



Avaya Solution & Interoperability Test Lab

Application Notes for Ascom Myco 3 with Avaya IP Office 11.1 - Issue 1.0

Abstract

These Application Notes describe a solution for supporting Ascom Myco 3 with Avaya IP Office Release 11.1 as SIP users via a wireless connection.

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 Myco 3 smartphone (Myco 3) to interoperate with Avaya IP Office. Ascom Myco 3 smartphones 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 an expansion system. Both systems are linked by IP Office 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 usernames. This allows calls between systems and support for a range of internal call features.

Note: Ascom Myco 3 may be referred to as Myco 3 handset or Myco 3 smartphone throughout this document. These names all refer to the same product, a smartphone that is connected to IP Office as a third-party SIP extension.

2. General Test Approach and Test Results

The general test approach was to configure Myco 3 to communicate with IP Office as implemented on a customer's premises. The interoperability compliance testing evaluates the ability of the Myco 3 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 Myco 3 handsets. The interoperability compliance test included both feature functionality and serviceability tests.

Note: Ascom Myco 3 handsets were registered to both the primary and secondary servers but not simultaneously, i.e., three 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 Myco 3 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 signalling, 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 Myco 3 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 Resume
- Attended and Unattended Transfer
- Feature calls using short codes
- Call Alerting and Call Waiting
- Call forwarding unconditional, no reply, busy
- Do Not Disturb

- Calling Line Name/Identification
- Codec Support (G.711A, G.711U, G.729, G.722)
- DTMF Support
- Voicemail Coverage and Message Waiting Indication
- Mobile Twinning
- Hunt Groups
- Serviceability Testing

Note: Compliance testing does not include redundancy testing as standard. Where some LAN failures were simulated, and the results observed, there were no redundancy or failover tests performed.

2.2. Test Results

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

1. An issue was found for one particular call scenario where Myco A calls Myco B (both registered with the IP Office expansion), Myco B then blind transfers Myco A to a H.323 extension on the IP Office primary. Upon completion of the transfer, there was no RTP for most of the calls made. A workaround to get audio back is to on hold/unhold the call from either end. A supervised transfer did not encounter this issue. Avaya is investigating this issue.
2. On some occasions the display on the A-party (Ascom Myco 3) was not updated after transfer was complete, this is expected behavior for 3rd party SIP phones on IP Office.
3. Ascom Myco 3 does not support three-party conference. They can however be added to a conference by an Avaya phone.
4. Ascom Myco 3 does not support local call diversion like Call Forward All, Call Forward Busy and Call Forward No Answer.
5. “Call on Hold Reminder” is not supported for 3rd party SIP phones.
6. SIP Expires timer on Ascom Myco 3 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.
7. For Call Waiting functionality to work on Ascom Myco 3, 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 with the Myco 3 handsets configured as SIP users. 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 expansion system. Digital, H.323 and SIP phones were configured on IP Office. ISDN and SIP trunks were configured to simulate connections to the PSTN. An Ascom approved Wireless Access Point was connected to the network to enable the Myco 3 handsets connect. IP Office Manager is used to manage IP Office configuration.

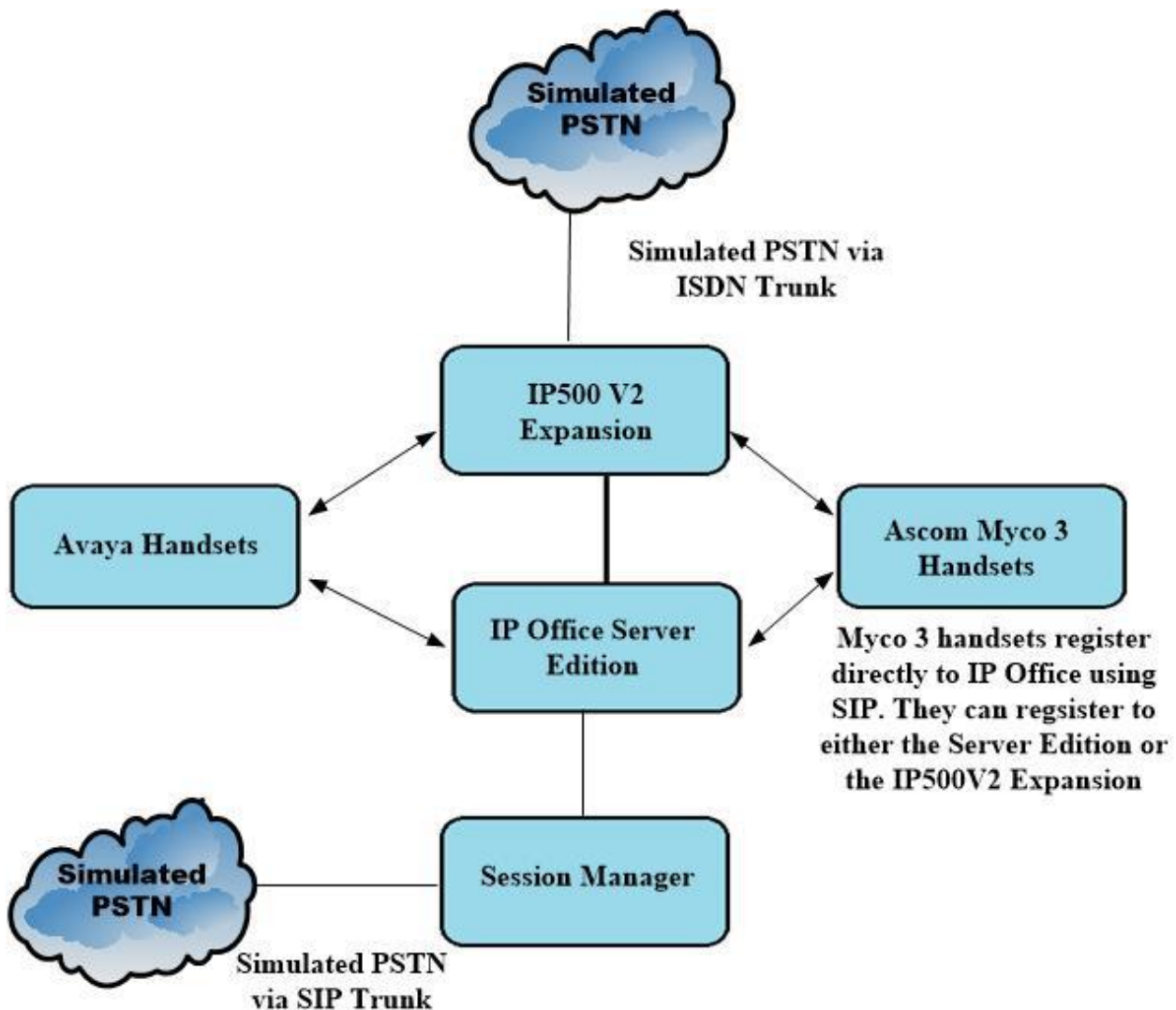


Figure 1: Avaya IP Office and Ascom Reference Configuration

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 Primary running on a Virtual Platform	11.1.0.0.0 Build 237
Avaya IP Office IP500 V2 Expansion	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 H.323 Deskphone	1608UA1_350B.bin
Avaya 9641 H.323 Deskphone	6.8304
Avaya 1140e SIP Deskphone	04.04.23.00
Avaya J129 SIP Deskphone	3.0.0.0.20
Avaya 9508 Digital Deskphone	V0.6
Ascom Equipment	Software / Firmware Version
Ascom Myco 3 Smartphone	
- Platform version	2.3.0
- Ascom Experience version	2.3.0
Ascom-approved Wi-Fi Access Point	Ascom-approved software version

5. Configure Avaya IP Office

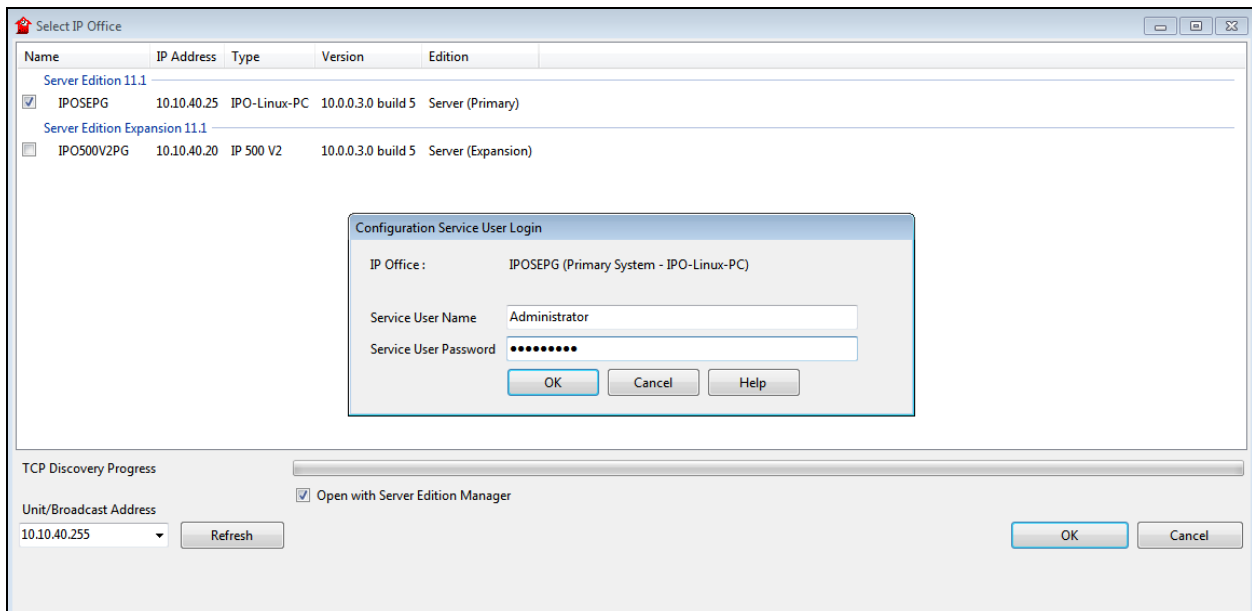
The document assumes that Avaya IP Office Server Edition has been installed and configured to work with an IP500 V2 expansion. This section describes the details on how to configure both the IP Office Server Edition (Primary) and IP Office IP500 V2 (Expansion) to work with Ascom Myco 3 handsets. Configuration 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.

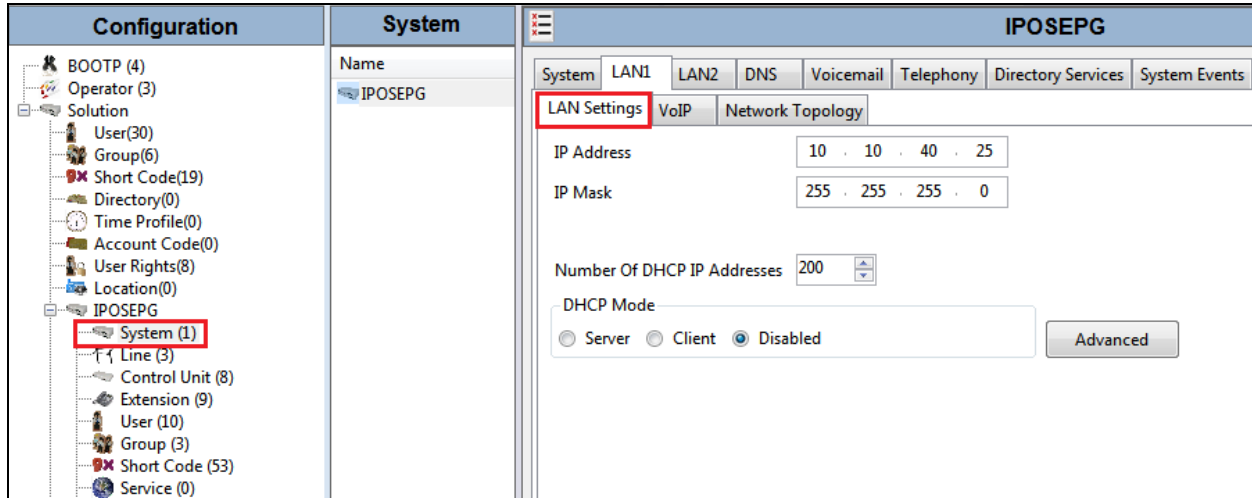
5.1. Launch Avaya IP Office Manager (Administration)

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.

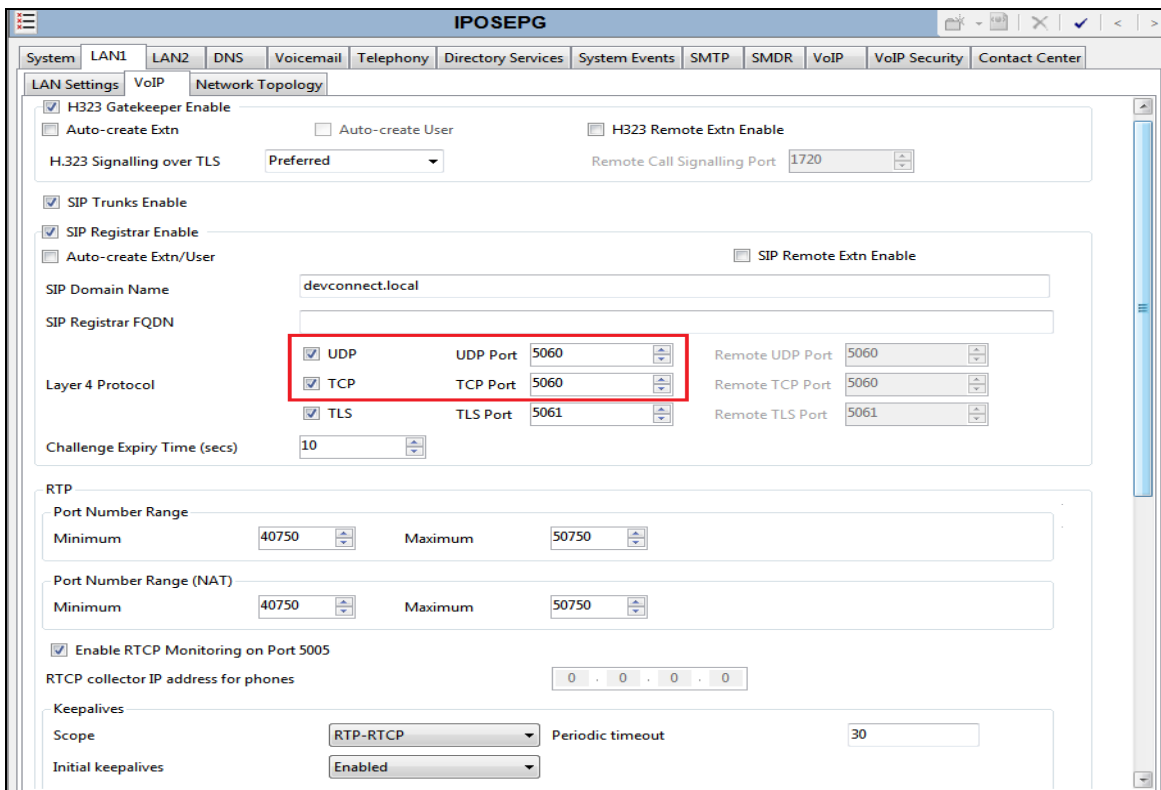


5.2. Display LAN Properties

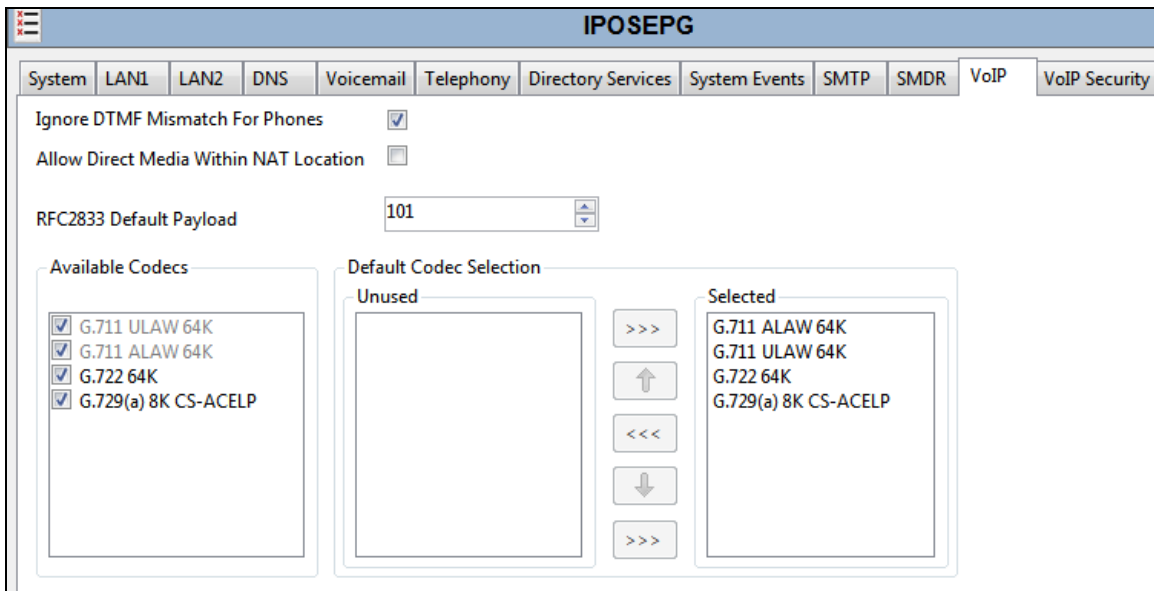
From the left window navigate to **System (1)** as shown and in the main window click on the **LAN1** tab and within that tab select the **LAN Settings** tab. The **IP Address** of the IP Office is shown, and this will be required for setup in **Section 6.1**.



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

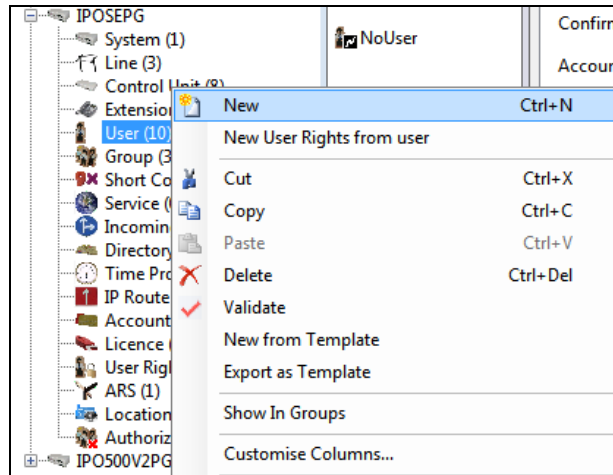


The **Codec** and **DTMF** settings can be changed under the **VoIP** tab as shown below. These Codec entries must be present on IP Office to allow the Ascom phones negotiate these various codecs, not only with the Avaya phones, but between the Myco handsets themselves.



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**.

The screenshot shows the Avaya user configuration interface for extension 5180. The 'User' tab is selected, and the following fields are visible:

- Name: 5180
- Password: [Redacted]
- Confirm Password: [Redacted]
- Unique Identity: [Empty]
- Audio Conference PIN: [Empty]
- Confirm Audio Conference PIN: [Empty]
- Account Status: Enabled
- Full Name: MYCO SE 5180
- Extension: 5180
- Email Address: [Empty]
- Locale: [Empty]
- Priority: 5
- System Phone Rights: None
- Profile: Basic User

Under the Profile section, the following checkboxes are visible:

- 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.

The screenshot shows the configuration page for extension 5180: 5180. The 'Voicemail' tab is selected. The settings include:

- Voicemail Code:** Four dots (••••)
- Confirm Voicemail Code:** Four dots (••••)
- Voicemail Email:** Empty text field
- Voicemail Email Options:** Radio buttons for Off (selected), Copy, Forward, and Alert.
- DTMF Breakout:** Three dropdown menus, all set to 'System Default ()':
 - Reception / Breakout (DTMF 0)
 - Breakout (DTMF 2)
 - Breakout (DTMF 3)
- Checkboxes on the right:**
 - Voicemail On
 - Voicemail Help
 - Voicemail Ringback
 - Voicemail Email Reading
 - UMS Web Services
 - Enable GMAIL API

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

The screenshot shows the configuration page for extension 5180: 5180*. The 'Telephony' tab is selected, and the 'Call Settings' sub-tab is active. The settings include:

- Outside Call Sequence:** Default Ring
- Inside Call Sequence:** Default Ring
- Ringback Sequence:** Default Ring
- No Answer Time (secs):** System Default (15)
- Wrap-up Time (secs):** 2
- Transfer Return Time (secs):** Off
- Call Cost Mark-Up:** 100
- Advertise Callee State To Internal Callers:** System Default (Off)
- Checkboxes on the right:**
 - Call Waiting On
 - Answer Call Waiting On Hold
 - Busy On Held
 - Offhook Station

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, the 'Force Login' checkbox is checked, while all other checkboxes are 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).

This 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 provides 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. In the background, the 'Force Login' checkbox is 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 Media Path 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 window for SIP Extension 11201 5180. The left sidebar shows a tree view with 'Extension (10)' selected. The main window has two tabs: 'Extn' and 'VoIP'. The 'VoIP' tab is active, displaying 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)
- 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

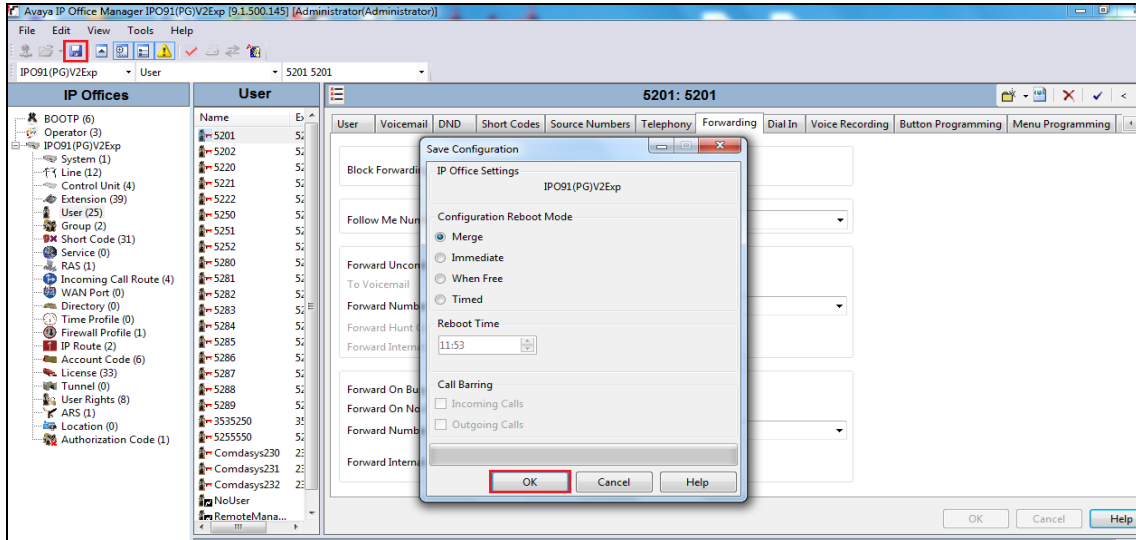
As part of the Ascom Myco 3 configuration the Voicemail access number is required. During compliance testing this **Feature** was set to **Voicemail Collect**, and the **Code** was ***66** also the **Telephone Number** was **""** which means whoever was calling in.

The screenshot shows the configuration window for Voicemail Collect. The title bar reads '*66: Voicemail Collect'. The 'Short Code' tab is active, displaying the following settings:

- Code: *66
- Feature: Voicemail Collect
- Telephone Number: ""
- Line Group ID: 0
- Locale: (empty dropdown)
- Force Account Code:
- Force Authorization Code:

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 Myco 3 Smartphone

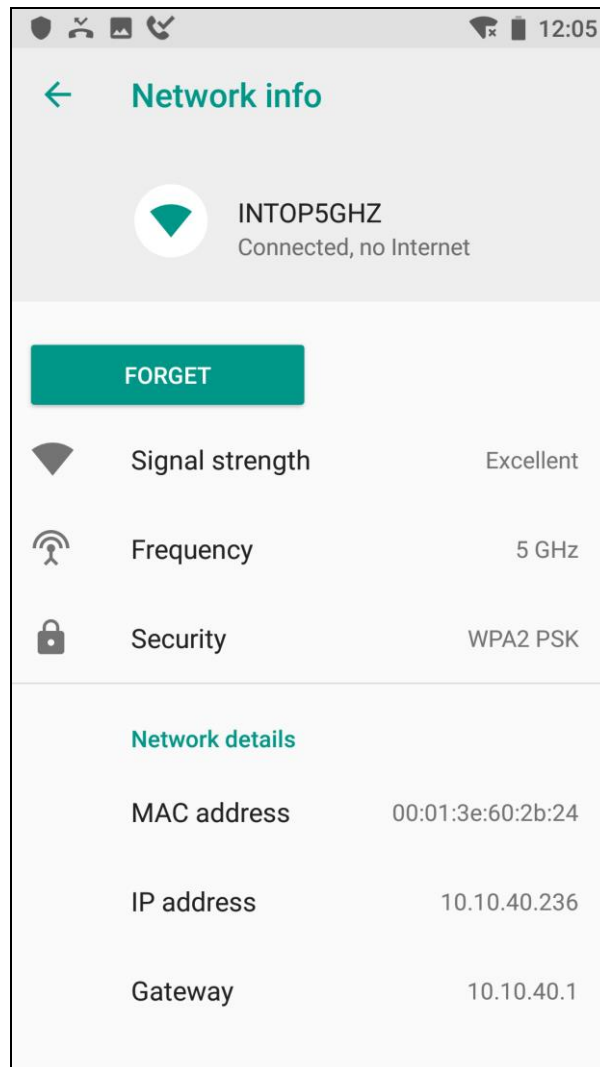
This section describes how to configure the Myco 3 smartphone. It is implied that the Wi-Fi network has been configured and operational.

Note: The wireless router configuration is outside the scope of these Application Notes.

6.1. Configure Wi-Fi network on Myco 3

Access to the Myco 3 smartphone is from the smartphone device in question. From the smartphone navigate to **Android Settings** → **Network & Internet** → **Wi-Fi**.

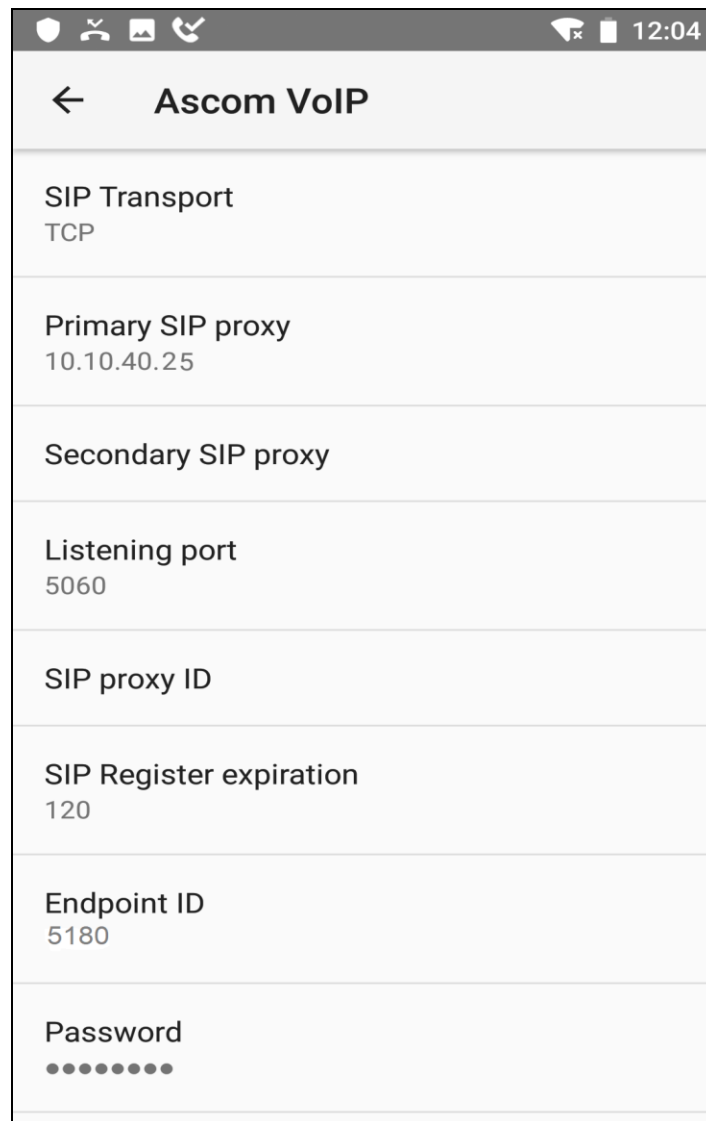
The following screen displays information on the network such as the IP address given to the phone and the wireless network that it is connected to.



6.2. Configure SIP Settings

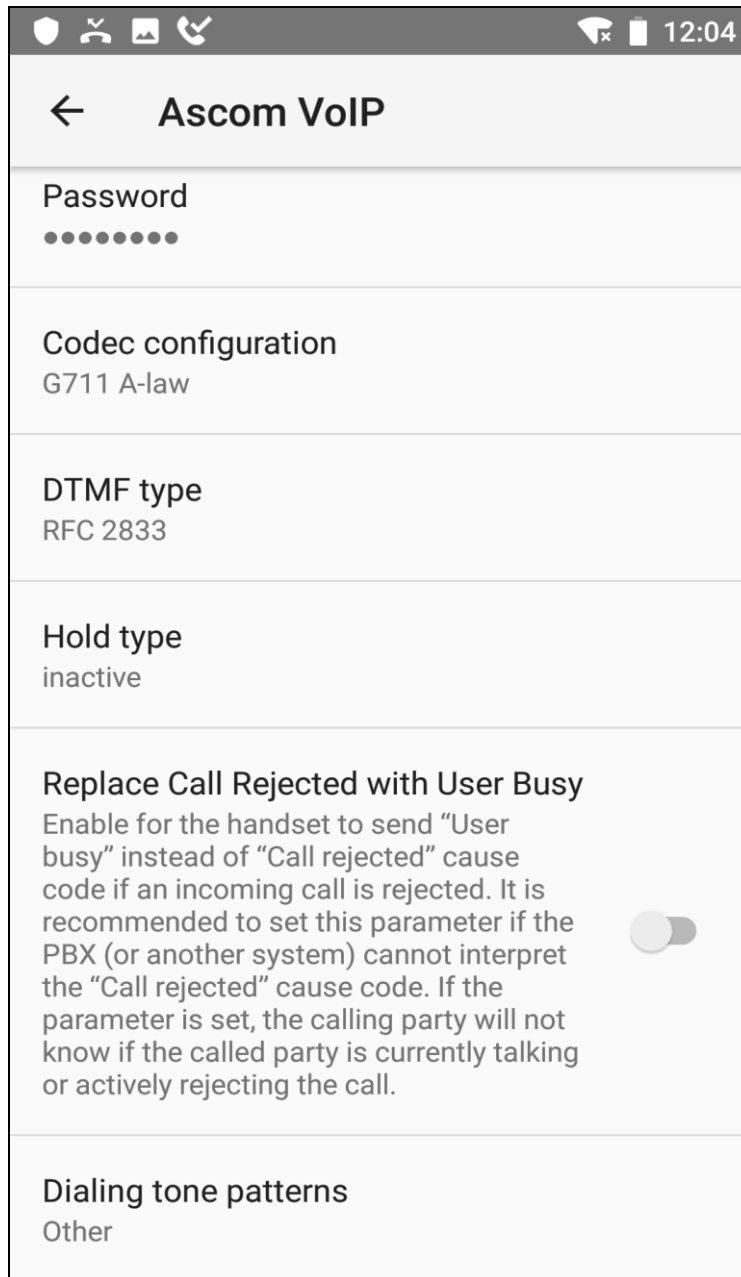
From the Myco 3 smartphone navigate to **Android Settings** → **Ascom Settings**. Click on **Ascom VoIP** and configure the following values.

- **SIP Transport** For compliance testing, TCP was selected as shown below.
- **Primary SIP Proxy** IP address of Session Manager.
- **Listening Port** **5060** (5070 is recommended on 4G /VoLTE device).
- **SIP Register Expiration** The default value of **120** was left for compliance testing, however since IP Office is hardcoded to **180** it may be best practice to set this to **180**.
- **Endpoint ID** This is the extension number.
- **Password** Password assigned to the endpoint in **Section 6.2**.

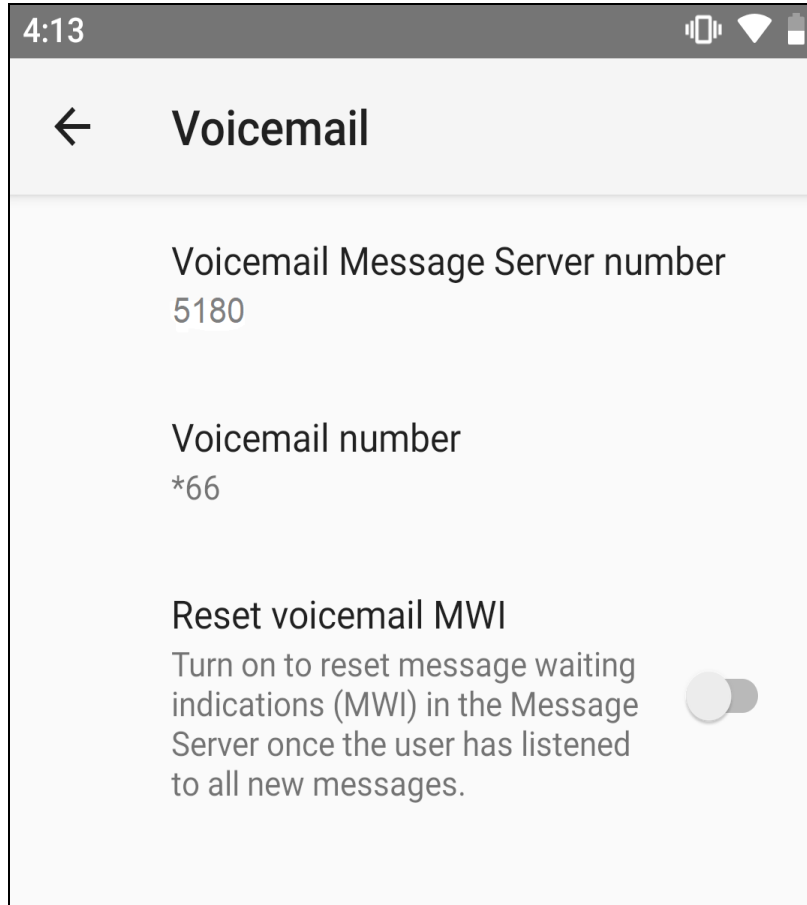


Scroll down to display and set the following.

- **Codec configuration** This setting will depend on the country, **G711 A-law** was chosen for compliance testing.
- **DTMF Type** **RFC 2833** is chosen, again for this testing.
- **Hold Type** Was left as **inactive** for compliance testing.
- **Replace Call Rejected with User Busy:** Set to **No** for compliance testing, however it is best practice to set this to **yes**.
- **Dialing tone patterns** Left as **Other**.



Scrolling down to the end of the screen on the previous page will display Voicemail (not shown) and clicking on **Voicemail** will display the following screen. The **Voicemail Message Server number** is set to the same as the extension number of the Myco 3 handset and the **Voicemail Number** is set to the short code configured in **Section 5.5**.

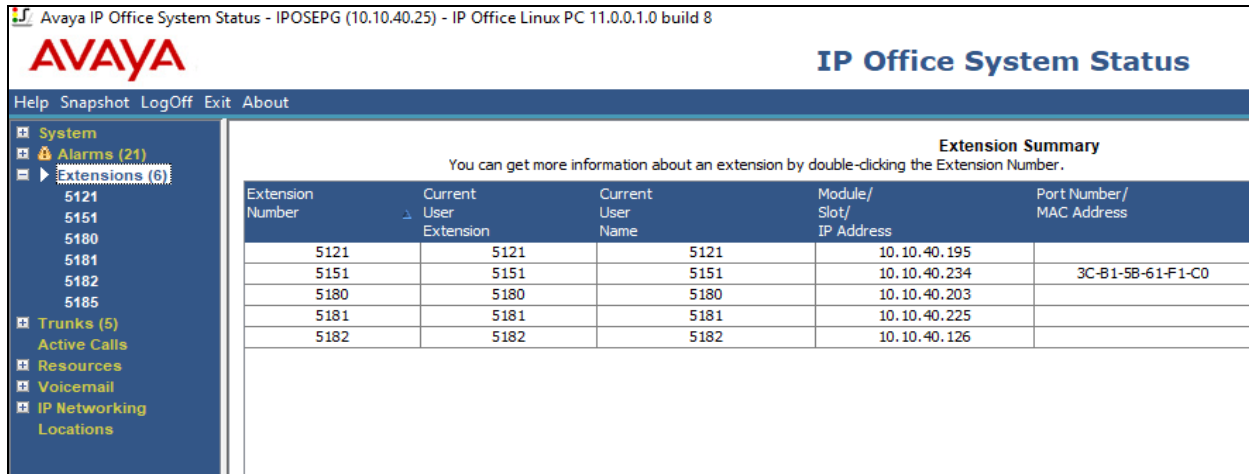


7. Verification Steps

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

7.1. Verify the Ascom Myco 3 Wireless Handset Status

Using IP Office System Status, click on **Extensions** and verify that the Ascom Myco 3 handsets are registered. The screen shot below shows that the Myco 3 handset **5180**, **5181** and **5182** are registered.



The screenshot displays the Avaya IP Office System Status application. 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 shows a tree view with "System", "Alarms (21)", "Extensions (6)", "Trunks (5)", "Active Calls", "Resources", "Voicemail", "IP Networking", and "Locations". The "Extensions (6)" item 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 Myco 3 handsets, including a call to voicemail and verify voice quality is clear. The absence of any error message also demonstrates that the connection between the Myco 3 and IP Office is set up correctly.

8. Conclusion

These Application Notes describe the configuration steps for provisioning Ascom Myco 3 smartphone (Myco 3) to interoperate with Avaya IP Office. A full and comprehensive set of feature and functional test cases were performed during compliance testing. Ascom Myco 3 are considered compliant with Avaya IP Office 11.1 when registered as SIP endpoints. 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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