



Avaya Solution & Interoperability Test Lab

Application Notes for HP Qfiniti Observe (Media Streaming) with Avaya Aura® Application Enablement Services and Avaya Aura® Communication Manager using DMCC – Issue 1.0

Abstract

These Application Notes contain instructions for HP Qfiniti Observe with Avaya Aura® Application Enablement Services and Avaya Aura® Communication Manager to successfully interoperate.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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 contain instructions for HP Qfiniti Observe with Avaya Aura® Application Enablement Services and Avaya Aura® Communication Manager to successfully interoperate.

Qfiniti is a call recording solution which utilizes the Device, Media and Call Control (DMCC) and TSAPI services on Avaya Aura® Application Enablement Services (AES) to record calls for Quality Monitoring and Compliance purposes.

Qfiniti registers as one of up to three recording devices at an extension that is provisioned in Communication Manager. Once Qfiniti Observe requests listening services, the AES will send Qfiniti Observe a duplicate stream of whatever comes and goes from the originally provisioned extension. This mode is known as Media Streaming within Qfiniti Observe.

2. General Test Approach and Test Results

The compliance test focused on the ability for calls to be recorded. Calls were manually placed from the public switched telephone network (PSTN) directly to and from recorded devices, and to Automatic Call Distributor (ACD) queues.

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 compliance test validated the ability of Qfiniti Observe to successfully record various types of calls routed to and from Analog, Digital, IP and SIP endpoints. The feature testing included the following:

- Handling of real-time agent states and call events from Qfiniti Observe
- Use of AES DMCC registration services to register and un-register the virtual IP Softphone
- Use of Communication Manager Service Observing feature to have virtual IP Softphones service-observing target stations
- Use of Application Enablement Services AES DMCC monitoring services and media control events to obtain the media from the virtual IP Softphones
- Proper recording, logging, and playback of calls for scenarios involving inbound, outbound, agent drop, customer drop, hold, reconnect, transfer and conference.

Additionally, testing confirmed the ability for Qfiniti Observe to recover from common outages such as network outages and server reboots.

2.2. Test Results

All planned test cases were passed.

2.3. Support

Technical support for HP Qfiniti can be obtained via the following means.

Web: <https://customers.autonomy.com>

Phone: (800) 346-4436

3. Reference Configuration

Figure 1 illustrates a sample configuration that consists of Avaya Products and HP Qfiniti Observe.

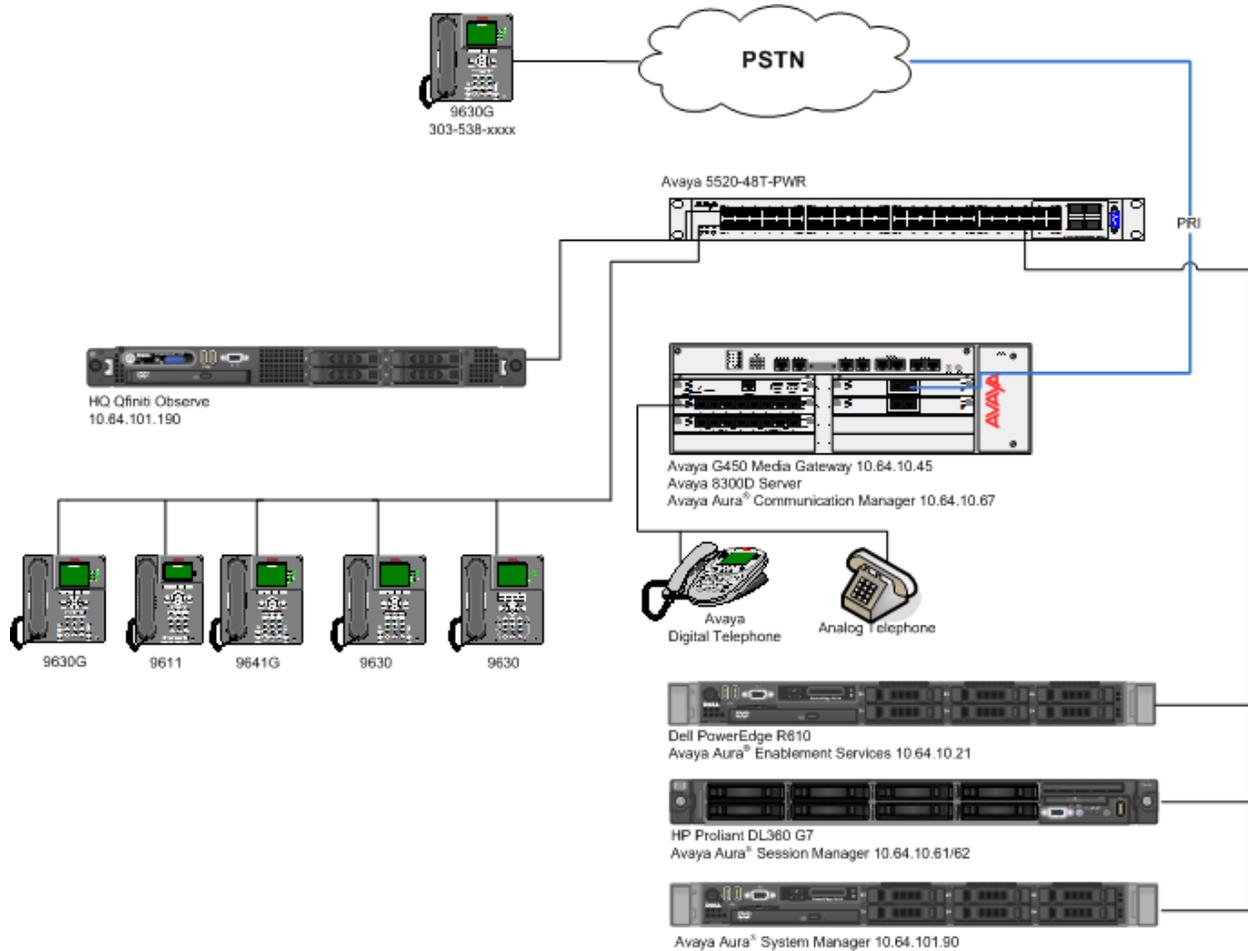


Figure 1: Test Configuration for Qfiniti Observe

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya S8300D Server	6.3 SP8
Avaya Aura [®] Communication Manager	6.3 SP6
Avaya Aura [®] Session Manager	6.3 SP6
Avaya Aura [®] System Manager	6.3 SP6
Avaya G450 Media Gateway	31.20.0
Avaya Aura [®] Application Enablement Services	6.3
Avaya TSAPI Client	6.3
Qfiniti Observe	10.3

5. Configure Avaya Aura® Communication Manager

This section contains steps necessary to configure Qfiniti Observe successfully with Avaya Aura® Communication Manager.

All configurations in Communication Manager were performed via SAT terminal.

5.1. Verify Feature and License

Enter the **display system-parameters customer-options** command and ensure that the following features are enabled.

One Page 3, verify **Computer Telephony Adjunct Links** is set to **y**.

```
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? y                                    DCS Call Coverage? y
    ASAI Link Plus Capabilities? y                                    DCS with Rerouting? y
    Async. Transfer Mode (ATM) PNC? n
    Async. Transfer Mode (ATM) Trunking? n                            Digital Loss Plan Modification? y
    ATM WAN Spare Processor? n                                        DS1 MSP? y
    ATMS? y                                                            DS1 Echo Cancellation? y
    Attendant Vectoring? y
```

5.2. Configure Stations

Use **add station *n*** command to add a station, where *n* is an available station extension. This station will be monitored by Qfiniti Observe. Configure the station as follows, on Page 1:

- In **Name** field, enter a descriptive name
- Set **Type** to the type of the telephones
- Enter a **Security Code**
- Set **IP SoftPhone** to **y**

```
add station 25002                                     Page 1 of 5
                                                    STATION
Extension: 25002                                     Lock Messages? n          BCC: 0
  Type: 9630                                         Security Code: 123456     TN: 1
  Port: IP                                           Coverage Path 1: 1       COR: 1
  Name: IP Station 1                                Coverage Path 2:         COS: 1
                                                    Hunt-to Station:
STATION OPTIONS
Loss Group: 19                                       Time of Day Lock Table:
Speakerphone: 2-way                                  Personalized Ringing Pattern: 1
Display Language: english                            Message Lamp Ext: 25001
Survivable GK Node Name:                             Mute Button Enabled? y
Survivable COR: internal                             Button Modules: 0
Survivable Trunk Dest? y                             Media Complex Ext:
                                                    IP SoftPhone? y
                                                    IP Video Softphone? n
Short/Prefixed Registration Allowed: default
                                                    Customizable Labels? y
```

5.3. Configure IP Services

Add an IP-Services entry, using the **change ip-services** command, for Application Enablement Services as described below. On Page 1:

- In the **Service Type** field, type **AESVCS**.
- In the **Enabled** field, type **y**.
- In the **Local Node** field, type the Node name **procr** for the Processor Ethernet Interface.
- In the **Local Port** field, use the default of **8765**.

```
change ip-services
```

Page 1 of 4

Service Type	Enabled	Local Node	IP SERVICES		
			Local Port	Remote Node	Remote Port
AESVCS	y	procr	8765		
CDR1		procr	0		
CDR2		procr	0		
PMS		procr	0		

On Page 4 of the IP Services form, enter the following values:

- In the **AE Services Server** field, type the host name of the Application Enablement Services server.
- In the **Password** field, type the same password to be administered on the Application Enablement Services server in **Section 6.1**.
- In the **Enabled** field, type **y**.

```
change ip-services
```

Page 4 of 4

AE Services Administration

Server ID	AE Services Server	Password	Enabled	Status
1:	aes6_tr1	devconnect123	y	in use
2:	AES2146	devconnect123	y	in use

5.4. Configure CTI Link

Enter the **add cti-link <link number>** command, where **<link number>** is an available CTI link number.

- In the **Extension** field, type a valid station extension.
- In the **Type** field, type **ADJ-IP**.
- In the **Name** field, type a descriptive name.

```
add cti-link 1                                     Page 1 of 3
                                                    CTI LINK
CTI Link: 1
Extension: 6201
  Type: ADJ-IP
                                                    COR: 1
  Name: TSAPI
```

6. Configure Avaya Aura® Application Enablement Services

Configuration of Avaya Aura® Application Enablement Services requires a user account be configured for Qfiniti Observe and CTI/TSAPI configuration for Communication Manager.

All administration is performed by web browser, <https://<aes-ip-address>>

6.1. Configure Communication Manager Switch Connections

To add links to Communication Manager, navigate to the **Communication Manager Interface** → **Switch Connections** page and enter a name for the new switch connection (e.g., **TR18300**) and click the **Add Connection** button (not shown). The **Connection Details** screen is shown. Enter the **Switch Password** configured in **Section 5.3** and check the **Processor Ethernet** box if using the **procr** interface. Click **Apply**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top right corner shows a welcome message for user 'craft' and system information: 'Last login: Thu Aug 28 11:59:42 2014 from 10.64.10.48', 'Number of prior failed login attempts: 0', 'HostName/IP: aes6_tr1/10.64.10.21', 'Server Offer Type: VIRTUAL_APPLIANCE_ON_SP', 'SW Version: 6.3.0.0.212-0', and 'Server Date and Time: Wed Sep 24 15:18:02 MDT 2014'. The main navigation bar includes 'Communication Manager Interface | Switch Connections' and 'Home | Help | Logout'. A left sidebar lists menu items: 'AE Services', 'Communication Manager Interface' (expanded), 'Switch Connections' (selected), 'Dial Plan', 'Licensing', 'Maintenance', 'Networking', 'Security', 'Status', 'User Management', 'Utilities', and 'Help'. The main content area is titled 'Connection Details - TR18300' and contains the following fields: 'Switch Password' (masked with dots), 'Confirm Switch Password' (masked with dots), 'Msg Period' (30) with a unit of 'Minutes (1 - 72)', 'SSL' (checked), and 'Processor Ethernet' (checked). 'Apply' and 'Cancel' buttons are located at the bottom of the form.

The display returns to the **Switch Connections** screen which shows that the **CM3010** switch connection has been added.

Switch Connections

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
<input checked="" type="radio"/> CM2141	Yes	30	0
<input type="radio"/> CM3010	Yes	30	0
<input type="radio"/> TR18300	Yes	30	1

Click the **Edit PE/CLAN IPs** button on the **Switch Connections** screen to configure the **procr** or **CLAN IP** Address(es) for TSAPI message traffic. The **Edit Processor Ethernet IP** screen is displayed. Enter the IP address of the **procr** interface and click the **Add/Edit Name or IP** button.



Application Enablement Services
Management Console

Welcome: User craft
 Last login: Thu Aug 28 11:59:42 2014 from 10.64.10.48
 Number of prior failed login attempts: 0
 HostName/IP: aes6_tr1/10.64.10.21
 Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
 SW Version: 6.3.0.0.212-0
 Server Date and Time: Wed Sep 24 15:20:43 MDT 2014

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 Processor Ethernet IP - TR18300

Name or IP Address	Status
10.64.10.67	In Use

Click the **Edit H.323 Gatekeeper** button on the **Switch Connections** screen to configure the **procr** or **CLAN** IP Address(es) for DMCC registrations. The **Edit H.323 Gatekeeper** screen is displayed. Enter the IP address of the **procr** interface and click the **Add Name or IP** button.

The screenshot displays the Avaya Application Enablement Services Management Console. At the top left is the Avaya logo and the text 'Application Enablement Services Management Console'. At the top right, a welcome message reads: 'Welcome: User craft', 'Last login: Thu Aug 28 11:59:42 2014 from 10.64.10.48', 'Number of prior failed login attempts: 0', 'HostName/IP: aes6_tr1/10.64.10.21', 'Server Offer Type: VIRTUAL_APPLIANCE_ON_SP', 'SW Version: 6.3.0.0.212-0', and 'Server Date and Time: Wed Sep 24 15:21:43 MDT 2014'. Below this is a red navigation bar with 'Communication Manager Interface | Switch Connections' and links for 'Home | Help | Logout'. On the left is a sidebar menu with options: 'AE Services', 'Communication Manager Interface' (expanded), 'Switch Connections' (highlighted), 'Dial Plan', 'Licensing', 'Maintenance', and 'Networking'. The main content area is titled 'Edit H.323 Gatekeeper - TR18300' and contains a form with an empty text input field, an 'Add Name or IP' button, a 'Name or IP Address' label, a radio button selected for '10.64.10.67', and 'Delete IP' and 'Back' buttons.

6.2. Add TSAPI Link

Navigate to the **AE Services** → **TSAPI** → **TSAPI Links** page to add a TSAPI CTI Link. Click **Add Link** (not shown).

Select a **Switch Connection** using the drop down menu. Select the **Switch CTI Link Number** using the drop down menu. The **Switch CTI Link Number** must match the number configured in the **cti-link** form in **Section 5. 4**. Select **Both** in the **Security** field.

Click **Apply Changes**.

Welcome: User craft
 Last login: Thu Aug 28 11:59:42 2014 from 10.64.10.48
 Number of prior failed login attempts: 0
 HostName/IP: aes6_tr1/10.64.10.21
 Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
 SW Version: 6.3.0.0.212-0
 Server Date and Time: Wed Sep 24 15:27:16 MDT 2014

AVAYA Application Enablement Services Management Console

AE Services | TSAPI | TSAPI Links Home | Help | Logout

AE Services

- CVLAN
- DLG
- DMCC
- SMS
- TSAPI**
 - TSAPI Links**
 - TSAPI Properties
- TWS

Communication Manager Interface

- Licensing
- Maintenance
- Networking
- Security
- Status
- User Management
- Utilities
- Help

Edit TSAPI Links

Link: 1

Switch Connection: TR18300

Switch CTI Link Number: 1

ASAI Link Version: 5

Security: Both

Apply Changes Cancel Changes Advanced Settings

It returns to the **TSAPI Links** screen which shows that the **TR18300** link has been added.

TSAPI Links

Link	Switch Connection	Switch CTI Link #	ASAI Link Version	Security
<input checked="" type="radio"/> 1	TR18300	1	5	Both
<input type="radio"/> 2	CM3010	1	UNKNOWN	Unencrypted
<input type="radio"/> 3	CM2141	2	UNKNOWN	Both

Add Link Edit Link Delete Link

Click **Edit Link** → **Advanced Setting** to obtain the TSAPI Link that will be used by Qfiniti Observe.

TSAPI Link - Advanced Settings	
Tlinks Configured	<input type="text" value="AVAYA#TR18300#CSTA-S#AES6_TR1"/>
	<input type="text" value="AVAYA#TR18300#CSTA#AES6_TR1"/>

6.3. Configure User

A user needs to be created for Qfiniti Observe to communicate with AES. Navigate to **User Management** → **User Admin** → **Add User**.

Fill in **User Id**, **Common Name**, **Surname**, **User Password** and **Confirm Password**. Set the **CT User** to **Yes**, and **Apply**.

The screenshot shows the Avaya Application Enablement Services Management Console. The top navigation bar includes 'User Management | User Admin | Add User' and 'Home | Help | Logout'. The left sidebar lists various services, with 'User Management' expanded to show 'User Admin' and 'Add User'. The main content area is titled 'Add User' and contains the following form fields:

- Fields marked with * can not be empty.
- * User Id:
- * Common Name:
- * Surname:
- * User Password:
- * Confirm Password:
- Admin Note:
- Avaya Role:
- Business Category:
- Car License:
- CM Home:
- Css Home:
- CT User:
- Department Number:

Navigate to **Security** → **Security Database** → **CTI Users** → **List All Users**.

<ul style="list-style-type: none"> ▼ Security ▶ Account Management ▶ Audit ▶ Certificate Management Enterprise Directory ▶ Host AA ▶ PAM ▼ Security Database <ul style="list-style-type: none"> ▪ Control ▣ CTI Users <ul style="list-style-type: none"> ▪ List All Users ▪ Search Users ▪ Devices ▪ Device Groups ▪ Tlinks ▪ Tlink Groups ▪ Worktops 	<input type="radio"/> ctlog	ctlog	NONE	NONE
	<input type="radio"/> devcon	devcon	NONE	NONE
	<input type="radio"/> devconn	Developer	NONE	NONE
	<input type="radio"/> DevConnect	DevConnect	NONE	NONE
	<input type="radio"/> interop	interop	NONE	NONE
	<input type="radio"/> mattersight	mattersight	NONE	NONE
	<input checked="" type="radio"/> qfiniti	qfiniti	NONE	NONE
	<input type="radio"/> rtirouter1	rtirouter1	NONE	NONE
	<input type="radio"/> rtitele1	rtitele1	NONE	NONE
	<input type="radio"/> satmap	satmap	NONE	NONE
	<input type="radio"/> vhtaes	vhtaes	NONE	NONE
	<input type="button" value="Edit"/> <input type="button" value="List All"/>			

Select the recently added user and click **Edit**. Check the box for **Unrestricted Access** and click **Apply Changes**.

Edit CTI User

User Profile:	User ID: qfiniti Common Name: qfiniti Worktop Name: NONE ▾ Unrestricted Access: <input checked="" type="checkbox"/>	
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: <input type="checkbox"/>	
Routing Control:	Allow Routing on Listed Devices: None ▾	
<input type="button" value="Apply Changes"/> <input type="button" value="Cancel Changes"/>		

7. Configure HP Qfiniti Observe

The Qfiniti product line consists of various applications. The application being certified against the AES is a call recording solution named Observe. Three recording modes were tested: Service Observe, Service Observe – No Talk and Media Streaming (Multiple Registrations). The configurations of these modes are very similar; their differences are noted below.

Service Observe

- **Switch definition:** Set Service Observe Button field to 268 and keep Observe String field blank.
- **Logger Voice Recording Manager:** Set PCM Acquisition field to “Service Observe”.

Service Observe – No Talk

- **Switch definition:** Set Observe String field to the Feature Access Code of the SO – No Talk feature (e.g., “*46”).
- **Logger Voice Recording Manager:** Set PCM Acquisition field to “SO – No Talk”.

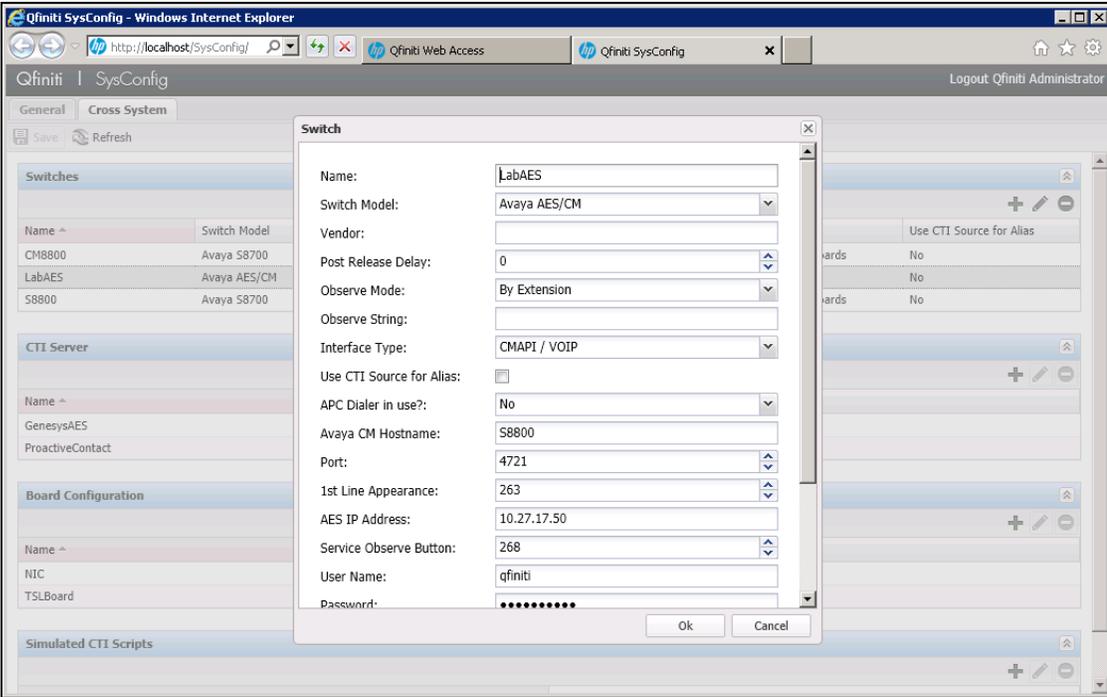
Media Streaming

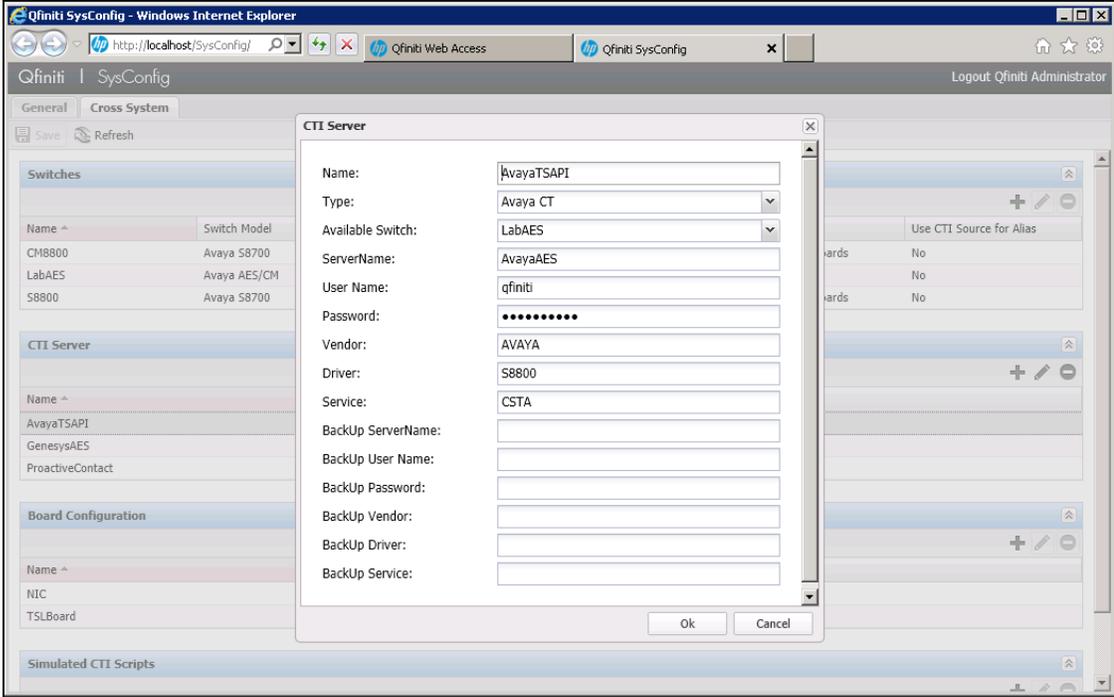
- **Logger Voice Recording Manager:** Set PCM Acquisition field to “Media Streaming”.

This document is specific to Media Streaming and that configuration is described below.

7.1. Qfiniti Configuration – Cross System

Launch the Qfiniti SysConfig program from Internet Explorer or other browser using the URL <http://localhost/SysConfig>. After logging in as user “administrator”, a webpage will appear that has two tabs – General and Cross System. Select the latter to define a switch, CTI server and board configuration. Perform the steps given on the following pages.

Step	Description
1	<p data-bbox="302 222 662 254">Create a Switch Definition</p> <p data-bbox="302 281 1409 436">In the Switch section of the Cross System tab, click on the New Item icon (plus sign). In the dialog box that pops up, specify the Name of an AES Switch definition, then specify or select the given values of the following fields. Keep default values for any fields not given below.</p> <ul data-bbox="350 468 1401 926" style="list-style-type: none"> • Switch Model – <i>Avaya AES/CM</i> • Observe Mode – <i>By Extension</i> • Observe String – <i>Leave blank</i> • Interface Type – <i>CMAPI / VOIP</i> • Avaya CM Hostname – Hostname (or IP address) of the Procr or CLAN used for AES Device and Media Control API station registration • Port – <i>4721</i> • 1st Line Appearance – <i>263</i> • AES IP Address – IP address of the Application Enablement Services server • Service Observe Button – <i>268</i> (corresponds to Button 6) • User Name – User ID specified in Section Error! Reference source not found. • Password – Password specified in Section Error! Reference source not found. <p data-bbox="302 947 1401 1056">When done, click on the Ok button to close the window. The new entry will appear in the list of Switch definitions. Below is a screenshot showing a Switch named “LabAES”.</p> 

Step	Description
2	<p>Create CTI Server</p> <p>In the CTI Server section, click on the New Item icon (plus sign). In the dialog box that pops up, specify the Name of a TSAPI CTI Server, then specify or select the given values of the following fields. Any fields not given below are optional.</p> <ul style="list-style-type: none"> • Type – <i>Avaya CT</i> • Available Switch – Name of the Switch defined in the previous step • Server Name – Hostname or IP address of the Application Enablement Services server • User Name – User ID specified in Section Error! Reference source not found. • Password – Password specified in Section Error! Reference source not found. • Vendor – <i>Avaya</i> • Driver – Hostname of the TSAPI Link (see Section Error! Reference source not found.) • Service – <i>CSTA</i> <p>When done, click on the Ok button to close the window. The new entry will appear in the list of CTI Server definitions. Below is a screenshot showing a CTI Server named “AvayaTSAPI”.</p> 

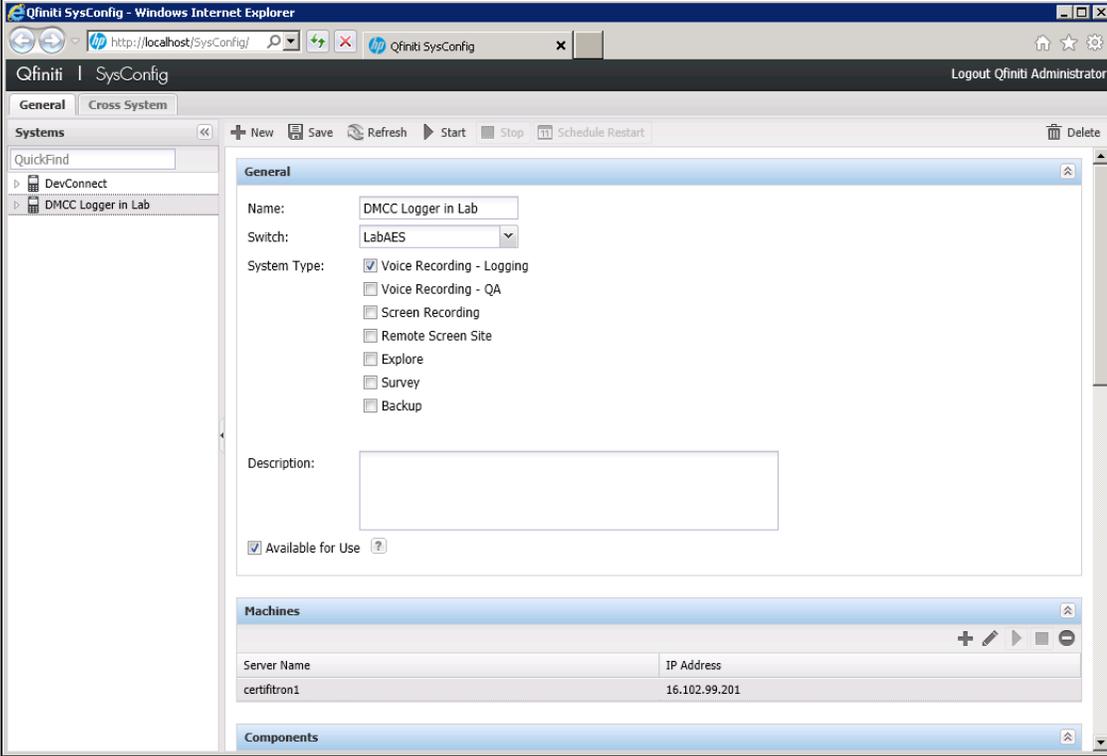
Step	Description																								
3	<p>Define a Board Configuration (not shown)</p> <p>Although Qfiniti uses DMCC to record a call, a board configuration is still required. In the Board Configuration section, click on the New Item icon (plus sign). In the dialog box that pops up, specify the Name for a default board and select <i>Network Interface Card (NIC)</i> as the Model. Keep default values for the other fields. When done, click on the Ok button to close the window.</p>																								
4	<p>IMPORTANT! Press the Save button near the top of the page (below the tabs) in order to save all changes. If tabs are changed without doing this, user will be prompted to save changes first.</p>  <p>The screenshot shows the Qfiniti SysConfig web interface in Internet Explorer. The browser address bar shows 'http://localhost/SysConfig/'. The page title is 'Qfiniti SysConfig' and the user is logged out as 'Qfiniti Administrator'. There are two tabs: 'General' and 'Cross System'. Below the tabs, there are 'Save' and 'Refresh' buttons. The 'Save' button is circled in red. Below the buttons is a table titled 'Switches' with the following data:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Switch Model</th> <th>Vendor</th> <th>Observe Mode</th> <th>Interface Type</th> <th>Use CTI Source for Alias</th> </tr> </thead> <tbody> <tr> <td>CM8800</td> <td>Avaya S8700</td> <td></td> <td>By Extension</td> <td>AI-Logix Media Boards</td> <td>No</td> </tr> <tr> <td>LabAES</td> <td>Avaya AES/CM</td> <td></td> <td>By Extension</td> <td>CMAPI / VOIP</td> <td>No</td> </tr> <tr> <td>S8800</td> <td>Avaya S8700</td> <td></td> <td>By Extension</td> <td>AI-Logix Media Boards</td> <td>No</td> </tr> </tbody> </table>	Name	Switch Model	Vendor	Observe Mode	Interface Type	Use CTI Source for Alias	CM8800	Avaya S8700		By Extension	AI-Logix Media Boards	No	LabAES	Avaya AES/CM		By Extension	CMAPI / VOIP	No	S8800	Avaya S8700		By Extension	AI-Logix Media Boards	No
Name	Switch Model	Vendor	Observe Mode	Interface Type	Use CTI Source for Alias																				
CM8800	Avaya S8700		By Extension	AI-Logix Media Boards	No																				
LabAES	Avaya AES/CM		By Extension	CMAPI / VOIP	No																				
S8800	Avaya S8700		By Extension	AI-Logix Media Boards	No																				

7.2. Qfiniti Configuration – Voice Logger

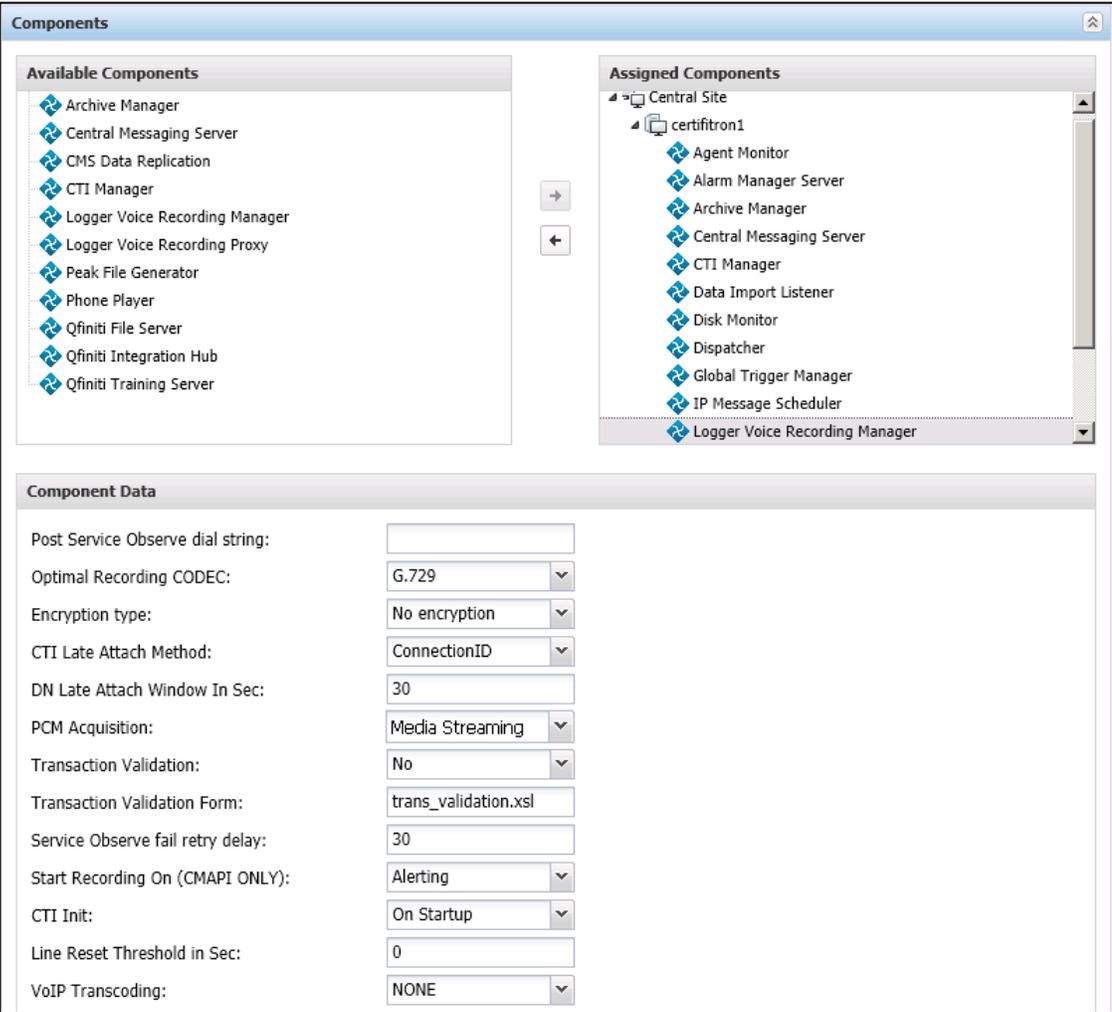
After configuring Cross-System items, click on the **General** tab in order to define a DMCC Voice Logger system. Perform the steps given below.

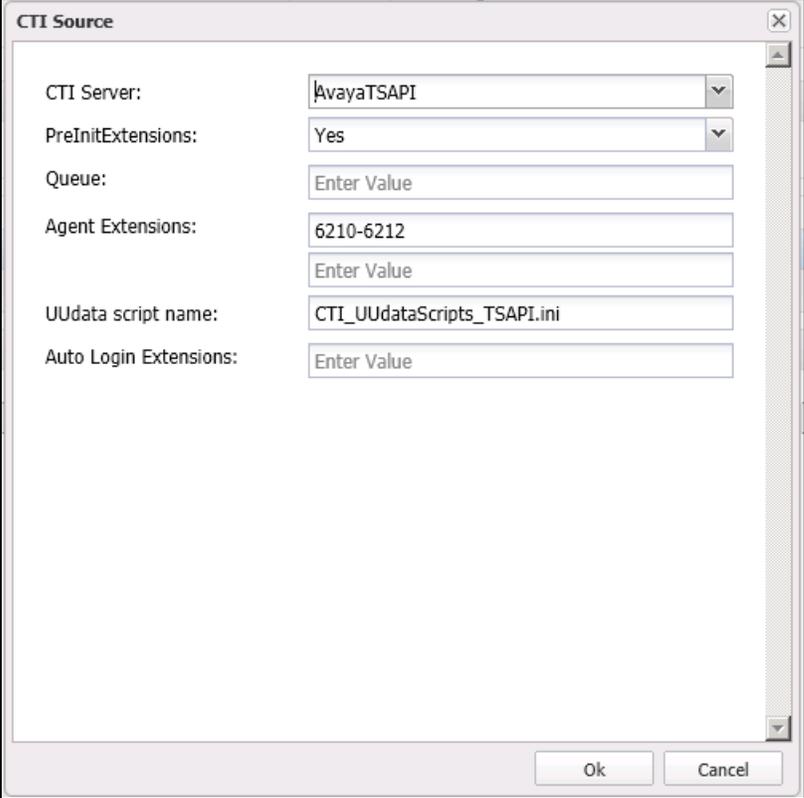
IMPORTANT: All steps must be completed before the data can be saved (via the **Save** button).

Step	Description
1	<p>Create a Voice Logger System</p> <p>Under the General tab, click the New icon to create a Voice Logger. Provide a descriptive Name, select the Switch definition that was created in <i>Step 1</i>, and select Voice Recording – Logging as the System Type. A Description is optional. Check the Available for Use checkbox to make the system active.</p>

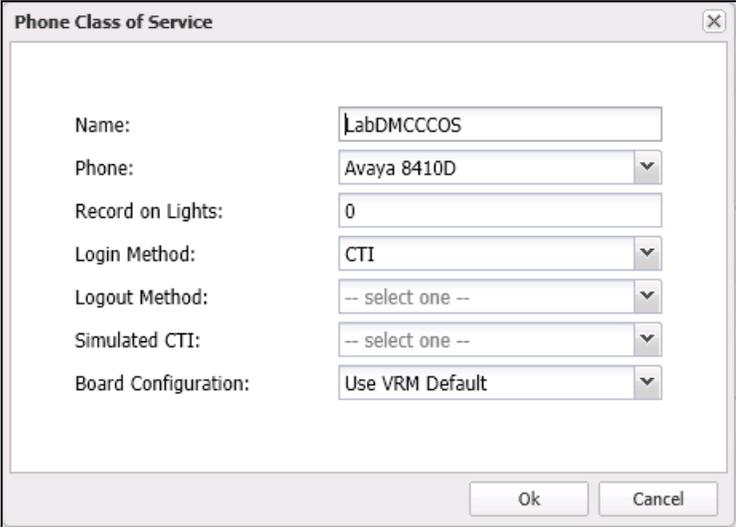
Step	Description
2	<p>In the Machines section, provide the Name and IP Address of the server that will be running Qfiniti.</p> <p>Below is a screenshot of a system named “DMCC Logger in Lab” on a server named “certifitron1”.</p> 

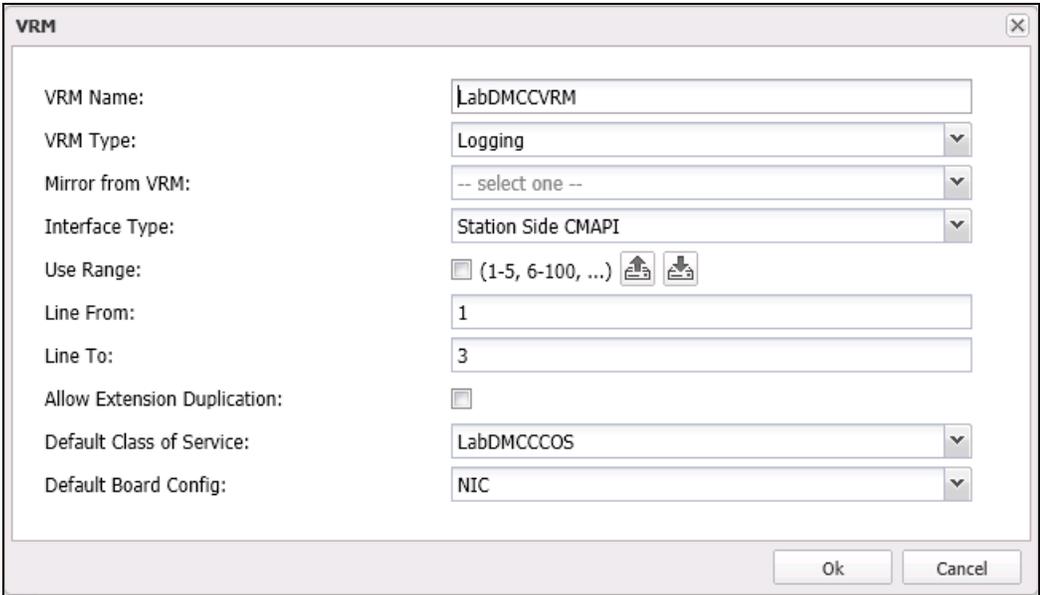
Step	Description
3	<p>In the Components section, assign the required Qfiniti components to the selected machine name. Note: This step is not shown in detail; it will be performed by HP personnel and is covered in product documentation. The minimum set of components required for use with the Avaya AES is:</p> <ul style="list-style-type: none"> • Agent Monitor • Alarm Manager Server • Archive Manager (requires additional configuration) • Central Messaging Server • CTI Manager • Data Import Listener • Disk Monitor • Dispatcher • Global Trigger Manager • IP Message Scheduler • Logger Voice Recording Manager (requires additional configuration; see <i>Step 8</i>) • Master Service • Peak File Generator • Plan Manager • Qfiniti File Server (requires additional configuration) • Session Manager

Step	Description																										
4	<p data-bbox="302 184 911 220">Configure Logger Voice Recording Manager</p> <p data-bbox="302 243 1414 401">In the list of assigned components, select Logger Voice Recording Manager (LRecMan). The configuration parameters for this component will be displayed in the Component Data section. Select the given values of the following fields. Keep default values for any fields not given below.</p> <ul data-bbox="350 432 894 541" style="list-style-type: none"> • Optimal Recording CODEC – <i>G.729</i> • PCM Acquisition – <i>Media Streaming</i> • Start Recording On – <i>Alerting</i> <p data-bbox="302 562 1333 598">Note: This configuration assumes that the AES has been set up for G.729 codec.</p> <div data-bbox="302 611 1414 1623">  <p>The screenshot shows a configuration window with two panes. The left pane, titled 'Components', lists 'Available Components' including Archive Manager, Central Messaging Server, CMS Data Replication, CTI Manager, Logger Voice Recording Manager, Logger Voice Recording Proxy, Peak File Generator, Phone Player, Qfiniti File Server, Qfiniti Integration Hub, and Qfiniti Training Server. The right pane, titled 'Assigned Components', shows a tree view with 'Central Site' containing 'certifitron1', which lists various components including Agent Monitor, Alarm Manager Server, Archive Manager, Central Messaging Server, CTI Manager, Data Import Listener, Disk Monitor, Dispatcher, Global Trigger Manager, IP Message Scheduler, and Logger Voice Recording Manager. Below these panes is the 'Component Data' section with the following fields:</p> <table border="1" data-bbox="318 1129 878 1612"> <tr> <td>Post Service Observe dial string:</td> <td><input type="text"/></td> </tr> <tr> <td>Optimal Recording CODEC:</td> <td>G.729</td> </tr> <tr> <td>Encryption type:</td> <td>No encryption</td> </tr> <tr> <td>CTI Late Attach Method:</td> <td>ConnectionID</td> </tr> <tr> <td>DN Late Attach Window In Sec:</td> <td>30</td> </tr> <tr> <td>PCM Acquisition:</td> <td>Media Streaming</td> </tr> <tr> <td>Transaction Validation:</td> <td>No</td> </tr> <tr> <td>Transaction Validation Form:</td> <td>trans_validation.xsl</td> </tr> <tr> <td>Service Observe fail retry delay:</td> <td>30</td> </tr> <tr> <td>Start Recording On (CMAPI ONLY):</td> <td>Alerting</td> </tr> <tr> <td>CTI Init:</td> <td>On Startup</td> </tr> <tr> <td>Line Reset Threshold in Sec:</td> <td>0</td> </tr> <tr> <td>VoIP Transcoding:</td> <td>NONE</td> </tr> </table> </div>	Post Service Observe dial string:	<input type="text"/>	Optimal Recording CODEC:	G.729	Encryption type:	No encryption	CTI Late Attach Method:	ConnectionID	DN Late Attach Window In Sec:	30	PCM Acquisition:	Media Streaming	Transaction Validation:	No	Transaction Validation Form:	trans_validation.xsl	Service Observe fail retry delay:	30	Start Recording On (CMAPI ONLY):	Alerting	CTI Init:	On Startup	Line Reset Threshold in Sec:	0	VoIP Transcoding:	NONE
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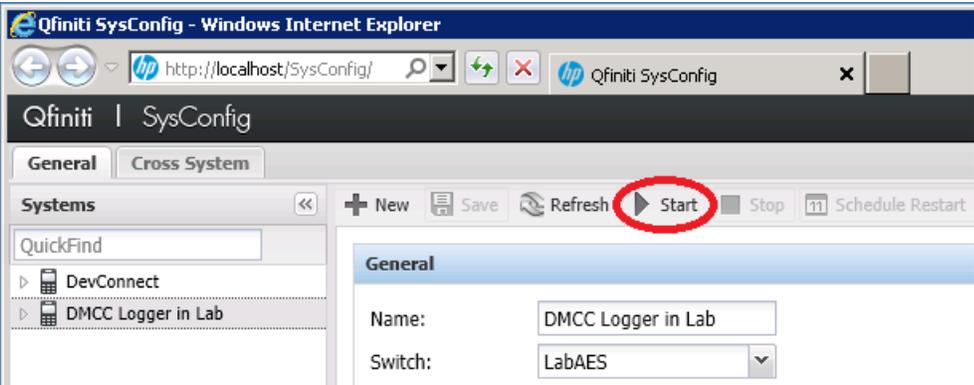
Step	Description
5	<p>Identify the CTI Source</p> <p>In the CTI Sources section, select the machine name, then click on the Add CTI Source icon (plus sign). In the dialog box that pops up, select the name of the CTI Server that was defined in <i>Step 2</i>. Specify the range(s) of Agent Extensions (or individual extensions) that will be used for the tests. A Queue may be specified, too. Keep default values for the other fields. When done, click on the Ok button to close the window.</p> 

Step	Description
6	<p data-bbox="302 184 639 216">Define a Phone Interface</p> <p data-bbox="302 243 1373 359">In the Phone Interface section, select the server name, then click on the Edit Item icon (pencil) to define the phone interface for the logger. In the dialog box that pops up, specify or select the given values of the following fields.</p> <ul data-bbox="350 390 1349 533" style="list-style-type: none"> • Machine Type – <i>Logger</i> • Phone Interface Type – <i>CMAPI ver 4.1</i> • Number of Lines – quantity of stations set up in Section Error! Reference source not found. <p data-bbox="302 558 1024 590">When done, click on the Ok button to close the window.</p> <p data-bbox="302 615 1386 730">Note: The RTP Port Range will be set automatically based upon the line quantity. The RecMgr RTP IP field should remain set as “0.0.0.0” so that the Qfiniti Observe server receives the RTP data.</p> <div data-bbox="488 751 1224 1234" style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p data-bbox="500 762 1213 783">Phone Interface ✕</p> <p data-bbox="565 863 1149 884">Server Name: certifitron1</p> <p data-bbox="565 905 1149 926">Machine Type: <input type="text" value="Logger"/></p> <p data-bbox="565 947 1149 968">Phone Interface Type: <input type="text" value="CMAPI ver 4.1"/></p> <p data-bbox="565 989 1149 1010">Number of Lines: <input type="text" value="6"/></p> <p data-bbox="565 1031 1149 1052">RTP Port Range: <input type="text" value="11000"/> - <input type="text" value="11011"/></p> <p data-bbox="565 1073 1149 1094">RecMgr RTP IP: <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/> . <input type="text" value="0"/></p> <p data-bbox="959 1192 1203 1224" style="text-align: right;"><input type="button" value="Ok"/> <input type="button" value="Cancel"/></p> </div>

Step	Description
7	<p>Define a Phone Class of Service</p> <p>In the Logging Data – Phone Class of Service section, click on the New Item icon (plus sign). In the dialog box that pops up, specify the Name of a Phone Class of Service. Specify or select the given values of the following fields. Keep default values for any fields not given below.</p> <ul style="list-style-type: none"> • Phone – <i>Avaya 8410D</i> (or any other Avaya phone model) • Record on Lights – <i>0</i> • Login Method – <i>CTI</i> • Board Configuration – <i>Use VRM Default</i> <p>When done, click on the Ok button to close the window.</p> 

Step	Description
8	<p>Define a VRM</p> <p>In the VRM section, select the machine name, click on the New Item icon (plus sign). In the dialog box that pops up, specify the Name of a Virtual Recording Machine (VRM). Specify or select the given values of the following fields. Keep default values for any fields not given below.</p> <ul style="list-style-type: none"> • VRM Type – <i>Logging</i> • Interface Type – <i>Station Side CMAPI</i> • Line From – <i>1</i> • Line To – value \leq number of lines specified in <i>Step 10</i> • Default Class of Service – name specified in <i>Step 11</i> • Default Board Config – name specified in <i>Step 3</i> <p>When done, click on the Ok button to close the window.</p> 

Step	Description																																			
<p>9</p>	<p>Assign Recording Lines</p> <p>Select the VRM named in <i>Step 12</i> so that the Line Data section displays a list of line numbers. For each line, specify the Extension of the agent device to be recorded at that line and a Supervisor Login and Password for one of the available Device and Media Control API stations that were configured in Section Error! Reference source not found. Also select the Class of Service defined in <i>Step 11</i> (which should be the default).</p>  <table border="1" data-bbox="302 512 1411 758"> <thead> <tr> <th colspan="7">Line Data</th> </tr> <tr> <th>Name ^</th> <th>Extension</th> <th>Supervisor Login Name</th> <th>Supervisor Password</th> <th>Copy Extension</th> <th>Class of Service</th> <th></th> </tr> </thead> <tbody> <tr> <td>Line 1</td> <td>6207</td> <td>17199</td> <td>****</td> <td><input type="checkbox"/></td> <td>LabDMCCOS</td> <td></td> </tr> <tr> <td>Line 2</td> <td>6208</td> <td>17198</td> <td>****</td> <td><input type="checkbox"/></td> <td>LabDMCCOS</td> <td></td> </tr> <tr> <td>Line 3</td> <td>6209</td> <td>17197</td> <td>****</td> <td><input type="checkbox"/></td> <td>LabDMCCOS</td> <td></td> </tr> </tbody> </table>	Line Data							Name ^	Extension	Supervisor Login Name	Supervisor Password	Copy Extension	Class of Service		Line 1	6207	17199	****	<input type="checkbox"/>	LabDMCCOS		Line 2	6208	17198	****	<input type="checkbox"/>	LabDMCCOS		Line 3	6209	17197	****	<input type="checkbox"/>	LabDMCCOS	
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<p>10</p>	<p>IMPORTANT! Press the Save button near the top of the page (below the tabs) in order to save all changes. If tabs are changed without doing this, user will be prompted to save changes first.</p>																																			
<p>11</p>	<p>Edit the TSAPI TSLIB.INI File</p> <p>Open the <i>TSLIB.INI</i> file located in folder C:\Program Files\Avaya\AE Services\TSAPI Client. Add the following line in the [Telephony Servers] section of the file (if not already present):</p> <pre><AES Server Client Connectivity Hostname/IP address>=450</pre> <p>This line specifies the IP address (or hostname) and port that Qfiniti will use to connect to the TSAPI service on the AES server. The IP address or hostname should be the value that was specified in <i>Step 2</i>.</p> <p>Copy this file to the Windows folder, too.</p> <p>To test the connection without Qfiniti, run Avaya's TSAPI Test Application, a utility program of the TSAPI Client.</p>																																			

Step	Description
12	<p>Verify that the Available for Use checkbox in the General section has been checked and all data has been saved. Qfiniti can now be started by clicking on the Start button at the top of the page.¹</p> 

¹ The Qfiniti Startup Service must be running in order for SysConfig to start Qfiniti. The Refresh button may be pressed first to determine the current status of the system.

8. Verification Steps

To verify the status CTI Links to AES , via SAT, use the **status aesvcs cti-link**. The **Service State of established** indicates that the trunk is in an operational state.

```
status aesvcs cti-link
```

AE SERVICES CTI LINK STATUS						
CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
1	5	no	aes6_tr1	established	15	15
2		no		down	0	0
3	4	no	AES2146	established	15	15

To verify Qfiniti Observe is able to monitor the stations correctly, use the **list monitored-station** command. All the stations that are being monitored by Qfiniti Observer are as shown below:

```
list monitored-station
```

MONITORED STATION								
Station Ext	Association 1 CTI Link	Association 1 CRV	Association 2 CTI Link	Association 2 CRV	Association 3 CTI Link	Association 3 CRV	Association 4 CTI Link	Association 4 CRV
25001	1	27						
25002	1	25						
25003	1	22						
25004	1	15						
25005	1	13						
25051	1	17						
25101	1	11						
25551	1	8						
25552	1	4						

Place a call from an Avaya Station and verify that the audio for the call was retrieved and saved by Qfiniti Observe.

9. Conclusion

Qfiniti Observe was able to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services.

10. Additional References

Documentation related to Avaya can be obtained from <https://support.avaya.com>.

[1] *Administering Avaya Aura® Communication Manager, Release 6.3, Issue 3, October 2013*

[2] *Avaya Aura® Application Enablement Service Administration and Maintenance Guide, Issue 2, Release 6.3, October 2013*

Documentation related to HP Qfiniti may directly be obtained from HP.

[3] *HP Qfiniti Configuration Guide, Version 10.1, May 2014*

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