 5280

Password ••••

Confirm Password ••••

Conference PIN

Confirm Conference PIN

Account Status Enabled

Full Name Fijowave 5280

Extension 5280

Email Address

Locale

Priority 5

System Phone Rights None

Profile Basic User

Receptionist

Enable Softphone

Enable one-X Portal Services

Enable one-X TeleCommuter

Enable Remote Worker

Navigate to the **Voicemail** tab and ensure that **Voicemail On** is ticked, enter a suitable **Voicemail Code** for a password.

5280: 5280

User Voicemail DND Short Codes Source Numbers Telephony Forwarding Dial In Voice Recording Button Programming Menu Programming

Voicemail Code ••••

Confirm Voicemail Code ••••

Voicemail Email

Voicemail On

Voicemail Help

Voicemail Ringback

Voicemail Email Reading

UMS Web Services

Voicemail Email

Off Copy Forward Alert

DTMF Breakout

Reception / Breakout (DTMF 0) System Default ()

Breakout (DTMF 2) System Default ()

Breakout (DTMF 3) System Default ()

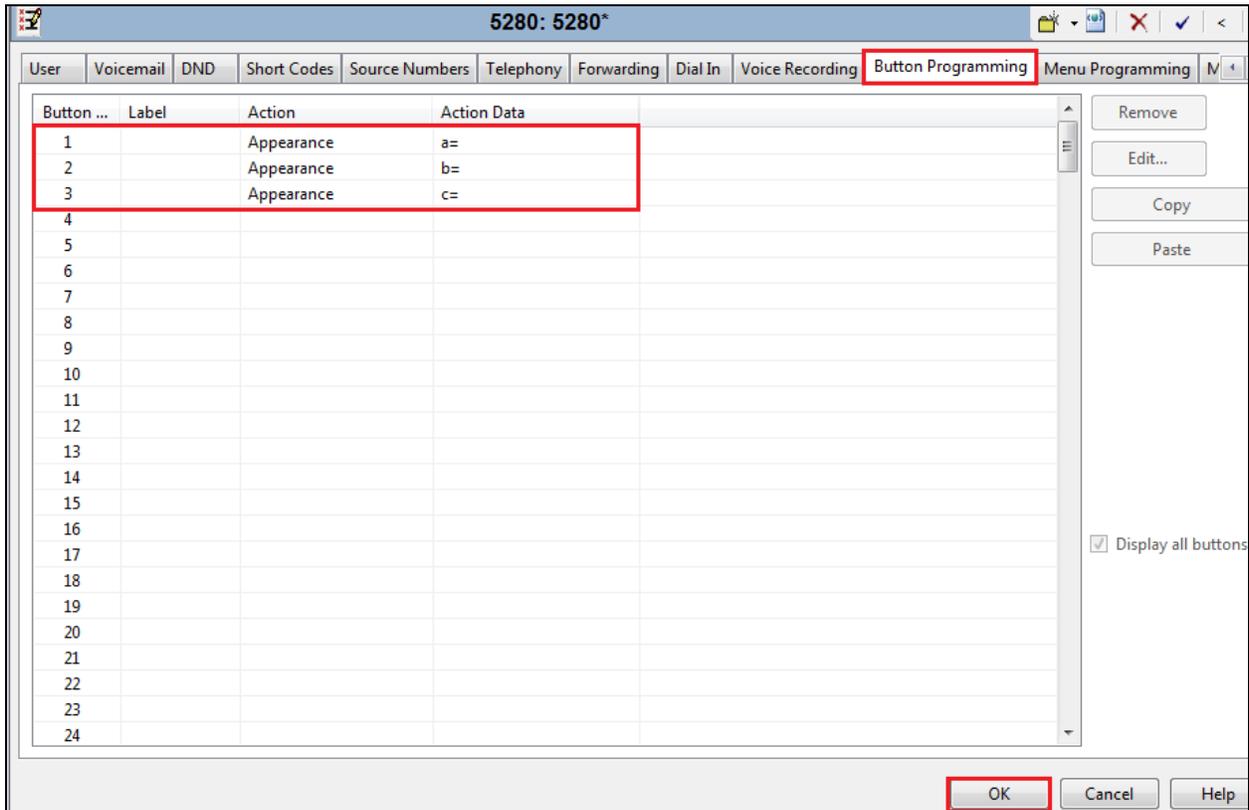
Select the **Telephony** tab and within the tab select the **Call Settings** tab. To enable call waiting for the DECT handsets both **Call Waiting On** and **Answer Call Waiting on Hold** must be ticked as shown below.

The screenshot shows the configuration page for user 5280: 5280*. The 'Telephony' tab is selected, and within it, the 'Call Settings' sub-tab is active. The 'Call Waiting On' and 'Answer Call Waiting on Hold' checkboxes are checked and highlighted with a red box. Other settings include 'Call Waiting On Hold' (checked), 'Busy On Held' (unchecked), and 'Offhook Station' (unchecked). The 'Call Cost Mark-Up' is set to 100.

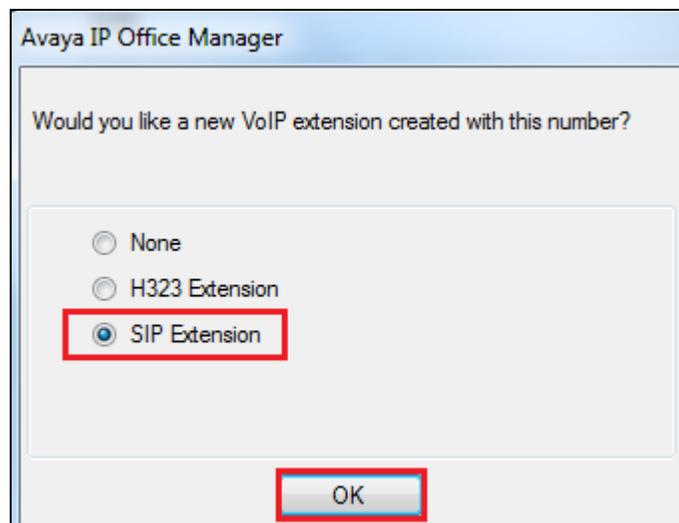
Select the **Supervisor Settings** tab, enter the **Login Code** for the SIP user and note that this password will be required for the DECT configuration in **Section 6.3**. Ensure that **Force Login** is ticked.

The screenshot shows the configuration page for user 5280: 5280. The 'Telephony' tab is selected, and within it, the 'Supervisor Settings' sub-tab is active. The 'Login Code' and 'Confirm Login Code' fields are filled with four dots and highlighted with a red box. The 'Force Login' checkbox is checked and highlighted with a red box. Other settings include 'Force Account Code' (unchecked), 'Force Authorization Code' (unchecked), 'Incoming Call Bar' (unchecked), 'Outgoing Call Bar' (unchecked), 'Inhibit Off-Switch Forward/Transfer' (unchecked), 'Can Intrude' (unchecked), 'Cannot be Intruded' (checked), 'Can Trace Calls' (unchecked), and 'Deny Auto Intercom Calls' (unchecked). The 'Login Idle Period (secs)' is empty, 'Monitor Group' is '<None>', 'Coverage Group' is '<None>', and 'Status on No-Answer' is 'Logged On (No change)'. The 'Reset Longest Idle Time' section has 'All Calls' selected.

Navigate to **Button Programming** and the three call appearance buttons should already be programmed, click on **OK**. If not create the appearance buttons (not shown) and click on **OK**.

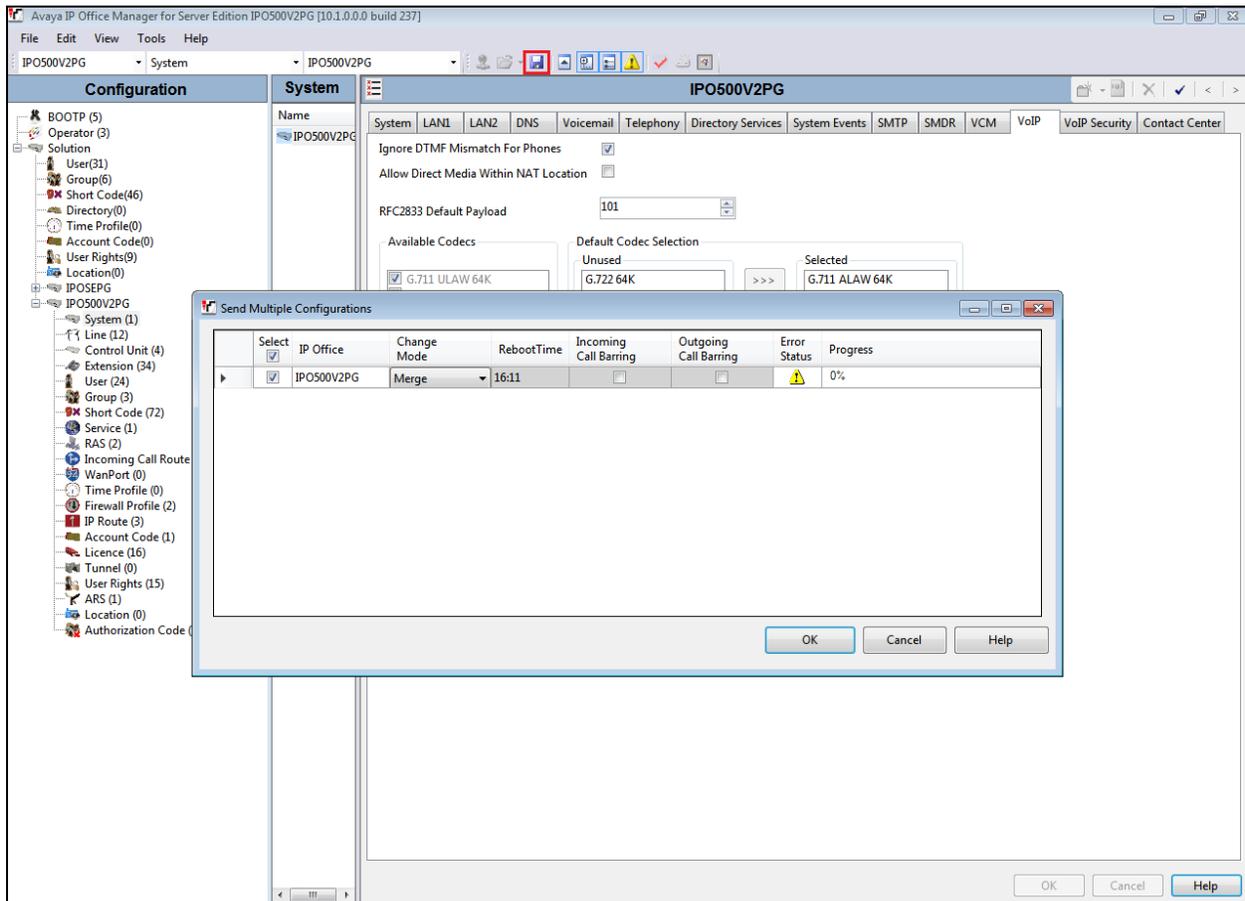


On the subsequent screen, ensure that **SIP Extension** is selected and click on **OK** to create the SIP extension along with the new user.



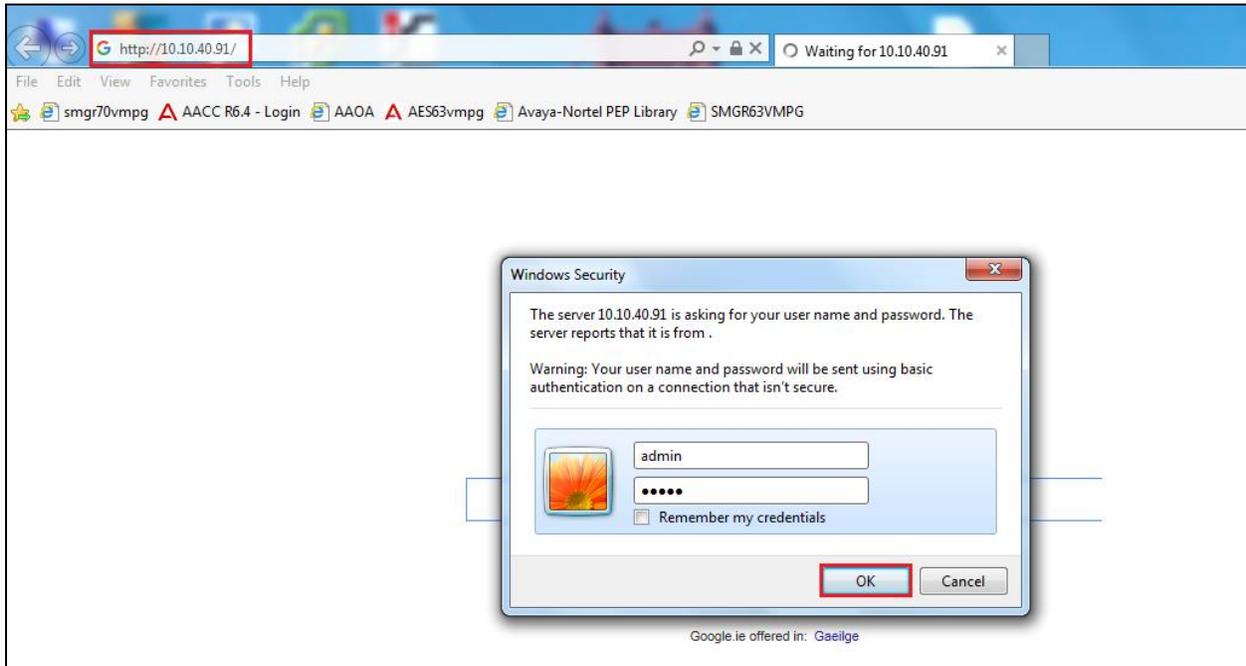
5.4. Save Configuration

Once all the users and extensions have been created click on the **Save** icon at the top of the screen, which will bring up a new window. Select the IP Office to save the configuration as shown below and click on **OK** to save the new configuration.



6. Configure Fijowave Business DECT

The configuration of the DECT base station and the DECT handsets are both achieved a web interface of the DECT base station. Open a web session to the IP address of the DECT base station, enter the proper credentials and click on **OK**.



6.1. Configure DECT Base Station IP address

The IP Address of the DECT base station must be changed in order to connect to the local LAN. To make changes to the IP Address, select **Network** in the left column and in the main window enter the **IP Address** information of the DECT base station and click on **Save**.

BT Business DECT 220

Network Settings

IP settings

DHCP/Static IP:

IP Address:

Subnet Mask:

Default Gateway:

DNS (Primary):

DNS (Secondary):

MDNS:

NAT Settings

Enable STUN:

STUN Server:

STUN Bindtime Determine:

STUN Bindtime Guard:

Enable RPORT:

Keep alive time:

VLAN Settings

ID:

User Priority:

Synchronization:

DHCP Options

Plug-n-Play:

SIP/RTP Settings

Use Different SIP Ports:

RTP Collision Detection:

Always reboot on check-sync:

Outbound Proxy Mode:

Local SIP port:

SIP ToS/QoS:

RTP port:

RTP port range:

RTP ToS/QoS:

Please refer to Fijowave's documentation listed in **Section 9** of these Application Notes for further information about DECT configuration. The following sections cover specific settings concerning SIP and the connection to IP Office.

6.2. Configure Connection to Avaya IP Office

Select **Servers** in the left column and click on **Add Server** in the main window. Then enter the following information for the connection to IP Office. Note that the remaining values can be left as default.

- **Server Alias** Any suitable name for the connection
- **NAT Adaption** **Disabled**
- **Registrar** IP Address of the IP Office (see **Section 5.2**)
- **Outbound Proxy** IP Address of the IP Office (see **Section 5.2**)
- **SIP Transport** Set to either **TCP** or **UDP** (see **Section 5.2**)
- **Use one TCP Connection per SIP Extension** Set to **Disabled** if above is set to **UDP**
- **DTMF Signalling** Set to **RFC 2833**
- **Codec Priority** Set this to whatever is required typically **G711A** for Europe

Click on **Save** (not shown).

The screenshot shows the configuration interface for BT Business DECT 220. The left sidebar contains navigation options: Home/Status, Extensions, Servers, Network, Management, Firmware Update, Time, Country, Security, Central Directory, Multi cell, Repeaters, Alarm, Statistics, Configuration, Syslog, SIP Log, and Logout. The main content area is titled 'Servers' and shows the configuration for an IP Office connection. The 'Add Server' button is highlighted in red. The configuration fields are as follows:

| Field | Value |
|---|--------------------------|
| IPO: | 86.47.122.41 |
| Server Alias: | IPO |
| NAT Adaption: | Disabled |
| Registrar: | 86.47.122.41 |
| Outbound Proxy: | 86.47.122.41 |
| Reregistration time (s): | 600 |
| SIP Session Timers: | Disabled |
| Session Timer Value (s): | 1800 |
| SIP Transport: | UDP |
| Signal TCP Source Port: | Enabled |
| Use One TCP Connection per SIP Extension: | Disabled |
| RTP from own base station: | Enabled |
| Keep Alive: | Enabled |
| Show Extension on Handset Idle Screen: | Enabled |
| Remote Ring Tone Control: | Enabled |
| Attended Transfer Behaviour: | Hold 2nd Call |
| DTMF Signalling: | RFC 2833 |
| Remote Caller ID Source Priority: | PAI - FROM |
| Codec Priority: | G711U, G711A, G726, G722 |
| RTP Packet Size: | 20 ms |
| Secure RTP: | Disabled |
| Secure RTP Auth: | Disabled |
| AES_CM_128_HMAC_SHA1_32: | AES_CM_128_HMAC_SHA1_32 |

6.3. Configure DECT Users

Select **Extensions** in the left column and select **Add extension**, as shown below.

| Idx | IPEI | Handset State | Handset Type FW Info | FWU Progress | VoIP Idx | Extension | Display Name | Server | Server Alias | State |
|-----|------------|---------------|----------------------|--------------|----------|-----------|--------------|--------------|--------------|-----------------|
| 2 | 02EB638D96 | Present@RPN00 | 310 380.10 | Off | 2 | 5280 | 5280 | 86.47.122.41 | IPO | SIP Error@RPN00 |
| 3 | 02AFB47422 | Present@RPN00 | 310 380.10 | Off | 3 | 5281 | 5281 | 86.47.122.41 | IPO | SIP Error@RPN00 |
| 4 | 02AFB4741E | Present@RPN00 | 310 380.10 | Off | 4 | 5282 | 5282 | 86.47.122.41 | IPO | SIP Error@RPN00 |

The following information must all be filled in correctly.

- **Line name** Suitable name for the new extension
- **Handset** **Handset Idx 2**
- **Authentication User Name** The IP Office user number setup in **Section 5.3**
- **Authentication Password** The password for the IP Office user setup in **Section 5.3**
- **Display Name** The name displayed on the DECT handset
- **Mailbox Name** This must be entered as the extension number of the DECT
- **Server** The IP Office server configured in **Section 6.2**
- **Call waiting feature** **Enabled** if call waiting is a priority

Click on **Save** at the bottom of the screen.

6.4. Register the DECT Handset

The DECT handsets each register with the DECT base station. These handsets communicate via DECT to the DECT base station. The DECT base station registers with IP Office where each DECT handset is setup as a SIP user. To register the DECT handset with the DECT base station tick the two boxes opposite the DECT user or handset to be registered. Click on **Register Handset(s)**, at the bottom of the screen.

BT Business DECT 220

Home/Status

Extensions

AC:

Servers

Network [Add extension](#)
[Stop Registration](#)

Management

| | Idx | IPEI | Handset State | Handset Type FW Info | FWU Progress | | VoIP Idx | Extension | Display Name | Server | Server Alias | State |
|--------------------------|-----|------------|---------------|-------------------------|--------------|--------------------------|-------------|-----------|--------------|--------------|--------------|--------------------|
| <input type="checkbox"/> | 2 | 02EB638D96 | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 2 | 5280 | 5280 | 86.47.122.41 | IPO | SIP Error@RPN00 |
| <input type="checkbox"/> | 3 | 02AFB47422 | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 3 | 5281 | 5281 | 86.47.122.41 | IPO | SIP Error@RPN00 |
| <input type="checkbox"/> | 4 | 02AFB4741E | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 4 | 5282 | 5282 | 86.47.122.41 | IPO | SIP Error@RPN00 |

[Check All / Uncheck All](#) [Check All Extensions / Uncheck All Extensions](#)

With selected: [Delete Handset\(s\)](#) **[Register Handset\(s\)](#)** [Deregister Handset\(s\)](#) [Start SIP Registration\(s\)](#) [SIP Delete Extension\(s\)](#)

Firmware Update

Time

Country

Security

Central Directory

Multi cell

Repeaters

The screen shows the **Handset State** as **Enabled**. The handset can now be registered using the menu on the DECT handset.

BT Business DECT 220

Home/Status

Extensions

[Add extension](#)
[Stop Registration](#)

Servers

Network

| | Idx | IPEI | Handset State | Handset Type FW Info | FWU Progress | | VoIP Idx | Extension | Display Name | Server | Server Alias | State |
|--------------------------|-----|------------|---------------|-------------------------|--------------|--------------------------|-------------|-----------|--------------|--------------|--------------|-------|
| <input type="checkbox"/> | 1 | FFFFFFFFF | Enabled | | | <input type="checkbox"/> | 1 | 5280 | 5280 | 86.47.122.41 | IPO | |
| <input type="checkbox"/> | 2 | 0276A586D3 | | | | <input type="checkbox"/> | 2 | 5281 | SET 2 | 86.47.122.41 | IPO | |
| <input type="checkbox"/> | 3 | 0276A586E2 | | | | <input type="checkbox"/> | 3 | 5282 | 5282 | 86.47.122.41 | IPO | |
| <input type="checkbox"/> | 4 | 0276A586EA | | | | <input type="checkbox"/> | 4 | 5283 | 5283 | 86.47.122.41 | IPO | |

[Check All / Uncheck All](#) [Check All Extensions / Uncheck All Extensions](#)

With selected: [Delete Handset\(s\)](#) [Register Handset\(s\)](#) [Deregister Handset\(s\)](#) [Start SIP Registration\(s\)](#) [SIP Delete Extension\(s\)](#)

Management

Firmware Update

Time

Country

Security

Central Directory

Multi cell

Repeaters

Navigate to **Connectivity** and **Register**. Select a new registration slot (called **Empty**) and click OK. Enter the correct **Access Code** and click OK and the device should now be registered to the base station.

Register handset

- Register handset
- Access code "0000"
- Press "OK"

When the handset is registered to the base station the following should appear on the **Extensions** screen. **Handset State** should display **Present** and the **State** column should show as **SIP Registered**.

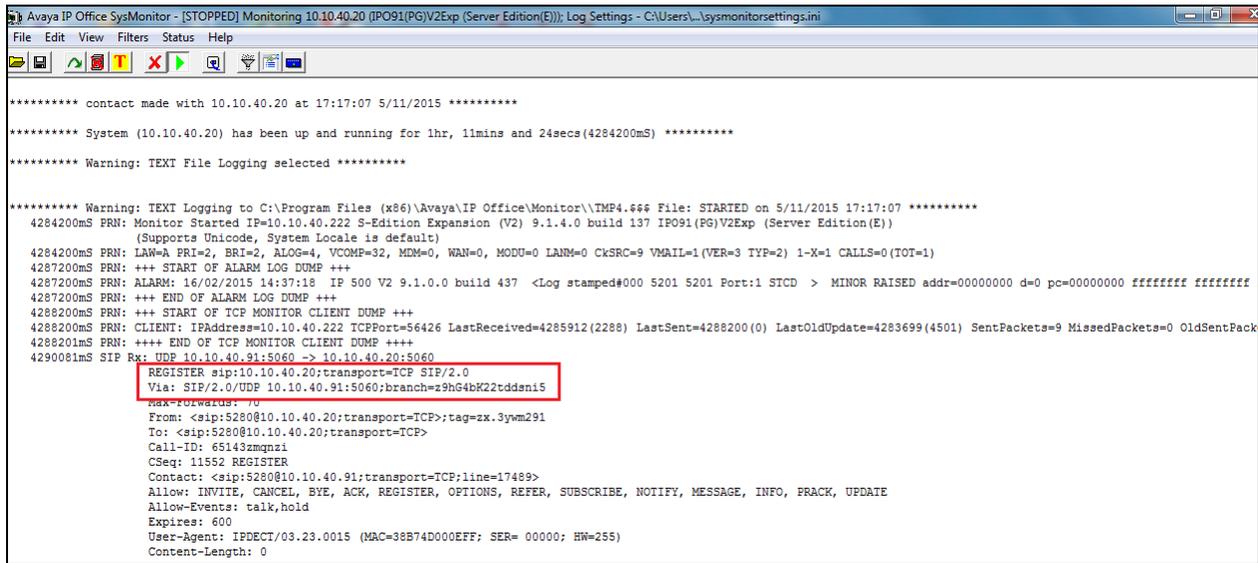
| BT Business DECT 220 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|------------|---------------|-------------------------|--------------|--------------------------|----------|-----------|--------------|--------------|--------------|-------------------------|-----|------|---------------|-------------------------|--------------|--|----------|-----------|--------------|--------|--------------|-------|--------------------------|---|------------|---------------|---------------|-----|--------------------------|---|------|------|--------------|-----|-------------------------|--------------------------|---|------------|---------------|---------------|-----|--------------------------|---|------|------|--------------|-----|-------------------------|--------------------------|---|------------|---------------|---------------|-----|--------------------------|---|------|------|--------------|-----|-------------------------|
| Home/Status | Extensions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Extensions | AC: 0000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Servers | <input type="button" value="Save"/> <input type="button" value="Cancel"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Network | Add extension Stop Registration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Management | <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 5%;"></th> <th style="width: 5%;">Idx</th> <th style="width: 10%;">IPEI</th> <th style="width: 10%;">Handset State</th> <th style="width: 10%;">Handset Type FW Info</th> <th style="width: 10%;">FWU Progress</th> <th style="width: 5%;"></th> <th style="width: 5%;">VoIP Idx</th> <th style="width: 5%;">Extension</th> <th style="width: 5%;">Display Name</th> <th style="width: 5%;">Server</th> <th style="width: 5%;">Server Alias</th> <th style="width: 10%;">State</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td>2</td> <td>02EB638D96</td> <td>Present@RPN00</td> <td>310 380.10</td> <td>Off</td> <td><input type="checkbox"/></td> <td>2</td> <td>5280</td> <td>5280</td> <td>86.47.122.41</td> <td>IPO</td> <td>SIP Registered@RPN00</td> </tr> <tr> <td><input type="checkbox"/></td> <td>3</td> <td>02AFB47422</td> <td>Present@RPN00</td> <td>310 380.10</td> <td>Off</td> <td><input type="checkbox"/></td> <td>3</td> <td>5281</td> <td>5281</td> <td>86.47.122.41</td> <td>IPO</td> <td>SIP Registered@RPN00</td> </tr> <tr> <td><input type="checkbox"/></td> <td>4</td> <td>02AFB4741E</td> <td>Present@RPN00</td> <td>310 380.10</td> <td>Off</td> <td><input type="checkbox"/></td> <td>4</td> <td>5282</td> <td>5282</td> <td>86.47.122.41</td> <td>IPO</td> <td>SIP Registered@RPN00</td> </tr> </tbody> </table> | | | | | | | | | | | | Idx | IPEI | Handset State | Handset Type FW Info | FWU Progress | | VoIP Idx | Extension | Display Name | Server | Server Alias | State | <input type="checkbox"/> | 2 | 02EB638D96 | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 2 | 5280 | 5280 | 86.47.122.41 | IPO | SIP Registered@RPN00 | <input type="checkbox"/> | 3 | 02AFB47422 | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 3 | 5281 | 5281 | 86.47.122.41 | IPO | SIP Registered@RPN00 | <input type="checkbox"/> | 4 | 02AFB4741E | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 4 | 5282 | 5282 | 86.47.122.41 | IPO | SIP Registered@RPN00 |
| | Idx | IPEI | Handset State | Handset Type FW Info | FWU Progress | | VoIP Idx | Extension | Display Name | Server | Server Alias | State | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 2 | 02EB638D96 | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 2 | 5280 | 5280 | 86.47.122.41 | IPO | SIP Registered@RPN00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 3 | 02AFB47422 | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 3 | 5281 | 5281 | 86.47.122.41 | IPO | SIP Registered@RPN00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 4 | 02AFB4741E | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 4 | 5282 | 5282 | 86.47.122.41 | IPO | SIP Registered@RPN00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Check All / Uncheck All | Check All Extensions / Uncheck All Extensions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <small>With selected: Delete Handset(s) Register Handset(s) Deregister Handset(s) Start SIP Registration(s) SIP Delete Extension(s)</small> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

7. Verification Steps

The following steps can be taken to ensure that connections between Fijowave Business DECT and IP Office are up.

7.1. IP Office Registration

Open the IP Office Monitor and ensure that the filters show the SIP registration messages. When the DECT handset is started the monitor should display the correct registration messages to show that the DECT handset has registered correctly with the IP Office.



```
Avaya IP Office SysMonitor - [STOPPED] Monitoring 10.10.40.20 (IPO91(PG)V2Exp (Server Edition(E))); Log Settings - C:\Users\...\sysmonitorsettings.ini
File Edit View Filters Status Help
***** contact made with 10.10.40.20 at 17:17:07 5/11/2015 *****
***** System (10.10.40.20) has been up and running for 1hr, 11mins and 24secs(4284200ms) *****
***** Warning: TEXT File Logging selected *****

***** Warning: TEXT Logging to C:\Program Files (x86)\Avaya\IP Office\Monitor\TMP4.666 File: STARTED on 5/11/2015 17:17:07 *****
4284200ms FRN: Monitor Started IP=10.10.40.222 S-Edition Expansion (V2) 9.1.4.0 build 137 IPO91(PG)V2Exp (Server Edition(E))
(Supports Unicode, System Locale is default)
4284200ms FRN: LAN=A FRI=2, BRI=2, ALOG=4, VCOMP=32, MDM=0, WAN=0, MODU=0 LANM=0 CkSRC=9 VMAIL=1(VER=3 TYP=2) 1-X=1 CALLS=0(TOT=1)
4287200ms FRN: +++ START OF ALARM LOG DUMP +++
4287200ms FRN: ALARM: 16/02/2015 14:37:18 IP 500 V2 9.1.0.0 build 437 <Log stamped#000 5201 5201 Port:1 STCD > MINOR RAISED addr=00000000 d=0 pc=00000000 ffffffff ffffffff
4287200ms FRN: +++ END OF ALARM LOG DUMP +++
4288200ms FRN: +++ START OF TCP MONITOR CLIENT DUMP +++
4288200ms FRN: CLIENT: IPAddress=10.10.40.222 TCPPort=56426 LastReceived=4285912(2288) LastSent=4288200(0) LastOldUpdate=4283699(4501) SentPackets=9 MissedPackets=0 OldSentPack
4288201ms FRN: +++ END OF TCP MONITOR CLIENT DUMP +++
4290081ms SIP Rx: UDP 10.10.40.91:5060 -> 10.10.40.20:5060
REGISTER sip:10.10.40.20;transport=TCP SIP/2.0
Via: SIP/2.0/UDP 10.10.40.91:5060;branch=z9hG4bK22tddn15
max-forwards: 70
From: <sip:5280@10.10.40.20;transport=TCP>;tag=zx.3yvm291
To: <sip:5280@10.10.40.20;transport=TCP>
Call-ID: 65143zmqnzi
CSeq: 11552 REGISTER
Contact: <sip:5280@10.10.40.91;transport=TCP;line=17489>
Allow: INVITE, CANCEL, BYE, ACK, REGISTER, OPTIONS, REFER, SUBSCRIBE, NOTIFY, MESSAGE, INFO, PRACK, UPDATE
Allow-Events: talk,hold
Expires: 600
User-Agent: IPEDECT/03.23.0015 (MAC=39B74D000EFF; SER= 00000; HW=255)
Content-Length: 0
```

7.2. Fijowave DECT Registration

To verify that Fijowave DECT handsets are registered to the Fijowave base station correctly click on **Extensions** in the left column and the main window would show the **Handset State** column set to **Present** and the **State** column set to **SIP Registered**.

BT Business DECT 220

Home/Status
 Extensions
 Servers
 Network
 Management
 Firmware Update
 Time
 Country
 Security
 Central Directory
 Multi cell
 Repeaters

Extensions

AC: 0000

Save Cancel

[Add extension](#)
[Stop Registration](#)

| | Idx | IPEI | Handset State | Handset Type FW Info | FWU Progress | | VoIP Idx | Extension | Display Name | Server | Server Alias | State |
|--------------------------|-----|------------|---------------|-------------------------|--------------|--------------------------|----------|-----------|--------------|--------------|--------------|----------------------|
| <input type="checkbox"/> | 2 | 02EB638D96 | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 2 | 5280 | 5280 | 86.47.122.41 | IPO | SIP Registered@RPN00 |
| <input type="checkbox"/> | 3 | 02AFB47422 | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 3 | 5281 | 5281 | 86.47.122.41 | IPO | SIP Registered@RPN00 |
| <input type="checkbox"/> | 4 | 02AFB4741E | Present@RPN00 | 310 380.10 | Off | <input type="checkbox"/> | 4 | 5282 | 5282 | 86.47.122.41 | IPO | SIP Registered@RPN00 |

[Check All / Uncheck All](#) [Check All Extensions / Uncheck All Extensions](#)

With selected: [Delete Handset\(s\)](#) [Register Handset\(s\)](#) [Deregister Handset\(s\)](#) [Start SIP Registration\(s\)](#) [SIP Delete Extension\(s\)](#)

The DECT handset shows that the extension is registered and there are no error messages.



8. Conclusion

These Application Notes describe the configuration steps required for provisioning Fijowave's Business DECT to interoperate with Avaya IP Office IP500 V2 R10.1 by registering the Fijowave handsets with Avaya IP Office as SIP phones over the WAN to the LAN2/WAN port on Avaya IP Office. Please refer to **Section 2.2** for test results and observations.

9. Additional References

This section references documentation relevant to these Application Notes. The Avaya product documentation is available at <http://support.avaya.com> where the following documents can be obtained.

Product documentation for Avaya products may be found at <http://support.avaya.com>.

- [1] Avaya IP Office R10.1 Manager 10.1, Document Number 15-601011
- [2] Avaya IP Office R10.1 Doc library

Technical support for the Fijowave Business DECT product can be obtained as follows:

- Web: <http://www.fijowave.com>
- Email: mail@fijowave.com
- Help desk: +353 1 525 3072

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