



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring the Ascom Wireless IP-DECT SIP Solution with Avaya IP Office in a Converged Voice over IP and Data Network - Issue 1.1

Abstract

These Application Notes describe a solution for supporting wireless interoperability between the Ascom wireless IP-DECT SIP solution with Avaya IP Office in a converged Voice over IP and Data Network. Emphasis of the testing was placed on verifying good voice quality of calls with Ascom wireless IP-DECT SIP handsets registered to the Avaya IP Office.

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 process necessary to provide interoperability between the Ascom wireless IP Digital Enhanced Cordless Telecommunications (IP-DECT) Solution with an Avaya IP Office.

2. General Test Approach and Test Results

All feature functionality test cases were performed manually. The general test approach entailed verifying the following:

- Registration, re-registration of Ascom wireless DECT Handsets with Avaya IP Office.
- Verify G.711MU & G.729a codecs, blind transfer, consult transfer, conference participation, Call forwarding/Call forwarding Deactivate (via the PBX), Call Park/ Call Pickup, Twinning, Send All Calls/ Send All Calls Deactivate, Message Waiting Indicator, and message retrieval from Avaya Voicemail Pro.
- Inter-office VoIP calls between Ascom wireless DECT Handsets and Avaya H.323 IP Telephones and Avaya Digital Telephones.
- Roam between multiple Ascom wireless IP-DECT Base Stations using the Ascom wireless DECT Handsets.

2.1. Interoperability Compliance Testing

The compliance testing focused on verifying interoperability of the Ascom wireless IP-DECT SIP Solution comprised of the Ascom wireless IP-DECT Base Station and Ascom wireless DECT Handsets with Avaya IP Office in a converged Voice over IP and Data Network. Additional testing verified proper operation with the Avaya 9600, 1600, 5600 Series H.323 IP Telephones and the Avaya 2420 Digital Telephone. Voicemail and MWI using Voicemail Pro were verified to operate correctly.

The Ascom IP-DECT system is a modular solution for large and small deployments with full handover capabilities with one PBX. The Ascom IP-DECT Base Station 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 Base Station, the Base Station registers the handsets to Avaya IP Office.

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

Compliance testing was executed using two Ascom wireless DECT Handsets and shown in **Section 3, Figure 1**. Since the initial publication of this document (version 1.0), a “call transfer” issue has been discovered when three Ascom wireless DECT Handsets are involved in the call flow (for example, *User A* calls *User B*, and *User B* transfers the call to *User C*). When the transferring party (*User B* in the example given), attempts to complete the transfer, all calls/parties are dropped. The problem has been reproduced by both Ascom and Avaya, and a resolution is currently being investigated by Ascom.

The results described below are applicable to the configuration in this report that involved compliance testing using two Ascom wireless DECT Handsets.

The Ascom wireless DECT Handsets passed all test cases. Ascom wireless DECT Handsets were verified to successfully register with Avaya IP Office. The G.711MU & G.729a codecs were used for testing. Telephone calls were verified to operate correctly and were maintained for durations over one minute without degradation to voice quality. The telephony features verified to operate correctly included transfer, hold/return from hold, call waiting, caller ID operation, conference participation, Call Forwarding/Call Forwarding Deactivate, Call Park/Call Pickup, Send All Calls/Send All Calls Deactivate, Twinning, Message Waiting Indicator and message retrieval from voicemail.

2.3. Support

Technical support for the Ascom Wireless IP-DECT system and handsets can be obtained through local Ascom suppliers.

Ascom global technical support:

- Phone: +46 31 559450
- Email: support@ascom.se

3. Reference Configuration

Figure 1 illustrates the reference configuration used during compliance testing.

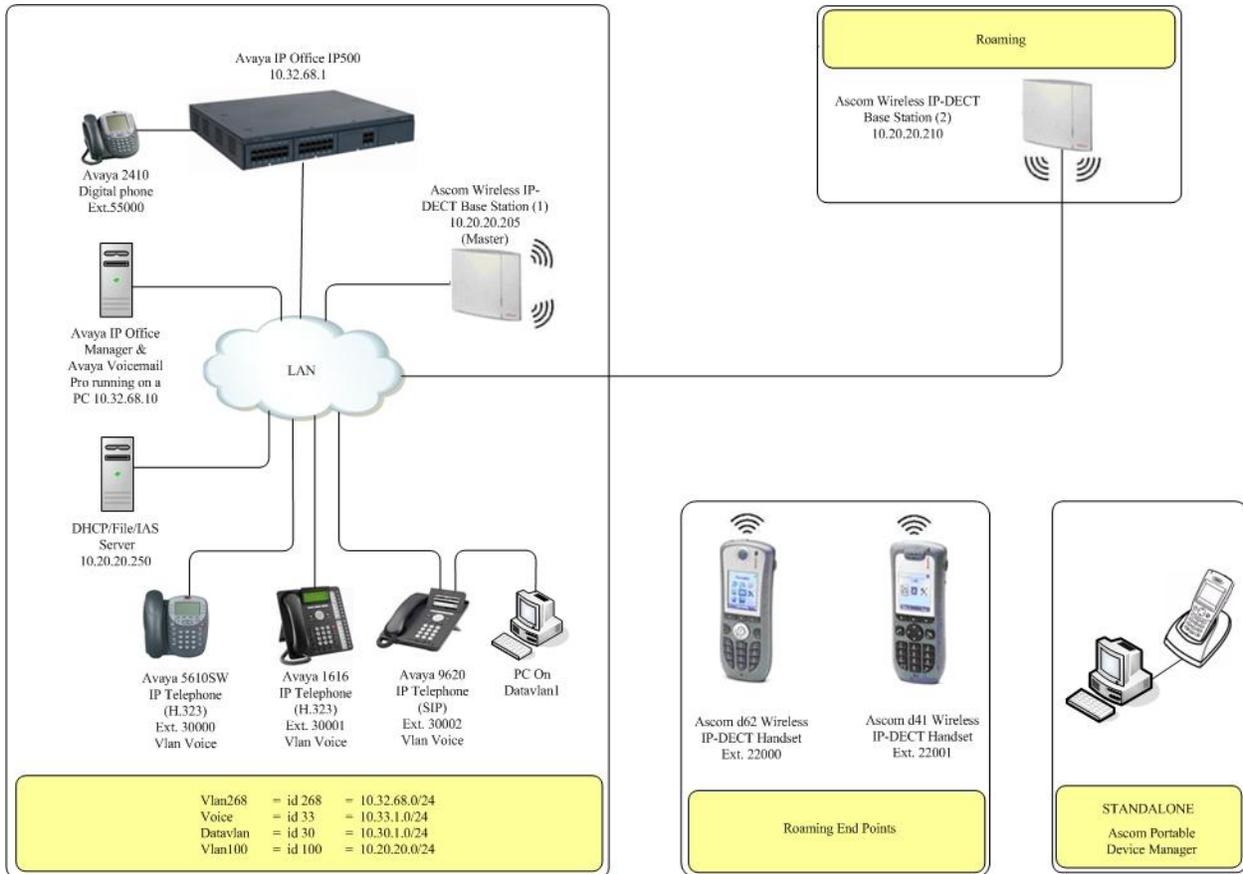


Figure 1: Ascom IP-DECT Solution with Avaya IP Office

4. Equipment and Software Validated

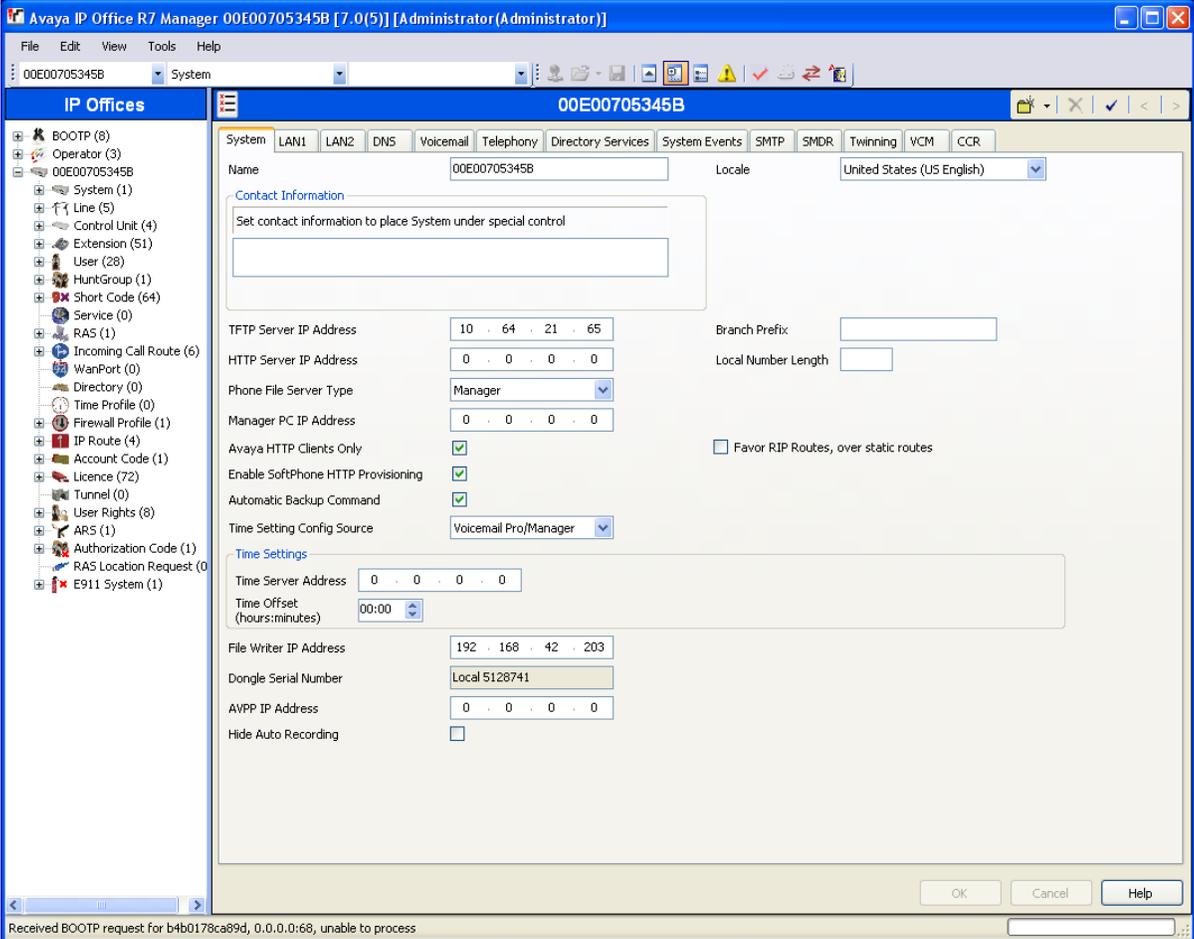
The following equipment and software/firmware were used for the reference configuration:

Equipment	Software/Firmware
<i>Avaya PBX Products</i>	
Avaya IP Office (IP500)	Avaya IP Office 7.0 (5)
Avaya IP Office Manager	Avaya IP Office Manager 9.0 (5)
<i>Avaya Messaging (Voice Mail) Products</i>	
Avaya VoiceMail Pro	IP Office VoiceMail Pro 7.0 (17)
<i>Avaya Telephony Sets</i>	
Avaya 1600 Series IP Telephones	Avaya 1600 IP Telephone Release 1.300B
Avaya 5600 Series IP Telephones	Avaya 5600 IP Telephone Release 2.9.1
Avaya 9600 Series IP Telephones	Avaya one-X® Deskphone S6.016T
Avaya 2420 Digital Telephone	2420 Digital Telephone Release 6.0
<i>Ascom Products</i>	
Ascom Wireless IP-DECT Base Station	IPBS[4.1.33], Bootcode[4.1.24]
Ascom d62 Wireless IP-DECT Handset	Firmware 3.2.22
Ascom d41 Wireless IP-DECT Handset	Firmware 3.2.22
Ascom Device Manger (WinPDM)	WinPDM 3.8.1

5. Avaya IP Office & Extension Configuration

5.1. Avaya IP Office Configuration

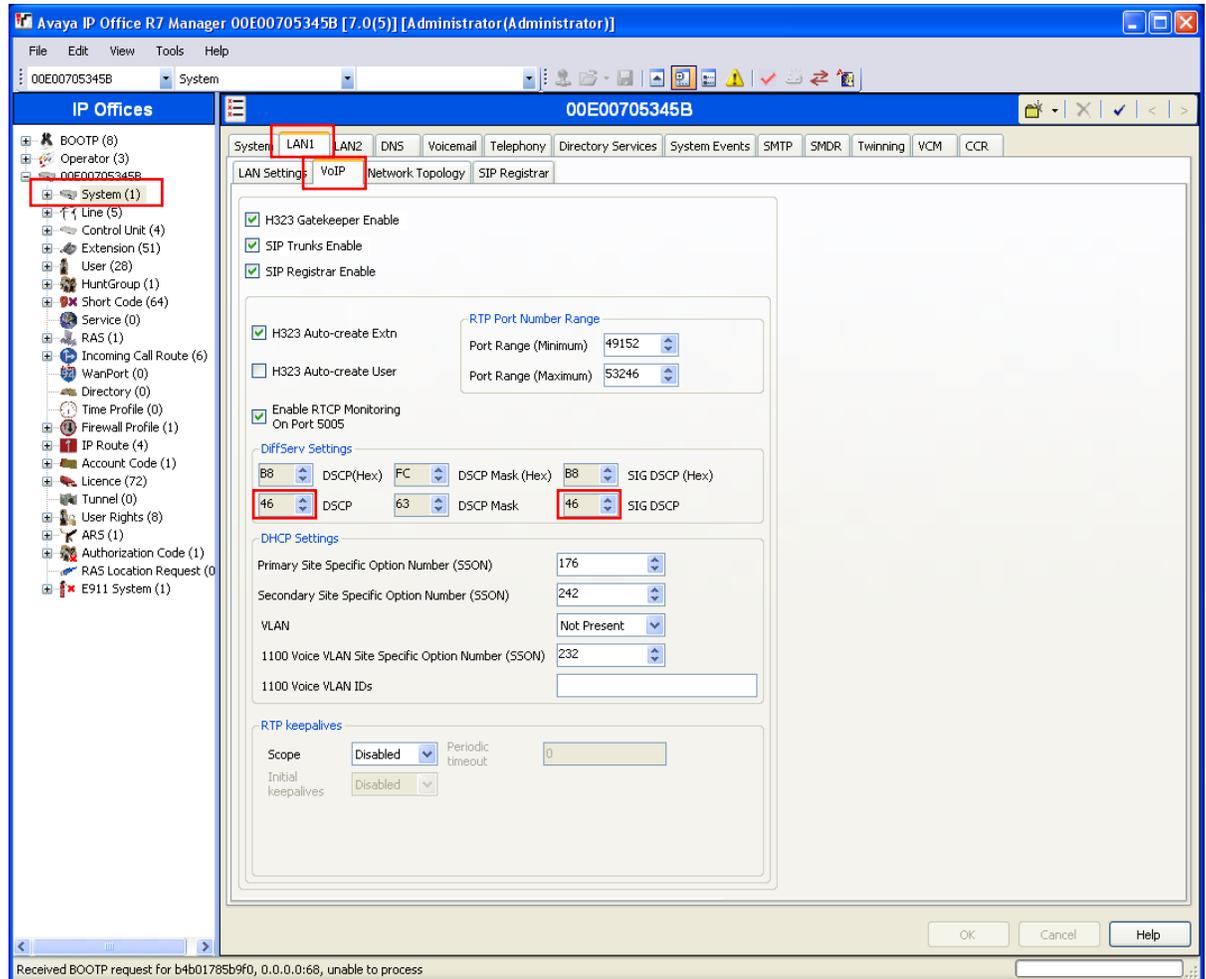
This section was included to verify that IP Office was configured correctly. Except where stated, the parameters in all steps are the default settings and are supplied for reference. For all other provisioning information such as provisioning of the trunks, call coverage and voice mail, please refer to the IP Office product documentation in **Section 9**.

Step	Description
1.	IP Office is configured via the Avaya IP Office Manager program. Log into the IP Office Manager PC and select Start → Programs → IP Office → Manager to launch the IP Office Manager application. Select File → Open to search for IP Offices in the network. Click on the appropriate IP Office. Click OK to continue Log into the IP Office Manager application using the appropriate credentials.
2.	<p>The main IP Office Manager window appears. The following steps refer to the Configuration Tree which is in the left pane of the window and under the heading IP Offices.</p>  <p>The screenshot shows the Avaya IP Office Manager configuration window for system 00E00705345B. The window title is "Avaya IP Office R7 Manager 00E00705345B [7.0(5)] [Administrator(Administrator)]". The main configuration pane is divided into sections: Contact Information, Time Settings, and other system parameters. The Contact Information section includes fields for Name (00E00705345B), Locale (United States (US English)), and a text area for special control. The Time Settings section includes Time Server Address (0.0.0.0) and Time Offset (00:00). Other parameters include TFTP Server IP Address (10.64.21.65), HTTP Server IP Address (0.0.0.0), Phone File Server Type (Manager), Manager PC IP Address (0.0.0.0), Avaya HTTP Clients Only (checked), Enable SoftPhone HTTP Provisioning (checked), Automatic Backup Command (checked), Time Setting Config Source (Voicemail Pro/Manager), File Writer IP Address (192.168.42.203), Dongle Serial Number (Local 5128741), AVPP IP Address (0.0.0.0), and Hide Auto Recording (unchecked). The bottom status bar shows "Received BOOTP request for b4b0178ca89d, 0.0.0.0:68, unable to process".</p>

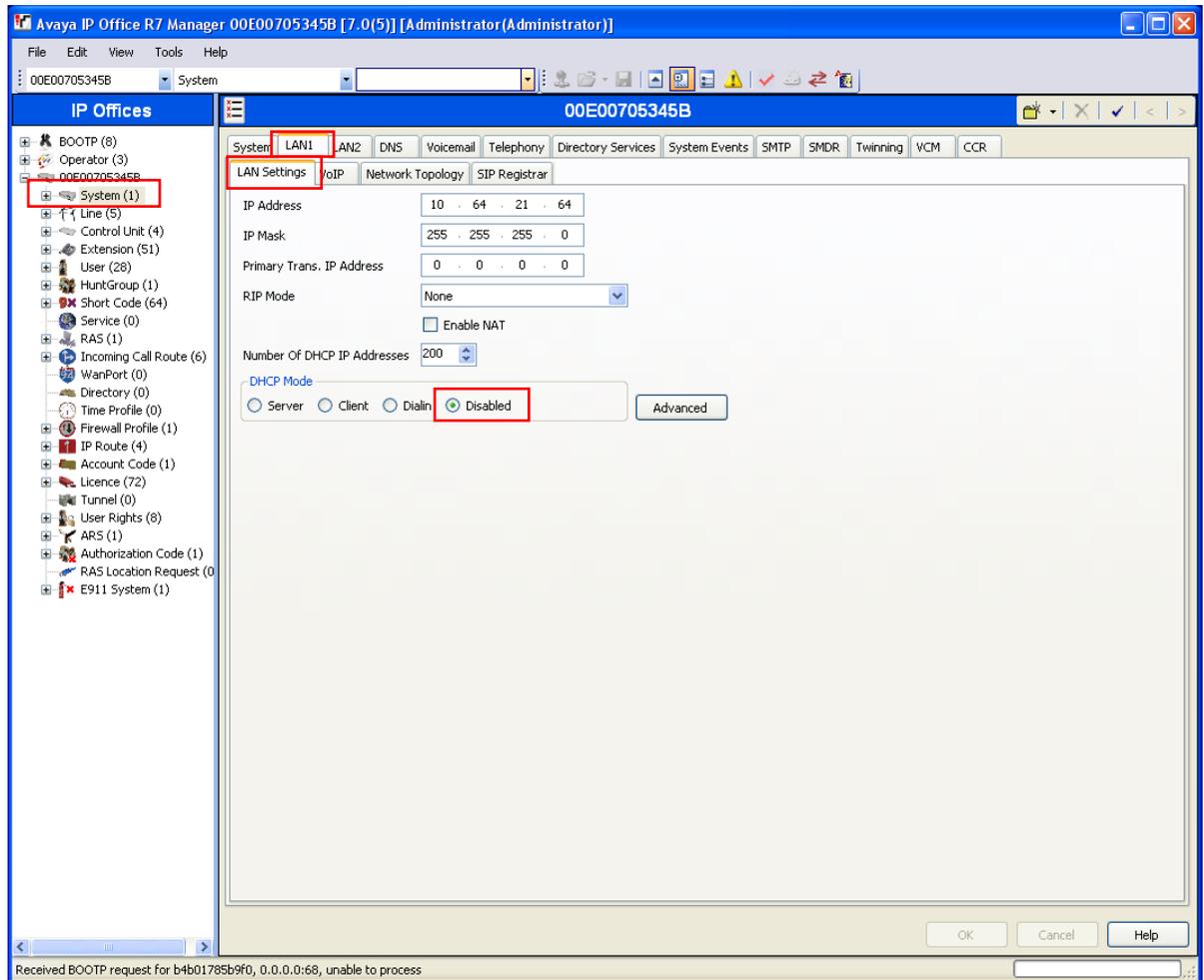
3. Verify VoIP information.

The Avaya IP Telephones will get Differentiated Services information from the IP Office. In the Manager window, from the Configuration Tree, click **System** → **LAN1** → **VoIP** Verify that the **DiffServ Settings** for **DSCP** and **SIG DSCP** are both set to **46**. If they are not **46**, change them and then click **OK** to continue.

Note: 00E00705345B is the MAC address of this specific IP Office and will be different for all IP Offices.

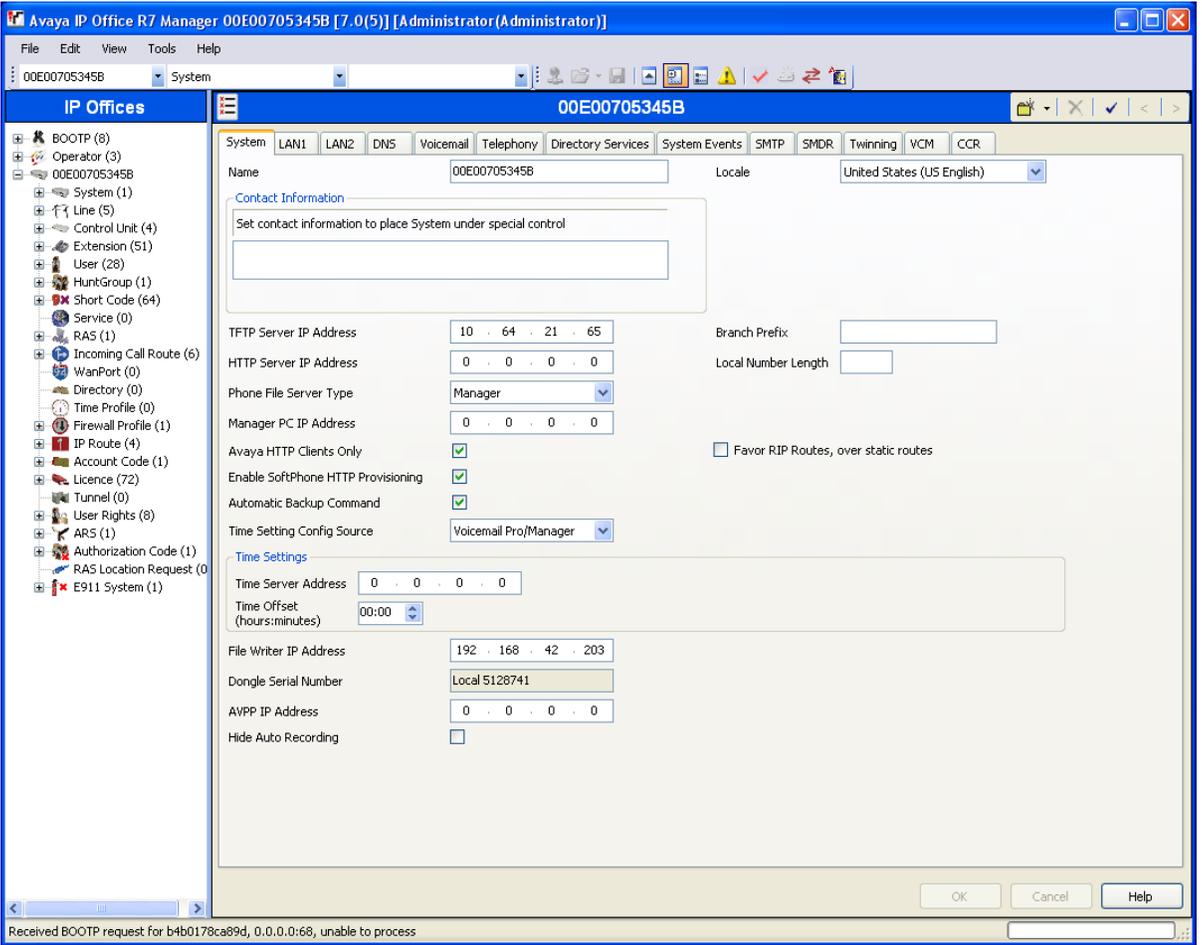


4. Disable DHCP server on IP Office.
From the Configuration Tree, click **System** → **LAN1** → **LAN Settings**. Set the **DHCP Mode** to **Disabled**. Click **OK** to continue.

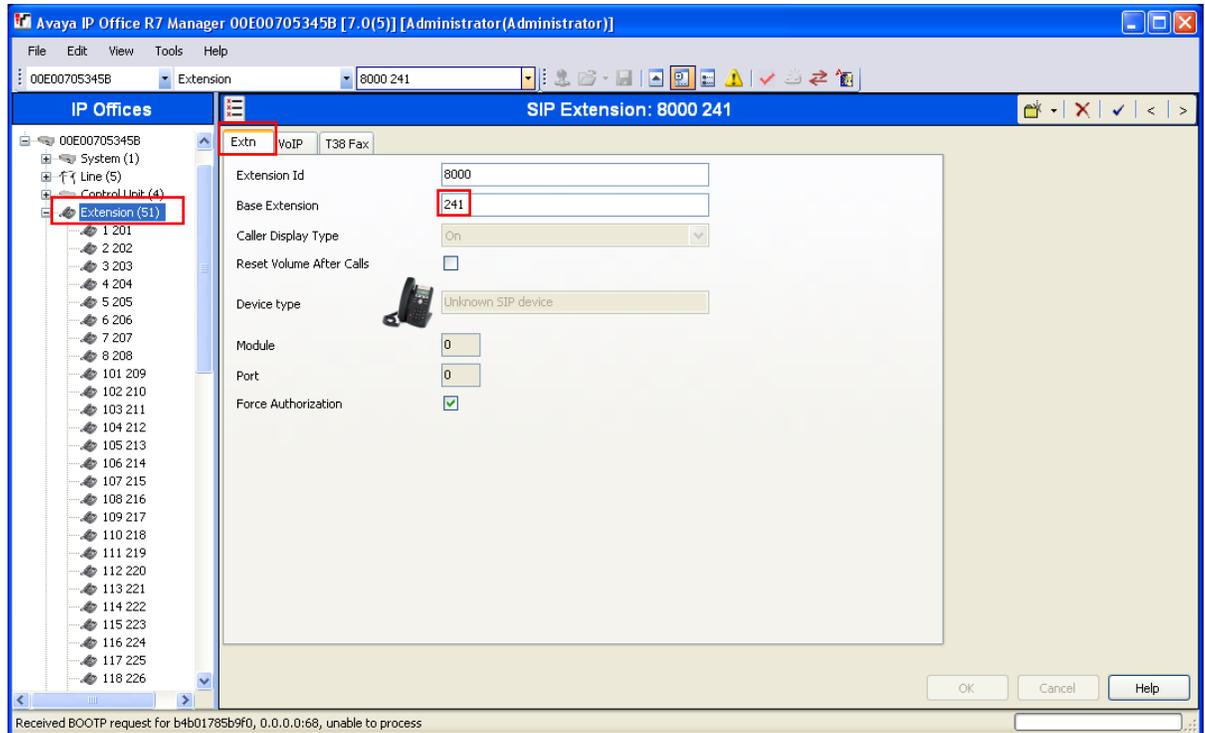


5.2. SIP Extension Configuration

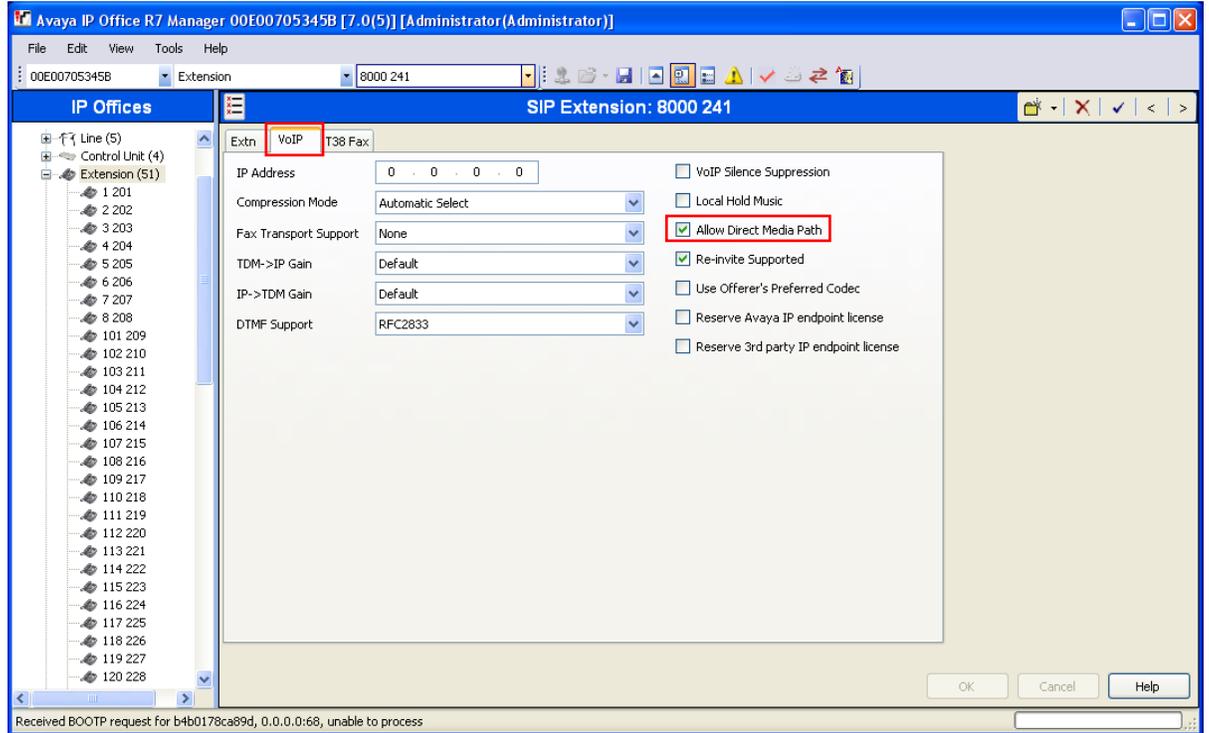
This section was included to show basic SIP Extension configuration. Except where stated, the parameters in all steps are the default settings and are supplied for reference. For all other provisioning information such as provisioning of the trunks, call coverage and voice mail, please refer to the IP Office product documentation in **Section 9**.

Step	Description
1.	IP Office is configured via the Avaya IP Office Manager program. Log into the IP Office Manager PC and select Start → Programs → IP Office → Manager to launch the IP Office Manager application. Select File → Open to search for IP Offices in the network. Click on the appropriate IP Office. Click OK to continue. Log into the IP Office Manager application using the appropriate credentials.
2.	<p>The main IP Office Manager window appears. The following steps refer to the Configuration Tree which is in the left pane of the window and under the heading IP Offices.</p> 

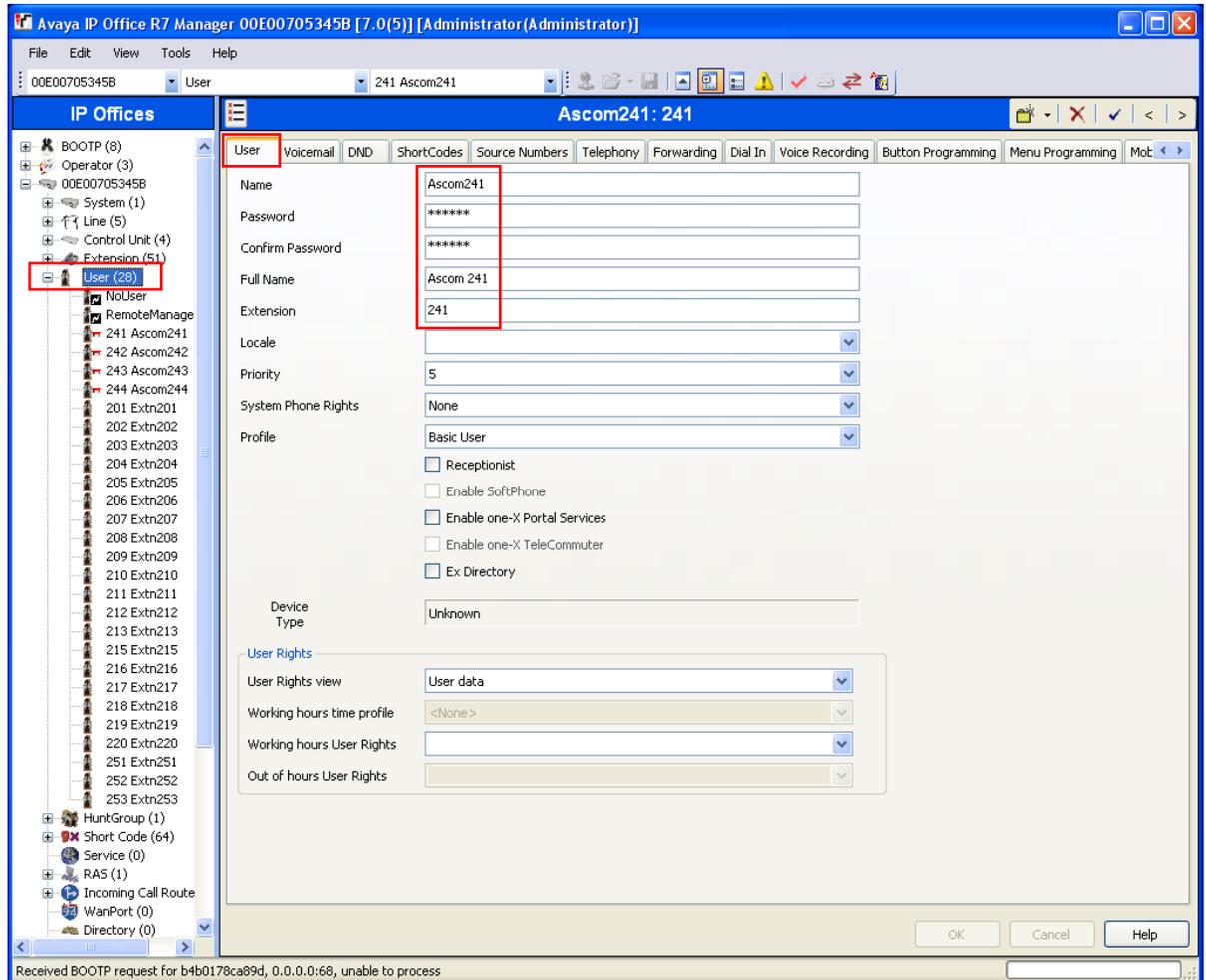
3. Create SIP Extension.
From the Configuration Tree, right mouse click on **Extension** and select **New → SIP Extension** (not shown). Enter a unique **Base Extension**.



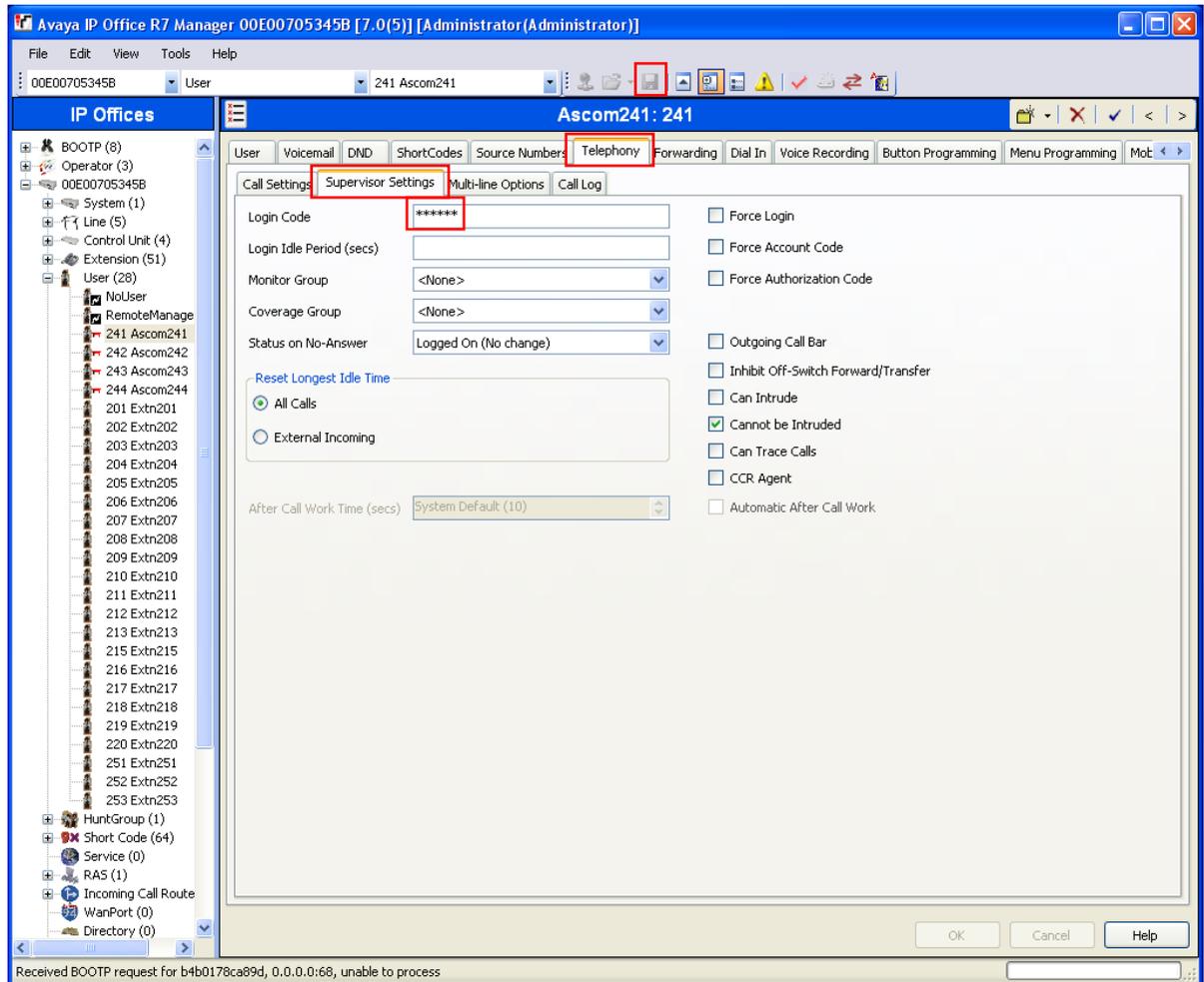
4. Verify Direct Media Path.
Click the **VoIP** tab. Verify that **Allow Direct Media Path** is checked. Click **OK** to continue.



5. Create User.
From the Configuration Tree, right mouse click on **User** and select **New** (not shown). Enter a user **Name** for the extension that was created in **Step 3**. Enter a **Password** and **Confirm Password** value. Enter the **Extension** that was created in **Step 3**.



6. Click **Telephony** tab and **Supervisor Settings** sub-tab. Enter a **Login Code**. 123456 was used for the compliance testing. The **Login Code** is used by the Ascom IP-DECT Handset to log into the IP Office, it will be configured in **Section 6.1, Step 17**. Click **OK** to continue. The changes must be saved before they will take effect, click to the  icon to save the configuration.



7. Repeat **Step 3** thru to **Step 6** for additional Extensions.

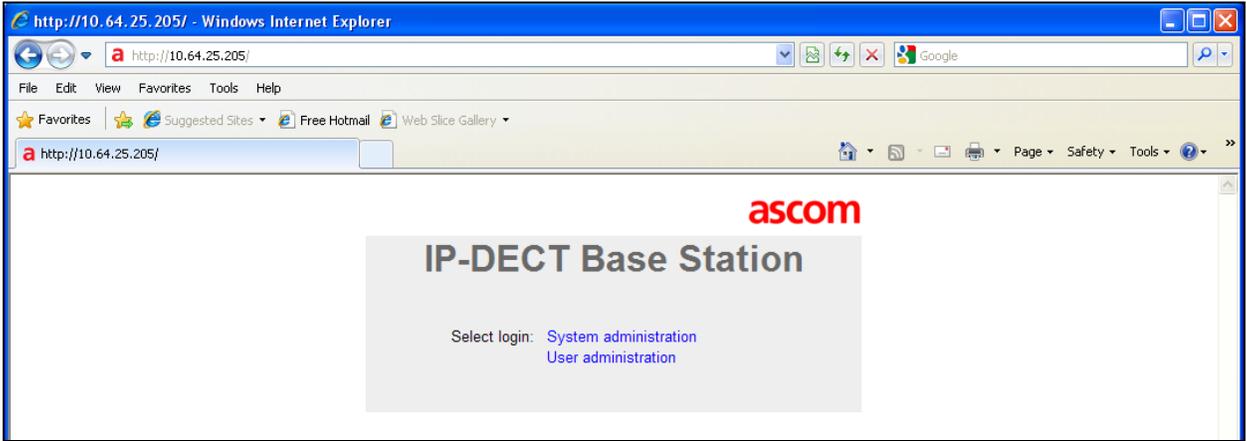
6. Configure Ascom Wireless IP-DECT SIP Solution

The following steps detail the initial configuration for the Ascom Wireless IP-DECT SIP Solution.

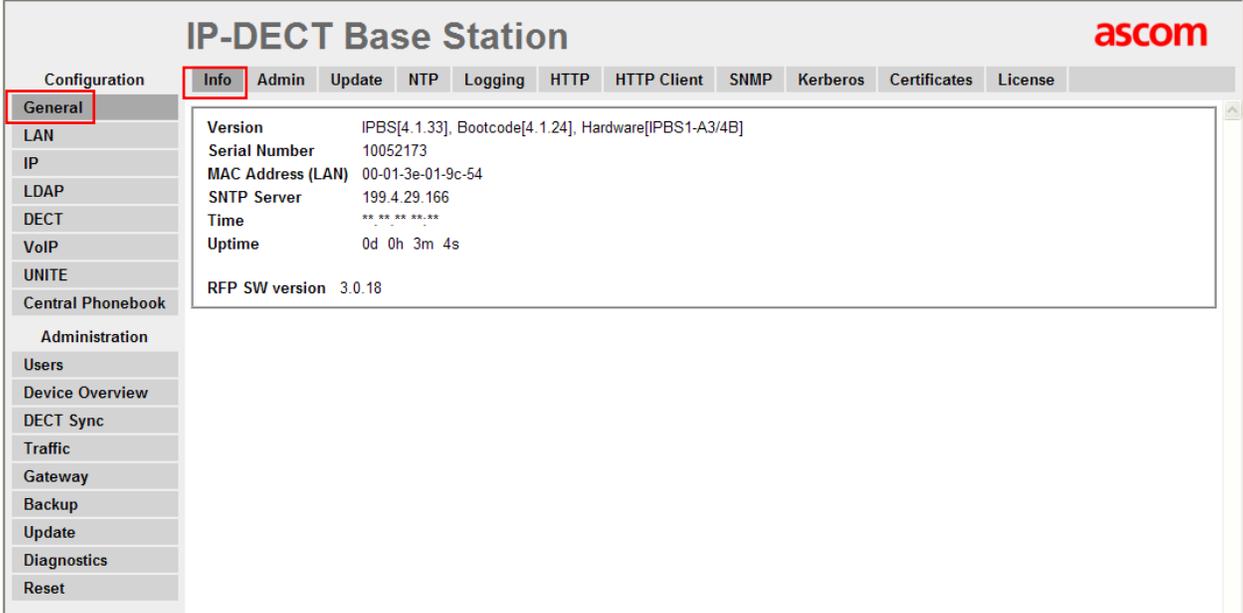
6.1. Configure Ascom Wireless IP-DECT Base Station

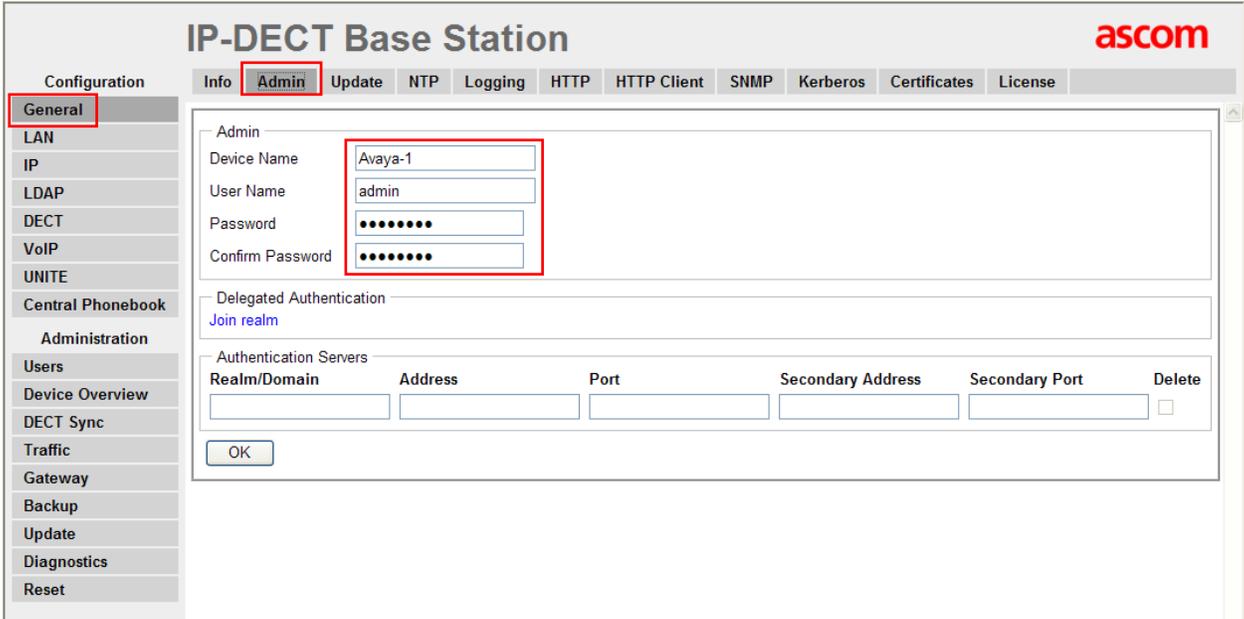
The Ascom wireless IP-DECT Base Stations can be configured in a Master/Standby Master scenario to provide redundancy or to extend the radius of coverage (roaming). The following configuration steps detail the configuration process used to configure an Ascom wireless IP-DECT Base Station in Master mode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

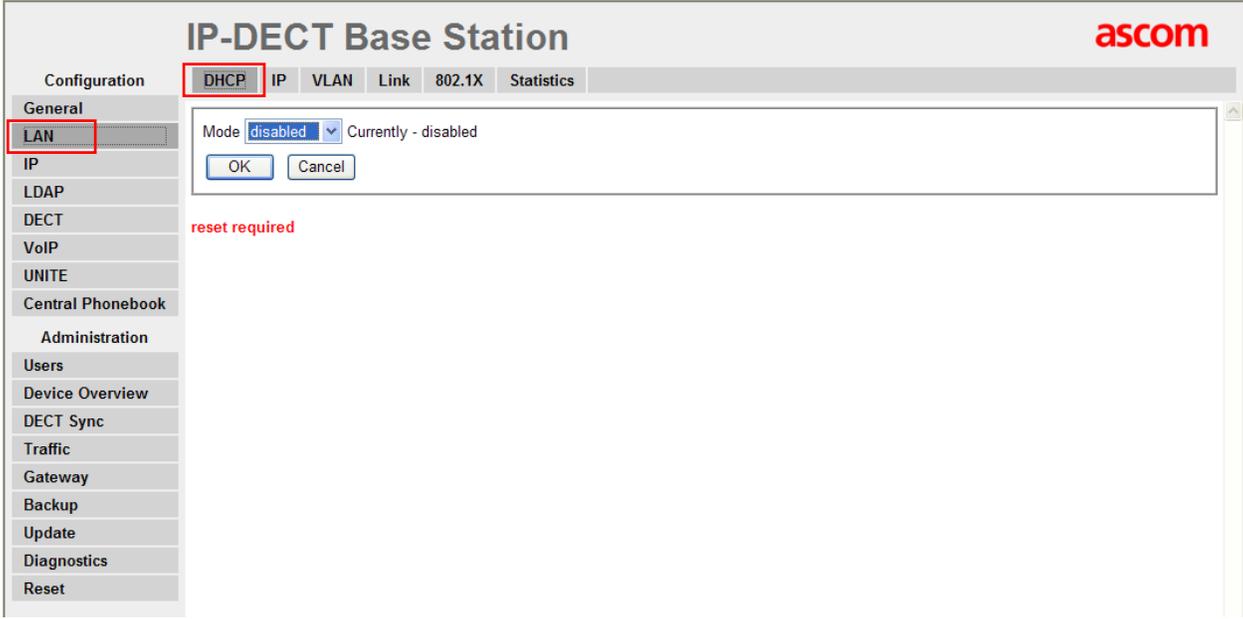
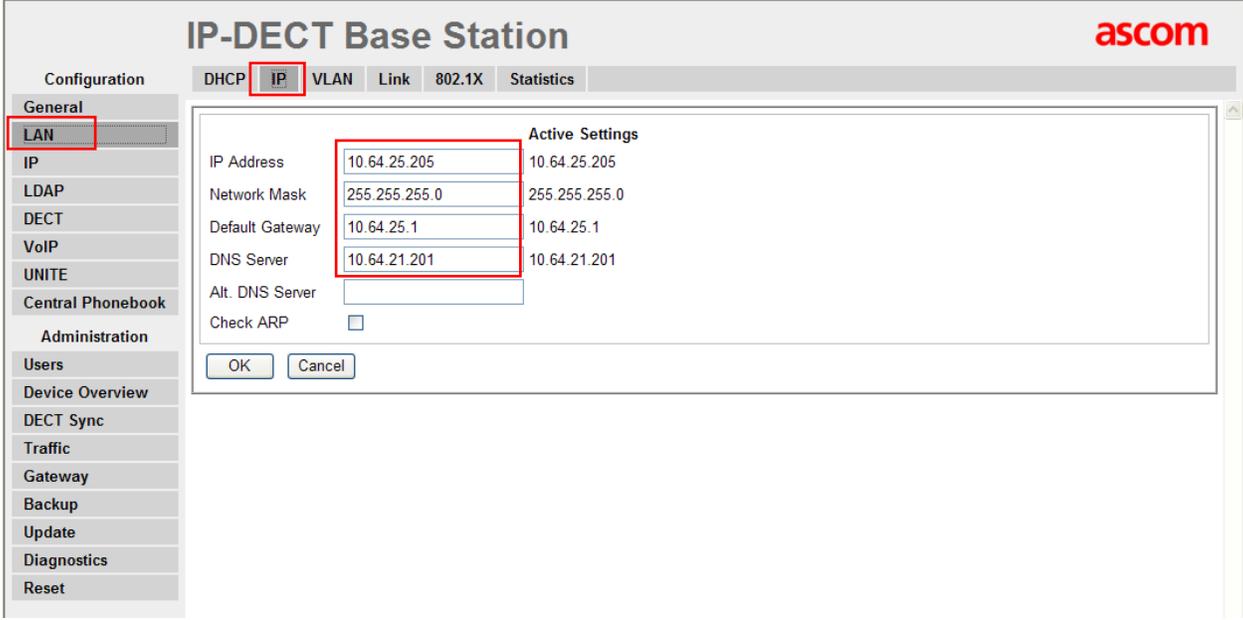
Roaming between multiple Ascom Wireless IP-DECT Base Stations as shown in **Figure 1** was tested but the configuration setup will not be shown in this document. Refer to the Ascom document in **Section 9** for information on how to configure roaming.

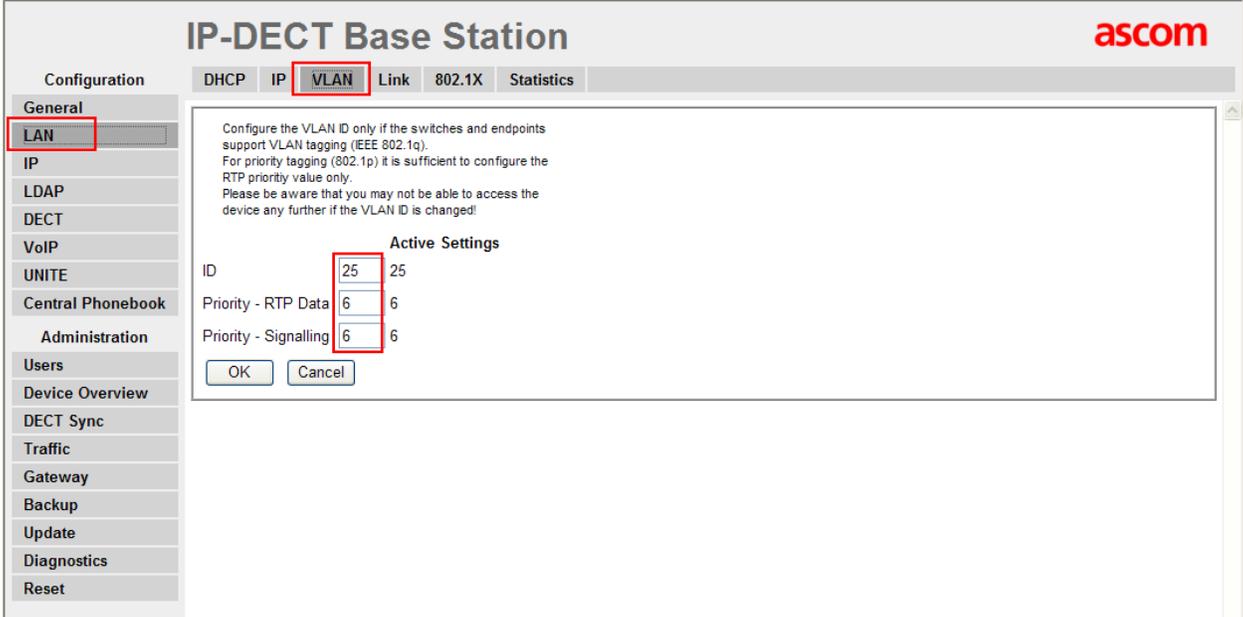
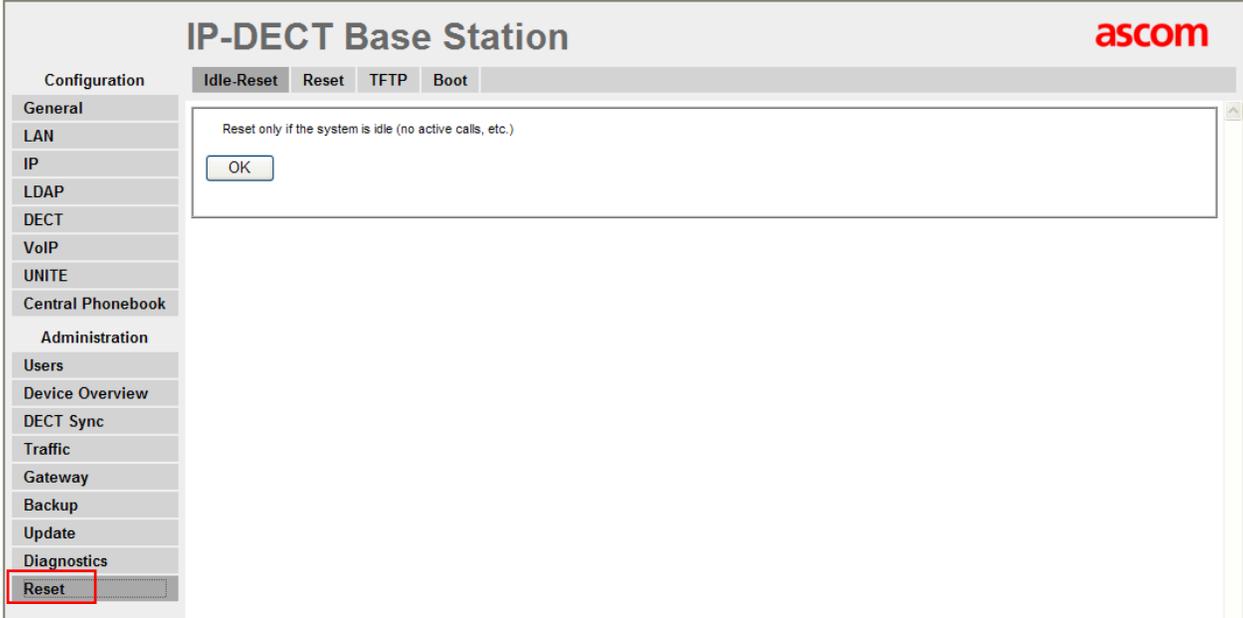
Step	Description
1.	<p>The Ascom wireless IP-DECT Base Station is access via a web browser. Enter the IP address of the Base Station as the URL. Alternately, if DNS is being used and configured properly (refer to the Ascom document for details), enter the URL format: http://IPBS-XX-XX-XX, where XX-XX-XX are the last 3 bytes of the MAC address of the Ascom wireless IP-DECT Base Station. For example, an Ascom wireless IP-DECT Base Station with a MAC address of 00-01-3E-00-CB-DB could be accessed using http://IPBS-00-CB-DB.</p> <p>The user will be presented with the screen shown below. Click the System administration link.</p> 

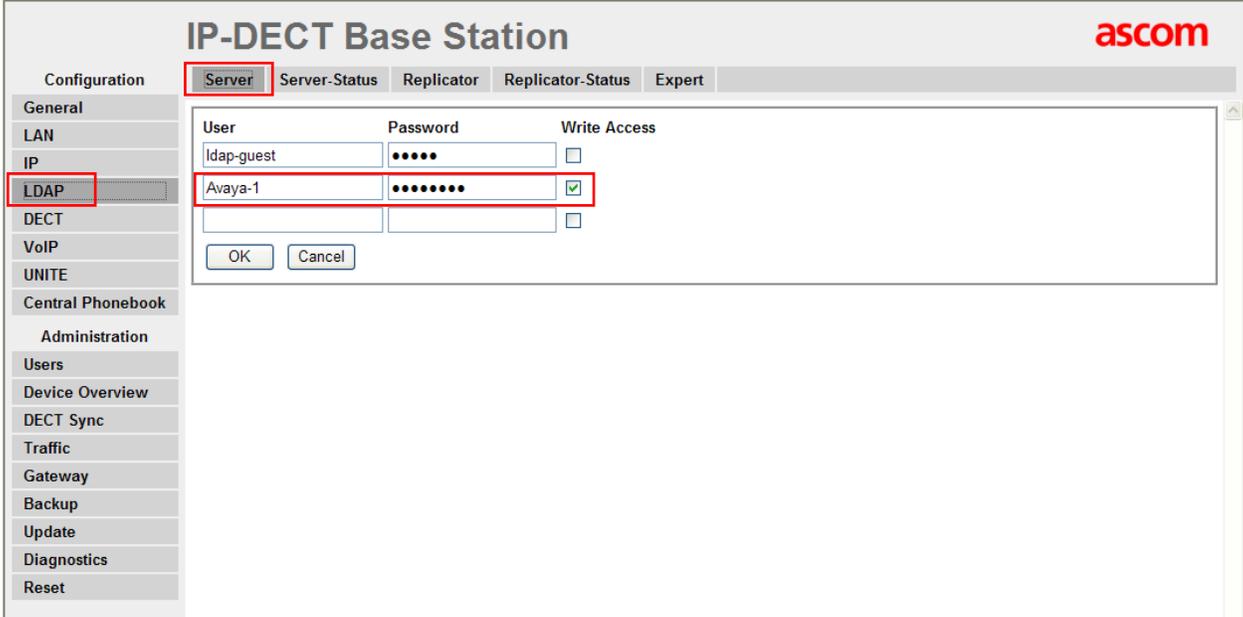
Step	Description
2.	<p>Log in with the appropriate credentials to access the Ascom wireless IP-DECT Base Station and then click OK.</p> <div data-bbox="574 342 1224 940" data-label="Image"></div>

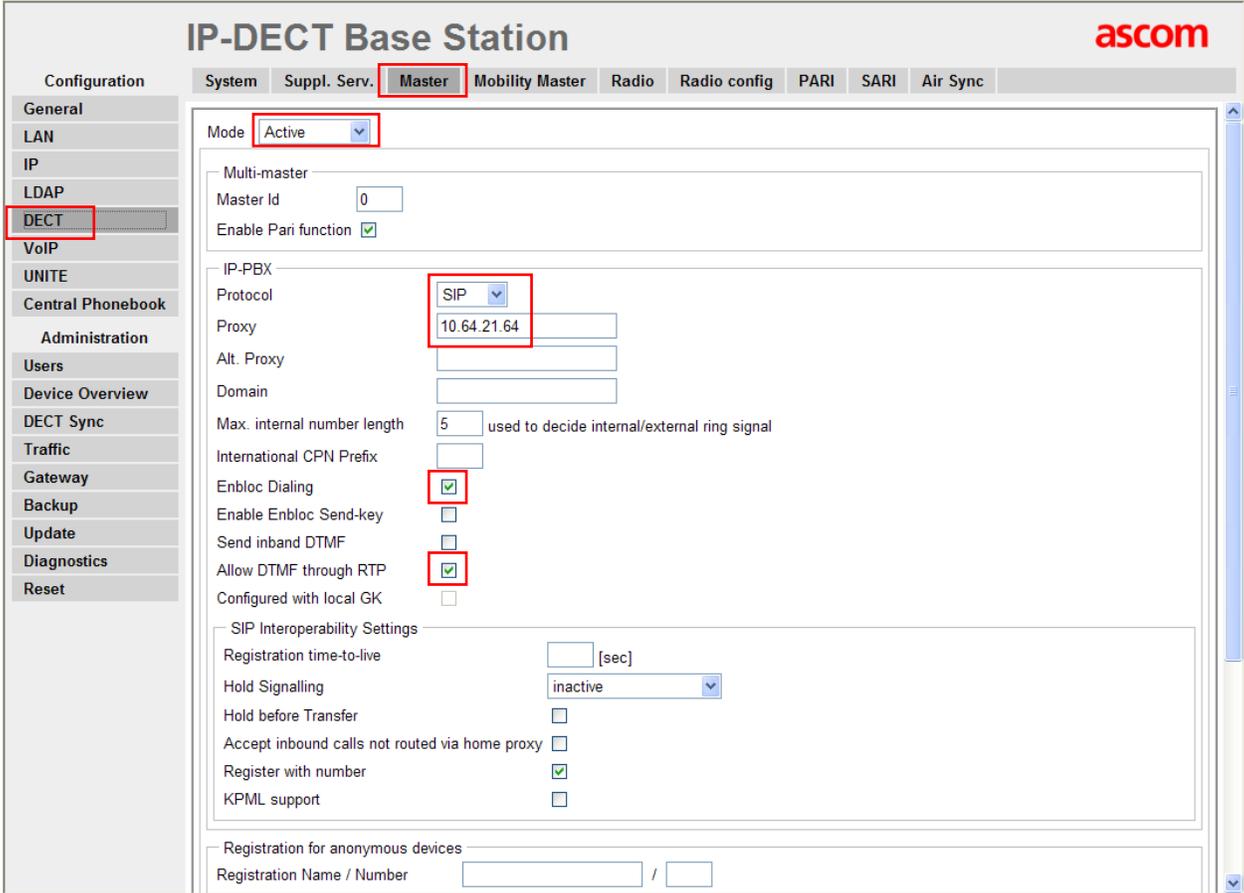
Step	Description														
3.	<p>The user is presented with the General Info frame where the system information for the Ascom wireless IP-DECT Base Station is displayed.</p> <p>The web interface on the Ascom wireless IP-DECT Base Station consists of a series of frames selected by a two-click process, where a category and then an option are clicked. Categories are found below Configuration, which is displayed in the top left portion of the frame, and options are found to the right.</p>  <p>The screenshot shows the 'IP-DECT Base Station' web interface. At the top right is the 'ascom' logo. Below the title is a navigation bar with tabs: Configuration, Info (highlighted with a red box), Admin, Update, NTP, Logging, HTTP, HTTP Client, SNMP, Kerberos, Certificates, and License. On the left is a sidebar menu with categories: Configuration (General, LAN, IP, LDAP, DECT, VoIP, UNITE, Central Phonebook), Administration (Users, Device Overview, DECT Sync, Traffic, Gateway, Backup, Update, Diagnostics, Reset). The main content area displays system information:</p> <table border="1"> <tr> <td>Version</td> <td>IPBS[4.1.33], Bootcode[4.1.24], Hardware[IPBS1-A3/4B]</td> </tr> <tr> <td>Serial Number</td> <td>10052173</td> </tr> <tr> <td>MAC Address (LAN)</td> <td>00-01-3e-01-9c-54</td> </tr> <tr> <td>SNTP Server</td> <td>199.4.29.166</td> </tr> <tr> <td>Time</td> <td>*****</td> </tr> <tr> <td>Uptime</td> <td>0d 0h 3m 4s</td> </tr> <tr> <td>RFP SW version</td> <td>3.0.18</td> </tr> </table>	Version	IPBS[4.1.33], Bootcode[4.1.24], Hardware[IPBS1-A3/4B]	Serial Number	10052173	MAC Address (LAN)	00-01-3e-01-9c-54	SNTP Server	199.4.29.166	Time	*****	Uptime	0d 0h 3m 4s	RFP SW version	3.0.18
Version	IPBS[4.1.33], Bootcode[4.1.24], Hardware[IPBS1-A3/4B]														
Serial Number	10052173														
MAC Address (LAN)	00-01-3e-01-9c-54														
SNTP Server	199.4.29.166														
Time	*****														
Uptime	0d 0h 3m 4s														
RFP SW version	3.0.18														

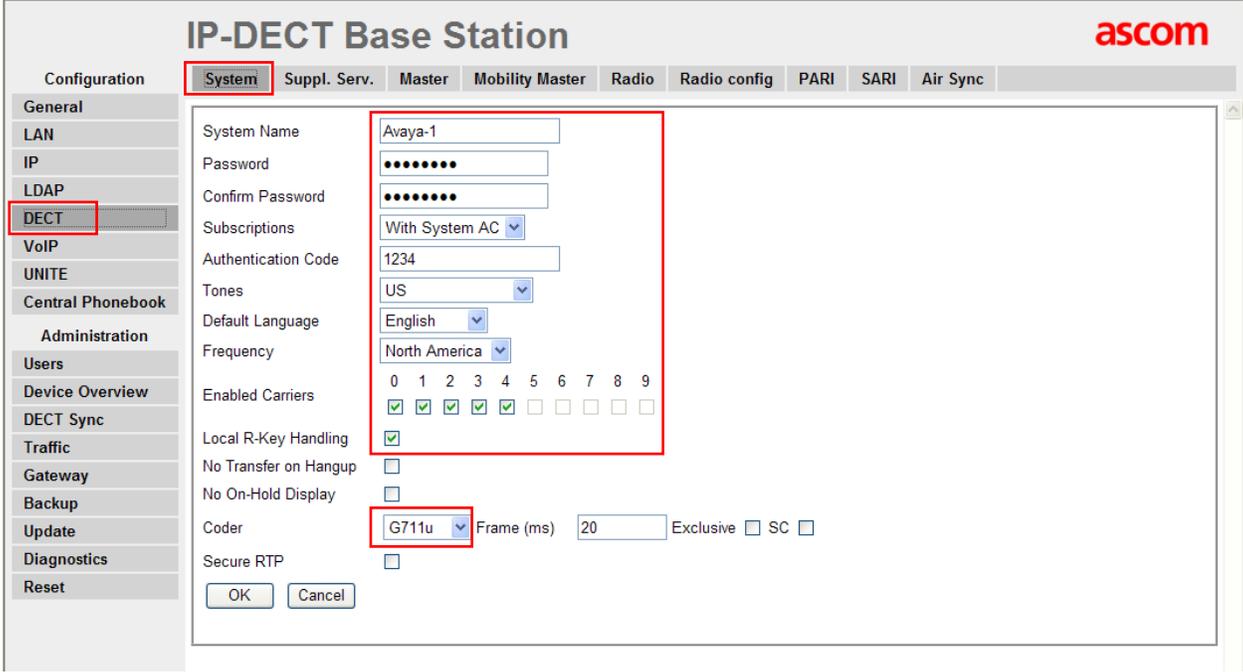
Step	Description
4.	<p>Navigate to the General Admin frame by clicking General and then clicking Admin. Configure the fields displayed below and then click OK. The Device Name can be any descriptive name that identifies this Ascom wireless IP-DECT Base Station. In the sample network the name “Avaya-1” was chosen. The User Name and Password fields were populated using the default credentials. The box below Password is to confirm the password and the value entered for the Password field must be entered here. Click OK to continue.</p> 

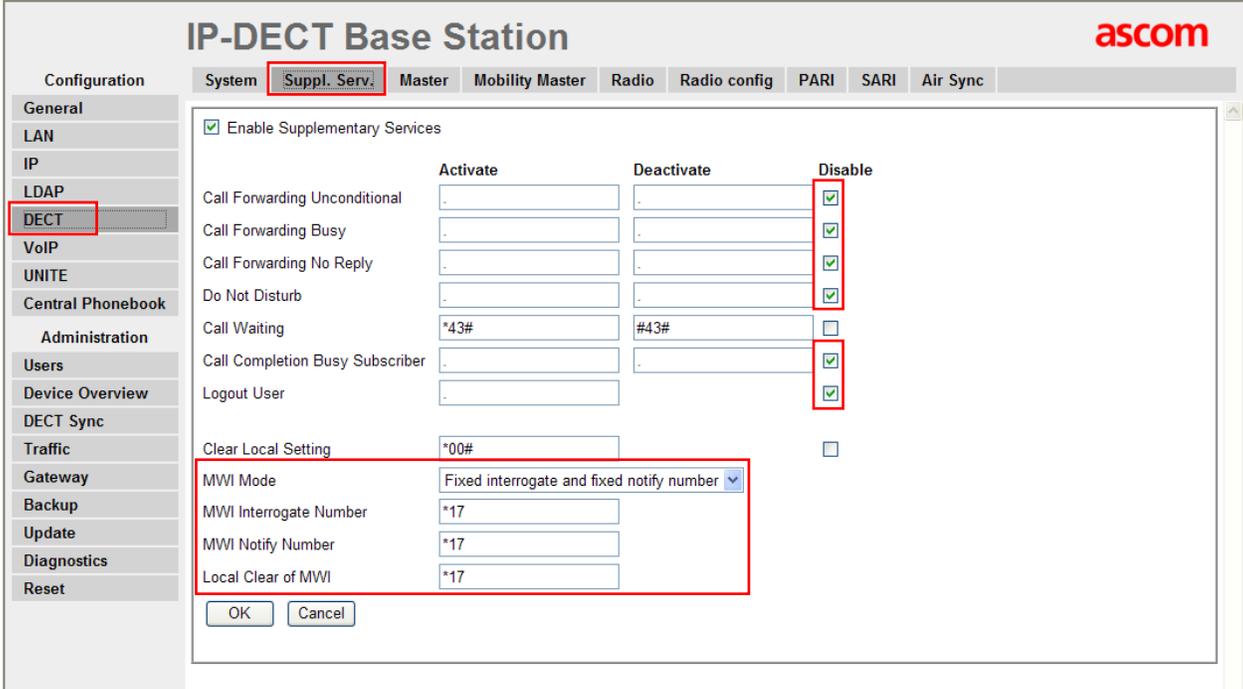
Step	Description																					
5.	<p>Navigate to the LAN DHCP frame by first clicking LAN and then clicking DHCP. Using the drop-down list, set Mode to “disabled” and then click OK. This will present the user with the clickable red text which reads “reset required”.</p>  <p>The screenshot shows the 'IP-DECT Base Station' configuration page with the 'DHCP' tab selected. The 'Mode' dropdown is set to 'disabled', and a red 'reset required' message is visible below the configuration area. The left sidebar shows 'LAN' selected under the 'General' section.</p>																					
6.	<p>Click IP tab to continue to the LAN IP frame. Set the static IP Address, Network Mask, Default Gateway, and DNS Server (if being used), and click OK.</p>  <p>The screenshot shows the 'IP-DECT Base Station' configuration page with the 'IP' tab selected. The 'Active Settings' table is populated with the following values:</p> <table border="1" data-bbox="467 1255 1490 1539"> <thead> <tr> <th>Setting</th> <th>Value</th> <th>Active Settings</th> </tr> </thead> <tbody> <tr> <td>IP Address</td> <td>10.64.25.205</td> <td>10.64.25.205</td> </tr> <tr> <td>Network Mask</td> <td>255.255.255.0</td> <td>255.255.255.0</td> </tr> <tr> <td>Default Gateway</td> <td>10.64.25.1</td> <td>10.64.25.1</td> </tr> <tr> <td>DNS Server</td> <td>10.64.21.201</td> <td>10.64.21.201</td> </tr> <tr> <td>Alt. DNS Server</td> <td></td> <td></td> </tr> <tr> <td>Check ARP</td> <td><input type="checkbox"/></td> <td></td> </tr> </tbody> </table> <p>The left sidebar shows 'LAN' selected under the 'General' section.</p>	Setting	Value	Active Settings	IP Address	10.64.25.205	10.64.25.205	Network Mask	255.255.255.0	255.255.255.0	Default Gateway	10.64.25.1	10.64.25.1	DNS Server	10.64.21.201	10.64.21.201	Alt. DNS Server			Check ARP	<input type="checkbox"/>	
Setting	Value	Active Settings																				
IP Address	10.64.25.205	10.64.25.205																				
Network Mask	255.255.255.0	255.255.255.0																				
Default Gateway	10.64.25.1	10.64.25.1																				
DNS Server	10.64.21.201	10.64.21.201																				
Alt. DNS Server																						
Check ARP	<input type="checkbox"/>																					

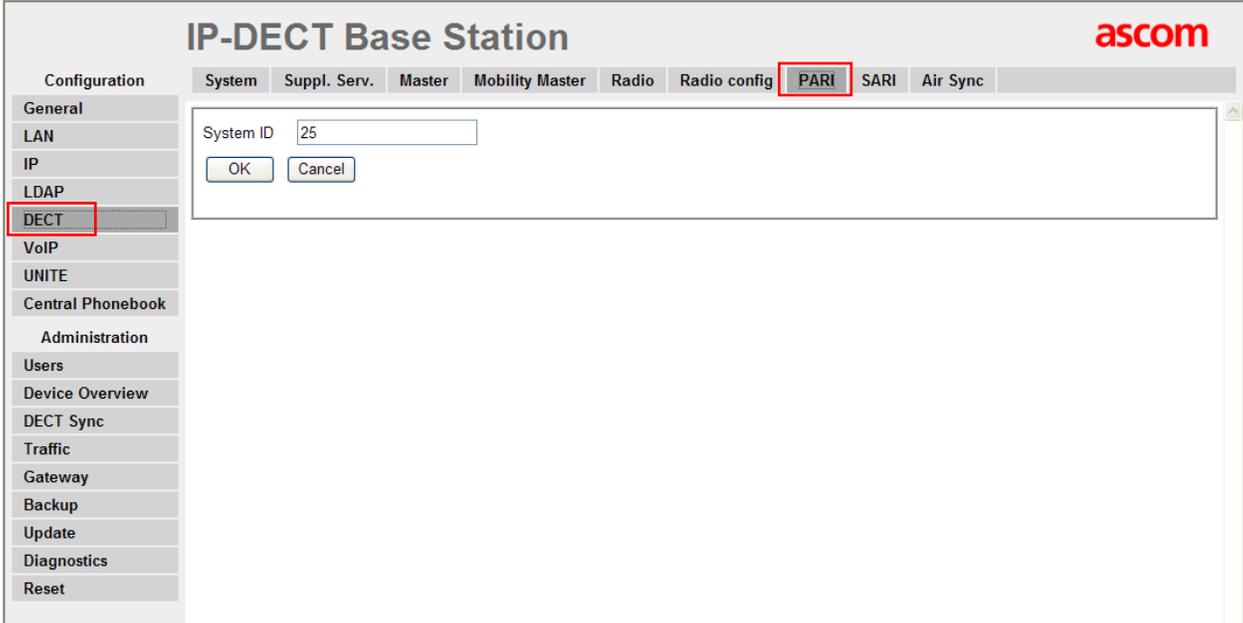
Step	Description
7.	<p>Click the VLAN tab to continue. Set the ID, Priority – RTP Data, and Priority – Signalling, and click OK. This applies only to the Ascom IPBS when connected to a trunk port.</p> 
8.	<p>Click Reset to continue. Click OK to initiate the system reset. Many of the other changes made to the system during the configuration process require a reboot. Repeat this process whenever a reset is required.</p> 

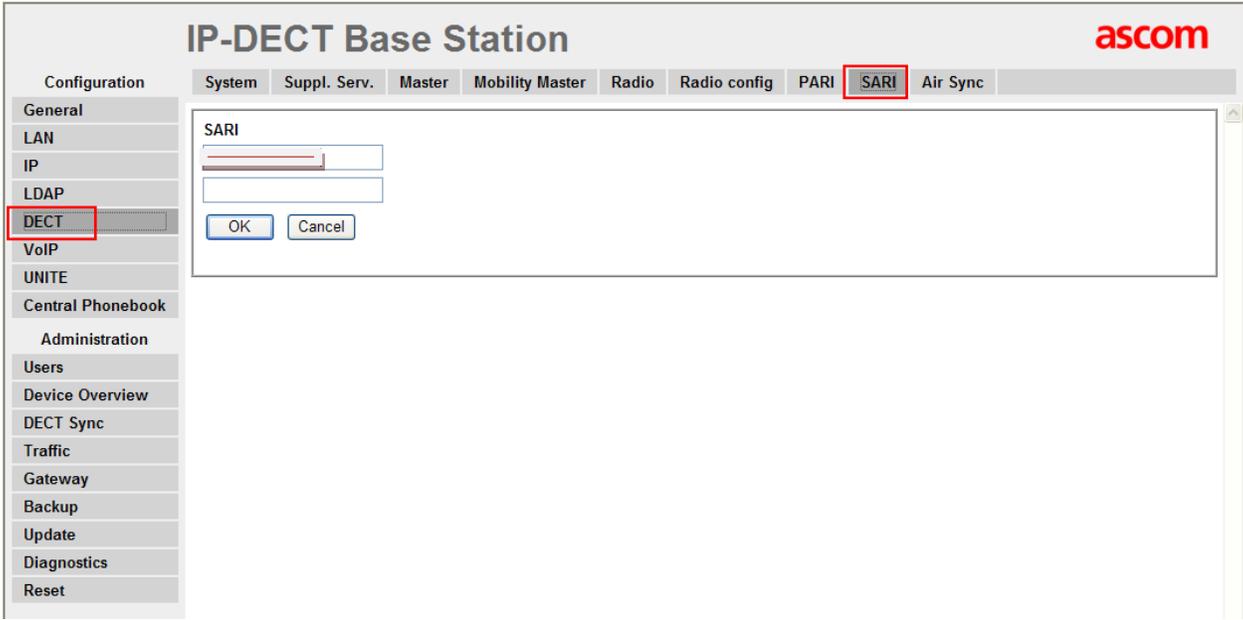
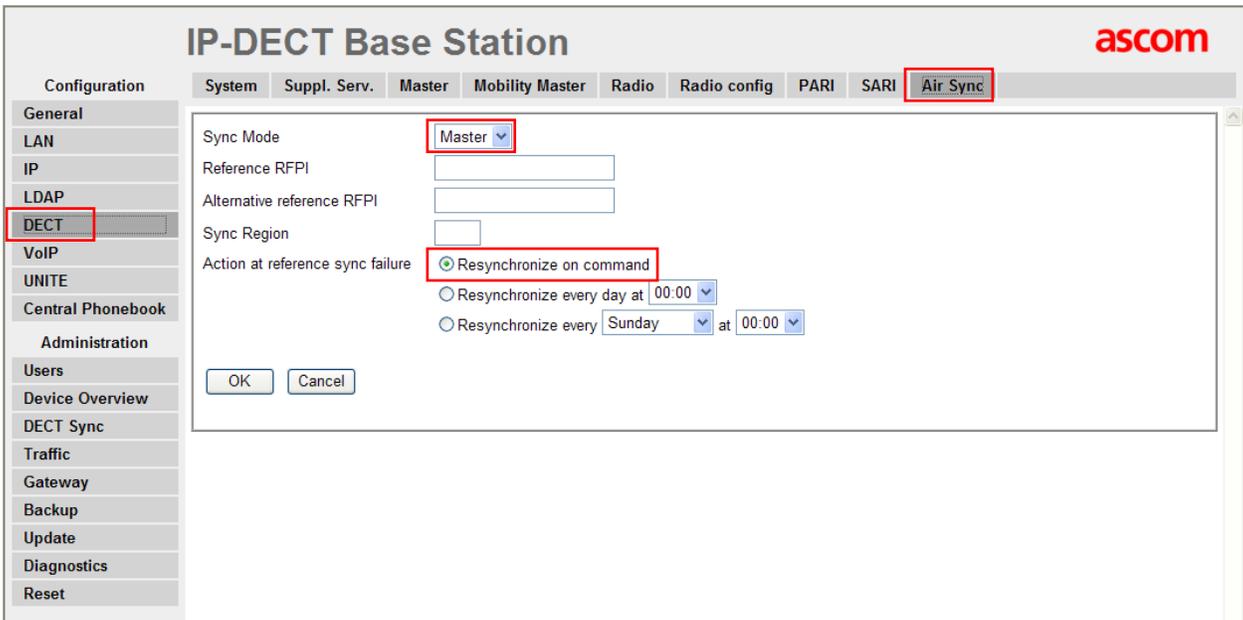
Step	Description
9.	<p>After the Ascom wireless IP-DECT Base Station (Avaya-1) has rebooted, navigate to the LDAP Server frame by clicking LDAP and then clicking Server. The “ldap-guest” account is a default system account. Configure User using the Device Name used in Step 4. Configure the Password field with the Password used in Step 4. Check the Write Access check box for the “Avaya-1” user account and then click OK to continue. LDAP replication is configured in order to copy user information to a Standby Master (please refer to Ascom documentation).</p>  <p>The screenshot shows the 'IP-DECT Base Station' configuration interface. The 'LDAP' menu item is selected in the left sidebar. The 'Server' tab is active. A table lists users: 'ldap-guest' and 'Avaya-1'. The 'Avaya-1' user has its 'Write Access' checkbox checked. The 'OK' button is highlighted.</p>

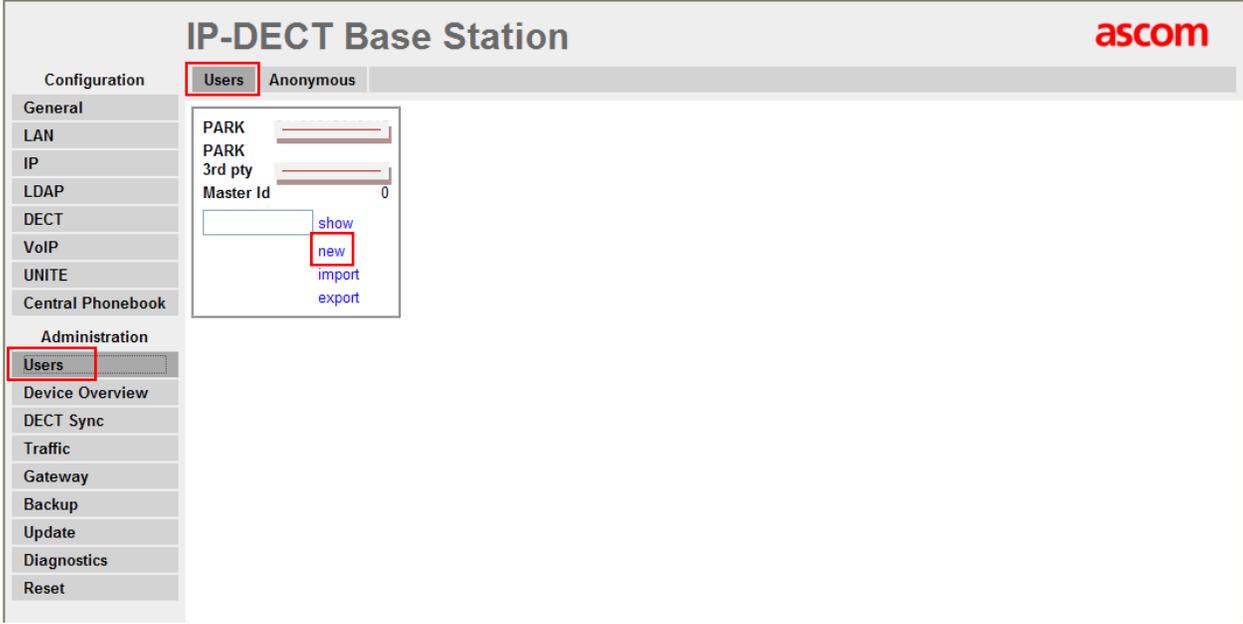
Step	Description
10.	<p>Navigate to the DECT Master frame by clicking DECT and then clicking Master. Configure the fields displayed below and then click OK. Use the drop-down list for Mode and select “Active”. Under IP-PBX, use the drop-down list for Protocol and select “SIP”. Set Proxy to the IP address of the IP Office (see Figure 1). Check the Enbloc Dialing check box. Check the Allow DTMF through RTP check box. Click OK.</p>  <p>The screenshot shows the 'IP-DECT Base Station' configuration window with the 'Master' tab active. The left sidebar has 'DECT' highlighted. The main configuration area shows: <ul style="list-style-type: none"> Mode: Active (dropdown) Multi-master: Master Id: 0, Enable Pari function: checked IP-PBX: Protocol: SIP (dropdown), Proxy: 10.64.21.64 (text field) Enbloc Dialing: checked Allow DTMF through RTP: checked SIP Interoperability Settings: Registration time-to-live: [] [sec], Hold Signalling: inactive (dropdown), Register with number: checked </p>

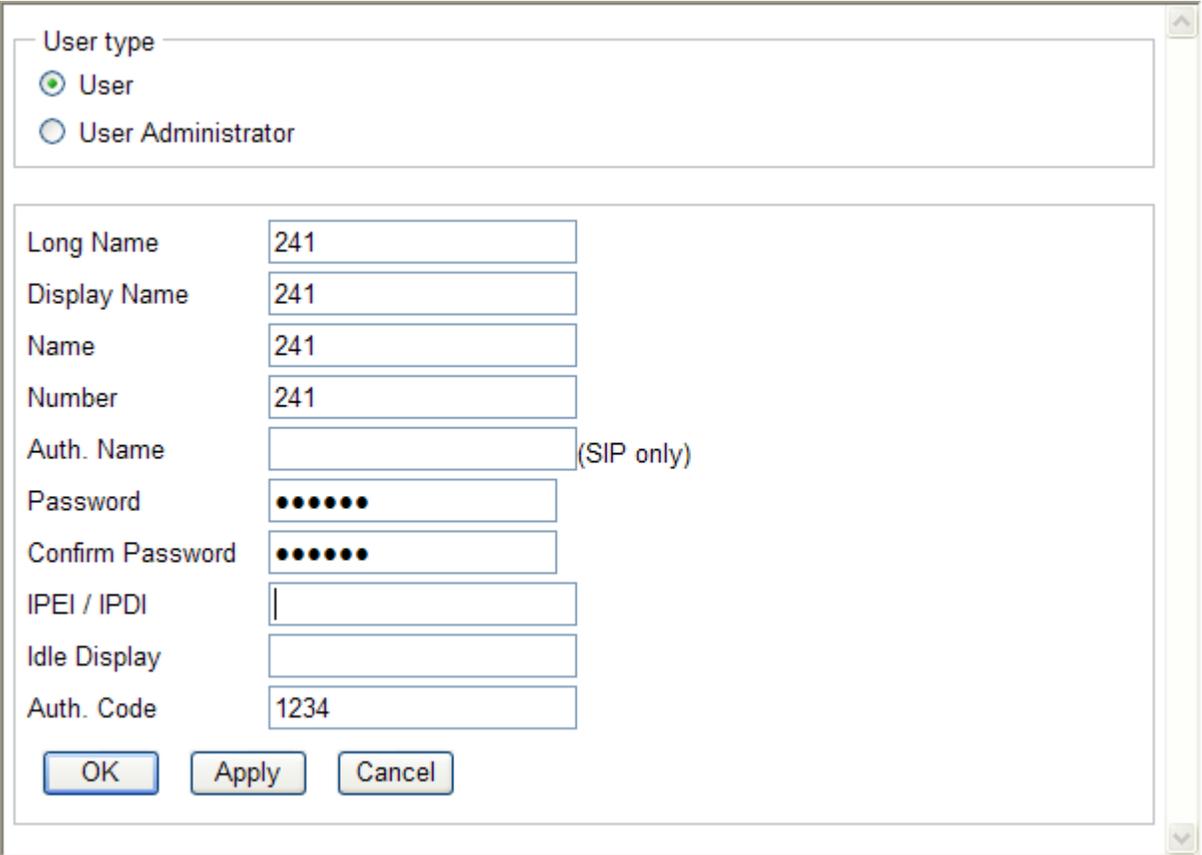
Step	Description
11.	<p>Click System tab to continue. For System Name, enter the Device Name used in Step 4. Password is the Password used in Step 4. The box below Password is to confirm the password and the value configured for Password field must be entered here. Using the drop-down list for Subscriptions and select “With System AC”. This enables the system to use the Authentication Code when challenging DECT handsets during registration. The Authentication Code is a numerical code that every DECT handset will need to use to subscribe to this system. In the sample configuration, “1234” was used. Use the drop-down list for Tones and select “US”. Use the drop-down list for Default Language and select “English”. Use the drop-down list for Frequency and select “North America”. Check the 0,1,2,3 and 4 check boxes. The Enabled Carriers check boxes enable the DECT handsets to use different channels or frequencies when transmitting. Check the Local R-Key Handling check box. Use the drop-down list for Coder and select “G711u”. Ensure that the codec chosen matches the codec configured on the IP Office. Click the OK button.</p> <p>Note: The G.729A codecs are set the same way.</p> 

Step	Description																																																				
12.	<p>Navigate to the DECT Suppl. Serv. frame by clicking DECT and then clicking Suppl. Serv.. Check the Enable Supplementary Services check box. For compliance testing, the Avaya PBX handled most of the features listed, so these functions were disabled on the Ascom Base Station. Disable the following, Call Forwarding Unconditional, Call Forwarding Busy, Call Forwarding No Reply, Do not Disturb, Call Completion Busy Subscriber and Logout User. Using the drop-down list for MWI Mode, select “Fixed interrogate and fixed notify number”. For MWI Interrogate Number, MWI Notify Number and Local Clear of MWI, enter the extension used for the pilot number of Voicemail Pro. In the sample configuration, *17 was used. Click OK to continue.</p>  <p>The screenshot shows the 'IP-DECT Base Station' configuration page with the 'Suppl. Serv.' tab selected. The 'Enable Supplementary Services' checkbox is checked. The following table summarizes the configuration for various services:</p> <table border="1"> <thead> <tr> <th>Service</th> <th>Activate</th> <th>Deactivate</th> <th>Disable</th> </tr> </thead> <tbody> <tr> <td>Call Forwarding Unconditional</td> <td>-</td> <td>-</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Call Forwarding Busy</td> <td>-</td> <td>-</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Call Forwarding No Reply</td> <td>-</td> <td>-</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Do Not Disturb</td> <td>-</td> <td>-</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Call Waiting</td> <td>*43#</td> <td>#43#</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Call Completion Busy Subscriber</td> <td>-</td> <td>-</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Logout User</td> <td>-</td> <td>-</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Clear Local Setting</td> <td>*00#</td> <td></td> <td><input type="checkbox"/></td> </tr> <tr> <td>MWI Mode</td> <td colspan="3">Fixed interrogate and fixed notify number</td> </tr> <tr> <td>MWI Interrogate Number</td> <td colspan="3">*17</td> </tr> <tr> <td>MWI Notify Number</td> <td colspan="3">*17</td> </tr> <tr> <td>Local Clear of MWI</td> <td colspan="3">*17</td> </tr> </tbody> </table>	Service	Activate	Deactivate	Disable	Call Forwarding Unconditional	-	-	<input checked="" type="checkbox"/>	Call Forwarding Busy	-	-	<input checked="" type="checkbox"/>	Call Forwarding No Reply	-	-	<input checked="" type="checkbox"/>	Do Not Disturb	-	-	<input checked="" type="checkbox"/>	Call Waiting	*43#	#43#	<input type="checkbox"/>	Call Completion Busy Subscriber	-	-	<input checked="" type="checkbox"/>	Logout User	-	-	<input checked="" type="checkbox"/>	Clear Local Setting	*00#		<input type="checkbox"/>	MWI Mode	Fixed interrogate and fixed notify number			MWI Interrogate Number	*17			MWI Notify Number	*17			Local Clear of MWI	*17		
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Step	Description
13.	<p>Navigate to the DECT PARI frame by clicking DECT and then clicking PARI. PARI is a user-defined system value and must range from 1-292. Enter any number from 1-292 (e.g. 25). Click OK to continue.</p>  <p>The screenshot shows the 'IP-DECT Base Station' configuration page. The left sidebar has a menu with 'DECT' highlighted. The top navigation bar includes tabs for 'System', 'Suppl. Serv.', 'Master', 'Mobility Master', 'Radio', 'Radio config', 'PARI', 'SARI', and 'Air Sync'. The 'PARI' tab is active. The main content area shows a 'System ID' input field with the value '25' and 'OK' and 'Cancel' buttons below it.</p>

Step	Description
14.	<p>Navigate to the DECT SARI frame by clicking DECT and then clicking SARI. 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 OK to continue.</p> 
15.	<p>Navigate to the DECT Air Sync frame by clicking DECT and then clicking Air Sync. Use the drop-down list for Sync Mode and select “Master”. Click the radio button for Resynchronize on command. Click OK to continue.</p> 

Step	Description
16.	<p>Navigate to the Users frame by clicking Users and then clicking Users. The Park value is displayed. This value is needed when programming Ascom wireless DECT handsets. The PARK information is similar to an SSID in an 802.11 wireless environment. 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.</p>  <p>The screenshot shows the 'IP-DECT Base Station' configuration interface. The 'Users' link in the left navigation menu is highlighted with a red box. The main content area shows the 'Users' configuration section with fields for 'PAK', 'PAK 3rd pty', and 'Master Id'. The 'show' button is highlighted with a red box, and the 'new' button is highlighted with a red box.</p>

Step	Description
17.	<p>The Edit User web page is presented. Long Name can be any descriptive name that identifies this user. Display Name is the text string that will be displayed on the LCD screen of the Ascom wireless DECT Handset. The Name & Number fields are the extension assigned to this user. The Password field is configured with the Login Code configured in Section 5.2 Step 6. The box below Password is to confirm the password and the value entered for the Password field must be entered here. Auth. Code is used only if Subscriptions in Step 11 is set to “With User AC”. Once all the user information has been configured click OK. Repeat this process for each user being added to the system.</p> 

6.2. Configure Ascom wireless DECT Handset

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

7.1. Ascom wireless DECT Handset Registration Verification

The following steps can be used to ascertain the registration state of the Ascom wireless DECT Handsets that the Ascom wireless IP-DECT Base Station is configured to support.

From a web browser, open a connection to the Ascom wireless IP-DECT Master Base Station (see **Section 6.1 Steps 1 and 2**). Navigate to the **Users** frame by clicking **Users**, then clicking **Users**. Click the **show** link. A **Registration** state of “Pending” (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 screenshot shows the 'IP-DECT Base Station' web interface. The 'Users' tab is selected in the top navigation bar. On the left, the 'Administration' menu has 'Users' highlighted. The main content area shows a 'Users' table with the following data:

Long Name	Name	No	Fty	Display	IPEI / IPDI	AC	Prod	SW	Registration
241	241	241	+	241	036470524390	1234	d41-Basic	3.2.22	10.64.21.64
242	242	242	+	242	036470525056	1234	d41-Basic	3.2.22	10.64.21.64
243	243	243	+	243	036470525156	1234	d62-Messenger	3.2.22	10.64.21.64
244	244	244	+	244	036470525390	1234	d62-Messenger	3.2.22	10.64.21.64

Below the table, it states 'Users: 4, Registrations: 4'. The 'Registration' column for all users contains the IP address '10.64.21.64', which is highlighted with a red box in the original image.

7.2. Ascom wireless DECT Handset Function Verification

The following steps can be used to verify proper operation of the Ascom wireless DECT Handsets.

- Place calls from the Ascom wireless DECT Handsets and verify two-way audio.
- Place a call to the Ascom wireless DECT Handsets, allow the call to be directed to voicemail, leave a voicemail message and verify the MWI message is received.
- Using each Ascom wireless DECT Handset that received a voicemail, connect to the voicemail system to retrieve the voicemail and verify the MWI clears.
- Place calls to the Ascom wireless DECT Handsets and exercise calling features such as transfer and hold.
- The specific calling features that were verified to operate correctly include transfer (attended and unattended), hold/return from hold, call waiting, caller ID operation, call forwarding, call park & pickup, twinning, voicemail using Voicemail Pro and Message Waiting Indicator (MWI).

8. Conclusion

These Application Notes illustrate the procedures necessary for configuring the Ascom wireless IP-DECT SIP Solution comprised of the Ascom wireless IP-DECT Base Station and Ascom wireless DECT Handsets with Avaya IP Office in a converged Voice over IP and Data Network. The test case results are described in **Section 2.2**.

9. Additional References

This section references documentation relevant to these Application Notes. In general, Avaya product documentation is available at <http://support.avaya.com>.

1. *IP Office Installation Manual*, May 22, 2011, Document Number 15-601042.
2. *IP Office Manager*, May 22, 2011, Document Number 15-601011.
3. *System Status Application*, February 12, 2010, Document Number 15-601758.
4. *Voicemail Pro: Installation Manual*, May 1, 2011.
5. *Voicemail Pro: Administration Manual*, May 1, 2011, Document Number 15-601063.
6. *IP Office System Monitor*, November 28, 2008, Document Number 15-601019.

Ascom product documentation is available at [https://www.ascom-
ws.com/AscomPartnerWeb/Templates/WebLogin.aspx](https://www.ascom-
ws.com/AscomPartnerWeb/Templates/WebLogin.aspx) (requires login).

7. *Installation and Operation Manual IP-DECT Base Station and IP-DECT Gateway (software version 4.1.x) (TD 92579EN)*
8. *System Description Ascom IP-DECT System (TD 92375EN)*
9. *System Planning Ascom IP-DECT System (TD 92422GB)*

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