

Avaya Solution & Interoperability Test Lab

Application Notes for Afiniti with Avaya Aura® Application Enablement Services, Avaya Aura® Communication Manager and Avaya Call Management System – Issue 1.1

Abstract

These Application Notes contain interoperability instructions for Afiniti with Avaya Aura® Application Enablement Services, Avaya Aura® Communication Manager and Avaya Call Management System to successfully interoperate with release 7.0 through 7.1.3 versions of the products, prior to the implementation of Special Application (SA) 9137, in line with standard DevConnect policies for forward-looking interoperability vs. the specific release tested herein.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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

This document contains a sample configuration that was used for interoperability compliance testing between Afiniti and Avaya products. The tested configuration only reflects interoperability with releases 7.0 through 7.1.3, and excludes interoperability as implemented through Special Application (SA) 9137 Externally Controlled Distribution (ECD). For details on SA9137 please refer to Avaya Application Note "*Application Notes for Afiniti ECD Integration*", Issue 1.1, July 2018 available on <u>www.avaya.com/support</u>.

2. General Test Approach and Test Results

Interoperability testing contained functional tests that tested the following interfaces/products:

- Avaya Aura® Application Enablement Services TSAPI Interface
- Avaya Aura® Application Enablement Services SMS Interface
- Avaya Call Management System ODBC, ECH Interface
- Avaya Call Management System RT Socket Interface
- Avaya Call Management System CMS Web/CMS Supervisor for custom reports

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

During Interoperability Compliance testing, call center call routing scenarios were tested along with CMS reports that were impacted by Afiniti taking control of calls. Alternative CMS reports were tested on Afiniti Reporting Portal with no impact. Scenarios that were tested are, Afiniti's ability to:

- Monitor agent status and Skill Levels
- Queue calls in single and multiple skills
- Deliver calls to single skill and multi-skill agents
- Deliver calls to agents based on algorithms similar to Avaya's UCD-MIA, EAD-MIA, UCD-LOA, EAD-LOA and Service Objective
- Route calls based on specific caller number (ANI)
- Route calls based on Afiniti estimated wait-time, number of calls in queue and time of the day check
- Route calls in compatible with Avaya's converse-on command
- Route calls based on agent skill levels and call priorities in a queue
- Synchronize agent skill level in Afiniti by using Avaya's SMS service
- Connect with multiple CTI links (single or multiple AESs)
- Load balance calls using Single site and Multi-Site BSR equivalent functionality
- Handle routing race conditions using RONA via Coverage path on a VDN.

KJA; Reviewed:	Solution & Interoperability Test Lab Application Notes	
SPOC 8/20/2018	©2018 Avaya Inc. All Rights Reserved.	AFAESCI

- Support adjunct (vector) fail-safe mechanism with and without UUI based Afiniti integration
- Support wait-time threshold mechanisms for both agents and caller surplus scenario for Afiniti intelligent call routing.
- Not to impact VDN label information using Avaya configuration
- Support for Fail-Safe scenarios
- Insert custom tables into CMS database
 - Afiniti inserts impacted data into custom tables
- Generate custom reports to be viewed in CMS Web or Afiniti portal

Please note that performance testing or load testing were not part of this test effort.

2.2. Test Results

All planned test cases were passed with following observations:

- Since call routing capabilities are taken over by Afiniti, all calls are routed to agents based on algorithms configured in Afiniti. During compliance, testing algorithms that are similar to Avaya's methods UCD-MIA, EAD-MIA, UCD-LOA, EAD-LOA and Service Objective were tested. Also, BSR equivalent functionality was also tested for Single Site and Multi Site configurations.
- Since call routing capabilities are taken over by Afiniti, all calls are queued in Afiniti. Queue statistics like number of calls in queue and EWT based announcements/routing are also tested.
- Afiniti's ability of routing calls to single skill or multiple skills are also tested and with Agent skill level and call priorities.
- Afiniti routing is also tested with Avaya's converse-on command.
- Afiniti's ability to automatically synchronize agent skill level periodically
- Afiniti has the ability to connect with different CTI links. This allows Afiniti to integrate with different AES and can route calls to multiple sites.
- Since calls are queued in Afiniti and not in Avaya, Fail-Safe scenarios are also tested in which if Afiniti goes down or CTI link disconnects, then calls are queued and route by Avaya.
- Due to the call routing capabilities taken over by Afiniti, CMS Reports that are related to Split/Skill and Agent are impacted. Real time reports are provided by Afiniti and viewed on Afiniti portal. For Historical Reports, custom tables are inserted into CMS database and custom reports are defined by Afiniti, which can be viewed on CMS Web or CMS Supervisor.
- Though the data on custom CMS Reports, which is impacted by Afiniti, was verified, Avaya is not responsible for the accuracy of the data that is provisioned in CMS reports by Afiniti.
- Avaya is not responsible for the state of data in custom tables nor the maintenance of custom tables inserted by Afiniti
- In a scenario where all the data is lost (system or hard drive crash) on CMS and a restore is performed on the Database, Afiniti will need to insert the custom tables, in order for the data to be restored.

KJA; Reviewed:	Solution & Interoperability Test Lab Application Notes
SPOC 8/20/2018	©2018 Avaya Inc. All Rights Reserved.

- Post CMS upgrade (to a future release), custom tables may have to be re-examined by Afiniti as these tables are not part of CMS upgrade process.
- Afiniti acts as a proxy for RT Socket feed. Afiniti modifies the RT Socket feed to insert Skill/Split and Agent data. Though verified, Avaya is not responsible for any data that is inserted by Afiniti.

2.3. Support

Support for Afiniti can be obtained via following means: Email address: <u>afinitihelpdesk@afiniti.com</u>

Toll free numbers: 855.625.4193 (US) 800.998.7006 (UK)

3. Reference Configuration

Figure 1 illustrates a sample configuration that consists of Avaya Products and Afiniti.

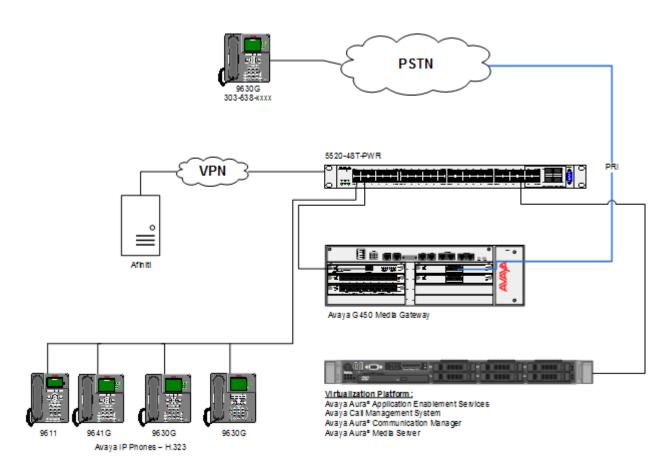


Figure 1: Test Configuration

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura [®] Communication Manager	7.0.1.2.0
Avaya Aura Communication Manager	R017x.00.0.441.0 Build 23384
Avaya G450 Media Gateway	37.19.0
Avaya Aura [®] Application Enablement Services	7.0.1.0.0.15-0
Avaya Call Management System	cms-R18.0.0.0-fa.b
Avaya Aura [®] Media Server	v.7.7.0.359
Afiniti	3.9.17.3503

5. Configure Avaya Aura® Communication Manager

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

All configurations in Communication Manager were performed via SAT terminal.

The table below shows a sample call center data that was used during compliance testing.

S	Station	Agent	Hunt Group/Extension	VDN	Vector
	11001	1101	1/12001	12101	1
	11002	1102	2/12002	12102	2
	11003	1103	3/12003	12103	3
	11004	1104			
	11005	1105			

 Table 1: Sample Data

5.1. Configure Stations

Use **add station** *n* command to add a station, where *n* is an available station extension. 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 11001 Page 1 of 5 STATION Security Code: * Coverage Path 1: 1 Coverage Path 2: Hunt-to Station: Extension: 11001 BCC: M Type: 9630 TN: 1 Port: S00104 COR: 1 Name: h3232station1 COS: 1 Tests? y STATION OPTIONS Location: Time of Day Lock Table: Loss Group: 19 Personalized Ringing Pattern: 1 Speakerphone: 2-way Mute Button Enabled? y Display Language: english Button Modules: 0 Message Lamp Ext: 11001 Survivable GK Node Name: Survivable COR: internal Media Complex Ext: Survivable Trunk Dest? y IP SoftPhone? y IP Video Softphone? y Short/Prefixed Registration Allowed: default

One Page 4, under **BUTTON ASSIGNMENTS**, add **call-disp**, **auto-in**, **after-call**, **manual-in** and **logout**, as shown below:

add station 11001		Page	4 of 5
	STATION		
SITE DATA			
Room: D4-H30		Headset? n	
Jack:		Speaker? y	
Cable:		Mounting: d	
Floor: 4		Cord Length: 0	
Building: D		Set Color:	
ABBREVIATED DIALING			
List1:	List2:	List3:	
BUTTON ASSIGNMENTS			
1: call-appr	5: a	uto-in Grp:	
2: call-appr	6: a	ux-work RC: Grp:	
3: call-appr	7: a	fter-call Grp:	
4: call-disp	8: m	anual-in Grp:	
		Customizable Labels?	У

5.2. Configure Hunt Group

Use **add hunt-group** *n* command to add a hunt group, where *n* is an available hunt group. On Page 1:

- In the **Group Name** filed, enter a descriptive name.
- Set ACD, Queue, Vector to y.
- Enter an available Group Extension

add hunt-group 1	HUNT	GROUP	Page	1 of	4
Group Number: Group Name: Group Extension: Group Type: TN: COR: Security Code: ISDN/SIP Caller Display:	Skill 1 11001 ucd-mia 1				
Queue Limit: Calls Warning Threshold: Time Warning Threshold:	unlimited Port: Port:				

On Page 2, set Skill to y and Measured to both.

add hunt-group 1	HUNT GROUP	Page	2	of	4
Skill? y AAS? n Measured: both Supervisor Extension:	Expected Call Handling Time Service Level Target (% in			in	20
Controlling Adjunct: none					
VuStats Objective:					
Multiple Call Handling: none					
Timed ACW Interval (sec): 1	After Xfer or Held Call Dr	ops? n			

5.3. Configure Agents

User **add agent-loginID** *n* to add an agent, where *n* is an available agent id. On Page 1:

- In the Name field, type in a descriptive name
- Enter password in **Password** and **Password** (enter again)

```
add agent-loginID 1101
                                                           Page
                                                                  1 of
                                                                         2
                                AGENT LOGINID
                                                               AAS? n
               Login ID: 1101
                   Name: IP Agent 1
                                                             AUDIX? n
                     TN: 1 Check skill TNs to match agent TN? n
                    COR: 1
          Coverage Path: 1
                                                     LWC Reception: spe
          Security Code:
                                            LWC Log External Calls? n
          Attribute:
                                          AUDIX Name for Messaging:
                                       LoginID for ISDN/SIP Display? n
                                                          Password: 12345
                                             Password (enter again): 12345
                                                      Auto Answer: none
                                                 MIA Across Skills: system
AUX Agent Considered Idle (MIA)? n
                                          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
```

On Page 2, set skill number and skill level in **SN** and **SL** fields. Skill number is the hung group that was added in previous section.

```
add agent-loginID 1101
                                                            Page 2 of
                                                                          2
                                AGENT LOGINID
     Direct Agent Skill:
                                                      Service Objective? n
Call Handling Preference: skill-level
                                                  Local Call Preference? n
   SN
        RL SL
                       SN
                           RL SL
1: 1
         1
                   16:
2: 2
           1
                   17:
3:
                   18:
4:
                   19:
 5:
                   20:
 6:
7:
8:
9:
10:
11:
12:
13:
14:
```

5.4. Configure Vectors

Use **change vector** n to configure a Vector, where n is an available Vector number. For test scenarios, two Vectors were used during compliance test. Vector 1 had a step that pointed to Vector 3, for sanity tests. Both Vectors were configured as follows:

```
change vector 1
                                                                                                                        Page 1 of
                                                                                                                                                   6
                                                                CALL VECTOR
Number: 1 Name: Afiniti Queul
Multimedia? n Attendant Vectoring? n Meet-me Conf? n
                                                                                                                                     Lock? n
       Basic? y EAS? y G3V4 Enhanced? y ANI/II-Digits? y ASAI Routing? y
Basic? y EAS? y G3V4 Enhanced? y ANI/II-Digits? y ASAI Routing?

Prompting? y LAI? y G3V4 Adv Route? y CINFO? y BSR? y Holidays? y

Variables? y 3.0 Enhanced? y

01 wait-time 2 secs hearing ringback

02 goto vector 3 @step 1 if unconditionally

03 goto step 5 if available-agents in skill 1 > 2

04 goto step 6 if SF = 1

05 queue-to skill 1 pri h

06 adjunct routing link 2

07 wait-time 0 secs bearing music
                                                                                                                                     > ZZ
07 wait-time 0 secs hearing music
08 wait-time30secs hearing music09 goto step2if SF10 goto step8if uncond
                                                                                                        1
                                                      if unconditionally
11 stop
12
                                           Press 'Esc f 6' for Vector Editing
```

Please note that in **step 5** in the Vector was added as a failover step. In a scenario where Afiniti is unavailable, calls will route or queue based on Avaya's algorithm.

```
change vector 3

CALL VECTOR

Page 1 of 6
CALL VECTOR

Number: 3
Name: Afiniti Sanity
Multimedia? n
Attendant Vectoring? n
Meet-me Conf? n
Lock? n
Basic? y
EAS? y
G3V4 Enhanced? y
ANI/II-Digits? y
ASAI Routing? y
Variables? y
3.0 Enhanced? y
Ol goto step 6
if SE
= 0
O2 set
SS
= none CATR 0
O3 adjunct
routing link 2
O4 wait-time
3 secs hearing music
05 goto step 9
if SS
= 1
O6 set
SF
= none CATR 0
O7 return
08
O9 set
SF
= none CATR 1
10 return
```

Solution & Interoperability Test Lab Application Notes ©2018 Avaya Inc. All Rights Reserved. Vector variable definitions are as follows:

ſ	char	nge variables						
			VARIABLES	FOR VI	ECTORS			
	Var	Description	Туре	Scope	Length	Start	Assignment	VAC
	SE	Afinti Global Check	collect	G	16	1	1	
	SF	Afiniti Sanity Flag	collect	L	16	1		
	SS	Sanity Check	asaiuui	L	1	50		
	SW	Afiniti EWT	collect	L	16	1		
	SZ	Afiniti second fail safe	collect	G	16	1	10	
	ΥF	Afiniti	collect	L	16	1		
	ΖZ	2ND FAILSAFE	collect	G	16	1	10	

5.5. Configure VDN

Use **add vdn** *n* to add a vdn, where *n* is an available vdn extension. On Page 1:

- In the **Name** field, enter a descriptive name
- In the **Destination** field, set **Vector Number** to the vector configured earlier in this document. i.e., Vector Number 1.
- Set **Measured** to **both**

```
change vdn 12101
                                                               Page 1 of 3
                           VECTOR DIRECTORY NUMBER
                            Extension: 12101
                               Name*: VDN 1
                          Destination: Vector Number
                                                            1
                  Attendant Vectoring? n
                 Meet-me Conferencing? n
                   Allow VDN Override? n
                                  COR: 1
                                 TN*: 1
                             Measured: both Report Adjunct Calls as ACD*? n
       Acceptable Service Level (sec): 20
       VDN of Origin Annc. Extension*:
                           1st Skill*:
                           2nd Skill*:
                           3rd Skill*:
```

5.6. Configure CMS connection

Use **change node-names ip** command to add an entry to CMS. Type in a **Name** for CMS and CMS IP address in **IP Address.**

Use **change communication-interface processor-channels** command to add a TCP connection for CMS. On an available processor channel line:

- Set **Enable** to **y**
- Set App. To mis
- Set Mode to s
- Set Interface Link/Chan to pv4 and CMS respectively
- Set Session Local/Remote to available session ids

change communication-interface processor-channels PROCESSOR CHANNEL ASSIGNMENT					Page	1 of	24
Proc	Gtwy	Interface Link/Chan	Destinat				
Chan Enable Appl. 1: y mis		pv4 5001		0 0	Local/ 1	1	a ID

5.7. Configure AES connection

Use change ip-services command to add an entry for AES. On Page 1,

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

change ip-services				Page	1 of	4
Service Enable Type AESVCS Y	d Local Node procr	IP SERVICES Local Port 8765	Remote Node	Remote Port		

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

- In the **AE Services Server** field, type the name obtained from the Application Enablement Services server.
- In the **Password** field, type a password to be administered on the Application Enablement Services server.
- In the **Enabled** field, type **y**.

	AE	E Services Adminis	tration		
Server ID	AE Services Server	Password	Enabled	Status	
1:	aes	*	У	in use	
2:	aes10210	*	У	in use	

5.8. Configure CTI Link

Use add cti-link *n* command, where *n* is an available CTI link number.

- In the Extension field, type in an available extension number
- In the **Type** field, type **ADJ-IP**.
- In the **Name** field, type a descriptive name.

```
add cti-link 2 Page 1 of 3

CTI Link: 2

Extension: 19998

Type: ADJ-IP

Name: aes10210
```

5.9. Configure SMS User

User profile 18 was used for SMS User. This profile is one of the default profiles.

```
list user-profiles
                                USER PROFILES
                  Extended
                  Profile User Profile Name
n services super-user
   Profile
     0
     1
                    n
                              services manager
     2
                    n
                              business partner
     3
                     n
                              services
     16
                              call center manager
                     n
     17
                               snmp
                      n
     18
                      n
                                customer super-user
     19
                                customer non-super-user
                      n
```

Log onto Communication Manager System Management Interface via a browser, <u>http://<IP-Address</u>>, where IP-Address is the IP Address of Communication Manager. Navigate to Administration \rightarrow Server (Maintenance) \rightarrow Administrator Accounts, and select Add Logon \rightarrow Privileged User.

AVAYA		Avaya Aura [®] Communication Manager (CM) System Management Interface (SMI)			
Help Log Off	Administration				
Administration / Server (Mainte	ance)	This Server: acm			
Alarms Current Alarms SNMP	Administrator Accounts				
Agent Status	The Administrator Accounts SMI pages	llow you to add, delete, or change administrator logins and Linux groups.			
Access Incoming Traps	Select Action:				
FP Traps FP Trap Test	Add Login				
FP Filters Diagnostics	Privileged Administrator				
Restarts	O Unprivileged Administrator	Unprivileged Administrator			
System Logs Ping	O SAT Access Only				
Traceroute	O Web Access Only	O Web Access Only			
Server	CDR Access Only				
Status Summary Process Status	O Business Partner Login (dadmin)				
Shutdown Server Server Date/Time	O Business Partner Craft Login				
Software Version Server Configuration	Custom Login				
Server Role Network Configuration	Change Login Select Login	~			
Static Routes Display Configuration	O Remove Login Select Login	~			
Time Zone Configuration	O Lock/Unlock Login Select Login	~			
NTP Configuration Server Upgrades	O Add Group				
Manage Updates Data Backup/Restore	O Remove Group Select Group	~			
Backup Now Backup History	Submit Help				

Type in a desired Login Name, Select prof18 for Additional Groups and type in password in Enter password or key and Re-enter password or key.

AVAYA		Avaya Aura [®] Communication Manager (CM) System Management Interface (SMI)
Help Log Off	Administration	
Administration / Server (Maintenance	.)	This Server: acm
Alarms Current Alarms SNMP		ts Add Login: Privileged Administrator
Agent Status Access Incoming Traps FP Traps	system next to root.	login that is a member of the SUSERS group. This login has the greatest access privileges in the
FP Trap Test	Login name	afinit
FP Filters Diagnostics Restarts	Primary group	susers
System Logs Ping	Additional groups (profile)	prof18 v
Traceroute Netstat	Linux shell	/bin/bash
Server Status Summary	Home directory	/var/home/afinit
Process Status Shutdown Server	Lock this account	
Server Date/Time Software Version	SAT Limit	none 🗸
Server Configuration Server Role Network Configuration	Date after which account is disabled-blank to ignore (YYYY-MM-DD)	
Static Routes Display Configuration Time Zone Configuration	Select type of authentication	○ ASG: Auto-generate key ○ ASG: enter key
NTP Configuration Server Upgrades		Assenter Rey Password
Manage Updates Data Backup/Restore	Enter password or key	••••••
Backup Now Backup History	Re-enter password or key	••••••
Schedule Backup Backup Logs View/Restore Data	Force password/key change on next login	● No ○ Yes
Restore History Security Administrator Accounts	Submit Cancel I	Help

6. Configure Avaya Aura® Application Enablement Services

Configuration of Avaya Aura® Application Enablement Services requires a user account be configured for Afiniti.

6.1. Configure User

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

A user needs to be created for Afiniti to communicate with AES. Navigate to User Management \rightarrow User Admin \rightarrow Add User.

	ication Enable Management	Welcome: User cust Last login: Tue Jan 3 15:08:39 2017 from 10.64.10.47 Number of prior failed login attempts: 0 HostName/IP: aes/10.64.110.15 Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE SW Version: 7.0.1.0.0.15-0 Server Date and Time: Tue Jan 03 15:35:10 MST 2017 HA Status: Not Configured	
User Management User Admin	Add User		Home Help Logout
▶ AE Services			
Communication Manager Interface	Add User		
High Availability	Fields marked with * can r		
▶ Licensing	* User Id	afiniti	
Maintenance	* Common Name	afiniti	
▶ Networking	* Surname	afiniti	
Security	* User Password	•••••	
> Status	* Confirm Password	•••••	
▼ User Management	Admin Note		
 Service Admin 	Avaya Role	userservice.useradmin $ \sim $	
User Admin	Business Category		
Add User	Car License		
 Add User Change User Password 	CM Home		
 List All Users 	Css Home		
 Modify Default Users 	CT User	Yes v	
 Search Users 	Department Number		

Fill in User Id, Common Name, Surname, User Password and Confirm Password. Set Avaya Role to userservice.useradmin and set the CT User to Yes, and Apply.

Navigate to Security \rightarrow Security Database \rightarrow CTI Users \rightarrow List All Users.

 AE Services Communication Manager Interface 	CTI Users			
High Availability	<u>User ID</u>	<u>Common Name</u>	<u>Worktop Name</u>	Device ID
Licensing	 afiniti 	afiniti	NONE	NONE
 Maintenance Networking 	O interop	interop	NONE	NONE
▼ Security	O interop1	interop1	NONE	NONE
Account Management	O interop2	interop2	NONE	NONE
 Audit Certificate Management 	O interop3	interop3	NONE	NONE
Enterprise Directory	Edit List All			
> Host AA				

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

► AE Services			
Communication Manager Interface	Edit CTI User		
High Availability	User Profile:	User ID	afiniti
▶ Licensing		Common Name	afiniti
Maintenance		Worktop Name	NONE ~
		Unrestricted Access	\checkmark
Networking			
▼ Security	Call and Device Control:	Call Origination/Termination and Device Status	None 🗸
Account Management			
> Audit	Call and Device Monitoring:	Device Monitoring	None 🗸
Certificate Management		Calls On A Device Monitoring	None ~
Enterprise Directory		Call Monitoring	
> Host AA			
▶ PAM	Routing Control:	Allow Routing on Listed Devices	None ~
Security Database	Apply Changes Cancel C	Changes	
Control			
CTI Users			

6.2. Configure Communication Manager Switch Connections

To add links to the Communication Manager, navigate to the **Communication Manager** Interface \rightarrow Switch Connections page and enter a name for the new switch connection and click the Add Connection button. This was previously configured as **TR18300** for this test environment:

Switch Connections			
	Add Connection		
Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
О см2	Yes	30	1
● acm	Yes	30	1
Edit Connection Edit	PE/CLAN IPs Edit H.323 G	Gatekeeper De	elete Connection Survivability Hierarchy

Use the **Edit Connection** button shown above to configure the connection. Enter the **Switch Password** and check the **Processor Ethernet** box if using the **procr** interface, as shown below. This must match the password configured when adding AESVCS connection in Communication Manager.

Connection Details - acm		
Switch Password	•••••]
Confirm Switch Password	•••••]
Msg Period	30	Minutes (1 - 72)
Provide AE Services certificate to switch	\checkmark	
Secure H323 Connection		
Processor Ethernet	\checkmark	
Apply Cancel		

Use the **Edit PE/CLAN IPs** button (shown in this section's first screen shot above) to configure the **procr** or **CLAN** IP Address (es) for TSAPI message traffic.

Edit Processor Ethernet IP - acm				
10.64.110.10 Add/Edit Name or IP				
Name or IP Address	Status			
Name or IP Address	Status In Use			

Use the **Edit H.323 Gatekeeper** button (shown in this section's first screen capture above) to configure the **procr** or **CLAN** IP Address (es).

Edit H.323 Gatekeeper - acm			
Add Name or IP			
Name or IP Address 10.64.110.10			
Delete IP Back			

6.3. Configure TSAPI Link

Navigate to the **AE Services** \rightarrow **TSAPI** \rightarrow **TSAPI Links** page to add the 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 for Communication Manager.

If the application will use Encrypted Links, select **Encrypted** in the **Security** selection box.

Click Apply Changes.

Configuration shown below was previously configured.

Edit TSAPI Links	
Link	1
Switch Connection	acm 🗸
Switch CTI Link Number	
ASAI Link Version	7 ~
Security	Both ~
Apply Changes Ca	ancel Changes Advanced Settings

7. Configure Avaya Call Management System

This section covers the configuration of Call Management System to communicate to Communication Manager. Configuration for RT_Socket and ECH interface is performed by Avaya Professional Services and is not shown in this document.

7.1. Configure ACD for Communication Manager

Telnet or SSH into Call Management System, using proper credentials and log in as root.

- Type in **cmssvc** command to view the Avaya Call Management System Service Menu.
- Select 4, Turn Avaya CMS on or off, to go to the CMS service menu.

```
(acms)-(root)=# cmssvc
Avaya(TM) Call Management System Services Menu
Select a command from the list below.
1) auth_display Display feature authorizations
2) auth_set Authorize capabilities/capacities
3) run_ids Turn Informix Database on or off
4) run_cms Turn Avaya CMS on or off
5) setup Set up the initial configuration
6) swinfo Display switch information
7) swsetup Change switch information
8) patch_inst Install a single CMS patch from CD
9) patch_rmv Backout an installed CMS patch
10) load_all Install all CMS patches found on CD
11) back_all Backout all installed CMS patches from machine
Enter choice (1-11) or q to quit: 4
```

• Select 2, Turn off CMS but Leave IDS running.

```
Select one of the following
1) Turn on CMS
2) Turn off CMS but Leave IDS running
3) Turn off both CMS and IDS
Enter choice (1-3): 2
```

• Wait until CMS is shut down; CMS is now off message will be displayed when CMS is shutdown.

```
Notifying users of impending shutdown...

Proceeding with cms shutdown.

*** Turning off CMS, Please wait ***

.....

*** Cleaning up, Please wait ***

*** CMS is now off ***
```

Solution & Interoperability Test Lab Application Notes ©2018 Avaya Inc. All Rights Reserved.

- Type in **cmsadm** command and select **1**, **acd_create**, from the service menu. At each prompt type in information as follows:
 - Enter switch name: Type in a descriptive name
 - Select the model of switch for this ACD: Select 6
 - For next three prompts, type **y**
 - Enter the local port assigned to switch: Type 1
 - Enter the remote port assigned to switch: Type 1
 - Select the transport to the switch: Select 1
 - Enter switch host name or IP Address: Type in Communication Manager's IP Address
 - Enter switch TCP port number: Set it to default
 - For rest of the prompts leave the values at default or enter desired values

```
(acms)-(root)=# cmsadm
 Avaya(TM) Call Management System Administration Menu
Select a command from the list below.

    acd_create Define a new ACD
    acd_remove Remove all administration and data for an ACD
    backup Filesystem backup

   4) pkg install Install a feature package
   5) pkg_remove Remove a feature package

6) run_pkg
7) run_ids
8) run_cms
7) run Avaya CMS on or off

  9) passwd_age Set password aging options10) dbaccess Change Informix DB access permissions
Enter choice (1-10) or q to quit: 1
Information for ACD 1
Enter switch name (up to 20 characters): acm
Select the model of switch for this ACD
   1) Communication Mgr 5.2
   2) Communication Mgr 6.x
   3) Communication Mgr 7.x
Enter choice (1-3): 3
Is Vectoring enabled on the switch? (y/n): y
Is Expert Agent Selection enabled on the switch? (y/n): y
Does the Central Office have disconnect supervision? (y/n): (default: y) y
Enter the local port assigned to switch (1-64): 1
Enter the remote port assigned to switch (1-64): 1
```

```
Select the transport to the switch
  1) TCP/IP
Enter choice (1-1): 1
Enter switch host name or IP Address: 10.64.110.10
Enter switch TCP port number (5001-5999): (default: 5001)
Number of splits/skills (0-8000): (default: 500)
Total split/skill members, summed over all splits/skills (0-1250): (default: 1250)
Number of shifts (1-4): (default: 1)
Enter the start time for shift 1 (hh:mmXM): (default: 8:00 AM)
Enter the stop time for shift 1 (hh:mmXM): (default: 5:00 PM)
Number of agents logged into all splits/skills during shift 1 (0-1250): (default:
1250)
Number of trunk groups (0-2000): (default: 500)
Number of trunks (0-12000): (default: 1000)
Number of unmeasured facilities (0-6000): (default: 500)
Number of call work codes (1-500): (default: 500)
Enter number of vectors (0-8000): (default: 500)
Enter number of VDNs (0-18000): (default: 4000)
Updating database.
Computing space requirements and dbspace availability.
ACD S8300 TR1 (3) created successfully.
```

Type in cmssvc command and select 4 from the service menu.
 Select 1 to Turn on CMS

```
(acms)-(root)=# cmssvc
 Avaya(TM) Call Management System Services Menu
Select a command from the list below.
    1) auth_display Display feature authorizations

    auth_set
    Authorize capabilities/capacities
    run_ids
    Turn Informix Database on or off
    run_cms
    Turn Avaya CMS on or off
    setup
    Set up the initial configuration
    swinfo
    Display switch information
    setup
    Change switch information
    patch inst

    8) patch inst Install a single CMS patch from CD

9) patch_rmv Backout an installed CMS patch
10) load_all Install all CMS patches found on CD
11) back_all Backout all installed CMS patches from machine

Enter choice (1-11) or q to quit: 4
Select one of the following
   1) Turn on CMS
   2) Turn off CMS but Leave IDS running
   3) Turn off both CMS and IDS
Enter choice (1-3): 1
Please wait for initialization
. .
*** CMS is now up ***
```

8. Configure Afiniti

8.1. Setup Connectivity with the Avaya components

Configuration for Afiniti is performed by Afiniti Engineers. Information in this section is for informational purposes only. Hardware and network infrastructure needs to be setup to host and aid connectivity to the various Avaya components. Afiniti needs connectivity information based on connection type.

All configurations in this section are performed via the Afiniti Portal. The Afiniti Portal can be accessed via a web browser using http://<ip-address>/AfinitiPortalSuite, where the ip-address is the IP address of the Afiniti Portal.

8.1.1. TSAPI

To configure the TSAPI connection, navigate to **Afiniti Portal** \rightarrow **Switch Configurator** (not shown) and configure as follows:

- Type in a number for Tserver **ID** node
- Type in **TSAPI** in **Protocol** node
- Type in the **T-Link** in **Server ID** node
- Type in the login information for AES in Username and Password nodes

Rest of the fields can be kept as default.

Group Settings	<tserver> <primary> <id>1</id> <protocol>TSAPI</protocol> <serverid> AVAYA#ACM#CSTA#AES10210</serverid> <port>450</port> <linknumber>6</linknumber> <protocolversion>1</protocolversion> <username>interop</username> <password>Interop123I</password> </primary> </tserver>
----------------	--

8.2. Setup VDNs / Skills / RONA Information

8.2.1. VDNs

Afiniti needs to monitor/register all the queuing VDNs for routing and receiving call events. VDN and Vectors mentioned in this section are the same as those configured in Communication Manager.

Navigate to **Afiniti Portal** → **Add VDN** (not shown) page:

- Type in VDN number in **VDN** field
- Type in a name for VDN in **Description** field
- Type in the Vector number in **Vector** field
- Type in the **Benchmark** applied on the VDN.

Rest of the fields can be kept as default.

Click the Save button to save the VDN information entered.

VDN:	12107	Description	CM7_EBRonBTN
Engine ID:	CM7_TestEngine	Program ID:	CM7_TestProgram
Vector:	107	Filter String:	
Switch Instance ID:	0	Is Switch Monitored:	V
Benchmark ID:	BenchmarkID: 1,BenchmarkType: fullof	f, SecondaryBenchmarkType: NULL, OffPercentage: NULL, CycleMinutes: 0, RandomOff: NULL, MaxOnCycleMinutes: NUL	L, ScheduleID: NULL 🚽
Active:	V		
Active: Vector Script ID:		Service Level:	20
Vector Script ID:		Service Level:	20

The following configurations were added through the Afiniti Portal for the functional testing;

VDN	VDN Name / Label	Avaya Vector No:
12101	CM7_Test_VDN1	101
12102	CM7_Test_VDN1	102
12107	CM7_EBRonBTN	107
12112	CM7_VDN Jump	112
12111	CM7_CovPath_VDN	103

8.2.2. Skills

Skills are also configured to monitor agent login/logout activity for dynamic station monitoring associations. Afiniti does not need to configure stations as they are picked up automatically via agent login/logout events.

To add a Skill, navigate to the **Afiniti Portal** → **Add Skill** (not shown) page.

- Enter Skill Number in **Skill Number** field
- Type in the extension for the Skill in **Skill** field
- Provide a name in **Skill Name**
- Provide the **Priority** of the skill
- Provide Agent and Call SLA
- Mark the Active check box

Rest of the fields can be kept as default.

Click **Save** to save changes.

Skill Number:	1	Skill:	12001	Skill Name:	CM7_test_skill
Description:	CM7_Test	SLA_agents:	200	SLA_calls:	200
Active:		Priority:	1	Service Objective:	0
	関 Save 🚫 Cancel				

The following skills were configured during testing;

Skill#	Skill Extension	Skill Name	Routing Method (MIA/LOA)
1	12001	CM7_Test_Skill	MIA/LOA
2	12002	CM7_Test_Skill_1	MIA/LOA
3	54001	CM7_Test_Skill_CM2	MIA/LOA
4	54002	CM7_Test_Skill_CM2	MIA/LOA

8.2.3. Agent Skill Levels (Optional)

Agent skill levels can also be configured in Afiniti. To configure agent skill, go to the **Afiniti Portal** \rightarrow **Add mapping** (not shown) screen:

- Type in the Agent ID in **Agent ID** field.
- Select the the Skill from the **Skill** drop down.
- Type in Priority in **Priority** field.

Agent ID:	1101	Agent DN:	
Skill:	CM7_Test-12001 -	Priority:	1
Engine ID:	CM7_TestEngine	Program ID:	CM7_TestProgram
	関 Save 🚫 Cancel 🚯	*Note: Priority ran	ges from 0-32767; 0 being the highest.

8.2.4. Roll Over No Answer

Roll Over No Answer (RONA) VDN is configured in Afiniti in order to take call control in case of no answer / busy / unknown / route failure if a call has left the queuing vector. Adding a RONA VDN is similar to adding a new VDN in Afiniti. Please refer to section 8.2.1

8.3. Afiniti Routing Script

Afiniti needs to replicate the routing logic defined in the Avaya vector into its own routing scripts. Supported logics are unconditional/conditional call queuing to multiple skills, variables assigned, time based conditions, route to VDN/external numbers except announcement/music/digits collection. Following scripts were configure during compliance testing

ector Script ID: VS	_12001												
Vector Script Steps R	esults - Number	of Records Fou	und: 2								Force Save	📙 Save Script	🚫 Cancel
Select Row	Description	Command	P1	P2	PЗ	Ρ4	P5	Active	Expression			Move Step Up	Move Step Down
0		QueueToSkill	12001	1			false	True		Delete	Edit Script Step	•	•
0		L1failure						True		Delete	Edit Script Step	•	•

The following Afiniti routing scripts were used during the functional testing;

Afiniti Vector Script	Function
VS_12101	Single QueueToSkill
BSR_VectorSingleSite	Single Site BSR
BSR_VectorMultiSite	Multi-site BSR
VS_CovPath	Coverage Path

8.4. Reporting

The following configurations need to be made for the Afiniti Reporting module.

8.4.1. Historical Reporting

The following permissions need to be assigned to the user that will be used by Afiniti to generate reports:

- Informix ODBC Access on CMS
- Permissions to create custom tables in CMS
- o Permissions to insert/update/delete information from custom tables in CMS
- Permissions to read data from CMS standard tables
- Permissions to view and export CMS Supervisor reports
- Permissions to upload Afiniti modified reports on CMS Supervisor
- Permissions on all the Afiniti skills and VDNs.

Once access and permissions on CMS Supervisor are granted, an instance of CMS supervisor is started.

🔯 Avaya CMS Supervisor - 10.64.110.18 - afiniti	_		×
Connect Commands Tools Scripts Help			
♥ ♦ ♦ ♦ 1/5/20)17 05:29	3:27 PM	

📴 Call Center Administration		×
Operations Reports		
Operations: ACD Groups Call Work Codes Change VDN Skill Preferences		
Split/Skill Call Profile Setup Trunk Group Assignments VDN Assignments VDN Call Profile Setup		
,		
ACD:		•
<u>S</u> cript		Help
	OK	Cancel

Navigate to **Command** \rightarrow **Call Center Administration**.

Double click **Split/Skill Call Profile Setup** and configure **Service level** and **Period1** – **Period9**; values are required for all the Afiniti skills.

Split/Skill Call Profile Setup	_		×
Actions Edit Help			
Split(s)/			
Skill(s):		•	
Acceptable service level: Service level increments (seconds): Inc 1 Inc 2 Inc 3 Inc 4 Inc 5 O to to to to to to Inc 6 Inc 7 Inc 8 Inc 9 Inc 10 to to to to To and above			
			acm

8.4.2. Real-Time Reporting – Portal

8.4.2.1 Real-Time Reporting – Portal (CMS Supervisor Based)

- o Permissions to upload Afiniti modified reports on CMS Supervisor
- Permissions to view and export CMS Supervisor reports
- Permissions on all the Afiniti skills and VDNs.

Select the report that needs to be exported.

🗐 Select a Report				×
Real-Time Historical	Ì	Integrated		
Run Report for <u>A</u> CD: acm	<u>R</u> eport:	ealtime CMS Data - V3.1		
<u>C</u> ategory: Agent Split/Skill VDN Designer				
Description SMREPORTING RTS FEED				
<u>S</u> cript	<u>P</u> roperties	Сору	<u>D</u> elete	Help
[OK	Edit	<u>N</u> ew	Cancel

The CMS reports are exported in .REP format.

Copy Report	×
C To <u>D</u> esigner Category	
To a <u>PC</u> File	
C From a PC File to the <u>CMS</u> Server	
ОК	Cancel

Refresh rate of 3 seconds is configured for the Afiniti user on CMS Supervisor.

🚱 User Permissions User Data	_	×
<u>Actions</u> <u>Edit</u> <u>H</u> elp		
🕈 🛛 🗑 🖋 🖱 🔎 🔳 📶		
User ID:		
User name:		
Room number:		
Telephone number:		
Default printer name:		
Login type: Normal user 		
O Administrator		
Maximum user window count (1-12): 4		
Minimum refresh rate (seconds): 3		
Login ACD: (none)		•

8.4.2.2 Real-Time Reporting – Portal (RT Socket Based)

- Load Afiniti provided custom report in CMS.
- Enabled RT Socket feed for this report to Afiniti.
- Set data relay frequency to 5 seconds.
- Set skills to relay data for Afiniti enabled skills only.

8.4.3. RT Gateway

- Redirect RT Sockets feed to the Afiniti provided port number.
- Afiniti will then provide the data feed to the port where the RT sockets feed was being sent.

9. Verification Steps

• Via a SAT terminal, verify that Application Enablement Services is enabled and listening using the **status aesvcs interface** command.

status aesvcs :	interface		
	A	E SERVICES	INTERFACE STATUS
Local Node	Enabled?	Number of Connectior	
procr	yes	2	listening

• Verify communication between Communication Manager and the Application Enablement Services server 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
02/01	aes10210	10.64.102.10	57769	procr	752	984
01/02	aes	10.64.110.15	57175	procr	596	597

• Verify that the CMS connection is established using the **status processor-channels 2** command on the SAT).

```
PROCESSOR-CHANNEL STATUS

Channel Number: 1

Session Layer Status: In Service

Socket Status: TCP connected

Link Number: pv4

Link Type: processor ethernet

Message Buffer Number: 0

Last Failure: none

At:
```

10. Conclusion

Afiniti was able to successfully interoperate with Avaya Aura® Communication Manager, Avaya Aura® Application Enablement Services and Avaya Call Management System. All executed test cases were passed.

11. Additional References

This section references the product documentation relevant for these Application Notes.

- [1] Administering Avaya Aura® Communication Manager, Release 7.0.1, Issue 2.1, August 2016
- [2] Avaya Call Management System Switch Connections, Administration, and Troubleshooting, Release 18, March 2016
- [3] Administering and Maintaining Avaya Aura® Application Enablement Services, Release 7.0.1, Issue 2, August 2016

Documentation related to Afiniti can be directly obtained from Afiniti.

©2018 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and TM are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at <u>devconnect@avaya.com</u>.