



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for VoxSpectrum DGVox Voice Logger with Avaya Aura™ Communication Manager Using Single Step Conference – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for VoxSpectrum DGVox Voice Logger to interoperate with Avaya Aura™ Communication Manager using Avaya Aura™ Application Enablement Services. VoxSpectrum DGVox Voice Logger is a call recording solution. In the compliance testing, VoxSpectrum DGVox Voice Logger used the Telephony Services Application Programming Interface from Avaya Aura™ Application Enablement Services to monitor stations on Avaya Aura™ Communication Manager, and used the single Step Conference feature via the Avaya Aura™ Application Enablement Services Device, Media, and Call Control interface to capture the media associated with the monitored stations for call recording.

Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

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# 1. Introduction

These Application Notes describe the configuration used to enable the VoxSpectrum DGVox Voice Logger to interoperate with Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services. The DGVox Voice Logger voice recorder offers various methods of voice recording. For the purpose of the tests described by these Application Notes, the Avaya Aura™ Communication Manager Single Step Conference facility was used.

## 1.1. Interoperability Compliance Testing

The following tests were performed as part of the compliance testing:

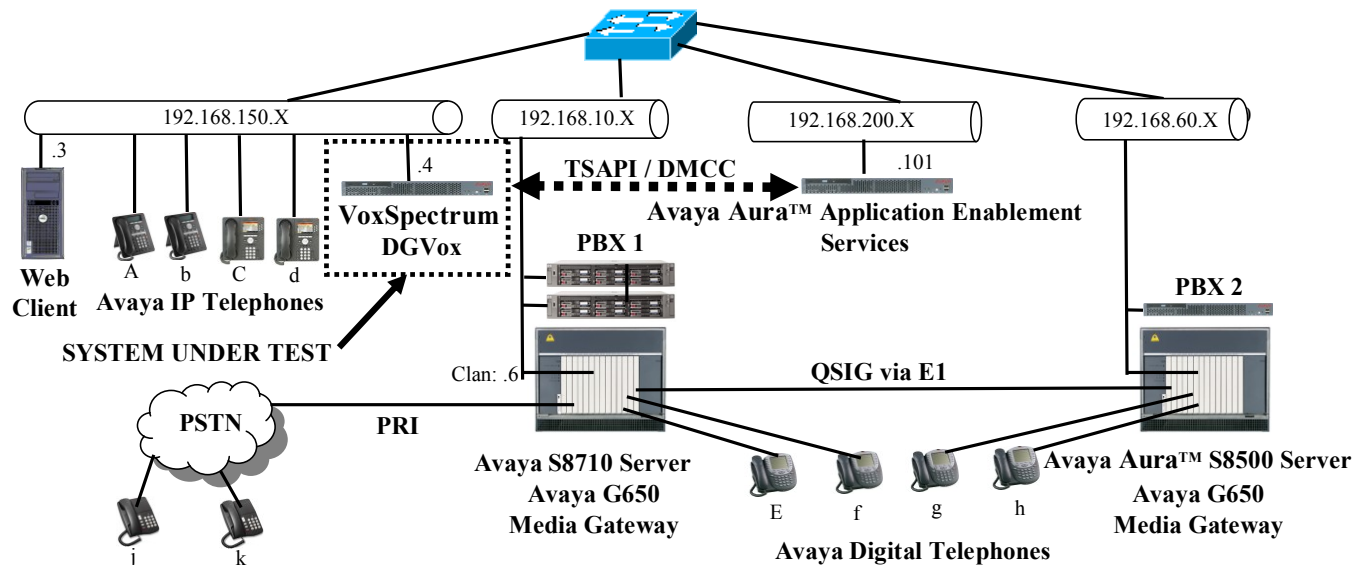
- The following test scenarios were used to test the various DGVox Voice Logger features:
  - Basic call
  - Hold/retrieve
  - Transfer / Blind transfer
  - Conference
  - Hunt group calls
  - Calls to/from bridged appearances
- DGVox Voice Logger's robustness was tested by verifying its ability to recover from interruptions to its external connections including:
  - The LAN connection between the DGVox Voice Logger and the network
  - The connection of the PBX to the network
- DGVox Voice Logger's robustness was further tested by verifying ability to recover from power interruptions to the following components:
  - The DGVox Voice Logger.
  - Avaya Aura™ Communication Manager to which the DGVox Voice Logger is attached.

## 1.2. Support

Support for DGVox Voice Logger is available at: [support@voxspectrum.com](mailto:support@voxspectrum.com).

## 2. Reference Configuration

The following diagram shows the configuration used for conformance testing.



**Figure 1: DGVoX Voice Logger Test Configuration**

In the above diagram, the DGVoX Voice Logger records voice conversations from telephones attached to PBX 1. DGVoX Voice Logger receives events from the Avaya Aura™ Application Enablement Services server when the state of calls associated with PBX 1 change, and informs the DGVoX Voice Logger of these transitions. The DMCC service provided by Avaya Aura™ Application Enablement Services is used to monitor call activity associated with PBX 1. The DGVoX Voice Logger is attached to PBX 1 via the local area network. PBX 2 is included in the configuration solely to test the ability to monitor conversations which traverse a trunk to a networked PBX.

The Web Client provides a web browser-based interface to administer the voice recording activity.

When a call is to be recorded, the DGVoX Voice Logger initiates a single-step conference with the station being monitored using one of its virtual stations, and thus includes itself in the call which is to be recorded. The voice stream for such calls is received via the LAN interface to PBX 1.

The PBX 2 system is attached to PBX 1 via an IP/QSIG interface, and is used as a networked PBX system. This allows endpoints which are attached to a networked PBX (g, h) to be included in the test.

The telephones depicted in these Application Notes are designated by an upper case letter if configured to be monitored by the DGVox Voice Logger. A lower case letter designates those terminals which have been configured to not be monitored or are possibly unable to be monitored.

The following table contains additional information about each of the telephones shown in Figure 1. A “\*” in the “Monitored” column indicated that the telephone is monitored by the DGVox Voice Logger. Note that one Virtual CTI Station is required for each conversation to be monitored, as these are used by DGVox Voice Logger to create single step conferences with the stations to be monitored. Since a Virtual CTI Station can be used to monitor only one call at a time, the number of virtual stations must be equal to the maximum number of simultaneous monitored calls. Note that calls between parties which are both monitored and conferences among monitored participants require additional virtual stations.

Phone	Monitored	Model	Extension
A	*	Avaya 1616	10071
b		Avaya 1608	10062
C	*	Avaya 9640G	10093
d		Avaya 9630G	10184
E	*	Avaya 2410	10007
f		Avaya 2410	10008
g		Avaya 2420	60007
h		Avaya 2420	60008
j		N/A	069 xxxx 6176
k		N/A	069 xxxx 6630
x		CTI Station	11401
y		CTI Station	11402
z		CTI Station	11403

**Table 1: Device Monitor Configuration**

### 3. Equipment and Software Validated

Software Component	Version
Avaya Aura™ Communication Manager	5.2.1 R015x.02.1.016.4 Patch: 17774
Avaya Aura™ Application Enablement Services	4.2.2
Avaya TN2312BP IP Server Interface	HW11/FW049
Avaya TN799DP Control LAN Interface	HW01/FW032
Avaya TN2302AP IP Media Processor	HW20/FW120
Avaya 1608 IP Telephone	3.0
Avaya 1616 IP Telephone	3.0
Avaya 9630G IP Telephone	3.02
Avaya 9640G IP Telephone	3.02
VoxSpectrum DGVoX Voice Logger platform OS MS Windows XP Professional	SP3
VoxSpectrum DGVoX Voice Logger	6.9

**Table 2: Hardware/Software Component Versions**

### 4. Configure Avaya Aura™ Communication Manager

The configuration information in this section covers only PBX 1 – the system to which the DGVoX Voice Logger is attached. The configuration and verification operations illustrated in this section were all performed using the Avaya Aura™ Communication Manager System Administration Terminal (SAT) via SSH port 5022.

The information provided in this section describes the configuration of Avaya Aura™ Communication Manager for this solution. For all other provisioning information such as installation and configuration, please refer to the product documentation in references [1] and [2].

The configuration of PSTN and QSIG trunks and associated switching is not described within this document.

## 4.1. Verify System Parameters Customer Options

Use the **display system-parameters customer options** command to verify that Avaya Aura™ Communication Manager is configured to meet the minimum requirements to run DGVoX Voice Logger. Those items shown in **bold** indicate required values or minimum capacity requirements. If these are not met in the configuration, please contact an Avaya representative for further assistance.

Parameter	Usage
Maximum Concurrently Registered IP Stations (p.2)	This must be sufficient to support the total number of IP stations used.
IP Stations (p.4)	This parameter must be set to “y”.
IP_API_A (p.10)	This parameter must be set to the number of virtual stations.
IP Phone (p.10)	This parameter must be set the number of IP stations plus the number of virtual stations.

**Table 3: System-Parameters Customer-Options Parameters**

display system-parameters customer-options		Page 2 of 11
OPTIONAL FEATURES		
IP PORT CAPACITIES		USED
Maximum Administered H.323 Trunks: 1000		50
<b>Maximum Concurrently Registered IP Stations: 18000</b>	<b>6</b>	
Maximum Administered Remote Office Trunks: 0		0
Maximum Concurrently Registered Remote Office Stations: 0		0
Maximum Concurrently Registered IP eCons: 0		0
Max Concur Registered Unauthenticated H.323 Stations: 0		0
Maximum Video Capable H.323 Stations: 0		0
Maximum Video Capable IP Softphones: 0		0
Maximum Administered SIP Trunks: 1000		30
Maximum Administered Ad-hoc Video Conferencing Ports: 0		0
Maximum Number of DS1 Boards with Echo Cancellation: 0		0
Maximum TN2501 VAL Boards: 10		1
Maximum Media Gateway VAL Sources: 0		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: 0		0

**Figure 2: System-Parameters Customer-Options Screen (p.2)**



display system-parameters customer-options	Page 4 of 11
OPTIONAL FEATURES	
Emergency Access to Attendant? y	<b>IP Stations? y</b>
Enable 'dadmin' Login? y	
Enhanced Conferencing? y	ISDN Feature Plus? n
Enhanced EC500? y	ISDN/SIP Network Call Redirection? y
Enterprise Survivable Server? n	ISDN-BRI Trunks? y
Enterprise Wide Licensing? n	ISDN-PRI? y
ESS Administration? n	Local Survivable Processor? n
Extended Cvg/Fwd Admin? n	Malicious Call Trace? n
External Device Alarm Admin? n	Media Encryption Over IP? n
Five Port Networks Max Per MCC? n	Mode Code for Centralized Voice Mail? n
Flexible Billing? n	
Forced Entry of Account Codes? n	Multifrequency Signaling? y
Global Call Classification? n	Multimedia Call Handling (Basic)? n
Hospitality (Basic)? y	Multimedia Call Handling (Enhanced)? n
Hospitality (G3V3 Enhancements)? y	Multimedia IP SIP Trunking? n
IP Trunks? y	
IP Attendant Consoles? n	

**Figure 3: System-Parameters Customer-Options Screen (p.4)**

display system-parameters customer-options

Page 10 of 11

MAXIMUM IP REGISTRATIONS BY PRODUCT ID

Product ID	Rel. Limit	Used
<b>IP_API_A</b>	<b>: 1000</b>	<b>3</b>
IP_API_B	: 1000	0
IP_API_C	: 1000	0
IP_Agent	: 1000	0
IP_IR A	: 1000	0
<b>IP_Phone</b>	<b>: 18000</b>	<b>7</b>
IP_ROMax	: 18000	0
IP_Soft	: 1000	0
IP_eCons	: 128	0
oneX_Comm	: 18000	0

**Figure 4: System-Parameters Customer-Options Screen (p.10)**

## 4.2. Configure Dial Plan

Use the **change dialplan analysis** command to specify that dialed strings which begin with “1”, or “6” are extensions. Include the strings “\*” for Trunk Access Codes. Include the string “0” as a prefix for PSTN calls.

change dialplan analysis						Page 1 of 12			
DIAL PLAN ANALYSIS TABLE									
Location: all						Percent Full: 0			
	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type
0		1	fac						
1		5	ext						
6		5	ext						
*		3	fac						

**Figure 5: Dialplan Analysis Screen**

### 4.3. Configure IP Network Interface

Use the **change node-names ip** command to configure IP address, as shown in the following table.

Parameter	Usage
clan	Enter the IP address of the CLAN interface of PBX1.

**Table 4: Node-Names IP Parameters**

change change node-names ip		Page 1 of 2
IP NODE NAMES		
Name	IP Address	
<b>clan</b>	<b>192.168.10.6</b>	
default	0.0.0.0	

**Figure 6: Node-Names IP Screen**

Use the **change ip-network-region <x>** command to designate a network region to be used for the IP telephone communications using the parameters shown in the following table, where <x> is the network region assigned to the clan IP interface.

Parameter	Usage
Name	Enter a name to identify the region.
Codec Set	Enter the number of the codec set defined in <b>Figure 8</b> .

**Table 5: IP-Network-Region Parameters**

```

change ip-network-region 1                                     Page 1 of 19
                                     IP NETWORK REGION
  Region: 1
Location: 1      Authoritative Domain: ffm.com
  Name: FFM
MEDIA PARAMETERS
  Codec Set: 1      Intra-region IP-IP Direct Audio: yes
                   Inter-region IP-IP Direct Audio: yes
                   UDP Port Min: 2048      IP Audio Hairpinning? n
                   UDP Port Max: 3329
DIFFSERV/TOS PARAMETERS      RTCP Reporting Enabled? y
  Call Control PHB Value: 46      RTCP MONITOR SERVER PARAMETERS
  Audio PHB Value: 46      Use Default Server Parameters? y
  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 7: IP-Network-Region Form, p.1**

Use the **change ip-codec-set** command to designate a codec set to be used. Testing was done with the G.711A codec.

Parameter	Usage
Audio Codec	Enter "G.711A".

**Table 6: IP-Codec-Set Parameters**

```

change 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.711A      n          2          20

```

**Figure 8: IP-Codec-Set Form**

## 4.4. Configure Interface to Avaya Aura™ Application Enablement Services

Use the **change ip-services** command to configure the interface to Avaya Aura™ Application Enablement Services, as shown in the following table.

Parameter	Usage
Service Type (p.1)	Enter “AESVCS”.
Enabled (p.1)	Enter “y” to enable the service.
Local Node (p.1)	Enter the IP node name for the CLAN interface.
Local Port (p.1)	Enter “8765”.
AE Services Server (p.4)	Enter the name that was assigned to the Avaya Aura™ Application Enablement Services server when it was installed.
Password (p.4)	Enter the password that was assigned to the switch connection, as shown in <b>Figure 17</b> .
Enabled (p.4)	Enter “y” to enable the connection.

**Table 7: IP Services Parameters**

change ip-services					Page	1 of	4
IP SERVICES							
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port		
AESVCS	y	clan	8765				

**Figure 9: IP Services Screen, p. 1**

change ip-services				Page	4 of	4
AE Services Administration						
Server ID	AE Services Server	Password	Enabled	Status		
1:	aes_server_1	XXXXXXXXXXXXXXXXXX	y	in use		

**Figure 10: IP Services Screen, p. 4**

Use the **add cti-link** command to add a CTI link for use by TSAPI. The link number can be any value between 1 and 64 which is not currently assigned to another link. The link number specified must be the same value that is used in the “Switch CTI Link Number” field shown in **Figure 20**. Use an unused extension as the value for the “Extension” parameter. The value chosen for the “Name” parameter is a matter of personal preference.

add cti-link 4	Page 1 of 3
CTI LINK	
CTI Link: 4	
Extension: 19996	
Type: ADJ-IP	
	COR: 1
Name: AES-devcon223-tsapi	

**Figure 11: CTI-link Screen**

## 4.5. Configure Stations

### 4.5.1. Configure H.323 IP Stations

Use the **add station** command to create an IP station for extensions A, b, C, and d in **Table 1**, using the values shown in the following table.

Parameter	Usage
Extension	Use an unused extension which is compatible with the dial plan.
Type	Use a type value which corresponds to the physical station to be used.
Name	Any alphanumeric string can be assigned as an extension name, which is used for identification purposes.
Security Code	Enter an appropriate numeric security code.

**Table 8: Configuration IP Stations**

add station 10071		Page 1 of 5
STATION		
<b>Extension:</b> 10071	Lock Messages? n	BCC: 0
<b>Type:</b> 1616	<b>Security Code:</b> 123456	TN: 1
Port: S00264	Coverage Path 1:	COR: 1
<b>Name:</b> extn 10071	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
	Time of Day Lock Table:	
Loss Group: 19	Personalized Ringing Pattern: 1	
	Message Lamp Ext: 10071	
Speakerphone: 2-way	Mute Button Enabled? y	
Display Language: english	Button Modules: 0	
Survivable GK Node Name:		
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? n	
	Customizable Labels? y	

**Figure 12: IP Station Screen**

### 4.5.2. Configure Virtual Stations

Use the **add station** command to create a station for each of the virtual stations listed in **Table 1**. Sufficient virtual stations must be created to monitor the maximum number of simultaneous monitored conversations. Note that the DGVox Voice Logger requires that these station numbers be sequential.

Parameter	Usage
Type	Enter “4620”.
Name	Any alphanumeric string can be assigned as an extension name.
Security Code	Enter a security code which identical to the extension.
IP Softphone	Enter “y”.

**Table 9: Virtual CTI Station Parameters**

add station 11401			Page 1 of 5
STATION			
Extension: 11401	Lock Messages? n	BCC: 0	
<b>Type: 4620</b>	<b>Security Code: 11401</b>	TN: 1	
Port: S00104	Coverage Path 1:	COR: 1	
<b>Name: CTI 11401</b>	Coverage Path 2:	COS: 1	
	Hunt-to Station:		
STATION OPTIONS			
	Time of Day Lock Table:		
Loss Group: 19	Personalized Ringing Pattern: 1		
	Message Lamp Ext: 11401		
Speakerphone: 2-way	Mute Button Enabled? y		
Display Language: english	Expansion Module? n		
Survivable GK Node Name:			
Survivable COR: internal	Media Complex Ext:		
Survivable Trunk Dest? y	<b>IP SoftPhone? y</b>		
	IP Video Softphone? n		
	Customizable Labels? y		

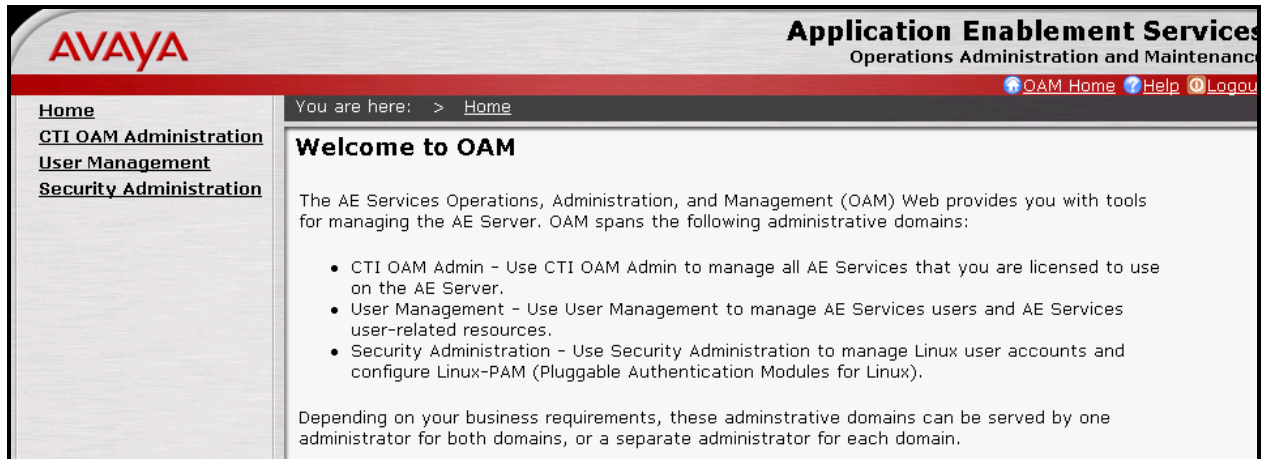
**Figure 13: Virtual CTI Station Screen**

## 5. Configure Avaya Aura™ Application Enablement Services

Avaya Aura™ Application Enablement Services is configured via a web browser by accessing the following URL:

<https://<AES server address>:8443/MVAP/>

Once the login screen appears, enter either the appropriate login ID/password for performing administrative activities or user management.



**Figure 14: Avaya Aura™ Application Enablement Services Welcome Screen**



After logging in, select “CTI OAM Admin” which displays the following screen. Verify that the Avaya Aura™ Application Enablement Services server installation has TSAPI and DMCC service licenses. If this is not the case, please contact an Avaya representative regarding licensing.

**AVAYA** **Application Enablement Services**  
Operations Administration and Maintenance

You are here: > [CTI OAM Home](#)

**Welcome to CTI OAM Screens**

[cust] Last login: Wed Dec 16 15:52:54 2009 from 192.168.150.4

IMPORTANT: AE Services must be restarted for administrative changes to fully take effect.  
Changes to the Security Database do not require a restart.

Service	Status	State	Licenses Purchased
ASAI Link Manager	Running	N/A	N/A
DMCC Service	Running	ONLINE	Yes
CVLAN Service	Running	ONLINE	Yes
DLG Service	Running	ONLINE	Yes
Transport Layer Service	Running	N/A	N/A
TSAPI Service	Running	ONLINE	Yes
SMS	N/A	N/A	Yes

For status on actual services, please use [Status and Control](#).

**Figure 15: Avaya Aura™ Application Enablement Services CTI OAM Welcome Screen**

Navigate to **Administration->Switch Connections**. Enter the name of the switch connection to be added, and click on the “Add Connection” button.

**AVAYA** **Application Enablement Service**  
Operations Administration and Maintenance

You are here: > [Administration](#) > [Switch Connections](#)

**Switch Connections**

Connection Name	Number of Active Connections
<input checked="" type="radio"/> S8500	0
<input type="radio"/> S8720	1

**Figure 16: Switch Connection Screen**

This causes the following screen to be presented. At this point, enter the screen fields as described in the following table, and click the “Apply” button.

Parameter	Usage
Switch Password	The Switch Password must be the same as was entered into the Avaya Aura™ Communication Manager AE Services Administration form via the “change ip-services” command, described in <b>Figure 10</b> . Passwords must consist of 12 to 16 alphanumeric characters.
SSL	SSL (Secure Socket Layer) is enabled by default. Keep the default setting unless adding a switch connection for a DEFINITY Server CSI.

**Table 10: Configuration of Switch Password**

**AVAYA** Application Enablement Services Administration

You are here: > Administration > Switch Connections

**Set Password - S8710**

Please note the following:  
 \* Changing the password affects only new connections, not open connections.

Switch Password

Confirm Switch Password

SSL ☒

**Figure 17: Set Switch Password Screen**

From the **Administration->Switch Connections** screen, click the “Edit CLAN IPs” button to display the screen show below. Enter the IP address of the CLAN shown in **Figure 6** which Avaya Aura™ Application Enablement Services is to use for communication with the switch, and click the “Add Name or IP” button.

**AVAYA** Application Enablement Services Administration

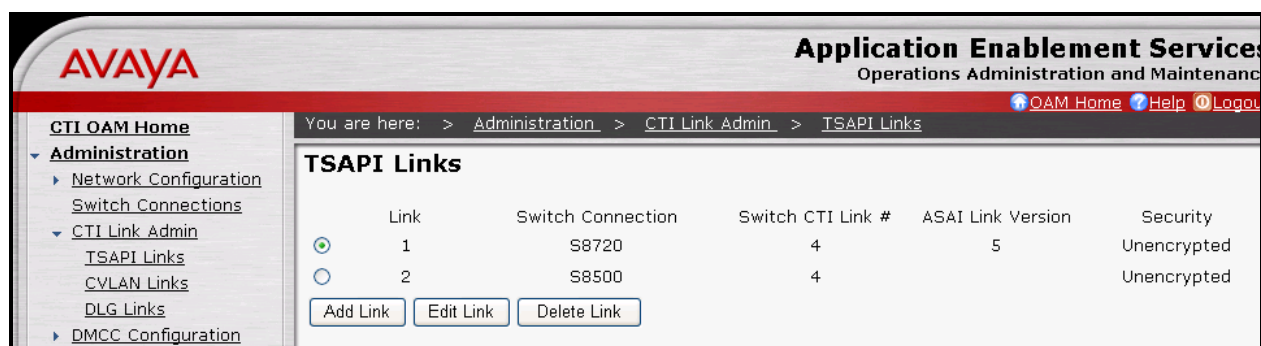
You are here: > Administration > Switch Connections

**Edit CLAN IPs - S8710**

Name or IP Address	Status
--------------------	--------

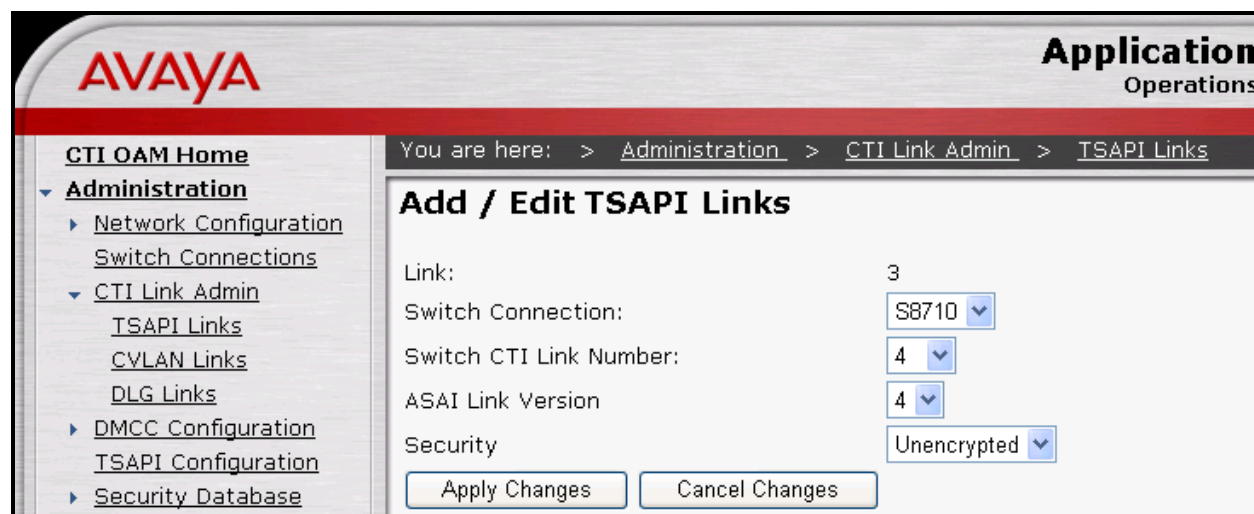
**Figure 18: CLAN Screen**

On the left margin of the screen, navigate to **Administration->CTI Link Admin->TSAPI Links**. The following screen is displayed. Click the “Add Link” button.



**Figure 19: TSAPI Links Screen**

Fill in the parameters for the link to be added. The “Link” parameter must be a value between 1 and 16 which is not assigned to another link. The “Switch Connection” parameter should be the name of the Avaya Server which is to be controlled by this link. The value for the TSAPI “Switch CTI Link Number” must be a value between 1 and 64, and must be the same as was used in the Avaya Aura™ Communication Manager “add cti-link” configuration command in **Figure 11**. Click the “Apply Changes” button.



**Figure 20: Add TSAPI Link Screen**

Navigate to **User Management->Add User**. In this case, the Avaya Aura™ Application Enablement Services user is the DGVoX Voice Logger application, which uses Avaya Aura™ Application Enablement Services to monitor stations and initiate switching operations. Repeat this operation to add a DMCC user. Enter the parameters shown in the following table.

Parameter	Usage
User Id	Enter an appropriate user name.
Common Name	Enter the user's first name.
Surname	Enter the user's surname.
User Password	Enter an appropriate user password.
Avaya Role	Set this field to "None" from the drop-down menu.
CT User	Set this field to "Yes" from the drop-down menu.

**Table 11: Avaya Aura™ Application Enablement Services User Parameters**

**Figure 21: Add User Screen**

Navigate to **Administration -> Network Configuration -> Ports** and configure the DMCC Server Ports as shown in the following table.

Parameter	Usage
Unencrypted Port	Enable this port using the default value of 4721.

**Table 12: Avaya Aura™ Application Enablement Services Server Interface Parameters**

**Ports**

CVLAN Ports

Unencrypted TCP Port

9999

Enabled Disabled

Encrypted TCP Port

9998

Enabled Disabled

DLG Port

TCP Port

5678

TSAPI Ports

TSAPI Service Port

450

Enabled Disabled

Local TLINK Ports

TCP Port Min

1024

TCP Port Max

1039

Unencrypted TLINK Ports

TCP Port Min

1050

TCP Port Max

1065

Encrypted TLINK Ports

TCP Port Min

1066

TCP Port Max

1081

DMCC Server Ports

Unencrypted Port

4721

Enabled Disabled

Encrypted Port

4722

Enabled Disabled

TR/87 Port

4723

Enabled Disabled

H.323 Ports

TCP Port Min

3000

TCP Port Max

4100

Local UDP Port Min

7000

Local UDP Port Max

8100

Server Media

Enabled Disabled

RTP Local UDP Port Min\*

5000

RTP Local UDP Port Max\*

5300

\* Note: The number of RTP ports needs to be double the number of extensions using server media.

SMS Proxy Ports

Proxy Port Min

4101

Proxy Port Max

4116

Web Server Port\*

HTTPS

443

Enabled Disabled

HTTP

80

Enabled Disabled

Tomcat HTTP

8080

Enabled Disabled

Tomcat HTTPS

8443

Enabled Disabled

\* Note: this function does not work for SW Only.

Apply Changes

Restore Defaults

**Figure 22: Avaya Aura™ Application Enablement Services Port Configuration**

Navigate to **Utilities** -> **TSAPI Test** and select the newly configured PBX from the “Tlink” drop-down menu. This name will be used in further configuration activities.

The screenshot displays the Avaya Aura CTI OAM Home page. The top header features the Avaya logo. A left-hand navigation menu includes links for Administration, Status and Control, Maintenance, Alarms, Logs, Utilities, and Help. The Utilities section is expanded, showing sub-links for ASAI Test, Ping Host, TSAPI Test, and TR/87 Test. The main content area, titled 'You are here: > Utilities > TSAPI Test', contains the 'TSAPI Test' configuration form. This form includes a 'TLink' dropdown menu set to 'AVAYA#S8710#CSTA#AES-SERVER1', and input fields for 'User:', 'Password:', 'From:', and 'To:'. A 'Dial' button is positioned below the 'To:' field.

**Figure 23: Avaya Aura™ Application Enablement Services TSAPI Test**

## 6. Prepare DGVoX Voice Logger Platform

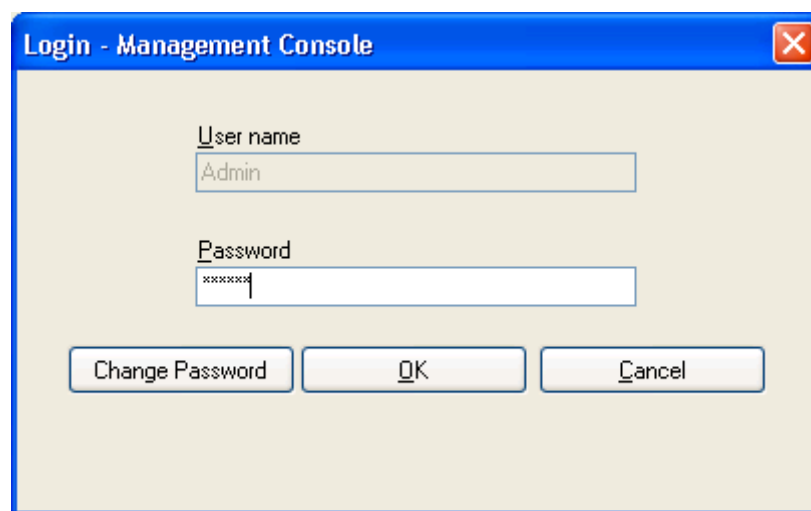
Although the procedure for installing the DGVoX Voice Logger software is outside the scope of this document, this section contains a few helpful hints regarding this procedure.

Any third-party HTTP servers running on the server (i.e. Apache) should be disabled or uninstalled prior to installation of DGVoX Voice Logger. Subsequently, the Microsoft XP IIS package must be installed prior to installation of the DGVoX Voice Logger package. The DGVoX Voice Logger installation procedure installs the Microsoft .Net package, and will automatically uninstall any out-of-date versions of this package which may have been present.

If there are other LAN interfaces on the DGVoX Voice Logger server (in addition to the one used by the DGVoX Voice Logger connection to the network), they must be disabled.

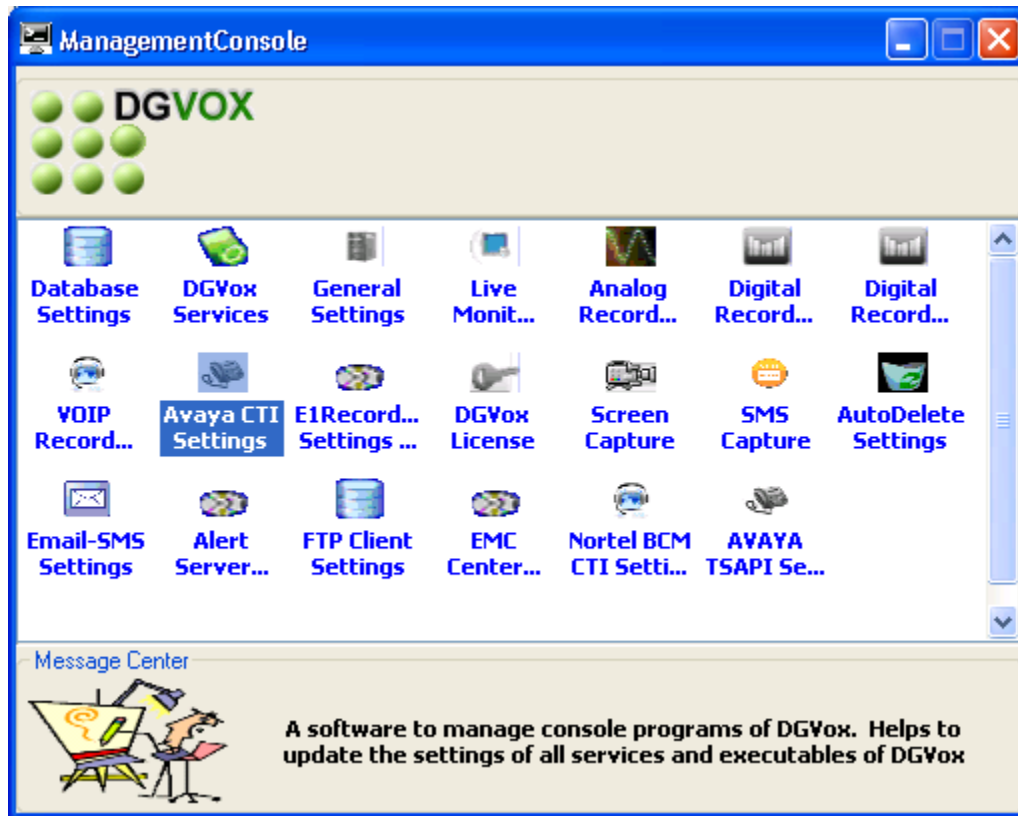
## 7. Configure DGVoX Voice Logger

Start ManagementConsole.exe, which is installed in C:\Voxspectrum\DGVoX if the default install path was not changed during installation, and enter the appropriate credentials.



**Figure 24: DGVoX Voice Logger Management Console Login**

From Management Console, double click on “Avaya CTI Settings” icon.



**Figure 25: DGVoX Voice Logger Management Console**



Select the “General Settings” tab and enter the parameters shown in the following table.

Parameter	Usage
CM IP	Enter the IP address of the CLAN interface, or processor interface if is Processor Ethernet is used.
AES IP	Enter the IP address of Avaya Aura™ Application Enablement Services.
MediaForwarding IP	Enter the IP address of the server on which the DGVox Voice Logger server is running.
TSAPI Server	Enter the TLink identifier for the S8710, as shown in <b>Figure 23</b> .
AES Port	Enter the number of the Unencrypted DMCC port shown in <b>Figure 22</b> .
Codec	Select the codec which is used, as show in <b>Figure 8</b> .
TSAPI LoginID/PW	Enter the user credentials allocated in <b>Figure 21</b> .
DMCC LoginID/PW	Enter the user credentials allocated in <b>Figure 21</b> .

**Table 13: CTI Settings / General Settings Tab Parameters**

**Avaya CTI Settings**

General Settings | Channel Settings

**License**

Channel No: 3 | Index: 1

**CTI Settings**

CM IP: 192.168.10.6 | AES Port: 4721

AES IP: 192.168.200.101 | Codec: g711A

MediaForwarding IP: 192.168.150.4 | TSAPI Version: TS1-2

TSAPI Server: AVAYA#S8710#CSTA#AES-SERVER1

Session Duration: 30 | DMCC License: 10

TSAPI LoginID: avaya | TSAPI Password: \*\*\*\*\*

DMCC LoginID: dmcc | DMCC Password: \*\*\*\*\*

**Log**

☒ Recorder ☒ SignalCapture ☒ TSAPI | Max. File Size: 10

**Apply** **Cancel**

**Figure 26: CTI Settings / General Settings Tab Screen**

Select the “Channel Settings” tab and enter the parameters shown in the following table.

Section	Parameter	Usage
Channel-Extension Mapping	Channel ID	Use this drop-down menu to allocate an Extension and Extension Password for each of the licensed voice recording channels.
	Extension	Enter the extension of a station to be monitored, as shown in <b>Table 1</b> .
	Extension Password	Enter the password of a station to be monitored, which was configured in <b>Table 8</b> .
Virtual Extension Details	Extension	Enter each of the Virtual Extensions which were allocated in <b>Figure 13</b> into this drop-down menu.

**Table 14: CTI Settings / Channel Settings Tab Parameters**

**Figure 27: CTI Settings / Channel Settings Tab Screen**

## 8. General Test Approach and Test Results

The compliance testing done between DGVoX Voice Logger was performed manually. The tests were all functional in nature. The test method employed can be described as follows:

- Avaya Aura™ Communication Manager was configured to support various local IP telephones, as well as a networked PBX connection and a PSTN connection.
- A PSTN interface was attached to Avaya Aura™ Communication Manager.
- DGVoX Voice Logger was configured to monitor various telephones attached to Avaya Aura™ Communication Manager.
- The functionality of DGVoX Voice Logger was verified using the above-mentioned local and external telephones, including the ability to record and playback calls participated in by monitored local endpoints and
  - Locally attached IP and digital telephones
  - Telephones attached to the PSTN
  - Telephones attached to a networked PBX

The tests which were performed are shown in **Section 1.1**. All tests which were performed produced the expected result.

## 9. Verification Steps

The correct installation and configuration of DGVoX Voice Logger can be verified by performing the following steps using the SAT terminal from PBX 1.

- Use the “status aesvcs cti-link” command to verify that the TSAPI link allocated in **Figure 11** is “established”.

```
status aesvcs cti-link
```

AE SERVICES CTI LINK STATUS						
CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
1		no		down	0	0
2		no		down	0	0
3		no		down	0	0
<b>4</b>	<b>4</b>	<b>no</b>	<b>aes-server1</b>	<b>established</b>	<b>15</b>	<b>15</b>

**Figure 28: Status Aesvcs Cti-link Screen**

- Login to Avaya Aura™ Application Enablement Services, and navigate to the “CTI OAM Home” screen. Verify that the DMCC and TSAPI Services are licensed, ONLINE, and Running.

**AVAYA** Application Enablement Services  
Operations Administration and Maintenance

You are here: > [CTI OAM Home](#)

**Welcome to CTI OAM Screens**

[cust] Last login: Mon Dec 14 19:21:25 2009 from 192.168.150.3

IMPORTANT: AE Services must be restarted for administrative changes to fully take effect. Changes to the Security Database do not require a restart.

Service	Status	State	Licenses Purchased
ASAI Link Manager	Running	N/A	N/A
<b>DMCC Service</b>	Running	ONLINE	Yes
CVLAN Service	Running	ONLINE	Yes
DLG Service	Running	ONLINE	Yes
Transport Layer Service	Running	N/A	N/A
<b>TSAPI Service</b>	Running	ONLINE	Yes
SMS	N/A	N/A	Yes

**Figure 29: Avaya Aura™ Application Enablement Services CTI OAM Home Screen**

- Navigate to OAM Home -> Status and Control -> Switch Connections Summary select the PBX 1, and click “Switch Connection Details”. Verify that the connection state is “Online” and “Talking”.

**AVAYA** Application Enablement Services  
Operations Administration and Maintenance

You are here: > [Status and Control](#) > [Switch Conn Summary](#)

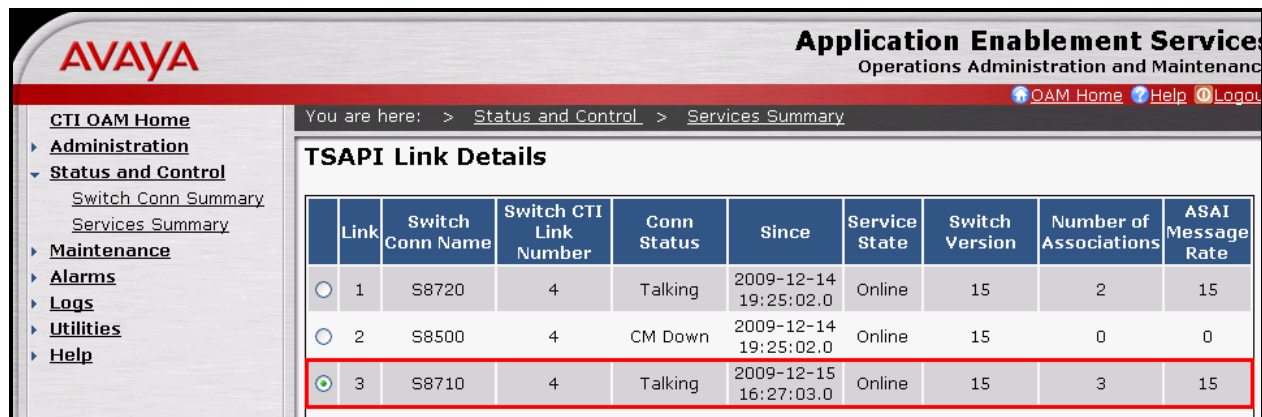
**Switch Connection Details - S8710**

Hostname or IP Address	Connection State	Online/Offline	Since	Msgs To Switch	Msgs From Switch
192.168.10.6	Talking	Online	2009-12-15 16:27:03.0	195	210

Online Offline Message Period

**Figure 30: Avaya Aura™ Application Enablement Services Switch Connection Details Screen**

- Navigate to **OAM Home -> Status and Control -> Services Summary** and click “Details” for “TSAPI Service”. Verify that the TSAPI service for PBX 1 is “Online” and “Talking”.



**AVAYA** Application Enablement Services  
Operations Administration and Maintenance

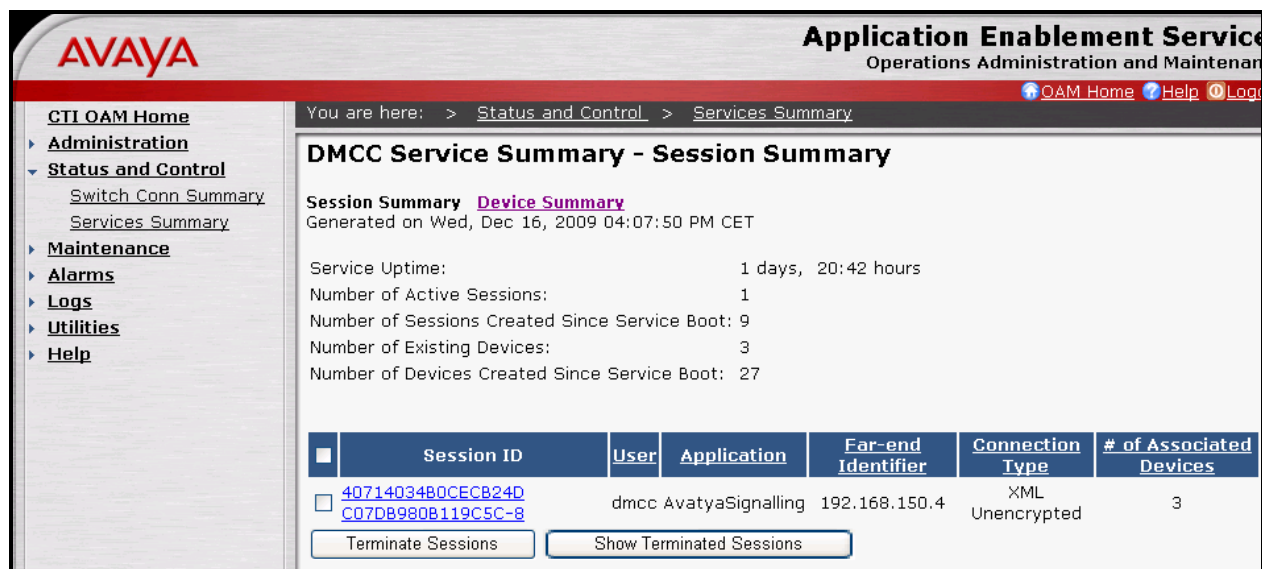
You are here: > [Status and Control](#) > [Services Summary](#)

**TSAPI Link Details**

	Link	Switch Conn Name	Switch CTI Link Number	Conn Status	Since	Service State	Switch Version	Number of Associations	ASAI Message Rate
<input type="radio"/>	1	S8720	4	Talking	2009-12-14 19:25:02.0	Online	15	2	15
<input type="radio"/>	2	S8500	4	CM Down	2009-12-14 19:25:02.0	Online	15	0	0
<input checked="" type="radio"/>	3	S8710	4	Talking	2009-12-15 16:27:03.0	Online	15	3	15

**Figure 31: TSAPI Link Details Screen**

- Navigate to **OAM Home -> Status and Control -> Services Summary** and click “Details” for “TSAPI Service”. Verify that there is a session for the DMCC user allocated in **Figure 21** with a “Far-end Identifier” indicating the DGVox Voice Logger.



**AVAYA** Application Enablement Services  
Operations Administration and Maintenance

You are here: > [Status and Control](#) > [Services Summary](#)

**DMCC Service Summary - Session Summary**

**Session Summary** [Device Summary](#)  
Generated on Wed, Dec 16, 2009 04:07:50 PM CET

Service Uptime: 1 days, 20:42 hours  
 Number of Active Sessions: 1  
 Number of Sessions Created Since Service Boot: 9  
 Number of Existing Devices: 3  
 Number of Devices Created Since Service Boot: 27

	Session ID	User	Application	Far-end Identifier	Connection Type	# of Associated Devices
<input type="checkbox"/>	<a href="#">40714034B0CECB24D</a> <a href="#">C07DB980B119C5C-8</a>	dmcc	AvatyaSignalling	192.168.150.4	XML Unencrypted	3

[Terminate Sessions](#) [Show Terminated Sessions](#)

**Figure 32: DMCC Service Summary Screen**

- Click on the “Device Summary” control and verify that the virtual stations allocated in **Figure 13** are “REGISTERED”.

**AVAYA** **Application Enablement Service**  
Operations Administration and Maintenance

You are here: > [Status and Control](#) > [Services Summary](#)

**DMCC Service Summary - Device Summary**

**Session Summary** **Device Summary**  
Generated on Wed, Dec 16, 2009 04:09:36 PM CET

Service Uptime: 1 days 20:44 hours  
 Number of Active Sessions: 1  
 Number of Sessions Created Since Service Boot: 9  
 Number of Existing Devices: 3  
 Number of Devices Created Since Service Boot: 27

	Device ID	State	Associated Sessions
<input type="checkbox"/>	<a href="#">11401:S8710:192.168.10.6:0</a>	REGISTERED	1
<input type="checkbox"/>	<a href="#">11402:S8710:192.168.10.6:0</a>	REGISTERED	1
<input type="checkbox"/>	<a href="#">11403:S8710:192.168.10.6:0</a>	REGISTERED	1

[Terminate Devices](#)

Items 1-3 of 3

**Figure 33: Status Aesvcs Interface Screen**

- Make a call from a monitored telephone and use the web client to verify that the call was recorded correctly.

Address: <http://192.168.150.4/DGVOX/Webpages/Search/SearchResult.aspx> Go

1 - 2 of 2 Records

Select	Play	Color Code	Channel	Start Time	Call Duration	In/Out	Dialed Digits	Caller ID	Agent ID	Total Grade
<input type="checkbox"/>			003 - 10007	12/18/2009 8:31:56 AM	00:00:03	Outgoing	10008			0
<input type="checkbox"/>			002 - 10093	12/18/2009 8:31:29 AM	00:00:03	Outgoing	10184			0

Start Time: 12/18/2009 8:31:56  
End Time: 12/18/2009 8:31:59  
Duration: 00:00:03  
Hold Time: 00:00:00  
Call Direction: Outgoing  
Channel: 003  
Extension: 10007  
Caller ID:  
Dial Digits: 10008  
Call Type: Audio  
Grade: Edit 0  
Notes: Edit  
Agent ID:  
Agent Name:  
Skill Group:  
VDN:  
UCID: 000000000000000000  
Customer Name:  
Customer Address:  
[View Archive History](#)

File History

Select All Save Play Selected Delete << < > >> Jump To Go

Start: 03:45:05 End:

**Figure 34: DGVOX Voice Logger Web Client Screen**

## 10. Conclusion

These Application Notes describe the compliance testing of the VoxSpectrum DGVOX Voice Logger with Avaya Aura<sup>TM</sup> Communication Manager. A detailed description of the configuration required for both the Avaya and the VoxSpectrum equipment is documented within these Application Notes. The DGVOX Voice Logger passed all of the tests performed, which included both functional and robustness tests.

## 11. Additional References

- [1] *Administering Avaya Aura™ Communication Manager*, January 2009, Issue 5.0, Document Number 03-300509.
- [2] *Avaya Aura™ Communication Manager Feature Description and Implementation*, May 2009, Issue 7, Document Number 555-245-205.
- [3] *Avaya Aura™ Application Enablement Services Administration and Maintenance Guide*, November 2009, Issue 11, Release 5.2, Document Number 02-300357
- [4] *DGVox User Manual*, Release 6.9,
- [5] *DGVox Installation Manual*, Release 6.9,
- [6] *DGVox Maintenance Manual*, Release 6.9,
- [7] *DGVox Technical Manual*, Release 6.9

## 12. Change History

Issue	Date	Reason
1.0	12/20/2009	Initial issue



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