Avaya Solution & Interoperability Test Lab

Application Notes for Valcom Talkback IP Speakers with Avaya Aura® Communication Manager and Avaya Aura® Session Manager – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the Valcom Talkback IP Speakers to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. The Valcom Talkback IP Speakers are SIP-based devices that integrate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager as SIP endpoints.

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.

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1. Introduction

These Application Notes describe the configuration steps required for the Valcom Talkback IP Speaker devices to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. The Valcom Talkback IP Speakers are SIP-based devices that integrate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager as SIP endpoints and register to Avaya Aura® Session Manager.

2. General Test Approach and Test Results

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.

The interoperability compliance test plan included feature and serviceability test cases. The feature testing covered SIP registration, basic calls, media shuffling, call on-hold, transfer call, conference call, and audio codec negotiation. The feature testing also covered initiating a call from a Valcom Talkback IP Speaker to a pre-determined extension. The serviceability testing focused on verifying the ability of the Valcom Talkback IP Speakers to recover from adverse conditions, such as disconnecting and reconnecting the Ethernet cable to the device.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing covered SIP registration, basic calls, media shuffling, call on-hold, transfer call, conference call, and audio codec negotiation. The feature testing also covered initiating a call from the IP Speaker. These tests were conducted using the Valcom Talkback VIP-172AL IP Speaker to initialize the call by pressing the call button. The device initiates a call to the preconfigured destination that resides on Avaya Aura® Communication Manager, and provides hands-free two-way talk paths. The feature test cases were performed manually with both Avaya SIP and H.323 physical phones.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cables to the Valcom Talkback IP Speaker devices.

2.2. Test Results

All applicable test cases were executed successfully.

2.3. Support

Technical support for Valcom can be obtained through the following:
Phone: (800) VALCOM1

Email: support@valcom.com

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Avaya customers may obtain documentation and support for Avaya products by visiting http://support.avaya.com. Alternatively, in the United States, (866) GO-AVAYA (866-462-8292) provides access to overall sales and service support menus.

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3. Reference Configuration

The Valcom Talkback IP Speakers can register with Avaya Aura® Session Manager as separate SIP endpoints. In the compliance testing, three Valcom Talkback IP Speakers were used to register to Avaya Aura® Session Manager:

- Talkback IP Speaker VIP-160A (30105).
- Talkback IP Speaker VIP-172AL (30106).
- Talkback IP Speaker VIP-148AL (30107).

One Avaya 9630 H.323 phone (30001) with physical phone registers to Avaya Aura® Communication Manager.

One Avaya 9630G SIP phone (30101) with physical phone registers to Avaya Aura® Session Manager.

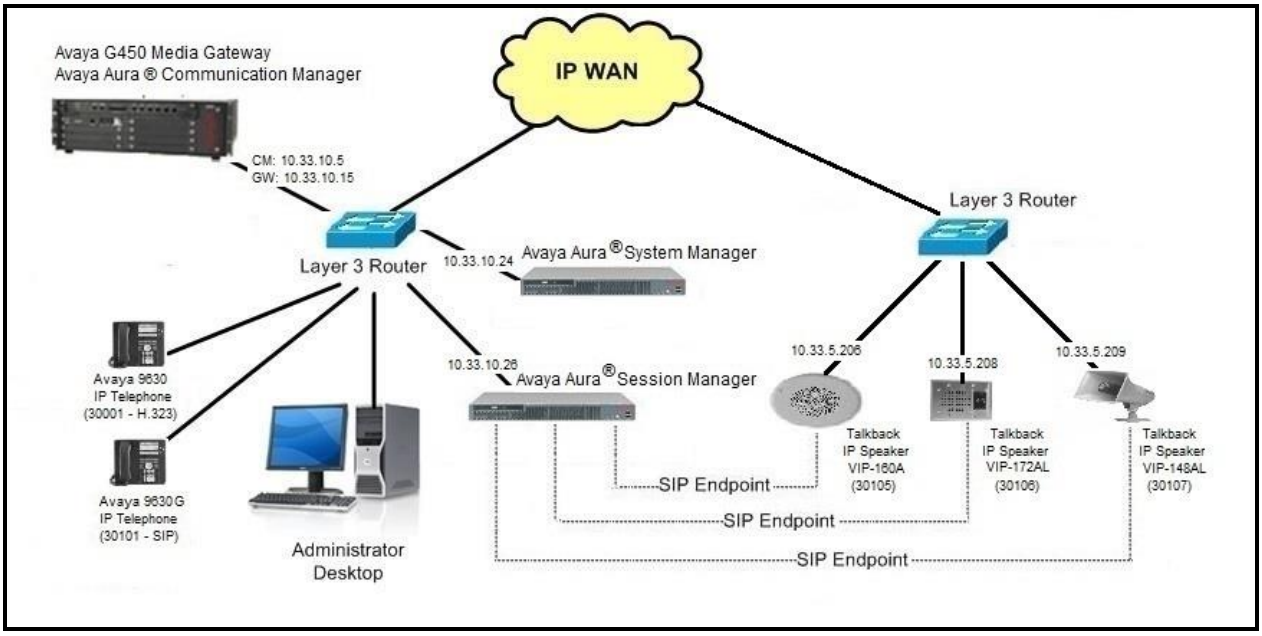

Figure 1- Valcom Talkback IP Speakers with Avaya Aura® Communication Manager and Avaya Aura® Session Manager

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4. Equipment and Software Validated

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

Equipment	Software
Avaya Aura® Communication Manager running on Avaya S8300 Server	6.3.8 (03.0.124.0-21588 (SP8))
Avaya G450 Media Gateway • MM711AP Analog • MM712AP Digital • MM710AP	36.9 FW096, HW46 FW014, HW10 FW020, HW05
Avaya Aura® Session Manager running on Avaya S8800 Server	6.3.7 (6.3.7.0.637008)
Avaya Aura® System Manager running on Avaya S8800 Server	6.3.9 (Build No. - 6.3.0.8.5682 - 6.3.8.4417) (Software Update Revision No: 6.3.9.1.2538)
Avaya 9630G IP Telephone - Avaya one-X® Deskphone SIP Edition	2.6.6.0
Avaya 9630 IP Telephone - Avaya one-X® Deskphone H.323 Edition	3.2
Valcom VIP-172AL - IP Talkback Flush MT Stainless Steel	3.18.6
Valcom VIP-148AL - IP Talkback Horn Grey	3.18.6
Valcom VIP-160A - IP Talkback 8” Ceiling Speaker	3.18.6
Valcom VIP-102B IP Solutions Setup Tool	6.1

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5. Configure Avaya Aura® Communication Manager

The detailed administration of basic connectivity between Avaya Aura® Communication Manager and Avaya Aura® Session Manager is not the focus of these Application Notes and will not be described. For administration of basic connectivity Avaya Aura® Communication Manager and Avaya Aura® Session Manager, refer to the appropriate documentation listed in **Section 12**. This section provides the procedures for the following:

- Verify Avaya Aura® Communication Manager License.
- Administer IP codec set.
- Administer IP network region.

5.1. Verify Avaya Aura® Communication Manager License

Log into the System Access Terminal (SAT) to verify that the Avaya Aura® Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the **display system-parameters customer-options** command to verify that there is sufficient capacity for SIP stations by comparing the **Maximum Off-PBX Telephones - OPS** field value with the corresponding value in the **USED** column. The difference between the two values needs to be greater than or equal to the desired numbers for the Valcom Talkback IP Speakers.

```
display system-parameters customer-options                    Page   1 of  11
                            OPTIONAL FEATURES

    G3 Version: V16                            Software Package: Enterprise
      Location: 1                           RFA System ID (SID): 1
      Platform: 28                          RFA Module ID (MID): 1

                                                          USED
                            Platform Maximum Ports: 65000  186
                                 Maximum Stations: 41000  27
                            Maximum XMOBILE Stations: 41000  0
                    Maximum Off-PBX Telephones - EC500: 41000  0
                    Maximum Off-PBX Telephones -   OPS: 41000  15
                    Maximum Off-PBX Telephones - PBFMC: 41000  0
                    Maximum Off-PBX Telephones - PVFMC: 41000  0
                    Maximum Off-PBX Telephones - SCCAN: 0      0
                         Maximum Survivable Processors: 313    0

       (NOTE: You must logoff & login to effect the permission changes.)
```

Figure 2 - Avaya Aura® Communication Manager Permission for Feature

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5.2. Administer IP Codec Set

Use the **change ip-codec-set n** command, where **n** is an existing codec set number that will be used for integration with Valcom. Enter the G.711 codec in the **Audio Codec** field. Note that the Valcom Talkback IP Speakers only supports the G.711 codec.

```
change ip-codec-set 1                                          Page   1 of   2

                         IP Codec Set

    Codec Set: 1

    Audio         Silence      Frames   Packet
    Codec         Suppression  Per Pkt  Size(ms)
 1: G.711MU            n         2        20
 2:
```

Figure 3 - Avaya Aura® Communication Manager Codec

5.3. Administer IP Network Region

Use the **change ip-network-region n** command, where **n** is the existing network region used for integration with Valcom. Set **Codec Set**: **1** (Defined in **Section 5.2**). Enable the **Intra-region IP-IP Direct Audio**, **Inter-region IP-IP Direct Audio**, and **IP Audio Hairpinning** fields, as shown below.

For ease of compliance testing, the same network region was used for the Avaya endpoints. If the network configuration uses a different network region for the Avaya endpoints, then **Page 3** can be used to specify which codec set to use for calls between regions.

```
change ip-network-region 1                                     Page   1 of  20
                             IP NETWORK REGION
  Region: 1
Location: 1       Authoritative Domain: bvwdev7.com
    Name: procr                 Stub Network Region: n
MEDIA PARAMETERS                Intra-region IP-IP Direct Audio: yes
      Codec Set: 1              Inter-region IP-IP Direct Audio: yes
   UDP Port Min: 2048                     IP Audio Hairpinning? y
   UDP Port Max: 3329
DIFFSERV/TOS PARAMETERS
 Call Control PHB Value: 46
        Audio PHB Value: 46
        Video PHB Value: 26
802.1P/Q PARAMETERS
 Call Control 802.1p Priority: 6
        Audio 802.1p Priority: 6
        Video 802.1p Priority: 5      AUDIO RESOURCE RESERVATION PARAMETERS
H.323 IP ENDPOINTS                                     RSVP Enabled? n
  H.323 Link Bounce Recovery? y
 Idle Traffic Interval (sec): 20
   Keep-Alive Interval (sec): 5
            Keep-Alive Count: 5
```

Figure 4 - Avaya Aura® Communication Manager IP Network Region

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6. Configure Avaya Aura® Session Manager

This section provides the procedures for configuring Avaya Aura® Session Manager. The procedures include the following areas:

- Launch Avaya Aura® Session Manager interface.
- Administer users.

6.1. Launch Avaya Aura® Session Manager Interface

Configuration of Session Manager is accomplished by accessing the browser-based GUI of Avaya Aura® System Manager, using the URL "https://<ip-address>/SMGR", where "<ip-address>" is the IP address of System Manager. Log in using the appropriate credentials with **User ID** and **Password**. Click **Log On** button.

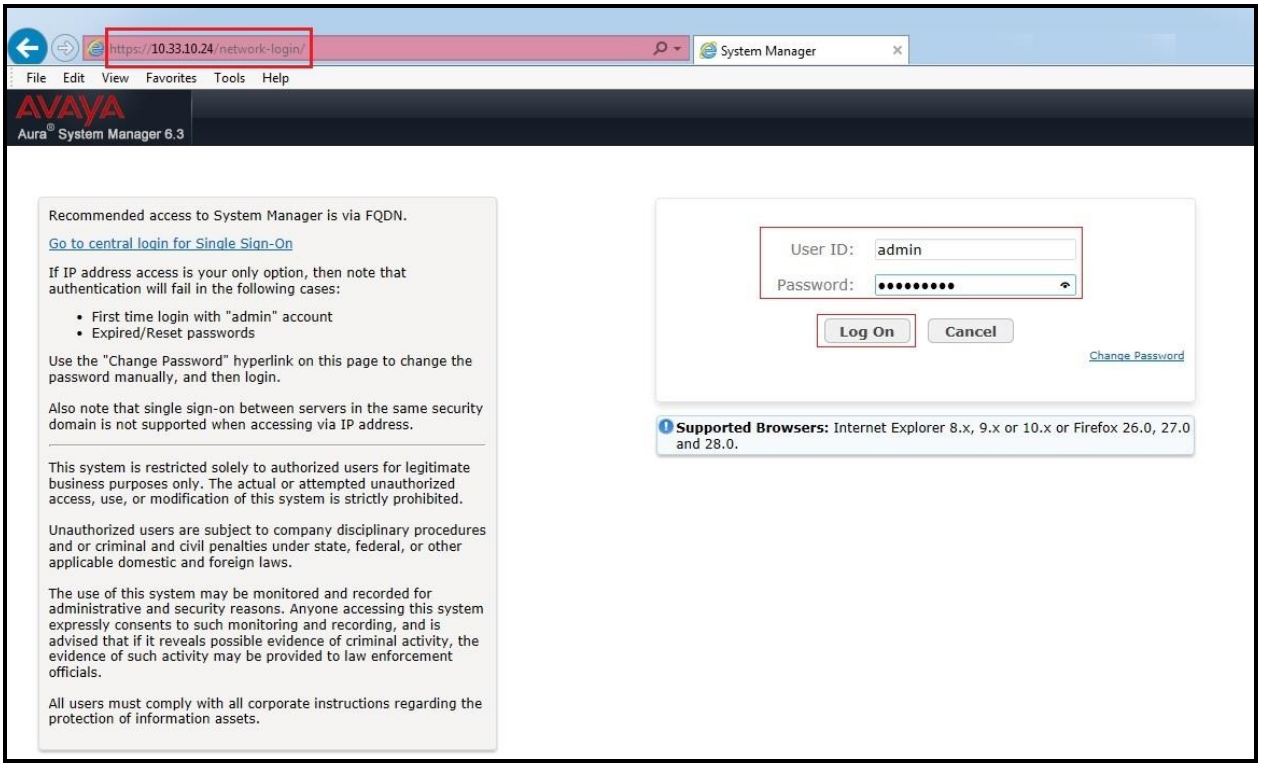

Figure 5 - Session Manager Log On

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The initial screen shown below is then displayed. Click on **User Management** in the **Users** column to bring up the **User Management Menu** screen in **Figure 7**.

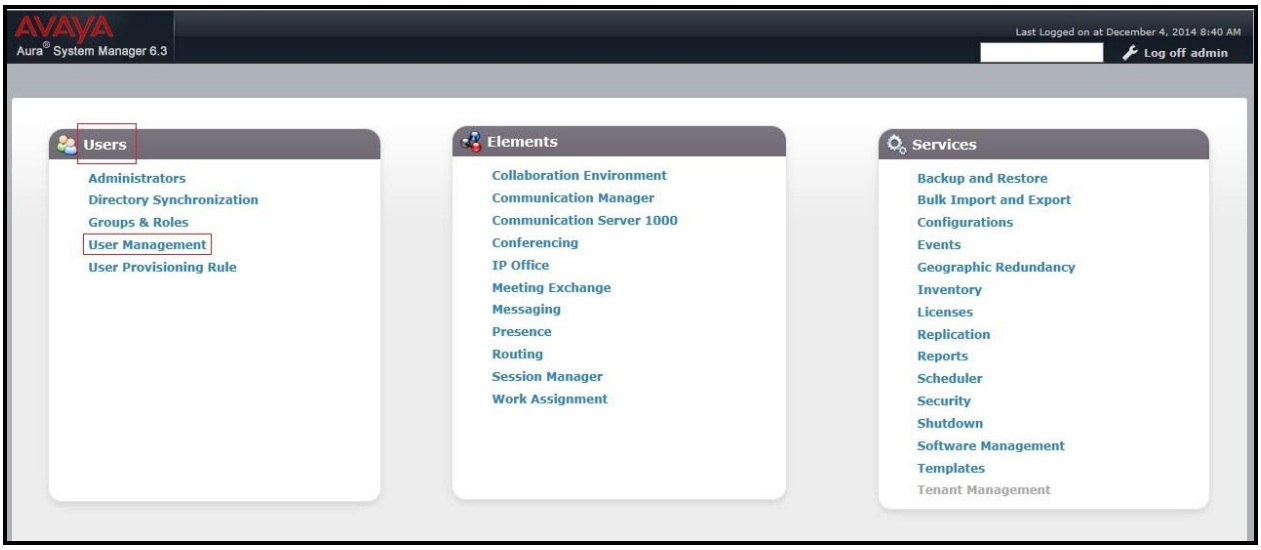

Figure 6 - Session Manager Log On Menu

6.2. Administer Users

The **User Management Menu** screen is shown below. Select **User Management → Manage Users** from the left pane to display the **User Management** screen in **Figure 8**.

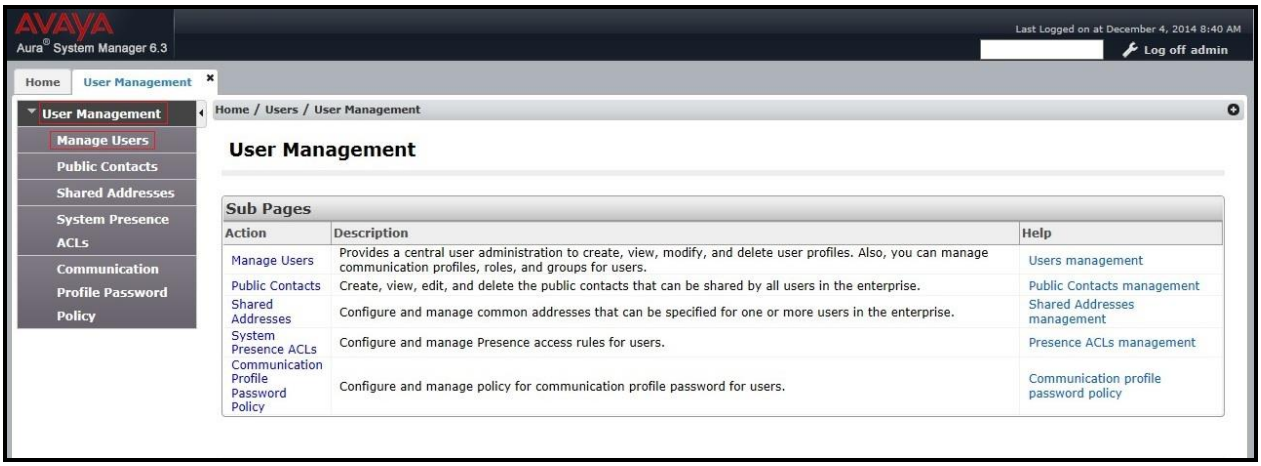

Figure 7 – User Management Menu

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The **User Management** screen is shown below. Select **New** to create a new user.

Figure 8 – User Management

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Enter the following values for the specified fields, and retain the default values in the remaining fields. Click on **Commit** at the top of the screen to submit these changes.

Note: Repeat this section to create a SIP user for each SIP endpoint to register to Avaya Aura® Session Manager. For the compliance testing, 4 SIP users and extensions were administered.

Under **Identity**:

- **Last Name**: Enter the last name of the user (e.g. **Valcom**).
- **First Name**: Enter the first name of the user (e.g. **30106**).
- **Login Name**: Enter the unique system login given to the user. It is formatted as username@domain (e.g. **30106@bvwdev7.com**) and it is used to create the user's primary handle.
- **Authentication Type**: leave as **Basic** to allow the user's login to be authenticated by an Avaya Authentication Server.
- **Password**: Enter the password used to log into System Manger.
- **Confirm Password**: Re-enter the above password.
- **Localized Display Name**: Enter the localized display name of the user.
- **Endpoint Display Name**: Enter the full text name of the user represented in ASCII to support displays that cannot handle localized text.
- **Language Preference**: Select the user's preferred written or spoken language.
- **Time Zone:** Select the preferred time zone of the user.

Click **Commit** button to save the changes.

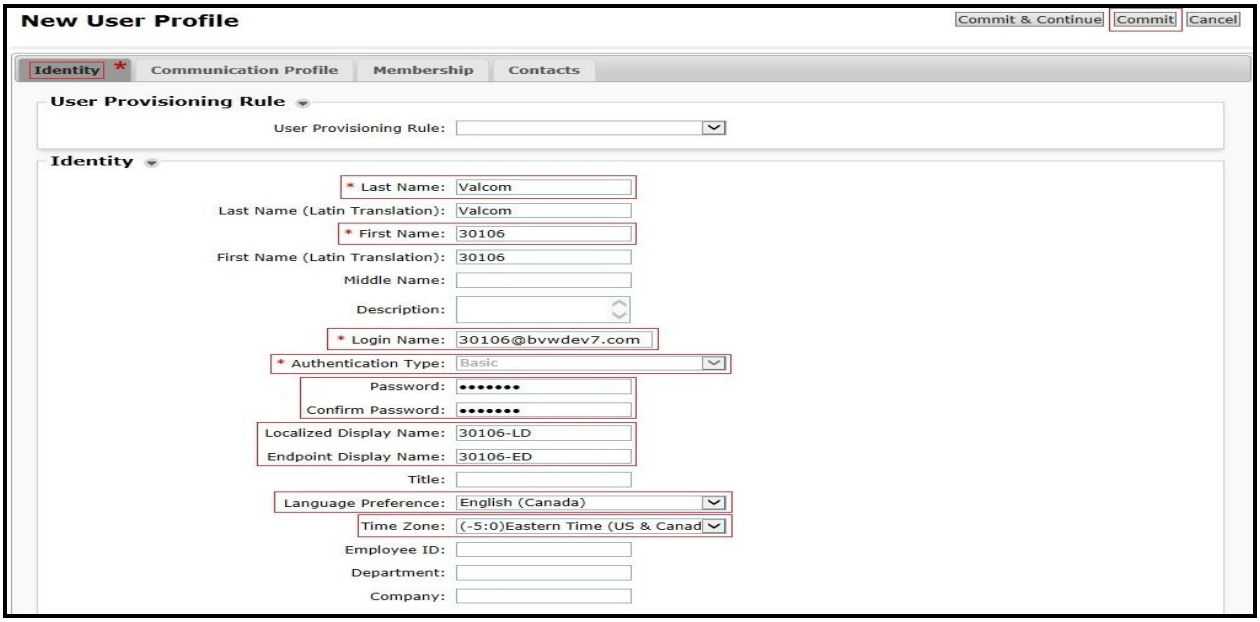

Figure 9 – New User - Identity

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Under **Communication Profile → Communication Profile**:

- **Communication Profile Password**: Enter the login password for the SIP user.
- **Confirm Password**: Re-enter the above password.

Click **Commit** button to save the changes.

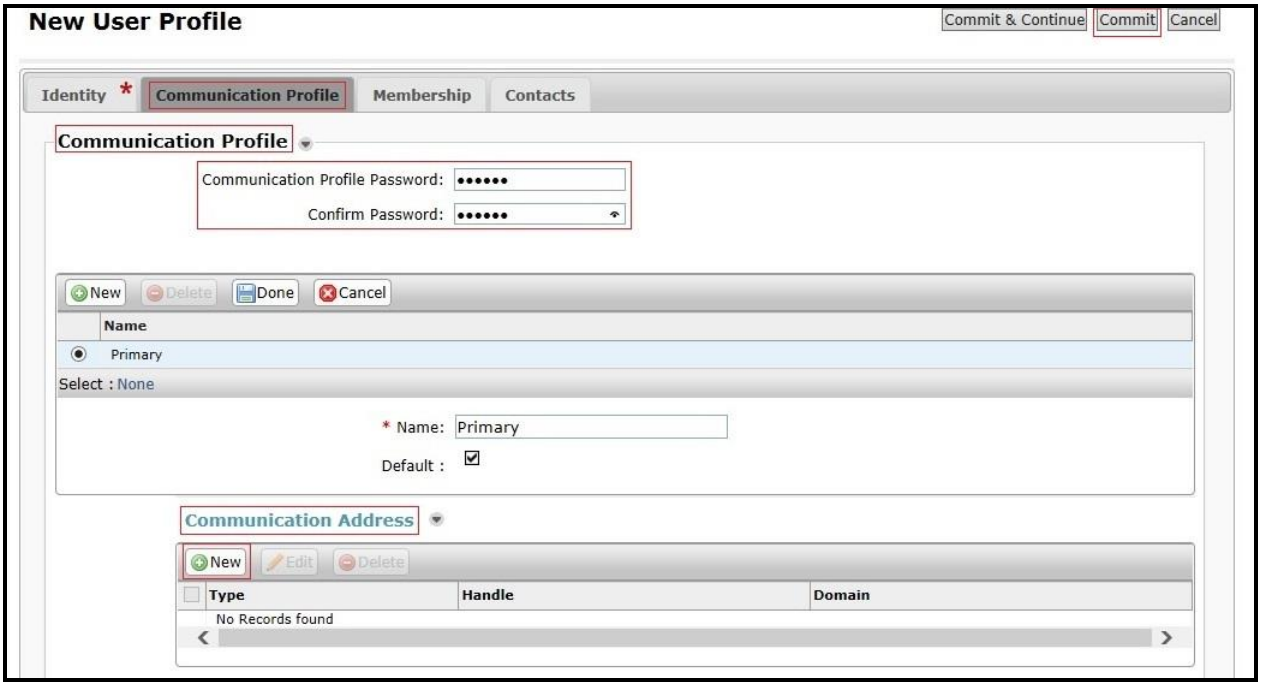

Figure 10 – New User – Communication Profile

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Under **Communication Profile → Communication Address**, select **New** to create a new user's primary handle.

- **Type**: Select **Avaya SIP**.
- **Fully Qualified Address**: Enter the extension and select the appropriate domain for the user. This setting will be used for Authentication Name and Realm in **Section 8.3**.
- Click **Add** button to add a new handle.

Click **Commit** button to save the changes.

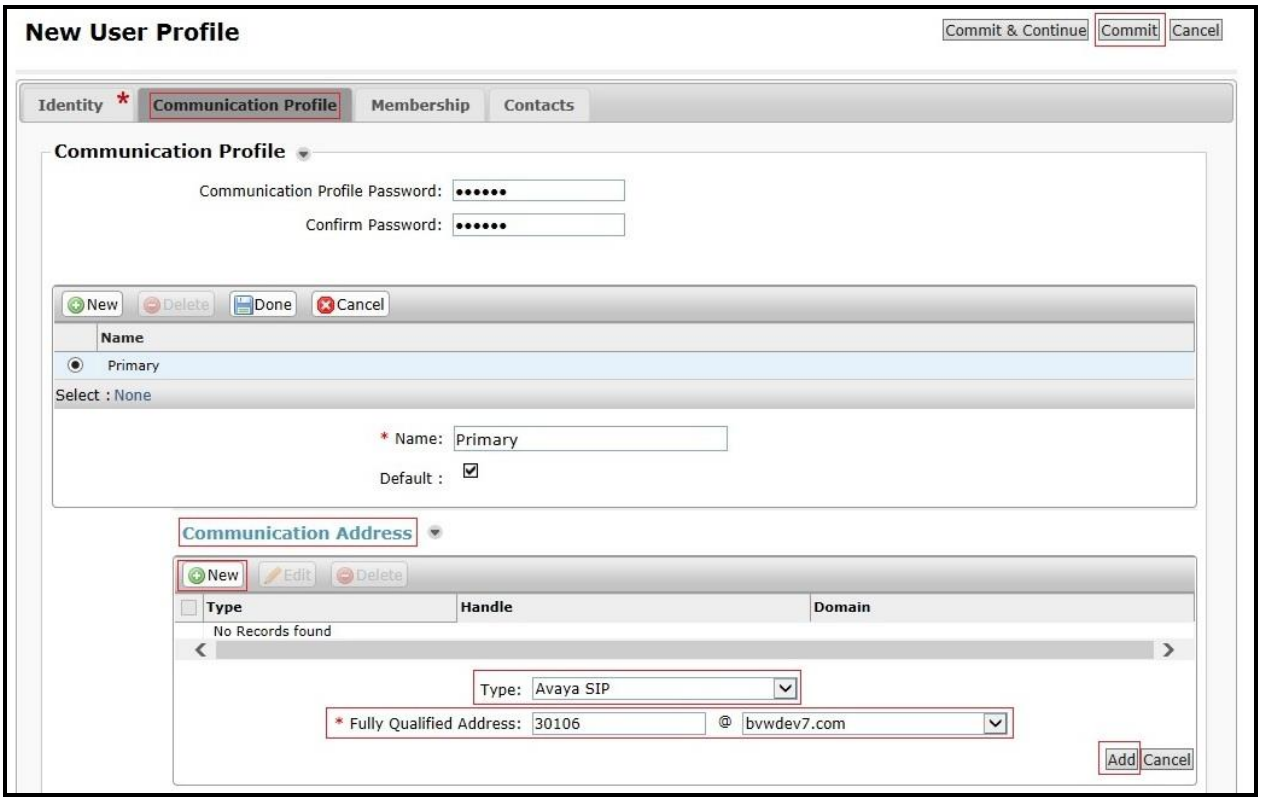

Figure 11 – New User – Communication Address

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Under **Communication Profile**, check **Session Manager Profile** option:

- **SIP Registration → Primary Session Manager**: Select the Session Manager instance that should be used as the home server for the currently displayed Communication Profile.
- **Application Sequences → Origination Sequence**: Select an Application Sequence that will be invoked when calls are routed from this user.
- **Application Sequences → Termination Sequence**: Select an Application Sequence that will be invoked when calls are routed to this user.
- **Call Routing Settings → Home Location**: Select the Home Location of this user.

Click **Commit** button (not shown) to save the changes.

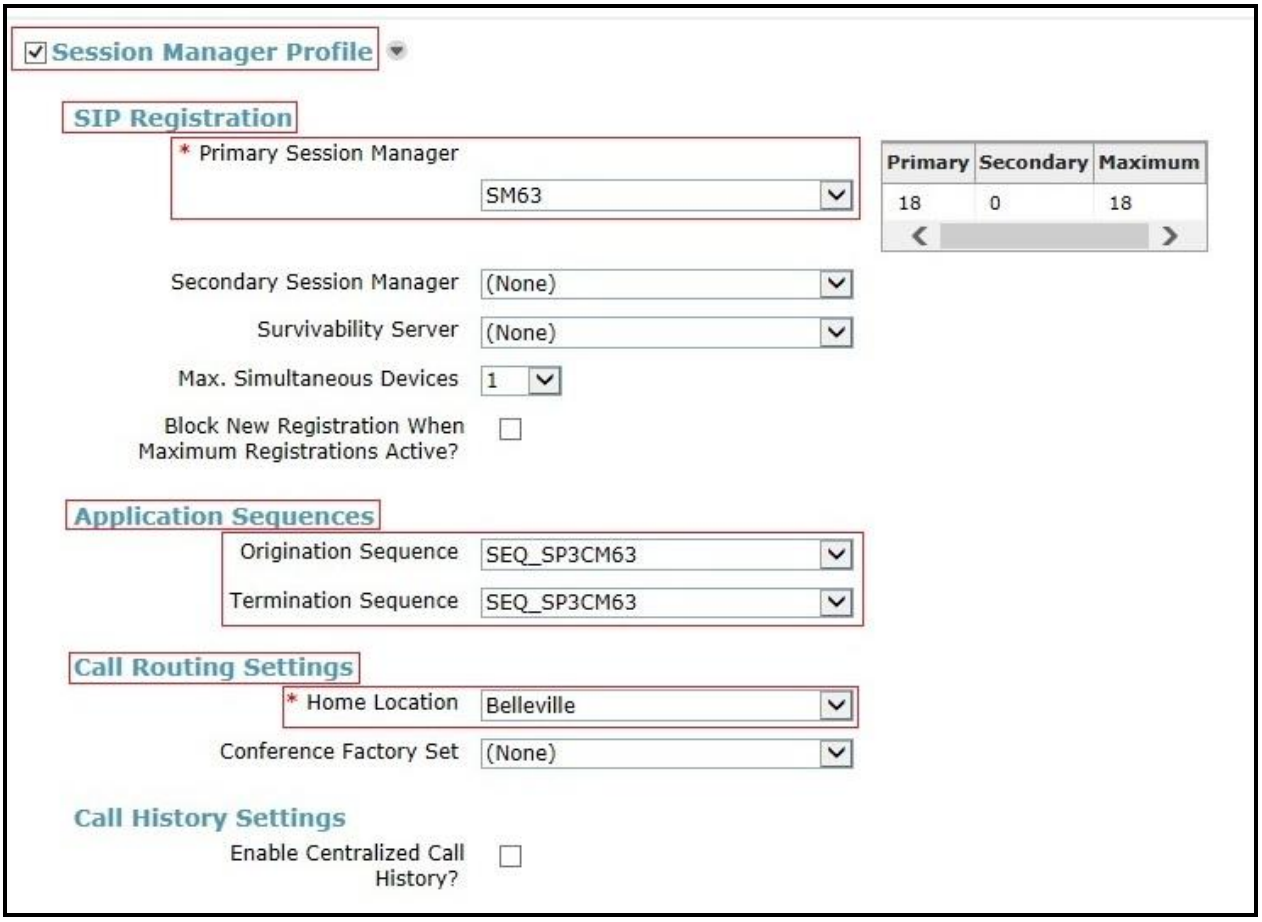

Figure 12 – New User – Session Manager Profile

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Under **Communication Profile**, check **CM Endpoint Profile** option:

- **System**: Select the Communication Manager on which the endpoint exists.
- **Profile Type**: Select **Endpoint**.
- **Extension**: Enter the extension of the endpoint that you want to associate with this user.
- Click **Endpoint Editor** button to edit the endpoint.

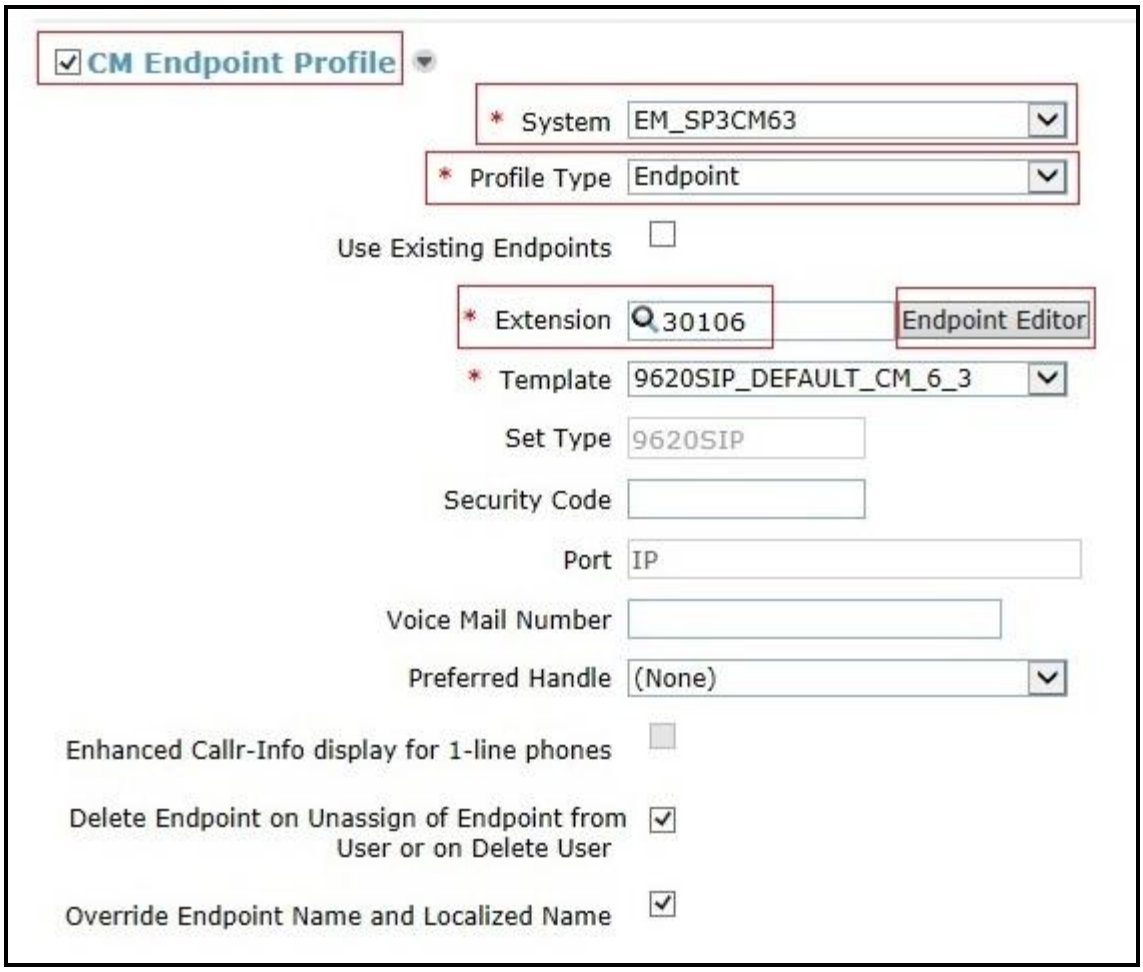

Figure 13 – New User – CM Endpoint Profile

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The Valcom SIP endpoints were defined using the template for the Avaya 9620 SIP phone during compliance testing. Enter the following values for the specified fields, and retain the default values in the remaining fields.

- **Template**: Select **9620SIP_DEFAULT_CM_6_3**.
- **Security Code**: Enter the desired security code for this endpoint. This security code will be used for the secret in **Section 8.3**.
- Click **Done** button to complete.

Click **Commit & Continue** button (not shown) to save the changes.

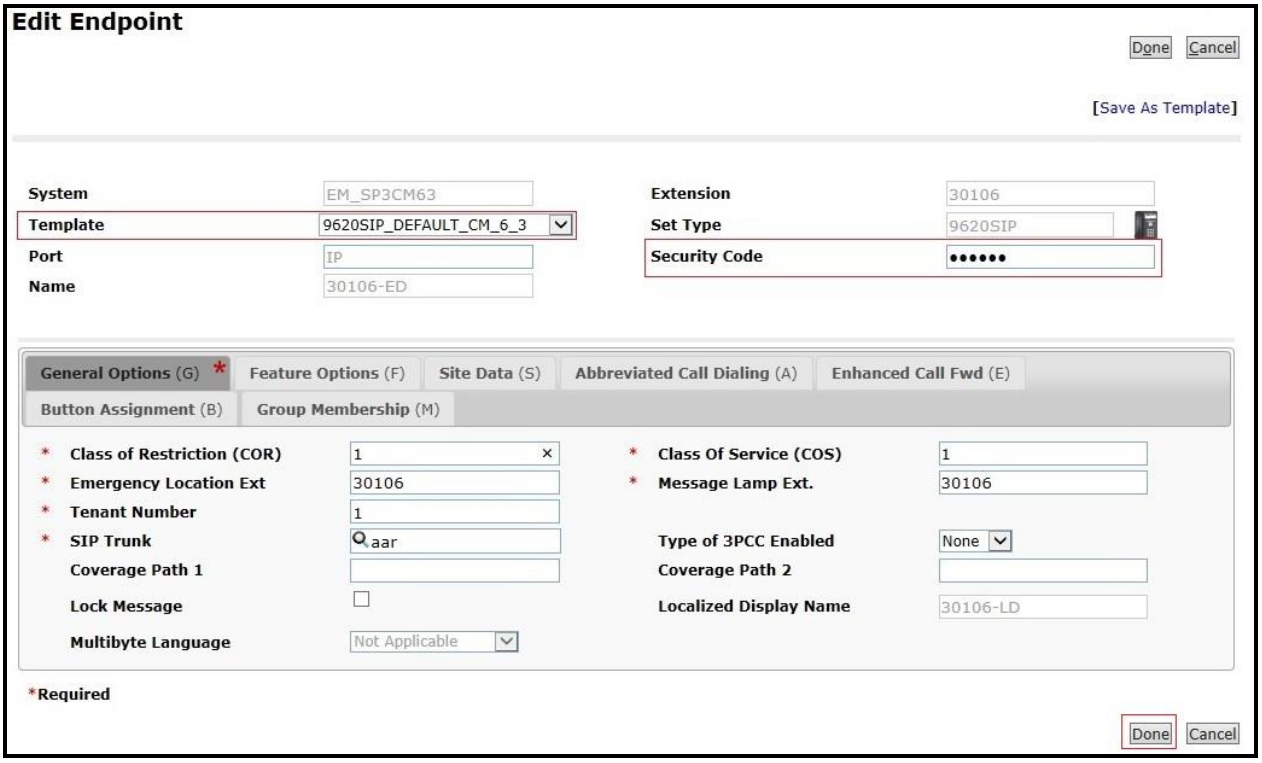

Figure 14 – New User – Edit Endpoint

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From the **User Management** screen in **Figure 8**, select **User Management → Manage Users** to display the list of four SIP endpoint users created.

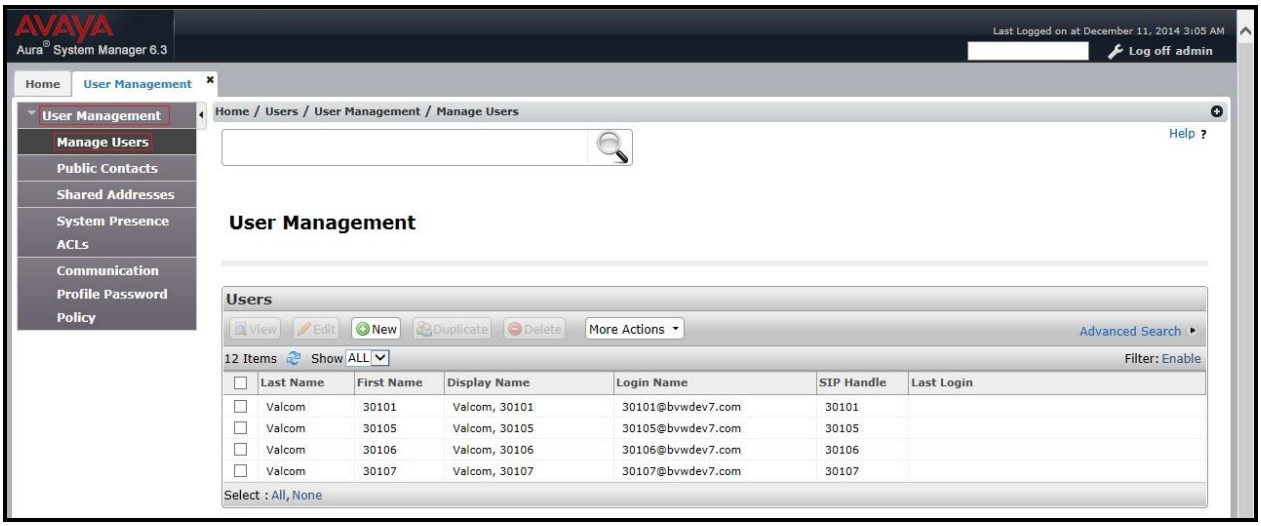

Figure 15 – List of SIP endpoint users

Note: The Avaya 9630G SIP phone (30101) with physical phone was created and registered to Avaya Aura® Session Manager, but it was not described in this application notes.

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7. Launch Valcom Setup Tool and Scan Devices

This section provides the procedures for scanning the Valcom Talkback IP Speaker devices.

From a PC running the Valcom VIP-102B IP Solutions Setup Tool application, select **Start → All Programs → Valcom IP Solutions → VIP-102B IP Solutions Setup Tool** (not shown). The **VIP-102B IP Solutions Setup Tool** screen is displayed. Retain the default values and click **OK** to scan for Valcom devices.

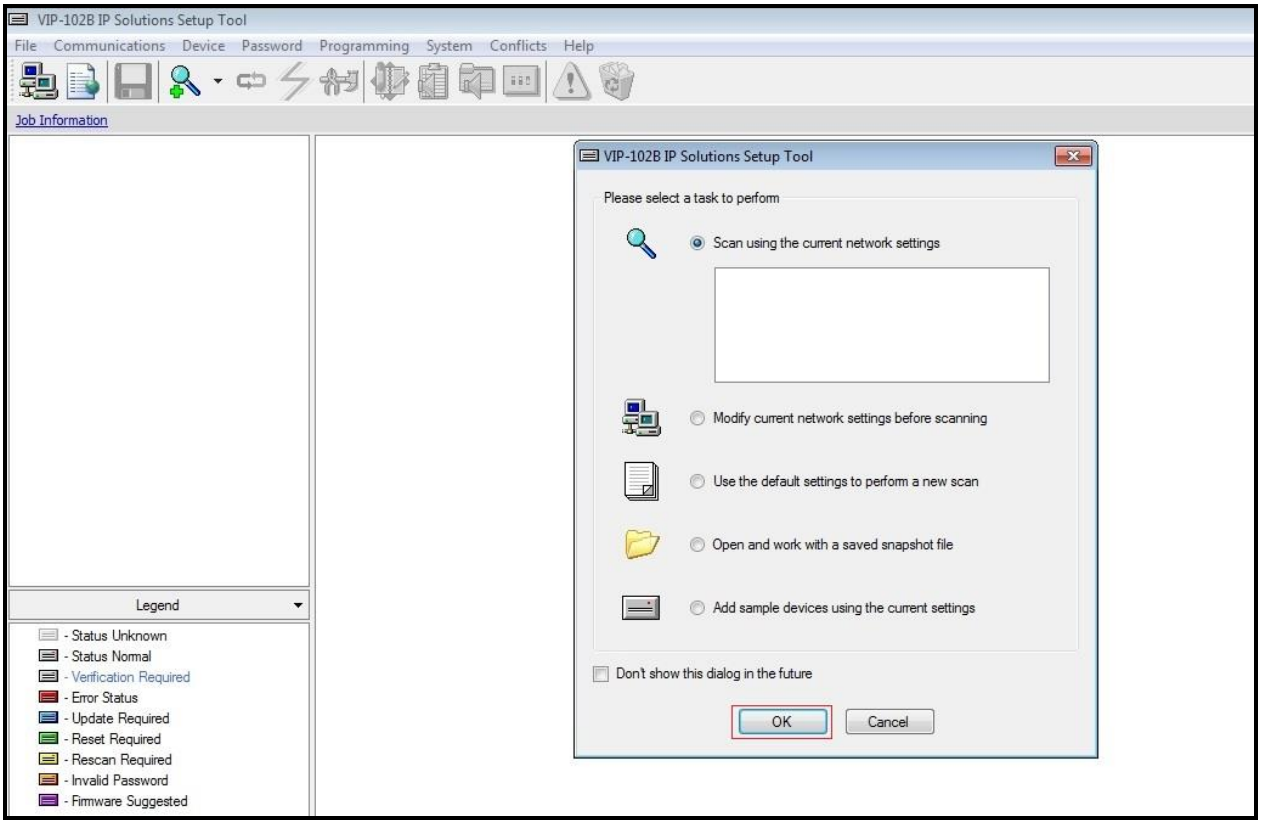

Figure 16 – VIP-102B IP Solutions Setup Tool – Scan Valcom Devices

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At the conclusion of the scan, the **VIP-102B IP Solutions Setup Tool** screen is updated with the discovered Valcom devices:

- Talkback IP Speaker VIP-148AL device, shown below as **VIP-148AL**.
- Talkback IP Speaker VIP-160A device, shown below as **VIP-160A**.
- Talkback IP Speaker VIP-172AL device, shown below as **VIP-172AL**.

Click **Continue** to add these new devices.

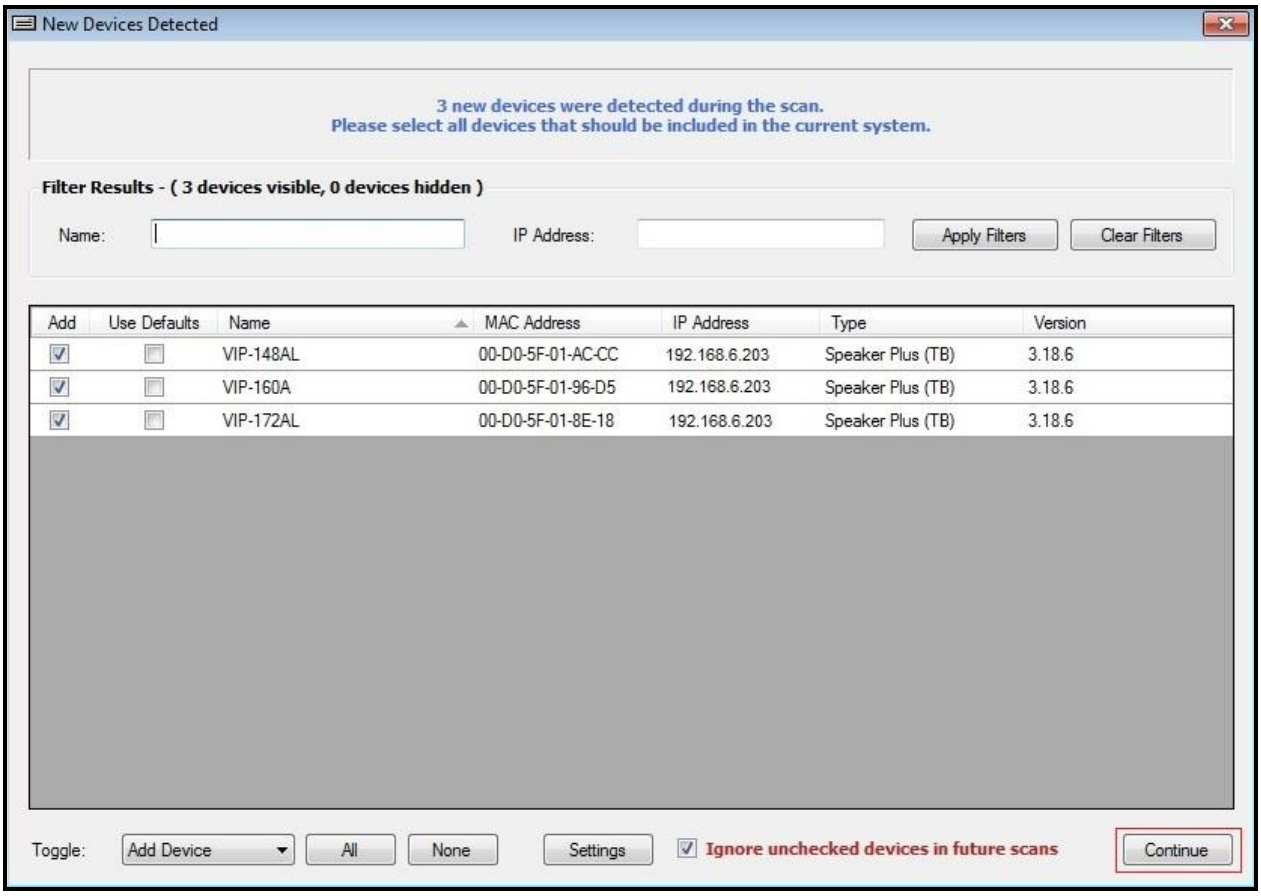

Figure 17 – VIP-102B IP Solutions Setup Tool – List of Valcom Devices

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8. Configure Valcom Talkback IP Speaker VIP-172AL

This section provides the procedures for configuring the Valcom Talkback IP Speaker VIP-172AL. The information shown is the minimum for configuring the Valcom device. Complete configuration details may be found in the Valcom documentation listed in **Section 12**. The procedures include the following areas:

- Administer network.
- Administer input.
- Administer SIP.

Note: Repeat this section to administer all three Valcom Talkback IP Speakers which register to Avaya Aura® Session Manager:

- VIP-160A (30105).
- VIP-172AL (30106).
- VIP-148AL (30107).

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8.1. Administer VIP-172AL Network

Select **Speaker Plus (TB) → VIP-172AL** from the left pane to display the configuration tabs in the right pane.

Select the **Network** tab. Enter the proper values for **Static IP Address**, **Subnet Mask**, and **Gateway IP Address** fields for the network configuration (**Note**: The default Static IP Address is 192.168.6.203). Retain the default values in the remaining fields. Note that the IP addresses are masked and replaced with fictitious IP addresses in the screen below for privacy.
Click **Apply** button to save the changes.

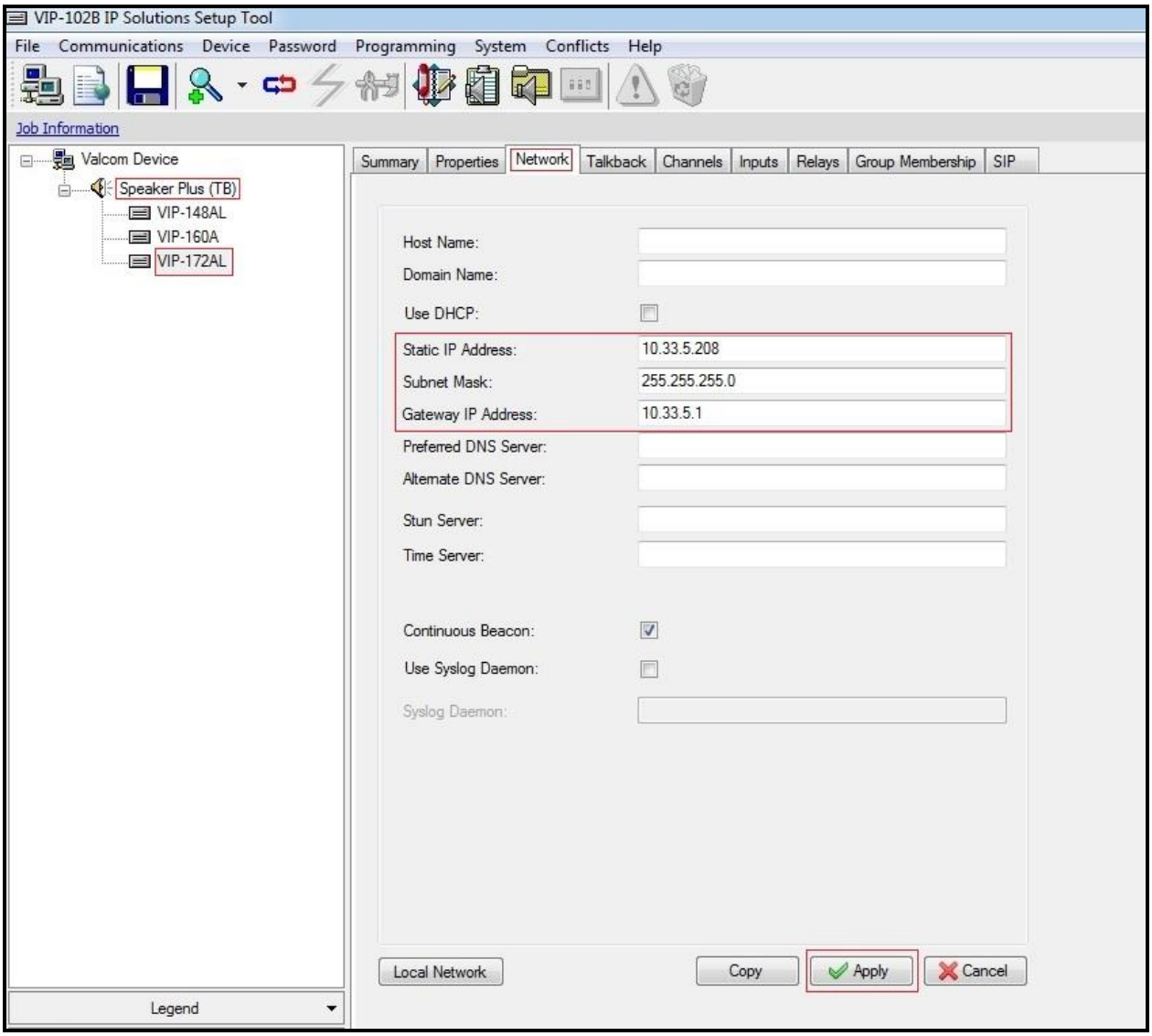

Figure 18 – VIP-172AL – Network

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8.2. Administer VIP-172AL Inputs

Select **Speaker Plus (TB) → VIP-172AL** from the left pane to display the configuration tabs in the right pane.

Select the **Inputs** tab. Select **Input Function** as **Call Switch** and enter **SIP Auto Destination**: **30101** (Avaya SIP physical phone) or **30001** (Avaya H.323 physical phone). This is the preconfigured number so that Valcom Talkback VIP-172L IP Speaker initializes the call by pressing the call button to reach the desired destination.
Click **Apply** button to save the changes.

Note: If call buttons have been installed, repeat this section for other Valcom Talkback IP Speakers: VIP-160A (30105) and VIP-148AL (30107).

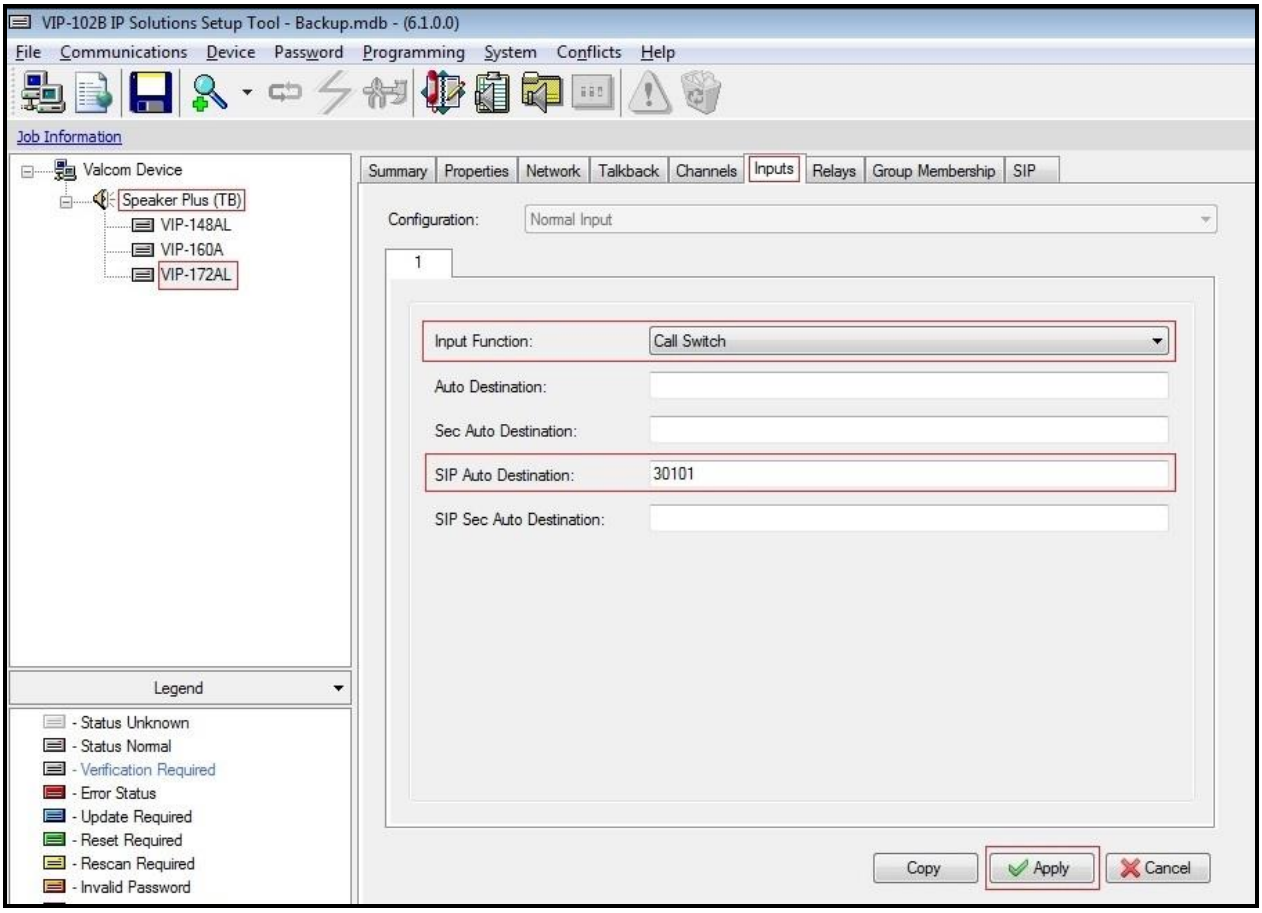

Figure 19 – VIP-172AL – Inputs

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8.3. Administer VIP-172AL SIP

Select **Speaker Plus (TB) → VIP-172AL** from the left pane to display the configuration tabs in the right pane.

Select the **SIP** tab and enter the following values for the specified fields, and retain the default values for the remaining fields. Note that the IP address is masked in the screen shot below for privacy.

- **Phone Number**: Input phone number created on Avaya Aura® Session Manager for this speaker (e.g. **30106**).
- **Description**: Input **VIP-172AL**.
- **Authentication Name**: Input the phone number as above (e.g. **30106)**.
- **Secret**: Input **123456**. (Enter the secret as same as the security code used in **Section 6.2**)
- **Realm**: Input **bvwdev7.com**.
- Under **SIP Servers**:
  - **Primary → Server**: The IP address of Avaya Aura® Session Manager (Enter **10.33.10.26**).
  - **Primary → Port**: **5060**.
- **Register**: Check this field.

Click **Apply** button to save the changes.

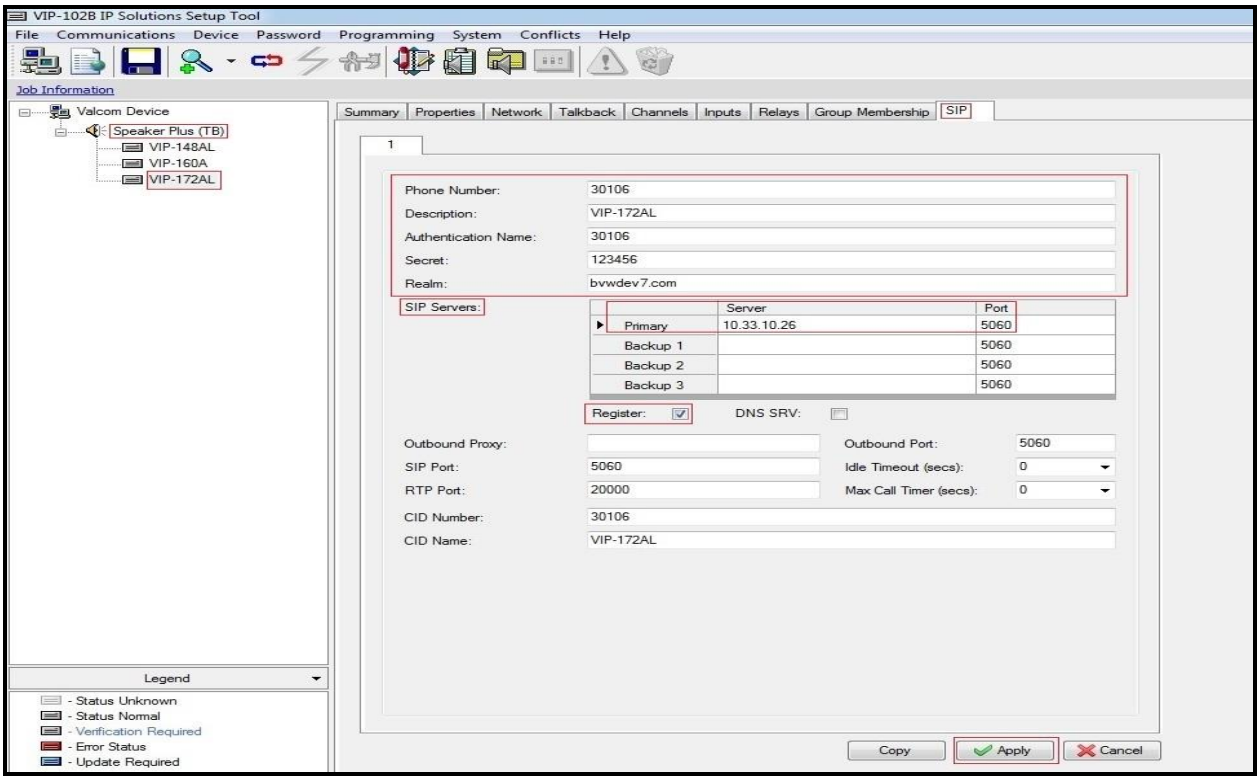

Figure 20 – VIP-172AL – SIP

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9. Update All Valcom Devices

Click on **Communication → Update All Devices** to update the changes of all devices.

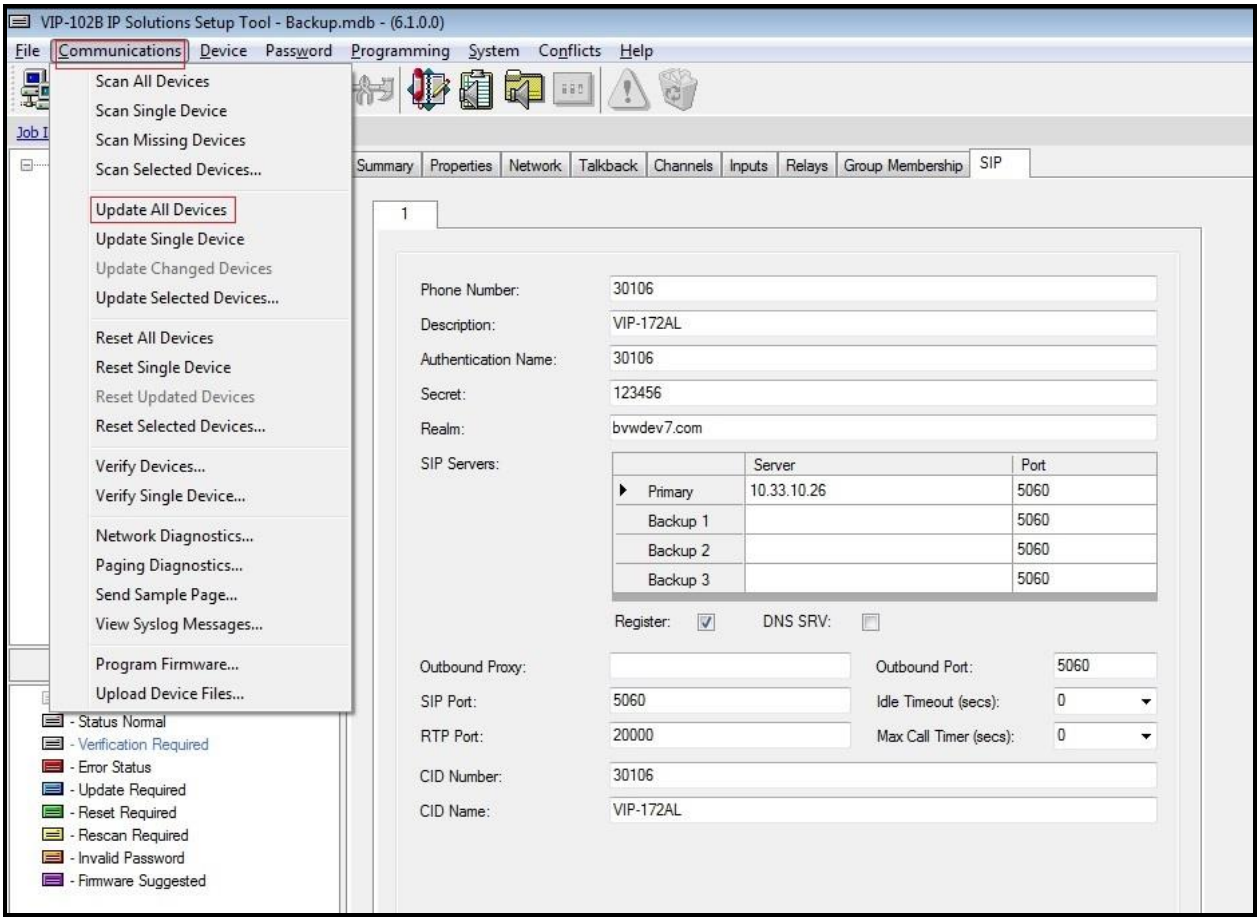

Figure 21 – Update the changes of all Valcom Devices

The **Reset Required** dialog box will appear as shown below. Click **Yes** to reset the updated devices.

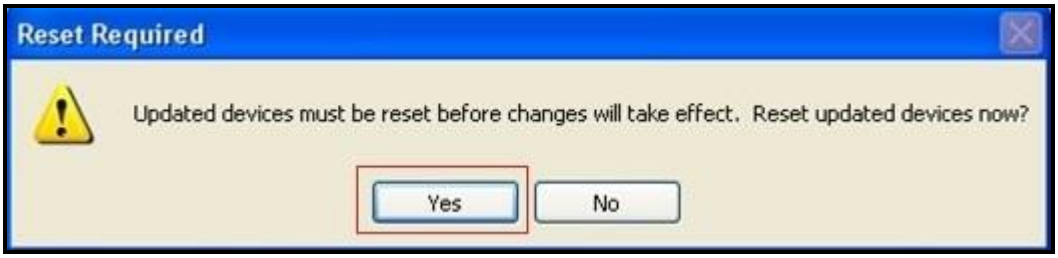

Figure 22 – Reset all Valcom Devices

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10. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Aura® Communication Manager, Avaya Aura® Session Manager, and Valcom Talkback IP Speakers.

10.1. Verify User Registration

On Session Manager, verify the registration status of the Valcom Talkback IP Speaker devices by navigating to **Elements → Session Manager → System Status → User Registrations**. Verify that all the users administered in **Section 8.3** are listed as registered users.

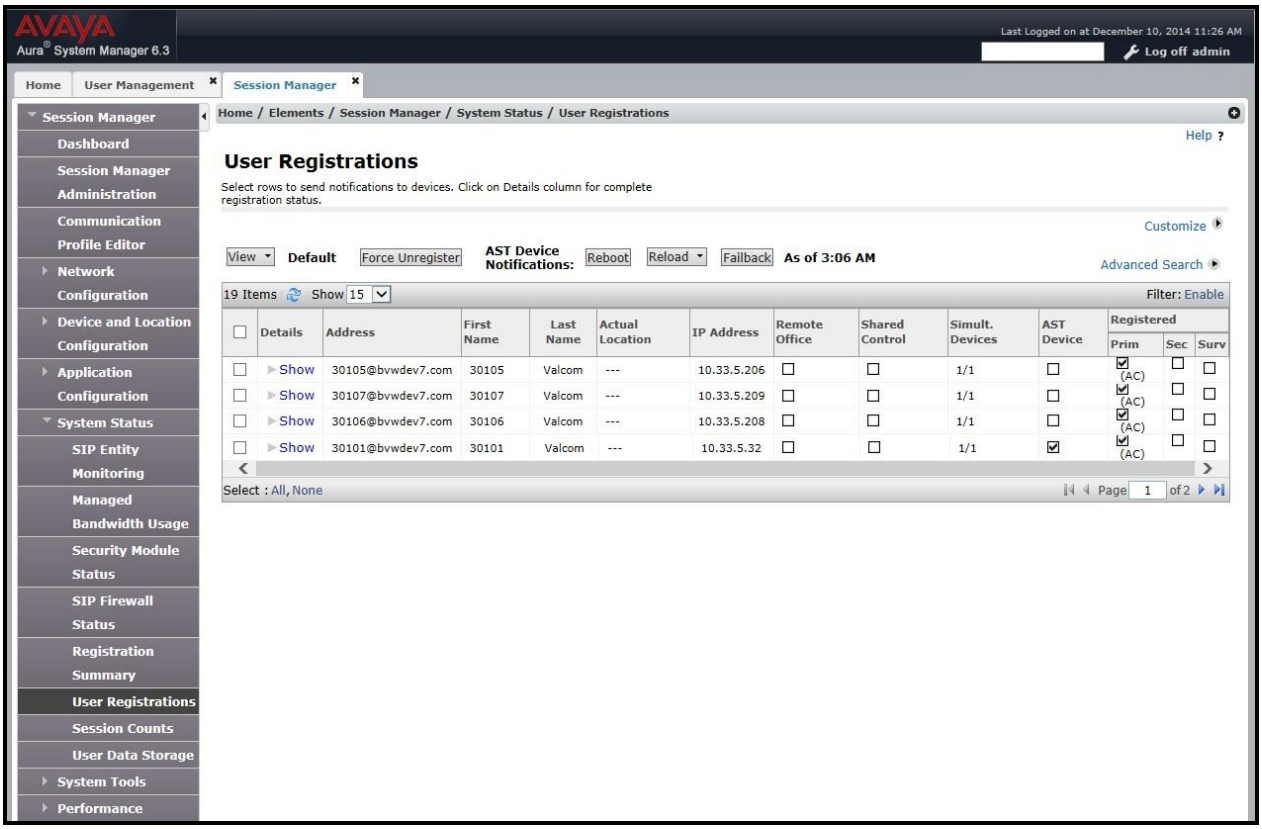

Figure 23 – User Registration Verification

10.2. Verify Valcom Talkback IP Speakers

Make call to Valcom Talkback IP Speakers, verify that the caller hears a pre-announce tone, and is connected to the appropriate speaker from **Section 8.3** with two-way talk paths.

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11. Conclusion

These Application Notes describe the configuration steps required for the Valcom Talkback IP Speakers to successfully interoperate with Avaya Aura® Communication Manager, and Avaya Aura® Session Manager.

All feature and serviceability test cases were completed successfully.

12. Additional References

This section references the product documentation relevant to these Application Notes.

1. Administering Avaya Aura® Communication Manager, Document ID 03-300509, Release 6.3, Issue 8, May 2013
2. Administering Avaya Aura® Session Manager, Release 6.3, Issue 2, June 2013
3. Maintaining and Troubleshooting Avaya Aura® Session Manager, Release 6.3, Issue 2, May 2013
4. Administering Avaya Aura® System Manager, Release 6.3, Issue 2, May 2013
5. Valcom Talkback IP Speaker documentation is available at http://www.valcom.com
6. Valcom VIP-102B IP Solutions Setup Tool Reference Manual is available at http://www.valcom.com

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