



Avaya Solution & Interoperability Test Lab

Application Notes for VPI EMPOWER Suite with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services 6.3 Using Trunk Tap – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Voice Print International EMPOWER Suite to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services 6.3 using trunk tap. Voice Print International EMPOWER Suite provides solutions for interaction recording, quality monitoring, performance management, and eLearning. The compliance testing focused on the recording solution.

In the testing, Voice Print International EMPOWER Suite used the Telephony Services Application Programming Interface from Avaya Aura® Application Enablement Services to monitor contact center devices on Avaya Aura® Communication Manager, and used the trunk tap method to capture media associated with the monitored agent 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 steps required for Voice Print International (VPI) EMPOWER Suite to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services 6.3 using trunk tap. VPI EMPOWER Suite provides solutions for interaction recording, quality monitoring, performance management, and eLearning. The compliance testing focused on the recording solution.

In the testing, VPI EMPOWER Suite used the Telephony Services Application Programming Interface (TSAPI) from Avaya Aura® Application Enablement Services to monitor VDNs, skill groups, and agent stations on Avaya Aura® Communication Manager, and used the trunk tap method to capture media associated with the monitored agent stations for call recording.

2. General Test Approach and Test Results

The feature test cases were performed both automatically and manually. Upon start of the EMPOWER Suite recording application, the application automatically requests monitoring on VDNs, skill groups, and agent stations.

For the manual part of the testing, each call was handled manually on the agent station with generation of unique audio content for the recordings. Necessary user actions such as hold and reconnect were performed from the agent telephones to test the different call scenarios.

The serviceability test cases were performed manually by disconnecting/reconnecting the Ethernet cable to EMPOWER Suite.

The verification of tests included using the EMPOWER Suite logs for proper message exchanges, and using the EMPOWER Suite web interface for proper logging and playback of calls.

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

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on EMPOWER Suite:

- Handling of TSAPI messages in the areas of event notification and value queries.
- Proper recording, logging, and playback of calls for scenarios involving PSTN, inbound, outbound, ACD, non-ACD, hold, reconnect, multiple calls, multiple agents, conference, and transfer.

The serviceability testing focused on verifying the ability of EMPOWER Suite to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable to EMPOWER Suite.

2.2. Test Results

All test cases were executed and passed.

2.3. Support

Technical support on EMPOWER Suite can be obtained through the following:

- **Phone:** (805) 389-5201
- **Email:** support@vpi-corp.com
- **Web:** <http://www.vpi-corp.com/support.asp>

3. Reference Configuration

EMPOWER Suite can be configured on a single server or with components distributed across multiple servers. The compliance test used a single server configuration. In the compliance testing, the RTP streams for agent stations were captured using a PRI splitter that replicated all conversations with the PSTN to the AudioCodes SmartTAP DP3209 PCI board on EMPOWER Suite.

The detailed administration of basic connectivity between Communication Manager and Application Enablement Services, and of contact center devices are not the focus of these Application Notes and will not be described.

In the compliance testing, EMPOWER Suite monitored the contact center devices shown in the table below.

Device Type	Extension
VDN	48001, 48002
Skill Group	48101, 48102
Agent Station	45001, 45002, 45003

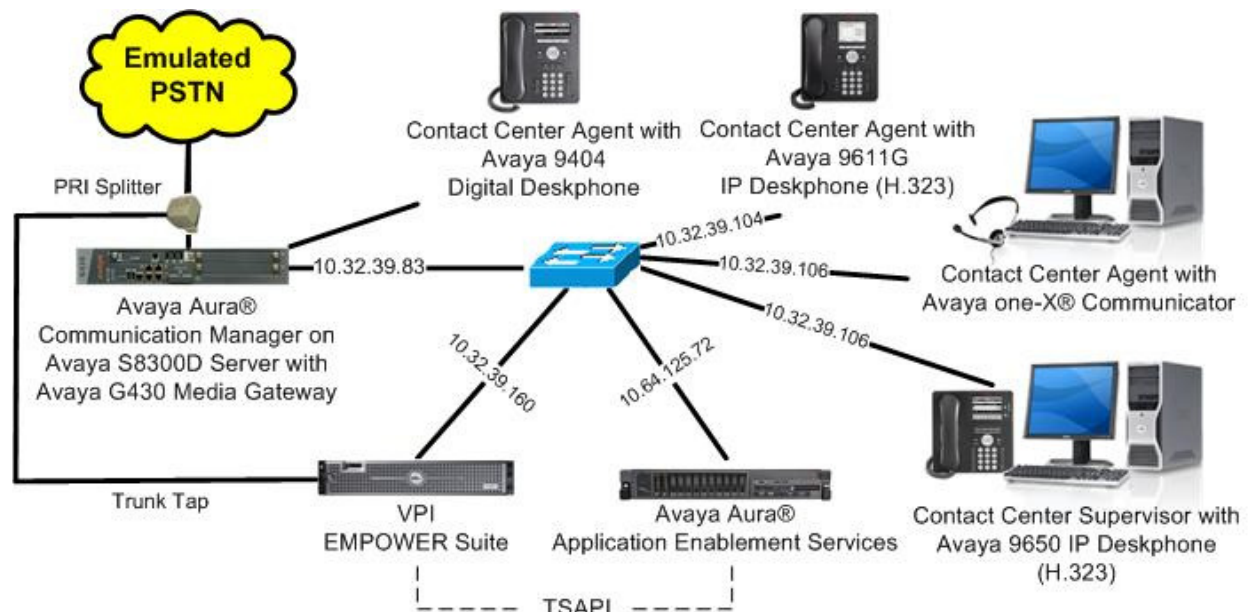


Figure 1: Compliance Testing Configuration

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 on Avaya S8300D Server	6.3.2 (R016x.03.0.124.0-21053)
Avaya G430 Media Gateway <ul style="list-style-type: none">MM710BP DS1	34.5.0 HW15 FW052
Avaya Aura® Application Enablement Services	6.3.1 (6.3.1.0.19-0)
Avaya one-X® Communicator (H.323)	6.1904
Avaya 9611G IP Deskphone (H.323)	6.3037
Avaya 9650 IP Deskphone (H.323)	3.210A
Avaya 9404 Digital Deskphone	NA
VPI EMPOWER Suite on Windows Server 2008 <ul style="list-style-type: none">AudioCodes SmartTAP DP3209 PCIAvaya TSAPI Windows Client (csta32.dll)	5.4 SP3 R2 Standard 5.7.0.820 6.1.0.396

5. Configure Avaya Aura® Communication Manager

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

- Verify license
- Administer CTI link
- Administer system parameters features
- Obtain PSTN trunk configuration
- Obtain PSTN trunk group number

5.1. Verify License

Log in to the System Access Terminal to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the “display system-parameters customer-options” command to verify that the **Computer Telephony Adjunct Links** customer option is set to “y” on **Page 3**. If this option is not set to “y”, then contact the Avaya sales team or business partner for a proper license file.

```
display system-parameters customer-options                               Page 3 of 11
                                OPTIONAL FEATURES

Abbreviated Dialing Enhanced List? y      Audible Message Waiting? y
Access Security Gateway (ASG)? n           Authorization Codes? y
Analog Trunk Incoming Call ID? y           CAS Branch? n
A/D Grp/Sys List Dialing Start at 01? y    CAS Main? n
Answer Supervision by Call Classifier? y    Change COR by FAC? n
ARS? y      Computer Telephony Adjunct Links? y
ARS/AAR Partitioning? y      Cvg Of Calls Redirected Off-net? y
ARS/AAR Dialing without FAC? y      DCS (Basic)? y
ASAI Link Core Capabilities? n      DCS Call Coverage? y
ASAI Link Plus Capabilities? n      DCS with Rerouting? y
Async. Transfer Mode (ATM) PNC? n
Async. Transfer Mode (ATM) Trunking? n    Digital Loss Plan Modification? y
ATM WAN Spare Processor? n           DS1 MSP? y
ATMS? y      DS1 Echo Cancellation? y
Attendant Vectoring? y
```

5.2. Administer CTI Link

Add a CTI link using the “add cti-link n” command, where “n” is an available CTI link number. Enter an available extension number in the **Extension** field. Note that the CTI link number and extension number may vary. Enter “ADJ-IP” in the **Type** field, and a descriptive name in the **Name** field. Default values may be used in the remaining fields.

```
add cti-link 1                                                         Page 1 of 3
                                CTI LINK

CTI Link: 1
Extension: 40001
Type: ADJ-IP
                                COR: 1
Name: AES CTI Link
```

5.3. Administer System Parameters Features

Use the “change system-parameters features” command to enable **Create Universal Call ID (UCID)**, which is located on **Page 5**. For **UCID Network Node ID**, enter an available node ID.

```
change system-parameters features                               Page 5 of 20
                        FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM PRINTER PARAMETERS
  Endpoint:                               Lines Per Page: 60

SYSTEM-WIDE PARAMETERS
  Switch Name:
  Emergency Extension Forwarding (min): 10
  Enable Inter-Gateway Alternate Routing? n
  Enable Dial Plan Transparency in Survivable Mode? n
  COR to Use for DPT: station
  EC500 Routing in Survivable Mode: dpt-then-ec500
MALICIOUS CALL TRACE PARAMETERS
  Apply MCT Warning Tone? n      MCT Voice Recorder Trunk Group:
  Delay Sending RElease (seconds): 0
SEND ALL CALLS OPTIONS
  Send All Calls Applies to: station      Auto Inspect on Send All Calls? n
  Preserve previous AUX Work button states after deactivation? n
UNIVERSAL CALL ID
  Create Universal Call ID (UCID)? y      UCID Network Node ID: 1
```

Navigate to **Page 13**, and enable **Send UCID to ASAI**. This parameter allows for the universal call ID to be sent to EMPOWER Suite.

```
change system-parameters features                               Page 13 of 20
                        FEATURE-RELATED SYSTEM PARAMETERS

CALL CENTER MISCELLANEOUS
  Callr-info Display Timer (sec): 10
  Clear Callr-info: next-call
  Allow Ringer-off with Auto-Answer? n

  Reporting for PC Non-Predictive Calls? n

  Agent/Caller Disconnect Tones? n
  Interruptible Aux Notification Timer (sec): 3
  Zip Tone Burst for Callmaster Endpoints: double

ASAI
  Copy ASAI UII During Conference/Transfer? y
  Call Classification After Answer Supervision? y
  Send UCID to ASAI? y
  For ASAI Send DTMF Tone to Call Originator? y
  Send Connect Event to ASAI For Announcement Answer? n
```

5.4. Obtain PSTN Trunk Configuration

Use the command “display ds1 n” command, where “n” is the slot number of the DS1 circuit pack or media module used for connection to the PSTN, in this case “1v3”. Make a note of the **Bit Rate**, **Line Coding**, **Framing Mode**, and **Signaling Mode** field values, which will be used later to configure EMPOWER Suite.

```
display ds1 v3                                     Page 1 of 2

DS1 CIRCUIT PACK

Location: 001V3                                     Name: PSTN
Bit Rate: 1.544                                     Line Coding: b8zs
Line Compensation: 1                               Framing Mode: esf
Signaling Mode: isdn-pri
Connect: pbx                                       Interface: network
TN-C7 Long Timers? n                             Country Protocol: 1
Interworking Message: PROgress                    Protocol Version: b
Interface Companding: mulaw                       CRC? n
Idle Code: 11111111                               DCP/Analog Bearer Capability: 3.1kHz

T303 Timer(sec): 4

Slip Detection? n                                Near-end CSU Type: other
Echo Cancellation? n                            Block Progress Indicator? n
```

5.5. Obtain PSTN Trunk Group Number

Use the command “list trunk-group” command to list all configured trunk groups. Make a note of the trunk group number used for connection to the PSTN, in this case “50”, which will be used later to configure EMPOWER Suite.

```
list trunk-group

TRUNK GROUPS

Grp No. TAC Group Type Group Name No. Mem TN COR CDR Meas Out Que
1 1001 isdn msgserver 36 1 1 y none n 0
4 1004 sip SIP Trunks to SMH 10 1 1 y none n 0
50 1050 isdn PRI Trunks to PSTN 23 1 1 y none n 0
55 1055 sip SIP Trunks to BL CM 55 10 1 1 y none n 0
63 1063 sip SIP Trunks to DR CM 62 10 1 1 y none n 0
```


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
- Verify license
- Administer TSAPI link
- Disable security database
- Restart services
- Obtain Tlink name
- Administer VPI user

6.1. Launch OAM Interface

Access the OAM web-based interface by using the URL “https://ip-address” in an Internet browser window, where “ip-address” is the IP address of the Application Enablement Services server.

The **Please login here** screen is displayed. Log in using the appropriate credentials.



The screenshot shows the Avaya Application Enablement Services Management Console login interface. At the top left is the Avaya logo. To its right, the text "Application Enablement Services" and "Management Console" is displayed. A red horizontal bar spans the width of the page, with a "Help" link on the right. In the center, there is a login box with the text "Please login here:" followed by "Username" and "Password" labels, each with a corresponding text input field. Below the input fields are "Login" and "Reset" buttons. At the bottom of the page, a red horizontal bar is present, and below it, the copyright notice "Copyright © 2009-2013 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 the user. The left sidebar contains a navigation menu with options like AE Services, Communication Manager Interface, High Availability, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help. The main content area displays the "Welcome to OAM" message, explaining that the OAM Web provides tools for managing the AE Server and listing the administrative domains: AE Services, Communication Manager Interface, High Availability, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help. It also notes that these domains can be served by one administrator for all domains or a separate administrator for each domain.

Welcome: User
Last login: Mon Oct 21 07:26:14 2013 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.1.0.19-0
Server Date and Time: Mon Oct 21 10:38:03 MDT 2013
HA Status: Not Configured

Home | Help | Logout

AVAYA Application Enablement Services Management Console

Home

AE Services
Communication Manager Interface
High Availability
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.
- High Availability - Use High Availability to manage AE Services HA.
- 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 infomations.
- 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.

6.2. Verify License

Select **Licensing** → **WebLM Server Access** in the left pane, to display the **Web License Manager** pop-up screen (not shown), and log in using the appropriate credentials.

The screenshot shows the Avaya Application Enablement Services Management Console with the "Licensing" section selected in the left sidebar. The main content area displays the "Licensing" page, which provides instructions on how to set up and maintain the WebLM, including the need to use the WebLM Server Address, WebLM Server Access, and Reserved Licenses. The left sidebar also shows the "WebLM Server Access" option under the "Licensing" section.

Welcome: User
Last login: Mon Oct 21 07:26:14 2013 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.1.0.19-0
Server Date and Time: Mon Oct 21 10:38:03 MDT 2013
HA Status: Not Configured

Home | Help | Logout

AVAYA Application Enablement Services Management Console

Licensing

AE Services
Communication Manager Interface
High Availability
Licensing
Maintenance
Networking

Licensing

If you are setting up and maintaining the WebLM, you need to use the following:

- WebLM Server Address

If you are importing, setting up and maintaining the license, you need to use the following:

- WebLM Server Access


If you want to administer TSAPI Reserved Licenses or DMCC Reserved Licenses, you need to use the following:

- Reserved Licenses

WebLM Server Address
WebLM Server Access
Reserved Licenses

The **Web License Manager** screen below is displayed. Select **Licensed products** → **APPL_ENAB** → **Application_Enablement** in the left pane, to display the **Application Enablement (CTI)** screen in the right pane.

Verify that there is sufficient license for **TSAPI Simultaneous Users**, as shown below.


Web License Manager (WebLM v6.3)
Help | About | Change Password

WebLM Home
Install license
Licensed products
APPL_ENAB
▼ Application_Enablement
View license capacity
View peak usage
Uninstall license
Server properties
Manage users
Shortcuts
Help for Installed Product

Application Enablement (CTI) - Release: 6 - SID: 10503000
Standard License file

You are here: Licensed Products > Application_Enablement > View License Capacity
License installed on: May 11, 2012 7:07:47 PM -04:00
License File Host IDs: 00-16-3E-48-ED-82
Licensed Features
10 Items Show ALL

Feature (License Keyword)	Expiration date	Licensed capacity
CVLAN ASAI VALUE_AES_CVLAN_ASAI	permanent	16
Unified CC API Desktop Edition VALUE_AES_AEC_UNIFIED_CC_DESKTOP	permanent	10000
AES ADVANCED SMALL SWITCH VALUE_AES_AEC_SMALL_ADVANCED	permanent	16
CVLAN Proprietary Links VALUE_AES_PROPRIETARY_LINKS	permanent	16
Product Notes VALUE_NOTES	permanent	SmallServerTypes: s8300c;s8300d;icc;premio;tn8400;laptop;CtiS MediumServerTypes: ibmx306;ibmx306m;dell1950;xen;hs20;hs20_ LargeServerTypes: isp2100;ibmx305;dl380g3;dl385g1;dl385g2;u TrustedApplications: IPS_001, BasicUnrestrict DMCUnrestricted; 1XP_001, BasicUnrestricted DMCUnrestricted; 1XM_001, BasicUnrestricted DMCUnrestricted; PC_001, BasicUnrestricted, DMCUnrestricted; CIE_001, BasicUnrestricted, DMCUnrestricted; OSPC_001, BasicUnrestricted DMCUnrestricted; VP_001, BasicUnrestricted, DMCUnrestricted; SAMETIME_001, VALUE_AEC_UNIFIED_CC_DESKTOP,,, CCE_001, AdvancedUnrestricted, DMCUnrestricted; CSI AdvancedUnrestricted, DMCUnrestricted; CSI AdvancedUnrestricted, DMCUnrestricted; AVA BasicUnrestricted, AdvancedUnrestricted, DMC CCT_ELITE_CALL_CTRL_001, BasicUnrestricted, DMCUnrestricted, AgentEvents;
AES ADVANCED LARGE SWITCH VALUE_AES_AEC_LARGE_ADVANCED	permanent	16
TSAPI Simultaneous Users VALUE_AES_TSAPI_USERS	permanent	10000
DLG VALUE_AES_DLG	permanent	16
Device Media and Call Control VALUE_AES_DMCC_DMC	permanent	10000
AES ADVANCED MEDIUM SWITCH VALUE_AES_AEC_MEDIUM_ADVANCED	permanent	16

6.3. Administer TSAPI Link

To administer a TSAPI link, select **AE Services** → **TSAPI** → **TSAPI Links** from the left pane of the **Management Console**. The **TSAPI Links** screen is displayed, as shown below. Click **Add Link**.

The screenshot shows the Avaya Management Console interface. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for the user. The left navigation pane shows "AE Services" expanded, with "TSAPI" selected, and "TSAPI Links" highlighted. The main content area displays the "TSAPI Links" table with one link (Link 1, Switch Connection S8800, Switch CTI Link # 2, ASAI Link Version 6, Security Both). Below the table are buttons for "Add Link", "Edit Link", and "Delete Link".

Link	Switch Connection	Switch CTI Link #	ASAI Link Version	Security
1	S8800	2	6	Both

Buttons: Add Link, Edit Link, Delete Link

The **Add TSAPI Links** screen is displayed next.

The **Link** field is only local to the Application Enablement Services server, and may be set to any available number. For **Switch Connection**, select the relevant switch connection from the drop-down list. In this case, the existing switch connection "S8300D" is selected. For **Switch CTI Link Number**, select the CTI link number from **Section 5.2**. Retain the default values in the remaining fields.

The screenshot shows the "Add TSAPI Links" screen in the Avaya Management Console. The left navigation pane is the same as the previous screenshot, but "Communication Manager Interface" is also visible. The main content area displays the "Add TSAPI Links" form with fields for Link (2), Switch Connection (S8300D), Switch CTI Link Number (1), ASAI Link Version (6), and Security (Unencrypted). Buttons for "Apply Changes" and "Cancel Changes" are at the bottom.

Form fields:

- Link: 2
- Switch Connection: S8300D
- Switch CTI Link Number: 1
- ASAI Link Version: 6
- Security: Unencrypted

Buttons: Apply Changes, Cancel Changes

6.4. Disable Security Database

Select **Security** → **Security Database** → **Control** from the left pane, to display the **SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services** screen in the right pane. Uncheck both fields below.

The screenshot displays 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 the user. The left navigation pane shows a tree structure with "Security" expanded, and "Control" selected under "Security Database". The main content area is titled "SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services" and contains two unchecked checkboxes: "Enable SDB for DMCC Service" and "Enable SDB for TSAPI Service, JTAPI and Telephony Web Services". An "Apply Changes" button is located below the checkboxes.

Welcome: User
Last login: Mon Oct 21 07:26:14 2013 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.1.0.19-0
Server Date and Time: Mon Oct 21 10:38:03 MDT 2013
HA Status: Not Configured

Security | Security Database | Control [Home](#) | [Help](#) | [Logout](#)

- ▶ AE Services
- ▶ Communication Manager Interface
- ▶ High Availability
- ▶ Licensing
- ▶ Maintenance
- ▶ Networking
- ▼ **Security**
 - ▶ Account Management
 - ▶ Audit
 - ▶ Certificate Management
 - ▶ Enterprise Directory
 - ▶ Host AA
 - ▶ PAM
 - ▼ **Security Database**
 - **Control**

SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services


☐ Enable SDB for DMCC Service

☐ Enable SDB for TSAPI Service, JTAPI and Telephony Web Services

[Apply Changes](#)

6.5. Restart Services

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



Application Enablement Services
Management Console

Welcome: User
Last login: Mon Oct 21 07:26:14 2013 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.1.0.19-0
Server Date and Time: Mon Oct 21 10:38:03 MDT 2013
HA Status: Not Configured

Maintenance | Service Controller

Home | Help | Logout

▶ AE Services

▶ Communication Manager Interface

▶ High Availability

▶ 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

6.6. Obtain Tlink Name

Select **Security** → **Security Database** → **Tlinks** from the left pane. The **Tlinks** screen shows a listing of the Tlink names. A new Tlink name is automatically generated for the TSAPI service.

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. Make a note of the associated Tlink name, to be used later for configuring EMPOWER Suite.

In this case, the associated Tlink name is “AVAYA#S8300D#CSTA#AES_125_72”. Note the use of the switch connection “S8300D” from **Section 6.3** as part of the Tlink name.

The screenshot displays 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 the user. The main navigation pane on the left lists various services, with "Security" expanded to show "Security Database" and "Tlinks" selected. The main content area shows a list of Tlinks with the first one, "AVAYA#S8300D#CSTA#AES_125_72", selected. A "Delete Tlink" button is visible below the list.

Welcome: User
Last login: Mon Oct 21 07:26:14 2013 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.1.0.19-0
Server Date and Time: Mon Oct 21 10:38:03 MDT 2013
HA Status: Not Configured

Security | Security Database | Tlinks Home | Help | Logout

AE Services
Communication Manager Interface
High Availability
Licensing
Maintenance
Networking
Security
Account Management
Audit
Certificate Management
Enterprise Directory
Host AA
PAM
Security Database
Control
CTI Users
Devices
Device Groups
Tlinks

Tlinks

Tlink Name

- ☒ AVAYA#S8300D#CSTA#AES_125_72
- ☐ AVAYA#S8800#CSTA#AES_125_72
- ☐ AVAYA#S8800#CSTA-S#AES_125_72

Delete Tlink

6.7. Administer VPI User

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.

The screenshot displays 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 the user. The left navigation pane shows a tree structure with 'User Management' expanded, leading to 'User Admin' and then 'Add User'. The main content area contains the 'Add User' form, which includes fields for User Id, Common Name, Surname, User Password, Confirm Password, Admin Note, Avaya Role, Business Category, Car License, CM Home, Cms Home, CT User (set to Yes), Department Number, Display Name, Employee Number, Employee Type, and Enterprise Handle. The form also includes a note that fields marked with an asterisk are required.

Welcome: User
Last login: Mon Oct 21 07:26:14 2013 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.1.0.19-0
Server Date and Time: Mon Oct 21 10:38:03 MDT 2013
HA Status: Not Configured

User Management | User Admin | Add User Home | Help | Logout

Add User

Fields marked with * can not be empty.

* User Id vpi
* Common Name vpi
* Surname vpi
* User Password
* Confirm Password
Admin Note
Avaya Role None
Business Category
Car License
CM Home
Cms Home
CT User Yes
Department Number
Display Name
Employee Number
Employee Type
Enterprise Handle

7. Configure VPI EMPOWER Suite

This section provides the procedures for configuring EMPOWER Suite. The procedures include the following areas:

- Administer SmartControl
- Launch VPI Configuration
- Administer start/stop events
- Administer TSAPI
- Administer channels
- Launch Activ!Voice

The configuration of EMPOWER Suite is performed by VPI installers. The procedural steps are presented in these Application Notes for informational purposes.

7.1. Administer SmartControl

From the EMPOWER Suite server, select **Start → Control Panel**, and click on the **SmartControl** icon (not shown below). The **AudioCodes USA Inc SmartWORKS** screen is displayed. Select the **Digital Network** tab. Enter the following values for the specified fields, and retain the default values for the remaining fields. Reboot the EMPOWER Suite server.

- **T1E1 Option:** Select the option to correspond to the bit rate from **Section 5.4**.
- **Framing:** Select the framing mode from **Section 5.4**.
- **Line Coding:** Select the line coding from **Section 5.4**.
- **Signaling Protocol:** Select the protocol to correspond to signaling mode from **Section 5.4**.

The screenshot shows the 'AudioCodes USA Inc SmartWORKS' window with the 'Digital Network' tab selected. The window contains several configuration sections:

- Board:** A text box containing 'Board 1, SmartTAP DP3209 Single T1'.
- T1E1 Option:** Two radio buttons, 'T1' (selected) and 'E1'.
- Trunk Settings:** A table with columns for Trunk, Framing, Line Coding, LBO, and ZCS.

Trunk	Framing	Line Coding	LBO	ZCS
0	ESF	B8ZS		
1				
- Protocol Settings:** A table with columns for Trunk, Signaling Protocol, Variant, and an 'Advanced' button.

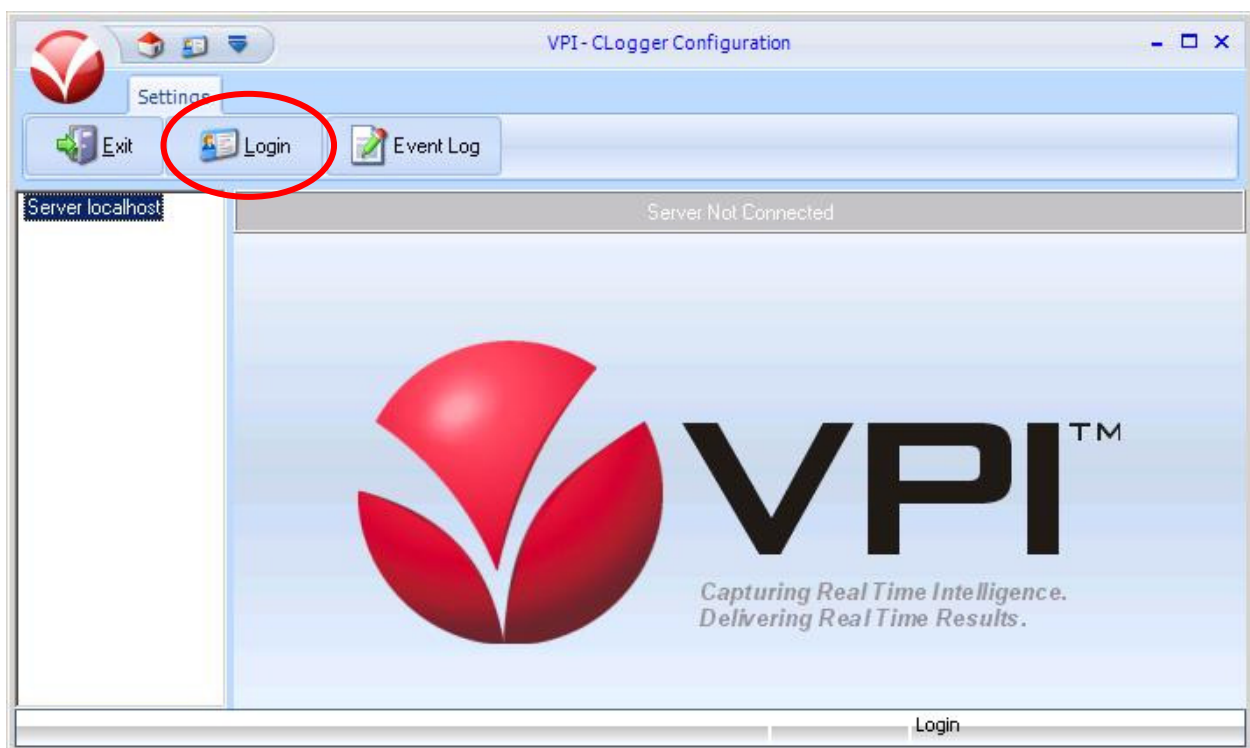
Trunk	Signaling Protocol	Variant	Advanced
0	ISDN		Advanced
1			Advanced

7.2. Launch VPI Configuration

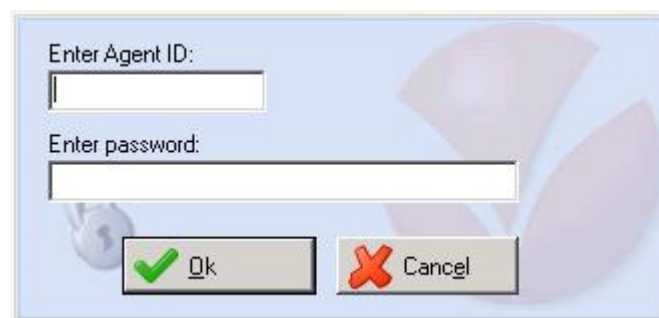
From the EMPOWER Suite server, double-click on the **VPI Configuration** icon shown below, which is created as part of the installation.



The **VPI - CLogger Configuration** screen is displayed. Click on **Login**, as shown below.



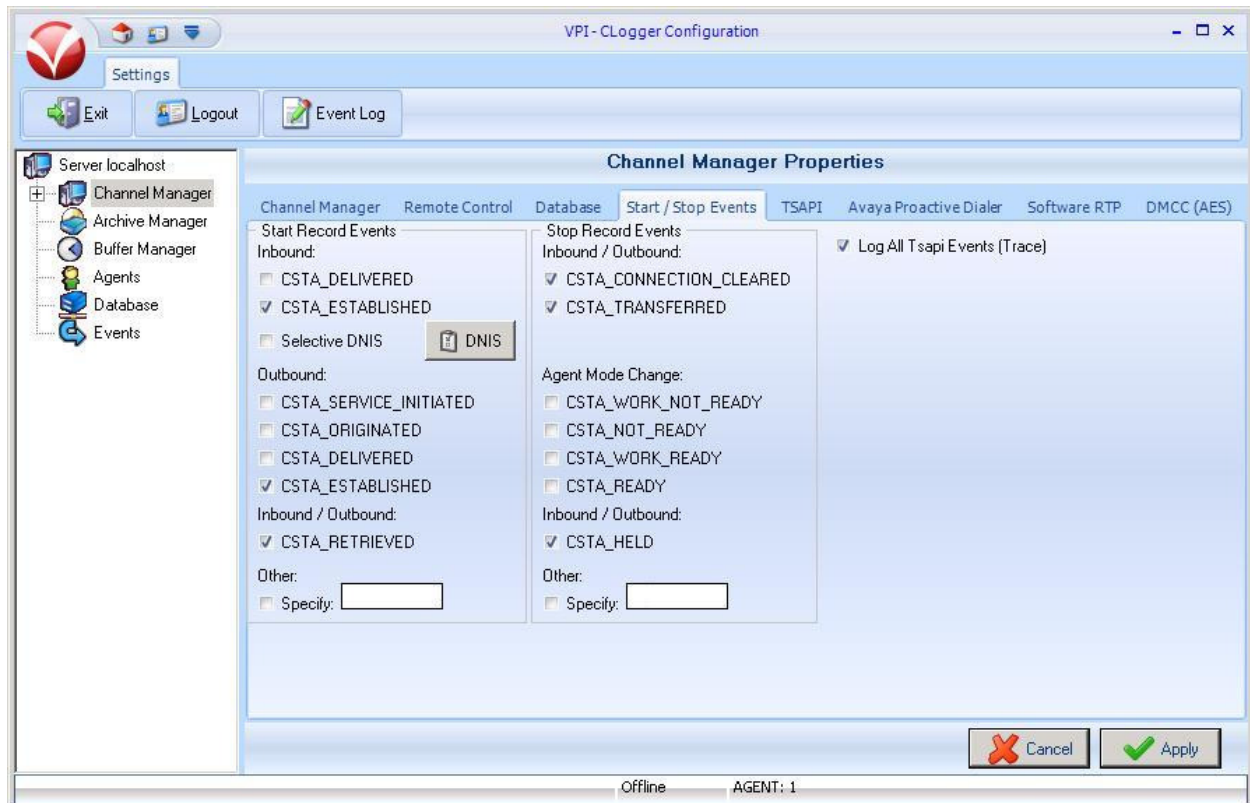
The screen below is displayed next. Log in using the appropriate credentials.



7.3. Administer Start/Stop Events

The **VPI - CLogger Configuration** screen is displayed. Select **Server localhost** → **Channel Manager** in the left pane, to display the **Channel Manager Properties** screen.

Select the **Start / Stop Events** tab in the right pane. Check the desired events to trigger the start and stop of call recordings. The screen below shows the selections used for the compliance testing. The **Log All Tsapi Events (Trace)** field was checked in the compliance testing for event verification purposes.



7.4. Administer TSAPI

Select the **TSAPI** tab in the right pane. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Server 1 Machine:** The Tlink name from **Section 6.6**.
- **Application Username:** The VPI user credentials from **Section 6.7**.
- **Application Password:** The VPI user credentials from **Section 6.7**.
- **Switch Type:** “Avaya / Lucent”
- **ACD Groups:** The skill group extensions from **Section 3**.
- **VDNs:** The VDN extensions from **Section 3**.
- **Extensions:** The agent station extensions from **Section 3**.
- **Recording Line Type:** “Trunk Side”

The screenshot shows the 'VPI-CLLogger Configuration' window with the 'TSAPI' tab selected. The left sidebar lists various components: Server localhost, Channel Manager, Archive Manager, Buffer Manager, Agents, Database, and Events. The main area is titled 'Channel Manager Properties' and contains several sections:

- TSAPI Server Setup:** Includes fields for 'Server 1 Machine' (containing 'AVAYA#S8300D#CSTA'), 'Server 2 Machine', 'TSAPI Device', 'Application Username' (containing 'vpi'), and 'Application Password' (masked with 'xxxxxxxx'). There are also checkboxes for 'Fail to VDX' and 'Save All ANI'.
- General Options:** Includes a checked 'Record All Agents' checkbox, and unchecked 'Lock Status Lights' and 'Use Tsapi Time Stamp' checkboxes.
- Additional Monitors:** Includes text boxes for 'ACD Groups' (containing '48101, 48102'), 'Trunks', 'VDNs' (containing '48001, 48002'), and 'Extensions' (containing '45001, 45002, 45003'). There are also checkboxes for 'Disable recording of calls when SPLIT is empty' and 'Disable recording of calls when DISTRIBUTING VDN is empty'.
- Switch Type:** Includes radio buttons for 'CSTA Compliant', 'Avaya / Lucent' (selected), 'Nortel Meridian', 'Aspect', and 'NEC'.
- Service Observe Options:** Includes a checked 'Monitor Agent Mode Change' checkbox and a 'Feature Code' text box.
- Recording Line Type:** Includes radio buttons for 'Extension Side' and 'Trunk Side' (selected).

At the bottom right are 'Cancel' and 'Apply' buttons. The status bar at the bottom shows 'Offline' and 'AGENT: 1'.

7.5. Administer Channels

Select **Server localhost** → **Channel Manager** → **Channels** in the left pane, to display the **Channel Properties** screen. Select all pertinent PRI trunk channels from the left portion of the **Channel Properties** screen, in this case **Channel 25-47**, and enter the following values for the specified fields in the right portion of the screen. Retain the default values for the remaining fields.

- **Use Channel:** Check this field.
- **Extension:** The PSTN trunk group number from **Section 5.5**.

VPI-CLogger Configuration

Settings

Exit Logout Event Log

Channel Properties

Channels Idle Alarm Blackout Scheduling

#	Name / Description	Ext.
19	Channel 19	0
20	Channel 20	0
21	Channel 21	0
22	Channel 22	0
23	Channel 23	0
24	Channel 24	0
25	Channel 25	50
26	Channel 26	50
27	Channel 27	50
28	Channel 28	50
29	Channel 29	50
30	Channel 30	50
31	Channel 31	50
32	Channel 32	50
33	Channel 33	50
34	Channel 34	50
35	Channel 35	50
36	Channel 36	50

Channel 47 47

☒ **Use Channel**

☐ Disable Live Monitoring

☐ Use Alert Tone when Recording

☐ Always Record (VOX Emulation)

23 Associated Trunk Member

Additional IP Address

Additional Mac Address

Details (Overrides Agent Settings)

Extension: 50 Dept. ID: 0 Desk Location:

Group ID: 0 Class of Service: Not Used (Default)

Multicast Recording

☒ Enabled

Group IP:

Local Port: 0

Advanced

Cancel Apply

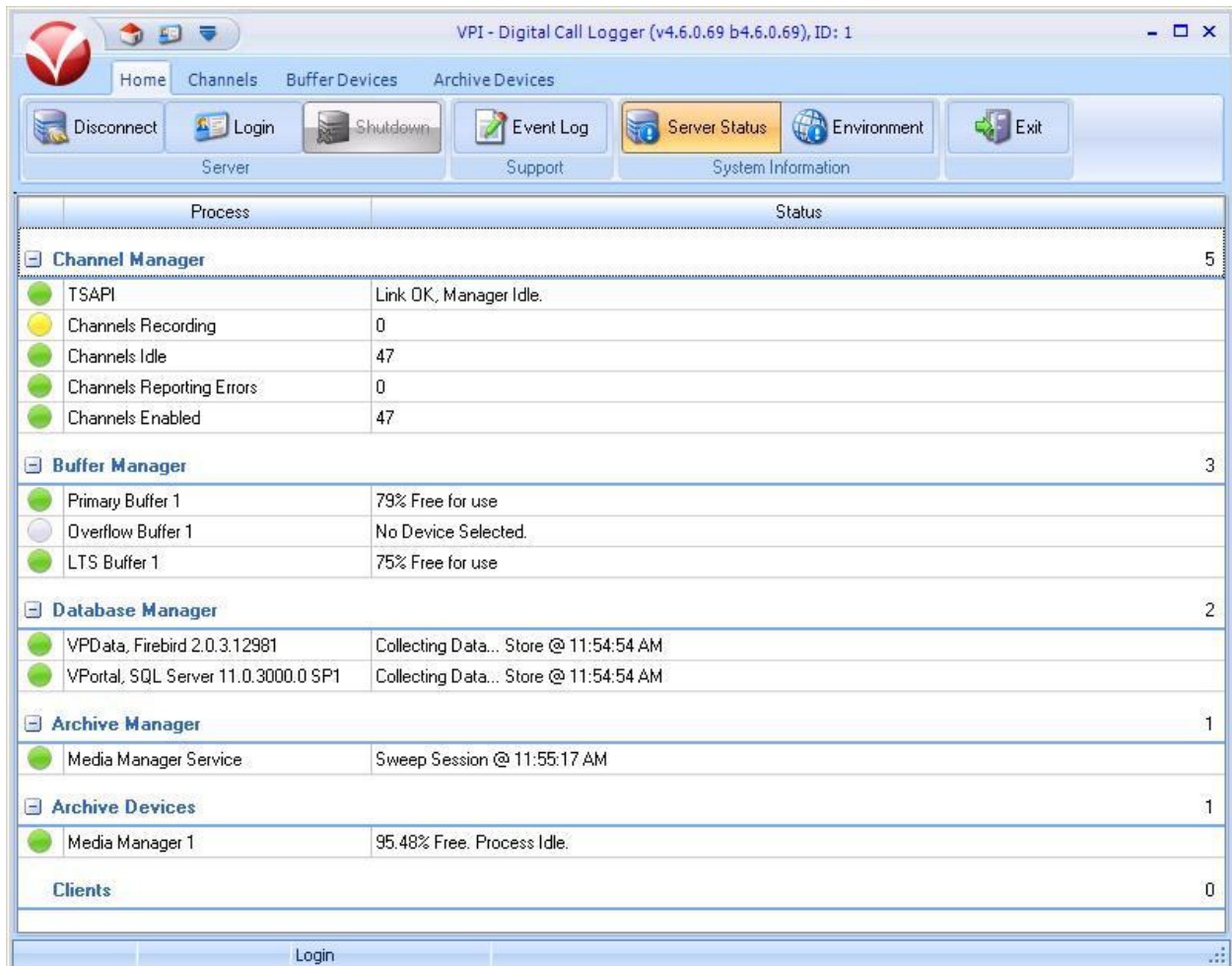
Offline AGENT: 1

7.6. Launch Activ!Voice

From the EMPOWER Suite server, double-click on the **Activ!Voice** icon shown below to start the application. Note that the icon is created as part of the installation.



The **VPI – Digital Call Logger** screen is displayed. In the **Channel Manager** section, verify that the **Channels Recording** entry has the yellow status, and that all other entries have the green status, as shown below.

The screenshot shows the VPI - Digital Call Logger application window. The title bar reads "VPI - Digital Call Logger (v4.6.0.69 b4.6.0.69), ID: 1". The interface includes a menu bar with "Home", "Channels", "Buffer Devices", and "Archive Devices". Below the menu bar is a toolbar with buttons for "Disconnect", "Login", "Shutdown", "Event Log", "Server Status", "Environment", and "Exit". The main area is divided into several sections: "Channel Manager" (5 items), "Buffer Manager" (3 items), "Database Manager" (2 items), "Archive Manager" (1 item), "Archive Devices" (1 item), and "Clients" (0 items). Each section contains a table with "Process" and "Status" columns. The "Channels Recording" entry in the Channel Manager section is highlighted in yellow, indicating a warning status, while all other entries have a green status icon.

Process	Status
Channel Manager 5	
TSAPI	Link OK, Manager Idle.
Channels Recording	0
Channels Idle	47
Channels Reporting Errors	0
Channels Enabled	47
Buffer Manager 3	
Primary Buffer 1	79% Free for use
Overflow Buffer 1	No Device Selected.
LTS Buffer 1	75% Free for use
Database Manager 2	
VPData, Firebird 2.0.3.12981	Collecting Data... Store @ 11:54:54 AM
VPortal, SQL Server 11.0.3000.0 SP1	Collecting Data... Store @ 11:54:54 AM
Archive Manager 1	
Media Manager Service	Sweep Session @ 11:55:17 AM
Archive Devices 1	
Media Manager 1	95.48% Free. Process Idle.
Clients 0	

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Communication Manager, Application Enablement Services, and EMPOWER Suite.

8.1. Verify Avaya Aura® Communication Manager

On Communication Manager, verify the status of the administered CTI link by using the “status aesvcs cti-link” command. Verify that the **Service State** is “established” for the CTI link number administered in **Section 5.2**, as shown below.


```
status aesvcs cti-link
```

AE SERVICES CTI LINK STATUS

CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
1	6	no	aes_125_72	established	50	61

8.2. Verify Avaya Aura® Application Enablement Services

On Application Enablement Services, verify the status of the TSAPI link by selecting **Status** → **Status and Control** → **TSAPI Service Summary** from the left pane. The **TSAPI Link Details** screen is displayed. Verify the **Status** is “Talking” for the TSAPI link administered in **Section 6.3**, and that the **Associations** column reflects the total number of monitored contact center devices from **Section 3**.



Application Enablement Services Management Console

Welcome: User
Last login: Mon Oct 21 12:32:29 2013 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.1.0.19-0
Server Date and Time: Mon Oct 21 13:09:41 MDT 2013
HA Status: Not Configured

Status | Status and Control | TSAPI Service Summary

Home | Help | Logout

▶ AE Services

▶ Communication Manager Interface

▶ High Availability

▶ Licensing

▶ Maintenance

▶ Networking

▶ Security

▼ Status

Alarm Viewer

Log Manager

▶ 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 seconds

	Link	Switch Name	Switch CTI Link ID	Status	Since	State	Switch Version	Associations	Msgs to Switch	Msgs from Switch	Msgs Period
○	1	S8800	2	Talking	Thu Oct 17 07:55:05 2013	Online	16	0	15	15	30
●	2	S8300D	1	Talking	Mon Oct 21 08:29:10 2013	Online	16	7	58	49	30

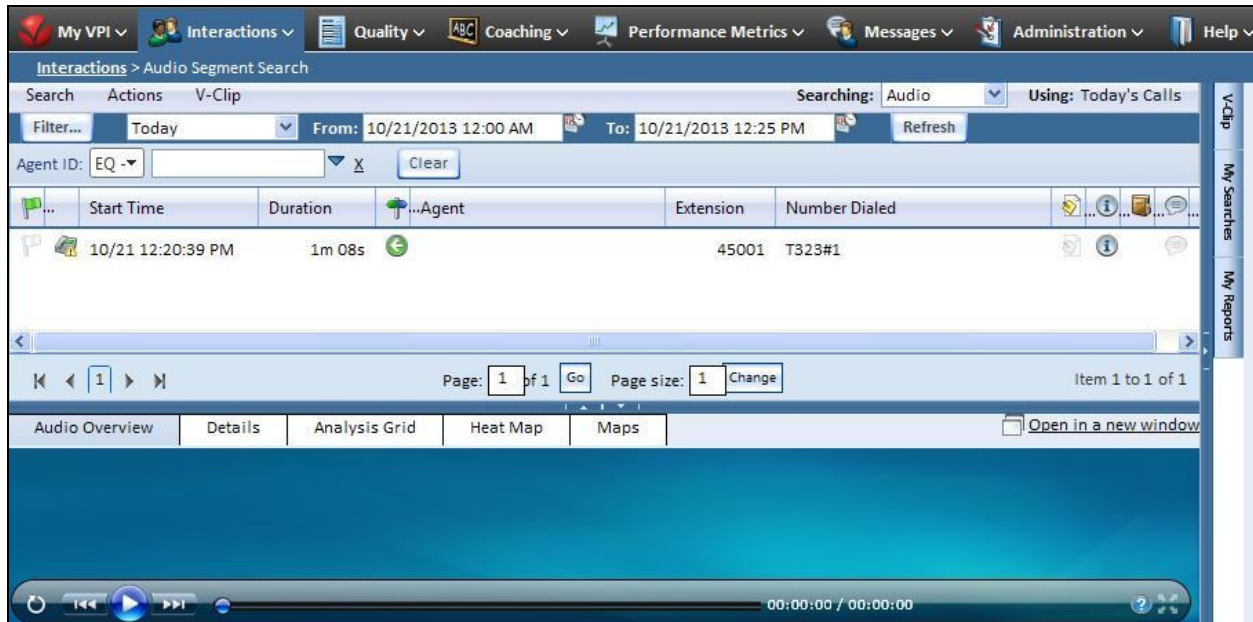
For service-wide information, choose one of the following:

8.3. Verify VPI EMPOWER Suite

Log an agent in to the skill group to handle and complete an ACD call. Access the EMPOWER Suite web-based interface by using the URL “https://ip-address/VPortal” in an Internet browser window, where “ip-address” is the IP address of the EMPOWER Suite server. Log in using the appropriate credentials.



The screen below is displayed next, with a list of the call recordings for the current day. Verify that there is an entry reflecting the last call, with proper values in the relevant fields.



Double click on the entry to listen to the playback. Verify that the screen is updated and that the call recording is played back.

The screenshot displays the VPI EMPOWER web application interface. The top navigation bar includes tabs for My VPI, Interactions, Quality, Coaching, Performance Metrics, Messages, Administration, and Help. The main content area is titled 'Interactions > Audio Segment Search'. It features a search bar with 'Filter...' and 'Today' selected, and a date range from '10/21/2013 12:00 AM' to '10/21/2013 12:25 PM'. A table lists search results with columns for Start Time, Duration, Agent, Extension, and Number Dialed. The first entry is at 10/21 12:20:39 PM, lasting 1m 08s, with extension 45001 and number T323#1. Below the table is a pagination bar showing 'Page: 1 of 1' and 'Page size: 1'. The bottom section, 'Audio Overview', shows a timeline with a green bar representing the audio segment. The timeline has markers for 12:20:39 PM, 12:21:01 PM, 12:21:24 PM, and 12:21:47 PM. A playback control bar at the bottom shows the current time as 00:13 / 01:08. The footer includes the VPI logo, 'Version 5.4 SP3', and links for Log Off, Change Password, and About VPI EMPOWER.

9. Conclusion

These Application Notes describe the configuration steps required for VPI EMPOWER Suite to successfully interoperate with Avaya Aura® Communication Manager using Avaya Aura® Application Enablement Services 6.3. All feature and serviceability test cases were completed.

10. Additional References

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

1. *Administering Avaya Aura® Communication Manager*, Document 03-300509, Issue 9, Release 6.3, October 2013, available at <http://support.avaya.com>.
2. *Avaya Aura® Application Enablement Services Administration and Maintenance Guide*, Release 6.3, Issue 2, October 2013, available at <http://support.avaya.com>.
3. *VPI EMPOWER Avaya Channel Manager Guide*, September 2013, available on the VPI EMPOWER Suite server as part of installation.

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