



Application Notes for TelStrat Engage Record with Avaya Aura® Contact Center and Avaya Communication Server 1000 – Issue 1.0

Abstract

These Application Notes describe a solution comprised of Avaya Aura® Contact Center and TelStrat Engage Record. During the compliant testing, the TelStrat Engage Record was able to connect to Contact Center Manager Server using the Meridian Link Services. This allows TelStrat Engage Record to acquire and monitor keys of IP Phones, and record Voice over IP calls made from/to IP Phones registered to Avaya Communication Server 1000.

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

The objective of this interoperability compliance testing is to verify that the TelStrat Engage Record (hereafter referred as Engage Record) can successfully connect to the Avaya Aura® Contact Center's (hereafter referred as Contact Center) Contact Center Manager Server (hereafter referred as CCMS) using Meridian Link Server (MLS) protocol and record Voice over IP calls of the agents IP Phones that is being hosted by Avaya Communication Server 1000 (hereafter referred as Communication Server 1000).

2. General Test Approach and Test Results

The general test approach was to verify the Engage Record is able to acquire and monitor keys of the agents' IP Phones that are configured on a Communication Server 1000 by communicating with the CCMS of Contact Center system using the MLS protocol, duplicate the media stream of monitored IP Phone and save recorded calls.

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

2.1. Interoperability Compliance Testing

The focus of this compliance testing was to verify that Engage Record was able to interoperate with Contact Center and Communication Server 1000 system. The following functional areas were tested:

- Engage Record successfully utilizes the CCMS to provide Global Logging (record all calls).
- Selective Recording based on a combination of Automatic Call Distributor (ACD) Agent, Dialed Number Identification Service (DNIS), Calling Line Identification (CLID), Port Numbers, Directory Number (DN), Day/Time, Days of week, and Call Duration.
- Quality Monitoring: 1 of n calls.
- Record On-Demand.
- Agent Resiliency Information.
- Multiple DN Call Recording.
- Recording of a conference call.
- Serviceability tests.

2.2. Test Results

The objectives outlined in the **Section 2.1** were verified and met. All test cases were executed and passed with the following observation,

- If an IP Phone has 2 DNs, one configured as Associated Set Assignment (AST) and another one as non-AST, then MARP/MADN box needs to be checked for both of these DNs in Engage Recorder. Refer to **Section 7.2** for more details.

2.3. Support

Technical support for TelStrat can be obtained by contacting TelStrat via

Email: support@telstrat.com

Phone: +1-972-633-4548

Web: www.telstrat.com

3. Reference Configuration

Figure 1 illustrates the network diagram configuration used during the compliance testing between the Engage Record and Contact Center.

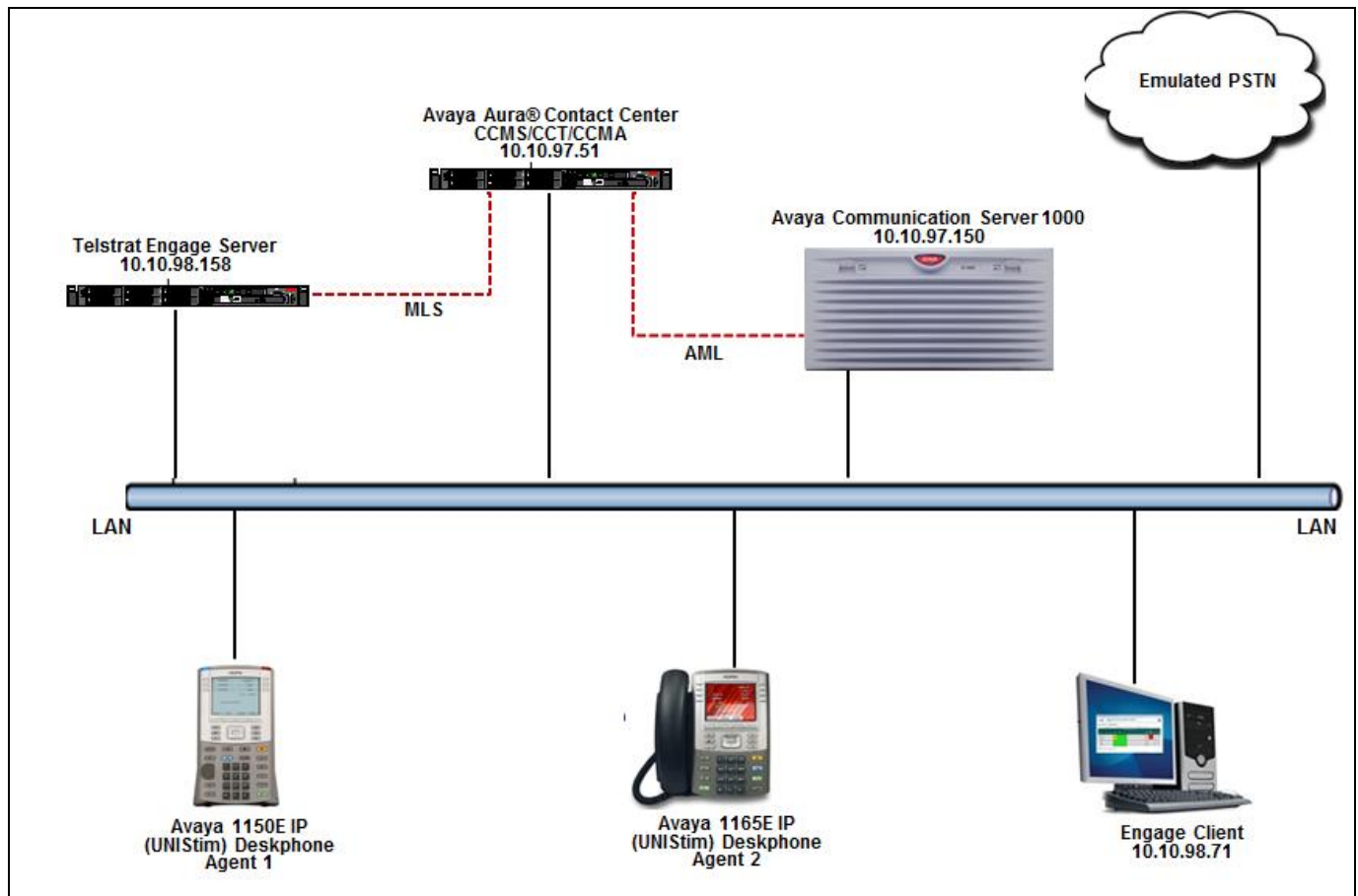


Figure 1: Network Diagram Configuration

4. Equipment and Software Validated

The following equipment and software were used during the lab testing:

Equipment/Software	Release/Version
Avaya Communication Server 1000	7.65 SP8
Avaya Aura® Contact Center on Windows 2008 R2 Standard SP1	7.0 SP1
Avaya 1150E IP Deskphone Avaya 1165E IP Deskphone	C8V C8V
TelStrat Engage Record Server on Windows 2008 Server Standard SP2	5.2.1.4
TelStrat Engage Web Client	5.2.1

5. Configure Avaya Communication Server 1000

This document assumes that the Communication Server 1000 has been installed and pre-configured. These Application Notes provide the necessary configuration that has to be done on Communication Server 1000 to work with Contact Center and Engage Record. For more information about how to install and configure Communication Server 1000, refer to **Section 10 [1]**.

5.1. Create ELAN for Avaya Aura® Contact Center Application

Log in to the command line interface (CLI) of the Communication Server 1000 using the proper credentials (not shown) and issue overlay **LD 17** to create a new ELAN for the Contact Center application. Screen below shows an already configured ELAN 17.

```
ADAN      ELAN 17
CTYP ELAN
DES For_AACC
N1 512
```

5.2. Create VAS for the ELAN of Avaya Aura® Contact Center Application

Using the CLI, issue overlay **LD 17** to create a value added server (VAS) for the ELAN 17 that was configured above for the Contact Center application. Screen below shows an already configured VSID 17.

```
VSID 017
ELAN 017
SECU YES
INTL 0001
MCNT 9999
```

5.3. Enable IPIE feature for IP call recording

Using the CLI, issue overlay **LD 17** to enable the Enhanced Unsolicited Status Message (USM) IE (IPIE) under the System Parameters (PARM) gate opener as shown in the screen below.

```
.  
.   
.   
DUR5 NO  
  MLDN YES  
  MARP YES  
  IPIE YES  
  FRPT NEFR  
  DCUS 5  
.   
.   
.
```

5.4. Enable class of service RECA for Agents IP Phone

Using CLI, issue overlay **LD 20** to enable the recoding allowed (RECA) class of service for agents IP Phone that needs to be recorded as shown in screen below.

```
.  
.   
.   
CAC_MFC 0  
CLS  CTD FBD WTA LPR MTD FND HTD TDD HFA CRPD  
      MWD LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1  
      POD SLKD CCSD SWD LND CNDA  
      CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCBF  
      ICDA CDMD LLCN MCTD CLBD AUTU  
      GPUD DPUD DNDA CFXA ARHD CNTD CLTD ASCD  
      CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD  
      UDI RCC HBTD AHD IPND DDGA NAMA MIND PRSD NRWD NRCD NROD  
      DRDD EXR0  
      USMD USRD ULAD CCBF RTDD RBDD RBHD PGND OCBF FLXD FTTC DNDY DNO3  
MCBN  
      FDSD NOVD VOLA VOUD CDMR PRED RECA MCDD T87D SBMD  
      KEM3 MSNV FRA PKCH MUTA MWTD DVL D CROD ELCD  
CPND_LANG ENG  
.   
.   
.
```

5.5. Configure the Associated Set Assignment (AST) for Agents IP phone

Using CLI, issue overlay **LD 20** to define which key of agents IP Phone is recorded by assigning the AST with a number of key. In this example, the AST is set to 00 which is the key 0 of the agents IP phone and Engage Record will monitor and record this key.

```
.  
.   
.   
DANI NO  
SPID NONE  
AST 00  
IAPG 0  
.   
.   
.
```

6. Configure Avaya Aura® Contact Center

This document assumes that CCMS of Contact Center has been pre-configured and that the MLS protocol is running successfully. Also, assumption is made that Contact Center communicates properly with the Communication Server 1000 using the Application Module Link (AML). For more information on how to install and configure the Contact Center please refer to **Section 10 [2]**.

7. Configure Engage Record Server and Client

This section provides detailed configuration of Engage Record server and client for recording VoIP calls that are presented to the agents' IP phones that are configured on the Communication Server 1000. For more information on how to install and configure the Engage Record please refer to **Section 10 [3]**.

7.1. Configure Engage Record Server

Log in to the Engage Record server as administrator with the proper credentials (not shown). To configure VoIP Engine for the Engage Record Server, navigate to menu **Start → All Programs → TelStrat → VOIP Engine Configuration** (not shown). The VOIP Engine Configuration panel appears as shown in screen below.



Click on **Config** as seen on the screen above to configure the **VoIP Configuration**. Screen below shows the values configured during the compliance testing.

From the **CTI Option** drop down menu, select *Avaya CS1000*. For **TN Format Option** select the radio button for *Large*. Enter the IP address of the CCMS MLS server for the **MLS Server Name** field. From the **Dual Stream Recorder IP** drop down menu, select the IP address of the Engage Server. Select the *All Trunk/Internal Calls* radio button for the **Calls to Record** field. Click on **More** button and select the *Agent Skillset* box (not shown). Select the *Agent Resiliency information* and *Multi_DN Call Recording* boxes. Retain default values for all other fields.

The image shows a 'VoIP Configuration' dialog box with a title bar and a close button. The main content area is divided into several sections. At the top, there's a tab labeled 'Avaya CS1000'. Below this, the 'CTI Option' is set to 'Avaya CS1000'. The 'TN Format Option' has two radio buttons: 'Small' and 'Large', with 'Large' selected. The 'MLS Server Name' is '10.10.97.51', 'MLS Server IP Port' is '3000', and 'MLS Connection ID' is 'VTENGAGE01idvr'. The 'Dual Stream Recorder IP' is '10.10.98.158'. There is a 'Manual ID' checkbox which is unchecked, and a 'More' button. Below this, the 'Calls To Record' section has three radio buttons: 'All Trunk/Internal Calls' (selected), 'All Trunk Calls', and 'Calls Selected By DN'. To the right of this, there are two checked checkboxes: 'Agent Resiliency information' and 'Multi_DN Call Recording'. Below these is a 'DN/Position ID Configuration' section containing a table with columns: 'DN', 'DN Type', 'Status', 'MARF/MADN', 'Record With', 'Beep Tone', and 'Trunk/Intern Calls'. The table is currently empty. At the bottom of the dialog, there are fields for 'No. of Log Files' (set to 8), 'Config File Location', 'Other Parameters', and buttons for 'OK' and 'Cancel'.

DN	DN Type	Status	MARP/MADN	Record With	Beep Tone	Trunk/Intern Calls
----	---------	--------	-----------	-------------	-----------	--------------------

7.2. Add a Regular DN or ACD Position ID

To monitor and record for a DN/ Position ID of agent phone, it needs to be configured by adding the DN or Position ID in the **DN/PositionID Configuration** window. Right click on the **DN/Position ID Configuration** section and select **Add** button as shown in screen below.

The image shows a 'VoIP Configuration' window for an Avaya CS1000 system. The 'DN/Position ID Configuration' section is highlighted with a red box. This section contains a table with columns: DN, DN Type, Status, MARP/MADN, Record w/ith, Beep Tone, and Trunk/Intern Calls. A context menu is open over the table, showing options: Add, Delete, Modify, ReRegister, DN Registration Info, and Refresh. Other configuration options include CTI Option (Avaya CS1000), TN Format Option (Small/Large), MLS Server Name (10.10.97.51), MLS Server IP Port (3000), MLS Connection ID (VTENGAGE01idvr), Dual Stream Recorder IP (10.10.98.158), and checkboxes for Agent Resiliency information and Multi_DN Call Recording. The bottom of the window has fields for No. of Log Files (8), Config File Location, Other Parameters, and OK/Cancel buttons.

DN	DN Type	Status	MARP/MADN	Record w/ith	Beep Tone	Trunk/Intern Calls
----	---------	--------	-----------	--------------	-----------	--------------------

- Add
- Delete
- Modify
- ReRegister
- DN Registration Info
- Refresh

The **DN Registration** window appears as shown in screen below. Here under the **DN Type** either a *Regular DN* or an *ACD Position ID* that needs to be recorded can be selected by clicking on the appropriate radio button. Based on this selection, enter the regular DN or ACD Position ID in the **DN** field. Also an option is provided to record a *MARP/MADN* of a Regular DN. For **Recording Stream** select the *Dual Stream* radio button, for this was the only option that was tested during compliance testing. Click on **Add** to complete the configuration.

DN Registration

DN 1005

DN Type

☐ Regular DN

☒ ACD Position ID

☐ MARP/MADN

Recording Stream

☐ Mirroring

☒ Dual Stream

☐ Warning Tone

Calls To Record

☐ Trunk/Internal Calls ☐ Trunk Calls Only

ADD Cancel

Note: *The Multi_DN Call Recording feature of Engage benefits from a new feature of Contact Center called Multiple DN Registration that enables CTI third party application to control as many keys of IP Phone as they want via MLS without assigning AST for IP Phone. The Multiple DN Registration feature needs to be enabled in the license of Contact Center. As per design, Multi_DN Registration/License supports both DN and Position ID resources, however both the Dual Stream and MARP/MADN needs to be selected. Also if a station has a DN that is part of AST and another DN that is not a part of AST, then both DN need to be configured as MARP/MADN in Engage Recorder.*

When an ACD Position ID or Regular DN is added for the first time, the status shows as *Not Initialized* as seen in the screen below. As soon as call is made from/to this Regular DN or Position ID the status changes to *Success*. Screen below shows a Position ID and Regular DN that were added successfully.

VoIP Configuration

Avaya CS1000

CTI Option: Avaya CS1000

MLS Server Name: 10.10.97.51

MLS Server IP Port: 3000

MLS Connection ID: VTENGAGE01idvr

Dual Stream Recorder IP: 10.10.98.158

TN Format Option: ☐ Small ☒ Large

☐ Manual ID More

Calls To Record: ☒ All Trunk/Internal Calls ☐ All Trunk Calls ☐ Calls Selected By DN

☒ Agent Resiliency information

☒ Multi_DN Call Recording

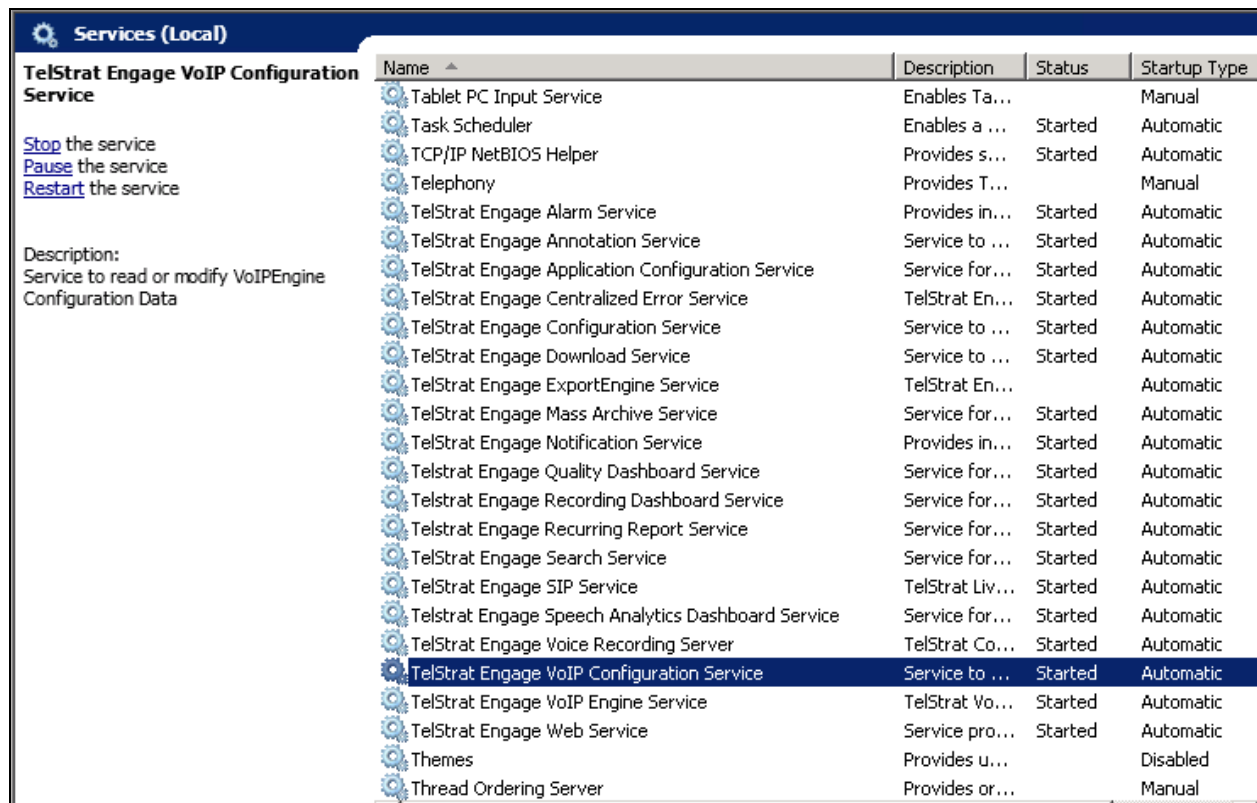
DN/Position ID Configuration

DN	DN Type	Status	MARP/MADN	Record With	Beep Tone	Trunk/Internal Calls
1005	Position ID	Not Initialized	No	Dual Stream	Disabled	Trunk/Internal
1006	Position ID	Success	No	Dual Stream	Disabled	Trunk/Internal
54042	Regular DN	OK(2),Fail(0)	Yes	Dual Stream	Disabled	Trunk/Internal
54405	Regular DN	Not Initialized	No	Dual Stream	Disabled	Trunk/Internal
54406	Regular DN	Success	No	Dual Stream	Disabled	Trunk/Internal

No. of Log Files: 8

Config File Location Other Parameters OK Cancel

Stop and start the **TelStrat Engage VoIP Configuration Service** service in the services category of Windows for the above configuration changes to be affected.



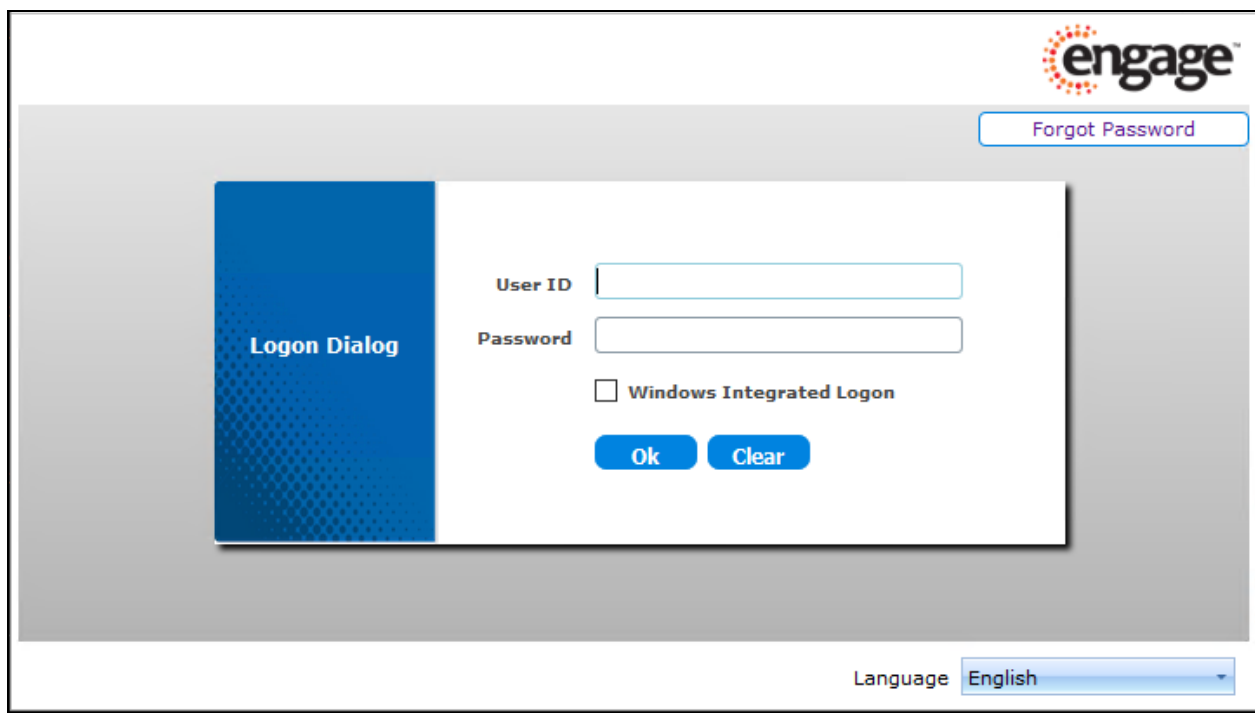
7.3. Configure Engage Record Web Client

This section explains the configuration using the Engage Record Web Client to add ACD Agents and Ports that will be monitored for recording.

It is assumed that the Engage Record Server has been successfully installed and the required recording services are running.

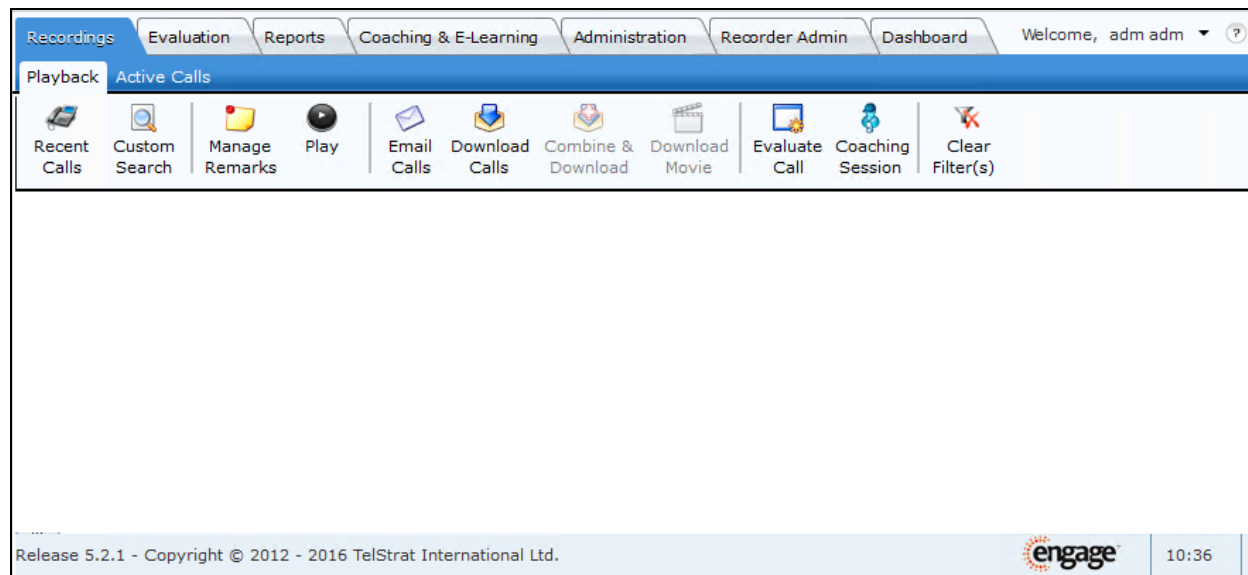
To access the Engage Record Web Client, open a web browser and type the following URL: *<IP Address>/Engage*, where IP Address is the IP address of the Engage Server.

Screen below shows the Login screen for the web client. Enter the appropriate **User ID**, **Password** and then click on the **OK** button.



The image shows a web browser window displaying the Engage Record Web Client login interface. The Engage logo is in the top right corner. Below it is a "Forgot Password" link. The main content area features a "Logon Dialog" with a blue header. Inside the dialog, there are input fields for "User ID" and "Password". Below these fields is a checkbox labeled "Windows Integrated Logon". At the bottom of the dialog are "Ok" and "Clear" buttons. At the bottom right of the browser window, there is a "Language" dropdown menu currently set to "English".

Screen below shows the main window of Engage Record Web Client.



7.4. Adding Users

To add a user that Engage Record can use to provide details of the recording, navigate to **Administration** → **Users** → **New User** as shown in the screen below for the web client.



A **Create User Account** window is seen as shown below. Enter the following configuration:

- **First Name:** Enter an appropriate first name.
- **Last Name:** Enter an appropriate first name.
- **Agent ID:** During compliance testing *1006* was configured.
- **Extension(s):** During compliance testing *54406* was used.
- Select the **User Cannot Logon** radio button.

Retain default value for all other fields and click on **OK** to complete the configuration. Note that the information provided here for the user is only used to show additional details for the recording.

Create User Account

Settings Member Of Permissions To View Features

User Status ☒ Active ☐ Inactive Start Date 9/15/2016 11:36 AM

First Name Agent Last Name 2 ☐ Evaluation License

User ID

Agent ID 1006

Extension(s) 54406 Use ',' to separate

Email 1 Email 2 Email 3

☐ Local Authentication ☐ Windows Authentication ☒ User Cannot Logon

Password ***** Confirm Password *****

Available Roles Selected Roles

OK Clear Clear All Exit

Screen below shows the successful addition of users.

Recordings

Evaluation

Reports

Coaching & E-Learning

Administration

Recorder Admin

Dashboard

Welcome, adm adm | [Change Password](#) | [Log Out](#) ?

Users


User Roles


Dialed Numbers


Playback Groups


Audit Trail


Setup


New User


View User


Modify User


Deactivate


Copy User


Reset Password

Force Change

Lock /Unlock

Show Inactive


Export Data

Import Data

User Accounts

Clear Filter(s)

Evaluation License: 14 (0 in use) Results: 18







		User ID	First Name	Last Name	Extension(s)	Agent ID	Evaluation License	User Role(s)	Email Account(s)	Status	Last Logon	IP
			Agent	1	54405,54042	1005	<input type="checkbox"/>					
			Agent	2	54406	1006	<input type="checkbox"/>					

7.5. Adding Schedule Recordings

This section describes the recording criteria that can be built using the Engage Record Client to record calls. Different recording criteria can be configured, for example,

- Record All, where no filters are set and all options are included for recording.
- Selective Recording, where user can select which components of the phone need to be recorded like a particular agent, a particular DN etc.
- Quality monitor, where a certain frequency of calls can be selected to be recorded.

To add schedule recordings that Engage Record needs to record, navigate to **Recorder Admin** → **Schedule Recordings** → **New Schedule** as shown in the screen below.

Recordings	Evaluation	Reports	Coaching & E-Learning	Administration	Recorder Admin	Dashboard	Welcome, adm adm Change Password Log Out				
VoIP											
Schedule Recordings											
Archive											
Service Accounts											
Events											
											
New Schedule	View Schedule	Modify Schedule	Delete Schedule	Activate / DeActivate	Refresh	Recorder vtengage01					

A **Create Schedule Recording Criteria** window is seen as shown below. Enter the following configuration:

- **Criteria Name:** Enter a descriptive name.
- Setup the criteria based on **ACD Agents**, **Dialed Numbers**, **CLID** and **Extension** tabs and also using any other values seen in the window below.

Click on **OK** to complete the configuration.

Create Schedule Recording Criteria

Settings | ACD Agents | Dialed Numbers | CLID | Extension

Criteria Name ☒ Active ☐ Inactive

☐ Exclusion Criteria ☐ Archive Recorded Calls to

On-Demand
☐ On-Demand
Mode

Date and Time
Start Date End Date

Start Time End Time

Frequency
1 of Calls

Screen Capture
☐ Enable Screen Capture
Wrap Up Duration minutes

Specific Duration
Minimum
Maximum

Days
☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Screen below shows some of the schedule recordings configured during compliance testing. To activate or deactivate any of these schedule recordings, select a schedule and click on the **Activate/Deactivate** button from the menu. In the screen below, the *RecordALL* schedule recording is active.

RecordingsEvaluationReportsCoaching & E-LearningAdministrationRecorder AdminDashboardswordLog Out ?

VoIPSchedule RecordingsArchiveService AccountsEvents

New ScheduleView ScheduleModify ScheduleDelete ScheduleActivate / DeActivateRefresh

Recordervtengage01

Schedule Recordings

Clear Filter(s)

Criteria Name	Active	Exclusion	On-Demand	Start Date	Start Time	End Date	End Time	Frequency
OnDemand Rec	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>					
Quality Monitor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					3
Record ALL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
SelectiveRecord	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

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11:07

8. Verification Steps

The following tests were conducted to verify the interoperability between the Engage Record, Contact Center and Communication Server 1000.

- Verify that the Engage Record server successfully connects to the Contact Center CCMS and utilizes the MLS protocol. Engage Record Status information can be acquired by clicking on the **Status** of the **Engage VoIPEngine Config Console** as shown in the screen below.

The screenshot shows the 'Engage VoIPEngine Config Console' window with the 'Status' tab selected. The 'Status Information' section is active, displaying network speed metrics and server connection status. A red box highlights the 'Engage Voice Servers' and 'Nortel CTI Server' sections.

Captured Network Speed		
TCP Speed	UDP Speed	Voice Data Speed
Avg: 0	Avg: 72	Avg: 67
Cur: 0	Cur: 0	Cur: 0

Engage Voice Servers		Nortel CTI Server
Master Recording Server	Connected: Yes	Connected
Slave Server	Connected: No	Yes

Event information

☐ CTI EVENT ☐ UDP Control Event Net Queue Size: 0

OK

- Verify that an agent or regular DN can be added successfully as explained in **Section 7.2**.
- Verify that Engage Record can acquire and monitor keys of IP Phone by AST Registration of Contact Center by logging into the CLI of Communication server 1000 and issuing **PRT** in overlay **LD 20** for the IP Phone as shown in screen below. Also verify that Engage Record can acquire and monitor keys of IP Phone by Multi_DN Registration of Contact Center by logging into the CLI of Communication Server 1000 and issuing **PRT** in overlay **LD 20** for the IP Phone as shown in screen below.

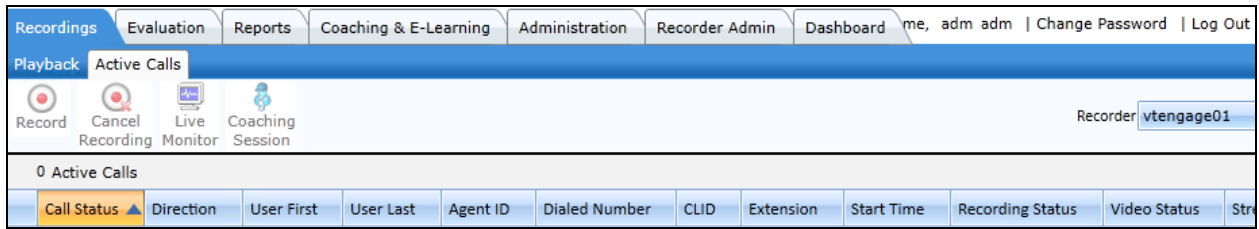
```

AST 00 03
IAPG 0
AACS YES
ACQ AS: TN,AST-DN,AST-POSID
ASID 16
MRCD 4
SFNB 1 2 3 4 5 6 7 8 9 10 11 12 13 15 16 17
18 19 21 22 23 24 25 26 28 29 31 33 34 35 36
37 38 39
SFRB 1 2 15 32 33
USFB 1 2 3 4 5 6 7 9 10 11 12 13 14 15
CALB 0 1 3 4 5 6 8 9 10 11 12
FCTB 1
ITNA NO
DGRP
PRI 01
MLWU_LANG 0
MLNG ENG
DNDR 0
KEY 00 ACD 54901 0 1005
AGN
01 NRD
02 MSB
03 SCR 54405 0 MARP
04 SCR 54042 0 MARP
05

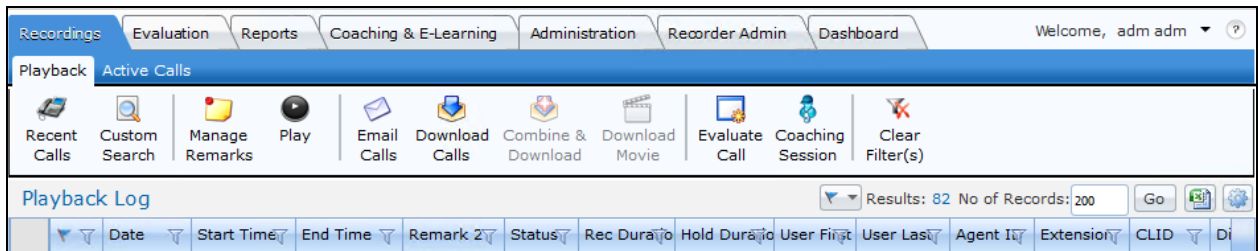
```

- Verify that the recording criteria are successfully created with filters and non-filters.
- Verify that calls can be recorded on demand if no criteria are set.
- Verify that Engage Record server and client comes back to normal operation after any kind of network or power disruption.

- Place VoIP calls to agents and DN's and check the **Active Calls** of Engage Record web client window as shown below. Confirm that all values under each column are valid.



- Verify that the calls are fully and clearly recorded by playing back the calls from the **Recent Calls** of Engage Record web client window as shown in screen below. Also verify that the *Remark 2* column has the proper Agent Skillset information if the recording is done of an agent call.



9. Conclusion

All of the executed test cases passed with an observation as noted in **Section 2.2**. The TelStrat Engage Record Server is considered compliant with Avaya Aura® Contact Center Release and Avaya Communication Server 1000.

10. Additional References

This section references the product documentation relevant to these Application Notes. Product documentation for Avaya products may be found at <http://support.avaya.com>.

Avaya:

- *Avaya Communication Server 1000 Software Input Output Reference — Administration*, NN43001-611.
- *Avaya Communication Server 1000 Automatic Call Distribution Fundamentals*, NN43001-551.
- *Avaya Aura® Contact Center Commissioning for Avaya Communication Server 1000*, Release 7.0.
- *Avaya Aura® Contact Center and Avaya Communication Server 1000 Integration*, Release 7.0.
- *Avaya Aura® Contact Center Server Administration*, Release 7.0.
- *Avaya Aura® Contact Center and Avaya Communication Server 1000 Solution Description*, Release 7.0.
- *Avaya Aura® Contact Center Release 7.0 Service Pack 1 Release Notes*.

Product documentation for Telstrat may be found at <http://www.telstrat.com/index.php>

Telstrat:

- *Configuration Guide - Avaya-CS-1000-VoIP*, Release 5.2
- *Install – Setup Engage Server*, Release 5.2
- *Recorder Administration Guide*, Release 5.2

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