Avaya Solution & Interoperability Test Lab

Application Notes for Red Box Quantify Recording Suite with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services 6.3 using Multiple Registration – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Red Box Quantify Recording Suite to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services 6.3 using Multiple Registration. Red Box Quantify Recording Suite is a call recording solution.

In the compliance testing, Red Box Quantify Recording Suite used the Device, Media, and Call Control interface from Avaya Aura® Application Enablement Services to monitor skill group and agent station extensions on Avaya Aura® Communication Manager, and capture the media associated with the monitored agents for call recording using the Multiple Registration method.

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 Red Box Quantify Recording Suite to interoperate with Avaya Aura® Communication Manager using Avaya Aura® Application Enablement Services 6.3. Red Box Quantify Recording Suite is a call recording solution.

In the compliance testing, Red Box Quantify Recording Suite used the Device, Media, and Call Control (DMCC) interface from Avaya Aura® Application Enablement Services to monitor skill group and agent station extensions on Avaya Aura® Communication Manager, and used the Multiple Registration feature via the DMCC interface to capture media associated with the monitored agent stations for call recording.

The DMCC interface is used by Red Box Quantify Recording Suite to monitor the skill group and agent stations to be recorded, and to register a virtual IP softphone against each monitored agent station to pick up the media for call recording. When there is an active call at the monitored agent station, Red Box Quantify Recording Suite is informed of the call via event reports from the DMCC interface, and starts the call recording by using the media from the associated virtual IP softphone. The DMCC 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 Quantify Recording Suite, the application automatically uses DMCC to register the virtual IP softphones to Communication Manager, and to request monitoring on the skill group and agent station extensions.

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 connection to Quantify Recording Suite.

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

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on Quantify Recording Suite:

- Use of DMCC registration services to register and un-register the virtual IP softphones.
- Use of DMCC monitoring services to monitor skill group, agent stations, and virtual IP softphones.
- Use of DMCC call control services to activate Single Step Conference for the virtual IP softphones and to obtain the media for call recording.
- Proper recording, logging, and playback of calls for scenarios involving inbound, outbound, internal, external, ACD, non-ACD, hold, reconnect, simultaneous calls, simultaneous agents, conference, and transfer.

The serviceability testing focused on verifying the ability of Quantify Recording Suite to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet connection to Quantify Recording Suite.

2.2. Test Results

All test cases were executed, and the following were observations on Quantify Recording Suite:

- Only one skill group can be monitored by Quantify Recording Suite. Agents that do not belong to the monitored skill group can still be monitored with ACD calls recorded, and the recording entries for those calls will display agent station extension instead of agent login ID for Channel Name.
- Non-ACD calls to the agents are recorded and reported using the agent ID extension in Channel Name. The Called Number from those recording entries can be used to identify the non-ACD calls.
- For the multiple calls at an agent scenario, when the agent goes back and forth between two calls using hold and resume, there is a recording entry for each call, and the recording entries contain audio from the other call during the held period.

2.3. Support

Technical support on Quantify Recording Suite can be obtained through the following:

- **Phone:** +44 (0) 115 9377100
- **Email:** support@redboxrecorders.com
- **Web :** www.redboxrecorders.com

3. Reference Configuration

Quantify Recording Suite can be configured on a single server or with components distributed across multiple servers. The compliance test used a single server configuration.

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, Quantify Recording Suite monitored the first skill group and two agent station extensions shown in the table below.

Device Type	Extension
VDN	48001, 48002
Skill Group	48101, 48102
Supervisor	45000
Agent ID	45881, 45882
Agent Station	45001, 45002

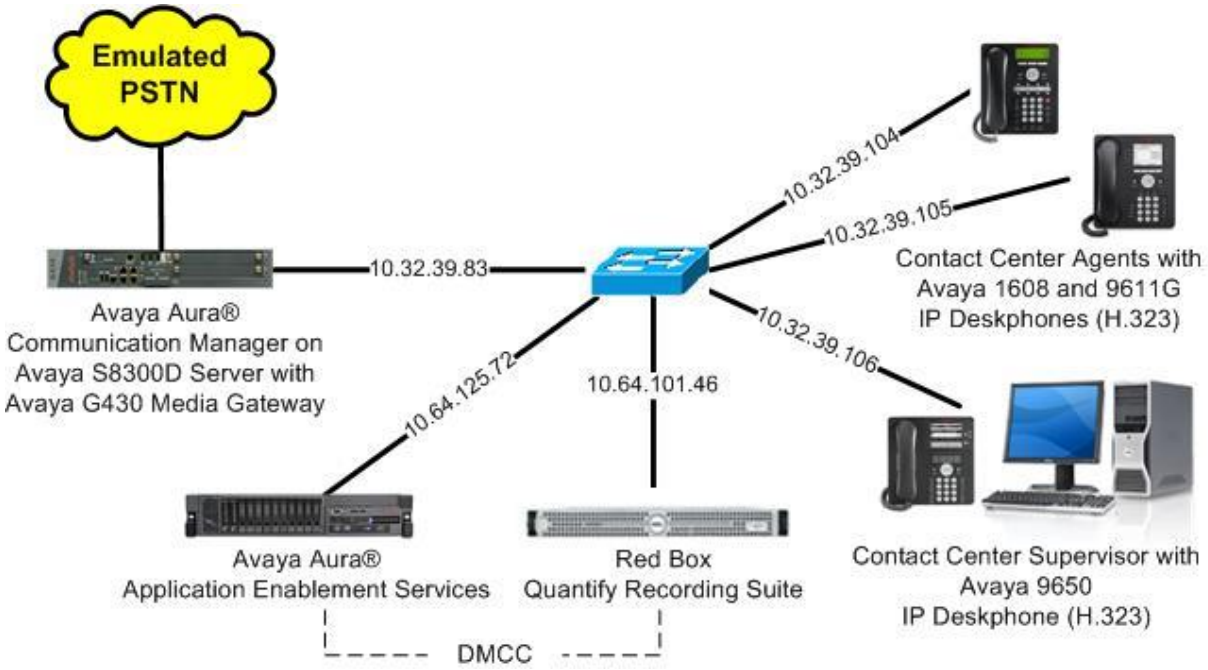


Figure 1: Compliance Testing Configuration

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communication Manager on Avaya S8300D Server with Avaya G430 Media Gateway	6.3.2 (R016x.03.0.124.0-21053)
Avaya Aura® Application Enablement Services	6.3.1 (6.3.1.0.19-0)
Avaya 1608 IP Deskphone (H.323)	1.340B
Avaya 9611G IP Deskphone (H.323)	6.3037
Avaya 9650 IP Deskphone (H.323)	3.210A
Red Box Quantify Recording Suite on Windows 2008 Server R2 Enterprise • Avaya DMCC .NET (ServiceProvider.dll)	3A SP2 (Quantify3A_SP2_Build_340) SP 1 6.1.0.37

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 agent stations
- Administer class or restriction

5.1. Verify License

Log in to the System Access Terminal to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the "display system-parameters customer-options" command to verify that the **Computer Telephony Adjunct Links** customer option is set to "y" on **Page 3**. If this option is not set to "y", then contact the Avaya sales team or business partner for a proper license file.

```
display system-parameters customer-options                    Page   3 of  11
                              OPTIONAL FEATURES

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

5.2. Administer CTI Link

Add a CTI link using the "add cti-link n" command, where "n" is an available CTI link number. Enter an available extension number in the **Extension** field. Note that the CTI link number and extension number may vary. Enter "ADJ-IP" in the **Type** field, and a descriptive name in the **Name** field. Default values may be used in the remaining fields.

```
add cti-link 1                                                Page   1 of   3
                                   CTI LINK
 CTI Link: 1
Extension: 40001
     Type: ADJ-IP
                                                                  COR: 1
     Name: AES CTI Link
```

5.3. Administer System Parameters Features

Use the "change system-parameters features" command to enable **Create Universal Call ID (UCID)**, which is located on **Page 5**. For **UCID Network Node ID**, enter an available node ID.

```
change system-parameters features                               Page   5 of  20
                        FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM PRINTER PARAMETERS
  Endpoint:               Lines Per Page: 60

SYSTEM-WIDE PARAMETERS
                                    Switch Name:
            Emergency Extension Forwarding (min): 10
          Enable Inter-Gateway Alternate Routing? n
Enable Dial Plan Transparency in Survivable Mode? n
                              COR to Use for DPT: station
                EC500 Routing in Survivable Mode: dpt-then-ec500
MALICIOUS CALL TRACE PARAMETERS
               Apply MCT Warning Tone? n   MCT Voice Recorder Trunk Group:
      Delay Sending RELease (seconds): 0
SEND ALL CALLS OPTIONS
     Send All Calls Applies to: station    Auto Inspect on Send All Calls? n
               Preserve previous AUX Work button states after deactivation? n
UNIVERSAL CALL ID
     Create Universal Call ID (UCID)? y    UCID Network Node ID: 1
```

Navigate to **Page 13**, and enable **Send UCID to ASAI**. This parameter allows for the universal call ID to be sent to Quantify Recording Suite.

```
change system-parameters features                               Page  13 of  20
                        FEATURE-RELATED SYSTEM PARAMETERS
 CALL CENTER MISCELLANEOUS
           Callr-info Display Timer (sec): 10
                        Clear Callr-info: next-call
        Allow Ringer-off with Auto-Answer? n

    Reporting for PC Non-Predictive Calls? n

            Agent/Caller Disconnect Tones? n
          Interruptible Aux Notification Timer (sec): 3
             Zip Tone Burst for Callmaster Endpoints: double

  ASAI
            Copy ASAI UUI During Conference/Transfer? y
       Call Classification After Answer Supervision? y
                                    Send UCID to ASAI? y
          For ASAI Send DTMF Tone to Call Originator? y
  Send Connect Event to ASAI For Announcement Answer? n
```

5.4. Administer Agent Stations

Use the "change station n" command, where "n" is the first agent station extension, in this case "45001".

Enable **IP SoftPhone**, to allow for a virtual IP softphone to be registered against the station. Note the **COR** number, to be used in the next section to configure the agent class of restriction.

```
change station 45991                                          Page   1 of   5
                                    STATION

Extension: 45001                        Lock Messages? n              BCC: 0
     Type: 1608                         Security Code: *               TN: 1
     Port: IP                         Coverage Path 1:                COR: 1
     Name: G430 Station #1            Coverage Path 2:                COS: 1
                                      Hunt-to Station:               Tests: y
STATION OPTIONS
                                         Time of Day Lock Table:
             Loss Group: 19         Personalized Ringing Pattern: 1
                                           Message Lamp Ext: 45001
           Speakerphone: 2-way          Mute Button Enabled? y
        Display Language: english          Expansion Module? n
 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

                                        Customizable Labels? Y
```

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

```
list station 45001 count 3

                                  STATIONS

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

45001         S00000  G430 Station #1                          1    1
               9608                        no                       1   1
45002         S00045  G430 Station #2                          1    1
               9611                        no                       1   1
```

5.5. Administer Class of Restriction

Enter the "change cor n" command, where "n" is the first class of restriction (COR) number assigned to the agents from **Section 5.4**. Set the **Can Be Service Observed** and **Can Be A Service Observer** fields to "y", as shown below. Note that these settings are required in order for Quantify Recording Suite to register the virtual IP softphones against the agent stations without use of passwords.

Repeat this section to administer all class of restriction numbers used by the agents. In the compliance testing, the same class of restriction number was assigned to all agent stations.

```
change cor 1                                                Page   1 of  23
                              CLASS OF RESTRICTION

               COR Number: 1
          COR Description:

                      FRL: 0                                APLT? y
  Can Be Service Observed? y           Calling Party Restriction: none
Can Be A Service Observer? y            Called Party Restriction: none
        Time of Day Chart: 1       Forced Entry of Account Codes? n
         Priority Queuing? n                Direct Agent Calling? n
     Restriction Override: none       Facility Access Trunk Test? n
     Restricted Call List? n                 Can Change Coverage? n
```

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
- Enable security database
- Restart services
- Administer Quantify user
- Administer ports

6.1. Launch OAM Interface

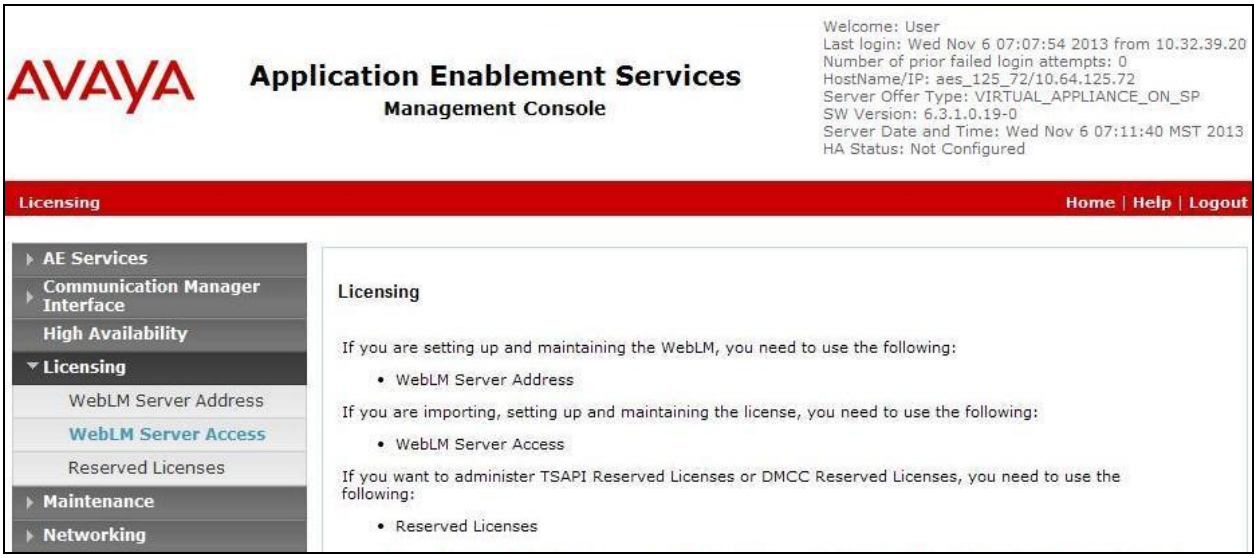
Access the OAM web-based interface by using the URL "https://ip-address" in an Internet browser window, where "ip-address" is the IP address of the Application Enablement Services server.

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

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

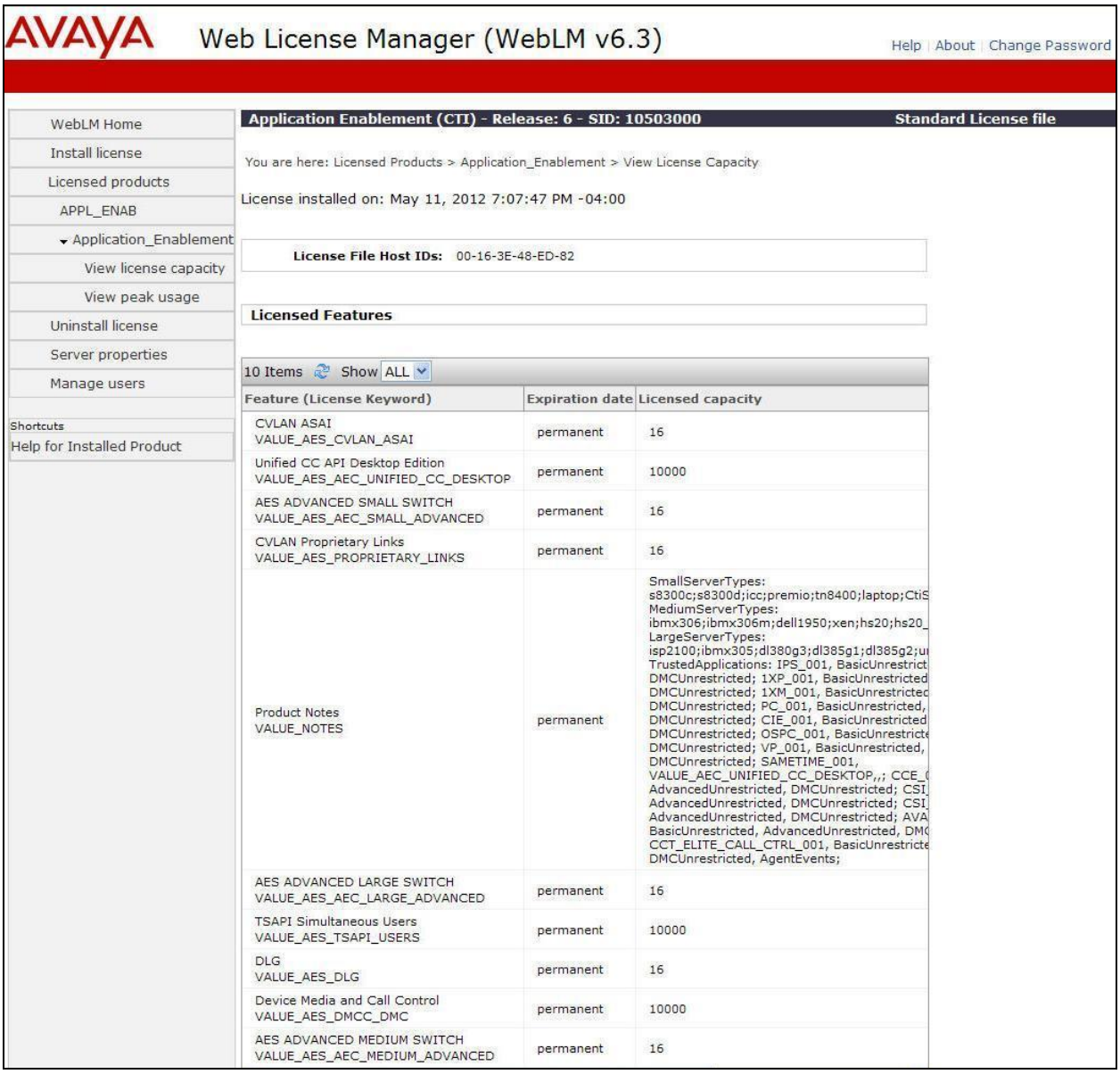
6.2. Verify License

Select **Licensing → WebLM Server Access** in the left pane, to display the **Web License Manager** pop-up screen (not shown), and log in using the appropriate credentials.



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

Verify that there are sufficient licenses for **TSAPI Simultaneous Users** and **Device Media and Call Control**, as shown below. Note that the TSAPI license is used for device monitoring, and the DMCC license is used for the virtual IP softphones.

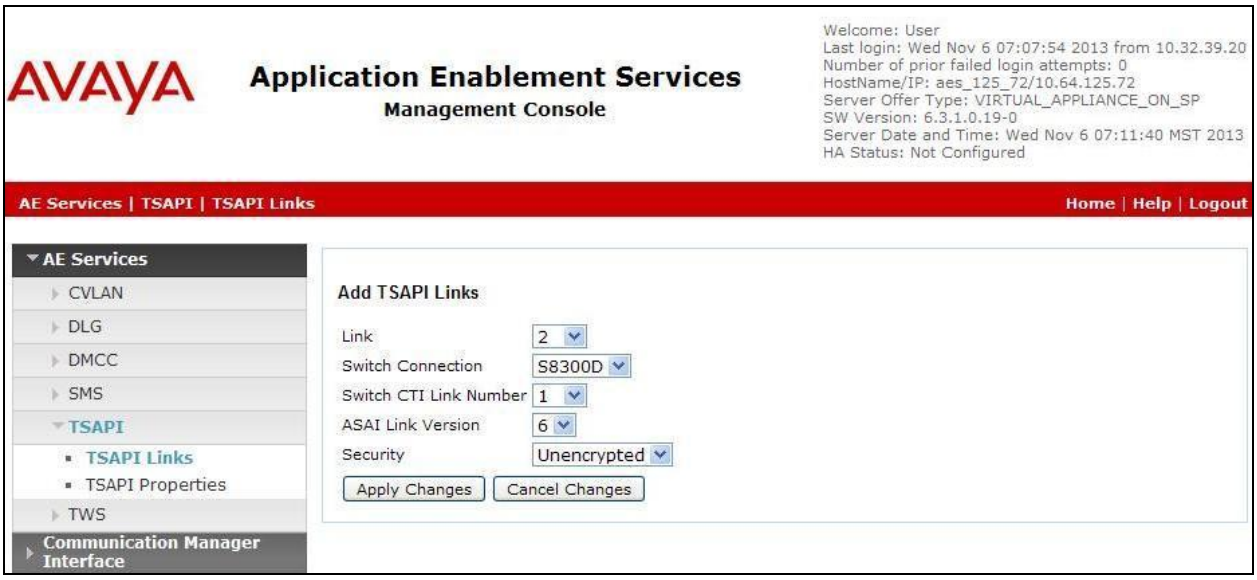


6.3. Administer TSAPI Link

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 "S8300D" is selected. For **Switch CTI Link Number**, select the CTI link number from **Section 5.2**. Retain the default values in the remaining fields.

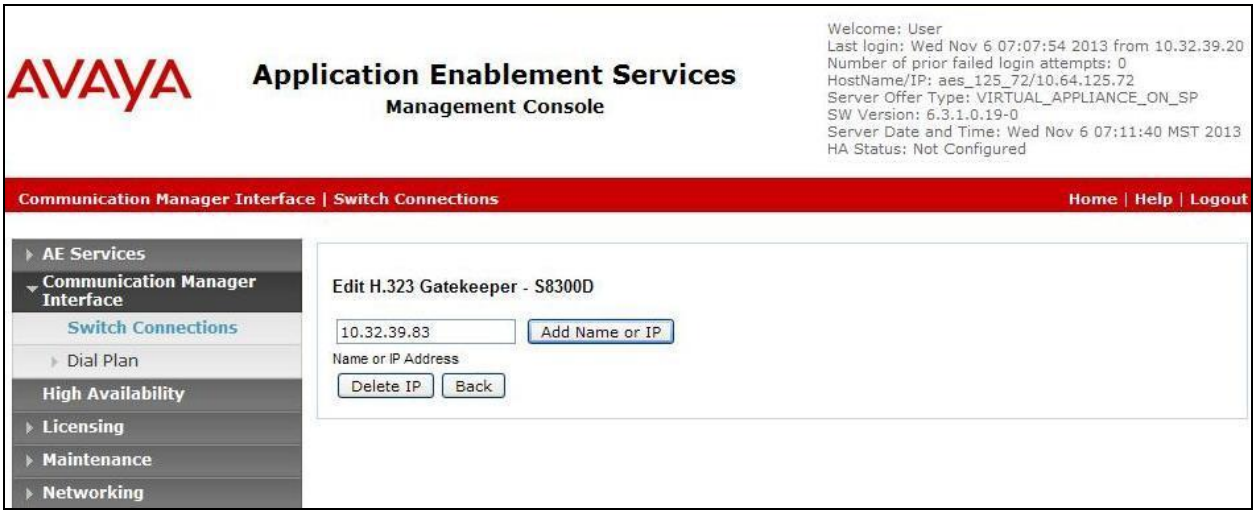


6.4. Administer H.323 Gatekeeper

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

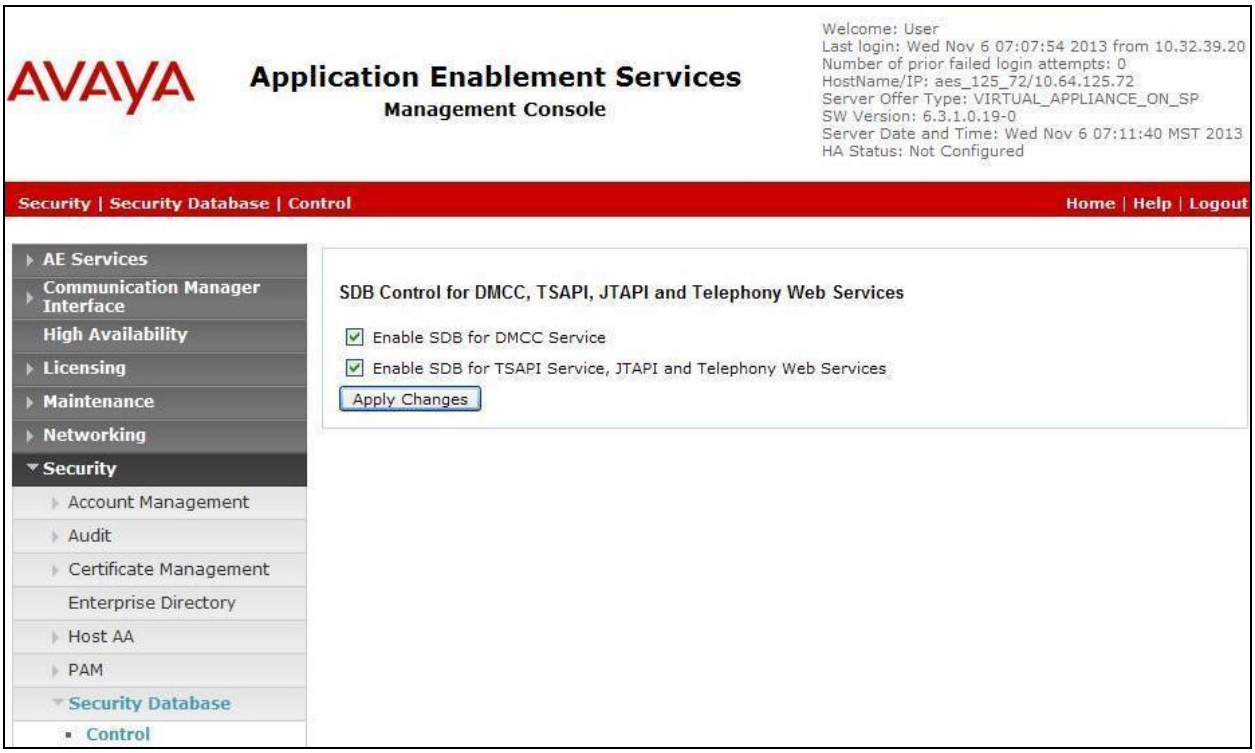
Locate the connection name associated with the relevant Communication Manager, in this case "S8300D", and select the corresponding radio button. Click **Edit H.323 Gatekeeper**.

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 "10.32.39.83" as shown below. Click **Add Name or IP**.



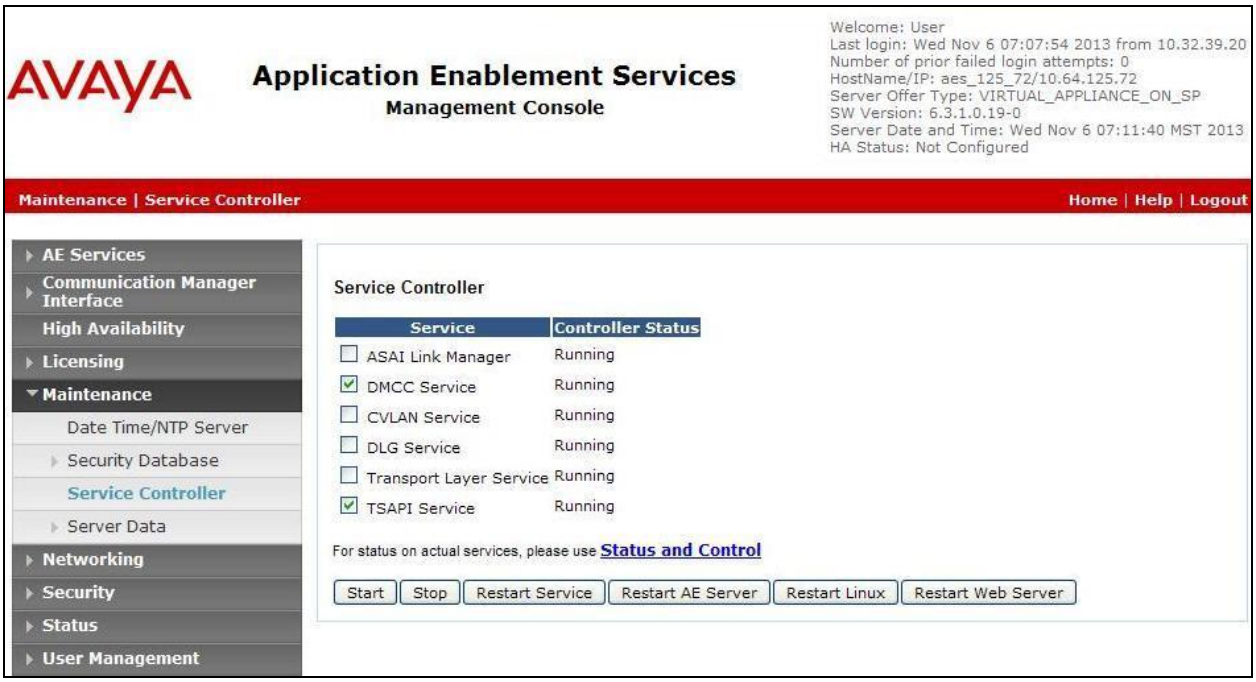
6.5. Enable Security Database

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. Check both fields below to enable use of SDB. Note that these settings are required in order for Quantify Recording Suite to register the virtual IP softphones against the agent station extensions without use of passwords.



6.6. Restart Services

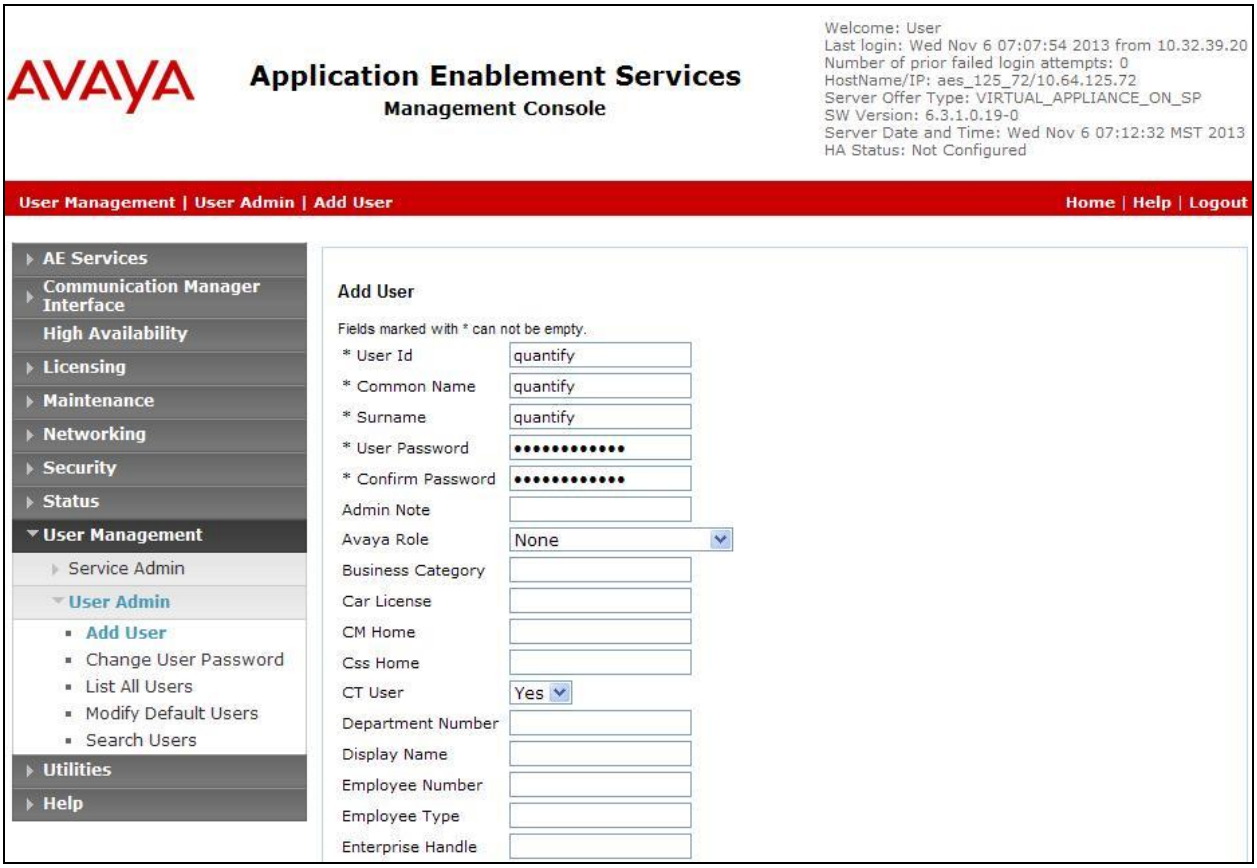
Select **Maintenance → Service Controller** from the left pane, to display the **Service Controller** screen in the right pane. Check **DMCC Service** and **TSAPI Service**, and click **Restart Service**.



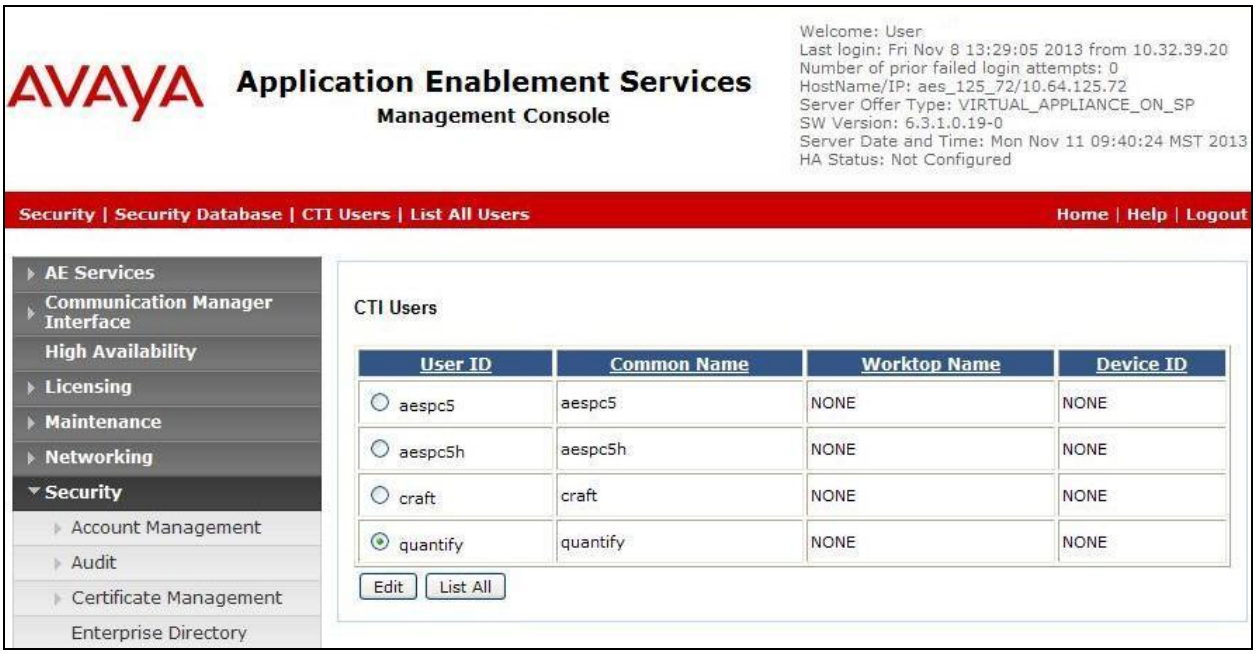
6.7. Administer Quantify User

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

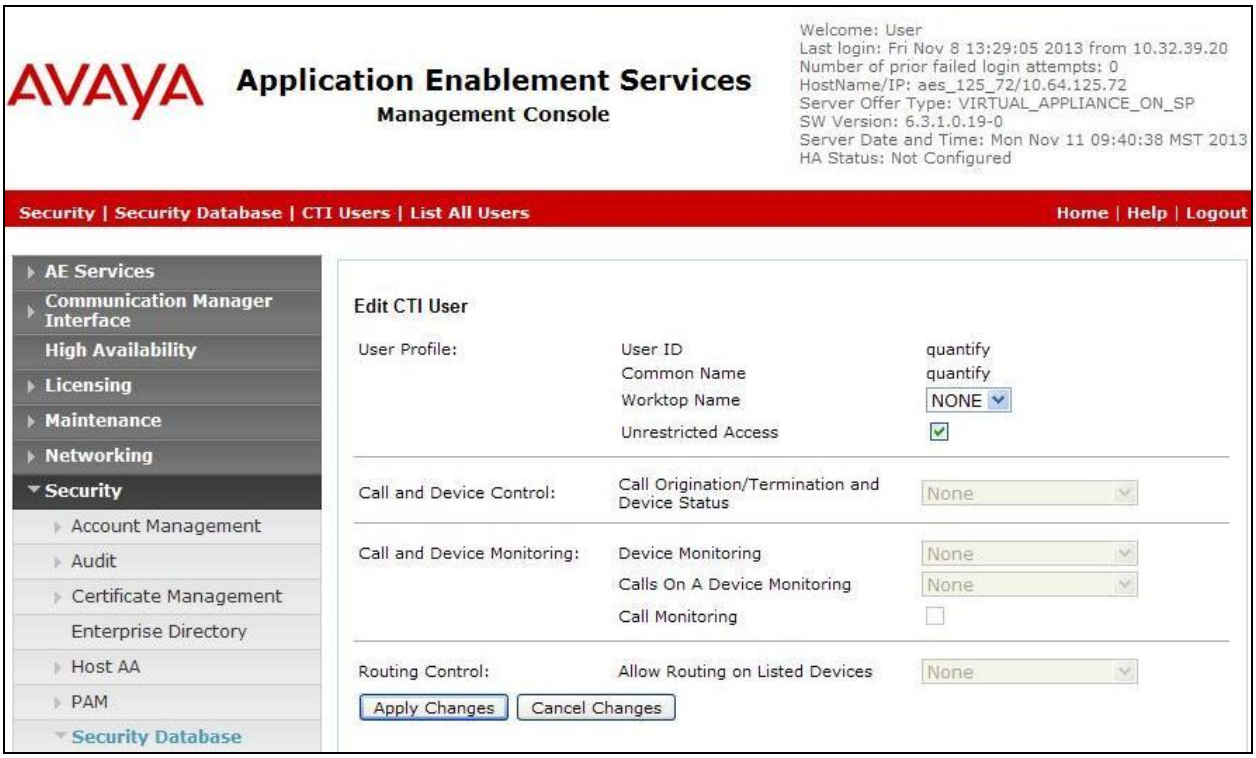
Enter desired values for **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password**. For **CT User**, select "Yes" from the drop-down list. Retain the default value in the remaining fields.



Select **Security → Security Database → CTI Users → List All Users** from the left pane, to display the **CTI Users** screen in the right pane. Select the new Quantify user, and click **Edit**.



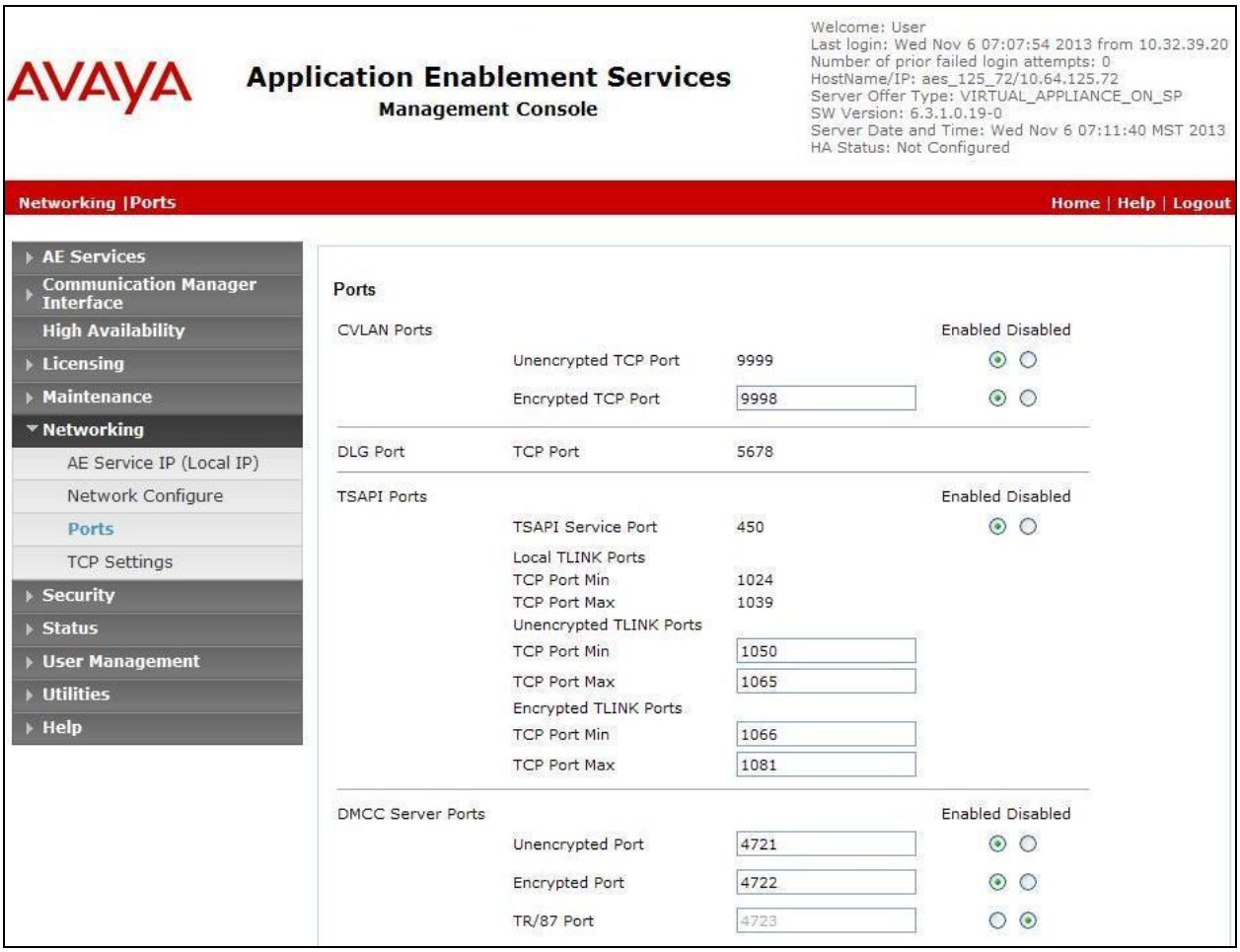
The **Edit CTI User** screen is displayed next. Check **Unrestricted Access**, which is required in order for Quantify Recording Suite to register the virtual IP softphones against the agent station extensions without use of passwords.



6.8. Administer Ports

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. Retain the default values in the remaining fields.



7. Configure Red Box Quantify Recording Suite

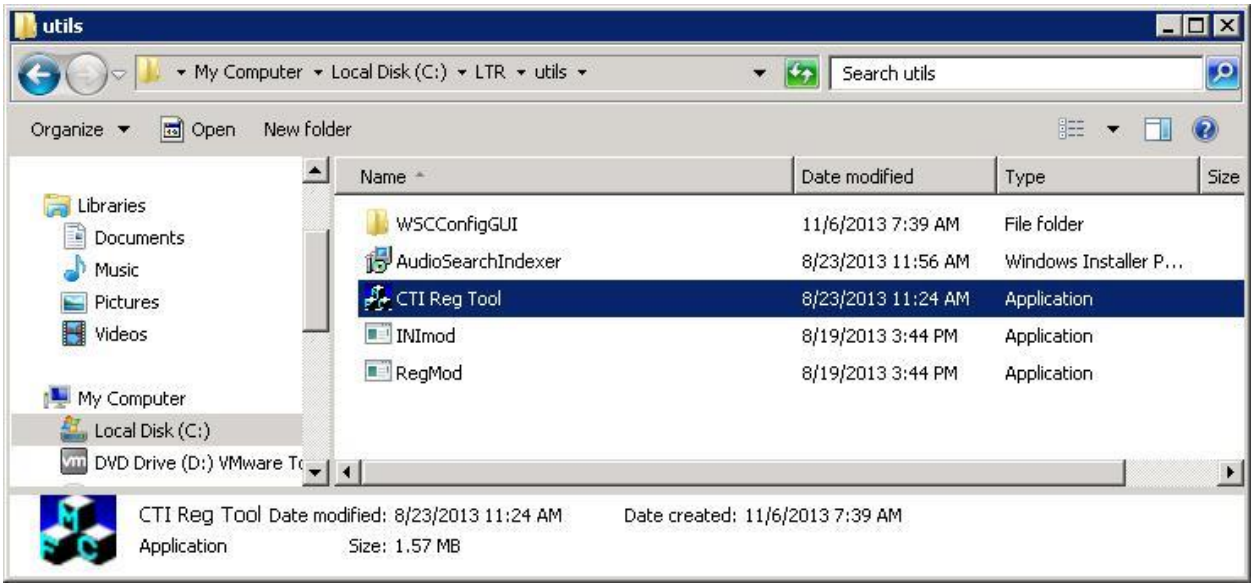
This section provides the procedures for configuring Quantify Recording Suite. The procedures include the following areas:

- Administer CTI registration tool
- Administer CTI server
- Administer recording channels

The configuration of Quantify Recording Suite is performed by Red Box installation engineers. The procedural steps are presented in these Application Notes for informational purposes.

7.1. Administer CTI Registration Tool

From the Quantify Recording Suite server, navigate to the **C:\LTR\utils** directory, and double click to launch the **CTI Reg Tool** shown below.



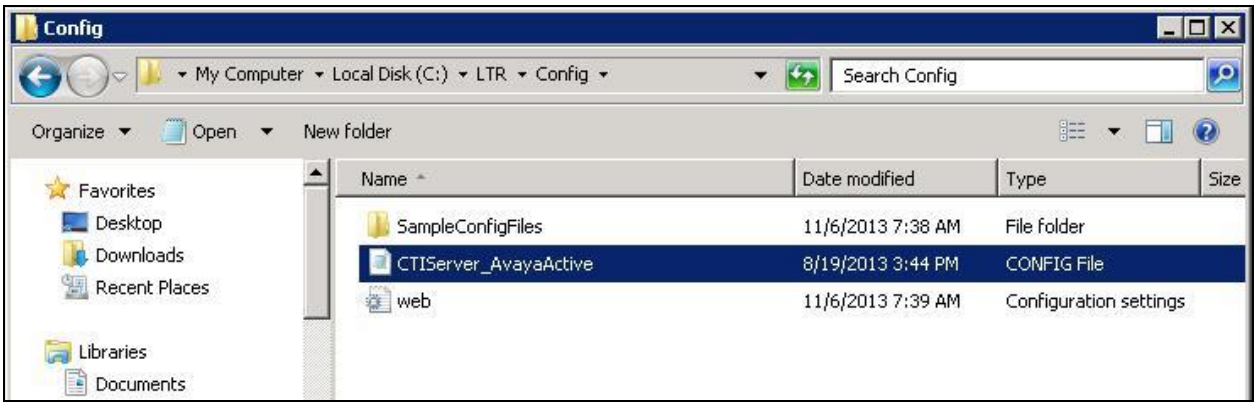
The **CTI Registration Tool** screen is displayed. For **Recorder IP Address**, enter "127.0.0.1". Enter the appropriate credentials, and click **Connect**.

Upon successful connection, the **CTI Registration Tool** screen is updated as shown below.

For **Extension or range to register**, enter the range of the agent station extensions from **Section 3**. Select the **Avaya Multiple Registration** radio button, and click **Register**. In the case that the agent station extensions are not consecutive in nature, this step can be repeated to enter one station extension at a time.

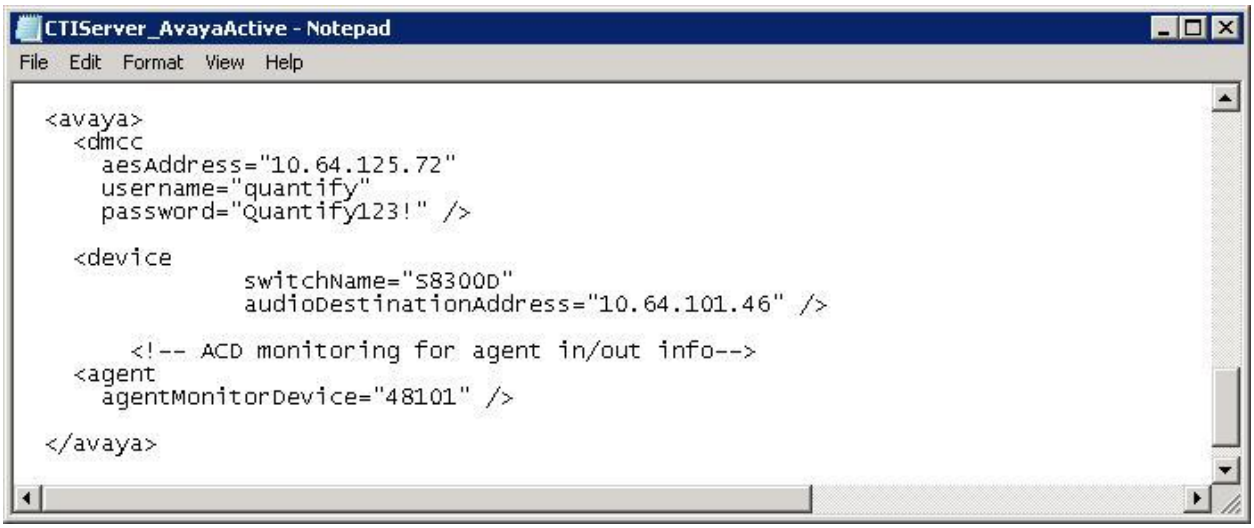
7.2. Administer CTI Server

Navigate to the **C:\LTR\Config** directory, and copy the **CTIServer_AvayaActive** configuration file from the **SampleConfigFiles** directory to the current directory shown below.



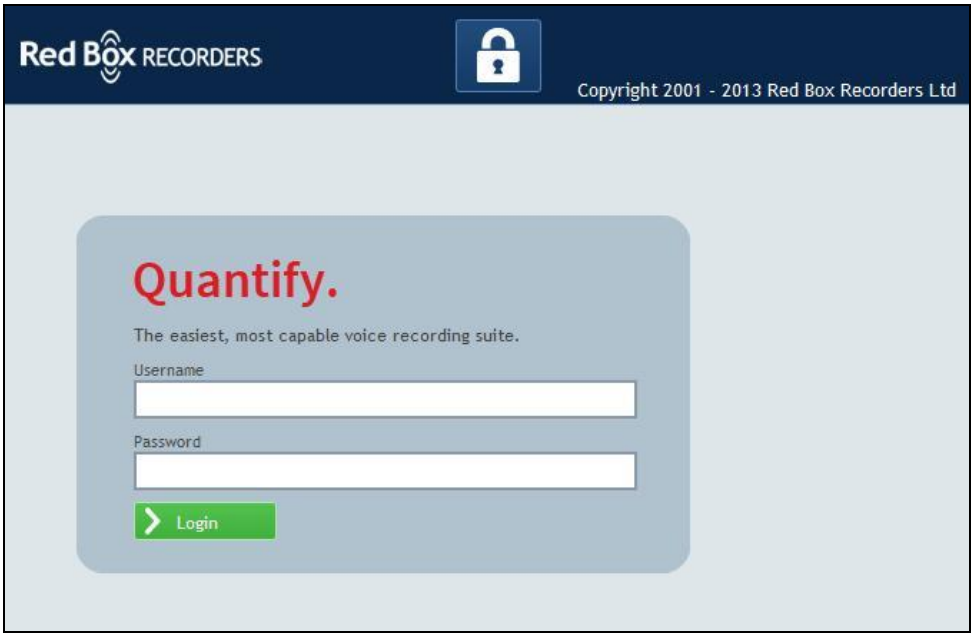
Open the **CTIServer_AvayaActive** file with the Notepad application. Navigate to the **avaya** sub-section, and configure the parameters as shown below.

- **aesAddress:** IP Address of Application Enablement Services.
- **username:** The Quantify user credentials from **Section 6.7**.
- **password:** The Quantify user credentials from **Section 6.7**.
- **SwitchName:** The relevant switch connection name from **Section 6.3**.
- **audioDestinationAddress:** IP address of the Quantify Recording Suite server.
- **agentMonitorDevice:** The first skill group extension from **Section 3**.

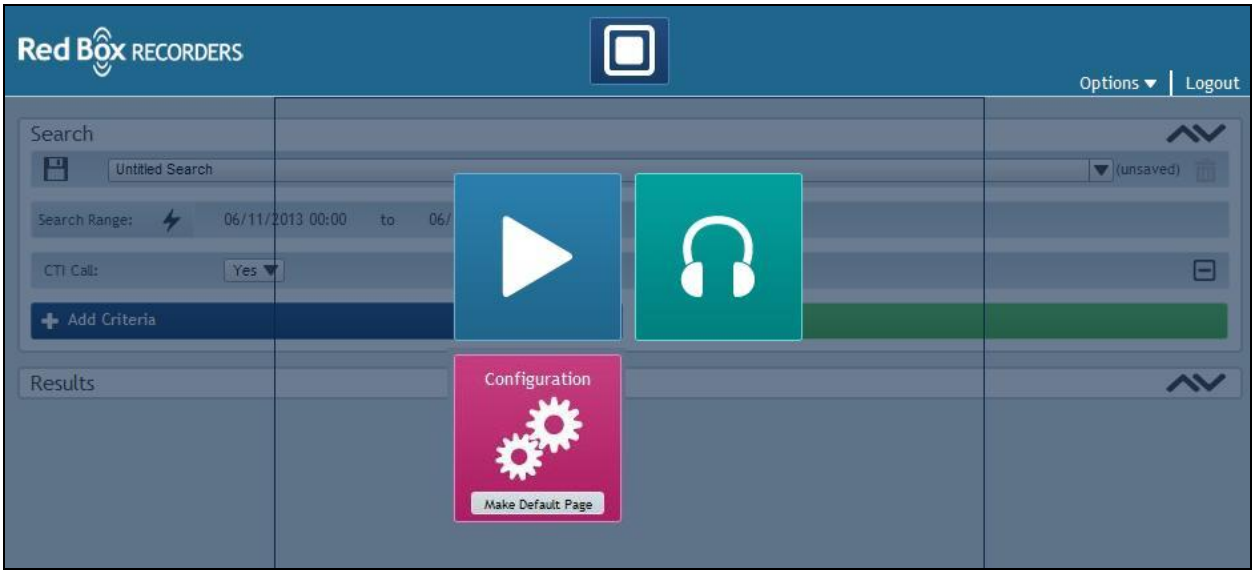


7.3. Administer Recording Channels

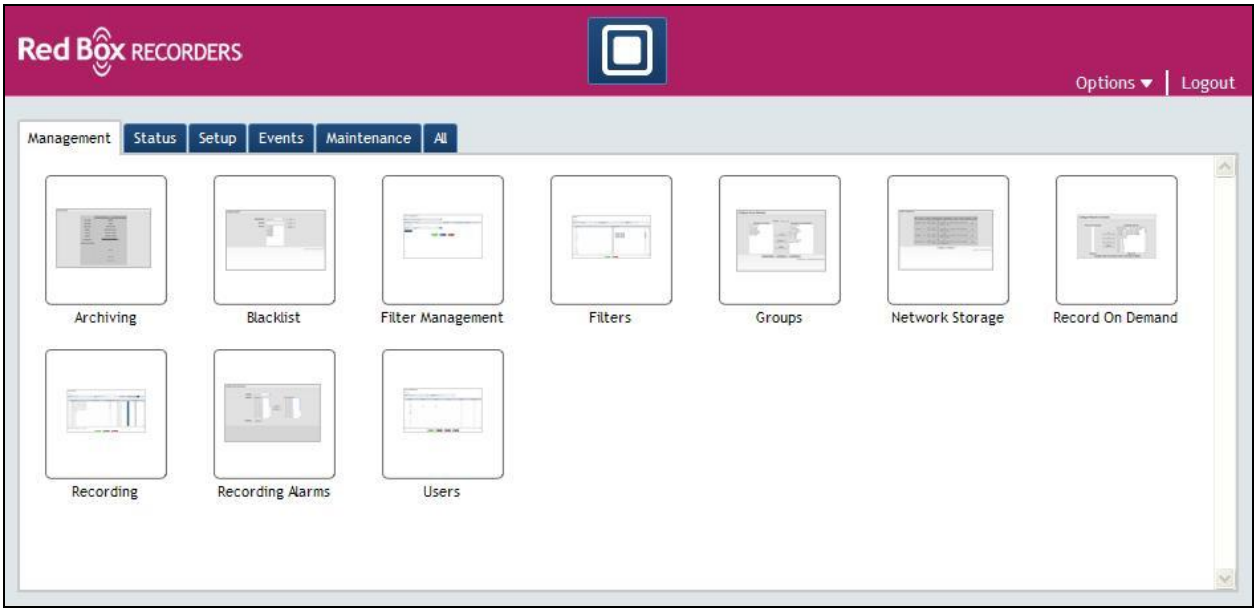
Access the Quantify Recording Suite web-based interface by using the URL "http://ip-address" in an Internet browser window, where "ip-address" is the IP address of the Quantify Recording Suite server. Log in using the appropriate credentials.



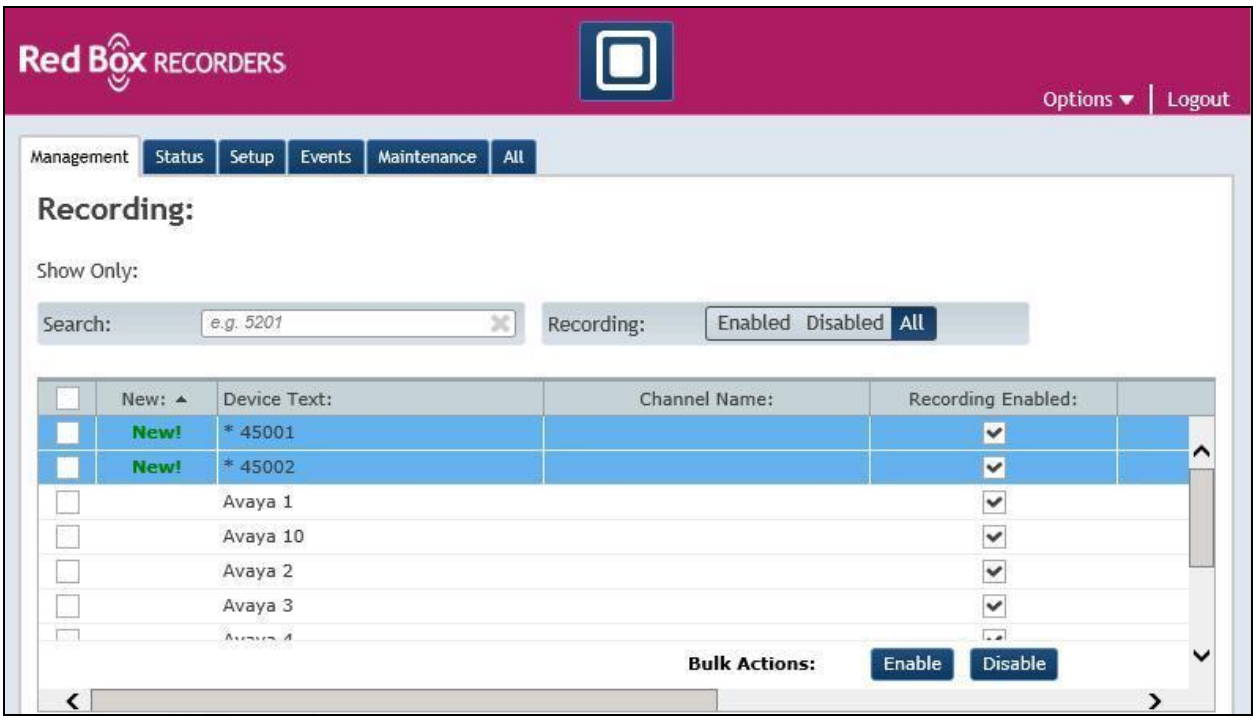
The screen below is displayed. Click on the **Configuration** icon.



The screen below is displayed next. Select **Management → Recording**.



The **Recording** screen is displayed. Under the **Recording Enabled** column, check the entries associated with the station agent extensions from **Section 3**. In the compliance testing, two entries with **Device Text** of "45001" and "45002" were checked.



8. Verification Steps

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

8.1. Verify Avaya Aura® Communication Manager

On Communication Manager, verify the status of the administered CTI link by using the "status aesvcs cti-link" command. Verify that the **Service State** is "established" for the CTI link number administered in **Section 5.2**, as shown below.

```
status aesvcs cti-link

                          AE SERVICES CTI LINK STATUS

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

1     6        no    aes_125_72       established   35       20
```

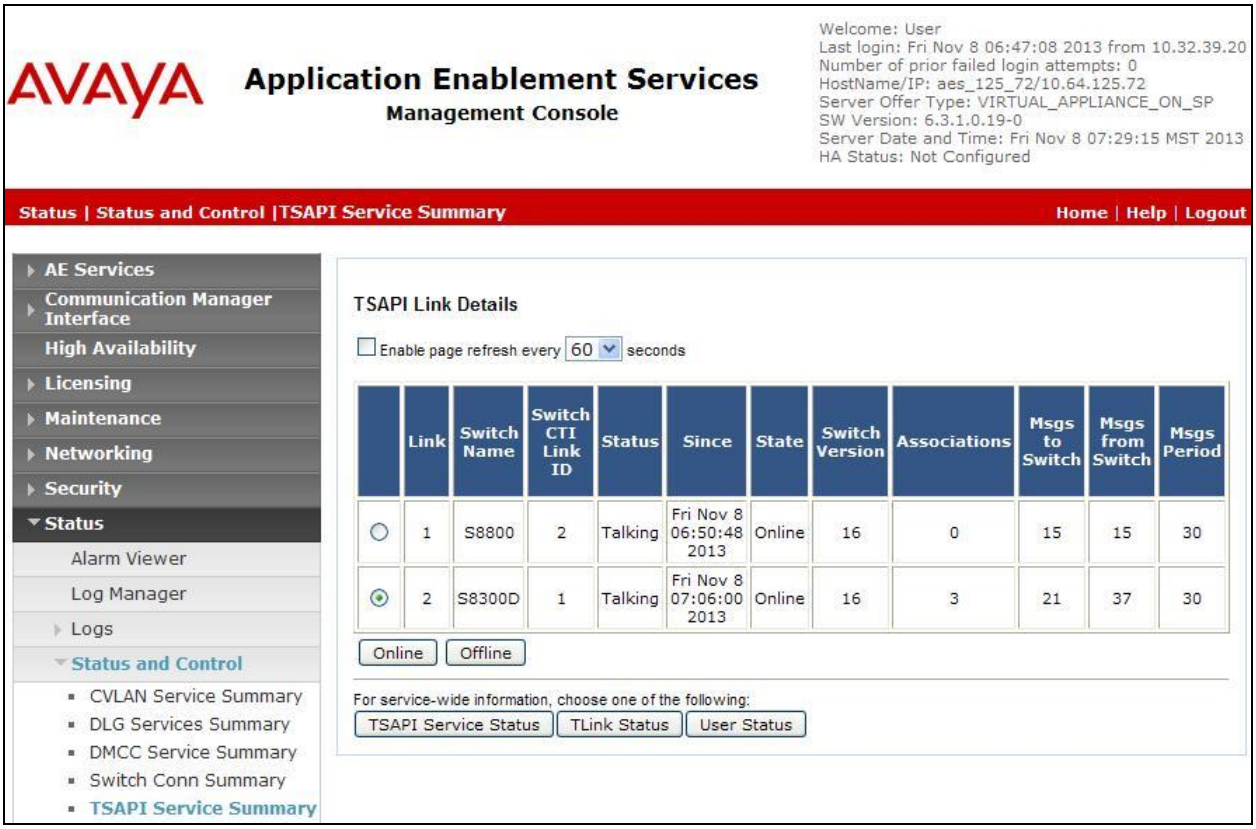
Verify the registration status of the virtual IP softphones by using the "list registered-ip-stations" command. Verify that all agent station extensions from **Section 5.4** are displayed along with the IP address of the Application Enablement Services server, as shown below.

```
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
------------- --------- ---------- --- ---------------------------------------
45000         9650      IP_Phone    y  10.32.39.104
              1         3.210A         10.32.39.83
45001         1608      IP_Phone    y  10.32.39.105
              1         1.340B         10.32.39.83
45001         1608      IP_API_A    y  10.64.125.72
              1         3.2040         10.32.39.83
45002         9611      IP_Phone    y  10.32.39.106
              1         6.3037         10.32.39.83
45002         9611      IP_API_A    y  10.64.125.72
              1         3.2040         10.32.39.83
```

8.2. Verify Avaya Aura® Application Enablement Services

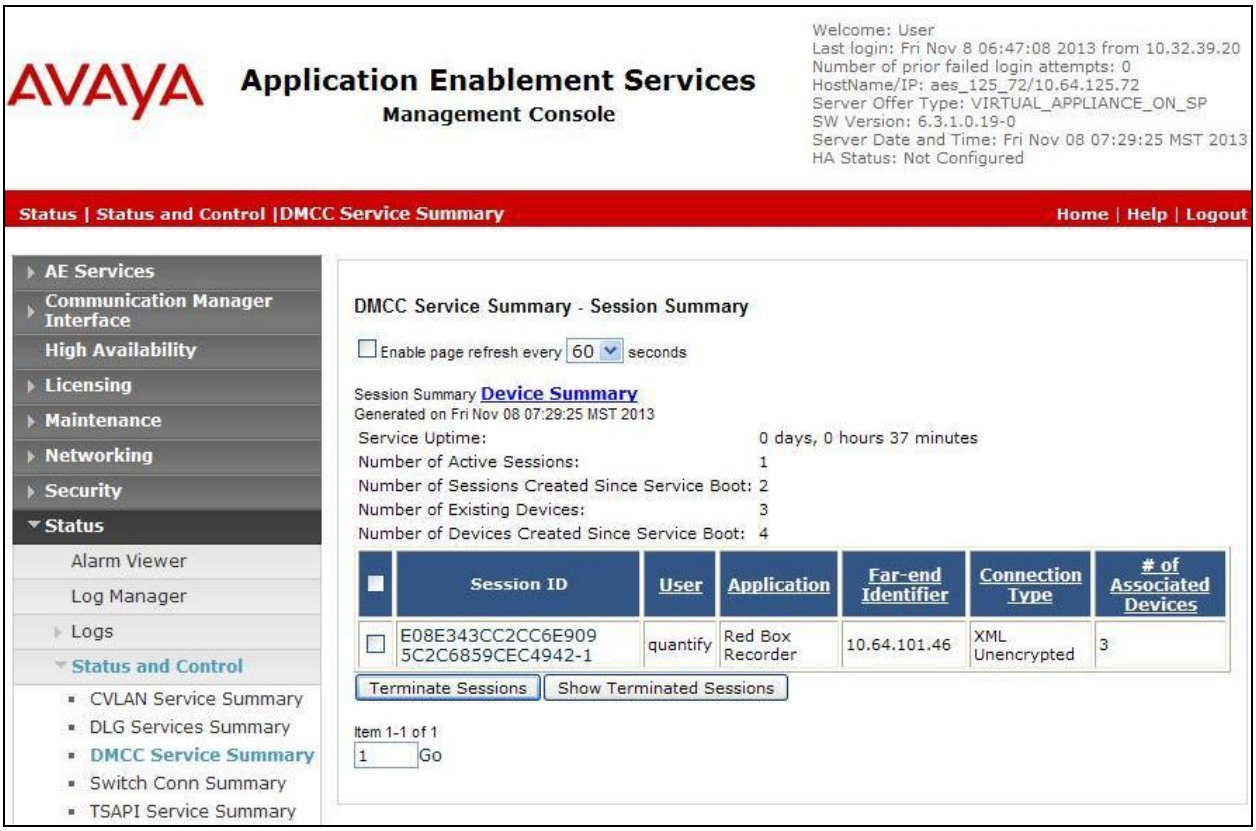
On Application Enablement Services, verify the status of the TSAPI link by selecting **Status → Status and Control → TSAPI Service Summary** from the left pane. The **TSAPI Link Details** screen is displayed.

Verify the **Status** is "Talking" for the TSAPI link administered in **Section 6.3**, and that the **Associations** column reflects the total number of monitored skill group and agent station extensions from **Section 3**.



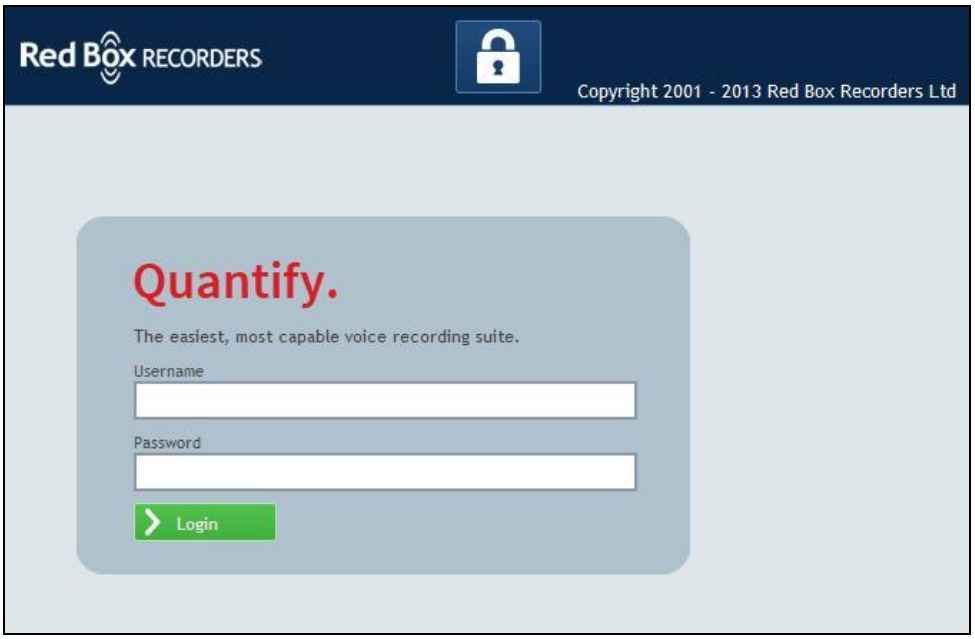
Verify the status of the DMCC link by selecting **Status → Status and Control → DMCC Service Summary** from the left pane. The **DMCC Service Summary – Session Summary** screen is displayed.

Verify the **User** column shows an active session with the Quantify user name from **Section 6.7**, and that the **# of Associated Devices** column reflects the total number of monitored skill group and agent station extensions from **Section 3**.



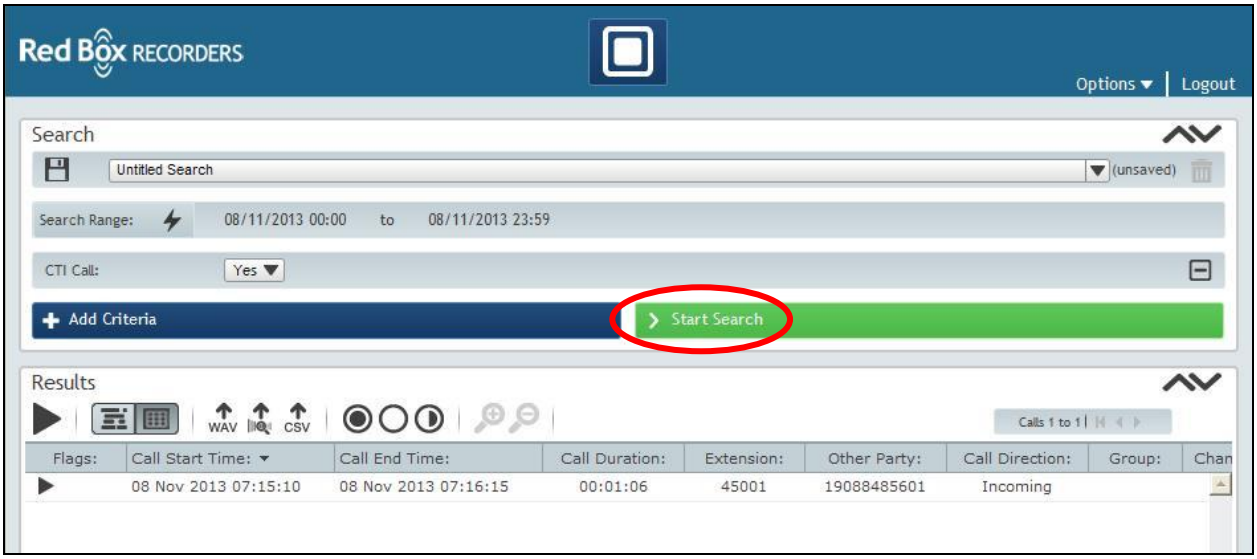
8.3. Verify Red Box Quantify Recording Suite

Log an agent in to the skill group to handle and complete an ACD call. Follow the procedures in **Section 7.3** to log in to the Quantify Recording Suite web-based interface.

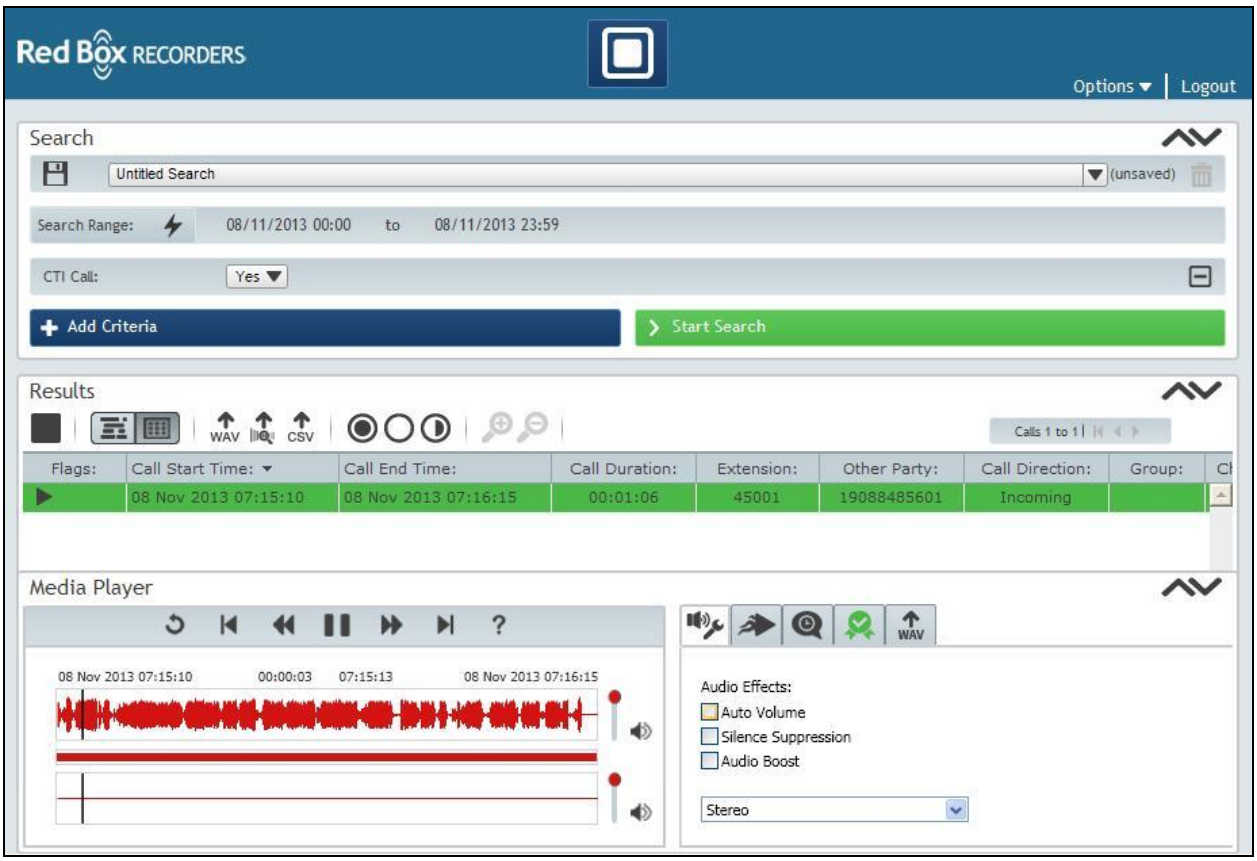


The screen below is displayed. Click on the **Replay** icon.

The **Search** screen is displayed. Click **Start Search** to obtain a listing of all recording entries for the current day. Verify that there is an entry reflecting the last call, with proper values in the relevant fields.



Double click on the entry to listen to the playback. Verify that call recording is played back.



9. Conclusion

These Application Notes describe the configuration steps required for Red Box Quantify Recording Suite to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services 6.3 using Multiple Registration. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

10. Additional References

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

1. *Administering Avaya Aura® Communication Manager*, Document 03-300509, Issue 9, Release 6.3, October 2013, available at http://support.avaya.com.

2. *Avaya Aura® Application Enablement Services Administration and Maintenance Guide*, Release 6.3, Issue 2, October 2013, available at http://support.avaya.com.

3. *White-paper on Security in Avaya Aura® Application Enablement Services*, Document Rev 4.0.0, February 2013, available at http://support.avaya.com.

4. *Quantify Administration Manual, Release 3A SP1, September 2013,* available on the Quantify software CD.

5. *Quantify User Manual, Release 3A SP1, May 2013*, available on the Quantify software CD.

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