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Avaya Solution & Interoperability Test Lab

Application Notes for HP Qfiniti Observe (Service Observe) 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 a stand-alone recording device for each extension that needs to be monitored. When the Service Observe feature is activated (via a button or feature code) and a call occurs at a target extension, the recording device will be automatically added to the call.

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

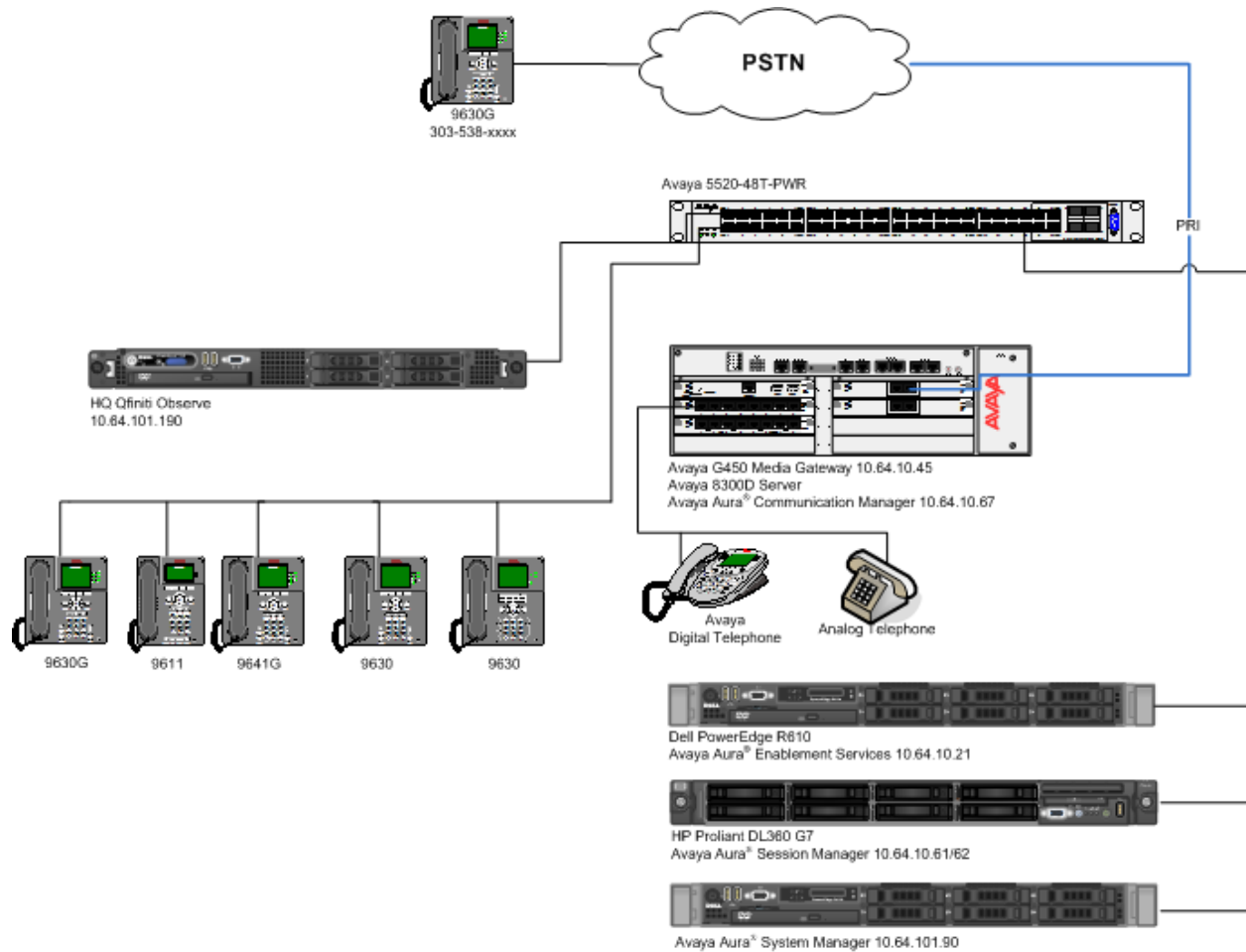All planned test cases were passed.

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 Avaya Aura® Communication Manager	6.3 SP8
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	Qfiniti 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.

On Page 3, verify **Computer Telephone 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
                                      Time of Day Lock Table:
            Loss Group: 19      Personalized Ringing Pattern: 1
                                        Message Lamp Ext: 25001
          Speakerphone: 2-way         Mute Button Enabled? y
      Display Language: english           Button Modules: 0
 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
```

On Page 5, set the number **6** entry to **serv-obsrv**.

```
add station 25002                                        Page   5 of   5
                              STATION

AUXILIARY BUTTON ASSIGNMENTS
Main View                      Shifted View
 4:                            12:
 5:                            13:
 6: serv-obsrv                 14:
 7:                            15:
 8:                            16:
 9:                            17:
10:                            18:
11:                            19:
```

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

                               IP SERVICES
 Service       Enabled      Local       Local        Remote      Remote
  Type                      Node        Port         Node        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        Password           Enabled    Status
                  Server
     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**.

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

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.

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.

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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**.

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

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

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**.

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

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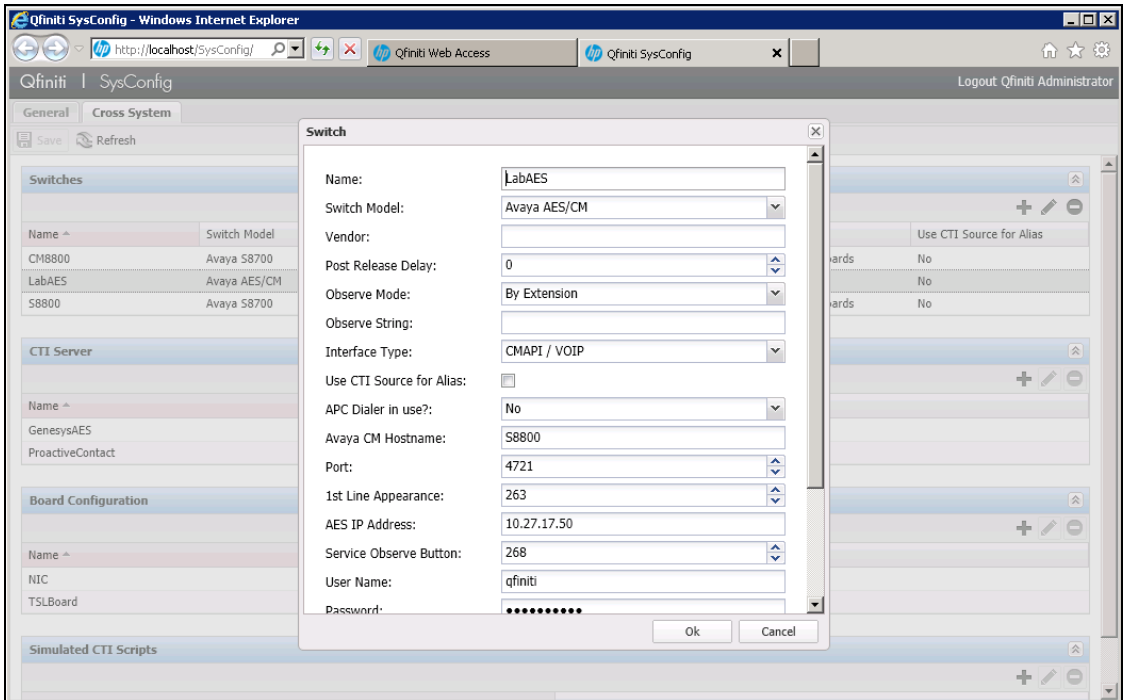
Media Streaming

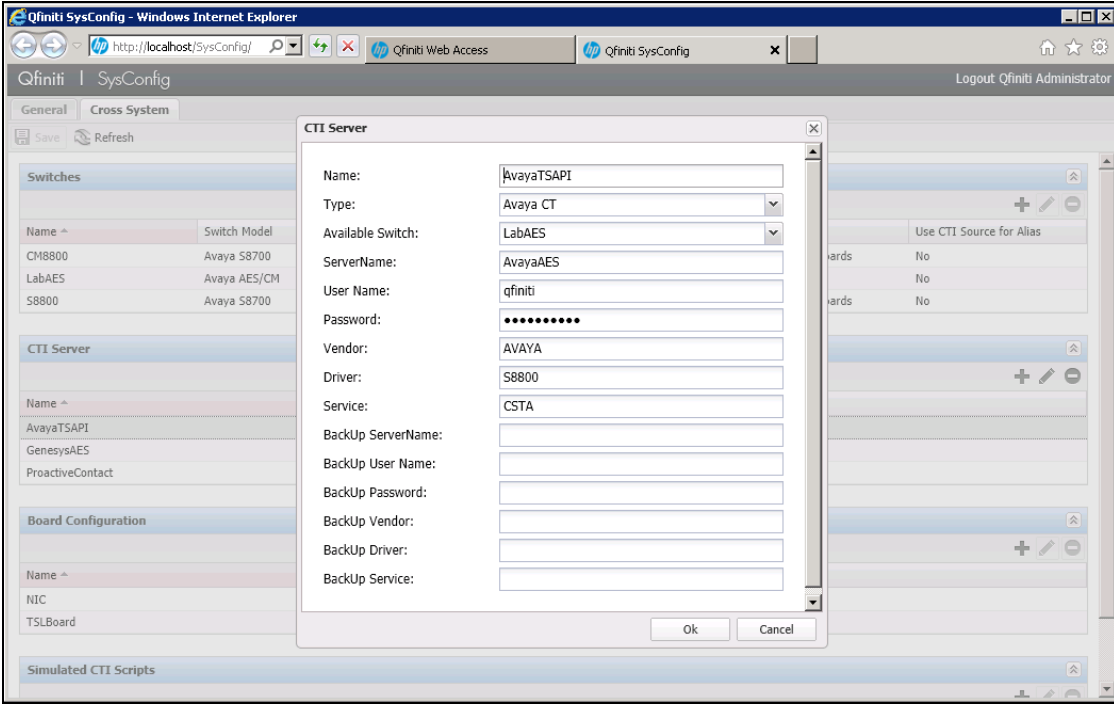- **Logger Voice Recording Manager**: Set PCM Acquisition field to "Media Streaming".

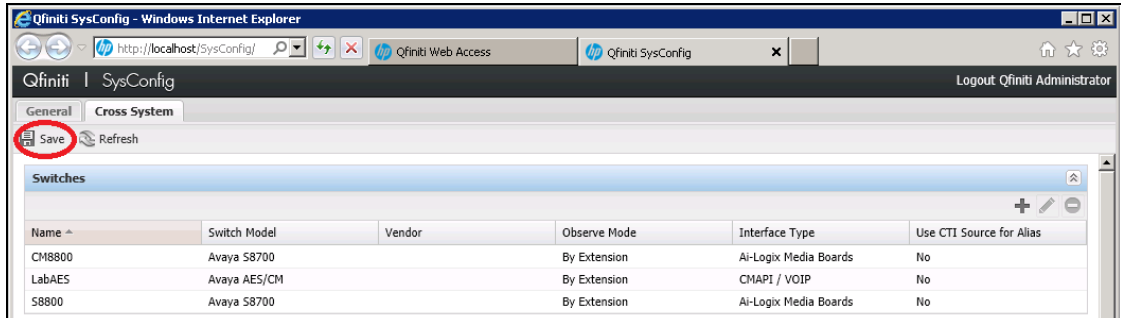This document is specific to Service Observe and that configuration is described below.

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.

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Step	Description
1	**Create a Switch Definition** 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. • **Switch Model** – *Avaya AES/CM* • **Observe Mode** – *By Extension* • **Observe String** – Leave blank • **Interface Type** – *CMAPI / VOIP* • **Avaya CM Hostname** – Hostname (or IP address) of the Procr or CLAN used for AES Device and Media Control API station registration • **Port** – *4721* • **1st Line Appearance** – *263* • **AES IP Address** – IP address of the Application Enablement Services server • **Service Observe Button** – *268* (corresponds to Button 6) • **User Name** – User ID specified in **Section 6.3** • **Password** – Password specified in **Section 6.3** 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".

Step	Description
2	**Create CTI Server**

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.

- **Type** – *Avaya CT*
- **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 6.3**
- **Password** – Password specified in **Section 6.3**
- **Vendor** – *Avaya*
- **Driver** – Hostname of the TSAPI Link (see **Section 6.2**)
- **Service** – *CSTA*

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".
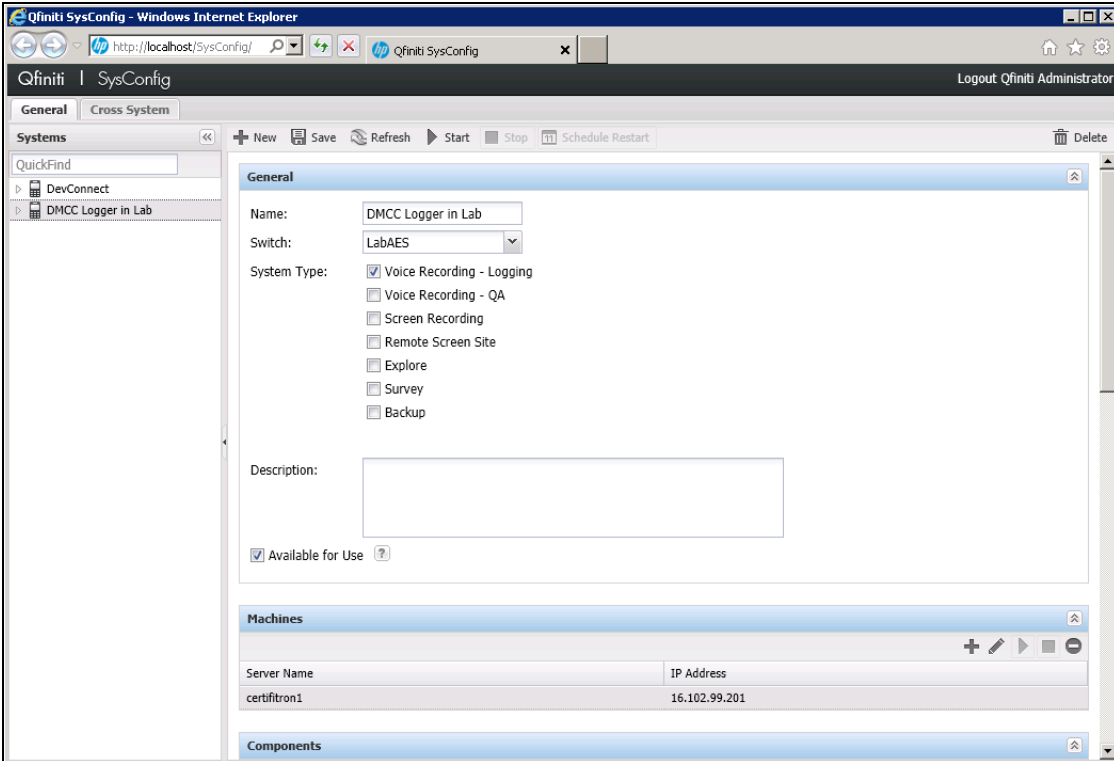
Step	Description
3	**Define a Board Configuration (not shown)** Although Qfiniti uses DMCC to record a call, a board configuration is still required. In the Board Configuration section, click on the **New Item** icon (plus sign). In the dialog box that pops up, specify the **Name** for a default board and select *Network Interface Card (NIC)* as the **Model**. Keep default values for the other fields. When done, click on the **Ok** button to close the window.
4	**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.

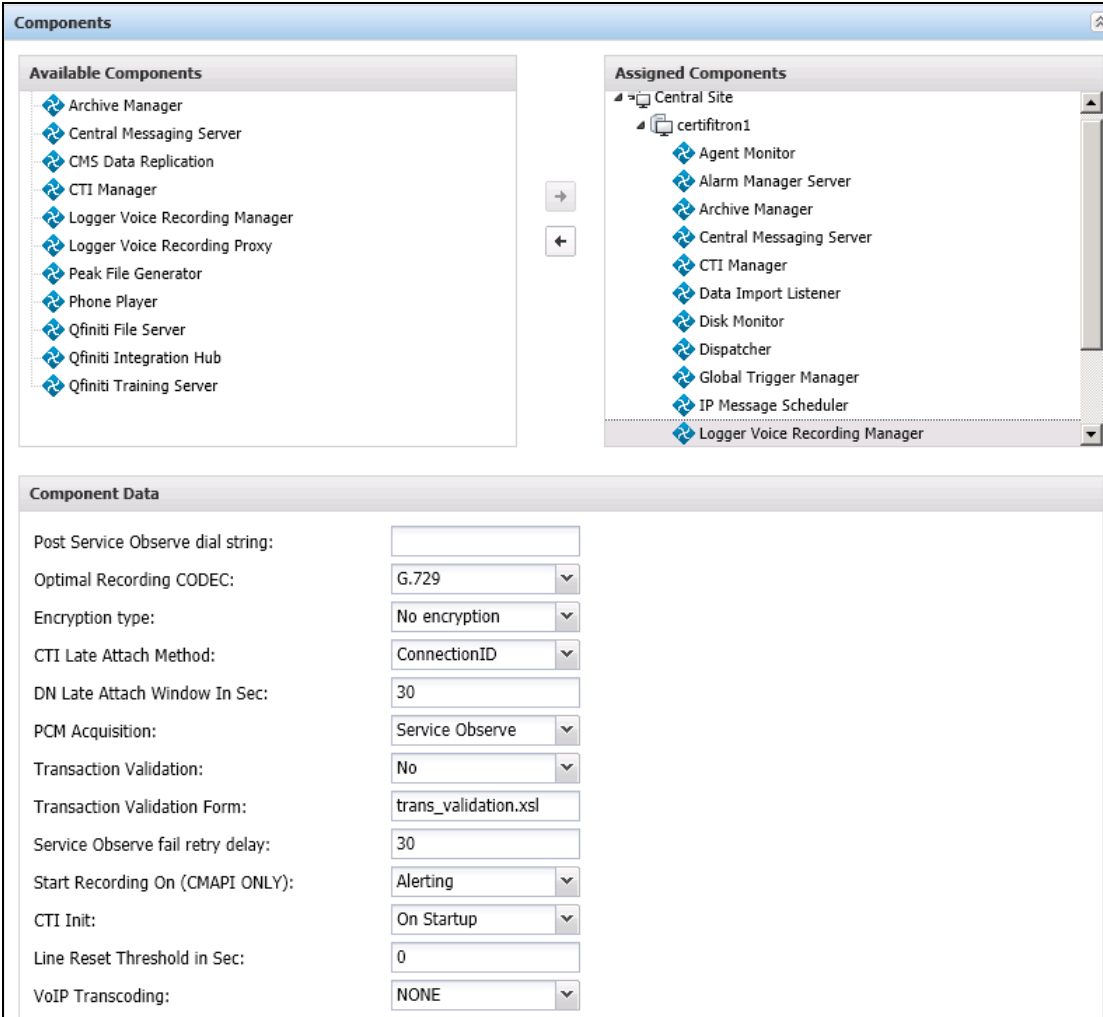## 7.2. Qfiniti Configuration – Voice Logger

After configuring Cross-System items, click on the **General** tab in order to define a DMCC Voice Logger system. Perform the steps given below.
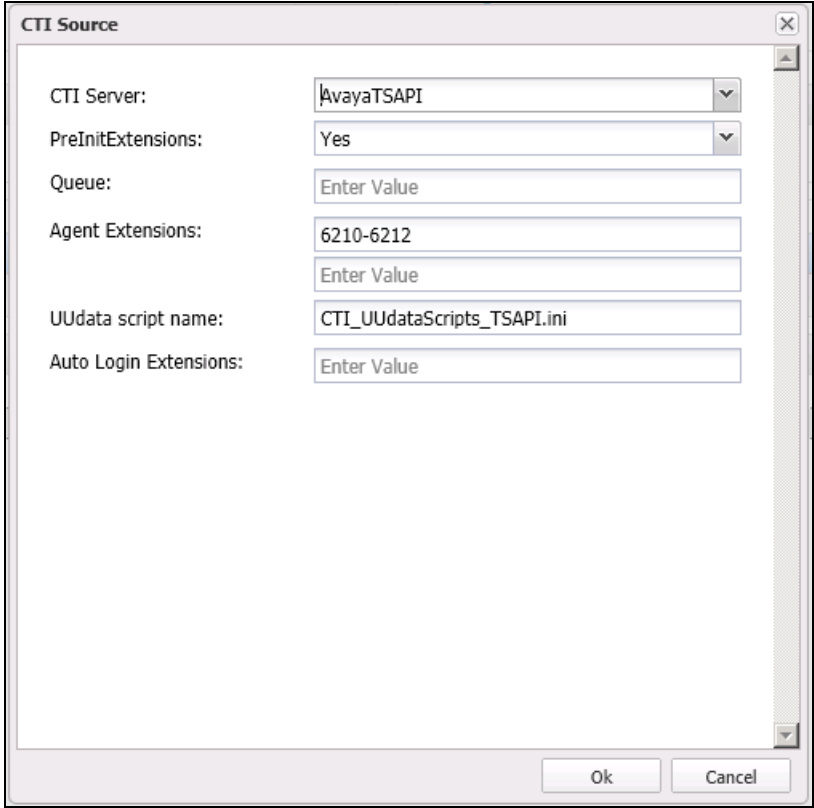
IMPORTANT: All steps must be completed before the data can be saved (via the **Save** button).

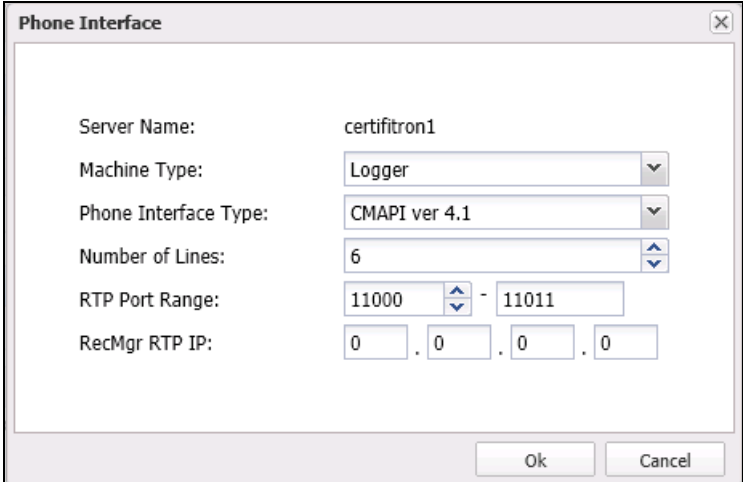| Step	Description
1	**Create a Voice Logger System** Under the **General** tab, click the **New** icon to create a Voice Logger. Provide a descriptive **Name**, select the **Switch** definition that was created in *Step 1*, and select *Voice Recording – Logging* as the **System Type**. A **Description**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

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

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Step	Description
3	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: • 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 *Step 8*) • Master Service • Peak File Generator • Plan Manager • Qfiniti File Server (requires additional configuration) • Session Manager
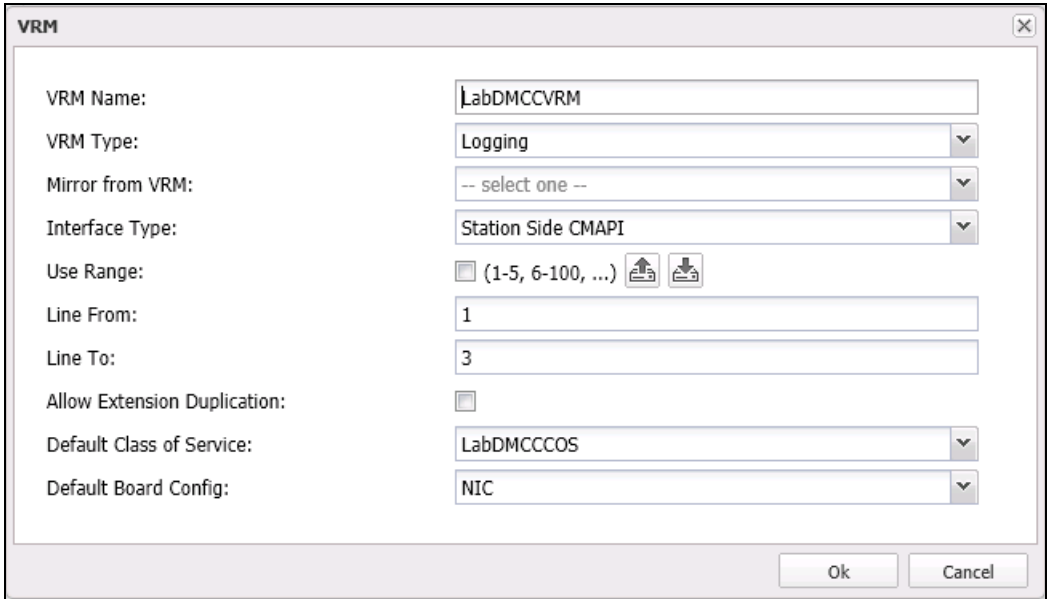
Step	Description
4	**Configure Logger Voice Recording Manager**

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.

- **Optimal Recording CODEC** – *G.729*
- **PCM Acquisition** – *Service Observe*
- **Start Recording On** – *Alerting*

Note: This configuration assumes that the AES has been set up for G.729 codec.

Step	Description
5	**Identify the CTI Source**
	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 *Step 2*. 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.
	CTI Source CTI Server: AvayaTSAPI PreInitExtensions: Yes Queue: Enter Value Agent Extensions: 6210-6212 Enter Value UUdata script name: CTI_UUdataScripts_TSAPI.ini Auto Login Extensions: Enter Value Ok Cancel
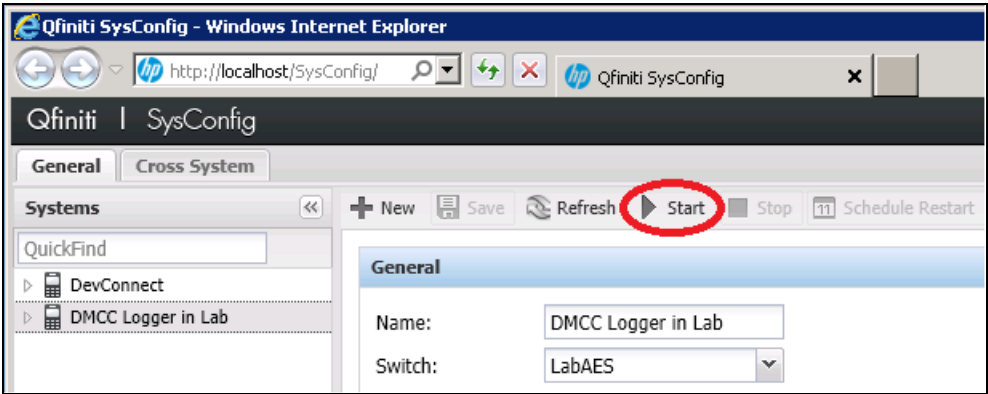
Step	Description

6	**Define a Phone Interface**
	
	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.
	
	    • **Machine Type** – *Logger*
	    • **Phone Interface Type** – *CMAPI ver 4.1*
	    • **Number of Lines** – quantity of stations set up in **Section 5.2**
	
	When done, click on the **Ok** button to close the window.
	
	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.
	
	Phone Interface
	
	Server Name: certifitron1
	Machine Type: Logger
	Phone Interface Type: CMAPI ver 4.1
	Number of Lines: 6
	RTP Port Range: 11000 - 11011
	RecMgr RTP IP: 0 . 0 . 0 . 0
	
	Ok Cancel

Step	Description
7	**Define a Phone Class of Service** 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. • **Phone** – *Avaya 8410D* (or any other Avaya phone model) • **Record on Lights** – *0* • **Login Method** – *CTI* • **Board Configuration** – *Use VRM Default* When done, click on the **Ok** button to close the window. Phone Class of Service Name: LabDMCCCOS Phone: Avaya 8410D Record on Lights: 0 Login Method: CTI Logout Method: -- select one -- Simulated CTI: -- select one -- Board Configuration: Use VRM Default Ok Cancel

Step	Description
8	**Define a VRM** 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. • **VRM Type** – *Logging* • **Interface Type** – *Station Side CMAPI* • **Line From** – *1* • **Line To** – value <= number of lines specified in *Step 10* • **Default Class of Service** – name specified in *Step 11* • **Default Board Config** – name specified in *Step 3* When done, click on the **Ok** button to close the window.

Step	Description
9	**Assign Recording Lines**
	Select the VRM named in *Step 12* 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 5.2.** Also select the **Class of Service** defined in *Step 11* (which should be the default).

Line Data

Name ▲	Extension	Supervisor Login Name	Supervisor Password	Copy Extension	Class of Service
Line 1	6207	17199	****	☐	LabDMCCCOS
Line 2	6208	17198	****	☐	LabDMCCCOS
Line 3	6209	17197	****	☐	LabDMCCCOS

Step	Description
10	**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.
11	**Edit the TSAPI TSLIB.INI File**
	Open the *TSLIB.INI* 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):
	<AES Server Client Connectivity Hostname/IP address>=450
	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 *Step 2*.
	Copy this file to the Windows folder, too.
	To test the connection without Qfiniti, run Avaya's TSAPI Test Application, a utility program of the TSAPI Client.

Step	Description
12	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]

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[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     Version  Mnt   AE Services      Service      Msgs    Msgs
Link             Busy  Server           State        Sent    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    Association 1     Association 2     Association 3     Association 4
  Ext        CTI Link  CRV     CTI Link  CRV     CTI Link  CRV     CTI Link  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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