



## Avaya Solution & Interoperability Test Lab

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# **Application Notes for Configuring Grandstream GXV3240 and GXV3275 Multimedia IP Phones for Android™ with Avaya IP Office - Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required to integrate Grandstream GXV3240 and GXV3275 Multimedia IP Phones for Android™ with Avaya IP Office.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the 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 required to integrate Grandstream GXV3240 and GXV3275 Multimedia IP Phones for Android™ with Avaya IP Office.

## 2. General Test Approach and Test Results

The interoperability compliance testing included both feature and serviceability testing.

The featured testing focused on verifying the ability of the Grandstream Multimedia IP Phones to register as SIP endpoints with Avaya IP Office, establish voice and point-to-point video calls, and exercise various telephony features (e.g., hold/resume, transfer, conference, etc.).

The serviceability testing focused on verifying the ability of the Grandstream Multimedia IP Phones to handle various outages such as network disconnects and server/phone reboots.

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

Interoperability compliance testing covered the following features and functionality:

- Successful registration of the Grandstream Multimedia IP Phones with Avaya IP Office.
- Voice calls between Grandstream Multimedia IP Phones, Avaya 6200 Series analog telephone, Avaya 9500 Series digital telephone, Avaya 1600 Series IP Deskphones, Avaya 9600 Series IP Deskphones (H.323), Avaya E129 SIP Deskphones, Avaya E169 Media Station (SIP), and Avaya Communicator for Windows.
- Point-to-Point video calls between the Grandstream Multimedia IP Phones and Avaya Communicator for Windows.
- G.711MU, G.711.A, G.729A, and G.722-64k codec support.
- Guest login/logout
- Caller ID and display updates.
- Direct Media Path (i.e. media shuffling).
- Proper recognition of DTMF tones by navigating voicemail menus.
- Proper operation of voicemail with Message Waiting Indication.
- Telephony features including: Mute, Hold/Resume, Transfer, Conference, Music on Hold, Call Forwarding, Call Park, Call Pickup, and Automatic Redial.

The serviceability testing focused on verifying the ability of the Grandstream phones to handle various outages such as network disconnects and server/phone reboots.

The wireless functionality of the Grandstream phones was not tested.

## 2.2. Test Results

The Grandstream Multimedia IP Phones successfully passed compliance testing.

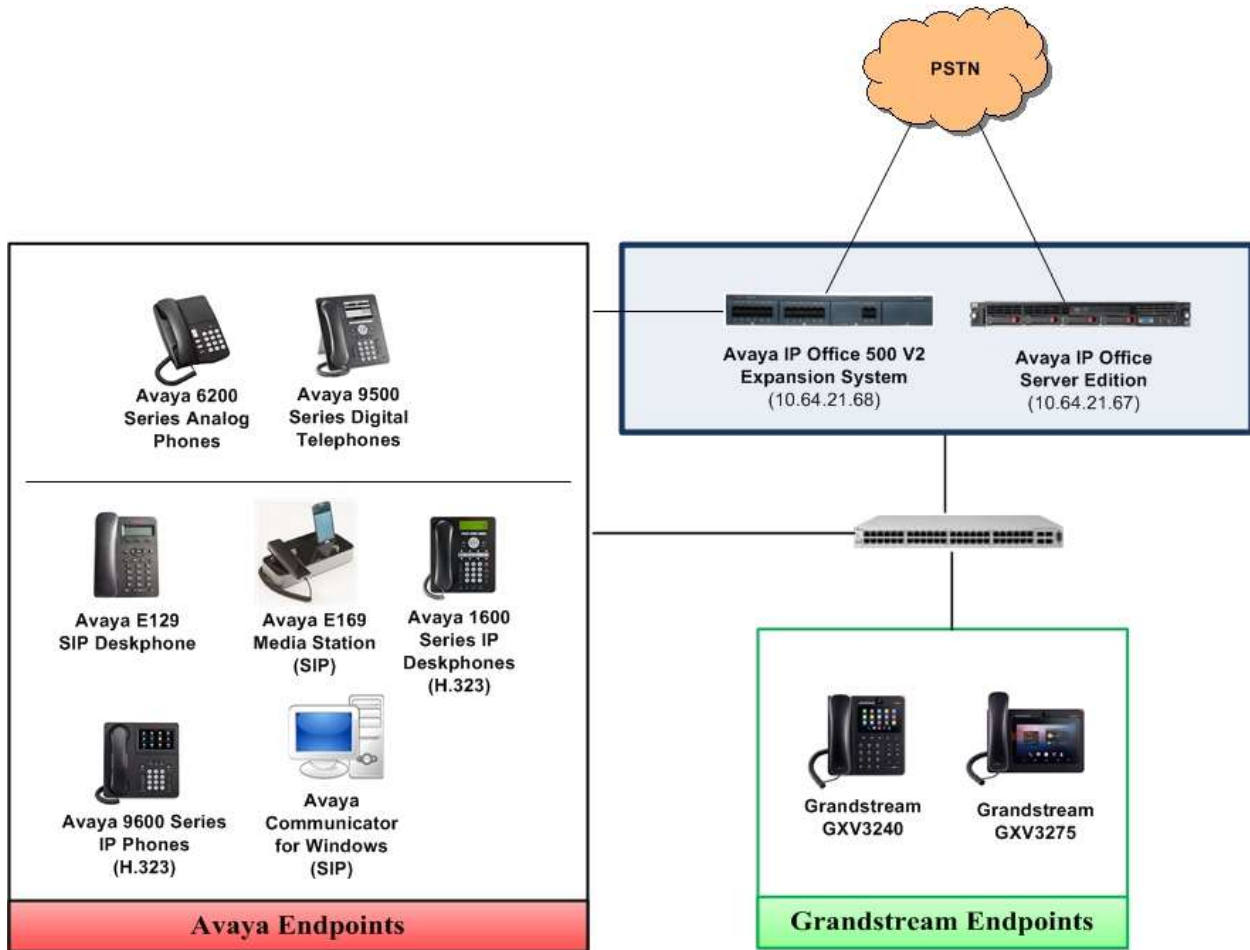
## 2.3. Support

Grandstream can be reached using the information provided on the following web sites:

- **General Contact Information:** <http://www.grandstream.com/company/contact-us>
- **Support Requests:** <http://esupport.grandstream.com/support/customerportal/login.php>

### 3. Reference Configuration

**Figure 1** illustrates the test configuration used to verify Grandstream Multimedia IP Phones integration with Avaya IP Office. The configuration consists of an Avaya IP Office Server Edition Primary Server, an IP500 V2 Expansion System, and connectivity to a simulated PSTN via an ISDN-PRI trunk. Voicemail Pro was used as the voicemail system. The Grandstream endpoints registered with Avaya IP Office as SIP Users.



**Figure 1: Grandstream Multimedia IP Phones**

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Server Edition (Primary Server)	9.1.0.0 Build 437
Avaya IP Office IP500 V2 (Expansion System)	9.1.0.0 Build 437
Avaya Voicemail Pro	9.1.0.0 Build 166
Avaya 6200 Series Analog Phones	-
Avaya 9500 Series Digital Telephones	R0.55
Avaya 1600 Series IP Deskphones	1.3.6
Avaya E129 SIP Deskphones	1.0
Avaya E169 Media Station	1.1
Avaya 9600 Series IP Deskphone (96x1 – H.323)	6.4
Avaya Communicator for Windows	2.1
Grandstream GXV3240 and GXV3275 Multimedia IP Phones	Hardware Revision: V1.7A (GXV3240) V1.4B (GXV3275) System Version: 1.0.3.25 Android Version: 4.2.2

Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

## 5. Configure Avaya IP Office

Avaya IP Office is configured through the Avaya IP Office Manager PC application. From the Avaya IP Office Manager PC, select **Start → All Programs → IP Office → Manager** to launch the application.

The appearance of the IP Office Manager can be customized using the **View** menu. In the screens presented in this document, the **View** menu was configured to show the Navigation pane on the left side, omit the Group pane, and show the Details pane on the right side. Since the Group Pane has been omitted, its content is shown as submenus in the Navigation pane. These Navigation and Details panes will be referenced throughout the Avaya IP Office configuration. All licensing and feature configuration that is not directly related to supporting the Grandstream phones is assumed to already be in place.

In the sample configuration, **Primary** was used as the system name of the Primary Server, and **Expansion** was used as the system name of the Expansion System. All navigation described in the following sections (e.g., **License**) appears as submenus underneath the system name in the Navigation Pane.

These Application Notes assume that basic Avaya IP Office administration has already been performed (e.g., Avaya endpoints, network configuration, trunks, routing, short codes, etc.). Consult Reference [2] for further basic configuration details if necessary. The procedures shown in this section include:

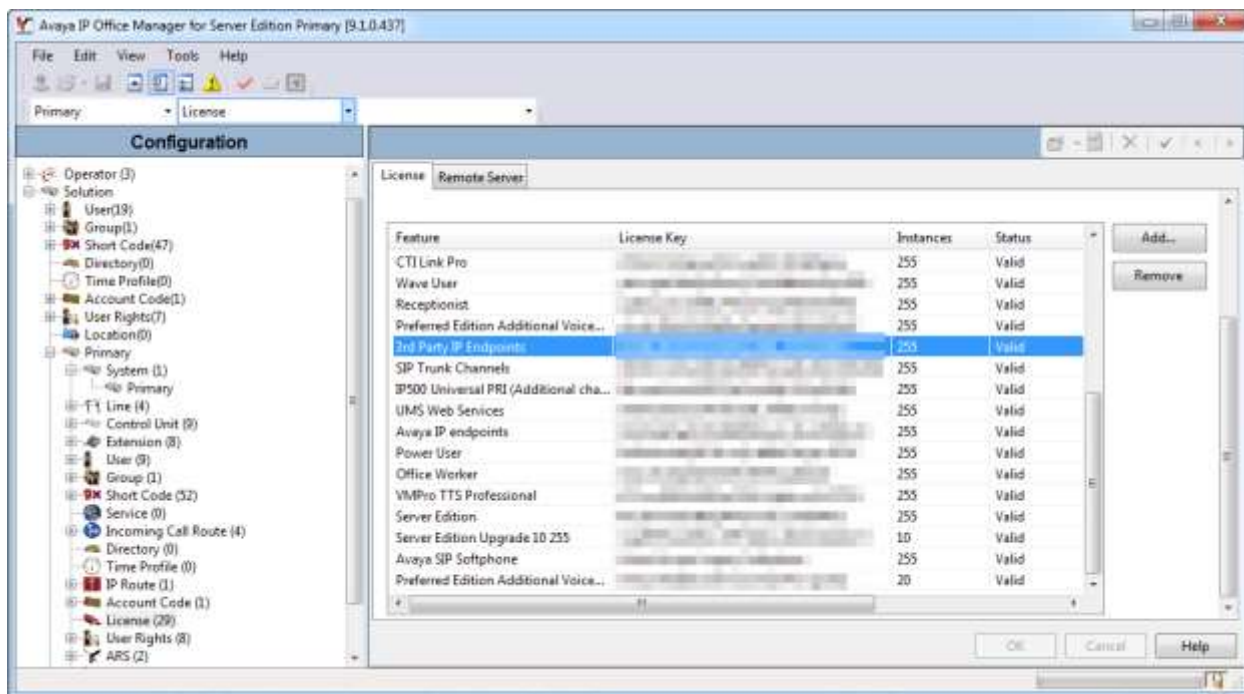
- Verify IP Office license
- Obtain LAN IP address
- Administer SIP registrar
- Administer SIP extensions
- Administer SIP users

Note, the sub-sections below illustrate the configuration needed to successfully register a Grandstream phone with the Primary Server. However, for any Grandstream phones that will be registered with the Expansion System, the same configuration steps must be performed on the Expansion System. During compliance testing, two Grandstream phones were registered with the Primary Server and two were registered with the Expansion System.

### 5.1. Verify IP Office License

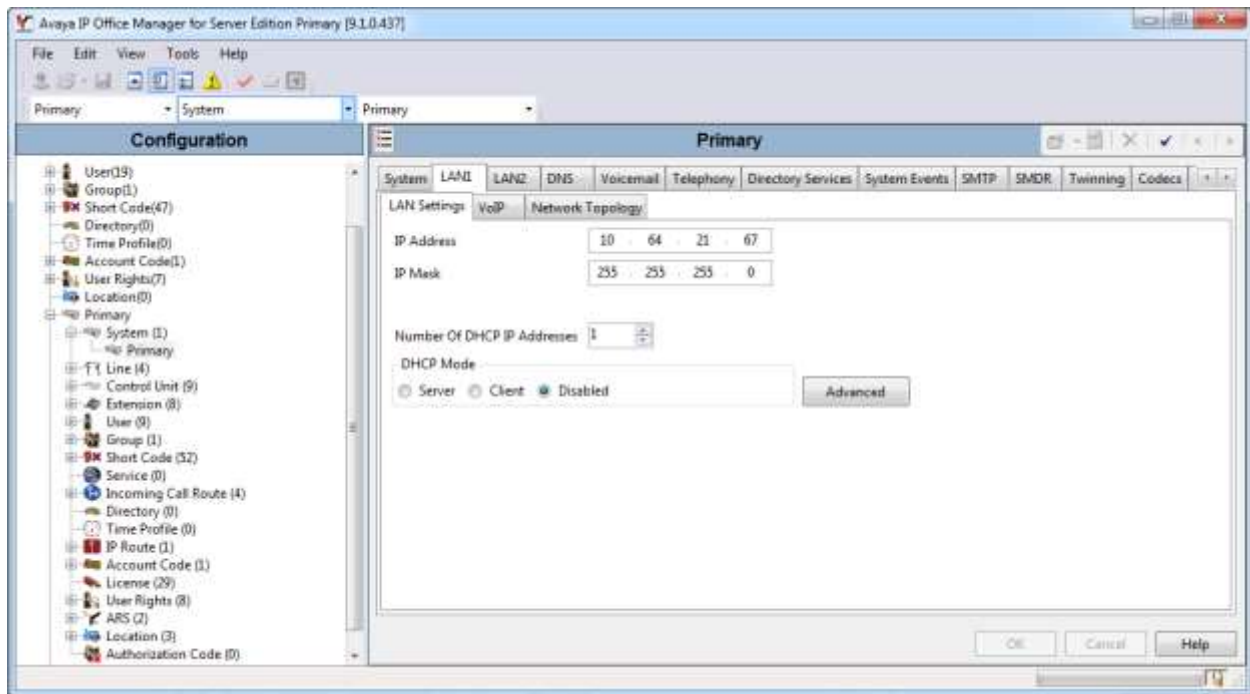
The configuration and features described in these Application Notes require Avaya IP Office to be licensed appropriately. If a desired feature is not enabled or there is insufficient capacity, contact an authorized Avaya sales representative.

To verify that there is a **3rd Party IP Endpoints** License with sufficient capacity, click **License** in the Navigation pane. Confirm a **Valid** license exists with sufficient **Instances** in the Details pane. The **License Keys** have been pixelated in the image below for security purposes.



## 5.2. Obtain LAN IP Address

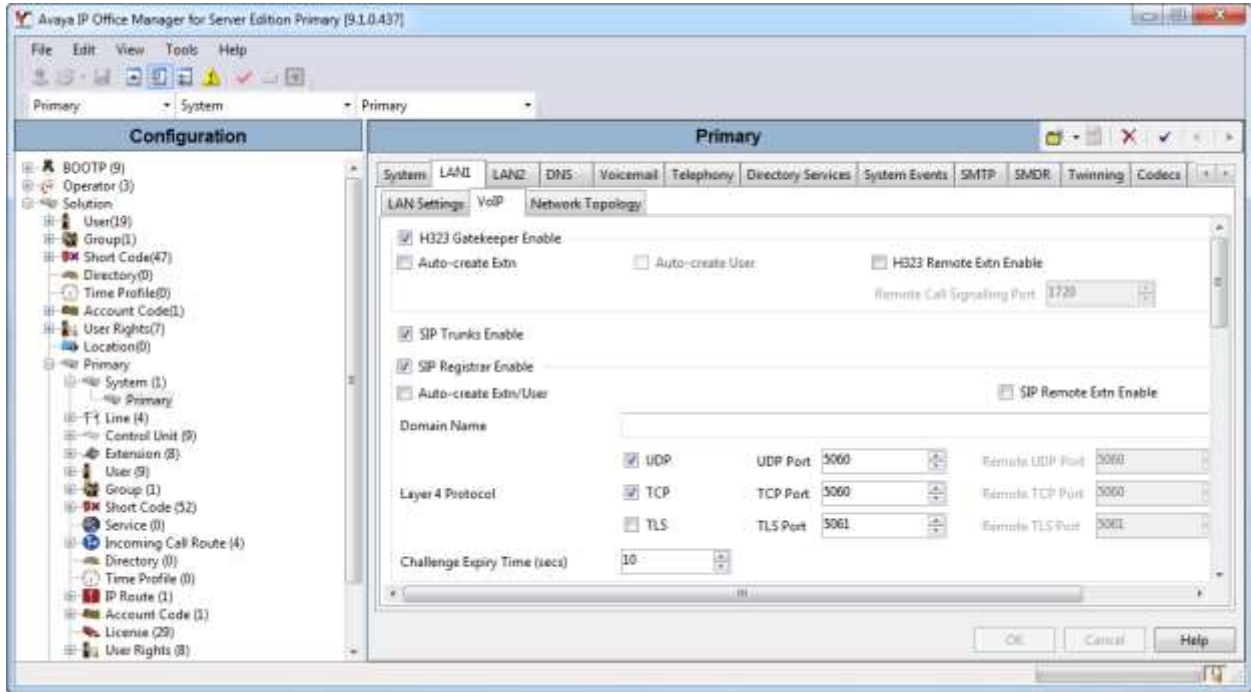
To access the LAN1 settings, first navigate to **System** → *<Name>*, where *<Name>* is the system name assigned to the Avaya IP Office. Next, navigate to the **LAN1** → **LAN Settings** tab in the Details Pane. Make a note of the **IP Address**, which will be used later to configure the Grandstream phones.





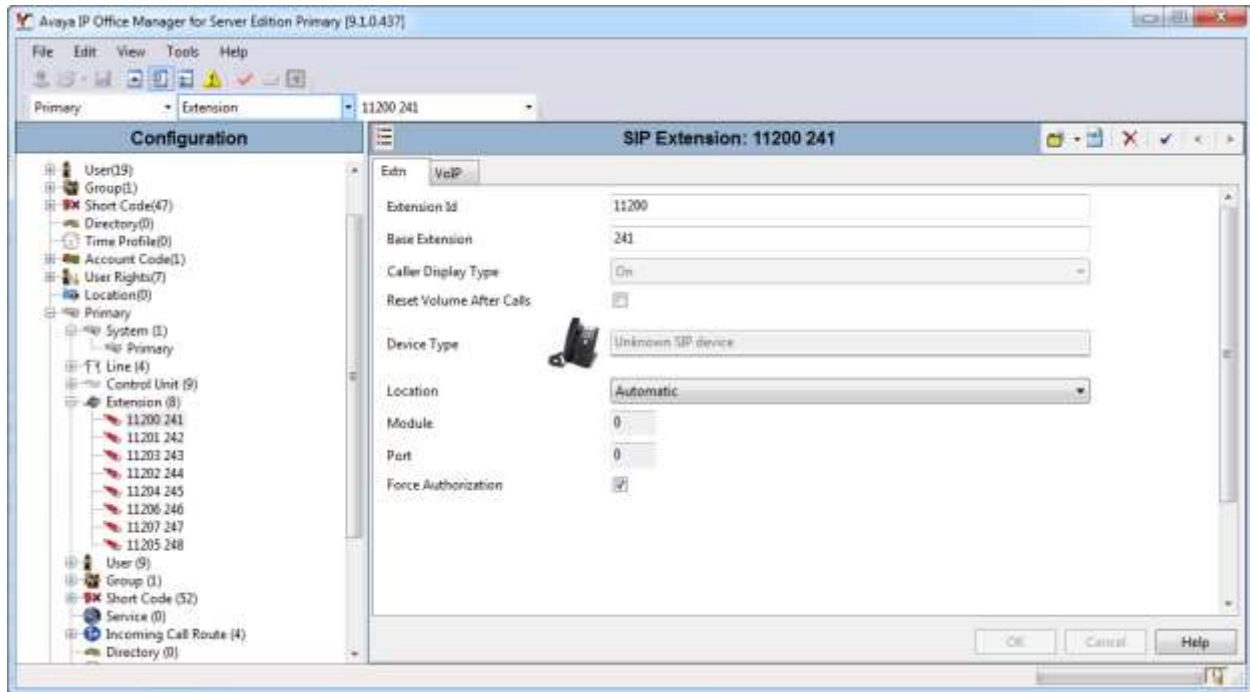
### 5.3. Administer SIP Registrar

Continuing from the previous section, navigate to the **LAN1 → VoIP** tab in the Details Pane. Verify **SIP Registrar Enable** is checked. A valid **Domain Name** can be entered for SIP endpoints to use for registration with IP Office. During compliance testing, the **Domain Name** was left blank, and SIP endpoints used the LAN1 IP address for registration.

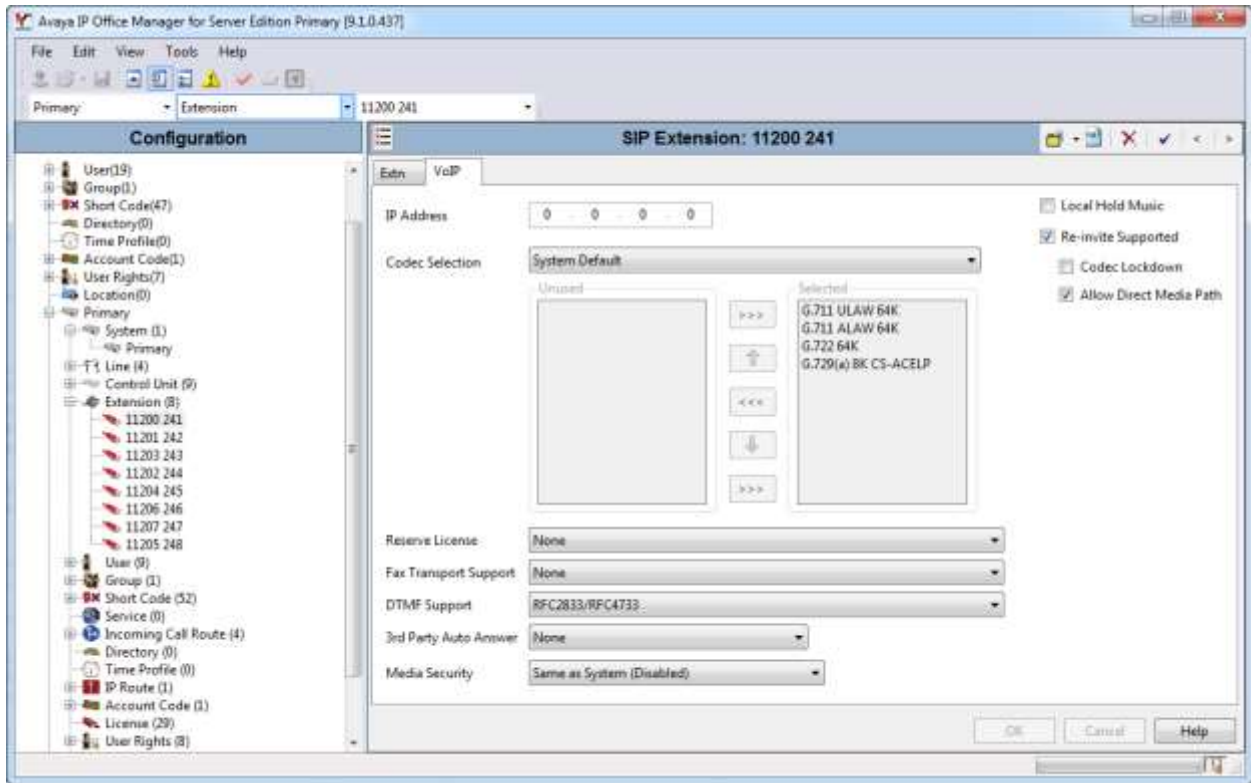


## 5.4. Administer SIP Extensions

To add a new SIP extension, right-click on **Extension** in the Navigation pane and then select **New → SIP Extension** from within the pop-up menu (not shown). For **Base Extension**, enter the SIP extension to be used for the Grandstream phone (e.g., **241**). Retain the default values in the remaining fields.

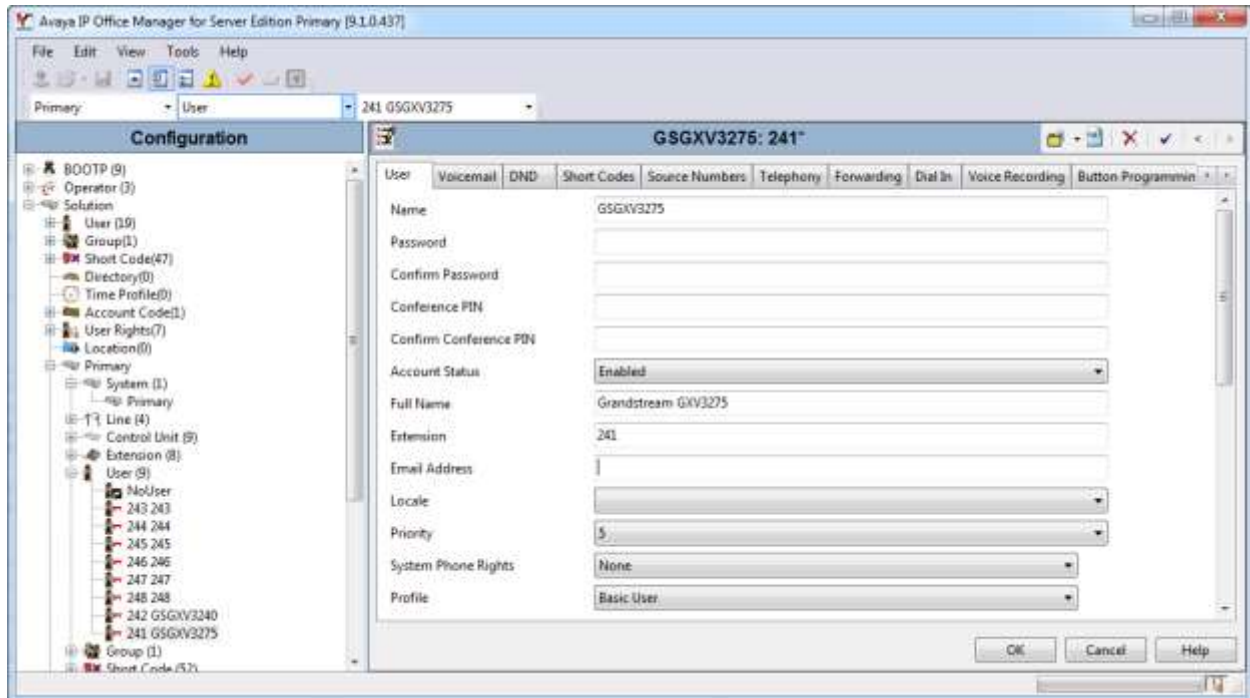


Select the **VoIP** tab, and retain the default values in all fields as shown below. Repeat this section to add additional SIP extensions as desired.

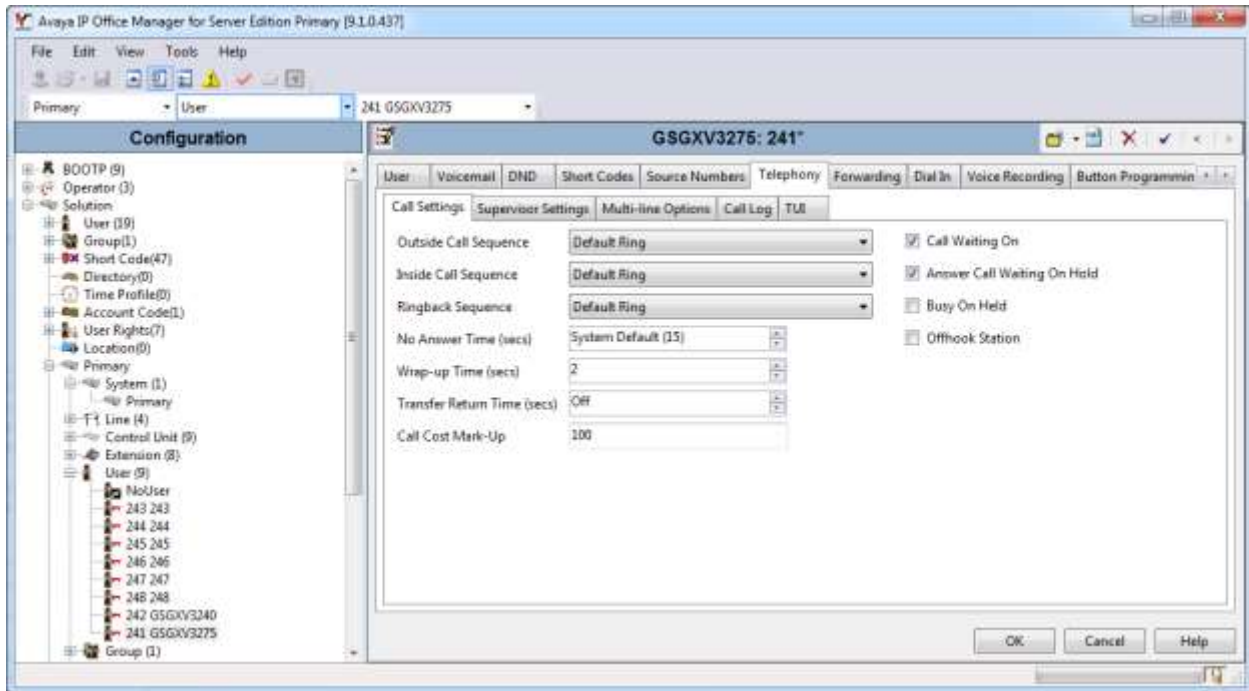


## 5.5. Administer User

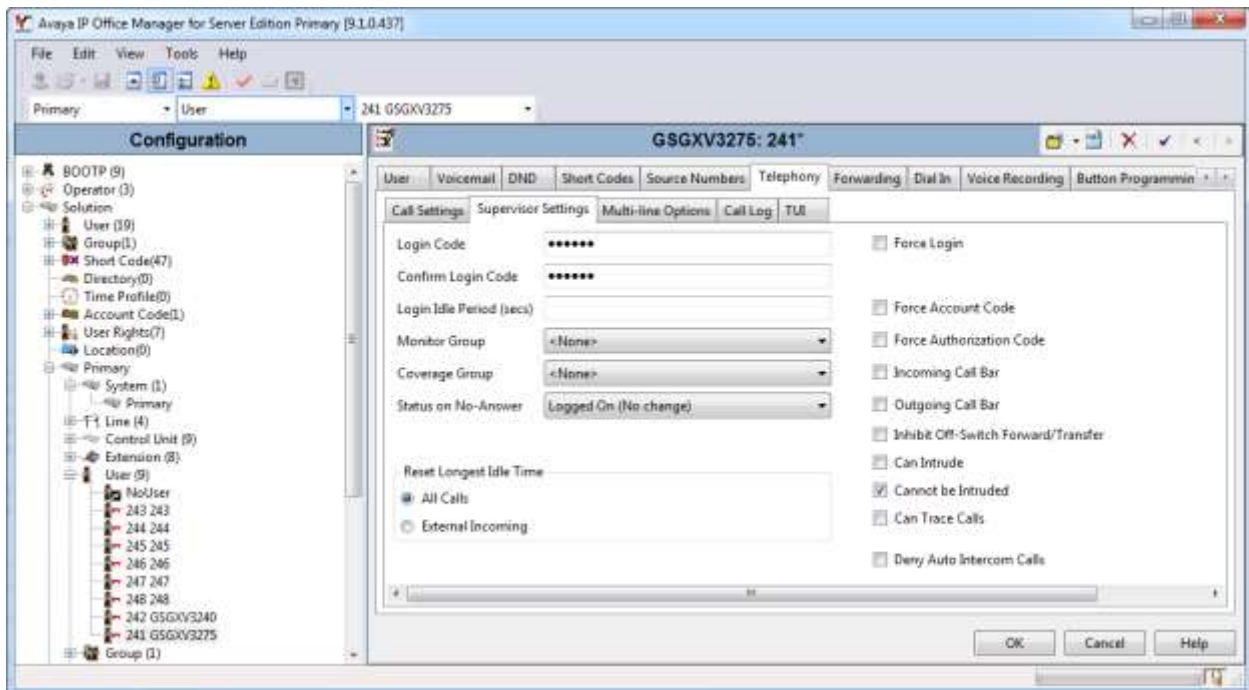
To add a new User, right-click on **User** in the Navigation pane, and then select the **New** option from within the pop-up menu (not shown). Enter a desired value for **Name**. For **Extension**, enter the extension from **Section 5.4**.



Navigate to **Telephony** → **Call Settings** tab in the Details Pane. Check the box for **Call Waiting On** and retain the default values for the remaining fields on this tab.



Navigate to **Telephony** → **Supervisor Settings** tab in the Details Pane. Enter a desired **Login Code**. This **Login Code** will be needed to configure the Grandstream phone.



## 5.6. Save Configuration

Navigate to **File → Save Configuration** in the menu bar at the top of the screen to save the configuration performed in the preceding sections.

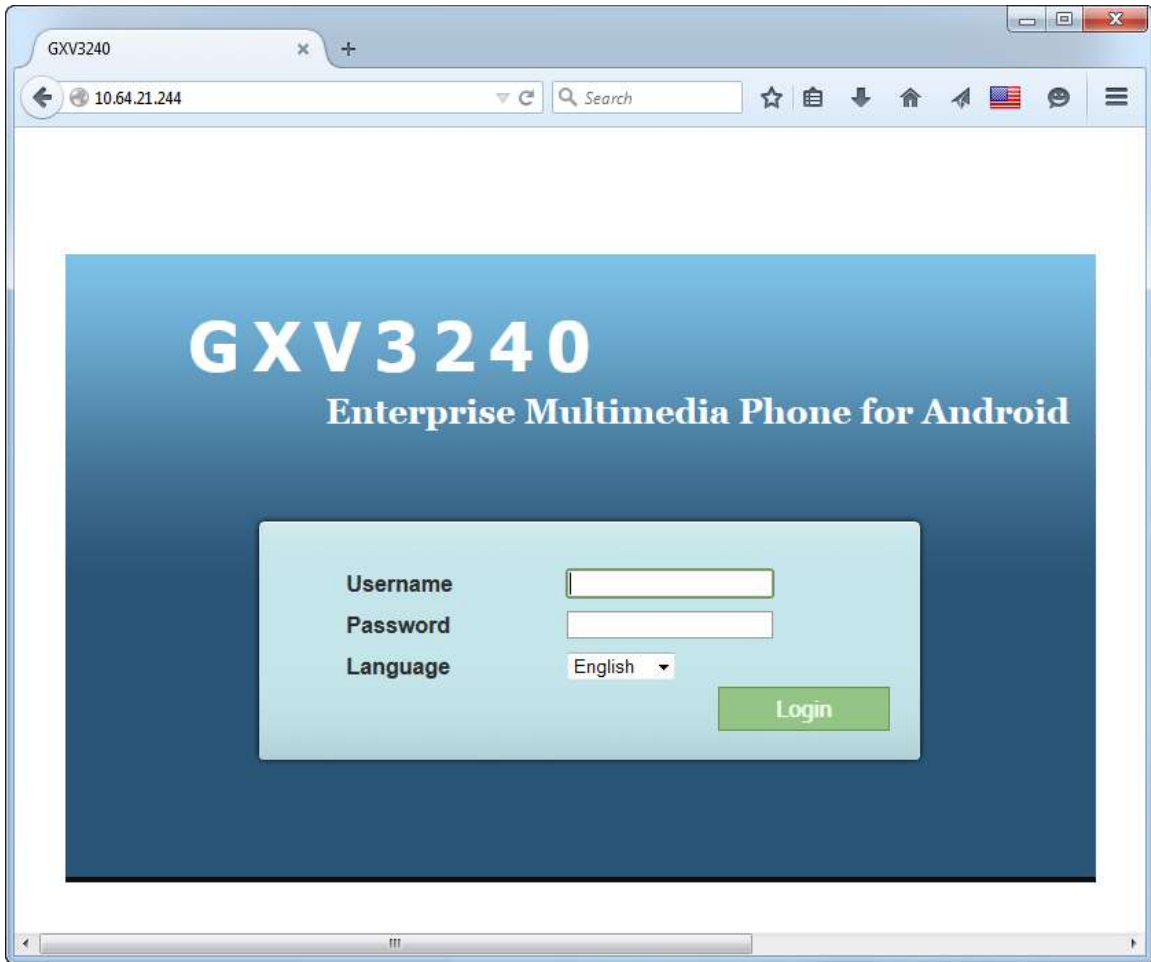
# 6. Configure Grandstream GXV3240 and GXV3275 Multimedia IP Phones for Android™

It is assumed that the basic configuration for the Grandstream phones has already been implemented and that the phones are ready for the integration with Avaya IP Office. The sub-sections below provide only the steps required to configure the Grandstream to interoperate with Avaya IP Office.

Note: Only the configuration steps required to integrate the Grandstream GXV3240 phone model with Avaya are shown in the sub-sections below; however the same steps are required and applicable to the Grandstream GXV3275 phone model.

## 6.1. Web Interface

Access the phone web interface by opening a web browser and entering the following URL: <http://ip-address>, where *ip-address* is the IP address of the phone. Log in using appropriate credentials.



After making and saving any configuration changes throughout the remainder of **Section 7**, an **Apply** button will appear at the top of the web interface. Click the **Apply** button (not shown) to immediately apply the changes.

## 6.2. Configure General Settings

Click the **Account** tab and select an Account sub-tab to configure (e.g., **Account 1**). Click **General Settings** on the left. Configure the following parameters:

- **Account Active:** Check the **Yes** box.
- **Account Name:** Enter descriptive text.
- **SIP Server:** Enter the IP Office LAN 1 IP address.
- **SIP User ID:** Enter the extension created in **Section 5.4**.
- **SIP Authentication ID:** Enter the extension created in **Section 5.4**.
- **SIP Authentication Password:** Enter the login code for the User created in **Section 5.5**.
- **Voice Mail UserID:** Enter the Avaya IP Office short code used to access Voicemail Pro (e.g., \*17). Configuration of short codes and Voicemail Pro is outside the scope of this document. The mailboxes for the Grandstream phones are configured the same as Avaya phones.
- **Name:** Enter descriptive text (optional).

Use the default values for the remaining fields. Click the **Save** button at the bottom of the screen.

The screenshot displays the GXV3240 Enterprise Phone Administration Interface. The main title is "GXV3240 -- Enterprise Phone Administration Interface". The interface is divided into several sections:

- Top Bar:** Includes "Theme", "Reboot", and "Exit" buttons, and a language dropdown set to "English".
- Navigation Tabs:** "Status", "Account", "Advanced Settings", and "Maintenance". The "Account" tab is selected.
- Account Sub-Tabs:** "Account 1", "Account 2", "Account 3", "Account 4", "Account 5", and "Account 6". "Account 1" is selected.
- Left Sidebar:** Contains "General Settings" (highlighted), "Network Settings", "SIP Settings", "Codec Settings", and "Call Settings".
- Main Content Area:** Displays the configuration for "Account 1":
  - Account Active:  Yes
  - Account Name: IPO
  - SIP Server: 10.64.21.67
  - SIP User ID: 241
  - SIP Authentication ID: 241
  - SIP Authentication Password: (empty)
  - Voice Mail UserID: \*17
  - Name: (empty)
  - Show Account Name Only:  Yes
  - Tel URI: Disable
- Bottom:** "Save" and "Cancel" buttons.



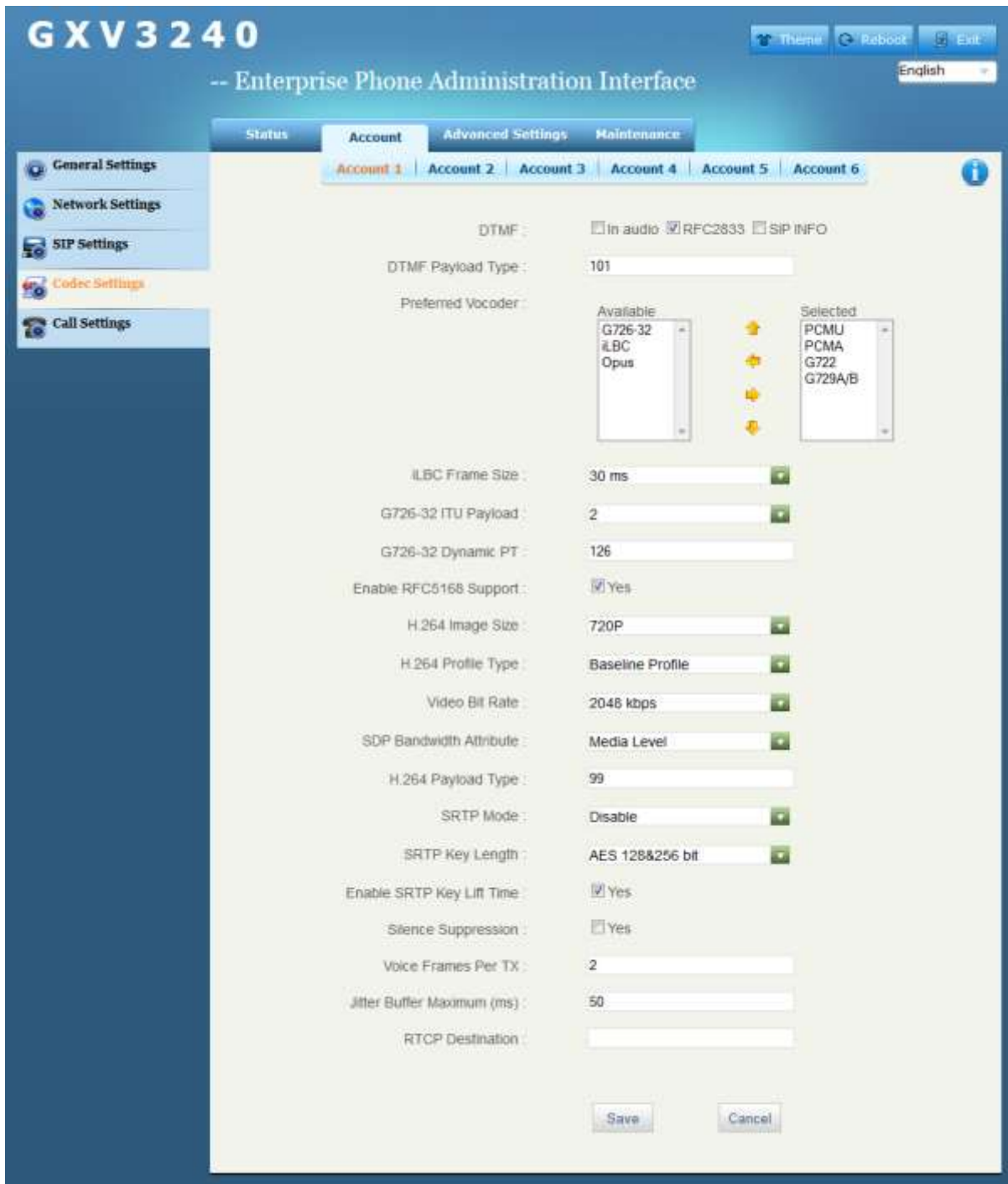
### 6.3. Configure SIP Settings

Continuing from the previous section, click the **SIP Settings** tab on the left. Check the **Yes** box for **SIP Registration** and **SUBSCRIBE for MWI**. Use the default values for the remaining fields. Click the **Save** button at the bottom of the screen.



## 6.4. Configure Code Settings

Continuing from the previous section, click the **Codec Settings** tab on the left. The settings on the screen below show that values that were used during compliance testing; however, **Preferred Vocoder** settings were modified occasionally during the testing to test various codecs. Check the box for **Enable RFC5168 Support**. After making any changes, click the **Save** button at the bottom of the screen.



## 6.5. Configure Packetization Mode

By default, the Grandstream phones support packetization mode set to 1. At the time of testing, the Avaya video endpoints did not support packetization mode set to 1. Therefore, the packetization mode value on the Grandstream phones was changed to 0.

To change the packetization mode value on the Grandstream phone, open a secure shell session to the phone's IP address. Log in using appropriate credentials. The commands required to change the value (and output) are shown below.

```
GXV3240 > config
CONFIG > get 957
957=1
CONFIG > set 957 0
Set 957=0
CONFIG> commit
nvram committed
CONFIG > exit
GXV3240 > reboot
You have chosen to reboot.
Do you want to continue (y/N)? y
```

## 7. Verification Steps

This section includes steps that can be followed to verify the configuration.

### 7.1. Verify Point to Point Audio and Video Calls

Place point to point audio and video calls between the Grandstream phones and Avaya endpoints. Verify 2-way audio as well as 2-way video for the video calls.

## 8. Conclusion

These Application Notes describe the procedures required for the Grandstream Multimedia IP Phones to interoperate with Avaya IP Office to support the reference configuration shown in **Figure 1**. Refer to **Section 2.2** for testing results.

## 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] *Deploying IP Office Platform Server Edition Solution*, Release 9.1, Issue 02.07, April, 2015.
- [2] *Administering IP Office Platform with Manager*, Release 9.1.2, Issue 10.09, April, 2015.
- [3] *Using IP Office Platform System Status*, Document Number 15-601758, Issue 10e, April 14, 2015.
- [4] *Administering IP Office Platform Voicemail Pro*, Document Number 15-601063, Issue 10d, March 25, 2015.
- [5] *Using IP Office System Monitor*, Document Number 15-601019, Issue 06c, April 16, 2015.

Additional Avaya IP Office documentation can be found at:

<http://marketingtools.avaya.com/knowledgebase/>

Product documentation for Grandstream products may be found at:

<http://www.grandstream.com>.

- [6] *GXV3240 IP Multimedia Phone for Android™ Administration Guide*
- [7] *GXV3275 IP Multimedia Phone for Android™ Administration Guide*

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