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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.

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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
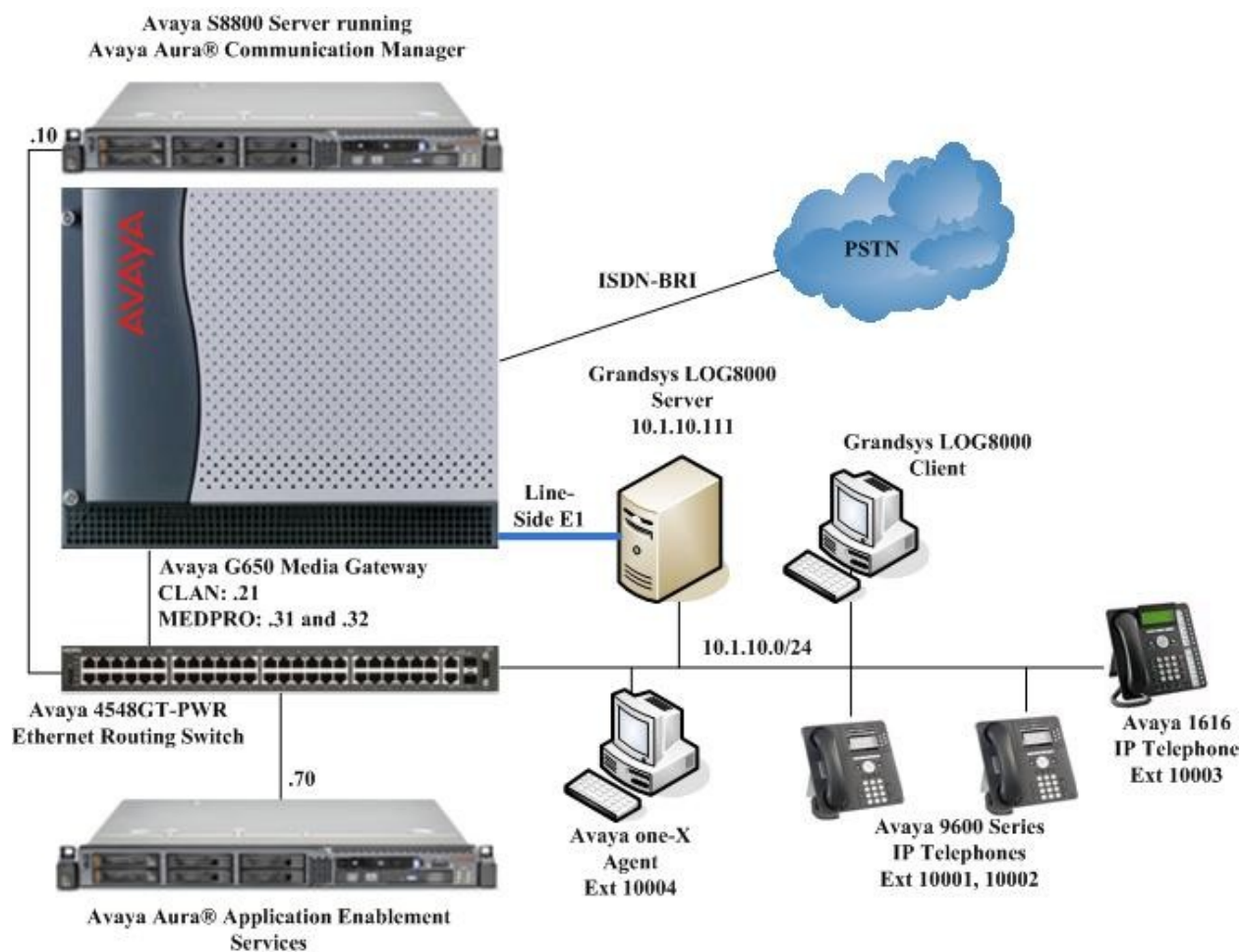
Figure 1: Grandsys LOG8000 Test Configuration

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

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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.	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.

```
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
```

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
```
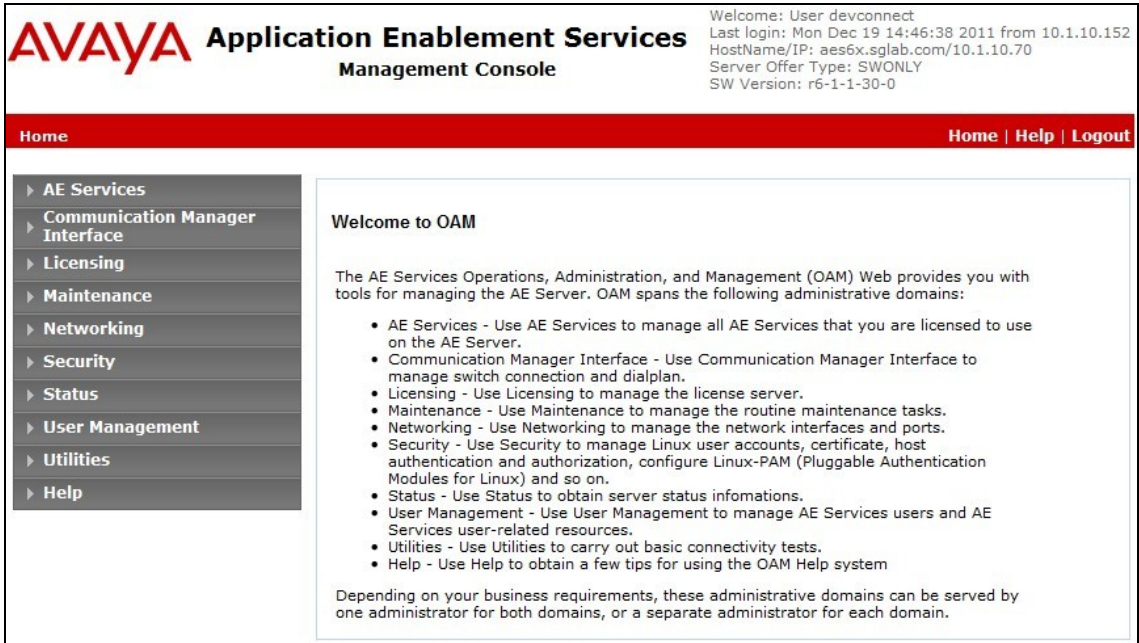
6. Configure Avaya Aura® Application Enablement Services

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.	Launch a web browser and enter **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.

Step	Description
2.	Select **AE Services** from the left menu. From the AE Services page, verify that Application Enablement Services has proper license for the feature illustrated in these Application Notes by ensuring the **License Mode** for **TSAPI Service** is **NORMAL MODE**, as shown below. If the TSAPI Service is not licensed, then contact the Avaya sales team or business partner to purchase a license to install onto the WebLM Server.

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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).
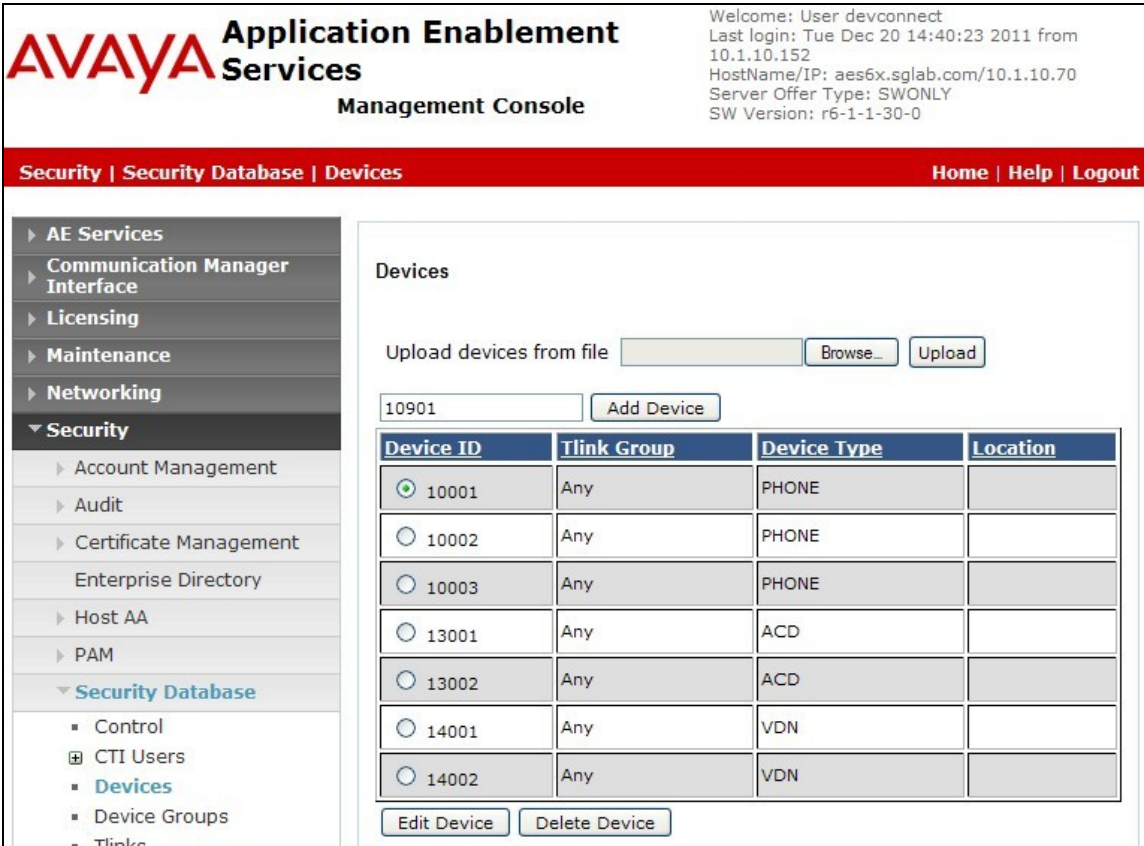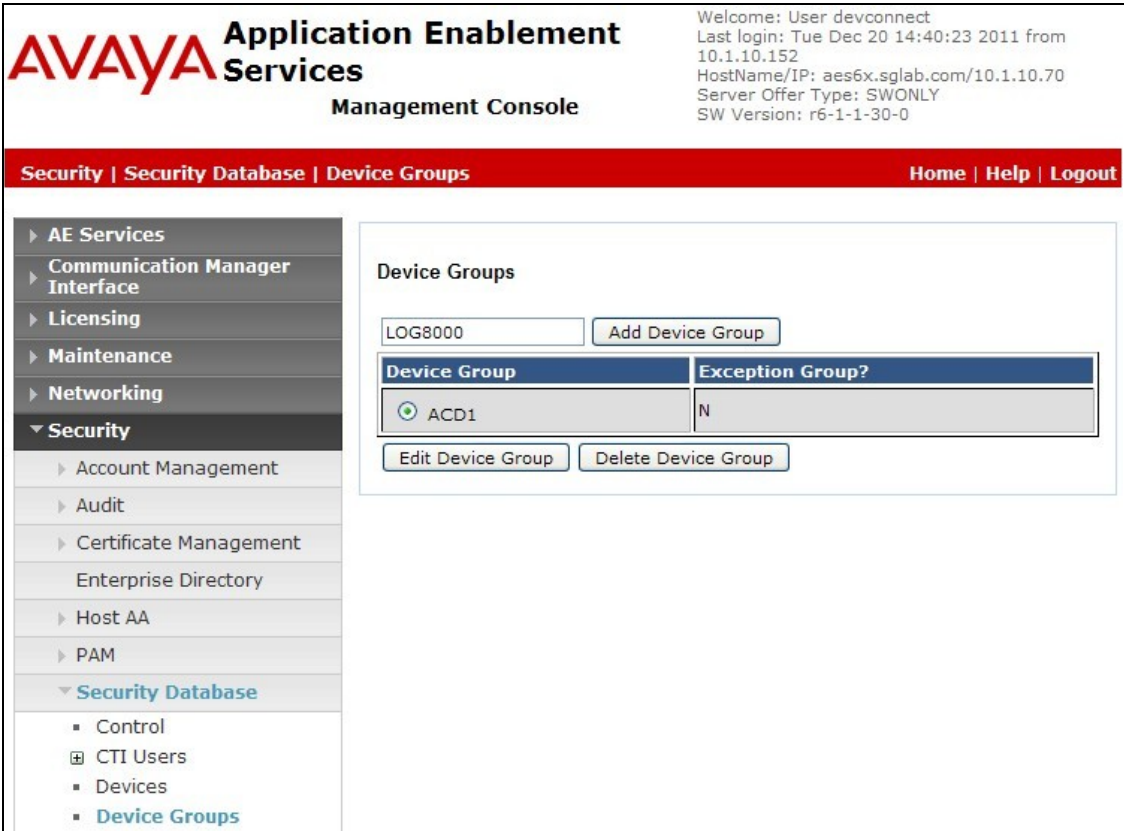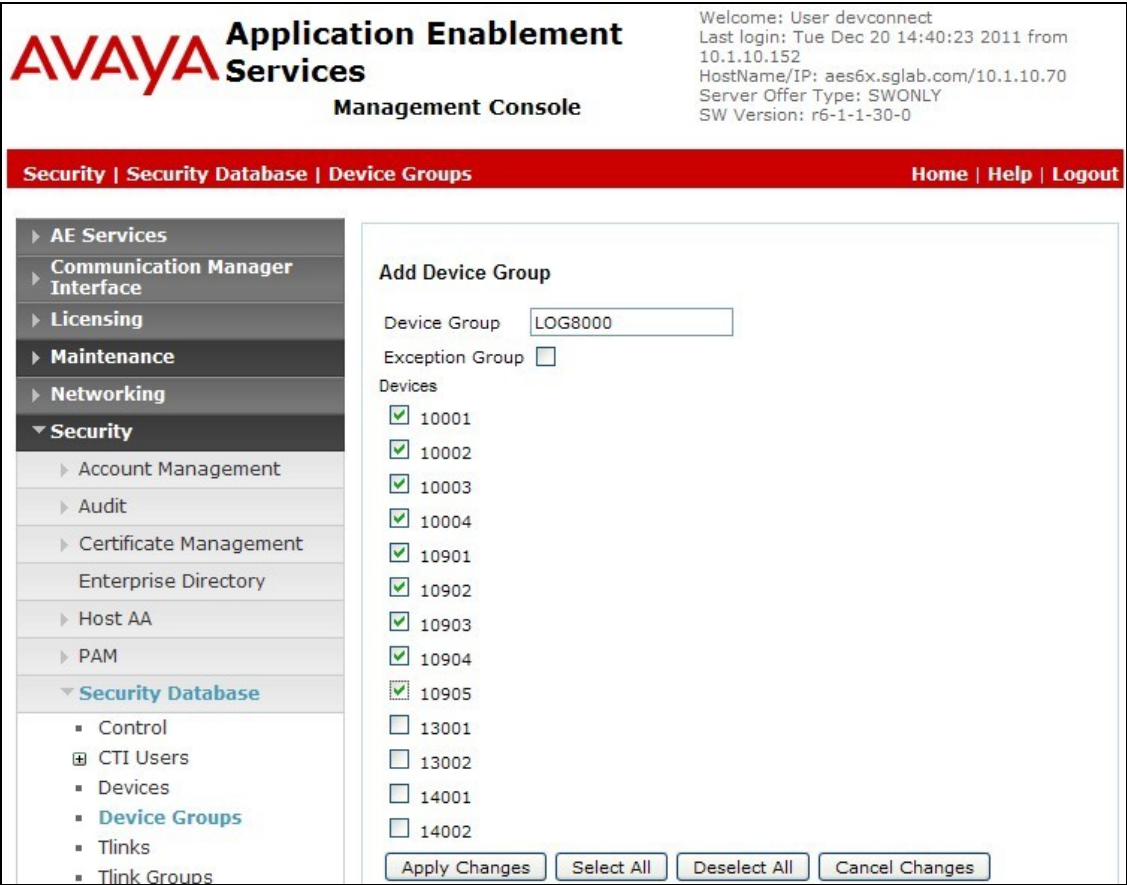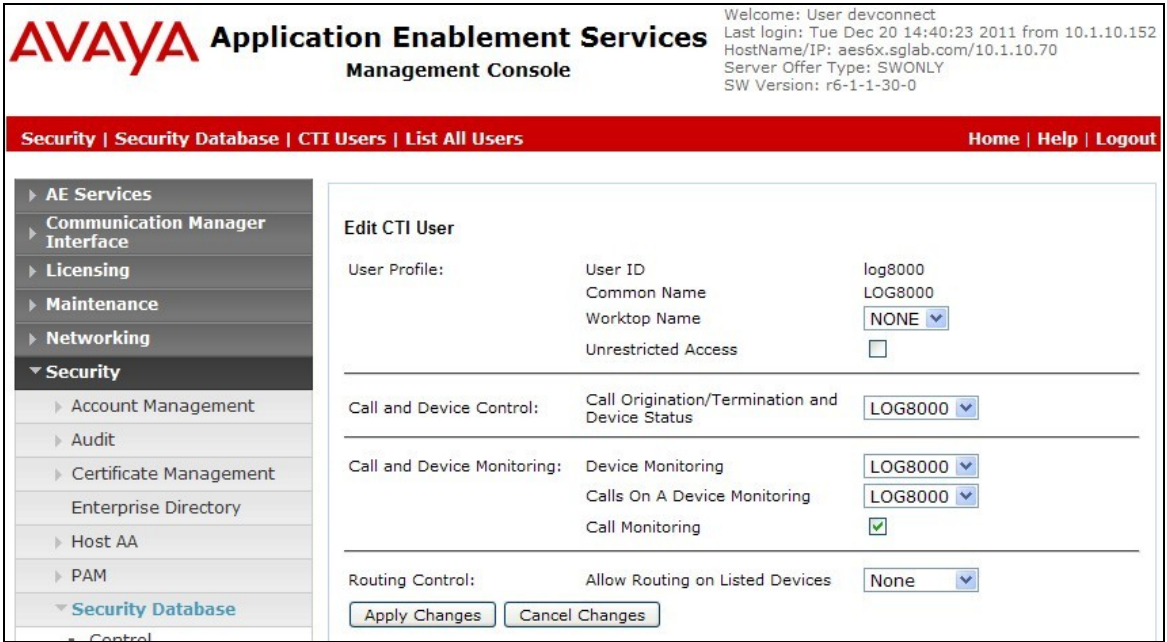
6.3. Administer Devices and Device Group

Step	Description
1.	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**.

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Step	Description
2.	In the Add Device screen, select the following values and click **Apply Changes**. Click **Apply** (not shown) to confirm. • **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.	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**.

Step	Description
5.	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.

6.4. Administer CTI User Permission

Step	Description
1.	Select **Security → Security Database → CTI Users → List All Users** from the left menu. Select the **User ID** created in **Section 6.2** and click **Edit**.

Step	Description
2.	In the Edit CTI User screen, select the following values: • **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. Consult **Reference [1]** for guidance on configuring the call/device privileges as well as devices and device groups. Click **Apply Changes**. In the next page, click **Apply** to confirm the changes (not shown).

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.

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]**.
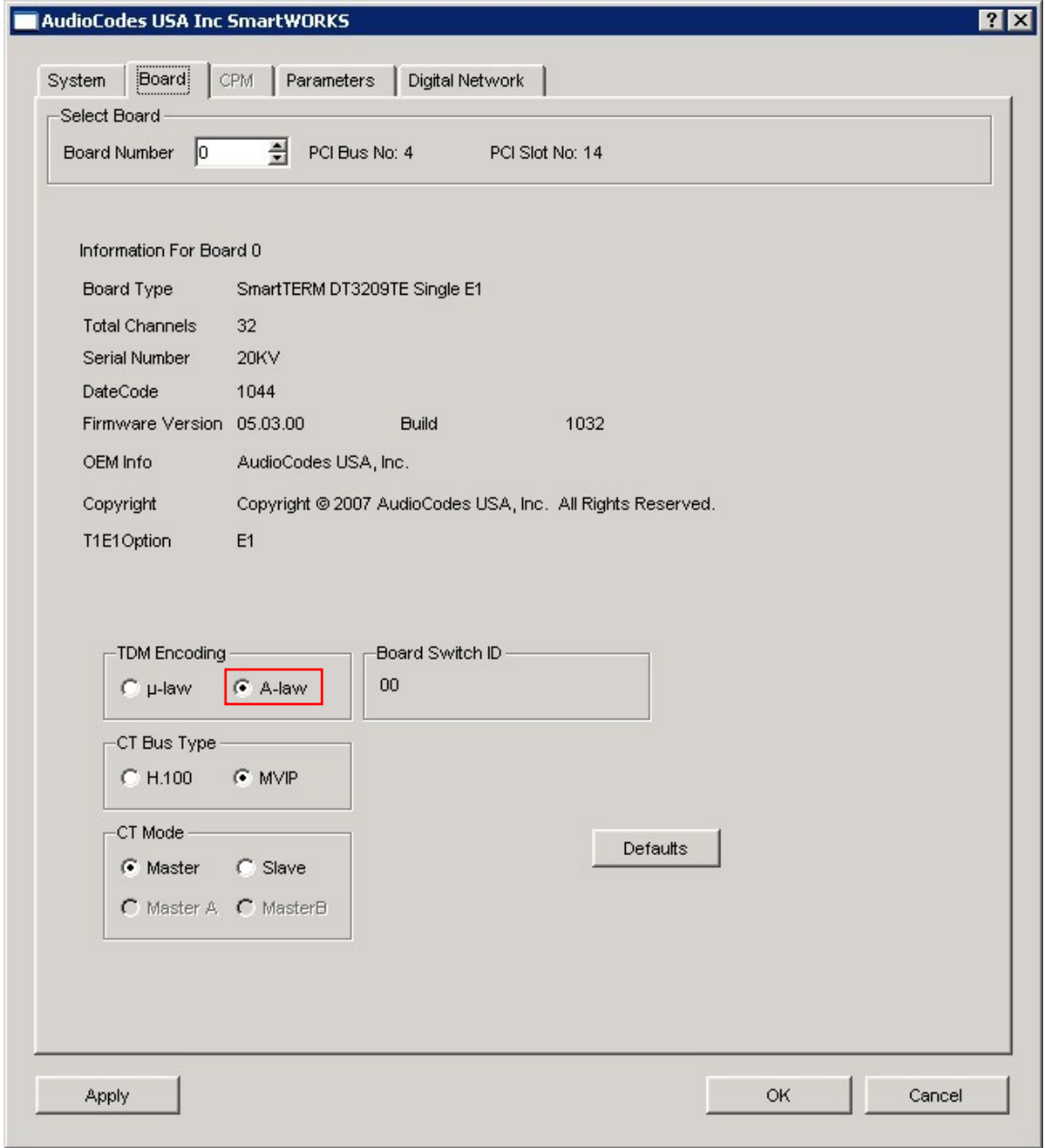
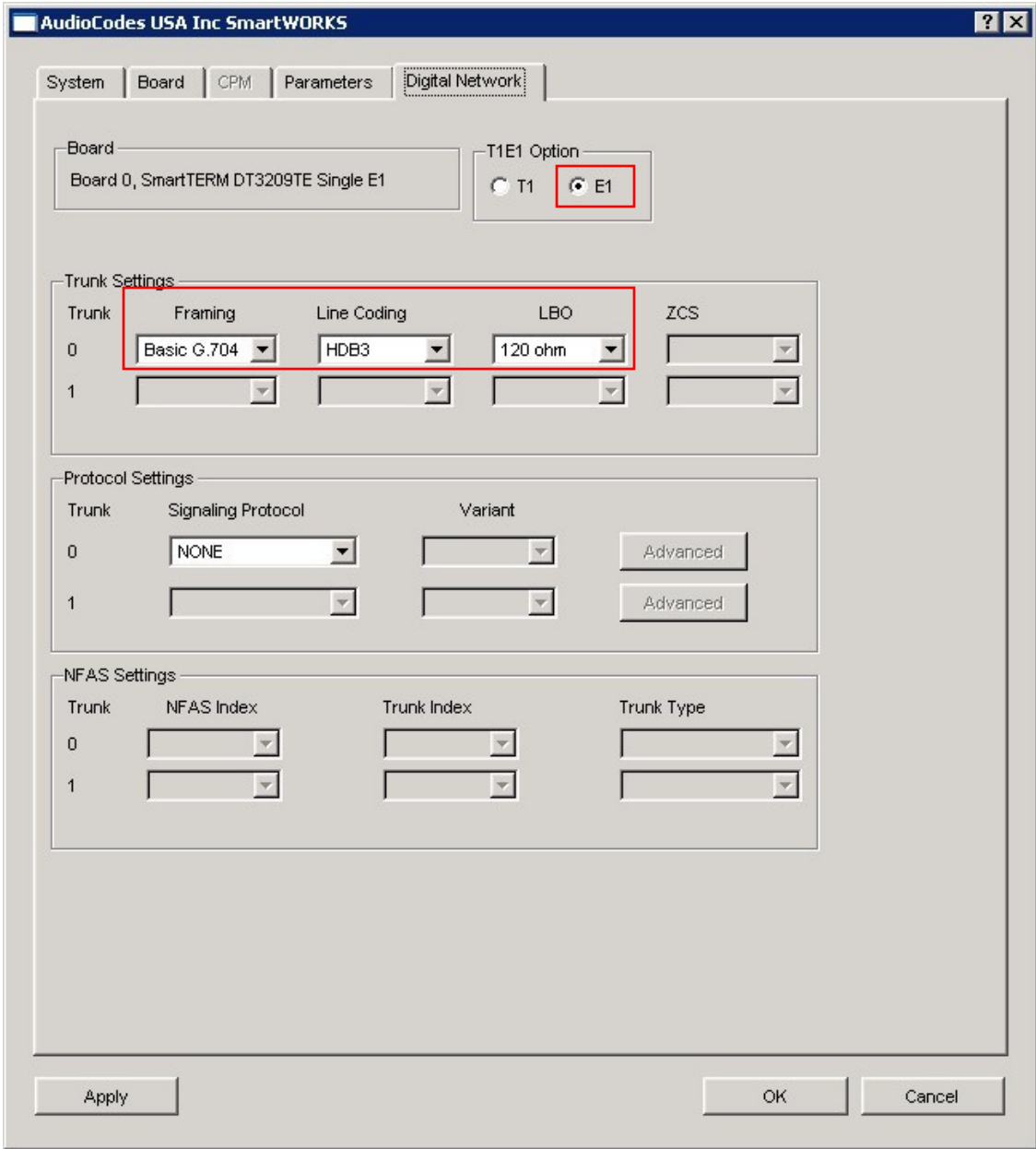## 7.1. Install Avaya AE Services TSAPI Client 6.1.1 Software

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).
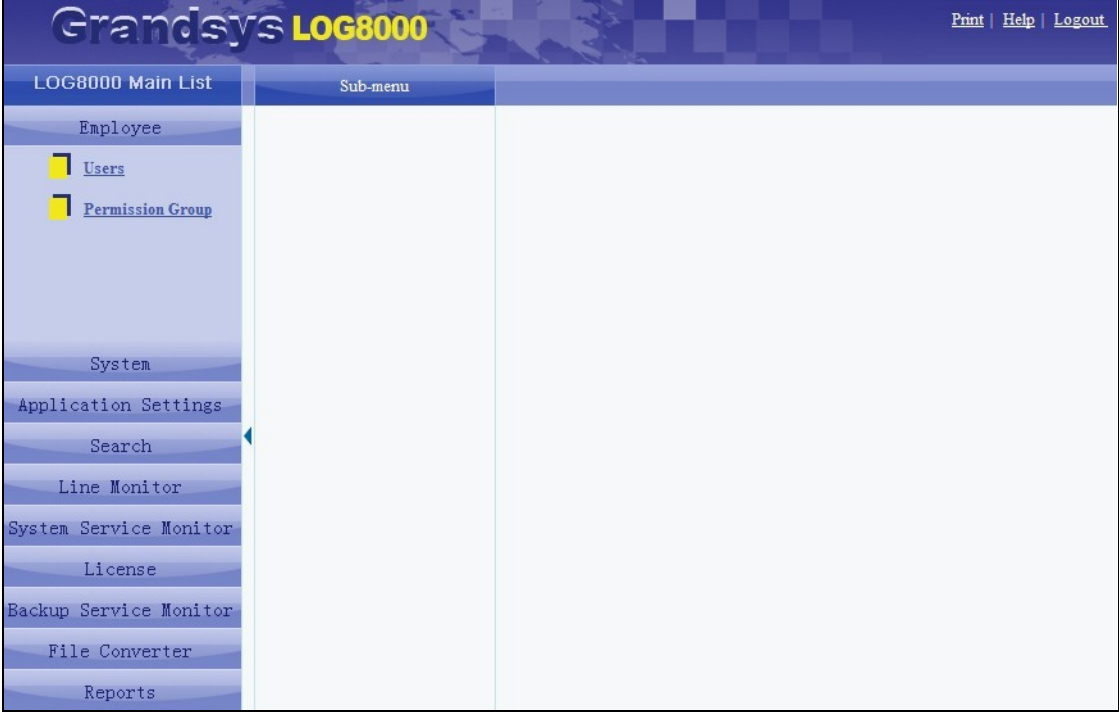
The installation runs through the following steps:

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**.

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7.2. Configure Grandsys LOG8000

Step	Description
1.	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**.

Step	Description
2.	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.

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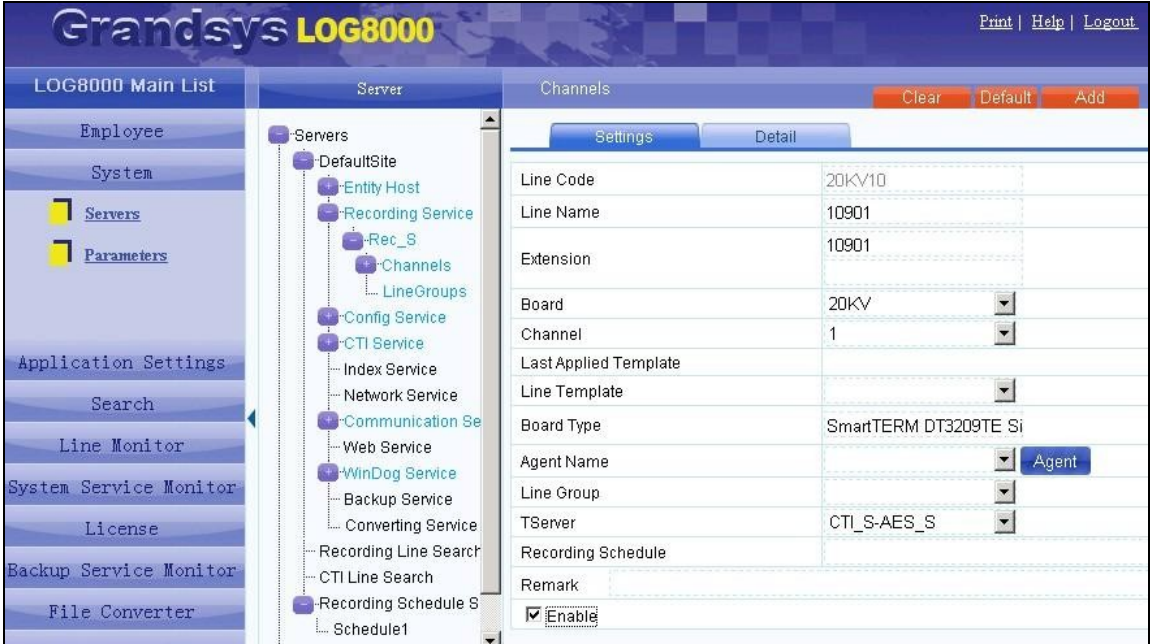| Step	Description
3.	Launch Microsoft Internet Explorer and enter **http://<ip-addr>/WebSetup/login.aspx**, where **<ip-addr>** is the IP address of the Grandsys LOG8000 server, to access the Grandsys LOG8000 web based interface. Log in using an administrative login and password (not shown) and the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

Step	Description
4.	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**.

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Step	Description
5.	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: • **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 Click **Add**. Repeat this step for all extensions to be recorded. In this configuration, extensions 10001 to 10004 are configured.

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Step	Description
6.	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: **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 Click **Add**. Repeat this step to add more recording stations. In this configuration, recording stations 10901 to 10905 are configured.

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.
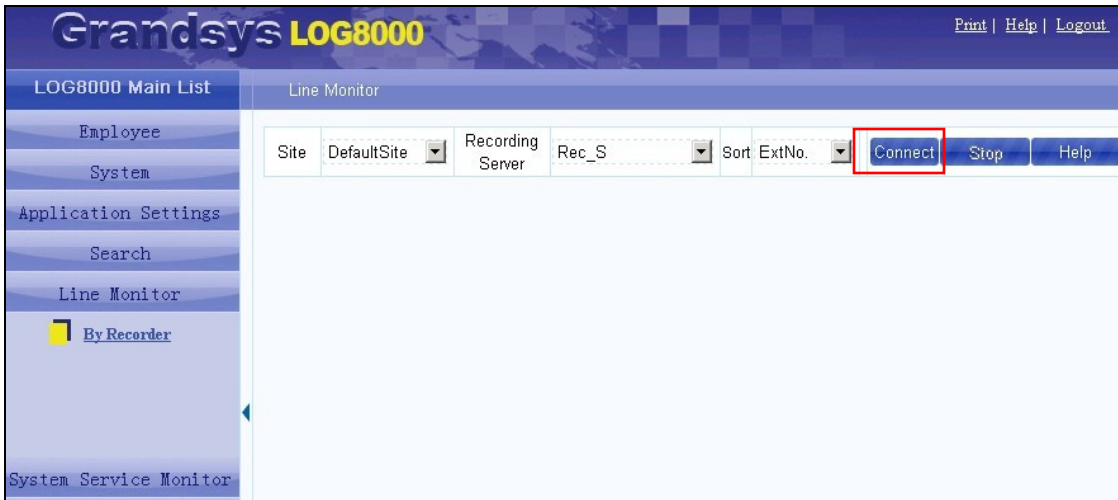
8.3. Verify Grandsys LOG8000

Step	Description
1.	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.
2.	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.

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

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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