



**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 devices to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. The Valcom One-Way IP Speakers are SIP-based devices that integrate with Communication Manager and Session Manager as a SIP endpoint.

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 Speakers to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. The Valcom One-Way Speakers enable voice access to a single zone of one-way paging over an IP-based LAN/WAN. The Speakers are SIP-based devices that integrate with Communication Manager as a SIP endpoint and register with Session Manager. The following Valcom One-Way IP Speaker was compliance tested:

- VIP-120

When a call is placed to the Valcom One-Way IP Speaker, the device automatically answers the call and provides one-way communication to the device.

1.1. Interoperability Compliance Testing

The interoperability compliance test plan included feature and serviceability test cases.

The feature testing covered SIP registration, basic calls, display verification, hold/reconnect, conferences, transfers, media shuffling, 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 a disconnect and reconnect of the Ethernet cable to the device, Communication Manager reboots, and Session Manager reboots.

1.2. Support

Technical support for Valcom can be obtained through the following:

- **Phone:** (800) VALCOM1
- **Email:** support@valcom.com

2. Reference Configuration

The Valcom One-Way IP Speaker was configured as a SIP endpoint that registered with Avaya Aura® Session Manager. When a call is placed to the Valcom One-Way IP Speaker, the device automatically answers the call and provides one-way communication to the device.

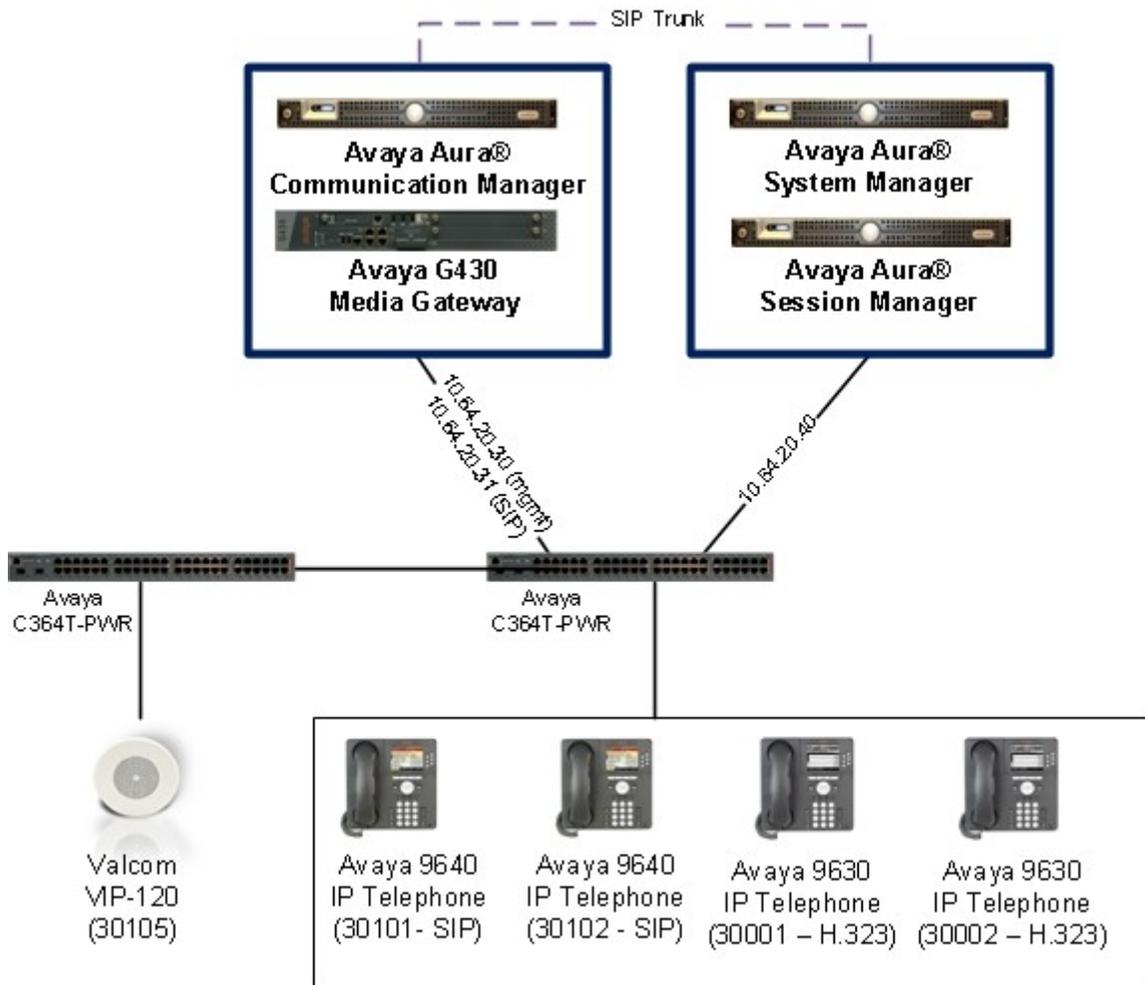


Figure 1: Valcom One-Way IP Speaker with Avaya Aura® Communication Manager and Avaya Aura® Session Manager

3. Equipment and Software Validated

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

Equipment	Software
Avaya S8800 Server with a Avaya G430 Media Gateway	Avaya Aura® Communication Manager 6.0, R016x.00.0.345.0, Update 18444 (Avaya Aura® System Platform: 6.0.1.0.5)
Avaya S8800 Server	Avaya Aura® System Platform: 6.0.1.0.5 Avaya Aura® System Manager: 6.0.7.0
Avaya S8800 Server	Avaya Aura® System Platform: 6.0.1.0.5 Avaya Aura® Session Manager 6.0.0.0.600020
Avaya 9600 Series IP Telephones <ul style="list-style-type: none">• H.323• SIP	3.1.1 2.6.2
Valcom One-Way IP Speaker (VIP-120)	2.17

4. Configure Avaya Aura® Communication Manager

The detailed administration of basic connectivity between Communication Manager and Session Manager is not the focus of these Application Notes and will not be described. For administration of basic connectivity between Communication Manager and Session Manager, refer to the appropriate documentation listed in **Section 10**. This section provides the procedures for the following:

- Verify Communication Manager License
- Verify IP Codec Set

4.1. Verify Communication Manager License

Log into the System Access Terminal (SAT) to verify that the 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 number of Valcom One-Way IP Speakers.

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

G3 Version: V16                Software Package: Enterprise
Location: 2                    System ID (SID): 1
Platform: 28                   Module ID (MID): 1

                                USED
                                Platform Maximum Ports: 65000 90
                                Maximum Stations: 41000 24
                                Maximum XMOBILE Stations: 41000 0
Maximum Off-PBX Telephones - EC500: 41000 0
Maximum Off-PBX Telephones - OPS: 41000 18
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 1

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

4.2. Verify IP Codec Set

Use the “display ip-codec set” command to verify the G.711MU codec is configured in the codec set to be used by the Valcom One-Way IP Speakers.

```
display 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:
3:
4:
5:
6:
7:
```

5. Configure Avaya Aura® Session Manager

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

- Launch Session Manager administration interface
- Administer endpoints
- Administer users

5.1. Launch Session Manager Administration Interface

Configuration 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. The screen shown below is displayed.

Action	Description	Help
Elements	Interface to manage the application instances and contains the element managers for the different managed elements in the deployment.	Help for managing elements
Events	Interface to view and administer logs and alarms.	Help for managing logs and alarms
Groups & Roles	Interface to manage groups, resources and roles.	Help for managing groups and roles
Licenses	Interface to manage licenses for individual applications of Avaya Aura (TM) Unified Communication Solution.	Help for managing licenses
Routing	Interface to manage routing policies, adaptations, dial patterns, SIP elements.	Help for managing routing policies
Security	Interface to manage certificates .Certificates help enable setting up secure communication between different elements in the Avaya Aura (TM) Unified Communication Solution.	Help for managing certificates
System Manager Data	Interface to backup and restore System Manager data, manage data retention rules, list extension pack information, manage replication nodes, manage scheduled jobs and System Manager configuration.	Help for managing System Manager data and configuration
Users	Interface to administer users, contact lists, shared addresses and Access Control Lists (ACLs).	Help for managing users

5.2. Administer Endpoints

From the menu in the left pane, navigate to **Elements** → **Endpoints** → **Manage Endpoints**.
Select the **New** button from the right pane.

The screenshot shows the Avaya Aura System Manager 6.0 interface. The top left features the Avaya logo. The top right displays the user name 'admin', the last login time '2010 11:32 AM', and links for 'Help', 'About', 'Change Password', and 'Log off'. A red navigation bar contains the breadcrumb 'Home / Elements / Endpoints / Manage Endpoints'. On the left, a sidebar menu lists various system components, with 'Endpoints' expanded to show 'Manage Endpoints' as the active selection. The main content area is titled 'Endpoints' and includes a search prompt 'Select Device(s) from Communication Manager List'. Below this is an 'Endpoint List' section with buttons for 'View', 'Edit', 'New', 'Delete', and 'More Actions', along with an 'Advanced Search' link. A table at the bottom shows a list of endpoints with columns for Name, Extension, Port, Set Type, COS, COR, User, and System. The table contains two rows of data.

Welcome, **admin** Last Logged on at October 13, 2010 11:32 AM
Help | About | Change Password | Log off

Home / Elements / Endpoints / Manage Endpoints

Endpoints

Select Device(s) from Communication Manager List

Show List

Endpoint List

View Edit **New** Delete More Actions

Advanced Search

23 Items Refresh Show 15 Filter: Enable

<input type="checkbox"/>	Name	Extension	Port	Set Type	COS	COR	User	System
<input type="checkbox"/>	30118-ED	30118	S00023	9620SIP	1	1	30118@avaya.com	demoCMapp
<input type="checkbox"/>	30117-ED	30117	S00022	9620SIP	1	1	30117@avaya.com	demoCMapp

The Valcom 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** Enter “DEFAULT_9620SIP_CM_6_0”.
- **Name** Enter a descriptive name.
- **Extension** Enter a valid available extension for this endpoint.
- **Security Code** Enter the desired security code for this endpoint.

AVAYA Avaya Aura™ System Manager 6.0 Welcome, **admin** Last Logged on at October 13, 2010 11:32 AM
[Help](#) | [About](#) | [Change Password](#) | [Log off](#)

Home / Elements / Endpoints / Manage Endpoints / Add Endpoint

Add Endpoint

[\[Save As Template\]](#)

* **System**
 * **Extension**

* **Template**
 * **Set Type**

* **Port Name**
 * **Security Code**

[General Options](#) | [Feature Options](#) | [Site Data](#) | [Abbreviated Call Dialing](#) | [Enhanced Call Fwd](#) | [Button Assignment](#) | [Group Membership](#) | [Expand All](#) | [Collapse All](#)

General Options

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

* **Emergency Location Ext**
 * **Message Lamp Ext.**

* **Tenant Number**
 * **SIP Trunk**

Type of 3PCC Enabled
Native Name

Coverage Path 1
Coverage Path 2

Lock Message

Feature Options

Active Station Ringing
Auto Answer

MWI Served User Type
Coverage After Forwarding

Box Station CMN

Click **Commit**.

5.3. Administer Users

A user must be added to Session Manager corresponding to the SIP station added in **Section 5.2**. From the menu in the left pane, navigate to **Users → Manage Users**. Select the **New** button from the right pane.

AVAYA Avaya Aura™ System Manager 6.0 Welcome, **admin** Last Logged on at October 13, 2010 6:55 PM
[Help](#) | [About](#) | [Change Password](#) | [Log off](#)

Home / Users / Manage Users

User Management

Users

[View](#) [Edit](#) [New](#) [Duplicate](#) [Delete](#) [More Actions](#) [Advanced Search](#)

21 Items Refresh Show 15 Filter: Enable

<input type="checkbox"/>	Status	Name	Login Name	E164 Handle	Last Login
<input type="checkbox"/>		30101-LD	30101@avaya.com	30101	
<input type="checkbox"/>		30102-LD	30102@avaya.com	30102	

Enter the following values for the specified fields, and retain the default values in the remaining fields.

Under *General*:

- **Last** Enter the last name of the user.
- **First** Enter the first name of the user.

General ▼

* **Last Name:**

* **First Name:**

Middle Name:

Description:

Under *Identity*:

- **Login Name:** Using the extension from **Section 5.2**, enter the unique system login given to the user. It takes of form of *username@domain* (e.g. “30105@avaya.com”) and it is used to create the user’s primary handle.
- **Authentication Type:** Select “Basic” to have the user’s login authenticated by an Avaya Authentication Server.
- **SMGR Login Password:** Enter the password used to log into System Manger.
- **Shared Communication Profile Password:** Enter the password used to log into the Valcom endpoint (the Security Code from **Section 5.2**).
- **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.

Identity

* Login Name:	<input type="text" value="30105@avaya.com"/>
* Authentication Type:	<input type="text" value="Basic"/>
SMGR Login Password:	
* Password:	<input type="password" value="••••••"/>
* Confirm Password:	<input type="password" value="••••••"/>
Shared Communication Profile Password:	<input type="password" value="••••••"/>
Confirm Password:	<input type="password" value="••••••"/>
Localized Display Name:	<input type="text" value="30105-LD"/>
Endpoint Display Name:	<input type="text" value="30105-ED"/>
Honorific:	<input type="text"/>
Language Preference:	<input type="text" value="English"/>
Time Zone:	<input type="text" value="Mountain Time (US & Canada); Chihuahua, La Paz"/>

Under *Communication Profile* → *Communication Address*:

- **Type:** Select “sip”.
- **SubType:** Select “username” to signify that the handle is alphanumeric.
- **Fully Qualified Address:** Enter the extension and select the appropriate domain for the user.

Click the **Add** button.

Communication Profile ▼

Name
Primary

Select : None

* **Name:**

Default :

Communication Address ▼

Type	Handle	Domain
No Records found		

Type:

* **Fully Qualified Address:** @

Under *Communication Profile* → *Session Manager*:

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

Session Manager Profile ▼

* **Primary Session Manager** ▼

Primary	Secondary	Maximum
20	0	20

Secondary Session Manager ▼

Primary	Secondary	Maximum

Origination Application Sequence ▼

Termination Application Sequence ▼

Survivability Server ▼

* **Home Location** ▼

Under *Communication Profile* → *Endpoint Profile*:

- **System:** Select the Communication Manager where the endpoint exists.
- **Use Existing Endpoints** Check this box to use an endpoint administered in **Section 5.2**.
- **Extension:** Enter the extension of the endpoint from **Section 5.2** that you want to associate with this user.
- **Template:** Select an appropriate template matching the template configured in **Section 5.2**.
- **Security Code:** Enter the security code to be used by the Valcom endpoint when registering to the Session Manager, as administered in **Section 5.2**.
- **Port:** The Port field is automatically filled in.

Endpoint Profile ▼

* **System** demoCMapp ▼

Use Existing Endpoints

* **Extension** 30105

Template DEFAULT_9620SIP_CM_6_0 ▼

Set Type 9620SIP

Security Code ●●●●●●

* **Port** S00008

Voice Mail Number

Delete Endpoint on Unassign of Endpoint from User

Click the **Commit** button.

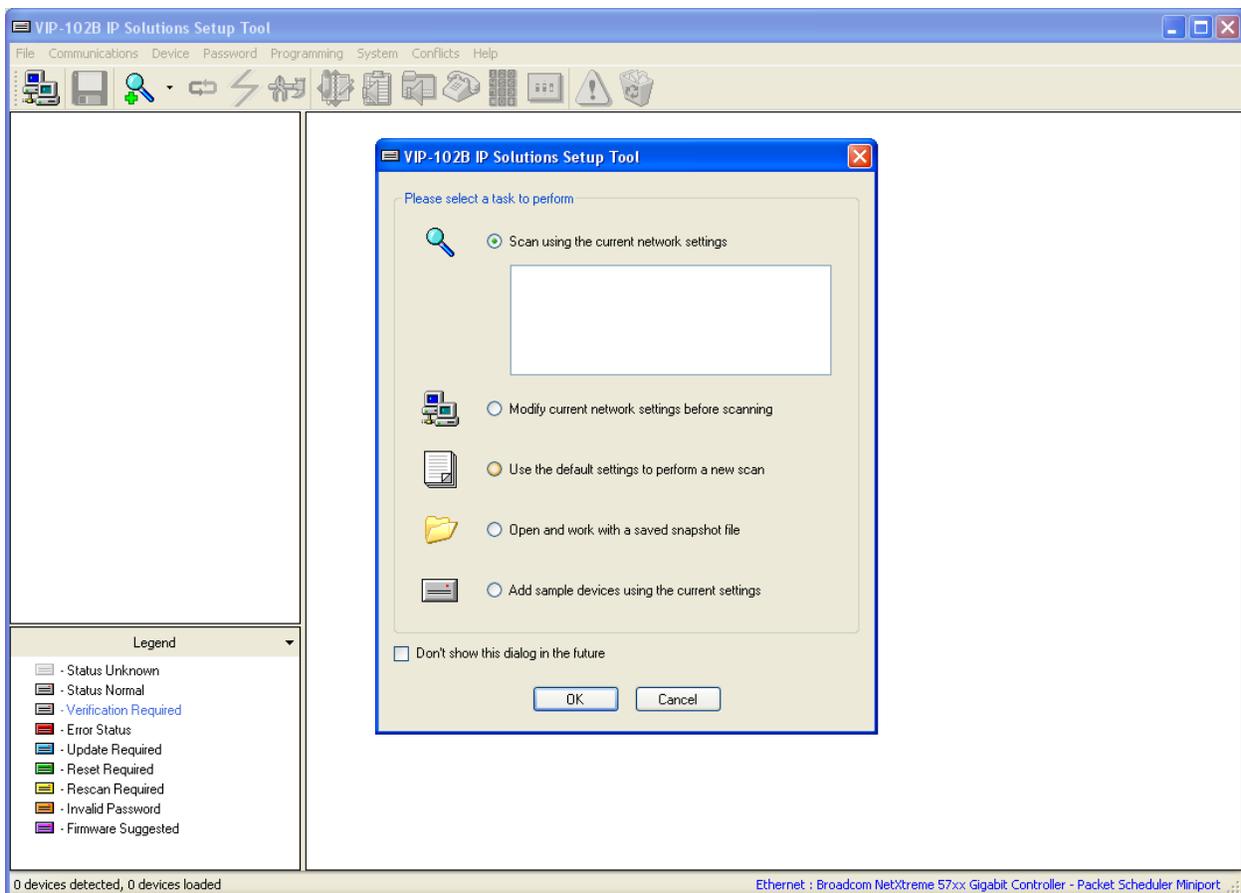
6. Configure Valcom One-Way IP Speakers

This section provides the procedures for configuring Valcom One-Way IP Speakers. The information shown is the minimum for configuring the Valcom device. Complete configuration details may be found in the Valcom documentation listed in **Section 10**. The procedures include the following areas:

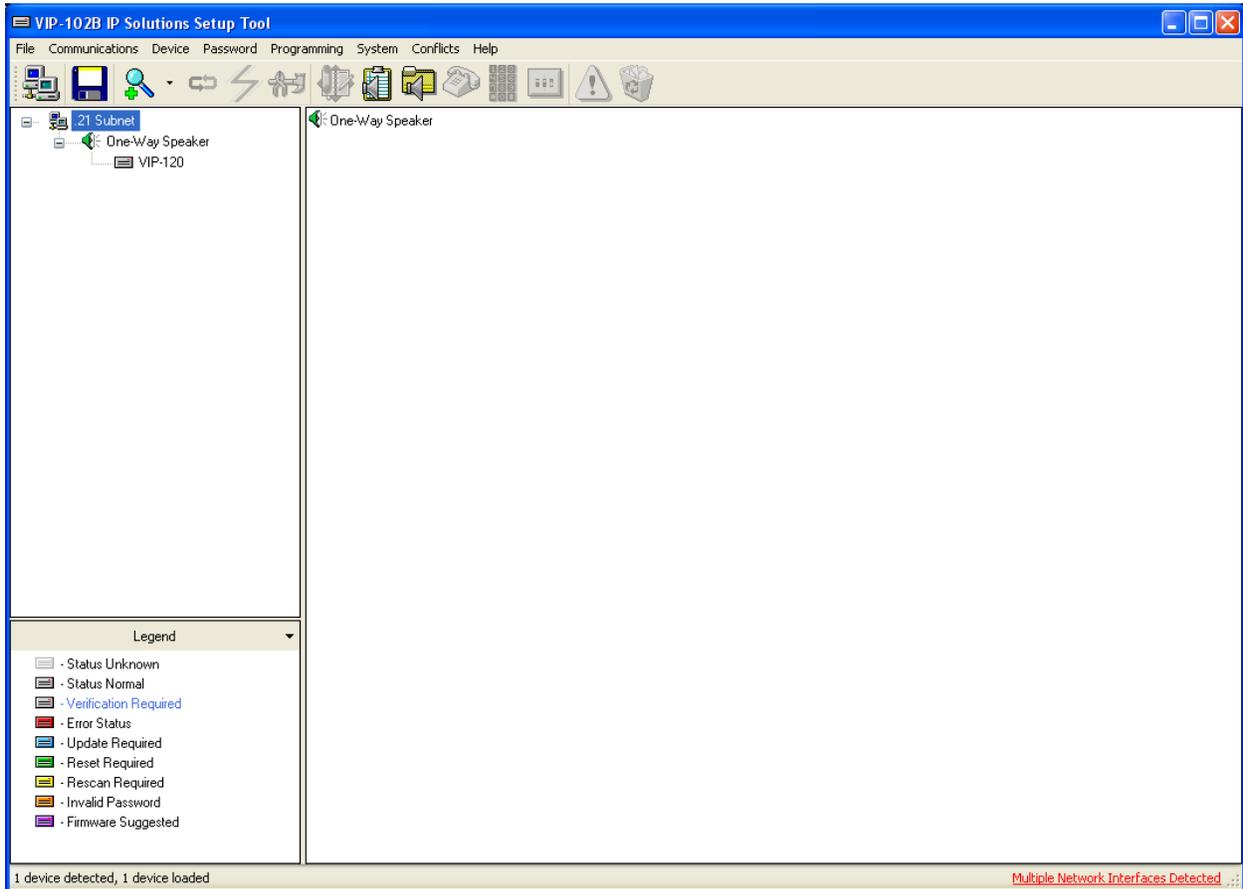
- Launch setup tool
- Administer properties
- Administer network
- Administer SIP

6.1. Launch Setup Tool

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**. The **VIP-102B IP Solutions Setup Tool** screen is displayed. Retain the default values and click **OK** to scan for Valcom devices.

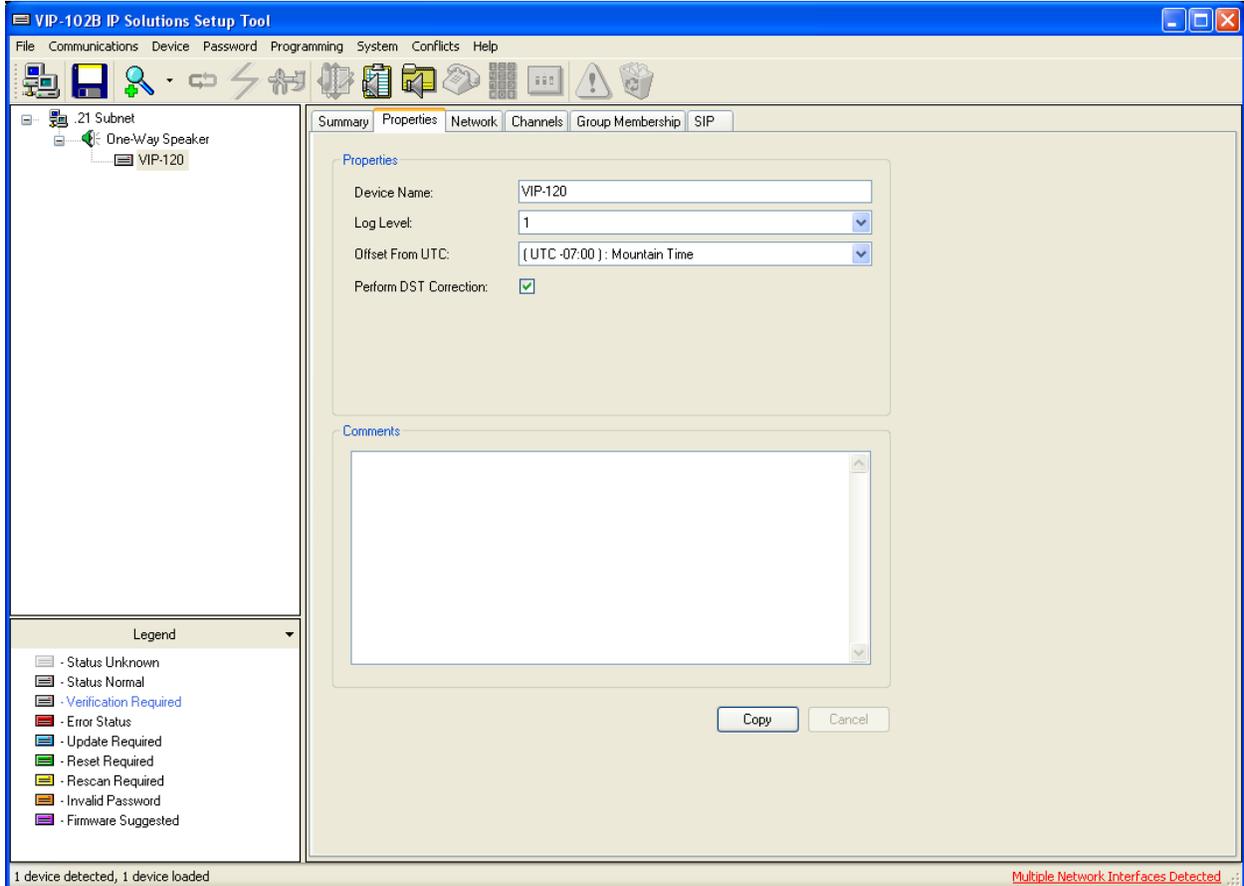


At the conclusion of the scan, the **VIP-102B IP Solutions Setup Tool** screen is updated with the discovered Valcom One-Way IP Speakers as shown below.



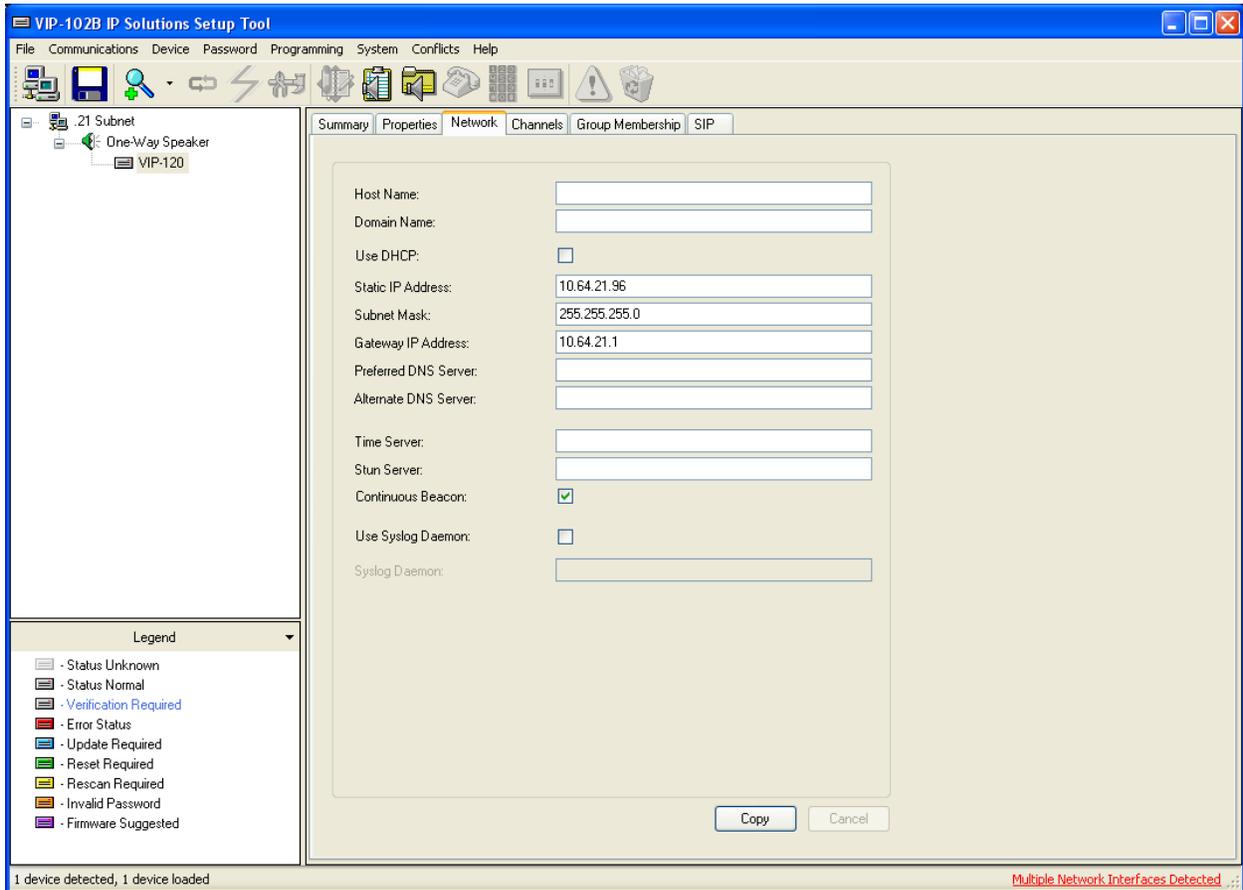
6.2. Administer Properties

Select the speaker 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 **Offset From UTC** field, and enter any desired **Comments**.



6.3. Administer Network

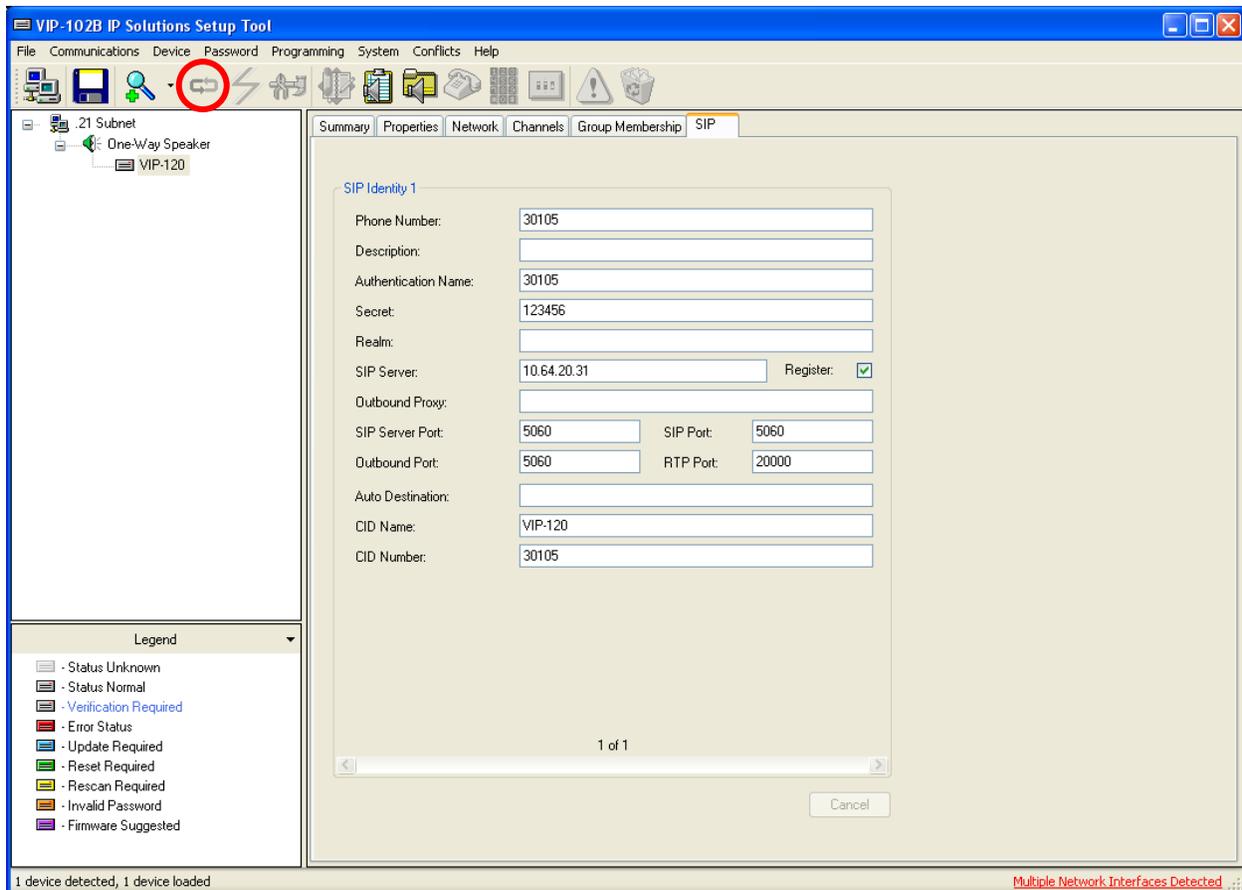
Select the **Network** tab. Enter the proper values for **Static IP Address**, **Subnet Mask**, and **Gateway IP Address** fields for the network configuration. The default values in the remaining fields may be retained.



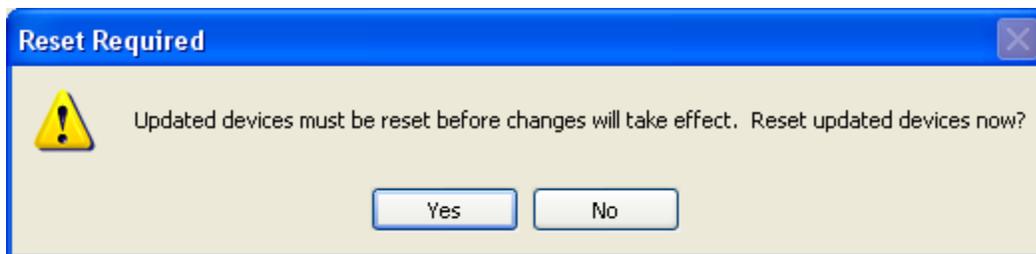
6.4. Administer SIP

Select the **SIP** tab. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Phone Number:** Enter the user extension from **Section 5.3**.
- **Authentication Name:** Enter the user handle from **Section 5.3**.
- **Secret:** Enter the user Security Code from **Section 5.3**.
- **SIP Server:** Enter the IP address of Avaya Aura™ Session Manager.
- **Register:** Check this field.
- **CID Name:** Enter a descriptive name.
- **CID Number:** Enter the Caller-ID number (e.g. extension of device).



Click on the **Update Changed Devices** icon circled above. The **Reset Required** dialog box will appear as shown below. Click **Yes** to reset the updated device.



7. General Test Approach and Test Results

The feature test cases were performed manually. Calls were placed to the Valcom One-Way IP Speaker from various endpoints within the test environment, and manual call controls from the origination endpoint were exercised to verify proper interactions with features such as “transfer” and “conference”.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cable to the Valcom One-Way IP Speaker. Additionally, the Communication Manager and Session Manager servers were each individually rebooted to verify the Valcom One-Way IP Speaker was able to properly register and function normally after each server recovered.

All feature test cases were executed and passed with the following observations:

- When shuffling (Direct IP-IP Audio) was enabled on Communication Manager, calls involving the Valcom One-Way IP Speaker did not shuffle. Calls between other Communication Manager endpoints that did not include the Valcom One-Way IP Speaker, did shuffle.
- The Valcom “Pre-Announce Tone” feature was not functioning properly. The pre-announcement tone did not play. Valcom is aware of the issue and the feature will be enabled in future firmware releases.

8. 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 the Valcom One-Way IP Speakers.

8.1. Verify User Registrations

On Session Manager, verify the registration status of the Valcom One-Way IP Speaker by navigating to **Elements → Session Manager → System Status → User Registrations**. Verify that the user administered in **Section 5.3** is listed as a registered user.


Avaya Aura™ System Manager 6.0
Welcome, **admin** Last Logged on at October 13, 2010 6:55 PM

[Help](#) | [About](#) | [Change Password](#) | [Log off](#)

[Home](#) / [Elements](#) / [Session Manager](#) / [System Status](#) / [User Registrations](#)

Elements

- Conferencing
- Presence
- Application Management
- Endpoints
- SIP AS 8.1
- Feature Management
- Inventory
- Templates
- ▾ **Session Manager**
 - Dashboard
 - Session Manager
 - Administration
 - Communication Profile Editor
 - Network Configuration
 - Device and Location Configuration
 - Application Configuration
 - ▾ **System Status**
 - System State
 - Administration
 - SIP Entity Monitoring
 - Managed Bandwidth Usage
 - Security Module Status
 - Registration Summary
 - User Registrations**
 - System Tools
- Events

User Registrations

Select to send notifications to AST devices. Click on row to display registration detail.

AST Device Notifications: As of 4:41 PM

[Advanced Search](#)

19 Items [Refresh](#) [Show 15](#) Filter: Enable

	Address	Login Name	First Name	Last Name	Location	IP Address	Registered			AST
							Prim	Sec	Surv	
<input type="checkbox"/>	30101@avaya.com	30101@avaya.com	Station	30101	.20 Subnet	10.64.20.110	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	30102@avaya.com	30102@avaya.com	Station	30102	.20 Subnet	10.64.20.111	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	---	30103@avaya.com	Station	30103	.20 Subnet	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	---	30104@avaya.com	Station	30104	.21 Subnet	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	30105@avaya.com	30105@avaya.com	Valcom	VIP-148L-GY	.20 Subnet	10.64.20.91:5060	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	30106@avaya.com	30106@avaya.com	Valcom	VIP-160	.20 Subnet	10.64.20.92:5060	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	30107@avaya.com	30107@avaya.com	Valcom	VIP-172L-VRSS	.20 Subnet	10.64.20.93:5060	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	30108@avaya.com	30108@avaya.com	Valcom	VIP-422	.20 Subnet	10.64.20.94:5060	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	30109@avaya.com	30109@avaya.com	Valcom	VIP-431-DS	.20 Subnet	10.64.20.95:5060	<input checked="" type="checkbox"/> (AC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	---	30111@avaya.com	Valcom	201	.20 Subnet	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	---	30112@avaya.com	Valcom	201	.20 Subnet	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	---	30113@avaya.com	Valcom	201	.20 Subnet	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	---	30114@avaya.com	Valcom	201	.20 Subnet	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	---	30115@avaya.com	Valcom	201	.20 Subnet	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	---	30116@avaya.com	Valcom	201	.20 Subnet	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Select : All, None
< Previous Page of 2 Next >

8.2. Verify Valcom One-Way IP Speakers

Press the call to the Valcom One-Way IP Speaker and verify that the call is connected with a one-way talk path.

9. Conclusion

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

All test cases were executed and passed.

10. Additional References

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

1. *Administering Avaya Aura™ Communication Manager*, Document 03-300509, Issue 6.0, Release 6.0, August 2010, available at <http://support.avaya.com>
2. *Administering Avaya Aura™ Communication Manager Server Options*, Document 03-603479, Issue 2, Release 6.0, June 2010, available at <http://support.avaya.com>
3. *Administering Avaya Aura™ Session Manager*, Document 03-603324, Issue 3, Release 6.0, August 2010, available at <http://support.avaya.com>
4. *Avaya one-X™ Deskphone SIP for 9600 Series IP Telephones Administrator Guide* Release 2.6, Doc ID 16-601944, June, 2010
5. *Avaya one-X™ Deskphone H.323 Administrator Guide*, Doc ID 16-300698, Release 6.0, August, 2010
6. Valcom One-Way IP Speaker documentation is available at <http://www.valcom.com>
7. Valcom VIP-102B IP Solutions Setup Tool Reference Manual is available at <http://www.valcom.com>

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