



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Avaya Aura® Communication Manager R6.2 and Avaya Aura® Application Enablement Services R6.2 with Voxtronic Communication Server using Single Step Conference – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Voxtronic Communication Server to interoperate with Avaya Aura® Communication Manager using Avaya Aura® Application Enablement Services. Voxtronic Communication Server is a call recording solution. In the compliance testing, Voxtronic Communication Server used the Avaya Aura® Application Enablement Services Device, Media, and Call Control (DMCC) interface to register a number of configured Single Step Conference Stations configured on Avaya Aura® Communication Manager. A number of stations configured on Avaya Aura® Communication Manager were monitored for which calls were to be recorded using the Telephony Services Application Programming Interface (TSAPI) of Avaya Aura® Application Enablement Services via DMCC.

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 the Voxtronic Communication Server call recorder to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. The Voxtronic Communication Server call 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 feature was used.

Voxtronic Communication Server can be configured to monitor specific local endpoints and record calls made to or from those endpoints. Calls between or among local endpoints which are each monitored produce multiple voice files: one for each monitored endpoint.

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 and playback via the Voxtronic Communication Server web interface 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
- Voxtronic Communication Server network recovery
- Voxtronic Communication Server power outage recovery

2.2. Test Results

All test cases passed successfully with the following observations:

- Where an inbound trunk call is made to a monitored station the call appears on the Voxtronic Communication Server call recording web interface as A-PSTN with the “Other Party” field filled with the actual DDI dialed by the PSTN.
- Where a station is forwarded, the record is presented as the calling and answering party and does not include the forwarded party. Similarly this is the case where a coverage path is used.
- Where A is a monitored station and e is not monitored and e is configured with a bridged appearance for A; if a call from an unmonitored station to A is answered by its bridged appearance on e, the call is not recorded.
- Where A is a monitored station and e is not monitored and e is configured with a bridged appearance for A; if a call is placed to an unmonitored station from the bridged appearance of A on e, the call is not recorded.
- Where the LAN cable to the Voxtronic Communication Server is disconnected during a monitored call, the call is recorded up to the point of the disconnection and appears on the web interface after reconnection of the LAN. If the call is ended after the reconnection of the LAN an additional call record without the remaining audio recording is presented on the web interface.

2.3. Support

Support for Voxtronic Communication Server is available as follows:

- General technical support from Voxtronic Communication Server can be obtained by sending mail to: support@voxtronic.com.
- A support enquiry can also be presented through the form available at the Voxtronic web site: <http://www.voxtronic.com/en/Request-Support>

3. Reference Configuration

Figure 1 shows 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. Voxtronic Communication Server was configured on the same IP network for connection to Avaya Aura® Application Enablement Services over DMCC.

Note: Only a DMCC connection was created between Application Enablement Services and Voxtronic Communication Server. Required TSAPI features such as monitoring of stations was triggered via the DMCC connection.

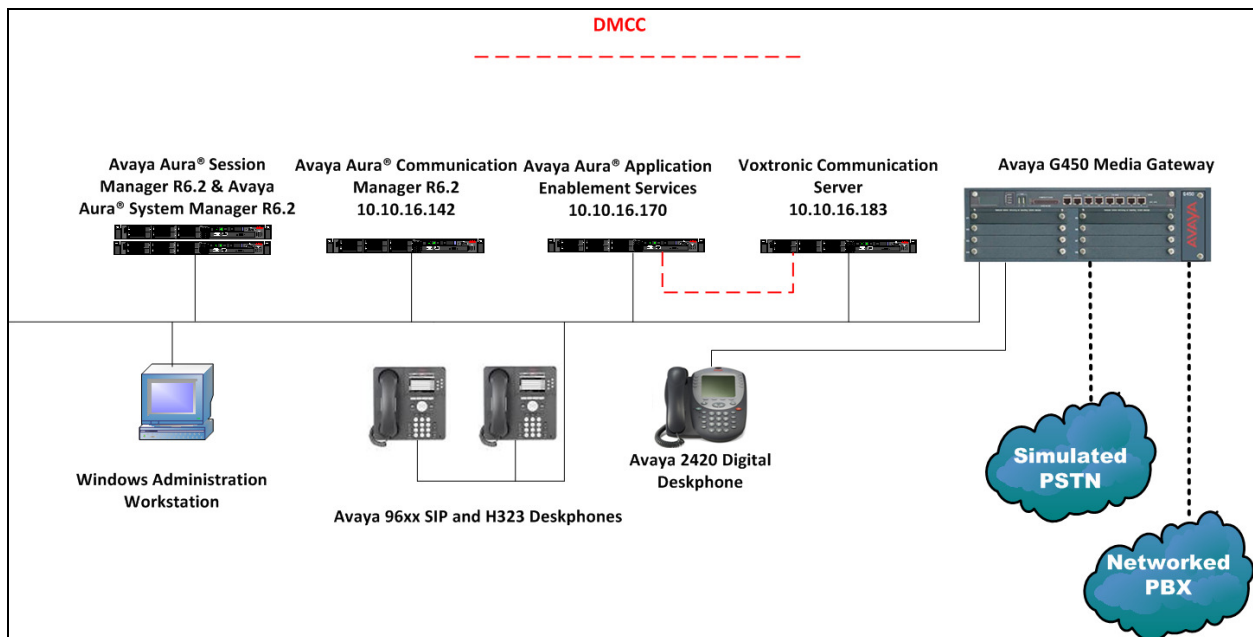


Figure 1: Avaya Aura® Communication Manager, Avaya Aura® Session Manager and Avaya Aura® Application Enablement Services with Voxtronic Communication Server

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 SP5 build R016x.02.0.823.0-20396
Avaya Aura® Session Manager running on Avaya S8800 Server	R6.2 SP4
Avaya Aura® Application Enablement Services	R6.2 patch 1
Avaya G450 Media Gateway <ul style="list-style-type: none">• MM710• MM712	32.24.0 <ul style="list-style-type: none">• HW5 FW22• HW7 FW14
Avaya 9630 IP Deskphone	<ul style="list-style-type: none">• H.323 3.2• SIP 2.6 SP8
Avaya 2420 Digital Deskphone	2420 Rel 6.00 HWT=51H HWV=1 FWV=6
Voxtronic Communication Server running on virtualized Microsoft Windows 7 Professional	<ul style="list-style-type: none">• Voxtronic Communication Server 4.1.3.D• VoxAvayarps Call Control Module - 0.1.0.2• Avaya Aura® Application Enablement Services DMCC Java SDK 6.2.0.69

5. Configure Avaya Aura® Communication Manager

The configuration and verification operations illustrated in this section were all performed using the Communication Manager System Access 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 AE Services

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 **10.10.16.170**. 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	
default	0.0.0.0	
aes62vm	10.10.16.170	

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		
		COR: 1
Name: aes62vm		

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** hostname 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:	aes62vm	Avayapassword1	y	in use	

5.2. Configure Single Step Conference Stations

Voxtronic Communication Server uses a pool of stations as recording extensions, these are used to conference into stations which are configured to have their calls monitored. Enter the command **add station next** and configure a relevant **Extension**, set the **Security Code** which must be common for all of the configured recording extensions, set the **Type** as **4624**, the **Port** as **IP** and assign an identifying **Name**. Ensure that **IP SoftPhone** is set to **y**. Repeat this according to the number extensions required by Voxtronic Communication Server. During the compliance test 8 stations were configured for this purpose, 6500 – 6507.

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	
Loss Group: 19	Time of Day Lock Table:
Speakerphone: 2-way	Personalized Ringing Pattern: 1
Display Language: english	Message Lamp Ext: 6500
Survivable GK Node Name:	Mute Button Enabled? y
Survivable COR: internal	Media Complex Ext:
Survivable Trunk Dest? y	IP SoftPhone? y
	IP Video Softphone? n
	Short/Prefixed Registration Allowed: default

5.3. Configure SIP Stations for CTI Control

SIP stations must be configured so they can be monitored by Voxtronic Communication Server, 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	

5.4. Configure SIP Signaling Group

It is assumed that the necessary configuration has been previously administered to service SIP endpoints. Enter the command **change signaling group x** where **x** is the relevant SIP trunk.

Ensure that Initial IP-IP Direct Media is set to **n** in order to successfully record calls between SIP endpoints.

change signaling-group 1		Page 1 of 2
SIGNALING GROUP		
Group Number: 1	Group Type: sip	
IMS Enabled? n	Transport Method: tls	
Q-SIP? n		
IP Video? y	Priority Video? y	Enforce SIPS URI for SRTP? y
Peer Detection Enabled? y	Peer Server: SM	
Near-end Node Name: procr	Far-end Node Name: sm62sigint	
Near-end Listen Port: 5061	Far-end Listen Port: 5061	
	Far-end Network Region: 1	
Far-end Domain:		
Incoming Dialog Loopbacks: eliminate	Bypass If IP Threshold Exceeded? n	
DTMF over IP: rtp-payload	RFC 3389 Comfort Noise? n	
Session Establishment Timer(min): 3	Direct IP-IP Audio Connections? y	
Enable Layer 3 Test? y	IP Audio Hairpinning? n	
	Initial IP-IP Direct Media? n	
H.323 Station Outgoing Direct Media? n	Alternate Route Timer(sec): 6	

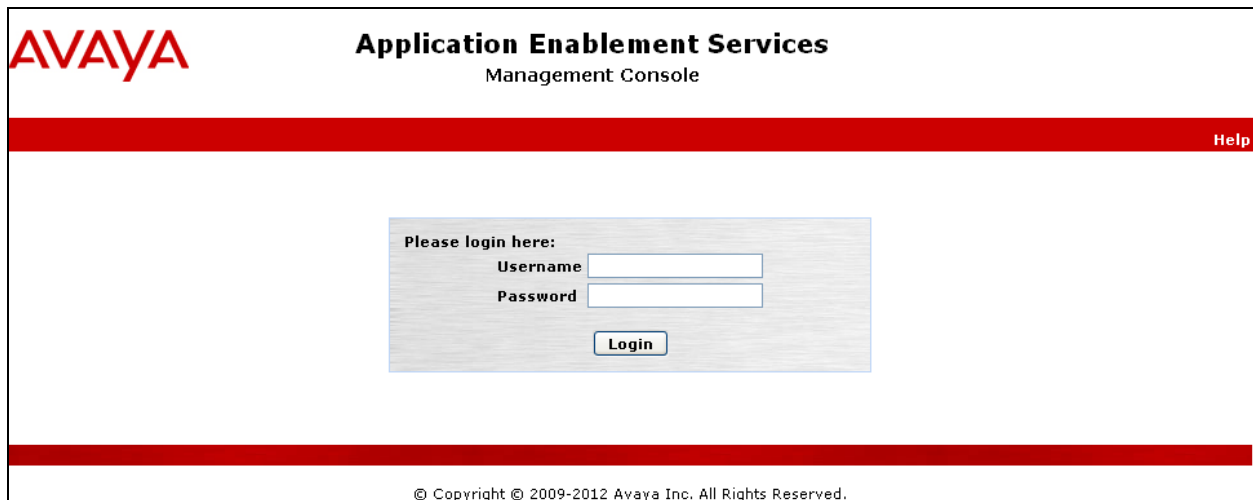
6. Configure Avaya Aura® Application Enablement Services

This section provides 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 Application Enablement Services, in this instance using the URL <https://10.10.16.170> . 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 the word "Help" in white text on the right side. In the center of the page is a login box with a light gray background. Inside the box, the text "Please login here:" is followed by two input fields: "Username" and "Password". 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.



Application Enablement Services
Management Console

Welcome: User craft
Last login: Tue Apr 2 16:54:06 2013 from 10.10.16.62
Number of prior failed login attempts: 0
HostName/IP: aes62vm/10.10.16.170
Server Offer Type: SWONLY
SW Version: r6-2-0-18-0 Patch 1
Server Date and Time: Thu Apr 04 14:05:33 UTC 2013

HomeHome | Help | Logout

▶ 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 Application Enablement Services, click **Communication Manager Interface** → **Switch Connections**. In the field next to **Add Connection** enter an appropriate Switch Connection name, in this case **CM62** and click on **Add Connection**.

Communication Manager Interface | Switch ConnectionsHome | Help | Logout

▶ AE Services

▶ Communication Manager Interface

Switch Connections

▶ Dial Plan

▶ Licensing

▶ Maintenance

Switch Connections

CM62Add 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. Place a check in the **Processor Ethernet** box as in this case a C-LAN is not being used in the configuration and the Switch Connection is made to the Communication Manager procr IP address. 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' and 'Confirm Switch Password' (both masked with dots), 'Msg Period' set to 30 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 displaying a list of connections. 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 columns: 'Connection Name', 'Processor Ethernet', 'Msg Period', and 'Number of Active Connections'. The table contains one entry: 'CM62' with 'Yes' for Processor Ethernet, '30' for Msg Period, and '0' for Number of Active Connections. 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

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

Back

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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

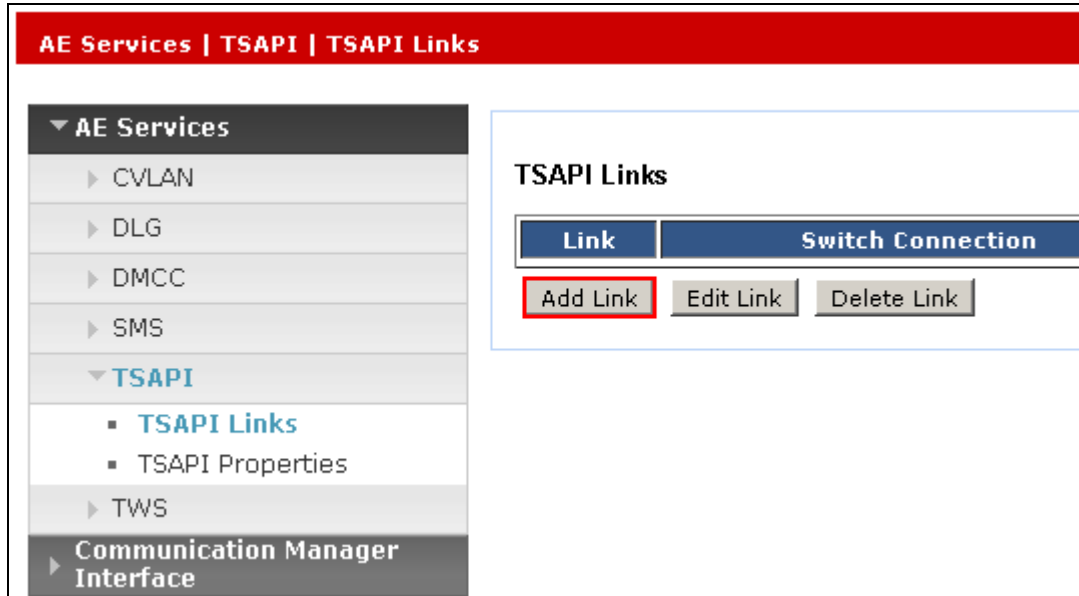
Name or IP Address	Status
10.10.16.142	Idle

Back

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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**.



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

- **Link** – select the next available link number
- **Switch Connection** – select the newly configured Switch Connection
- **Switch CTI Link Number** - enter the CTI Link number configured in **Section 5.1**
- **Security** – set to **Both** to enable both Encrypted and Unencrypted TSAPI connections.
Voxtronic Communication Server uses an unsecure connection

The screenshot shows the 'Add TSAPI Links' configuration window. On the left is a navigation pane with a red header 'AE Services | TSAPI | TSAPI Links'. The pane lists 'AE Services' (CVLAN, DLG, DMCC, SMS) and 'TSAPI' (TSAPI Links, TSAPI Properties, TWS). The 'Communication Manager Interface' is at the bottom. The main area is titled 'Add TSAPI Links' and contains the following fields: 'Link' (dropdown with '1'), 'Switch Connection' (dropdown with 'CM62', highlighted with a red box), 'Switch CTI Link Number' (dropdown with '1'), 'ASAI Link Version' (dropdown with '4'), and 'Security' (dropdown with 'Both'). At the bottom are 'Apply Changes' (highlighted with a red box) and 'Cancel Changes' buttons.

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

AE Services | TSAPI | TSAPI Links

▼ AE Services

- ▶ CVLAN
- ▶ DLG
- ▶ DMCC
- ▶ SMS
- ▼ **TSAPI**
 - **TSAPI Links**
 - TSAPI Properties
- ▶ TWS
- ▶ Communication Manager Interface

Apply Changes to Link

Warning! Are you sure you want to apply the changes?
These changes can only take effect when the TSAPI server restarts.

⚠ Please use the Maintenance -> Service Controller page to restart the TSAPI server.

Apply **Cancel**

The following screen will be displayed showing the TSAPI Link.

AE Services | TSAPI | TSAPI Links Home | Help | Logout

▼ AE Services

- ▶ CVLAN
- ▶ DLG
- ▶ DMCC
- ▶ SMS
- ▼ **TSAPI**
 - **TSAPI Links**
 - TSAPI Properties
- ▶ TWS

TSAPI Links

Link	Switch Connection	Switch CTI Link #	ASAI Link Version	Security
1	CM62	1	4	Both

Add Link **Edit Link** **Delete 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**.

Maintenance | Service Controller

▶ AE Services

- ▶ Communication Manager Interface
- ▶ Licensing
- ▼ **Maintenance**
 - Date Time/NTP Server
 - ▶ Security Database
 - Service Controller**
 - ▶ Server Data
- ▶ Networking
- ▶ Security
- ▶ Status
- ▶ User Management

Service Controller

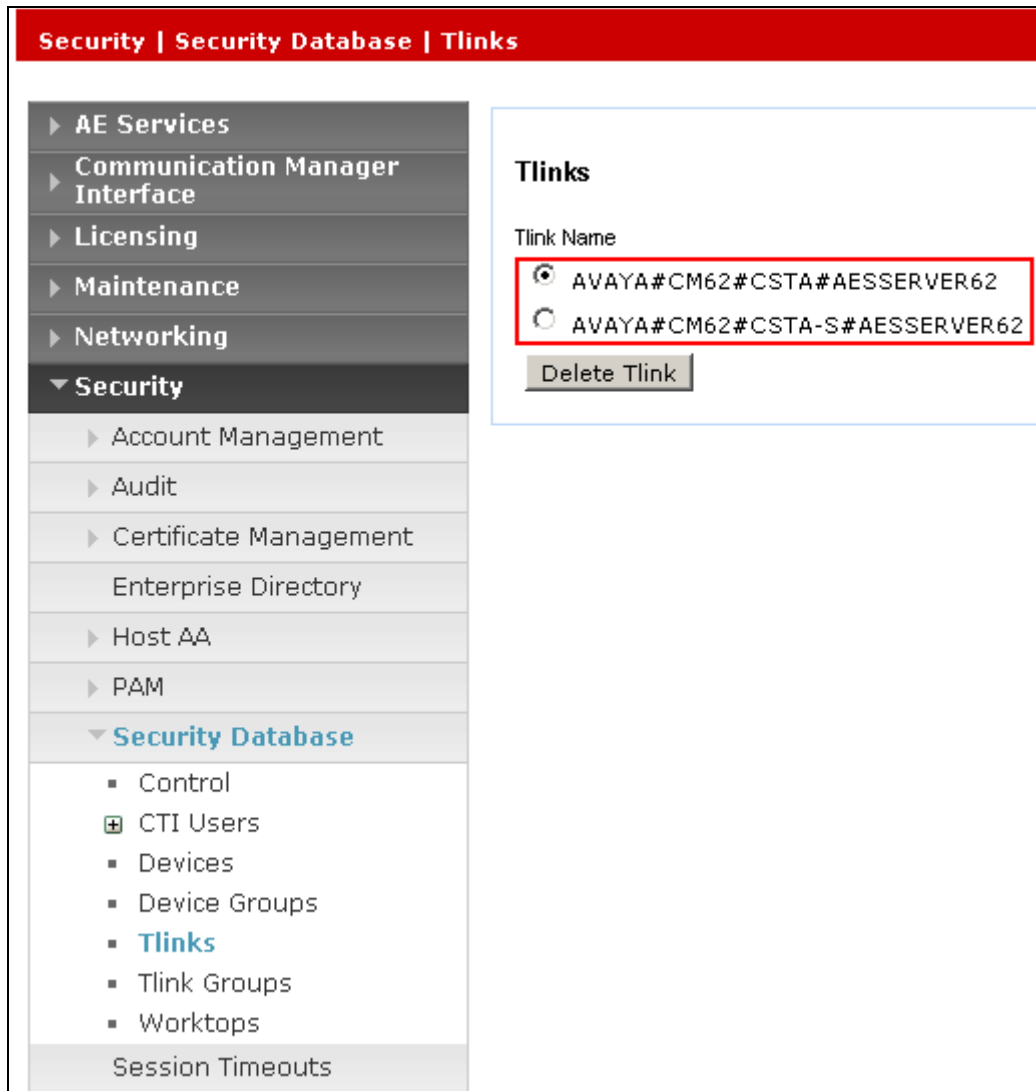
Service	Controller Status
<input type="checkbox"/> ASAI Link Manager	Running
<input type="checkbox"/> DMCC Service	Running
<input type="checkbox"/> CVLAN Service	Running
<input type="checkbox"/> DLG Service	Running
<input type="checkbox"/> Transport Layer Service	Running
<input checked="" type="checkbox"/> TSAPI Service	Running

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

Start **Stop** **Restart Service** **Restart AE Server** **Restart Linux** **Restart Web Server**

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 Voxtronic Communication Server 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

▶ AE Services

▶ Communication Manager Interface

▶ Licensing

▶ Maintenance

▶ Networking

▶ Security

▶ Status

▼ User Management

▶ Service Admin

▼ User Admin

■ Add User

■ Change User Password

■ List All Users

■ Modify Default Users

■ Search Users

▶ Utilities

▶ Help

Add User

Fields marked with * can not be empty.

* User Id

Voxlog

* Common Name

Voxlog

* Surname

Voxlog

* User Password

.....

* Confirm Password

.....

Admin Note

Avaya Role

None

Business Category

Car License

CM Home

Css Home

CT User

Yes

Department Number

Display Name

Employee Number

Employee Type

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, **Voxlog** 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	Voxlog
	Common Name	Voxlog
	Worktop Name	NONE
	Unrestricted Access	<input checked="" type="checkbox"/>
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	<input type="checkbox"/>
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"/>
	<hr/>			
	DLG Port	TCP Port	5678	
	<hr/>			
	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		<input type="text" value="1050"/>	
	TCP Port Max		<input type="text" value="1065"/>	
	Encrypted TLINK Ports			
	TCP Port Min		<input type="text" value="1066"/>	
	TCP Port Max		<input type="text" value="1081"/>	
<hr/>				
DMCC Server Ports			Enabled Disabled	
Unencrypted Port		<input type="text" value="4721"/>	<input checked="" type="radio"/> <input type="radio"/>	
Encrypted Port		<input type="text" value="4722"/>	<input checked="" type="radio"/> <input type="radio"/>	
TR/87 Port		<input type="text" value="4723"/>	<input type="radio"/> <input checked="" type="radio"/>	

7. Configure Voxtronic Communication Server

The configuration values for the external interfaces used by Voxtronic Communication Server are read from the **config.xml** configuration file located in the **C:\voxtronic\config\VoxAvayaRps** directory. This XML property file contains a series of keys and associated values for various interface settings. For the purposes of the compliance test the following configuration file was used where the following values pertinent to the connection the Avaya solution are highlighted:

- `<entry key="voxlogMode">CALL_BASED</entry>` - the recording mode is defined
- `<entry key="recordingMethod">SINGLE_STEP_CONFERENCING</entry>` - the recording method is defined
- `<entry key="switchLinkName">CM62</entry>` - enter the Switch Link Name configured in **Section 6.2**
- `<entry key="CMServerIpAddr">10.10.16.142</entry>` - enter the IP address of the process
- `<entry key="DMCCServerIpAddr">10.10.16.170</entry>` - enter the IP address of Application Enablement Services
- `<entry key="DMCCServerIpAddr">10.10.16.170</entry>` - enter the IP address of Application Enablement Services
- `<entry key="DMCCServerUserName">Voxlog</entry>` - enter the CTI User configured in **Section 6.6**
- `<entry key="DMCCServerPassword">Voxlog123!</entry>` - enter the CTI User password configured in **Section 6.6**
- `<entry key="voxGenericRpsIpAddr">10.10.16.183</entry>` - enter the Voxtronic Communication Server IP address
- `<entry key="voxMsFwIpAddr">10.10.16.183</entry>` - enter the Voxtronic Communication Server IP address
- `<entry key="dispatcherDevices">6000, 6001, 6002, 6003</entry>` - enter the extension numbers to be monitored, in this instance SIP and H.323 extensions 6000-6003 were monitored
- `<entry key="recordingDevices">6500, 6501, 6502, 6503, 6504, 6505, 6506, 6507</entry>` - enter the Single Step Conference stations configured in **Section 5.2**
- `<entry key="commonRDPASSWORD">1234</entry>` - enter the Security Code assigned to the Single Step Conference stations configured in **Section 5.2**
- `<entry key="recorderCodecs">g711A, g711U</entry>` - enter the codecs used

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?><properties>
  <comment>Config file of Avaya RPS for AVAYA client side IP
recording</comment>
  <entry key="ModuleEnabled">true</entry>

  <!-- 1.  Logger instance-id:
           Logger-A: Logger-A
           Logger-B: Logger-B
           ===== -->
  <entry key="loggerId">Logger-A</entry>
```

```

<!-- 2.  Voxlog recording mode:
        DEVICE_BASED |
        CALL_BASED   |
        CALL_BASED_2 (BLKA) -->
<entry key="voxlogMode">CALL_BASED</entry>

<!-- 3.  Client-side Ip-call recording method:
        SINGLE_STEP_CONFERENCING |
        // SERVICE_OBSERVING |
        // MULTIPLE_REGISTRATIONS -->
<entry key="recordingMethod">SINGLE_STEP_CONFERENCING</entry>

<!-- 4.  Name of the communication link between AES and CM
        TKOPNOCM01
        S8500
        Evolution -->
<entry key="switchLinkName">CM62</entry>

<!-- 5.  CM-Server: IP-Address
        90.126.77.135
        10.64.120.12
        192.168.150.126 -->
<entry key="CMServerIpAddr">10.10.16.142</entry>

<!-- 6.  AES DMCC-Server: IP-Address (See: cmapi.server_ip)
        90.126.77.212
        10.64.120.15
        192.168.150.103 -->
<entry key="DMCCServerIpAddr">10.10.16.170</entry>

<!-- 7.  AES DMCC-Server: Port:          (See: cmapi.server_port)
        Unsecure connection: 4721,
        // Secure connection: 4722 -->
<entry key="DMCCServerPort">4721</entry>

<!-- 8.  AES DMCC-Server: User name (See: cmapi.username)
        Logger-A: voxlog1
        Logger-B: voxlog2
        =====
        aessim
        avaya -->
<entry key="DMCCServerUserName">Voxlog</entry>

<!-- 9.  AES DMCC-Server: Password (See: cmapi.password)
        Voxlog01!
        AESsim123#
        ou812 -->
<entry key="DMCCServerPassword">Voxlog123!</entry>

<!-- 10. Voxlog voxGenericRps: IP-Addressss
        Logger-A: 90.126.70.201
        Logger-B: 90.126.70.202
        =====
        192.168.1.3
        192.168.150.13 -->

```

```

<entry key="voxGenericRpsIpAddr">10.10.16.183</entry>

<!-- 11. Voxlog voxGenericRps: Port
      Voxlog V4  6726
      Voxlog V3: 6814 -->
<entry key="voxGenericRpsPort">6726</entry>

<!-- 12. Voxlog voxMsFw: IP-Address
      Logger-A: 90.126.70.201
      Logger-B: 90.126.70.202
      =====
      90.126.70.202
      10.10.101.225
      192.168.150.13 -->
<entry key="voxMsFwIpAddr">10.10.16.183</entry>

<!-- 13. Voxlog voxMsFw: Start of the RTP port-range
      6000 -->
<entry key="voxMsFwStartPort">6000</entry>

<!-- 14. Comma-separated list of monitored Dispatcher-Device extensions
by CALL_MODE
      74001491, 74001492, 74001493, 74001494, 74001495, 74001496,
74001497, 74001498, 74001499, 74001500, 74001501, 74001502, 74001503,
74001504, 74001505, 74001506 -->
<entry key="dispatcherDevices">6000, 6001, 6002, 6003</entry>

<!-- 15. Comma-separated list of Recording-Device extensions (RD-Pool)
      Must be provisioned with Avaya Communication Manager (ACM)
      Logger-A: 798501, 798502, 798503, 798504, 798505, 798506,
798507, 798508, 798509, 798510, 798511, 798512, 798513, 798514, 798515,
798516
      Logger-B: 798551, 798552, 798553, 798554, 798555, 798556,
798557, 798558, 798559, 798560, 798561, 798562, 798563, 798564, 798565,
798566
      =====
      ===== -->
<entry key="recordingDevices">6500, 6501, 6502, 6503, 6504, 6505, 6506,
6507</entry>

<!-- 16. Common password of all Recording-Devices
      1234 -->
<entry key="commonRDPasswd">1234</entry>

<!-- 17. Comma-separated list of codecs (g711A,g711U, g723, g729,g729A)
      supported by the recorder: voxMsFw -->
<entry key="recorderCodecs">g711A, g711U</entry>

<!-- 18. Size of media packets in milliseconds requested for the
recorder: voxMsFw -->
<entry key="recorderPacketSize">20</entry>

<!-- 19. Feature Access Code (FAC) of
      'Service Observing No Talk'      ==> *882, *222
      // 'Service Observing Listen/Talk' ==> *881, *221

```

```
// 'Service Observing Listen Only' ==> *880, *220 -->
<entry key="serviceObservingFAC">*882</entry>

<!-- 20. Session duration timer
      5..7200 seconds (heart beat). Default: 60 -->
<entry key="sessionDurationTimer">60</entry>

<!-- 21. Session cleanup delay
      0..7200 seconds. Default: 300 -->
<entry key="sessionCleanupDelay">300</entry>

<!-- 22. Application Description -->
<entry key="applicationDescription">Voxlog V4 - Client-side IP Call
Recording</entry>

<!-- 23. PBX dialing number (Node Access Code)
      0891895178
      90739887 -->
<entry key="pbxDialNum">0891895178</entry>
</properties>
```

8. Verification Steps

The following steps can be used to verify the correct operation of the Avaya and Voxtronic 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 **Voxlog V4 – Client-side IP Call Recording** which represents the Voxtronic Communication Server, the **Far-end Identifier** is the IP address assigned to the Voxtronic Communication Server, and the **# of Associated Devices** relates to the number of Single Step Conference recorder stations and monitored stations configured, in this case **12**.

The screenshot shows the 'DMCC Service Summary - Session Summary' page. The left sidebar contains a navigation menu with 'Status and Control' expanded, and 'DMCC Service Summary' selected. The main content area displays session summary statistics and a table of active sessions.

DMCC Service Summary - Session Summary

☐ Enable page refresh every seconds

Session Summary [Device Summary](#)
Generated on Tue Aug 06 17:19:56 UTC 2013

Service Uptime: 43 days, 2 hours 58 minutes
Number of Active Sessions: 1
Number of Sessions Created Since Service Boot: 13
Number of Existing Devices: 12
Number of Devices Created Since Service Boot: 122

	Session ID	User	Application	Far-end Identifier	Connection Type	# of Associated Devices
<input type="checkbox"/>	F10905E23AACC3942 F97237D08E72D9B-12	Voxlog	Voxlog V4 - Client-side IP Call Recording	10.10.16.183	XML Unencrypted	12

Item 1-1 of 1

8.2. Verify Avaya Aura® Application Enablement Services TSAPI Status

Using the Application Enablement Services web interface click **Status → Status and Control → TSAPI Service Summary** confirm the number of **Associations** for the relevant **Switch Name** matches the number of monitored stations, in this case **4**.

Status | Status and Control | TSAPI Service Summary

Home | Help | Logout

▶ AE Services

▶ Communication Manager Interface

▶ Licensing

▶ Maintenance

▶ Networking

▶ Security

▼ Status

Alarm Viewer

▶ Logs

▼ Status and Control

▪ CVLAN Service Summary

▪ DLG Services Summary

▪ DMCC Service Summary

▪ Switch Conn Summary

▪ TSAPI Service Summary

TSAPI Link Details

☐ Enable page refresh every 60 seconds

	Link	Switch Name	Switch CTI Link ID	Status	Since	State	Switch Version	Associations	Msgs to Switch	Msgs from Switch	Msgs Period
⊞	1	CM62	1	Talking	Fri Jul 12 13:06:03 2013	Online	16	4	15	15	30

OnlineOffline

For service-wide information, choose one of the following:

TSAPI Service StatusTLink StatusUser Status

8.3. Verify Avaya Aura® Communication Manager Single Step Conference Station Registrations

From the SAT enter the command **list registered-ip-stations** and confirm that the configured Single Step Conference Stations **6500-6507** are listed, the **Prod ID/Release** is **IP_API_A 3.2040** and the **Station IP Address** is that of Application Enablement Services and the **Gatekeeper IP Address** is that assigned to the **procr**.

list registered-ip-stations					Page 1
REGISTERED IP STATIONS					
Station Ext or Orig Port	Set Type/ Net Rgn	Prod ID/ Release	TCP Skt	Station IP Address/ Gatekeeper IP Address	

6500	4624	IP_API_A	y	10.10.16.170	
	1	3.2040		10.10.16.142	
6501	4624	IP_API_A	y	10.10.16.170	
	1	3.2040		10.10.16.142	
6502	4624	IP_API_A	y	10.10.16.170	
	1	3.2040		10.10.16.142	
6503	4624	IP_API_A	y	10.10.16.170	
	1	3.2040		10.10.16.142	
6504	4624	IP_API_A	y	10.10.16.170	
	1	3.2040		10.10.16.142	
6505	4624	IP_API_A	y	10.10.16.170	
	1	3.2040		10.10.16.142	
6506	4624	IP_API_A	y	10.10.16.170	
	1	3.2040		10.10.16.142	
6507	4624	IP_API_A	y	10.10.16.170	
	1	3.2040		10.10.16.142	

8.4. Verify Avaya Aura® Communication Manager Monitored Stations

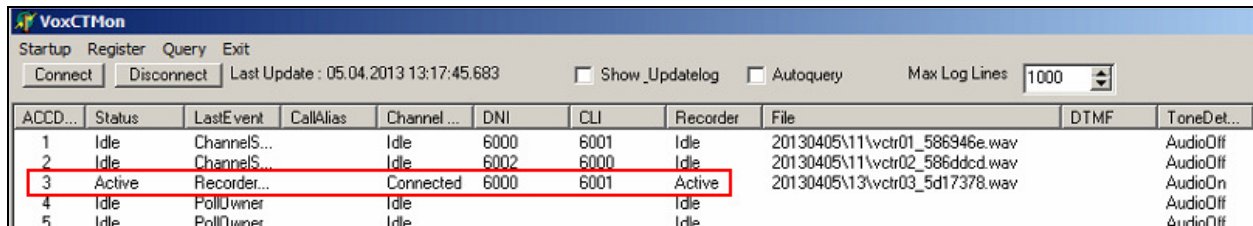
From the SAT enter the command **list monitored-station** and confirm the stations which are to have their calls recorded are listed, in this case **6000-6003**

list monitored-station									
MONITORED STATION									
Station Ext	Association 1		Association 2		Association 3		Association 4		
	CTI Link	CRV	CTI Link	CRV	CTI Link	CRV	CTI Link	CRV	

6000	1	15							
6001	1	16							
6002	1	17							
6003	1	18							


8.5. Verify Voxtronic Communication Server VoxCTMon

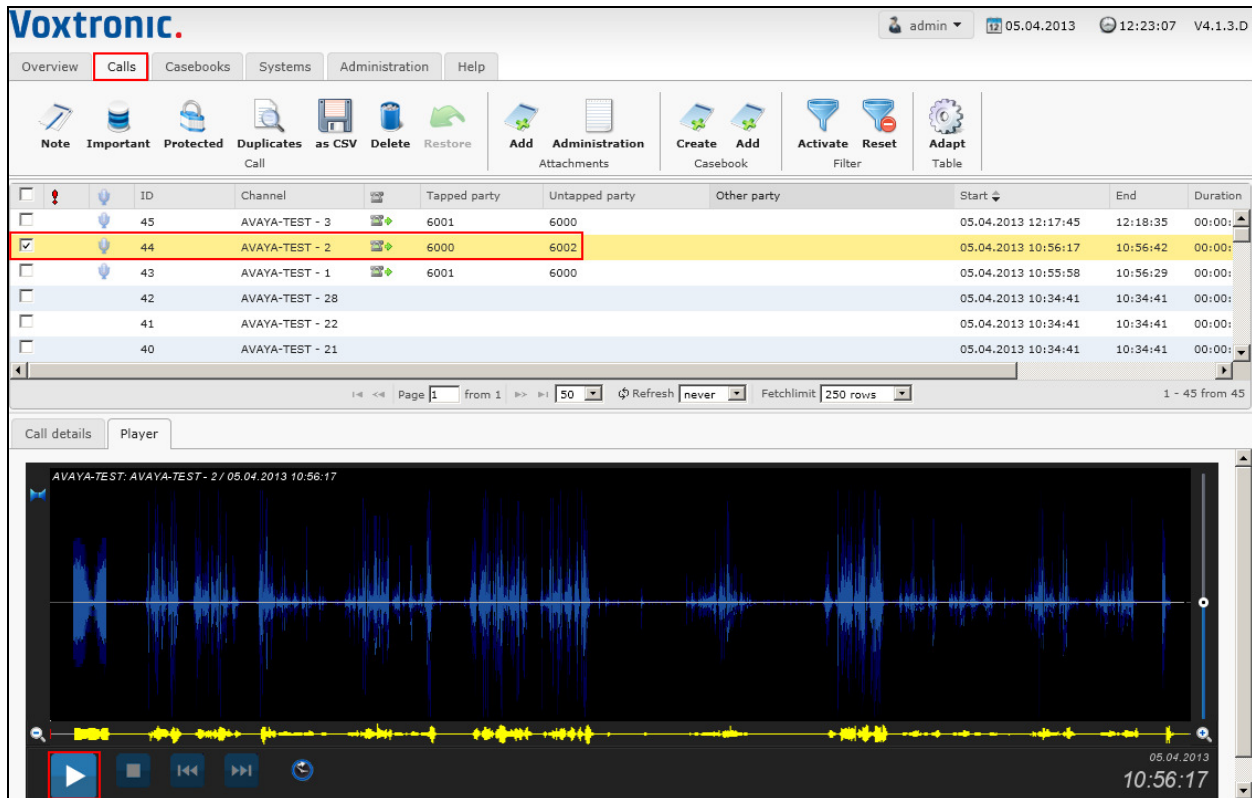
From the Voxtronic Server, run the VoxCTMon application from the shortcut on the desktop and ensure that the recorder activity on the is accurately displayed. In this case, extensions **6000** and **6001** are **Active** and being recorded.



ACCD...	Status	LastEvent	CallAlias	Channel ...	DNI	CLI	Recorder	File	DTMF	ToneDet...
1	Idle	ChannelS...		Idle	6000	6001	Idle	20130405\11\vcctr01_586946e.wav		AudioOff
2	Idle	ChannelS...		Idle	6002	6000	Idle	20130405\11\vcctr02_586ddcd.wav		AudioOff
3	Active	Recorder...		Connected	6000	6001	Active	20130405\13\vcctr03_5d17378.wav		AudioOn
4	Idle	PollOwner		Idle			Idle			AudioOff
5	Idle	PollOwner		Idle			Idle			AudioOff

8.6. Verify Voxtronic Communication Server Search Results and Playback

From the Voxtronic Communication Server's web interface, click the **Calls** tab and verify that the recent call activity is accurately displayed. Click the appropriate call for playback and click the **Player** tab click the  icon and verify the expected call audio playback is heard.



The screenshot displays the Voxtronic web interface. At the top, the 'Calls' tab is selected in the navigation menu. Below the menu, there is a toolbar with various icons for call management. The main area shows a table of call records. The table has columns for ID, Channel, Tapped party, Untapped party, Other party, Start, End, and Duration. Call ID 44 is highlighted in yellow. Below the table, there is a pagination bar showing 'Page 1 from 1' and a 'Refresh' button. At the bottom, the 'Player' tab is active, showing a waveform and a play button icon.

ID	Channel	Tapped party	Untapped party	Other party	Start	End	Duration
45	AVAYA-TEST - 3	6001	6000		05.04.2013 12:17:45	12:18:35	00:00
44	AVAYA-TEST - 2	6000	6002		05.04.2013 10:56:17	10:56:42	00:00
43	AVAYA-TEST - 1	6001	6000		05.04.2013 10:55:58	10:56:29	00:00
42	AVAYA-TEST - 28				05.04.2013 10:34:41	10:34:41	00:00
41	AVAYA-TEST - 22				05.04.2013 10:34:41	10:34:41	00:00
40	AVAYA-TEST - 21				05.04.2013 10:34:41	10:34:41	00:00

9. Conclusion

These Application Notes describe the required configuration steps for Avaya Aura® Communication Manager, Avaya Aura® Application Enablement Services and Voxtronic Communication Server to successfully record calls using the Single Step Conference Feature. All test cases completed successfully with the observations and exceptions noted in **Section 2.2**

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

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