



Avaya Solution & Interoperability Test Lab

Application Notes for configuring Avaya Aura® Communication Manager R6.2 and Avaya Aura® Application Enablement Services R6.2 with VoxSpectrum DGVox v8.1 using Service Observe – Issue 1.1

Abstract

These Application Notes describe the configuration steps required for VoxSpectrum DGVox to interoperate with Avaya Aura® Communication Manager using Avaya Aura® Application Enablement Services. VoxSpectrum DGVox is a call recording solution. In the compliance testing, VoxSpectrum DGVox used the Telephony Services Application Programming Interface from Avaya Aura® Application Enablement Services to monitor stations on Avaya Aura® Communication Manager, and used the Service Observe 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 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 used to enable VoxSpectrum DGVox to interoperate with Avaya Aura® Communication Manager, Avaya Aura® Application Enablement Services, and Avaya Aura® Session Manager. VoxSpectrum DGVox offers various methods of voice recording. For the purpose of the tests described by these Application Notes, the Service Observe feature was used.

2. General Test Approach and Test Results

The general test approach was to validate correct recording of calls in a variety of call handling scenarios and recovery from network interruption. Parties involved in calls, clarity of recording and accurate call times and durations were verified. The resumption of call recording following outages of various components of the solution was also checked.

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.

2.1. Interoperability Compliance Testing

Interoperability compliance testing consisted of the successful, clear and accurate recording of both monitored and unmonitored extensions, as well as recovery from failure in the following scenarios:

- Internal calls – called/calling party ends call
- Calls between networked PBX's - inbound/outbound called party/calling party ends call
- PSTN Calls – inbound/outbound called party/calling party ends call
- Hold/Retrieve
- Supervised/Unsupervised Transfer
- Conference
- Call Forwarding
- Hunt Group Calls
- Bridged Appearance – answered/placed by bridged appearance
- Calls gone to cover
- PBX restart recovery
- DGVox network recovery
- DGVox power outage recovery

2.2. Test Results

All test cases passed successfully with the following observations:

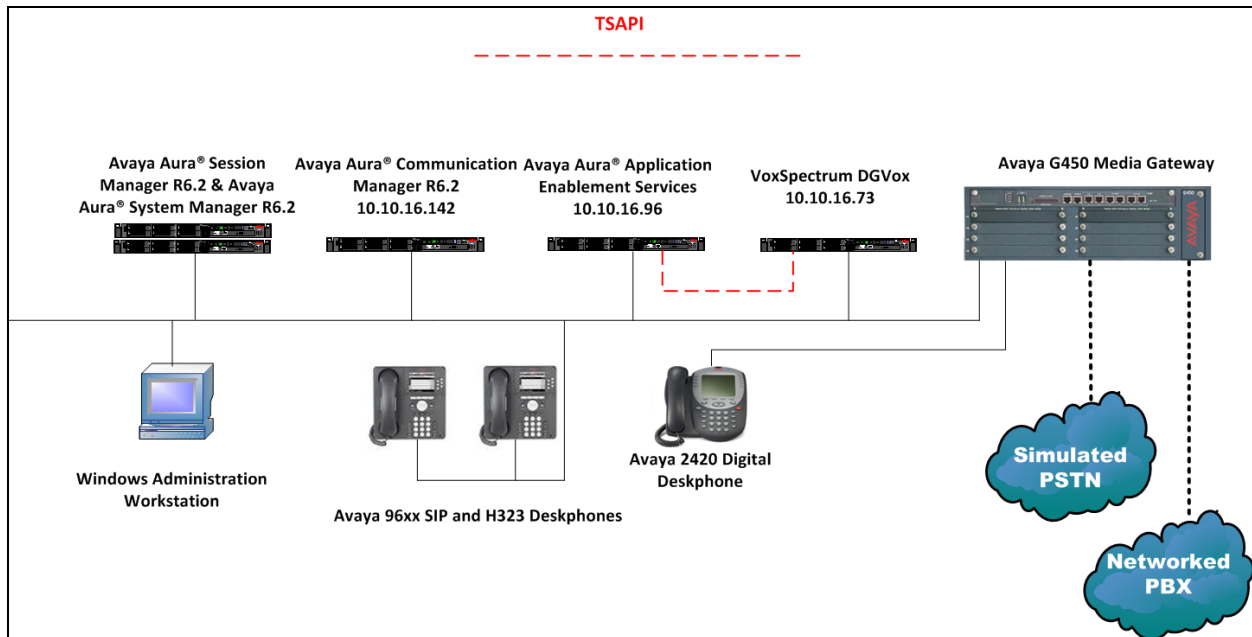
- Where a call is placed from recorded H.323 station A over an H.323 trunk to a networked PBX, the recording fails. This can be rectified by disabling shuffling on the H.323 trunk.
- Where a call is placed from recorded station A over an H.323 trunk to a networked PBX, and A puts the call on hold, only the part of the call after the call is retrieved is recorded. This can be rectified by disabling shuffling on the H.323 trunk.
- Where a call is placed to or from a recorded SIP station C and C performs hold and retrieve activities, the second recorded leg of the call shows outgoing with no dialed digits.
- Where a call is placed from station A to station C and C conferences SIP station D the channel status does not show an active call for C.
- Where A is forwarded to unrecorded station E and C calls A, station E does not appear on the recording data.
- Where a bridged appearance is configured on E for A or C and a call is placed to A or C and answered using the bridged appearance of A or C on E, the recording data does not contain any dialed digits or caller ID.
- Where a bridged appearance for recorded SIP station D is configured on E and a call is placed from the bridged appearance for D on E the call recording data shows as incoming with no dialed digits or caller ID.
- Where a call is placed between A and C and the LAN cable is disconnected and after 5 minutes reconnected to the DGVox Server, the legs of the 2 call prior to disconnection appear as outgoing in the recording data. After reconnection the recording is resumed correctly and when the call ends the recording data is accurate.

2.3. Support

Support for DGVox is available at: support@voxspectrum.com

3. Reference Configuration

An Avaya S8800 Server running Avaya Aura® Communication Manager R6.2 serving H.323 endpoints with an Avaya G450 Media Gateway was configured along with Avaya Aura® Session Manager R6.2 hosted on an Avaya S8800 Server providing SIP endpoints. VoxSpectrum DGVox was configured on the same IP network for connection to Avaya Aura® Application Enablement Services over TSAPI.



Avaya Aura® Communication Manager, Avaya Aura® Session Manager and Avaya Aura® Application Enablement Services with VoxSpectrum DGVox Solution

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 Avaya S8800 Server	R6.2 SP4 build R016x.02.0.823.0-20199
Avaya Aura® Session Manager running on Avaya S8800 Server	R6.2 SP3
Avaya Aura® Application Enablement Services	R6.2
Avaya G450 Media Gateway <ul style="list-style-type: none">• MM710• MM712	31.22.0 <ul style="list-style-type: none">• HW5 FW22• HW7 FW14
Avaya 9630 IP Deskphone	<ul style="list-style-type: none">• H.323 S3.1 SP5• SIP 2.6 SP9
Avaya 2420 Digital Deskphone	2420 Rel 6.00 HWT=51H HWV=1 FWV=6
VoxSpectrum DGVox	<ul style="list-style-type: none">• v8.1• Avaya Application Enablement Services TSAPI Client 4.2.474

5. Configure Avaya Aura® Communication Manager

The configuration and verification operations illustrated in this section were all performed using the Communication Manager System Administration Terminal (SAT). It is assumed that the relevant dialplan, hunt groups, stations, trunks and call routing have been configured. The connection from Communication Manager to Session Manager is not specific to the test environment and is therefore not detailed below.

The information provided in this section describes the configuration of Communication Manager for this solution. For all other provisioning information such as installation and configuration, please refer to the product documentation in **Section 10**.

5.1. Configure AEServices

An AE Services link must be established between Communication Manager and Application Enablement Services. Enter the command **change node-names ip** and enter the node **Name** and **IP Address** for Application Enablement Services in this case **10.10.16.96**. Take a note of the **procr** node **Name** and **IP Address**, in this case **10.10.16.142**.

change node-names ip		Page 1 of 2
		IP NODE NAMES
Name	IP Address	
procr	10.10.16.142	
CM521	10.10.16.23	
Gateway	10.10.16.1	
IPbuffer	10.10.16.184	
Intuition	10.10.16.51	
MedPro	10.10.16.32	
Presence	10.10.16.83	
RDTT	10.10.16.185	
SESMNGR	10.10.16.44	
SM1	10.10.16.43	
SM61	10.10.16.201	
default	0.0.0.0	
aesserver62	10.10.16.96	

In order for Communication Manager to establish a connection to Application Enablement Services, administer the CTI Link as shown below. Using the **add cti-link next** command specify an available **Extension** number, set the **Type** as **ADJ-IP**, which denotes that this is a link to an IP connected adjunct, and name the link for easy identification, in this instance, the node-name is used.

add cti-link next		Page 1 of 3
		CTI LINK
CTI Link: 1		
Extension: 5899		
Type: ADJ-IP		
Name: aesserver62		COR: 1

Using the command **change ip-services**, configure IP-Services using **AESVCS** as the **Service Type** enter the **procr** node name as noted above as the **Local Node**

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

On **Page 4**, set the **AE Services Server** node-name and the **Password** that Application Enablement Services will use to authenticate with Communication Manager.

change ip-services				Page 4 of 4
AE Services Administration				
Server ID	AE Services Server	Password	Enabled	Status
1:	aesserver62	Avayapassword1	y	in use

5.2. Configure Class of Restriction

A class of restriction must be configured in order that stations can be service observed and/or be service observers. For the purpose of the compliance test both the service observe stations and the recorded stations used COR 1. Enter the command **change cor 1** and configure **Can Be Service Observed** and **Can Be A Service Observer** to **y**.

change cor 1

Page 1 of 23

CLASS OF RESTRICTION

COR Number: 1

COR Description:

FRL: 0

APLT? y

Can Be Service Observed? y

Calling Party Restriction: none

Can Be A Service Observer? y

Called Party Restriction: none

Time of Day Chart: 1

Forced Entry of Account Codes? n

Priority Queuing? n

Direct Agent Calling? n

Restriction Override: none

Facility Access Trunk Test? n

Restricted Call List? n

Can Change Coverage? n

Access to MCT? y

Fully Restricted Service? n

Group II Category For MFC: 7

Hear VDN of Origin Annc.? n

Send ANI for MFE? n

Add/Remove Agent Skills? n

MF ANI Prefix:

Automatic Charge Display? n

Hear System Music on Hold? y

PASTE (Display PBX Data on Phone)? n

Can Be Picked Up By Directed Call Pickup? y

Can Use Directed Call Pickup? y

Group Controlled Restriction: inactive

5.3. Configure System-Wide Service Observe Features

Enter the command **change system-parameters features** and on **Page 11** set **Service Observing: Warning Tone** to **n** and **Service Observing/SSC Allowed with Exclusion** and **Allow Two Observers in Same Call** to **y**.

change system-parameters features	Page 11 of 19
FEATURE-RELATED SYSTEM PARAMETERS	
CALL CENTER SYSTEM PARAMETERS	
EAS	
Expert Agent Selection (EAS) Enabled?	y
Minimum Agent-LoginID Password Length:	
Direct Agent Announcement Extension:	Delay:
Message Waiting Lamp Indicates Status For:	station
VECTORIZING	
Converse First Data Delay:	0
Converse Signaling Tone (msec):	100
Prompting Timeout (secs):	10
Interflow-qpos EWT Threshold:	2
Reverse Star/Pound Digit For Collect Step?	n
Available Agent Adjustments for BSR?	n
BSR Tie Strategy:	1st-found
Store VDN Name in Station's Local Call Log?	n
SERVICE OBSERVING	
Service Observing: Warning Tone?	n
Service Observing/SSC Allowed with Exclusion?	y
Allow Two Observers in Same Call?	y

5.4. Configure Service Observe Stations

DGVox uses a pool of stations as recording extensions, these are used to service observe into stations which are configured to have their calls recorded. Enter the command **add station next** and configure a relevant **Extension**, set the **Security Code**, set the **Type** as **4624**, the **Port** as **IP** and assign an identifying **Name**. Ensure that **IP SoftPhone** is set to **y** and the **COR** is that configured in **Section 5.2**. Repeat this according to the number extensions required by DGVox. During the compliance test 4 stations were configured for this purpose, 6500 – 6503.

add station next		Page	1 of 6
STATION			
Extension: 6500	Lock Messages? n	BCC:	0
Type: 4624	Security Code: 1234	TN:	1
Port: IP	Coverage Path 1:	COR:	1
Name: Recorder, 6500	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:	6500	
Speakerphone: 2-way	Mute Button Enabled?	y	
Display Language: english			
Survivable GK Node Name:			
Survivable COR: internal	Media Complex Ext:		
Survivable Trunk Dest? y	IP SoftPhone?	y	
	IP Video Softphone?	n	
	Short/Prefixed Registration Allowed:	default	

On **Page 4** configure **Button Assignment 8** with the **service-obsrv** feature.

change station 6500		Page 4 of 6
STATION		
SITE DATA		
Room:	Headset?	n
Jack:	Speaker?	n
Cable:	Mounting:	d
Floor:	Cord Length:	0
Building:	Set Color:	
ABBREVIATED DIALING		
List1:	List2:	List3:
BUTTON ASSIGNMENTS		
1: call-appr	7:	
2: call-appr	8: serv-obsrv	
3:	9:	
4: conf-dsp	10:	
5:	11:	
6:	12:	

5.5. Configure SIP Stations for CTI Control

SIP stations must be configured so they can be monitored by DGVox, enter the command **change station xxxx** where **xxxx** is a SIP extension and configure **Type of 3PCC Enabled** to **Avaya** in this instance on **Page 6**. For the purposes of the compliance test SIP stations 6002 and 6003 were configured.

change station 6002		Page 6 of 6
STATION		
SIP FEATURE OPTIONS		
Type of 3PCC Enabled: Avaya		
SIP Trunk: aar		

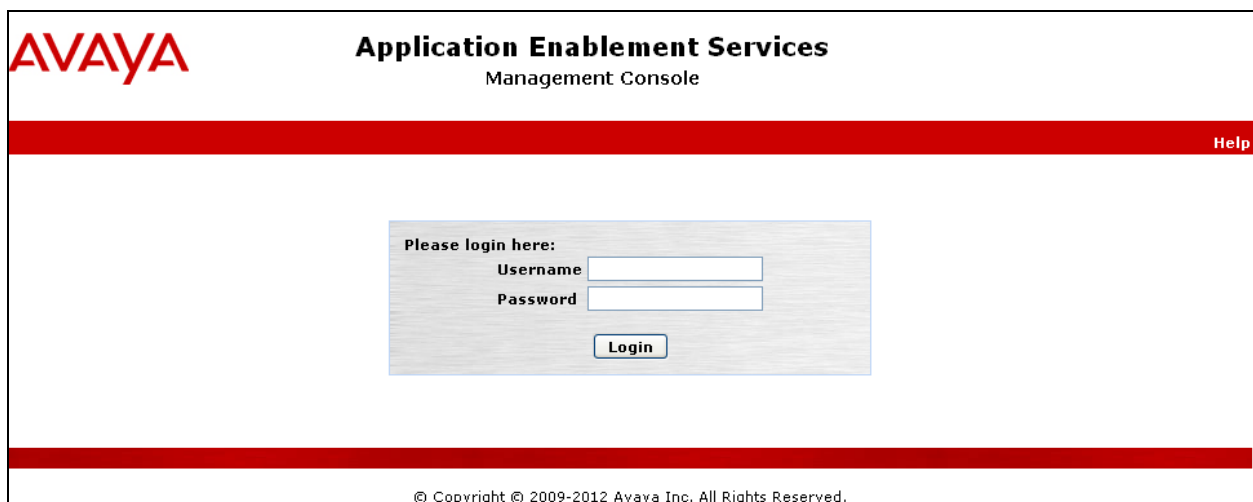
6. Configure Avaya Aura® Application Enablement Services Server

This section provide the procedures for configuring Application Enablement Services. The procedures include the following areas:

- Launch OAM interface
- Administer the Switch Connection
- Administer TSAPI Link
- Restart TSAPI Service
- Obtain Tlink name
- Administer Avaya CTI User

6.1. Launch OAM Interface

Access the OAM web-based interface of AE Services, in this instance using the URL <https://10.10.16.96>. The Management console is displayed. Log in using the appropriate credentials.



The screenshot shows the Avaya Application Enablement Services Management Console login page. At the top left is the Avaya logo. To its right, the text "Application Enablement Services" is displayed in bold, with "Management Console" underneath it. A red horizontal bar spans the width of the page, with a "Help" link on the right side. In the center of the page is a login box with the text "Please login here:" followed by "Username" and "Password" labels, each with a corresponding text input field. Below these fields is a "Login" button. At the bottom of the page, a red horizontal bar is present, and below it, the copyright notice "© Copyright © 2009-2012 Avaya Inc. All Rights Reserved." is displayed.

The **Welcome to OAM** screen is displayed next.

The screenshot shows the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains "Home", "Help", and "Logout". A left sidebar lists menu items: AE Services, Communication Manager Interface, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help. The main content area, titled "Welcome to OAM", explains the purpose of the OAM web and lists administrative domains: AE Services, Communication Manager Interface, Licensing, Maintenance, Networking, Security, Status, User Management, and Utilities. It also includes a copyright notice for 2009-2012 Avaya Inc.

AVAYA **Application Enablement Services**
Management Console

Welcome: User craft
Last login: Tue Oct 2 15:09:34 2012 from 10.10.16.62
Number of prior failed login attempts: 0
HostName/IP: aesserver62/10.10.16.96
Server Offer Type: TURNKEY
SW Version: r6-2-0-18-0
Server Date and Time: Fri Oct 5 15:17:18 BST 2012

Home | Help | Logout

Home

AE Services
Communication Manager Interface
Licensing
Maintenance
Networking
Security
Status
User Management
Utilities
Help

Welcome to OAM

The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:

- AE Services - Use AE Services to manage all AE Services that you are licensed to use on the AE Server.
- Communication Manager Interface - Use Communication Manager Interface to manage switch connection and dialplan.
- Licensing - Use Licensing to manage the license server.
- Maintenance - Use Maintenance to manage the routine maintenance tasks.
- Networking - Use Networking to manage the network interfaces and ports.
- Security - Use Security to manage Linux user accounts, certificate, host authentication and authorization, configure Linux-PAM (Pluggable Authentication Modules for Linux) and so on.
- Status - Use Status to obtain server status informations.
- User Management - Use User Management to manage AE Services users and AE Services user-related resources.
- Utilities - Use Utilities to carry out basic connectivity tests.
- Help - Use Help to obtain a few tips for using the OAM Help system

Depending on your business requirements, these administrative domains can be served by one administrator for all domains, or a separate administrator for each domain.

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6.2. Administer the Switch Connection

To establish the connection between Communication Manager and AE Services, click **Communication Manager Interface → Switch Connections**. In the field next to Add Connection enter **CM62** and click on **Add Connection**, the following screen will be displayed.

The screenshot shows the "Switch Connections" page within the Communication Manager Interface. The left sidebar highlights "Switch Connections" under "Communication Manager Interface". The main content area has a form with a text field containing "CM62" and an "Add Connection" button. Below this is a table with columns: Connection Name, Processor Ethernet, Msg Period, and Number of Active Connections. At the bottom, there are buttons for "Edit Connection", "Edit PE/CLAN IPs", "Edit H.323 Gatekeeper", "Delete Connection", and "Survivability Hierarchy".

Communication Manager Interface | Switch Connections | Home | Help | Logout

AE Services
Communication Manager Interface
Switch Connections
Dial Plan
Licensing
Maintenance

Switch Connections

CM62 Add Connection

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
Edit Connection	Edit PE/CLAN IPs	Edit H.323 Gatekeeper	Delete Connection
Survivability Hierarchy			

The following screen is displayed. Complete the configuration as shown and enter the password specified in **Section 5.1** when configuring AESVCS in ip-services. Click on **Apply** when done.

The screenshot shows the 'Communication Manager Interface | Switch Connections' page. On the left is a navigation menu with options: AE Services, Communication Manager Interface (selected), Switch Connections (selected), Dial Plan, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help. The main content area is titled 'Connection Details - CM62'. It contains the following fields: 'Switch Password' (masked with dots), 'Confirm Switch Password' (masked with dots), 'Msg Period' (30) with a unit of 'Minutes (1 - 72)', 'SSL' (checked), and 'Processor Ethernet' (checked). At the bottom of the form are 'Apply' and 'Cancel' buttons. A copyright notice at the bottom reads: 'Copyright © 2009-2012 Avaya Inc. All Rights Reserved.'

The following screen will be shown displaying the newly added switch connection, click on **Edit PE/CLAN IPs** in order to specify the IP address of the procr, as noted in **Section 5.1**.

The screenshot shows the 'Communication Manager Interface | Switch Connections' page. The left navigation menu is the same as in the previous screenshot. The main content area is titled 'Switch Connections'. It features an 'Add Connection' button and a table with the following data:

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
CM62	Yes	30	0

Below the table are several buttons: 'Edit Connection', 'Edit PE/CLAN IPs' (highlighted with a red box), 'Edit H.323 Gatekeeper', 'Delete Connection', and 'Survivability Hierarchy'. A copyright notice at the bottom reads: 'Copyright © 2009-2012 Avaya Inc. All Rights Reserved.'

Next to **Add name or IP**, enter the IP address of the procr as shown below.

Communication Manager Interface | Switch Connections Home | Help | Logout

AE Services
Communication Manager Interface
Switch Connections
Dial Plan
Licensing
Maintenance
Networking
Security
Status
User Management
Utilities
Help

Edit Processor Ethernet IP - CM62

10.10.16.142 Add/Edit Name or IP

Back

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

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The following screen will now appear displaying the newly added IP address.

Communication Manager Interface | Switch Connections Home | Help | Logout

AE Services
Communication Manager Interface
Switch Connections
Dial Plan
Licensing
Maintenance
Networking
Security
Status
User Management
Utilities
Help

Edit Processor Ethernet IP - CM62

10.10.16.142 Add/Edit Name or IP

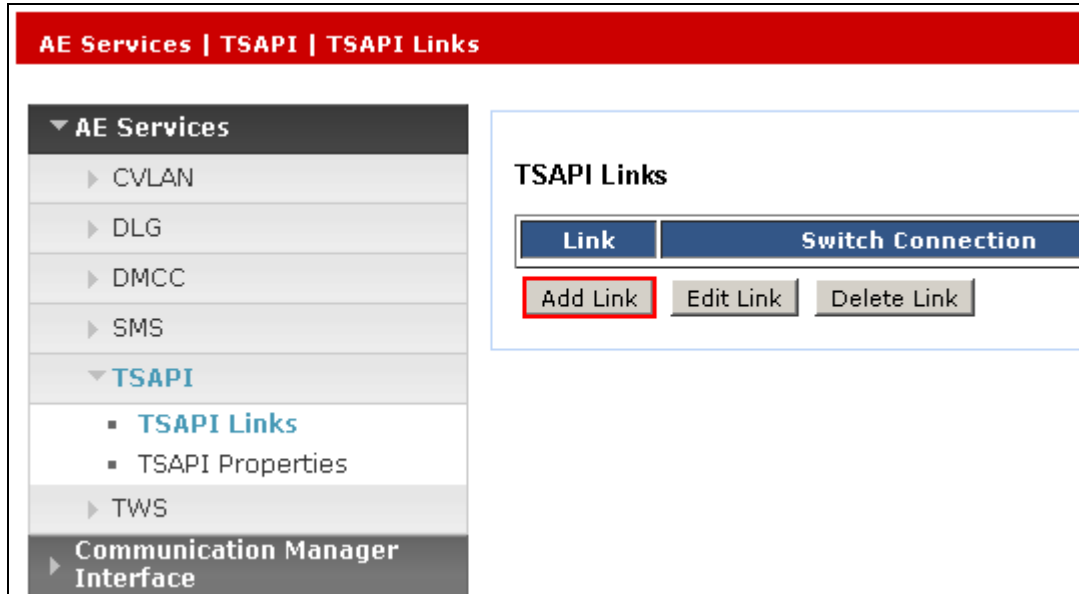
Back

Name or IP Address	Status
10.10.16.142	Idle

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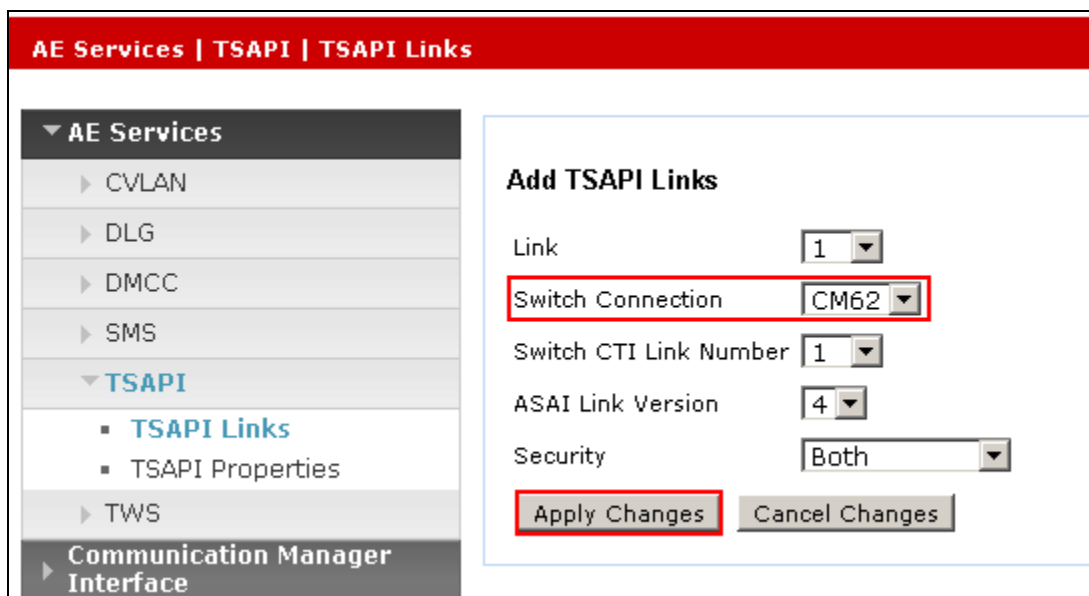
6.3. Administer TSAPI Link

Select **AE Services** → **TSAPI** → **TSAPI Links** from the left pane. The **TSAPI Links** screen is displayed, click **Add Link**.



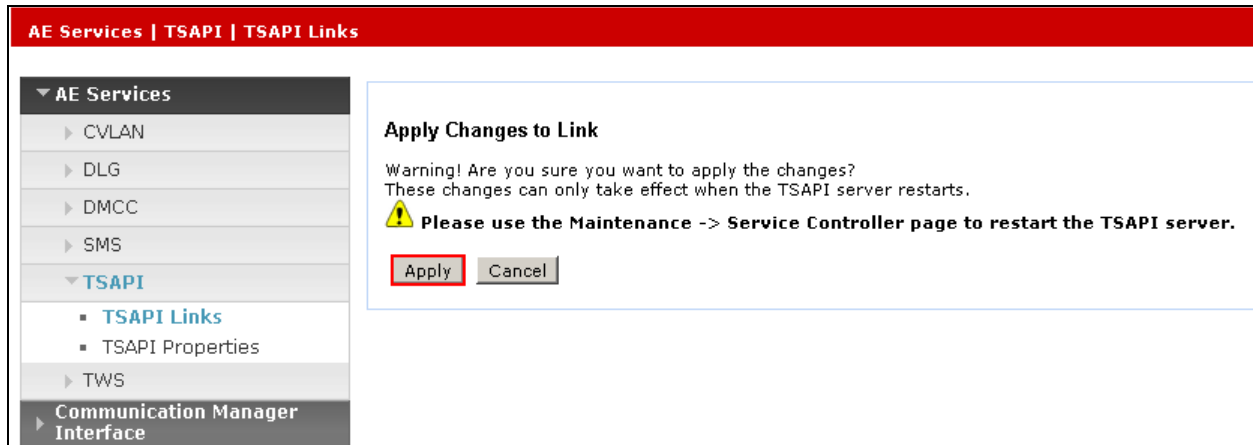
The screenshot shows the 'AE Services | TSAPI | TSAPI Links' interface. On the left, a navigation pane lists 'AE Services' (CVLAN, DLG, DMCC, SMS) and 'TSAPI' (TSAPI Links, TSAPI Properties, TWS). The 'Communication Manager Interface' is also visible. The main area is titled 'TSAPI Links' and contains a table with two columns: 'Link' and 'Switch Connection'. Below the table are three buttons: 'Add Link' (highlighted with a red box), 'Edit Link', and 'Delete Link'.

Configure the TSAPI Link using the newly configured **Switch Connection** as shown below and click **Apply Changes**.

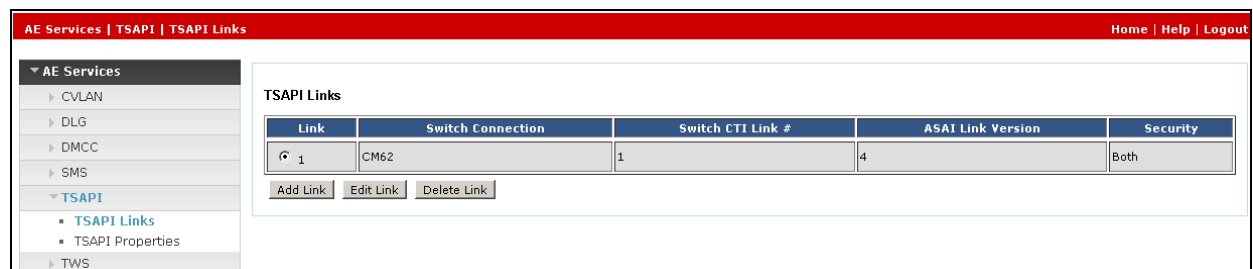


The screenshot shows the 'Add TSAPI Links' configuration screen. The left navigation pane is the same as in the previous screenshot. The main area is titled 'Add TSAPI Links' and contains the following fields: 'Link' (dropdown menu with '1' selected), 'Switch Connection' (dropdown menu with 'CM62' selected, highlighted with a red box), 'Switch CTI Link Number' (dropdown menu with '1' selected), 'ASAI Link Version' (dropdown menu with '4' selected), and 'Security' (dropdown menu with 'Both' selected). At the bottom, there are two buttons: 'Apply Changes' (highlighted with a red box) and 'Cancel Changes'.

The screen below will be displayed with instructions to restart the TSAPI Server. Click **Apply** taking note of the instructions given.

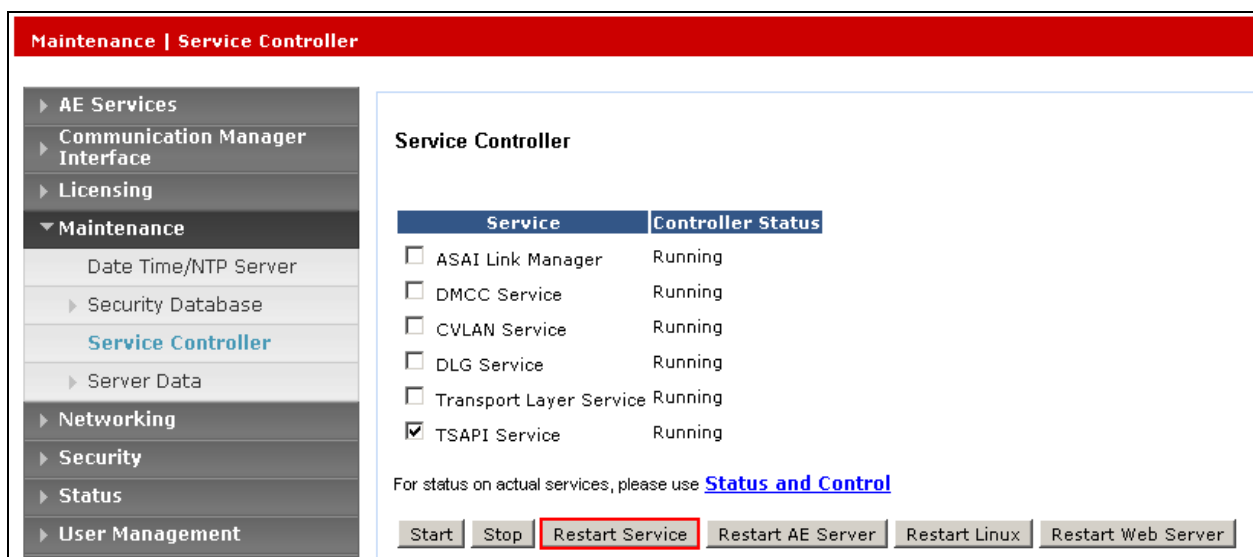


The following screen will be displayed showing the TSAPI Link.



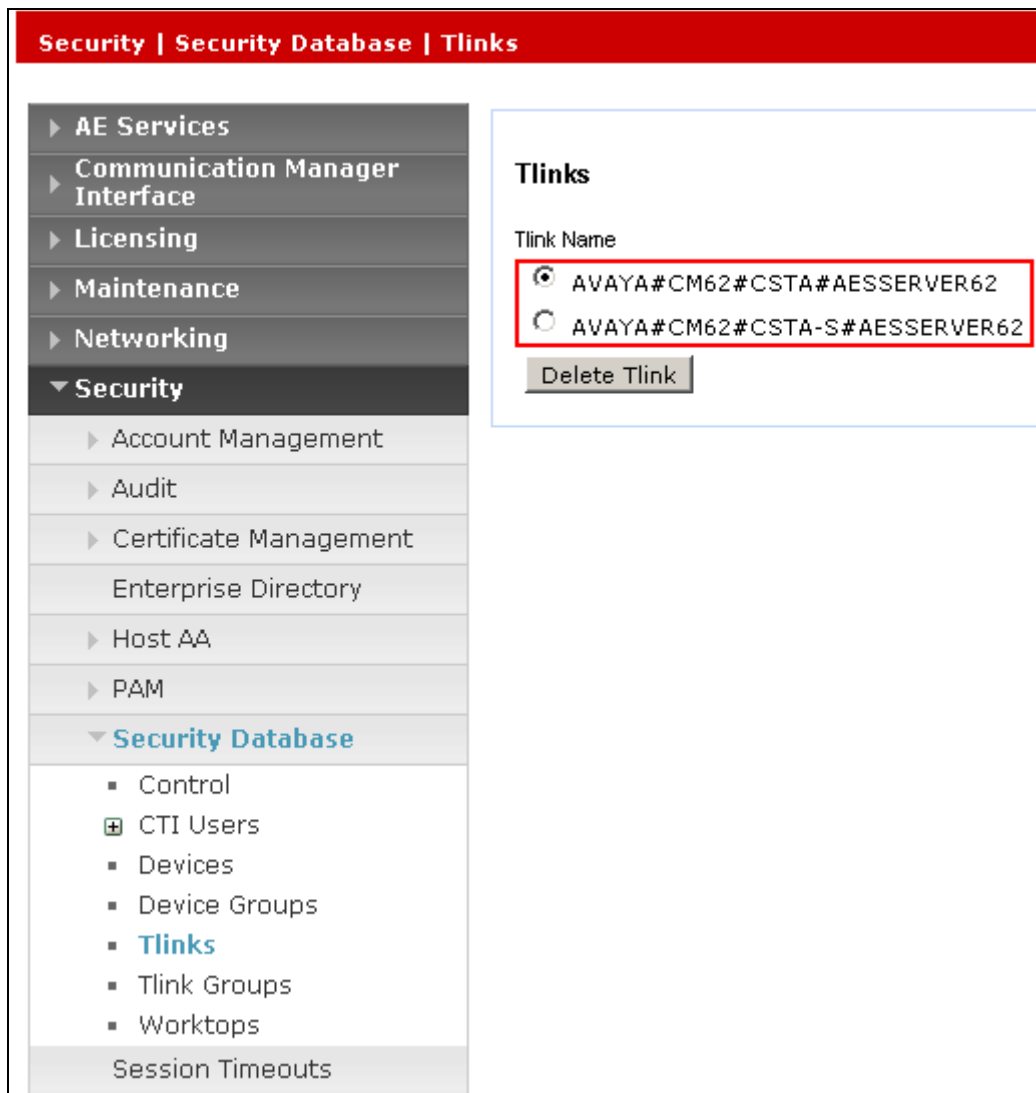
6.4. Restart TSAPI Service

Select **Maintenance** → **Service Controller** from the left pane, to display the **Service Controller** screen in the right pane. Check the **TSAPI Service**, and click **Restart Service**.



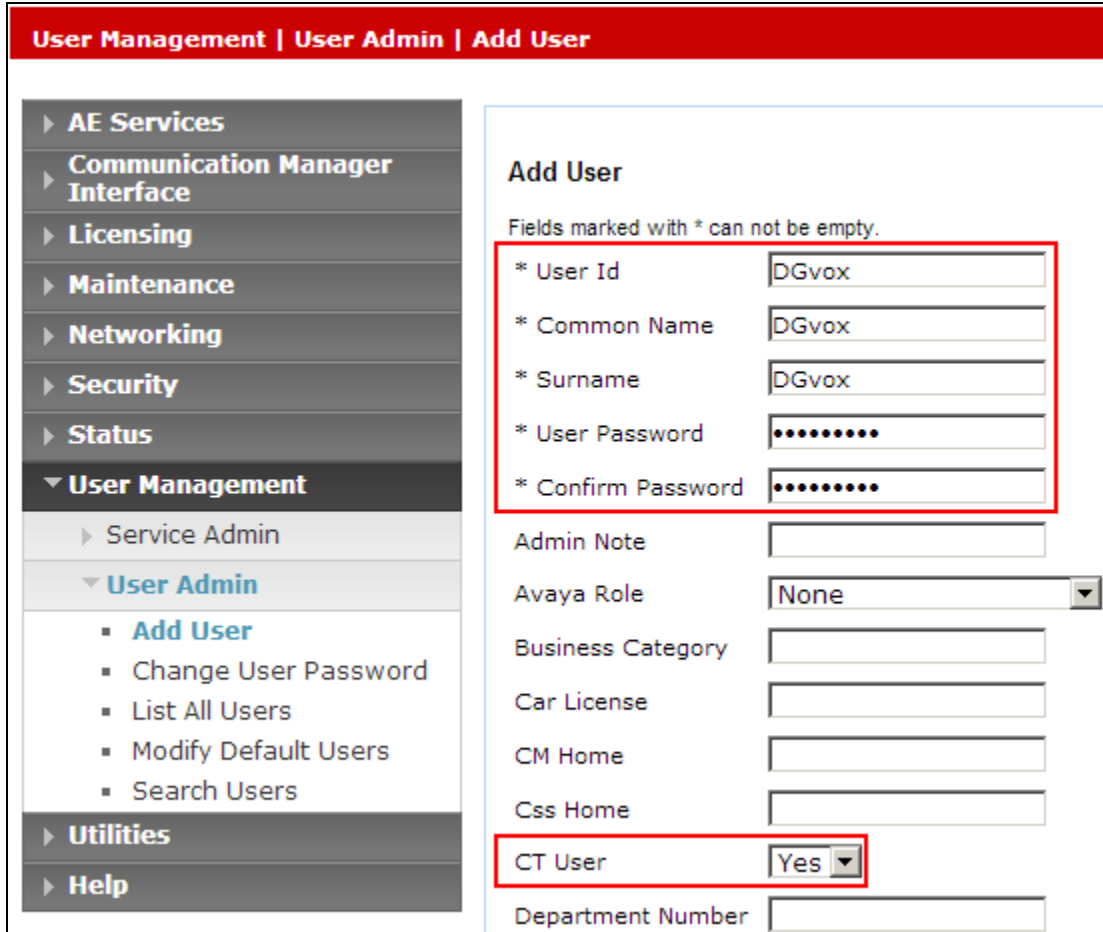
6.5. Obtain Tlink Name

Select **Security** → **Security Database** → **Tlinks** from the left pane. The **Tlinks** screen shows a listing of the Tlink names. Locate the Tlink name associated with the relevant switch connection, which would use the name of the switch connection as part of the Tlink name.



6.6. Administer CTI User

In this section a CTI user is configured for DGVox to communicate with Application Enablement Services. Select **User Management** → **User Admin** → **Add User** from the left pane to display the **Add User** screen in the right pane. Enter desired values for **User Id**, **Common Name**, **Surname**, **User Password** and **Confirm Password**. For **CT User**, select **Yes** from the drop-down list. Retain the default value in the remaining fields. Click Apply at the bottom of the screen (not shown below).



User Management | User Admin | Add User

Add User

Fields marked with * can not be empty.

* User Id	DGVox
* Common Name	DGVox
* Surname	DGVox
* User Password
* Confirm Password
Admin Note	
Avaya Role	None
Business Category	
Car License	
CM Home	
Css Home	
CT User	Yes
Department Number	

This user should be configured as an unrestricted user. Select **Security** → **Security Database** → **CTI Users** → **List All Users** from the left pane, click on the radio button beside the user created above, in this case, **DGvox** and click **Edit**. Place a tick in the box next to **Unrestricted Access**, as shown in the image below. Click **Apply Changes** when done.

Security | Security Database | CTI Users | List All Users

Edit CTI User

User Profile: User ID: DGvox
Common Name: DGvox
Worktop Name: NONE

Unrestricted Access ☒

Call and Device Control: Call Origination/Termination and Device Status: None

Call and Device Monitoring: Device Monitoring: None
Calls On A Device Monitoring: None
Call Monitoring: ☐

Routing Control: Allow Routing on Listed Devices: None

Apply Changes **Cancel Changes**

6.7. Configure Port for Unencrypted DMCC Connection

Click **Networking** → **Ports**, in the **DMCC Server Ports** section ensure that **Unencrypted Port** is **Enabled** and set to **4721**. Click Apply Changes (not shown) when done.

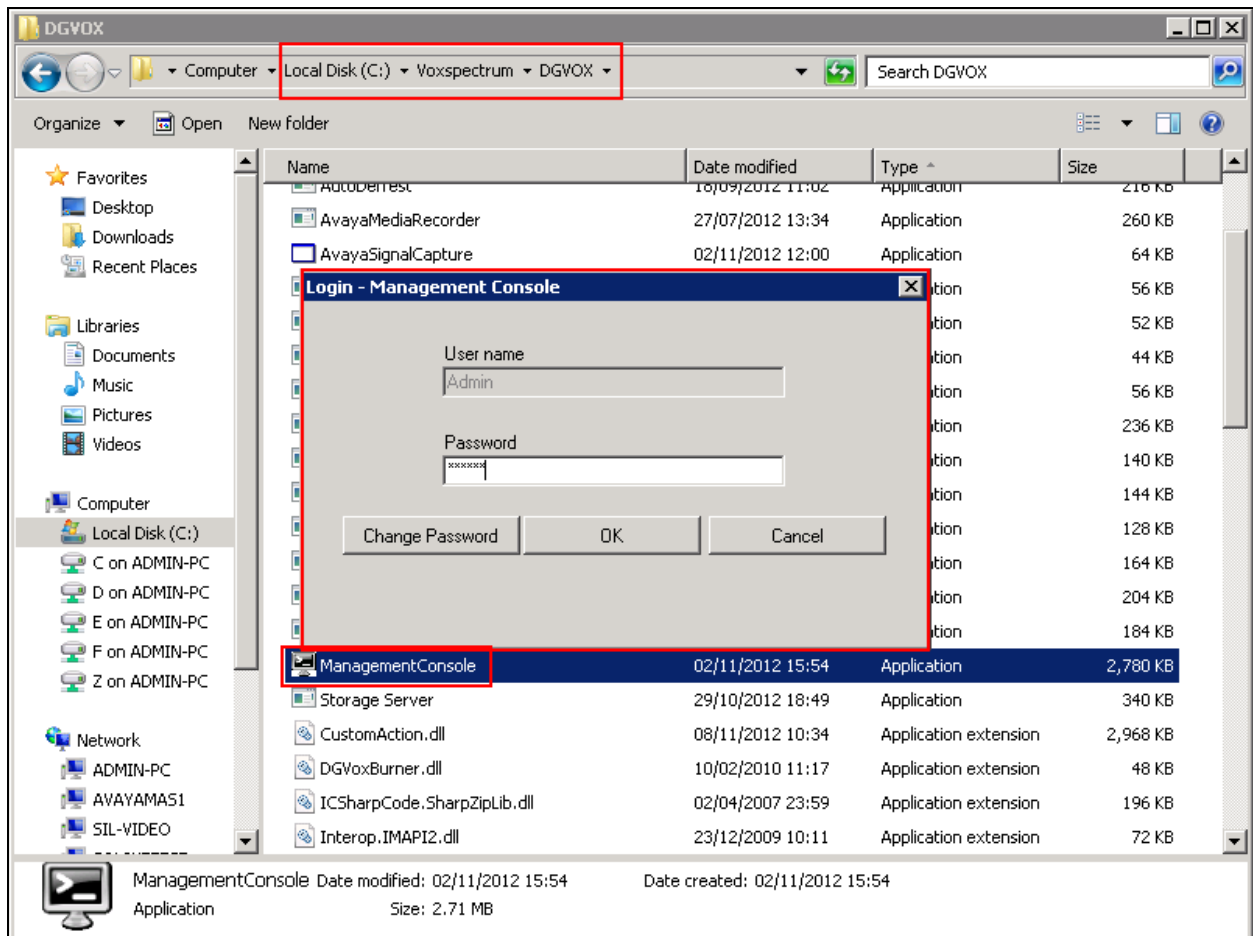
▼ Networking AE Service IP (Local IP) Network Configure Ports TCP Settings ► Security ► Status ► User Management ► Utilities ► Help	Encrypted TCP Port		9998	<input checked="" type="radio"/> <input type="radio"/>
	DLG Port		TCP Port	5678
	TSAPI Ports			Enabled Disabled
	TSAPI Service Port		450	<input checked="" type="radio"/> <input type="radio"/>
	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			Enabled Disabled
	Unencrypted Port		4721	<input checked="" type="radio"/> <input type="radio"/>
Encrypted Port		4722	<input checked="" type="radio"/> <input type="radio"/>	
TR/87 Port		4723	<input type="radio"/> <input checked="" type="radio"/>	

7. Configure VoxSpectrum DGVOX

DGVOX is installed and commissioned by a VoxSpectrum commissioning engineer. The following section describes the configuration necessary for interfacing with the Avaya components of the solution.

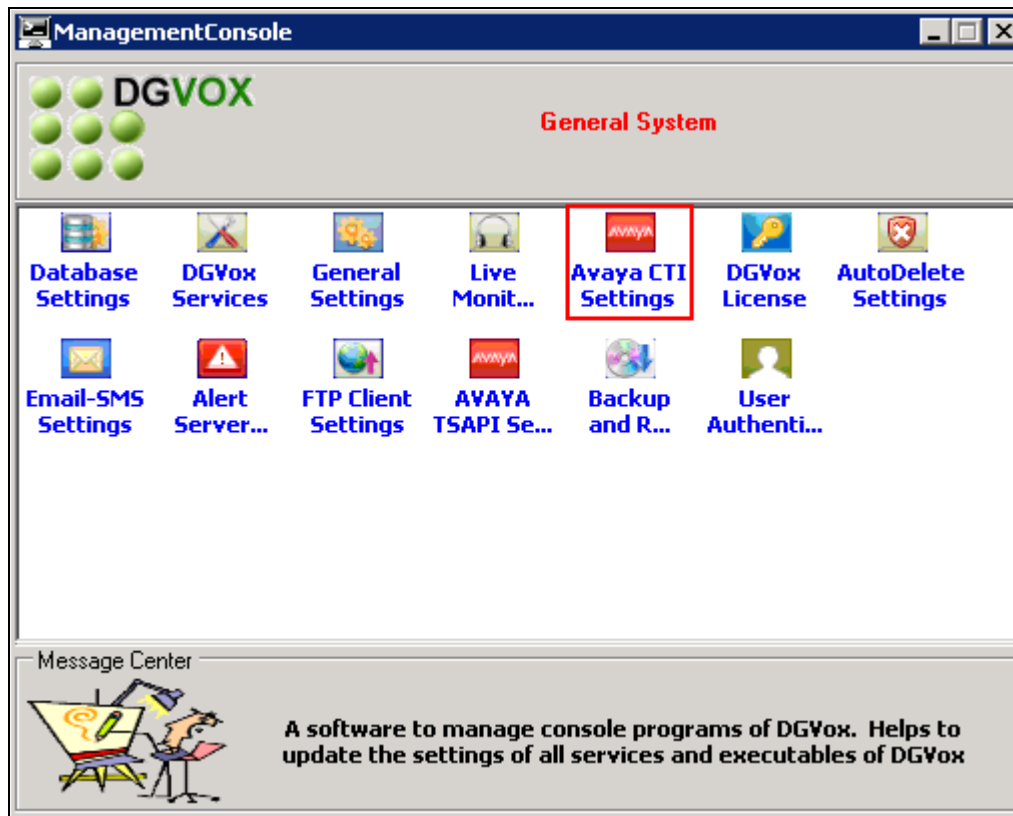
7.1. Login to Management Console

The initial DGVOX configuration is administered using the Management Console, the default location is **c:\Voxspectrum\DGVOX\ManagementConsole.exe**. Double click on the **Management Console** icon and enter the user credentials to log in.



7.2. Administer CTI Connection

Double click on the **Avaya CTI Settings** icon in the Management Console



The screen below shows the configuration required to connect to DGVox to Communication Manager and Application Enablement Services and can be described as follows:

- **CM IP** – enter the procr IP address
- **AES IP** – enter the Application Enablement Services IP address
- **MediaForwarding IP** – enter the IP address of the DGVox server
- **AES Port** – enter the unencrypted DMCC port number administered in **Section 6.7**
- **TSAPI Server** – enter the Tlink string obtained in **Section 6.5**
- **Local IP** – enter the IP address of the DGVox Server
- **Recording mode** – select **Service Observe** from the drop down box
- **TSAPI LoginID** and **DMCC LoginID** – enter the CTI user administered in **Section 6.6**
- **TSAPI a Password** and **DMCC Password** – enter the CTI user password administered in **Section 6.6**

Click **Apply** when done.

The image shows the 'Avaya CTI Settings' dialog box with the 'General Settings' tab selected. The 'Channel Settings' sub-tab is also visible. The 'License' section shows 'Channel No' as 8 and 'Index' as 1. The 'CTI Settings' section includes fields for 'CM IP' (10.10.16.142), 'AES IP' (10.10.16.96), 'MediaForwarding IP' (10.10.16.73), 'AES Port' (4721), 'Codec' (g711U), 'TSAPI Version' (TS1-2), 'TSAPI Server' (AVAYA#CM62#CSTA-S#AESERVER62), 'Session Duration' (60), 'DMCC License' (10), 'Local IP' (10.10.16.73), and 'Recording Mode' (Service Observe). The 'Log' section has checkboxes for 'Recorder', 'SignalCapture', and 'TSAPI', all of which are checked, and a 'Max. File Size' dropdown set to 10. The 'Apply' button is highlighted with a red box. The 'Message Center' section at the bottom shows an icon and the text 'Updates Avaya CTI General Settings'.

Field	Value
Channel No	8
Index	1
CM IP	10.10.16.142
AES IP	10.10.16.96
MediaForwarding IP	10.10.16.73
AES Port	4721
Codec	g711U
TSAPI Version	TS1-2
TSAPI Server	AVAYA#CM62#CSTA-S#AESERVER62
Session Duration	60
DMCC License	10
Local IP	10.10.16.73
Recording Mode	Service Observe
TSAPI LoginID	DGVox
TSAPI Password	*****
DMCC LoginID	DGVox
DMCC Password	*****
Recorder	<input checked="" type="checkbox"/>
SignalCapture	<input checked="" type="checkbox"/>
TSAPI	<input checked="" type="checkbox"/>
Max. File Size	10

7.3. Configure Recording Channel Mapping

Each of the administered recording extensions are configured with a Channel ID and mapped to the station which must be recorded. Click on the **Channel Settings** tab and configure Channel Extension Mapping as follows:

- Channel ID – choose the first channel number in this case 001
- Extension – enter the station number to be recorded
- Extension Password – enter the Security Code configured for this station
- Virtual Extension – enter the recorder station configured in **Section 5.4**
- Virtual Extension Password – enter the security code for the station configured in **Section 5.4**

Click **Apply** when done and repeat the task for the remaining Channel ID and stations to be recorded.

The screenshot shows the 'Avaya CTI Settings' dialog box with the 'Channel Settings' tab selected. The 'Channel-Extension Mapping' section is highlighted with a red rectangle. It contains the following fields and buttons:

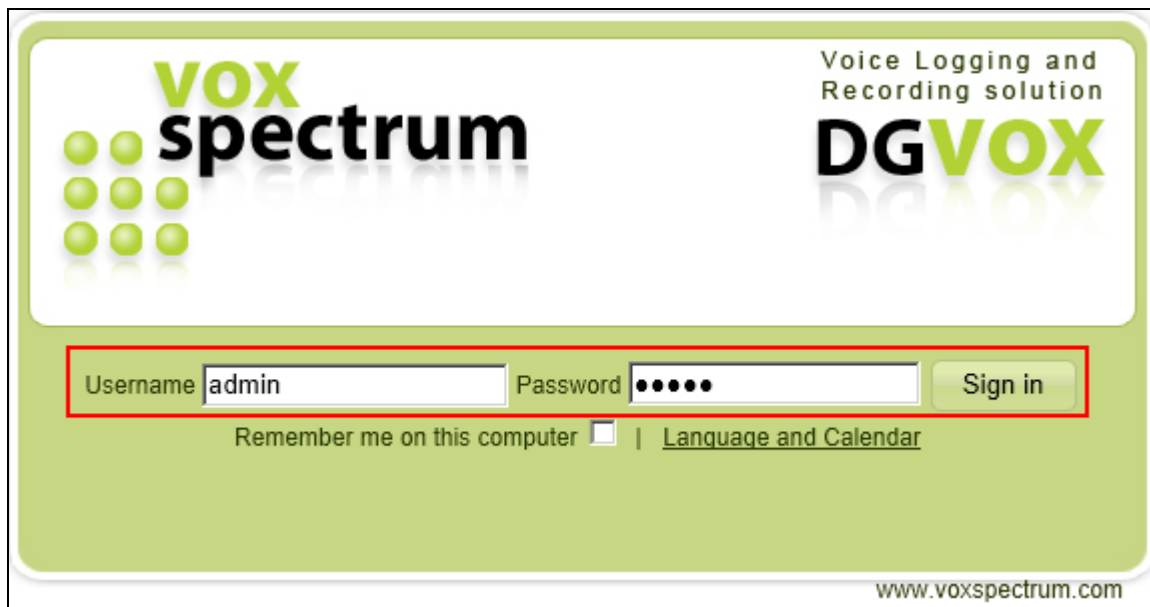
- Channel Id:** A dropdown menu showing '001'.
- Extension:** A text box containing '6000'.
- Extension Password:** A text box containing 'XXXXXX'.
- Virtual Extension:** A text box containing '6500'.
- Virtual Extension Password:** A text box containing 'XXXXXX'.
- Buttons:** 'Apply' (highlighted with a red rectangle), 'Delete', and 'Cancel'.

Below the 'Channel-Extension Mapping' section is the 'Hunt Group Details' section, which includes a 'Hunt group' dropdown menu and 'Add/Update' and 'Delete' buttons.

At the bottom is the 'Message Center' section, which features a cartoon illustration of a person at a desk with a lamp and a sign that reads 'Updates Avaya CTI Channel - Extension Map Settings'.

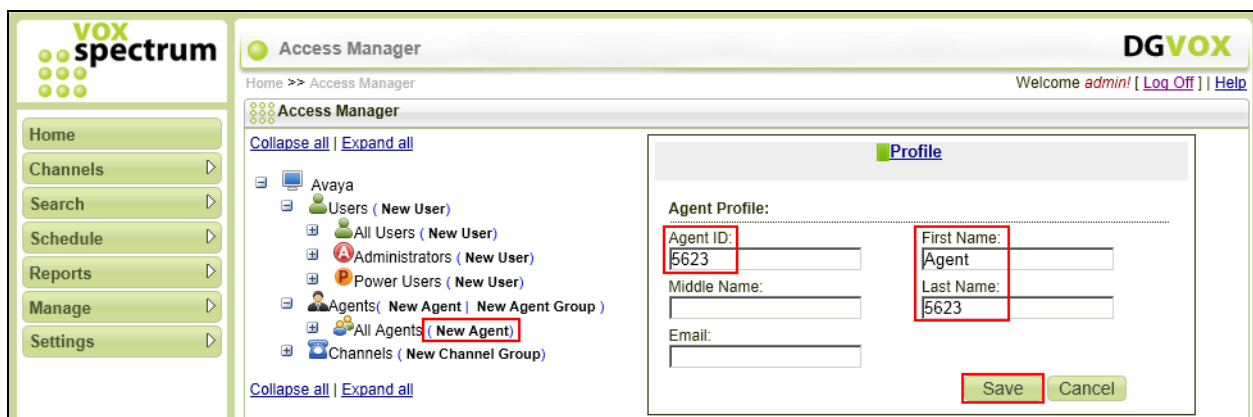
7.4. Add Agent Configuration

Navigate to the URL of the DGVoX web interface, in this case <https://10.10.16.73/DGVOX/> and enter the appropriate login credentials.



The image shows the DGVOX login page. At the top left is the 'VOX spectrum' logo, and at the top right is the text 'Voice Logging and Recording solution DGVOX'. Below the logos is a login form with a red border. It contains a 'Username' field with 'admin' entered, a 'Password' field with six dots, and a 'Sign in' button. Below the password field is a checkbox for 'Remember me on this computer' and a link for 'Language and Calendar'. At the bottom right is the website URL 'www.voxspectrum.com'.

Click **Manage** → **Access Manager** → **New Agent** and add the details for any Communication ACD agents to be recorded. Click **Save** when done.



The image shows the DGVOX Access Manager interface. On the left is a sidebar with a 'VOX spectrum' logo and a menu with items: Home, Channels, Search, Schedule, Reports, Manage, and Settings. The main area is titled 'Access Manager' and shows a tree view of the system hierarchy. The 'Agents' section is expanded, and 'All Agents (New Agent)' is highlighted. On the right is a 'Profile' form for an agent. The form has fields for 'Agent ID' (5623), 'First Name' (Agent), 'Last Name' (5623), 'Middle Name', and 'Email'. There are 'Save' and 'Cancel' buttons at the bottom right of the form.

8. Verification Steps

The following steps can be used to verify the correct operation of the Avaya and VoxSpectrum solution.

8.1. Verify Avaya Aura® Application Enablement Services DMCC Status

Using the Application Enablement Services web interface click **Status → Status and Control → DMCC Service Summary** confirm that there is an active **Session ID**, the **User** is that configured in **Section 6.6**, the **Application** is **Avatya Signalling** which represents the DGVox application, the **Far-end Identifier** is the IP address assigned to the DGVox server, and the **# of Associated Devices** relates to the number of service observer recorder stations configured, in this case **4**.

The screenshot shows the Avaya Aura Application Enablement Services (AES) web interface. The top navigation bar includes 'Status | Status and Control | DMCC Service Summary' and 'Home | Help | Logout'. The left sidebar contains a tree view with categories: AE Services, Communication Manager Interface, Licensing, Maintenance, Networking, Security, and Status. Under Status, there are links for Alarm Viewer, Logs, and Status and Control. Under Status and Control, there are links for CVLAN Service Summary, DLG Services Summary, DMCC Service Summary (highlighted), Switch Conn Summary, and TSAPI Service Summary.

The main content area is titled 'DMCC Service Summary - Session Summary'. It includes a checkbox for 'Enable page refresh every 60 seconds'. Below this, it shows 'Session Summary Device Summary' and 'Generated on Thu Jan 03 12:26:57 GMT 2013'. The following statistics are displayed:

- Service Uptime: 33 days, 23 hours 13 minutes
- Number of Active Sessions: 1
- Number of Sessions Created Since Service Boot: 11
- Number of Existing Devices: 4
- Number of Devices Created Since Service Boot: 81

A table of active sessions is shown below the statistics:

	Session ID	User	Application	Far-end Identifier	Connection Type	# of Associated Devices
<input type="checkbox"/>	DE20A004F500922DC 6A63004BFC256B7-95900	DGVox	AvatyaSignalling	10.10.16.73	XML Unencrypted	4

Below the table are buttons for 'Terminate Sessions' and 'Show Terminated Sessions'. At the bottom, it says 'Item 1-1 of 1'.

8.2. Verify VoxSpectrum Limited DGVoX Live Monitor

From the DGVoX web interface, click **Home** and confirm that the **Live Monitor** accurately displays the activity on the recorder at that time. In this case, extensions **6000** and **6001** are active and being recorded.

VOX spectrum

Manage Channels

Home >> Channels

Welcome **admin!** | [Log Off](#) | [Help](#)

Live Monitor

Start Stop

Auto Start

Label : **6000** | [Edit](#)

Channel Status : **Online** Off

Calls

Last 5 calls

Agent ID	Dialed Digits	Caller ID	Start Time
02075554021			03/01/2013 12:24 PM
02075554021			03/01/2013 12:23 PM
02075554021			03/01/2013 11:50 AM
4021			03/01/2013 11:44 AM
4021			03/01/2013 11:16 AM

Legends

Online 2 Ringing 0 Idle 6 Disconnected 0 Off Off 0


Channel By Status All Channels Channel in Thumbnail View Available Channels: 8 Channel Range 1 - 8

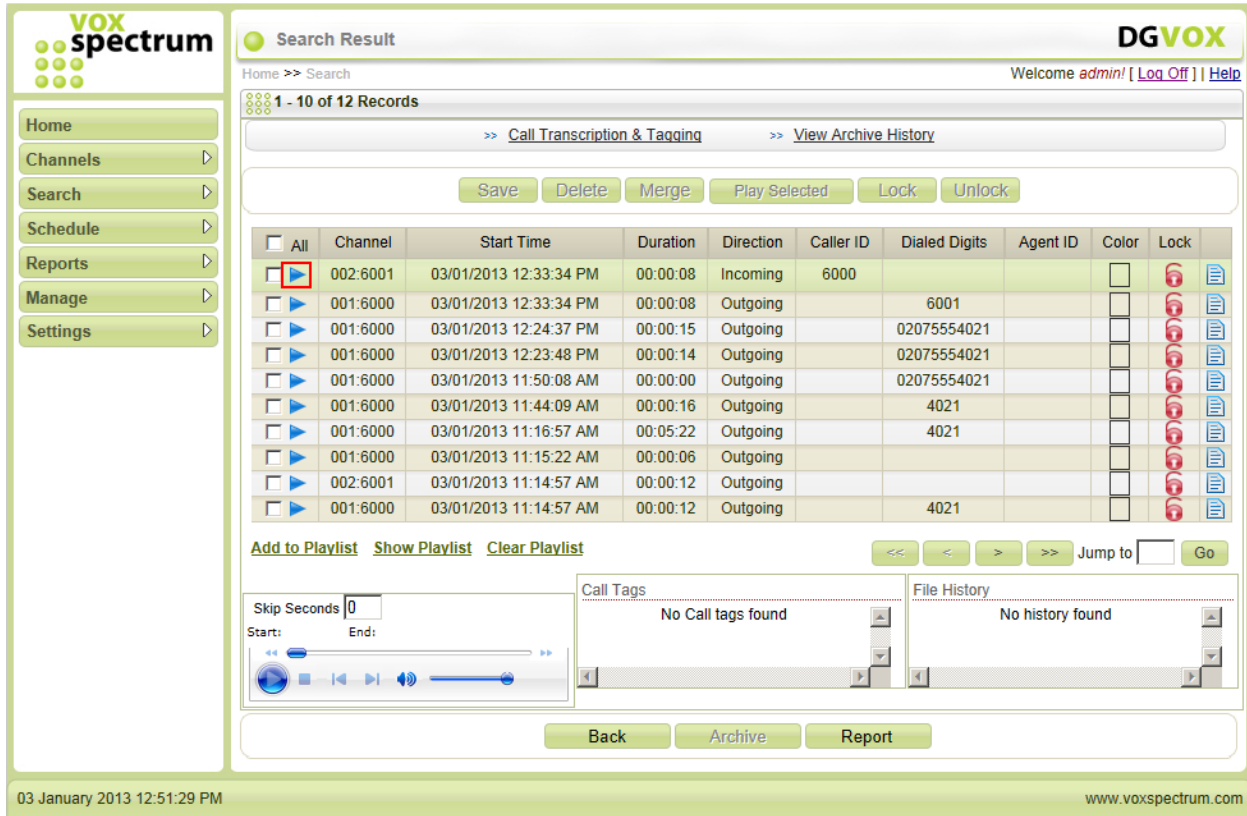
001 : 6000 002 : 6001 003 : 6002 004 : 6003 005 : ext5 006 : ext6 007 : ext7 008 : ext8

Thursday, January 03, 2013 12:34:28 PM

www.voxspectrum.com

8.3. Verify VoxSpectrum Limited DGVoX Search Results and Playback

From the DGVoX web interface, click **Search** → **Search** enter the search parameters required, and click Search (not shown). Verify that the search results accurately present the call activity. Click the  symbol next to the call to be played back and verify clear audio playback is heard.



The screenshot displays the DGVoX web interface. On the left is a navigation menu with options: Home, Channels, Search, Schedule, Reports, Manage, and Settings. The main content area is titled 'Search Result' and shows '1 - 10 of 12 Records'. Below this is a table of call records with columns: All, Channel, Start Time, Duration, Direction, Caller ID, Dialed Digits, Agent ID, Color, and Lock. The first record is highlighted with a red box around its 'All' checkbox and a play button icon. Below the table are buttons for 'Add to Playlist', 'Show Playlist', and 'Clear Playlist'. At the bottom left is a 'Skip Seconds' control with a slider. To the right are 'Call Tags' and 'File History' sections, both showing 'No [tags/history] found'. At the bottom are 'Back', 'Archive', and 'Report' buttons. The footer shows the date '03 January 2013 12:51:29 PM' and the website 'www.voxspectrum.com'.

All	Channel	Start Time	Duration	Direction	Caller ID	Dialed Digits	Agent ID	Color	Lock
<input checked="" type="checkbox"/>	002:6001	03/01/2013 12:33:34 PM	00:00:08	Incoming	6000				
<input type="checkbox"/>	001:6000	03/01/2013 12:33:34 PM	00:00:08	Outgoing		6001			
<input type="checkbox"/>	001:6000	03/01/2013 12:24:37 PM	00:00:15	Outgoing		02075554021			
<input type="checkbox"/>	001:6000	03/01/2013 12:23:48 PM	00:00:14	Outgoing		02075554021			
<input type="checkbox"/>	001:6000	03/01/2013 11:50:08 AM	00:00:00	Outgoing		02075554021			
<input type="checkbox"/>	001:6000	03/01/2013 11:44:09 AM	00:00:16	Outgoing		4021			
<input type="checkbox"/>	001:6000	03/01/2013 11:16:57 AM	00:05:22	Outgoing		4021			
<input type="checkbox"/>	001:6000	03/01/2013 11:15:22 AM	00:00:06	Outgoing					
<input type="checkbox"/>	002:6001	03/01/2013 11:14:57 AM	00:00:12	Outgoing					
<input type="checkbox"/>	001:6000	03/01/2013 11:14:57 AM	00:00:12	Outgoing		4021			

9. Conclusion

All test cases were executed successfully with observations in **Section 2.2**. It is not recommended to use shuffling if H.323 trunks are in use.

10. Additional References

This section references the product documentations that are relevant to these Application Notes.

Avaya product documentation can be found at <http://support.avaya.com>.

- *Administering Avaya Aura® Communication Manager, Release 6.2, 03-300509, Issue 7.0 December 2012*

VoxSpectrum product documentation can be obtained by using the contact details in **Section 2.3**.

- *DGVoX 8.1 user manual and installation manual*

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