Avaya Solution & Interoperability Test Lab

Application Notes for VPI EMPOWER Suite 5.5 with Avaya Aura® Communication Manager 6.3.8 and Avaya Aura® Application Enablement Services 6.3.3 Using Trunk Tap – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Voice Print International EMPOWER Suite 5.5 to interoperate with Avaya Aura® Communication Manager 6.3.8 and Avaya Aura® Application Enablement Services 6.3.3 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.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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

1. Introduction

These Application Notes describe the configuration steps required for Voice Print International (VPI) EMPOWER Suite 5.5 to interoperate with Avaya Aura® Communication Manager 6.3.8 and Avaya Aura® Application Enablement Services 6.3.3 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 Synway DTP 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	10001, 10002, 10003
Skill Group	11001, 11002
Extensions	25001, 25002, 25003, 25004, 25050
Agents	2501, 2502, 2503, 2504, 2511

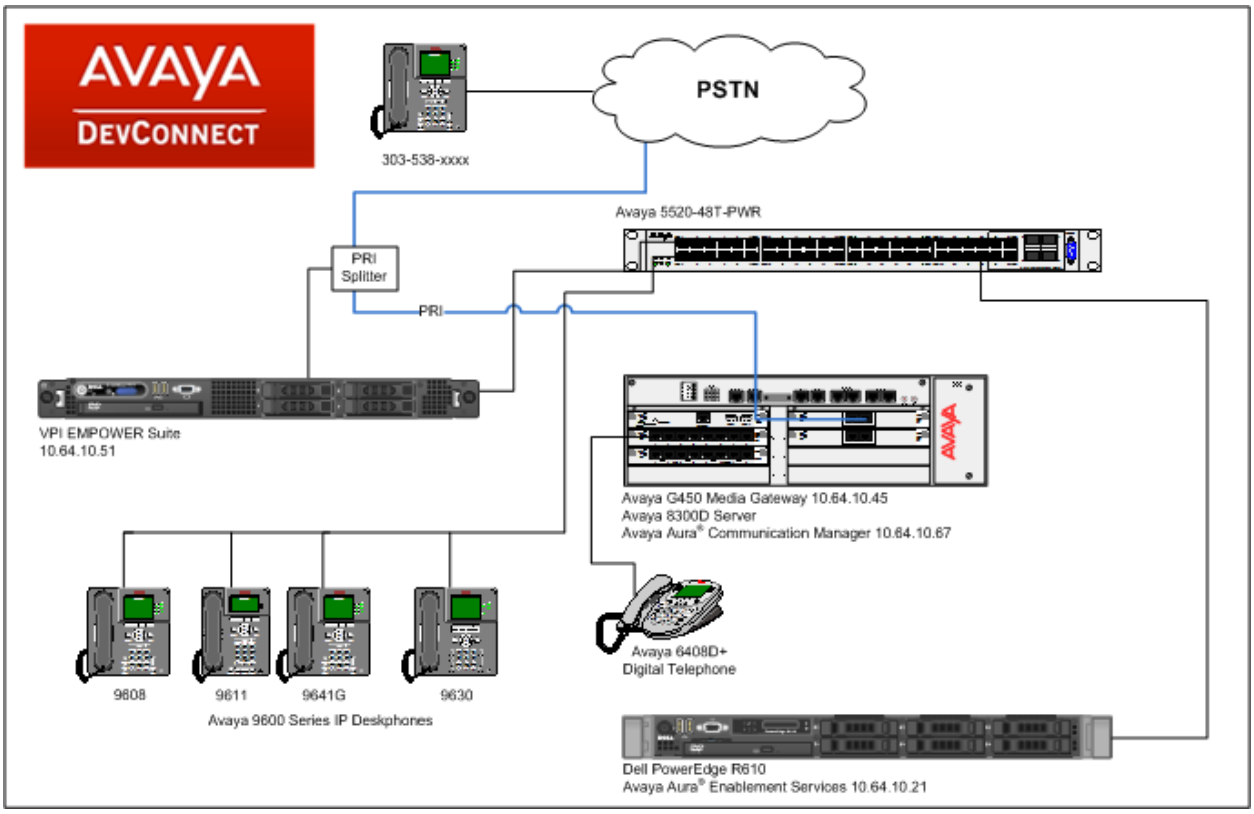


Figure 1: Compliance Testing Configuration

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	6.3.8
Avaya G430 Media Gateway • MM712AP DCP • MM710AP DS1	34.5.0 HW07 FW015 HW05 FW019
Avaya Aura® Application Enablement Services	6.3.3
Avaya 96x0 IP Deskphone (H.323)	3.23
Avaya 96x1 IP Deskphone (H.323)	6.4014
Avaya 96x0 IP Deskphone (SIP)	2.6.13
Avaya 96x1 IP Deskphone (SIP)	6.41
Avaya 6408D+ Digital Deskphone	NA
VPI EMPOWER Suite on Windows Server 2012 • Avaya TSAPI Windows Client (csta32.dll) • Synway DTP Board	5.5 R2 Standard 6.1.0.396 5.3.2.3

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: 6201
     Type: ADJ-IP
                                                                    COR: 1
     Name: 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 UUI 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 "1v4". 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 1v4                                          Page   1 of   2
                              DS1 CIRCUIT PACK

            Location: 001V4                          Name: PSTN
            Bit Rate: 1.544                   Line Coding: b8zs
   Line Compensation: 1                      Framing Mode: esf
      Signaling Mode: isdn-pri
             Connect: 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 "11", which will be used later to configure EMPOWER Suite.

```
list trunk-group                                                 Page   1

                                TRUNK GROUPS

Grp                                                 No.                 Out Que
No.  TAC  Group Type    Group Name                  Mem TN  COR CDR Meas Dsp Len

1    *001 isdn          to_CM_10_10                 50  1   2   y   none n   0
2    *002 isdn          OUTSIDE CALL                5   1   1   y   none n   0
3    *103 isdn          to_CM_10_70                 10  1   1   n   none n   0
5    *005 sip           to_IPO_10_54                10  1   1   y   none n   0
6    *006 isdn          to_IPO_10_54                5   1   1   y   none n   0
8    *008 sip           to_CM_22_12                 10  1   1   y   none n   0
9    *009 isdn          OUTSIDE CALL                10  1   2   y   none n   0
10   *010 sip           to_SM_10_62                 10  1   1   y   none n   0
11   *011 isdn          to_PSTN                     5   1   1   y   both n   0
12   *012 sip           to_CMM_SIP                  36  1   1   y   none n   0
13   *013 sip           OUTSIDE CALL                10  1   1   y   none n   0
```

5.6. Administer SIP Stations

This section only applies to SIP stations, no changes are needed for H.323 or Digital stations. Use the "change station n" command, where "n" is the SIP agent station extension from **Section 3**. On **Page 6,** change **Type of 3PCC Enabled** to **Avaya**.

Alternatively, this change can also be made via System Manager.

```
change station 25551                                          Page   6 of   6
                                    STATION
SIP FEATURE OPTIONS

         Type of 3PCC Enabled: Avaya
                    SIP Trunk: aar
```

6. Configure Avaya Aura® Application Enablement Services

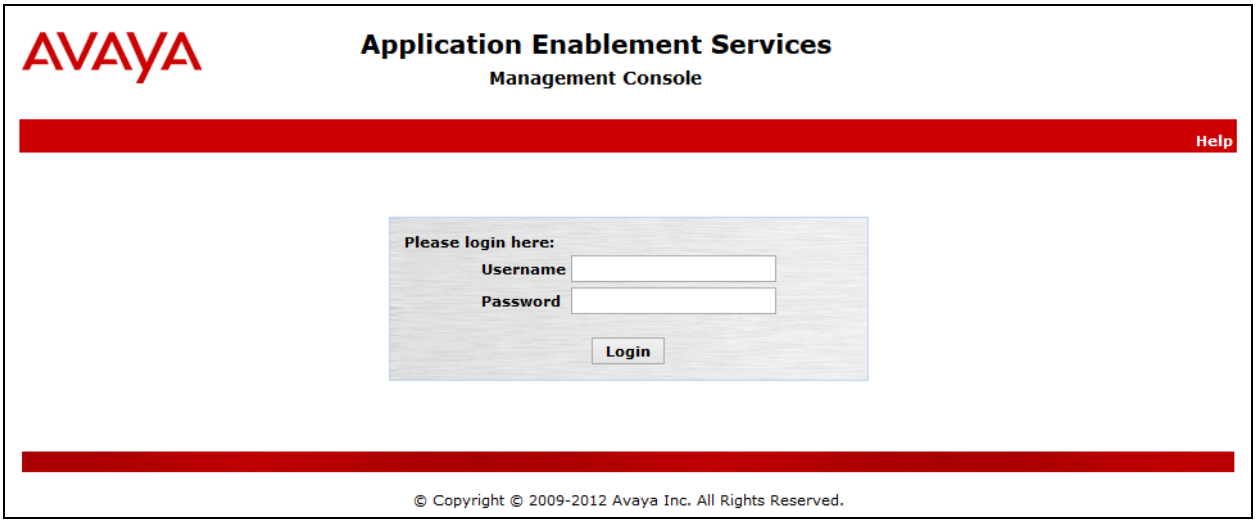
This section provides the procedures for configuring Application Enablement Services. The procedures include the following areas:

- Launch OAM interface
- Verify license
- Administer TSAPI link
- Obtain Tlink name
- Restart services
- Administer VPI user
- Administer security database

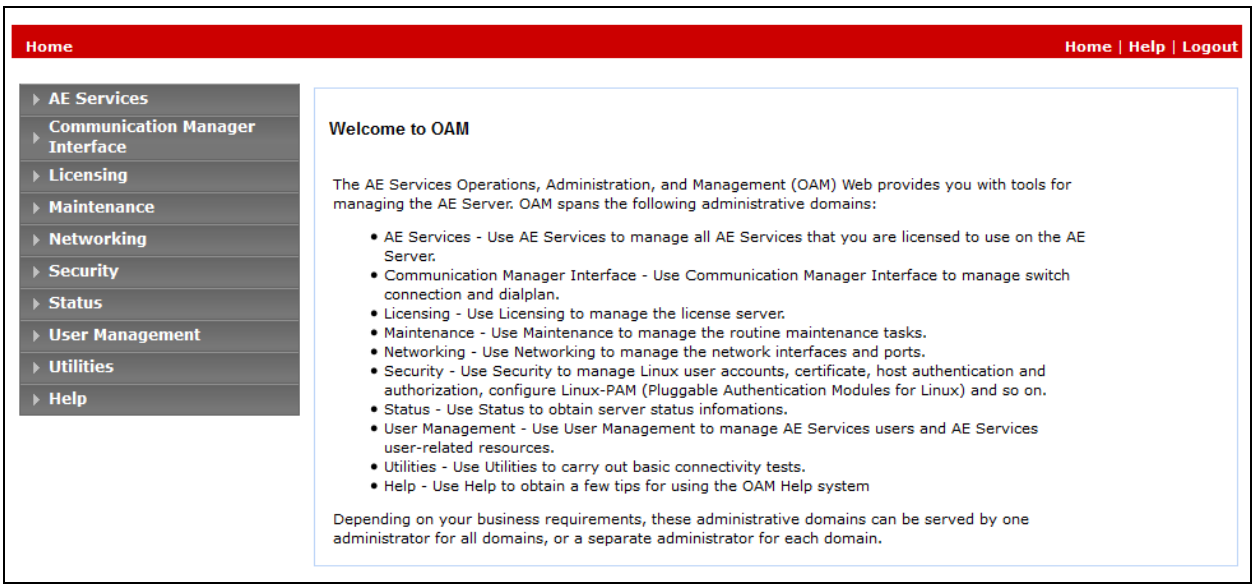
6.1. Launch OAM Interface

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.

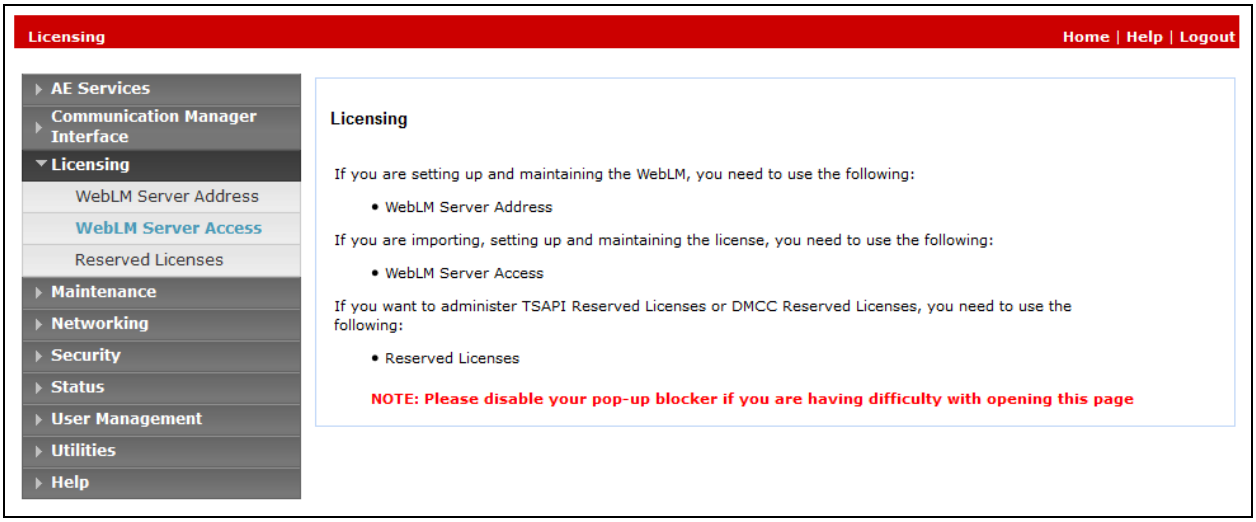


The **Welcome to OAM** screen is displayed next.



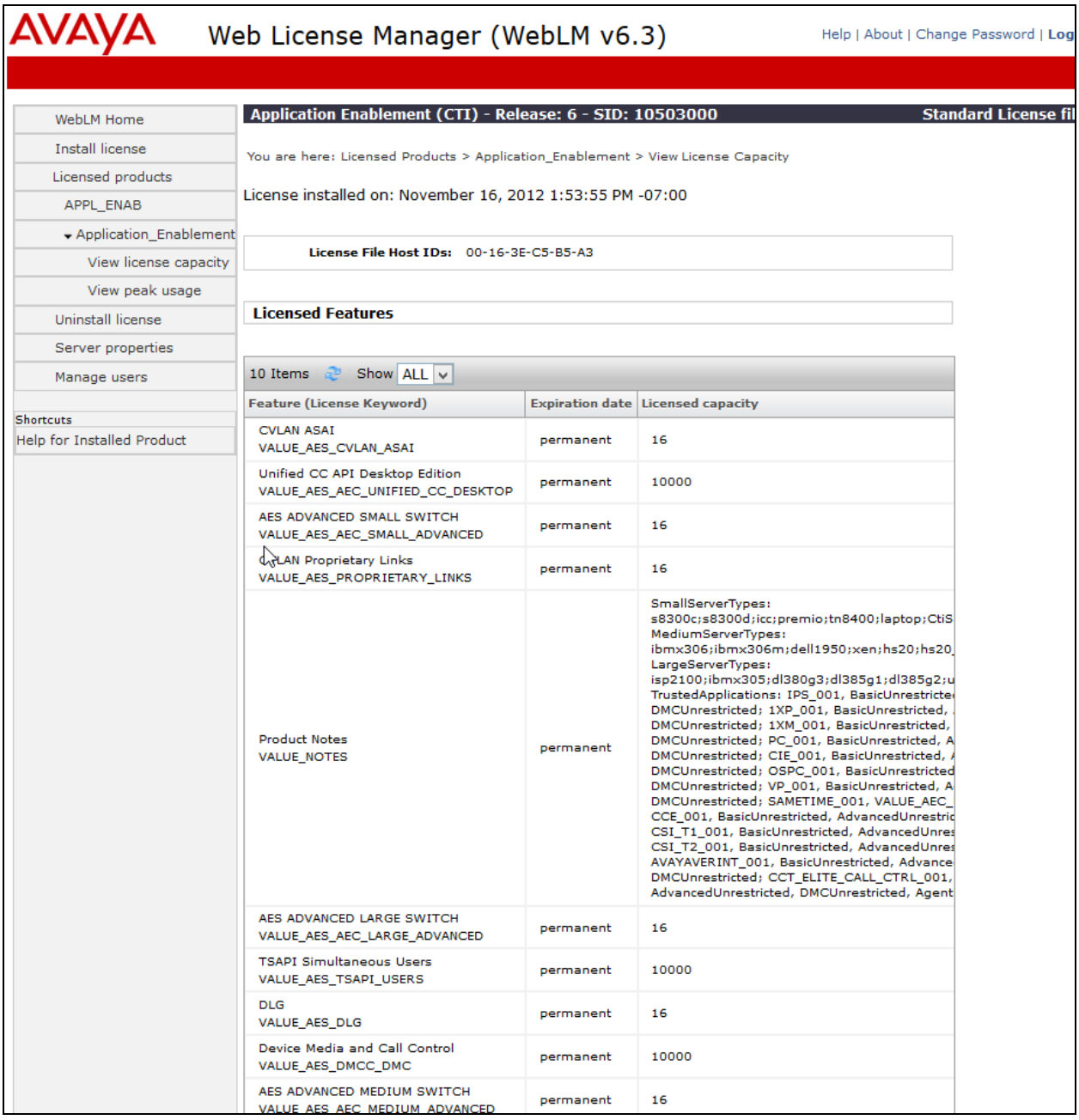
6.2. Verify License

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.



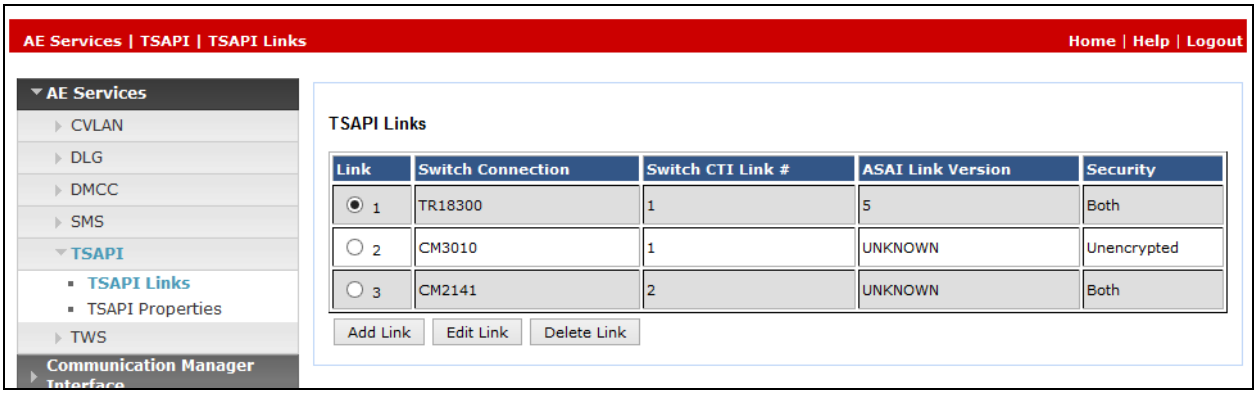
The **Web License Manager** screen below is displayed. Select **Licensed products → APPL_ENAB → Application_Enablement** in the left pane, to display the **Application Enablement (CTI)** screen in the right pane.

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



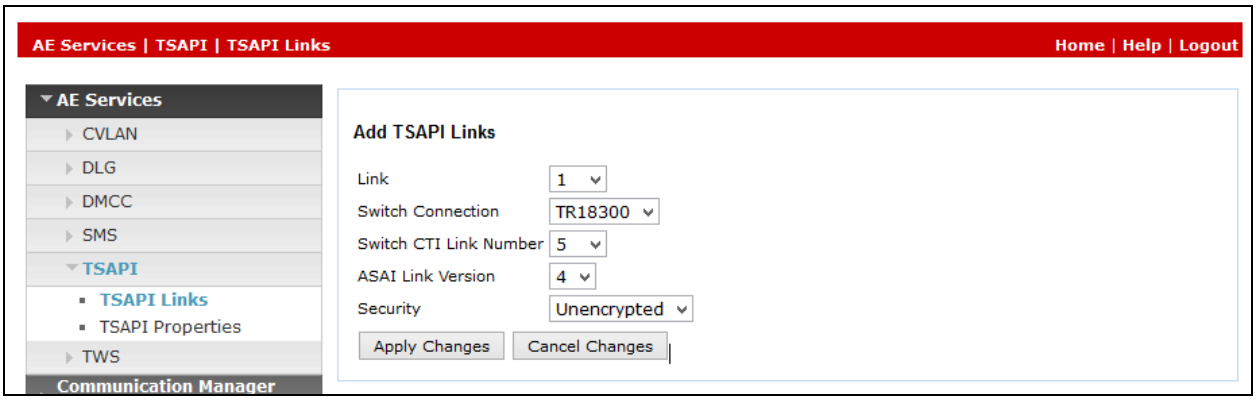
6.3. Administer TSAPI Link

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 **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 "TR18300" is selected. For **Switch CTI Link Number**, select the CTI link number from **Section 5.2.** Retain the default values in the remaining fields.

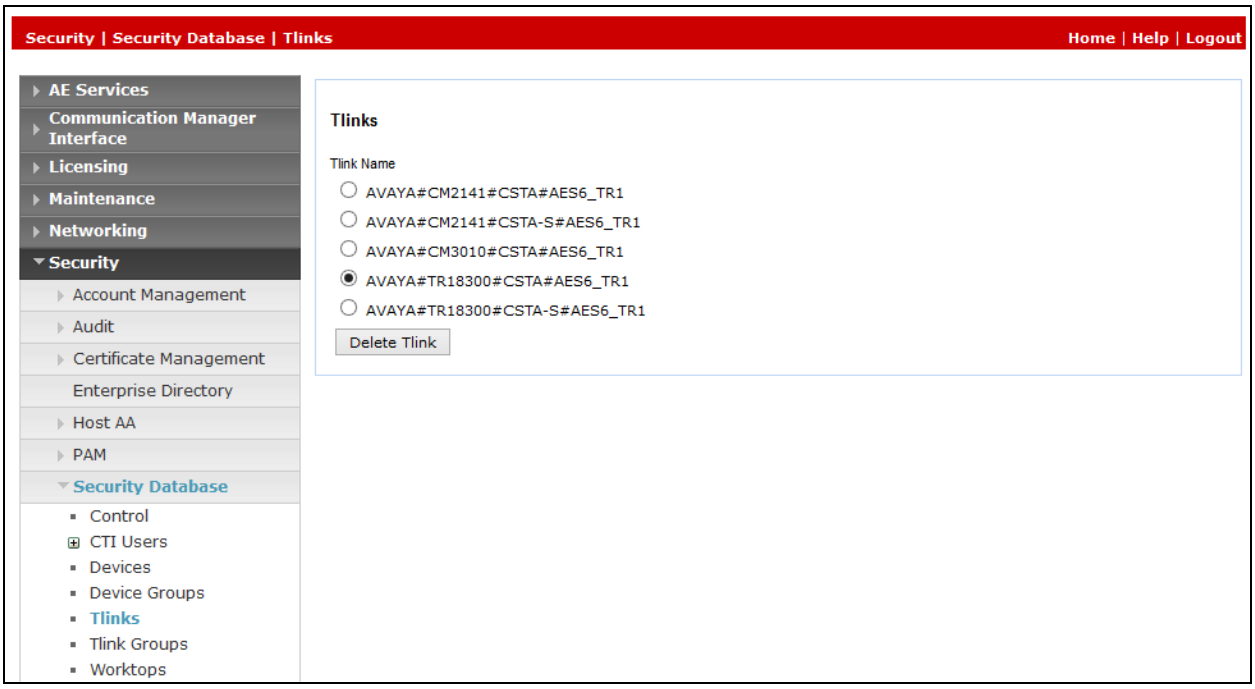


6.4. Obtain Tlink Name

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.

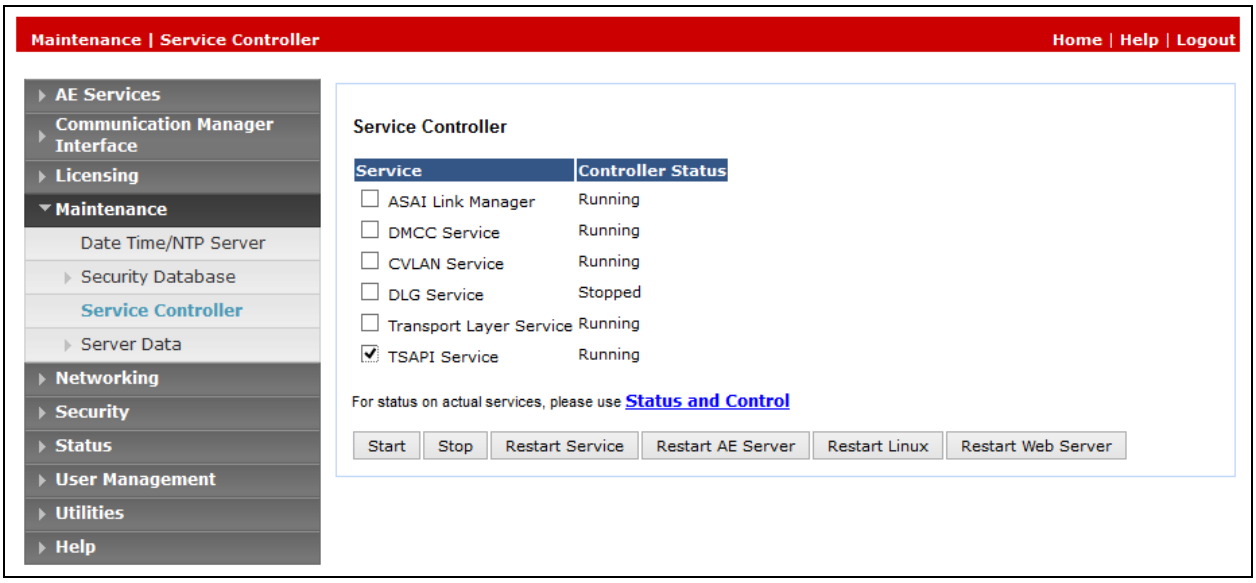
Locate the Tlink name associated with the relevant switch connection, which would use the name of the switch connection as part of the Tlink name. Make a note of the associated Tlink name, to be used later for configuring EMPOWER Suite.

In this case, the associated Tlink name is "AVAYA#**TR18300**#CSTA#AES6_TR1". Note the use of the switch connection "TR18300" from **Section 6.3** as part of the Tlink name.



6.5. Restart Services

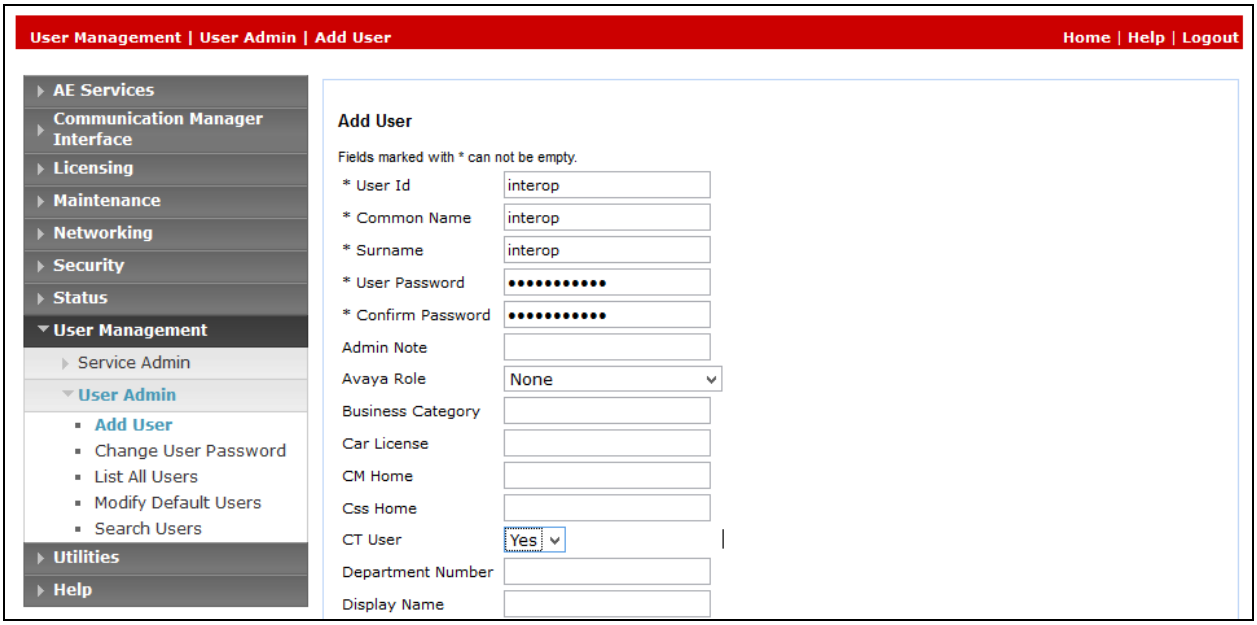
Select **Maintenance → Service Controller** from the left pane, to display the **Service Controller** screen in the right pane. Check **DMCC Service** and **TSAPI Service**, and click **Restart Service**.



6.6. Administer VPI User

Select **User Management → User Admin → Add User** from the left pane, to display the **Add User** screen in the right pane.

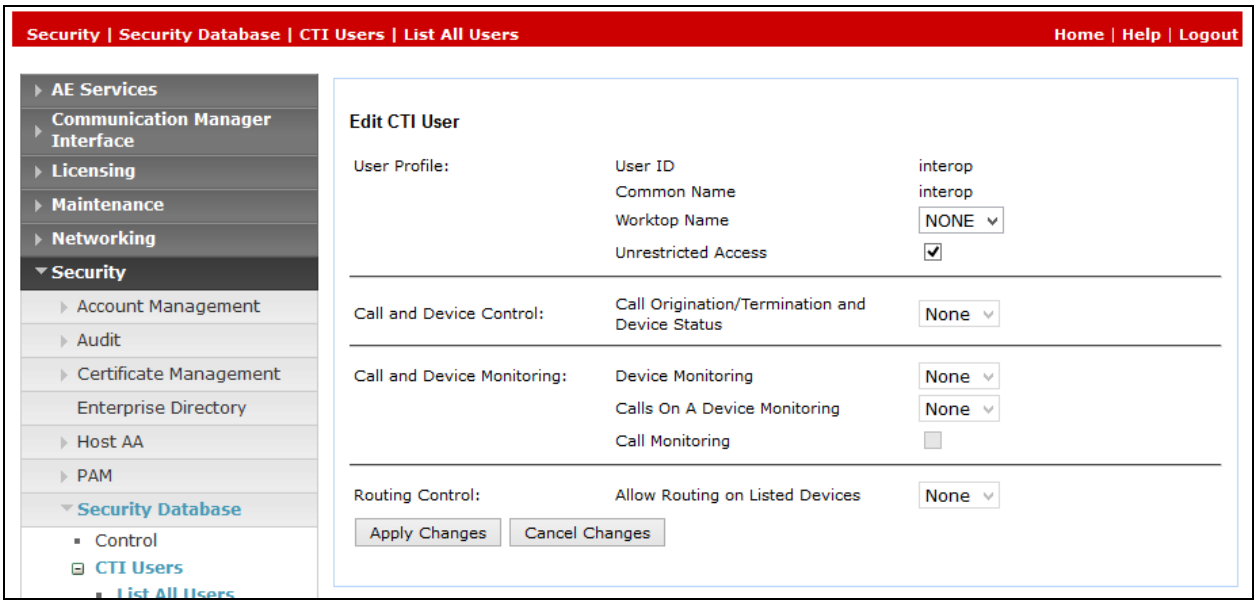
Enter desired values for **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password**. For **CT User**, select "Yes" from the drop-down list. Retain the default value in the remaining fields.



6.7. Administer Security Database

Select **Security → Security Database → CTI Users → List All User**. Edit the user added in **Section 6.6**.

Check the **Unrestricted Access** box and **Apply Changes** at the bottom of the screen.



7. Configure VPI EMPOWER Suite

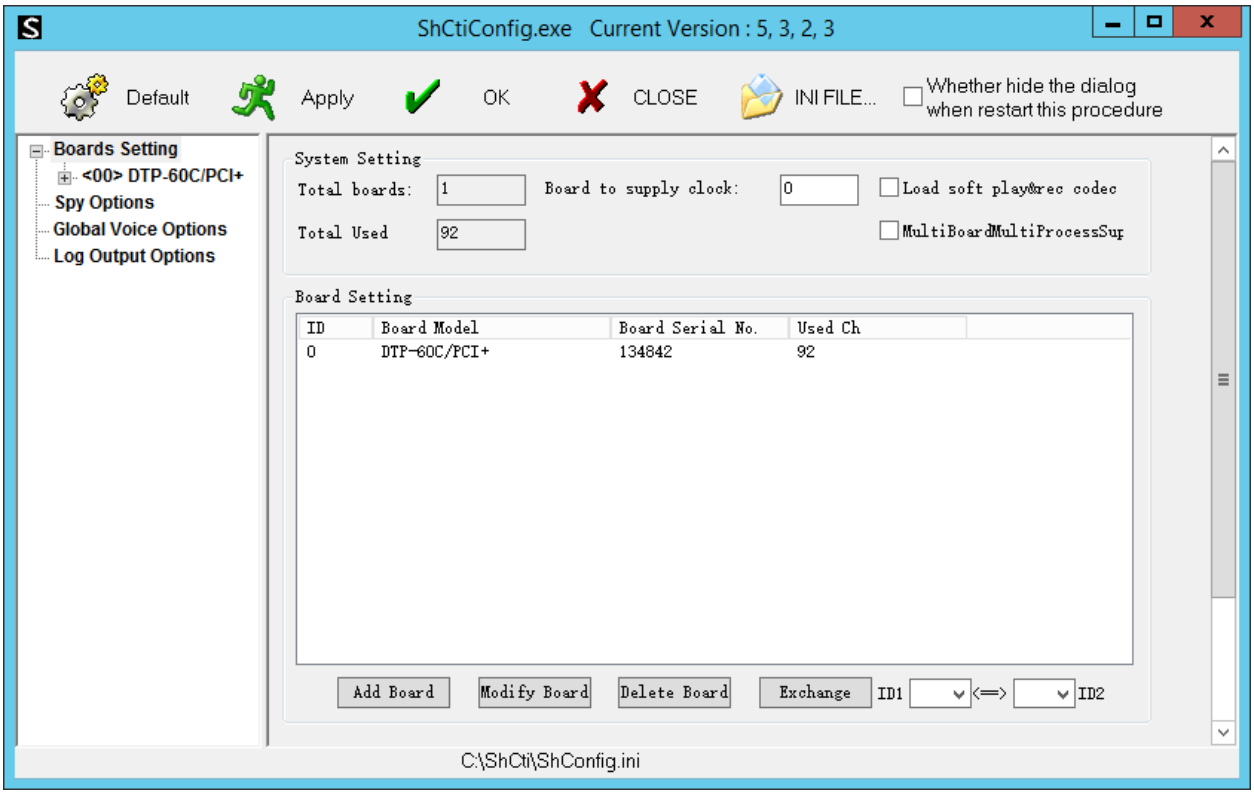
This section provides the procedures for configuring EMPOWER Suite. The procedures include the following areas:

- Configure Synway DTP Board
- 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. Configure Synway DTP Board

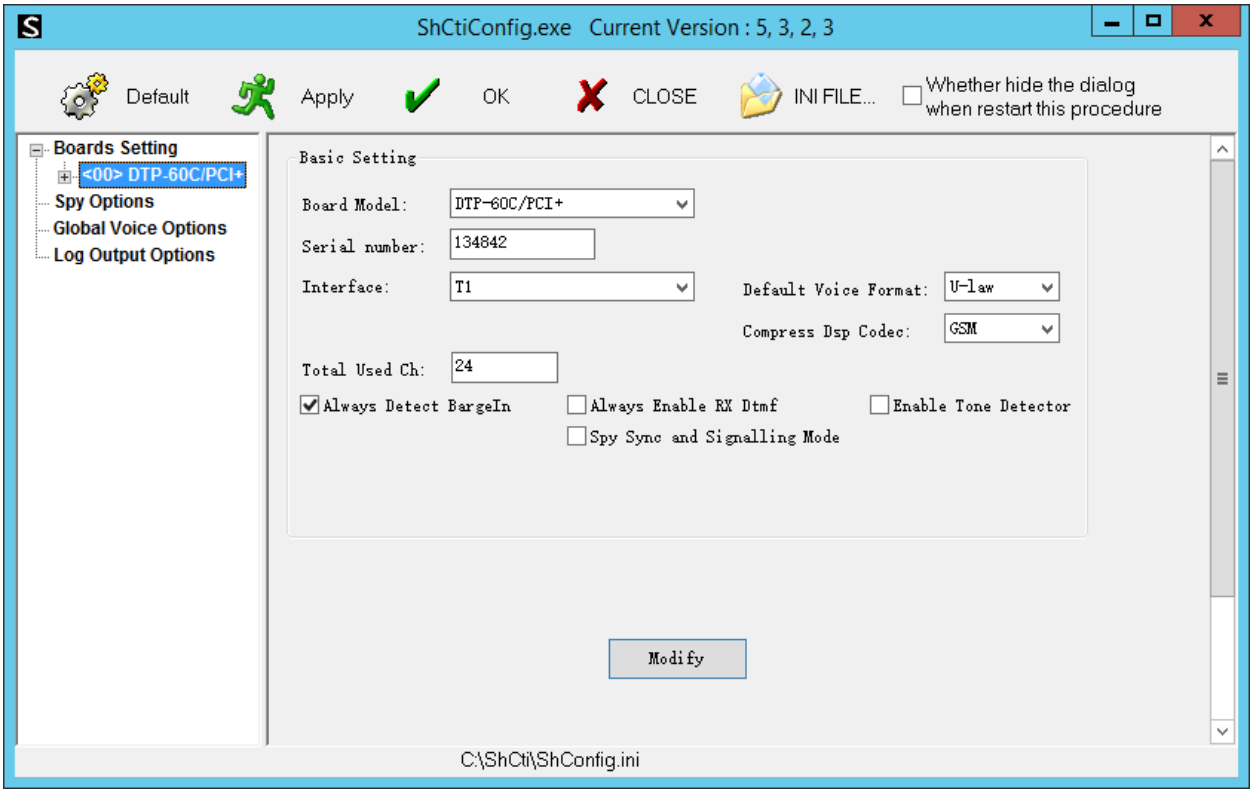
On the server running VPI EMPOWER Suite, open ShCtiConfig.exe located in c:\ShCti.



From the left pane, select the DTP board under **Board Setting**.

- Set **Interface** to **T1**.
- Set **Default Voice Format** to **U-law**.
- Set **Compress Dsp Codec** to **GSM**.
- Enter a value for **Total Used Ch.** This value will be signifies the total number of channels that can be configured across the 4 ports on the board.

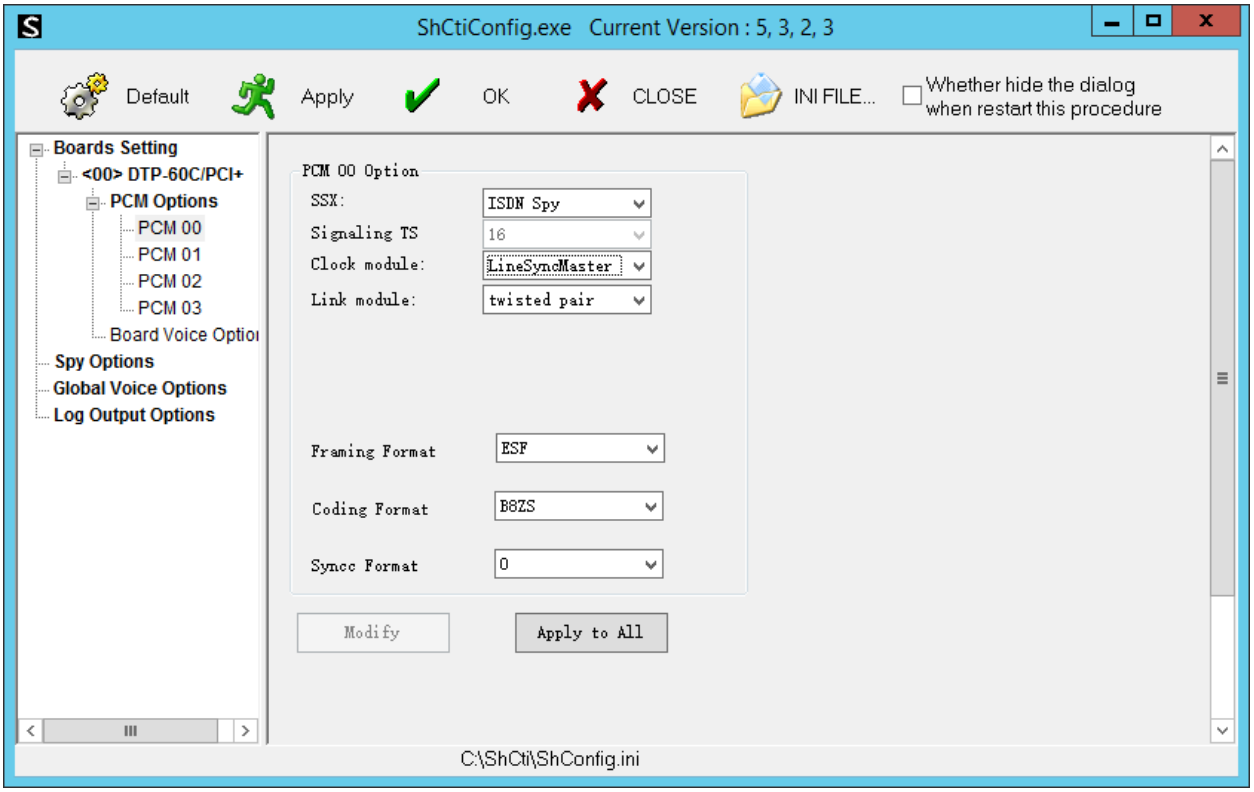
Once done, select **Modify** to save changes.



From the left pane, expand the DTP board and select the board under **PCM Options**. In this case, PCM 00, for Port number 0**.**

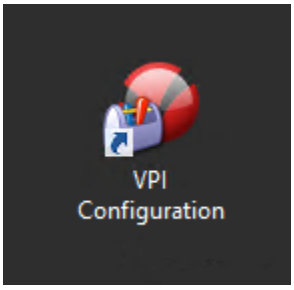
- Set **SSX** to **ISDN Spy**.
- Set **Clock module** to **LineSyncMaster**.
- Set **Link module** to **twisted pair**.
- Set **Framing Format** to **ESF**.
- Set **Coding Format** to **B8ZS**.

Please note that the **Framing Format** and **Coding Format** should match the configured values in **Section 5.4.** Once done, click **Modify** to save changes.

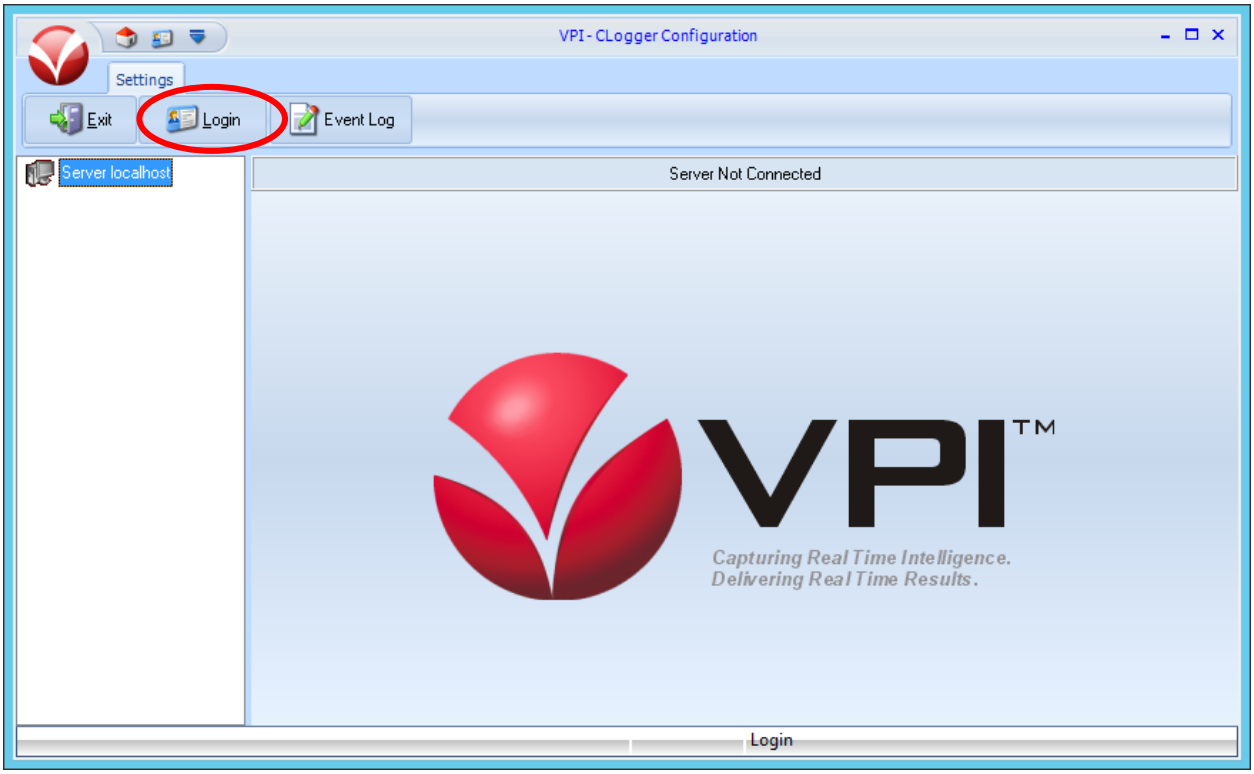


7.2. Launch VPI Configuration

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.

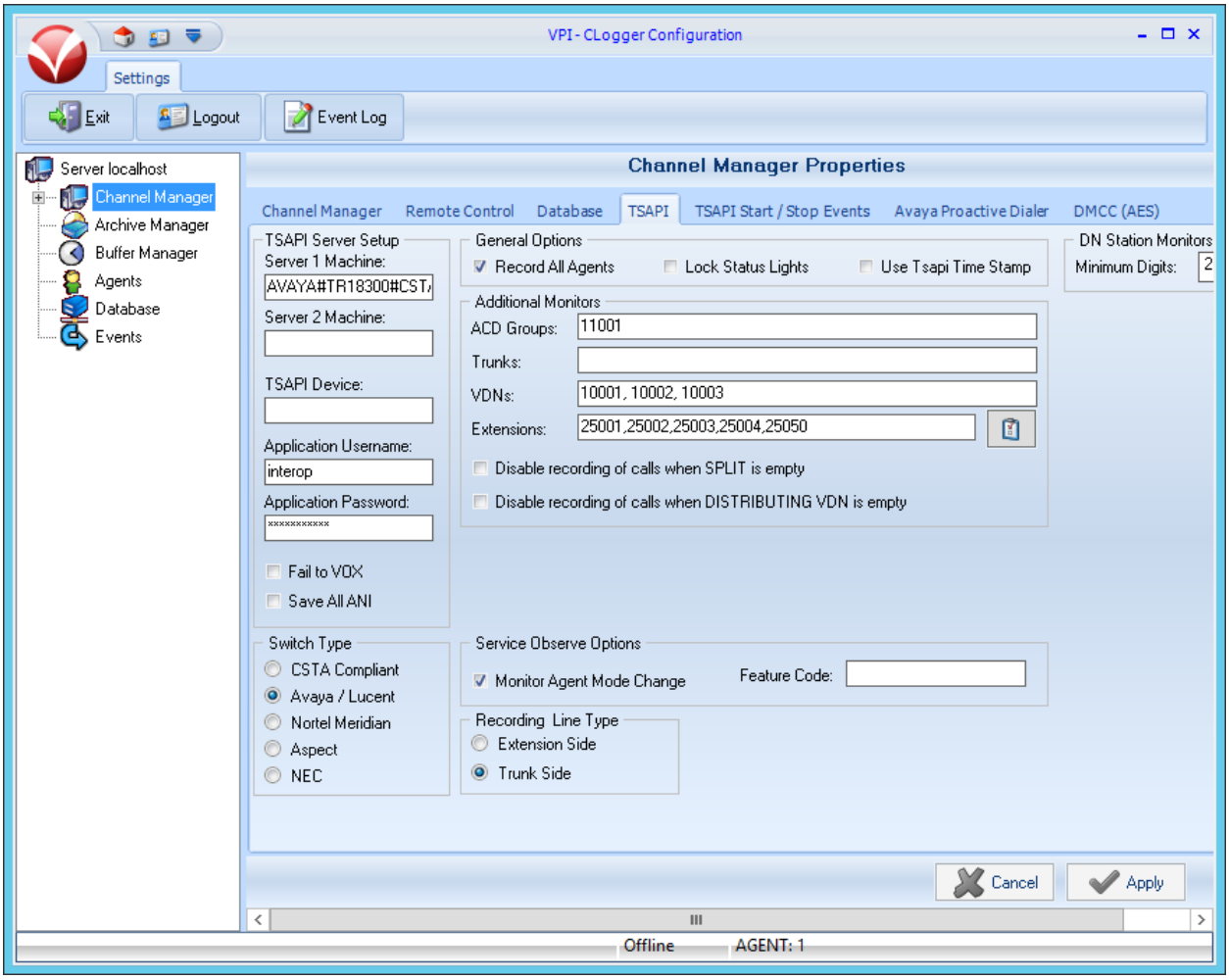


The screen below is displayed next. Log in using the appropriate credentials.

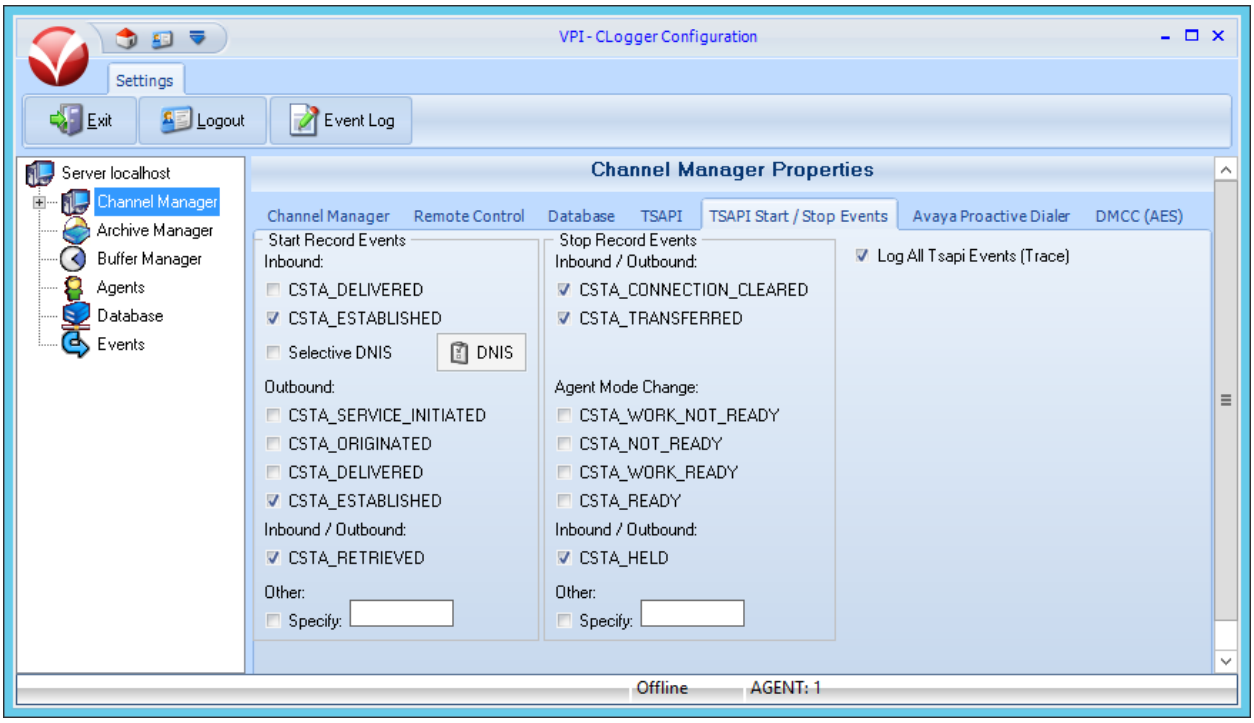
7.3. Administer TSAPI

Select the **Server localhost → Channel Manager → 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 6.4**.
- **Application Username:** The VPI user credentials from **Section 6.6**.
- **Application Password:** The VPI user credentials from **Section 6.6**.
- **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"



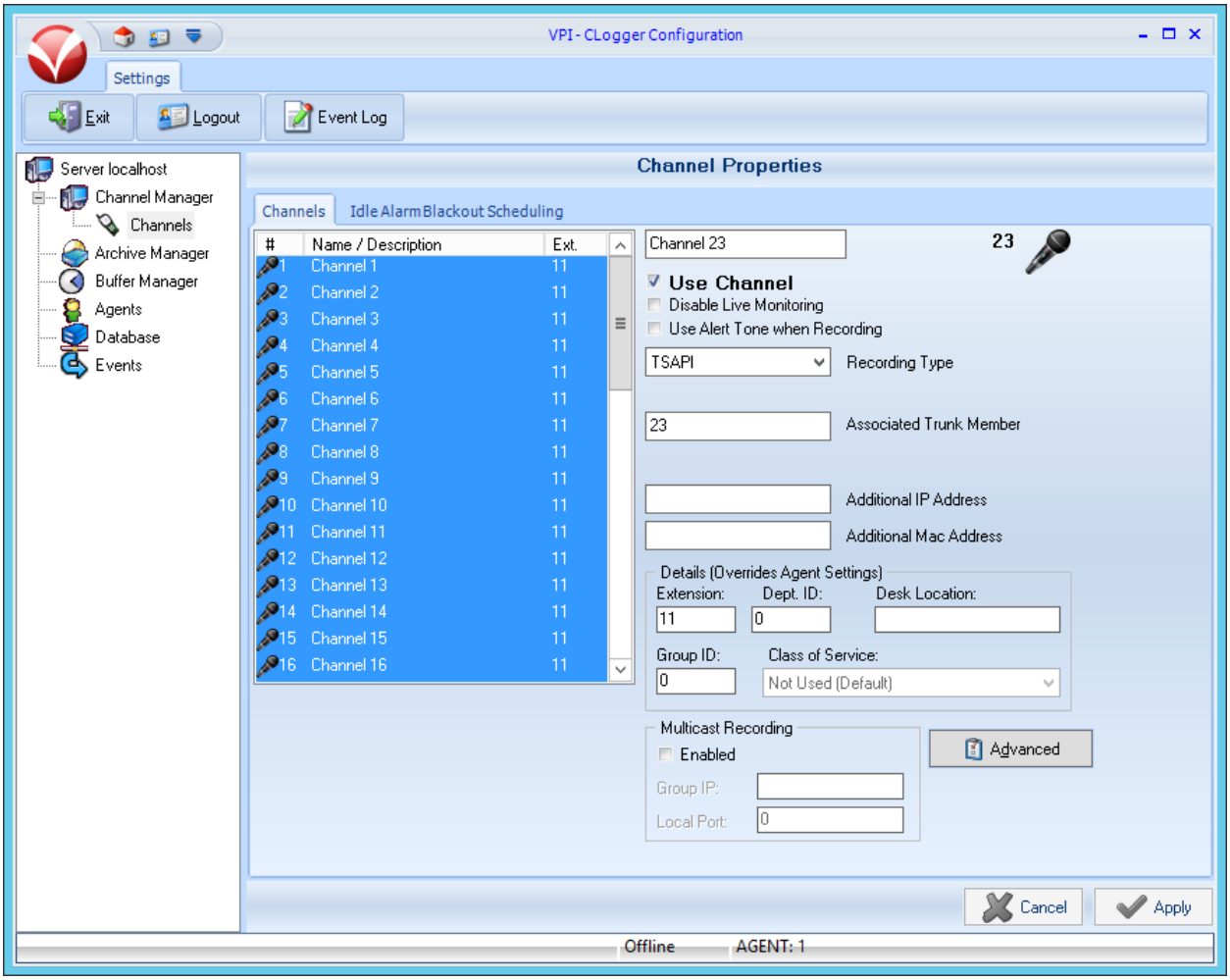
Select the **TSAPI Start / Stop Events** tab in the right pane. Check the desired events to trigger the start and stop of call recordings. The screen below shows the selections used for the compliance testing. The **Log All Tsapi Events (Trace)** field was checked in the compliance testing for event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



7.4. Administer Channels

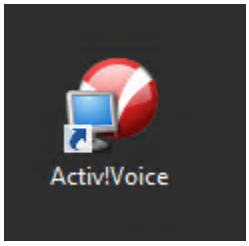
Select **Server localhost → Channel Manager → Channels** in the left pane, to display the **Channel Properties** screen. Select all pertinent PRI trunk channels from the left portion of the **Channel Properties** screen, in this case **Channel 1-23**, and enter the following values for the specified 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**.

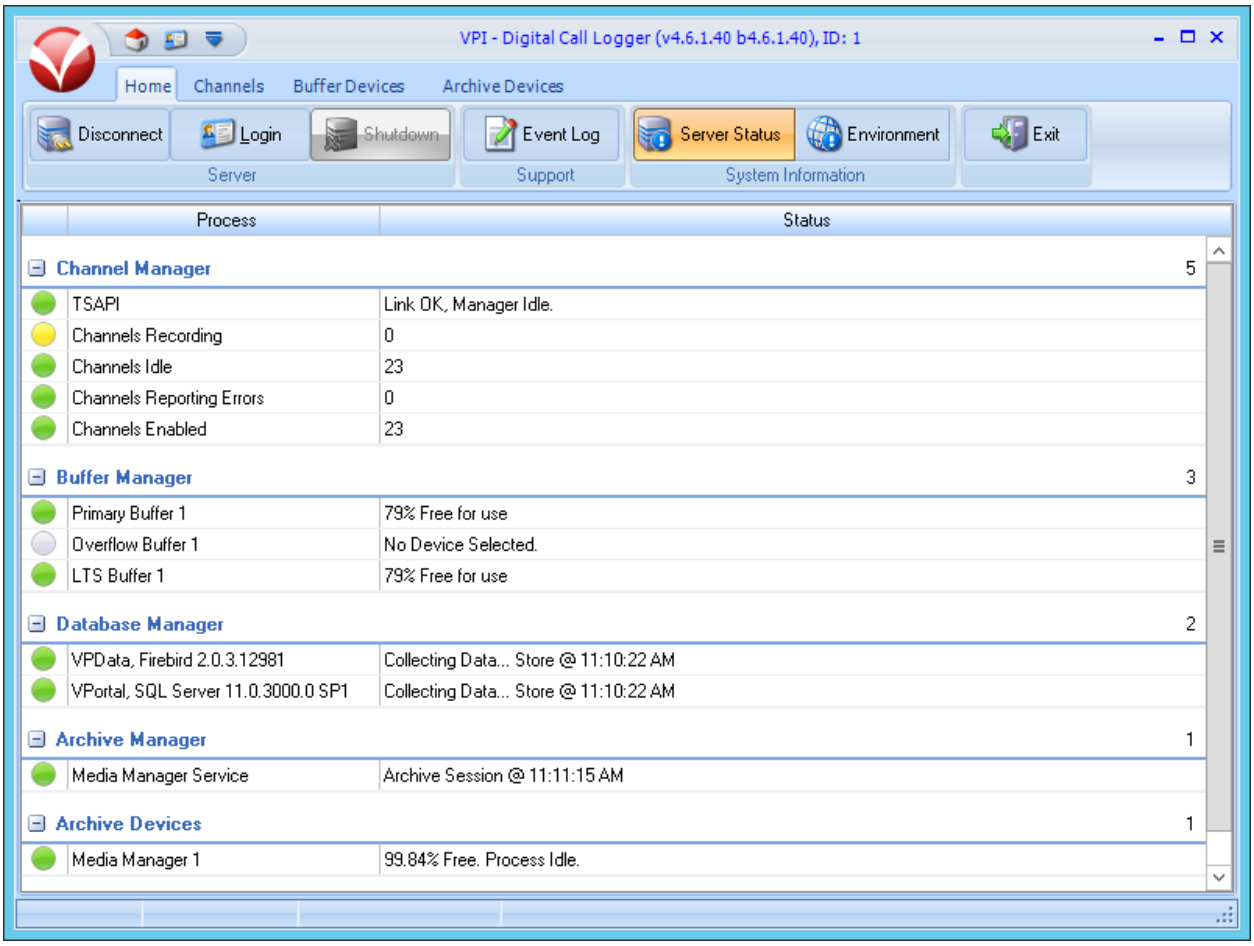


7.5. Launch Activ!Voice

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.



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.

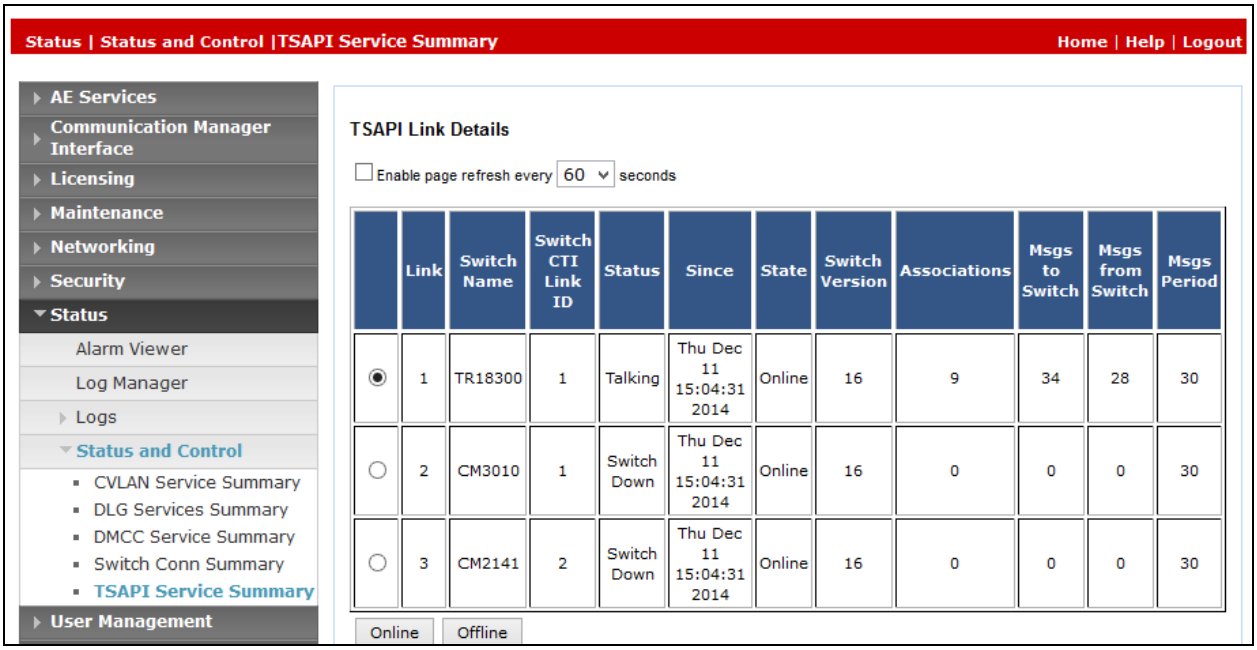
8.1. Verify Avaya Aura® Communication Manager

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    Version  Mnt    AE Services      Service        Msgs      Msgs
Link            Busy   Server           State          Sent      Rcvd

1      5        no     aes6_tr1         established    28        34
```

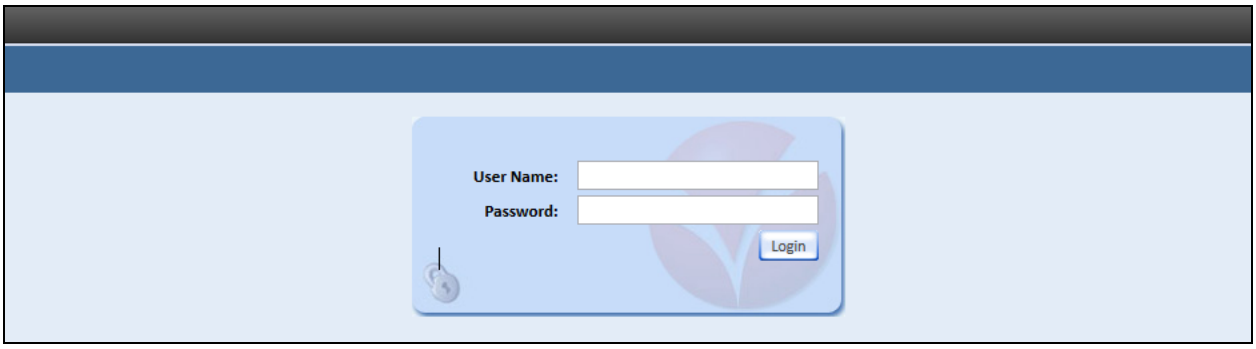
8.2. Verify Avaya Aura® Application Enablement Services

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.**

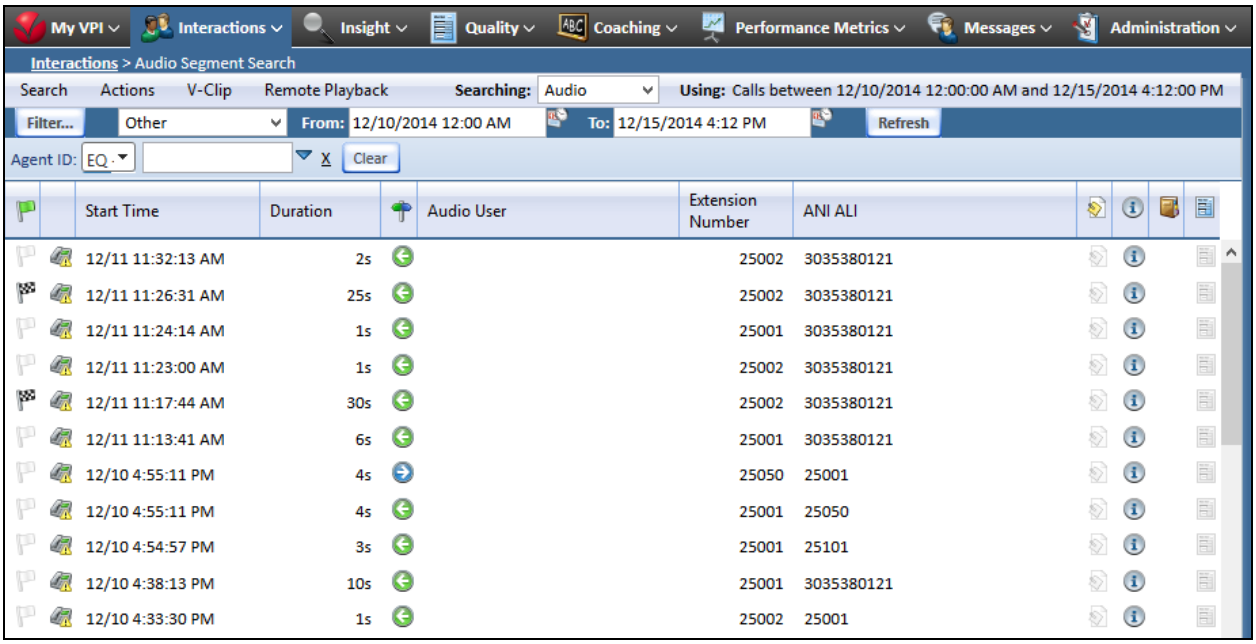


8.3. Verify VPI EMPOWER Suite

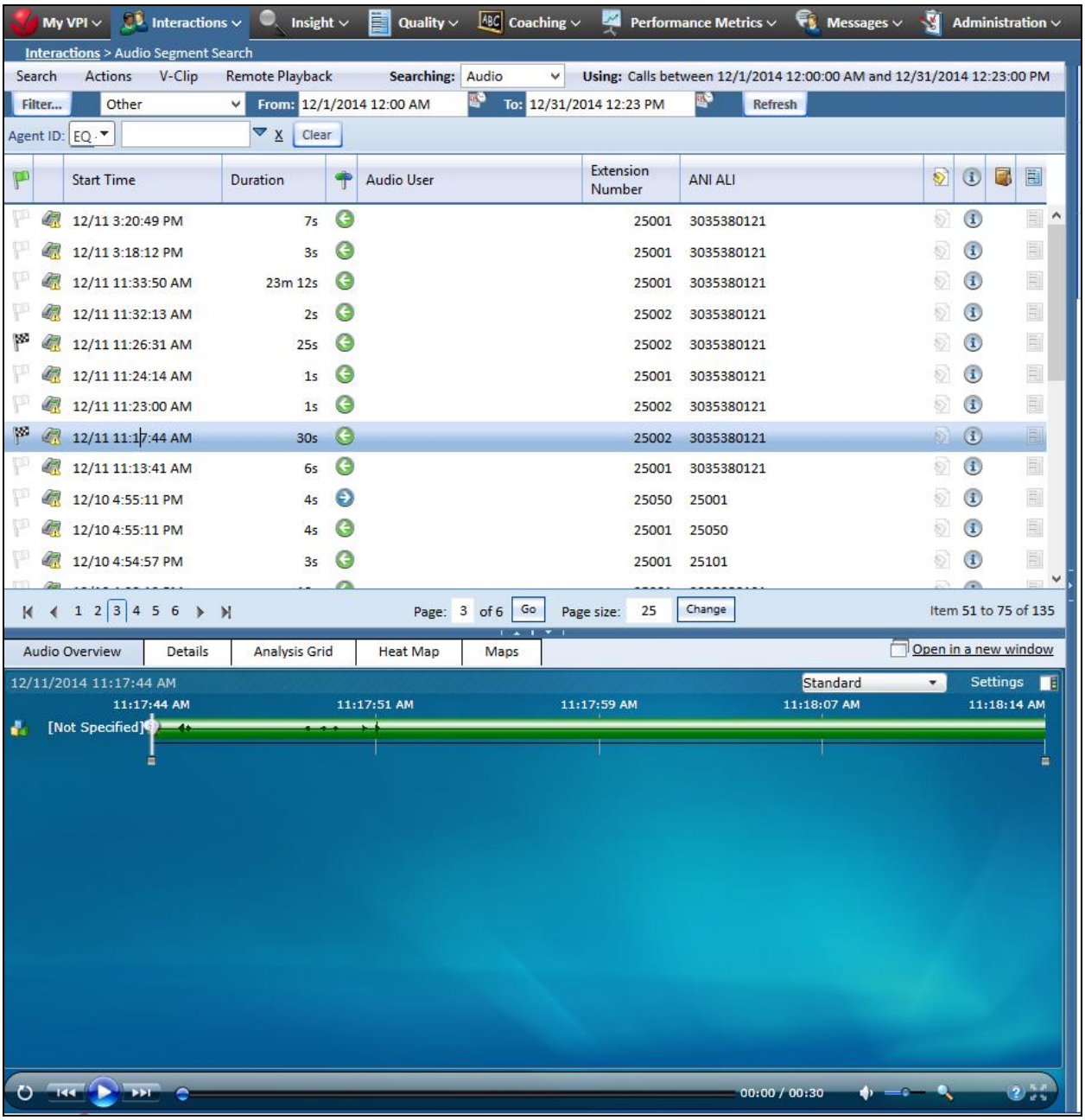
Log an agent in to the skill group to handle and complete an ACD call. Access the EMPOWER Suite web-based interface by using the URL "https://ip-address/VPortal" in an Internet browser window, where "ip-address" is the IP address of the EMPOWER Suite server. Log in using the appropriate credentials.



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.



9. Conclusion

These Application Notes describe the configuration steps required for VPI EMPOWER Suite 5.5 to successfully interoperate with Avaya Aura® Communication Manager 6.3.8 using Avaya Aura® Application Enablement Services 6.3.3. 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 10, Release 6.3, June 2014, available at http://support.avaya.com.

2. *Avaya Aura® Application Enablement Services Administration and Maintenance Guide*, Release 6.3, 02-300357, June 2014, 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.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.