Avaya Solution & Interoperability Test Lab

Application Notes for KnoahSoft Harmony with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services using Multiple Registrations – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for KnoahSoft Harmony to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services using the Multiple Registrations method. KnoahSoft Harmony is a solution that can provide monitoring, recording, quality assurance, reporting, and analytic features for contact centers. The compliance testing focused on the call recording feature.

In the compliance testing, KnoahSoft Harmony used the Telephony Services Application Programming Interface from Avaya Aura® Application Enablement Services to monitor skill groups and agents on Avaya Aura® Communication Manager, and used the Multiple Registration feature via the Avaya Aura® Application Enablement Services Device, Media, and Call Control interface to capture the media associated with the monitored agents 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.

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1. Introduction

These Application Notes describe the configuration steps required for KnoahSoft Harmony to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services using the Multiple Registrations method. KnoahSoft Harmony is a solution that can provide monitoring, recording, quality assurance, reporting, and analytic features for contact centers. The compliance testing focused on the call recording feature.

In the compliance testing, KnoahSoft Harmony used the Telephony Services Application Programming Interface (TSAPI) from Avaya Aura® Application Enablement Services to monitor skill groups and agents on Avaya Aura® Communication Manager, and used the Multiple Registrations feature via the Avaya Aura® Application Enablement Services Device, Media, and Call Control (DMCC) interface to capture the media associated with the monitored agents for call recording.

The TSAPI interface is used by KnoahSoft Harmony to monitor the agents to be recorded, and the DMCC interface is used by KnoahSoft Harmony to register a virtual recording device against each monitored agent extension to pick up the media for call recording. When there is an active call at the monitored agent, KnoahSoft Harmony is informed of the call via event reports from the TSAPI interface, and starts the call recording by using the media from the recording device associated with the monitored agent. The TSAPI event reports are also used to determine when to stop the call recordings.

2. General Test Approach and Test Results

The feature test cases were performed both automatically and manually. Upon start of the Harmony application, the application automatically queries on the logical agent IDs and requests monitoring on the skill groups and agent extensions using TSAPI, and registers a recording device for each monitored agent extension using DMCC.

For the manual part of the testing, each call was handled manually on the agent telephone 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 the Harmony server.

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

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2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on Harmony:

- Handling of TSAPI messages in the areas of event notification and value queries.
- Use of DMCC registration services to register and un-register the recording devices.
- Use of DMCC monitoring services and media control events to obtain the media from the recording devices.
- Proper recording, logging, and playback of calls for scenarios involving inbound, outbound, internal, external, ACD, non-ACD, hold, reconnect, simultaneous, conference, and transfer.

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

2.2. Test Results

All test cases were executed. The following were the observations on Harmony from the compliance testing.

- In the attended transfer scenario, the reported ANI for the outbound call associated with the transfer-from agent will contain the other agent's extension instead of the calling party extension by design. The same holds true for the conference and internal call scenarios.
- After a link recovery, any call established before the outage and dropped during the outage will continue to record until new calls occur at the agent. The call recording included the link outage period until the new call occurs, and the recording playback contained silence for these periods, which can vary in duration. The recording for the first couple of new calls for the agent may be lumped with the call that was dropped after the link disruption.
- For calls established during a link disruption and dropped after the restoration, the call will continue to record until new calls occur at the agent, with recording for the agent may not resume until after the first couple of new calls.

2.3. Support

Technical support on Harmony can be obtained through the following:

- **Phone:** (650) 385-6795
- **Email:** support@knoahsoft.com
- **Web:** http://www.knoahsoft.com/support.html

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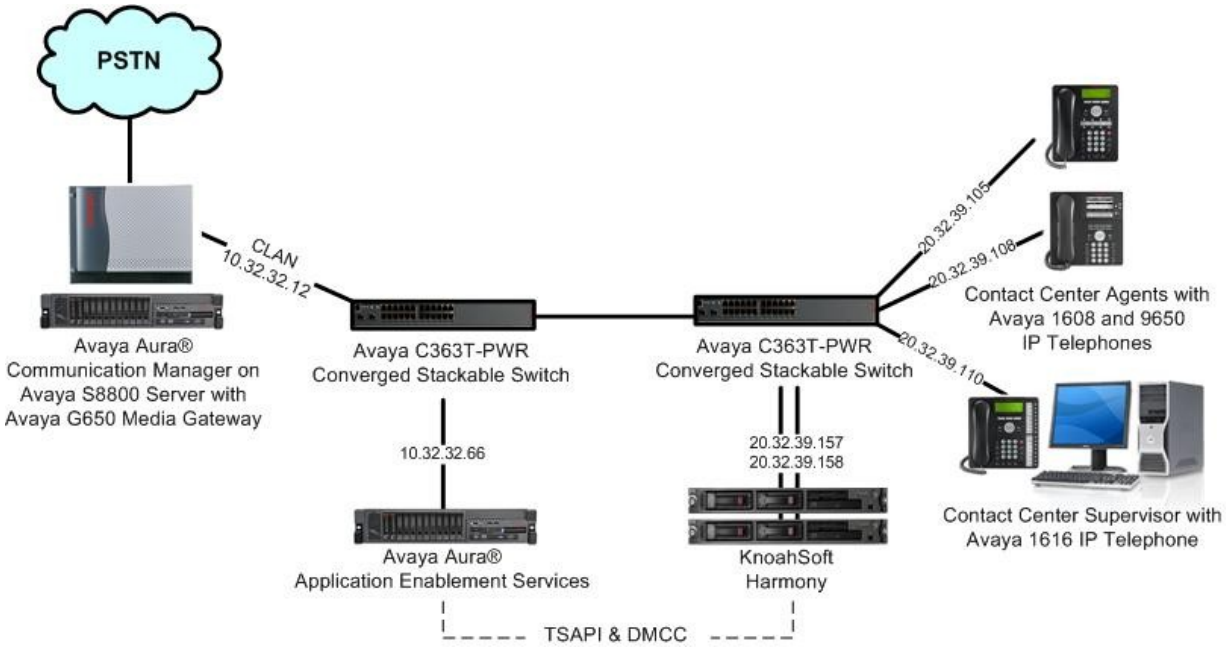
3. Reference Configuration

Harmony can be configured on a single server or with components distributed across multiple servers. The compliance test used a two-server configuration, as shown in the figure below.

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, the contact center devices consist of resources shown in the table below. Harmony used the agent IDs with TSAPI queries to obtain the associated agent telephone extensions, and requested monitoring on the skill group and agent extensions.

Device Type	Extension
VDN	65000
Skill Group	65555
Supervisor Extension	65005
Agent IDs	65881, 65882
Agent Extensions	65001, 65002



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4. Equipment and Software Validated

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

Equipment	Software
Avaya Aura® Communication Manager on Avaya S8800 Server	6.0.1 SP 5.01 (R016x.00.1.510.1-19303)
Avaya G650 Media Gateway • TN799DP C-LAN Circuit Pack • TN2302AP IP Media Processor	 HW01 FW040 HW20 FW122
Avaya Aura® Application Enablement Services	6.1.1
Avaya 1600 Series IP Telephone (H.323)	1.3
Avaya 9650 IP Telephone (H.323)	2.6.4
KnoahSoft Harmony on Windows 2003 Server with Service Pack 2 • Recorder • AES Adapter • Avaya Adapter • Avaya TSAPI Windows Client	3.4.0 3.4.0 with Patch 01192012_0003 3.4.0 3.4.0 6.1.0.396
KnoahSoft Harmony on Windows 2008 Server with Service Pack 2 • Web Application Server • RMS • Database Server	3.4.0 3.4.0 3.4.0 Microsoft SQL Server 2008

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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
- Administer stations
- Administer IP codec set

5.1. Verify License

Log in to the System Access Terminal (SAT) 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)? y              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? n                       DCS (Basic)? y
         ASAI Link Core Capabilities? y                DCS Call Coverage? y
         ASAI Link Plus Capabilities? y               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: 60100
     Type: ADJ-IP
                                                                  COR: 1
     Name: CTI Link
```


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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  19
                        FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM PRINTER PARAMETERS
  Endpoint:               Lines Per Page: 60

SYSTEM-WIDE PARAMETERS
                                    Switch Name: S8500-SAL
            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

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 Harmony.

```
change system-parameters features                              Page  13 of  19
                        FEATURE-RELATED SYSTEM PARAMETERS
 CALL CENTER MISCELLANEOUS
           Callr-info Display Timer (sec): 10
                        Clear Callr-info: next-call
        Allow Ringer-off with Auto-Answer? y

    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
```


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5.4. Administer Stations

Use the "change station n" command, where "n" is the first agent extension from **Section** Error! Reference source not found.. Enable **IP SoftPhone**, to allow a recording device to be registered against the station. For **Security Code**, enter a desired code. Note that Harmony requires the same security code to be used by all agents.

```
change station 65001                                        Page   1 of   4
                                   STATION

Extension: 65001                      Lock Messages? n               BCC: 0
     Type: 1608                       Security Code: 65000            TN: 1
     Port: S00000                   Coverage Path 1: 1               COR: 1
     Name: Harmony Agent #1         Coverage Path 2:                 COS: 6
                                    Hunt-to Station:
STATION OPTIONS
                                         Time of Day Lock Table:
             Loss Group: 19          Personalized Ringing Pattern: 1
                                              Message Lamp Ext: 65001
          Speakerphone: 2-way              Mute Button Enabled? y
        Display Language: english
 Survivable GK Node Name:
          Survivable COR: internal            Media Complex Ext:
   Survivable Trunk Dest? y                        IP SoftPhone? y

                                          IP Video Softphone? n
                             Short/Prefixed Registration Allowed: default
```

Repeat this section to administer all stations to be monitored. In the compliance testing, two stations were administered as shown below.

```
list station 65001 count 2

                                  STATIONS

Ext/          Port/   Name/                        Room/       Cv1/ COR/   Cable/
 Hunt-to       Type      Surv GK NN        Move     Data Ext    Cv2  COS TN Jack

65001         S00000  Harmony Agent #1                        1    1
               1608                        no                      1   1
65002         S00045  Harmony Agent #2                        1    1
               9650                        no                      1   1
```


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5.5. Administer IP Codec Set

Use the "change ip-codec-set n" command, where "n" is an existing codec set number used for integration with Harmony. For **Audio Codec**, enter the desired codec, in this case "G.711MU". Note that Harmony only supports the G.711MU and G.729 variants, and requires the same codec type to be used by all agents.

```
change ip-codec-set 1                                          Page   1 of   2

                          IP Codec Set

   Codec Set: 1

   Audio        Silence      Frames   Packet
   Codec        Suppression  Per Pkt  Size(ms)
 1: G.711            n          2        20
 2:
 3:
```


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6. Configure Avaya Aura® Application Enablement Services

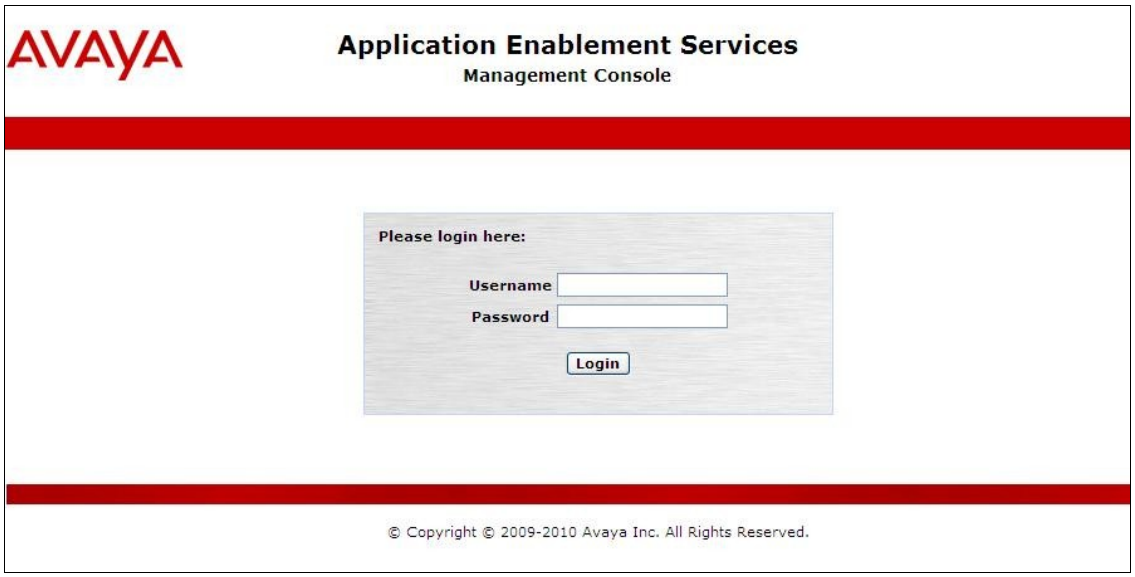
This section provides the procedures for configuring Application Enablement Services. The procedures include the following areas:

- Launch OAM interface
- Verify license
- Administer TSAPI link
- Administer H.323 gatekeeper
- Disable security database
- Restart TSAPI service
- Obtain Tlink name
- Administer Harmony user
- Enable DMCC unencrypted port

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.



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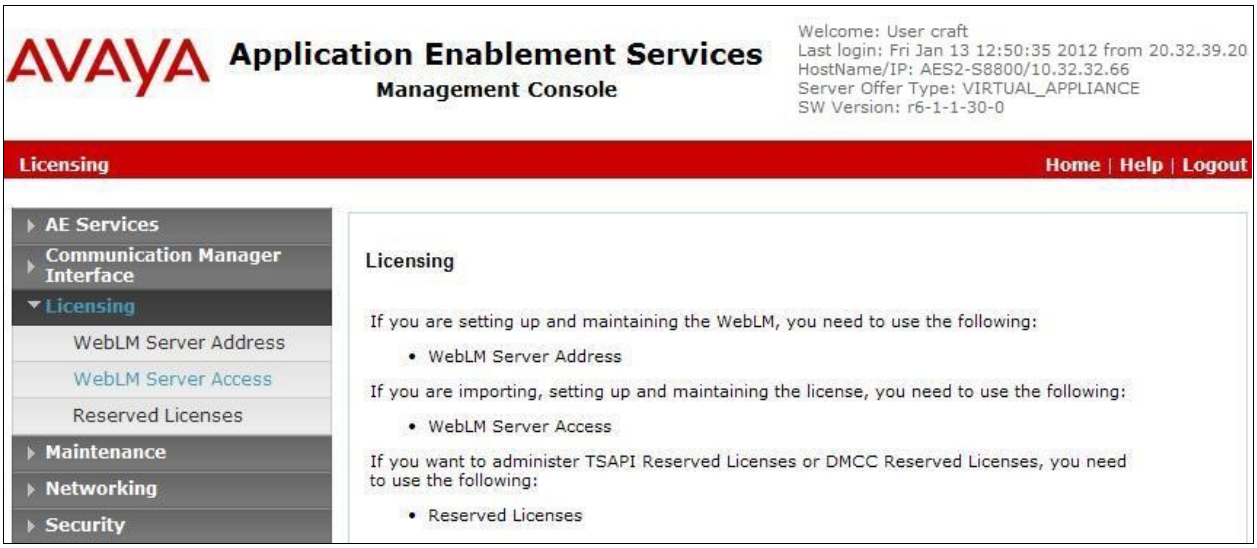
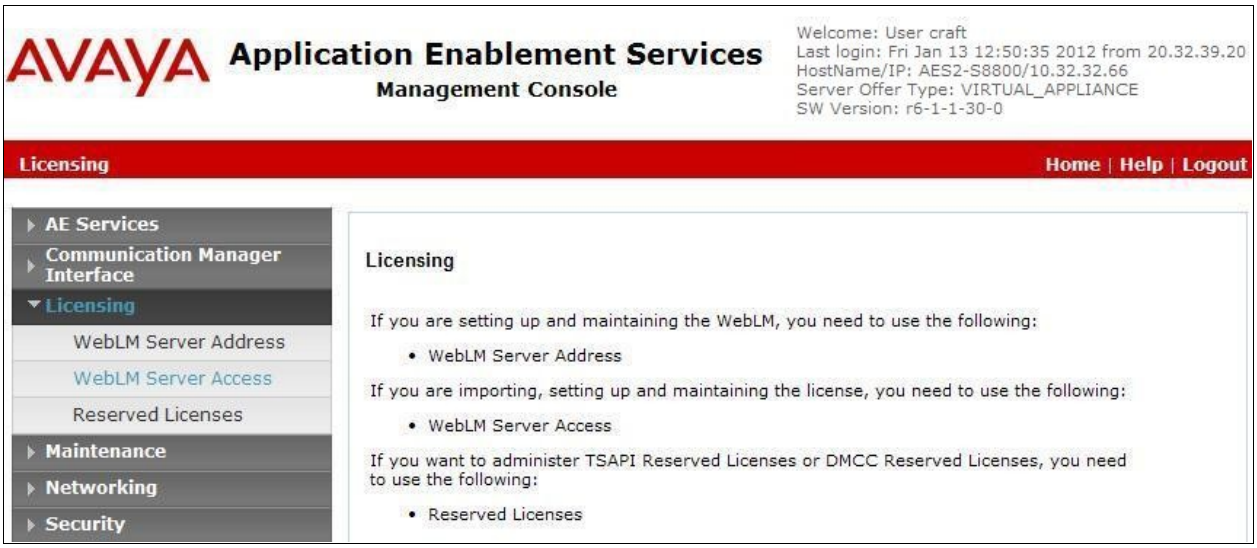
The **Welcome to OAM** screen is displayed next.



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 with the appropriate credentials.



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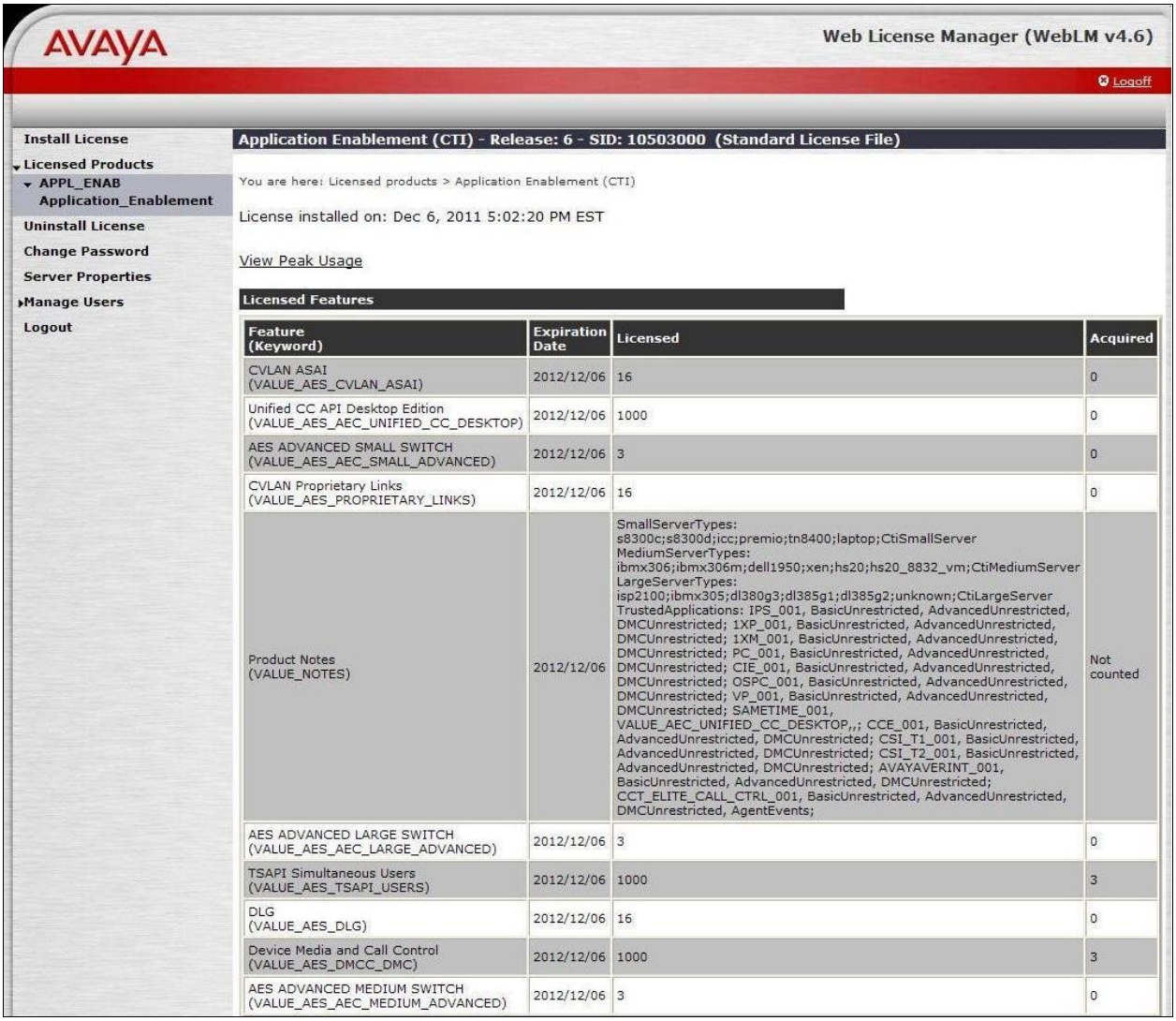
The **Web License Manager** screen below is displayed. Select **Licensed Products > APPL_ENAB > Application_Enablement** in the left pane, to display the **Licensed Features** screen in the right pane.

Verify that there are sufficient licenses for **TSAPI Simultaneous Users** and **Device Media and Call Control**, as shown below.



Feature (Keyword)	Expiration Date	Licensed	Acquired
CVLAN ASAI (VALUE_AES_CVLAN_ASAI)	2012/12/06	16	0
Unified CC API Desktop Edition (VALUE_AES_AEC_UNIFIED_CC_DESKTOP)	2012/12/06	1000	0
AES ADVANCED SMALL SWITCH (VALUE_AES_AEC_SMALL_ADVANCED)	2012/12/06	3	0
CVLAN Proprietary Links (VALUE_AES_PROPRIETARY_LINKS)	2012/12/06	16	0
Product Notes (VALUE_NOTES)	2012/12/06	SmallServerTypes: s8300c;s8300d;icc;premio;tn8400;laptop;CtiSmallServer MediumServerTypes: ibmx306;ibmx306m;dell1950;xen;hs20;hs20_8832_vm;CtiMediumServer LargeServerTypes: isp2100;ibmx305;dl380g3;dl385g1;dl385g2;unknown;CtiLargeServer TrustedApplications: IPS_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; 1XP_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; 1XM_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; PC_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CIE_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; OSPC_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; VP_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; SAMETIME_001, VALUE_AEC_UNIFIED_CC_DESKTOP,,; CCE_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CSI_T1_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CSI_T2_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; AVAYAVERINT_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CCT_ELITE_CALL_CTRL_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted, AgentEvents;	Not counted
AES ADVANCED LARGE SWITCH (VALUE_AES_AEC_LARGE_ADVANCED)	2012/12/06	3	0
TSAPI Simultaneous Users (VALUE_AES_TSAPI_USERS)	2012/12/06	1000	3
DLG (VALUE_AES_DLG)	2012/12/06	16	0
Device Media and Call Control (VALUE_AES_DMCC_DMC)	2012/12/06	1000	3
AES ADVANCED MEDIUM SWITCH (VALUE_AES_AEC_MEDIUM_ADVANCED)	2012/12/06	3	0

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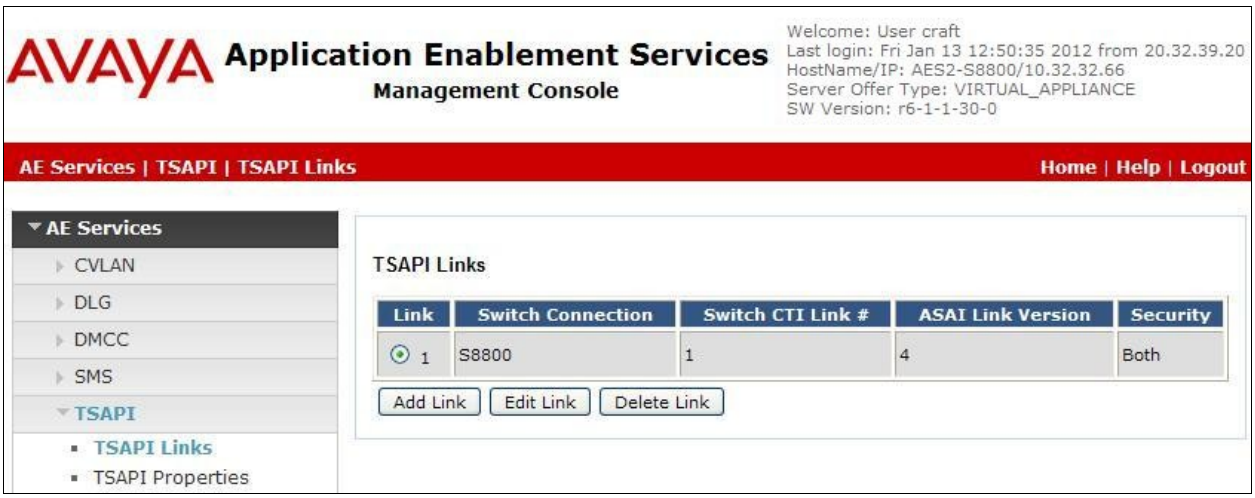
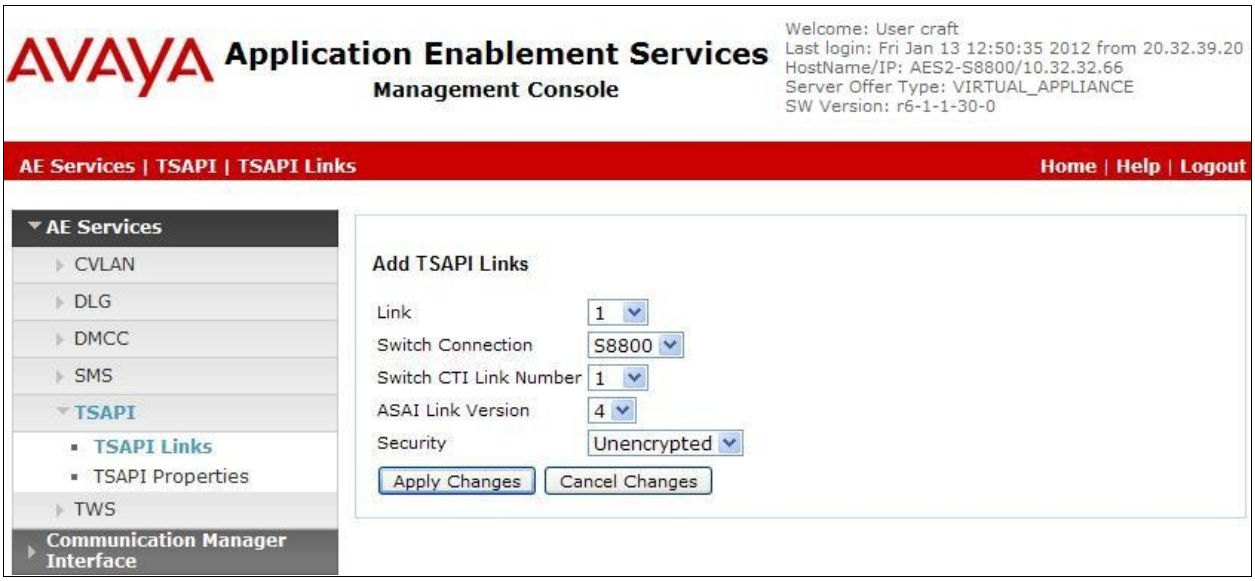
6.3. Administer TSAPI Link

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 "S8800" is selected. For **Switch CTI Link Number**, select the CTI link number from **Section 5.2**. Retain the default values in the remaining fields.



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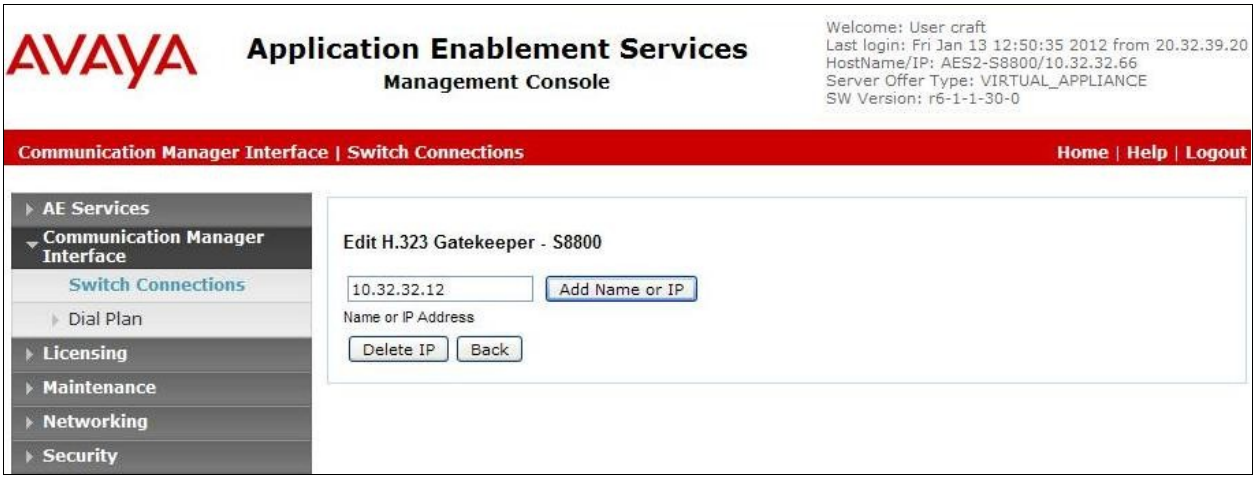
6.4. Administer H.323 Gatekeeper

Select **Communication Manager Interface > Switch Connections** from the left pane. The **Switch Connections** screen shows a listing of the existing switch connections.

Locate the connection name associated with the relevant Communication Manager, in this case "S8800", and select the corresponding radio button. Click **Edit H.323 Gatekeeper**.

The **Edit H.323 Gatekeeper** screen is displayed. Enter the IP address of a C-LAN circuit pack or the Processor C-LAN on Communication Manager to be used as H.323 gatekeeper, in this case "10.32.32.12" as shown below. Click **Add Name or IP**.



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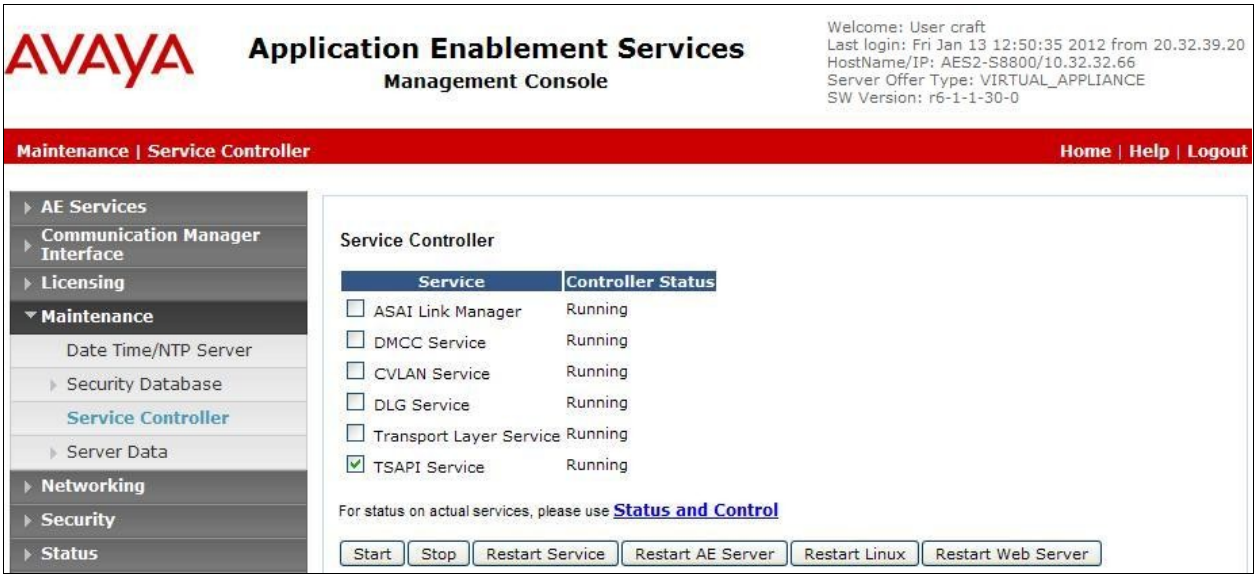
6.5. Disable Security Database

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, and click **Apply Changes**.

6.6. Restart TSAPI Service

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**.



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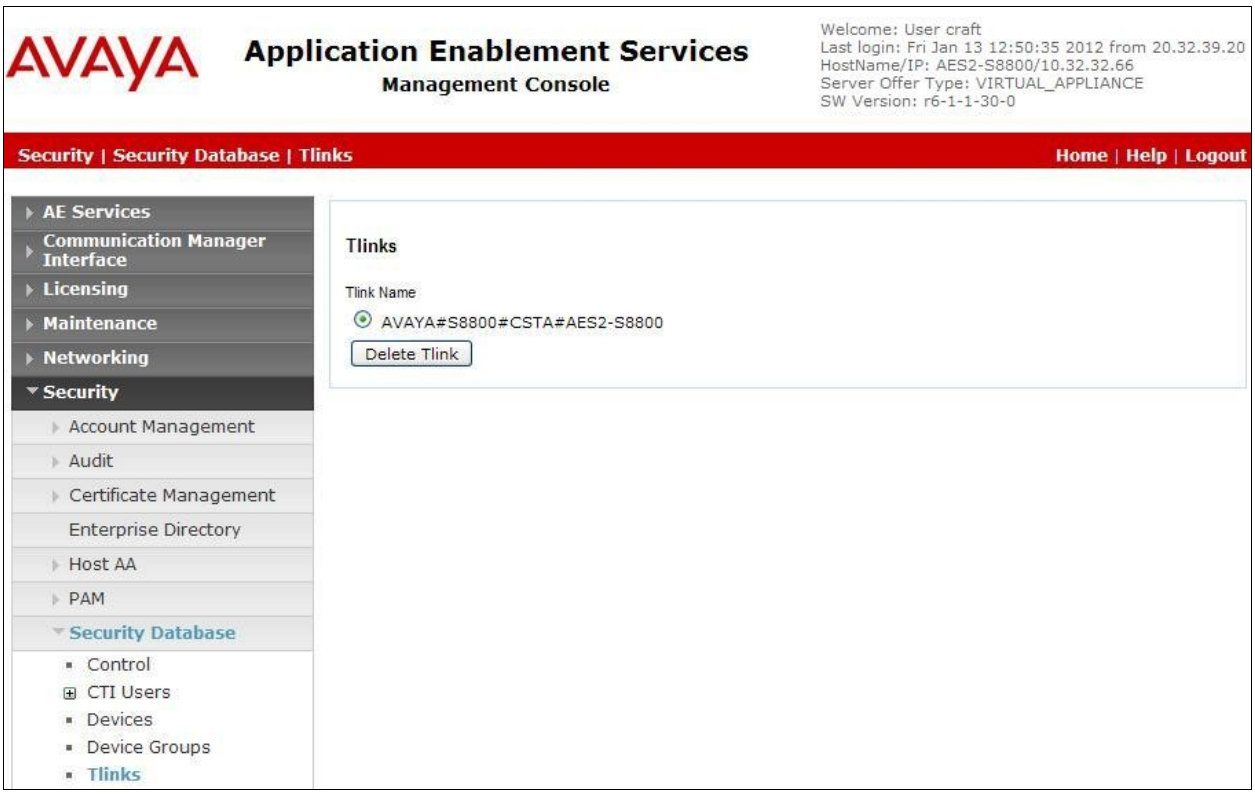
6.7. Obtain Tlink Name

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 Harmony.

In this case, the associated Tlink name is "AVAYA#**S8800**#CSTA-S#AES2-S8800". Note the use of the switch connection "S8800" from **Section 6.3** as part of the Tlink name.



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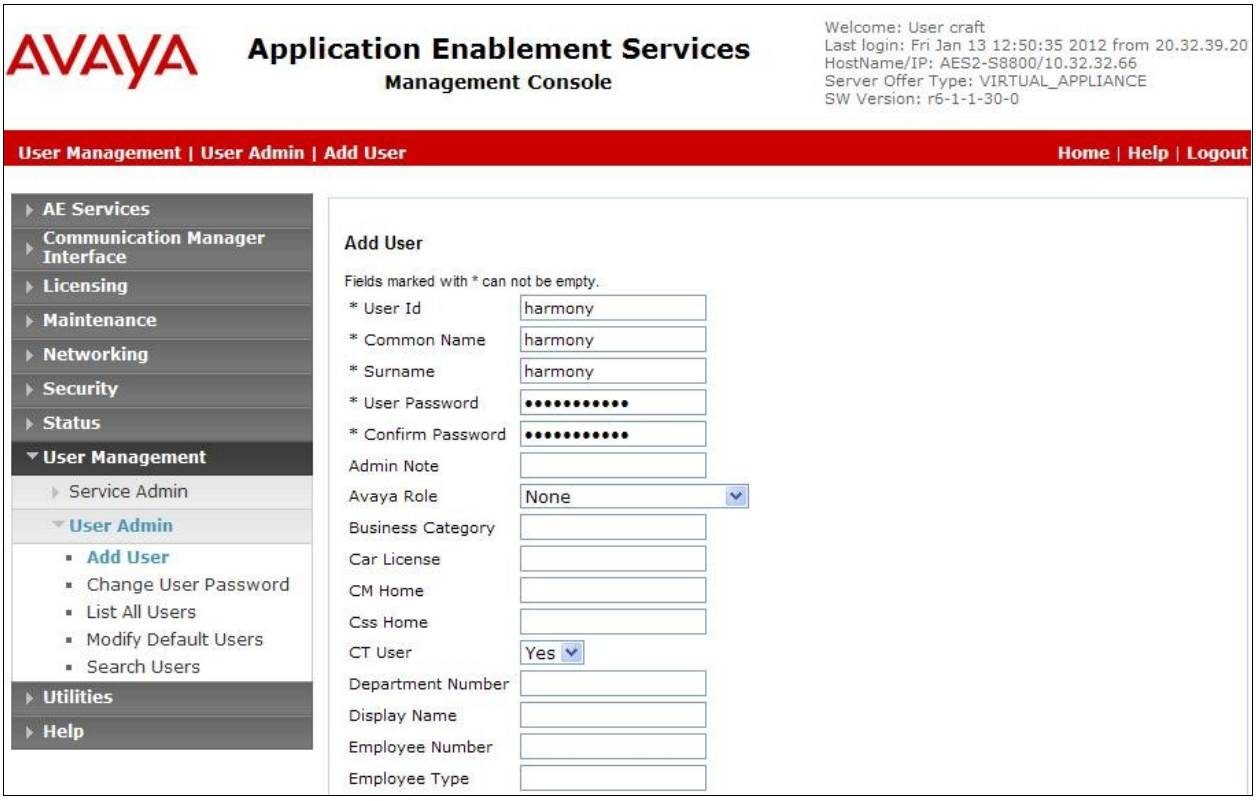
6.8. Administer Harmony User

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. Click **Apply** at the bottom of the screen (not shown).



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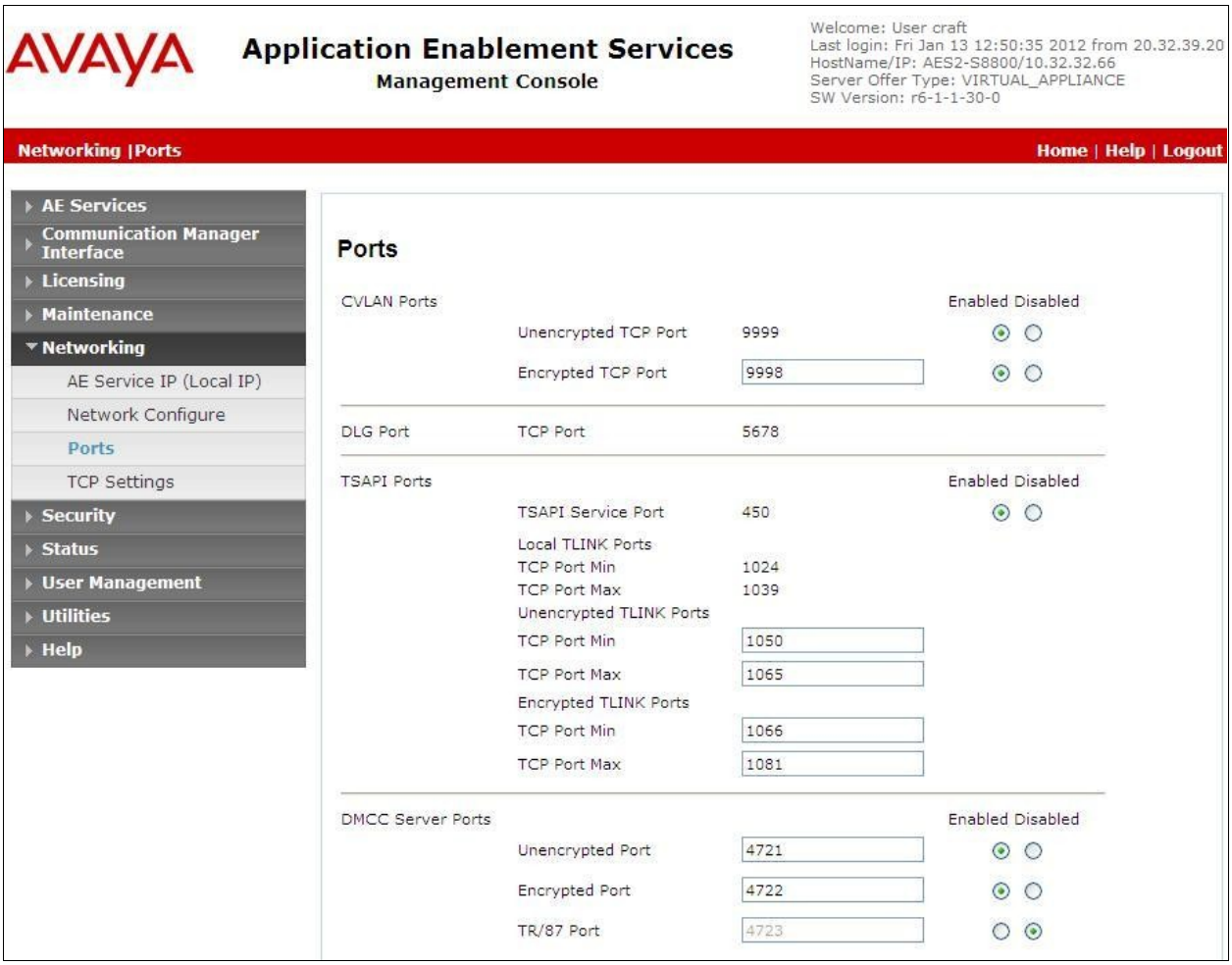
6.9. Enable DMCC Unencrypted Port

Select **Networking > Ports** from the left pane, to display the **Ports** screen in the right pane.

In the **DMCC Server Ports** section, select the radio button for **Unencrypted Port** under the **Enabled** column, as shown below.



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7. Configure KnoahSoft Harmony

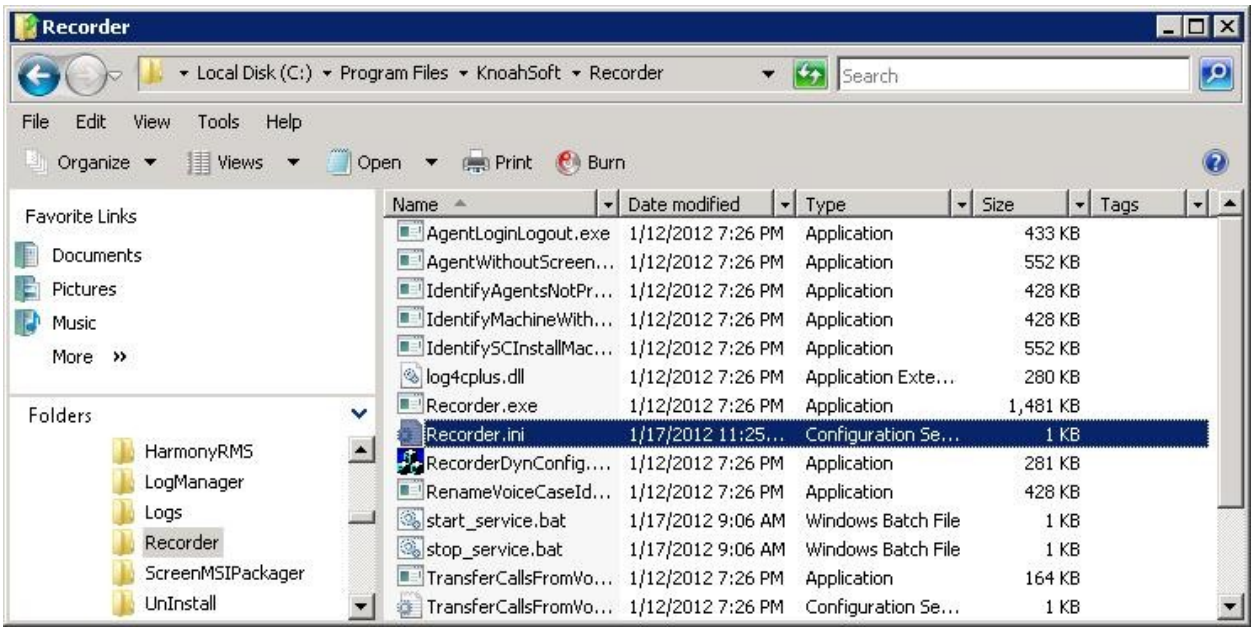
This section provides the procedures for configuring Harmony. The procedures include the following areas:

- Administer Recorder.ini
- Administer AESAdapter.ini
- Administer Avaya adapter properties
- Administer AESAdapter
- Launch web interface
- Administer agents
- Administer virtual recorders

The configuration of Harmony is performed by KnoahSoft installers and partners. The procedural steps are presented in these Application Notes for informational purposes.

7.1. Administer Recorder.ini

From the Harmony server running the Recorder service, navigate to the **C:\Program Files\KnoahSoft\Recorder** directory to locate the **Recorder.ini** file shown below.



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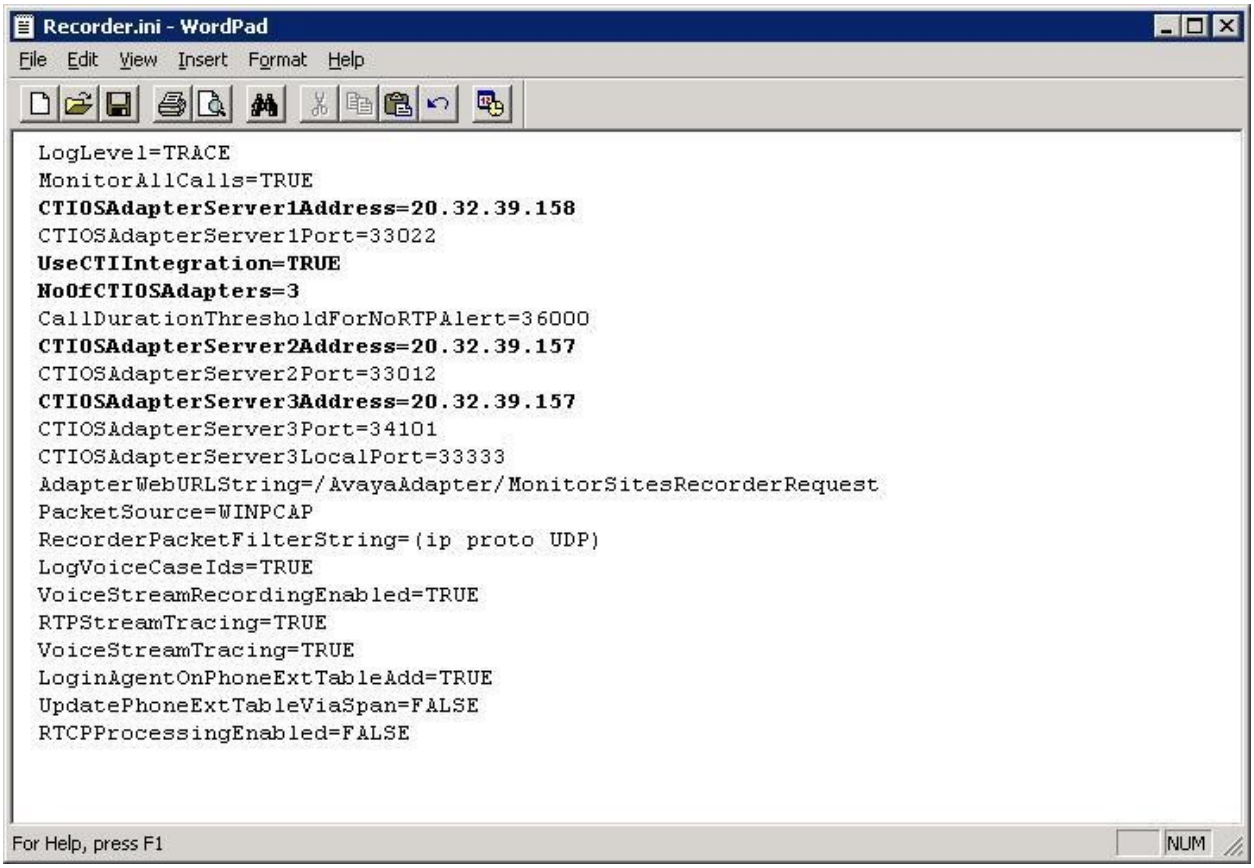
Open the **Recorder.ini** file with the WordPad application. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **CTIOSAdapterServer1Address:** IP address of server with RMS component.
- **UseCTIIntegration:** "TRUE"
- **NoOfCTIOSAdapters:** "3"
- **CTIOSAdapterServer2Address:** IP address of server with AES adapter component.
- **CTIOSAdapterServer3Address:** IP address of server with Avaya adapter component.



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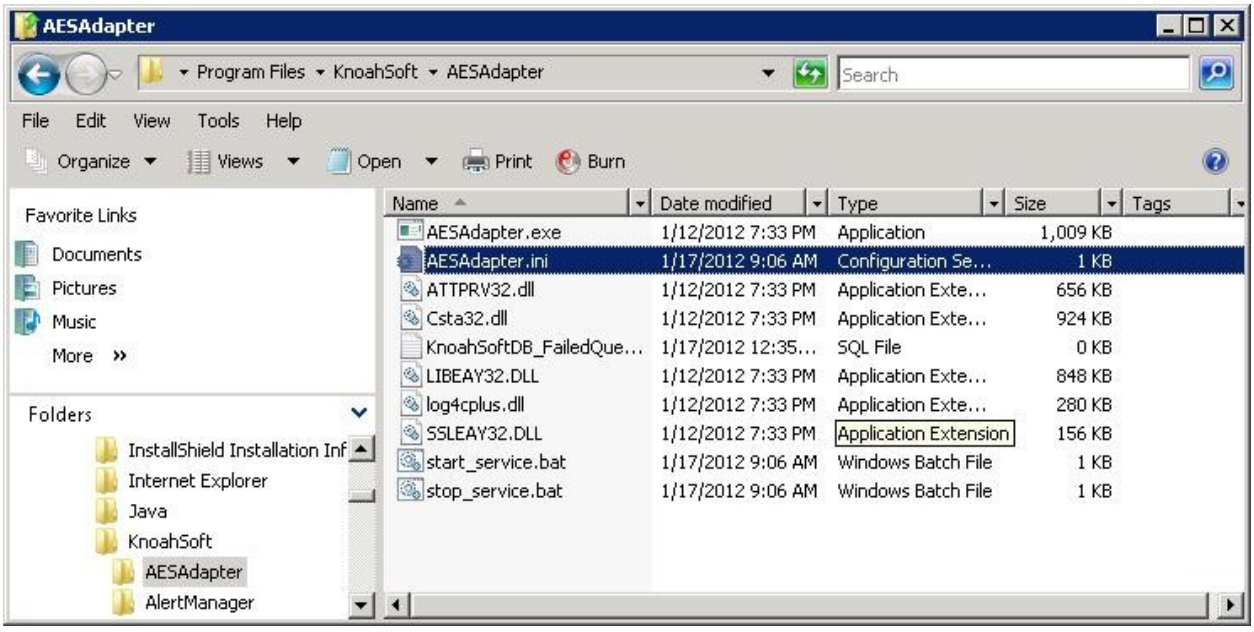
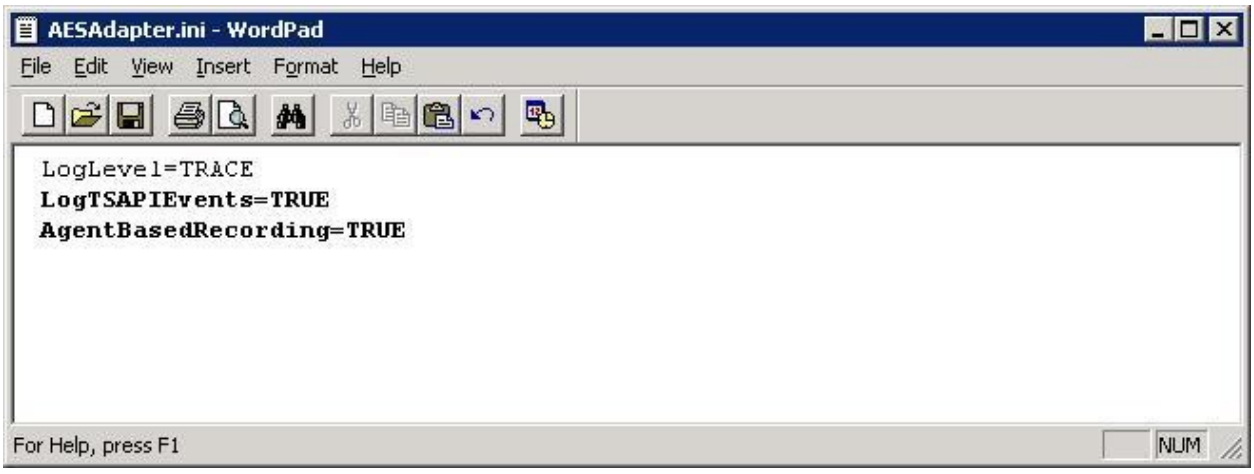
7.2. Administer AESAdapter.ini

From the Harmony server running the AES adapter component, navigate to the **C:\Program Files\KnoahSoft\AESAdapter** directory to locate the **AESAdapter.ini** file shown below.



Open the **AESAdapter.ini** file with the WordPad application. Add the **LogTSAPIEvents** and **AgentBasedRecording** parameters and set the values to "TRUE", as shown below. The TSAPI events log were used in the compliance testing for verification purposes.



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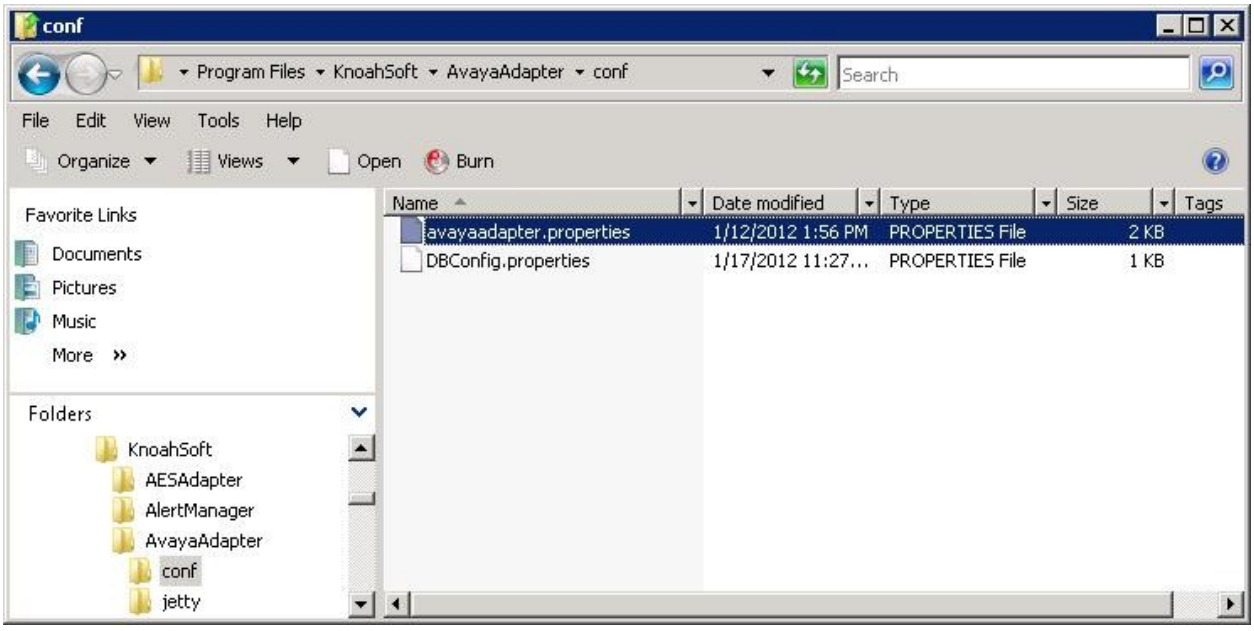
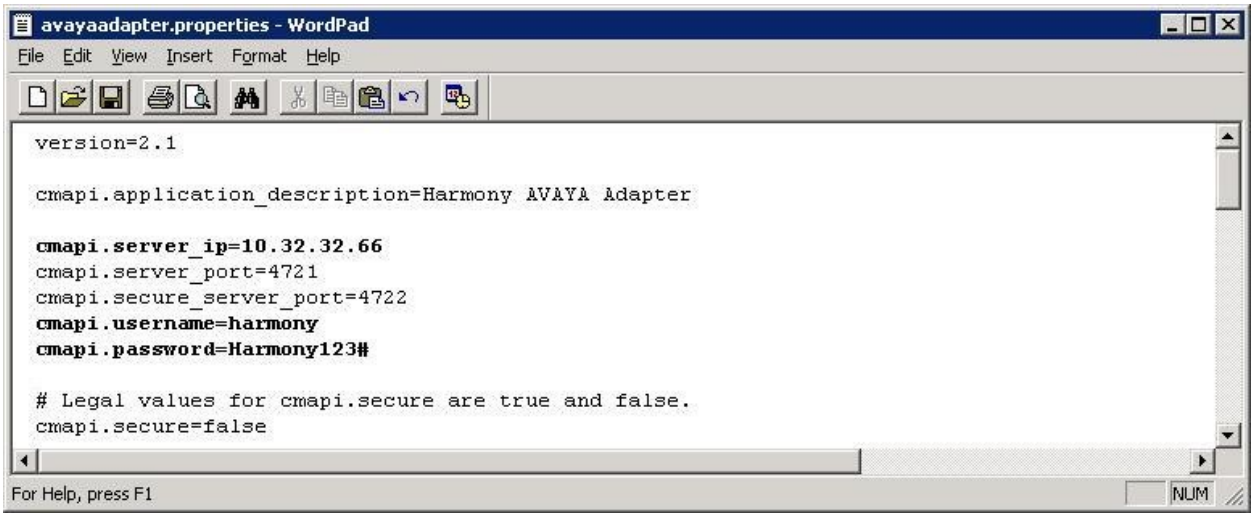
7.3. Administer Avaya Adapter Properties

From the Harmony server running the Avaya adapter component, navigate to the **C:\Program Files\KnoahSoft\AvayaAdapter\conf** directory to locate the **avayaadapter.properties** file shown below.



Open the **avayaadapter.properties** file with the WordPad application. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **cmapi.server_ip:** IP address of the Application Enablement Services server.
- **cmapi.username:** The Harmony user credentials from **Section 6.8**.
- **cmapi.password:** The Harmony user credentials from **Section 6.8**.



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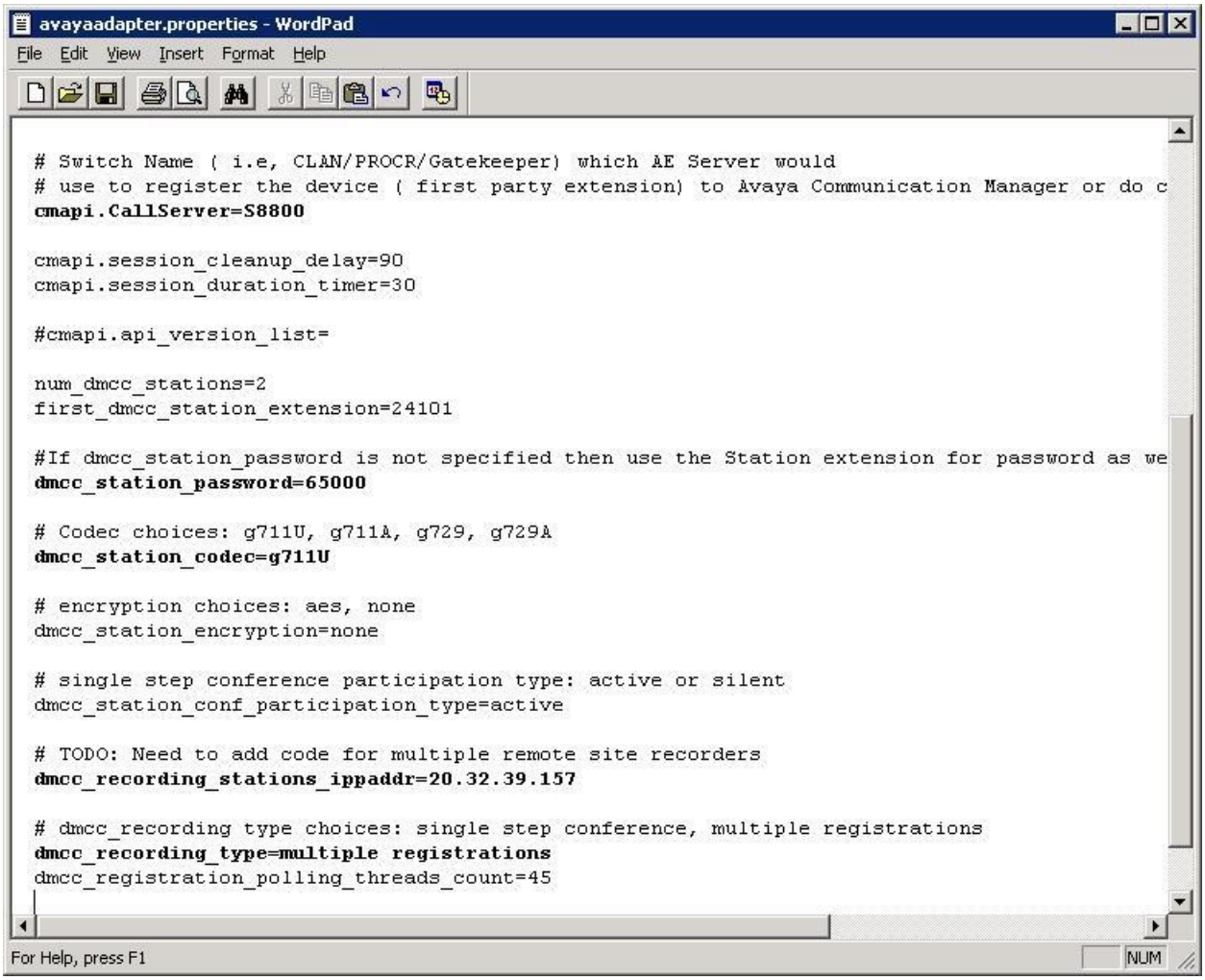
Scroll the screen as necessary to enter the following values for the specified fields, and retain the default values for the remaining fields.

- **cmapi.CallServer:** The switch connection name from **Section 6.3**.
- **dmcc_station_password:** The security code from **Section 5.4**.
- **dmcc_station_codec:** The audio codec from **Section 5.5**.
- **dmcc_recording_stations_ippaddr:** IP address of server with Avaya adapter component.
- **dmcc_recording_type:** "multiple registrations"



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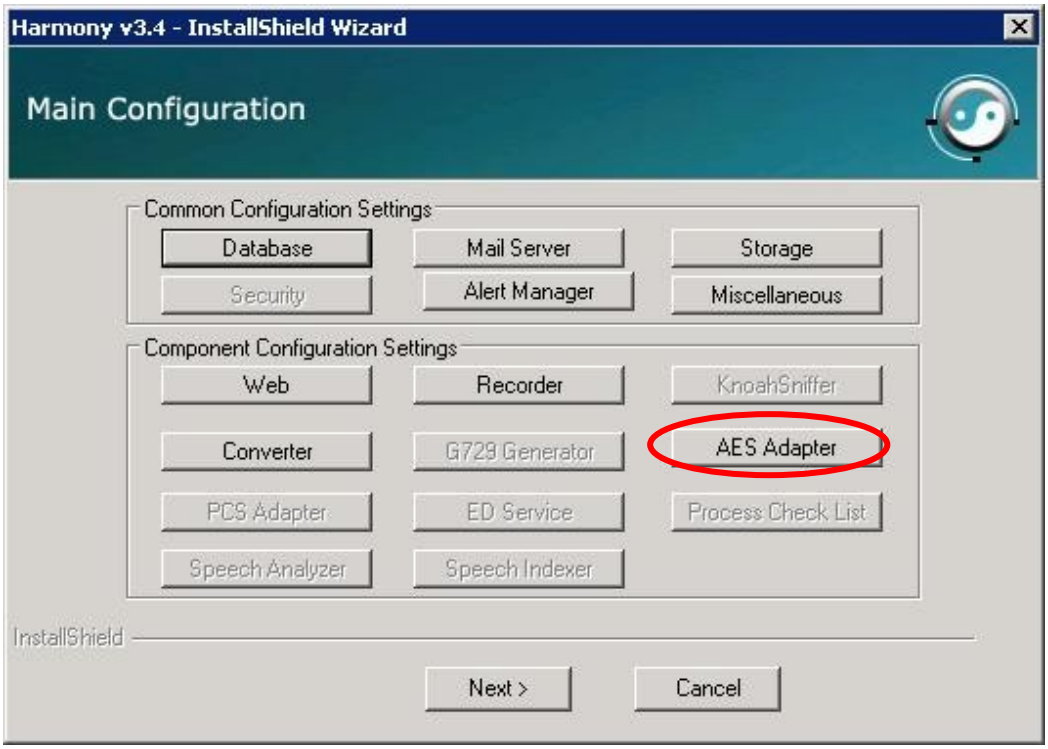
7.4. Administer AESAdapter

From the Harmony server running the AES adapter component, select **Start > All Programs > KnoahSoft > KnoahSoft Config**, to display the **User Login Information** screen. Log in using the appropriate credentials.

The **Main Configuration** screen is displayed. Select **AES Adapter**.



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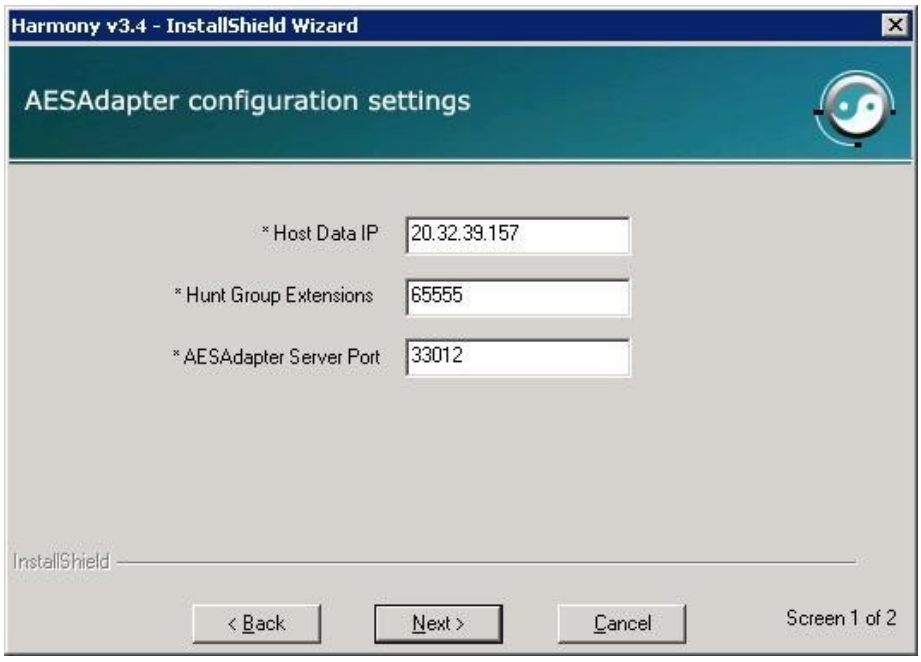
The **AESAdapter configuration settings** screen is displayed. For **Host Data IP**, enter the IP address of the server hosting the AES adapter component. For **Hunt Group Extensions**, enter the skill group extensions from **Section 3**, separated by commas. For **AESAdapter Server Port**, enter "33012".



The second page of the **AESAdapter configuration settings** screen is displayed next. For **AES Server ID**, enter the Tlink name from **Section 6.7**. For **Login User Name** and **Password**, enter the Harmony user credentials from **Section 6.8**.

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Page forward to the **Choose components you want to start** screen shown below. Check **AESAdapter**, and click **Finish** to complete the wizard.

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7.5. Launch Web Interface

Launch the Harmony web interface by using the URL "https://ip-address:8080/knoahsoft" in an Internet browser window, where "ip-address" is the IP address of the Harmony server running the web server component.

The **Welcome to Harmony** screen is displayed. Log in using the administrator credentials.

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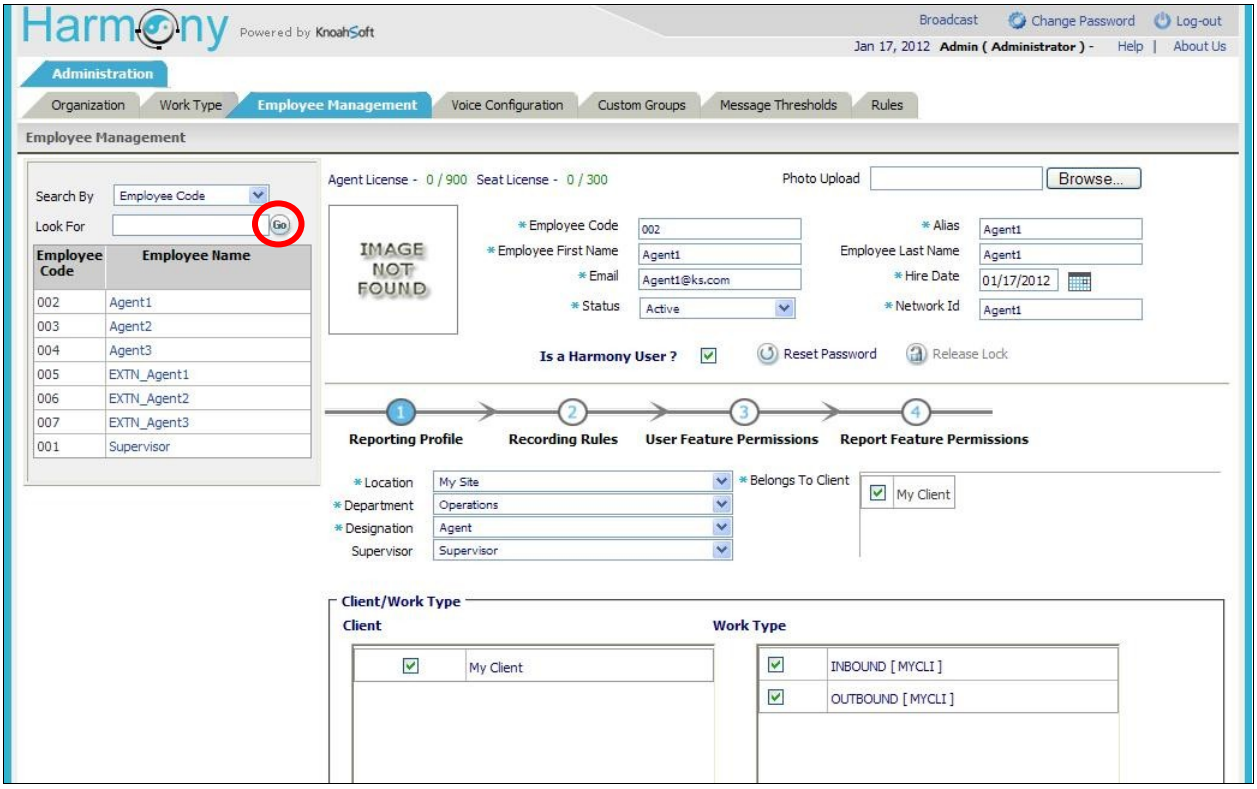
7.6. Administer Agents

The **Harmony** screen is displayed. Select the **Employee Management** tab, and click on **Go** to display a list of pre-configured employees in the left pane.

Select the entry corresponding to the first agent from **Section 3** in the left pane, in this case "Agent1", and the right pane is populated with pre-configured information for this agent. Retain all pre-configured values.



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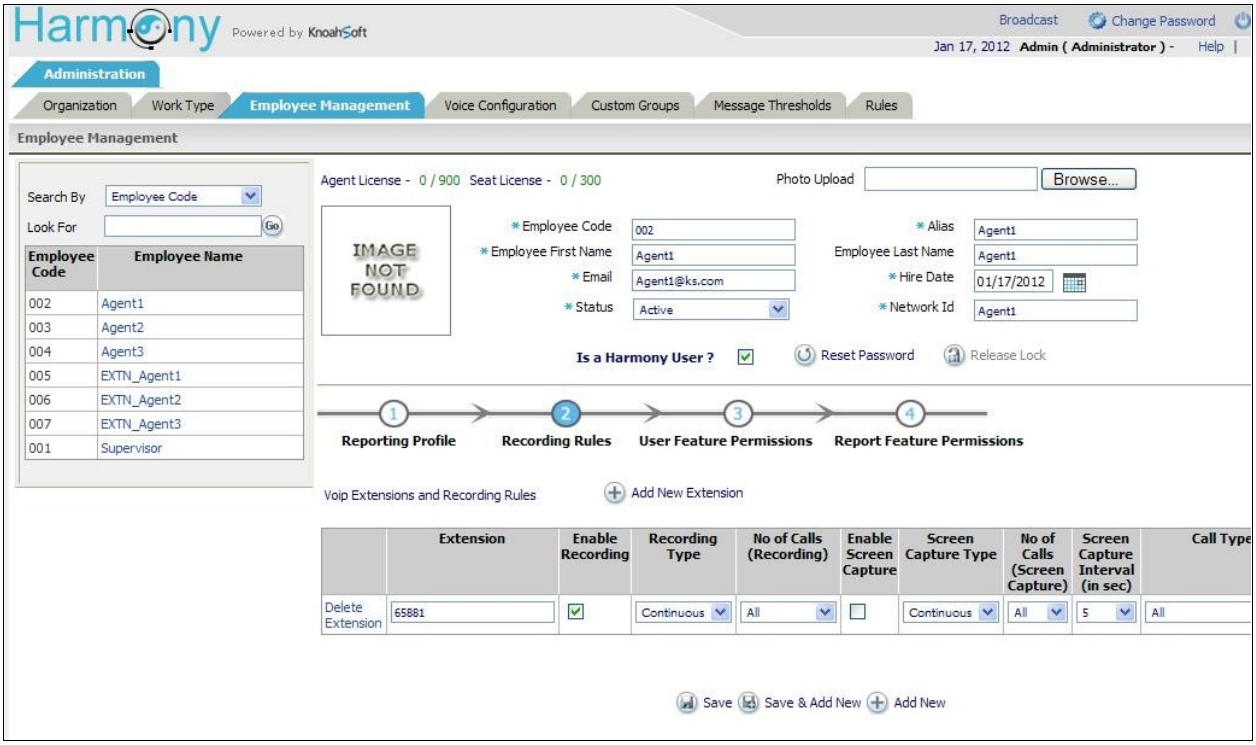
Select step 2 **Recording Rules**, followed by **Add New Extension**.

For **Extension**, enter the first agent ID from **Section 3**. Check the **Enable Recording** field, and retain the default values in the remaining fields.

Repeat this section to configure all agents. In the compliance testing, two agents with employee codes of "002" and "003" were configured.



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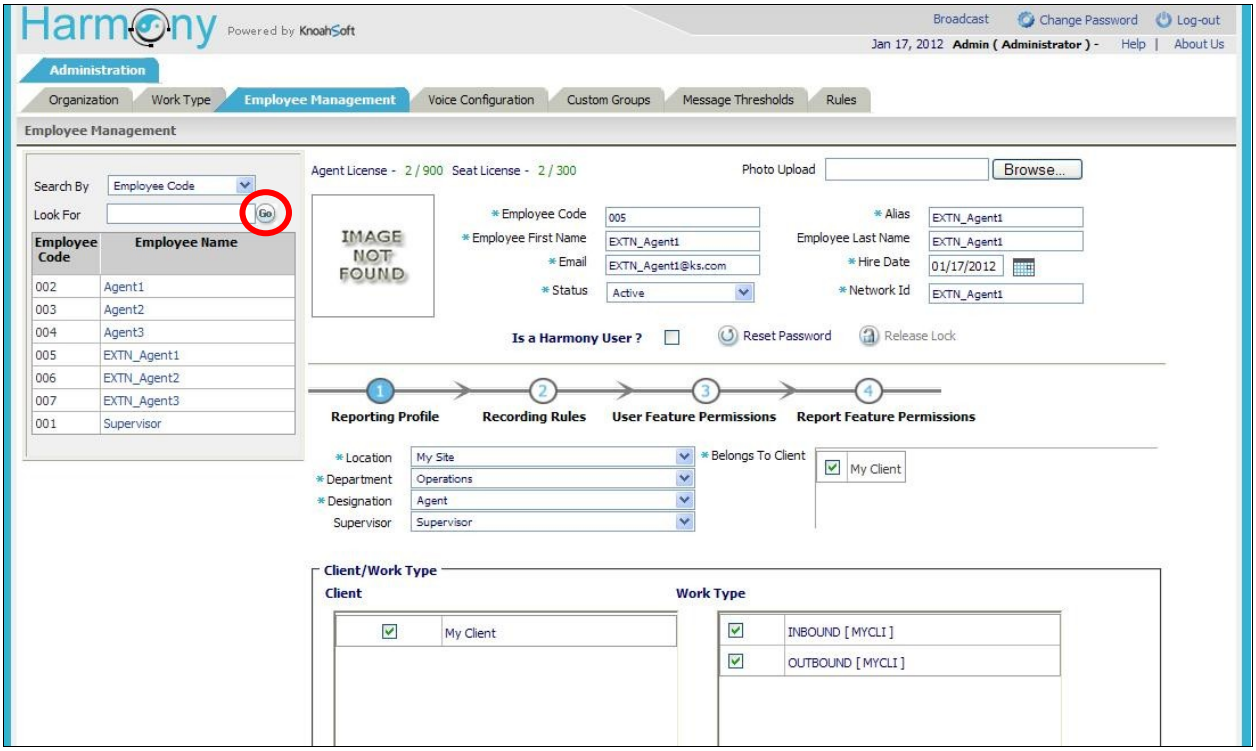
7.7. Administer Virtual Recorders

Select the **Employee Management** tab. Click on **Go** to display a list of pre-configured employees in the left pane.

Select the entry corresponding to the first virtual recorder from the left pane, in this case "EXTN_Agent1", and the right pane is populated with pre-configured information for this virtual recorder.



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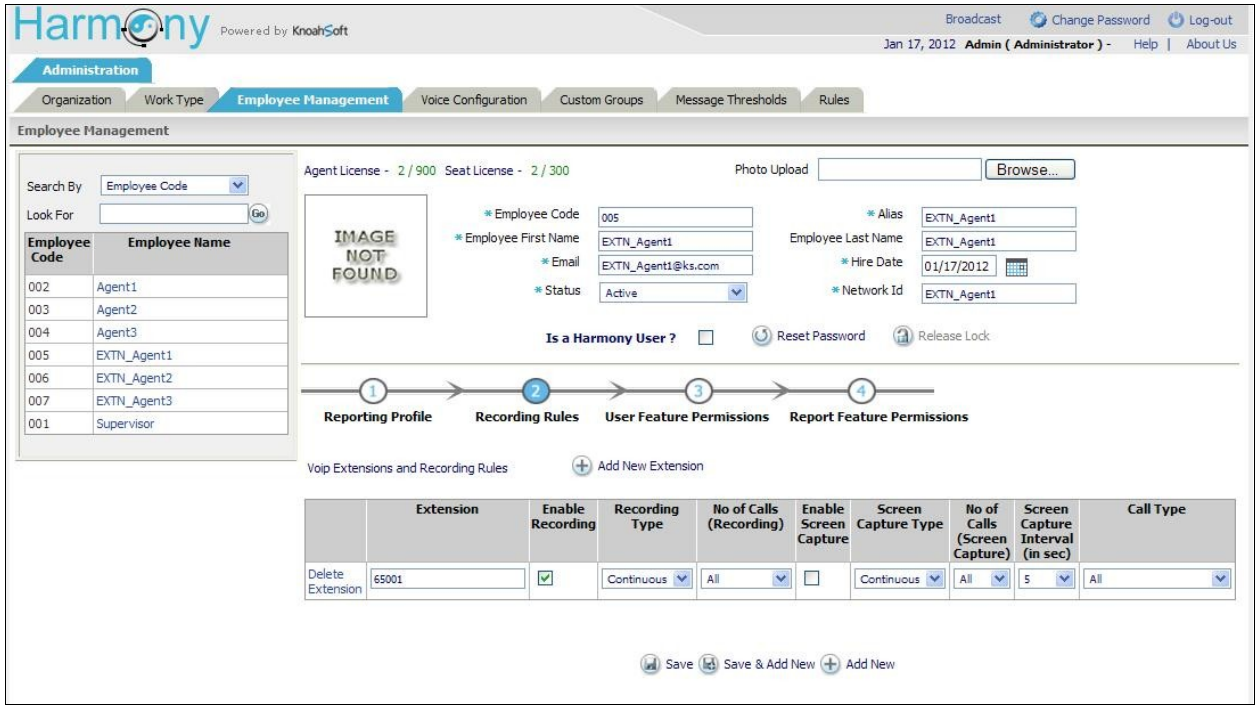
Select step 2 **Recording Rules**, followed by **Add New Extension**.

For **Extension**, enter the first agent extension from **Section 3**. Check the **Enable Recording** field, and retain the default values in the remaining fields.

Repeat this section to configure all virtual recorders. In the compliance testing, two virtual recorders with employee codes of "005" and "006" were configured.



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8. Verification Steps

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

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     4        no    AES2-S8800       established   103      32
```

Verify the registration status of the recording devices by using the "list registered-ip-stations" command. Verify that there is an entry for each virtual recorder from **Section 7.7**, with the client IP address of Application Enablement Services as **Station IP Address**, as shown below.

```
list registered-ip-stations

                            REGISTERED IP STATIONS

Station Ext   Set Type/ Prod ID/   TCP Station IP Address/
or Orig Port  Net Rgn   Release    Skt Gatekeeper IP Address
------------- --------- ---------- --- ---------------------------------------
65001         1608      IP_Phone    y  20.32.39.105
              1         1.3000         10.32.32.12
65001         1608      IP_API_A    y  10.32.32.66
              1         3.2040         10.32.32.12
65002         1616      IP_Phone    y  20.32.39.108
              1         1.3000         10.32.32.12
65002         1616      IP_API_A    y  10.32.32.66
              1         3.2040         10.32.32.12
```


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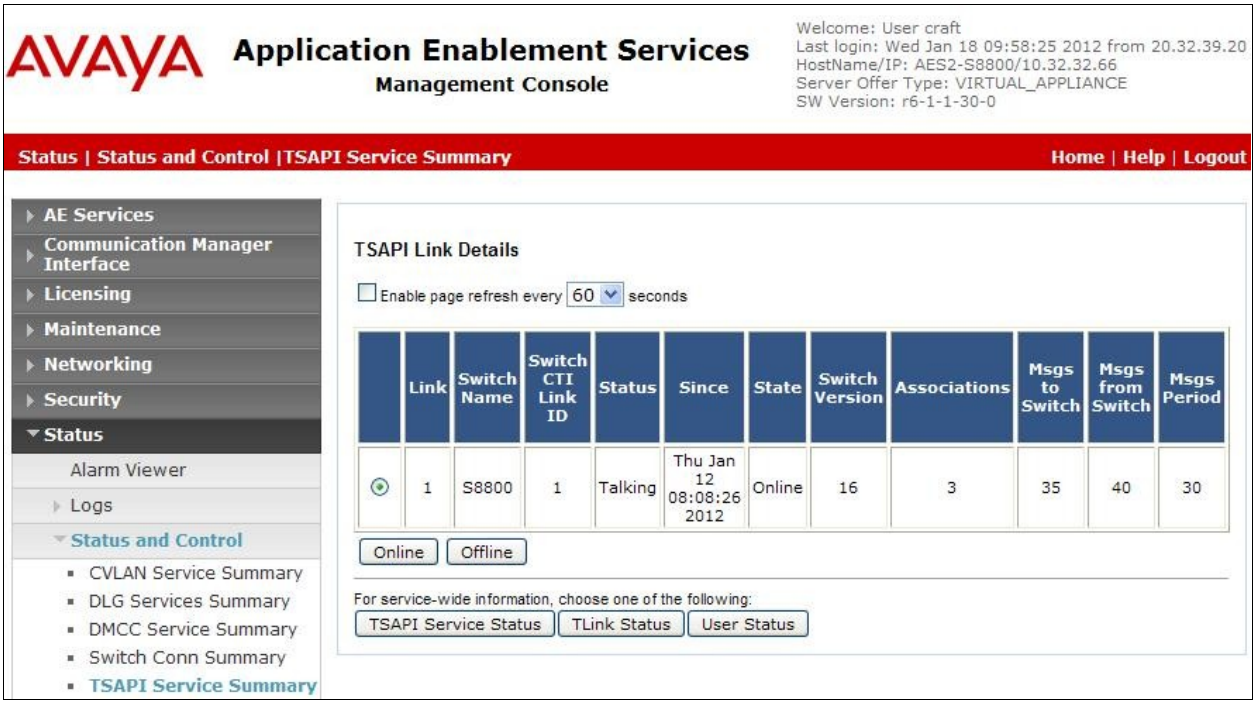
8.2. Verify Avaya Aura® Application Enablement Services

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 that **Status** is "Talking", and that **Associations** reflect the total number of skill groups and agent station extensions from **Section 3**.



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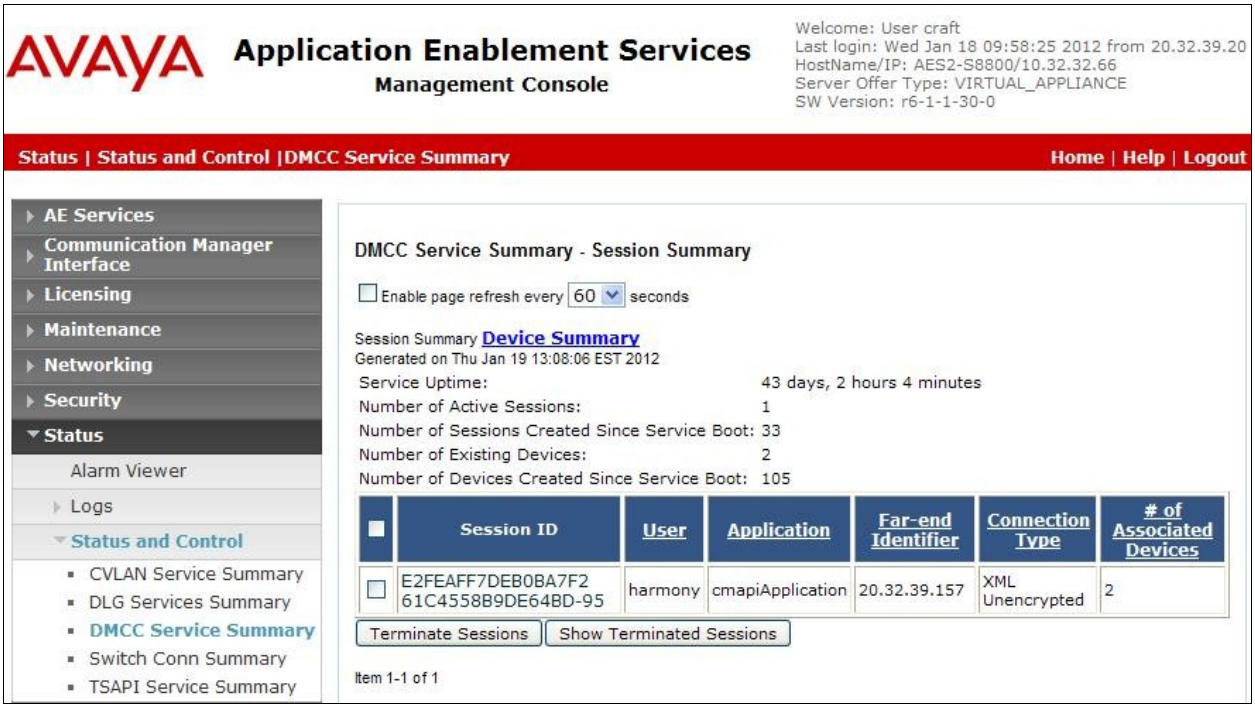
Verify status of the DMCC link by selecting **Status > Status and Control > DMCC Service Summary** from the left pane. The **DMCC Service Summary – Session Summary** screen is displayed.

In the lower portion of the screen, verify that there is an active session with the Harmony user from **Section 6.8**, and that **# of Associated Devices** reflects the number of virtual recorders from **Section 7.7**.



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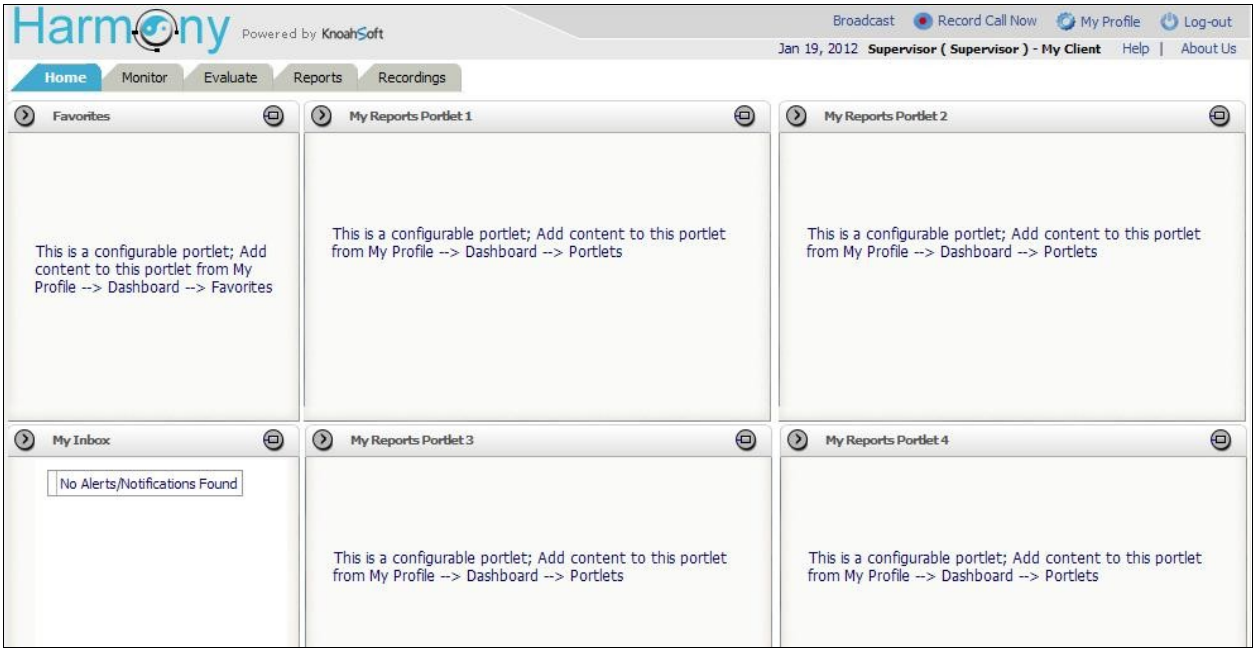
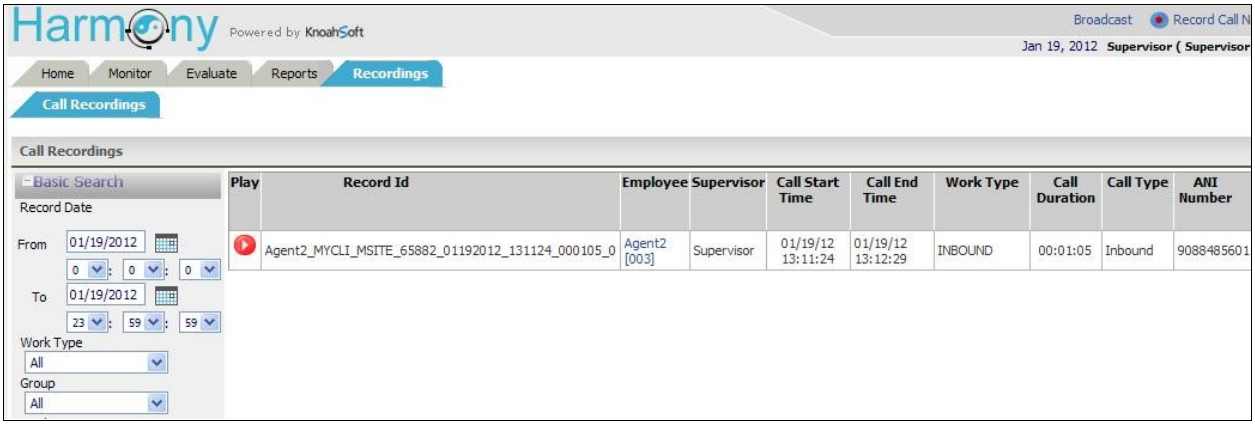
8.3. Verify KnoahSoft Harmony

Log an agent into the skill group to handle and complete an ACD call. From the supervisor PC, follow the navigation in **Section 7.5** to launch the Harmony web interface, and log in with supervisor credentials. The **Harmony** screen is displayed.

Select the **Recordings** tab. In the subsequent screen (not shown), retain the default values and click **Search** in the left pane.



The Harmony screen is updated with a list of recordings for the current day. Verify that there is an entry reflecting the last call, with proper values in the relevant fields. Click on the associated icon in the **Play** column.



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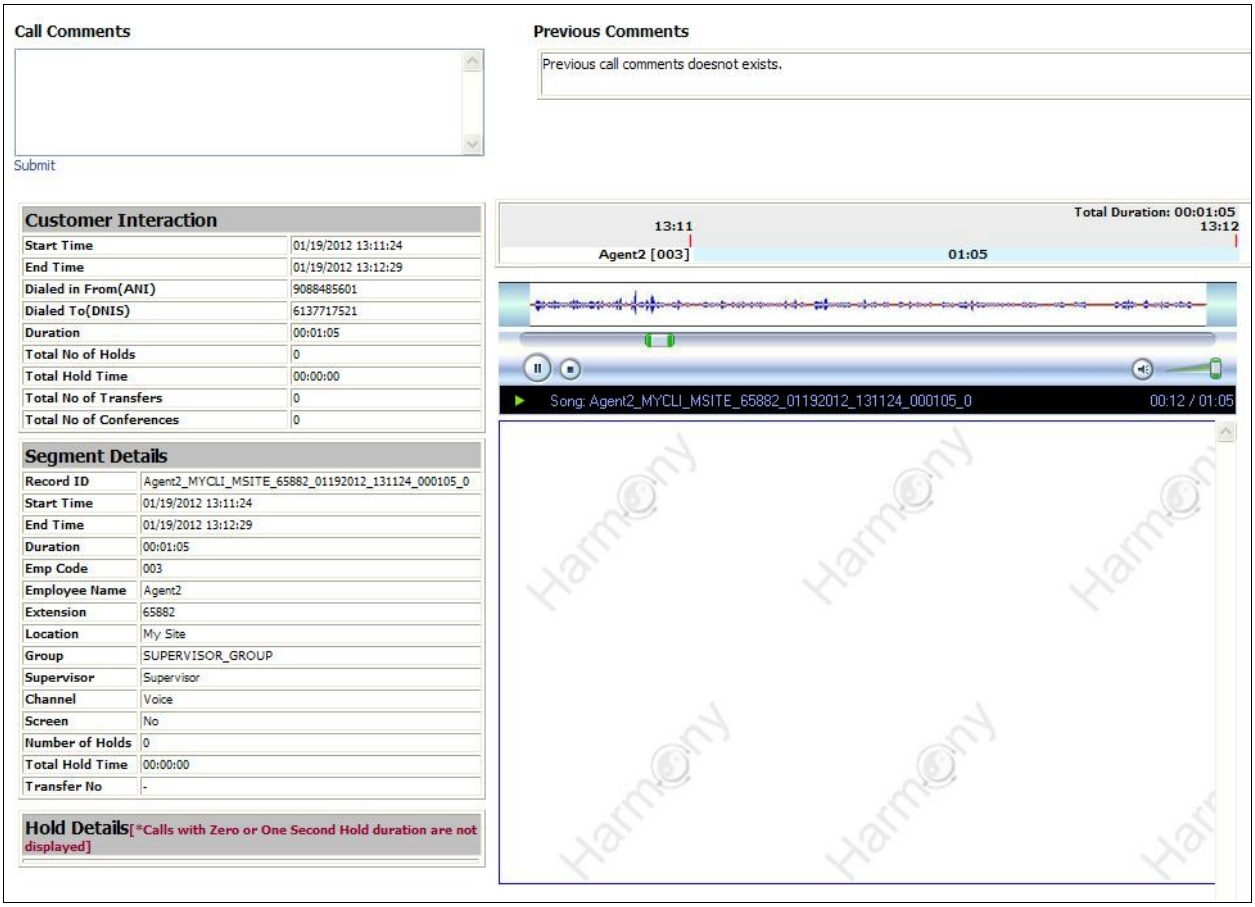
Verify that the screen below pops up in a new browser window, and that the recording can be played back.



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9. Conclusion

These Application Notes describe the configuration steps required for KnoahSoft Harmony to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services using the Multiple Registration method. All feature and serviceability test cases were completed with observations noted in **Section 0**.

10. Additional References

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

1. *Administering Avaya Aura*™ *Communication Manager*, Document 03-300509, Issue 6.0, Release 6.0, June 2010, available at http://support.avaya.com.

2. *Avaya Aura® Application Enablement Services Administration and Maintenance Guide*, Release 6.1, Issue 2, February 2011, available at http://support.avaya.com.

3. *KnoahSoft Harmony Administration Guide*, Version 3.4, available on the Harmony server as part of installation.

4. *KnoahSoft Harmony Enterprise Edition User Guide*, Version 3.4, available on the Harmony server as part of installation.

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