



Avaya Solution & Interoperability Test Lab

Application Notes for Mattersight® Predictive Behavioral Routing with Avaya Aura® Application Enablement Services and Avaya Aura® Communication Manager - Issue 1.0

Abstract

These Application Notes contain instructions for Mattersight® Predictive Behavioral Routing with Avaya Aura® Application Enablement Services and Avaya Aura® Communication Manager to successfully interoperate.

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

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

Mattersight® Predictive Behavioral Routing (PBR) automatically routes calls by using advanced algorithms that predict the best available agent to handle each specific caller based upon performance, personal strengths, and behavioral characteristics such as personality and communication style.

Mattersight® Predictive Behavioral Routing is integrated into a Customer's Automatic Call Distribution (ACD) through the use of new vector variables and vector updates. The Predictive Behavioral Routing registers itself as a routing server with Avaya Aura® Application Enablement Services and receives and responds to adjunct route requests from updated vectors. If agents are available for the selected skill, the PBR routes the call to the best available agent's station in that skill otherwise call control is returned back to the calling vector.

Mattersight® Predictive Behavioral Routing connects to the Avaya Aura® Application Enablement Services (AES) server using Telephony Services Application Programming Interface (TSAPI) to perform adjunct call routing and gather data to calculate agent occupancy, monitor agent state and determine agent-to-skill mapping.

2. General Test Approach and Test Results

General test approach of interoperability testing contained functional tests that included the following: Several call routing scenarios for calls routed to agents using the Predictive Behavioral Routing and serviceability tests to verify the Predictive Behavioral Routing recovers in a failure scenario, it should be noted in **Section 2.2**.

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 Mattersight® Predictive Behavioral Routing and its ability to:

- Deliver calls to agents based on agent status.
- Serviceability test.

2.2. Test Results

All test cases were passed.

2.3. Support

Technical support for Mattersight® Predictive Behavioral Routing can be obtained through the following:

- Phone: (877) 615-6925
- Email: ba.servicedesk@mattersight.com
- Web: <http://www.mattersight.com/predictive-behavioral-routing>

3. Reference Configuration

Figure 1 illustrates the setup used to verify the Mattersight® Predictive Behavioral Routing solution with Avaya Aura® Application Enablement Services and Avaya Aura® Communication Manager. The Predictive Behavioral Routing is deployed on a server running Windows 2008 R2 Enterprise server and connects to AES server using TSAPI. Simulated PSTN was connected to Avaya Aura® Communication Manager via ISDN/T1 trunk.

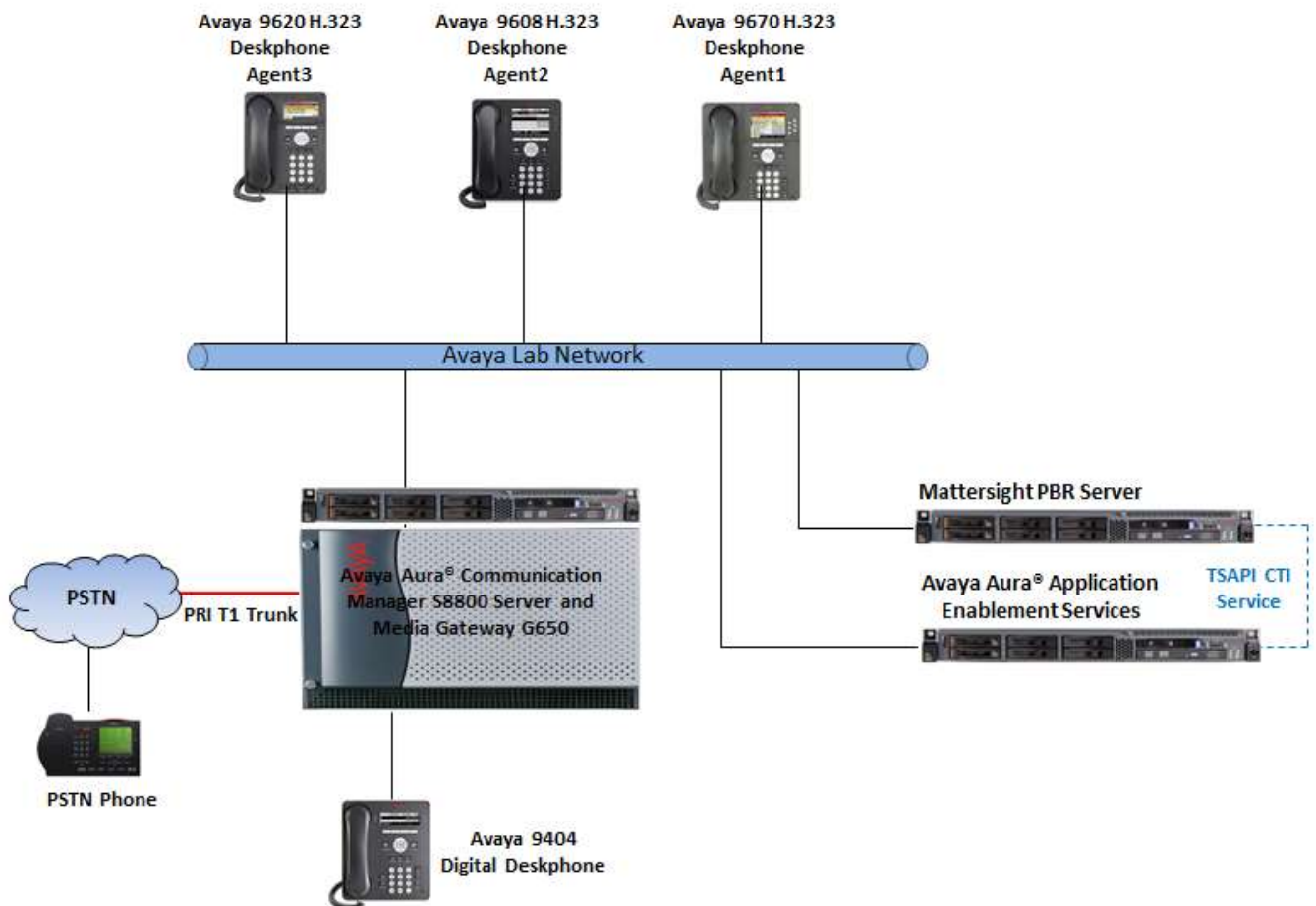


Figure 1: Test Configuration Diagram

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communicaiton Manager running on Avaya S8800 Server	R016x.03.0.124.0 6.3.10.0-SP10
Avaya Aura® Application Enablement Service running on Avaya S8800 Server	6.3.3 SP 10
Avaya 9650 H.323 IP Deskphone	3.2.4
Avaya 9620 H.323 IP Deskphone	3.2.4
Avaya 9621 H.323 IP Deskphone	6.6029
Avaya 9404 Digital Deskphone	R15
Mattersight® Predictive Behavioral Routing	4

5. Configure Avaya Aura® Communication Manager

This section provides the procedures for configuring Communication Manager. Use the System Access Terminal (SAT) to configure Communication Manager and log in with the appropriate credentials. In the Communication Manager SAT screens shown throughout this document, the SAT command used to access each screen is displayed in the upper left-hand corner of the screen.

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

Station	Agent	Hunt group/Skill	VDN	Vector
53010	1000	53090	53080	1
53011	1001	53091	53083	14
53012	1002	53090		200

5.1. Verify Feature and License

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

One Page 3, verify **ASAI Link Core Capabilities**, **ASAI Link Plus Capabilities** and **Computer Telephony Adjunct Links** is set to **y**.

display system-parameters customer-options		Page 3 of 11
OPTIONAL FEATURES		
Abbreviated Dialing Enhanced List? y	Audible Message Waiting? y	
Access Security Gateway (ASG)? n	Authorization Codes? y	
Analog Trunk Incoming Call ID? y	CAS Branch? n	
A/D Grp/Sys List Dialing Start at 01? y	CAS Main? n	
Answer Supervision by Call Classifier? y	Change COR by FAC? n	
ARS? y	Computer Telephony Adjunct Links? y	
ARS/AAR Partitioning? y	Cvg Of Calls Redirected Off-net? y	
ARS/AAR Dialing without FAC? y	DCS (Basic)? y	
ASAI Link Core Capabilities? y	DCS Call Coverage? y	
ASAI Link Plus Capabilities? y	DCS with Rerouting? y	
Async. Transfer Mode (ATM) PNC? n		
Async. Transfer Mode (ATM) Trunking? n	Digital Loss Plan Modification? y	
ATM WAN Spare Processor? n	DS1 MSP? y	
ATMS? y	DS1 Echo Cancellation? y	
Attendant Vectoring? y		

On Page 4, verify **ISDN Feature Plus**, **ISDN-BRI**, **IP Trunks** and **Multimedia IP SIP Trunking** are set to **y**.

display system-parameters customer-options		Page 4 of 11
OPTIONAL FEATURES		
Emergency Access to Attendant? y	IP Stations? y	
Enable 'dadmin' Login? y		
Enhanced Conferencing? y	ISDN Feature Plus? y	
Enhanced EC500? y	ISDN/SIP Network Call Redirection? y	
Enterprise Survivable Server? n	ISDN-BRI Trunks? y	
Enterprise Wide Licensing? n	ISDN-PRI? y	
ESS Administration? y	Local Survivable Processor? n	
Extended Cvg/Fwd Admin? y	Malicious Call Trace? y	
External Device Alarm Admin? y	Media Encryption Over IP? n	
Five Port Networks Max Per MCC? n	Mode Code for Centralized Voice Mail? n	
Flexible Billing? n		
Forced Entry of Account Codes? y	Multifrequency Signaling? y	
Global Call Classification? y	Multimedia Call Handling (Basic)? y	
Hospitality (Basic)? y	Multimedia Call Handling (Enhanced)? y	
Hospitality (G3V3 Enhancements)? y	Multimedia IP SIP Trunking? y	
IP Trunks? y		

On Page 6, verify **Vectoring (G3V4 Advanced Routing)**, **Vectoring (Best Service Routing)** and **Vectoring (Variables)** are set to **y**.

display system-parameters customer-options

Page 6 of 11

CALL CENTER OPTIONAL FEATURES

Call Center Release: 6.0

ACD?	y	Reason Codes?	y
BCMS (Basic)?	y	Service Level Maximizer?	n
BCMS/VuStats Service Level?	y	Service Observing (Basic)?	y
BSR Local Treatment for IP & ISDN?	y	Service Observing (Remote/By FAC)?	y
Business Advocate?	n	Service Observing (VDNs)?	y
Call Work Codes?	y	Timed ACW?	y
DTMF Feedback Signals For VRU?	y	Vectoring (Basic)?	y
Dynamic Advocate?	n	Vectoring (Prompting)?	y
Expert Agent Selection (EAS)?	y	Vectoring (G3V4 Enhanced)?	y
EAS-PHD?	y	Vectoring (3.0 Enhanced)?	y
Forced ACD Calls?	n	Vectoring (ANI/II-Digits Routing)?	y
Least Occupied Agent?	y	Vectoring (G3V4 Advanced Routing)?	y
Lookahead Interflow (LAI)?	y	Vectoring (CINFO)?	y
Multiple Call Handling (On Request)?	y	Vectoring (Best Service Routing)?	y
Multiple Call Handling (Forced)?	y	Vectoring (Holidays)?	y
PASTE (Display PBX Data on Phone)?	y	Vectoring (Variables)?	y

On Page 10, verify **IP_API_A** has a sufficient limit.

display system-parameters customer-options		Page 10 of 11
MAXIMUM IP REGISTRATIONS BY PRODUCT ID		
Product ID	Rel. Limit	Used
AgentSC	* : 10000	0
IP_API_A	* : 18000	5
IP_Agent	* : 18000	0
IP_NonAgt	* : 18000	0
IP_Phone	* : 18000	8
IP_ROMax	* : 18000	0
IP_Soft	* : 18000	0
IP_Supv	* : 18000	0
IP_eCons	* : 414	0
oneX Comm	* : 18000	0

5.2. 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 telephone
- Enter a **Security Code**
- **Coverage Path 1** set to **14** as configured in **Section 5.9**.
- Set **IP SoftPhone** to **y**

add station 53010		Page 1 of 5
STATION		
Extension: 53010	Lock Messages? n	BCC: 0
Type: 9650	Security Code: 1234	TN: 1
Port: S00004	Coverage Path 1: 14	COR: 1
Name: H.323 53010	Coverage Path 2:	COS: 1
	Hunt-to Station:	Tests? y
STATION OPTIONS		
Loss Group: 19	Time of Day Lock Table:	
	Personalized Ringing Pattern: 1	
Speakerphone: 2-way	Message Lamp Ext: 53010	
Display Language: english	Mute Button Enabled? y	
Survivable GK Node Name:		
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? y	
	IP Video Softphone? n	
	Short/Prefixed Registration Allowed: default	

One Page 5, under **Main View**, add **call-disp**, **auto-in**, **aux-work**, **after-call**, and **manual-in** as shown below:

change station 53010		Page 5 of 5
STATION		
AUXILIARY BUTTON ASSIGNMENTS		
Main View		Shifted View
4: call-disp		12:
5: auto-in	Grp:	13:
6: aux-work	RC: Grp:	14:
7: after-call	Grp:	15:
8: manual-in	Grp:	16:
9:		17:
10:		18:
11:		19:
BUTTON ASSIGNMENTS		

5.3. Configure Hunt Group

Use the **add hunt-group *n*** command to add a hunt group, where ***n*** is an available hunt group.

On Page 1:

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

Add hunt-group 1	HUNT GROUP	Page 1 of 4
Group Number: 1	ACD? y	
Group Name: Skill 1	Queue? y	
Group Extension: 53090	Vector? y	
Group Type: ucd-mia		
TN: 1		
COR: 1	MM Early Answer? n	
Security Code:	Local Agent Preference? n	
ISDN/SIP Caller Display:		
Queue Limit: unlimited		
Calls Warning Threshold:	Port:	
Time Warning Threshold:	Port:	

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

Add hunt-group 1	HUNT GROUP	Page 2 of 4
Skill? y	Expected Call Handling Time (sec): 20	
AAS? n	Service Level Target (% in sec): 80 in 20	
Measured: both		
Supervisor Extension:		
Controlling Adjunct: none		
VuStats Objective:		
Multiple Call Handling: none		
Timed ACW Interval (sec): 1	After Xfer or Held Call Drops? n	

5.4. Configure Agents

Use the **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 a **Security Code**

add agent-loginID 1000		Page 1 of 3
AGENT LOGINID		
Login ID: 1000	AAS? n	
Name: Agent1	AUDIX? n	
TN: 1		
COR: 1		
Coverage Path:	LWC Reception: spe	
Security Code: 1234	LWC Log External Calls? n	
	AUDIX Name for Messaging:	
	LoginID for ISDN/SIP Display? n	
	Password:	
	Password (enter again):	
	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 skill number and skill level in **SN** and **SL** fields. Skill number is the hunt group that was added in the previous section. This agent is assigned to 3 skill groups as defined in earlier of this section.

add agent-loginID 1000		Page 2 of 3					
AGENT LOGINID							
Direct Agent Skill:		Service Objective? n					
Call Handling Preference: skill-level		Local Call Preference? n					
SN	RL SL	SN	RL SL	SN	RL SL	SN	RL SL
1: 1	1	16:		31:		46:	
2: 2	1	17:		32:		47:	
3: 3	1	18:		33:		48:	
4:		19:		34:		49:	
5:		20:		35:		50:	
6:		21:		36:		51:	
7:		22:		37:		52:	
8:		23:		38:		53:	
9:		24:		39:		54:	
10:		25:		40:		55:	
11:		26:		41:		56:	
12:		27:		42:		57:	

5.5. Configure Variables

Use the **change variables *n*** command to configure variables, where *n* is an available variable in the system. In the compliance test, 4 variables **MA**, **MB**, **MC** and **MD** are configured and used for vector that are defined in the next section.

change variables ma					Page 19 of
39	VARIABLES FOR VECTORS				
Var	Description	Type	Scope	Length	Start Assignment
VAC					
LM					
LN					
LO					
LP					
LQ					
LR					
LS					
LT					
LU					
LV					
LW					
LX					
LY					
LZ					
MA	Mattersight Key	asaiuui	L	10	1
MB	Route flag	asaiuui	L	1	11
MC	Original VDN	collect	P	5	1
MD	Active VDN	vdn	L		active

5.6. Configure Vectors

Use the **change vector *n*** command to configure a Vector, where *n* is an available Vector number. The vector 1 below is used as main vector for routing ACD call to the agent phone.

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

    Number: 1                                Name: Vector 1
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
    Prompting? y      LAI? y      G3V4 Adv Route? y      CINFO? y      BSR? y      Holidays? y
    Variables? y      3.0 Enhanced? y
01 wait-time      7      secs hearing silence
02 goto step      6                        if MC                        <>      none
03 set      MA      = none      CATR      1100153090
04 set      MC      = MD      ADD      none
05 goto vector      200      @step 1      if unconditionally
06 queue-to      skill 1      pri m
07 stop
```

Use the same command above to create a coverage vector 14 which is used in coverage vdn extension 53083 in the next section.

```
change vector 14                                     Page 1 of 6
6
                                CALL VECTOR

    Number: 14                                Name: Cover-vector
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
    Prompting? y      LAI? y      G3V4 Adv Route? y      CINFO? y      BSR? y      Holidays? y
    Variables? y      3.0 Enhanced? y
01 wait-time      0      secs hearing silence
02 set      MB      = none      ADD      0
03 route-to      number MC                        with cov n if unconditionally
04 goto vector      11      @step 1      if unconditionally
05
06
07
08
09
10
11
12
```

The vector 200 is created to encapsulate the adjunct route command and related logic required to call the PBR adjunct. The new vector is setup to call the PBR 3 times in succession if necessary. The vector is structured this way to cover the rare use case where there is an error when the first route attempt is made. When this occurs, the PBR service will be called again so the call can be properly routed to another agent.

change vector 200

Page 1 of 6

CALL VECTOR

Number: 200

Name: MATTERSIGHT

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

Prompting? y

LAI? y

G3V4 Adv Route? y

CINFO? y

BSR? y

Holidays? y

Variables? y

3.0 Enhanced? y

01 adjunct

routing link 1

02 wait-time

2 secs hearing silence

03 adjunct

routing link 1

04 wait-time

2 secs hearing silence

05 adjunct

routing link 1

06 wait-time

2 secs hearing silence

07 set

MB = none

ADD 0

08 return

09

10

11

12

5.7. Configure VDN

Use the **add vdn *n*** command 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**.

add vdn 53080	Page 1 of 3
VECTOR DIRECTORY NUMBER	
Extension: 53080	
Name*: VDN 11	
Destination: Vector Number	1
Attendant Vectoring? n	
Meet-me Conferencing? n	
Allow VDN Override? n	
COR: 1	
TN*: 1	
Measured: both	
Acceptable Service Level (sec): 20	
VDN of Origin Annc. Extension*:	
1st Skill*:	
2nd Skill*:	
3rd Skill*:	

Use the same command above to create vdn 53083 that is used for coverage path in next section. Set the **Destination** field to the vector **14** as configured in **Section 5.6**, **Allow VDN Override** to **y** and **Measured** field to **external**.

change vdn 53083	Page 1 of 3
VECTOR DIRECTORY NUMBER	
Extension: 53083	
Name*: VDN Coverage	
Destination: Vector Number	14
Attendant Vectoring? n	
Meet-me Conferencing? n	
Allow VDN Override? y	
COR: 1	
TN*: 1	
Measured: external	
VDN of Origin Annc. Extension*:	
1st Skill*:	
2nd Skill*:	
3rd Skill*:	

5.8. Configure Coverage Path

Use the **add coverage path *n*** command to add a coverage path, where *n* is an available coverage path. This coverage path is configured in Coverage Path 1 of the agent station to cover in case of the agent station not answer calls in 3 rings or busy. The **Point1** is set to VDN 53083 as configured in **Section 5.7**.

change coverage path 14

Page 1 of 1

COVERAGE PATH

Coverage Path Number: 14

Cvg Enabled for VDN Route-To Party? n

Hunt after Coverage? n

Next Path Number:

Linkage

COVERAGE CRITERIA

Station/Group Status

Inside Call

Outside Call

Active?

n

y

Busy?

n

y

Don't Answer?

n

y

Number of Rings: 3

All?

n

n

DND/SAC/Goto Cover?

n

n

Holiday Coverage?

n

n

COVERAGE POINTS

Terminate to Coverage Pts. with Bridged Appearances? n

Point1: v53083

Rng:1

Point2:

Point3:

Point4:

Point5:

Point6:

5.9. Configure AES Connection

Use the **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 **CLAN2** for the Processor Ethernet Interface.
- In the **Local Port** field, use the default of **8765**.

change ip-services					Page	1 of	4
IP SERVICES							
Service	Enabled	Local	Local	Remote	Remote		
Type		Node	Port	Node	Port		
AESVCS	y	CLAN2	8765				
CDR1		CLAN1	0	NetIQ	9000		
CDR2		CLAN1	0	AVAYARDTT	9001		

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**.

change ip-services				Page	4 of 4
AE Services Administration					
Server ID	AE Services Server	Password	Enabled	Status	
1:	AES63	avayalab	y	in use	
2:					

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

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

add cti-link 1		Page	1 of 3
CTI LINK			
CTI Link: 1			
Extension: 50001			
Type: ADJ-IP			
COR: 1			
Name: CTIlink-AES63			

6. Configure Avaya Aura® Application Enablement Services

Configuration of Avaya Aura® Application Enablement Services (AES) requires a user account be configured for the Predictive Behavioral Routing.

6.1. Configure User

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

A user needs to be created for the Predictive Behavioral Routing to communicate with AES.

Navigate to **User Management** → **User Admin** → **Add User**.

Fill in **User Id**, **Common Name**, **Surname**, **User Password** and **Confirm Password**. Set the **CT User** to **Yes**, and **Apply** (not shown).

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo and the title 'Application Enablement Services Management Console'. On the right, system information is shown: 'Number of prior failed login attempts: 0', 'HostName/IP: AES63/ 0.98.17', 'Server Offer Type: VIRTUAL_APPLIANCE_ON_SP', 'SW Version: 6.3.3.10-0', 'Server Date and Time: Thu May 28 16:16:30 EDT 2015', and 'HA Status: Not Configured'. A red navigation bar contains 'User Management | User Admin | Add User' and 'Home | Help | Logout'. The left sidebar lists navigation options: AE Services, Communication Manager Interface, High Availability, Licensing, Maintenance, Networking, Security, Status, User Management (expanded), Service Admin, User Admin (expanded), Add User (selected), Change User Password, List All Users, Modify Default Users, Search Users, Utilities, and Help. The main content area is titled 'Add User' and includes a note: 'Fields marked with * can not be empty.' The form fields are: * User Id (text: test), * Common Name (text: test), * Surname (text: test), * User Password (masked:), * Confirm Password (masked:), Admin Note (text area), Avaya Role (dropdown: None), Business Category (text), Car License (text), CM Home (text), Css Home (text), CT User (dropdown: Yes), Department Number (text), Display Name (text), and Employee Number (text).

If the Security Database is enabled on Application Enablement Services, set the Predictive Behavioral Routing user account to **Unrestricted Access** to enable any device (station, ACD extension, DMCC port) to be used implicitly. This step avoids the need to duplicate administration.

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

AVAYA **Application Enablement Services**
Management Console

Number of prior failed login attempts: 0
HostName/IP: AES63/ 9.98.17
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.3.3.10-0
Server Date and Time: Thu May 28 18:26:15 EDT 2015
HA Status: Not Configured

Security | Security Database | CTI Users | List All UsersHome | Help | Logout

▶ AE Services

▶ Communication Manager Interface

High Availability

▶ Licensing

▶ Maintenance

▶ Networking

▼ Security

▶ Account Management

▶ Audit

▶ Certificate Management

Enterprise Directory

▶ Host AA

▶ PAM

▼ Security Database

▪ Control

▣ CTI Users

▪ List All Users

▪ Search Users

▪ Devices

▪ Device Groups

CTI Users

User ID	Common Name	Worktop Name	Device ID
<input checked="" type="radio"/> test	test	NONE	NONE
<input type="radio"/> trio	trio	NONE	NONE

EditList All

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

Security | Security Database | CTI Users | List All Users Home | Help | Logout

- ▶ AE Services
- ▶ Communication Manager Interface
- ▶ High Availability
- ▶ Licensing
- ▶ Maintenance
- ▶ Networking
- ▼ **Security**
 - ▶ Account Management
 - ▶ Audit
 - ▶ Certificate Management
 - ▶ Enterprise Directory
 - ▶ Host AA
 - ▶ PAM
 - ▼ **Security Database**
 - Control
 - ▣ **CTI Users**
 - [List All Users](#)
 - Search Users

Edit CTI User

User Profile: User ID: test
Common Name: test
Worktop Name: NONE
Unrestricted Access: ☒

Call and Device Control: Call Origination/Termination and Device Status: None

Call and Device Monitoring: Device Monitoring: None
Calls On A Device Monitoring: None
Call Monitoring: ☐

Routing Control: Allow Routing on Listed Devices: None

6.2. Configure Communication Manager Switch Connections

To add links to Communication Manager, navigate to the **Communication Manager Interface** → **Switch Connections** page and enter a name for the new switch connection and click the **Add Connection** button (not shown). This was previously configured as **CLAN2** for this test environment:

Communication Manager Interface | Switch Connections Home | Help | Logout

- ▶ AE Services
- ▼ **Communication Manager Interface**
 - ▣ **Switch Connections**
 - ▶ Dial Plan
 - ▶ High Availability
 - ▶ Licensing
 - ▶ Maintenance
 - ▶ Networking
 - ▶ Security
 - ▶ Status
 - ▶ User Management
 - ▶ Utilities
 - ▶ Help

Switch Connections

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
<input checked="" type="radio"/> CLAN2	No	30	1
<input type="radio"/> DevCM3	Yes	30	0

Use the **Edit Connection** button shown above to configure the connection. Enter the **Switch Password** as configured in **Section 5.9**(This must match the password configured when adding AESVCS connection in Communication Manager), check the **Processor Ethernet** box if using the **procr** interface, in the compliance test, the **CLAN** interface was used therefore the **Processor Ethernet** kept unchecked and keep other fields at default.

Communication Manager Interface | Switch Connections Home | Help | Logout

> AE Services
 > Communication Manager Interface
 Switch Connections
 > Dial Plan
 > High Availability
 > Licensing
 > Maintenance
 > Networking
 > Security
 > Status
 > User Management
 > Utilities
 > Help

Connection Details - CLAN2

Switch Password:

Confirm Switch Password:

Msg Period: Minutes (1 - 72)

Provide AE Services certificate to switch: ☐

Secure H323 Connection: ☒

Processor Ethernet: ☐

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

Communication Manager Interface | Switch Connections Home | Help | Logout

> AE Services
 > Communication Manager Interface
 Switch Connections
 > Dial Plan
 > High Availability
 > Licensing
 > Maintenance
 > Networking
 > Security
 > Status
 > User Management
 > Utilities
 > Help

Edit CLAN IPs - CLAN2

Name or IP Address	Status
<input checked="" type="radio"/> 10.10.97.238	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 Addresses.

The screenshot shows the 'Communication Manager Interface' with a sidebar menu on the left. The sidebar includes 'AE Services', 'Communication Manager Interface', 'Switch Connections', 'Dial Plan', 'High Availability', 'Licensing', 'Maintenance', 'Networking', 'Security', 'Status', 'User Management', 'Utilities', and 'Help'. The main content area is titled 'Edit H.323 Gatekeeper - CLAN2'. It contains a text input field for 'Name or IP Address' with the value '10.10.97.238' and a radio button selected. Below the input field are 'Delete IP' and 'Back' buttons. There is also an 'Add Name or IP' button.

6.3. Configure TSAPI Link

Navigate to the **AE Services** → **TSAPI** → **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 as defined in the **section 5.8**.

If the application will use Encrypted Links, select **Encrypted** in the **Security** selection box, however during compliance testing **Both** was selected. Click **Apply Changes**. The configuration shown below was previously administered.

The screenshot shows the 'AVAYA Application Enablement Services Management Console'. The top right corner displays system information: 'Number of prior failed login attempts: 0', 'HostName/IP: AES63/10.98.17', 'Server Offer Type: VIRTUAL_APPLIANCE_ON_SP', 'SW Version: 6.3.3.3.10-0', 'Server Date and Time: Thu May 28 18:56:15 EDT 2015', and 'HA Status: Not Configured'. The sidebar menu includes 'AE Services', 'CVLAN', 'DLG', 'DMCC', 'SMS', 'TSAPI', 'TSAPI Links', 'TSAPI Properties', 'TWS', and 'Communication Manager Interface'. The main content area is titled 'Edit TSAPI Links'. It contains several dropdown menus: 'Link' (set to 1), 'Switch Connection' (set to CLAN2), 'Switch CTI Link Number' (set to 1), 'ASAI Link Version' (set to 5), and 'Security' (set to Both). At the bottom are 'Apply Changes', 'Cancel Changes', and 'Advanced Settings' buttons.

Click **Advanced Setting** to obtain the TSAPI Link that will be used by Mattersight PBR.

The screenshot shows a web interface for configuring TSAPI Links. On the left is a navigation menu with 'AE Services' expanded, showing options like CVLAN, DLG, DMCC, SMS, TSAPI (expanded to show 'TSAPI Links' and 'TSAPI Properties'), TWS, and 'Communication Manager Interface'. The main content area is titled 'TSAPI Link - Advanced Settings'. It contains the following fields: 'Tlinks Configured' with two text boxes containing 'AVAYA#CLAN2#CSTA-S#AES63'; 'Max Flow Allowed' with a text box containing '2000'; 'TSDI Size' with a text box containing '5242880'; and 'TSDI High Water Mark' with a text box containing '32' and a label '% of TSDI Size'. At the bottom are three buttons: 'Apply Changes', 'Cancel Changes', and 'Restore Defaults'.

TSAPI Link - Advanced Settings	
Tlinks Configured	AVAYA#CLAN2#CSTA-S#AES63
	AVAYA#CLAN2#CSTA#AES63
Max Flow Allowed	2000
TSDI Size	5242880
TSDI High Water Mark	32 % of TSDI Size
<input type="button" value="Apply Changes"/> <input type="button" value="Cancel Changes"/> <input type="button" value="Restore Defaults"/>	

7. Configure Mattersight® Predictive Behavioral Routing

The Mattersight® Predictive Behavioral Routing solution is delivered using the Software as a Service (SaaS) delivery model. As part of the SaaS model, Mattersight installs and configures the Predictive Behavioral Routing. To properly configure Predictive Behavioral Routing, Mattersight requires an Avaya AES server Tlink connection string and a login and password, as configured in **Section 6**.

8. Verification Steps

To verify that the Predictive Behavioral Routing application is connected to Avaya AES successfully, using the Application Enablement Service Management Console, navigate to **Status → Status and Control → TSAPI Service Summary** and select **User Status** (not shown). If the user is connected successfully, an entry will be displayed in the following table.

CTI User Status

☐ Enable page refresh every 60 seconds

CTI Users: All Users Submit

Open Streams: 3
Closed Streams: 4

Open Streams

Name	Time Opened	Time Closed	Link Name
test	Fri 22 May 2015 12:34:35 PM EDT		AVAYA#CLAN2#CSTA#AES63
DMCCLCSUserDoNotModify	Wed 20 May 2015 01:13:27 PM EDT		AVAYA#CLAN2#CSTA#AES63
DMCCLCSUserDoNotModify	Wed 20 May 2015 01:13:27 PM EDT		AVAYA#CLAN2#CSTA#AES63

Show Closed Streams Back

To verify the connection between the Communication Manager and AES, navigate go **Status → Status and Control → Switch Conn Summary**. The **Switch Connections Summary** page is displayed in the right side, make sure the **Conn State** should show the status as “Talking” as shown in the screen below.

Switch Connections Summary

☐ Enable page refresh every 60 seconds

	Switch Conn	Conn State	Processor Ethernet	Since	Online/Offline	Active/Standby/Admin'd AEP Conns	Num of TCI Conns	SSL	Msgs To Switch	Msgs From Switch	Msg Period
@	CLAN2	Talking	No	Fri May 29 10:23:12 2015	Online	1 / 0 / 1	2	Enabled	156789	158775	30
@	DevCM3	Out Of Service	No	Fri May 29 10:20:42 2015	Online	0 / 0 / 1	1	Enabled	44	44	30

Online Offline Connection Details Per Service Connections Details

9. Conclusion

Mattersight® Predictive Behavioral Routing was able to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services.

10. Additional References

This section references product documentation relevant to these Application Notes.

Documentation for Avaya products can be found at <http://support.avaya.com>.

- [1] *Administering Avaya Aura® Communication Manager*, Release 6.3, Document Number 03-300509, Issue 9, October 2013
- [2] *Avaya Aura® Communication Manager Feature Description and Implementation*, Release 6.3, Document Number 555-245-205, Issue 11, October 2013
- [3] *Avaya Aura® Application Enablement Service Administration and Maintenance Guide*, Release 6.3, Issue 2, October 2013

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