



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for configuring IPC Open Trade with Avaya Aura® Communication Manager and Avaya Aura® Session Manager - Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps necessary for provisioning IPC Open Trade solution to successfully interoperate with Avaya Aura® Communication Manager, Avaya Aura® Session Manager and Avaya Aura® Messaging using SIP trunk. The IPC Open Trade solution consisted of an Open Trade SIP Server and Open Trade Everywhere endpoints.

In the compliance testing, the Open Trade Everywhere endpoints registered with IPC Open Trade SIP Server. The call between Open Trade Everywhere endpoints with simulated PSTN, Avaya endpoints, and Avaya Aura® Messaging are routed via SIP trunk between Open Trade SIP Server and Avaya Aura® Session Manager. Avaya Aura® Messaging provided voicemail service for Avaya endpoints as well as Open Trade Everywhere endpoints.

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

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

# 1. Introduction

These Application Notes describe a compliance-tested configuration for the interoperability of Open Trade from IPC with Avaya Aura® Communication Manager, Avaya Aura® Session Manager and Avaya Aura® Messaging using SIP trunk. The IPC Open Trade trading solution consisted of an Open Trade SIP Server, and trading turret endpoints Open Trade Everywhere.

The Open Trade Everywhere endpoints registered with IPC Open Trade SIP Server. Calls between Open Trade Everywhere endpoints with simulated PSTN, Avaya endpoints, and Avaya Aura® Messaging are routed via SIP trunk between Open Trade SIP Server and Avaya Aura® Session Manager. Avaya Aura® Messaging provided voicemail service for Avaya endpoints as well as Open Trade Everywhere endpoints. During compliance test only the following Avaya Aura® Messaging features were tested with Open Trade Everywhere endpoints: voice message, message waiting indicator (MWI), forward unconditional, and no answer.

## 2. General Test Approach and Test Results

Open Trade is integrated with Communication Manager using SIP trunk between Open Trade and Session Manager. Session Manager directs the call over SIP trunk to a specific destination depending on the digits dialed. Compliance testing was executed manually by making calls to and from endpoints on Open Trade. The test results and observations are listed 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 the following type of calls was made:

- **Basic Inbound/Outbound** – Tests calls to/from Open Trade Everywhere endpoint with simulated PSTN and Avaya endpoints.
- **Call Hold** – Tests held calls to/from Open Trade Everywhere endpoint with simulated PSTN and Avaya endpoints.
- **Supervised Call Transfer/Blind Call Transfer** – Tests transferred calls to/from Open Trade Everywhere endpoint with simulated PSTN and Avaya endpoints.
- **Call Conference** – Tests conferenced calls to/from Open Trade Everywhere endpoint with simulated PSTN and Avaya endpoints.
- **Call Forward** – Tests forwarded calls to/from Open Trade Everywhere endpoint with simulated PSTN and Avaya endpoints.
- **Call Information** – Verify caller information (CLID) displayed on Open Trade Everywhere endpoint for inbound and outbound calls to/from simulated PSTN and Avaya endpoints.
- **Voicemail** – Verify simulated PSTN and Avaya endpoints can leave voice message for Open Trade Everywhere endpoint and MWI is properly activated on Open Trade Everywhere. Open Trade Everywhere endpoint is able to retrieve voice message from Messaging and MWI is turn off once the message is retrieved.
- **DTMF recognition** – Verify **DTMF** entered on Open Trade Everywhere endpoint is properly transmitted to Messaging.
- **Failover/Serviceability** – Tests the behaviour of Open Trade when there are certain failed conditions such as power failure and LAN failure on Open Trade SIP Server.

## 2.2. Test Results

All tests passed successfully. Below is list of observations from the compliance test of this solution.

1. Open Trade Everywhere does not update the “Contact” field in SIP message in actions such as call transfer, conference during calls in which Avaya endpoints are participating, thus preventing the displays of the Avaya endpoints from being updated.
2. Open Trade does not support media shuffling; therefore corresponding parameters must be disabled on the relevant Communication Manager signaling group.

## 2.3. Support

For more information on IPC Open Trade and product support visit:  
<http://www.ipc.com/support/contact-us>

### 3. Reference Configuration

**Figure 1** illustrates the setup used to verify the Open Trade solution with Session Manager, Communication Manager, and Messaging. Open Trade SIP server is deployed on a dedicated server running Windows 2008 R2 Enterprise. The test environment includes an interface to simulated PSTN. The Open Trade solution included an Open Trade SIP Server and two Open Trade Everywhere endpoints. The Open Trade SIP Server handled SIP signaling between the Open Trade Everywhere endpoints and Session Manager.

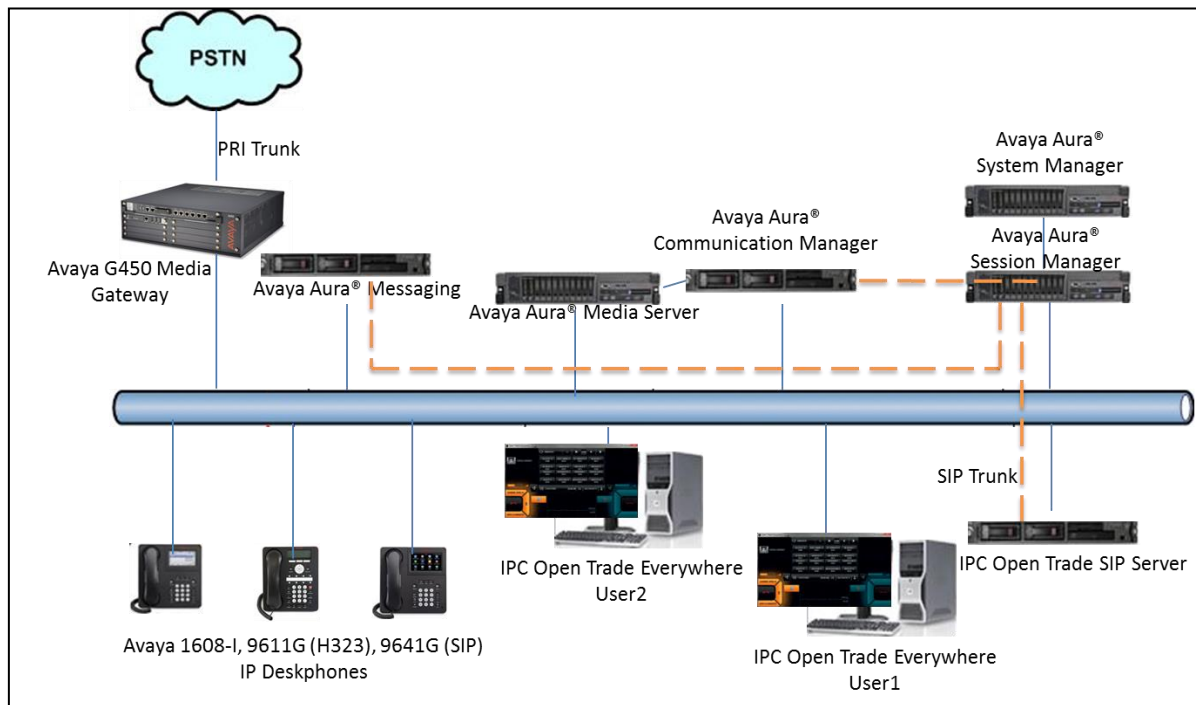


Figure 1: Reference Configuration Diagram

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communication Manager in Virtual Environment	R017x.00.0.441.0 7.0.1.0.0-FP1
Avaya G450 Media Gateway	37.19.0
Avaya Aura® Media Server in Virtual Environment	7.7.019 (FP1)
Avaya Aura® System Manager running on Virtualized Environment	7.0.1.0
Avaya Aura® Session Manager running on Virtualized Environment	7.0.1.0.701007
Avaya Aura® Messaging	6.3.3
Avaya 9641G, IP Deskphone (SIP)	7.0.1
Avaya 9608 IP Deskphone (H.323)	6.6029
Avaya 1608-I IP Deskphones (H.323)	1.3 Release 9
IPC Open Trade SIP Server	6.0.0.0.41
IPC Open Trade Everywhere on Windows 10 Pro	3.2.2.0

## 5. Configure Avaya Aura® Communication Manager

It is assumed that a fully functioning Communication Manager is in place with the necessary licensing. It is assumed that all extensions (H.323 and SIP) are already in place. Call routing and dialing for Communication Manager IP Deskphones to Session Manager are already in place therefore will not be discussed in this document. This section describes steps needed to route call from Communication Manager to Open Trade. This section included following configurations:

- Verify System Parameters Customer Option
- Verify System Parameters Features
- Administer Network Region
- Administer IP Code Set
- Administer SIP Signaling Group
- Administer Trunk Group
- Administer Route Pattern
- Administer Dialplan
- Administer Call Routing

### 5.1. Verify System Parameters Customer Option

Use the **display system-parameters customer-options** command to verify that Communication Manager is configured to meet the minimum requirements to integrate with Open Trade. Those items shown in bold indicate required values or minimum capacity requirements. If these are not met in the configuration, please contact an Avaya representative for further assistance.

**Maximum Administered SIP Trunks** (Page 2), the number of available licensed SIP trunks must be sufficient to accommodate the number of trunk members assigned to the trunk group used to interface to Session Manager.

display system-parameters customer-options		Page 2 of 12
OPTIONAL FEATURES		
IP PORT CAPACITIES	USED	
Maximum Administered H.323 Trunks:	4000	10
Maximum Concurrently Registered IP Stations:	2400	9
Maximum Administered Remote Office Trunks:	4000	0
Maximum Concurrently Registered Remote Office Stations:	2400	0
Maximum Concurrently Registered IP eCons:	68	0
Max Concur Registered Unauthenticated H.323 Stations:	100	0
Maximum Video Capable Stations:	2400	0
Maximum Video Capable IP Softphones:	2400	1
<b>Maximum Administered SIP Trunks:</b>	<b>4000</b>	<b>24</b>
Maximum Administered Ad-hoc Video Conferencing Ports:	4000	0
Maximum Number of DS1 Boards with Echo Cancellation:	80	0
(NOTE: You must logoff & login to effect the permission changes.)		

## 5.2. Verify System Parameters Features

Use the **change system-parameters features** command to configure the system features as shown in the following table. **Trunk-to-Trunk Transfer**, set this parameter to “all”.

display system-parameters features	Page 1 of 19
FEATURE-RELATED SYSTEM PARAMETERS	
Self Station Display Enabled?	n
<b>Trunk-to-Trunk Transfer: all</b>	
Automatic Callback with Called Party Queuing?	n
Automatic Callback - No Answer Timeout Interval (rings):	3
Call Park Timeout Interval (minutes):	10
Off-Premises Tone Detect Timeout Interval (seconds):	20
AAR/ARS Dial Tone Required?	y
Music (or Silence) on Transferred Trunk Calls?	no
DID/Tie/ISDN/SIP Intercept Treatment:	attendant
Internal Auto-Answer of Attd-Extended/Transferred Calls:	transferred
Automatic Circuit Assurance (ACA) Enabled?	n
Abbreviated Dial Programming by Assigned Lists?	n
Auto Abbreviated/Delayed Transition Interval (rings):	2
Protocol for Caller ID Analog Terminals:	Bellcore
Display Calling Number for Room to Room Caller ID Calls?	n

## 5.3. Administer Network Region

Use the **change ip-network-region** command to assign an appropriate domain name to be used for this solution, in this case is **bvwdev.com** and leave the rest of other fields as default value.

display ip-network-region 1	Page 1 of 20
IP NETWORK REGION	
Region: 1	
Location:	Authoritative Domain: <b>bvwdev.com</b>
Name: Region1	Stub Network Region: n
MEDIA PARAMETERS	
Codec Set: 1	Intra-region IP-IP Direct Audio: yes
UDP Port Min: 2048	Inter-region IP-IP Direct Audio: yes
UDP Port Max: 8001	IP Audio Hairpinning? y
DIFFSERV/TOS PARAMETERS	
Call Control PHB Value: 46	
Audio PHB Value: 46	
Video PHB Value: 26	
802.1P/Q PARAMETERS	
Call Control 802.1p Priority: 6	
Audio 802.1p Priority: 6	
Video 802.1p Priority: 5	
AUDIO RESOURCE RESERVATION PARAMETERS	
H.323 IP ENDPOINTS	RSVP Enabled? n
H.323 Link Bounce Recovery?	y
Idle Traffic Interval (sec):	20
Keep-Alive Interval (sec):	5
Keep-Alive Count:	5



## 5.4. Administer IP Code Set

Use the **change ip-codec-set 1** command to designate appropriated codec set used to communicate with Session Manager, as shown below is ip-code-set used during compliance test.

display ip-codec-set 1				Page	1 of	2
IP CODEC SET						
Codec Set: 1						
Audio	Silence	Frames	Packet			
Codec	Suppression	Per Pkt	Size(ms)			
1: G.711MU	n	2	20			
2: G.722-64K		2	20			
3: G.729	n	2	20			
4: G.711A	n	2	20			

## 5.5. Administer SIP Signaling Group

Use the “add signaling-group n” command, where “n” is any available signaling group number, in this case “1”. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Group Type:** “sip”
- **Transport Method:** “tls”
- **Near-end Node Name:** An existing C-LAN node name or “procr” in this case.
- **Far-end Node Name:** The existing Session Manager node name.
- **Near-end Listen Port:** An available port for integration with Open Trade.
- **Far-end Listen Port:** The same port number as in **Near-end Listen Port**.
- **Far-end Network Region:** An existing network region to use with Open Trade.
- **Far-end Domain:** The applicable domain name for the network, example “bvwdev.com”.

For **Direct IP-IP Audio Connections**, enter “n” since Open Trade does not support shuffling.

add signaling-group 1		Page	1 of	1
SIGNALING GROUP				
Group Number: 1	Group Type: sip			
IMS Enabled? n	Transport Method: tls			
Q-SIP? n	SIP Enabled LSP? n			
IP Video? n	Enforce SIPS URI for SRTP? y			
Peer Detection Enabled? y Peer Server: Others				
Near-end Node Name: procr	Far-end Node Name: SM-VM			
Near-end Listen Port: 5061	Far-end Listen Port: 5061			
	Far-end Network Region: 1			
	Far-end Secondary Node Name:			
Far-end Domain: bvwdev.com				
Bypass If IP Threshold Exceeded? n				
Incoming Dialog Loopbacks: eliminate	RFC 3389 Comfort Noise? n			
DTMF over IP: rtp-payload	Direct IP-IP Audio Connections? n			
Session Establishment Timer(min): 3	IP Audio Hairpinning? n			
Enable Layer 3 Test? y	Alternate Route Timer(sec): 6			

## 5.6. Administer Trunk Group

Use the **add trunk-group** command to configure the SIP interface to Session Manager. Assign values for this command as shown below where **Signaling Group** is a group created in **Section 5.5**.

```
add trunk-group 1                                     Page 1 of 22
                                     TRUNK GROUP

Group Number: 1                                     Group Type: sip          CDR Reports: y
  Group Name: Trunk to SM on VM                     COR: 1                TN: 1          TAC: #001
  Direction: two-way                               Outgoing Display? y
  Dial Access? n                                    Night Service:
Queue Length: 0
Service Type: tie                                   Auth Code? n
                                                Member Assignment Method: auto
                                                Signaling Group: 1
                                                Number of Members: 24
```

## 5.7. Administer Route Pattern

Use the **change route-pattern <n>** command, where <n> is the route pattern to route calls for Open Trade extensions from Communication Manager to Session Manager. Assign values for this command as following:

- **Pattern Name:** Enter a descriptive name to identify the route pattern, example “To SM on VM”.
- **Grp No:** Enter the number of the SIP trunk which connects to Session Manager, which is defined in **Section 5.6**.

```
change route-pattern 1                               Page 1 of 3
      Pattern Number: 1      Pattern Name: To SM on VM
  SCCAN? n      Secure SIP? n      Used for SIP stations? n

Grp FRL NPA Pfx Hop Toll No.  Inserted      DCS/  IXC
No      Mrk Lmt List Del  Digits      QSIG
      Dgts      Intw
1: 1      0      0      n      user
2:      n      user
3:      n      user
4:      n      user
5:      n      user
6:      n      user

      BCC VALUE  TSC  CA-TSC      ITC BCIE Service/Feature PARM Sub  Numbering LAR
      0 1 2 M 4 W      Request      Dgts  Format
1: y y y y y n n      rest      lev0-pvt  none
2: y y y y y n n      rest      none
3: y y y y y n n      rest      none
4: y y y y y n n      rest      none
5: y y y y y n n      rest      none
```

## 5.8. Administer Dialplan

In order that calls are routed to the extensions configured on the Open Trade solution, the dialplan must be configured accordingly using the **change dialplan analysis** command. In this case a 4 digit **Dialed String** beginning with **32** is routed to the uniform-dialplan (udp) table.

change dialplan analysis						Page 1 of 12		
DIAL PLAN ANALYSIS TABLE								
Location: all						Percent Full: 3		
Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type
1	4	ext	*	4	fac			
#	4	dac						
32	4	udp						
*	3	fac						

## 5.9. Call Routing

These Application Notes assume that the relevant SIP and H323 stations are configured with routing to Session Manager and PSTN. Use the **change uniform-dialplan 3** command and configure as shown below, where a matching pattern of **32** with length of 4 digits is sent to the aar table.

change uniform-dialplan 3						Page 1 of 2		
UNIFORM DIAL PLAN TABLE								
						Percent Full: 0		
Matching			Insert		Node			
Pattern	Len	Del	Digits	Net	Conv	Num		
30	5	0		aar	n			
<b>32</b>	<b>4</b>	<b>0</b>		<b>aar</b>	<b>n</b>			
50	5	0		aar	n			
52	5	0		aar	n			

Use the **change aar analysis 0** command. Assign values for this command as shown in the following table. In this case the **Dialed String 32xx** is routed using **Route Pattern 1** where route pattern 1 is a route to Session Manager as defined in **Section 5.7**.

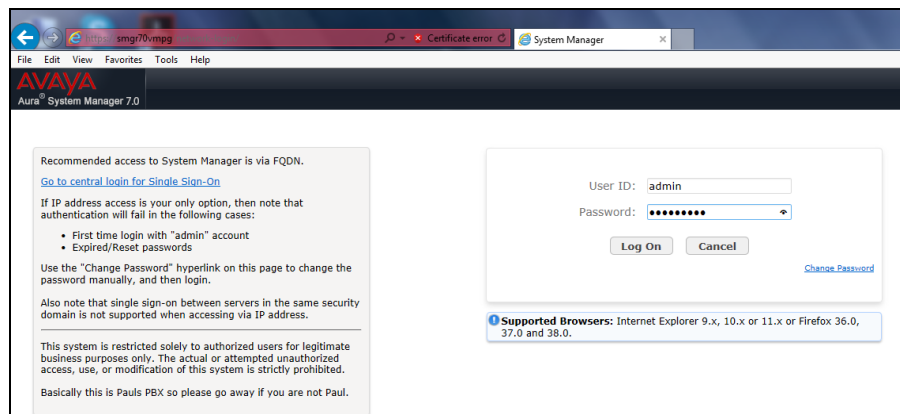
change aar analysis 0						Page 1 of 2		
AAR DIGIT ANALYSIS TABLE								
Location: all						Percent Full: 3		
Dialed	Total		Route	Call	Node	ANI		
String	Min	Max	Pattern	Type	Num	Reqd		
230	5	5	1	aar		n		
30	5	5	1	aar		n		
32	4	4	1	unku		n		

## 6. Configure Avaya Aura® Session Manager

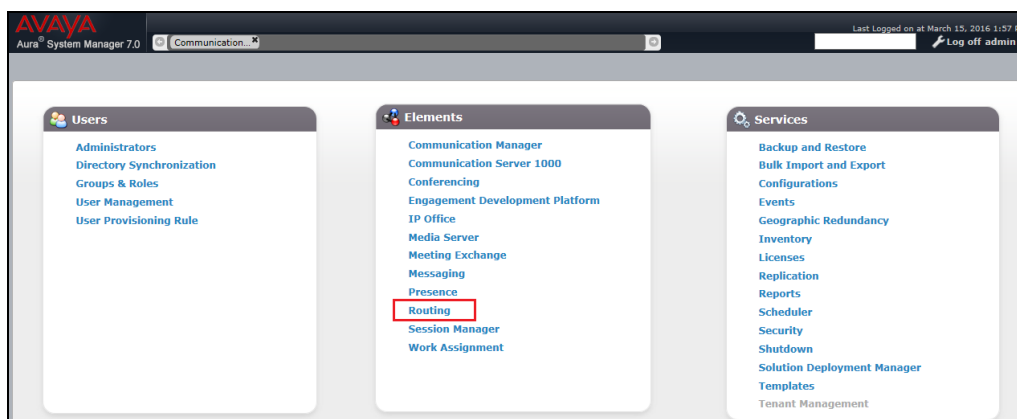
It is assumed that a fully functioning Communication Manager and Session Manager are in place with the necessary licensing. Call routing and dial pattern for Communication Manager IP Deskphones to Session Manager are already in place therefore will not be discussed in this document. This section provides steps to configure SIP trunk on Session Manager with Open Trade SIP server. These screens were captured after the compliance test for reference purpose. The SIP trunk setup consists of following items:

- Manage an Adaptation for Open Trade
- Manage SIP Entity for Open Trade
- Manage Entity Link for Open Trade
- Manage Routing Policy for Open Trade
- Manage Dial Pattern for routing to Open Trade

Configuration is accomplished by accessing the browser-based GUI of System Manager using the URL “https://<ip-address>”, where <ip-address> is the IP address of System Manager. Log in using the appropriate credentials.



Navigate to **Routing**, highlighted below.



## 6.1. Manage an Adaptation for Open Trade

Select **Adaptations** from the left window for Open Trade and verify the following setup:

- **fromto** = true
- **iodstd** = **bvwddev.com** (or whatever the domain name is)
- **ioscrd** = **bvwddev.com** (or whatever the domain name is)

Routing Domains Locations Adaptations SIP Entities Entity Links Time Ranges Routing Policies Dial Patterns Regular Expressions Defaults

Home / Elements / Routing / Adaptations

**Adaptation Details** Commit Cancel Help ?

General

\* Adaptation Name: ipcAdaptation

\* Module Name: DigitConversionAdapter

Module Parameter Type: Name-Value Parameter

Name	Value
fromto	true
iodstd	bvwddev.com
ioscrd	bvwddev.com

Select : All, None Page 1 of 2

- **odstd** = IP address of Open Trade
- **oscrd** = IP address of Session Manager

**Adaptation Details** Commit Cancel

General

\* Adaptation Name: ipcAdaptation

\* Module Name: DigitConversionAdapter

Module Parameter Type: Name-Value Parameter

Name	Value
odstd	10.29.187.204
oscrd	10.97.228

Select : All, None Page 2 of 2

## 6.2. Manage SIP Entity for Open Trade

The following screen displays the detail of Open Trade SIP Entity. Verifying the following:

- **Name:** A descriptive name.
- **FQDN or IP Address:** Open Trade IP address.
- **Type:** Other.
- **Adaptation:** The adaption created in above **Section 6.1**.

Defaults may be used for the remaining fields.

The screenshot shows a web application interface for managing SIP entities. The breadcrumb trail is "Home / Elements / Routing / SIP Entities". The left sidebar contains a menu with the following items: Routing, Domains, Locations, Adaptations, SIP Entities (selected), Entity Links, Time Ranges, Routing Policies, Dial Patterns, Regular, Expressions, and Defaults. The main content area is titled "SIP Entity Details" and includes "Commit" and "Cancel" buttons. The "General" tab is active, showing the following fields: "Name" (OpenTradeOther), "FQDN or IP Address" (192.29.182.204), "Type" (Other), "Notes" (empty), "Adaptation" (ipcAdaptation), "Location" (empty), "Time Zone" (America/Fortaleza), "SIP Timer B/F (in seconds)" (4), "Credential name" (empty), "Securable" (checkbox), "Call Detail Recording" (none), and "CommProfile Type Preference" (empty). The "Loop Detection" section is also visible, with "Loop Detection Mode" (On), "Loop Count Threshold" (5), and "Loop Detection Interval (in msec)" (200).

Home Routing x

Home / Elements / Routing / SIP Entities

### SIP Entity Details

Commit Cancel

**General**

\* Name: OpenTradeOther

\* FQDN or IP Address: 192.29.182.204

Type: Other

Notes:

Adaptation: ipcAdaptation

Location:

Time Zone: America/Fortaleza

\* SIP Timer B/F (in seconds): 4

Credential name:

Securable: ☐

Call Detail Recording: none

CommProfile Type Preference:

**Loop Detection**

Loop Detection Mode: On

Loop Count Threshold: 5

Loop Detection Interval (in msec): 200

### 6.3. Manage Entity Link for Open Trade

The SIP trunk from Session Manager to Open Trade is described by Entity Links. Verify an Entity link detail as listed below:

- **Name:** A descriptive name.
- **SIP Entity 1:** The Session Manager SIP entity.
- **Protocol:** The desired protocol.
- **Port:** Port number to which the other system sends SIP requests.
- **SIP Entity 2:** Select Open Trade SIP entity created in **Section 6.2**.

Note that Open Trade supports protocols UDP, TCP, and TLS, and UDP was used in the compliance testing.

The screenshot shows the 'Entity Links' configuration page. The left sidebar contains a navigation menu with options: Domains, Locations, Adaptations, SIP Entities, Entity Links (selected), Time Ranges, Routing Policies, Dial Patterns, Regular, and Expressions. The main content area has a breadcrumb trail 'Home / Elements / Routing / Entity Links' and buttons for 'Commit' and 'Cancel'. Below the title 'Entity Links', there is a table with 1 item. The table columns are: Name, SIP Entity 1, Protocol, Port, SIP Entity 2, DNS Override, Port, Connection Policy, Deny New Service, and Notes. The row shows: Name: \*ToOpenTrade, SIP Entity 1: \*Q DevvmSM, Protocol: UDP, Port: \*5060, SIP Entity 2: \*Q OpenTradeOther, DNS Override: (empty), Port: \*5060, Connection Policy: trusted, Deny New Service: (empty), and Notes: (empty). At the bottom, there is a 'Select: All, None' dropdown.

### 6.4. Manage Routing Policy for Open Trade

Routing policies describe the conditions under which calls will be routed to the SIP Entities. A routing policy must be added for Open Trade. To add a routing policy, select **Routing Policies** on the left and click on the **New** button on the right (not shown). The following screen is displayed. Fill in the following:

- Under **General**: A descriptive name in **Name**.
- Under **SIP Entity as Destination**: The appropriate SIP entity to which this routing policy applies.

The screenshot shows the 'Routing Policy Details' configuration page. The left sidebar contains a navigation menu with options: Domains, Locations, Adaptations, SIP Entities, Entity Links, Time Ranges, Routing Policies (selected), Dial Patterns, Regular, Expressions, and Defaults. The main content area has a breadcrumb trail 'Home / Elements / Routing / Routing Policies' and buttons for 'Commit' and 'Cancel'. Below the title 'Routing Policy Details', there is a 'General' section with fields for: Name: \*ToOpenTrade, Disabled: (checkbox), Retries: \*0, and Notes: (text area). Below the 'General' section, there is a 'SIP Entity as Destination' section with a 'Select' dropdown. Below the dropdown, there is a table with 4 columns: Name, FQDN or IP Address, Type, and Notes. The row shows: Name: OpenTradeOther, FQDN or IP Address: 10.29.182.204, Type: Other, and Notes: (empty).

## 6.5. Manage Dial Pattern for Routing to Open Trade

Dial patterns must be defined that will direct calls to the appropriate SIP Entity. In the sample configuration, 4-digit extensions 32xx route to Open Trade.

Under General:

- **Pattern:** Dialed number or prefix.
- **Min:** Minimum length of dialed number.
- **Max:** Maximum length of dialed number.
- **SIP Domain:** The applicable domain, example: bvwdev.com
- Under **Originating Locations and Routing Policies**, the applicable location and routing policy, for example the Belleville location and ToOpenTrade routing policy created in **Section 6.4**.

Click **Commit** to create new Dial Pattern.

**AVAYA**  
Aura System Manager 7.0

Last Logged on at October 25, 2016 11:56 AM  
Go... Log off admin

Home Routing

Home / Elements / Routing / Dial Patterns

**Dial Pattern Details** Commit Cancel Help ?

**General**

\* Pattern: 32  
\* Min: 4  
\* Max: 4  
Emergency Call: ☐  
Emergency Priority: 1  
Emergency Type:   
SIP Domain: bvwdev.com  
Notes: ToOpenTrade

**Originating Locations and Routing Policies**

Add Remove

1 Item Filter: Enable

<input type="checkbox"/>	Originating Location Name	Originating Location Notes	Routing Policy Name	Rank	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes
<input type="checkbox"/>	Belleville	Belleville DevConnect Lab	ToOpenTrade	0	<input type="checkbox"/>	OpenTradeOther	

Select : All, None

**Denied Originating Locations**

Add Remove

0 Items Filter: Enable

<input type="checkbox"/>	Originating Location	Notes
--------------------------	----------------------	-------

Commit Cancel



## 7. Configure Avaya Aura® Messaging

It is assumed that the Messaging system is already in place, and providing service for Avaya endpoints. The detailed administration for Messaging is beyond the scope of these Application Notes, consult [4] for further detail. This section only shows administration of sites and mailbox user for Open Trade Everywhere endpoints as follows:

- Administer Sites
- Administer User

### 7.1. Administer Sites

Below is the site example created during compliance test, Messaging number **5900** is used.

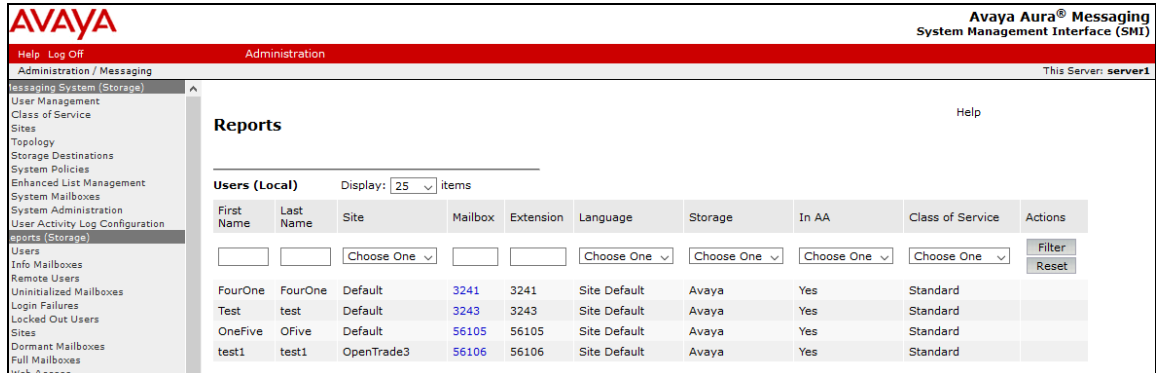
The screenshot displays the Avaya Aura® Messaging System Management Interface (SMI) for Administration. The left sidebar contains a navigation menu with categories like Messaging System (Storage), User Management, System Policies, System Mailboxes, System Administration, and Users. The main content area is titled 'Sites' and shows the configuration for a site named 'Default'. The 'Main Properties' section includes fields for Name (Default), ID (1), and Telephony Profile Name (default). Below this is a table for access numbers and languages. The 'Site External (Public Network) Dial Plan' section includes fields for Country code, International prefix, National prefix, International dialing, National destination code, and Dialing within national destination. The 'Site Internal Dial Plan' section includes fields for Short extension length and Short mailbox length.

Internal Messaging access number	External Messaging access number	Site Default Language	Additional Language	Additional Language
5900	5900	English (United States)	None	None

Short extension length	Short mailbox length
4	4

## 7.2. Administer User

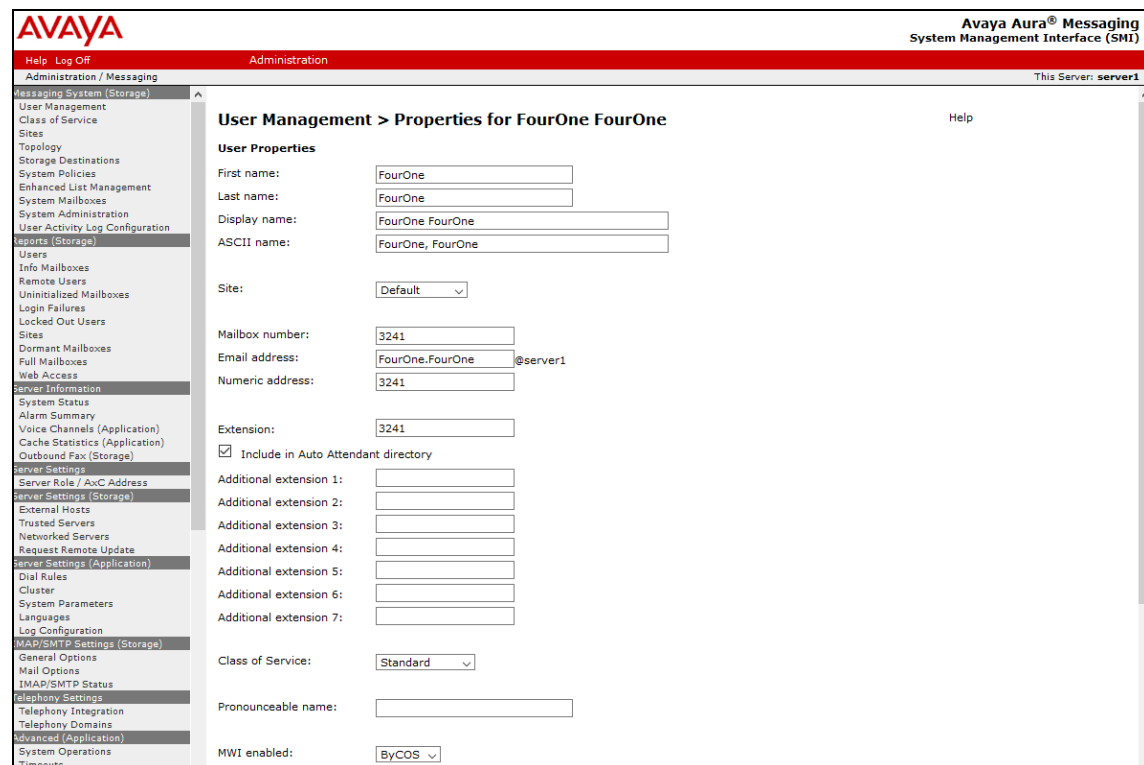
Below is the list of mailbox users. Two users for Open Trade Everywhere endpoints with **Mailbox** extensions 3241 and 3243 were created on Messaging.



The screenshot shows the Avaya Aura® Messaging System Management Interface (SMI) with the 'Administration' tab selected. The left sidebar contains a navigation menu with categories like 'Administration / Messaging', 'Messaging System (Storage)', 'User Management', 'Class of Service', 'Sites', 'Topology', 'Storage Destinations', 'System Policies', 'Enhanced List Management', 'System Mailboxes', 'System Administration', 'User Activity Log Configuration', 'Reports (Storage)', 'Users', 'Info Mailboxes', 'Remote Users', 'Uninitialized Mailboxes', 'Login Failures', 'Locked Out Users', 'Sites', 'Dormant Mailboxes', 'Full Mailboxes', and 'Web Access'. The main content area is titled 'Reports' and displays a table of 'Users (Local)'. The table has columns for First Name, Last Name, Site, Mailbox, Extension, Language, Storage, In AA, Class of Service, and Actions. There are filters for each column and a 'Filter' button. The table lists five users: FourOne, Test, OneFive, test1, and test1.

First Name	Last Name	Site	Mailbox	Extension	Language	Storage	In AA	Class of Service	Actions
FourOne	FourOne	Default	3241	3241	Site Default	Avaya	Yes	Standard	
Test	test	Default	3243	3243	Site Default	Avaya	Yes	Standard	
OneFive	Ofive	Default	56105	56105	Site Default	Avaya	Yes	Standard	
test1	test1	OpenTrade3	56106	56106	Site Default	Avaya	Yes	Standard	

The detail of mailbox user 3241 for Open Trade Everywhere is displayed in the **User Properties** screen below.



The screenshot shows the 'User Management > Properties for FourOne FourOne' screen in the Avaya Aura® Messaging System Management Interface (SMI). The left sidebar is the same as the previous screenshot. The main content area is titled 'User Properties' and contains various fields for user configuration. The fields are: First name (FourOne), Last name (FourOne), Display name (FourOne FourOne), ASCII name (FourOne, FourOne), Site (Default), Mailbox number (3241), Email address (FourOne.FourOne@server1), Numeric address (3241), Extension (3241), Include in Auto Attendant directory (checked), Additional extension 1 through 7 (all empty), Class of Service (Standard), Pronounceable name (empty), and MWI enabled (ByCOS).

**User Properties**

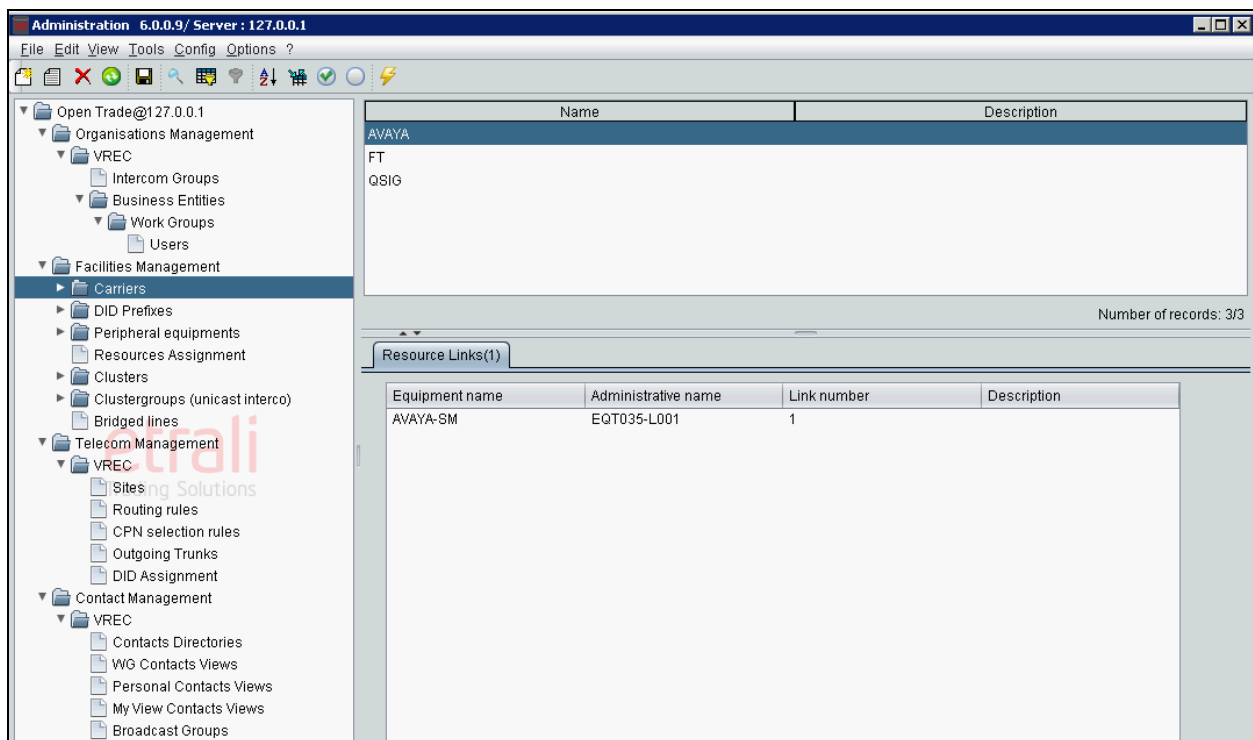
First name: FourOne  
Last name: FourOne  
Display name: FourOne FourOne  
ASCII name: FourOne, FourOne  
Site: Default  
Mailbox number: 3241  
Email address: FourOne.FourOne@server1  
Numeric address: 3241  
Extension: 3241  
☒ Include in Auto Attendant directory  
Additional extension 1:   
Additional extension 2:   
Additional extension 3:   
Additional extension 4:   
Additional extension 5:   
Additional extension 6:   
Additional extension 7:   
Class of Service: Standard  
Pronounceable name:   
MWI enabled: ByCOS

## 8. Configure IPC Open Trade

Configuration on Open Trade was performed by IPC Administrator personnel, this section only show the screenshot of configuration used during compliance test for information purpose.

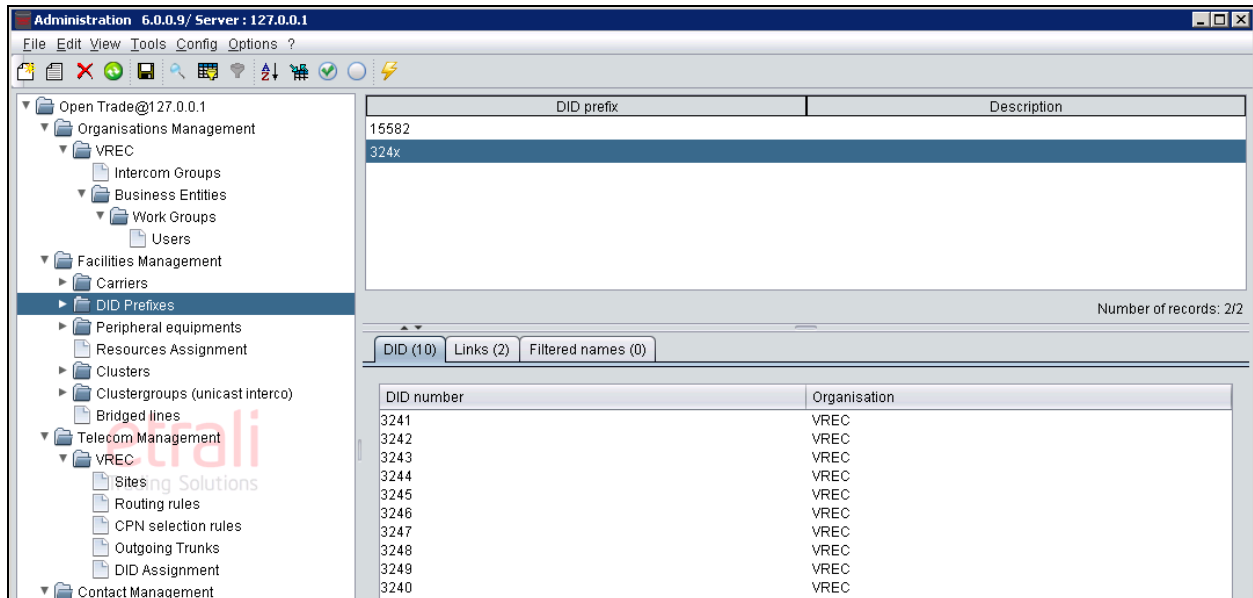
### 8.1. Administer Carrier

On Open Trade SIP Server, start the Open Trade Administrator program, and login with the appropriated credentials (not shown), In Open Trade Administrator, expand the **Facilities Management** icon and select the **Carriers** menu element. As displayed in the screenshot below **AVAYA-SM** carrier is created for Session Manager.



## 8.2. Administer DID Prefixes

Navigate to **Facilities Management** → **DID Prefixes** menu item. Verify **DID prefix** created for testing; in this case it is 324x.



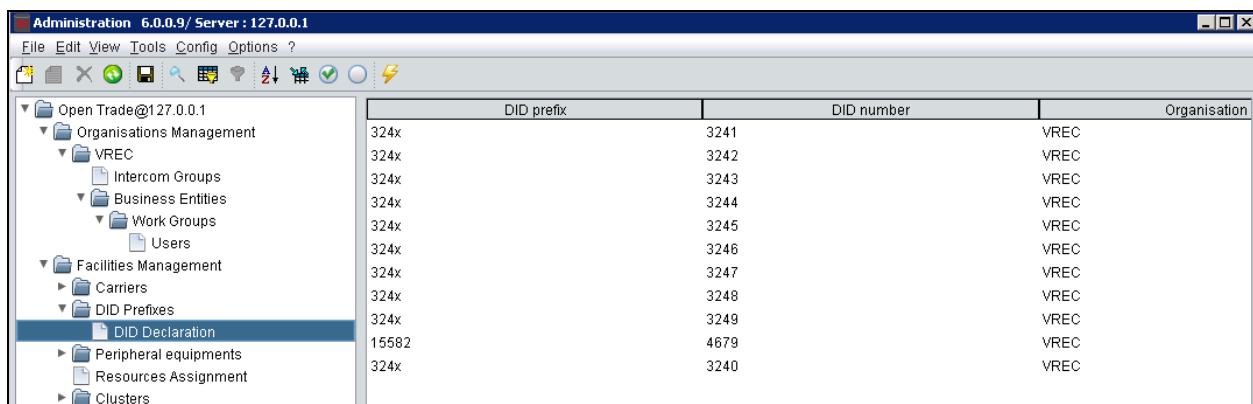
DID prefix	Description
15582	
324x	

Number of records: 2/2

DID number	Organisation
3241	VREC
3242	VREC
3243	VREC
3244	VREC
3245	VREC
3246	VREC
3247	VREC
3248	VREC
3249	VREC
3240	VREC

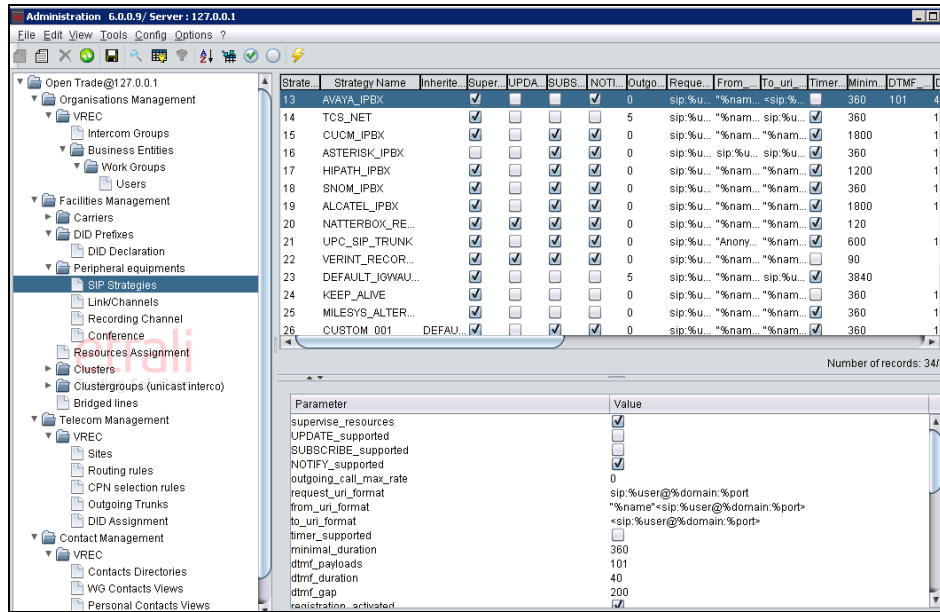
## 8.3. Administer DID Declaration

Expand the **DID Declaration** menu item, verify list of **DID Declaration** was created and displayed in screenshot below where **DID prefix** is a prefix created in **Section 8.2** and **DID number** is a range of number Open Trade will receive the call for, in this case it is from 3240 to 3249. **Organisation** is preconfigured and the details are not covered here.



DID prefix	DID number	Organisation
324x	3241	VREC
324x	3242	VREC
324x	3243	VREC
324x	3244	VREC
324x	3245	VREC
324x	3246	VREC
324x	3247	VREC
324x	3248	VREC
324x	3249	VREC
15582	4679	VREC
324x	3240	VREC

This section relates to how the SIP traffic to/from Avaya components will be routed. Navigate to **Facilities Management → Peripheral equipments → SIP Strategies**, make note of existing SIP strategy **AVAYA\_IPBX** which will be used in configuring Peripheral Equipment in **Section 8.5**.



## 8.5. Administer Peripheral Equipment

Click on **Peripheral equipments** menu item and double click on peripheral equipment item created for Avaya products during compliance test, in this case it is **EQT035, AVAYA-SM**.

Verify the following values in the **Modify Peripheral equipment** screen:

- **Manufacturer** –**AVAYA** was selected from the drop down list.
- **Product name** –**AVAYA AURA** was selected from the drop down list.
- **SIP strategy** –**AVAYA\_IPBX** was selected from the drop down list.
- **Equipment name** – enter a descriptive name, in this case **AVAYA-SM**.
- **IP Address / FQDN** – enter the IP address of Session Manager.

Leave other fields with default value.

The screenshot displays the 'Modify Peripheral equipment' dialog box. The background shows a tree view of the application's structure, with 'Peripheral equipments' selected. The dialog box contains the following fields and sections:

Logical name	Domain	Equipment name	Manufacturer	Product
EQT003		RedBox-CTI-16	REDBOX	CTI
EQT008		RedBox-FSP-17	REDBOX	FSP
EQT009		RedBox-CTI-17	REDBOX	CTI

**Modify Peripheral equipment**

Peripheral equipment

Logical name: EQT035

Equipment name: AVAYA-SM

SIP-X name: CLUSTER01-CABT001

SIP-X Logical name: CLUSTER01-CABT001

Manufacturer: AVAYA

Product name: AVAYA AURA

SIP strategy: AVAYA\_IPBX

Contact parameters

IP Address / FQDN
1 10.97.228
2
3
4

Resources

Telco Links: 1

Recording channels: 0

Interco capacity: 0

Conference bridges: 0

Description:

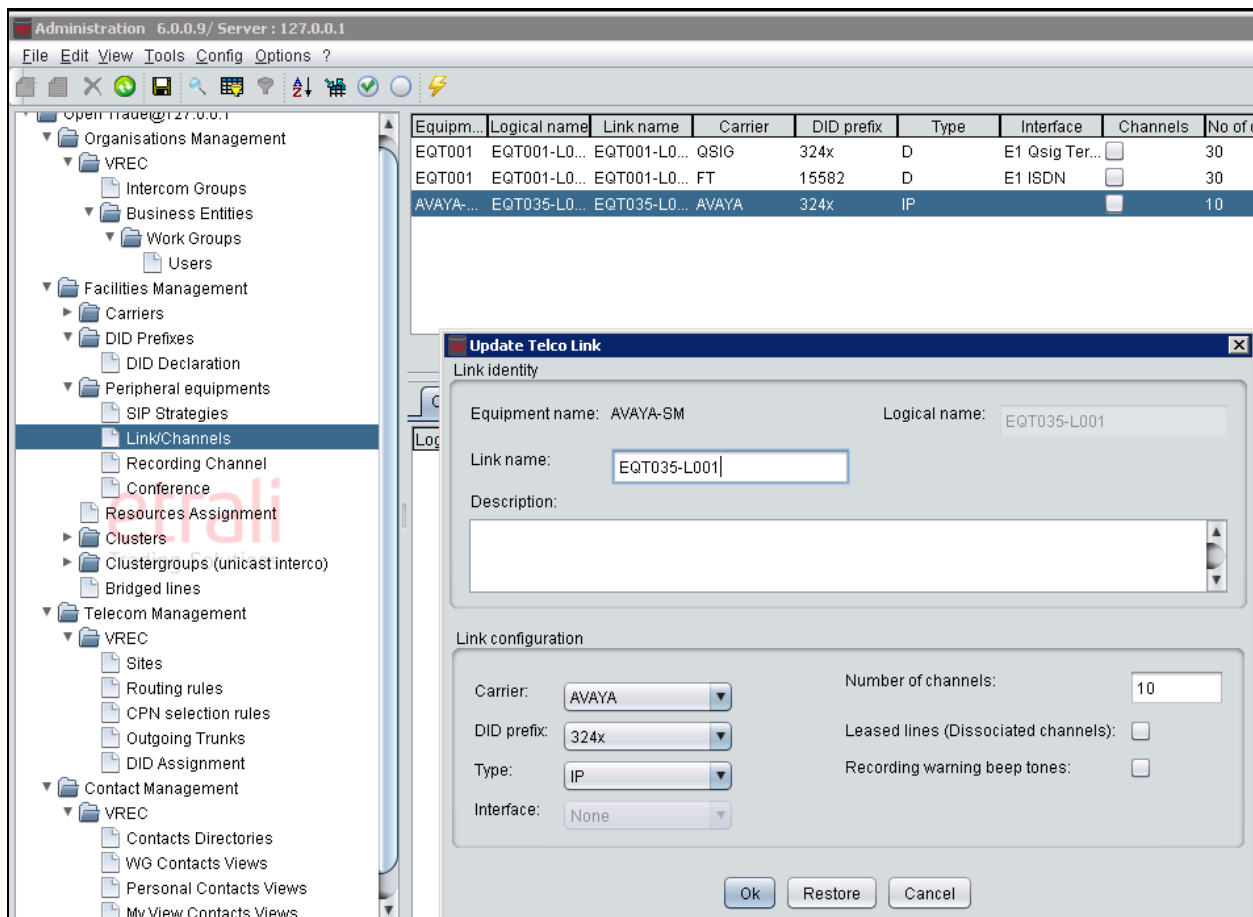
Advanced configuration >>

Ok Restore Cancel

## 8.6. Administer Link/Channels

Expand the **Link/Channels** menu item and double click equipment created in **Section 8.5**. Verify the following values in the **Update Telco Link** screen which appears and click **Ok**.

- **Link name** – an identifying name.
- **Carrier** –use AVAYA the carrier created in **Section 8.1**.
- **DID prefix** – use the DID prefix created in **Section 8.2**
- **Type** – use **IP** from the drop down list.
- **Number of channels** – use **10**.



## 8.7. Administer Sites

Expand the **Telecom Management** → **VREC** → **Sites**, add a new site if need, below screenshot is detail of site created during compliance test for Messaging where **Consultation address**: 5900 is Messaging number.

Administration 6.0.0.9/Server: 127.0.0.1

File Edit View Tools Config Options ?

Carriers  
Overflow prefixes rules  
DID Prefixes  
DID Declaration  
Peripheral equipments  
SIP Strategies  
Link/Channels  
Recording Channel  
Conference  
Resources Assignment  
Clusters  
SIP-X  
VPB resources  
Clustergroups (unicast interco)  
SIP-X Intercluster  
VPB resources  
Clustergroups interconnection  
Bridged lines  
Telecom Management  
VREC  
Sites  
Routing rules  
CPN selection rules  
Outgoing Trunks  
DID Assignment  
Contact Management  
VREC  
Contacts Directories  
WGO Contacts Views  
Personal Contacts Views  
My View Contacts Views  
Broadcast Groups

Console  
09/26/2016 10:39:57 - MDC 172.29.182.205.Pu

**Modify Site**

Site

Name: VREC Country: France Time Zone: Europe/Paris

Selected country

Country code: 33 NDD Prefix: 0 IDD Prefix: 00

Telecom parameters

Outgoing calls

Outgoing access code: 0 End of dialling time-out:

Anti tromboning ☒

Voice mail

Consultation address: 5900

Deposit address: 5900 ☒ Same as consultation

MWI CPN matching: Short

Recording

Recording SiteID: 69

Turrets screen saver

No activity time-out: 60 minutes

OK Restore Cancel

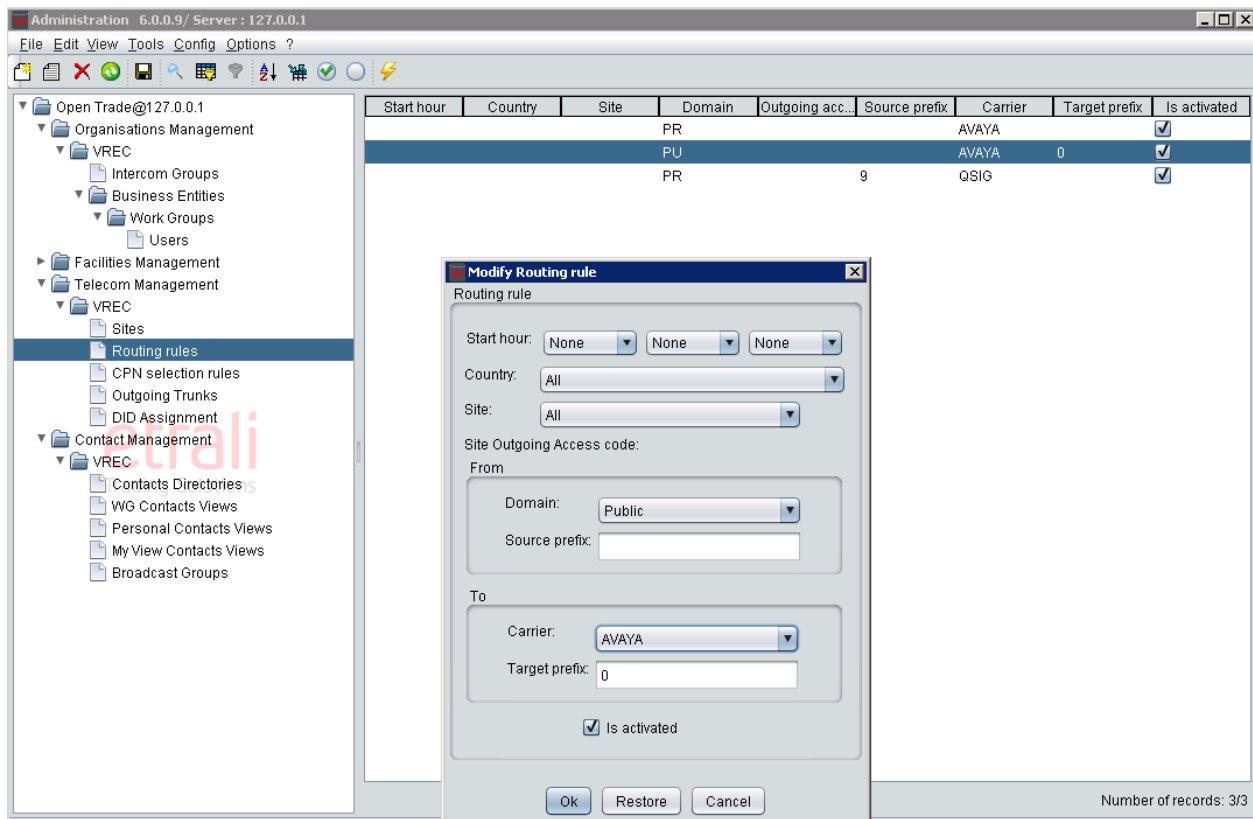


## 8.8. Administer Routing Rule

Expand the **Telecom Management** → **Routing rules**. Place the cursor in the blank section in the right hand pane and right-click to create a new routing rule to Session Manager.

Enter the following values in the **Modify Routing rule** screen which appears and click **Ok**.

- **Domain** – select **Public** from the drop down list.
- **Source prefix** –there is no access code use during compliance, leave field blank.
- **Carrier** – select the carrier configured in **Section 8.1**.
- **Target prefix** – use default number, in this case it is 0.



## 8.9. Administer Outgoing Trunk

Expand the **Telecom Management** → **VREC** → **Outgoing Trunks**. Verify the following values in the **Modify Outgoing trunk** screen.

- **Name** – Enter a suitable name for the outgoing trunk.
- **Carrier** – use the carrier created in **Section 8.1** from the drop down list.
- **Workgroups** – add the appropriate workgroup, this is preconfigured and the details are not covered in these Application Notes.
- **Resources** – use the peripheral equipment created in **Section 8.5**.

**Administration 6.0.0.9/Server: 127.0.0.1**

File Edit View Tools Config Options ?

Open Trade@127.0.0.1

- Organisations Management
  - VREC
    - Intercom Groups
    - Business Entities
      - Work Groups
      - Users
  - Facilities Management
  - Telecom Management
    - VREC
      - Sites
      - Routing rules
      - CPN selection rules
      - Outgoing Trunks**
      - DID Assignment
    - Contact Management
      - VREC
        - Contacts Directories
        - WG Contacts Views
        - Personal Contacts View
        - My View Contacts View
        - Broadcast Groups

**Modify Outgoing trunk**

Outgoing Trunk

Name:  Carrier:

Workgroups

Name	Supplementary name	BE
VREC-WG		VREC-BE
VREC-WG2		VREC-BE

Add Remove

Resources

Type	Equipment	Logical name	Administrative name
Link	AVAYA-SM	EQT035-L001	EQT035-L001

Add Remove

Overflow trunks

Site	Trunk	Activated
VREC	None	<input type="checkbox"/>

Number of records: 3/3

Administrative name  
035-L001

Console

08/05/2016 17:47:19 - Administration  
08/09/2016 11:41:57 - MDC 172.29.11

Ok Restore Cancel

## 8.10. Administer User Voice Mail

Expand OpenTrade@127.0.0.1 → Organisation Management → VREC → Business Entities → Work Groups → Users. List of existing Open Trade user is displayed (not shown). Double click on USER01, **Modify User** window is displayed with user details as shown below.

The 'Modify User' window displays the following information:

- First name:** USER01 first
- Last name:** USER01 last
- Display name:** USER01 disp
- Workgroup:** VREC-BEVREC-WG
- Accounting department:** None
- Supp. Display name:** USER01 supp

**Authentication**

- Login:** USER01
- Password:** [masked]
- Login without password:** ☐
- Active Directory:** None
- Local connection allowed:** ☒

**Description:**

[Empty text area]

**Tabs:** CPN numbers | Authorised functions | Turret setup options | Forwarding | Recording | SIP Account | Sites access

**CPN numbers table:**

CPN type	CPN to use
SHORT	3241
SPECIFIC	

**Buttons:** Ok, Restore, Cancel

In **Modify User** window, click **Forwarding** tab to configure call forwarding. Click **OK** to save changes and close the window.

**Administration 6.0.0.9 / Services**

**Modify User**

First name: USER01 first      Workgroup: VREC-BE/VREC-WO

Last name: USER01 last      Accounting department: None

Display name: USER01 disp      Supp. Display name: USER01 supp

**Authentication**

Login: USER01

Password: \*\*\*\*\*      Login without password: ☐

Active Directory: None      Local connection allowed: ☒

**Description:**

CPN numbers    Authorised functions    Turret setup options    **Forwarding**    Recording    SIP Account    Sites access

Name	Supp. Name	Address	Type of forwarding
		Voice mail	Immediate
		Voice mail	If no answer

Select target: External contact ▼    Add

Remove

If no answer timeout (sec): 5

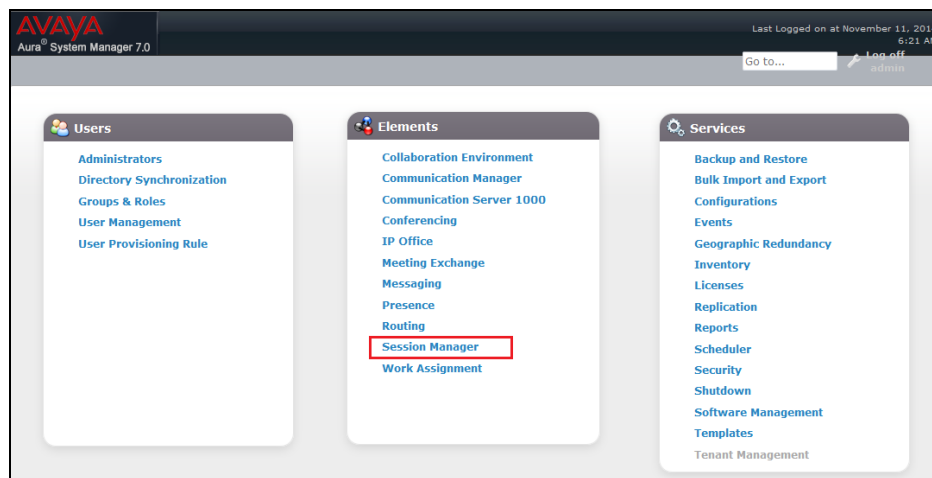
Ok    Restore    Cancel

## 9. Verification Steps

To verify successful configuration of Open Trade and Communication Manager a call is placed between an Avaya endpoint and Open Trade Everywhere endpoint with the call getting answered successfully and with two-way talk path.

To verify successful configuration of Open Trade and Messaging, on Open Trade Everywhere endpoint dial Messaging number 5900, user heard announcement to enter password for the mailbox and able to login and retrieve voice messages.

The following steps can also be taken to ensure the link is up between Open Trade and Session Manager. Log into System Manager as per **Section 6**. From the main menu select **Session Manager** as shown below.



Navigate to **System Status** → **SIP Entity Monitoring**. Click on the SIP Entity that is to be monitored (OpenTradeOther) from the list of SIP Entities at the bottom of the screen (not shown), screenshot below shows **Link Status** of Open Trade SIP Entity **OpenTradeOther** is **UP**.

Session Manager Name	SIP Entity Resolved IP	Port	Proto.	Deny	Conn. Status	Reason Code	Link Status
DevvmSM	10.29.182.204	5060	UDP	FALSE	UP	200 OK	UP

## 10. Conclusion

The interoperability of Open Trade from IPC with Avaya Aura® Communication Manager, Avaya Aura® Messaging and Avaya Aura® Session Manager was completed successfully for this specific setup. All issues and observations are outlined in **Section 2.2**.

## 11. 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® Session Manager, Release 7.0, Document Number 03-300509.*
- [2] *Administering Avaya Aura® Communication Manager Release 7.0.1 03-300509 Issue 2.1 August 2016*
- [3] *Avaya Aura® Communication Manager Feature Description and Implementation Release 7.0.1 555-245-205 Issue 2.1 September 2016*
- [4] *Administering Avaya Aura® Messaging Release 6.3.3 Issue 1 June 2015*

Product documentation for IPC Open Trade can be requested from IPC or may be downloaded from <http://www.ipc.com>.

- [5] *EN\_U006\_SmartTurretCompact-V5.3*

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