



Application Notes for Valcom One-way 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 One-way IP Speaker to successfully interoperate with Avaya Aura[®] Communication Manager and Avaya Aura[®] Session Manager. The Valcom One-way IP Speaker is SIP-based device that integrates with Avaya Aura[®] Communication Manager and Avaya Aura[®] Session Manager as SIP endpoint.

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 for the Valcom One-way IP Speaker device to successfully interoperate with Avaya Aura[®] Communication Manager and Avaya Aura[®] Session Manager. Valcom One-way 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 serviceability testing focused on verifying the ability of the Valcom One-way IP Speaker 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 test cases were performed manually with both Avaya SIP and H.323 deskphones.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cables to the Valcom One-way IP Speaker. The specific model used for testing was a VIP-120A.

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

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.

3. Reference Configuration

The Valcom One-way IP Speaker device can register with Avaya Aura[®] Session Manager as an SIP endpoint. In the compliance testing, the Valcom One-way IP Speaker VIP-120A was used to register to Avaya Aura[®] Session Manager:

- One-way IP Speaker VIP-120A (extension 30108).

One Avaya 9630 H.323 deskphone (extension 30001) registers to Avaya Aura[®] Communication Manager.

One Avaya 9630G SIP deskphone (extension 30101) registers to Avaya Aura[®] Session Manager.

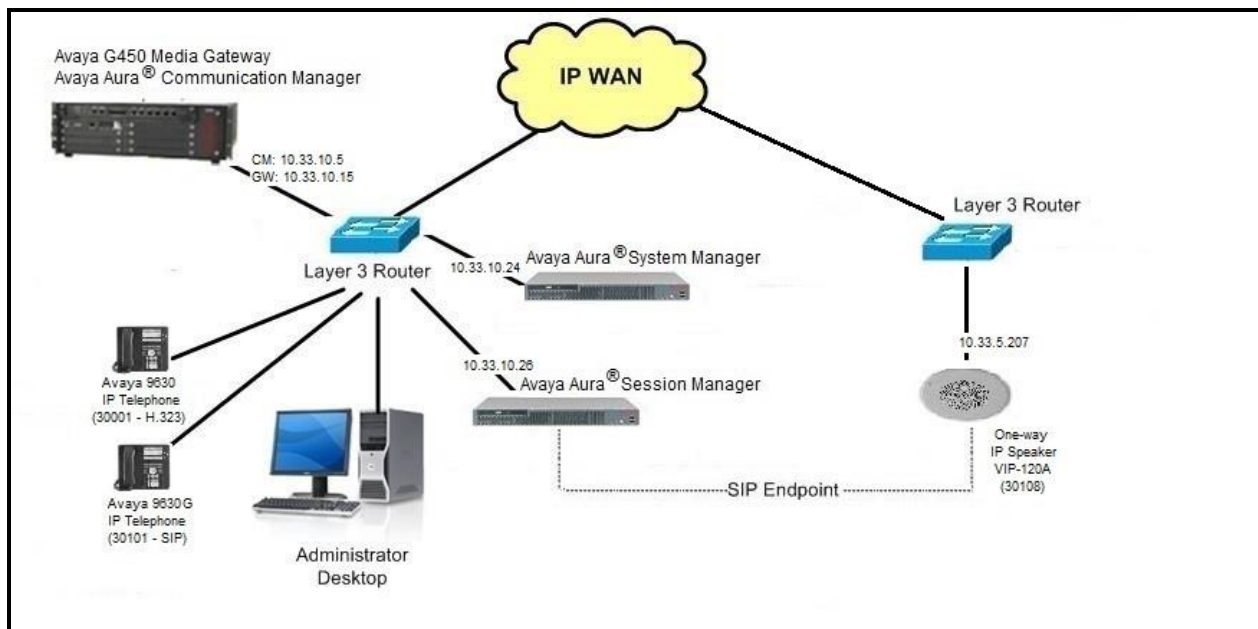


Figure 1- Valcom One-way IP Speaker with Avaya Aura[®] Communication Manager and Avaya Aura[®] Session Manager

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 <ul style="list-style-type: none">• 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-120A - One-way IP Speaker	3.18.6
Valcom VIP-102B IP Solutions Setup Tool	6.1

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 One-way IP Speakers to be installed.

```
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

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 One-way IP Speaker 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** (not shown) 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
Codec Set: 1      Intra-region IP-IP Direct Audio: yes
                   Inter-region IP-IP Direct Audio: yes
                   IP Audio Hairpinning? y
UDP Port Min: 2048
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

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.

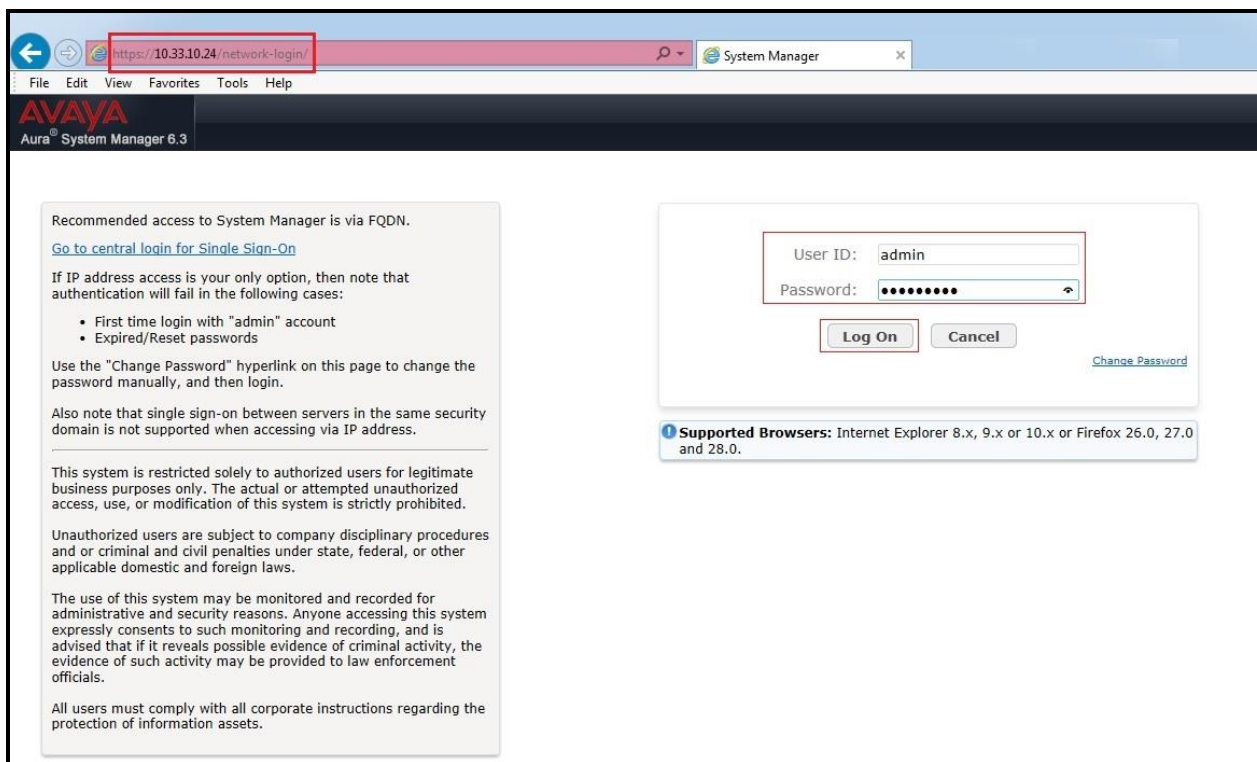


Figure 5 - Session Manager Log On

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**.

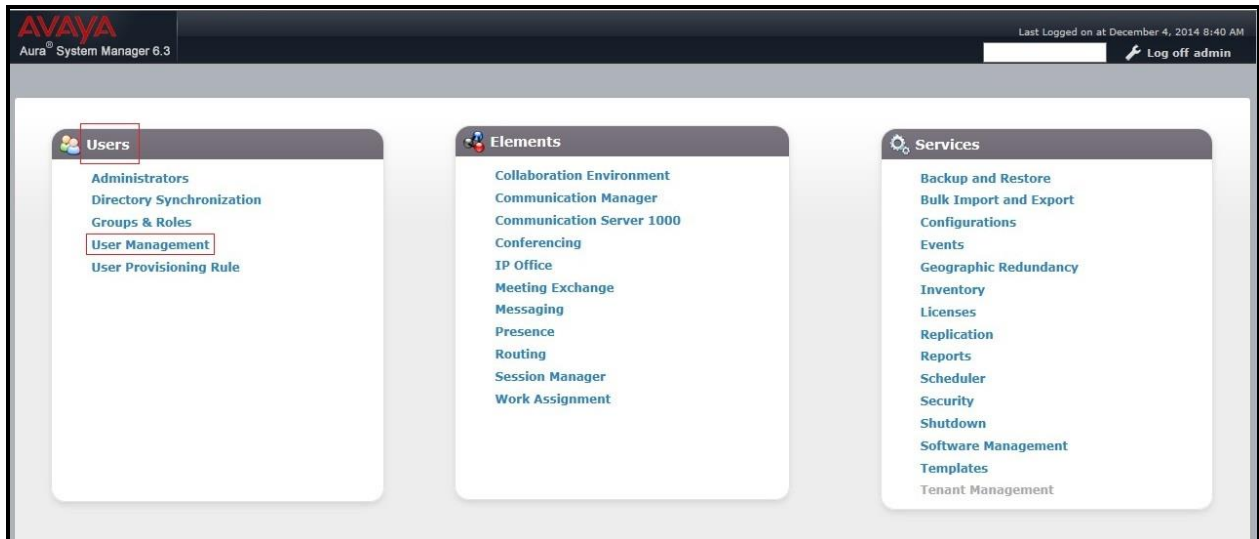


Figure 6 - Session Manager Log On Menu

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**.

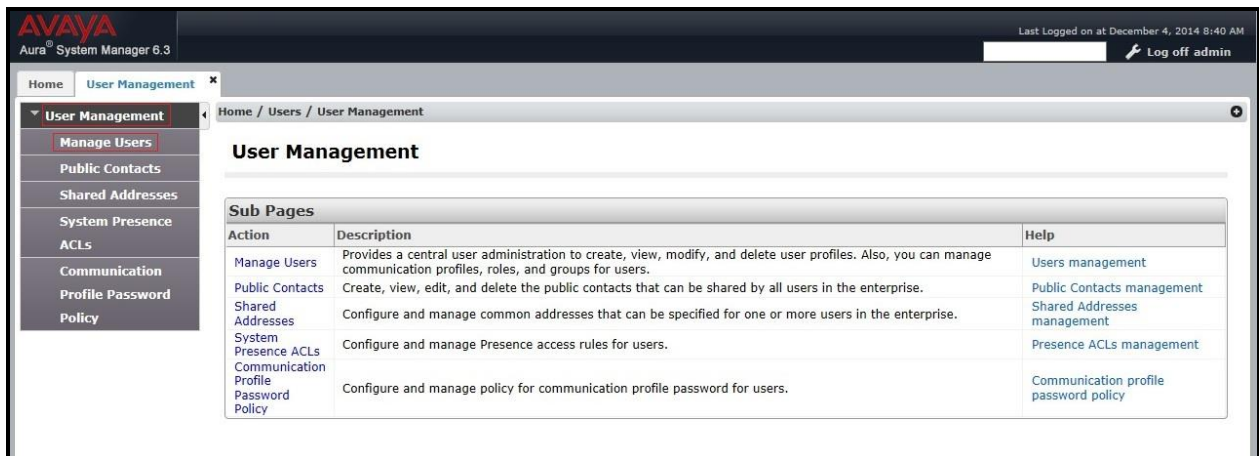


Figure 7 – User Management Menu

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

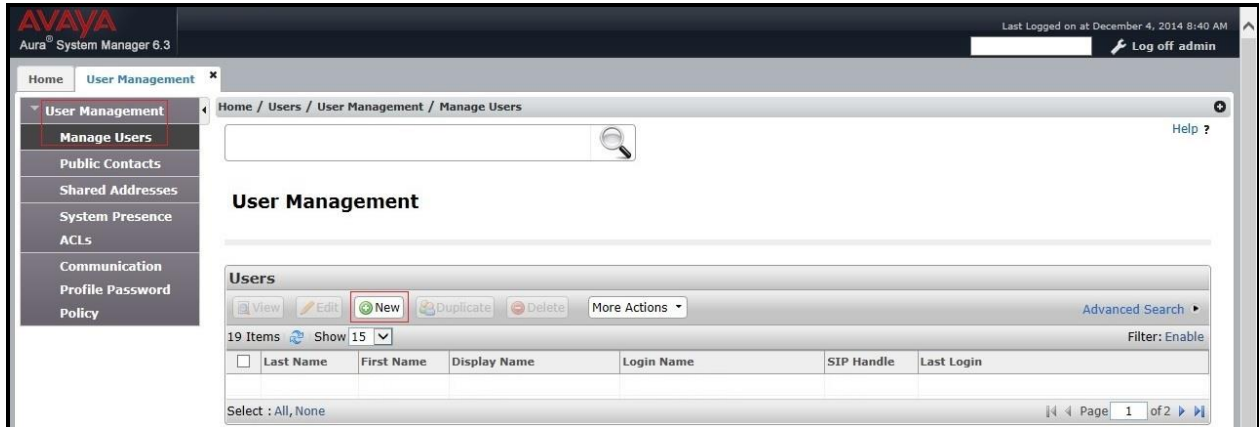


Figure 8 – User Management

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 endpoints to register to Avaya Aura[®] Session Manager. For the compliance testing, 2 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. **30108**).
- **Login Name:** Enter the unique system login given to the user. It is formatted as username@domain (e.g. **30108@bvwdev7.com**) and it is used to create the user's primary handle.
- **Authentication Type:** leave as **Basic** to allow the user's login 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.

The screenshot shows the 'New User Profile' form with the 'Identity' tab selected. The form contains the following fields and values:

- User Provisioning Rule: [Dropdown]
- Last Name: Valcom
- Last Name (Latin Translation): Valcom
- First Name: 30108
- First Name (Latin Translation): 30108
- Middle Name: [Empty]
- Description: [Dropdown]
- Login Name: 30108@bvwdev7.com
- Authentication Type: Basic
- Password: [Masked]
- Confirm Password: [Masked]
- Localized Display Name: 30108-LD
- Endpoint Display Name: 30108-ED
- Title: [Empty]
- Language Preference: English (Canada)
- Time Zone: (-5:0)Eastern Time (US & Canad)

Figure 9 – New User - Identity

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.

The screenshot displays the 'New User Profile' configuration page. At the top right, there are buttons for 'Commit & Continue', 'Commit', and 'Cancel'. The main content area is divided into tabs: 'Identity *', 'Communication Profile', 'Membership', and 'Contacts'. The 'Communication Profile' tab is active and contains the following elements:

- A 'Communication Profile' dropdown menu.
- Two password input fields: 'Communication Profile Password' and 'Confirm Password', both masked with dots.
- A toolbar with 'New', 'Delete', 'Done', and 'Cancel' buttons.
- A 'Name' field with a radio button selected for 'Primary'.
- A 'Select : None' dropdown.
- A '* Name:' field containing 'Primary'.
- A 'Default:' checkbox which is checked.
- A 'Communication Address' section with a toolbar containing 'New', 'Edit', and 'Delete' buttons.
- A table with columns 'Type', 'Handle', and 'Domain'. The table is currently empty, displaying 'No Records found'.

Figure 10 – New User – Communication Profile

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 8.4**.
- Click **Add** button to add a new handle.

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

The screenshot displays the 'New User Profile' configuration interface. At the top right, there are buttons for 'Commit & Continue', 'Commit', and 'Cancel'. The main content area has tabs for 'Identity', 'Communication Profile', 'Membership', and 'Contacts'. The 'Communication Profile' tab is selected, showing fields for 'Communication Profile Password' and 'Confirm Password'. Below these are buttons for 'New', 'Delete', 'Done', and 'Cancel'. A 'Name' field is set to 'Primary' and the 'Default' checkbox is checked. The 'Communication Address' section is expanded, showing a table with columns 'Type', 'Handle', and 'Domain'. A 'New' button is highlighted in red. Below the table, the 'Type' is set to 'Avaya SIP' and the 'Fully Qualified Address' is '30108 @ bwvdev7.com'. An 'Add' button is also highlighted in red.

Figure 11 – New User – Communication Address

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.

Session Manager Profile ▼

SIP Registration

* Primary Session Manager: SM63

Secondary Session Manager: (None)

Survivability Server: (None)

Max. Simultaneous Devices: 1

Block New Registration When Maximum Registrations Active?

Application Sequences

Origination Sequence: SEQ_SP3CM63

Termination Sequence: SEQ_SP3CM63

Call Routing Settings

* Home Location: Belleville

Conference Factory Set: (None)

Call History Settings

Enable Centralized Call History?

Primary	Secondary	Maximum
18	0	18

Figure 12 – New User – Session Manager Profile

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.

CM Endpoint Profile

* System

* Profile Type

Use Existing Endpoints

* Extension **Endpoint Editor**

* Template

Set Type

Security Code

Port

Voice Mail Number

Preferred Handle

Enhanced Callr-Info display for 1-line phones

Delete Endpoint on Unassign of Endpoint from User or on Delete User

Override Endpoint Name and Localized Name

Figure 13 – New User – CM Endpoint Profile

The Valcom SIP endpoint was 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 8.4**.
- Click the **Done** button to complete.

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

New Endpoint [Done] [Cancel]

[Save As Template]

* System: EM_SP3CM63 * Extension: 30108

* Template: 9620SIP_DEFAULT_CM_6_3 Set Type: 9620SIP

* Port: IP Security Code: ●●●●●●

Name: 30108-ED

General Options (G) * Feature Options (F) Site Data (S) Abbreviated Call Dialing (A) Enhanced Call Fwd (E)

Button Assignment (B) Group Membership (M)

* Class of Restriction (COR): 1 * Class Of Service (COS): 1

* Emergency Location Ext: 30108 * Message Lamp Ext.: 30108

* Tenant Number: 1

* SIP Trunk: aar Type of 3PCC Enabled: None

Coverage Path 1: Coverage Path 2: Localized Display Name: 30108-LD

Lock Message:

Multibyte Language: Not Applicable

*Required [Done] [Cancel]

Figure 14 – New User – Edit Endpoint

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

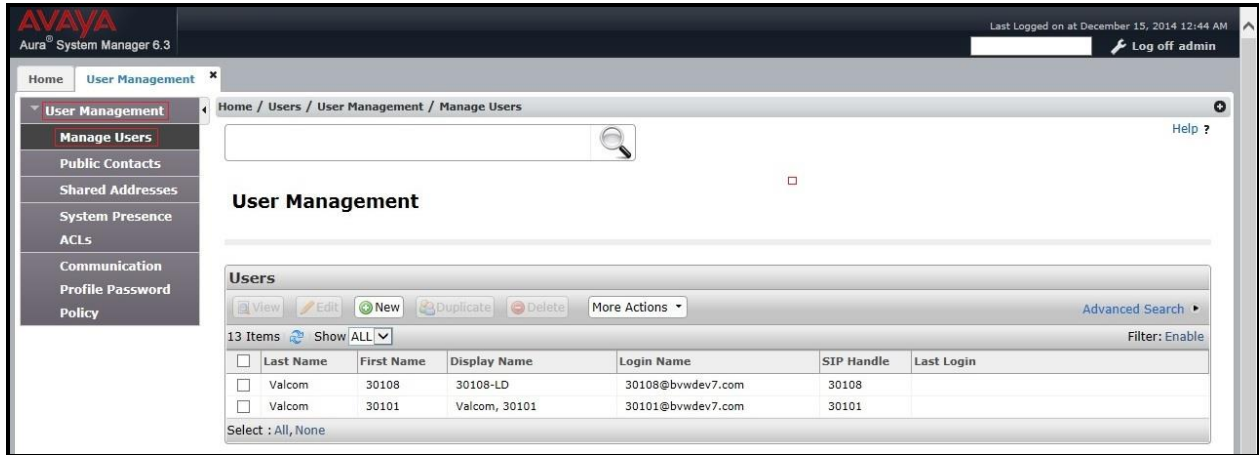


Figure 15 – List of SIP endpoint users

7. Launch Valcom Setup Tool and Scan Device

This section provides the procedures for scanning the Valcom One-way IP Speaker VIP-120A.

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 device.

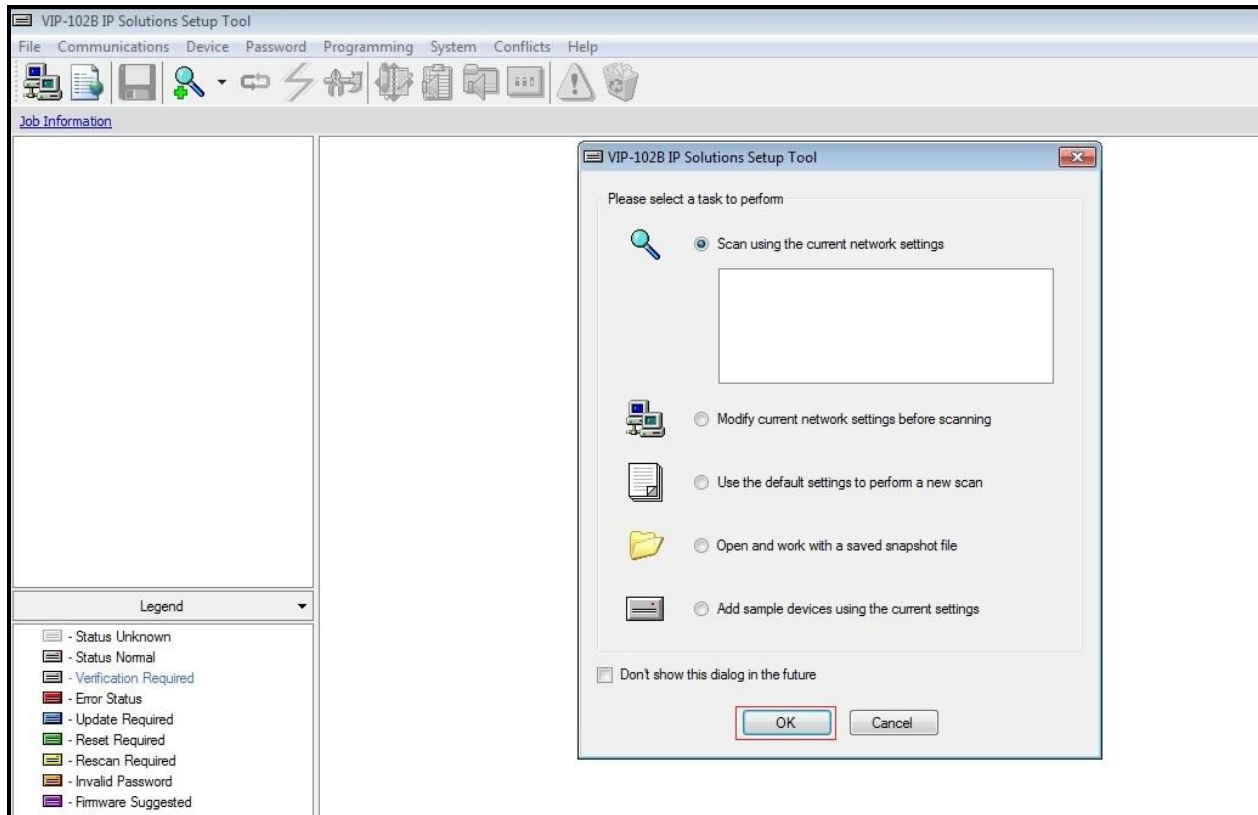


Figure 16 – VIP-102B IP Solutions Setup Tool – Scan Valcom Device

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

- One-way IP Speaker VIP-120A device, shown below as **VIP-120A**.

Click **Continue** to add a new device.

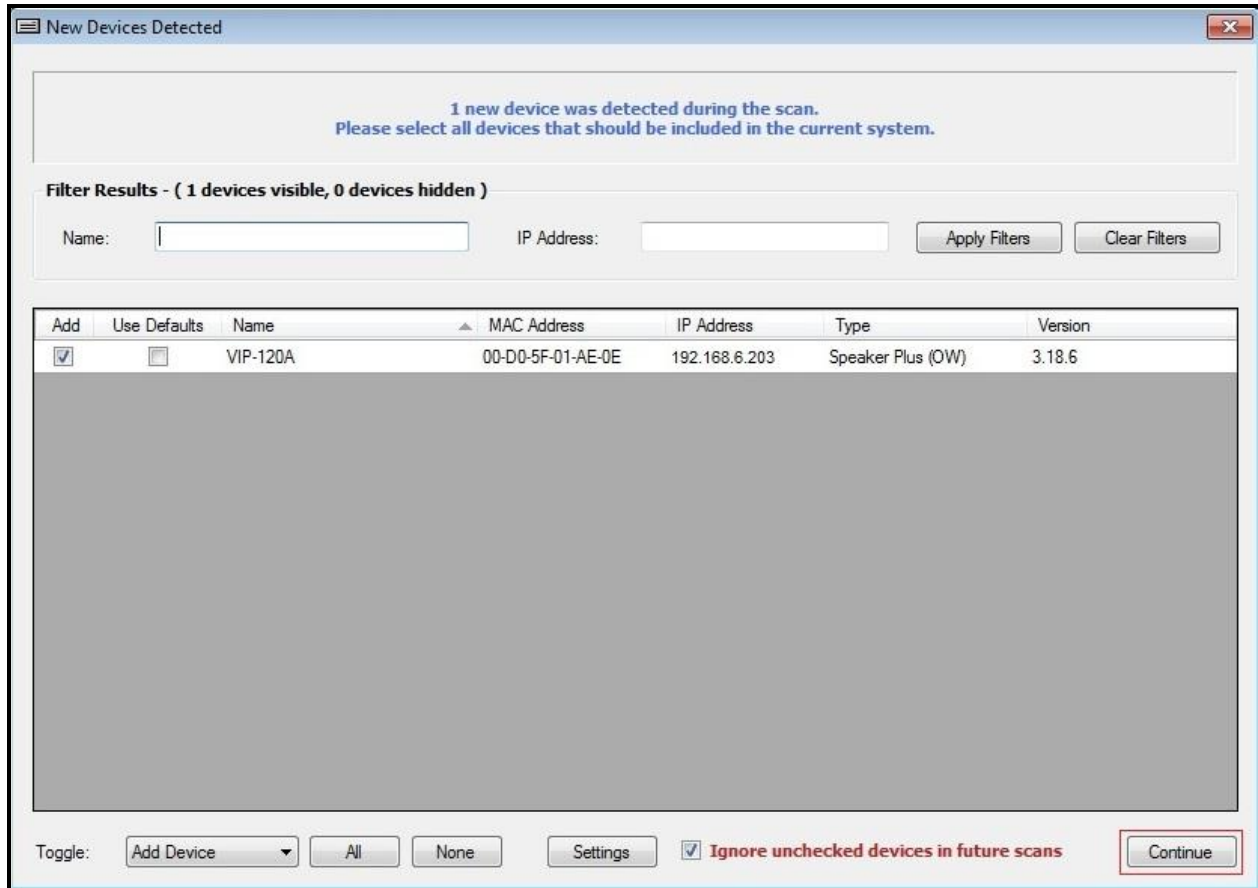


Figure 17 – VIP-102B IP Solutions Setup Tool – List of Valcom Device

8. Configure Valcom One-way IP Speaker VIP-120A

This section provides the procedures for configuring the Valcom One-way IP Speaker VIP-120A. 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 properties.
- Administer network
- Administer channels.
- Administer SIP.

8.1. Administer VIP-120A Properties

Select **Speaker Plus (OW)** → **VIP-120A** from the left pane to display the configuration tabs in the right pane.

Select the **Properties** tab, and enter a descriptive **Device Name**. Select the appropriate time zone in the **Hours Offset From UTC** field.

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

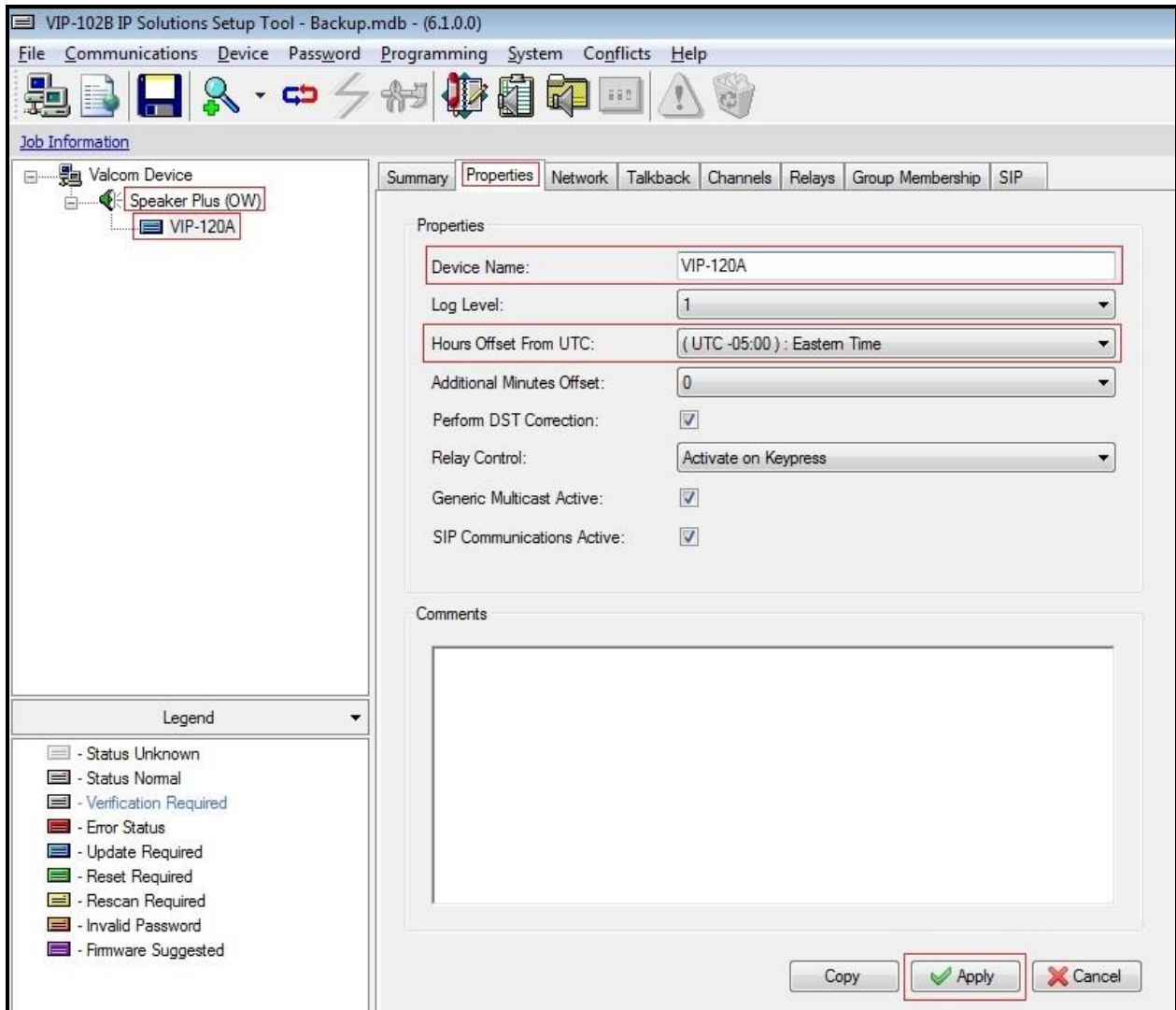


Figure 18 – VIP-120A – Properties

8.2. Administer VIP-120A Network

Select **Speaker Plus (OW)** → **VIP-120A** 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.

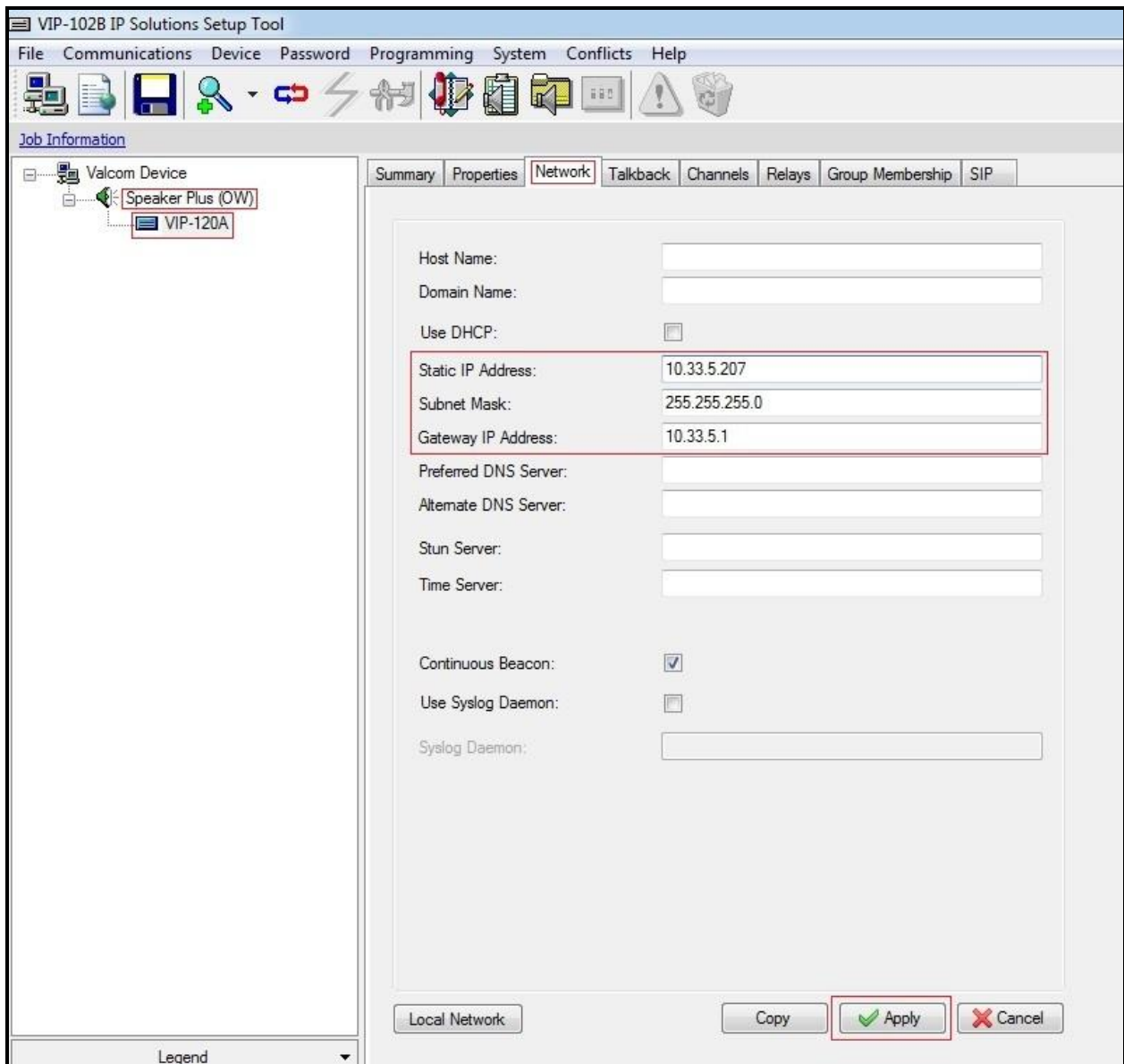


Figure 19 – VIP-120A – Network

8.3. Administer VIP-120A Channels

Select **Speaker Plus (OW)** → **VIP-120A** from the left pane to display the configuration tabs in the right pane.

Select the **Channels** tab. Select **Channel Mode** as **One-Way** and **Codec Type** as **G.711**. Check **Pre-Announce Tone** option.

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

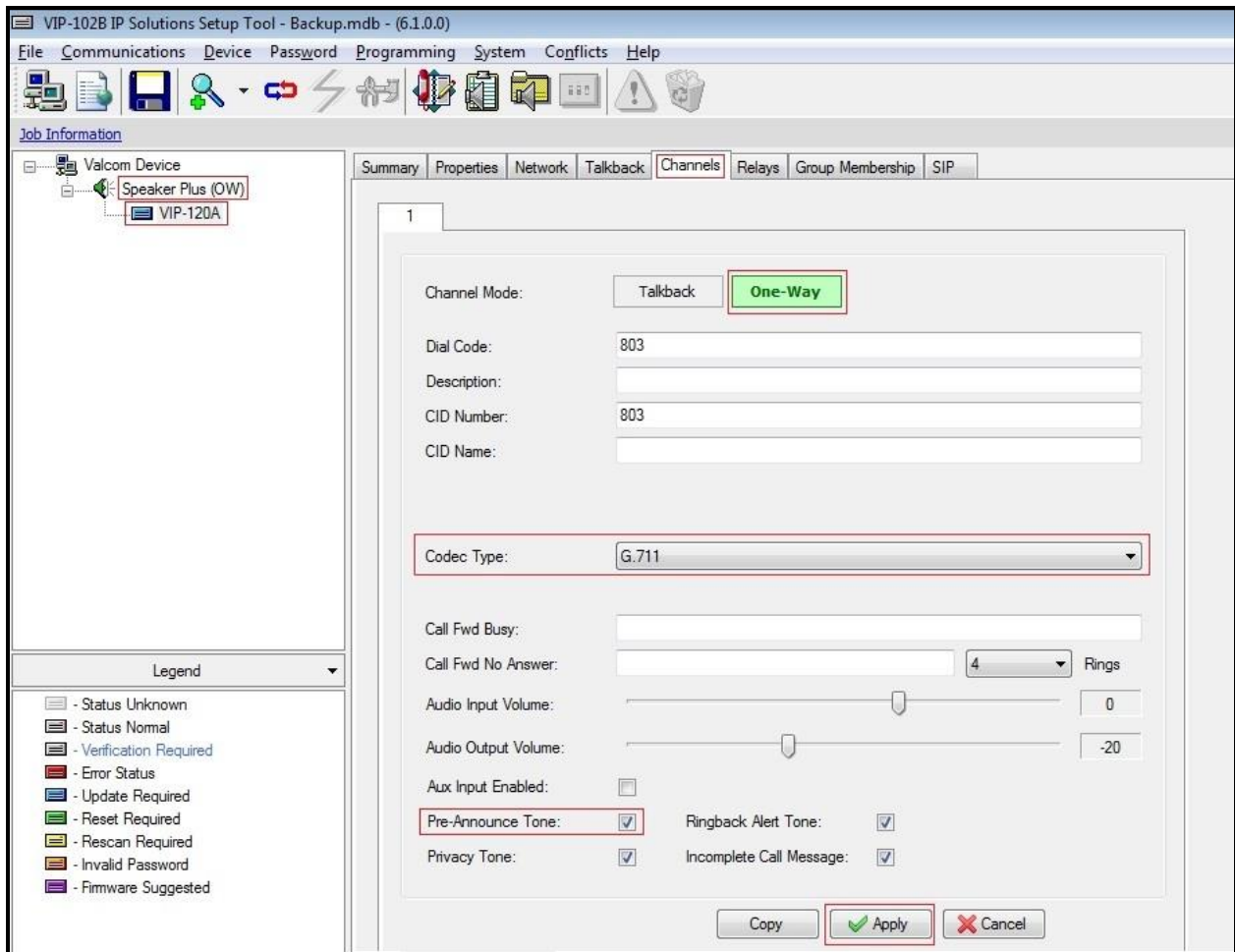


Figure 20 – VIP-120A – Channels

8.4. Administer VIP-120A SIP

Select **Speaker Plus (OW)** → **VIP-120A** 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 the phone number created on Avaya Aura® Session Manager for this speaker (e.g. **30108**).
- **Description:** Input **VIP-120A**.
- **Authentication Name:** Input the phone number as above (e.g. **30108**).
- **Secret:** Input the Security Code entered for the Endpoint in **section 6.2 (123456)**.
- **Realm:** Input **bvwddev7.com** (It is required).
- 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.

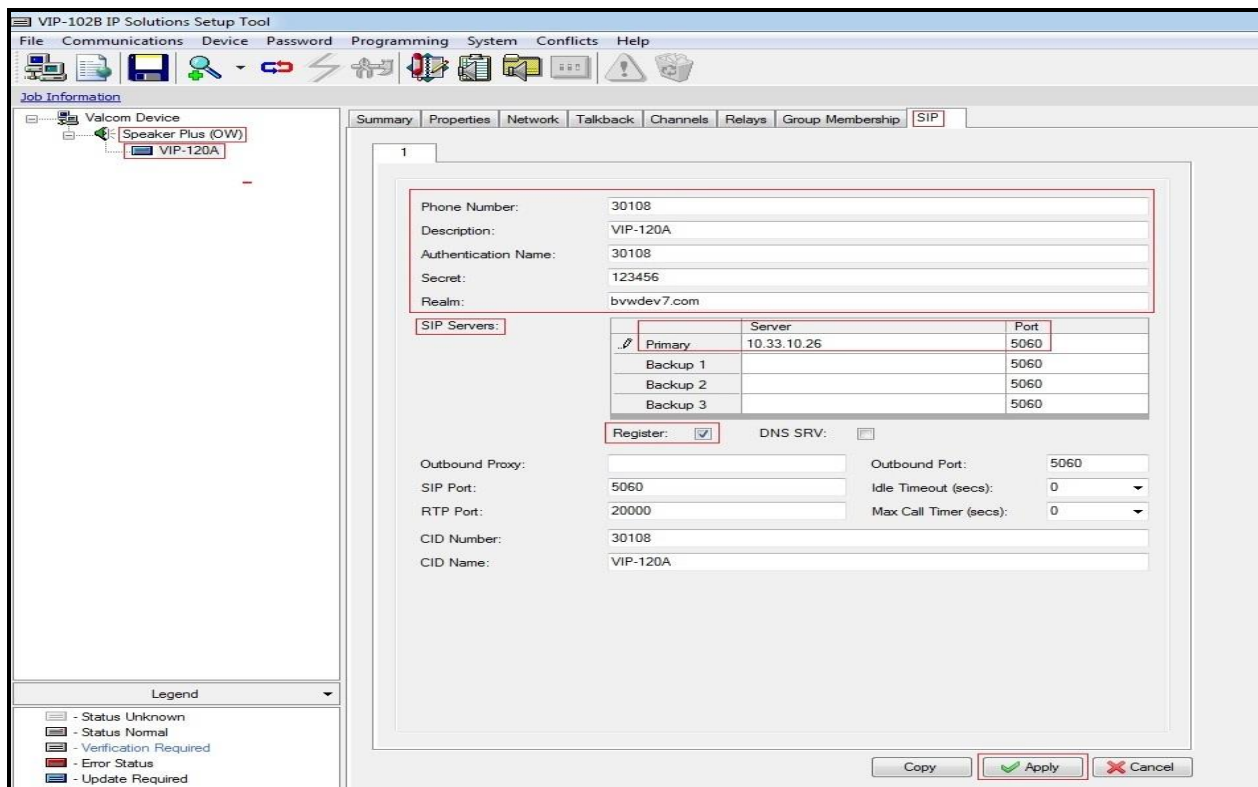


Figure 21 – VIP-120A – SIP

9. Update All Valcom Devices

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

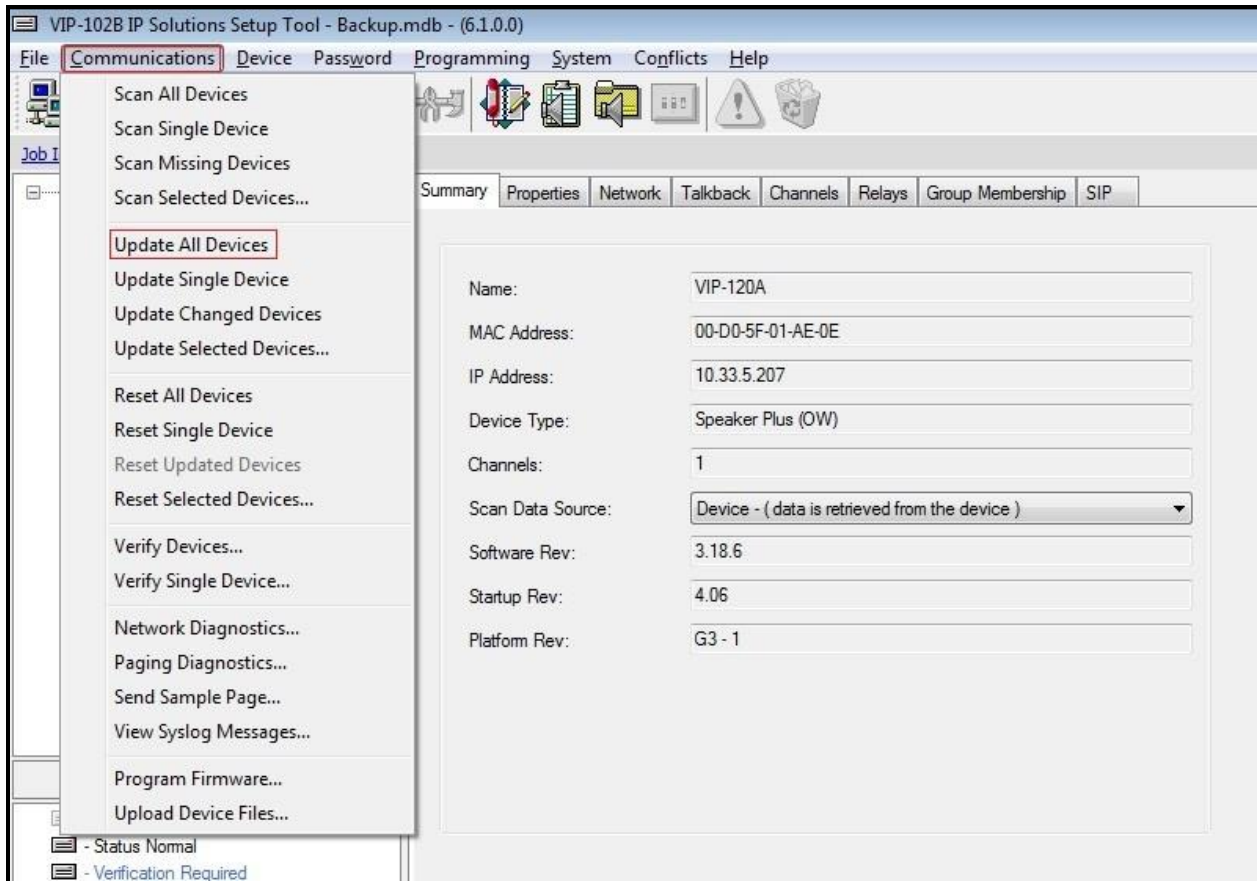


Figure 22 – Update the changes of all Valcom Devices

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

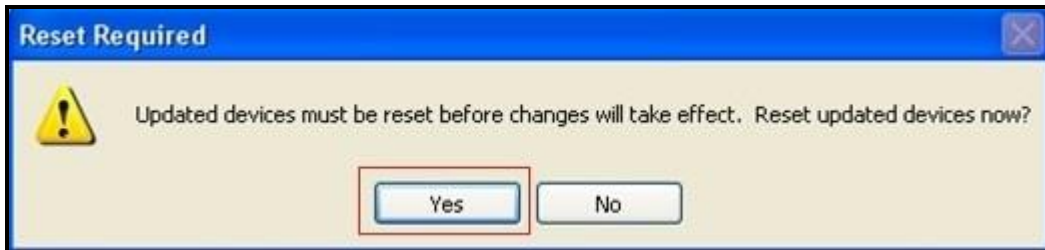


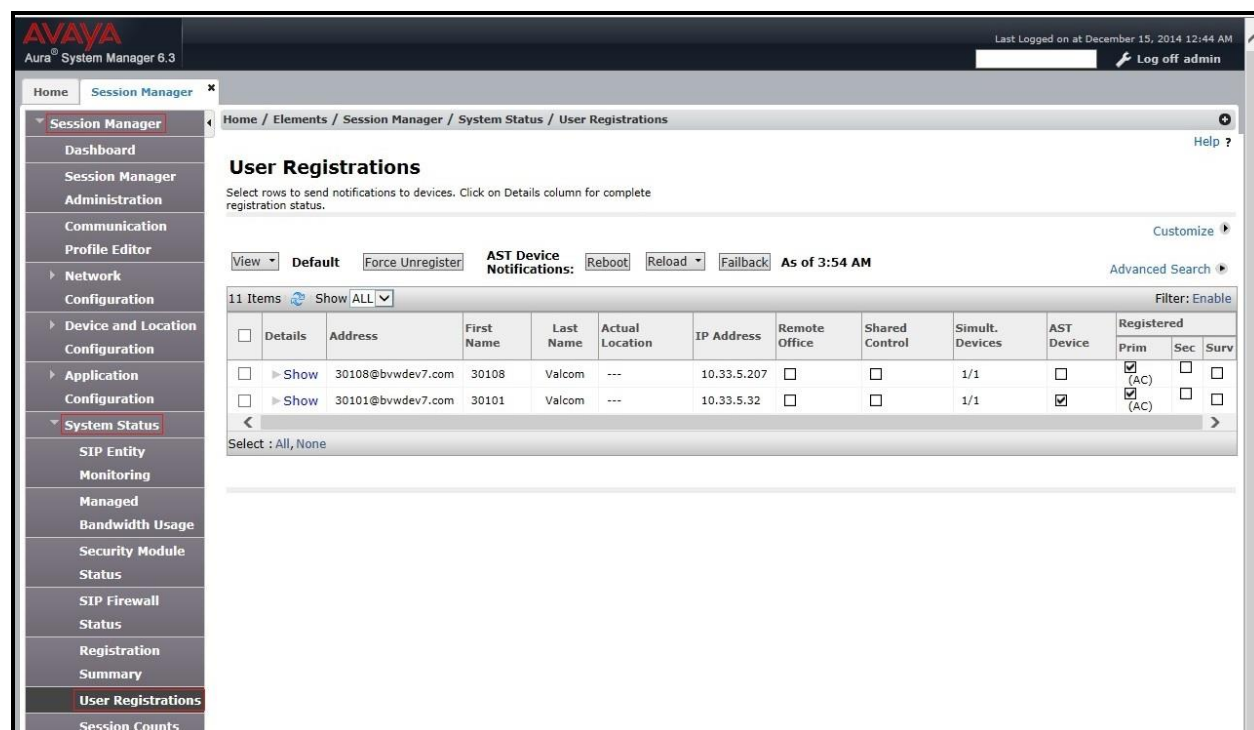
Figure 23 – Reset all Valcom Devices

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 One-way IP Speaker VIP-120A.

10.1. Verify User Registration

On Session Manager, verify the registration status of the Valcom One-way IP Speaker device by navigating to **Elements** → **Session Manager** → **System Status** → **User Registrations**. Verify that all the users are listed as registered users.



The screenshot shows the Avaya Aura System Manager 6.3 interface. The left sidebar contains a navigation menu with categories like Session Manager, Network, Configuration, and System Status. The main content area is titled "User Registrations" and shows a table of 11 items. The table has columns for Details, Address, First Name, Last Name, Actual Location, IP Address, Remote Office, Shared Control, Simult. Devices, AST Device, and Registered (Prim, Sec, Surv). Two rows are visible, both showing registered users.

	Details	Address	First Name	Last Name	Actual Location	IP Address	Remote Office	Shared Control	Simult. Devices	AST Device	Registered		
											Prim	Sec	Surv
<input type="checkbox"/>	▶ Show	30108@bvwdv7.com	30108	Valcom	---	10.33.5.207	<input type="checkbox"/>	<input type="checkbox"/>	1/1	<input type="checkbox"/>	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	▶ Show	30101@bvwdv7.com	30101	Valcom	---	10.33.5.32	<input type="checkbox"/>	<input type="checkbox"/>	1/1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>

Figure 24 – User Registration Verification

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

10.2. Verify Valcom One-way IP Speaker VIP-120A

Make call to Valcom One-way IP Speaker VIP-120A, verify that the caller hears a pre-announce tone, and is connected to the appropriate speaker from **Section 8.4** with one-way talk path.

11. Conclusion

These Application Notes describe the configuration steps required for the Valcom One-way IP Speaker VIP-120A 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 One-way 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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