



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for Configuring Avaya Aura® Communication Manager R6.0.1 and Avaya Aura® Application Enablement Services R6.1 to interoperate with Red Box Recorder's Quantify 2A SP2 on RBR2610 – Issue 1.0**

## **Abstract**

The Application Notes describe the configuration steps for Red Box Recorder RBR2610 solution with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. Red Box Recorder RBR2610 system is a voice recording solution which can be used to record voice streams for Avaya telephony

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

The purpose of this document is to describe the compliance testing carried out using the Multiple Device Registration recording method on Red Box Recorder RBR2610 with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. It includes a description of the configuration of both the Avaya and the Red Box Recorder solutions, a description of the tests that were performed and a summary of the results of those tests.

Red Box Recorder RBR2610 is a voice recording system which can be used to record the voice stream of Avaya telephony endpoints. In this compliance test, it uses Avaya Aura® Communication Manager's Multiple Device Registration feature via the Avaya Aura® Application Enablement Services (AES) Device, Media, and Call Control (DMCC) interface to capture the audio and call details for call recording. The application uses the Avaya Aura® Application Enablement Services DMCC service to register the extensions that are to be recorded. When the extension receives an event pertaining to the start of a call, the application receives the extensions RTP media stream.

The Red Box Recorders solution comprises of Red Box Recorder's Server RBR 2610 licensed for Avaya "Active" recording. The RBR 2610 is part of the RBR 2600 series of recorders, all running the same core software, but different hardware builds to suit the individual needs of the customer.

## 2. General Test Approach and Test Results

The interoperability compliance testing evaluated the ability of Red Box Recorders RBR2610 to carry out call recording in a variety of scenarios using DMCC with AES and Communication Manager.

### 2.1. Interoperability Compliance Testing

The interoperability compliance test included both feature functionality and serviceability testing. The feature functionality testing focused on placing and recording calls in different call scenarios to ensure good quality audio recordings were received. Intra-switch calls were made on the Communication Manager and inbound and outbound calls from/to the PSTN. The serviceability testing focused on verifying the ability of the Red Box Recorder to recover from disconnection and reconnection of the Avaya solution.

### 2.2. Test Results

All functionality and serviceability test cases were completed successfully.

- It was observed that a call transferred to an extension which has its call-appearance bridged elsewhere is displayed as a **Conference** in the **other party** field of the Red Box Recorders database.
- The serviceability tests were performed by disconnecting the RBR 2610 server from the network and ensuring successful recording of calls and good audio quality on re-connection. These tests were repeated for the Avaya solution by restarting both Communication Manager and Application Enablement Services. Further serviceability

tests were performed by the disconnection of each of the different endpoints. It was observed that upon disconnection and subsequent reconnection of the Avaya 1616 IP telephone, the Avaya 1616 IP telephone forces un-registration and re-registration of the device upon completion of reboot. The outcome of this is that the recording on the Red Box Recorder for the station assigned to the Avaya 1616 IP telephone does not stop. In the case of the Avaya 9600 Series IP Telephone, upon disconnection and subsequent reconnection of the device, the device sends only a re-register event. The Avaya 9600 IP Telephone does not send an unregister event. The result of this is that the call to the station assigned to the Avaya 9600 IP Telephone stops when the station re-registers. Please contact Red Box Recorders who have developed a fix for these issues.

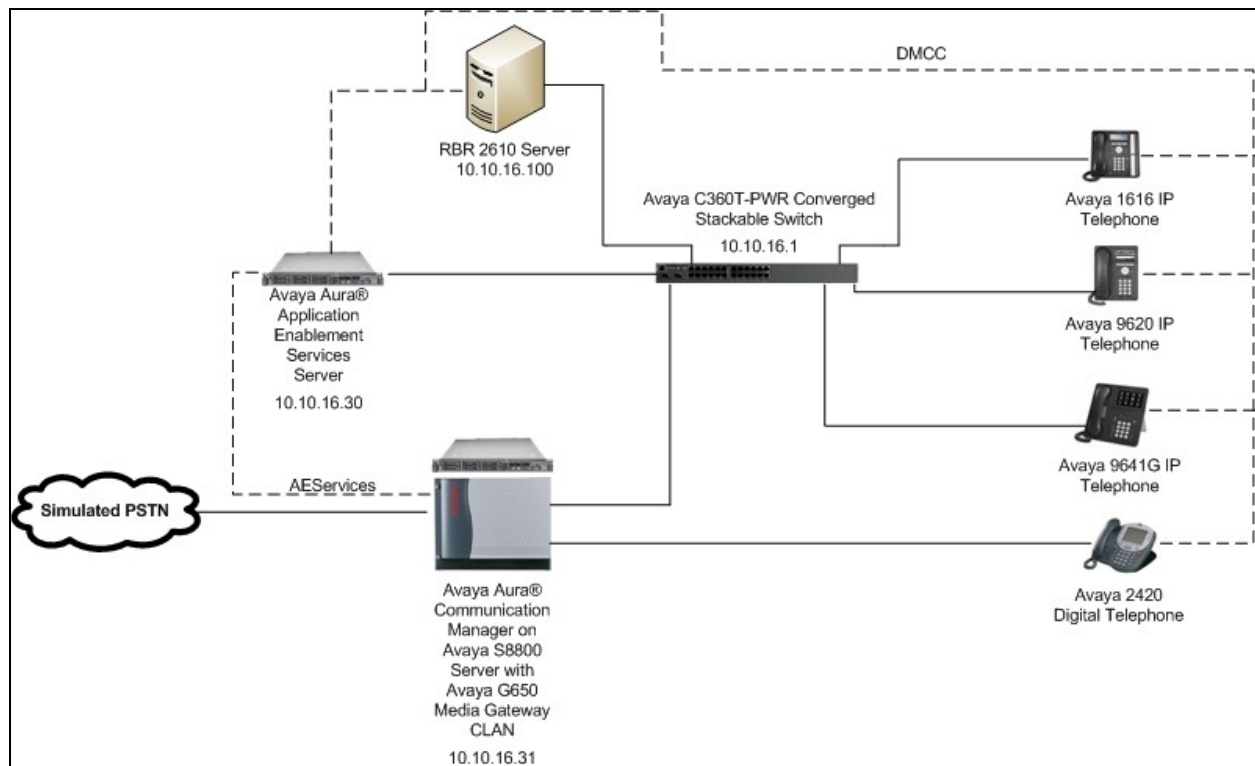
## **2.3. Support**

Technical support can be obtained for Red Box Recorder's RBR 2610 solution as follows:

- Email: [support@redboxrecorders.com](mailto:support@redboxrecorders.com)
- Website: [www.redboxrecorders.com](http://www.redboxrecorders.com)
- Phone: +44 (0) 115 9377100

### 3. Reference Configuration

**Figure 1** illustrates the network topology used during compliance testing. The Avaya solution consists of an Avaya S8800 Server running Communication Manager with Avaya G650 Media Gateway as the PBX. An Avaya S8800 Server hosts the Application Enablement Services software. Avaya 9600 series, 1600 series IP telephones and 2400 series Digital telephones are connected to the PBX and used in the testing. The Red Box Recorders RBR 2610 server was used in the compliance test. The system is housed in a tower based server, fitted with single power supply and RAID1, (mirrored) hard disk drives for resilience.



**Figure 1: Avaya Aura® Communication Manager with Avaya Aura® Application Enablement Services Server and Red Box Recorders RBR2610 Configuration**

## 4. Equipment and Software Validated

The following equipment and software were used for the sample configuration as shown in **Figure 1**.

Equipment	Software
Avaya Aura® S8800 Media Server	Avaya Aura® Communication Manager R6.0.1 R16.00.1.510.1-18860
Avaya G650- Media Gateway Avaya TN799DP C-LAN Circuit Pack Avaya TN2602AP Media Processor Circuit Pack	HW1 FW40 HW8 FW57
Avaya Aura® S8800 Server	Avaya Aura® Application Enablement Services R6.1
Avaya 9620C IP Telephone	3.110b
Avaya 1616 IP Telephone	1_3000
Avaya 9641G IP Telephone	S6.010f
Avaya 2420 Digital Telephone	REL 4.00 HWV 1 FWV 4
Red Box Recorders – RBR 2610 Server	Red Box Recorders Quantify 2A SP2

## 5. Configure Avaya Aura® Communication Manager

The configuration and verification operations illustrated in this section were all performed using Communication Manager System Administration Terminal (SAT). The information provided in this section describes the configuration of Communication Manager for this solution. For all other provisioning information such as initial installation and configuration, please refer to the product documentation as referenced in **Section 10**. The configuration operations described in this section can be summarized as follows:

- Verify System Parameters Customer Options
- Verify System Parameters Features
- Configure Service Observe
- Configure Target Stations to be Recorded
- Configure Station Button Assignments
- Configure Hunt Group
- Configure Agent
- Configure Recording Pool Stations
- Configure the Interface to AES

## 5.1. Verify System Parameters Customer Options

Use the **display system-parameters customer-options** command to verify that Communication Manager has permissions for features illustrated in these Application Notes. On **Page 3**, ensure that **Computer Telephony Adjunct Links?** is set to **y** as shown below.

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?	n	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?	n
ARS?	y	<b>Computer Telephony Adjunct Links?</b>	<b>y</b>
ARS/AAR Partitioning?	y	Cvg Of Calls Redirected Off-net?	y
ARS/AAR Dialing without FAC?	y	DCS (Basic)?	y
ASAI Link Core Capabilities?	y	DCS Call Coverage?	n
ASAI Link Plus Capabilities?	y	DCS with Rerouting?	n
Async. Transfer Mode (ATM) PNC?	n	Digital Loss Plan Modification?	n
Async. Transfer Mode (ATM) Trunking?	n	DS1 MSP?	y
ATM WAN Spare Processor?	n	DS1 Echo Cancellation?	y
ATMS?	n		
Attendant Vectoring?	y		
(NOTE: You must logoff & login to effect the permission changes.)			

## 5.2. Verify System Parameters Features

Expert agent selection is used for the configuration and routing of calls to ACD Agents. On **Page 11** of the system-parameters features form, set **Expert Agent Selection (EAS) Enabled?** to **y**.

change system-parameters features	Page 11 of 18
FEATURE-RELATED SYSTEM PARAMETERS	
CALL CENTER SYSTEM PARAMETERS	
EAS	
<b>Expert Agent Selection (EAS) Enabled? y</b>	
Minimum Agent-LoginID Password Length:	
Direct Agent Announcement Extension:	Delay:
Message Waiting Lamp Indicates Status For: station	
VECTORIZING	
Converse First Data Delay: 0	Second Data Delay: 2
Converse Signaling Tone (msec): 100	Pause (msec): 70
Reverse Star/Pound Digit For Collect Step? n	
Store VDN Name in Station's Local Call Log? n	
SERVICE OBSERVING	
Service Observing: Warning Tone? y	or Conference Tone? n
Service Observing Allowed with Exclusion? n	
Allow Two Observers in Same Call? n	

### 5.3. Configure Service Observe

For the purposes of Multi Registration, service observe must be enabled for the COR to which the Target Stations will be assigned. Using the command **change cor 1** set both **Can Be Service Observed?** and **Can Be A Service Observer?** to **y**.

<b>change cor 1</b>	Page 1 of 23
CLASS OF RESTRICTION	
COR Number: 1	
COR Description: Default	
FRL: 0	APLT? y
<b>Can Be Service Observed? y</b>	Calling Party Restriction: none
<b>Can Be A Service Observer? y</b>	Called Party Restriction: none
Time of Day Chart: 1	Forced Entry of Account Codes? n
Priority Queuing? n	Direct Agent Calling? y
Restriction Override: all	Facility Access Trunk Test? n
Restricted Call List? n	Can Change Coverage? n
Access to MCT? y	Fully Restricted Service? n
Group II Category For MFC: 7	Hear VDN of Origin Annc.? y
Send ANI for MFE? n	Add/Remove Agent Skills? n
MF ANI Prefix:	Automatic Charge Display? n
Hear System Music on Hold? y	PASTE (Display PBX Data on Phone)? y
	Can Be Picked Up By Directed Call Pickup? y
	Can Use Directed Call Pickup? y
	Group Controlled Restriction: inactive



## 5.4. Configure Target Stations to be Recorded

Use the **add station** command to configure a station for each of the target stations to be recorded. Enter in a descriptive **Name** and **Security Code** for each one. The **Security Code** will be referenced by Red Box recorder when setting up the recording extensions. Set the **IP Softphone?** to **y**.

add station 4000		Page 1 of 5
STATION		
Extension: 4000	Lock Messages? n	BCC: 0
Type: 2420	<b>Security Code:1234</b>	TN: 1
Port: 01A0705	Coverage Path 1:	COR: 1
<b>Name: Redbox,2420</b>	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
Loss Group: 2	Time of Day Lock Table:	
Data Option: none	Personalized Ringing Pattern: 1	
Speakerphone: 2-way	Message Lamp Ext: 4000	
Display Language: english	Mute Button Enabled? y	
	Expansion Module? n	
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	<b>IP SoftPhone? y</b>	
	Remote Office Phone? n	
	IP Video Softphone? n	
	Short/Prefixed Registration Allowed: default	
	Customizable Labels? y	

On **Page 2**, ensure that the **Multimedia Mode** is set to **enhanced**.

add station 4000		Page 2 of 5
STATION		
FEATURE OPTIONS		
LWC Reception: spe	Auto Select Any Idle Appearance? n	
LWC Activation? y	Coverage Msg Retrieval? y	
LWC Log External Calls? n	Auto Answer:	
none		
CDR Privacy? n	Data Restriction? n	
Redirect Notification? y	Idle Appearance Preference? n	
Per Button Ring Control? n	Bridged Idle Line Preference? n	
Bridged Call Alerting? n	Restrict Last Appearance? y	
Active Station Ringing: single		
H.320 Conversion? n	EMU Login Allowed? n	
Service Link Mode: as-needed	Per Station CPN - Send Calling Number?	
<b>Multimedia Mode: enhanced</b>	EC500 State: enabled	
MWI Served User Type:	Audible Message Waiting? n	
AUDIX Name:	Display Client Redirection? n	
	Select Last Used Appearance? n	
	Coverage After Forwarding? s	
	Multimedia Early Answer? n	
Remote Softphone Emergency Calls: as-on-local	Direct IP-IP Audio	
Connections? y		
Emergency Location Ext: 201	Always Use? n IP Audio Hairpinning? n	

## 5.5. Configure Station Button Assignments

Use the **change station** command to configure the button assignments of the stations to be recorded, as required. Add the appropriate button assignments as shown on **Page 4** below. In this case there are three call appearance buttons **call-appr**. There are also buttons assigned for the call functions call-pickup, bridged appearance and call park: **call-pkup**, **brdg-appr**, **call-park**.

<b>change station 4000</b>		<b>Page 4 of 5</b>
STATION		
SITE DATA		
Room:		Headset? n
Jack:		Speaker? n
Cable:		Mounting: d
Floor:		Cord Length: 0
Building:		Set Color:
ABBREVIATED DIALING		
List1:	List2:	List3:
BUTTON ASSIGNMENTS		
1: call-appr	5: <b>brdg-appr</b>	<b>B:1 E:4001</b>
2: call-appr	6: <b>call-park</b>	
3: call-appr	7:	
4: <b>call-pkup</b>	8:	
voice-mail		

## 5.6. Configure Hunt Group

For the purposes of recording agents, a skilled hunt group must be added. Agents who log in to this skill will be recorded. Using the command **add hunt-group next**, assign the hunt group with a **Group Extension** valid in the dialplan, **Group Name** for identification purposes, set **ACD**, **Queue** and **Vector** to **y (yes)**. Note the **Group Number 8**.

add hunt-group next		Page 1 of
4		
HUNT GROUP		
Group Number: 8	ACD? y	
Group Name: Red Box Recorders	Queue? y	
Group Extension: 4010	Vector? y	
Group Type: ucd-mia		
TN: 1		
COR: 1	MM Early Answer? n	
Security Code:	Local Agent Preference? n	
ISDN/SIP Caller Display:		
Queue Limit: unlimited		
Calls Warning Threshold:	Port:	
Time Warning Threshold:	Port:	

Navigate to **Page 2**, set **Skill** to **y**.

add hunt-group next		Page 2 of 4
HUNT GROUP		
Skill? y	Expected Call Handling Time (sec): 180	
AAS? n		
Measured: none		
Supervisor Extension:		
Controlling Adjunct: none		
Timed ACW Interval (sec):		
Multiple Call Handling: none		

## 5.7. Configure Agent

Agents whom are to be recorded should be assigned the Red Box Recorders Skill configured in the previous step.

add agent-loginID 4202		Page 1 of 3
AGENT LOGINID		
Login ID: 4202	AAS? n	
Name: <b>Agent1</b>	AUDIX? n	
TN: 1	LWC Reception: spe	
COR: 1	LWC Log External Calls? n	
Coverage Path:	AUDIX Name for Messaging:	
Security Code: 123456	LoginID for ISDN/SIP Display? n	
	<b>Password: 123456</b>	
	<b>Password (enter again): 123456</b>	
	Auto Answer: station	
	MIA Across Skills: system	
	ACW Agent Considered Idle: system	
	Aux Work Reason Code Type: system	
	Logout Reason Code Type: system	
	Maximum time agent in ACW before logout (sec): system	
	Forced Agent Logout Time: :	
WARNING: Agent must log in again before changes take effect		

Navigate to **Page 2**, set **8** beneath the Skill Number (SN).

add agent-loginID 4202		Page 2 of 3
AGENT LOGINID		
Direct Agent Skill:	Service Objective? n	
Call Handling Preference: skill-level	Local Call Preference? n	
<b>SN</b> RL SL                      SN    RL SL                      SN    RL SL                      SN    RL SL		
1: <b>8</b> 1 16:	31:                      46:	
2:                      17:	32:                      47:	
3:                      18:	33:                      48:	
4:                      19:	34:                      49:	
5:                      20:	35:                      50:	
6:                      21:	36:                      51:	
7:                      22:	37:                      52:	
8:                      23:	38:                      53:	
9:                      24:	39:                      54:	
10:                      25:	40:                      55:	

## 5.8. Configure Interface to Avaya Aura® Application Enablement Services

Enter the node **Name** and **IP Address** for the Application Enablement Server, in this case **devconaes61** and **10.10.16.31** respectively. Take a note of the **CLAN** node **Name** and **IP Address** as it is used later in this section

change node-names ip		Page 1 of 2
IP NODE NAMES		
Name	IP Address	
CLAN	10.10.16.31	
CM521	10.10.16.23	
Gateway	10.10.16.1	
IPbuffer	10.10.16.184	
Intuition	10.10.16.51	
MedPro	10.10.16.32	
Presence	10.10.16.83	
RDTT	10.10.16.185	
SESMNGR	10.10.16.44	
SM1	10.10.16.43	
SM61	10.10.16.201	
default	0.0.0.0	
devconaes61	10.10.16.30	

In order for Communication Manager to establish a connection to Application Enablement Services, administer the CTI Link as shown below. Specify an available **Extension** number, set the **Type** as **ADJ-IP**, which denotes that this is a link to an IP connected adjunct, and name the link for easy identification, in this instance, the node-name is used.

add cti-link 1		Page 1 of 3
CTI LINK		
CTI Link: 1		
Extension: 1111		
Type: ADJ-IP		
		COR:
1		
Name: devconaes61		

Configure IP-Services for the AESVCS service using **change ip-services** command. Using the C-LAN node name as noted above i.e. **CLAN**

change ip-services					Page	1 of	4
IP SERVICES							
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port		
CDR1		CLAN	0	IPbuffer	9000		
CDR2		CLAN	0	RDTT	9001		
AESVCS	y	CLAN	8765				

Navigate to **Page 4**, set the **AE Services Server** node-name and the **Password** the AES Server will use to authenticate with Communication Manager.

change ip-services					Page	4	of	4
AE Services Administration								
Server ID	AE Services Server	Password	Enabled	Status				
1:	devconaes61	Avayapassword1	y	in use				

## 6. Configuration of Avaya Aura® Application Enablement Services

This section provides the procedures for configuring Application Enablement Services (AES). The procedures fall into the following areas:

- Verify Licensing
- Create Switch Connection
- Create CTI User
- Enable CTI User
- Configure DMCC Port
- Enable Security Database

## 6.1. Verify Licensing

Access the Web License Manager of the Application Enablement Services Server, in this instance using the URL <https://10.10.16.30/WebLM/index.jsp>. The Web License Manager Screen is displayed, login using the appropriate credentials.

The image shows a web browser window displaying the Avaya Web License Manager (WebLM v4.6) login page. The page has a light gray background with a red header bar at the top. The Avaya logo is in red, and the text "Web License Manager (WebLM v4.6)" is in white on the red bar. Below the header, the word "Logon" is centered. There are two input fields: "User Name:" and "Password:". To the right of the "Password:" field is a dark gray button with a white right-pointing arrow.



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 **Device Media and Call Control**, as shown below. If not, consult with your Avaya Account Manager or Business Partner to acquire the proper license for your solution.

Install License  
**Licensed Products**  
APPL\_ENAB  
**Application\_Enablement**  
Uninstall License  
Change Password  
Server Properties  
Manage Users  
Logout

Application Enablement (CTI) - Release: 6 - SID: 10503000 (Standard License File)

You are here: Licensed products > Application Enablement (CTI)

License installed on: 09-May-2011 13:46:25 o'clock GMT-00:00

[View Peak Usage](#)

Licensed Features

Feature (keyword)	Expiration Date	Licensed	Acquired
CVLAN ASAI (VALUE_AES_CVLAN_ASAI)	2011/11/05	100	0
Unified CC API Desktop Edition (VALUE_AES_AEC_UNIFIED_CC_DESKTOP)	2011/11/05	10	0
AES ADVANCED SMALL SWITCH (VALUE_AES_AEC_SMALL_ADVANCED)	2011/11/05	10	0
CVLAN Proprietary Links (VALUE_AES_PROPRIETARY_LINKS)	2011/11/05	100	0
Product Notes (VALUE_NOTES)	2011/11/05	SmallServerTypes: s8300c;s8300d;icc;premio;tn8400;laptop;CtiSmallServer MediumServerTypes: ibmx306;ibmx306m;dell1950;xen;hs20;hs20_0832_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_AES_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;	Not counted
AES ADVANCED LARGE SWITCH (VALUE_AES_AEC_LARGE_ADVANCED)	2011/11/05	10	0
TSAPI Simultaneous Users (VALUE_AES_TSAPI_USERS)	2011/11/05	100	0
DLG (VALUE_AES_DLG)	2011/11/05	100	0
Device Media and Call Control (VALUE_AES_DMCC_DMC)	2011/11/05	100	0
AES ADVANCED MEDIUM SWITCH (VALUE_AES_AEC_MEDIUM_ADVANCED)	2011/11/05	10	0

## 6.2. Create Switch Connection

Access the OAM web-based interface of the Application Enablement Services Server, in this instance using the URL <https://10.10.16.30>. The Management console is displayed, login using the appropriate credentials.

The screenshot shows the Avaya Application Enablement Services Management Console login page. At the top left is the Avaya logo. To its right, the text "Application Enablement Services" and "Management Console" is displayed. A red horizontal bar spans the width of the page, with a "Help" link on the right. In the center, there is a login box with the text "Please login here:". Below this text are two input fields: "Username" and "Password". A "Login" button is positioned below the password field. At the bottom of the page, a red horizontal bar contains the copyright notice: "© Copyright © 2009-2010 Avaya Inc. All Rights Reserved."

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

The screenshot shows the Avaya Application Enablement Services Management Console "Welcome to OAM" screen. At the top left is the Avaya logo. To its right, the text "Application Enablement Services" and "Management Console" is displayed. In the top right corner, there is a welcome message: "Welcome: User craft", "Last login: Tue May 24 15:45:54 2011 from 10.10.16.62", "HostName/IP: devconaes61/10.10.16.30", "Server Offer Type: TURNKEY", and "SW Version: r6-1-0-20-0". A red horizontal bar spans the width of the page, with "Home" on the left and "Home | Help | Logout" on the right. On the left side, there is a vertical menu with the following items: "AE Services", "Communication Manager Interface", "Licensing", "Maintenance", "Networking", "Security", "Status", "User Management", "Utilities", and "Help". The main content area is titled "Welcome to OAM" and contains the following text: "The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:" followed by a bulleted list of domains and their functions. At the bottom of the page, a red horizontal bar contains the copyright notice: "Copyright © 2009-2010 Avaya Inc. All Rights Reserved."

**Welcome to OAM**

The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:

- AE Services - Use AE Services to manage all AE Services that you are licensed to use on the AE Server.
- Communication Manager Interface - Use Communication Manager Interface to manage switch connection and dialplan.
- Licensing - Use Licensing to manage the license server.
- Maintenance - Use Maintenance to manage the routine maintenance tasks.
- Networking - Use Networking to manage the network interfaces and ports.
- Security - Use Security to manage Linux user accounts, certificate, host authentication and authorization, configure Linux-PAM (Pluggable Authentication Modules for Linux) and so on.
- Status - Use Status to obtain server status informations.
- User Management - Use User Management to manage AE Services users and AE Services user-related resources.
- Utilities - Use Utilities to carry out basic connectivity tests.
- Help - Use Help to obtain a few tips for using the OAM Help system

Depending on your business requirements, these administrative domains can be served by one administrator for both domains, or a separate administrator for each domain.

To establish the connection between Communication Manager and the Application Enablement Services Server, click **Communication Manager Interface** → **Switch Connections**. In the field next to next to **Add Connection**, enter **CM** and click on **Add Connection**, the following screen will be displayed.

**AVAYA** **Application Enablement Services** Management Console

Welcome: User craft  
Last login: Tue Jun 7 16:03:19 2011 from 10.10.16.62  
HostName/IP: devconaes61/10.10.16.30  
Server Offer Type: TURNKEY  
SW Version: r6-1-0-20-0

Communication Manager Interface | Switch Connections [Home](#) | [Help](#) | [Logout](#)

- AE Services
  - Communication Manager Interface
    - Switch Connections**
    - Dial Plan
  - Licensing
  - Maintenance
  - Networking
  - Security
  - Status
  - User Management
  - Utilities
  - Help

**Connection Details - CM**

Switch Password

Confirm Switch Password

Msg Period  Minutes (1 - 72)

SSL ☒

Processor Ethernet ☐

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Complete the configuration as shown and enter the password specified in **Section 5.8** when configuring AESVCS in ip-services. In this instance **Avayapassword1**. Click on **Apply**, the screen below will be displayed.

**AVAYA** **Application Enablement Services** Management Console

Welcome: User craft  
Last login: Tue Jun 7 16:03:19 2011 from 10.10.16.62  
HostName/IP: devconaes61/10.10.16.30  
Server Offer Type: TURNKEY  
SW Version: r6-1-0-20-0

Communication Manager Interface | Switch Connections [Home](#) | [Help](#) | [Logout](#)

- AE Services
  - Communication Manager Interface
    - Switch Connections**
    - Dial Plan
  - Licensing
  - Maintenance
  - Networking
  - Security
  - Status
  - User Management
  - Utilities
  - Help

**Switch Connections**

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
CM	No	30	1

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Click on **Edit PE/CLAN IPs** (at the bottom of the last screenshot) in order to specify the IP address of the C-CLAN, as noted in **Section 5.8**. Next to **Add Name or IP**, enter the IP address of the C-LAN and click on **Add Name or IP**.

**AVAYA** **Application Enablement Services** Management Console

Welcome: User craft  
Last login: Tue Jun 7 16:03:19 2011 from 10.10.16.62  
HostName/IP: devconaes61/10.10.16.30  
Server Offer Type: TURNKEY  
SW Version: r6-1-0-20-0

Communication Manager Interface | Switch Connections [Home](#) | [Help](#) | [Logout](#)

**AE Services**  
 Communication Manager Interface  
 Switch Connections  
 Dial Plan  
 Licensing  
 Maintenance  
 Networking  
 Security  
 Status  
 User Management  
 Utilities  
 Help

**Edit CLAN IPs - CM**

[Add Name or IP](#)

Name or IP Address	Status
10.10.16.31	In Use

[Delete IP](#) [Back](#)

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Select **AE Services** on the left frame and verify that the **DMCC Service** is licensed by ensuring that **DMCC Service** is in the list of services and that the **License Mode** is showing **NORMAL MODE**. If not, consult with your Avaya Account Manager or Business Partner to acquire the proper license for your solution.

**AVAYA** **Application Enablement Services** Management Console

Welcome: User craft  
Last login: Fri Jun 3 13:34:08 2011 from 10.10.16.62  
HostName/IP: devconaes61/10.10.16.30  
Server Offer Type: TURNKEY  
SW Version: r6-1-0-20-0

**AE Services** [Home](#) | [Help](#) | [Logout](#)

**AE Services**

IMPORTANT: AE Services must be restarted for administrative changes to fully take effect. Changes to the Security Database do not require a restart.

Service	Status	State	License Mode	Cause*
ASAI Link Manager	N/A	Running	N/A	N/A
CVLAN Service	OFFLINE	Running	N/A	N/A
DLG Service	OFFLINE	Running	N/A	N/A
<b>DMCC Service</b>	<b>ONLINE</b>	Running	<b>NORMAL MODE</b>	N/A
TSAPI Service	ONLINE	Running	NORMAL MODE	N/A
Transport Layer Service	N/A	Running	N/A	N/A

For status on actual services, please use [Status and Control](#)

\* -- For more detail, please mouse over the Cause, you'll see the tooltip, or go to help page.

**License Information**  
You are licensed to run Application Enablement (CTI) version 6.0

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### 6.3. Create CTI User

An user ID and password needs to be configured for the Red Box recorder to communicate as a DMCC Client with the Application Enablement Services. 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 **Avaya Role**, select **userservice.useradmin** from the drop down list. 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 below).

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title 'Application Enablement Services Management Console', and a welcome message for 'User craft' with login details. A red navigation bar contains 'User Management | User Admin | Add User' and links for 'Home | Help | Logout'. A left sidebar lists various system components, with 'User Management' expanded to show 'User Admin' and 'Add User'. The main area is titled 'Add User' and contains a form with the following fields: 'User Id' (text), 'Common Name' (text), 'Surname' (text), 'User Password' (password), 'Confirm Password' (password), 'Admin Note' (text), 'Avaya Role' (dropdown menu set to 'userservice.useradmin'), 'Business Category' (text), 'Car License' (text), 'CM Home' (text), 'Css Home' (text), 'CT User' (checkbox set to 'Yes'), and 'Department Number' (text). A note indicates that fields marked with an asterisk are required.

## 6.4. Enable CTI User

Navigate to the users screen by selecting **Security** → **Security Database** → **CTI Users** → **List All Users**. In the **CTI Users** window, select the user that was set up in **Section 6.3** and select the **Edit** option.

**AVAYA**

**Application Enablement Services**  
Management Console

Welcome: User craft  
Last login: Fri Jun 3 13:34:08 2011 from 10.10.16.62  
HostName/IP: devconaes61/10.10.16.30  
Server Offer Type: TURNKEY  
SW Version: r6-1-0-20-0

Security | Security Database | CTI Users | List All UsersHome | Help | Logout

AE Services

Communication Manager Interface

Licensing

Maintenance

Networking

Security

Account Management

Audit

Certificate Management

Enterprise Directory

Host AA

PAM

Security Database

Control

CTI Users

List All Users

Search Users

Devices

Device Groups

Tlinks

Tlink Groups

Worktops

Standard Reserved Ports

Tripwire Properties

Status

User Management

Utilities

Help

CTI Users

User ID	Common Name	Worktop Name	Device ID
<input type="radio"/> John	John	NONE	NONE
<input type="radio"/> pc5	pc5	NONE	NONE
<input type="radio"/> pc5hd	pc5hd	NONE	NONE
<input type="radio"/> presence	presence	NONE	NONE
<input checked="" type="radio"/> redboxAES	redboxAES	NONE	NONE
<input type="radio"/> scantalk	Scantalk	NONE	NONE
<input type="radio"/> synAES	synAES	NONE	NONE

EditList All

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The **Edit CTI User** screen appears. Tick the **Unrestricted Access** box and **Apply Changes** at the bottom of the screen.

**AVAYA**

**Application Enablement Services**  
Management Console

Welcome: User craft  
Last login: Fri Jun 3 13:34:08 2011 from 10.10.16.62  
HostName/IP: devconaes61/10.10.16.30  
Server Offer Type: TURNKEY  
SW Version: r6-1-0-20-0

Security | Security Database | CTI Users | List All Users

Home | Help | Logout

AE Services

Communication Manager Interface

Licensing

Maintenance

Networking

Security

Account Management

Audit

Certificate Management

Enterprise Directory

Host AA

PAM

Security Database

Control

CTI Users

List All Users

Search Users

Devices

Device Groups

Tlinks

Tlink Groups

Worktops

Standard Reserved Ports

Tripwire Properties

Status

User Management

Utilities

Help

**Edit CTI User**

User Profile:

User IDredboxAES

Common NameredboxAES

Worktop NameNONE

Unrestricted Access☒

Call and Device Control:

Call Origination/Termination and Device Status

None

Call and Device Monitoring:

Device Monitoring

None

Calls On A Device Monitoring

None

Call Monitoring

☐

Routing Control:

Allow Routing on Listed Devices

None

Apply Changes

Cancel Changes

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## 6.5. Configure DMCC Port

On the AES Management Console navigate to **Networking → Ports** to set the DMCC server port. During the compliance test, the **Unencrypted Port** set to **4721** was **Enabled** as shown in the screen below. Click the **Apply Changes** button (not shown) at the bottom of the screen to complete the process.

**AVAYA**

**Application Enablement Services**  
Management Console

Welcome: User craft  
Last login: Fri Jun 3 13:34:08 2011 from 10.10.16.62  
HostName/IP: devconaes61/10.10.16.30  
Server Offer Type: TURNKEY  
SW Version: r6-1-0-20-0

Networking | Ports

Home | Help | Logout

AE Services

Communication Manager Interface

Licensing

Maintenance

Networking

AE Service IP (Local IP)

Network Configure

Ports

TCP Settings

Security

Status

User Management

Utilities

Help

**Ports**

CVLAN Ports

Unencrypted TCP Port9999Enabled Disabled

Encrypted TCP Port9998Enabled Disabled

DLG Port

TCP Port5678

TSAPI Ports

TSAPI Service Port450Enabled Disabled

Local TLINK Ports

TCP Port Min1024

TCP Port Max1039

Unencrypted TLINK Ports

TCP Port Min1050

TCP Port Max1065

Encrypted TLINK Ports

TCP Port Min1066

TCP Port Max1081

DMCC Server Ports

Unencrypted Port4721Enabled Disabled

Encrypted Port4722Enabled Disabled

TR/87 Port4723Enabled Disabled

H.323 Ports

TCP Port Min20000

TCP Port Max23999

Local UDP Port Min30000

Local UDP Port Max33999

Server Media

RTP Local UDP Port Min\*40000

RTP Local UDP Port Max\*47999

\* Note: The number of RTP ports needs to be double the number of extensions using server media.



## 6.6. Enable 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. Check **Enable SDB for DMCC Service** and **Enable SDB TSAPI Service, JTAPI and Telephony Service**, and click **Apply Changes**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains "Security | Security Database | Control" and links for "Home | Help | Logout". The left sidebar lists various service categories, with "Security" expanded to show "Security Database" and its sub-items, including "Control". The main content area, titled "SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services", contains two checked checkboxes: "Enable SDB for DMCC Service" and "Enable SDB for TSAPI Service, JTAPI and Telephony Web Services". Below these is an "Apply Changes" button. The footer of the console shows the copyright notice: "Copyright © 2009-2010 Avaya Inc. All Rights Reserved."

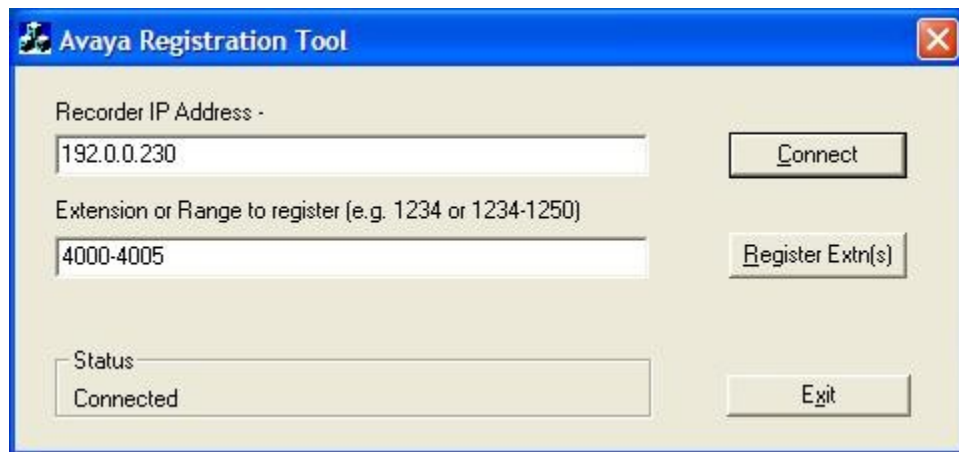
## 7. Configuration of Red Box Recorder RBR 2610

The RBR 2610 Server is provided pre-installed with Quantify 2A Service Pack 2. Administering an IP address on Microsoft Windows is outside of the scope of this document. There are two main components to configure the recording solution as follows.

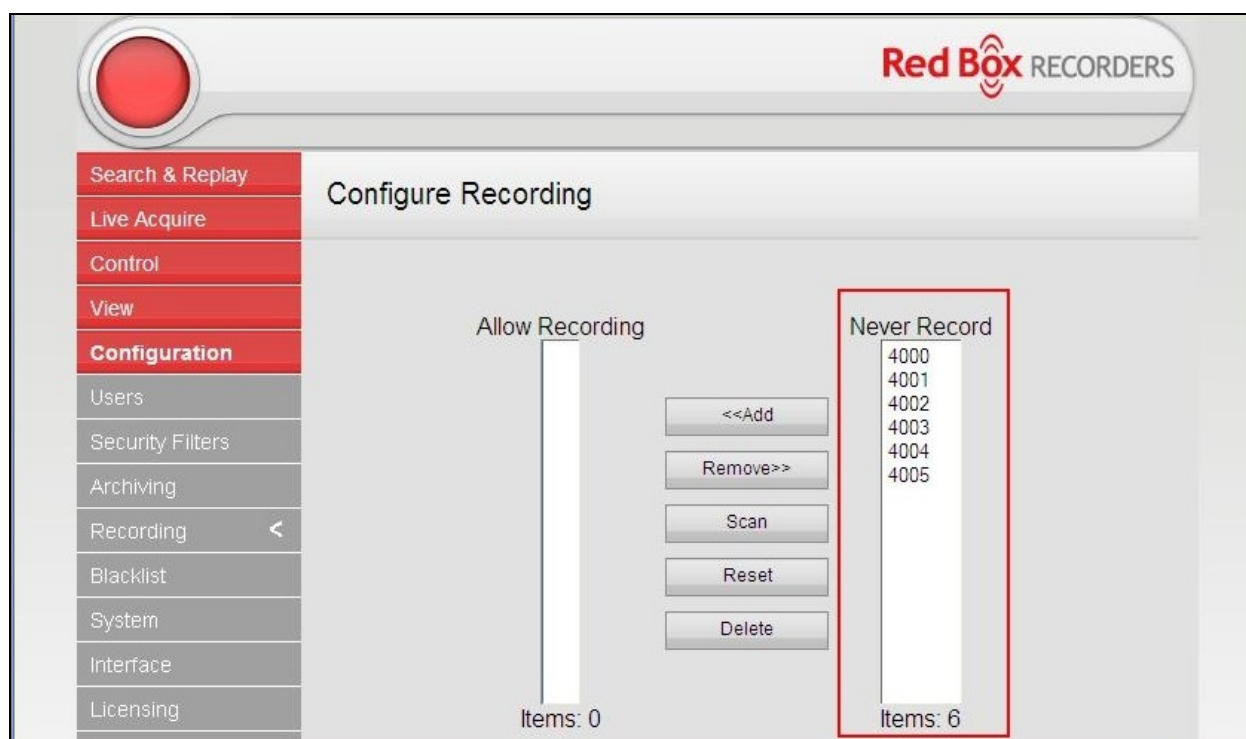
- Register extensions to RBR 2610
- Configure RBR 2610 to AES

### 7.1. Register Extensions to Red Box Recorder RBR 2610

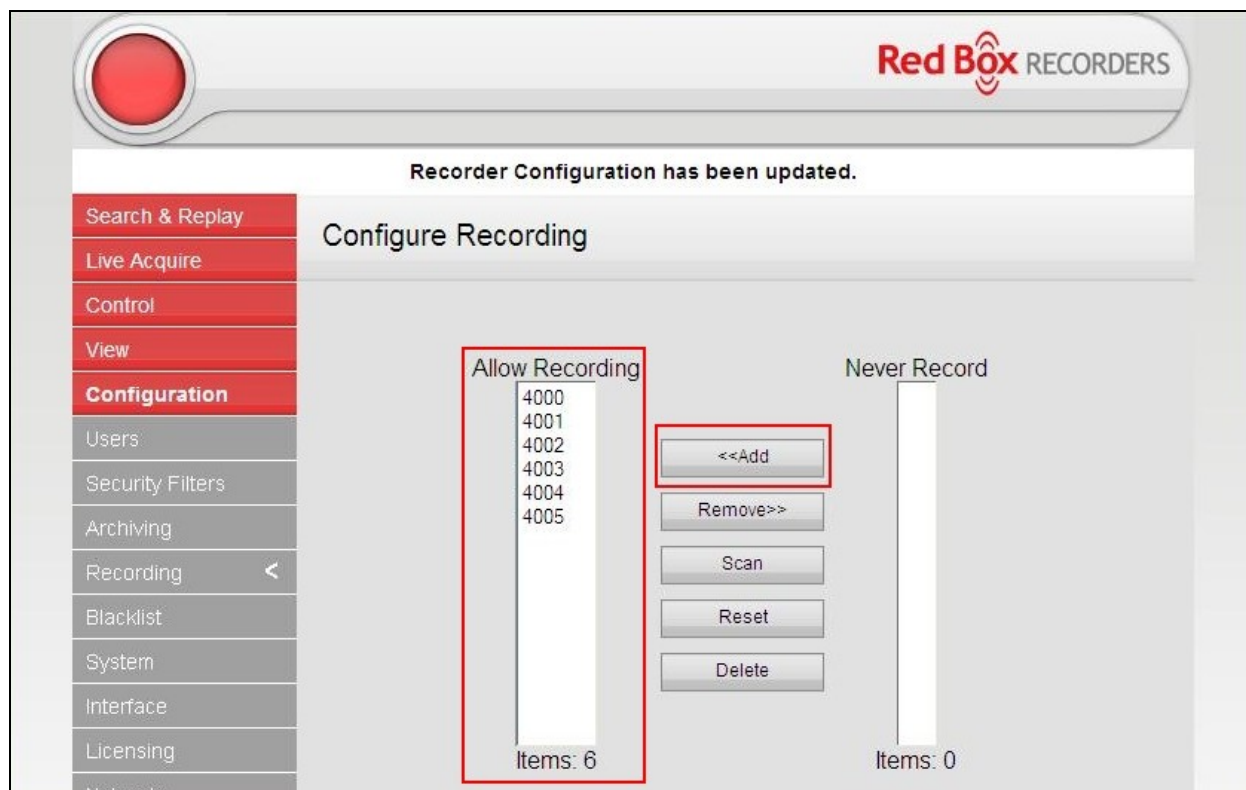
Run the **Avaya Registration Tool**, located in **C:\LTR\Config** on the RBR Server, the **Avaya Registration Tool** is used to access the RBR 2610 server and assign extensions which are to be recorded. Enter in the **Recorder IP Address** followed by the extension numbers to be recorded in the **Extension or Range to register** field. Choose **Connect**.



The web interface is used to configure the extensions. Use <http://10.10.16.100> to access the **Configure Recording** screen of the RBR2610. The extensions which were added earlier in this section should appear in the **Never Record** column as shown below.



Use the **Add** button to configure these extensions for recording. Highlight the extensions and select **Add**. The extensions will then be transferred to the **Allow Recording** column.



## 7.2. Configure RBR 2610 to Avaya Aura® Application Enablement Services

Use the ini file **AvayaDMCCConfig.ini** placed in default location of **C:\LTR\Config** to configure AES to Red Box Recorder solution. Open the file in text editor and enter in the following values.

- **ServerIP:** Set this to **10.10.16.30** which is the AES IP Address
- **Login:** Set this to the CTI user name that was set in **Section 6.3**
- **Password:** Set this to the CTI user password set in **Section 6.3**
- **LocalIPAddress:** Enter in the IP address that was assigned to the Red Box Recorder
- **SwitchName:** This is the name of the switch connection as set in **Section 6.2**
- **EnableAgentLogin** Set to **1**
- **AgentHuntGroupNumber**  
This is the hunt group to which recorded agents must belong

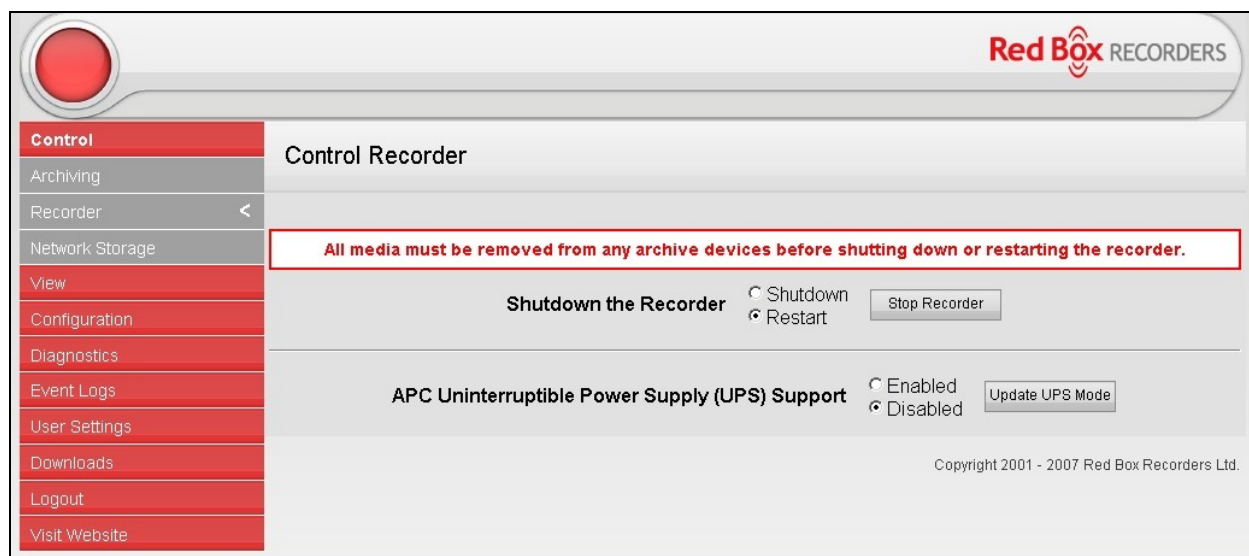
```
[DMCCConnection]
ServerIP=10.10.16.30
Login=redboxAES
Password=redboxAES123!
LocalIPAddress=10.10.16.100
SessionLengthSeconds=15

[CommsManager]
SwitchName=CM

[General]
EnableAgentLogin=1
AgentHuntGroupNumber=4010
```

Save the file.

Restart the recorder from the web interface, click on **Configuration → Control → Recorder**. Select the **Restart** radio button and click **Stop Recorder** as shown below. The RBR 2610 is now configured to the Application Enablement Services.



## 8. General Test Approach and Test Results

The test approach was to verify that the calls placed and recorded using the Red Box Recorder solution with Avaya solution functioned correctly with good audio quality received.

Functionality testing included basic telephony operations such as answer, hold/retrieve, transfer, conference, call pick-up, call park and calls to/from the PSTN. Tests also included ACD Agent Recording. All tests were successful.

## 9. Verification Steps

This section provides the tests that can be performed to verify correct configuration of Avaya and Red Box Recorder solution.

### 9.1. Verify Avaya Aura® Communication Manager CTI Service State

The following steps can ensure that the communication between Communication Manager and the Application Enablement Services server is functioning correctly. Check the AESVCS link status with Application Enablement Services by using the command **status aesvcs cti-link**. The CTI Link is 1. Verify the **Service State** of the CTI link is **established**.

status aesvcs cti-link						
AE SERVICES CTI LINK STATUS						
CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
1	4	no	devconaes61	established	18	18

## 9.2. Verify Avaya Aura® Application Enablement Services DMCC Service

The following steps are carried out on the Application Enablement Services to ensure that the communication link between Communication Manager and the Application Enablement Services server is functioning correctly. Verify the status of the DMCC service by selecting **Status** → **Status and Control** → **DMCC Service Summary**. The **DMCC Service Summary – Session Summary** screen is displayed as shown below. It shows a connection to the Red Box Recorder Server, IP address **10.10.16.100**. The **Application** is set to **Redbox** and the **Far-end Identifier** is given as the IP address **10.10.16.100** as expected.

**AVAYA**

**Application Enablement Services**  
Management Console

Welcome: User craft  
Last login: Tue Jun 7 13:23:55 2011 from 10.10.16.62  
HostName/IP: devconaes61/10.10.16.30  
Server Offer Type: TURNKEY  
SW Version: r6-1-0-20-0

Status | Status and Control | DMCC Service SummaryHome | Help | Logout

AE Services

Communication Manager Interface

Licensing

Maintenance

Networking

Security

Status

Alarm Viewer

Logs

Status and Control

CVLAN Service Summary

DLG Services Summary

DMCC Service Summary

Switch Conn Summary

TSAPI Service Summary

User Management

Utilities

Help

DMCC Service Summary - Session Summary

☐ Enable page refresh every 60 seconds

Session Summary [Device Summary](#)  
Generated on Tue Jun 07 16:25:39 GMT-00:00 2011  
Service Uptime: 19 days, 4 hours 41 minutes  
Number of Active Sessions: 1  
Number of Sessions Created Since Service Boot: 13  
Number of Existing Devices: 2  
Number of Devices Created Since Service Boot: 126

	Session ID	User	Application	Far-end Identifier	Connection Type	# of Associated Devices
<input type="checkbox"/>	9595BE8826FCC46F2 6CA3D16DC0749F5-12	redboxAES	Redbox	10.10.16.100	XML Unencrypted	2

[Terminate Sessions](#) [Show Terminated Sessions](#)

Item 1-1 of 1

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### 9.3. Verify RBR 2610 Configuration

The following steps can be performed to verify the basic operation of the system components. Check status page of the Red Box Recorder to verify that there are no alarms running. If all is functioning as expected the status page should appear as in the screen below. Note **Calls Being Recorded**. This page loads once logged in to the recorder.

The screenshot displays the Red Box Recorder web interface. On the left is a navigation menu with options: Search & Replay, Live Acquire, Control, View, Channel Activity, Recorder Status (selected), Logged In Users, Statistics, Version Information, Database Details, Media List, Configuration, Diagnostics, Event Logs, User Settings, Downloads, and Logout. The main content area is titled 'Recorder Status' and contains a table with the following data:

Item	Status
RecorderID	1409
Recorder Status	Recording
System Type	Standalone
Active Alarms	0
Unarchived Data	<div><div></div></div> 0 %
Network Storage Backlog	<div><div></div></div> 0 %
Recorder Utilization	<div><div></div></div> 10 %
Calls Being Recorded	2

Below the table, it states: No Archive Devices are licensed.

Choose the **Version Information** tab on the recorder screen to check the version numbers of the recorder to ensure that the version is as expected.

Component	Version
Recorder	7.53.5710
Active Recording PP	1.7.5710
AA RAM	2.6.5713.0
RAInterface	7.19.5710
RIConverter	1.13.5710
Quantify	2.01.297
BUI	7.35.5710
Templates	7.14.5711
Upload Manager	1.0
Update Manager	5.42
SNMP Agent	4.0.5710
Support Manager	2.3

## 10. Conclusion

These Application Notes describe the configuration steps required for the Red Box Recorder RBR 2610 to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. All functionality and serviceability test cases were completed successfully.

## 11. Additional References

Product documentation for Avaya products may be found at <http://support.avaya.com>

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

[2] Administering Avaya Aura® Communication Manager – Release 6.0, Issue 6.0, June 2010

Product documentation for Red Box Recorder can be found at <http://www.redboxrecorders.com>

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