



Avaya Solution & Interoperability Test Lab

Application Notes for etalk Qfiniti Survey with Avaya Communication Manager and Avaya Application Enablement Services – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for etalk Qfiniti Survey to interoperate with Avaya Communication Manager and Avaya Application Enablement Services.

Qfiniti Survey is an automated customer survey system. The system provides enterprises with the capability to create, maintain, and automatically request effective customer surveys. Qfiniti Survey offers customers an optional automated telephone survey following a call, which eliminates the expense of traditional third-party questionnaires. By integrating the survey results with quality monitoring results, Qfiniti Survey provides a comprehensive view of call agent performance and a calibration tool to ensure that quality initiatives are in line with the customer's expectations. This automated solution operates in conjunction with call center private branch exchange (PBX) and automatic call distributor (ACD) switches.

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

Etalk Qfiniti Survey is an automated customer survey system. The system provides enterprises with the capability to create, maintain, and automatically request effective customer surveys. Qfiniti Survey offers customers an optional automated telephone survey following a call, which eliminates the expense of traditional third-party questionnaires. By integrating the survey results with quality monitoring results, Qfiniti Survey provides a comprehensive view of call agent performance and a calibration tool to ensure that quality initiatives are in line with the customer's expectations. This automated solution operates in conjunction with call center private branch exchange (PBX) and automatic call distributor (ACD) switches.

The overall objective of this testing is to verify that Qfiniti Survey can interoperate with Avaya Communication Manager and Avaya Application Enablement Services (AES). Serviceability testing was also conducted to assess the reliability of the solution.

Figure 1 provides the test configuration used for the compliance testing. Note that actual configurations may vary.

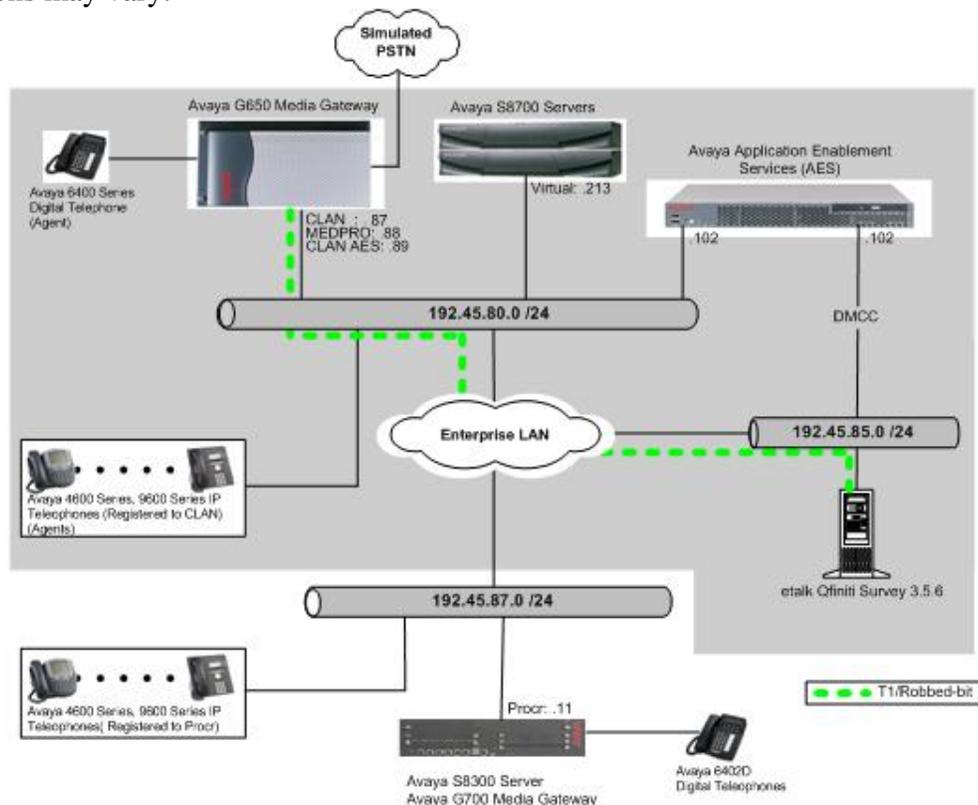


Figure 1: Test Configuration for Qfiniti Survey with Avaya Communication Manager and Avaya AES

2. Equipment and Software Validated

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

Equipment		Software/Firmware
Avaya S8700 Servers		Avaya Communication Manager 4.0.1 (R014x.00.1.731.2-14300)
Avaya G650 Media Gateway		
	TN2312BP IP Server Interface	HW11 FW030
	TN799DP CLAN Interface	HW01 FW017
	TN2302AP IP Media Processor	HW20 FW108
Avaya S8300 Server		Avaya Communication Manager 4.0.1 (R014x.00.1.731.2-14300)
Avaya G700 Media Gateway		25.28.0
Avaya Application Enablement Services		4.0 w/ Bundled Offer Build 47.3
Avaya 4600 Series IP Telephones		
	4620	2.8 (H.323)
	4625	2.8 (H.323)
Avaya 9600 Series IP Telephones		
	9630	1.5 (H.323)
	9650	1.5 (H.323)
Avaya 6400D Series Digital Telephones		
etalk Qfiniti Survey		3.5.6

3. Configure Avaya Communication Manager

This section provides the procedures for configuring Avaya Communication Manager. During the compliance test, the following scenarios were tested:

- Qfiniti Survey provides the survey prompt. When the answer is “yes”, survey inbound and outbound stations will be bridged. Thus the recording will start (**Section 3**).
- Avaya Communication Manager provides the survey prompt. Qfiniti Survey will only function as bridging survey inbound and outbound stations (**Section 4**).

All the configuration changes in Avaya Communication Manager are performed through the System Access Terminal (SAT) interface. The highlights on the screens in the following indicate the values used during the compliance test. For the compliance testing, the following devices were used.

Device Type	Device Number/Extension
Survey Inbound/Outbound Stations	22225 – 22236 (Qfiniti Survey prompt) / 22237 – 22248
Monitoring Stations	22001 – 22009
AgentID	50021 – 50025
VDN	50000 (Outbound), 51111(Inbound)
Survey	22224 (Avaya prompt)

3.1. Configure T1/Robbed-bit Trunk

This section describes the steps for configuring a T1/Robbed-bit trunk on Avaya Communication Manager. Enter the **list configuration all** command and note the Board Number for the DS1 circuit pack to be configured.

```
list configuration all

                          SYSTEM CONFIGURATION

Board                      Assigned Ports
Number  Board Type        Code    Vintage    u=unassigned t=tti p=psa
-----  -
01A13   DS1 INTERFACE          TN464F  000018    01 02 03 04 05 06 07 08
                                                09 10 11 12 13 14 15 16
                                                17 18 19 20 21 22 23 24
                                                u  u  u  u  u  u  u  u
```

Enter the **add ds1 x** command, where **x** is the board number of the DS1 circuit pack noted previously. Enter a descriptive name in the name field and set the other highlighted fields below to the values indicated.

```
add ds1 1a13

                          DS1 CIRCUIT PACK

Location: 01A13                Name: Survey-T1
Bit Rate: 1.544                Line Coding: ami-basic
Line Compensation: 1           Framing Mode: d4
Signaling Mode: robbed-bit

Interface Companding: mulaw
Idle Code: 11111111

Slip Detection? n              Near-end CSU Type: other
```

3.2. Configure Stations for Inbound Survey

Enter the **add station s** command, where **s** is a valid extension in the provisioned dial plan. On **Page 1** of the station form, set the Type field to **DS1FD**, provide a port number for the Port field, and enter a descriptive name in the Name field. During the compliance test, port numbers from 1a1301 to 1a1312 were allocated for the inbound survey stations.

```
add station 22225                               Page 1 of 4

                          STATION

Extension: 22225                                Lock Messages? n          BCC: 0
Type: DS1FD                                    Security Code:            TN: 1
Port: 01A1301                                  Coverage Path 1:         COR: 1
Name: Survey-1                                  Coverage Path 2:         COS: 1
                                                Hunt-to Station:         Tests? y

STATION OPTIONS

Loss Group: 4
Off Premises Station? y
R Balance Network? n

Time of Day Lock Table:

Survivable COR: internal
Survivable Trunk Dest? y
```

3.3. Configure Stations for Outbound Survey

Enter the **add station s** command, where **s** is a valid extension in the provisioned dial plan. On **Page 1** of the station form, set the Type field to **DS1FD**, provide a port number for the Port field, and enter a descriptive name in the Name field. During the compliance test, port numbers from 1a1313 to 1a1324 were allocated for the outbound survey stations.

```
add station 22237                                     Page 1 of 4
                                                    STATION
Extension: 22237                                     Lock Messages? n          BCC: 0
Type: DS1FD                                         Security Code:            TN: 1
Port: 01A1313                                       Coverage Path 1:         COR: 1
Name: Survey-13                                     Coverage Path 2:         COS: 1
                                                    Hunt-to Station:         Tests? y

STATION OPTIONS
Loss Group: 4
Off Premises Station? y
R Balance Network? n

Time of Day Lock Table:

Survivable COR: internal
```

3.4. Configure Outbound Hunt/Skill Group

Enter the **add hunt-group n** command, where **n** is an unused hunt group number. On **Page 1** of the hunt-group form, assign a descriptive name in the Group Name field and a number in the Group Extension that is valid in the provisioned dial plan. Set the ACD, Queue, and Vector fields to **y**. When ACD is enabled, hunt group members serve as ACD agents and must log in to receive ACD split/skill calls. When Queue is enabled, calls to the hunt group will be served by a queue. When the Vector field is enabled, the hunt group will be vector controlled.

```
add hunt-group 1                                     Page 1 of 3
                                                    HUNT GROUP
Group Number: 1
Group Name: n
Group Extension: 50011
Group Type: ucd-mia
TN: 1
COR: 1
Security Code:
ISDN/SIP Caller Display:
MM Early Answer? n
Local Agent Preference? n

ACD? y
Queue? y
Vector? y

Queue Limit: unlimited
Calls Warning Threshold: Port:
Time Warning Threshold: Port:
```

On **Page 2**, set the Skill field to **y**, which means that agent membership in the hunt group is based on skills, rather than pre-programmed assignment to the hunt group.

```

add hunt-group 1                                     Page 2 of 3
                                                    HUNT GROUP

Skill? y
AAS? n
Measured: internal
Supervisor Extension:

Controlling Adjunct: none

VuStats Objective:

Redirect on No Answer (rings):
Redirect to VDN:
Forced Entry of Stroke Counts or Call Work Codes? n
  
```

3.5. Configure an Agent Login ID

Enter the **add agent-loginID p** command, where **p** is a valid extension in the provisioned dial plan. On **Page 1** of the agent-loginID form, enter a descriptive name in the Nmae field and a password in the Password field.

```

add agent-loginID 50021                             Page 1 of 2
                                                    AGENT LOGINID

Login ID: 50021                                     AAS? n
Name: Agent-1                                       AUDIX? n
TN: 1                                               LWC Reception: spe
COR: 1                                              LWC Log External Calls? n
Coverage Path:                                     AUDIX Name for Messaging:
Security Code:

LoginID for ISDN/SIP Display? n
Password: 1234
Password (enter again): 1234
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: :
  
```

On **Page 2**, set the Skill Number (SN) to the hunt group number previously created in this section. The Skill Level (SL) may be set according to customer requirements. Repeat this step as necessary to configure additional agent extensions.

```

add agent-loginID 50021                             Page 2 of 2
                                                    AGENT LOGINID

Direct Agent Skill:
Call Handling Preference: skill-level               Local Call Preference? n

SN      SL      SN      SL      SN      SL      SN      SL
1: 1    1          16:     17:     31:     32:     46:     47:
2:
  
```

3.6. Configure Outbound Vector

Enter the **add vector q** command, where **q** is an unused vector number. Enter a descriptive name in the Nmae field, and program the vector to deliver calls to a hunt/skill group number. Agents that are logged into the hunt/skill group will be able to answer calls queued to the hunt/skill group.

```
add vector 1                                     Page 1 of 6
                                         CALL VECTOR

Number: 1                                     Name: Inbound Vector
                                         Meet-me Conf? n           Lock? n
Basic? y   EAS? y   G3V4 Enhanced? n   ANI/II-Digits? n   ASAI Routing? n
Prompting? y   LAI? n   G3V4 Adv Route? n   CINFO? n   BSR? n   Holidays? n
Variables? n   3.0 Enhanced? n
01 wait-time 2 secs hearing ringback
02 queue-to  skill 1  pri m
03
04
```

3.7. Configure Outbound VDN

Enter the **add vdn r** command, where **r** is a valid extension in the provisioned dial plan. Specify a descriptive name in the Nmae field for the VDN and specify the vector configured in the previous step for the Vector Number field. In the example below, incoming calls to extension 50000 will be routed to VDN 50000, which in turn will invoke the actions specified in vector 1.

```
add vdn 50000                                     Page 1 of 2
                                         VECTOR DIRECTORY NUMBER

Extension: 50000
                                         Name*: Outbound
                                         Vector Number: 1

Meet-me Conferencing? n
Allow VDN Override? n
COR: 1
TN*: 1
Measured: none

1st Skill*:
2nd Skill*:
3rd Skill*:
```

3.8. Configure IP-Services

Enter the **add cti-link m** command, where **m** is a number between 1 and 64, inclusive. Enter a valid Extension under the provisioned dial plan. Set the Type field to **ADJ-IP** and assign a descriptive name in the Nmae field to the CTI link. Default values may be used in the remaining fields.

```

add cti-link 4                                     Page 1 of 3
                                         CTI LINK
CTI Link: 4
Extension: 20006
Type: ADJ-IP
                                         COR: 1
Name: AES-devcon223-tsapi
  
```

Enter the **change node-names ip** command. In the compliance-tested configuration, the CLAN IP address was utilized for registering H.323 endpoints (Avaya IP Telephones and Avaya IP Softphones, and DMCC stations), and the CLAN-AES IP address was used for connectivity to Avaya AES.

```

change node-names ip                             Page 1 of 2
                                         IP NODE NAMES
Name          IP Address
CLAN          192.45.80.87
CLAN-AES     192.45.80.89
MEDPRO       192.45.80.88
S8300G700    192.45.87.11
default      0.0.0.0
  
```

Enter the **change ip-services** command. On **Page 1**, configure the Service Type field to **AESVCS** and the Enabled field to **y**. The Local Node field should be pointed to the **CLAN-AES** board that was configured in the Iprevious form. During the compliance test, the default port was utilized for the Local Port field.

```

change ip-services                               Page 1 of 4
                                         IP SERVICES
Service      Enabled   Local      Local      Remote      Remote
Type         Type        Node       Port       Node        Port
AESVCS       y          CLAN-AES  8765
  
```

On **Page 4**, enter the hostname of the AES server for the AE Services Server field. The server name may be obtained by logging in to the AES server using ssh, and entering **uname -a** at the command prompt. Enter an alphanumeric password for the Password field. Set the Enabled field to **y**. The same password will be configured on the AES server in **Section 5.1**.

```

change ip-services                               Page 4 of 4
                                         AE Services Administration
Server ID    AE Services      Password      Enabled      Status
            Server
1:          server1  xxxxxxxxxxxx  y           idle
  
```

4. Configure Avaya Communication Manager for Survey

This section describes the configuration when Avaya Communication Manager provides the survey prompt. The configuration steps will be the same as in **Section 3**, except inbound VDN, inbound vector, and inbound hunt group are added.

4.1. Configure Inbound Hunt Group

Enter the **add hunt-group n** command, where **n** is an unused hunt group number. On **Page 1** of the hunt-group form, assign a descriptive name in the Group Name field and a number in the Group Extension that is valid in the provisioned dial plan.

```
add hunt-group 22                                     Page 1 of 60
                                                    HUNT GROUP
Group Number: 22                                     ACD? n
Group Name: Survey Inbound                          Queue? n
Group Extension: 50055                               Vector? n
Group Type: ucd-mia                                 Coverage Path:
TN: 1                                               Night Service Destination:
COR: 1                                             MM Early Answer? n
Security Code:                                     Local Agent Preference? n
```

On **Page 3**, enter the DS1FD configured for stations in **Section 3.2**.

```
add hunt-group 22                                     Page 3 of 60
                                                    HUNT GROUP
Group Number: 22   Group Extension: 50055           Group Type: ucd-mia
Member Range Allowed: 1 - 1500   Administered Members (min/max): 1 /2
Total Administered Members: 2
GROUP MEMBER ASSIGNMENTS
Ext      Name(19 characters)   Ext      Name(19 characters)
1: 22225 14:
2: 22226 15:
3: 22227 16:
4: 22228 17:
5: 22229 18:
6: 22230 19:
7: 22231 20:
8: 22232 21:
9: 22233 22:
10: 22234 23:
11: 22235 24:
12: 22236 25:
```

4.2. Configure Inbound Vector

Enter the **add vector q** command, where **q** is an unused vector number. Enter a descriptive name in the Nmae field, and program the vector to route calls to the appropriate VDN number.

```
add vector 21                                     Page 1 of 6
                                                CALL VECTOR
Number: 21                                     Name:
Basic? y   EAS? y   G3V4 Enhanced? n   Meet-me Conf? n   Lock? n
Prompting? y   LAI? n   G3V4 Adv Route? n   ANI/II-Digits? n   ASAI Routing? n
Variables? n   3.0 Enhanced? n   CINFO? n   BSR? n   Holidays? n
01 collect      1      digits after announcement 22224
02 route-to     number 50055      with cov n if digit      = 1
03 route-to     number 50000      with cov n if digit      = 2
04 stop
05
```

4.3. Configure Inbound VDN

Enter the **add vdn r** command, where **r** is a valid extension in the provisioned dial plan. Specify a descriptive name in the Nmae field for the VDN and specify the vector configured in the previous step as the Vector Number. In the example below, incoming calls to extension 51111 will be routed to Inbound VDN 51111, which in turn will invoke the actions specified in vector 21.

```
add vdn 51111                                     Page 1 of 2
                                                VECTOR DIRECTORY NUMBER
Extension: 51111
Name*: Inbound VDN
Vector Number: 21
Meet-me Conferencing? n
Allow VDN Override? n
COR: 1
TN*: 1
Measured: none
1st Skill*:
2nd Skill*:
3rd Skill*:
```

5. Configure Avaya Application Enablement Services

Avaya AES enables Computer Telephony Interface (CTI) applications to control and monitor telephony resources on Avaya Communication Manager. Avaya AES receives requests from CTI applications, and forwards them to Avaya Communication Manager. Conversely, Avaya AES receives responses and events from Avaya Communication Manager and forwards them to the appropriate CTI applications.

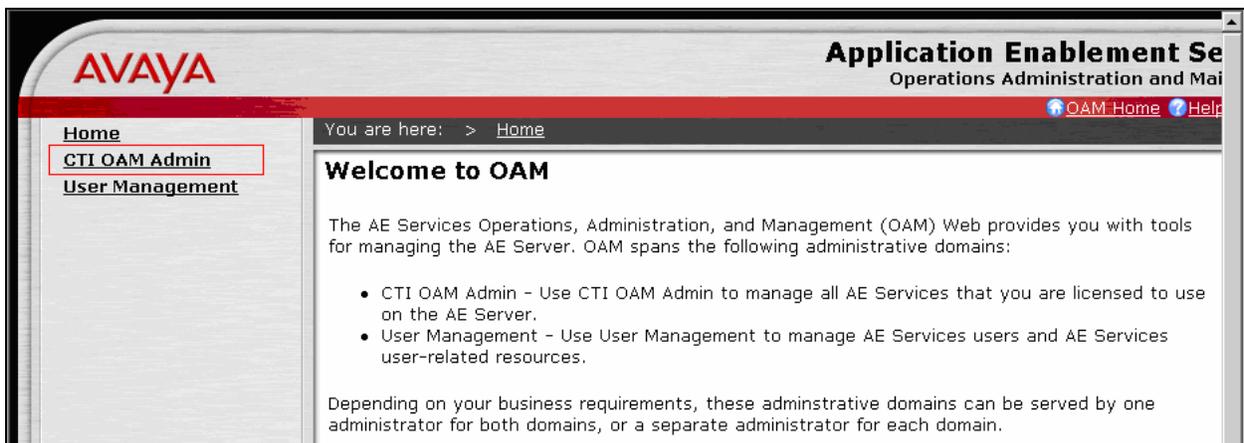
This section assumes that installation and basic administration of Avaya AES has been performed. Steps in this section describe configuring a Switch Connection, configuring a TSAPI CTI link and creating a CTI user.

5.1. Configure Switch Connection

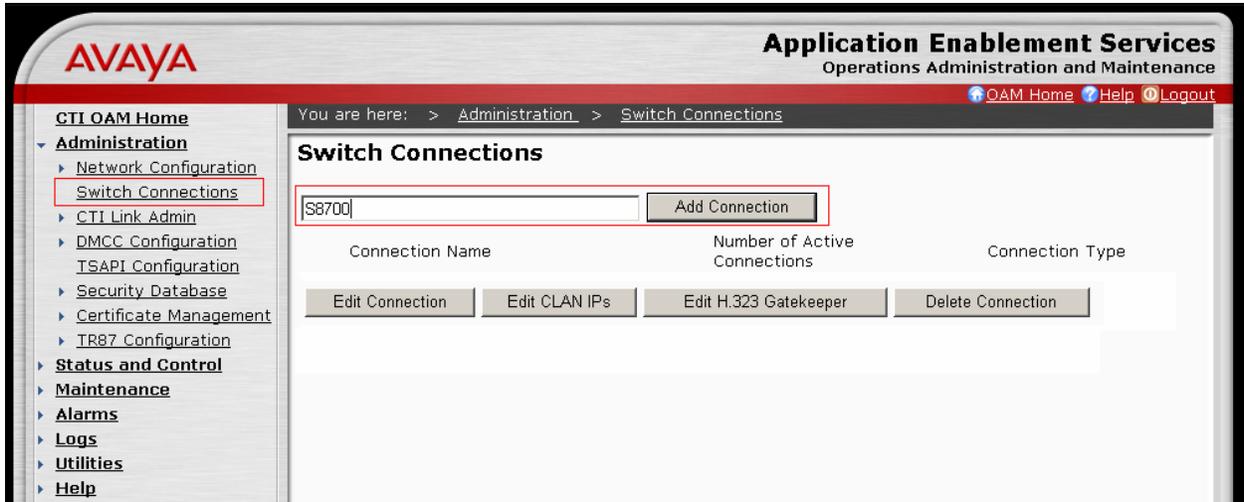
Launch a web browser, enter <https://<IP address of AES server>:8443/MVAP> in the URL, and log in with the appropriate credentials for accessing the AES CTI Operation Administration and Maintenance (OAM) pages.



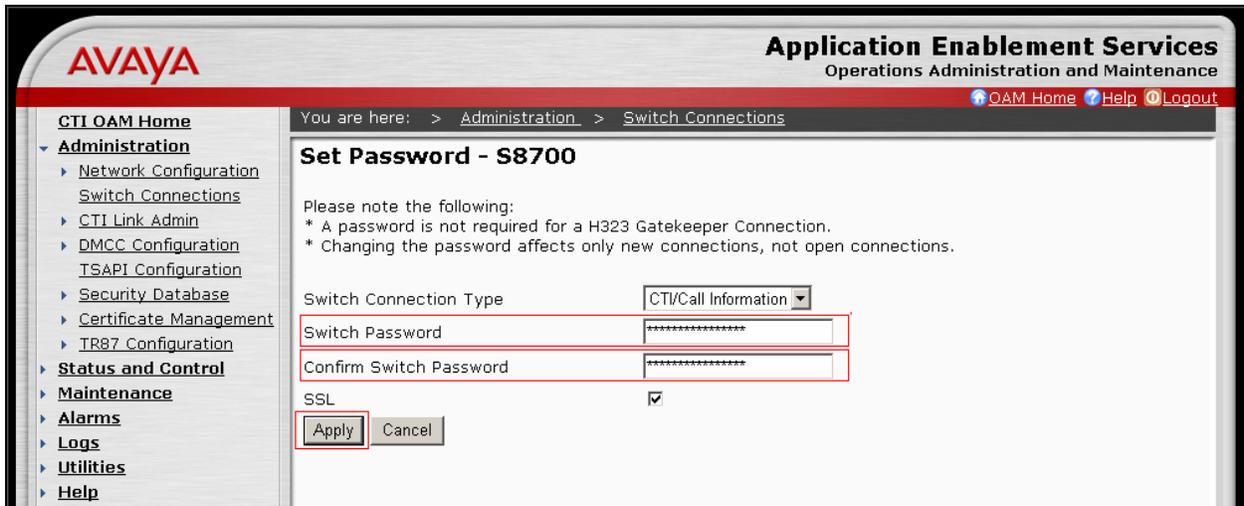
Select the **CTI OAM Admin** link from the left pane of the screen.



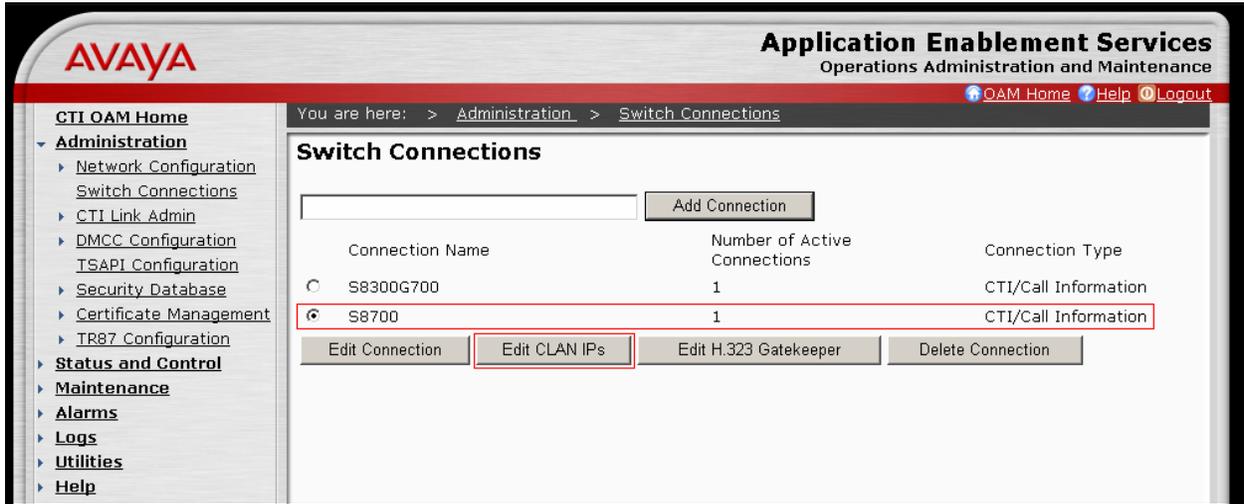
Click on **Administration** → **Switch Connections** in the left pane to display the Switch Connections page. A switch connection defines a connection between the Avaya AES and Avaya Communication Manager. Enter a descriptive name for the switch connection and click on **Add Connection**.



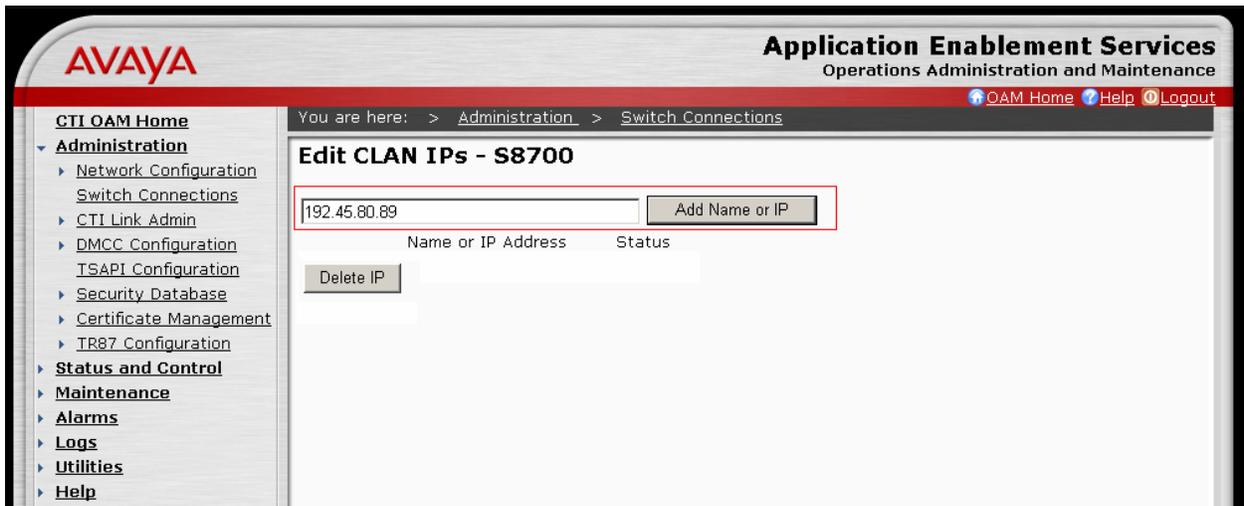
The next window that appears prompts for the switch connection password. Select **CTI/Call Information** using the drop down menu on the Switch Connection Type field. Enter the same password that was administered on Avaya Communication Manager in **Section 3.8**. Default values may be used in the remaining fields. Click on **Apply**.



After returning to the Switch Connections page, select the radio button corresponding to the switch connection added previously, and click on **Edit CLAN IPs**.

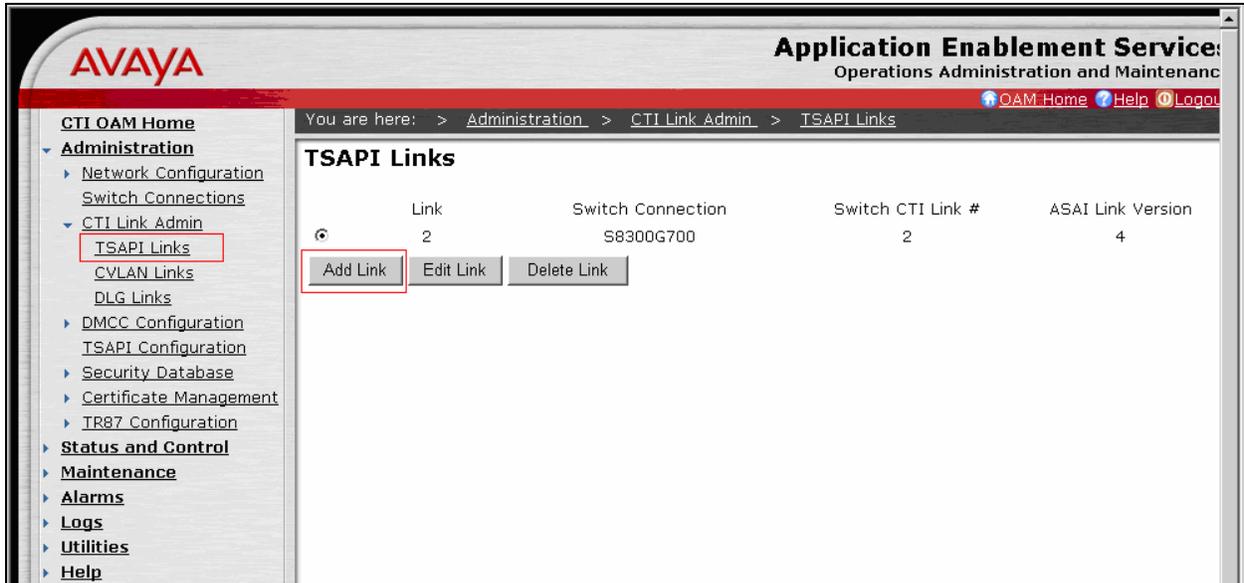


Enter the IP address of the CLAN used for AES connectivity from **Section 3.9**, and click on **Add Name or IP**.

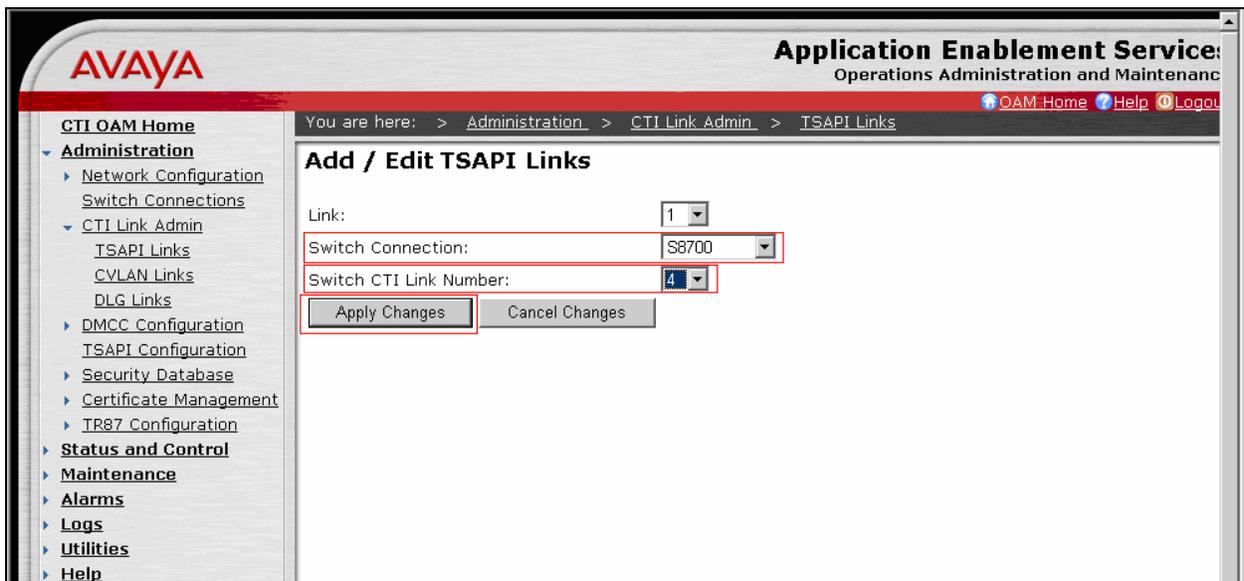


5.2. Configure TSAPI CTI Link

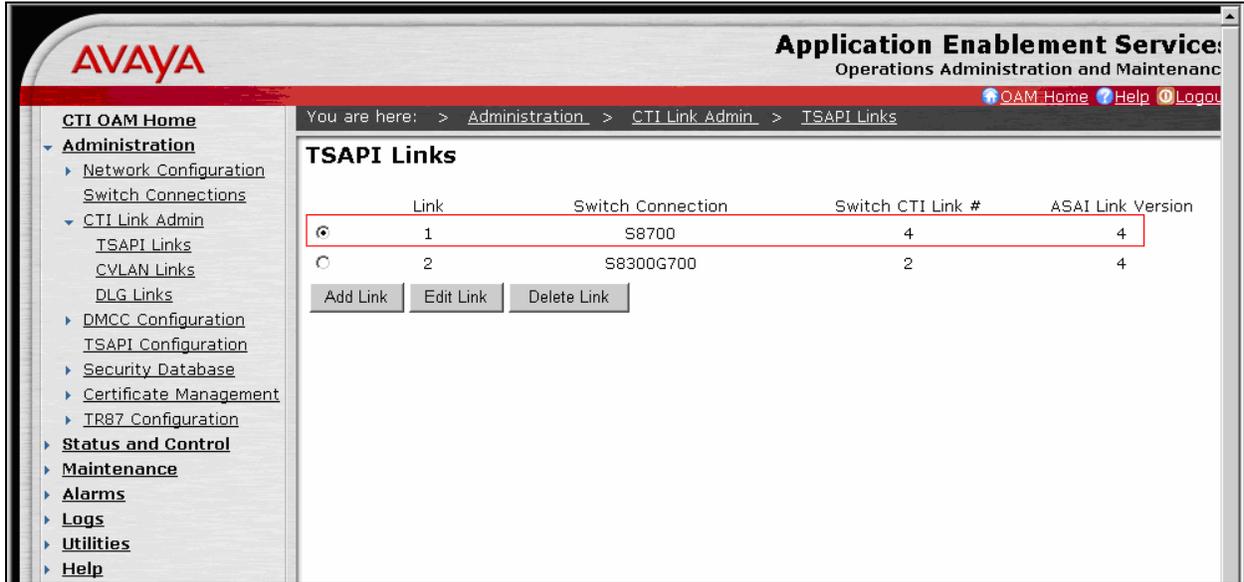
Navigate to **Administration** → **CTI Link Admin** → **TSAPI Links** to configure the TSAPI CTI link. Click the **Add Link** button to start configuring the TSAPI link.



Select the switch connection using the drop-down menu. Select the switch connection configured in **Section 5.1**. Select the Switch CTI Link Number using the drop-down menu. The CTI link number should match with the number configured in the cti-link form in **Section 3.8**. Select **Apply Changes**.



The following screen shows the TSAPI CTI link configuration.

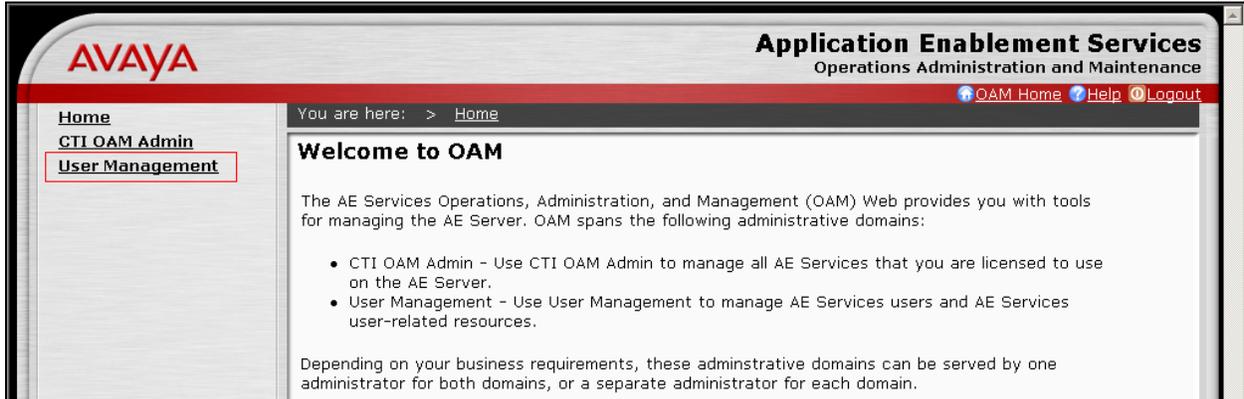


5.3. Configure CTI User

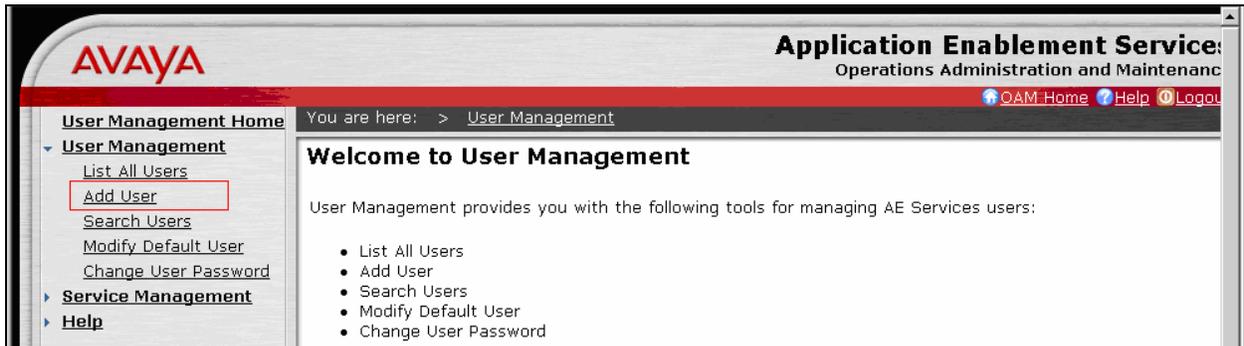
The steps in this section describe the configuration of a CTI user. Launch a web browser, enter <https://<IP address of AES server>:8443/MVAP> in the URL, and log in with the appropriate credentials for accessing the OAM Home page.



The Welcome to OAM screen is displayed next. Select **User Management** from the left pane.



From the Welcome to the User Management home page, navigate to the **User Management** → **Add User** page to add a CTI user.



On the Add User page, provide the following information:

- User Id
- Common Name
- Surname
- User Password
- Confirm Password

Select **Yes** using the drop down menu on the CT User field. This enables the user as a CTI user. Click the **Apply** button (not shown here) at the bottom of the screen to complete the process. Default values may be used in the remaining fields

AVAYA Application Enablement Services
Operations Administration and Maintenance

[OAM Home](#) [Help](#) [Logout](#)

User Management Home You are here: > [User Management](#) > [Add User](#)

User Management

- [List All Users](#)
- [Add User](#)
- [Search Users](#)
- [Modify Default User](#)
- [Change User Password](#)

Service Management

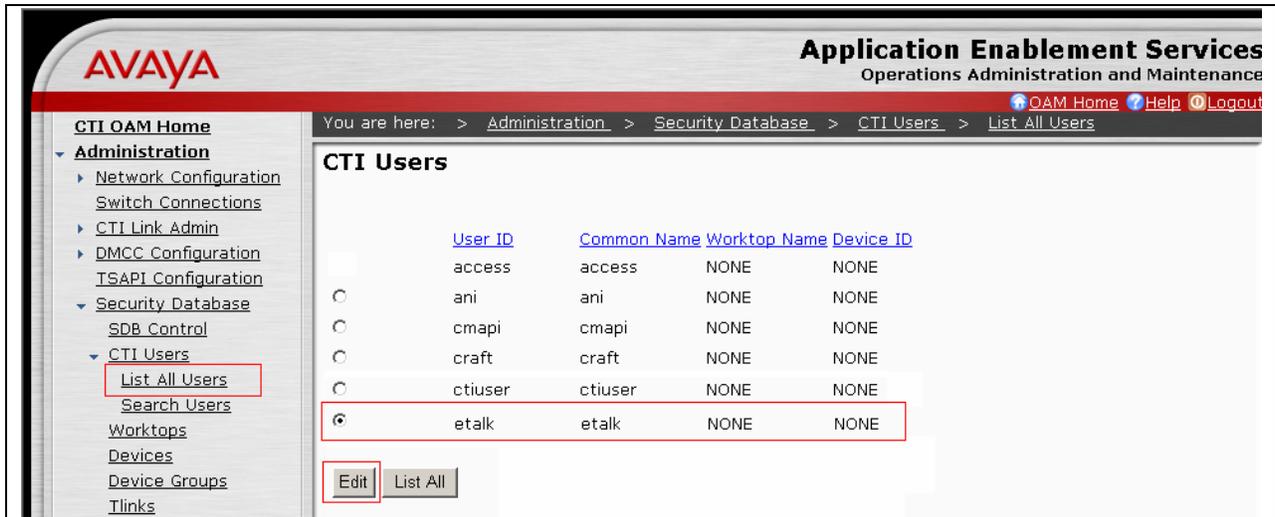
Help

Add User

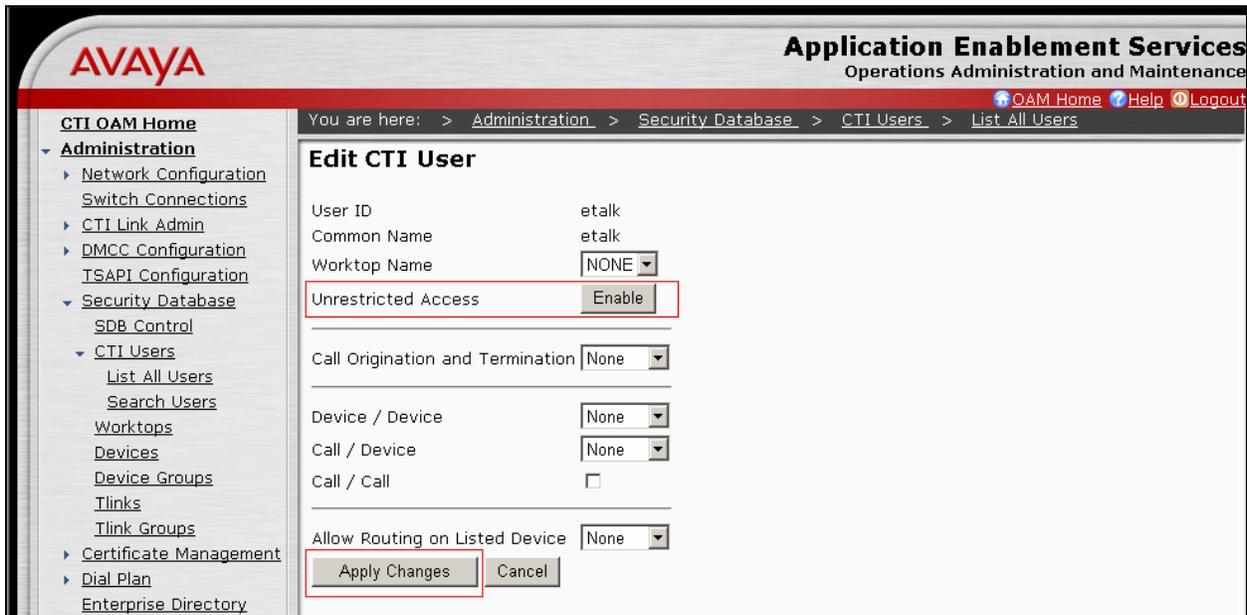
Fields marked with * can not be empty.

* User Id	<input type="text" value="etalk"/>
* Common Name	<input type="text" value="etalk"/>
* Surname	<input type="text" value="etalk"/>
* User Password	<input type="password" value="*****"/>
* Confirm Password	<input type="password" value="*****"/>
Admin Note	<input type="text"/>
Avaya Role	<input type="text" value="None"/>
Business Category	<input type="text"/>
Car License	<input type="text"/>
CM Home	<input type="text"/>
Css Home	<input type="text"/>
CT User	<input type="text" value="Yes"/>
Department Number	<input type="text"/>

Once the user is created, select **OAM Home** in upper right and navigate to the **Administration** → **Security Database** → **CTI Users** → **List All Users** page. Select the User ID created previously, and click the **Edit** button to set the permission of the user.



Provide the user with unrestricted access privileges by clicking the **Enable** button on the Unrestricted Access field. Click the **Apply Changes** button.



6. Configure etalk Qfiniti Survey

Refer to **APPENDIX A** for configuring Qfiniti Survey to communicate with Avaya AES. In order to setup communication with AES, the following three files must be properly configured.

- The CallManager.ini file must contain the TLink information, TSAPI username and password.
- The SurveyCM.ini file must contain list of survey extensions (inbound and outbound), monitoring station range.
- The TSLIB.ini file must include the IP address of the Avaya AES client interface.

Note: Qfiniti Survey is configured by etalk personnel only, and Qfiniti Survey is always managed by etalk. The configuration steps on Qfiniti Survey during the compliance test were provided by an etalk engineer, and included in this document as an **APPENDIX A**. For more information on the Qfiniti Survey configuration, contact etalk Technical Support.

7. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability. The feature testing evaluated the ability of Qfiniti Survey to route and record calls from various inbound stations. The serviceability testing introduced failure scenarios to see if Qfiniti Survey can resume recording after failure recovery.

7.1. General Test Approach

All test cases were performed manually. The general approach was to place various types of calls to Qfiniti Survey. These calls are then routed and recorded, and verified the recordings. For feature testing, verified that the survey is recorded and able to retrieve the recorded contents. Avaya and etalk simulated serviceability failures by disconnecting cables, and circuit packs as well as resetting the Media Server and Qfiniti Survey server.

7.2. Test Results

All test cases were executed and passed.

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Communication Manager and Avaya AES.

8.1. Verify Avaya Communication Manager

Verify the status of the administered AES link by using the **status aesvcs link** command.

```
status aesvcs link
```

AE SERVICES LINK STATUS						
Srvr/ Link	AE Services Server	Remote IP	Remote Port	Local Node	Msgs Sent	Msgs Rcvd
01/01	server1	192. 45. 80.102	36538	CLAN-AES	17	18

Verify the status of the administered TSAPI CTI link by using the **status aesvcs cti-link** command.

```
status aesvcs cti-link
```

AE SERVICES CTI LINK STATUS						
CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
1		no		down	0	0
2		no	server1	restarting	15	15
3		no		down	0	0
4	4	no	server1	established	15	15

8.2. Verify Avaya Application Enablement Services

From the AES CTI OAM Admin web pages, verify the status of the TSAPI Service by selecting **Status and Control** → **Services Summary** from the left pane.

Service	Status	Since	Cause
<input type="radio"/> CVLAN Service	ONLINE	2008-01-16 12:01:45	NORMAL
<input type="radio"/> DLG Service	ONLINE	2008-01-16 12:01:40	NORMAL
<input checked="" type="radio"/> TSAPI Service	ONLINE	2008-01-16 12:01:47	NORMAL
<input type="radio"/> DMCC Service	ONLINE	2008-01-16 12:01:48	NORMAL

9. Support

Technical support on Qfiniti Survey can be obtained through the following:

- **Phone:** (800) 346-4436
- **Email:** TechSupport@etalk.com

10. Conclusion

These Application Notes describe the configuration steps required for Qfiniti Survey to interoperate with Avaya Communication Manager and Avaya Application Enablement Services. All feature and serviceability test cases were completed.

11. Additional References

This section references the Avaya and etalk product documentation that are relevant to these Application Notes.

[1] *Administrator Guide for Avaya Communication Manager*, Document 03-300509, Issue 3.1, February 2007, available at <http://support.avaya.com>.

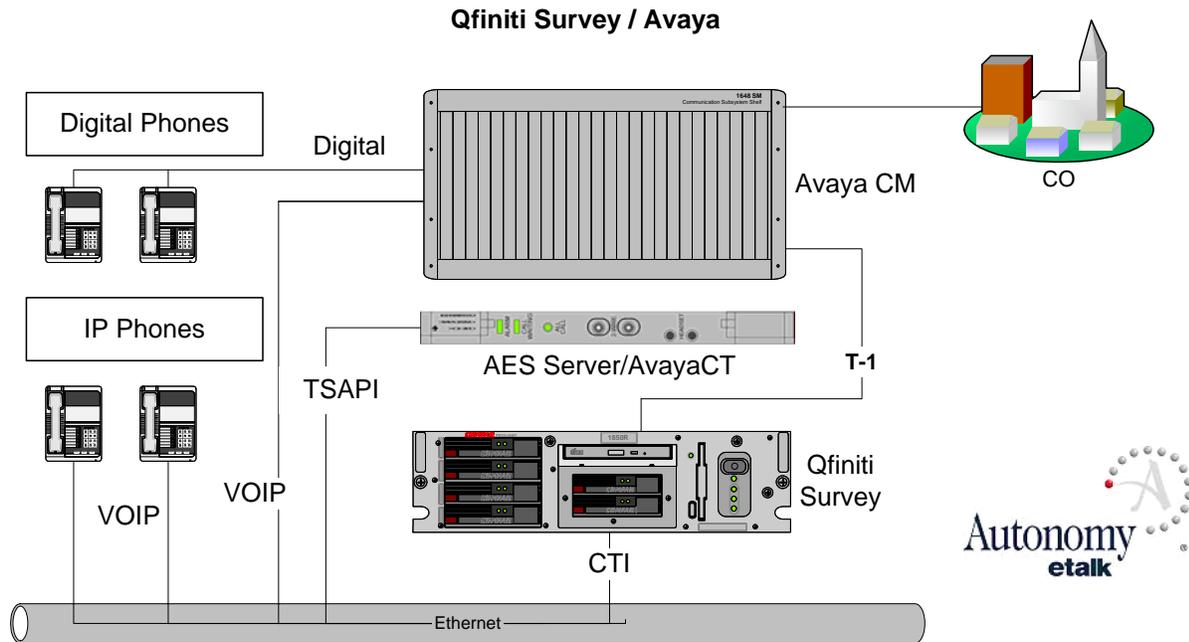
[2] *Qfiniti Survey 3.5.x Test Plan for Avaya CM 3.5L*, October 2007.

APPENDIX A

Qfiniti Survey Technical Overview

Survey started out as quite a simple system and in many ways it still is. It has had to accommodate so many different enterprise pbx configurations and call flow strategies that at times it seems very complex. Here we will try to clarify some of these complexities. First, remember Survey is a system created to perform customer surveys within the normal call center call flow of an enterprise. This allows for a Survey to be offered during immense numbers of calls and results in a large sampling of customer opinion. One question that comes up frequently is, if a call center has an IVR, why don't they just create their own survey system in the IVR, rather than buy Autonomy etalk Survey. The answer is that the creation, maintenance, and editing of complex IVR scripts is quite a daunting and high risk task. If changes are made that adversely effect call flows in a busy call center costs can be incredibly high. Survey removes this risk by allowing surveys to be created within a pre-tested and reliable framework of routes and scripts. Survey also make it quite easy to create new Surveys or tweak existing ones.

Let's talk about some of the different call flow strategies that have been used by various enterprises that have deployed Survey. In doing so we will diffuse some of the confusion and seeming complexity that tries to attach itself to this product. First lets look a basic connectivity diagram:



We can see above, that Qfiniti Survey interfaces to the environment via two connections—a T-1 for call activities and a network connection for CTI. As we look at this basic diagram we can discuss the call flow of a basic survey. Mike Customer calls the call center from the public network or CO (central office) above right. Before Mike talks to an agent, the call is routed by AvayaCM (the pbx) to Qfiniti Survey. Survey answers the call as it collects information like ANI (originating phone number) and DNIS (number dialed at the originating phone), and

matches the DNIS to determine which survey to offer. Survey then offers Mike the opportunity to rate his upcoming experience by taking a survey at the end of the call. Mike presses 1 if he wishes to take the survey or 2 if he doesn't.

By offering the Survey before Mike's experience with the call center agent, we are hoping to collect surveys after both good and bad experiences. We have learned that if we don't offer the Survey until after the experience, we will collect far more data for bad experiences than good.

If Mike answers "No", Survey transfers the call, usually via a queue to the call center. The transfer is a blind transfer accomplished via inband call control over the same line on which the call arrived. The inbound line is cleared and ready for another call about 7 seconds after Mike answers "No".

If Mike answers "yes", Survey hangs onto the call by "bridging" the call to the call center queue. "Bridging" is a special type of conference that is achieved by using two lines. Separate calls are established on each line and then they are bridged together. Survey uses this Bridge because it wants to hold on to the call to deploy the survey after the agent hangs up. A single conference on a single line could accomplish this only through CTI and CTI is not as reliable as call control. With a bridge, when the agent hangs up, we get a reliable call control change (robbed bit or D-channel). Because the call is flowing through our server, Survey needs to be ultra-reliable. This call flow also has its advantages. Because the entire agent leg flows through our telephony card, we can easily record the entire call as well as offer the Survey at the end of the call. When Mike's call leg with the agent is complete and the agent hangs up (hopefully Mike doesn't hang up or we will lose this survey opportunity), we immediately collect Mike's opinion by having him complete a survey. Survey prompts, call recordings, and collection of Survey data all take place at the Qfiniti Survey server.

The Ever Expanding Array of Call Flow Scenarios

With that general discussion of Survey connectivity out of the way, we can now try to diffuse some confusion by discussing a few of the call flows that customers have dreamt up to fulfill their needs. Survey can be set up in three basic modes:

MODE	DESCRIPTION
1	Customer calls directly into Survey for the sole purpose of taking a survey
2	Upon completion of a telephone transaction, an Agent verbally offers the survey to a customer and connects the customer to Survey if they answer "Yes"
3	Often referred to as "Stealth" mode, the most common mode used, where the Survey is offered before the call and Survey routes the call to the agent group via bridging. Because Survey owns this call via the bridge, the call can be easily recorded as well. When inband (robbed bit with no D-channel) signaling is used, the call is not so stealthy on display phones because the Survey extension is always displayed on the agent phone. This problem can be fixed with the PRI ISDN (D-channel) configuration explained later

Part of the confusion at configuration time is that the above descriptions imply a specific environment set up for each. Mode 1 implies that each inbound Survey line has a specific DNIS

that determines the Survey offered. Mode 2 implies the same thing, only the agent does a blind transfer to the DNIS. Mode 3 implies that Survey always makes the offer before routing to a Queue and then deploys the Survey determined by the original customer DNIS. All three of these configurations are possible, but of course are not the only ones. Smart IT technicians, for example, rarely deploy the implied mode 3.

Let's take a look at why the implied mode three is not so popular. If calls are routed directly to Survey without prior treatment, then the Survey extension is the DNIS and each DNIS has to supply it's own Survey definition. If several lines are required to handle the call load, then the identical Survey definition must be created for each line. The biggest deterrent to this deployment however, is that customers need a single contact number for the call center and this is not going to be changed to accommodate Survey.

So on Avaya, the customer creates a VDN which we think of as a queue and supplies that queue with the number of Survey lines needed to handle the queue's call load. Now when Mike dials the DNIS he has been supplied, Avaya CM will route his call to the first available Survey extension on the VDN extension list. This is initially confusing the Autonomy etalk installer for two reasons. First, the DNIS he must configure for is NOT one of his Survey inbound extensions. Second, the only way he can know which lines may be occupied by the Survey for a Specific VDN is by looking at the extensions configured for the VDN on the switch. So, he prays that his local Avaya technician can help him. This is particularly difficult when a new field person is upgrading or maintaining an existing, complex Survey site.

Smart IT pros are even more creative. They discover that only about 3% of calls result in a Survey. They see that they have spent a lot of money on a large Survey System that spend most of its inbound resources blind transferring "NO" calls. So, they offload the initial Survey offer to the pbx announcement resource. Now the PBX offers the survey, Survey now only gets "Yes" calls and does no blind transfers and many lines that used to be needed to process all of the "No" calls can be equally allocated between inbound and outbound bridge lines, because Survey now needs an outbound line for every inbound call it receives. This is initially confusing the field rep because Survey, by default, makes the offer and now the only things it does when it receives a call is collect the DNIS to determine the Survey, plays the announcement "Your call will now be connected to an Agent", and waits for the end of the agent leg to deploy the survey. If the customer requires, Survey may also still initiate recording of the call at this point.

IT creativity will most likely not end there. After deploying the VDN, the IT tech notices that Survey has extra capacity, so much extra capacity that he cannot seem to use it up on a single VDN DNIS. So, he begins deploying Surveys on other VDNs. Eventually, he discovers that the most efficient use of Survey resources occurs only when he configures several Survey lines to more than one VDN. You probably can see why this is initially confusing to the field tech. We started with the notion that our extension would be the DNIS we would process, now our extension may actually be used for any number of different surveys.

The hope here is that this single example will help diffuse confusion and promote creative and proactive thinking for all three modes. What the modes imply is only the tip of the iceberg. Now we are ready to begin the installing.

Basic Components of Qfinti Survey

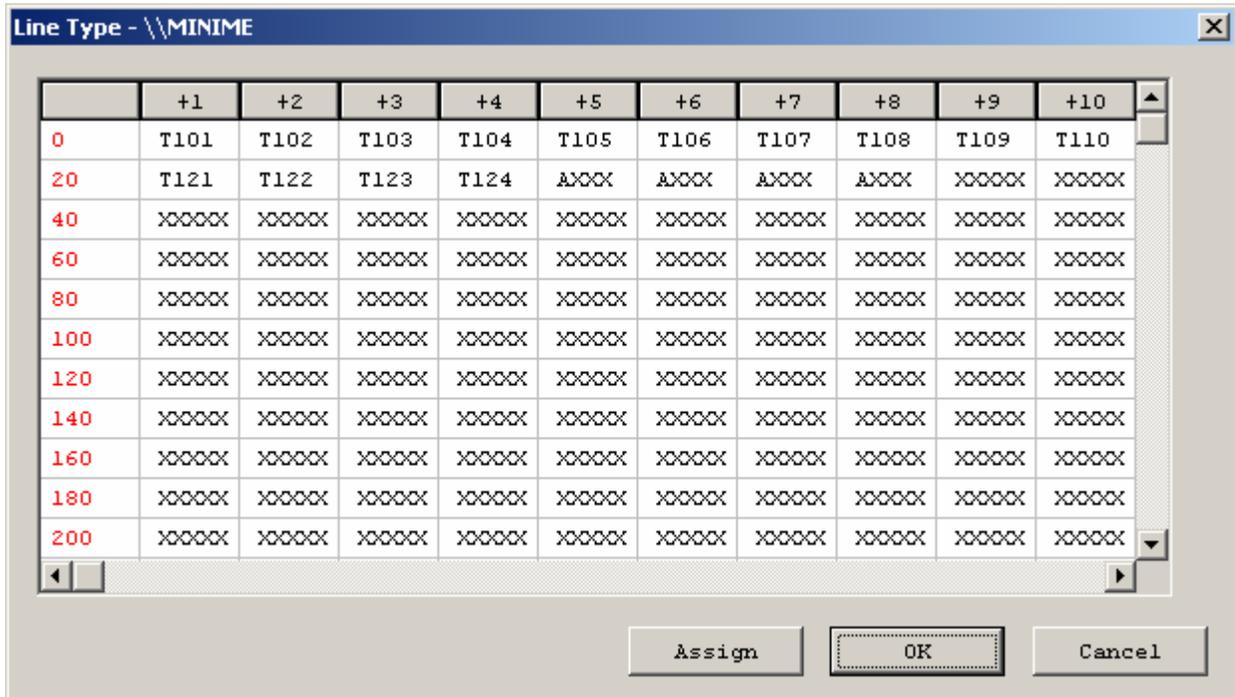
As you install and configure Qfinti Survey, it is helpful to know that it consists of only 7 basic components to accomplish its tasks. The chart below displays these components and offers a brief description of the role played by each:

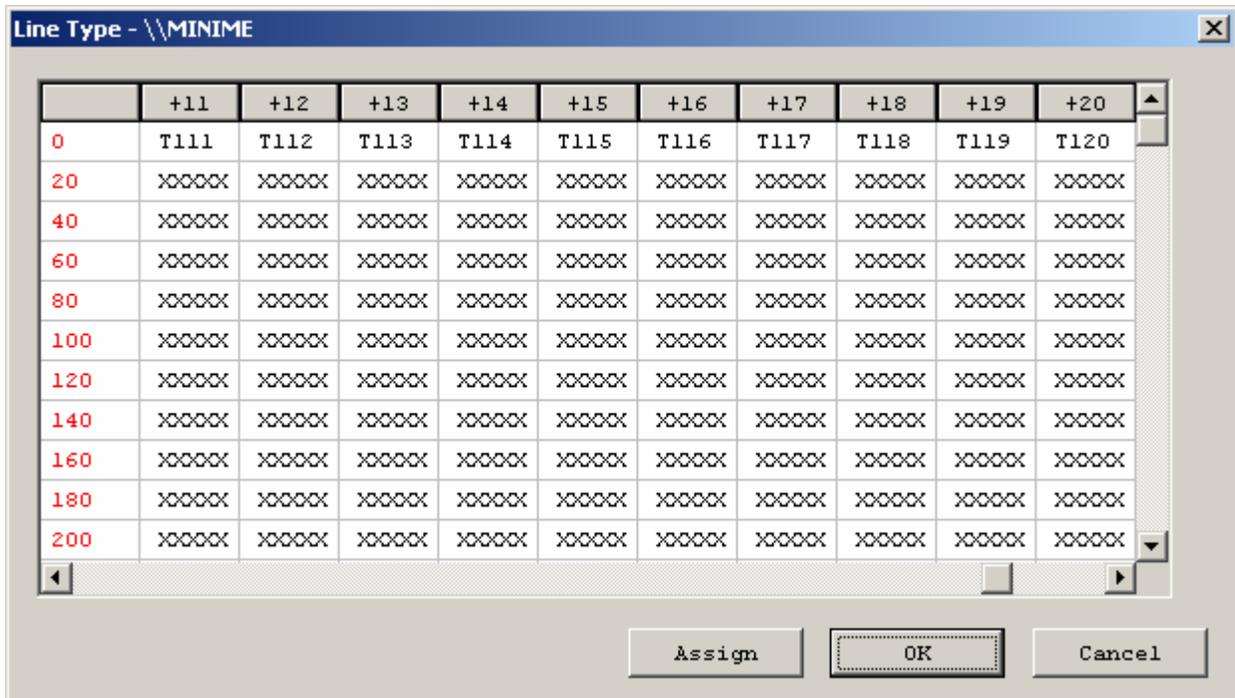
COMPONENT	DESCRIPTION	CONFIG VIA
Dialogic Cards	Enables acquisition of voice and control of phone calls	DNA
Dialogic DNA	Control and configure Dialogic hardware	GUI, .PRM
OmniVox	Call routing and prompt control for Survey	GUI, .CFG, ISDN.CALL
SQL	DB for survey setup, Agents, Recording Info	N/A
CallManager	Collects CTI info: ANI, DNIS, Agent ID, etc	.INI
SurveyCMI	Integrates CallManager to OmniVox	.INI
Qfinti Desktop	UI for setting up surveys and administering Agents	GUI

Avaya Specific Configuration on the Survey Server

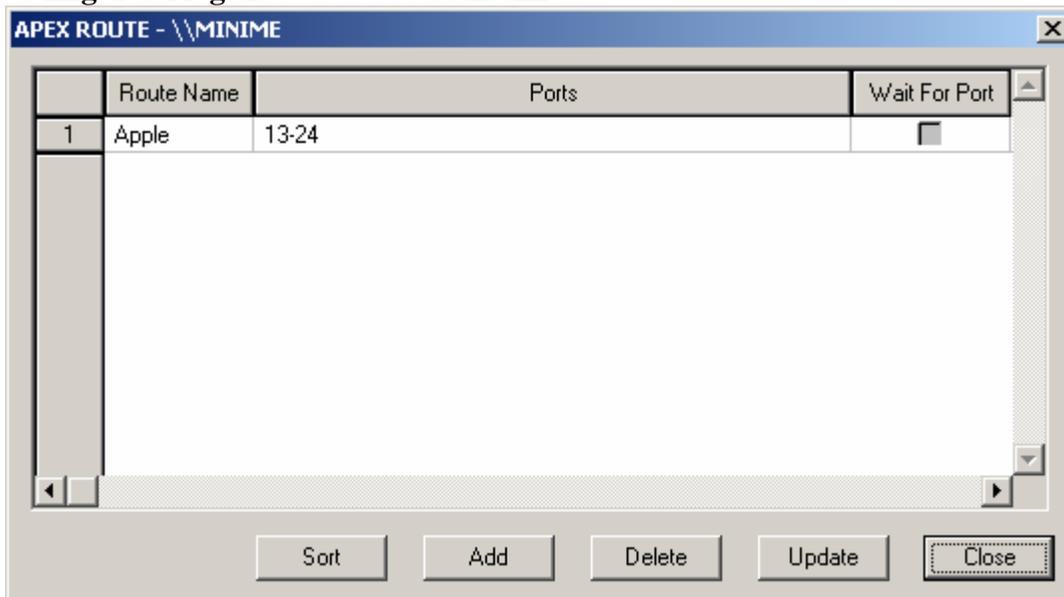
Follow the instruction in the Qfiniti Survey install to install all components needed. This document is about configuring these components to run in an AvayaCM environment.

Configure the number of Dialogic lines on the Survey server into Omnivox:





Configure bridge routes to outbound lines:



Configure application lines:

The screenshot shows the 'Line Manager' window for the application '\\MINIME'. It contains a table with the following columns: Line, Application, Code, and Config. The table lists 24 lines. Lines 1 through 12 are configured with 'ASURVEY' and 'IN' code. Lines 13 through 23 are blank. Line 24 is configured with 'REC_VOC' and 'REC' code. A 'Show' panel on the right has 'Normal', 'Minimize', and 'Hide' options, with 'Hide' selected. Below the 'Show' panel are buttons for 'Start', 'Stop', 'Assign', 'Config', 'Select', 'Debug Level', 'Update', and 'Close'.

Line	Application	Code	Config
1	ASURVEY	IN	Voice
2	ASURVEY	IN	Voice
3	ASURVEY	IN	Voice
4	ASURVEY	IN	Voice
5	ASURVEY	IN	Voice
6	ASURVEY	IN	Voice
7	ASURVEY	IN	Voice
8	ASURVEY	IN	Voice
9	ASURVEY	IN	Voice
10	ASURVEY	IN	Voice
11	ASURVEY	IN	Voice
12	ASURVEY	IN	Voice
13			Voice
14			Voice
15			Voice
16			Voice
17			Voice
18			Voice
19			Voice
20			Voice
21			Voice
22			Voice
23			Voice
24	REC_VOC	REC	Voice

These are inbound lines

Blank lines in an Avaya system are the outbound bridge line

This is the line to call into ti record prompts

Configure System ini Files

The three Survey INI files: CallManager.ini, SurveyCM.ini, and Survey.ini need to be configured to run in the Avaya CM environment: Below are the settings in each .ini file that need to be set specifically for Avaya:

CallManager.ini:

```
QueueListSize = 1  
Queue00 = 50011
```

Skill, NOT VDN of which the agents you wish to monitor are members

```
VENDER = AVAYA  
DRIVER = S8700  
SERVICE = CSTA  
SERVERNAME = SERVER1  
VERSION = TS2  
USERNAME = etalk  
PASSWORD = etalk
```

This TLink would show up in the AES Admin Web as:
AVAYA#S8700#CSTA#SERVE
R1

SurveyCM.ini:

```
[T1_EXT_LIST]  
line1=22225  
line2=22226  
line3=22227  
line4=22228  
line5=22229  
line6=22230  
line7=22231  
line8=22232  
line9=22233  
line10=22234  
line11=22235  
line12=22236  
line13=22237  
line14=22238  
line15=22239  
line16=22240  
line17=22241  
line18=22242  
line19=22243  
line20=22244  
line21=22245  
line22=22246  
line23=22247  
line24=22248  
TotalT1Ports=24values
```

The extensions on the Survey

The agent's extensions

MinAgentRange1=22001
MaxAgentRange1=22009

SwitchType = 1

ExtType = 1
UseConfAgtID=1

During interop all Surveys were associating to agent 99998, we noticed only the first call event included the agent id and that event was a conference event because Avaya sees the bridge as a conference (at least in this setup). So, in SurveyCMI.ini we set UseConfAgtID=1 to use the first agent. No matter what scenarios we tested after that, even maxing out conferences from the initial agent, Survey worked correctly.

When BridgeAnsTimeout=10, after 3 rings (ten seconds) prompt plays "That Survey not available at this time". Set to 0 to keep ringing forever and use PBX setting to control.

Survey.ini

BridgeAnsTimeout=0
FrontEndCondition = 1

When a customer VRU handles the Survey offer we only have to set two things to handle this: FrontEndCondition = 1 in Survey.ini and correct DNIS trigger coming from VRU.

Don't forget to install the AvayaCT client and configure TSLIB.ini:

TSLIB.ini

[Telephony Servers]
192.45.85.102

Set the Robbed Bit settings in Omni.cfg, in the AvayaLab we used D4/AMI robbed bit protocol and this allowed us merely to uncomment the lines below Lucent G3 OPX:

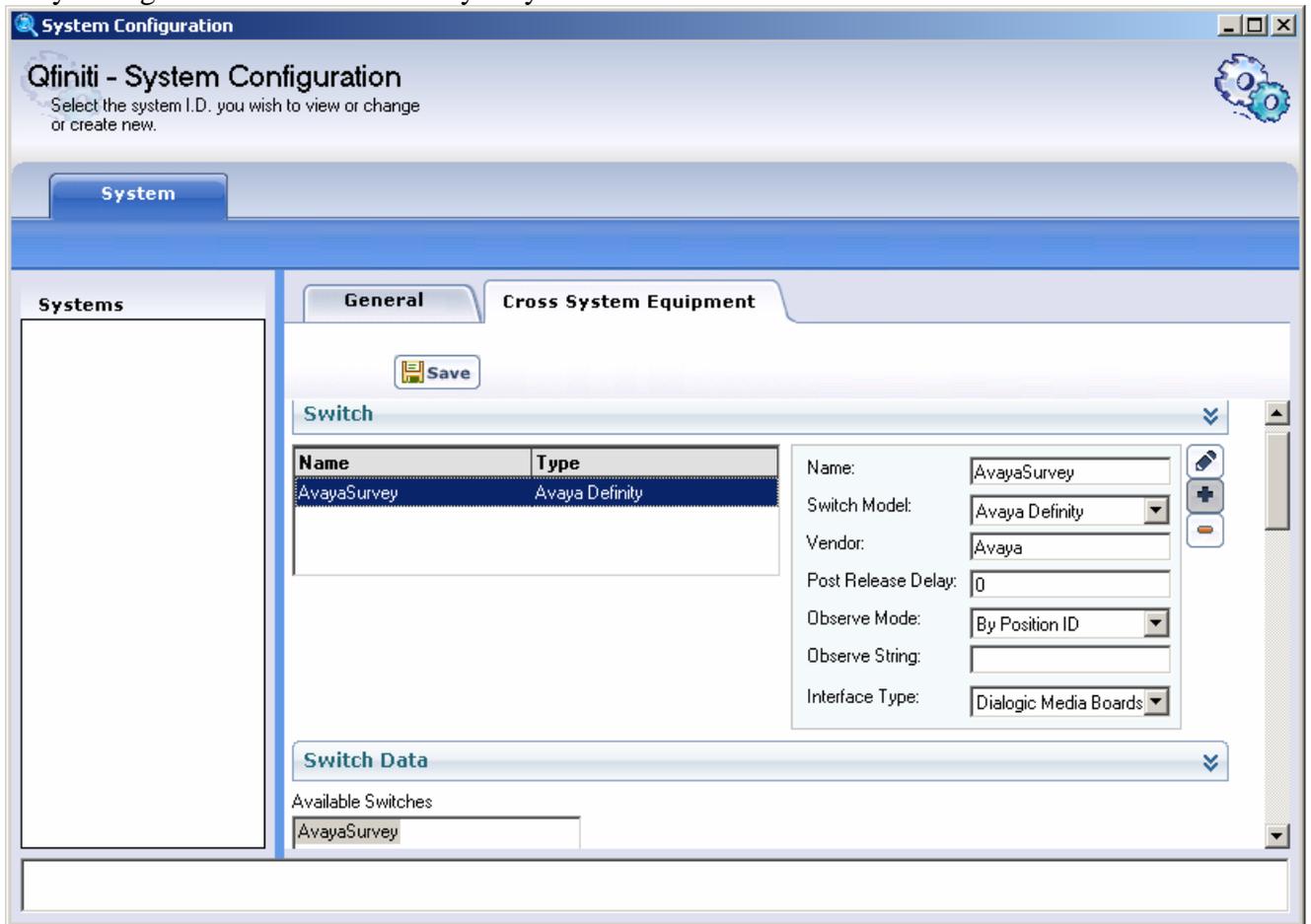
Omni.cfg

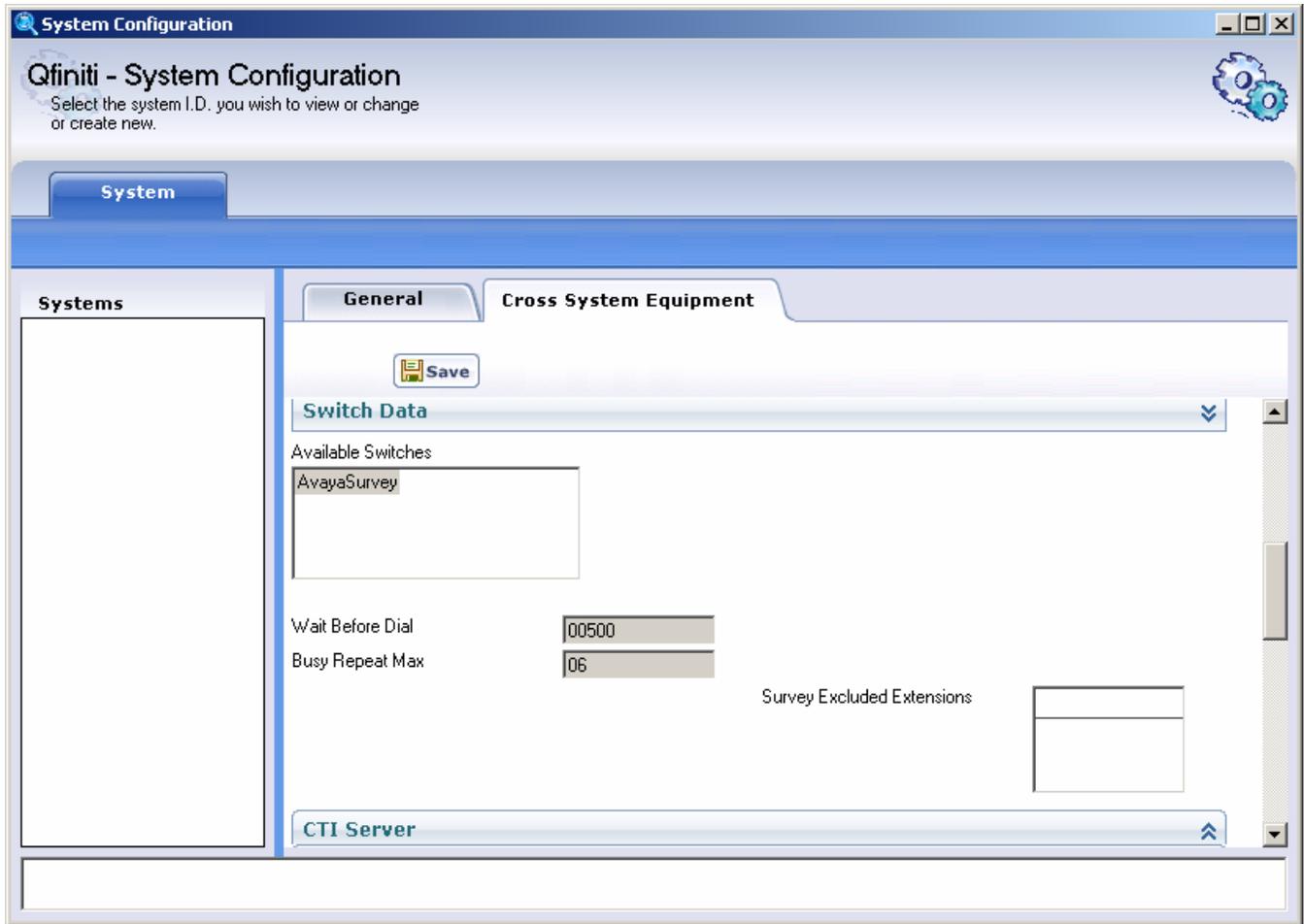
```
# Following line protocol is for Lucent G3 OPX signaling
#
# param # initial duration secondary
# state (in ms) state
# ABCD ABCD
#
0100 01xx 0 xxxx /* VRU onhook/idle */
0101 11xx 0 xxxx /* VRU offhook/answer/conversation */
0102 11xx 0 xxxx /* VRU outbound/seizure */
0103 0xxx 200 1xxx /* VRU wink/seizure acknowledge */
0104 1xxx 0 xxxx /* VRU bitblock/clear back */
0105 x0xx 0 xxxx /* C.O. ring/seizure */
0106 1xxx 0 xxxx /* C.O. hangup */
```

0107	x1xx	200	x0xx	/* C.O. wink	*/
0108	1xxx	0	xxxx	/* VRU post-seizure	*/
0109	01xx	0	xxxx	/* C.O. idle	*/
0110	00xx	600	11xx	/* VRU Flash HOOK	*/
0111	10xx	0	xxxx	/* VRU Seizure acknowledge	*/
0113	01xx	0	xxxx	/* C.O. answer/offhook state	*/

Qfiniti Desktop and System Configuration

Only configure a Switch for a Survey only install:





Configuring Initial Agents and Surveys

Eventually, you will need to configure all needed agents and surveys into the system, but initially you may want to perform a minimal configuration of a few test agents and surveys. Once the system is completely running all agents and surveys required can then be added in the same manner as the initial ones below.

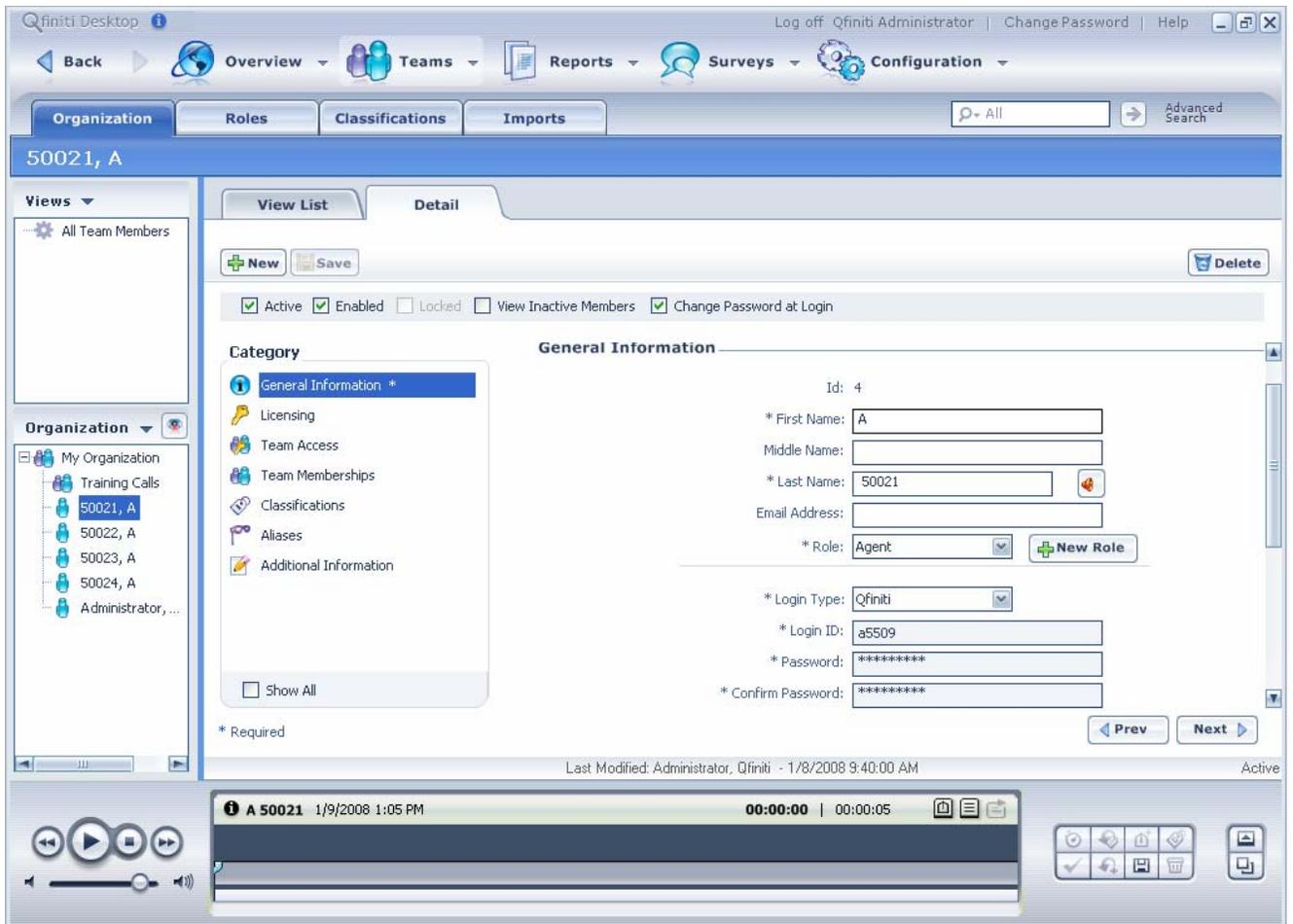
Adding Agents

CallManager cannot associate recordings with an Agent ID until agents are create in Qfiniti. Below are string shots and notes concerning how to properly add an agent to the system:

The screenshot displays the Qfiniti Desktop application interface. At the top, there is a navigation bar with tabs for Overview, Teams, Reports, Surveys, and Configuration. Below this, a sub-navigation bar includes Organization, Roles, Classifications, and Imports. The main content area is titled '50021 A' and shows a 'Detail' view of an agent. The 'General Information' section contains the following fields:

- Id: 4
- * First Name: [Text Field]
- Middle Name: [Text Field]
- * Last Name: 50021 [Text Field]
- Email Address: [Text Field]
- * Role: Agent [Dropdown Menu]
- * Login Type: Qfiniti [Dropdown Menu]
- * Login ID: a5509 [Text Field]
- * Password: [Text Field]
- * Confirm Password: [Text Field]

Buttons for 'New', 'Save', and 'Delete' are visible. A sidebar on the left shows the organization structure, including 'My Organization' and 'Training Calls'. A status bar at the bottom indicates 'Last Modified: Administrator, Qfiniti - 1/8/2008 9:40:00 AM' and 'Active'. A recording player is visible at the bottom left, showing a recording for agent 'A 50021' on 1/9/2008 at 1:05 PM, with a duration of 00:00:00.



Qfiniti Desktop | Log off - Qfiniti Administrator | Change Password | Help

Back | Overview | Teams | Reports | Surveys | Configuration

Organization | Roles | Classifications | Imports | Search: All | Advanced Search

50021, A

Views

- All Team Members

Organization

- My Organization
 - Training Calls
 - 50021, A
 - 50022, A
 - 50023, A
 - 50024, A
 - Administrator, ...

View List | **Detail**

[New](#) | [Save](#) | [Delete](#)

Active Enabled Locked View Inactive Members Change Password at Login

Category

- General Information *
- Licensing**
- Team Access
- Team Memberships
- Classifications
- Aliases
- Additional Information

Show All

* Required

Licensing

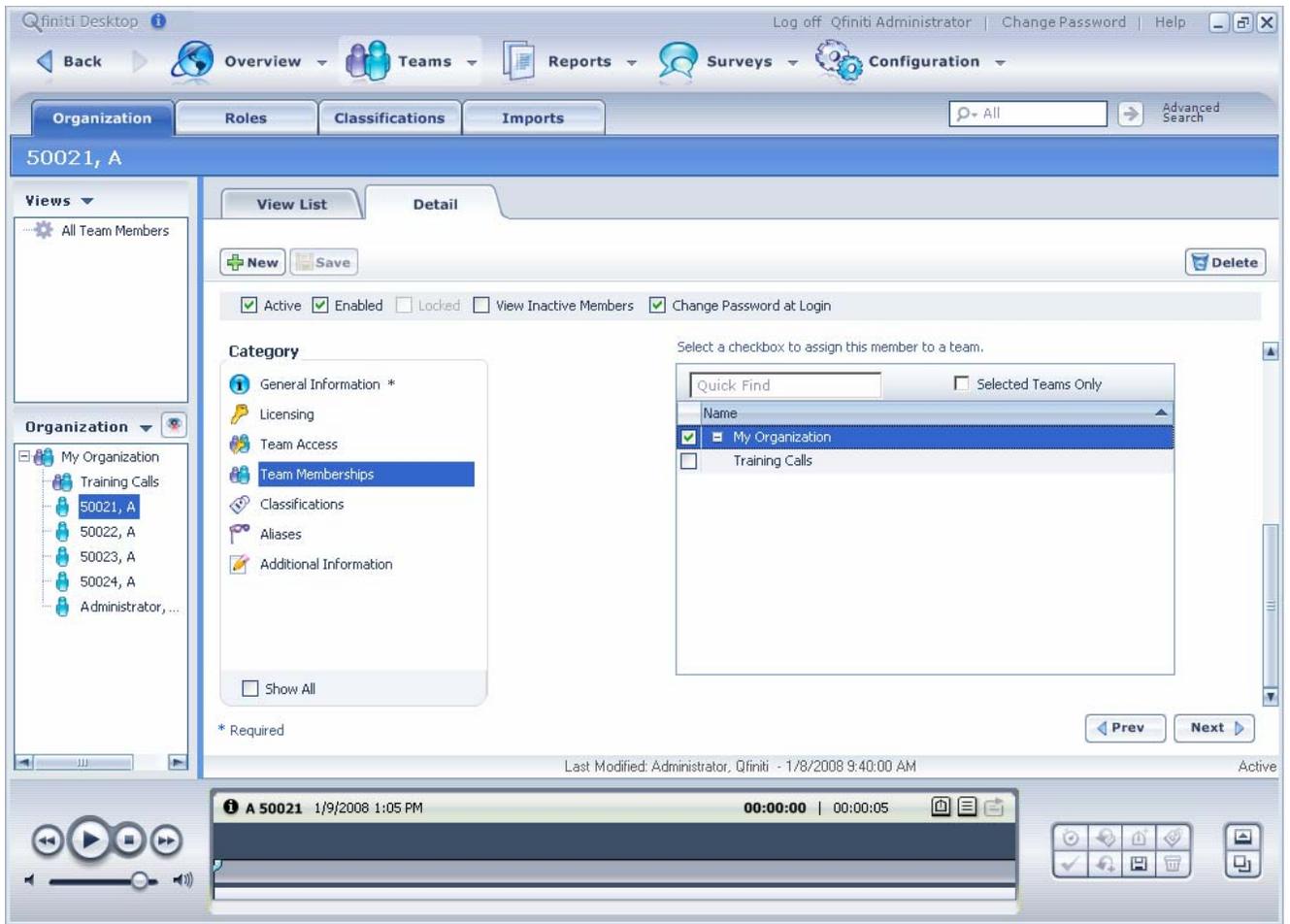
No license keys have been imported at this time.

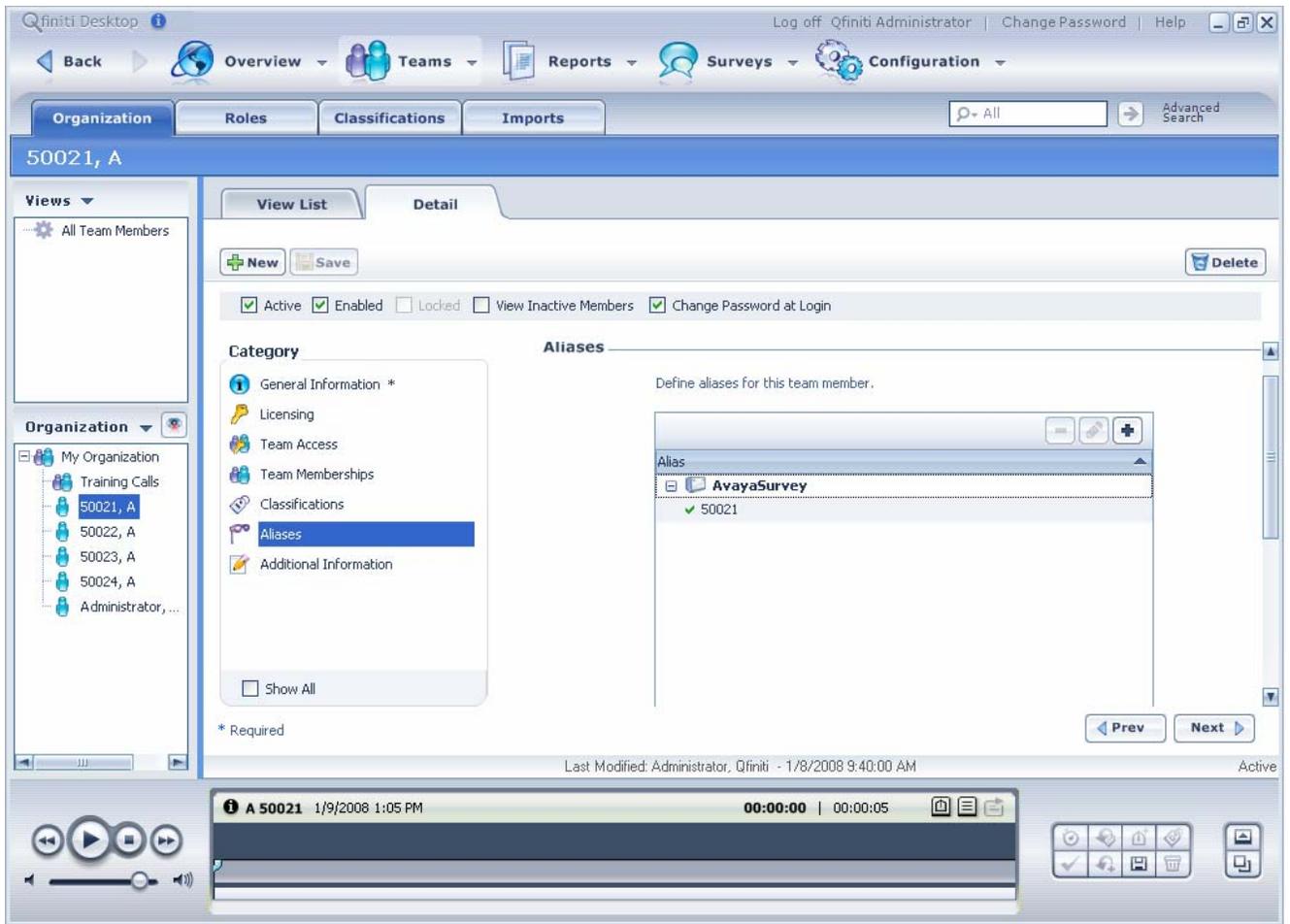
Product	Total Licenses	Available Licenses

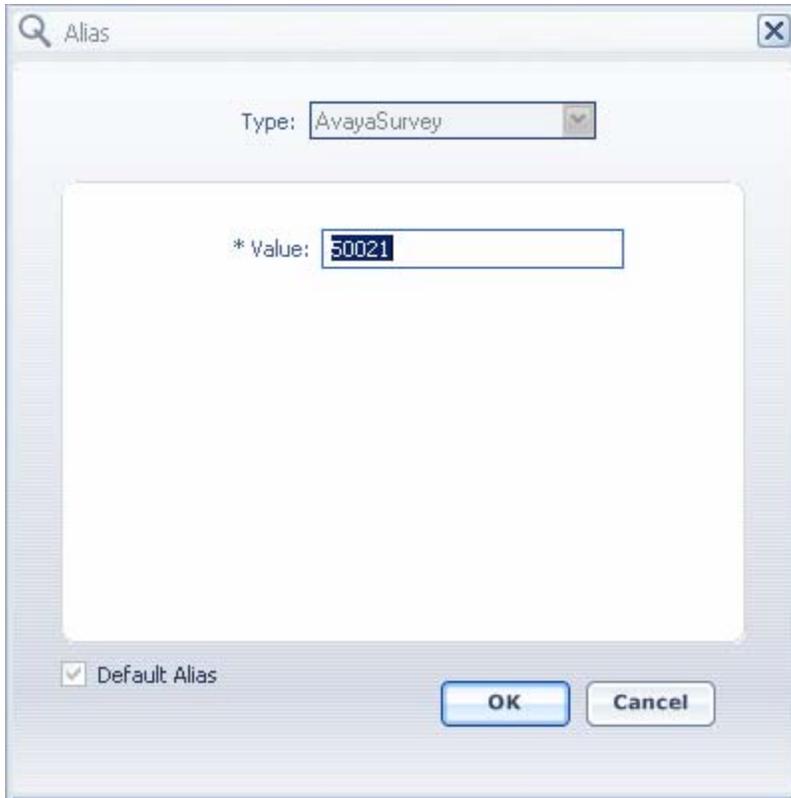
[Prev](#) | [Next](#)

Last Modified: Administrator, Qfiniti - 1/8/2008 9:40:00 AM | Active

A 50021 1/9/2008 1:05 PM | 00:00:00 | 00:00:05







Creating a Survey

The four steps to adding a survey from scratch are detailed below:

Add Questions to be Asked

question 1

Views ▾
All Survey Questi...

View List Detail

New Save SpellCheck Delete

Version: 1

Category

- General Information *
- Answers *
- Alerts

Show All

* Required

General Information

* Name: question 1

* Question: press 1 for yes

Prompt 2010

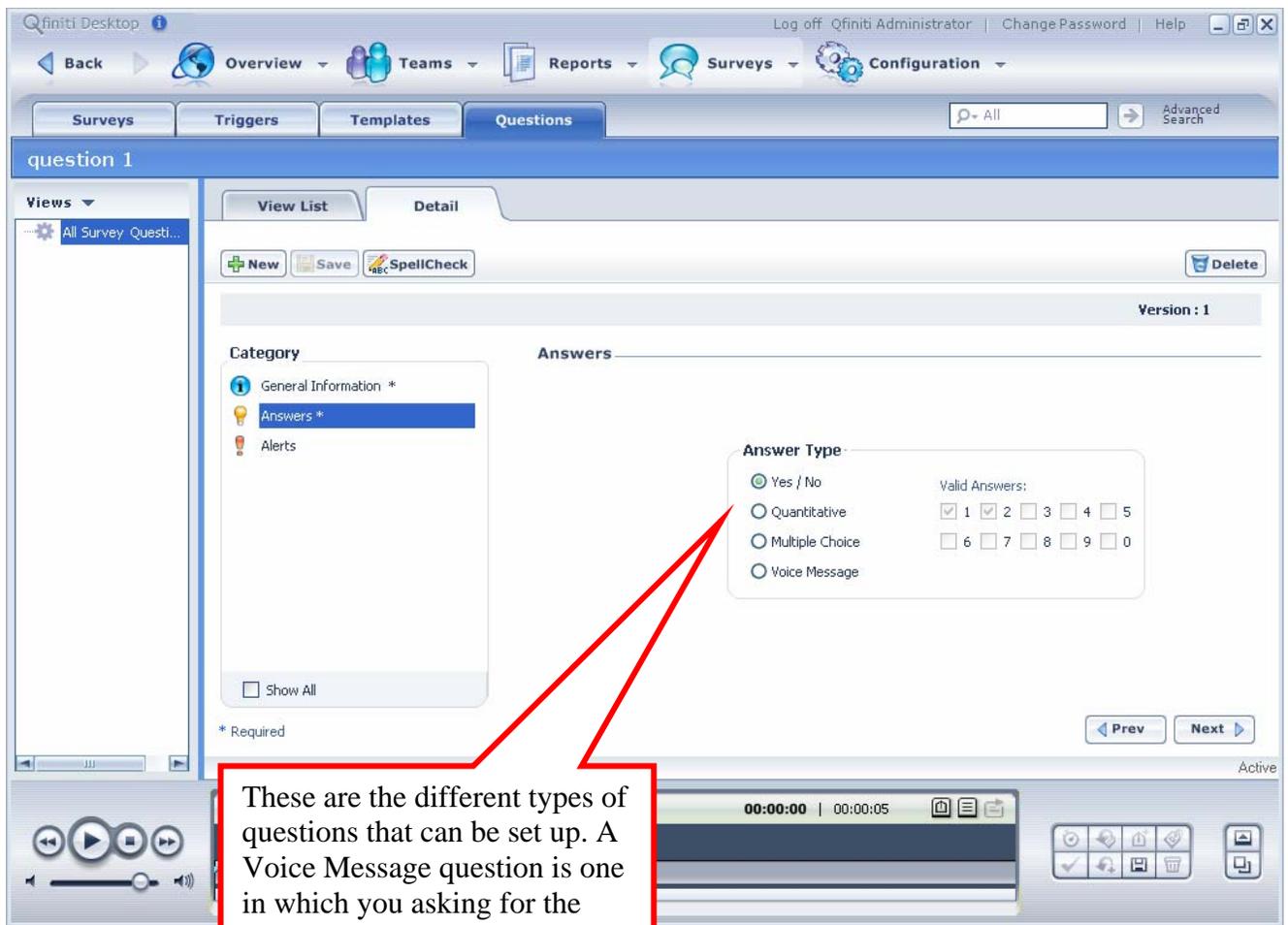
Prev Next

Active

A 50021 1/9/2008 1:05 PM 00:00:00 | 00:00:00

Each question you add will automatically be assigned a prompt number. This is the number you will key into the phone as you record the question by call a Rec_Voc

This is the question text that will print on reports



The screenshot shows the Qfiniti Desktop interface for configuring a question. The top navigation bar includes 'Back', 'Overview', 'Teams', 'Reports', 'Surveys', and 'Configuration'. Below this, there are tabs for 'Surveys', 'Triggers', 'Templates', and 'Questions'. The main content area is titled 'question 1' and has a 'View List' and 'Detail' tab. The 'Detail' tab is active, showing a 'Category' list on the left with 'General Information *', 'Answers *', and 'Alerts' (selected). The 'Alerts' section on the right has a 'Send an Alert if' field with a dropdown menu and a numeric input field. Below this is the 'Alert Method' section with radio buttons for 'Transfer Call', 'Send email', 'Send Page', and 'Send FAX'. A 'Transfer Number' input field is also present. A red callout box points to the 'Alerts' section with the following text:

Here you can set tolerances for responses, and take the actions indicated here to "Save" the customer.

Add a Template

Qfiniti Desktop | Log off Qfiniti Administrator | Change Password | Help

Back Overview Teams Reports Surveys Configuration

Surveys Triggers **Templates** Questions

template 1

Views: All Survey Templ...

View List Detail

New Save SpellCheck Delete

Category

- General Information *
- Questions *

General Information

* Name:

Greeting Text:

Prompt: 2011

Closing Text:

Prompt: 2012

Prev Next

Active

0:00 | 00:00:05

These are not system prompts, so will have to record them. Again they are automatically assigned prompt numbers for you to request when recording via REC_Voc line. Greeting is the prompt that will play when the agent hangs up in Mode 3. Closing is usually something like "Thanks for taking a Survey. goodbve."

Qfiniti Desktop | Log off - Qfiniti Administrator | Change Password | Help

Back Overview Teams Reports Surveys Configuration

Surveys Triggers **Templates** Questions

template 1

Views: All Survey Templ...

View List Detail

New Save SpellCheck Delete

Category: General Information * Questions *

Questions

question 1: press 1 for yes
Rate: Rate your experience on this call from 1 to 5, 1 is excellent, 5 is horri...

* Required

Prev Next

Active

A 50021 1/9/2008 1:05 PM 00:00:00 | 00:00:05

Add a DNIS Trigger

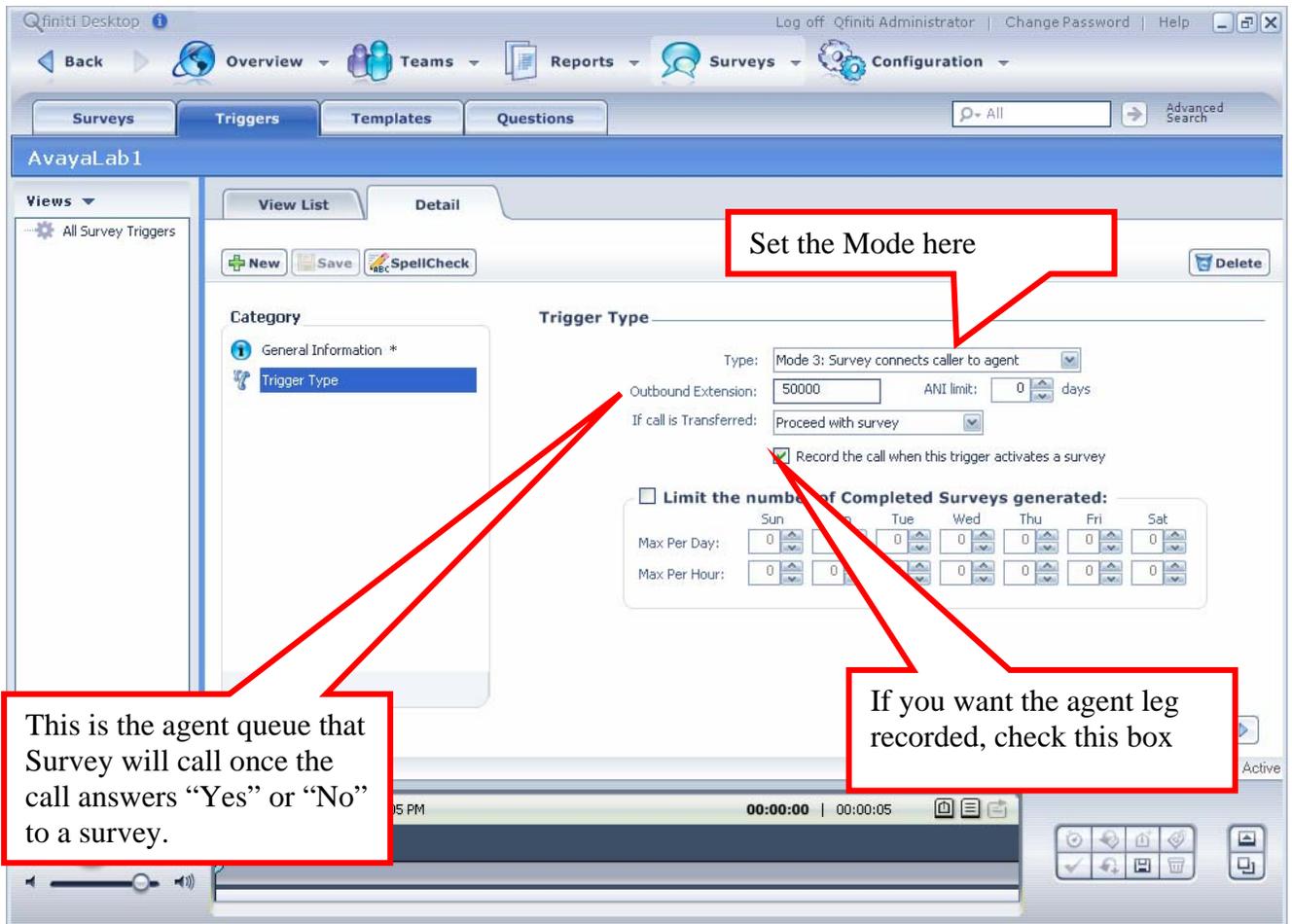
The screenshot displays the AvayaLab1 configuration interface. The top navigation bar includes 'Back', 'Overview', 'Teams', 'Reports', 'Surveys', and 'Configuration'. Below this, there are tabs for 'Surveys', 'Triggers', 'Templates', and 'Questions'. The main content area is titled 'AvayaLab1' and shows a 'View List' and 'Detail' view. The 'Detail' view is currently selected, showing a 'General Information' section. This section contains the following fields:

- * Name: AvayaLab1
- * DNIS: 22225
- * Switch: AvayaSurvey (Switch ID: 5)
- * Survey Template: template 1
- Survey Language: English
- Play message 1988 "Survey Not Avail" when this trigger is inactive.
- Active

Three red callout boxes provide additional context:

- The first box points to the DNIS field and contains the text: "This is the CTI DNIS that will trigger this Survey."
- The second box points to the Survey Template field and contains the text: "Assigning a template assigns the questions that will be asked"
- The third box points to the Switch ID field and contains the text: "This is the SwitchID which must be set in Survey.ini"

At the bottom of the interface, there is a status bar showing 'A 50021 1/9/2008 1:05 PM' and a timer '00:00:00 | 00:00:05'. There are also navigation buttons for 'Prev' and 'Next'.



Record Questions

Once the Survey is configured, you will have to record the prompts needed for the survey by calling one of the Rec_Voc lines you configured in Omnivox. Most customers choose to have prompts recorded by an outside professional "talent". For this reason, we have not automated the process of recording different language prompts into specific language folders. Therefore, once you have recorded all of your prompts you will have to copy the recordings into the proper Omnivox language folder. As an example, if you call into Rec_Voc with English prompts you will copy recordings by prompt number from:

```
\\minime\c$\USR\APEX\voice\Asurvey
```

Into

```
\\minime\c$\USR\APEX\voice\en
```

System Functionality on Avaya

Avaya is the most enabled switch for Survey, all System Functionality is available with these few exceptions:

Survey does not currently collect TSAPI Agents states for agents logged in at the time our server starts up This will be fixed in patch 8.

Survey CallManager does not current recover when TSAPI's switch link is broken. This will be fixed in patch8.

Survey cannot currently be configured for PRI outbound lines. This should be fixed in Patch 8.

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