Avaya Solution & Interoperability Test Lab

Application Notes for TelStrat Engage with Avaya Aura™ Communication Manager Using Avaya Aura™ Application Enablement Services and Avaya IP Telephones for On-Demand Recording – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for TelStrat Engage to interoperate with Avaya Aura™ Communication Manager using Avaya Aura™ Application Enablement Services and Avaya IP Telephones for on-demand call recording.

In the compliance testing, TelStrat Engage used the Telephony Services Application Programming Interface from Avaya Aura™ Application Enablement Services to monitor skill groups and agent telephone extensions on Avaya Aura™ Communication Manager, used the port mirroring method to capture the media associated with the monitored agents, and used the Web Browser Interface from the agents' Avaya 9600 Series IP Telephones to activate/deactivate on-demand call recording.

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

1. Introduction

These Application Notes describe the configuration steps required for TelStrat Engage to interoperate with Avaya Aura™ Communication Manager using Avaya Aura™ Application Enablement Services and Avaya IP Telephones for on-demand call recording.

In the compliance testing, TelStrat Engage used the Telephony Services Application Programming Interface (TSAPI) from Avaya Aura™ Application Enablement Services to monitor skill groups and agent telephone extensions on Avaya Aura™ Communication Manager, used the port mirroring method to capture the media associated with the monitored agents, and used the Web Browser Interface from the agents' Avaya 9600 Series IP Telephones to activate/deactivate on-demand call recording.

The TSAPI interface is used by TelStrat Engage to monitor the skill groups and agent telephone extensions. When there is an active call on the monitored agent, TelStrat Engage is informed of the call via TSAPI event reports. TelStrat Engage captures the audio by using the replicated media from the port mirroring method, and the TSAPI event reports are used to determine when to stop the audio capture.

The Web Browser Interface is used by Telstrat Engage to provide activation/deactivation of call recording options via the agents' Avaya 9600 Series IP Telephones.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on TelStrat Engage:

- Handling of TSAPI messages in the areas of event notification and value queries.
- Proper recording, logging, and playback of calls for scenarios involving inbound, outbound, internal, external, ACD, non-ACD, hold, reconnect, simultaneous, conference, and transfer.
- Proper display of browser page and begin/end/cancel of call recordings from the agents' 9600 Series IP Telephones.

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

1.2. Support

Technical support on TelStrat Engage can be obtained through the following:

- **Phone:** (972) 633-4548
- **Email:** support@telstrat.com

2. Reference Configuration

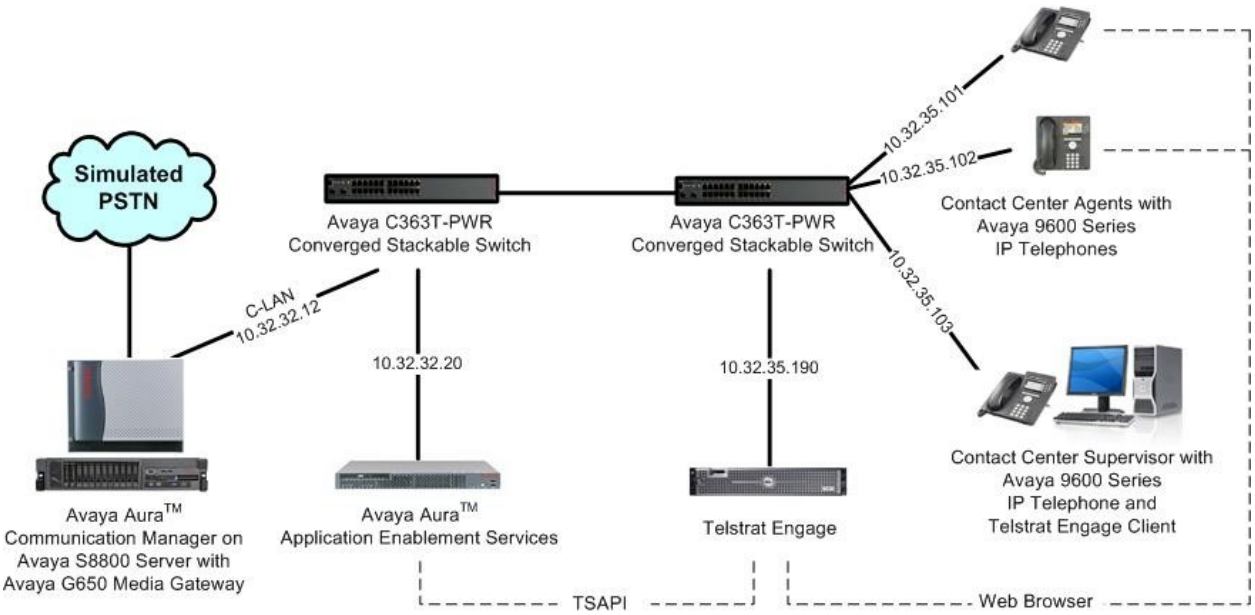
TelStrat Engage can be configured on a single server or with components distributed across multiple servers. The compliance test used a single server configuration, as shown in the figure below. In the compliance testing, the RTP stream for agents with Avaya IP Telephones were mirrored from the layer 2 switch, and replicated over to TelStrat Engage.

TelStrat Engage also has an Engage Client application that can be used to review and playback the call recordings. In the compliance testing, the Engage Client application was installed on the supervisor PC.

The detailed administration of basic connectivity between Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services, and of contact center devices are not the focus of these Application Notes and will not be described. In addition, the port mirroring of the layer 2 switch is also outside the scope of these Application Notes and will not be described.

In the compliance testing, the contact center devices consisted of one skill group, one supervisor, and two agents shown in the table below. TelStrat Engage requested monitoring on the skill group and agent telephone extensions.

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



3. 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 (R016x.00.0.345.0-18246)
Avaya G650 Media Gateway • TN799DP C-LAN Circuit Pack • TN2302AP IP Media Processor	 HW01 FW038 HW20 FW121
Avaya Aura™ Application Enablement Services	5.2.2
Avaya 9630 & 9640 IP Telephones (H.323)	3.1
TelStrat Engage on Windows 2003 Server with Service Pack 2 • Database Server • Avaya TSAPI Windows Client	3.2.0 Microsoft SQL Server 2005 4.2.0.267
TelStrat Engage Client	3.2.0

4. Configure Avaya Aura™ Communication Manager

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

- Verify Communication Manager License
- Administer IP codec set
- Administer CTI link

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

4.2. Administer IP Codec Set

Use the "change ip-codec-set n" command, where "n" is an existing codec set number used for the agents. Enter the desired audio codec types in the **Audio Codec** fields. Note that TelStrat Engage only supports the G.711 and G.729 codec variants.

```
change ip-codec-set 7                                         Page   1 of   2

                           IP Codec Set

    Codec Set: 7

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

4.3. 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: Engage CTI Link
```

5. Configure Avaya Aura™ Application Enablement Services

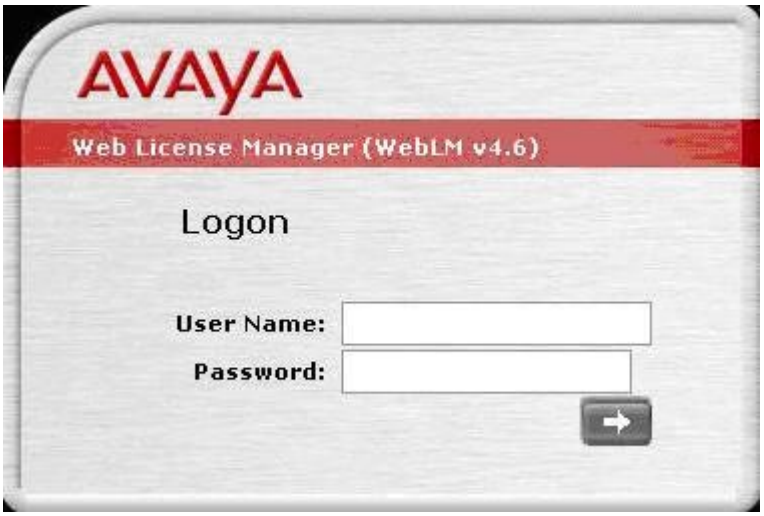
This section provides the procedures for configuring Avaya Aura™ Application Enablement Services. The procedures include the following areas:

- Verify TSAPI license
- Launch OAM interface
- Administer TSAPI link
- Disable security database
- Restart TSAPI service
- Obtain Tlink name
- Administer Engage user

5.1. Verify TSAPI License

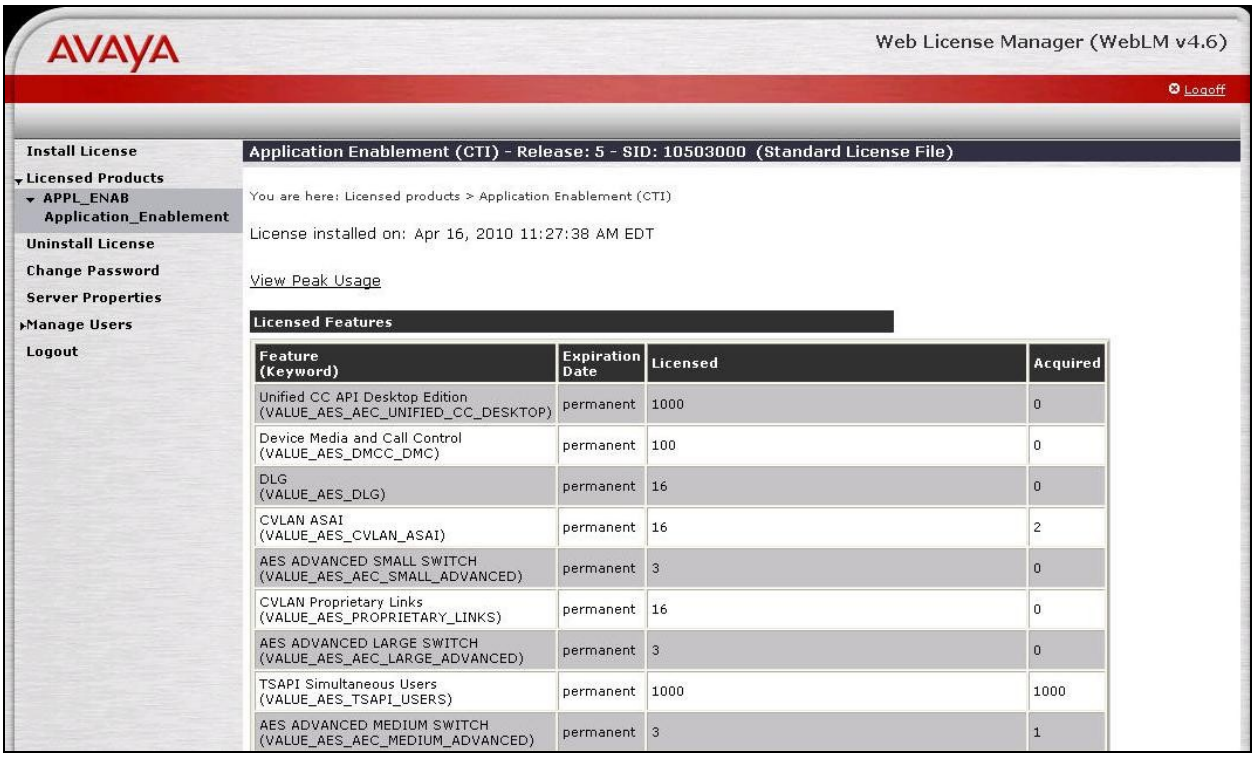
Access the Web License Manager interface by using the URL "https://ip-address/WebLM/index.jsp" in an Internet browser window, where "ip-address" is the IP address of the Application Enablement Services server.

The **Web License Manager** screen is displayed. Log in using the appropriate credentials.



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

Verify that there are sufficient licenses for **TSAPI Simultaneous Users**, as shown below.

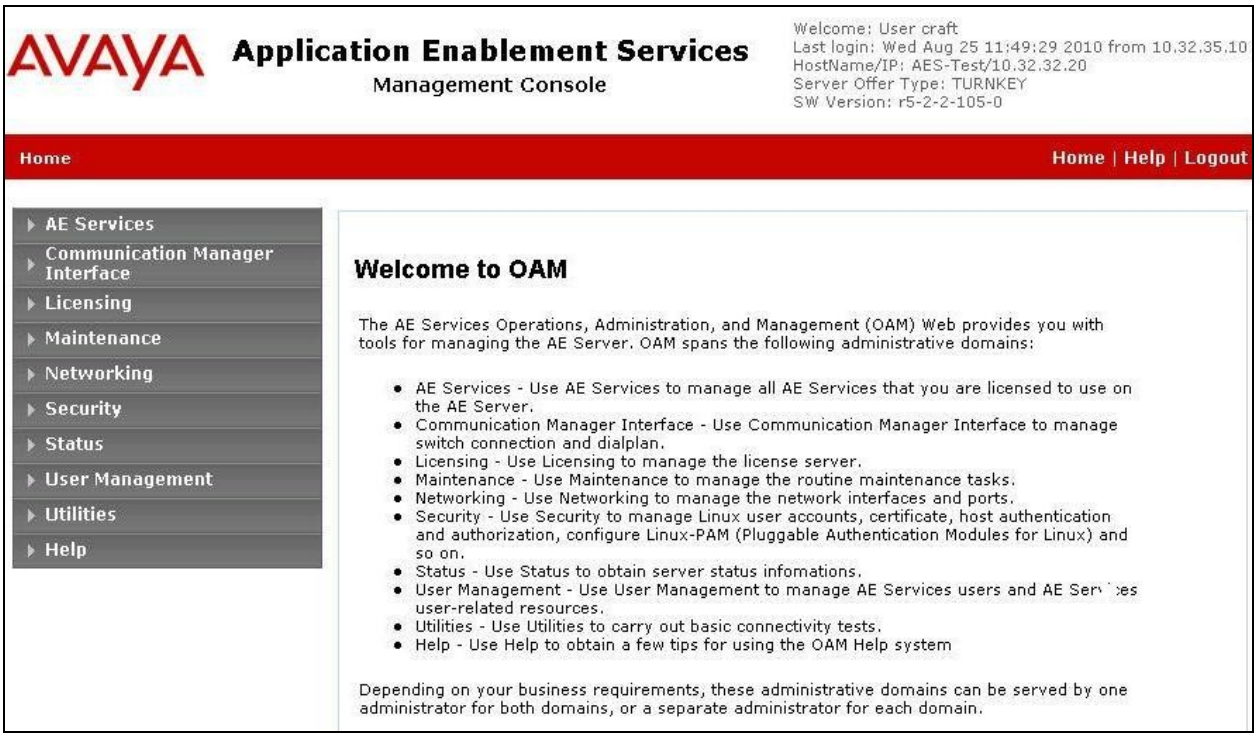


5.2. Launch OAM Interface

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

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

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

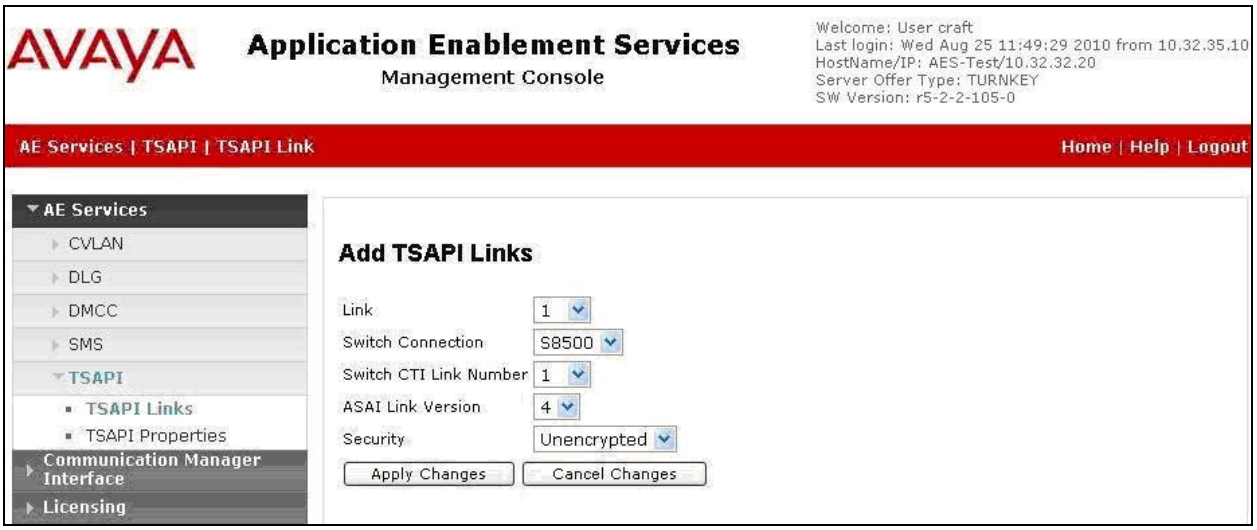


5.3. Administer TSAPI Link

To administer a TSAPI link, select **AE Services > TSAPI > TSAPI Links** from the left pane. 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 "S8500" is selected. For **Switch CTI Link Number**, select the CTI link number from **Section 4.3**. Retain the default values in the remaining fields, and click **Apply Changes**.

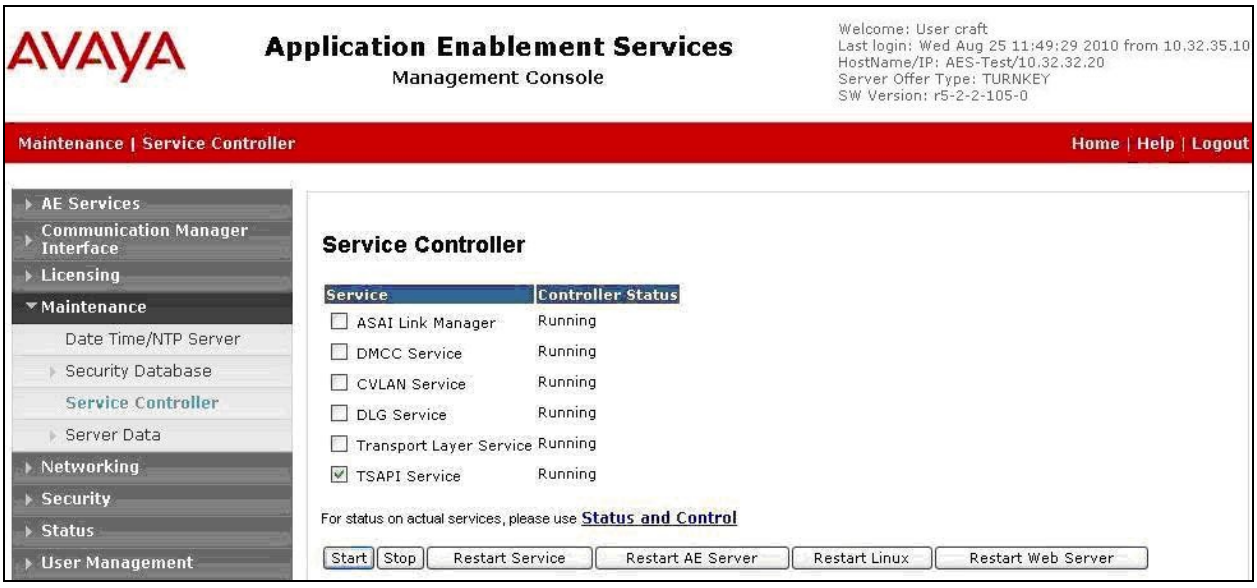


5.4. Disable Security Database

Select **Security > Security Database > Control** from the left pane, to display the **SDB Control for DMCC and TSAPI** screen in the right pane. Uncheck **Enable SDB TSAPI Service, JTAPI and Telephony Service**, and click **Apply Changes**.

5.5. Restart TSAPI Service

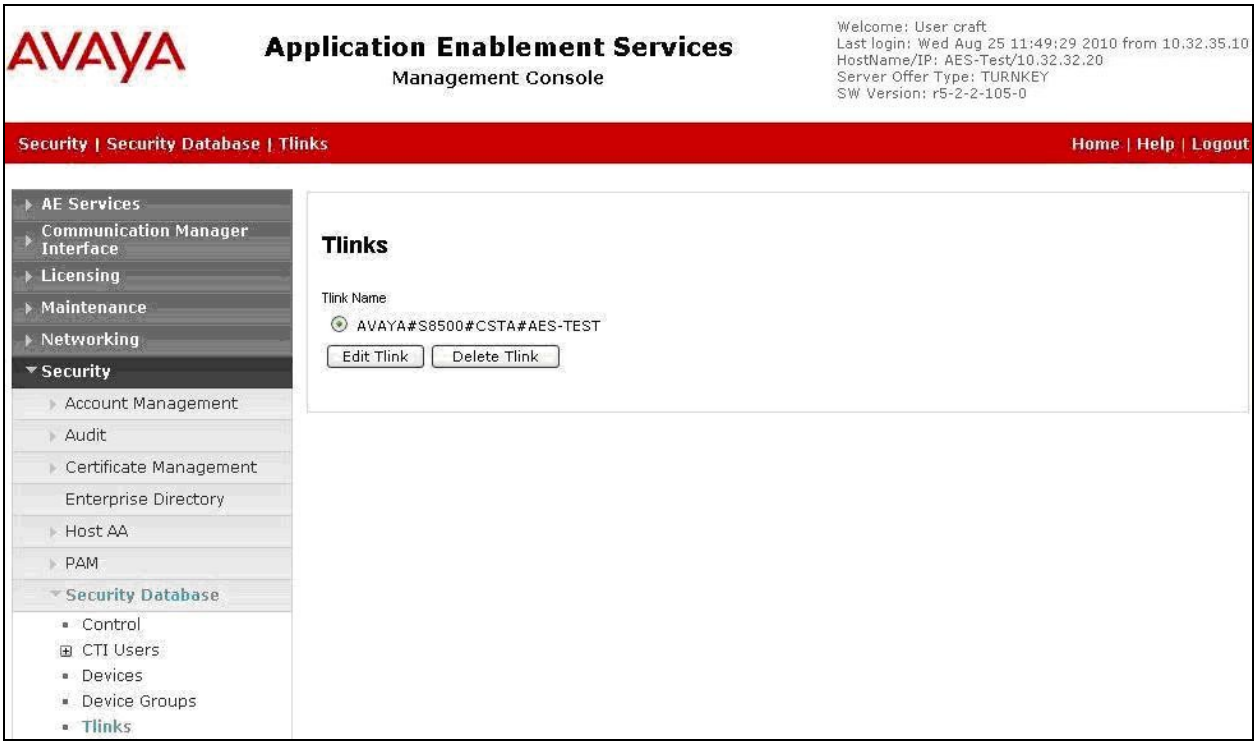
Select **Maintenance > Service Controller** from the left pane, to display the **Service Controller** screen in the right pane. Check the **TSAPI Service**, and click **Restart Service**.



5.6. Obtain Tlink Name

Select **Security > Security Database > Tlinks** from the left pane. The **Tlinks** screen shows a listing of the Tlink names. A new Tlink name is automatically generated for the TSAPI service. Locate the Tlink name associated with the relevant switch connection, which would use the name of the switch connection as part of the Tlink name. Make a note of the associated Tlink name, to be used later for configuring TelStrat Engage.

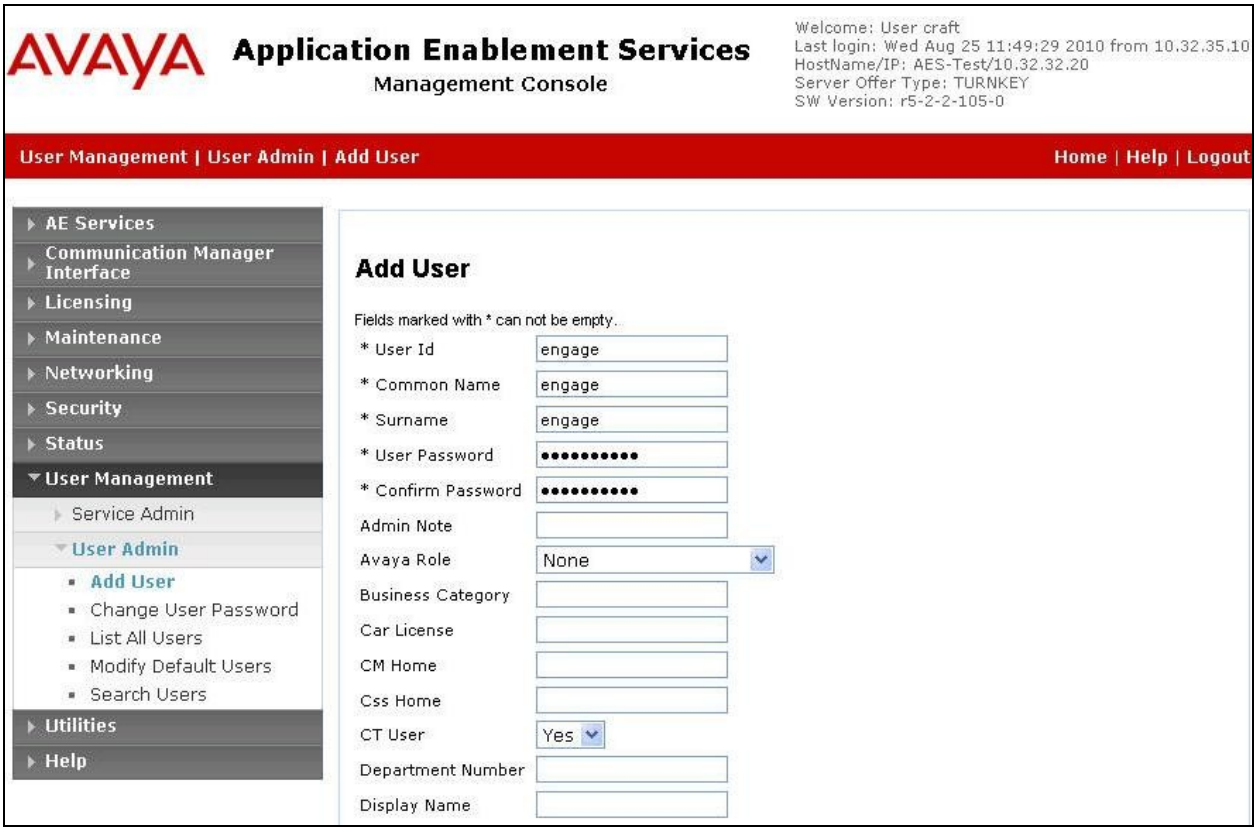
In this case, the associated Tlink name is "AVAYA#**S8500**#CSTA#AES-TEST". Note the use of the switch connection "S8500" from **Section 5.3** as part of the Tlink name.



5.7. Administer Engage 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 values in the remaining fields. Click **Apply** at the bottom of the screen (not shown below).



6. Configure Avaya 9600 Series IP Telephones

This section provides the procedures for configuring Avaya 9600 Series IP Telephones. The procedures include the following areas:

- Administer phone parameters
- Obtain MAC addresses
- Reboot telephones

6.1. Administer Phone Parameters

From the appropriate HTTP server serving the 96xx IP Telephones, locate the **46xxsettings.txt** file. Navigate to the relevant phone parameters section, in this case **SETTINGS9630**.

Under the **WML BROWSER SETTINGS** subsection, set the **TPSLIST**, **SUBSCRIBELIST**, and **WMLHOME** parameter as shown below, where "10.32.35.190" is the IP address of the TelStrat Engage server running the Web Server component.

Repeat this section for all relevant 96xx IP Telephone types. In the compliance testing, the 9630 and 9640 IP Telephones were used for testing the activation/deactivation of on-demand call recording

```
##############################################################
#
# SETTINGS9630
#
         .
         .
#################  WML BROWSER SETTINGS  ##################
##
## The WMLHOME setting is used to enable and
## administer the 'Web' Application.
##
## The WMLIDLEURI setting acts as an idle screen when the
## phone has been idle (see WMLIDLETIME value). By default
## this URL is NULL ("") and this screen is not activated.
##
         .
         .
## SET WMLHOME http://support.avaya.com/elmodocs2/avayaip/4620/home.wml
## SET WMLIDLEURI http://support.avaya.com/elmodocs2/avayaip/4620/idle.wml
##

SET TPSLIST 10.32.35.190
SET SUBSCRIBELIST http://10.32.35.190/EngageOnDemandAvayaPhoneServices/TelStratsubscribe.aspx
SET WMLHOME http://10.32.35.190/EngageOnDemandAvayaPhoneServices/TelStrat.aspx
```

6.2. Obtain MAC Addresses

From each 96xx IP Telephone, press the **MENU** button to display the **Menu** screen (not shown).

From the **Menu** screen, navigate to **Network Information** > **Miscellaneous** to display the **Miscellaneous** screen (not shown).

From the **Miscellaneous** screen, page down as necessary to display the **MAC** parameter (not shown).

Make a note of the **MAC** address, which will be used later to configure TelStrat Engage. In the compliance testing, the MAC addresses associated with the two agent telephones were "00040DEABB36" and "00040DECB8F2".

Repeat this section for all 96xx IP Telephones used by the agents in **Section 2**.

6.3. Reboot Telephones

After the TelStrat Engage server has been configured in **Section 7**, manually reboot the 96xx IP Telephones to pick up the new phone settings.

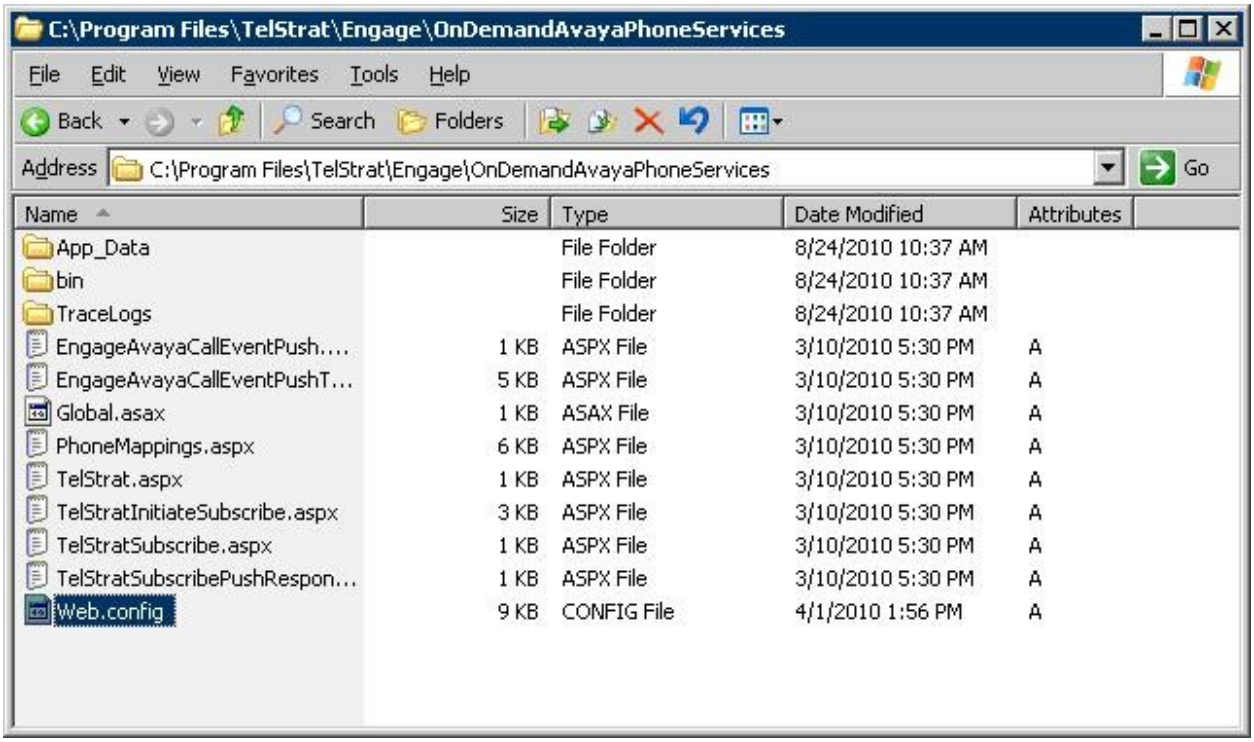
7. Configure TelStrat Engage

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

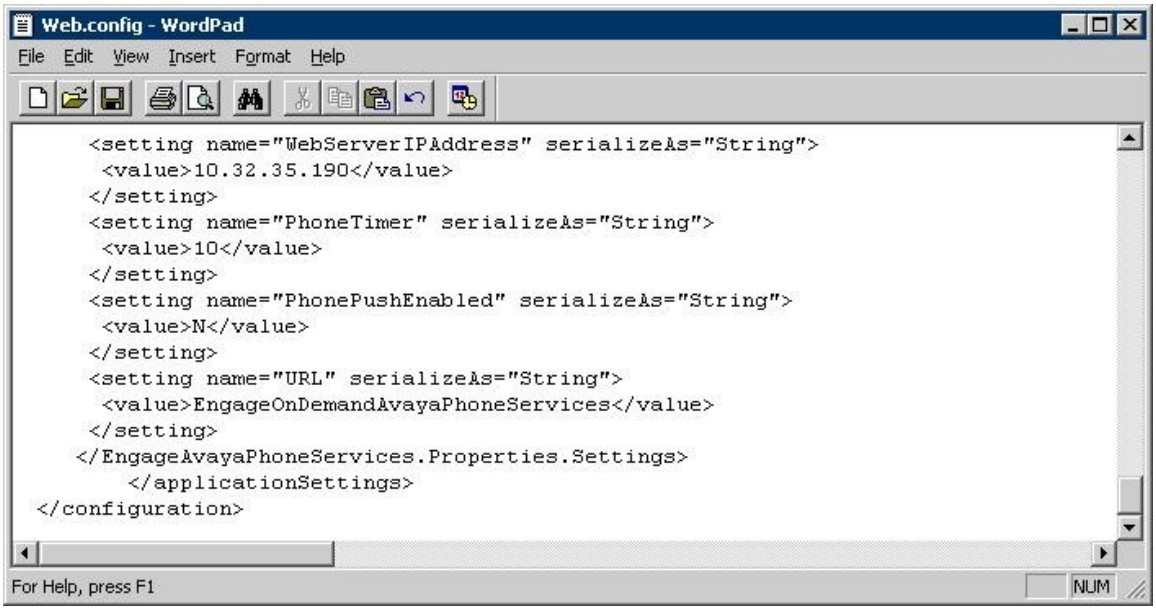
- Administer Web.config
- Administer OnDemand
- Administer TSAPI
- Administer ACD groups
- Administer device port mappings

7.1. Administer Web.config

From the Engage server, navigate to the **C:\Program Files\TelStrat\Engage\ OnDemandAvayaPhoneServices** directory to locate the **Web.config** file shown below.



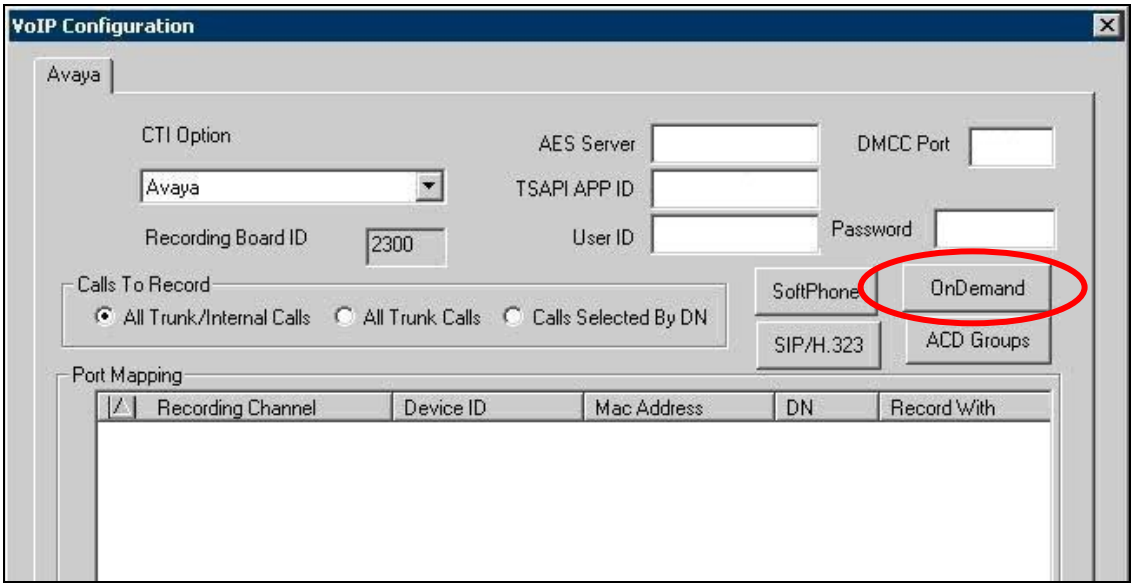
Open the **Web.config** file with the Windows WordPad application. Scroll down to the bottom of the file. For **WebServerIPAddress**, enter the IP address of the Engage server running the Web Server component.



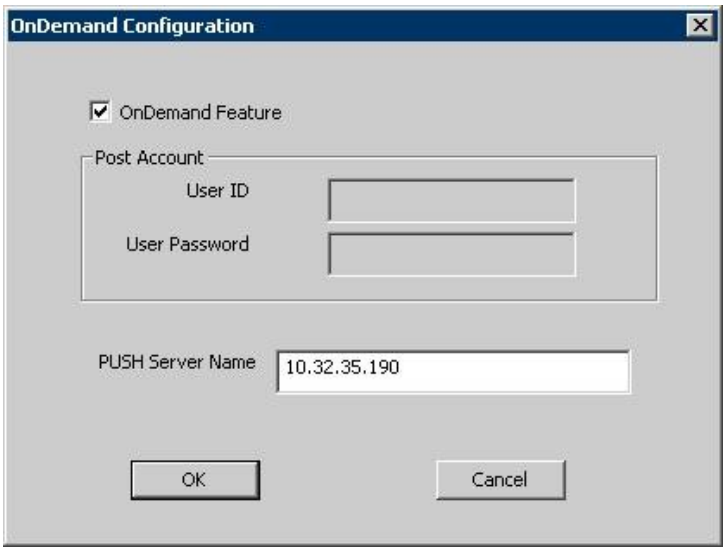
7.2. Administer OnDemand

From the Engage server, right-click on the **VoIP Engine Server** icon from the system tray shown below, and select **Config**.

The **VoIP Configuration** screen is displayed. Click **OnDemand**.



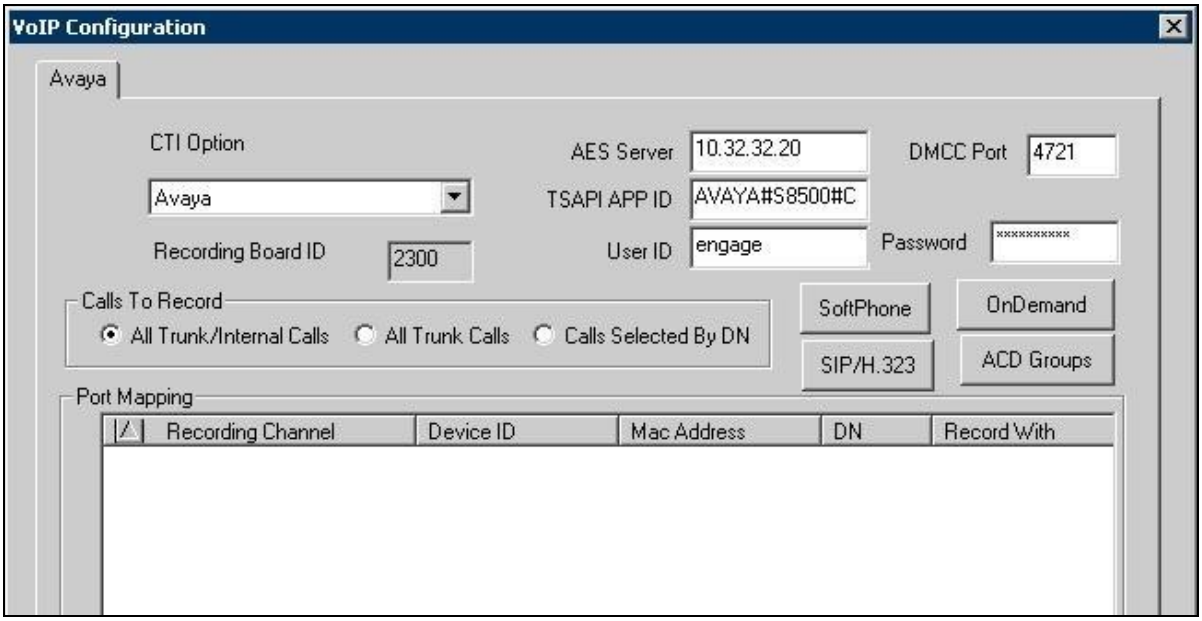
The **OnDemand Configuration** screen is displayed. Check **OnDemand Feature**. For **PUSH Server Name**, enter the IP address of the Engage server running the Web Server component.



7.3. Administer TSAPI

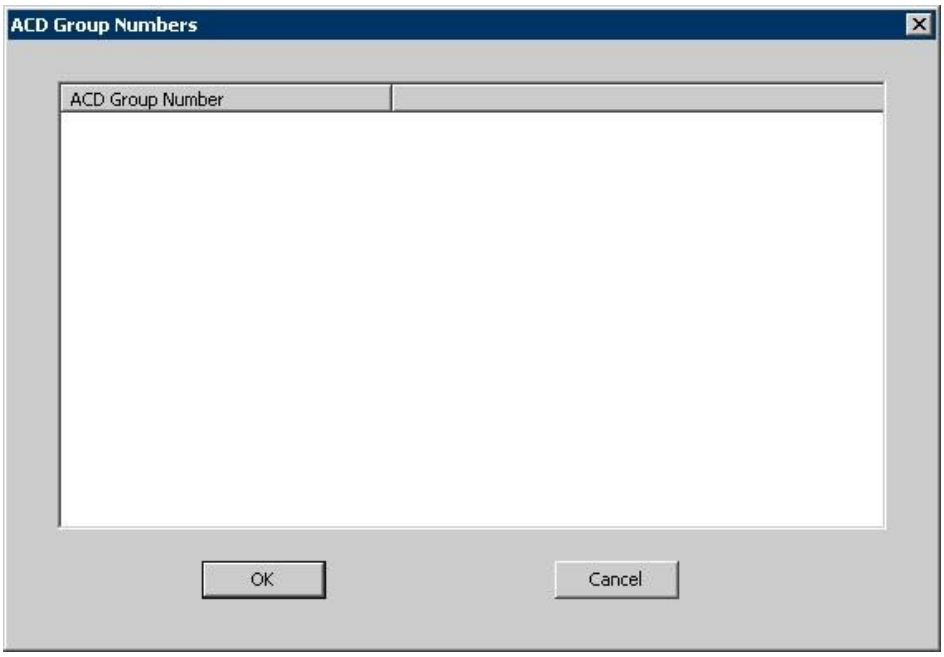
The **VoIP Configuration** screen is displayed again. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **AES Server:** The IP address of the Application Enablement Services server.
- **DMCC Port:** "4721"
- **TSAPI APP ID:** The Tlink name from **Section 5.6**.
- **User ID:** The Engage user credentials from **Section 5.7**.
- **Password:** The Engage user credentials from **Section 5.7**.

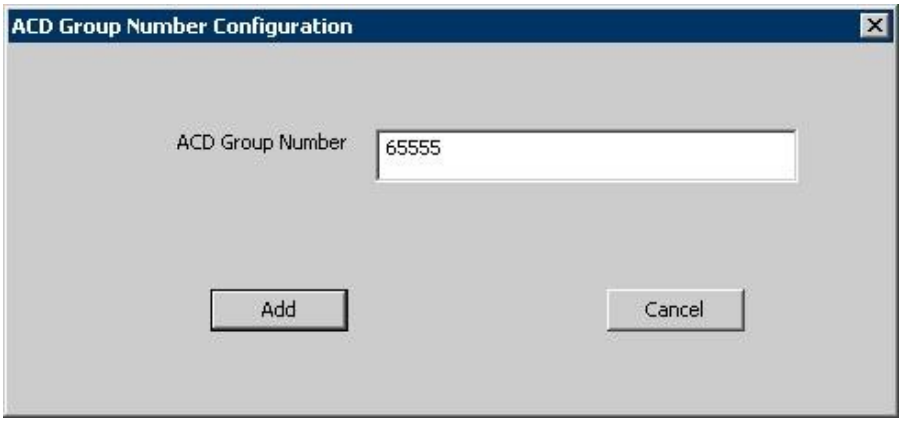


7.4. Administer ACD Groups

From the **VoIP Configuration** screen shown in **Section 7.3**, click on **ACD Groups** to display the **ACD Group Numbers** screen below. Right click in the empty pane and select **Add**.



The **ACD Group Number Configuration** screen is displayed next. Enter the first skill group extension from **Section 2**. Repeat this section to add all remaining skill groups.

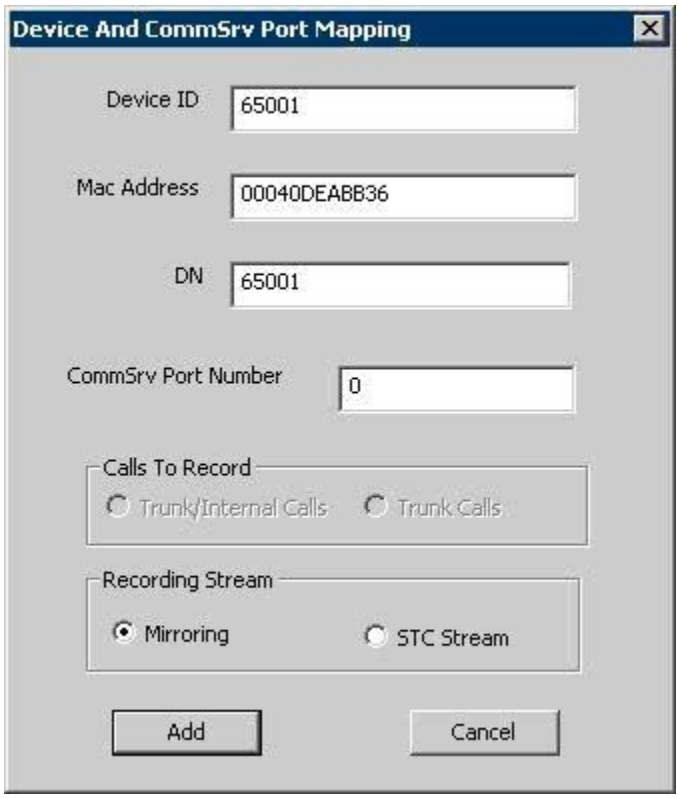


7.5. Administer Device Port Mappings

From the **VoIP Configuration** screen shown in **Section 7.3**, right-click in the empty pane and select **ADD**. The **Device And CommSrv Port Mapping** screen is displayed.

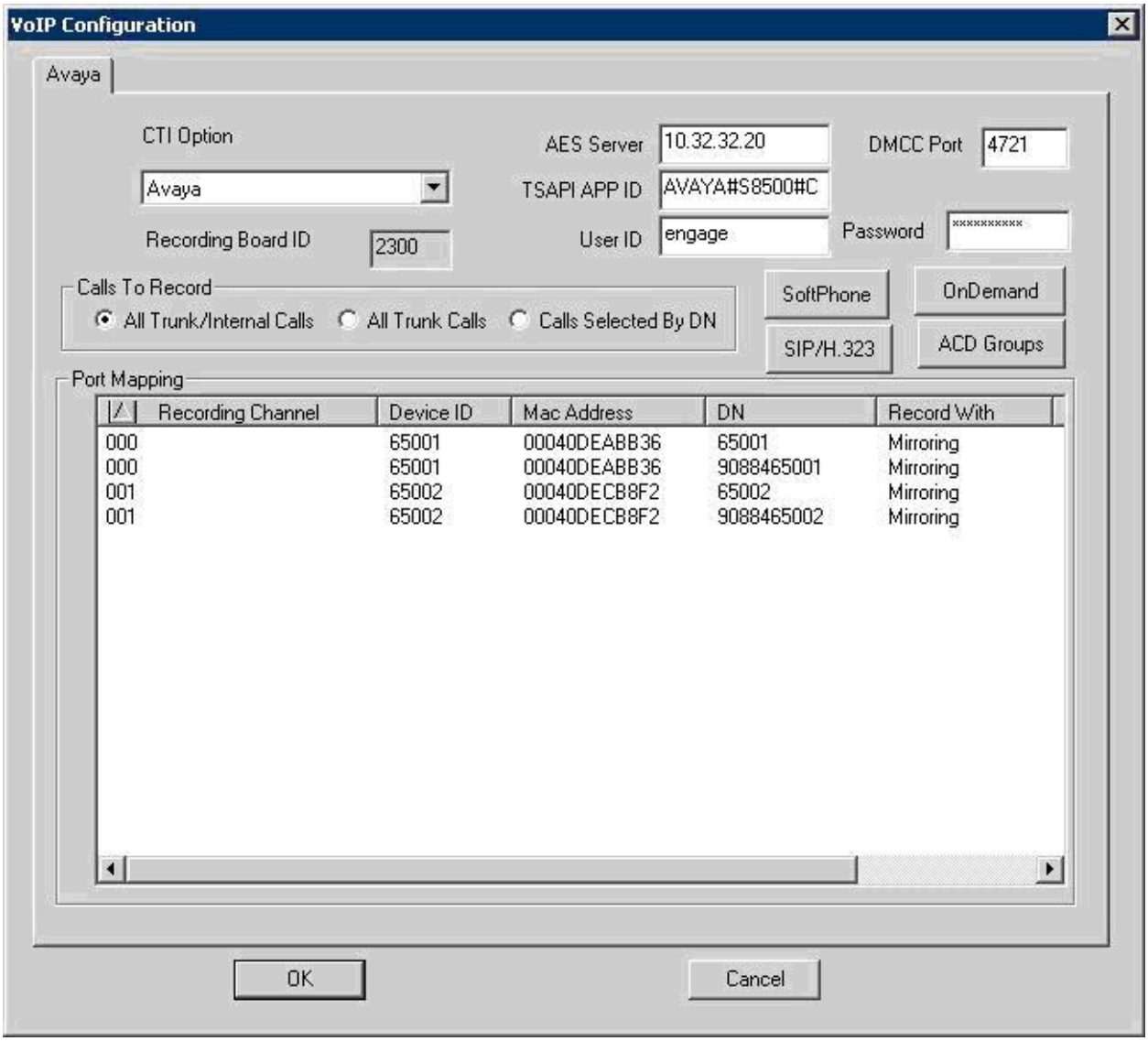
For **Device ID**, enter the first agent telephone extension from **Section 2**. Select the **Mirroring** radio button to enable the **Mac Address** field. For **Mac Address**, enter the MAC address of the first agent telephone from **Section 6.2**. For **CommSrv Port Number**, enter an available port, which begins with "0".

For **DN**, enter the dialed number to reach the agent directly for personal calls (non-ACD). For calls originated inside the switch, this is usually the agent telephone extension, depending on the switch configuration. For calls originated outside the switch, the dialed number usually contains the dial plan prefix. Note that a device port mapping needs to be created for every possible dialed number that can reach the agent directly.



Repeat this section to create device port mappings for all agents in **Section 2**.

In the compliance testing, two entries were created for each agent. The incoming trunk calls directly to the agent will have a prefix of "90884", as shown below.



8. General Test Approach and Test Results

The feature test cases were performed both automatically and manually. Upon start of the TelStrat Engage application, the application automatically queries for the skill group and agent telephone extensions and requests monitoring using Avaya TSAPI.

For the manual part of the testing, each call was handled manually with activation/deactivation of call recording initiated from the agent telephone and generation of unique audio content. 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 TelStrat Engage.

The verification of tests included using the TelStrat Engage logs for proper message exchanges, and using the Engage Client application for proper logging and playback of the calls.

All test cases were executed and passed. The following were the observations on TelStrat Engage from the compliance testing:

- In the attended transfer scenario, the recording for the transfer-from agent includes the conversation up to the start of transfer. The recording for the transfer-to agent contains either the conversation with the transfer-from agent or the conversation with the customer, depending on when the recording was activated from the agent telephone.

- For calls established before a link outage and stayed up during and after the link outage, the recordings will only contain the conversation up to the link disruption.

- The initial access to the Browser page after a link interruption will display the "Browser page cannot be rendered" message. The workaround is to press the Home button.

9. 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, Avaya 9600 Series IP Telephones, and TelStrat Engage.

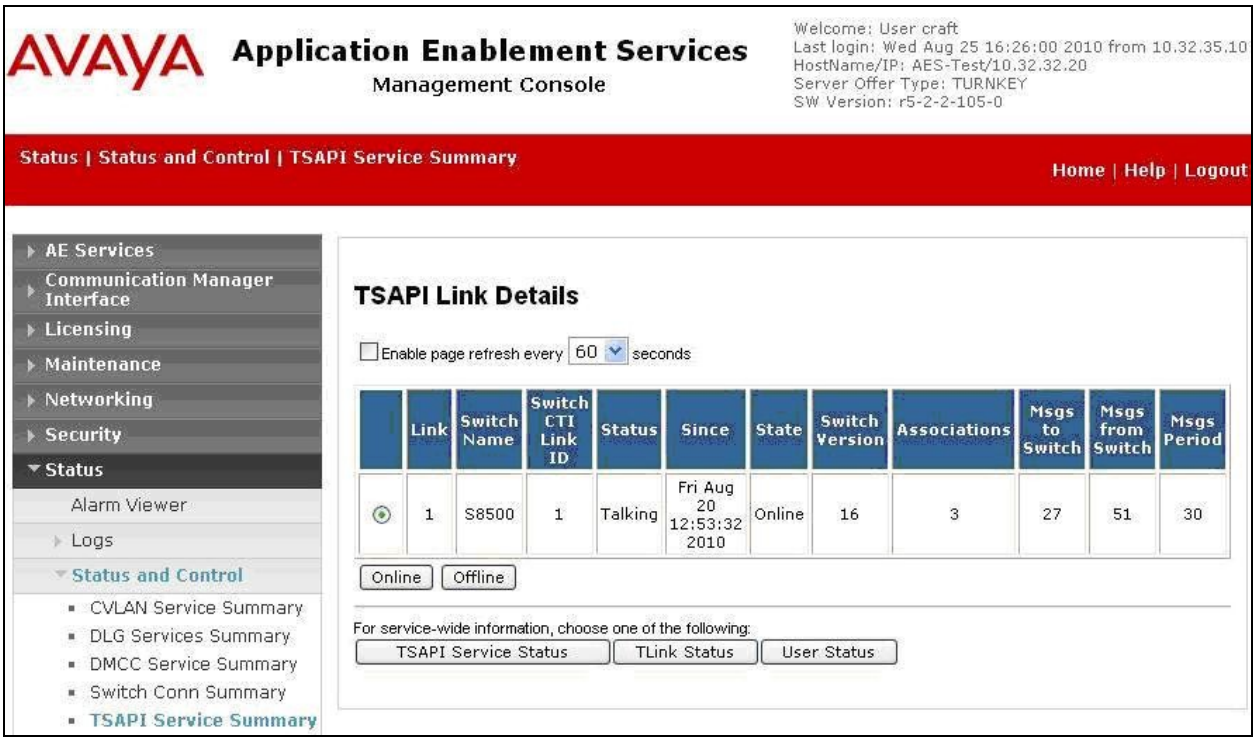
9.1. Verify Avaya Aura™ Communication Manager

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 4.3**, 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    AES-Test         established   51       27
```

9.2. Verify Avaya Aura™ Application Enablement Services

On Application Enablement Services, verify the status of the TSAPI link by selecting **Status > Status and Control > TSAPI Service Summary** from the left pane. The **TSAPI Link Details** screen is displayed. Verify the **Status** is "Talking" for the TSAPI link administered in **Section 5.3**, as shown below.



9.3. Verify Avaya 9600 Series IP Telephones

Log an agent into the skill group to answer an ACD call. From the agent's 96xx IP Telephone, press the **MENU** button to display the **Menu** screen (not shown). Verify that the **Browser** option is included in the listing.

Press **Browser**, and verify that a listing of recording selections is displayed (not shown). Press **Conversation Save Off**, and verify that the display is updated to show **Conversation Save On** (not shown), which indicates the current conversation will be saved.

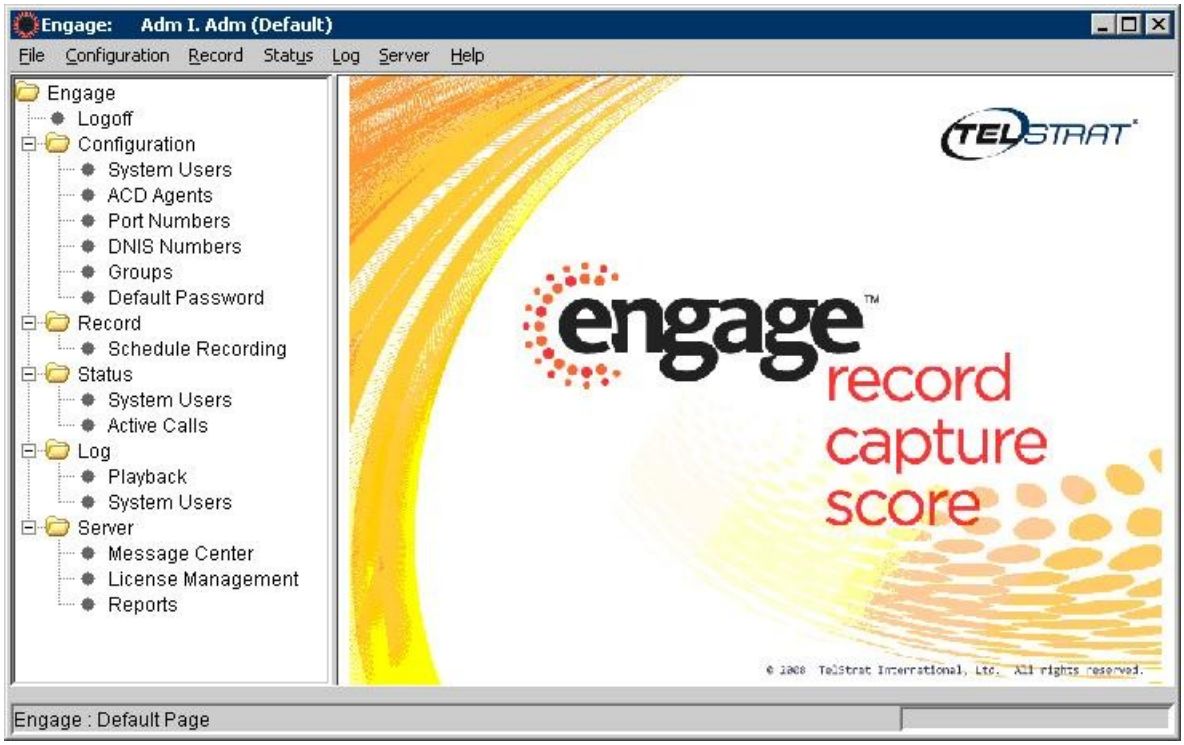
Complete the ACD call.

9.4. Verify TelStrat Engage

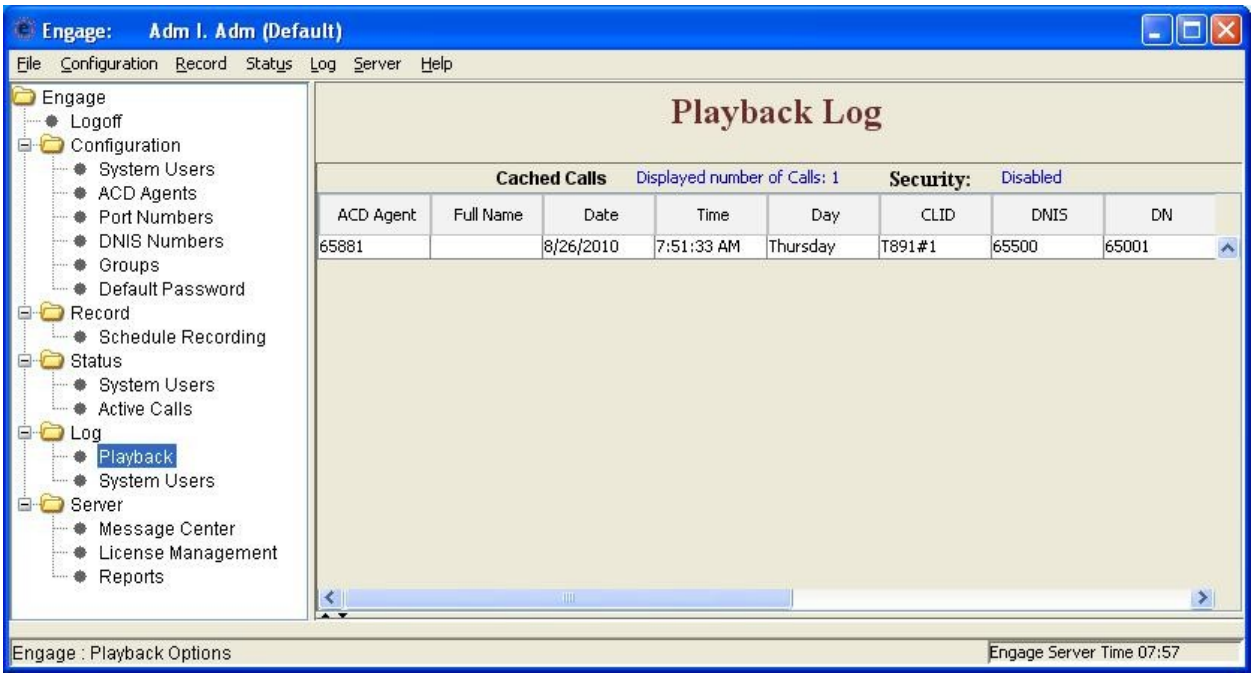
From the PC running the Engage Client application, select **Start > All Programs > TelStrat Engage > Engage Client** to launch the application.

The **Engage: Logon Dialog** screen is displayed. Enter the appropriate credentials.

The **Engage** screen below is displayed. Select **Engage > Log > Playback** from the left pane.



The **Engage** screen is updated with a list of the call recordings. Verify that there is an entry reflecting the last call, with proper values in the relevant fields as shown below. Double click on the entry and verify that the call recording is played back.



10. Conclusion

These Application Notes describe the configuration steps required for TelStrat Engage to successfully interoperate with Avaya Aura™ Communication Manager using Avaya Aura™ Application Enablement Services and Avaya 9600 Series IP Telephones. All feature and serviceability test cases were completed with observations noted in **Section 8**.

11. 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 5.2, Document ID 02-300357, Issue 11, November 2009, available at http://support.avaya.com.

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4. *Engage Contact Center Suite Installation Guide*, Product Release 3.2, March 2010, available on the installation CD.

5. *Engage Contact Center System Administration Guide*, Product Release 3.2, March 2010, available on the installation CD.

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