



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Ascom Wireless IP-DECT SIP Solution with Avaya IP Office 10.0 in a Converged Voice over IP and Data Network - Issue 1.0

Abstract

These Application Notes describe a solution for supporting wireless interoperability between Ascom Wireless IP-DECT with Avaya IP Office release 10.0.

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's IP-DECT solution to interoperate with Avaya IP Office. Ascom's DECT handsets are configured on the IP Avaya Office as SIP Users, therefore enabling them to make/receive internal and PSTN/external calls and have full voicemail and other telephony facilities available on Avaya IP Office. The Wireless communication is made using Ascom IP DECT Access points connected to the same LAN as the Avaya IP Office.

The Ascom IP-DECT system is a modular solution for large and small deployments with full handover capabilities within one PBX. The Ascom IP-DECT Access points works as a conduit between the Avaya IP Office and the Ascom IP-DECT wireless handsets. After the Ascom IP-DECT wireless handsets register with the Ascom IP-DECT Access points, the Access points registers the handsets to Avaya IP Office.

2. General Test Approach and Test Results

The general test approach was to configure the Ascom IP DECT handsets to communicate with Avaya IP Office (IP Office) as implemented on a customer's premises. The interoperability compliance testing evaluates the ability of the Ascom IP DECT Handsets (DECT Handsets) to make and receive calls to and from Avaya H.323, SIP, Digital desk phones and PSTN endpoints. The integrated IP Office Voicemail was used to allow users leave voicemail messages and to demonstrate Message Waiting Indication and DTMF on the DECT Handsets. See **Figure 1** for a network diagram. The interoperability compliance test included both feature functionality and serviceability tests.

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.

2.1. Interoperability Compliance Testing

The testing included:

- Basic Calls, local and PSTN
- Hold and Retrieve
- Attended and Blind Transfer
- Call Forwarding Unconditional, No Reply and Busy
- Call Waiting
- Call Park/Pickup
- Do Not Disturb
- Calling Line Name/Identification
- Codec Support
- DTMF Support
- Message Waiting Indication
- Handover to backup Access points after Master Access point failure
- Hunt Groups
- Mobile Twinning

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 headsets/handsets to determine interoperability with Avaya telephones. 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, scalability or any regulation requirements. As a result, Avaya makes no representation 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.

2.2. Test Results

Tests were performed to ensure full interoperability between Ascom IP-DECT Solution and IP Office. The tests were all functional in nature and performance testing was not included. All the test cases passed successfully with the following observations.

- **Expires timer** on IPO is hard coded at 180 seconds. Recommend this be used on handsets for Expires timer.
- **Call Waiting** on IPO and IP-DECT turned off is recommended. There is a known issue for DECT semi-attended transfers where the “transfer target” and “initial caller” DECT handsets hang up whilst a second party is ringing to the “transferor” during transfer. If a call is made to the “transferor” DECT handset with Call Waiting enabled the handset accepts the call but the ringing call is cancelled. This behaviour is seen using a single R<extn> method to transfer calls.

When Call waiting is off on the IP Office (and IP-DECT base station), the call to the transferring handset shows busy until the transferred call is answered. When the RR<extn> method is used for transfer a call can be placed to the transferring handset as this method completes the transfer on hangup.

Note: Issue is currently under investigation by Avaya and Ascom (Ascom reference: IPDECT-2596).

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 DECT Handsets were configured as SIP Users. The Ascom device Manager was used to configure the IP-DECT Handsets. Digital, H323 and Soft phones were configured on the IP Office. QSIG and SIP trunks were configured to connect to the PSTN. The Ascom Master Access point was connected to the IP Network which the IP-DECT Handsets register to. The Roaming Access point allows radio communication between the IP-DECT Handsets which in turn communicates with IP Office.

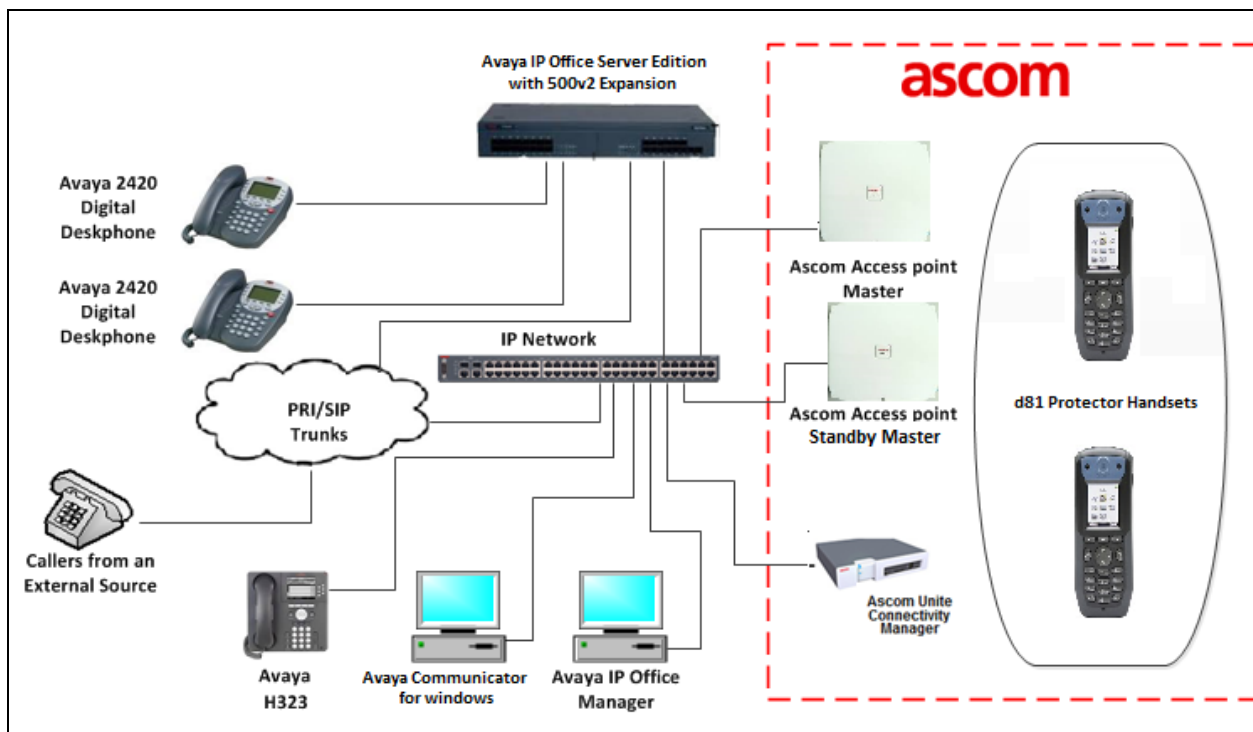


Figure 1: Avaya IP Office and Ascom Reference Configuration

4. Equipment and Software Validated

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

Avaya Equipment	Software / Firmware Version
Avaya IP Office 500v2	10.0.0.0.0 Build 550
Avaya IP Office Manager	10.0.0.0.0 Build 550
Avaya 1616 IP Telephone	H323 3.2.5.0A
Avaya 2420 Digital Telephones	--
Avaya Communicator for Windows	2.1.3.0
Ascom Equipment	Software / Firmware Version
Ascom IP Dect Handsets (d81)	4.4.1
Unite Connectivity Manager	5.8.1
IP Base Station (IPBS2)	9.0.6 [Bootcode 9.0.6]

5. Avaya IP Office Configuration

Configuration and verification operations on 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 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
- LAN1 Configuration
- VoIP Configuration
- Create a SIP Extension for the Ascom DECT Handset
- Create a User for the Ascom DECT Handset
- Verify the Voicemail Collect Short Code
- 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. Log in to Avaya IP Office using the appropriate credentials to receive its configuration (Not shown). In the IP Offices window click on Configuration. During compliance testing the System was called IPOSE1635.

Configuration

- BOOTP (4)
- Operator (3)
- Solution**
- User (32)
- Group (7)
- Short Code (51)
- Directory (0)
- Time Profile (0)
- Account Code (2)
- User Rights (9)
- Location (0)
- IPOSE1635**
 - System (1)
 - Line (3)
 - Control Unit (8)
 - Extension (27)
 - User (26)
 - Group (7)
 - Short Code (5)
 - Service (0)
 - Incoming Call Route (15)
 - IP Route (2)
 - Licence (22)
 - ARS (1)
 - Location (0)
 - Authorization Code (0)
- IPOMC

Server Edition

Summary

Server Edition Primary

Hardware Installed

- Control Unit: IPO-Linux-PC
- Secondary Server: NONE
- Expansion Systems: 10.10.16.36
- System Identification: 21747dd27963f4aa47fe2c26975f294afebcaee0
- Serial Number: 00505694637d

System Settings

- IP Address: 10.10.16.35
- Sub-Net Mask: 255.255.255.0
- System Locale: United Kingdom (UK English)
- Device ID: NONE
- Number of Extensions on System: 27

Open...

- Configuration
- System Status
- Voicemail Administration
- Resiliency Administration
- On-boarding
- IP Office Web Manager
- Help
- Set All Nodes Licence Source

Add...

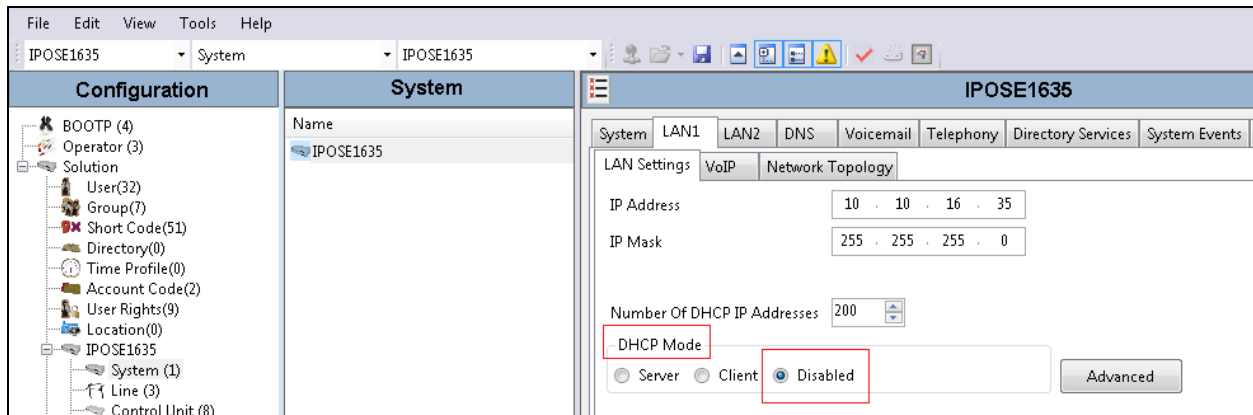
- Secondary Server
- Expansion System

Link...

Description	Name	Address	Primary Link	Users Configured	Extensions Configured
Solution				32	48
Primary Server	IPOSE1635	10.10.16.35		25	27
Expansion System	IPOMC	10.10.16.36	Bothway	7	21

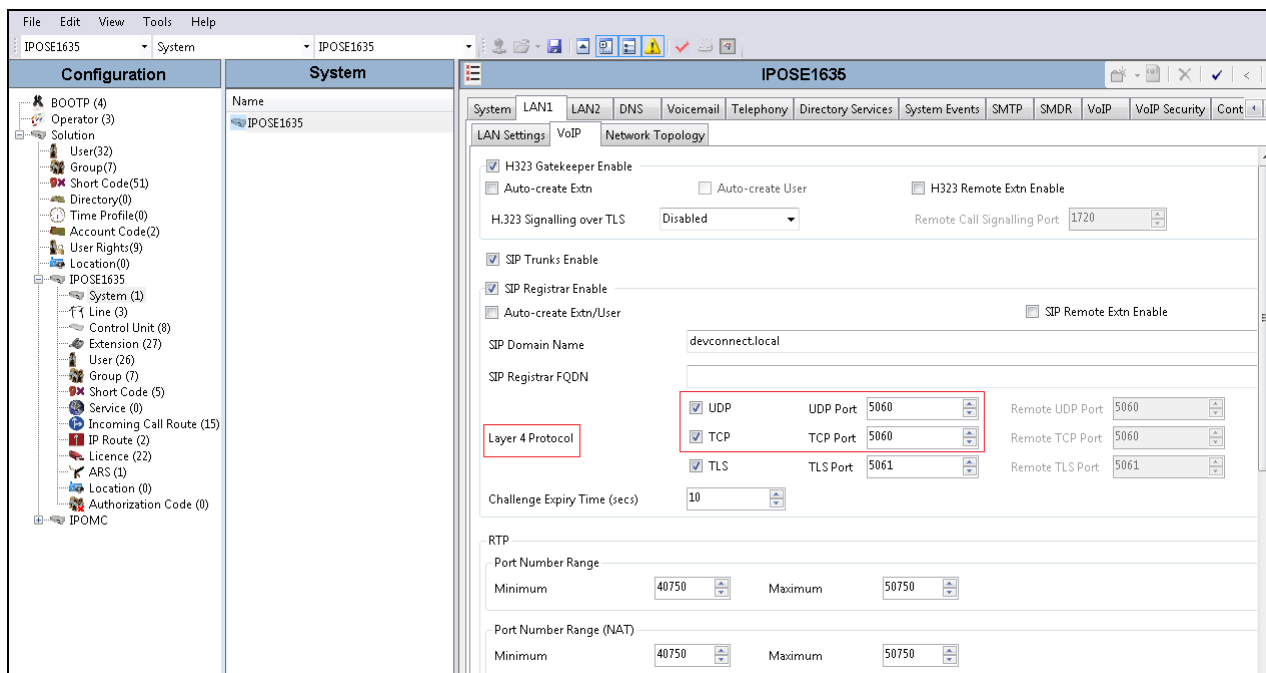
5.2. LAN1 configuration

For the Ascom IP DECT handsets to communicate with the IP Office **DHCP MODE** must be disabled. To disable DHCP, select **IPOSE1635** → **System(1)** then on the **LAN1** tab followed by the **LAN Settings** tab click on the **Disabled** radio button in the **DHCP Mode** section. Click the **OK** button to save.



5.3. VoIP Configuration

Select the **VoIP** tab and in the **Layer 4 Protocol** section check the **UDP** and **TCP** Check boxes and select **5060** from both dropdown boxes. Using the scroll bar on the right hand side scroll down to the **DiffServ Settings** section.

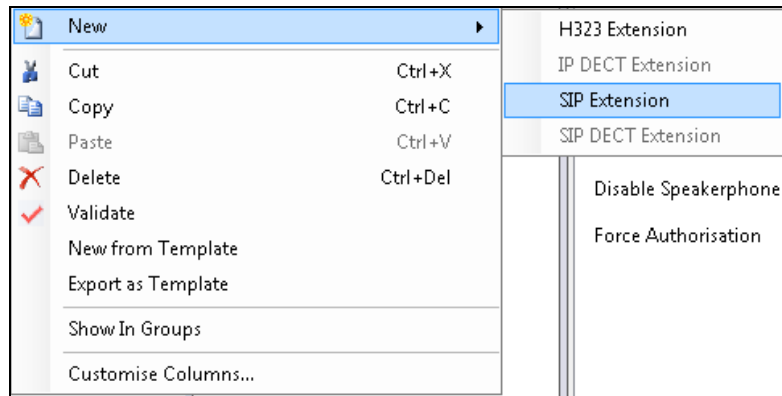


At the **DiffServ Settings** section select **46** from the **DSCP** drop down box and **26** from the **SIG DSCP** dropdown box. Click the **OK** button to save.

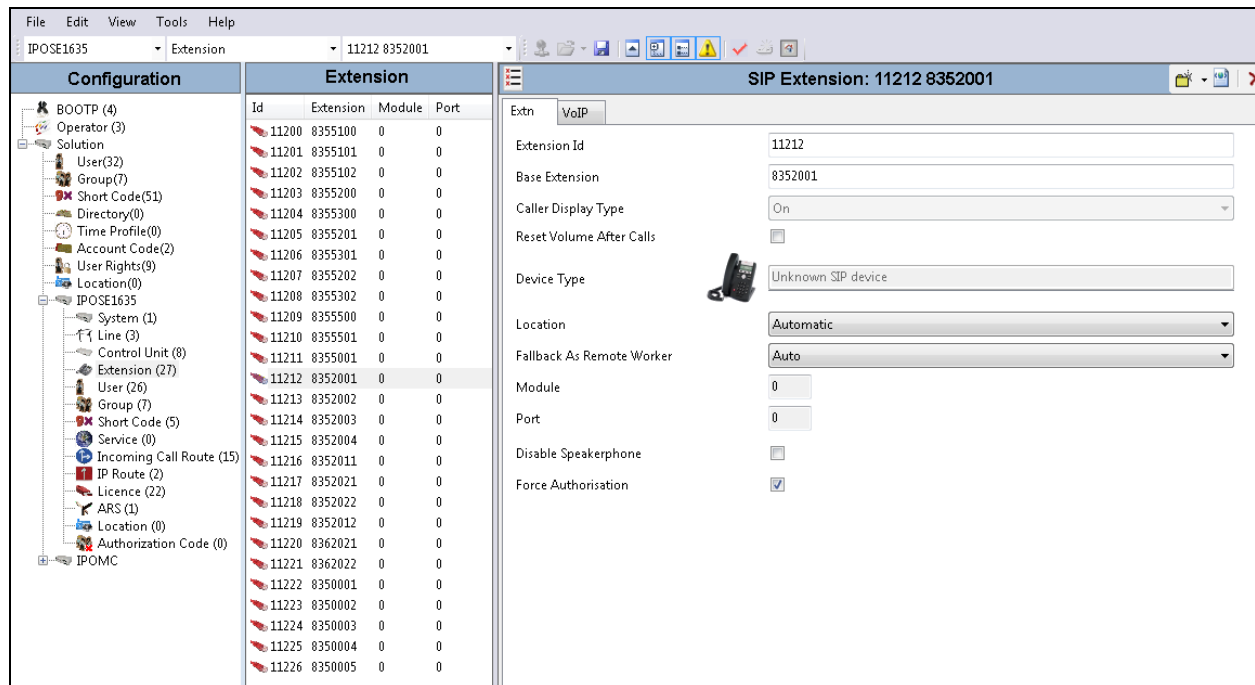
The screenshot displays the IPOSE1635 configuration window. The left sidebar shows a tree view of configuration elements, with 'IPOSE1635' selected. The main panel is divided into tabs: 'System', 'LAN1', 'LAN2', 'DNS', 'Voicemail', 'Telephony', 'Directory Services', 'System Events', 'SMTP', 'SMDR', 'VoIP', 'VoIP Security', and 'Cont'. The 'System' tab is active, and the 'DiffServ Settings' section is expanded. In this section, the 'DSCP' dropdown is set to '46' and the 'SIG DSCP' dropdown is set to '26'. Other settings include 'Enable RTCP Monitoring on Port 5005' (checked), 'RTCP collector IP address for phones' (0.0.0.0), 'Keepalives' (Scope: Disabled, Periodic timeout: 0, Initial keepalives: Disabled), 'DHCP Settings' (Primary Site Specific Option Number: 176, Secondary Site Specific Option Number: 242, VLAN: Not Present, 1100 Voice VLAN Site Specific Option Number (SSON): 232, 1100 Voice VLAN ID: empty), and 'Video DSCP' (Hex: FC, Mask: 63).

5.4. Create a SIP Extension for the Ascom DECT Handset

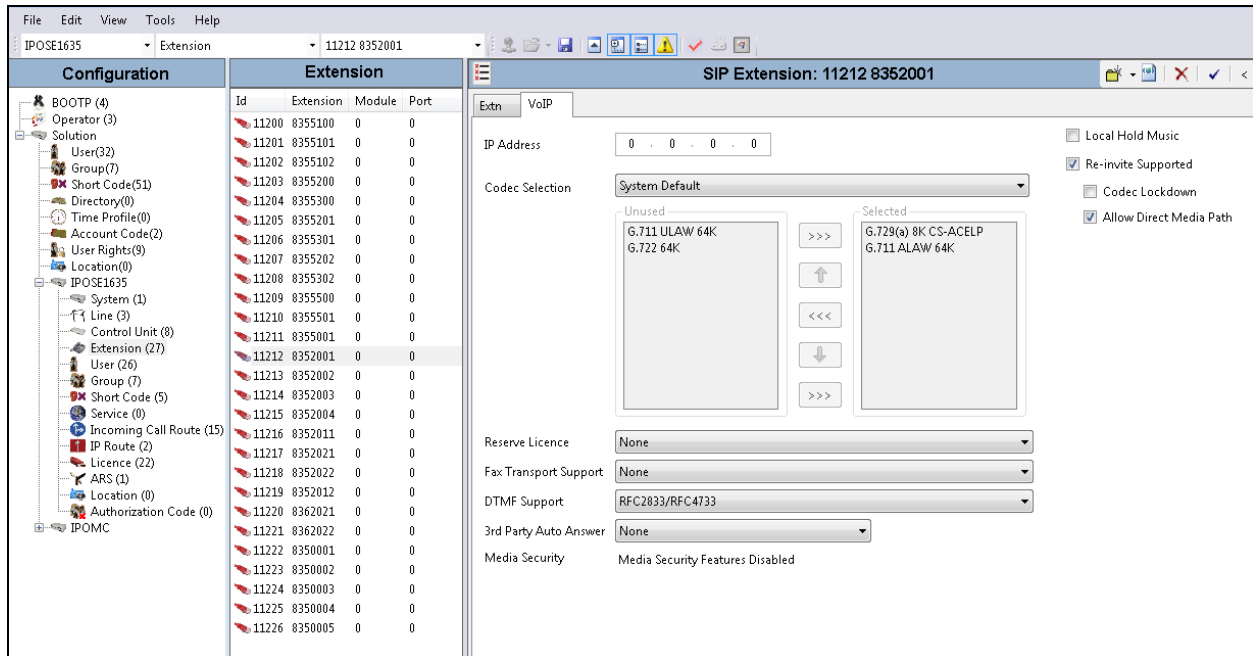
The DECT Handsets are configured as SIP Extensions on IP Office. From the Configuration Tree click on **Extension** then right click and select **New** followed by **SIP Extension**. The example below shows an extension 8352001; repeat these steps for each DECT Handset extension.



When the new window opens enter the **Base Extension**. The Extension ID will be automatically filled in.

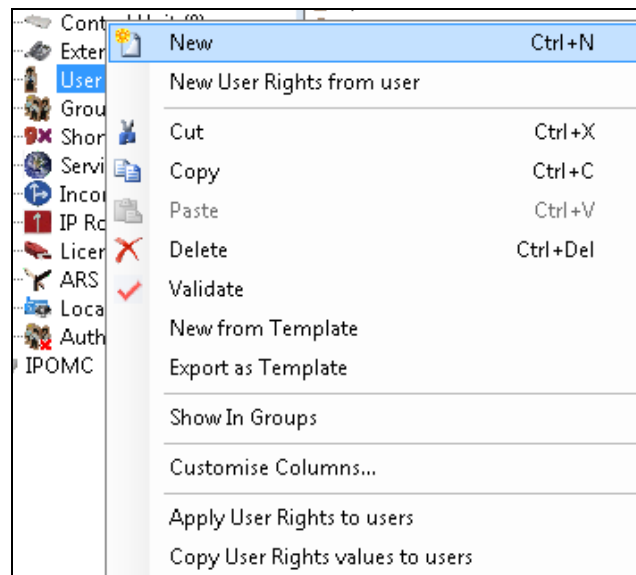


Click on the **VoIP** tab, and when the **VoIP** tab opens click the **Allow Direct Media Path** check box. Click the **OK** button to save.



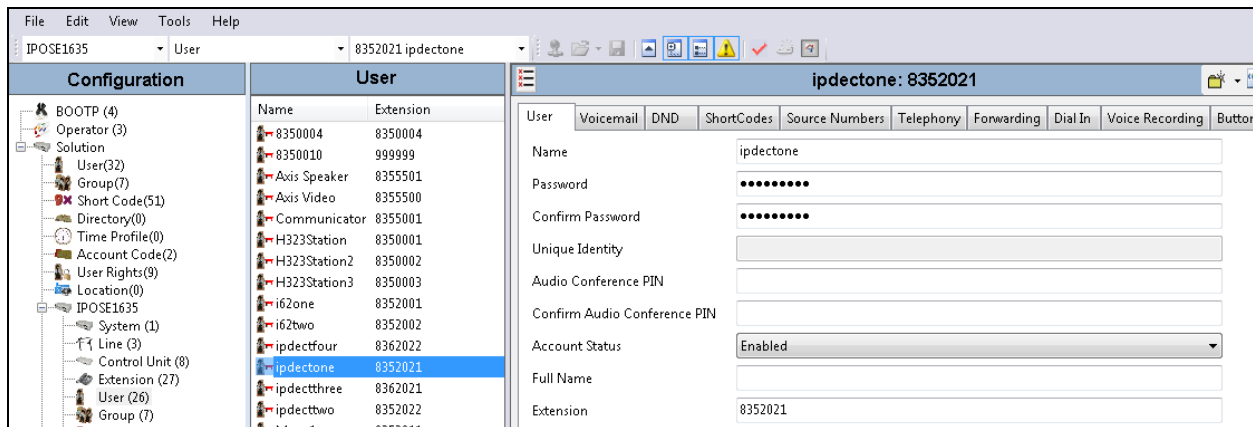
5.5. Create a User for the Ascom DECT Handset

A user must be configured for Ascom DECT Handset Extension. From the Configuration Tree click on **User** then right click and select **New**.



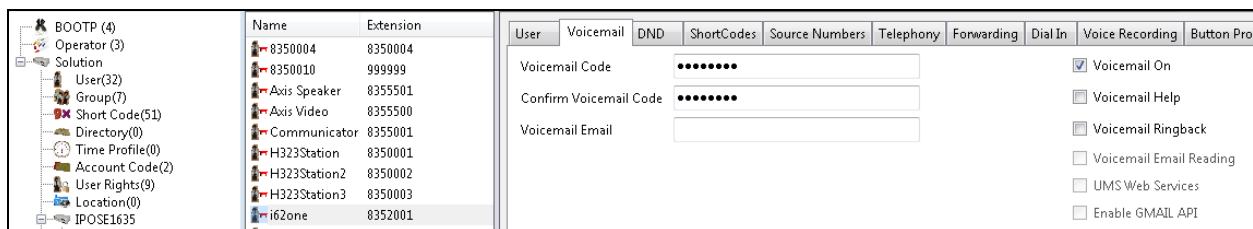
When the **User** window opens, select the User tab and enter the follow:

- **Name** Enter an name for this user, i.e. **ipductone**
- **Password** Enter the Password
- **Confirm** Confirm the Password
- **Extension** Enter the Extension which was created previously.



Configuration	User	ipductone: 8352021																																																																																																																																				
<ul style="list-style-type: none"> BOOTP (4) Operator (3) Solution User(32) Group(7) Short Code(51) Directory(0) Time Profile(0) Account Code(2) User Rights(9) Location(0) IPOSE1635 System (1) Line (3) Control Unit (8) Extension (27) User (26) Group (7) 	<table border="1"> <thead> <tr> <th>Name</th> <th>Extension</th> </tr> </thead> <tbody> <tr><td>8350004</td><td>8350004</td></tr> <tr><td>8350010</td><td>999999</td></tr> <tr><td>Axis Speaker</td><td>8355501</td></tr> <tr><td>Axis Video</td><td>8355500</td></tr> <tr><td>Communicator</td><td>8355001</td></tr> <tr><td>H323Station</td><td>8350001</td></tr> <tr><td>H323Station2</td><td>8350002</td></tr> <tr><td>H323Station3</td><td>8350003</td></tr> <tr><td>i62one</td><td>8352001</td></tr> <tr><td>i62two</td><td>8352002</td></tr> <tr><td>ipductfour</td><td>8362022</td></tr> <tr><td>ipductone</td><td>8352021</td></tr> <tr><td>ipductthree</td><td>8362021</td></tr> <tr><td>ipducttwo</td><td>8352022</td></tr> <tr><td>Muse1</td><td>8352011</td></tr> </tbody> </table>	Name	Extension	8350004	8350004	8350010	999999	Axis Speaker	8355501	Axis Video	8355500	Communicator	8355001	H323Station	8350001	H323Station2	8350002	H323Station3	8350003	i62one	8352001	i62two	8352002	ipductfour	8362022	ipductone	8352021	ipductthree	8362021	ipducttwo	8352022	Muse1	8352011	<table border="1"> <thead> <tr> <th>User</th> <th>Voicemail</th> <th>DND</th> <th>ShortCodes</th> <th>Source Numbers</th> <th>Telephony</th> <th>Forwarding</th> <th>Dial In</th> <th>Voice Recording</th> <th>Button</th> </tr> </thead> <tbody> <tr> <td>Name</td> <td>ipductone</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Password</td> <td>*****</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Confirm Password</td> <td>*****</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Unique Identity</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Audio Conference PIN</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Confirm Audio Conference PIN</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Account Status</td> <td>Enabled</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Full Name</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Extension</td> <td>8352021</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	User	Voicemail	DND	ShortCodes	Source Numbers	Telephony	Forwarding	Dial In	Voice Recording	Button	Name	ipductone									Password	*****									Confirm Password	*****									Unique Identity										Audio Conference PIN										Confirm Audio Conference PIN										Account Status	Enabled									Full Name										Extension	8352021								
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Click on the **Voicemail** tab, and check the **Voicemail On** check box and enter the **Voicemail Code** that will be used to access the user's mail box, and **Confirm the voicemail code**.



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Click on **Telephony** tab followed by the **Supervisor Settings** tab and enter a Login Code in the **Login Code** box. Click the **OK** button to save.

Note: The Login Code is used by the Ascom DECT Handset to log in to IP Office in **Section 6**. Ensure all DECT Handset Users use the same **Login Code**.

	Name	Extension	User	Voicemail	DND	ShortCodes	Source Numbers	Telephony	Forwarding	Dial In	Voice Recording
BOOTP (4)											
Operator (3)											
Solution											
User(32)											
Group(7)											
Short Code(51)											
Directory(0)											
Time Profile(0)											
Account Code(2)											
	8350004	8350004									
	8350010	999999									
	Axis Speaker	8355501									
	Axis Video	8355500									
	Communicator	8355001									
	H323Station	8350001									
	H323Station2	8350002									

Call Settings	Supervisor Settings	Multi-line Options	Call Log	TUI
Login Code: <input type="text" value="*****"/>		<input type="checkbox"/> Force Login		
Confirm Login Code: <input type="text" value="*****"/>				
Login Idle Period (secs): <input type="text"/>		<input type="checkbox"/> Force Account Code		

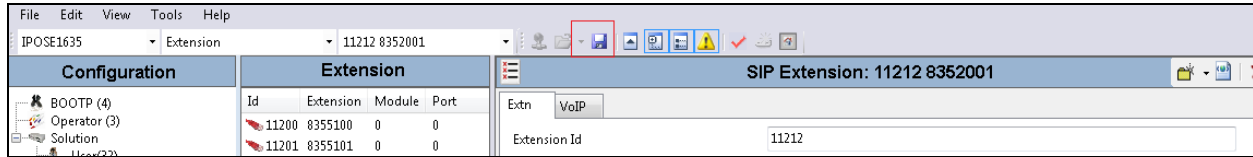
5.6. Verify the Voicemail Collect Short Code

As part of the Ascom IP-DECT Base Station 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**.

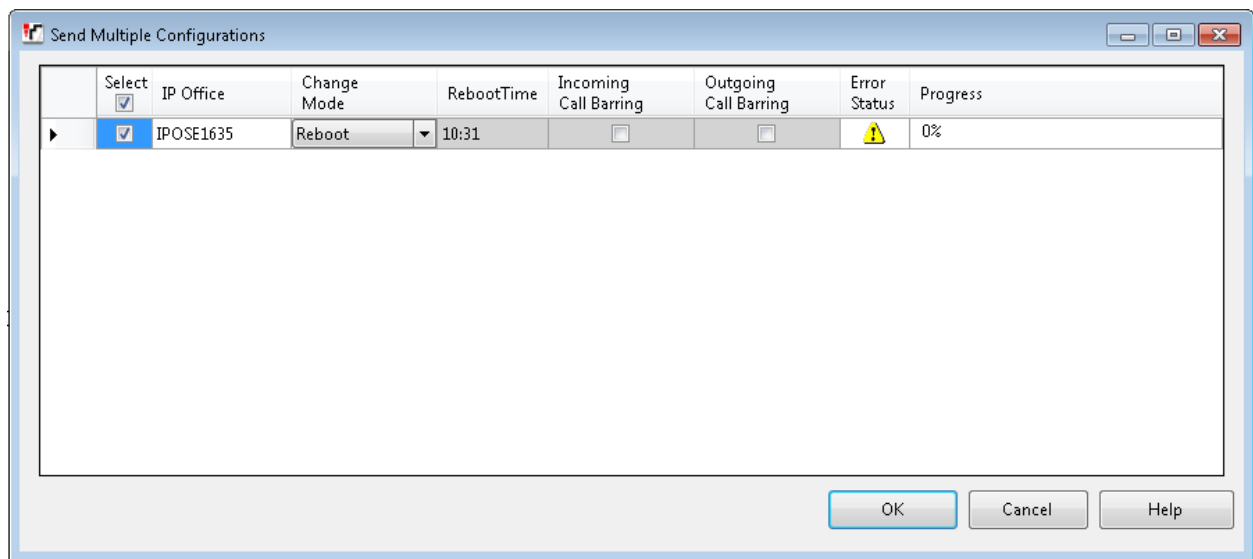
*17: Voicemail Collect	
Short Code	
Code	<input type="text" value="*17"/>
	<i>* This Short Code is common to all systems.</i>
Feature	<input type="text" value="Voicemail Collect"/>
Telephone Number	<input type="text" u"="" value="?"/>
Line Group ID	<input type="text" value="0"/>
Locale	<input type="text"/>
Force Account Code	<input type="checkbox"/>
Force Authorization Code	<input type="checkbox"/>

5.7. Save Configuration

Once all the configurations have been made it must be sent to IP Office. Click on the **Save** Icon as shown below.



Once the **Save Configuration** Window opens, click the **OK** button.



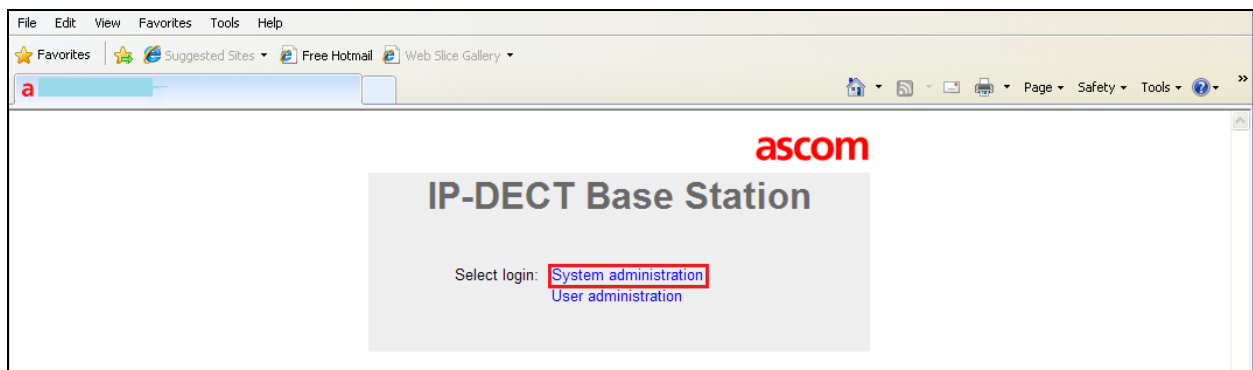
6. Configure Ascom DECT

This section describes how to access and configure the Ascom DECT solution. The Ascom wireless IP-DECT Base Stations can be configured in a Master/Standby Master scenario to provide redundancy or to extend the radius of coverage (roaming). The following configuration steps detail the configuration process used to configure an Ascom wireless IP-DECT Base Station in Master mode only.

Roaming between multiple Ascom Wireless IP-DECT Base Stations as shown in **Figure 1** was tested but the configuration setup will not be shown in this document. Refer to the Ascom document in **Section 9** for information on how to configure roaming.

6.1. Configure the IP-DECT Base Station

To configure the IP-DECT Base Station, access a web browser and enter the IP address of the Base Station as the URL. The user will be presented with the screen shown below. Click the **System administration** link and enter the appropriate credentials to access the Ascom wireless IP-DECT Base Station and then click OK (not shown).



6.1.1. General Configuration of IP-DECT Base Station

When the new window opens navigate to **General** and select the **Admin** tab and enter the following:

- **Device Name** Enter a descriptive name that identifies this Ascom wireless IP-DECT Base Station
- **User Name** Enter the **User Name** (the default User name was used)
- **Password** Enter the **Password** (the default Password was used)
- **Confirm Password** confirm the password

Click the **OK** button to continue.

The screenshot shows the 'IP-DECT Base Station' configuration window with the 'Admin' tab selected. The left sidebar contains a 'Configuration' menu with options: General, LAN, IP, LDAP, DECT, VoIP, Unite, Services, Administration, Users, Device Overview, DECT Sync, Traffic, Gateway, Backup, Update, Diagnostics, and Reset. The main content area is divided into sections: 'Local Admin' with fields for Device Name (INTOP R8 M), User Name (admin), Password (masked), and Confirm Password (masked); 'Delegated Authentication' with a 'Join realm' link; 'Additional Kerberos encryption types' with a checkbox for 'Enable AES and RC4'; and 'Authentication Servers' with a table for adding servers. The table has columns for Realm/Domain, Address, Port, Admin Port, Secondary Address, Secondary Port, Secondary Admin Port, and a Delete checkbox. At the bottom are 'OK' and 'Cancel' buttons.

Realm/Domain	Address	Port	Admin Port	Secondary Address	Secondary Port	Secondary Admin Port	Delete
							<input type="checkbox"/>

6.1.2. Configure LAN DHCP

Navigate to **LAN** and select the **DHCP** tab. Select **Disabled** from the **Mode** dropdown box. A reset of the base station is required to activate this setting. After the reset is completed log back on to the IP-DECT Base Station to complete the configuration.

The screenshot displays the 'IP-DECT Base Station' configuration window. On the left is a sidebar menu with categories: 'Configuration' (containing 'General', 'LAN', 'IP', 'LDAP', 'DECT', 'VoIP', 'Unite', 'Services', 'Administration', and 'Users') and 'Administration' (containing 'Users'). The 'LAN' option is selected. The main area has tabs for 'DHCP', 'IP', 'VLAN', 'Link', '802.1X', 'Statistics', and 'LLDP'. The 'DHCP' tab is active, showing a 'Mode' dropdown set to 'disabled' with the text 'Currently - disabled' next to it. Below the dropdown are 'OK' and 'Cancel' buttons.

6.1.3. Configure LAN IP

Navigate to **LAN** and select the **IP** tab and enter the following:

- **IP Address** Enter the IP address to be assigned to the IP-DECT Station
- **Network Mask** Enter the Network Mask to be assigned to the IP-DECT Station
- **Default Gateway** Enter the Default Gateway IP Address

Click on the **OK** Button to save.

Note: No DNS Server was used during Compliance Testing.

The screenshot displays the 'IP-DECT Base Station' configuration window. On the left is a sidebar menu with categories: 'Configuration' (containing General, LAN, IP, LDAP, DECT, VoIP, Unite, and Services), 'Administration' (containing Users, Device Overview, and DECT Sync), and 'Services'. The 'IP' tab is selected under the 'Configuration' category. The main area shows the 'IP' configuration tab, which includes a table of 'Active Settings' and a 'Check ARP' checkbox. The 'Active Settings' table has three rows: 'IP Address' with value '10.10.16.8', 'Network Mask' with value '255.255.255.0', and 'Default Gateway' with value '10.10.16.1'. The 'DNS Server' and 'Alt. DNS Server' fields are empty. The 'Check ARP' checkbox is unchecked. At the bottom are 'OK' and 'Cancel' buttons.

IP-DECT Base Station							
Configuration	DHCP	IP	VLAN	Link	802.1X	Statistics	LLDP
General							
LAN							
IP							
LDAP							
DECT							
VoIP							
Unite							
Services							
Administration							
Users							
Device Overview							
DECT Sync							

Active Settings		
IP Address	10.10.16.8	10.10.16.8
Network Mask	255.255.255.0	255.255.255.0
Default Gateway	10.10.16.1	10.10.16.1
DNS Server		
Alt. DNS Server		
Check ARP	<input type="checkbox"/>	

OK Cancel

6.1.4. Reset IP-DECT Base Station

Click **Reset** followed by the **OK** button to initiate the system reset. Many of the other changes made to the system during the configuration process require a reset. Repeat this process whenever a reset is required.

The screenshot displays the 'IP-DECT Base Station' configuration window. On the left is a vertical menu with the following items: Configuration, General, LAN, IP, LDAP, DECT, VoIP, Unite, Services, Administration, and Users. The 'Configuration' tab is selected at the top. Within this tab, there are four sub-tabs: 'Idle-Reset', 'Reset', 'TFTP', and 'Boot'. The 'Reset' sub-tab is currently active. The main content area of the 'Reset' sub-tab contains a text box with the message 'Reset only if the system is idle (no active calls, etc.)' and an 'OK' button below it.

6.1.5. Configure DECT

Navigate to the **DECT** and click on the **Master** and enter the following:

- **Mode** Select **Mirror** from the dropdown box
- **Mirror Master IP address** Enter the IP Address of the Mirrored base station
- Check the **Enable PARI Function** check box
- **Protocol** Select **SIP/TCP** from the dropdown box
- **Proxy** Enter the IP address of the IP Office
- Check the **Enbloc Dialing** check box
- Check the **Allow DTMF through RTP** check box.

Click the **OK** button to continue (not shown).

The screenshot shows the 'IP-DECT Base Station' configuration interface with the 'Master' tab selected. The 'DECT' section is active, showing the following settings:

- Mode: Mirror
- Mirror Master IP address: 10.10.16.7
- Mirror Status: Active, Connected to 10.10.16.7
- Multi-Master: ☐
- Master ID: 0
- Enable PARI Function: ☒
- Region Code:
- IP-PBX: ☐
- Protocol: SIP/TCP
- Proxy: 10.10.16.35
- Alt. Proxy:
- Alt. Proxy:
- Alt. Proxy:
- Domain:
- Max. Internal Number Length: 7
- International CPN Prefix:
- Registration with system password: ☐
- Enbloc Dialing: ☒
- Enable Enbloc Send-Key: ☒
- Send Inband DTMF: ☐
- Allow DTMF Through RTP: ☒
- Short Disconnect Tone: ☐
- Treat rejected calls as: Busy

Scroll down and set **Registration Time-To-Live** to **180 (sec)**

The screenshot shows the 'SIP Interoperability Settings' section of the configuration page. The 'Registration Time-To-Live' is set to 180 [sec].

- Treat rejected calls as: Busy
- Configured With Local GK: ☐
- SIP Interoperability Settings: ☐
- Registration Time-To-Live: 180 [sec]
- Hold Signalling: inactive
- Hold Before Transfer: ☐
- Accept Inbound Calls Not Routed Via Home Proxy: ☐
- Register With Number: ☒
- AOR as Line Identity: ☐
- KPML support: ☐

6.1.5.1 Configure DECT System

Click on the **System** tab and enter the following:

- **System Name** Enter the System Name as previously configured
- **Password** Enter the Password as previously configured
- **Confirm Password** Confirm the Password
- **Subscriptions** Select **With System AC** from the dropdown box
- **Authentication Code** Enter the DECT handset Login code as configured in **Section 5.5**. (During Compliance testing **1234** was used)
- **Tones** Select the location where the IP-DECT system is located
- **Default Language** Select the required Language from the dropdown box
- **Frequency** Select the required Frequency from the dropdown box
- **Enabled** Select the number of Carriers required
- Check **Local R-Key Handling** box
- **Coder** Select the required Coder from the **Coder** dropdown box

Click the **OK** button to continue.

IP-DECT Base Station ascom

Configuration: **System** | Suppl. Serv. | Master | Crypto Master | Mobility Master | Radio | Radio config | PARI | SARI | Air Sync

General
LAN
IP
LDAP
DECT
VoIP
Unite
Services
Administration
Users
Device Overview
DECT Sync
Traffic
Gateway
Backup
Update
Diagnostics
Reset

System Name: DECT3
Password:
Confirm Password:
Subscriptions: With System AC
Authentication Code: 9999
Tones: IRELAND
Default Language: English
Frequency: 1880-1900 MHz (Europe)
Enabled Carriers: 9 8 7 6 5 4 3 2 1 0
Local R-Key Handling: ☒
No Transfer on Hangup: ☐
No On-Hold Display: ☐
Display Original Called: ☐
Early Encryption: ☐
Disable ICE: ☒
Coder: G711A Frame (ms): 20 Exclusive: ☐ SC: ☐
Secure RTP Key Exchange: No encryption
OK Cancel

6.1.5.2 Configure Suppl.Serv

Click on the **Suppl.Serv** tab and enter the following:

- Check the **Enable Supplementary Services** check box

During compliance testing, the IP Office handled most of the features listed, so the following functions were disabled:

- **Call Forwarding Unconditional, Call Forwarding Busy, Call Forwarding No Reply, Do not Disturb, Call waiting, Call Completion, Call Park, Interception, Call Service URI, Call Service URI (Argument), Soft Key, Logout User and Clear Local Settings**
- **MWI Mode** Select **User dependent interrogate number** from the dropdown box
- **MWI Notify Number** Enter ***17** as configured in Section 5.6

Click the **OK** button to continue.

IP-DECT Base Station ascom

Configuration: **System** **Suppl. Serv.** Master Crypto Master Mobility Master Radio Radio config PARI SARI Air Sync

General

LAN

IP

LDAP

DECT

VoIP

Unite

Services

Administration

Users

Device Overview

DECT Sync

Traffic

Gateway

Backup

Update

Diagnostics

Reset

☒ Enable Supplementary Services

	Activate	Deactivate	Disable
Call Forwarding Unconditional	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Call Forwarding Busy	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Call Forwarding No Reply	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Do Not Disturb	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Call Waiting	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Call Completion	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Call Park	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Interception	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
Call Service URI	<input type="text"/>		<input checked="" type="checkbox"/>
Call Service URI (Argument)	<input type="text"/>		<input checked="" type="checkbox"/>
Soft key	<input type="text"/>		<input checked="" type="checkbox"/>
Logout User	<input type="text"/>		<input checked="" type="checkbox"/>
Clear Local Setting	<input type="text"/>		<input checked="" type="checkbox"/>
MWI Mode	User dependent interrogate number		
MWI Notify Number	*17		
Local Clear of MWI	<input type="text"/>		
External Idle Display			<input type="checkbox"/>

6.1.5.3 Configure PARI

Click on the **PARI** tab and enter the PARI in the System ID Field. The PARI is a user-defined system value. Enter any number from 1-292 (e.g. 25). Click the **OK** button to continue.

The screenshot shows the 'IP-DECT Base Station' configuration window with the 'ascom' logo in the top right. The 'Configuration' menu on the left lists 'General', 'LAN', 'IP', 'LDAP', 'DECT', and 'VoIP'. The top navigation bar includes tabs for 'System', 'Suppl. Serv.', 'Master', 'Crypto Master', 'Mobility Master', 'Radio', 'Radio config', 'PARI', 'SARI', and 'Air Sync'. The 'PARI' tab is selected, displaying a 'System ID' field with the value '4' and 'OK' and 'Cancel' buttons below it.

6.1.5.4 Configure SARI

Click on the **SARI** tab. The **SARI** is an Ascom provided activation code which is needed for the system to function. Contact Ascom to obtain a **SARI**. Enter the **SARI** value (note the actual value has been hidden on the screen shown below for security reasons). Click the **OK** button to continue.

The screenshot shows the 'IP-DECT Base Station' configuration window with the 'ascom' logo in the top right. The 'Configuration' menu on the left lists 'General', 'LAN', 'IP', 'LDAP', 'DECT', and 'VoIP'. The top navigation bar includes tabs for 'System', 'Suppl. Serv.', 'Master', 'Crypto Master', 'Mobility Master', 'Radio', 'Radio config', 'PARI', and 'SARI'. The 'SARI' tab is selected, displaying a 'SARI' field with a masked value (represented by a grey bar) and 'OK' and 'Cancel' buttons below it.

6.1.5.5 Configure Air Sync

Click on the **Air Sync** tab and select **Master** from the **Sync Mode** dropdown box. Click the **Resynchronize on command** radio button. Click the **OK** button to continue.

The screenshot shows the 'IP-DECT Base Station' configuration window with the 'Air Sync' tab selected. The left sidebar lists various configuration categories: Configuration, General, LAN, IP, LDAP, DECT, VoIP, Unite, Services, Administration, and Users. The main area contains the following fields and options:

- Sync Mode:** A dropdown menu set to 'Master'.
- Reference RFPI:** An empty text input field.
- Alternative reference RFPI:** An empty text input field.
- Sync Region:** An empty text input field.
- Action at reference sync failure:** Three radio buttons are present:
 - ☒ Resynchronize on command
 - ☐ Resynchronize every day at 00:00
 - ☐ Resynchronize every Sunday at 00:00

At the bottom of the main area are 'OK' and 'Cancel' buttons.

6.1.6. Create Users

Navigate to the **Users** and click on the **Users** tab. The **Park** value is displayed. This value is needed when programming Ascom wireless DECT handsets. Note, the **PARK** information is derived from the SARI and should be obtained from an Ascom associate (Note the actual **PARK** and **PARK 3rd pty** values have been hidden on the screen shown below for security reasons). Click the **new** link to provision a new user account.

The screenshot shows the 'IP-DECT Base Station' configuration window with the 'Users' tab selected. The left sidebar is the same as in the previous screenshot, but the 'Users' tab is highlighted. The main area displays the following information:

- PARK:** A greyed-out text field.
- PARK 3rd pty:** A greyed-out text field.
- Master Id:** A text field containing the value '0'.
- Actions:** A list of links: 'show', 'new', 'import', and 'export'.

When the **User type** page is presented click on the **User** radio button and enter the following:

- **Long Name** Enter any descriptive name that identifies this user (i.e. d81 8352021)
- **Display Name** Enter a display name which will be displayed on the DECT Handset screen (i.e. DECT 3011)
- **Name** Enter the extension assigned to this user
- **Number** Enter the extension assigned to this user
- **Password** Enter the Password (Note, the password is the **Login Code** configured in **Section 5.5**)
- **Confirm Password** Confirm Password
- **Auth. Code** Enter the **Auth. Code** (Note the Auth. Code is used only if **Subscriptions** in **Section 6.1.6.1** is set to **With System AC**)

Once all the user information has been configured click the **OK** button. Repeat this process for each user being added to the system.

Edit User - Mozilla Firefox

10.10.16.8/GW-DECT/mod_cmd_login.xml?cmd=show&user-guid=ea0d656ae909d311a6140090331e02fd

User type

☒ User

☐ User Administrator

Long Name d81 8352021

Display Name d81 8352021

Name 8352021

Number 8352021

Auth. Name (SIP only)

Password

Confirm Password

IPEI / IPDI 002020772294

Idle Display d81 8352021

Auth. Code

Feature Status

OK Apply Delete Unsubs. Cancel

Repeat **Section 6.1.4** to **Reset IP-DECT Base Station**.

6.2. Configure Ascom IP DECT Handsets

Refer to the Ascom documentation **Section 9** to obtain information on the procedures for subscribing and registering the Ascom wireless DECT Handsets to the Ascom wireless IP-DECT Base Station.

7. Verification Steps

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

7.1. Ascom wireless DECT Handset Registration Verification

From a web browser, open a connection to the Ascom wireless IP-DECT Master Base Station (see **Section 6.1**). Navigate to the **Users** and click on the **Users** tab followed by the **show** link. A **Registration** state of “Unsubscribed” (Not Shown) indicates an Ascom wireless DECT Handset has not registered to the Ascom wireless IP-DECT Base Station. A **Registration** state of “Subscribed” indicates that an Ascom wireless DECT Handset has connected to the Ascom wireless IP-DECT Base Station and requested the use of that particular extension. A **Registration** state that displays the IP Address of the IP Office indicates the extension has successfully registered to both the Ascom wireless IP-DECT Base Station and IP Office. The screen shot shows 2 DECT Handsets registered to the IP Office.

The screenshot displays the 'IP-DECT Base Station' web interface. On the left is a navigation menu with options: Configuration, General, LAN, IP, LDAP, DECT, VoIP, Unite, Services, Administration, Users, and Device Overview. The 'Users' tab is selected. The main content area shows 'User Administrators' with a 'Long Name' and 'Name' header, and 'User Administrators: 0'. Below this is a 'Users' table with columns: Long Name, Name, No, Fty, Display, IPEI / IPDI, AC, Prod, SW, EE, and Registration. The table lists four users, with the last two being 'Subscribed'. At the bottom, it states 'Users: 4, Registrations: 2'.

Long Name	Name	No	Fty	Display	IPEI / IPDI	AC	Prod	SW	EE	Registration
d81 8352021	8352021	8352021	+	d81 8352021	002020772294	d81-Protector	4.4.1	10.10.16.35		
d81 8352022	8352022	8352022	+	d81 8352022	002020909371	d81-Messenger	4.4.1	10.10.16.35		
d81 8362021	8362021	8362021	+	d81 8362021	002020909369	d81-Messenger	4.4.1			Subscribed
d81 8362022	8362022	8362022	+	d81 8362022	002020909367	d81-Messenger	4.4.1			Subscribed

8. Conclusion

A full and comprehensive set of feature and functional test cases were performed during Compliance testing. Ascom Wireless IP-DECT SIP Solution is considered compliant with Avaya IP Office 10. All test cases have passed and met the objectives 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 10.0, Document 15-601011, Issue 1, August 2016

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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