



Avaya Solution & Interoperability Test Lab

Application Notes for Grandsys Technology & Service LOG8000 2.6.1 with Avaya Aura® Communication Manager 6.0.1 and Avaya Aura® Application Enablement Services 6.1.1 - Issue 1.0

Abstract

These Application Notes describe the procedures for configuring Grandsys Technology & Service LOG8000 2.6.1 to monitor and record calls placed to and from Avaya IP telephones and agents on Avaya Aura® Communication Manager 6.0.1 using the Telephony Services Application Programming Interface (TSAPI) on Avaya Aura® Application Enablement Services 6.1.1.

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 a compliance-tested configuration comprised of Avaya Aura® Communication Manager 6.0.1, Avaya Aura® Application Enablement Services (AES) 6.1.1 and Grandsys Technology & Service LOG8000 2.6.1.

Grandsys LOG8000 is a call recording solution for the customers of the call center market. Grandsys LOG8000 communicates with AES using the Telephony Services Application Programming Interface (TSAPI) and uses E1 FXS lines as recording channels. When a call starts on an extension to be recorded, the recording channel will be added to the call using the TSAPI Single Step Conference feature. Grandsys LOG8000 will then record the call and save the recording to the database. Detailed call information obtained using TSAPI are also stored for each call along with the recording.

2. General Test Approach and Test Results

The general approach was to place various types of calls to and from stations, agents, and Vector Directory Numbers (VDNs), monitor and record the calls using Grandsys LOG8000, and verify the recordings. For feature testing, the types of calls included internal calls, inbound and outbound trunk calls, transferred calls, and conferenced calls. For serviceability testing, failures such as disconnecting the LAN cable to the Grandsys LOG8000 Server and AES Server, and rebooting the Grandsys LOG8000 Server and Communication Manager Server were applied.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing evaluated the ability of Grandsys LOG8000 to monitor and record calls placed to and from stations and agents. The serviceability testing introduced failure scenarios to see if Grandsys LOG8000 can resume recording after failure recovery.

2.2. Test Results

All test cases were executed and passed.

2.3. Support

For technical support on Grandsys LOG8000, contact Grandsys at:

- Phone: +886-2-87682715
- Email: service@grandsys.com

3. Reference Configuration

Figure 1 illustrates a sample configuration consisting of an Avaya S8800 Server running Avaya Aura® Communication Manager, an Avaya G650 Media Gateway, an Avaya Aura® Application Enablement Services Server, Avaya IP Telephones, a desktop PC running Avaya one-X Agent and a Windows 2003 Server running Grandsys LOG8000. The Grandsys LOG8000 Server connects to Communication Manager using E1 FXS lines for voice recording. The Grandsys LOG8000 Server also monitors the agent extensions using the TSAPI Service to retrieve call related information. The TSAPI Service is provided by the AES Server.

In the compliance testing, LOG8000 monitored or controlled the devices shown below.

Device Type	Extension
Recording Stations	10901 to 10905
Agent Stations	10001 to 10004

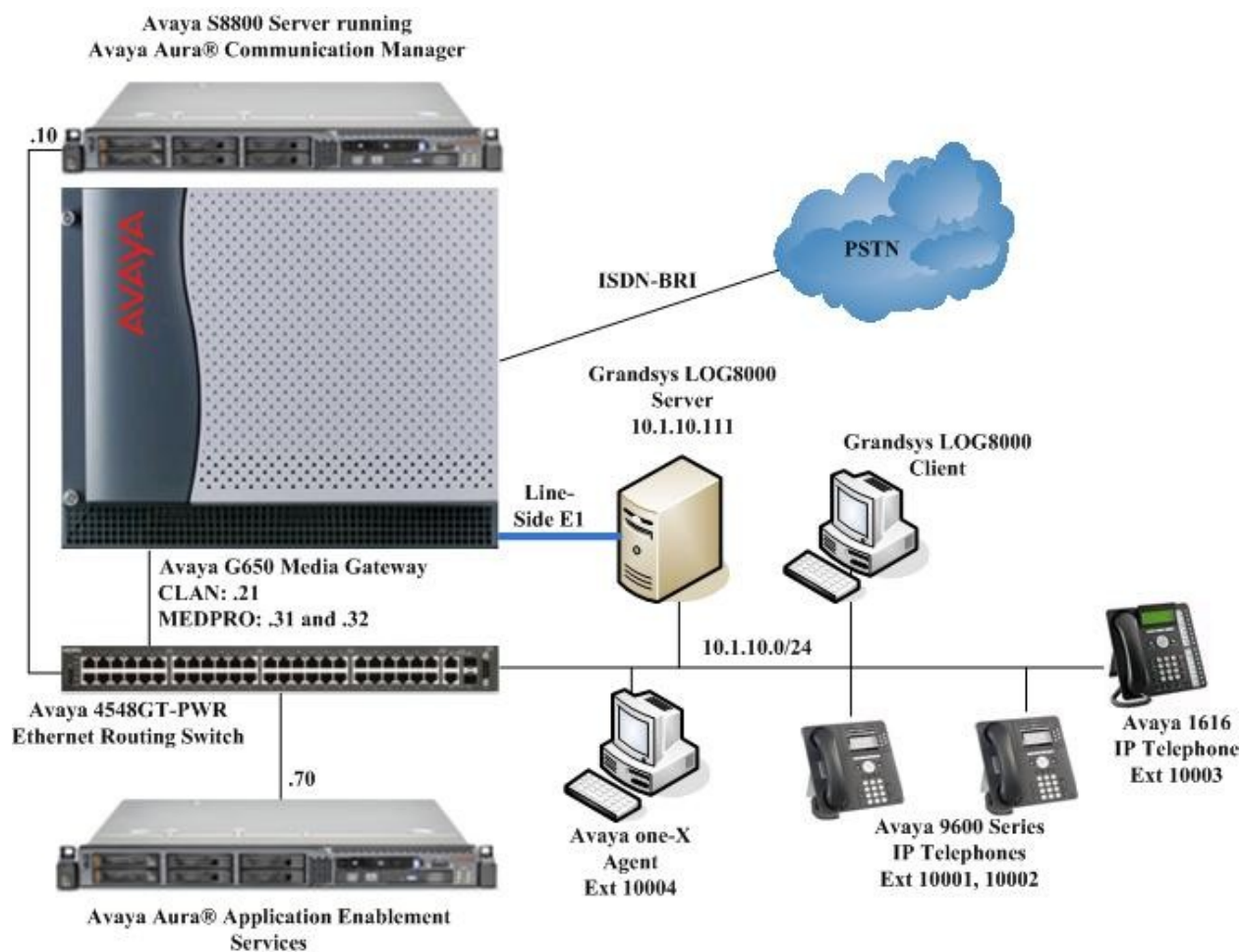


Figure 1: Grandsys LOG8000 Test Configuration

4. Equipment and Software Validated

The following equipment and software/firmware were used for the sample configuration provided:

Equipment	Version
Avaya S8800 Server	Avaya Aura® Communication Manager 6.0.1 Service Pack 5 (00.1.510.1-19303)
Avaya G650 Media Gateway - TN2312BP IP Server Interface - TN799DP C-LAN Interface - TN2602AP IP Media Processor - TN2302AP IP Media Processor - TN2214CP Digital Line - TN2464CP DS1 Interface	- HW07, FW054 HW01, FW040 HW02, FW059 HW20, FW121 HW08, FW015 HW02, FW024
Avaya S8800 Server	Avaya Aura® Application Enablement Services 6.1.1 Patch 1
Avaya 9600 Series IP Telephones - 9630 - 9640	3.1 SP2 (H.323) 3.1 SP2 (H.323)
Avaya 1616 IP Telephone	1.300B (H.323)
Avaya one-X Agent	2.5 Patch 2 (H.323)
Avaya 4548GT-PWR Ethernet Routing Switch	V5.4.0.008
Grandsys LOG8000	2.6.1

5. Configure Avaya Aura® Communication Manager

This section provides the procedure for configuring the FXS recording stations on Communication Manager required to interface to the telephony board installed on the Grandsys LOG8000 Server. All the configuration changes in Communication Manager are performed through the System Access Terminal (SAT) interface. The initial configuration of the VDNs, Vectors, Hunt Groups and Agent IDs required for call center function, as well as the AES and Computer Telephony Integration (CTI) links to interface to Application Enablement Services is assumed to be in place and will not be discussed here.

5.1. Recording Stations

The recording stations in this configuration are E1 FXS stations configured as **DS1FD** type of stations.

Step	Description
1.	<p>Enter the add ds1 n command, where n is the board location, to configure the DS1 board used to connect to Grandsys LOG8000. Enter a descriptive Name, set Bit Rate to 2.048, Line Coding to hdb3, Signaling Mode to CAS, Interconnect to pbx, Interface Companding to alaw, Idle Code to 11111111 and CRC to n. The remaining fields can be left at the default value.</p> <pre>add ds1 1a08 Page 1 of 1 DS1 CIRCUIT PACK Location: 01A08 Name: LOG8000 Bit Rate: 2.048 Line Coding: hdb3 Signaling Mode: CAS Interconnect: pbx Country Protocol: 1 Interface Companding: alaw CRC? n Idle Code: 11111111 Slip Detection? n Near-end CSU Type: other Echo Cancellation? n</pre>

2. Enter the **add station n** command, where **n** is an extension valid under the provisioned dial plan. On Page 1, set **Type** to **DS1FD**, **Port** to the first port of the DS1 board configured in **Step 1** and enter a descriptive **Name**. Repeat this as necessary to configure additional FXS stations. For the compliance test, stations from 10901 to 10905 were created for the purpose of recording. The remaining fields can be left at their defaults.

```
add station 10901                                     Page 1 of 4

                                STATION

Extension: 10901                                Lock Messages? n                BCC: 0
  Type: DS1FD                                Security Code:                  TN: 1
  Port: 01A0801                            Coverage Path 1:                COR: 1
  Name: LOG8000 #1                        Coverage Path 2:                COS: 1
                                           Hunt-to Station:                Tests? y

STATION OPTIONS

                                Time of Day Lock Table:

                                Loss Group: 4
Off Premises Station? y
  R Balance Network? n

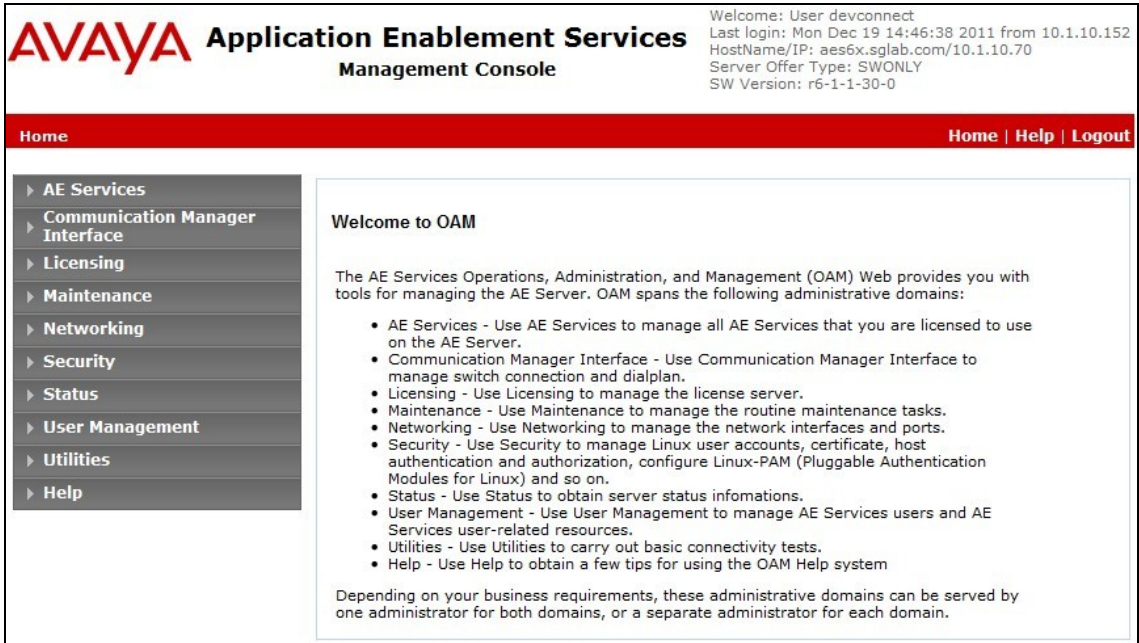
                                Survivable COR: internal
Survivable Trunk Dest? Y
```

6. Configure Avaya Aura® Application Enablement Services

This section provides the procedure for configuring Avaya Aura® Application Enablement Services. The initial configuration of the Switch Connection and TSAPI link to interface to Communication Manager is assumed to be in place and will not be discussed here. The procedure falls into the following areas:

- Verify Avaya Application Enablement Services License
- Administer CTI User
- Administer Devices and Device Group
- Administer CTI user permission
- Obtain TSAPI Link

6.1. Verify Application Enablement Services License

Step	Description
1.	<p>Launch a web browser and enter <a href="http://<ip-addr>">http://<ip-addr>, where <ip-addr> is the IP address of the AES Server, to access the AES Management Console. Log in using an administrative login and password (not shown), and the Welcome To OAM screen will be displayed.</p> 

6.2. Administer CTI User

Click **User Management** → **User Admin** → **Add User** in the left pane. Specify a value for **User Id**, **Common Name**, **Surname**, **User Password** and **Confirm Password**. Set **CT User** to **Yes**. Use the values for **User Id** and **User Password** to configure Grandsys LOG8000 in **Section 7.2 Step 4** to access the TSAPI Service on the AES server. Scroll down to the bottom of the page and click **Apply** (not shown).

AVAYA **Application Enablement Services**
Management Console

Welcome: User devconnect
Last login: Mon Dec 19 16:40:48 2011
from 10.1.10.152
HostName/IP:
aes6x.sglab.com/10.1.10.70
Server Offer Type: SWONLY
SW Version: r6-1-1-30-0

User Management | User Admin | Add UserHome | Help | Logout

▶ 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

Add User

Fields marked with * can not be empty.

* User Idlog8000

* Common NameLOG8000

* SurnameGrandsys

* User Password••••••••

* Confirm Password••••••••

Admin Note

Avaya RoleNone ▼

Business Category

Car License

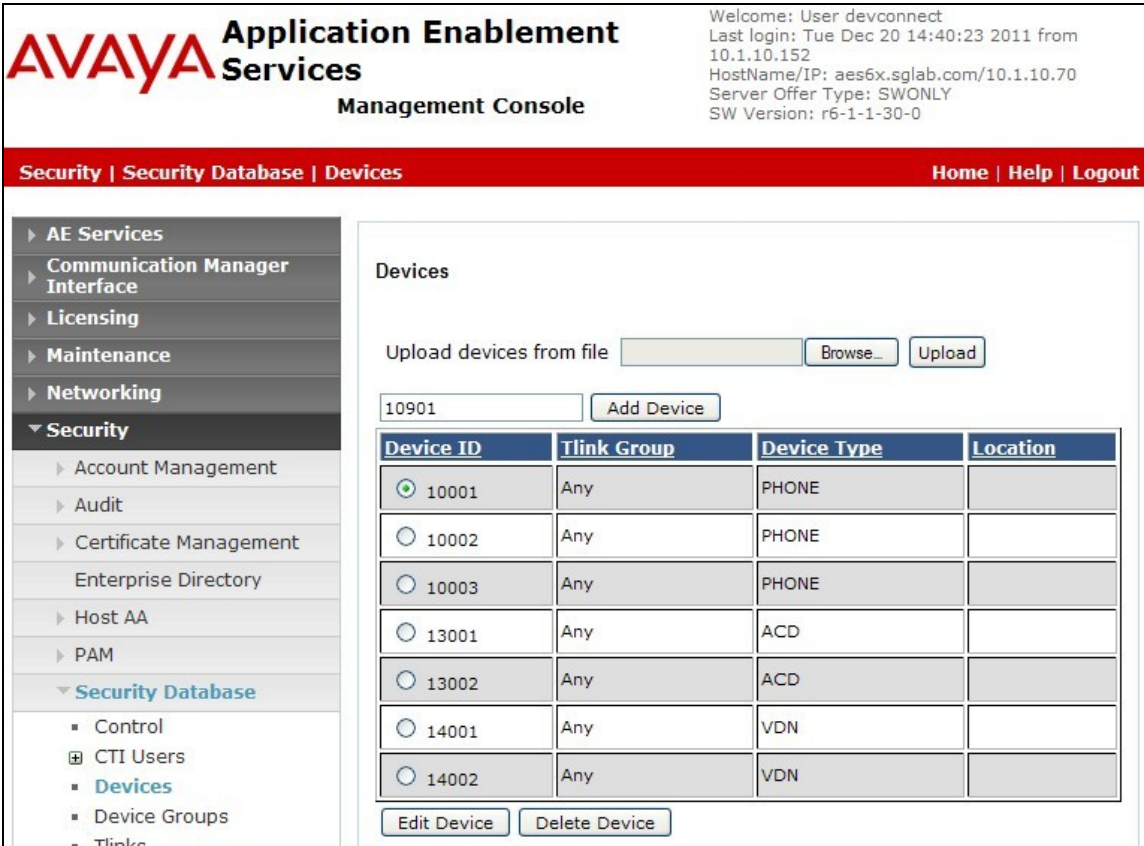
CM Home


Css Home

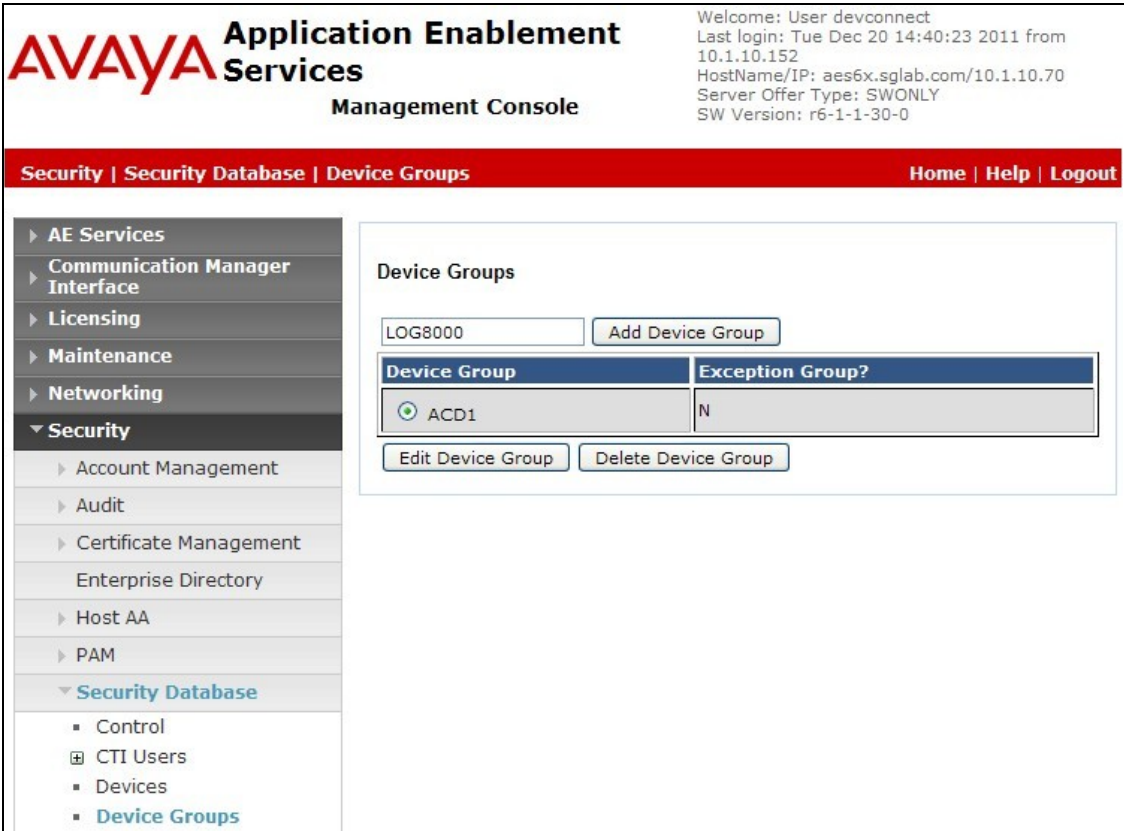
CT UserYes ▼

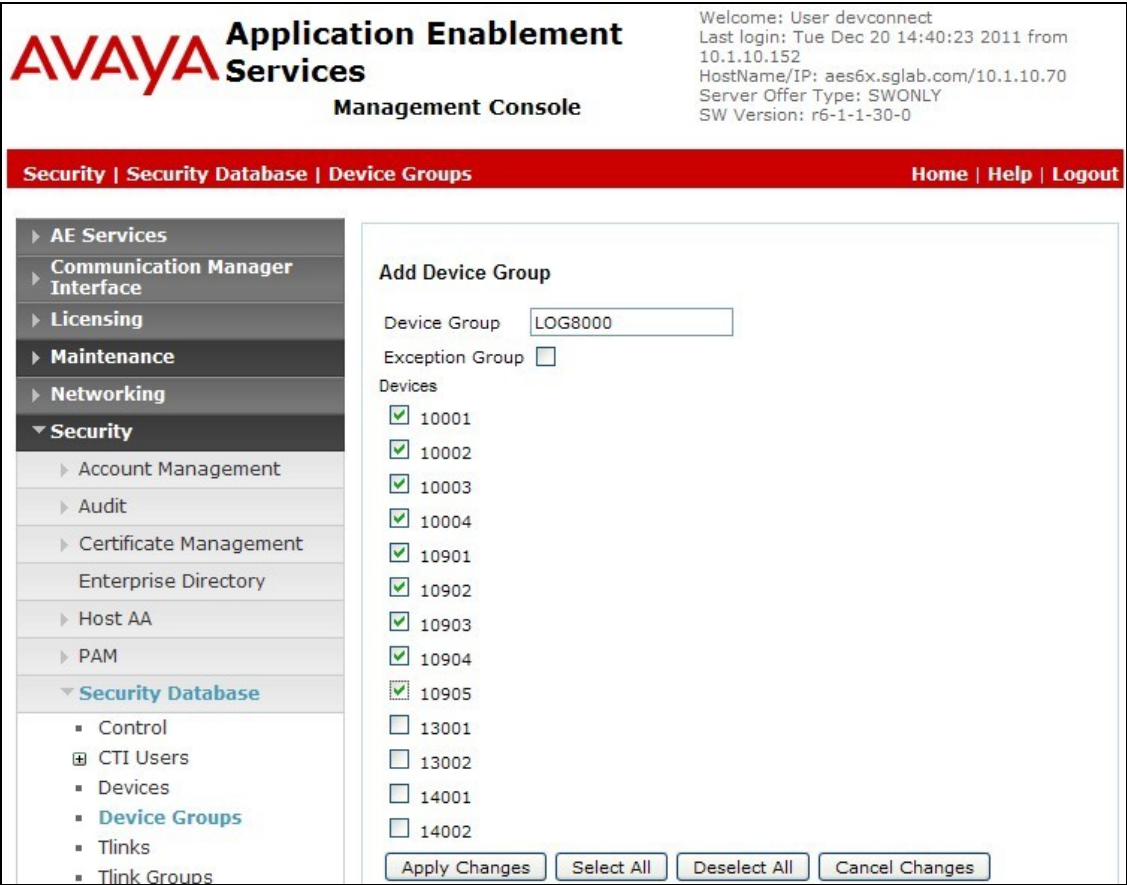
Department Number

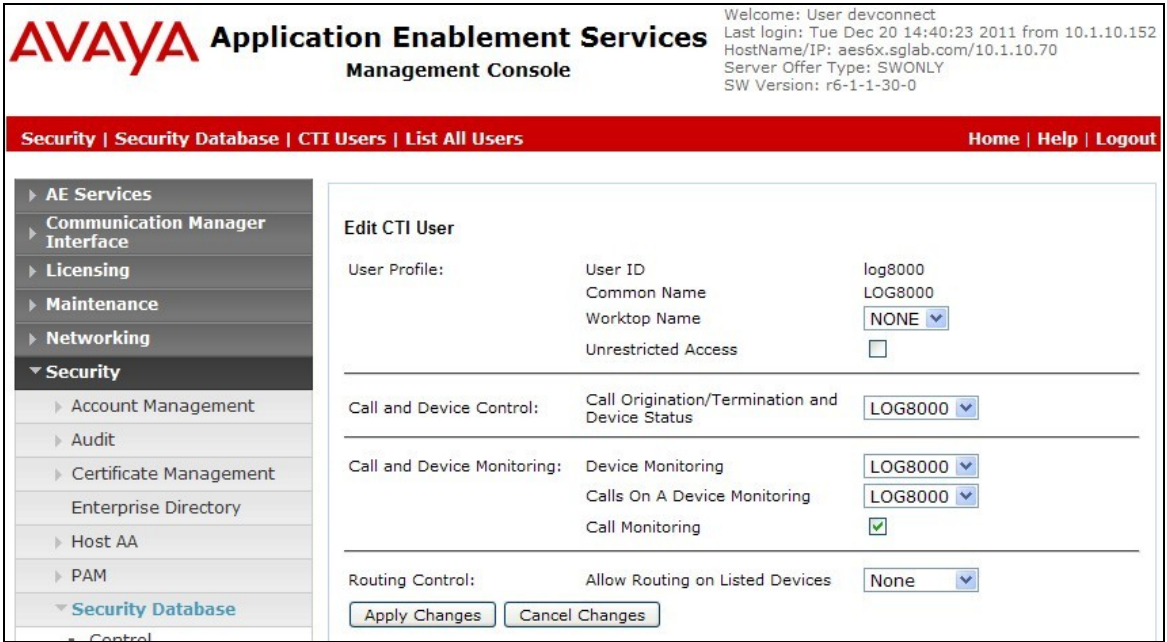
6.3. Administer Devices and Device Group

Step	Description																																
1.	<p>To administer the devices to be monitored and used by LOG8000, select Security → Security Database → Devices from the left menu. Enter a device from the table in Section 3, e.g. 10901, and click Add Device.</p>  <p>The screenshot shows the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo and 'Application Enablement Services Management Console'. A red navigation bar contains 'Security Security Database Devices' and 'Home Help Logout'. The left sidebar menu has 'Security' expanded, with 'Devices' selected. The main content area is titled 'Devices' and contains an 'Upload devices from file' section with 'Browse...' and 'Upload' buttons. Below this is a text input field containing '10901' and an 'Add Device' button. A table with 4 columns (Device ID, Tlink Group, Device Type, Location) and 8 rows is displayed. The first row has a selected radio button. Below the table are 'Edit Device' and 'Delete Device' buttons.</p> <table><tr><th>Device ID</th><th>Tlink Group</th><th>Device Type</th><th>Location</th></tr><tr><td><input checked="" type="radio"/> 10001</td><td>Any</td><td>PHONE</td><td></td></tr><tr><td><input type="radio"/> 10002</td><td>Any</td><td>PHONE</td><td></td></tr><tr><td><input type="radio"/> 10003</td><td>Any</td><td>PHONE</td><td></td></tr><tr><td><input type="radio"/> 13001</td><td>Any</td><td>ACD</td><td></td></tr><tr><td><input type="radio"/> 13002</td><td>Any</td><td>ACD</td><td></td></tr><tr><td><input type="radio"/> 14001</td><td>Any</td><td>VDN</td><td></td></tr><tr><td><input type="radio"/> 14002</td><td>Any</td><td>VDN</td><td></td></tr></table>	Device ID	Tlink Group	Device Type	Location	<input checked="" type="radio"/> 10001	Any	PHONE		<input type="radio"/> 10002	Any	PHONE		<input type="radio"/> 10003	Any	PHONE		<input type="radio"/> 13001	Any	ACD		<input type="radio"/> 13002	Any	ACD		<input type="radio"/> 14001	Any	VDN		<input type="radio"/> 14002	Any	VDN	
Device ID	Tlink Group	Device Type	Location																														
<input checked="" type="radio"/> 10001	Any	PHONE																															
<input type="radio"/> 10002	Any	PHONE																															
<input type="radio"/> 10003	Any	PHONE																															
<input type="radio"/> 13001	Any	ACD																															
<input type="radio"/> 13002	Any	ACD																															
<input type="radio"/> 14001	Any	VDN																															
<input type="radio"/> 14002	Any	VDN																															

Step	Description
2.	<p>In the Add Device screen, select the following values and click Apply Changes. Click Apply (not shown) to confirm.</p> <ul style="list-style-type: none"> • Device Type: Select the appropriate type, e.g. PHONE in this case. • Tlink Group: Select Any. 
3.	Repeat Step 1 and 2 to add all the devices from the table in Section 3 .

Step	Description
4.	<p>To administer a Device Group, select Security → Security Database → Device Groups from the left menu. Enter the name of the device group, e.g. LOG8000, and click Add Device Group.</p>  <p>The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo and the text 'Application Enablement Services Management Console'. A welcome message for user 'devconnect' is shown in the top right. The navigation bar contains links for 'Security', 'Security Database', 'Device Groups', 'Home', 'Help', and 'Logout'. The left sidebar lists various services, with 'Security' expanded to show 'Security Database' and 'Device Groups' selected. The main content area, titled 'Device Groups', contains a form to add a new device group. The form has a text input field with 'LOG8000' and an 'Add Device Group' button. Below the form is a table with two columns: 'Device Group' and 'Exception Group?'. The table contains one entry, 'ACD1', which is selected. Below the table are buttons for 'Edit Device Group' and 'Delete Device Group'.</p>

Step	Description
5.	<p>In the Add Device Group screen, select all the devices from the table in Section 3, uncheck Exception Group and click Apply Changes. Click Apply (not shown) to confirm.</p>  <p>The screenshot displays the Avaya Application Enablement Services Management Console. The top navigation bar includes 'Security Security Database Device Groups' and 'Home Help Logout'. The left sidebar shows a tree view with 'Security Database' expanded, highlighting 'Device Groups'. The main content area is titled 'Add Device Group' and contains a form with the following fields:</p> <ul style="list-style-type: none"> Device Group: A text input field containing 'LOG8000'. Exception Group: An unchecked checkbox. Devices: A list of device IDs with checkboxes: <ul style="list-style-type: none"> 10001, 10002, 10003, 10004, 10901, 10902, 10903, 10904, 10905: All checked. 13001, 13002, 14001, 14002: All unchecked. <p>At the bottom of the form are four buttons: 'Apply Changes', 'Select All', 'Deselect All', and 'Cancel Changes'.</p>

Step	Description
2.	<p>In the Edit CTI User screen, select the following values:</p> <ul style="list-style-type: none"> • Call Origination/Termination and Device Status: Select the device group from Section 6.3. • Device Monitoring: Select the device group from Section 6.3. • Calls On A Device Monitoring: Select the device group from Section 6.3. • Call Monitoring: Checked. <p>Consult Reference [1] for guidance on configuring the call/device privileges as well as devices and device groups. Click Apply Changes.</p>  <p>In the next page, click Apply to confirm the changes (not shown).</p>

6.5. Obtain TSAPI Link

Navigate to the Tlinks screen by selecting **Security → Security Database → Tlinks** from the CTI OAM Home menu. Note the value of the **Tlink Name**, as this will be needed to configure the Grandsys LOG8000 Server in **Section 7.2 Step 4**. In this configuration, the unencrypted Tlink **AVAYA#SITE1#CSTA#AES6X** is being used.

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 user "devconnect" with login details. A red navigation bar contains "Security | Security Database | Tlinks" and links for "Home | Help | Logout". A left sidebar lists various services, with "Security" expanded to show "Security Database" and "Tlinks" selected. The main content area, titled "Tlinks", shows a "Tlink Name" section with two radio buttons: "AVAYA#SITE1#CSTA#AES6X" (selected) and "AVAYA#SITE1#CSTA-S#AES6X". A "Delete Tlink" button is also present.

AVAYA Application Enablement Services
Management Console

Welcome: User devconnect
Last login: Tue Dec 20 14:40:23 2011 from 10.1.10.152
HostName/IP: aes6x.sglab.com/10.1.10.70
Server Offer Type: SWONLY
SW Version: r6-1-1-30-0

Security | Security Database | Tlinks Home | Help | Logout

AE Services
Communication Manager Interface
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#SITE1#CSTA#AES6X
☐ AVAYA#SITE1#CSTA-S#AES6X

Delete Tlink

7. Configure Grandsys LOG8000

Grandsys installs, configures, and customizes the Grandsys LOG8000 application for their end customers. This section only describes the configuration of Grandsys LOG8000 required to communicate with Application Enablement Services and Communication Manager. For detail information on configuring Grandsys LOG8000, refer to **Reference [3]** and **[4]**.

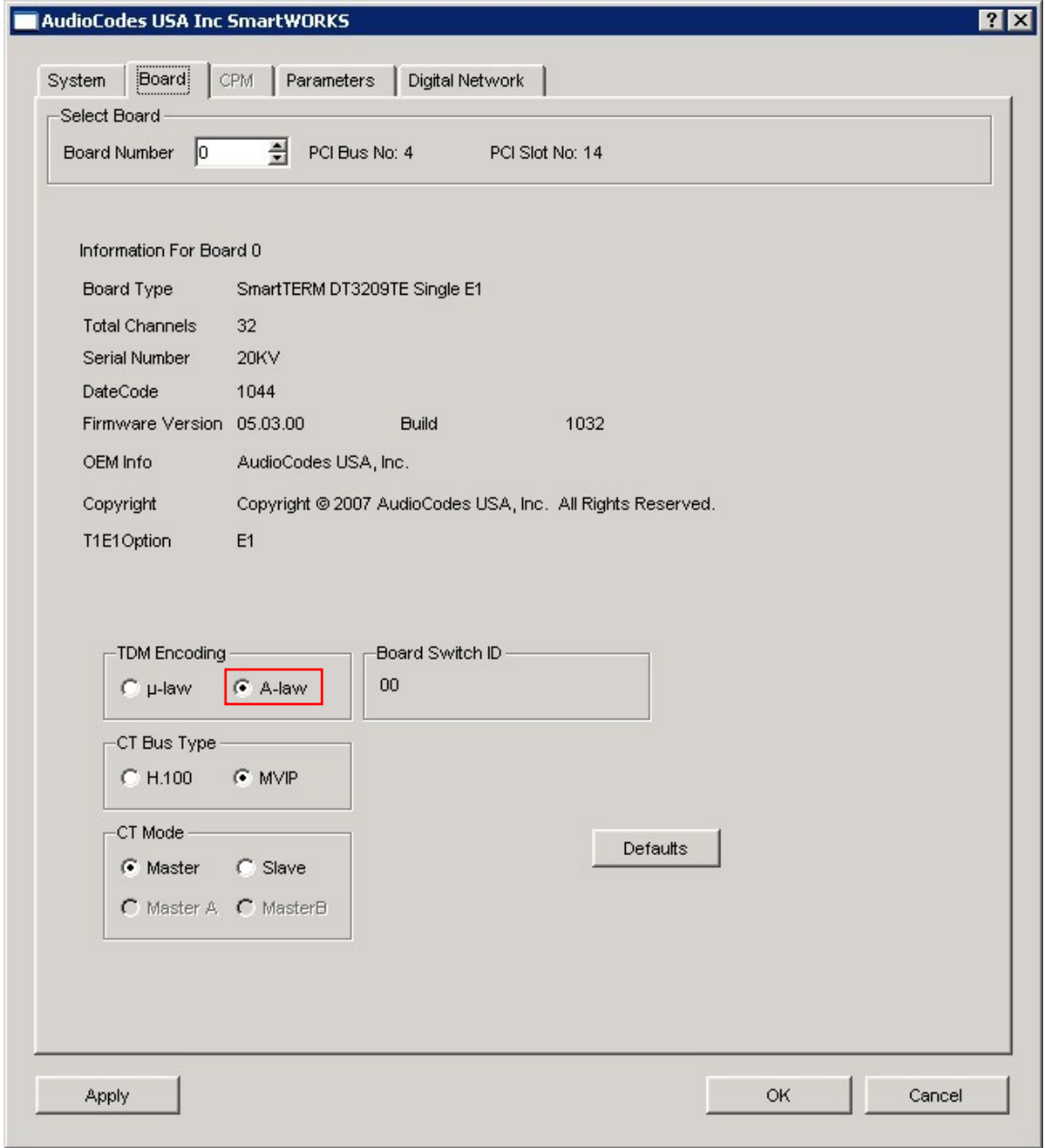
7.1. Install Avaya AE Services TSAPI Client 6.1.1 Software

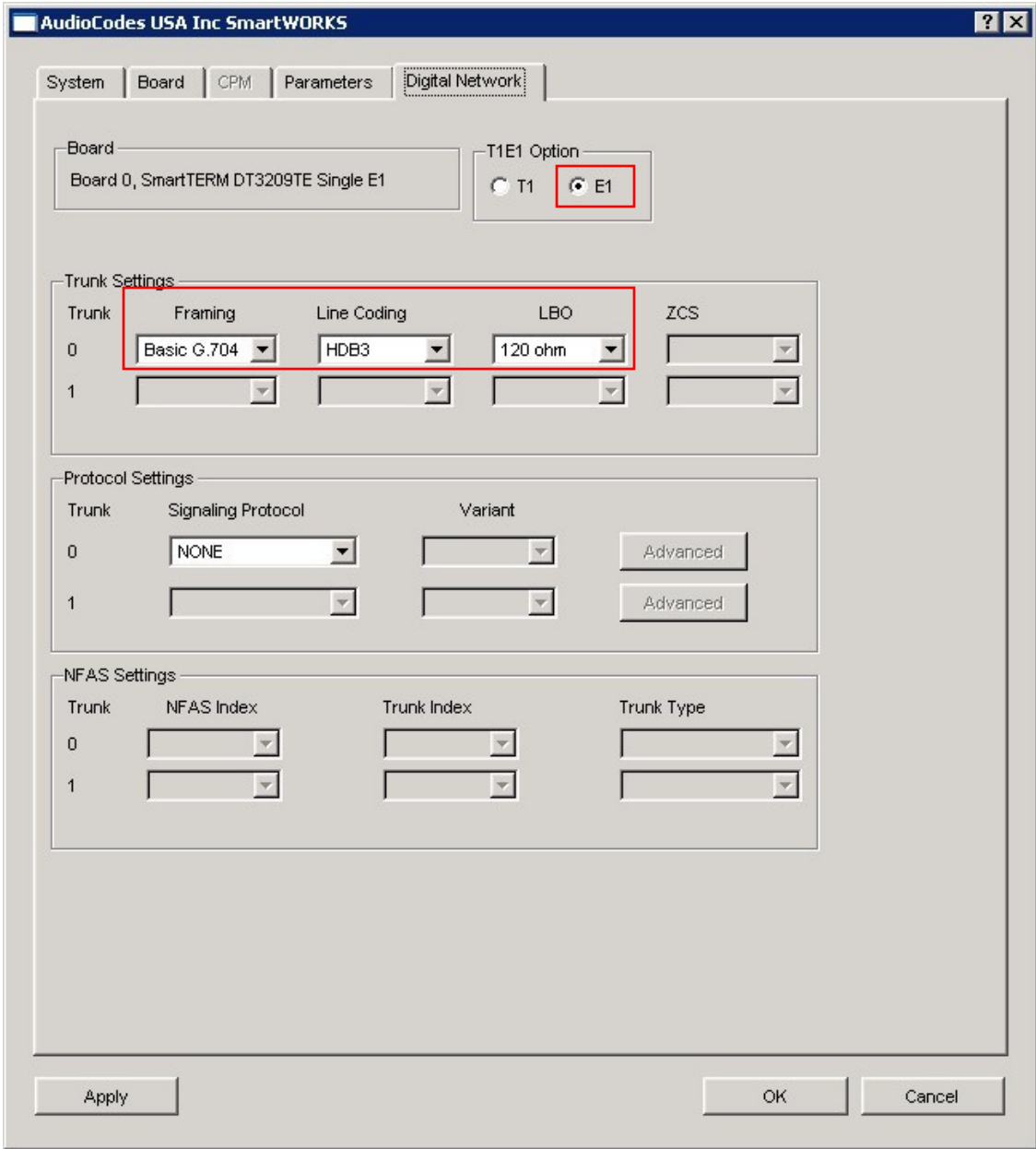
Grandsys LOG8000 uses the Avaya AE Services TSAPI Client software to communication with the TSAPI Service on the AES server. The Avaya AE Services TSAPI Client 6.1.1 software will be provided by Grandsys, or it can also be downloaded from Avaya Support website (<http://support.avaya.com>).

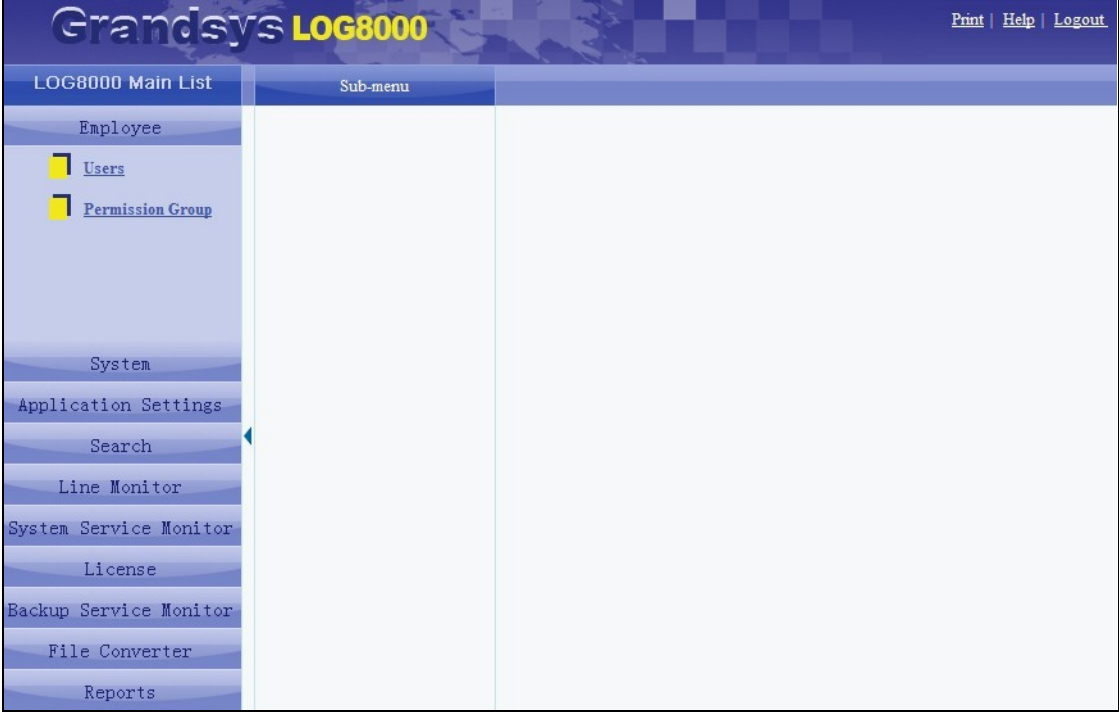
The installation runs through the following steps:

- a. A welcome window will be displayed. Click **Next** to continue.
- b. In the **Host Name or IP Address** field, enter the IP address of the AES server and click **Add to List**. In this configuration, enter **10.1.10.70**. Click **Next**.
- c. At the Ready to Install window, click **Install** to start the installation.
- d. At the end of installation process click **Finish**.

7.2. Configure Grandsys LOG8000

Step	Description
1.	<p>On the Grandsys LOG8000 Server, click Start → Control Panel → SmartControl to configure the E1 board. Click on the Board tab and set TDM Encoding to A-law to match the DS1 board setting configured in Section 5.1 Step 1.</p> 

Step	Description
2.	<p>Click on the Digital Network tab. Set T1E1 Option to E1, Framing to Basic G.704, Line Coding to HDB3 and LBO to 120 ohm. These settings must match the DS1 board setting configured in Section 5.1 Step 1. Click Apply to save the settings and click OK. Restart the server to effect the changes to the E1 board.</p> 

Step	Description
3.	<p>Launch Microsoft Internet Explorer and enter <a href="http://<ip-addr>/WebSetup/login.aspx">http://<ip-addr>/WebSetup/login.aspx, where <ip-addr> is the IP address of the Grandsys LOG8000 server, to access the Grandsys LOG8000 web based interface. Log in using an administrative login and password (not shown) and the following screen will be displayed.</p> 

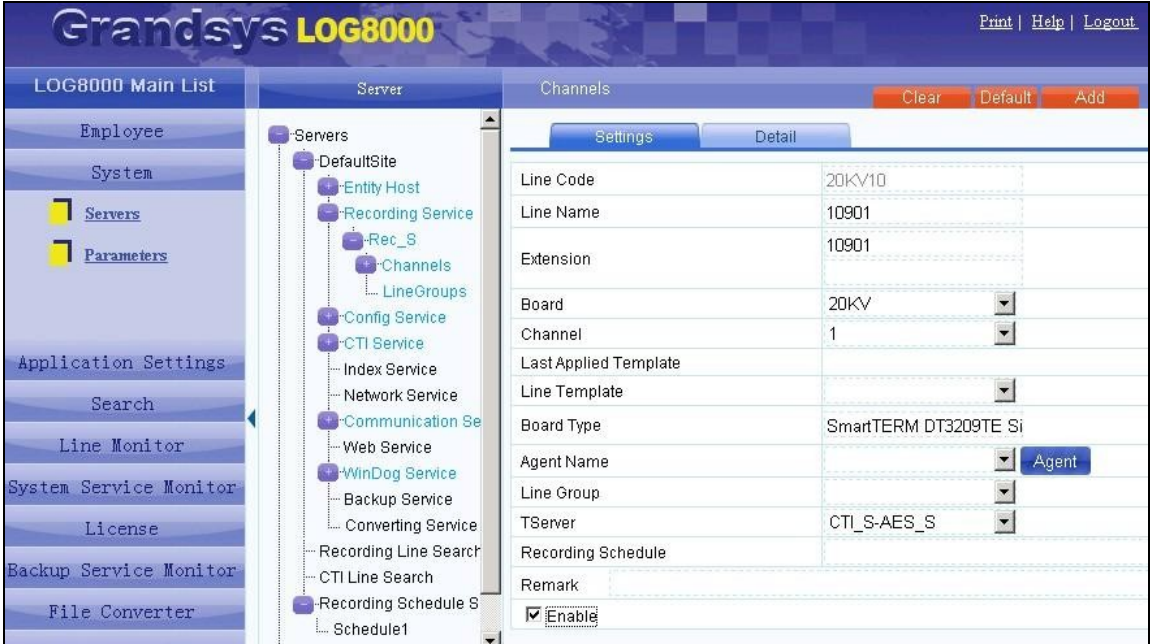
Step	Description
4.	<p>Click System → Servers on the left-most pane. To configure the settings for TSAPI, expand Servers → DefaultSite → CTI Service → CTI_S in the center pane and click on T_Server. On the right-most pane, enter a descriptive value for T_Server Name and select the TSAPI Link noted down in Section 6.5 for the Connect String. Set Login and Password to the User Id and User Password configured in Section 6.2 respectively. Select AVAYA AES for Type, Avaya SSC for AppName and SSC for Recording Mode. The rest of the fields are left at their default values. Click Add.</p> 

Step	Description
5.	<p>To configure the extensions to be recorded, expand Servers → DefaultSite → CTI Service → CTI_S → T_Server → <Name of T_Server created in Step 4> in the center pane and click on ExtLines. On the right-most pane, enter the following values:</p> <ul style="list-style-type: none"> • Line Name: Enter a descriptive name • Extension: Phone extension to be recorded • Start Mode → API: Check • Start Mode → TSAPI: Check • Agent ID: Select from the list a user configured in Grandsys LOG8000 or leave blank. • Stop recording while conversation is held: Check (recording stops when the call is put on hold and resumes when unhold) • Enable: Check <p>Click Add. Repeat this step for all extensions to be recorded. In this configuration, extensions 10001 to 10004 are configured.</p>

The screenshot displays the Grandsys LOG8000 configuration interface. On the left, a tree view under 'Servers' shows the navigation path: Servers > DefaultSite > CTI Service > CTI_S > T_Server > ExtLines. The main area is divided into two panes. The left pane, titled 'Server', shows the tree structure. The right pane, titled 'ExtLines', contains a form for configuring extension 10001. The form fields are as follows:

Line Code	
Line Name	10001
Extension	10001
Start Mode	<input checked="" type="checkbox"/> API <input checked="" type="checkbox"/> TSAPI
Agent ID	[Dropdown menu]
Line Group	[Dropdown menu]
Recording Schedule	[Dropdown menu]
Remark	
<input checked="" type="checkbox"/> Stop recording when conversation is held	
<input checked="" type="checkbox"/> Enable	
Add Amount	1

Buttons for 'Clear' and 'Add' are located at the top right of the 'ExtLines' pane.

Step	Description
6.	<p>To configure the recording stations, expand Servers → DefaultSite → Recording Service → Rec_S in the center pane and click on Channels. On the right-most pane, enter the following values:</p> <ul style="list-style-type: none"> • Line Name: Enter a descriptive name • Extension: Extension of recording station configured in Section 5.1 Step 2. • Channel: Enter a value from 1 to 30 which correspond to the Port configured in Section 5.1 Step 2. • TServer: Select the TServer configured in Step 4. • Enable: Check <p>Click Add. Repeat this step to add more recording stations. In this configuration, recording stations 10901 to 10905 are configured.</p> 

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Aura® Communication Manager, Avaya Aura® Application Enablement Services and Grandsys LOG8000.


8.1. Verify Avaya Aura® Communication Manager

Verify the status of the administered recording stations by using the **status station n** command, where **n** is the recording station extension. The **Service State** field should display **in-service/on-hook** when idle, and **in-service/off-hook** when recording is in progress.

status station 10901		Page 1 of 4
GENERAL STATUS		
Administered Type: DS1FD	Service State: in-service/on-hook	
Connected Type: N/A		
Extension: 10901		
Port: 01A0801	Parameter Download: not-applicable	
Call Parked? no	SAC Activated? no	
Ring Cut Off Act? no		
Active Coverage Option: 1	one-X Server Status: N/A	
EC500 Status: N/A	Off-PBX Service State: N/A	
Message Waiting:		
Connected Ports:		
Limit Incoming Calls? no		
User Cntrl Restr: none	HOSPITALITY STATUS	
Group Cntrl Restr: none	Awaken at:	
	User DND: not activated	
	Group DND: not activated	
	Room Status: occupied	

8.2. Verify Avaya Aura® Application Enablement Services

From the CTI OAM Admin web pages, verify the status of the TSAPI Service by selecting **Status** → **Status and Control** → **TSAPI Service Summary** from the left menu. The **Status** and **State** fields should display **Talking** and **Online** respectively.



Application Enablement Services
Management Console

Welcome: User devconnect
Last login: Thu Dec 22 16:28:58 2011 from 192.168.100.6
HostName/IP: aes6x.sglab.com/10.1.10.70
Server Offer Type: SWONLY
SW Version: r6-1-1-30-0

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

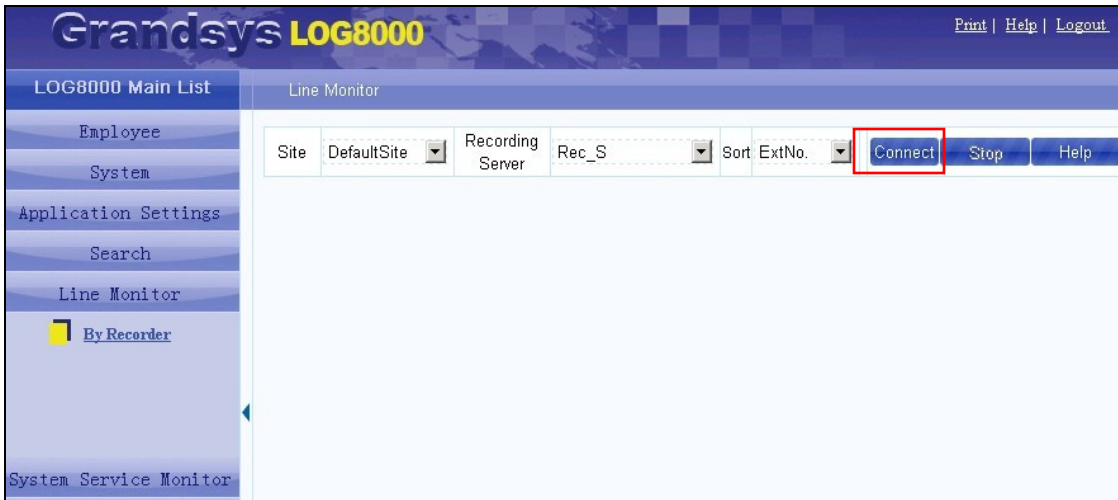

	Link	Switch Name	Switch CTI Link ID	Status	Since	State	Switch Version	Associations	Msgs to Switch	Msgs from Switch	Msgs Period
	1	SITE1	3	Talking	Fri Dec 16 16:04:30 2011	Online	16	2	79	139	30

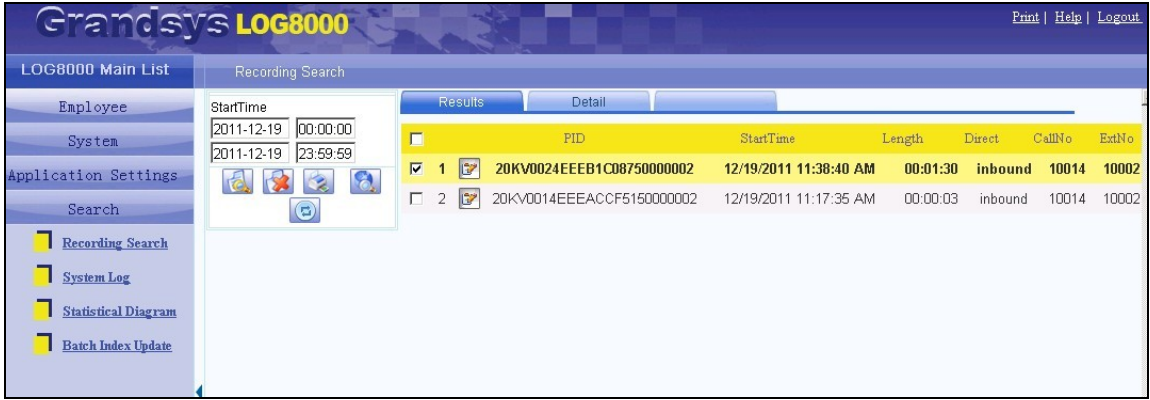
Online Offline

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

TSAPI Service Status TLink Status User Status

8.3. Verify Grandsys LOG8000

Step	Description
1.	<p>Launch Microsoft Internet Explorer and log in to the Grandsys LOG8000 web based interface. Select Line Monitor → By Recorder on the left pane and click Connect on the right pane.</p> 
2.	<p>Place a test call to an extension being recorded and verify that one of the recording stations on Grandsys LOG8000 becomes active as it records the call.</p> 

Step	Description
3.	<p>Query for the recording of the test call. Verify that the recording can be played back correctly.</p> 

9. Conclusion

These Application Notes illustrate the procedures for configuring Grandsys Technology & Service LOG8000 2.6.1 to monitor and record calls placed to and from stations, and calls routed via VDNs on Avaya Aura® Communication Manager 6.0.1. In the configuration described in these Application Notes, Grandsys LOG8000 uses the Single Step Conference feature of the TSAPI Service of Avaya Aura® Application Enablement Services 6.1.1 to perform recording. All test cases were completed successfully.

10. Additional References

This section references the Avaya and Grandsys documentation that are relevant to these Application Notes.

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

[1] *Avaya Aura® Application Enablement Services Administration and Maintenance Guide*, Release 6.1, Issue 2, February 2011.

[2] *Avaya Aura® Communication Manager Feature Description and Implementation*, Release 6.0, Issue 8.0, June 2010, Document Number 555-245-205.

The following product documentation was provided by Grandsys during the testing.

[3] *Grandsys LOG8000 System Installation Manual*, Version 2.6.01, July 2011.

[4] *Grandsys LOG8000 System Operation Manual*, Version 2.6.01, July 2011.

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