Avaya Solution & Interoperability Test Lab

Application Notes for configuring Fijowave Business DECT with Avaya IP Office 500 V2 R9.1 – Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning Fijowave's Business DECT to interoperate with Avaya IP Office R9.1.

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.

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1. Introduction

These Application Notes describe the configuration steps for provisioning Fijowave's Business DECT to interoperate with Avaya IP Office 500 V2 R9.1. Fijowave's DECT handsets are configured to register with IP Office via SIP protocol and are also subscribed to the base station via DECT. Each handset is configured as a SIP user on IP Office. The Fijowave DECT handsets then behave as third-party sip extensions on IP Office able to make/receive internal and external calls and have full voicemail and other telephony facilities available on IP Office.

2. General Test Approach and Test Results

The interoperability compliance testing evaluates the ability of Fijowave DECT handsets to make and receive calls to and from Avaya Digital, H.323 and SIP deskphones. Avaya IP Office Voicemail Pro (voicemail) was used to allow callers to leave voicemail messages and to demonstrate Message Waiting Indication was working on the Fijowave handsets. Fijowave can use both UDP and TCP as the SIP transport protocol and both protocols were tested.

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

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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
- Do Not Disturb
- Calling Line Name/Identification
- Codec Support
- DTMF Support
- Message Waiting Indication
- Serviceability testing

2.2. Test Results

The following observations were noted during testing.

1. If the battery is removed with a MWI on a Fijowave DECT handset and reinserted and turned back on the MWI is no longer present. This is an issue as there is a message still present. If the DECT handset is powered down and back up again the MWI is starts working again.
2. Failover from the master base station to the standby base station caused an issue with MWI. Because the initial "subscribe" came from the master base station when messages are added or read when on the standby base station the MWI is not updated. A solution is to power off the handset using the power button and power back on again and this will make the handset subscribe to the standby base station.
3. When a DECT handset is placed on Do Not Disturb, the caller does not get a busy tone, only gets silence.
4. When conducting a blind transfer from a Fijowave DECT handset to the PSTN the CLID was not updated on the DECT handset for the original caller. This was the case also for an IPO extension.

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

Figure 1 shows the network topology during compliance testing. The Fijowave DECT handsets connect to the Fijowave DECT master base station which is placed on the LAN. The Fijowave DECT handsets register with the Fijowave base station which registers with IP Office; this allows the DECT handsets make/receive calls to and from the Avaya desk phones on IP Office.
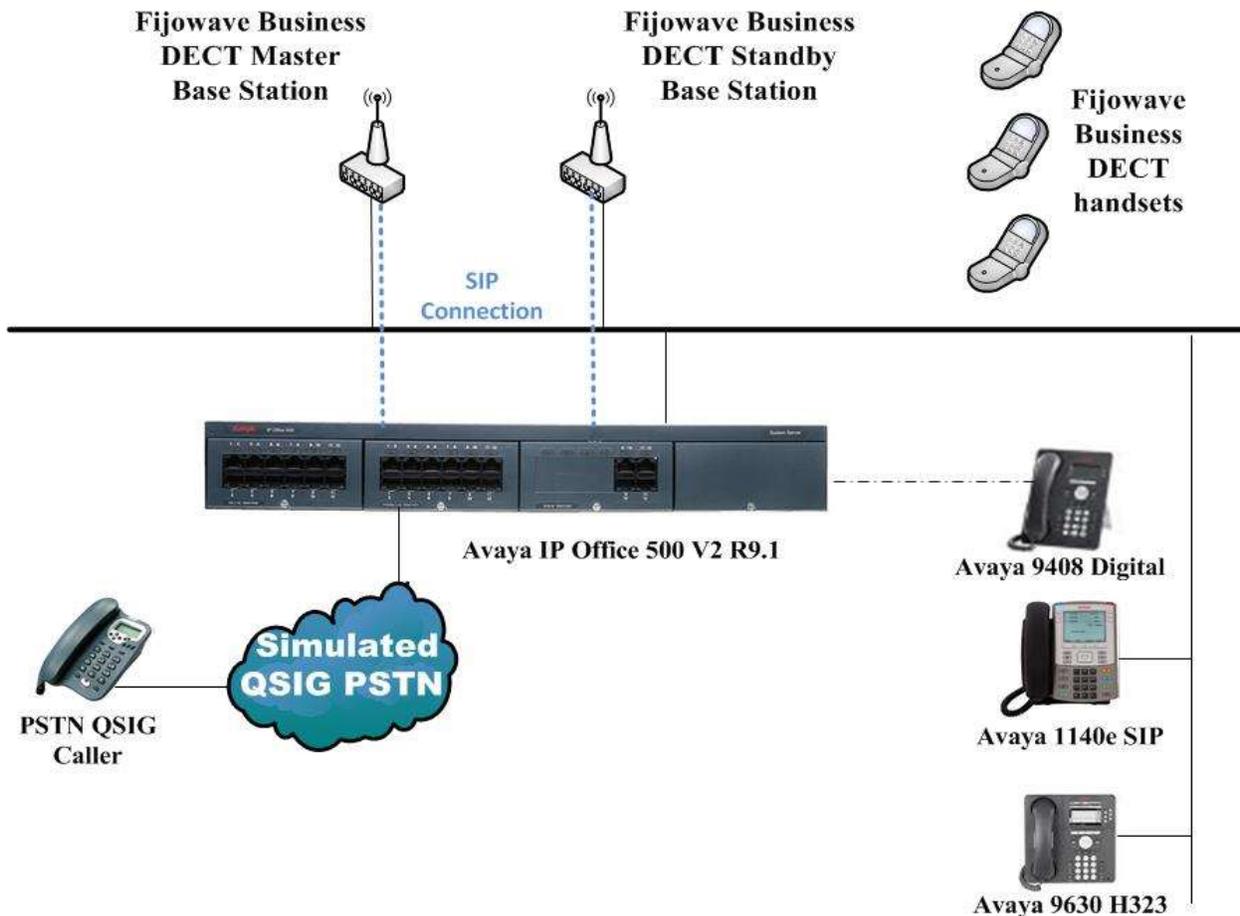
Figure 1: Reference Configuration of Fijowave Business DECT with Avaya IP Office

4. Equipment and Software Validated

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

Equipment/Software	Version/Release
Avaya IP Office 500 V2	R9.1 SP4
Avaya IP Office Manager	R9.1 SP4
Avaya 9630 Deskphone	H.323 Release 6.4014U
Avaya 1140e Deskphone	SIP R04.03.12.00
Avaya 9408 Digital Deskphone	N/A
Fijowave DECT Base Station	Multi-Cell 220: s/n 15220000023 (Primary) & s/n 15220000024 (Secondary) Software: V323 B15 Single-Cell 200: s/n 15200000062 Software: V323 B15
Fijowave DECT Handsets	s/n 15310000223 s/n 15310000224 s/n 15310000225 Software: V323 B15

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 LAN 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 500 V2 and log in to Avaya IP Office using the appropriate credentials to receive its configuration.

5.2. Display LAN 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**.

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**.

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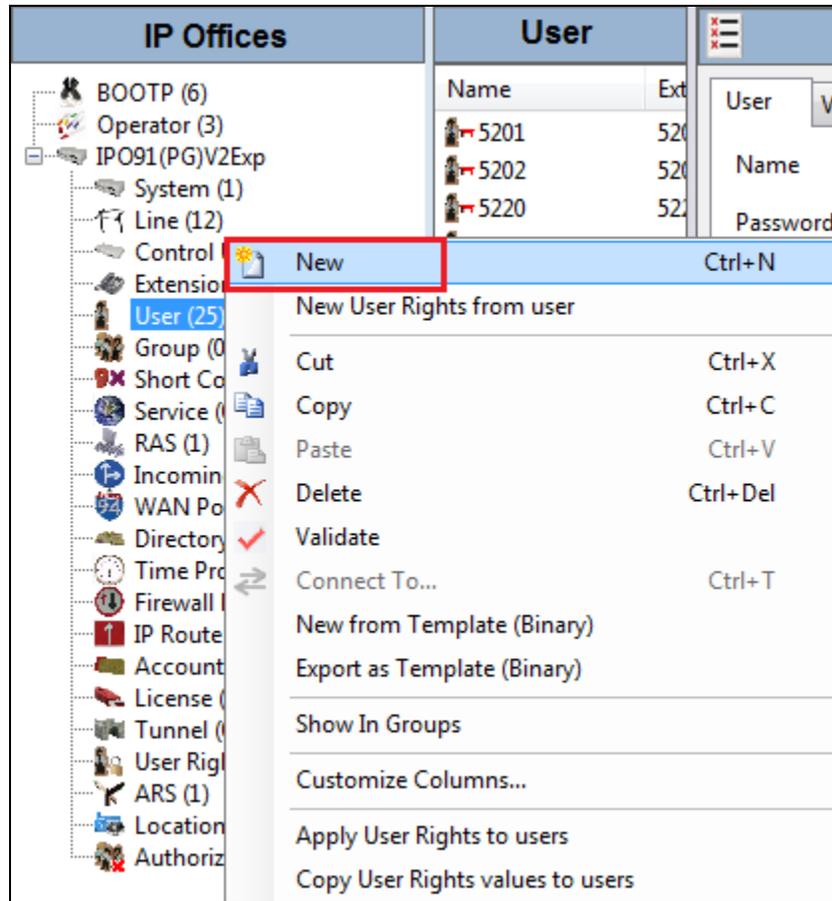
Within the **User** tab at the top of the screen, enter a suitable **Name** and **Password** for the user. Add the **Extension** number as shown below.

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

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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.

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.

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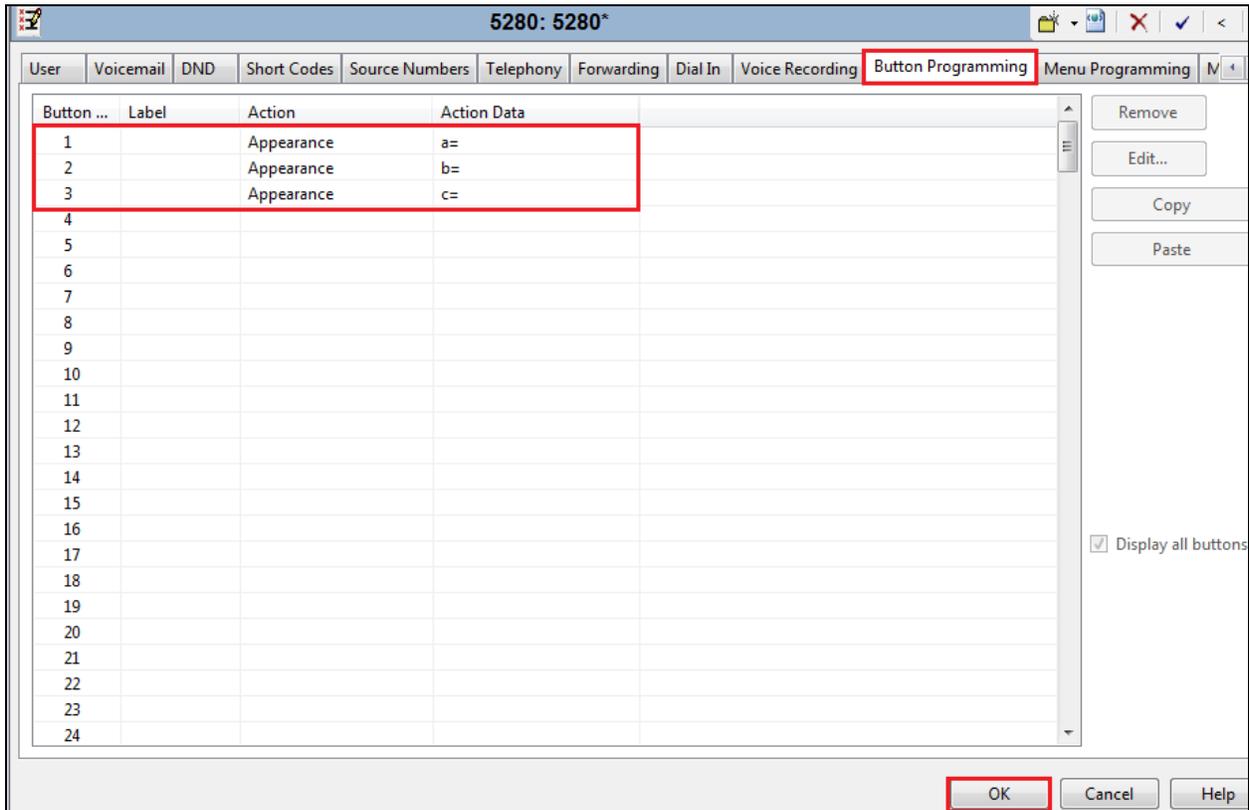
On the subsequent screen, ensure that **SIP Extension** is selected and click on **OK** to create the SIP extension along with the new user.
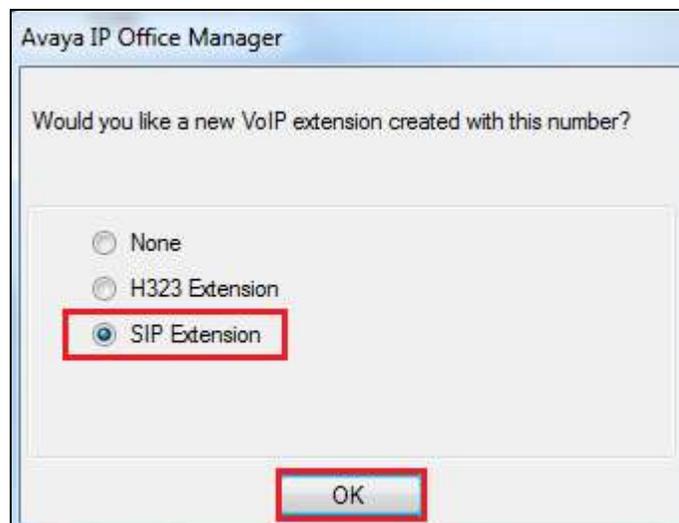
5.4. Save Configuration

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

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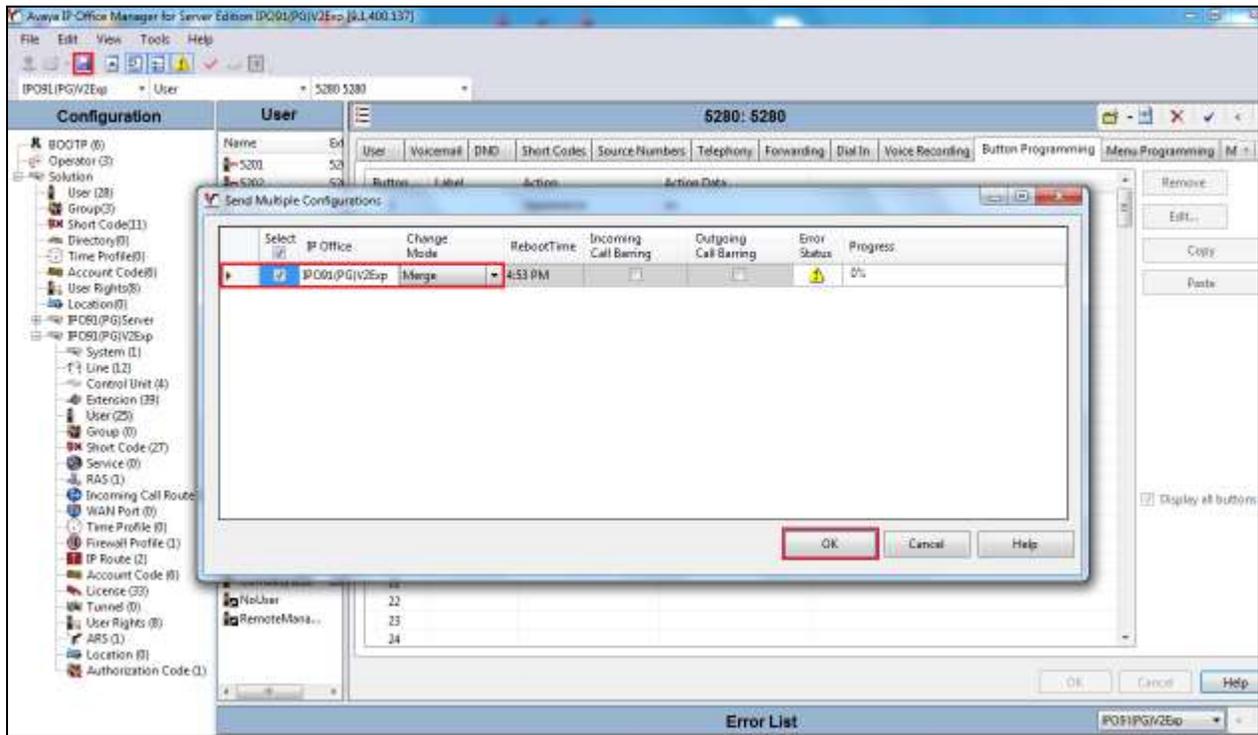
6. Configure Fijowave Business DECT

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**.
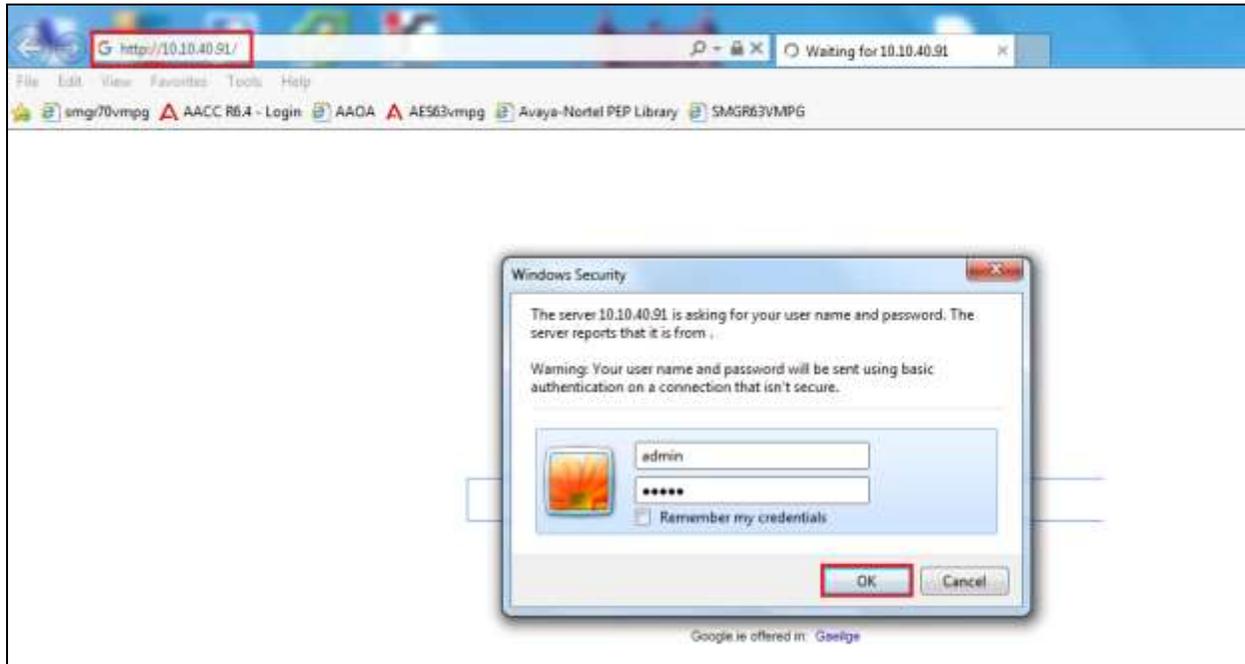
6.1. Configure DECT Base Station IP address

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**.

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 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**)
- **Signal TCP Source Port**   Set to **Enabled** if the above is set to TCP
- **Use one TCP Connection
  per SIP Extension**   Set to **Enabled** if above is set to TCP
- **DTMF Signalling**   Set to **SIP INFO**
- **Codec Priority**   Set this to whatever is required typically **G711A** for Europe

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

6.3. Configure DECT Users

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

The following information must all be filled in correctly.

- **Line name**   Suitable name for the new extension
- **Handset**   **New Handset**
- **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.
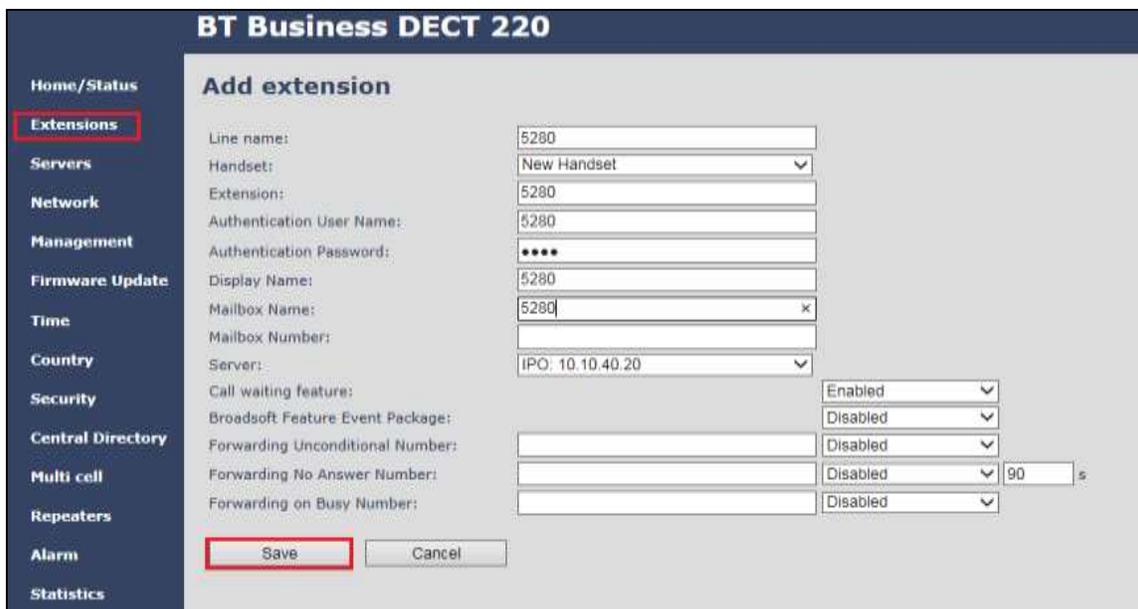
6.4. Register the DECT Handset

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 Avaya 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.

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

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.

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**.

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.

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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**.

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 500 V2 R9.1 by registering the Fijowave handsets with IP Office as SIP phones. 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 R9.1 Manager 10.1, Document Number 15-601011
- [2] Avaya IP Office R9.1 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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