



## **Application Notes for Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations with Avaya Aura® Communication Manager and Avaya Aura® Session Manager - Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required to integrate the Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations registered with Avaya Aura® Session Manager via SIP. Although not explicitly tested, these Application Notes would also apply to the Talkphone Wide-Area Emergency Broadcast System (WEBS®) Series Devices, which leverage the same electronics and firmware with a similar subset of features (e.g. paging only with no two-way communication) as the VOIP-500 Series and VOIP-600 Series Phones but differ in form factor and packaging.

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 the Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations registered with Session Manager via SIP. Although not explicitly tested, these Application Notes would also apply to the Talkphone Wide-Area Emergency Broadcast System (WEBS®) Series Devices, which leverage the same electronics and firmware with a similar subset of features (e.g. paging only with no two-way communication) as the VOIP-500 Series and VOIP-600 Series Phones but differ in form factor and packaging.

## 2. General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature testing focused on establishing calls between Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations, Avaya H,323, SIP, Digital, Analog telephones, and the PSTN, and exercising basic telephony features, such as hold, mute, transfer, and conference, from the Avaya IP phones. Additional telephony features, such as call forward and call coverage, were also verified.

The serviceability testing focused on verifying that the Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations come back into service after re-connecting the Ethernet cable or rebooting the IP Call Station.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in this DevConnect Application Note included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with this Application Note, the interface between Avaya systems and the Talkphone VOIP-600 did not include use of any specific encryption features.

Encryption (TLS/SRTP) was used internal to the enterprise between Avaya products.

## 2.1. Interoperability Compliance Testing

Interoperability compliance testing covered the following features and functionality:

- SIP registration of Talkphone IP Call Station with Session Manager.
- Inbound and outbound calls between Talkphone IP Call Station and Avaya SIP and H.323 telephones with Direct IP Media (Shuffling) enabled.
- Inbound and outbound calls between the Talkphone IP Call Station and the PSTN.
- G.711 and G.729 codec support.
- Proper recognition of DTMF tones.
- Basic telephony features, including hold, mute, redial, transfer, and 3-way conference, initiated from the Avaya IP phone.
- Use of paging, speed-dial buttons, and number lists on the Talkphone IP Call Station.
- Proper system recovery after a restart of the Talkphone IP Call Station and loss of IP connectivity.

## 2.2. Test Results

All test cases passed with the following observation(s):

- Emergency calls cannot be terminated from the Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations. The calls can only be disconnected by the destination phone or upon expiration of the Call Conversation Timer. The Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations dial a list of programmed numbers in a round-robin fashion. If the first number in the list does not answer (i.e., Busy, Out of Order, Invalid number), it will call the next number in line and will keep doing so until the destination answers the call or until the 'Call Conversation Timer' expires.
- DTMF duration in Talkphone VOIP station needs to be configured as “800ms” to work with Avaya Aura® Messaging system that was used to test for DTMF RFC2833; the detail configuration is mentioned in **Section 6.4**.

## 2.3. Support

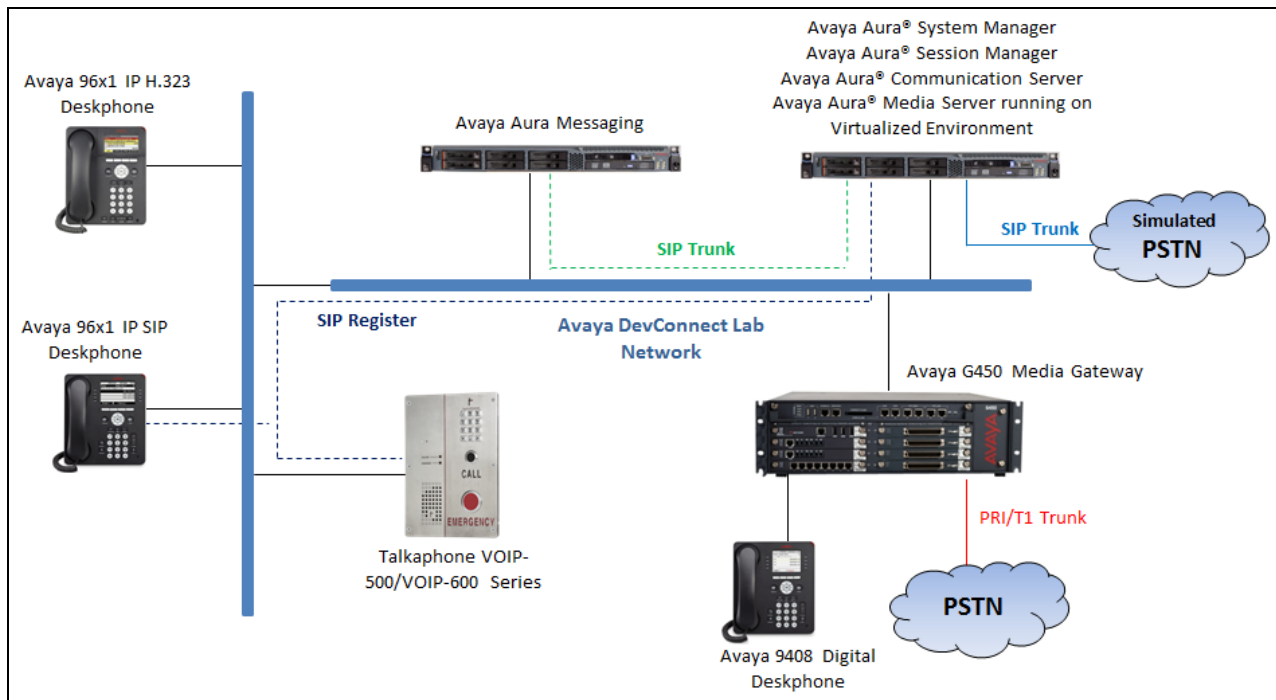
For technical support and information on Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations, contact Talkphone support at:

Address : 7530 North Natchez Ave.  
Niles, IL 60714  
Telephone : (773) 539-1100  
Fax : (773) 539-1241  
Email : [info@talkphone.com](mailto:info@talkphone.com)  
Web : [www.talkphone.com](http://www.talkphone.com)

### 3. Reference Configuration

**Figure 1** illustrates a sample configuration with an Avaya SIP-based network that includes the following products:

- Avaya Aura® System Manager, Avaya Aura® Session Manager, Avaya Aura® Communication Manager and Avaya Aura® Media Server running on Virtualized environment.
- Avaya Aura Messaging has SIP trunk connected to Session Manager and used as Voicemail system for the endpoint.
- Avaya G450 Media Gateway registers to Communication Manager and has PRI trunk to simulated PSTN.
- Session Manager has SIP trunk to simulated PSTN
- Avaya 96x1 H323 and SIP Deskphones were used to place and receive call to/from Talkphone VOIP station.
- Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations registered with Avaya Aura® Session Manager.



**Figure 1: Avaya SIP Network with Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations**

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communication Manager running on Virtualized Environment	R017x.01.0.532.0 7.1.1.0.0.532.23985
Avaya Aura® System Manager running on Virtualized Environment	7.1.1.0.046931
Avaya Aura® Session Manager running on Virtualized Environment	7.1.1.0.711008
Avaya Aura® Media Server running on Virtualized Environment	7.8.0.333
Avaya Aura Messaging	7.0
Avaya G450 Media Gateway	38.20.1
Avaya 96x1 IP Deskphones	6.65 (H323) 7.1.1 (SIP)
Talkphone VOIP-600 Series IP Call Stations	Firmware Version : 1.0.2.8 Bootloader Version : 1.1.9

## 5. Configure Avaya Aura® Communication Manager

Configuration and verification operations on Communication Manager illustrated in this section were all performed using Avaya Site Administrator Emulation Mode. The information provided in this section describes the configuration of Communication Manager for this solution. It is implied a working system is already in place, including SIP trunks to a Session Manager. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 10**. The configuration described in this section can be summarized as follows:

- Verify System Capacity
- Administer IP Node Names
- Administer Codecs
- Administer IP Network Region
- Administer Signaling Group
- Administer Trunk Group
- Administer Private Numbering
- Administer Outbound Routing

### 5.1. Verify System Capacity

The license file installed on the system controls these attributes. If a required feature is not enabled or there is insufficient capacity, contact an authorized Avaya sales representative. Use the **display system-parameters customer-options** command to determine these values. On **Page 1**, verify that the **Maximum Off-PBX Telephones** allowed in the system is sufficient. One OPS station is required per SIP device.

display system-parameters customer-options		Page	1 of 10
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		290	
Maximum Stations: 41000		44	
Maximum XMOBILE Stations: 41000		0	
Maximum Off-PBX Telephones - EC500: 41000		0	
<b>Maximum Off-PBX Telephones - OPS: 41000</b>		<b>14</b>	
Maximum Off-PBX Telephones - PBFMC: 41000		0	
Maximum Off-PBX Telephones - PVFMC: 41000		0	
Maximum Off-PBX Telephones - SCCAN: 41000		0	
Maximum Survivable Processors: 313		0	
(NOTE: You must logoff & login to effect the permission changes.)			

On **Page 2** of the **system-parameters customer-options form**, verify that the number of **Maximum Administered SIP Trunks** supported by the system is sufficient.

display system-parameters customer-options	Page	2 of 10
OPTIONAL FEATURES		
IP PORT CAPACITIES	USED	
Maximum Administered H.323 Trunks:	12000	16
Maximum Concurrently Registered IP Stations:	18000	2
Maximum Administered Remote Office Trunks:	12000	0
Maximum Concurrently Registered Remote Office Stations:	18000	0
Maximum Concurrently Registered IP eCons:	414	0
Max Concur Registered Unauthenticated H.323 Stations:	100	0
Maximum Video Capable Stations:	41000	1
Maximum Video Capable IP Softphones:	18000	4
<b>Maximum Administered SIP Trunks:</b>	<b>24000</b>	<b>180</b>
Maximum Administered Ad-hoc Video Conferencing Ports:	24000	0
Maximum Number of DS1 Boards with Echo Cancellation:	522	0
Maximum TN2501 VAL Boards:	128	0
Maximum Media Gateway VAL Sources:	250	0
Maximum TN2602 Boards with 80 VoIP Channels:	128	0
Maximum TN2602 Boards with 320 VoIP Channels:	128	0
Maximum Number of Expanded Meet-me Conference Ports:	300	0
(NOTE: You must logoff & login to effect the permission changes.)		

## 5.2. Administer IP Node Names

Use the **change node-names ip** command to verify that node names have been previously defined for the IP addresses of the server running Communication Manager (**procr**) and for Session Manager (**interopASM**). These node names will be needed for defining the service provider signaling group in **Section 5.5**.

change node-names ip	Page	1 of 2
IP NODE NAMES		
Name	IP Address	
AMS1	10.33.1.30	
default	0.0.0.0	
<b>interopASM</b>	<b>10.33.1.12</b>	
<b>procr</b>	<b>10.33.1.6</b>	

### 5.3. Administer Codecs

Use the **change ip-codec-set** command to define a list of codecs to use for calls between the local and remote sites. For the compliance test, codec G.711MU and G.729 was configured using ip-codec-set 1. To configure the codecs, enter the codecs in the **Audio Codec** column of the table in the order of preference. Default values can be used for all other fields.

change ip-codec-set 1

Page 1 of 2

IP MEDIA PARAMETERS

Codec Set: 1

Audio Codec	Silence Suppression	Frames Per Pkt	Packet Size (ms)
1: G.711MU	n	2	20
2: G.729	n	2	20
3:			
4:			
5:			
6:			
7:			

Media Encryption	Encrypted SRTCP
1: none	enforce-unenc-srtcp
2:	
3:	
4:	
5:	



## 5.4. Administer IP Network Region

For the compliance test, IP network region 1 was chosen. Use the **change ip-network-region 1** command to configure region 1 with the following parameters:

- Set the **Authoritative Domain** field to match the SIP domain of the local site. In this configuration, the domain name is **bvwdev.com**. This name appears in the “From” header of SIP messages originating from this IP region.
- Enter a descriptive name in the **Name** field. This is optional.
- Enable **IP-IP Direct Audio** (shuffling) to allow audio traffic to be sent directly between IP endpoints without using media resources in the Avaya Media Gateway. Set both **Intra-region** and **Inter-region IP-IP Direct Audio** to **yes**. This is the default setting. Shuffling can be further restricted at the trunk level on the Signaling Group form.
- Set the **Codec Set** field to the IP codec set defined in **Section 5.3**.
- Retain default values for all other fields.

```
change ip-network-region 1                                     Page 1 of 20
                                                                IP NETWORK REGION
Region: 1              NR Group: 1
Location: 1           Authoritative Domain: bvwdev.com
Name: Loc-1           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? n
                      UDP Port Max: 3329
DIFFSERV/TOS PARAMETERS
Call Control PHB Value: 46
Audio PHB Value: 46
Video PHB Value: 26
```

On **Page 4**, define the IP codec set to be used for traffic between various regions. Enter the desired IP codec set in the **codec set** column of the row with destination region (**dst rgn**) **1**. Default values may be used for all other fields. In the case of the compliance test, only one IP network region was used, so no inter-region settings were required and therefore only codec set 1 is used.

```
change ip-network-region 1                                     Page 4 of 20

Source Region: 1      Inter Network Region Connection Management
dst codec direct      WAN-BW-limits  Video      Intervening
rgn set  WAN  Units   Total Norm  Prio Shr Regions  Dyn  A  G  C
1  1          y      NoLimit          n      t          CAC  R  L  e
2  2          y      NoLimit          n      t          CAC  R  L  e
```

## 5.5. Administer Signaling Group

Use the **add signaling-group** command to create a signaling group between Communication Manager and Session Manager for use by SIP trunks. This signaling group is used for inbound and outbound calls between the Communication Manager and Session Manager. For the compliance test, signaling group 1 was used for this purpose and was configured using the parameters highlighted below.

- Set the **Group Type** field to **sip**.
- The compliance test was conducted with the **Transport Method** set to “tls”. The transport method specified here is used between Communication Manager and Session Manager. Whatever protocol is used here, it must also be used on the Session Manager entity link defined in **Section 6.5**.
- Set the **Peer Detection Enabled** field to “y”. The **Peer-Server** field will initially be set to **Others** and cannot be changed via administration. Later, the **Peer-Server** field will automatically change to **SM** once Communication Manager detects its peer as a Session Manager.
- Set the **Near-end Node Name** to “procr”. This node name maps to the IP address of the Communication Manager as defined in **Section 5.4**.
- Set the **Far-end Node Name** to “InteropASM”. This node name maps to the IP address of Session Manager as defined in **Section 5.2**.
- Set the **Near-end Listen Port** and **Far-end Listen Port** to a default well-known port value. (For TCP the well-known port value is 5061).
- Set the **Far-end Network Region** to the IP network region defined for the local site in **Section 5.4**.
- Set the **Far-end Domain** to the domain of the local site.
- Set **Direct IP-IP Audio Connections** to “y”. This field will enable media shuffling on the SIP trunk allowing Communication Manager to redirect media traffic directly between the SIP trunk and the enterprise endpoint.
- Set the **DTMF over IP** field to “rtp-payload”. This value enables Communication Manager to send DTMF transmissions using RFC 2833.
- Retain default values for all other fields.

change signaling-group 1		Page 1 of 3
SIGNALING GROUP		
Group Number: 1	Group Type: sip	
IMS Enabled? n	<b>Transport Method: tls</b>	
Q-SIP? n		
IP Video? n	Enforce SIPS URI for SRTP? n	
Peer Detection Enabled? n	Peer Server: SM	
Prepend '+' to Outgoing Calling/Alerting/Diverting/Connected Public Numbers? y		
Remove '+' from Incoming Called/Calling/Alerting/Diverting/Connected Numbers? n		
Alert Incoming SIP Crisis Calls? n		
<b>Near-end Node Name: procr</b>	<b>Far-end Node Name: interopASM</b>	
<b>Near-end Listen Port: 5061</b>	<b>Far-end Listen Port: 5061</b>	
	<b>Far-end Network Region: 1</b>	
 <b>Far-end Domain: bvwdev.com</b>		
	Bypass If IP Threshold Exceeded? n	
Incoming Dialog Loopbacks: eliminate	RFC 3389 Comfort Noise? n	
<b>DTMF over IP: rtp-payload</b>	<b>Direct IP-IP Audio Connections? y</b>	
Session Establishment Timer(min): 3	IP Audio Hairpinning? n	
Enable Layer 3 Test? y	Initial IP-IP Direct Media? n	
H.323 Station Outgoing Direct Media? n	Alternate Route Timer(sec): 6	

## 5.6. Administer Trunk Group

Use the “add trunk-group” command to create a trunk group for the signaling group created in **Section 5.6**. For the compliance test, trunk group 1 was configured using the parameters highlighted below.

- Set the **Group Type** field to “sip”.
- Enter a descriptive name for the **Group Name**.
- Enter an available trunk access code (TAC) that is consistent with the existing dial plan in the **TAC** field.
- Set the **Service Type** field to “tie”.
- Set **Member Assignment Method** to “auto”.
- Set the **Signaling Group** to the signaling group shown in **Section 5.5**.
- Set the **Number of Members** field to the number of trunk members in the SIP trunk group. This value determines how many simultaneous SIP calls can be supported by this trunk.
- Retain default values for all other fields.

```
add trunk-group 1                                     Page 1 of
22
                                     TRUNK GROUP

Group Number: 1                                     Group Type: sip          CDR Reports: y
  Group Name: Private Trunk                          COR: 1                TN: 1            TAC: #01
  Direction: two-way                                Outgoing Display? n
  Dial Access? n                                     Night Service:
Queue Length: 0
Service Type: tie                                     Auth Code? n
                                                Member Assignment Method: auto
                                                Signaling Group: 1
                                                Number of Members: 14
```

On **Page 3**, set the **Numbering Format** field to **private**. This field specifies the format of the calling party number (CPN) sent to the far-end. The **Numbering Format** was set to “private” and the **Numbering Format** in the route pattern was set to “lev0-pvt” (see **Section 5.8**).

add trunk-group 1		Page 3 of 22	
TRUNK FEATURES			
ACA Assignment? n	Measured: none	Maintenance Tests? y	
Suppress # Outpulsing? n	Numbering Format: private		
	UII Treatment: shared		
	Maximum Size of UII Contents: 128		
	Replace Restricted Numbers? y		
	Replace Unavailable Numbers? y		
	Hold/Unhold Notifications? y		
	Modify Tandem Calling Number: no		
Send UCID? y			

## 5.7. Administer Private Numbering

Private numbering defines the calling party number to be sent to the far-end. Use the **change private-numbering** command to create an entry that will be used by the trunk groups defined in **Section 5.6**. In the example shown below, all calls originating from a 4-digit extension beginning with “3” and routed across trunk group 1 are sent with a 4-digit calling number.

change private-numbering 0				Page	1 of	2
NUMBERING - PRIVATE FORMAT						
Ext	Ext	Trk	Private	Total		
Len	Code	Grp (s)	Prefix	Len		
4	3	1		4	Total Administered: 5	
4					Maximum Entries: 540	

## 5.8. Administer Outbound Routing

In these Application Notes, the Automatic Alternate Routing (AAR) feature is used to route outbound calls via the SIP trunk to the SIP endpoint. In the sample configuration, the dial prefix “34” is used as the Dialed String. This common configuration is illustrated below with little elaboration. Use the “change dialplan analysis” command to define a dialed string beginning with 34 of length 4 as extension (ext).

change dialplan analysis							Page 1 of 12		
DIAL PLAN ANALYSIS TABLE									
Location: all							Percent Full: 5		
Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	
34	4	ext							

The route pattern defines which trunk group will be used for an outgoing call and performs any necessary digit manipulation. Use the “change route-pattern” command to configure the parameters for the local site route pattern in the following manner. The example below shows the values used for route pattern 1 during the compliance test.

- **Pattern Name:** Enter a descriptive name.
- **Grp No:** Enter the outbound trunk group for the SIP trunk. For the compliance test, trunk group **1** was used.
- **FRL:** Set the Facility Restriction Level (**FRL**) field to a level that allows access to this trunk for all users that require it. The value of **0** is the least restrictive level.
- **Numbering Format:** “lev0-pvt”. All calls using this route pattern will use the private numbering table. See setting of the **Numbering Format** in the trunk group form in **Section 5.6** for full details.
- Retain default values for all other fields.

change route-pattern 1										Page 1 of 3	
Pattern Number: 1										Pattern Name: SIP-TLS-To-SM	
SCCAN? n		Secure SIP? n		Used for SIP stations? n							
Grp	FRL	NPA	Pfx	Hop	Toll	No.	Inserted			DCS/	IXC
No			Mrk	Lmt	List	Del	Digits			QSIG	
							Dgts			Intw	
1:	1	0								n	user
2:								n	user		
3:								n	user		
4:								n	user		
5:								n	user		
6:								n	user		
BCC		VALUE		TSC	CA-TSC		ITC	BCIE	Service/Feature	PARM	LAR
0		1 2 M 4 W		Request					Sub	Numbering	
									Dgts	Format	
1:	y	y	y	y	y	n	rest		lev0-pvt		next
2:	y	y	y	y	y	n	rest				none
3:	y	y	y	y	y	n	rest				none

Use the “change aar analysis” command to create an entry in the AAR Digit Analysis Table for this purpose. The example below shows entries created for the local site “aar analysis 3”. The highlighted entry specifies that 4 digit dial string 3 was to use route pattern 1 to route calls to the SIP endpoint via Session Manager.

change aar analysis 3										Page 1 of 2	
AAR DIGIT ANALYSIS TABLE											
Location: all										Percent Full: 2	
Dialed		Total		Route		Call		Node		ANI	
String		Min Max		Pattern		Type		Num		Reqd	
3		4 4		1		unku				n	

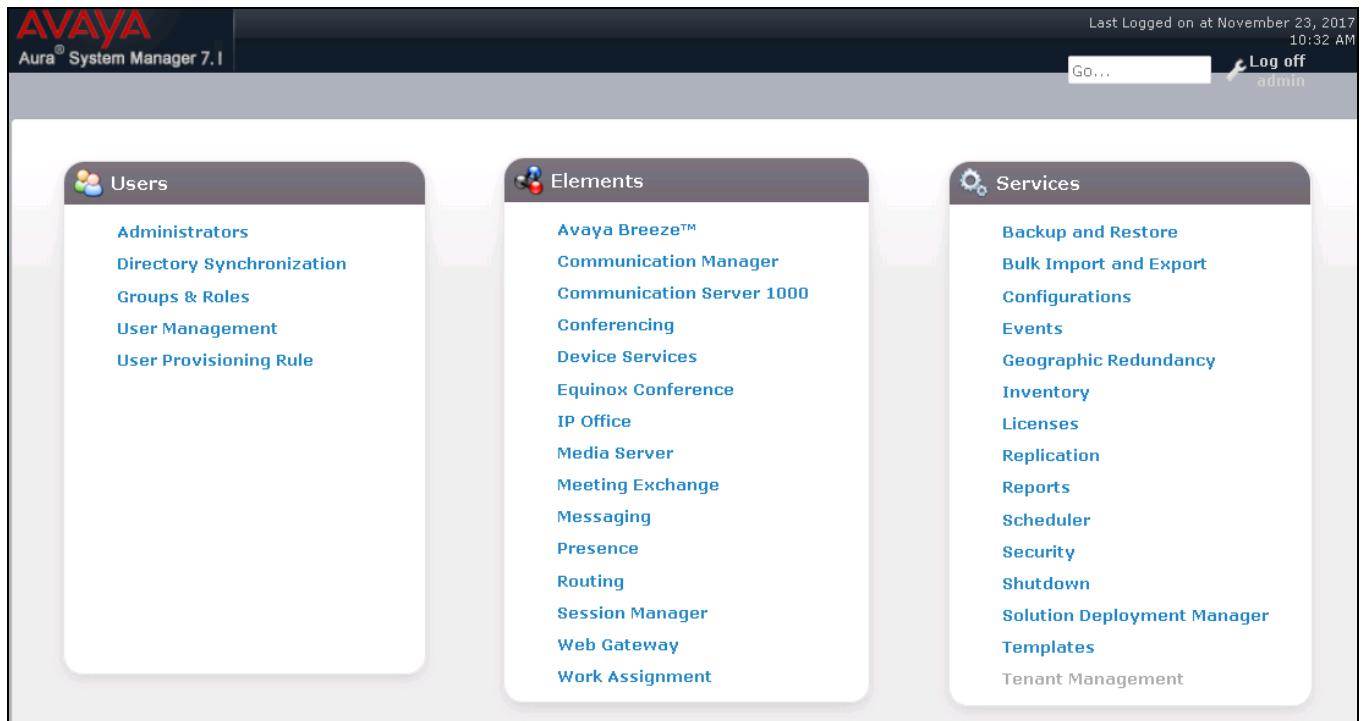
## 6. Configure Avaya Aura® Session Manager

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

- SIP Domain
- Location
- SIP Entities
- Entity Links
- Routing Policies
- Dial Patterns

For detail configuration details of the Session Manager refer to **Section 10**.

Session Manager configuration is accomplished by accessing the browser-based GUI of System Manager, using the URL “https://<ip-address>/SMGR”, where “<ip-address>” is the IP address of System Manager. Log in with the appropriate credentials and click on **Log on** (not shown). The following page is displayed. The links displayed below will be referenced in subsequent sections to navigate to items requiring configuration.



Clicking the **Elements** → **Routing** link, displays the **Introduction to Network Routing Policy** page. In the left-hand pane is a navigation tree containing many of the items to be configured in the following sections.

The screenshot displays the Avaya Aura System Manager 7.1 web interface. At the top, the Avaya logo and 'Aura System Manager 7.1' are visible on the left, and 'Last Logged on at November 23, 2017 10:32 AM' and a 'Log off' button are on the right. Below the header, there is a breadcrumb trail: 'Home / Elements / Routing'. A left-hand navigation pane shows a tree structure with 'Routing' expanded, listing sub-items: Domains, Locations, Adaptations, SIP Entities, Entity Links, Time Ranges, Routing Policies, Dial Patterns, Regular Expressions, and Defaults. The main content area is titled 'Introduction to Network Routing Policy' and includes a 'Help ?' link. The text explains that Network Routing Policy consists of several routing applications like 'Domains', 'Locations', 'SIP Entities', etc., and provides a recommended order for configuration: Step 1: Create 'Domains' of type SIP; Step 2: Create 'Locations'; Step 3: Create 'Adaptations'; Step 4: Create 'SIP Entities'. Below these steps, two bullet points specify: '- SIP Entities that are used as "Outbound Proxies" e.g. a certain "Gateway" or "SIP Trunk"' and '- Create all "other SIP Entities" (Session Manager, CM, SIP/PSTN Gateways, SIP Trunks)'.



## 6.1. Specify SIP Domain

Create a SIP Domain for each domain for which Session Manager will need to be aware in order to route calls. For the compliance test, this includes the domain (**bvwdev.com**) as defined in **Section 5.4**. Navigate to **Routing → Domains** in the left-hand navigation pane (**Section 6.1**) and click the **New** button in the right pane (not shown). In the new right pane that appears (shown below), fill in the following:

- **Name** – Enter the domain name.
- **Type** – Select “sip” from the pull-down menu.
- **Notes** – Add a brief description (optional).

Click **Commit**. The screen below shows the entry for the added domain.

AVAYA  
Aura® System Manager 7.1

Last Logged on at November 1, 2018 10:10 AM

Go... Log out

Home Routing

Home / Elements / Routing / Domains

**Domain Management** [Help ?](#)

1 Item Filter: Enable

Name	Type	Notes
* bvwdev.com	sip	SIP Domain

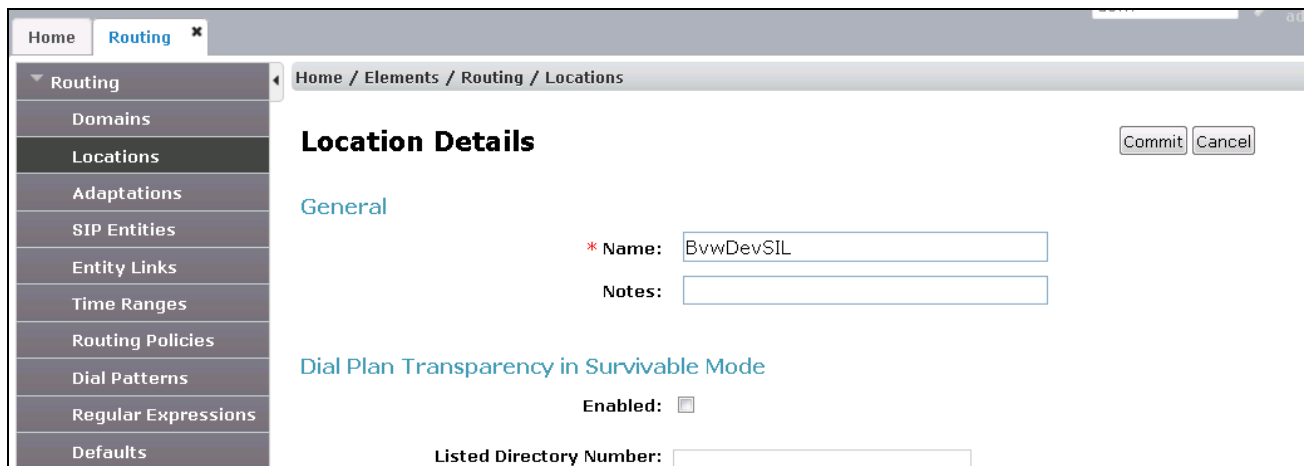
## 6.2. Add Location

Locations can be used to identify logical and/or physical locations where SIP Entities reside for purposes of bandwidth management and call admission control. A single Location was defined for the enterprise even though multiple subnets were used. The screens below show the addition of the Location named **BvwDevSIL**, which includes all equipment at the enterprise including Communication Manager, Session Manager and the Dialogic SR140 PC.

To add a Location, navigate to **Routing → Locations** in the left-hand navigation pane (**Section 6.1**) and click the **New** button in the right pane (not shown). In the new right pane that appears (shown below), fill in the following:

In the **General** section, enter the following values. Use default values for all remaining fields.

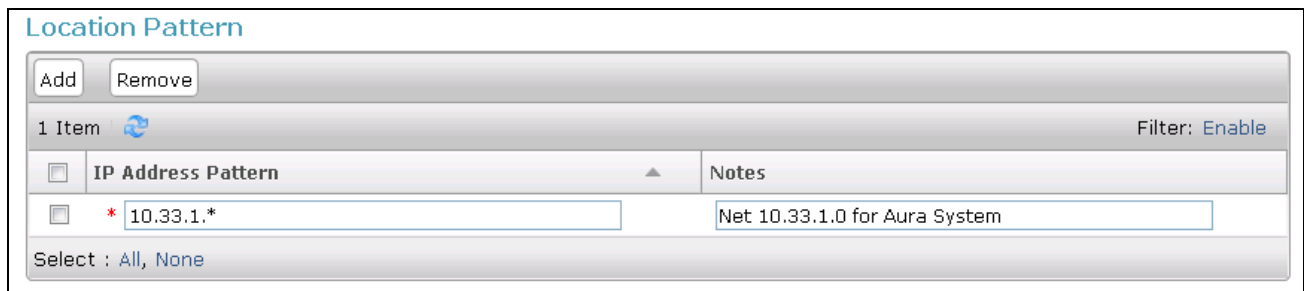
- **Name** – Enter a descriptive name for the Location.
- **Notes** – Add a brief description (optional).



Scroll down to the **Location Pattern** section. Click **Add** and enter the following values.

- **IP Address Pattern** – Add all IP address patterns used to identify the location.
- **Notes** – Add a brief description (optional).

Click **Commit** to save.



### 6.3. Add SIP Entity

A SIP Entity must be added for Session Manager and for each SIP telephony system connected to Session Manager which includes Communication Manager. Navigate to **Routing → SIP Entities** in the left-hand navigation pane (**Section 6.1**) and click on the **New** button in the right pane (not shown). In the new right pane that appears (shown below), fill in the following:

In the **General** section, enter the following values. Use default values for all remaining fields.

- **Name** – Enter a descriptive name.
- **FQDN or IP Address** – Enter the FQDN or IP address of the SIP Entity that is used for SIP signaling.
- **FQDN or IP Address** – Enter the FQDN or IP address of the SIP Entity that is used for SIP signaling.
- **Type** – Enter Session Manager for Session Manager, CM for Communication Manager.
- **Adaptation** – This field is only present if Type is not set to Session Manager. If applicable, select the appropriate Adaptation name. During compliance testing no adaptation rule was used.
- **Location** – Select the Location that applies to the SIP Entity being created. For the compliance test, all components were located in Location “BvwDevSIL” created in **Section 6.3**.
- **Time Zone** – Select the time zone where the server is located.

The following screen shows the addition of Session Manager. The IP address of the virtual SM-100 Security Module is entered for **FQDN or IP Address**.

The screenshot displays the Avaya Aura System Manager 7.1 web interface. The top navigation bar includes the Avaya logo, the text "Aura® System Manager 7.1", and a "Last Logged on at November" status. A "Go..." search bar and a "Log" button are also present. The left-hand navigation pane shows a tree structure with "Routing" selected, and a sub-menu containing "Domains", "Locations", "Adaptations", "SIP Entities" (which is highlighted), "Entity Links", "Time Ranges", "Routing Policies", "Dial Patterns", "Regular Expressions", and "Defaults". The main content area shows the "SIP Entity Details" form under the "General" tab. The form includes the following fields: "Name" (ASM70A), "FQDN or IP Address" (10.33.1.12), "Type" (Session Manager), "Notes" (empty), "Location" (BvwDevSIL), "Outbound Proxy" (empty), "Time Zone" (America/Toronto), "Minimum TLS Version" (Use Global Setting), "Credential name" (empty), and "SIP Link Monitoring" (Use Session Manager Configuration). "Commit" and "Cancel" buttons are located at the top right of the form.

To define the ports used by Session Manager, scroll down to the **Port** section of the **SIP Entity Details** screen. This section is only present for **Session Manager** SIP Entities.

In the **Port** section, click **Add** and enter the following values. Use default values for all remaining fields:

- **Port** – Port number on which Session Manager can listen for SIP requests.
- **Protocol** – Transport protocol to be used with this port.
- **Default Domain** – The default domain associated with this port.
- **Endpoint** – Checked the checkbox to indicate the specific ports used for SIP endpoint.

Listen Ports

Add Remove

6 Items Filter: Enable

<input type="checkbox"/>	Listen Ports	Protocol	Default Domain	Endpoint	Notes
<input type="checkbox"/>	5060	TCP	bvwddev.com	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	5060	UDP	bvwddev.com	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	5061	TLS	bvwddev.com	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	5062	TLS	bvwddev.com	<input type="checkbox"/>	
<input type="checkbox"/>	5067	TLS	bvwddev.com	<input type="checkbox"/>	
<input type="checkbox"/>	5080	TCP	bvwddev.com	<input type="checkbox"/>	

Select : All, None

The following screen shows the addition of Communication Manager. In order for Session Manager to send SIP service provider traffic on a separate entity link to Communication Manager; this requires the creation of a SIP Entity for Communication Manager for use with all other SIP traffic. The **FQDN or IP Address** field is set to the IP address of Communication Manager. The **Location** field is set to **BewDevSIL** which is the Location defined for the subnet where Communication Manager resides. See **Section 6.3**.

**AVAYA**  
Aura® System Manager 7.1

Last Logged on at November

Home Routing

Home / Elements / Routing / SIP Entities

### SIP Entity Details

General

\* Name: ACM-Trunk1-Private

\* FQDN or IP Address: 10.33.1.6

Type: CM

Notes: Private SIP trunk for SIP phone

Adaptation:

Location: BvwDevSIL

Time Zone: America/Toronto

\* SIP Timer B/F (in seconds): 4

Minimum TLS Version: Use Global Setting

Credential name:

Securable: ☐

Call Detail Recording: both

Commit Cancel

Help ?

## 6.4. Add Entity Links

A SIP trunk between Session Manager and a telephony system is described by an Entity Link. The Entity Link was created to Communication Manager, to add an Entity Link, navigate to **Routing → Entity Links** in the left-hand navigation pane (**Section 6.1**) and click on the **New** button in the right pane (not shown). In the new right pane that appears (shown below), fill in the following:

- **Name** – Enter a descriptive name.
- **SIP Entity 1** – Select the Session Manager SIP Entity.
- **Protocol** – Select the transport protocol used for this link. This must match the protocol used in the Communication Manager signaling group in Section 5.5.
- **Port** – Port number on which Session Manager will receive SIP requests from the far-end. For the Communication Manager Entity Link, this must match the one defined on the Communication Manager signaling group in Section 5.5.
- **SIP Entity 2** – Select the name of the other system. For the Communication Manager Entity Link, select the Communication Manager SIP Entity defined in Section 6.4.
- **Port** – Port number on which the other system receives SIP requests from Session Manager. For the Communication Manager Entity Link, this must match the one defined on the Communication Manager signaling group in Section 5.5.
- **Connection Policy** – Select trusted from pull-down menu.

Click **Commit** to save. The following screen illustrates the Entity Link to Communication Manager. The protocol and ports defined here must match the values used on the Communication Manager signaling group configuration in **Section 5.5**.

Home / Elements / Routing / Entity Links

Entity Links

Commit Cancel Help ?

1 Item Filter: Enable

Name	SIP Entity 1	Protocol	Port	SIP Entity 2
* ASM70_ACM_Trunk1_5	* ASM70A	TLS	* 5061	* ACM-Trunk1-Private

Select : All, None

## 6.5. Add Routing Policies

Routing Policy describes the conditions under which calls will be routed to the SIP Entities specified in **Section 6.4**. Routing Policy must be added for Communication Manager. To add a Routing Policy, navigate to **Routing → Routing Policies** in the left-hand navigation pane (**Section 6.1**) and click on the **New** button in the right pane (not shown). In the new right pane that appears (shown below), fill in the following:

In the **General** section, enter the following values. Use default values for all remaining fields.

- Name – Enter a descriptive name.
- Notes – Add a brief description (optional).

In the **SIP Entity as Destination** section, click **Select**. The **SIP Entity List** page opens (not shown). Select the appropriate SIP Entity to which this Routing Policy applies and click **Select**. The selected SIP Entity displays on the **Routing Policy Details** page as shown below. Use default values for remaining fields. Click **Commit** to save.

The following screen shows the Routing Policy for Communication Manager.

Home / Elements / Routing / Routing Policies

Help ?

CommitCancel

## Routing Policy Details

General

\* Name: To-CM-Trunk1

Disabled: ☐

\* Retries: 0

Notes:

SIP Entity as Destination

Select

Name	FQDN or IP Address	Type	Notes
ACM-Trunk1-Private	10.33.1.6	CM	Private SIP trunk for SIP phone

Time of Day

AddRemoveView Gaps/Overlaps

1 Item Filter: Enable

<input type="checkbox"/>	Ranking	Name	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start Time	End Time	Notes
<input type="checkbox"/>	0	24/7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	00:00	23:59	Time Range 24/7

Select : All, None

## 6.6. Add Dial Patterns

Dial Patterns are needed to route calls through Session Manager. For the compliance test, Dial Patterns were needed to route calls from Communication Manager to the SIP endpoint and vice versa. Dial Patterns define which Route Policy will be selected for a particular call based on the dialed digits, destination domain and originating location. To add a Dial Pattern, navigate to **Routing → Dial Patterns** in the left-hand navigation pane (**Section 6.1**) and click on the **New** button in the right pane (not shown). In the new right pane that appears (shown below), fill in the following:

In the **General** section, enter the following values. Use default values for all remaining fields.

- **Pattern** – Enter a dial string that will be matched against the Request-URI of the call.
- **Min** – Enter a minimum length used in the match criteria.
- **Max** – Enter a maximum length used in the match criteria.
- **SIP Domain** – Enter the destination domain used in the match criteria.
- **Notes** – Add a brief description (optional).

In the **Originating Locations and Routing Policies** section, click **Add**. From the **Originating Locations and Routing Policy List** that appears (not shown), select the appropriate originating location for use in the match criteria. Lastly, select the Routing Policy from the list that will be used to route all calls that match the specified criteria. Click **Select**. Default values can be used for the remaining fields. Click **Commit** to save.

The first example shows the pattern (4 digits) that begins with “34” and has a destination domain of “bvwddev.com” from “All” location use route policy “ACM-Trunk1-Private”.



## Dial Pattern Details

### General

\* Pattern:

\* Min:

\* Max:

Emergency Call: ☐


Emergency Priority:

Emergency Type:

SIP Domain:

Notes:

### Originating Locations and Routing Policies

 2 Items Filter: [Enable](#)

<input type="checkbox"/>	Originating Location Name ▲	Originating Location Notes	Routing Policy Name	Rank	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes
<input type="checkbox"/>	-ALL-		To-CM-Trunk1	0	<input type="checkbox"/>	ACM-Trunk1-Private	

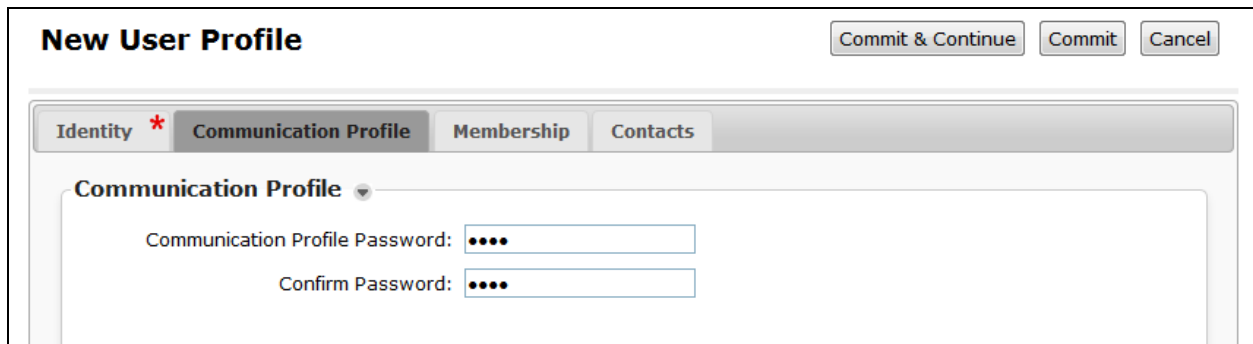
## 6.7. Add a SIP User

A SIP user must be added for Talkphone VoIP station. Click **User Management** → **Manage Users** → **New** (not shown) and configure the following in the **Identity** tab.

- **First Name** – Enter an identifying name
- **Last Name** – Enter an identifying name
- **Login Name** – Enter the extension number followed by the domain, in this case “3408@bvwdev.com”

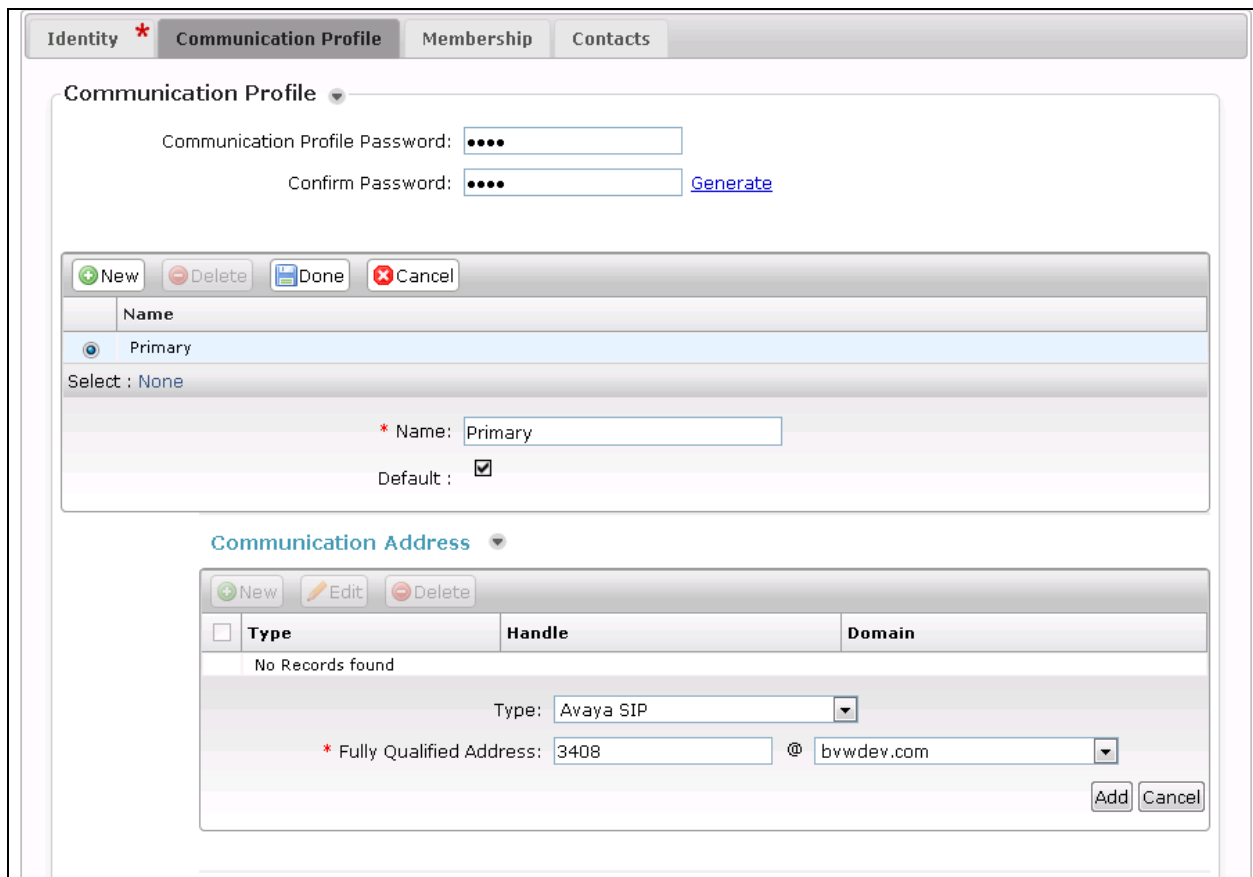
The screenshot shows a web interface for adding a new user profile. The breadcrumb trail at the top is 'Home / Users / User Management / Manage Users'. The page title is 'New User Profile'. There are three buttons at the top right: 'Commit & Continue', 'Commit', and 'Cancel'. Below the title is a tabbed interface with four tabs: 'Identity' (selected and marked with a red asterisk), 'Communication Profile', 'Membership', and 'Contacts'. Under the 'Identity' tab, there is a 'User Provisioning Rule' dropdown menu. Below that is the 'Identity' section, which contains several input fields: 'Last Name' (with a red asterisk) containing 'SIP', 'Last Name (Latin Translation)' containing 'SIP', 'First Name' (with a red asterisk) containing '3408', 'First Name (Latin Translation)' containing '3408', 'Middle Name' (empty), 'Description' (empty text area), 'Login Name' (with a red asterisk) containing '3408@bvwdev.com', 'Email Address' (empty), 'User Type' (dropdown menu showing 'Basic'), 'Password' (empty), and 'Confirm Password' (empty).

Click the **Communication Profile** tab and in the **Communication Profile Password** and **Confirm Password** fields, enter a numeric password. This will be used to register the Talkaphone VoIP station.



The screenshot shows the 'New User Profile' window with the 'Communication Profile' tab selected. The 'Identity' tab is marked with a red asterisk. The 'Communication Profile' section contains two password fields: 'Communication Profile Password' and 'Confirm Password', both with masked input (dots). At the top right, there are three buttons: 'Commit & Continue', 'Commit', and 'Cancel'.

In the **Communication Address** section select **New**; for **Type** select **Avaya SIP** from the drop down list. In the **Fully Qualified Address** field enter the extension number and select the appropriate Domain from the drop down list, in this case the SIP domain is “bvwddev.com”. Click **Add** when done.



The screenshot shows the 'New User Profile' window with the 'Communication Address' section expanded. The 'Communication Profile' section is visible above it, showing the password fields and a 'Generate' link. The 'Communication Address' section has a sub-header with 'New', 'Delete', 'Done', and 'Cancel' buttons. Below this is a table with columns 'Type', 'Handle', and 'Domain'. The table is currently empty, showing 'No Records found'. Below the table, there is a form for adding a new address. The 'Type' dropdown is set to 'Avaya SIP'. The 'Fully Qualified Address' field is split into two parts: a text input for the extension number '3408' and a dropdown for the domain 'bvwddev.com'. There are 'Add' and 'Cancel' buttons at the bottom right of the form.

Type	Handle	Domain
No Records found		

Type: Avaya SIP

\* Fully Qualified Address: 3408 @ bvwddev.com

Add Cancel

Select the check box for **Session Manager Profile** and configure the **Primary Session Manager, Origination Sequence, Termination Sequence** and **Home Location**, from the respective drop down lists.

☒ **Session Manager Profile** ▼

**SIP Registration**

\* Primary Session Manager

Q ASM70A

Primary	Secondary	Maximum
13	0	13

Secondary Session Manager

Q

Survivability Server

Q

Max. Simultaneous Devices

1 ▼

Block New Registration  
When Maximum Registrations  
Active?

☐

**Application Sequences**

Origination Sequence

SEQ\_InteropCM70 ▼

Termination Sequence

SEQ\_InteropCM70 ▼

**Call Routing Settings**

\* Home Location

BvwDevSIL ▼

Conference Factory Set

(None) ▼

**Call History Settings**

Enable Centralized Call  
History?

☐

Select the check box for **CM Endpoint Profile** and configure as follows:

- **System** – Select the relevant Communication Manager Element from the drop down list
- **Profile Type** – Select “Endpoint” from the drop down list
- **Extension** – Enter the required extension number, in this case “3408”
- **Template** – Select “9641SIP\_DEFAULT\_CM\_7\_1” from the drop down list
- **Port** – The “IP” is auto filled out by the system

CM Endpoint Profile

\* System

interopcm

\* Profile Type

Endpoint

Use Existing Endpoints

☐

\* Extension

3408

Endpoint Editor

\* Template

9641SIP\_DEFAULT\_CM\_7\_1

Set Type

9641SIP

Security Code

Port

IP

Voice Mail Number

Preferred Handle

(None)

Calculate Route Pattern

☐

Sip Trunk

aar

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

☒

Allow H.323 and SIP Endpoint Dual Registration

☐

Continuing from above, click on **Endpoint Editor**. Click on the **Feature Options** tab, the screen shot below shows the Feature options that were used during compliance testing.

General Options (G) *		Feature Options (F)		Site Data (S)		Abbreviated Call Dialing (A)		Enhanced Call Fwd (E)																			
Button Assignment (B)		Profile Settings (P)		Group Membership (M)																							
Active Station Ringing	single	Auto Answer	none																								
MWI Served User Type	None	Coverage After Forwarding																									
Per Station CPN - Send Calling Number	None	Display Language	english																								
IP Phone Group ID		Hunt-to Station																									
Remote Soft Phone Emergency Calls	as-on-local	Loss Group	19																								
LWC Reception	spe	Survivable CDR	internal																								
AUDIX Name	None	Time of Day Lock Table	None																								
EC500 State	enabled	Voice Mail Number																									
Short/Prefixed Registration Allowed	default																										
Music Source																											
<b>Features</b> <table border="0"> <tr> <td><input type="checkbox"/> Always Use</td> <td><input type="checkbox"/> Idle Appearance Preference</td> </tr> <tr> <td><input type="checkbox"/> IP Audio Hairpinning</td> <td><input type="checkbox"/> IP SoftPhone</td> </tr> <tr> <td><input type="checkbox"/> Bridged Call Alerting</td> <td><input checked="" type="checkbox"/> LWC Activation</td> </tr> <tr> <td><input type="checkbox"/> Bridged Idle Line Preference</td> <td><input type="checkbox"/> CDR Privacy</td> </tr> <tr> <td><input checked="" type="checkbox"/> Coverage Message Retrieval</td> <td><input checked="" type="checkbox"/> Precedence Call Waiting</td> </tr> <tr> <td><input type="checkbox"/> Data Restriction</td> <td><input checked="" type="checkbox"/> Direct IP-IP Audio Connections</td> </tr> <tr> <td><input checked="" type="checkbox"/> Survivable Trunk Dest</td> <td><input type="checkbox"/> H.320 Conversion</td> </tr> <tr> <td><input type="checkbox"/> Bridged Appearance Origination Restriction</td> <td><input type="checkbox"/> IP Video</td> </tr> <tr> <td><input checked="" type="checkbox"/> Restrict Last Appearance</td> <td><input type="checkbox"/> Per Button Ring Control</td> </tr> </table>										<input type="checkbox"/> Always Use	<input type="checkbox"/> Idle Appearance Preference	<input type="checkbox"/> IP Audio Hairpinning	<input type="checkbox"/> IP SoftPhone	<input type="checkbox"/> Bridged Call Alerting	<input checked="" type="checkbox"/> LWC Activation	<input type="checkbox"/> Bridged Idle Line Preference	<input type="checkbox"/> CDR Privacy	<input checked="" type="checkbox"/> Coverage Message Retrieval	<input checked="" type="checkbox"/> Precedence Call Waiting	<input type="checkbox"/> Data Restriction	<input checked="" type="checkbox"/> Direct IP-IP Audio Connections	<input checked="" type="checkbox"/> Survivable Trunk Dest	<input type="checkbox"/> H.320 Conversion	<input type="checkbox"/> Bridged Appearance Origination Restriction	<input type="checkbox"/> IP Video	<input checked="" type="checkbox"/> Restrict Last Appearance	<input type="checkbox"/> Per Button Ring Control
<input type="checkbox"/> Always Use	<input type="checkbox"/> Idle Appearance Preference																										
<input type="checkbox"/> IP Audio Hairpinning	<input type="checkbox"/> IP SoftPhone																										
<input type="checkbox"/> Bridged Call Alerting	<input checked="" type="checkbox"/> LWC Activation																										
<input type="checkbox"/> Bridged Idle Line Preference	<input type="checkbox"/> CDR Privacy																										
<input checked="" type="checkbox"/> Coverage Message Retrieval	<input checked="" type="checkbox"/> Precedence Call Waiting																										
<input type="checkbox"/> Data Restriction	<input checked="" type="checkbox"/> Direct IP-IP Audio Connections																										
<input checked="" type="checkbox"/> Survivable Trunk Dest	<input type="checkbox"/> H.320 Conversion																										
<input type="checkbox"/> Bridged Appearance Origination Restriction	<input type="checkbox"/> IP Video																										
<input checked="" type="checkbox"/> Restrict Last Appearance	<input type="checkbox"/> Per Button Ring Control																										

## 7. Configure VOIP-600 Series IP Call Stations

This section covers the configuration of the Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations. The following procedures are covered:

1. Launching the Web Administration Interface
2. Network Configuration
3. SIP Configuration
4. Configure Audio Settings
5. Configure Call Parameters
6. Configure Buttons

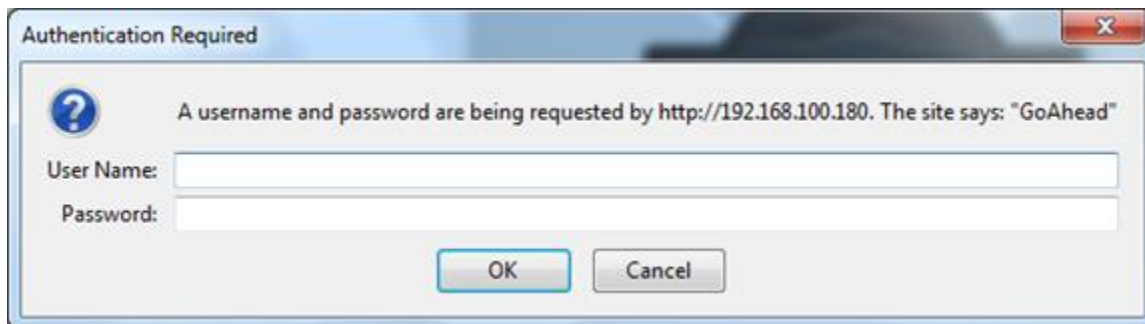
For more information on configuring other features of the Talkphone IP Call Stations, refer to [10].

### 7.1. Launching the Web Administration Interface

The Talkphone IP Call Stations are pre-configured with the following default values:

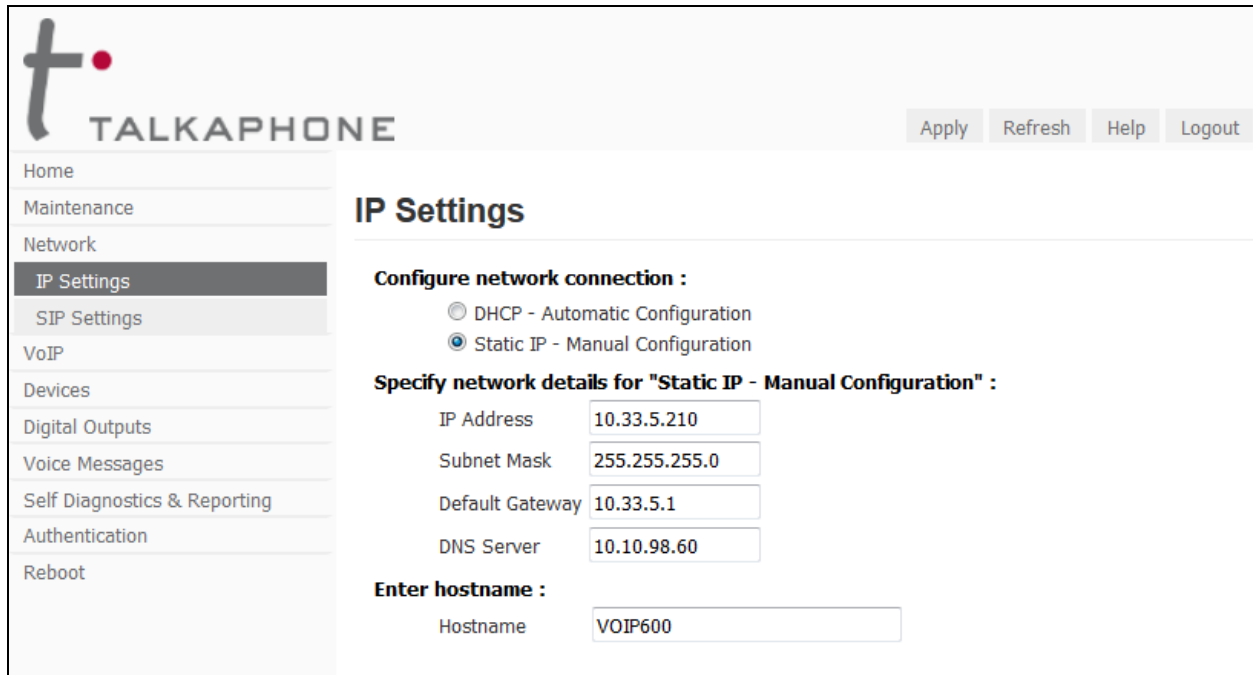
- **IP Address:** 192.168.1.10
- **Username:** admin
- **Password:** admin@123

Ensure that the administration PC and Talkphone IP Call Station are connected to the LAN. Open a web browser and enter the IP address of the Talkphone IP Call Station in the URL field. The browser prompts for authentication. Log in with the appropriate credentials above.



## 7.2. Network Configuration

To modify the IP network configuration of the Talkphone IP Call Station, navigate to the **Network → IP Settings** page. Configure the IP settings so that it conforms to the customer network requirements. Click **Apply** when done.



The screenshot shows the Talkphone web interface for IP Settings. The left sidebar contains a navigation menu with options: Home, Maintenance, Network, IP Settings (highlighted), SIP Settings, VoIP, Devices, Digital Outputs, Voice Messages, Self Diagnostics & Reporting, Authentication, and Reboot. The main content area is titled 'IP Settings' and includes a 'Configure network connection' section with radio buttons for 'DHCP - Automatic Configuration' and 'Static IP - Manual Configuration' (selected). Below this is a 'Specify network details for "Static IP - Manual Configuration"' section with input fields for IP Address (10.33.5.210), Subnet Mask (255.255.255.0), Default Gateway (10.33.5.1), and DNS Server (10.10.98.60). At the bottom, there is an 'Enter hostname' section with a text input field containing 'VOIP600'. In the top right corner, there are buttons for 'Apply', 'Refresh', 'Help', and 'Logout'.

## 7.3. SIP Configuration

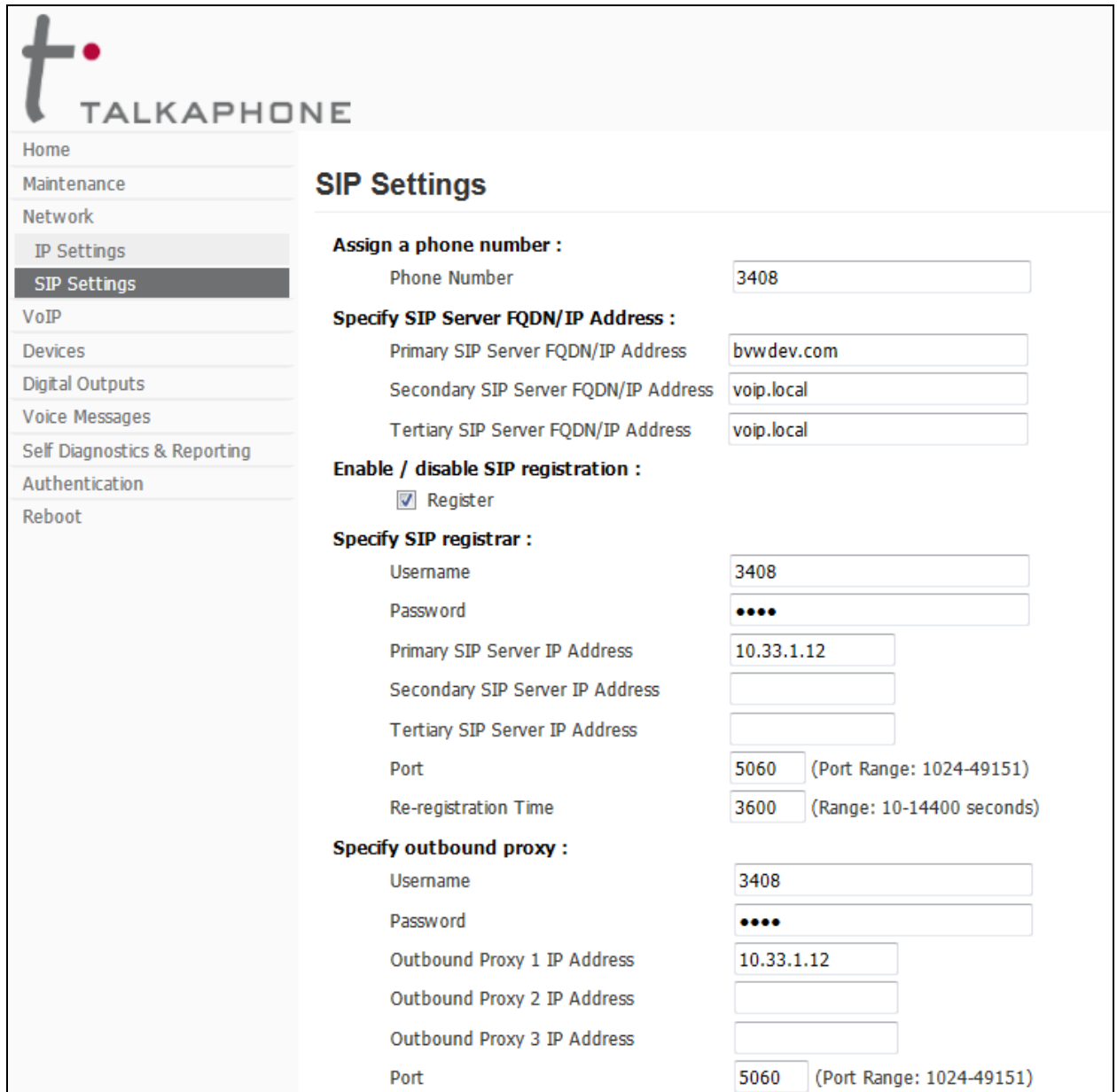
Navigate to **Network → SIP Settings** to configure the SIP setting of the Talkphone IP Call Station. Configure the following parameters.

- **Assign a phone number**
  - **Phone Number** – enter the number “3408” as configured in **Section 6.7**
- **Specify SIP Server FQDN/IP Address**
  - **Primary SIP Server** – enter the SIP domain “bvwddev.com” as configured in **Section 6.1**
- **Under Enable / disable SIP registration**
  - **Register** – Select the checkbox
- **Specify SIP registrar**
  - **Username** – enter the username “3408” as configured in **Section 6.7**
  - **Password** – enter the password of SIP user “3408” as configured in **Section 6.7**. This is the ‘Communication Profile’ password.
  - **Primary SIP Server IP Address** – enter the SIP entity IP address of Session Manager, in this case that is “10.33.1.12”
  - **Port** – leave it at the default to use the default port “5060”
  - **Re-registration time** – leave it at the default value



- **Specify outbound proxy**
  - **Username** – enter the username “3408”
  - **Password** – enter the password of the username “3408”
  - **Outbound Proxy IP Address** – enter the IP address of Session Manager

Click **Apply** button to have on the completion.



**TALKAPHONE**

Home  
Maintenance  
Network  
IP Settings  
**SIP Settings**  
VoIP  
Devices  
Digital Outputs  
Voice Messages  
Self Diagnostics & Reporting  
Authentication  
Reboot

### SIP Settings

**Assign a phone number :**

Phone Number

**Specify SIP Server FQDN/IP Address :**

Primary SIP Server FQDN/IP Address

Secondary SIP Server FQDN/IP Address

Tertiary SIP Server FQDN/IP Address

**Enable / disable SIP registration :**

☒ Register

**Specify SIP registrar :**

Username

Password

Primary SIP Server IP Address

Secondary SIP Server IP Address

Tertiary SIP Server IP Address

Port  (Port Range: 1024-49151)

Re-registration Time  (Range: 10-14400 seconds)

**Specify outbound proxy :**

Username

Password

Outbound Proxy 1 IP Address

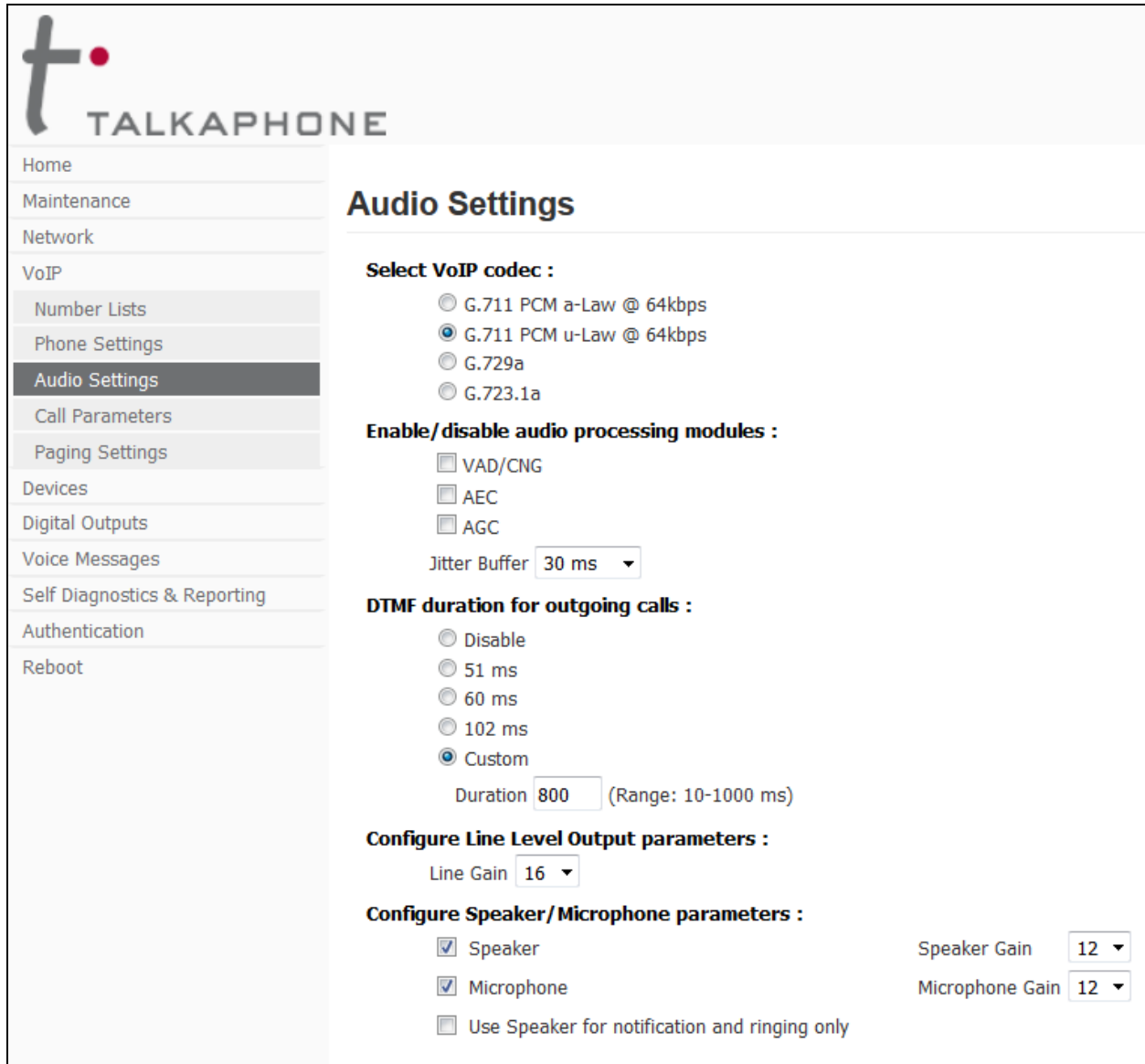
Outbound Proxy 2 IP Address

Outbound Proxy 3 IP Address

Port  (Port Range: 1024-49151)

## 7.4. Configure Audio Settings

Navigate to **VoIP → Audio Settings** to configure the preferred codec, outbound DTMF duration, and microphone and speaker parameters. For the compliance test, the **DTMF duration for outgoing calls** was set to **Custom** with **Duration** of *800 ms*, this is required so that a user can navigate through Avaya Aura® Messaging system using DTMF tones. In addition, the Speaker Gain can be adjusted to control the volume. All other fields were left at the default values. Click **Apply** when done.



The screenshot shows the TALKPHONE web interface. On the left is a navigation menu with the following items: Home, Maintenance, Network, VoIP, Number Lists, Phone Settings, Audio Settings (highlighted), Call Parameters, Paging Settings, Devices, Digital Outputs, Voice Messages, Self Diagnostics & Reporting, Authentication, and Reboot. The main content area is titled "Audio Settings" and contains several configuration sections:

- Select VoIP codec :**
  - ☐ G.711 PCM a-Law @ 64kbps
  - ☒ G.711 PCM u-Law @ 64kbps
  - ☐ G.729a
  - ☐ G.723.1a
- Enable/disable audio processing modules :**
  - ☐ VAD/CNG
  - ☐ AEC
  - ☐ AGC
- Jitter Buffer: 30 ms (dropdown)
- DTMF duration for outgoing calls :**
  - ☐ Disable
  - ☐ 51 ms
  - ☐ 60 ms
  - ☐ 102 ms
  - ☒ Custom
- Duration: 800 (Range: 10-1000 ms)
- Configure Line Level Output parameters :**
  - Line Gain: 16 (dropdown)
- Configure Speaker/Microphone parameters :**
  - ☒ Speaker
  - ☒ Microphone
  - ☐ Use Speaker for notification and ringing only
- Speaker Gain: 12 (dropdown)
- Microphone Gain: 12 (dropdown)

## 7.5. Configure Call Parameters

Navigate to **VoIP → Call Parameters** to view and customize any of the call parameters, such as **Local Interdigit Timer** in the **Configure required timers**, which dictates how long to wait before initiating a call after the user dials the digits, or the **Call conversation Timer**, which specifies how long an emergency call should remain active, unless the far-end drops the call. The following screen shows the default values for the call parameters.

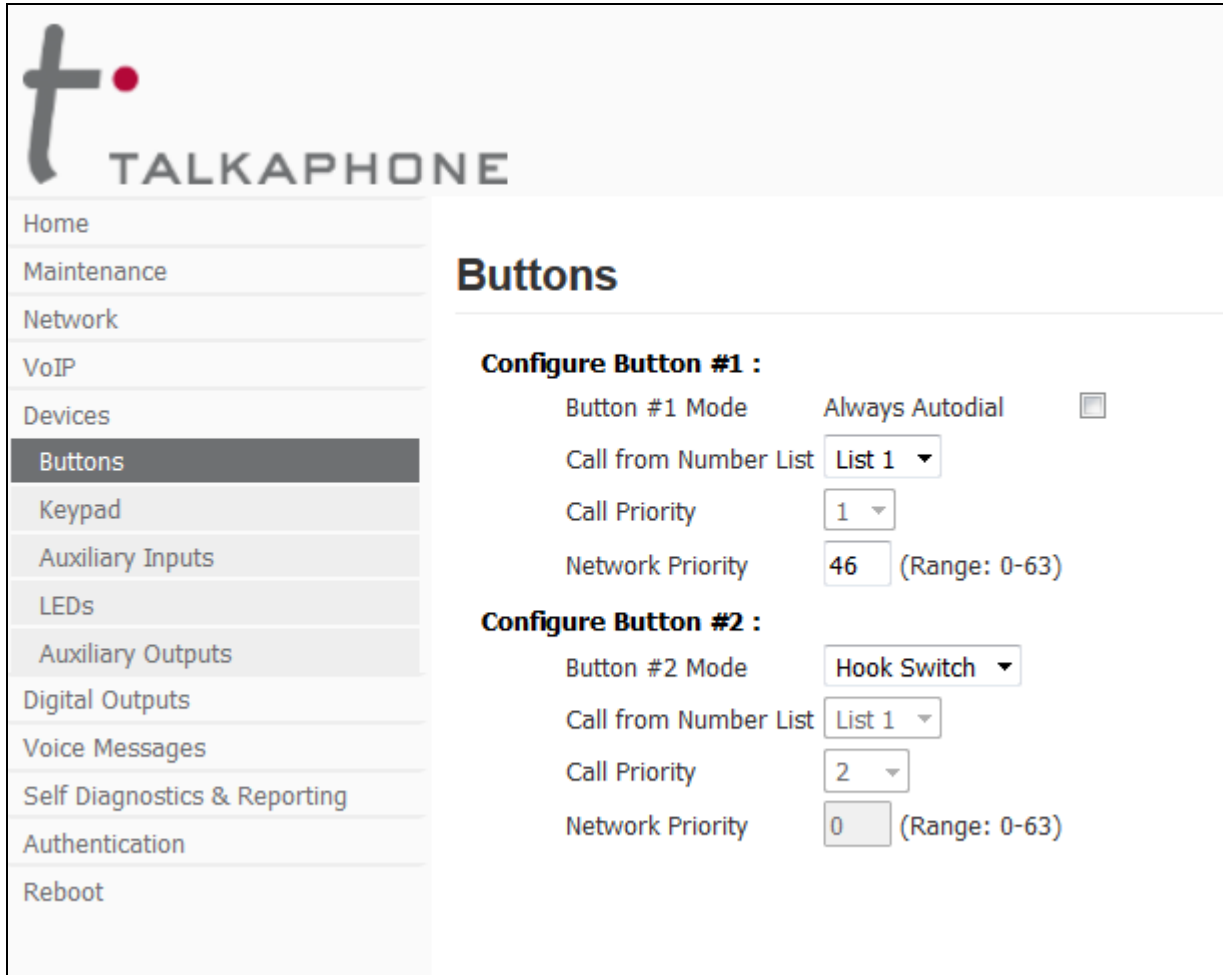
**Note:** After a number is dialed on the Talkphone IP Call Station, the **Local Interdigit Timer** must expire before the call is initiated. The minimum value for the **Local Interdigit Timer** is 5 secs.

The screenshot shows the 'Call Parameters' configuration page in the Talkphone web interface. The left sidebar contains a navigation menu with the following items: Home, Maintenance, Network, VoIP (selected), Number Lists, Phone Settings, Audio Settings, Call Parameters (highlighted), Paging Settings, Devices, Digital Outputs, Voice Messages, Self Diagnostics & Reporting, Authentication, and Reboot. The main content area is titled 'Call Parameters' and contains several sections:

- Enable/disable call progress tones :** Radio buttons for 'Enable' (selected) and 'Disable'.
- Specify key to answer and/or disconnect a call from the Remote Side :**
  - To disconnect a call, press: '# key' (dropdown menu)
  - To answer a call, press: 'Disable' (dropdown menu)
- Enable/disable "Welcome Tone" :** Radio buttons for 'Enable' (selected) and 'Disable'.
- Configure required timers :**
  - Provisional Timer: 5 (Range: 5-20 seconds)
  - Ringer Timer: 5 (Range: 1-12 rings)
  - Hang-up Timer: 0.5 (Range: 0.5-3.0 seconds)
  - Local Interdigit Timer: 5 (Range: 5-20 seconds)
  - Remote Interdigit Timer: 5 (Range: 5-20 seconds)
- Configure optional timers :**
  - ☒ Call conversation Timer: 120 (Range: 1-360 min.)
  - ☒ Ringback or Busy Timer: 15 (Range: 1-60 seconds)
  - ☒ Hang-up On Silence Timer: 30 (Range: 10-360 seconds)

## 7.6. Configure Buttons

Navigate to **Devices** → **Buttons** to verify the appropriate settings. For the compliance test, the **Buttons** were configured as shown below. The button #2 (black button) was configured as “Hook Switch” to initial an outbound call and answer an inbound call.



**TALKPHONE**

- Home
- Maintenance
- Network
- VoIP
- Devices
- Buttons**
- Keypad
- Auxiliary Inputs
- LEDs
- Auxiliary Outputs
- Digital Outputs
- Voice Messages
- Self Diagnostics & Reporting
- Authentication
- Reboot

### Buttons

**Configure Button #1 :**

Button #1 Mode: Always Autodial ☐

Call from Number List: List 1 ▼

Call Priority: 1 ▼

Network Priority: 46 (Range: 0-63)

**Configure Button #2 :**

Button #2 Mode: Hook Switch ▼

Call from Number List: List 1 ▼

Call Priority: 2 ▼

Network Priority: 0 (Range: 0-63)

## 8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of the Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations with Session Manager.

The **SIP Settings** screen on the Talkphone IP Call Station also shows the **Registration Status** with the green circle to indicate the registration status successfully.

The screenshot displays the 'SIP Settings' web interface. On the left is a navigation menu with options: Home, Maintenance, Network, IP Settings, SIP Settings (highlighted), VoIP, Devices, Digital Outputs, Voice Messages, Self Diagnostics & Reporting, Authentication, and Reboot. The main content area is titled 'SIP Settings' and contains several sections:

- Assign a phone number :** A text box for 'Phone Number' containing '3408'.
- Specify SIP Server FQDN/IP Address :** Three text boxes for 'Primary SIP Server FQDN/IP Address' (bwwdev.com), 'Secondary SIP Server FQDN/IP Address' (voip.local), and 'Tertiary SIP Server FQDN/IP Address' (voip.local).
- Enable / disable SIP registration :** A checkbox labeled 'Register' which is checked.
- Specify SIP registrar :** Fields for 'Username' (3408), 'Password' (masked with dots), 'Primary SIP Server IP Address' (10.33.1.12), 'Secondary SIP Server IP Address' (empty), 'Tertiary SIP Server IP Address' (empty), 'Port' (5060, with a note '(Port Range: 1024-49151)'), and 'Re-registration Time' (3600, with a note '(Range: 10-14400 seconds)').
- Specify outbound proxy :** Fields for 'Username' (3408), 'Password' (masked with dots), 'Outbound Proxy 1 IP Address' (10.33.1.12), 'Outbound Proxy 2 IP Address' (empty), 'Outbound Proxy 3 IP Address' (empty), and 'Port' (5060, with a note '(Port Range: 1024-49151)').
- Registration status :** A green circle icon followed by the text 'Primary registrar is active : Registered as 3408@bwwdev.com'.

From the Talkphone IP station makes an outbound call to a local endpoint and verifies 2-way audio and proper call termination.

## 9. Conclusion

These Application Notes have described the administration steps required to integrate the Talkphone VOIP-500 Series and VOIP-600 Series IP Call Stations with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. Talkphone IP Call Stations successfully registered with Avaya Aura® Session Manager and basic telephony features were verified. All test cases passed with observations noted in **Section 2.2**.

## 10. Additional References

This section references the Avaya and Talkphone documentation relevant to these Application Notes. The following Avaya product documentation is available at [support.avaya.com](http://support.avaya.com).

- [1] Administering Avaya Aura® Communication Manager, Release 7.1, August 2017, Document Number 03-300509, Issue 1.
- [2] Avaya Aura® Communication Manager Feature Description and Implementation, Release 7.1, August 2017, Document Number 555-245-205, Issue 1.
- [3] Administering Avaya Aura® Session Manager, Release 7.1, Issue 1 August 2017
- [4] Administering Avaya Aura® System Manager, Release 7.1, Issue 1, August, 2017

The following Talkphone documentation may be found at [www.talkphone.com](http://www.talkphone.com).

- [5] *Talkphone VOIP-500 Series Phone Configuration and Operation Manual v3.0.2*, Rev 7/31/2012.
- [6] *Talkphone VOIP-600 Series Configuration and Operation Manual v1.0.1*, Rev 9/17/2014.

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