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Avaya Solution & Interoperability Test Lab

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

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.

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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.

1.1. 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 2410 Digital Telephone. Voicemail and MWI using Voicemail Pro was verified to operate correctly.

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.

1.2. Ascom IP-DECT Base Station

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.

1.3. Support

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

Ascom global technical support:
Phone: +46 31 559450
Email: support@ascom.se

2. Reference Configuration

The network diagram shown in **Figure 1** illustrates the testing environment used for compliance testing. The network consists of an Avaya IP Office, one Avaya 1616 IP Telephone (H.323), one Avaya 9620 IP Telephone (H.323), one Avaya 5610 IP Telephone (H.323), one Ascom Device Manger (WinPDM), two Ascom Wireless IP-DECT Base Stations, one Ascom d62 Wireless IP-DECT Handset, one Ascom d41 Wireless IP-DECT Handset, one server running Avaya IP Office Manager and Voicemail Pro, and one server is present in the network providing network services such as DHCP, TFTP and HTTP.
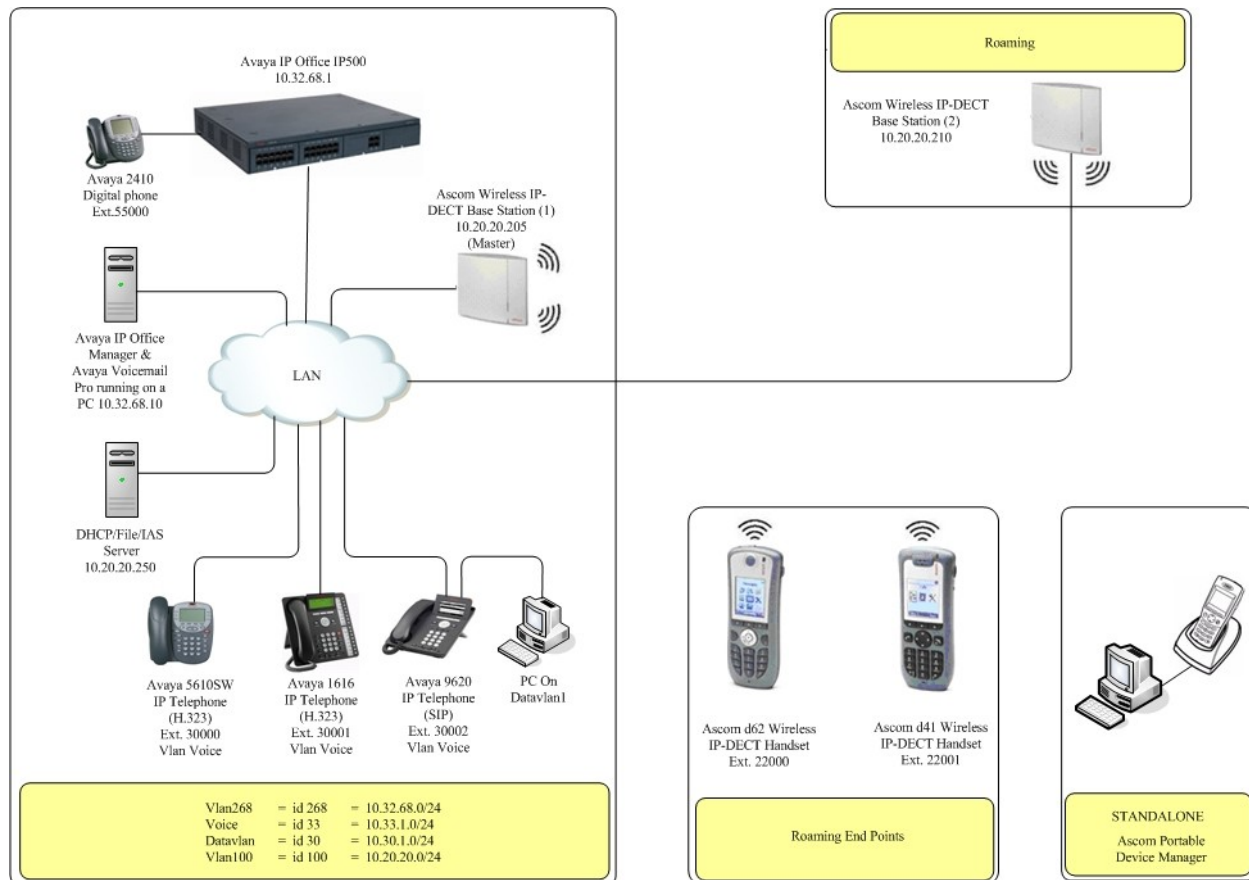
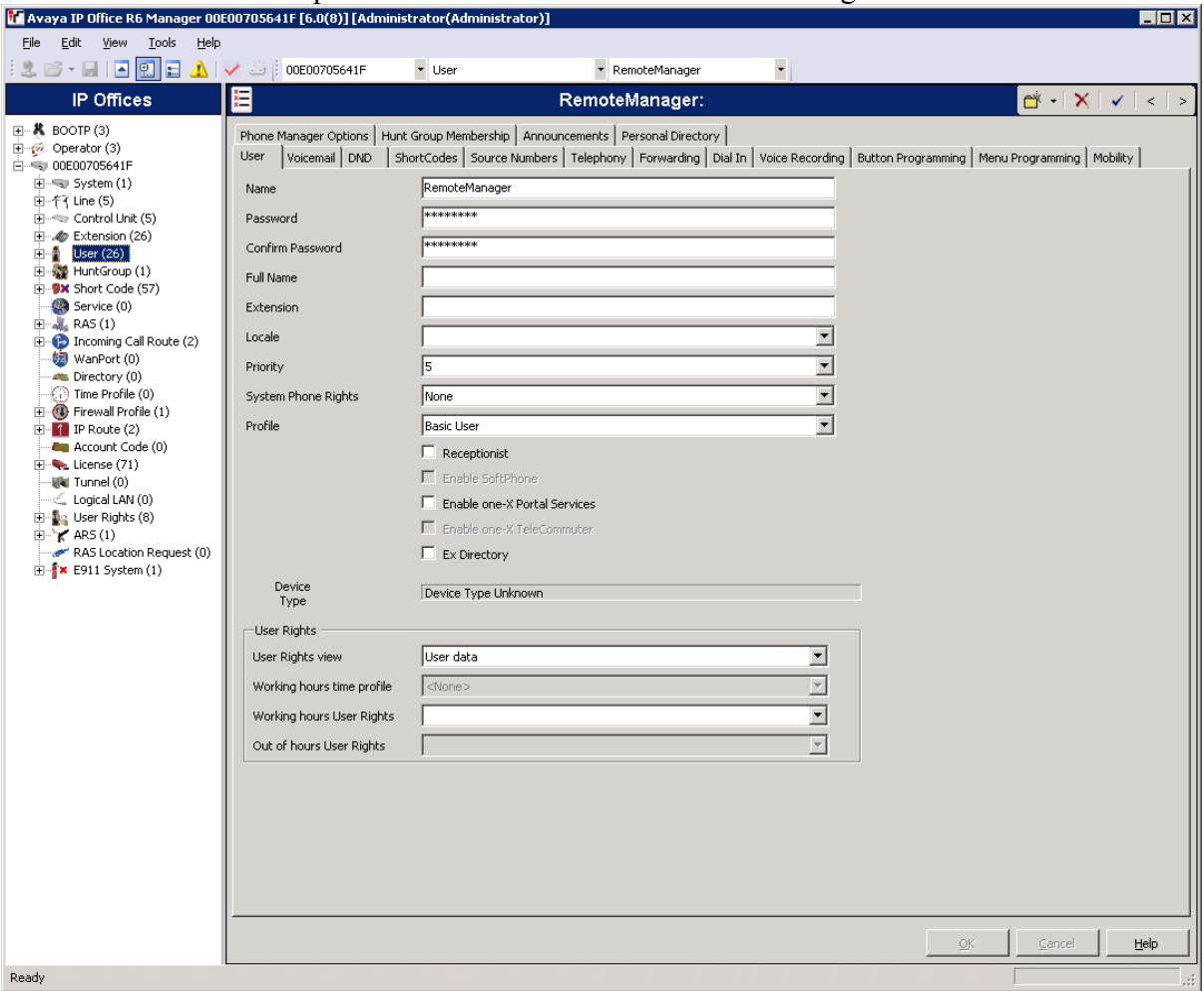**Figure 1: Sample Network Diagram**

3. Equipment and Software Validated

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

Equipment	Software/Firmware
Avaya PBX Products	
Avaya IP Office (IP500)	6.0 (8)
Avaya IP Office Manager	8.0 (8)
Avaya Messaging (Voice Mail) Products	
Avaya VoiceMail Pro	6.0 (22)
Avaya Telephony Sets	
Avaya 1600 Series IP Telephones	Avaya one-X Deskphone Value Edition 1.020
Avaya 5600 Series IP Telephones	8.016
Avaya 9600 Series IP Telephones	S3.110b
Avaya 2420 Digital Telephone	6.0
Ascom Products	
Ascom Wireless IP-DECT Base Station	IPBS(3.4.12)
Ascom d62 Wireless IP-DECT Handset	3.0.12
Ascom d41 Wireless IP-DECT Handset	3.0.5
Ascom Device Manger (WinPDM)	3.5.4
MS Products	
PC	Microsoft Windows 2003 Server (File/DHCP Service)

4. Avaya IP Office & Extension Configuration

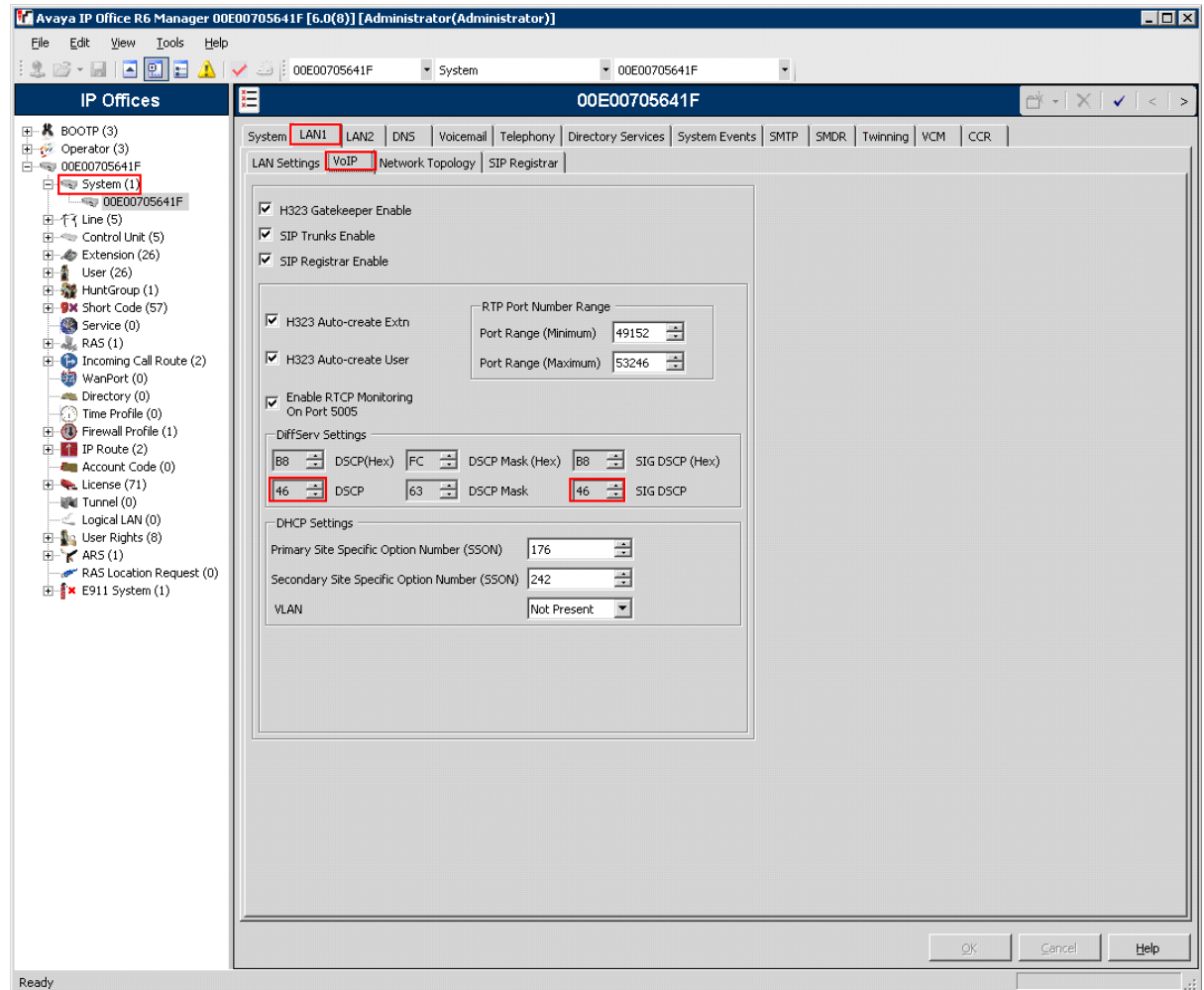## 4.1. Avaya IP Office Configuration

This section was included to verify that Avaya 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 Avaya IP Office product documentation in **Section 9.**

Step	Description
1.	Avaya IP Office is configured via the Avaya IP Office Manager program. Log into the Avaya IP Office Manager PC and select **Start → Programs → IP Office → Manager** to launch the Avaya IP Office Manager application. Select **File → Open** to search for IP Offices in the network. Click on appropriate Avaya IP Office. Click **OK** to continue Log into the Avaya IP Office Manager application using the appropriate credentials.
2.	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**.

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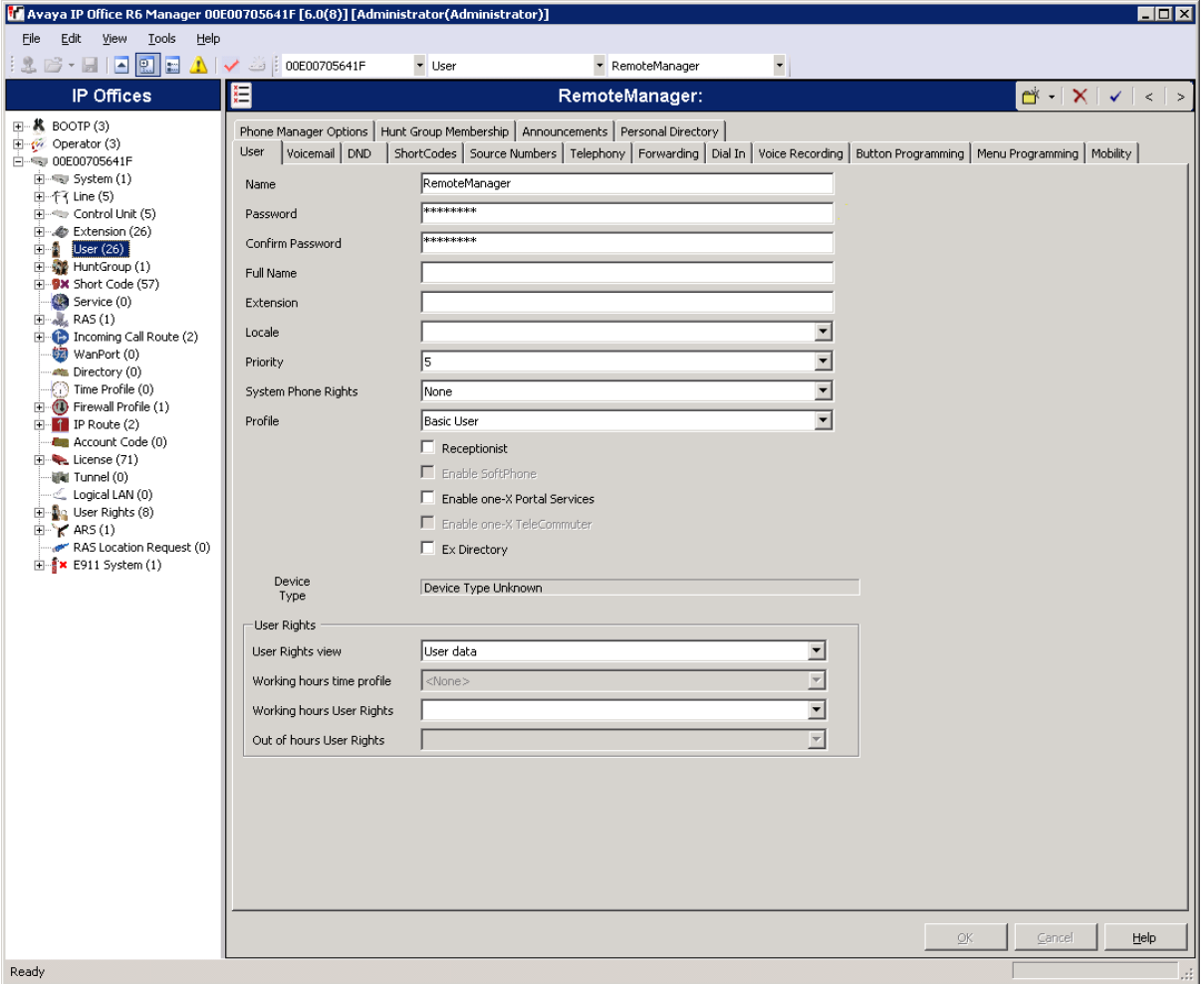|	
3.	Verify VoIP information. The Avaya IP Telephones will get Differentiated Services information from the Avaya IP Office. In the Manager window, from the Configuration Tree, click **System → LAN1 → VoIP** Verify that the **DiffServ Settings** for **DSCP** and **SIG DSCP** are both set to **46**. If they are not **46**, change them and then click **OK** to continue. **Note:** 00E00705641F is the MAC address of this specific IP Office and will be different for all IP Offices.

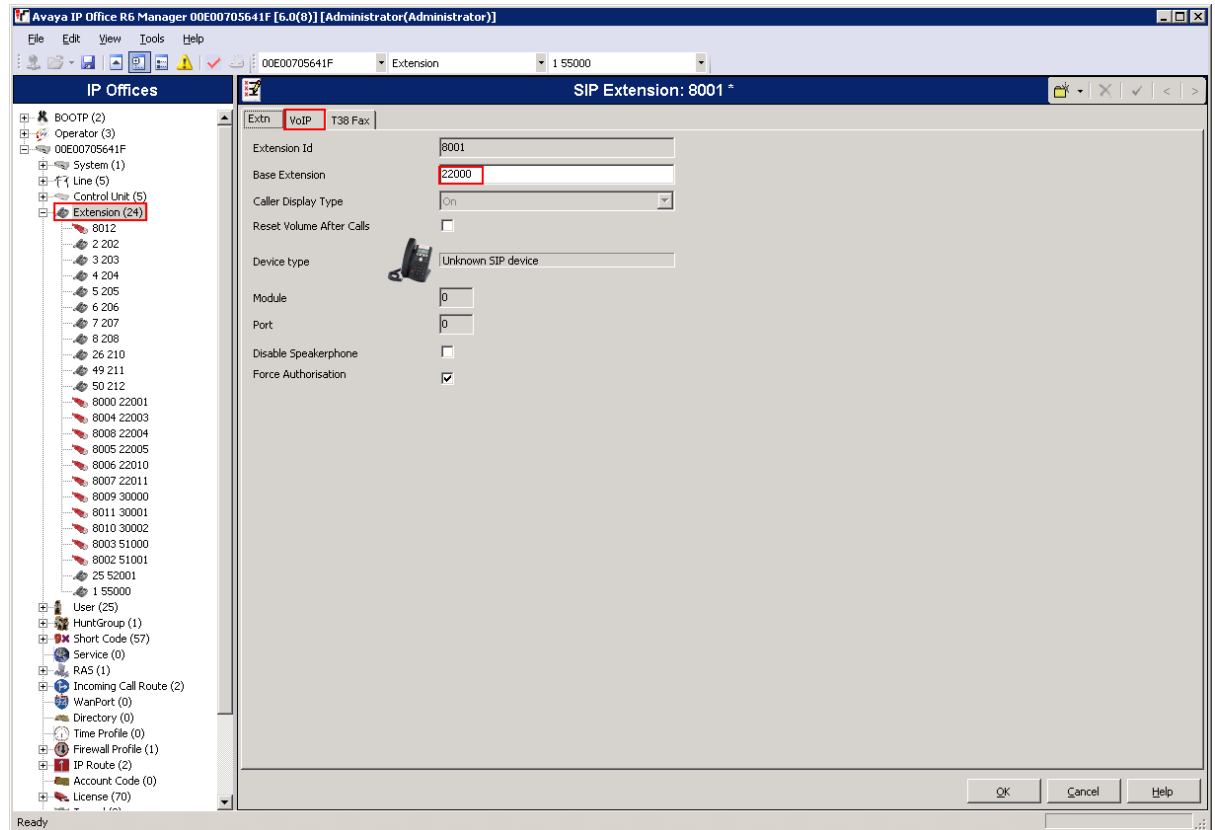| 4.	Disable DHCP server on Avaya IP Office.
	From the Configuration Tree, click **System** → **LAN1** → **LAN Settings**. Set the **DHCP Mode** to **Disabled**. Click **OK** to continue.
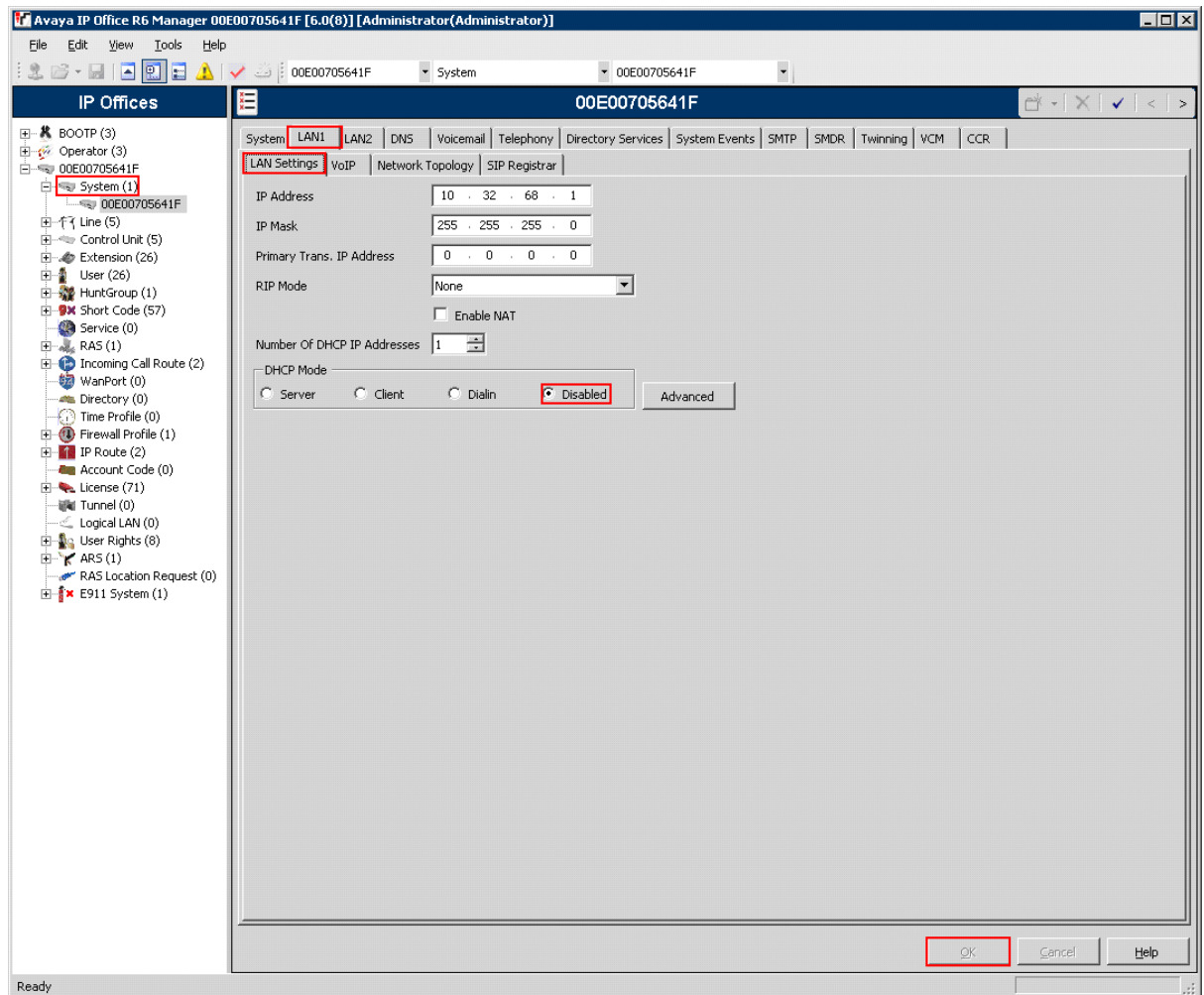
4.2. SIP Extension Configuration

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 Avaya IP Office product documentation in **Section 9.**

Step	Description
1.	Avaya IP Office is configured via the Avaya IP Office Manager program. Log into the Avaya IP Office Manager PC and select **Start → Programs → IP Office → Manager** to launch the Avaya IP Office Manager application. Select **File → Open** to search for IP Offices in the network. Click on appropriate Avaya IP Office. Click **OK** to continue Log into the Avaya IP Office Manager application using the appropriate credentials.
2.	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**.

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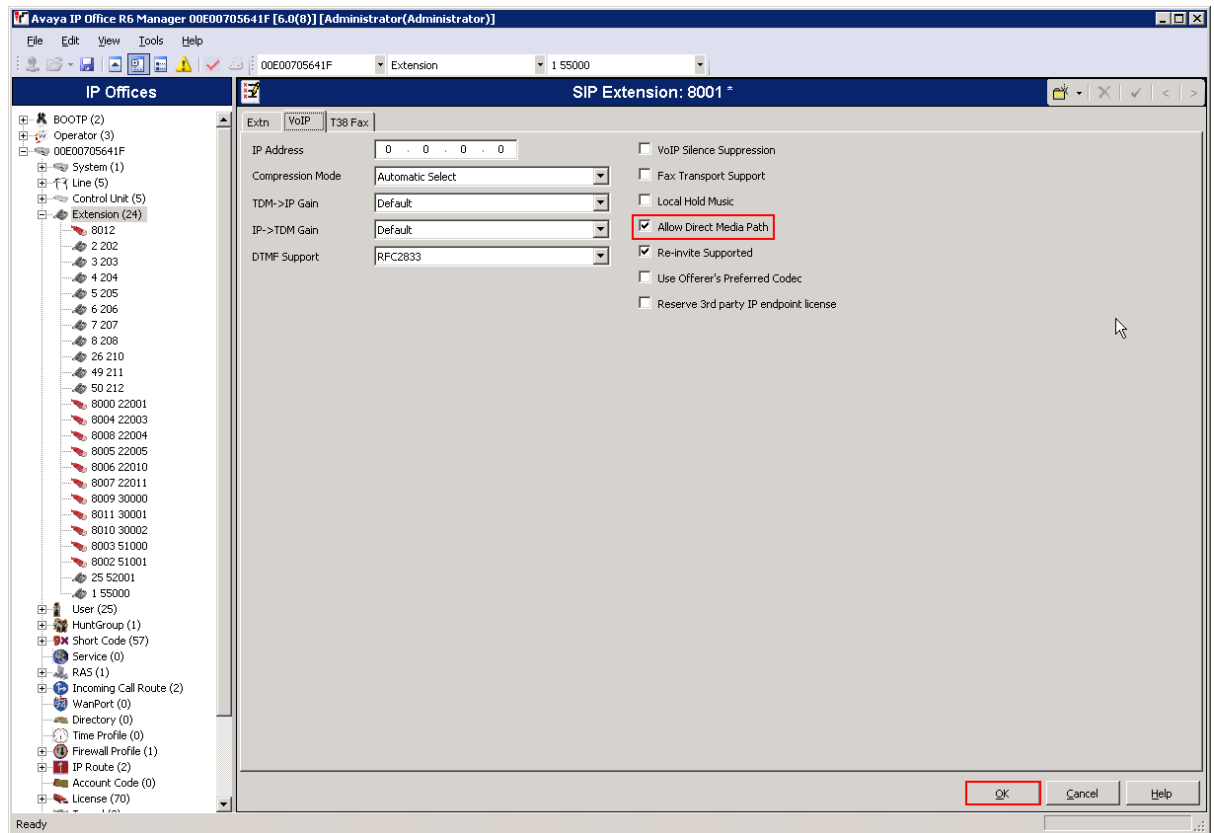| 3.	Create SIP Extension. From the Configuration Tree, right mouse click on **Extension → New → SIP Extension**. Enter a unique extension, click **VoIP** to continue.

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

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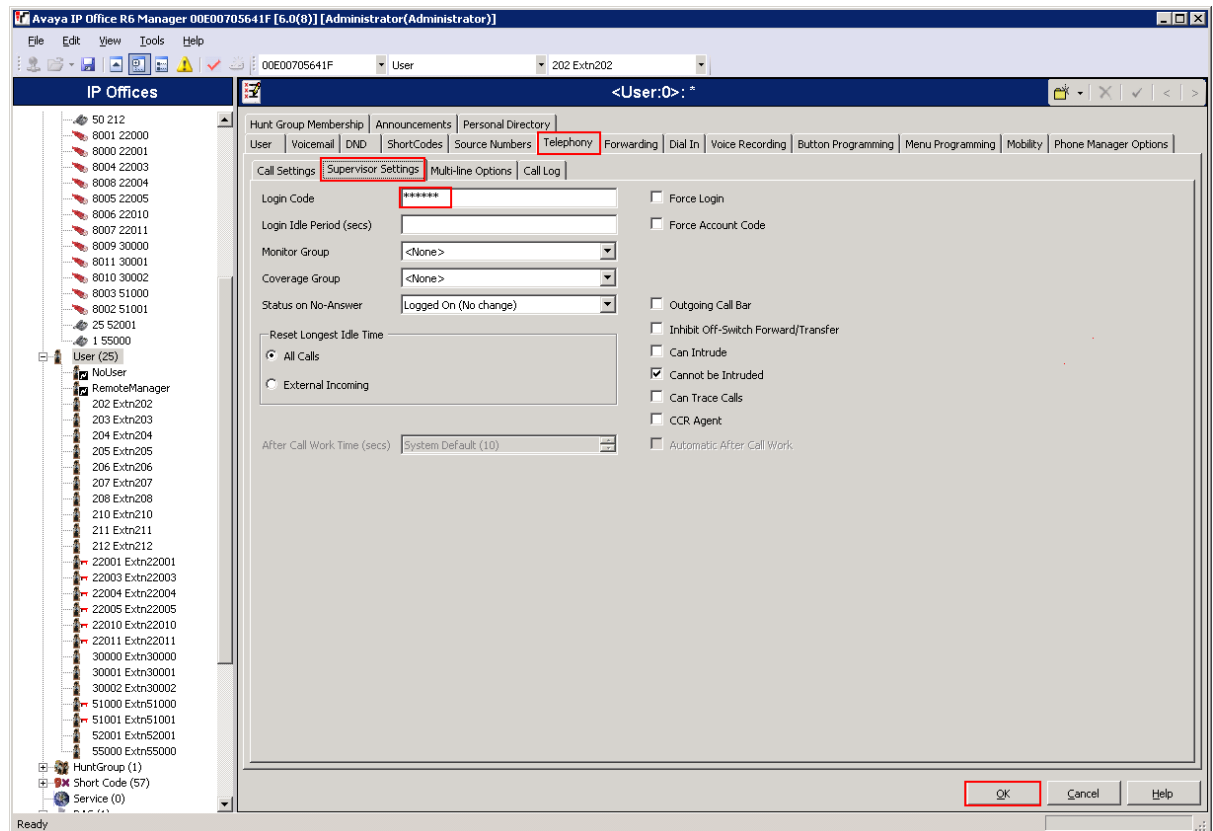©2010 Avaya Inc. All Rights Reserved.

5.	Create User: From the Configuration Tree, right mouse click on **User → New**. Enter the extension that was created in **Step 3** and precede it with **Extn**, for example, Extn22000. Enter a **Password** and **Confirm Password** value, enter the extension that was created in **Step 3**. Click **Telephony** to continue.

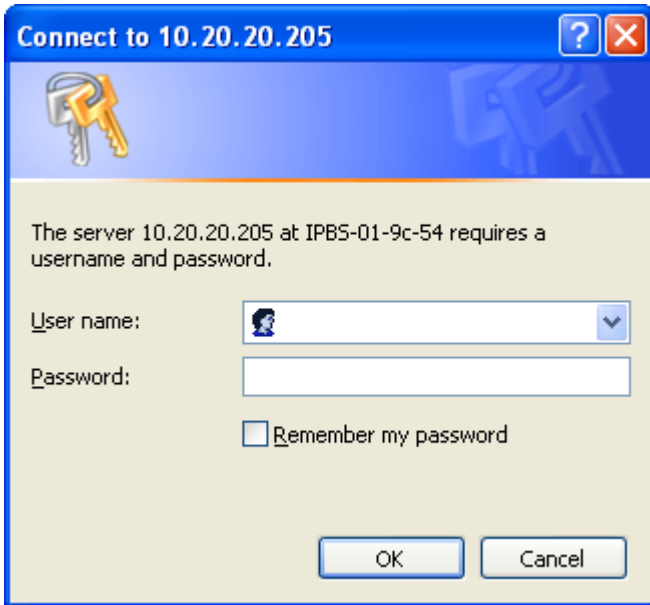| 6.	Click **Supervisor Setting**, Enter a **Login Code**, 123456 was used for the compliance testing. The Login Code is used by the Ascom IP-DECT Handset to log into the IP Office, it will be configured in **Section 5.1**, **Step 17.** Click **OK** to continue. The changes must be saved before they will take effect, click to the 💾 icon to save the configuration.
7.	Repeat **Steps 3 thru 6** for additional Extensions.

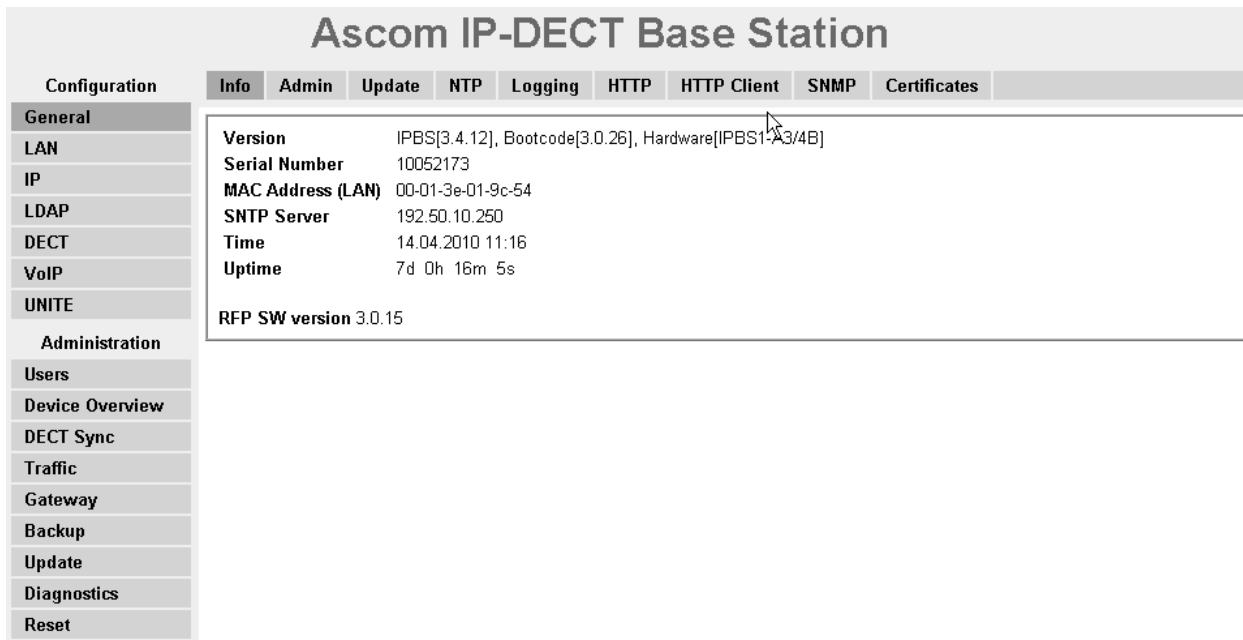# 5. Configure Ascom wireless IP-DECT SIP Solution

The following steps detail the initial configuration for the Ascom Wireless IP-DECT SIP Solution. Log onto the Ascom wireless IP-DECT Base Station via web browser using the following 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 or via the Base Station IP address assigned by DHCP server.
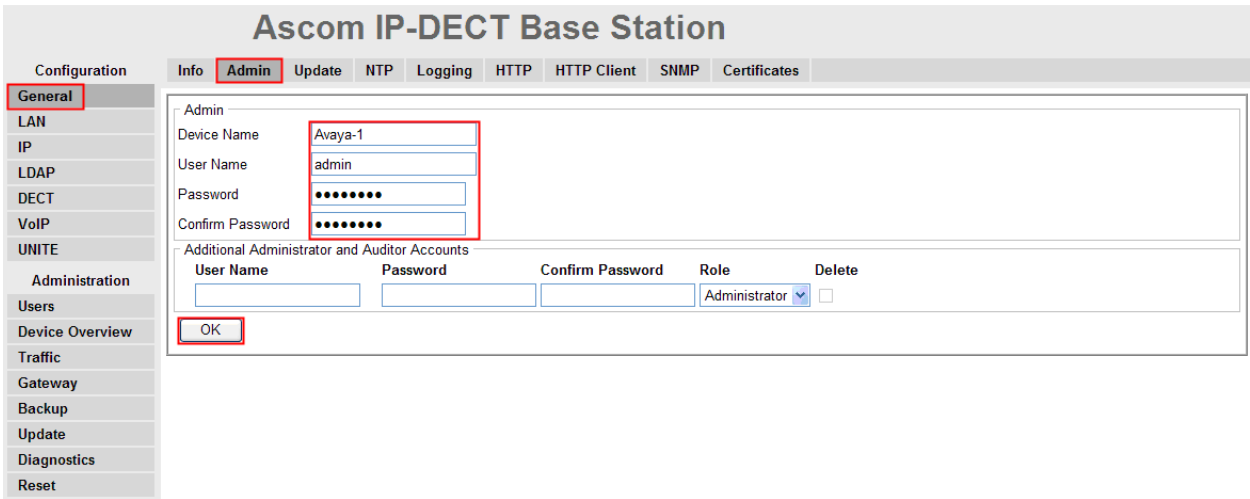
5.1. Configure IP-DECT Base Station
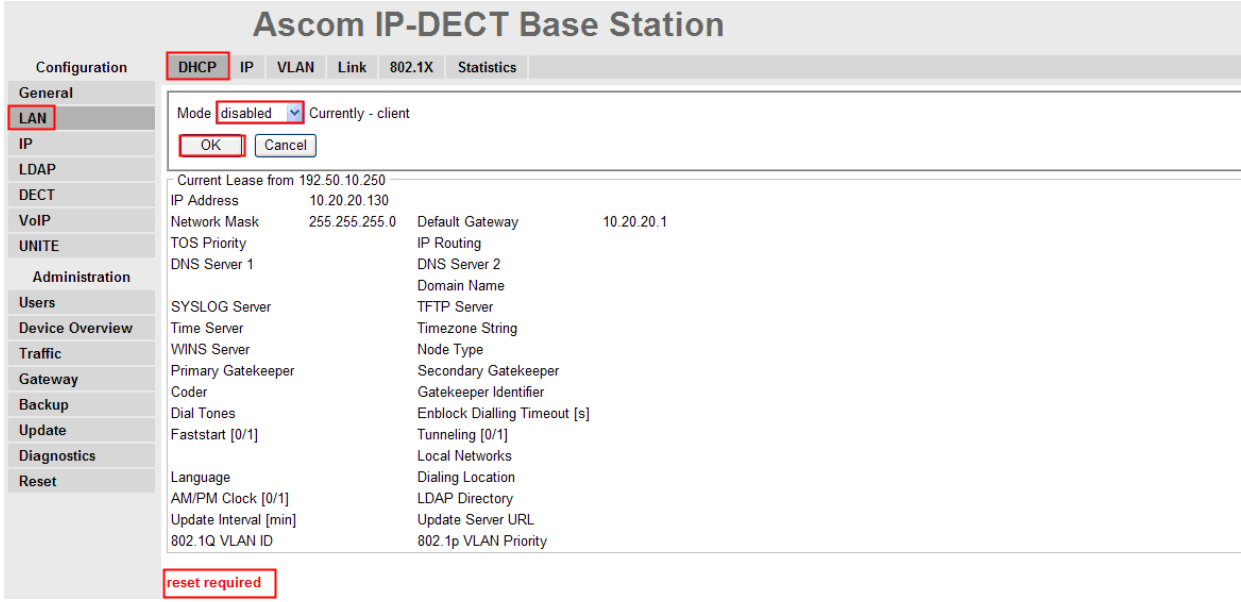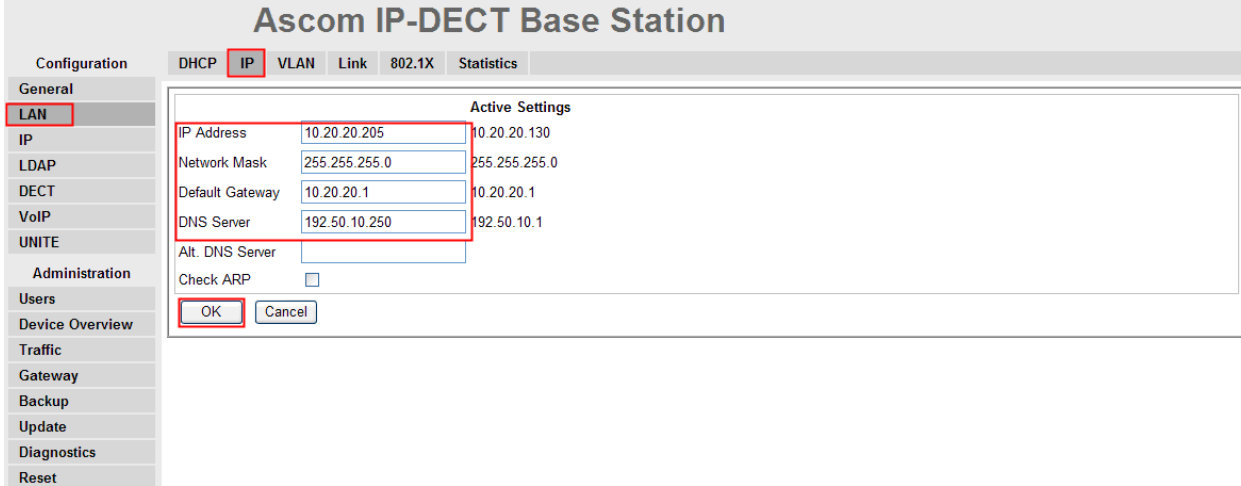
The Ascom wireless IP-DECT Base Stations can be configured in a Master/Standby Master scenario to provide redundancy or to extend the radius of coverage (roaming). The following configuration steps detail the configuration process used to configure an Ascom wireless IP-DECT Base Station in Master mode 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 [**6**] for information on how to configure roaming.
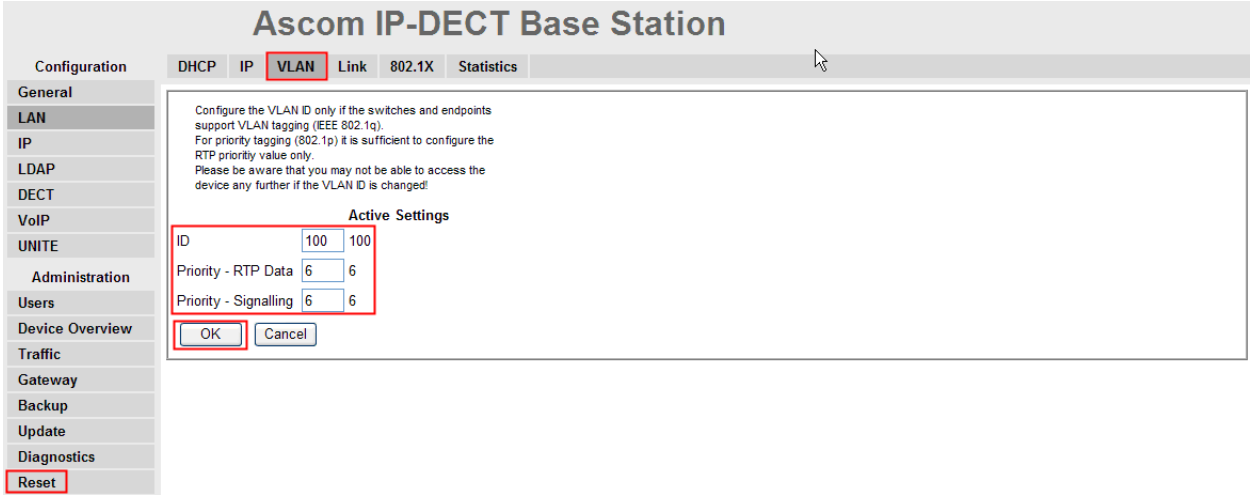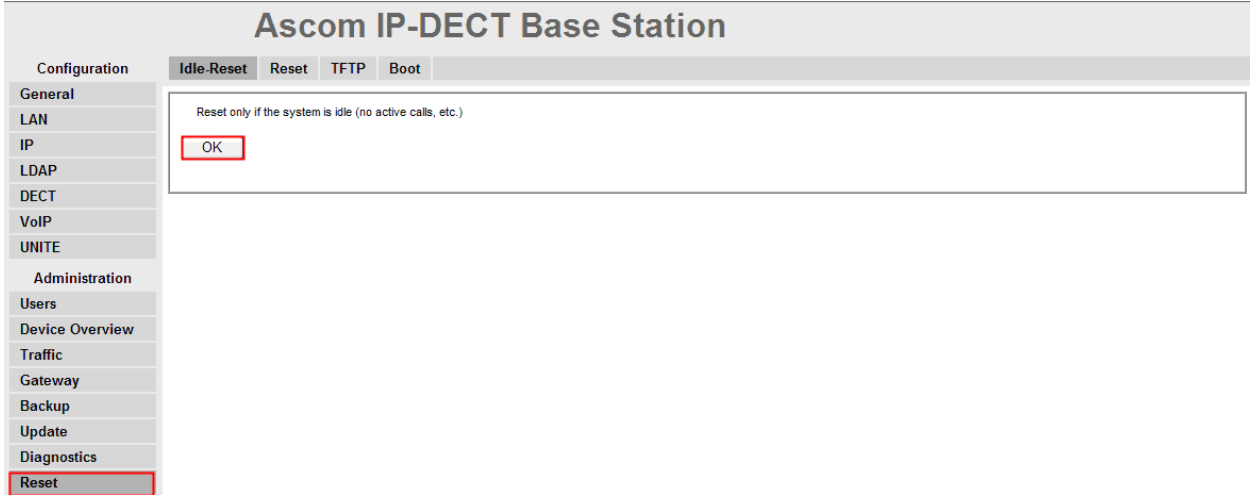
Step	Description
1.	Launch a web browser and enter either the IP address, (obtained from the DHCP server) or http://IPBS-XX-XX-XX as shown in **Section 5** into the URL. The user will be presented with a login screen. Refer to [6] for appropriate credentials needed to access the Ascom wireless IP-DECT Base Station. Enter the appropriate login information and then click **OK**.
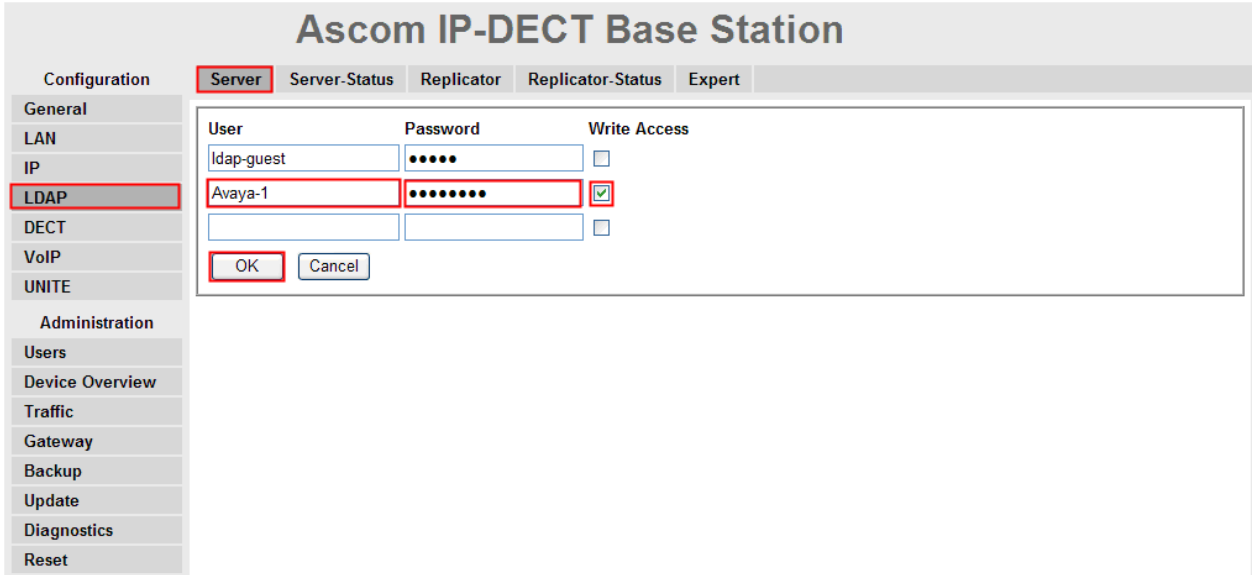
Step	Description
2.	The user is presented with the **General Info** frame where the system information for the Ascom wireless IP-DECT Base Station is displayed.

Step	Description
3.	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. 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.

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Step	Description
4.	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". Click **IP** tab to continue to the **LAN IP** frame.

Ascom IP-DECT Base Station

Configuration | **DHCP** IP VLAN Link 802.1X Statistics

General
LAN
IP
LDAP
DECT
VoIP
UNITE

Administration
Users
Device Overview
Traffic
Gateway
Backup
Update
Diagnostics
Reset

Mode [disabled ▾] Currently - client
[OK] [Cancel]

Current Lease from 192.50.10.250
IP Address   10.20.20.130
Network Mask   255.255.255.0   Default Gateway   10.20.20.1
TOS Priority   IP Routing
DNS Server 1   DNS Server 2
                                     Domain Name
SYSLOG Server   TFTP Server
Time Server   Timezone String
WINS Server   Node Type
Primary Gatekeeper   Secondary Gatekeeper
Coder   Gatekeeper Identifier
Dial Tones   Enblock Dialling Timeout [s]
Faststart [0/1]   Tunneling [0/1]
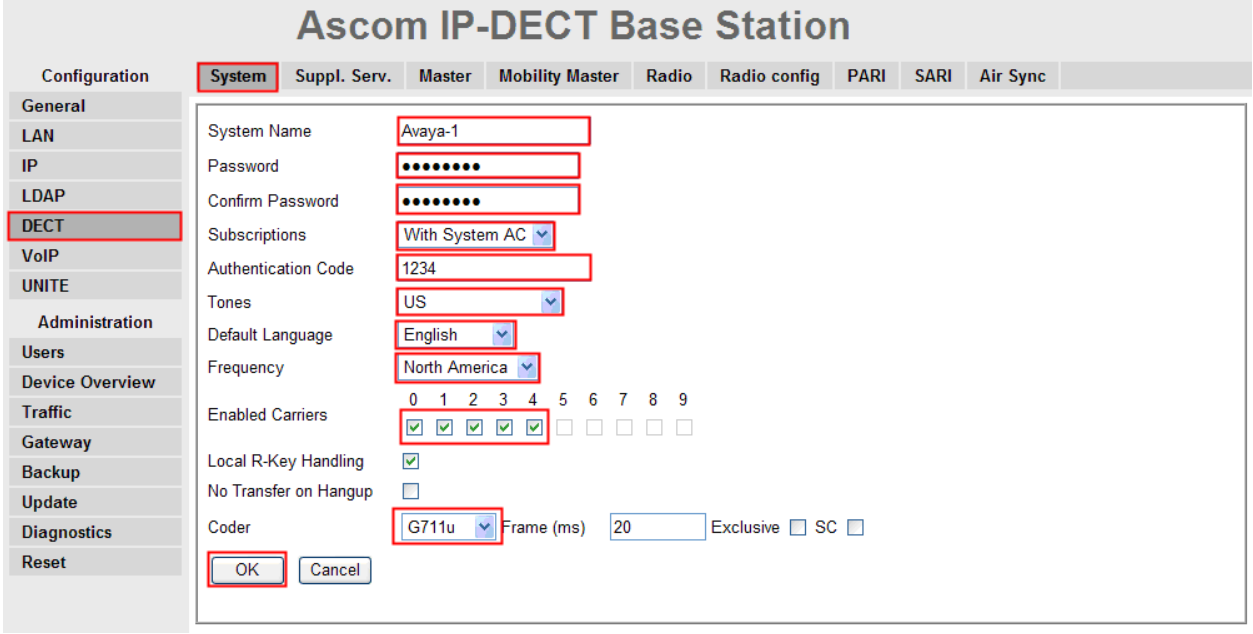   Local Networks
Language   Dialing Location
AM/PM Clock [0/1]   LDAP Directory
Update Interval [min]   Update Server URL
802.1Q VLAN ID   802.1p VLAN Priority

reset required

Step	Description
5.	Set the static **IP Address**, **Network Mask**, **Default Gateway** and **DNS Server**, and click **OK.** Click **VLAN** to continue.

Ascom IP-DECT Base Station

Configuration | DHCP **IP** VLAN Link 802.1X Statistics

General
LAN
IP
LDAP
DECT
VoIP
UNITE

Administration
Users
Device Overview
Traffic
Gateway
Backup
Update
Diagnostics
Reset

		Active Settings
IP Address	10.20.20.205	10.20.20.130
Network Mask	255.255.255.0	255.255.255.0
Default Gateway	10.20.20.1	10.20.20.1
DNS Server	192.50.10.250	192.50.10.1
Alt. DNS Server		
Check ARP	☐	

[OK] [Cancel]

Step	Description
6.	Set the **ID, Priority – RTP Data** and **Priority – Signalling**, and click **OK.** Click **Reset** to continue. **Ascom IP-DECT Base Station** Configuration DHCP IP VLAN Link 802.1X Statistics General LAN IP LDAP DECT VoIP UNITE Administration Users Device Overview Traffic Gateway Backup Update Diagnostics Reset Configure the VLAN ID only if the switches and endpoints support VLAN tagging (IEEE 802.1q). For priority tagging (802.1p) it is sufficient to configure the RTP prioritiy value only. Please be aware that you may not be able to access the device any further if the VLAN ID is changed! **Active Settings** ID 100 100 Priority - RTP Data 6 6 Priority - Signalling 6 6 OK Cancel
7.	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**. **Ascom IP-DECT Base Station** Configuration Idle-Reset Reset TFTP Boot General LAN IP LDAP DECT VoIP UNITE Administration Users Device Overview Traffic Gateway Backup Update Diagnostics Reset Reset only if the system is idle (no active calls, etc.) OK

Step	Description
8.	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 3**. Configure the **Password** field with the **Password** used in **Step 3.** Check the **Write Access** check box for the "Avaya-1" user account and then click **OK** to continue. **Ascom IP-DECT Base Station** Configuration — Server, Server-Status, Replicator, Replicator-Status, Expert General LAN IP LDAP DECT VoIP UNITE Administration Users Device Overview Traffic Gateway Backup Update Diagnostics Reset User / Password / Write Access ldap-guest / ••••• / ☐ Avaya-1 / ••••••• / ☑ / / ☐ OK Cancel

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Step	Description
9.	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 Avaya IP Office (see **Figure 1**). Check the **Allow DTMF through RTP** check box. Click **OK.** Click **System** to continue.

Ascom IP-DECT Base Station

Configuration

| System | Suppl. Serv. | Master | Mobility Master | Radio | Radio config | PARI | SARI | Air Sync |

General
LAN
IP
LDAP
DECT
VoIP
UNITE

Administration
Users
Device Overview
Traffic
Gateway
Backup
Update
Diagnostics
Reset

Mode   Active

Multi-master
Master Id   0
Enable Pari function   ☑

IP-PBX
Protocol   SIP
Proxy   10.32.68.1
Alt. Proxy
Domain
Max. internal number length   5   used to decide internal/external ring signal
Enbloc Dialing   ☐
Enable Enbloc Send-key   ☐
Allow DTMF through RTP   ☑
Configured with local GK   ☐

SIP Interoperability Settings
Registration time-to-live   [sec]
Hold Signalling   inactive
Hold before Transfer   ☐
Accept inbound calls not routed via home proxy   ☐
Register with number   ☑

Registration for anonymous devices
Registration Name / Number   /
Deactivate Master if no connection   ☐

Mobility Master
Name
Password
IP Address
Alt. IP Address
Status   No Connection to Mobility Master.

OK   Cancel

Reset required!

Step	Description
10.	Navigate to the **DECT System** frame by clicking **DECT** and the- **Device Name** used in **Step 3**. **Password** is the Password used in **Step 3**. 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. Use the drop-down list for **Coder** and select "**G711u**". Ensure that the codec chosen matches the codec configured on the Avaya IP Office. Note: The G.729A codecs are set the same way. ![Ascom IP-DECT Base Station configuration screenshot showing the System tab with fields: System Name "Avaya-1", Password, Confirm Password, Subscriptions "With System AC", Authentication Code "1234", Tones "US", Default Language "English", Frequency "North America", Enabled Carriers with 0-4 checked, Local R-Key Handling checked, No Transfer on Hangup unchecked, Coder "G711u", Frame (ms) 20]

Step	Description
11.	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.
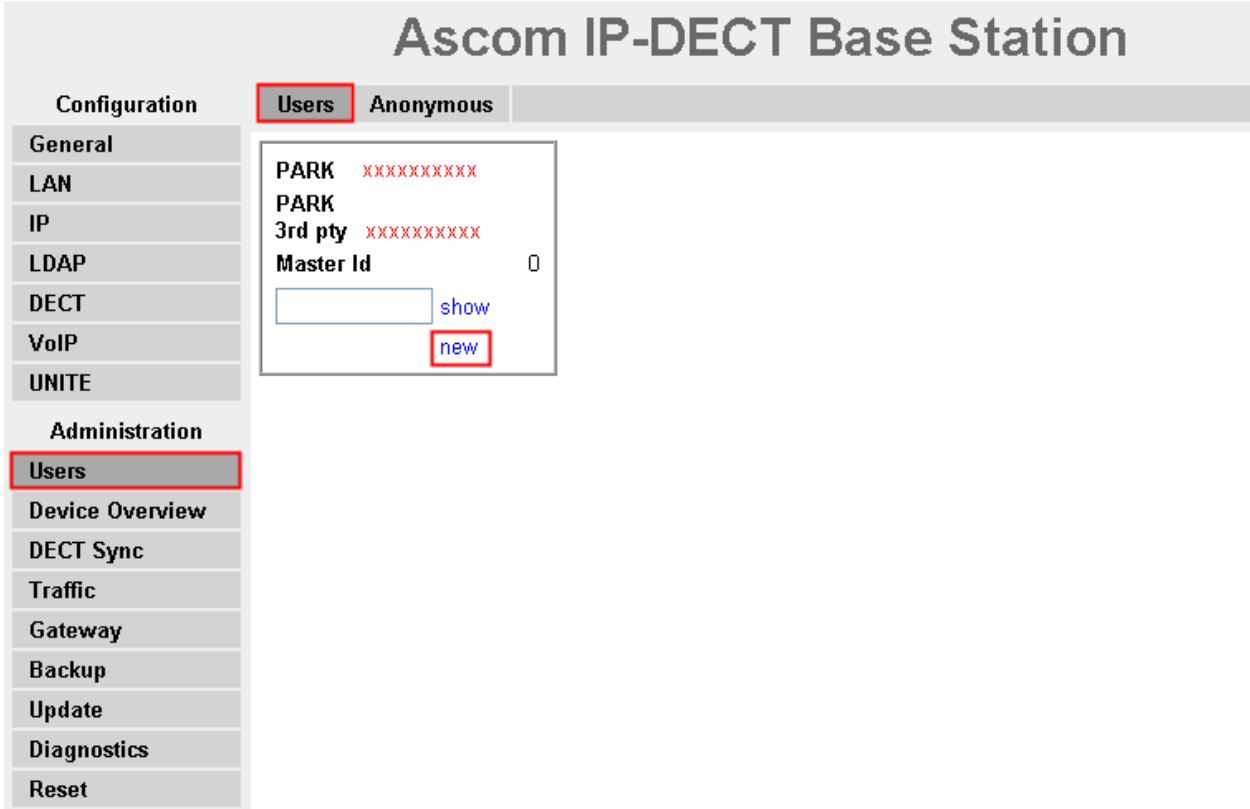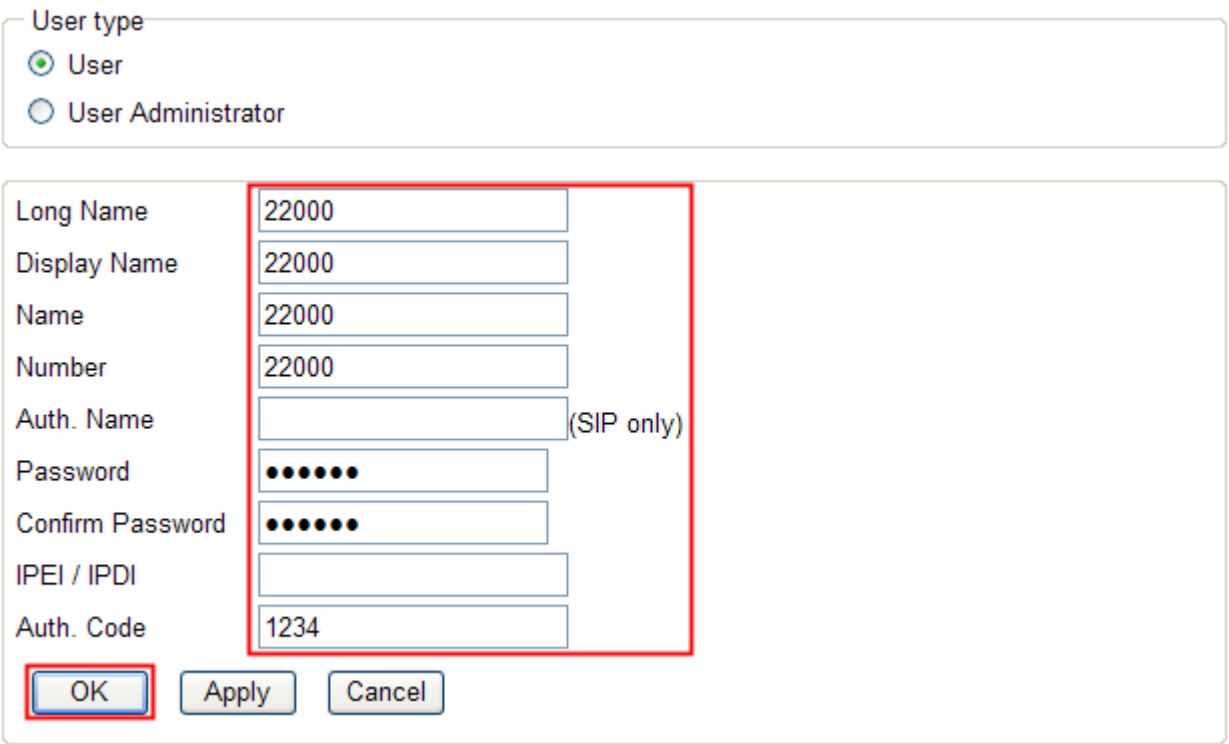

Step	Description
12.	Navigate to the **DECT PARI** frame by clicking **DECT** and then clicking **PARI**. PARI is a user-defined system value and must range from 1-35. Enter any number from 1-35. Click **OK** to continue.
13.	Navigate to the **DECT SARI** frame by clicking **DECT** and then clicking **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. Click **OK** to continue.

Step	Description
14.	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.

Step	Description
15.	Navigate to the **General Info** frame by clicking **General** and then clicking **Info**. The **3rd pty** is displayed. This value is needed when programming Ascom wireless DECT handsets. The **3rd pty** information is similar to an SSID in an 802.11 wireless environment. Note, The **3rd pty** information should be obtained from an Ascom associate

Step	Description
16.	Navigate to the **Users** frame by clicking **Users** and then clicking **Users**. Click **new** to provision a new user account.

Step	Description
17.	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 4.2 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 10** 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.

User type
- ◉ User
- ○ User Administrator

Long Name	22000
Display Name	22000
Name	22000
Number	22000
Auth. Name	(SIP only)
Password	••••••
Confirm Password	••••••
IPEI / IPDI	
Auth. Code	1234

[OK]   [Apply]   [Cancel]

5.2. Configure Ascom wireless DECT Handset

Refer to **Section 9**, **[6]** to obtain information on the procedures for subscribing and registering the Ascom wireless DECT Handsets to the Ascom wireless IP-DECT Base Station.

6. General Test Approach and Test Results

6.1. General Test Approach

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, conference participation, Call forwarding/Call forwarding Deactivate, Call Park/ Call Pickup, Twinning, Send All Calls/ Send All Calls Deactivate, Message Waiting Indicator and message retrieval from Voicemail Pro.
- Inter-office VoIP calls between Ascom wireless DECT Handsets and Avaya SIP & H.323 IP Telephones and Avaya Digital Telephones.
- Roam between multiple Ascom wireless IP-DECT Base Stations using the Ascom wireless DECT Handsets.

6.2. Test Results

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 (Ascom Feature), 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.

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 5.1 Step 1**). Navigate to the **Users** frame by clicking **Users**, then clicking **Users**, and then clicking **show**. 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 Avaya IP Office indicates the extension has successfully registered to both the Ascom wireless IP-DECT Base Station and Avaya IP Office.

Ascom IP-DECT Base Station

Configuration

- General
- LAN
- IP
- LDAP
- DECT
- VoIP
- UNITE

Administration

- Users
- Device Overview
- DECT Sync
- Traffic
- Gateway
- Backup
- Update
- Diagnostics
- Reset

Users | Anonymous

PARK xxxxxxxxx
PARK
3rd pty xxxxxxxxx
Master Id   0

[   ] show
              new

User Administrators
Long Name   Name
User Administrators: 0

Users

Long Name	Name	No	Fty	Display	IPEI / IPDI	AC	Registration
22000	22000	22000	+	22000	036470525056		10.32.68.1
22001	22001	22001	+	22001	036470525390		10.32.68.1
22003	22003	22003	+	22003	036470525156		10.32.68.1
22004	22004	22004	+	22004	036470524390		Subscribed

Users: 4, Registrations: 3

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. All feature functionality test cases described in **Section 6.1** passed.

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 6.0 Installation Manual, Issue 21f, March 1 2010,   Document Number 15-601042
    http://support.avaya.com/css/P8/documents/100073460

2. IP Office Release 6.0 Manager 8.0, Issue 24h, February 20, 2010
    Document Number 15-601011
    http://support.avaya.com/elmodocs2/ip_office/R4.2/Newissuesept08/eng/manager_en.pdf

3. IP Office Release 6.0 System Status Application, Issue 05a, February 12, 2010
    Document Number 15-601758
    http://support.avaya.com/css/P8/documents/100073300

4. IP Office Release 6.0 Voicemail Pro, Issue 22b, January 16, 2010
    http://support.avaya.com/css/P8/documents/100073435

5. IP Office System Monitor, Issue 02b, November 28, 2008
    Document Number 15-601019
    http://support.avaya.com/css/P8/documents/100073350

Ascom product documentation.

6. Ascom product documentation can be found at http://www.Ascomwireless.com

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