



Avaya Solution & Interoperability Test Lab

Application Notes for Ascom i63 Wireless Handsets with Avaya IP Office 11.1 - Issue 1.0

Abstract

These Application Notes describe a solution for supporting wireless interoperability between Ascom i63 Wireless Handsets and Avaya IP Office Release 11.1.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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 Ascom i63 Wireless Handsets to interoperate with Avaya IP Office. Ascom i63 Voice Over Wireless (VoWiFi) Handsets are configured on Avaya IP Office as SIP users, therefore enabling them to make/receive internal and PSTN/external calls and have full voicemail coverage and other telephony facilities available on Avaya IP Office. The wireless communication is made using a wireless router connected to the same LAN as Avaya IP Office.

Avaya IP Office consists of an IP Office Server Edition running on a virtual platform as the primary server with an IP Office IP500 V2 running as the secondary expansion system. Both systems are linked by IP Office Line IP trunks that can enable voice networking across these trunks to form a multi-site network. Each system in the solution automatically learns each other's extension numbers and user names. This allows calls between systems and support for a range of internal call features.

Ascom i63 combines the reliability, ease-of-management and performance of VoWiFi with enterprise-grade ruggedness, ergonomics and stylish design. It is designed to utilize open standards for communication, i.e. IEEE 802.11a/b/g/n/ac for wireless transmissions and SIP for VoIP telephony. Seamless roaming is optimized with 802.11r, 802.11k, and opportunistic key and pairwise master (PMKSA) caching. Ascom i63 is available in a number of license dependent functionality models – from a robust handset for telephony only (Talker) to one that also supports with professional messaging (Messenger) and to an advanced model that includes personal alarm capabilities (Protector). All models are Bluetooth enabled, allowing wireless headsets to be used for hands-free operation.

2. General Test Approach and Test Results

The general test approach was to configure Ascom i63 VoWiFi Handsets (i63 handsets) to communicate with IP Office as implemented on a customer's premises. The interoperability compliance testing evaluates the ability of the i63 handsets to make and receive calls to and from Avaya H.323, SIP, Digital desk phones and simulated PSTN endpoints. The integrated IP Office Voicemail was used to allow users to leave voicemail messages and to demonstrate Message Waiting Indication and DTMF on the i63 handsets. The interoperability compliance test included both feature functionality and serviceability tests.

Note: Ascom i63 handsets were registered to both the primary and secondary servers but not simultaneously, i.e., two handsets were registered to the Server Edition primary server and two were registered to the IP 500 V2 expansion.

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/handsets 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/handsets 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.

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 Ascom i63 handsets did not include use of any specific encryption features as requested by Ascom.

Note: Compliance testing was carried out using TCP as the transport protocol for SIP signaling, a selection of basic calls and transfer calls were carried out using UDP.

2.1. Interoperability Compliance Testing

Tests were performed to ensure full interoperability between the i63 handsets and IP Office. The tests were all functional in nature and performance testing was not included. The testing included:

- Registration/Invalid Registration
- Basic Calls, local and PSTN
- Hold and Retrieve
- Attended and Unattended Transfer
- Three-Party Conference
- Call Forwarding Unconditional, No Reply and Busy (Local and PBX)
- Call Waiting
- Call Park/Pickup

- Do Not Disturb
- Calling Line Name/Identification
- Codec Support
- DTMF Support
- Message Waiting Indication
- Mobile Twinning
- Hunt Groups
- Serviceability Testing

2.2. Test Results

All test cases were carried out with positive results. There were some observations and some issues noted as follows.

1. If Do Not Disturb (DND) is set locally on Ascom i63 handset this causes an issue with any SIP phone (Ascom or Avaya) dialling it. The calling phone continuously sends INVITES and the missed calls on the i63 clocks up rapidly. This particular issue does not occur when calling to the Ascom i63 handset (with DND set) locally from a H.323 phone or if the Ascom i63 handset (with DND set) has voicemail set. It is therefore recommended to use Do Not Disturb using short codes to activate this feature on the IP Office and not to use it locally on the Ascom i63 handset.
2. On some occasions the display on the A-party (Ascom i63) was not updated after transfer was complete, this is expected behavior for 3rd party SIP phones on IP Office.
3. SIP Expires timer on Ascom i63 recommended setting at 180 seconds. This is hard coded in IP Office and cannot be changed. When the amount of IP Office Users configured exceeds 180 this timer will also increase with the number of users. For example, if there are 290 users configured the SIP Expiry Timer will be hardcoded at 290 seconds.
4. For Call Waiting functionality to work on Ascom i63, ensure that the **Call Waiting On** box seen under the Telephony tab of User is checked.

2.3. Support

Technical support from Ascom can be obtained through the following:

Phone : +46 31 559450

E-mail : support@ascom.com

3. Reference Configuration

Figure 1 illustrates the network topology used during compliance testing. The Avaya solution consists of an IP Office which the i63 handsets were configured as SIP users. The Avaya IP Office consists of an IP Office Server Edition running on a virtual platform as the primary server with an IP Office IP500 V2 running as the secondary expansion server. Digital, H323 and SIP phones were configured on the IP Office. ISDN and SIP trunks were configured to simulate connections to the PSTN. An Ascom approved Wireless Router was connected to the network to enable the i63 handsets connect. IP Office Manager is used to manage IP Office configuration.

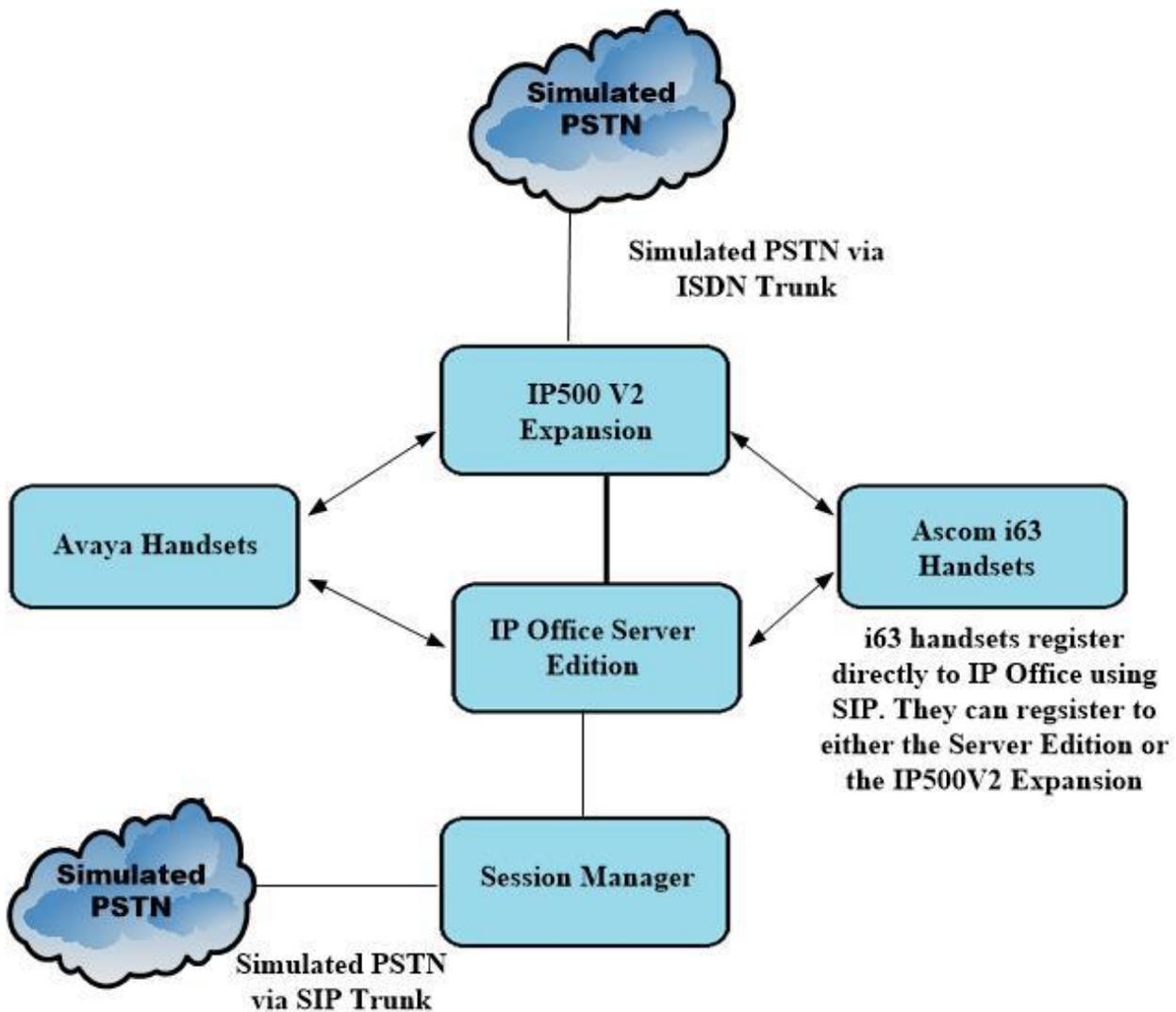


Figure 1: Avaya IP Office and Ascom reference configuration

4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment/Software	Release/Version
Avaya IP Office Server Edition running on a Virtual Platform	11.1.0.0.0 Build 237
Avaya IP Office 500 V2	11.1.0.0.0 Build 237
Avaya IP Office Manager running on a Windows 7 PC	11.1.0.0.0 Build 237
Avaya 1608-I H323 Deskphone	1608UA1_350B.bin
Avaya 9641 H323 Deskphone	R6.8304
Avaya 1140e SIP Deskphone	R04.04.23.00
Avaya 9508 Digital Deskphone	V0.6
Ascom Equipment	Software / Firmware Version
Ascom Device Manager running on Windows PC (WinPDM)	3.13.4
Ascom i63 Wireless Handset	V2.2.8
Ascom-approved Wi-Fi Access Point	Ascom-approved software version

5. Avaya IP Office Configuration

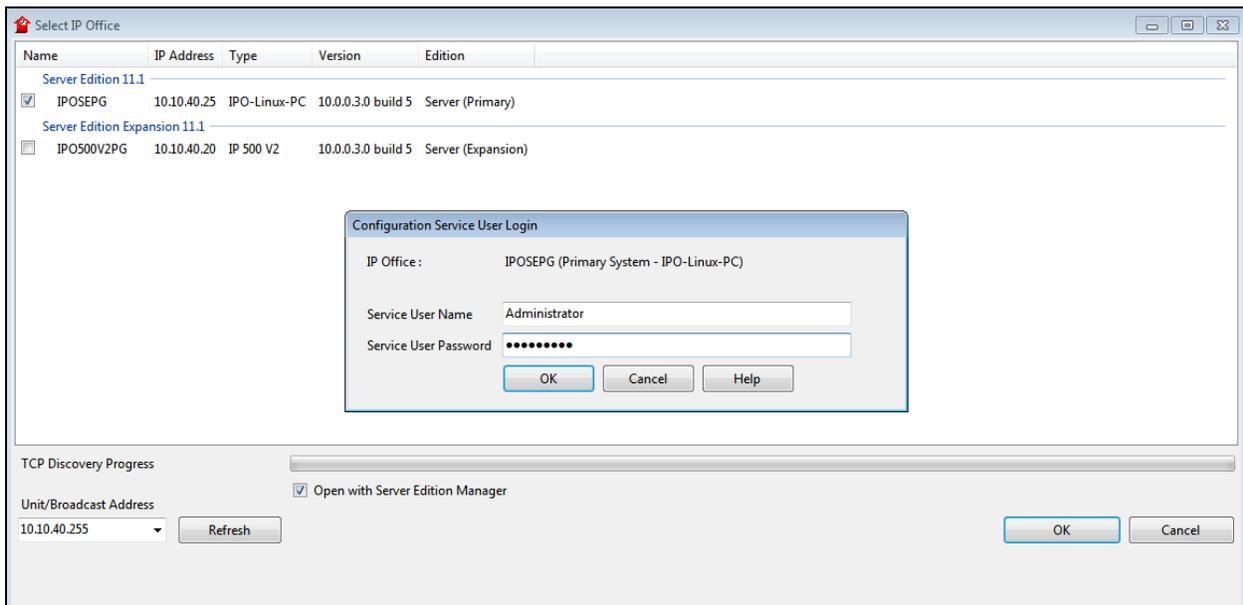
The document assumes that Avaya IP Office Server Edition has been installed and configured to work with an IP500 V2 expansion. This section describes the details on how to configure both the IP Office Server Edition (Primary) and IP Office IP500 V2 (Expansion) to work with Ascom i63 handsets. Configuration and verification operations on Avaya IP Office illustrated in this section were all performed using Avaya IP Office Manager. 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 (Administration)
- Display LAN Properties
- Create a new User
- Check Extension Properties
- Verify the Voicemail Collect Short Code
- Save Configuration

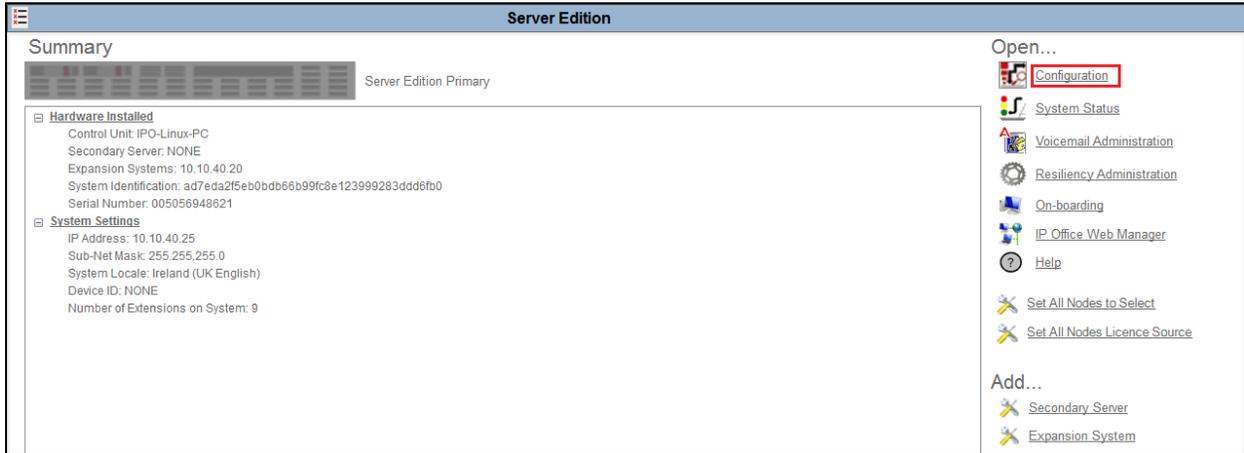
Note: Only the unique prompts are shown in the screen captures below, all other inputs can be left at default.

5.1. Launch Avaya IP Office Manager (Administration)

From the IP Office Manager PC, click **Start** → **Programs** → **IP Office** → **Manager** to launch the Manager application (not shown). Select the required Server Edition as shown below and enter the appropriate credentials. Click on the **OK** button.

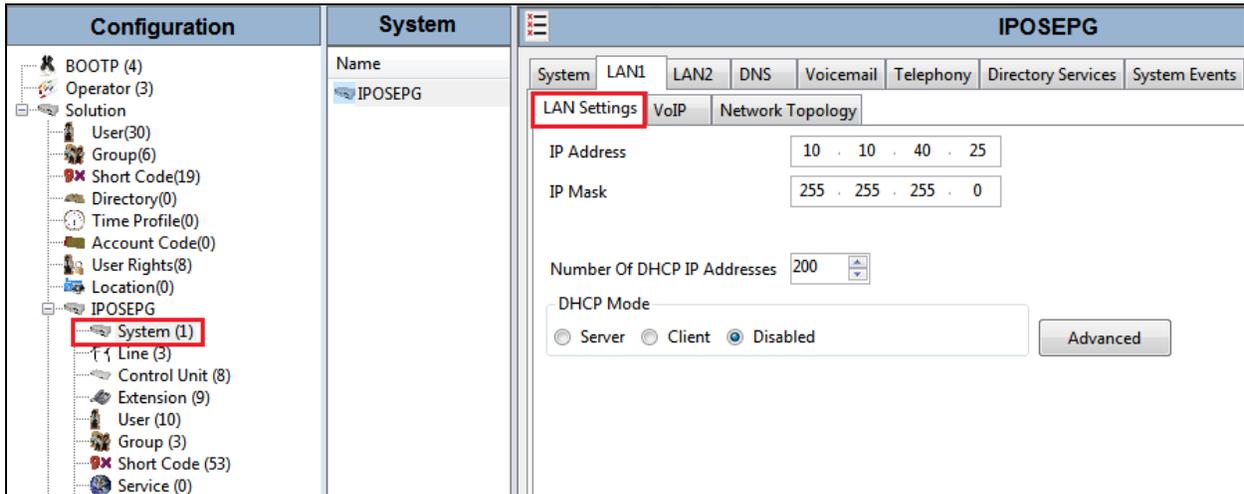


Click on **Configuration** at the top right of the page, as shown, to receive the IP Office configuration.

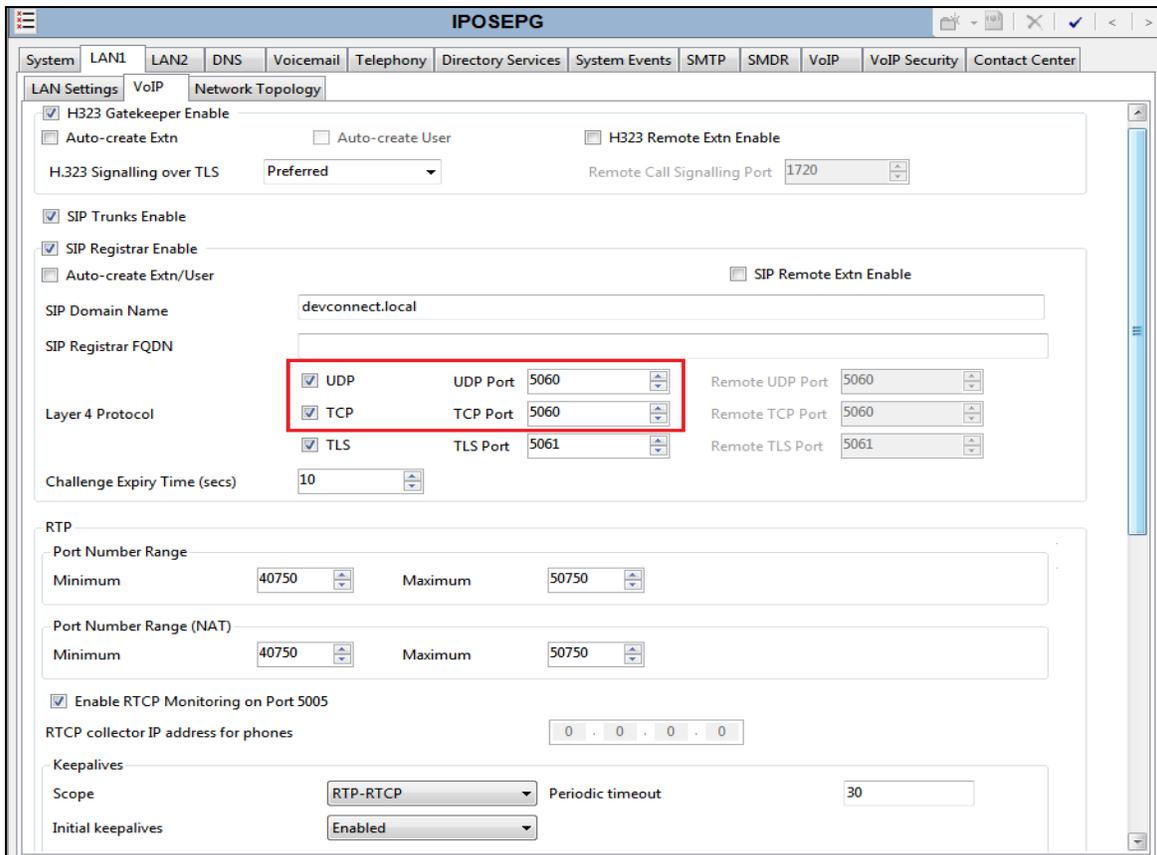


5.2. Display LAN Properties

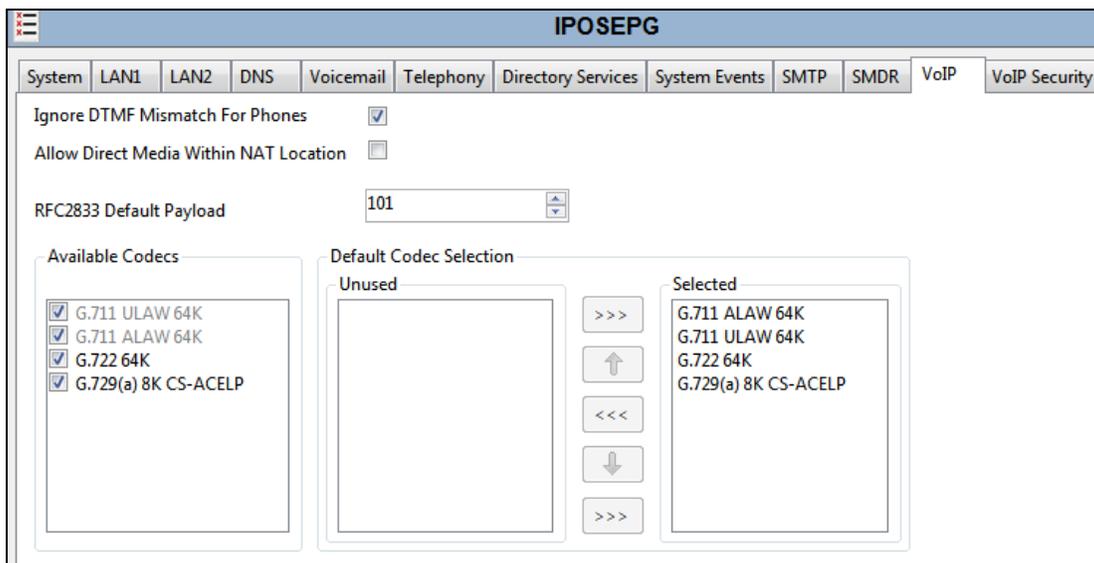
From the left window navigate to **System (1)** as shown and in the main window click on the **LAN1** tab and within that tab select the **LAN Settings** tab. The **IP Address** of the IP Office is shown, and this will be required for setup in **Section 6.1**.



Within the **LAN1** tab, click on the **VoIP** tab. Ensure that **TCP** and **UDP** boxes are checked and that port **5060** is being used. During compliance testing **RTP-RTCP Keepalives** were set to **30** secs.

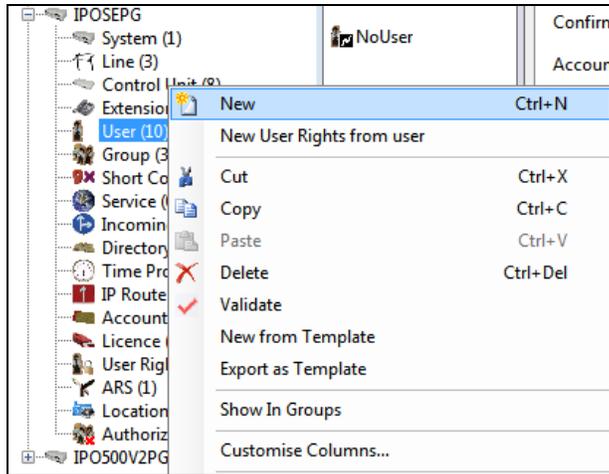


The Codec and DTMF settings can be changed under the **VoIP** tab as shown below.



5.3. Create a new User

From the left window, right click on **User** and select **New**.



In the **User** tab add a **Name** and **Password** along with the **Extension**.

A screenshot of a web-based configuration form titled '5180: 5180'. The form has a tabbed interface with 'User' selected. The 'User' tab contains the following fields and options:

- Name: 5180
- Password: masked with dots
- Confirm Password: masked with dots
- Unique Identity: empty
- Audio Conference PIN: empty
- Confirm Audio Conference PIN: empty
- Account Status: Enabled (dropdown)
- Full Name: MYCO SE 5180
- Extension: 5180
- Email Address: empty
- Locale: empty (dropdown)
- Priority: 5 (dropdown)
- System Phone Rights: None (dropdown)
- Profile: Basic User (dropdown)

Below the profile dropdown, there are several checkboxes:

- Receptionist
- Enable Softphone
- Enable one-X Portal Services
- Enable one-X TeleCommuter
- Enable Remote Worker
- Enable Communicator
- Enable Mobile VoIP Client
- Send Mobility Email
- Web Collaboration

Under the **Voicemail** tab, **Voicemail On** can be selected in order to provide voicemail to this user/extension.

Under the **Telephony** tab and **Call Settings** tab, **Call Waiting On** can be turned on/off depending on what is required by the user.

Under **Supervisor Settings** tab, enter the password again for the **Login Code**.

The screenshot shows the 'Supervisor Settings' tab for user '5180: 5180*'. The 'Login Code' and 'Confirm Login Code' fields are both filled with four dots. The 'Login Idle Period (secs)' field is empty. The 'Monitor Group' and 'Coverage Group' dropdown menus are set to '<None>'. The 'Status on No-Answer' dropdown is set to 'Logged On (No change)'. The 'Privacy Override Group' dropdown is set to '<None>'. The 'Reset Longest Idle Time' section has 'All Calls' selected. On the right side, several checkboxes are visible: 'Force Login' (unchecked), '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).

Once **OK** is clicked at the bottom of the screen a new window should appear asking to create a new extension. Select **SIP Extension** as is shown below.

Note: If the system is not setup to auto-create extensions then a new extension can be added by right-clicking on Extension on the left window and selecting **New**, (not shown).

The screenshot shows the same 'Supervisor Settings' tab as above, but with a dialog box titled 'Avaya IP Office Manager' overlaid. The dialog box asks 'Would you like a new VoIP extension created with this number?' and has three radio button options: 'None', 'H323 Extension', and 'SIP Extension'. The 'SIP Extension' option is selected. An 'OK' button is at the bottom of the dialog box. In the background, the 'Force Login' checkbox is now checked. At the bottom of the main window, the 'OK' button is highlighted with a red box.

5.4. Check Extension Properties

Direct Media Path can be set on/off in the extension properties. This will allow RTP to be sent directly between devices. Once the SIP extension has been successfully created in **Section 5.3**, open the extension configuration to check to see if Allow Direct Signalling is selected. Select **Extension** in the left window and select the required extension number. In the main window under **VoIP** tab, **Allow Direct Media Path** can be checked or unchecked as shown below. Other settings such as **DTMF Support** and **Codec Selection** are possible to change here as well again if required by Ascom.

The screenshot shows the configuration interface for a SIP extension. On the left, a tree view shows the configuration hierarchy, with 'Extension (10)' selected. The main window displays the configuration for 'SIP Extension: 11201 5180'. The 'VoIP' tab is active, showing the following settings:

- IP Address: 0 . 0 . 0 . 0
- Codec Selection: System Default
- Reserve Licence: None
- Fax Transport Support: None
- DTMF Support: RFC2833/RFC4733
- 3rd Party Auto Answer: None
- Media Security: Same as System (Disabled)

On the right side, there are several checkboxes under the 'VoIP' tab:

- Requires DTMF:
- Local Hold Music:
- Re-invite Supported:
- Codec Lockdown:
- Allow Direct Media Path: (highlighted with a red box)

5.5. Verify the Voicemail Collect Short Code

As part of the Ascom i63 configuration the Voicemail access number is required. During compliance testing this **Feature** was set to **Voicemail Collect**, and the **Code** was ***17** also the **Telephone Number** was **"?"U**.

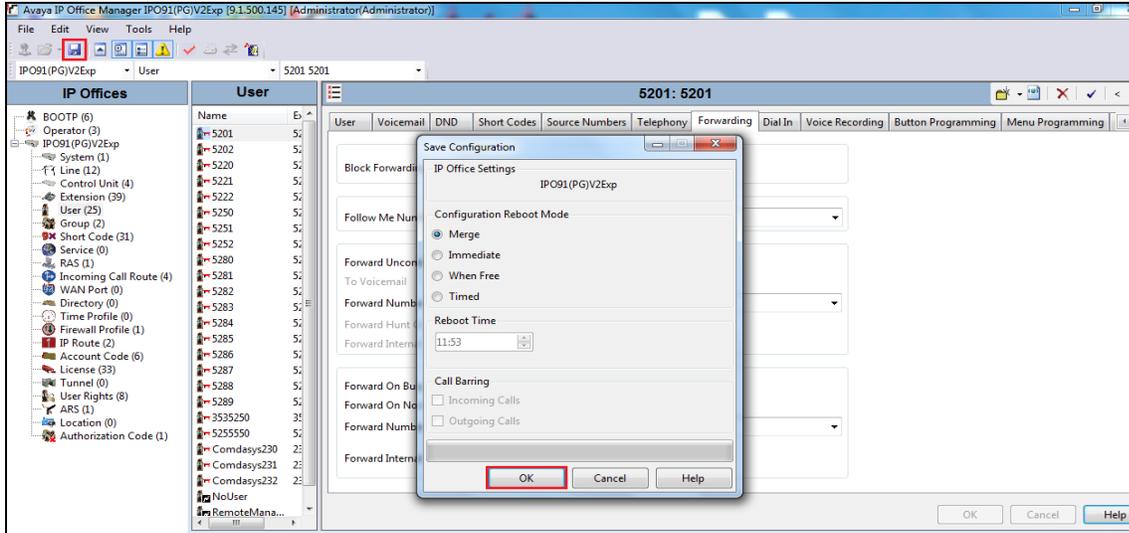
The screenshot shows the configuration interface for the Voicemail Collect feature. The title bar indicates '*17: Voicemail Collect'. The 'Short Code' tab is active, showing the following settings:

- Code: *17
- Feature: Voicemail Collect
- Telephone Number: "?"U
- Line Group ID: 0
- Locale: (empty dropdown)
- Force Account Code:
- Force Authorization Code:

A red note below the Code field states: *** This Short Code is common to all systems.**

5.6. Save Configuration

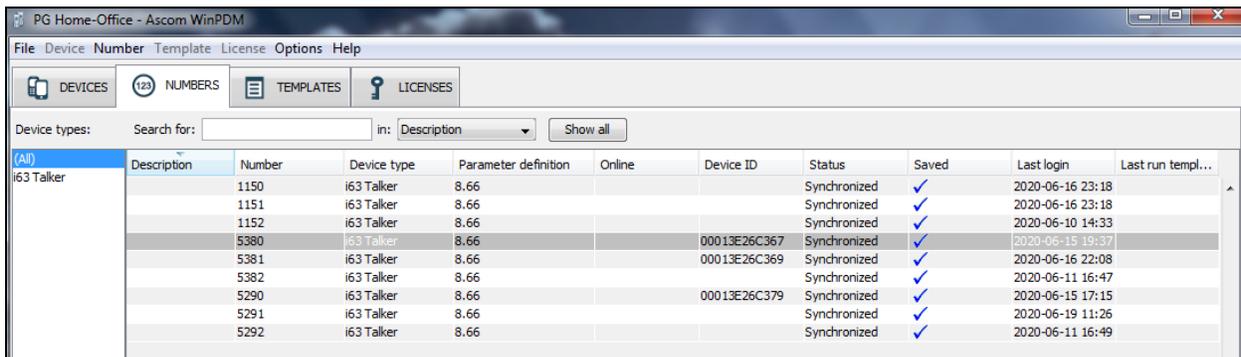
Once all the configurations have been made it must be saved to IP Office. Click on the **Save** icon at the top of the screen and the following window appears. Click on **OK** to commit the changes to memory.



6. Configure Ascom i63 Wireless Handset

This section describes how to access and configure the Ascom i63 via the Ascom WinPDM. It is implied that the Wi-Fi network has been configured and operational and the Ascom WinPDM is installed and is fully working. The Ascom WinPDM screen is shown below. Click on the Numbers tab to reveal the list of i63 extensions that are configured on the system. To edit a number, double-click on that number such as 5380 as shown below.

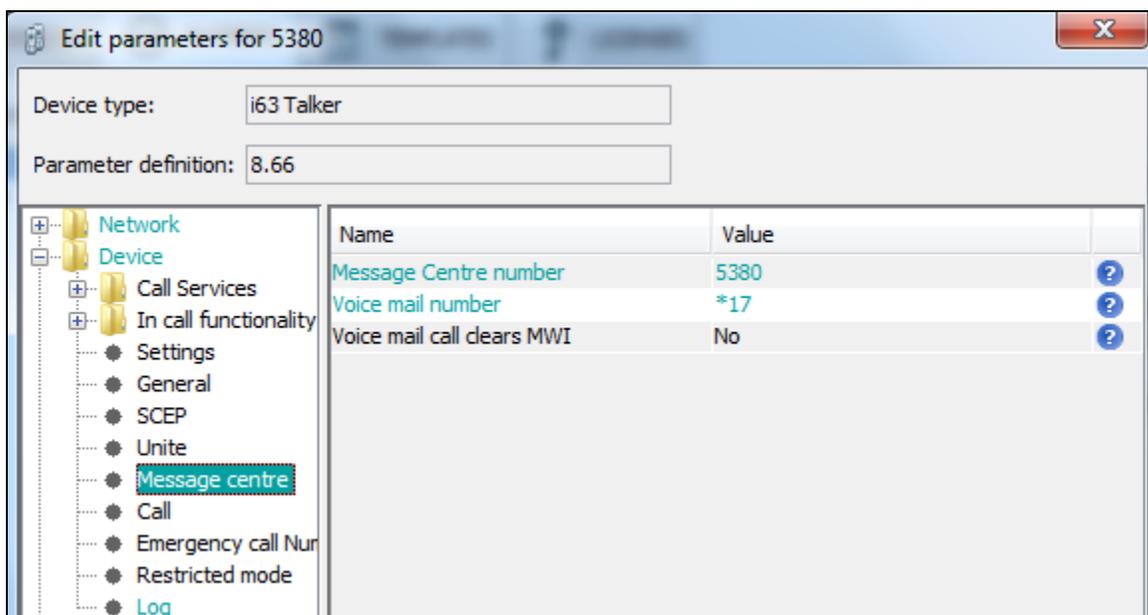
Note: The example number being displayed in this section shows 5380 although 5180 is shown in the IP Office screens.



Description	Number	Device type	Parameter definition	Online	Device ID	Status	Saved	Last login	Last run templ...
i63 Talker	1150	i63 Talker	8.66			Synchronized	✓	2020-06-16 23:18	
	1151	i63 Talker	8.66			Synchronized	✓	2020-06-16 23:18	
	1152	i63 Talker	8.66			Synchronized	✓	2020-06-10 14:33	
	5380	i63 Talker	8.66		00013E26C367	Synchronized	✓	2020-06-15 19:27	
	5381	i63 Talker	8.66		00013E26C369	Synchronized	✓	2020-06-16 22:08	
	5382	i63 Talker	8.66			Synchronized	✓	2020-06-11 16:47	
	5290	i63 Talker	8.66		00013E26C379	Synchronized	✓	2020-06-15 17:15	
	5291	i63 Talker	8.66			Synchronized	✓	2020-06-19 11:26	
	5292	i63 Talker	8.66			Synchronized	✓	2020-06-11 16:49	

In the **Edit parameters** window navigate to **Device** → **In call functional** → **Message centre** from the configuration tree and enter the following:

- **Message Centre number** Enter the number of the handset (i.e. **5380**)
- **Voice mail number** Enter the Short code as shown in **Section 5.5**



Device type: i63 Talker
Parameter definition: 8.66

Name	Value
Message Centre number	5380
Voice mail number	*17
Voice mail call clears MWI	No

Navigate to **Device** → **Call**. To turn on 'call waiting', ensure that **Call waiting indication** is selected for **Call waiting behaviour**.

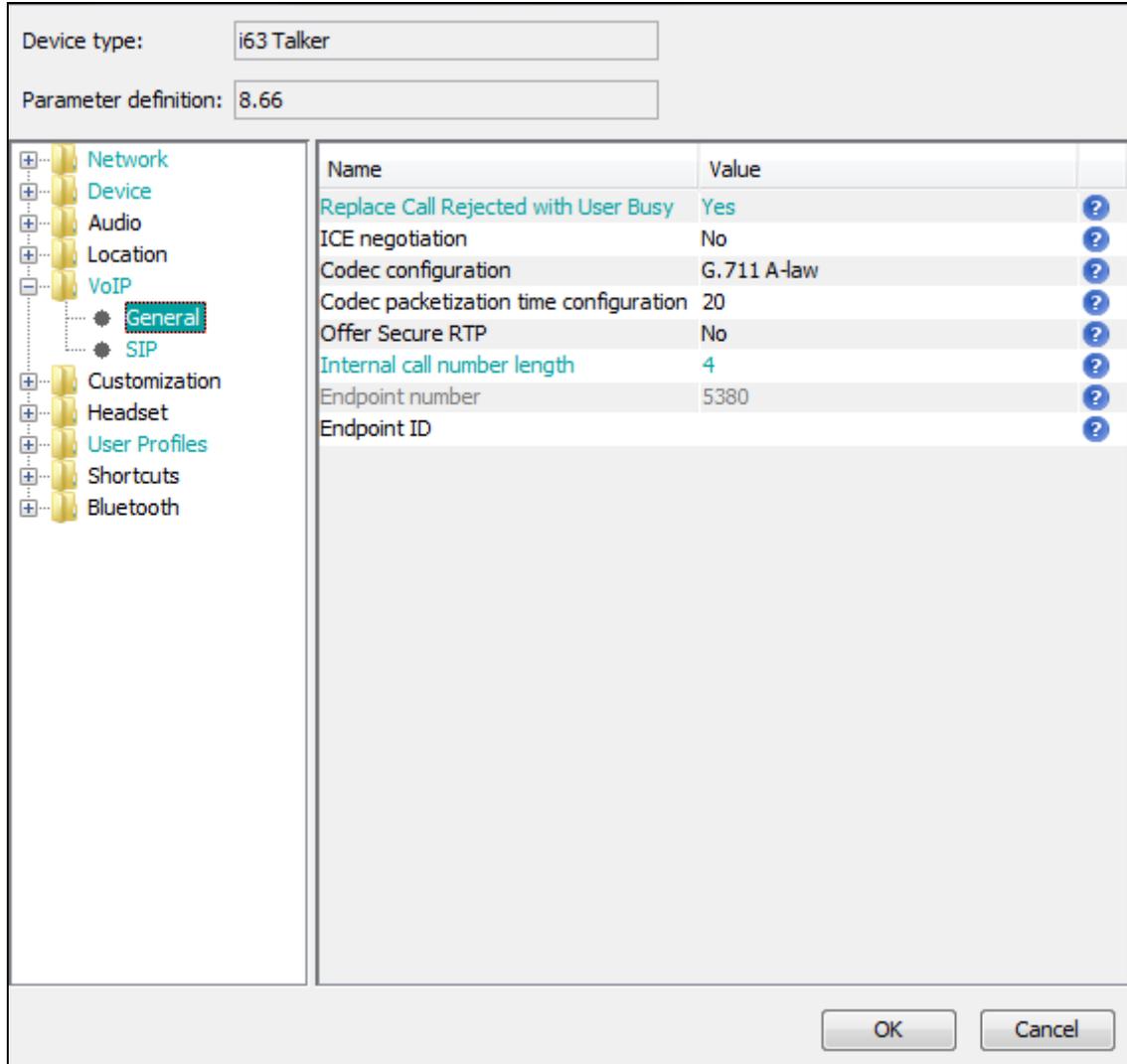
Device type:

Parameter definition:

Network		Name	Value	
Device		In charger call behavior	No action	?
Call Services		Dial pause time	1	?
In call functionality		Quick answer	No	?
Settings	General	CLIR (Calling Line Identification Rest...	Off	?
SCEP		Always show name of incoming party...	Hide name	?
Unite		Left in call soft key name		?
Message centre		Left in call soft key action	No action	?
Call		Right in call soft key name		?
Emergency call Nur		Right in call soft key action	No action	?
Restricted mode		Allow blind transfer	Yes	?
Log		Call waiting behavior	Call waiting indication	?
Audio		Call waiting sound	Beep	?
Location		Hide In Call function for PTT calls	No	?
VoIP		Show missed calls dialog window	Yes	?
Customization		Enable call list	On	?
Headset				
User Profiles				
Shortcuts				
Bluetooth				

Select **VoIP** followed by **General** from the Configuration Tree. When the new window opens enter the following:

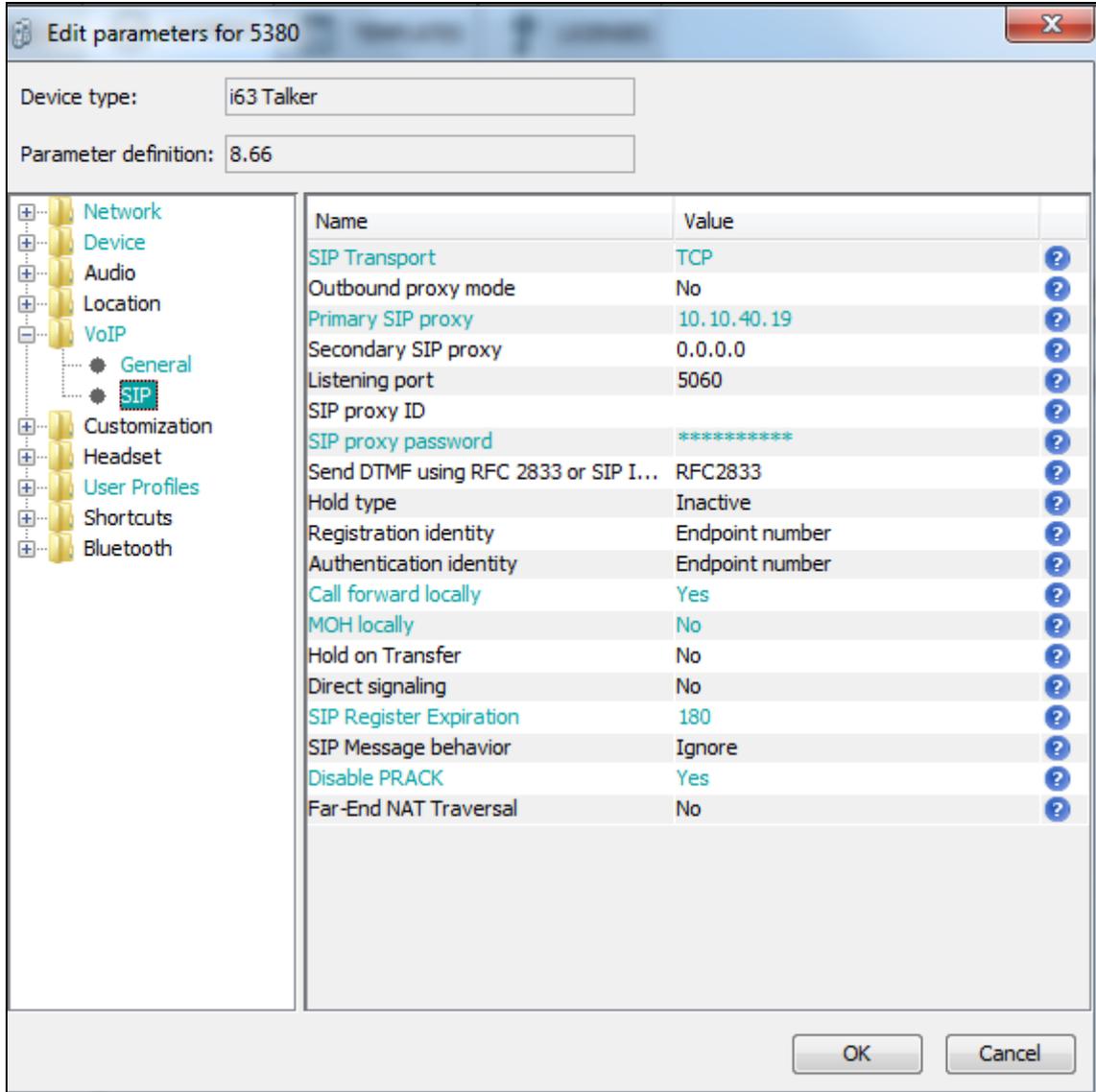
- **Replace Call Rejected with User Busy** Enter **Yes**
- **Internal call number length** Enter **4** (the length of the i63 handset extension)
- **Endpoint ID** This can be used to overwrite the Endpoint Number but was not used during compliance testing.



When the new window opens enter the following:

- **SIP Transport** This can be set to **TCP** or **UDP** depending on the requirement
- **Primary SIP proxy** Enter the IP address of the IP Office
- **SIP proxy password** Enter the **Login Code** as configured for the i63 Handset in **Section 5.4**

Click on the **OK** Button to save (at the bottom of the screen not shown here).

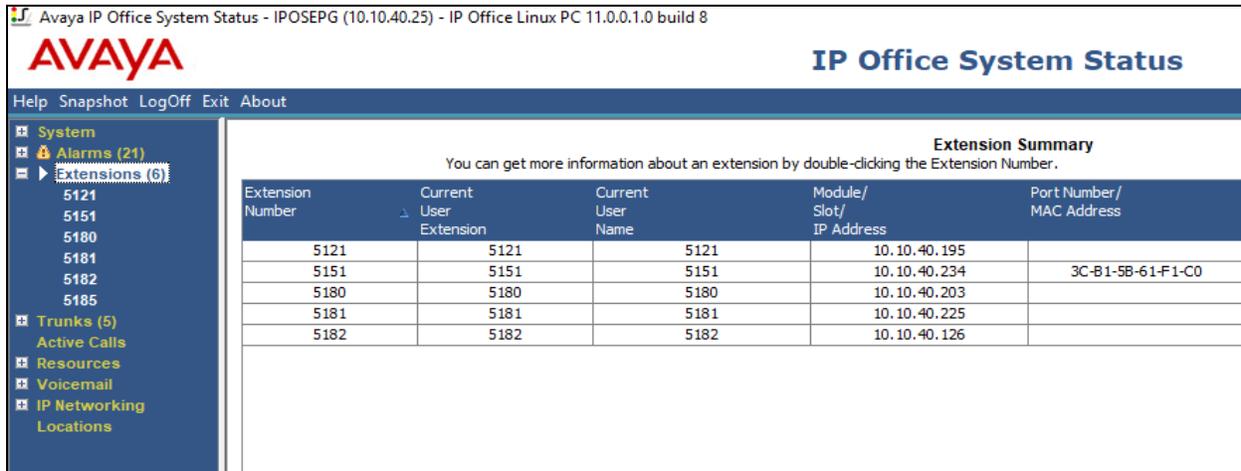


7. Verification Steps

This section provides the tests that can be performed to verify correct configuration of IP Office and Ascom solution.

7.1. Verify the Ascom i63 Wireless Handset Status

Using IP Office System Status program, click on **Extensions** and verify that the Ascom i63 handsets are registered. The screen shot below shows that the i63 handset **5180, 5181** and **5182** are registered.



The screenshot shows the Avaya IP Office System Status application interface. The title bar reads "Avaya IP Office System Status - IPOSEPG (10.10.40.25) - IP Office Linux PC 11.0.0.1.0 build 8". The main window has a menu bar with "Help", "Snapshot", "LogOff", "Exit", and "About". A left-hand navigation pane contains several categories: "System", "Alarms (21)", "Extensions (6)", "Trunks (5)", "Active Calls", "Resources", "Voicemail", "IP Networking", and "Locations". The "Extensions (6)" category is selected, and the main area displays an "Extension Summary" table. Above the table, a note states: "You can get more information about an extension by double-clicking the Extension Number." The table has five columns: "Extension Number", "Current User Extension", "Current User Name", "Module/Slot/IP Address", and "Port Number/MAC Address".

Extension Number	Current User Extension	Current User Name	Module/Slot/IP Address	Port Number/MAC Address
5121	5121	5121	10.10.40.195	
5151	5151	5151	10.10.40.234	3C-B1-5B-61-F1-C0
5180	5180	5180	10.10.40.203	
5181	5181	5181	10.10.40.225	
5182	5182	5182	10.10.40.126	

7.2. Verify Calls

Make some inbound and outbound calls using i63 handsets, including a call to voicemail and verify voice quality is clear. The absence of any error message, such as shown in the example below, also demonstrates that the connection between the i63 and IP Office is set up correctly.



8. Conclusion

A full and comprehensive set of feature and functional test cases were performed during compliance testing. Ascom i63 Wireless handsets are considered compliant with Avaya IP Office 11.1. All observations and issues are outlined in **Section 2.2**.

9. Additional References

These documents form part of the Avaya official technical reference documentation suite. Further information may be had from <http://support.avaya.com> or from your Avaya representative.

[1] *Avaya IP Office Manager 11.1*, Release 11.1

Product Documentation for Ascom Products can be obtained from Ascom or may be requested at <https://www.ascom-ws.com/AscomPartnerWeb/Templates/WebLogin.aspx> (login required).

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