



Avaya Solution & Interoperability Test Lab

Application Notes for Riverbed UCExpert with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Riverbed UCExpert to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. Riverbed UCExpert is a centralized enterprise voice administration and provisioning solution.

In the compliance testing, Riverbed UCExpert used three interfaces from Avaya Aura® Application Enablement Services to support configuration management and analysis, automated proactive testing, and remote troubleshooting.

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

These Application Notes describe the configuration steps required for Riverbed UCExpert to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. Riverbed UCExpert is a centralized enterprise voice administration and provisioning solution.

In the compliance testing, Riverbed UCExpert used three interfaces from Avaya Aura® Application Enablement Services to support configuration management and analysis, automated proactive testing, and remote troubleshooting.

The System Management Services (SMS) interface was used by Riverbed UCExpert to support configuration management and analysis, and for remote troubleshooting. SMS syncs can be configured to run on an ad-hoc or regular basis, with sync data obtainable in CSV-format reports. The registered stations from the SMS sync data as well as the busyout and release station objects were also used for remote troubleshooting.

The Java Telephony Application Programming Interface (JTAPI) was used by Riverbed UCExpert to support automated proactive testing. Automated proactive testing can be configured to run on an ad-hoc or regular basis, with configuration for desired devices and call scenarios. The query, monitor, and call control services from JTAPI were used in the automated proactive testing.

The Device, Media, and Call Control (DMCC) XML interface was used by Riverbed UCExpert to support remote troubleshooting. UCExpert used the Multiple Registration method to register virtual IP softphones against the stations under test, for initiation of call control actions.

JTAPI is a client-side interface to the Telephony Services Application Programmer Interface (TSAPI) on Avaya Aura® Application Enablement Services. As such, these Application Notes will describe the required configurations for creation and connectivity to the TSAPI service.

2. General Test Approach and Test Results

The feature test cases were performed automatically and manually. The SMS sync and automated proactive testing were run automatically by scheduled tasks and manually on an ad-hoc basis. The remote troubleshooting was run manually.

The serviceability test cases were performed manually by disconnecting/reconnecting the Ethernet connection to the UCExpert server.

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

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on UCExpert:

- Use of SMS service to download and generate reports for specific managed objects including AAR analysis, ARS analysis, dial plan analysis, route pattern, trunk group, signaling group, VDN, vector, variables, VRT, station, registered IP station, COR, capacity, network region, network map, system parameters customer options, system parameters special applications, and system parameters features. Use of busyout and release station objects to support phone reset as part of remote troubleshooting.
- Use of JTAPI/TSAPI query, monitor, and call control services to support automated proactive testing for call scenarios involving inbound, outbound, answer, drop, and bypassing stations with call forwarding or do not disturb activated.
- Use of DMCC registration, monitoring, physical device, and call control services to support remote troubleshooting for call scenarios involving inbound, outbound, hold, resume, drop, MWI, transfer, and conference.

The serviceability testing focused on verifying the ability of UCExpert to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet connection to UCExpert.

2.2. Test Results

All test cases were executed, and the following were observations on UCExpert:

- The DMCC verify test obtains a list of registered IP stations via SMS in real-time, and performs a Multiple Registration against the first registered station from the received list. As such, the success of the test is dependent upon having proper SMS connectivity, and that the applicable station must use the default password, has IP SoftPhone enabled, and not configured in off-pbx station-mappings.
- Patch 1 of UCExpert removed the creation of the Agent report. After applying the patch, any existing report groups that included the Agent report needs to be manually modified to remove the inclusion.
- List VDN parameters Service Objective, Destination, Conference Controller, Conference Access Code, Conference Type, and Route-to Number may not appear on Communication Manager, but are passed via SMS to UCExpert and included in the Vector report.
- The reported values for Maximum Off-PBX Telephones – EC500/OPS/SCCAN on the Capacity report did not match the values on Communication Manager.
- After a network link is severed, any call in progress as part of the disrupted automated test will continue by design, and will need to be manually terminated since it is not possible to conclusively verify that an existing call is associated with an automated test after network recovery.

2.3. Support

Technical support on UCExpert can be obtained through the following:

- **Phone:** (888) 782-3822 from US and Canada, +1 (415) 247-7381 from elsewhere
- **Email:** support@riverbed.com
- **Web :** <http://support.riverbed.com>

3. Reference Configuration

The configuration used for the compliance testing is shown in **Figure 1**.

The detailed administration of basic connectivity between Communication Manager and Application Enablement Services is not the focus of these Application Notes and will not be described.

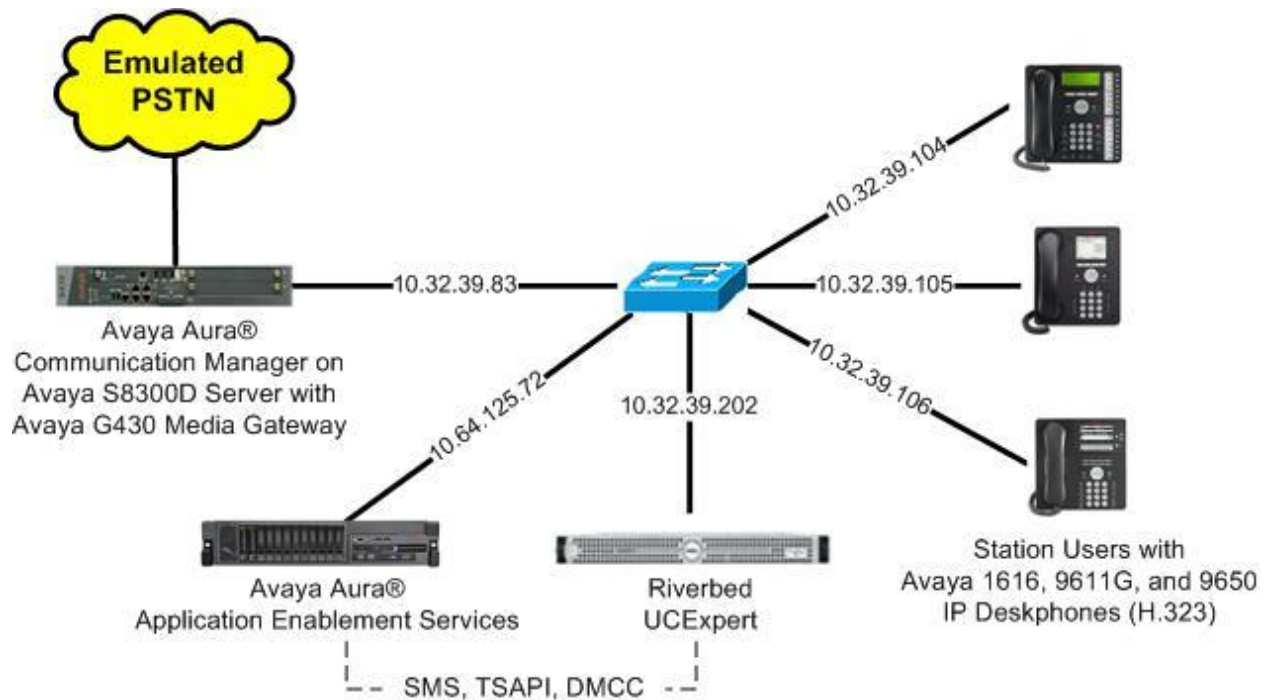


Figure 1: Compliance Testing Configuration

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 on Avaya S8300D Server with Avaya G450 Media Gateway	6.3.6 (R016x.03.0.124.0-21591)
Avaya Aura® Application Enablement Services	6.3.3 SP1 (6.3.3.1.10-0)
Avaya 1616 IP Deskphone (H.323)	1.350B
Avaya 9611G IP Deskphone (H.323)	6.4.0.14
Avaya 9650 IP Deskphone (H.323)	3.230A
Riverbed UCExpert on Linux Red Hat <ul style="list-style-type: none">• Avaya JTAPI Client• Avaya DMCC Java	5.0 Patch 1 (dev_build.5.0.0) 2.6.32-431.11.2.el6.x86_64 6.3.0.121 6.3.0.0.327

5. Configure Avaya Aura® Communication Manager

This section provides the procedures for configuring Communication Manager. The procedures include the following areas:

- Verify license
- Administer CTI link
- Administer stations
- Administer off PBX telephone
- Administer accounts

5.1. Verify License

Log in to the System Access Terminal to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the “display system-parameters customer-options” command to verify that the **Computer Telephony Adjunct Links** customer option is set to “y” on **Page 3**. If this option is not set to “y”, then contact the Avaya sales team or business partner for a proper license file.

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?	n	DCS (Basic)?	y	
ASAI Link Core Capabilities?	n	DCS Call Coverage?	y	
ASAI Link Plus Capabilities?	n	DCS with Rerouting?	y	

5.2. Administer CTI Link

Add a CTI link using the “add cti-link n” command, where “n” is an available CTI link number. Enter an available extension number in the **Extension** field. Note that the CTI link number and extension number may vary. Enter “ADJ-IP” in the **Type** field, and a descriptive name in the **Name** field. Default values may be used in the remaining fields.

add cti-link 1		Page	1 of	3
CTI LINK				
CTI Link:	1			
Extension:	40001			
Type:	ADJ-IP			
		COR: 1		
Name:	AES CTI Link			

5.3. Administer Stations

Use the “change station n” command, where “n” is the first station extension that will be used by UCExpert for remote troubleshooting. Enable **IP SoftPhone**, to allow UCExpert to register a virtual IP softphone against the station. Note the value of **Security Code**, which will be used by UCExpert for remote troubleshooting.

change station 45001		Page	1 of	4
STATION				
Extension: 45001	Lock Messages? n	BCC: 0		
Type: 9611	Security Code: 45001	TN: 1		
Port: S00000	Coverage Path 1: 1	COR: 1		
Name: G430 Station 1	Coverage Path 2:	COS: 1		
	Hunt-to Station:	Tests? y		
STATION OPTIONS				
Loss Group: 19	Time of Day Lock Table:			
	Personalized Ringing Pattern: 1			
	Message Lamp Ext: 45001			
Speakerphone: 2-way	Mute Button Enabled? y			
Display Language: English	Button Modules: 0			
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			

Repeat this section to administer all stations to be used in remote troubleshooting. In the compliance testing, three stations were administered as shown below.

list station 45001 count 3										
STATIONS										
Ext/ Hunt-to	Port/ Type	Name/ Surv GK NN	Move	Room/ Data Ext	Cv1/ Cv2	COR/ COS	Cable/ TN Jack			
45000	S00034	G430 Station 0			1	1				
	9650		no			1	1			
45001	S00003	G430 Station 1			1	1				
	1616		no			1	1			
45002	S00040	G430 Station 2			1	1				
	9611		no			1	1			

5.4. Administer Off PBX Telephone

Use the “list off-pbx-telephone station-mapping” command, and make certain that an entry does not exist for each station extension from **Section 5.3**, as stations with off PBX settings are not available for remote control.

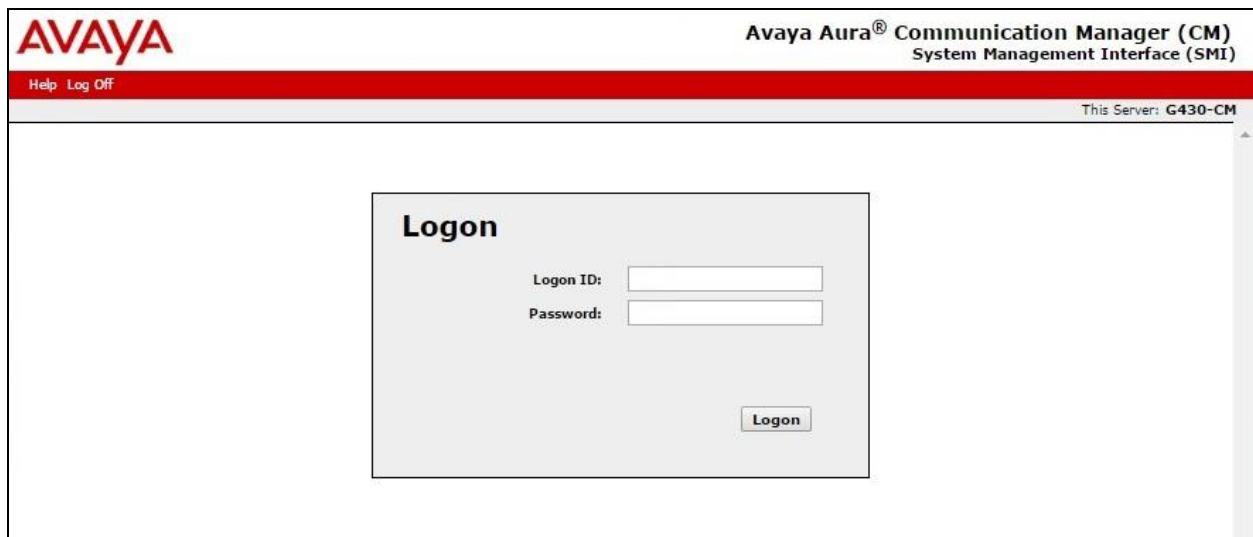
```
list off-pbx-telephone station-mapping
```

STATION TO OFF-PBX TELEPHONE MAPPING

Station Extension	Appl	CC	Phone Number	Config Set	Trunk Select	Mapping Mode	Calls Allowed
44001	OPS		44001	1 /	aar	both	all
46001	OPS		46001	1 /	aar	both	all
46002	OPS		46002	1 /	aar	both	all
46003	OPS		46003	1 /	aar	both	all
46004	OPS		46004	1 /	aar	both	all
46005	OPS		46005	1 /	aar	both	all
46009	OPS		46009	1 /	aar	both	all
46101	OPS		46101	1 /	aar	both	all
46102	OPS		46102	1 /	aar	both	all
46201	OPS		46201	1 /	aar	both	all
46202	OPS		46202	1 /	aar	both	all
614-5001	EC500		3035383578	1 /	aar	both	all
614-6003	OPS		6146003	1 /	aar	both	all

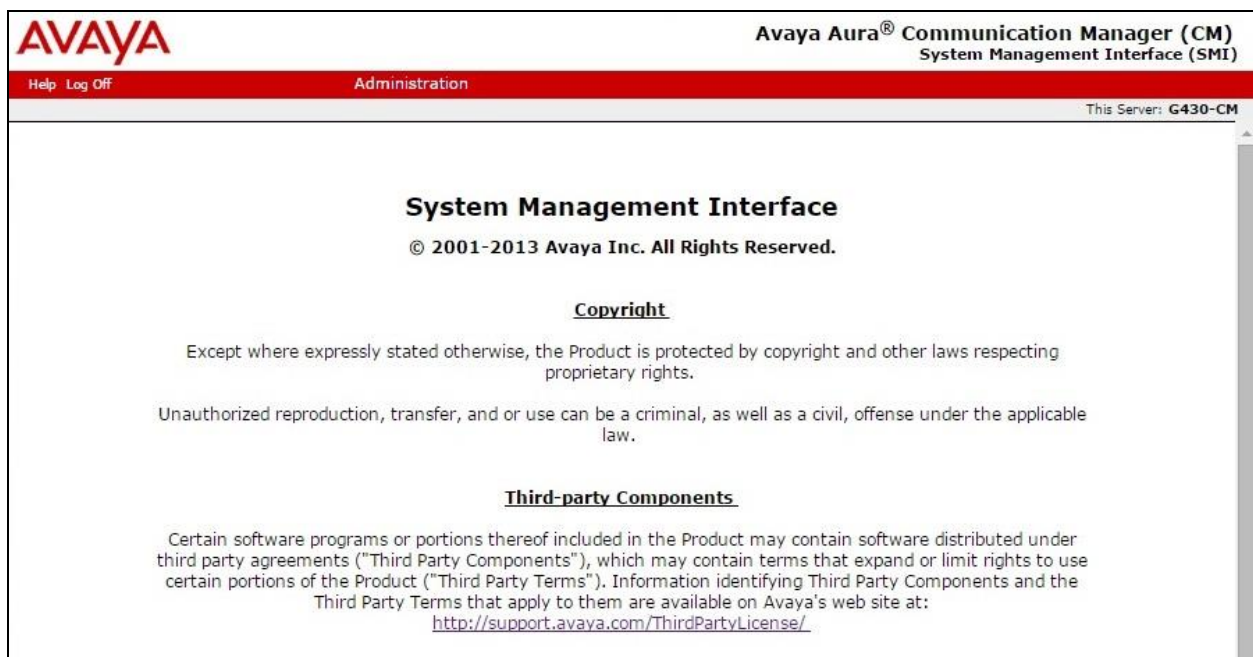
5.5. Administer Accounts

Access the web-based interface by using the URL “https://ip-address” in an Internet browser window, where “ip-address” is the IP address of Communication Manager. Log in using the appropriate credentials.



The screenshot shows the Avaya Aura Communication Manager (CM) System Management Interface (SMI) Logon screen. The header includes the Avaya logo, the title "Avaya Aura® Communication Manager (CM) System Management Interface (SMI)", and navigation links "Help" and "Log Off". The server name "This Server: G430-CM" is displayed in the top right. The main content area features a "Logon" box with fields for "Logon ID:" and "Password:", and a "Logon" button.

The **System Management Interface** screen is displayed next. Select **Administration → Server (Maintenance)** from the top menu.



The screenshot shows the Avaya Aura Communication Manager (CM) System Management Interface (SMI) System Management Interface screen. The header includes the Avaya logo, the title "Avaya Aura® Communication Manager (CM) System Management Interface (SMI)", and navigation links "Help" and "Log Off". The server name "This Server: G430-CM" is displayed in the top right. The main content area features the title "System Management Interface", the copyright notice "© 2001-2013 Avaya Inc. All Rights Reserved.", and sections for "Copyright" and "Third-party Components".

System Management Interface

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Copyright

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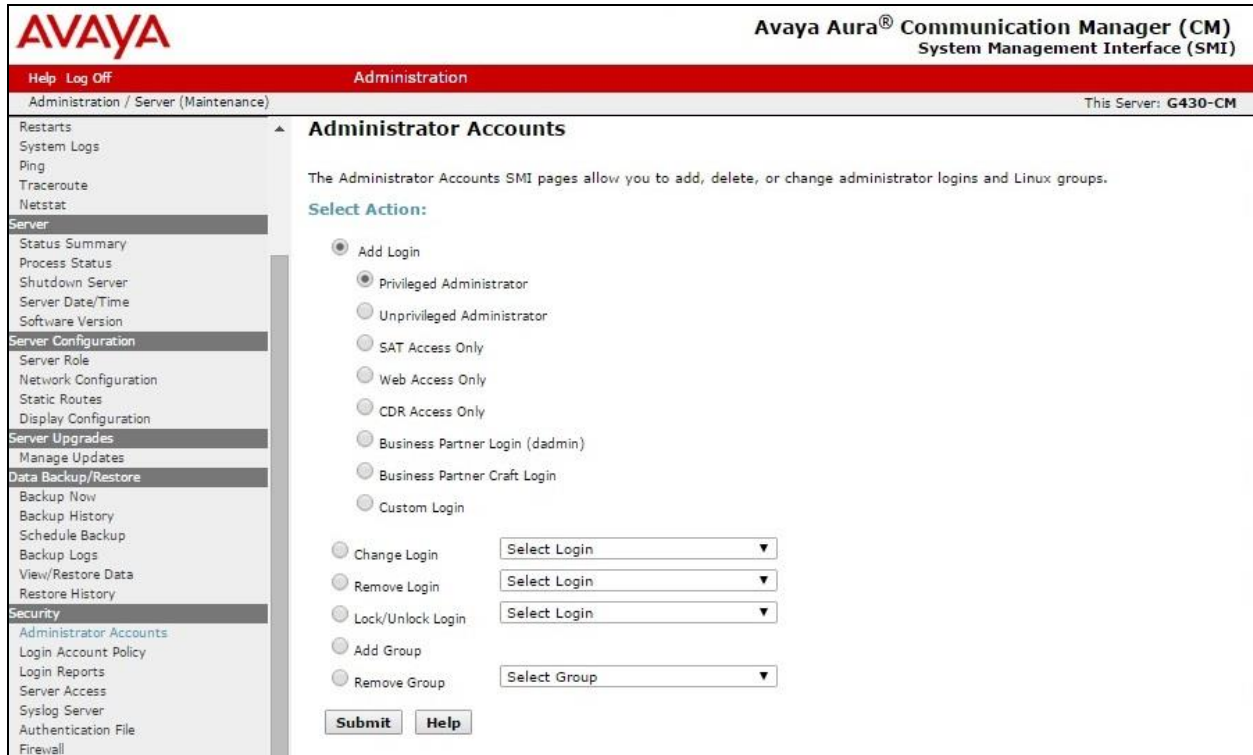
Third-party Components

Certain software programs or portions thereof included in the Product may contain software distributed under third party agreements ("Third Party Components"), which may contain terms that expand or limit rights to use certain portions of the Product ("Third Party Terms"). Information identifying Third Party Components and the Third Party Terms that apply to them are available on Avaya's web site at: <http://support.avaya.com/ThirdPartyLicense/>

The **Server Administration** screen is displayed. Scroll the left pane as necessary and select **Security → Administrator Accounts**.



The **Administrator Accounts** screen is displayed next. Select **Add Login** and **Privileged Administrator**, as shown below.



The **Administrator Accounts** screen is updated. Enter the desired credentials for **Login name**, **Enter password or key**, and **Re-enter password or key**. Retain the default values in the remaining fields.

Make a note of the account credentials, which will be used later to configure UCExpert.

The screenshot shows the Avaya Aura Communication Manager (CM) System Management Interface (SMI) Administration page. The left sidebar contains a navigation menu with categories: Restarts, System Logs, Ping, Traceroute, Netstat, Server, Server Configuration, Server Upgrades, Data Backup/Restore, and Security. The 'Administrator Accounts' link under the Security category is highlighted. The main content area is titled 'Administrator Accounts -- Add Login: Privileged Administrator'. It includes a description: 'This page allows you to add a login that is a member of the SUSERS group. This login has the greatest access privileges in the system next to root.' The form contains the following fields and options: Login name (ucxs8300d), Primary group (susers), Additional groups (profile) (prof18), Linux shell (/bin/bash), Home directory (/var/home/ucxs8300d), Lock this account (checkbox), SAT Limit (none), Date after which account is disabled-blank to ignore (YYYY-MM-DD), Select type of authentication (Password, ASG: enter key, ASG: Auto-generate key), Enter password or key (masked), Re-enter password or key (masked), and Force password/key change on next login (Yes/No radio buttons). At the bottom are Submit, Cancel, and Help buttons.

AVAYA Avaya Aura® Communication Manager (CM) System Management Interface (SMI)

Help Log Off Administration This Server: G430-CM

Administration / Server (Maintenance)

Administrator Accounts -- Add Login: Privileged Administrator

This page allows you to add a login that is a member of the **SUSERS** group. This login has the greatest access privileges in the system next to root.

Login name:

Primary group:

Additional groups (profile):

Linux shell:

Home directory:

Lock this account: ☐

SAT Limit:

Date after which account is disabled-blank to ignore (YYYY-MM-DD):

Select type of authentication:

- ☒ Password
- ☐ ASG: enter key
- ☐ ASG: Auto-generate key

Enter password or key:

Re-enter password or key:

Force password/key change on next login: ☐ Yes ☒ No

6. Configure Avaya Aura® Application Enablement Services

This section provides the procedures for configuring Application Enablement Services. The procedures include the following areas:

- Launch OAM interface
- Verify license
- Administer TSAPI link
- Administer H.323 gatekeeper
- Disable security database
- Restart services
- Obtain Tlink name
- Administer CT user
- Administer ports

6.1. Launch OAM Interface

Access the OAM web-based interface by using the URL “https://ip-address” in an Internet browser window, where “ip-address” is the IP address of the Application Enablement Services server.

The **Please login here** screen is displayed. Log in using the appropriate credentials.



The screenshot shows the Avaya Application Enablement Services Management Console login interface. At the top left is the Avaya logo. To its right, the text "Application Enablement Services" and "Management Console" is displayed. A red horizontal bar spans the width of the page, with a "Help" link on the right. In the center, there is a login box with the text "Please login here:" followed by a "Username" label and a text input field. Below the input field is a "Continue" button. At the bottom of the page, a red horizontal bar is present, and below it, the copyright notice "Copyright © 2009-2014 Avaya Inc. All Rights Reserved." is displayed.

The **Welcome to OAM** screen is displayed next.

The screenshot shows the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for the user. The left sidebar contains a navigation menu with options like AE Services, Communication Manager Interface, High Availability, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help. The main content area displays the "Welcome to OAM" message, explaining that the OAM Web provides tools for managing the AE Server and listing the administrative domains it covers: AE Services, Communication Manager Interface, High Availability, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help. It also notes that these domains can be served by one administrator for all domains or a separate administrator for each domain.

AVAYA Application Enablement Services Management Console

Welcome: User
Last login: Mon Nov 12 08:18:47 2014 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.3.1.10-0
Server Date and Time: Mon Nov 10 08:42:14 MST 2014
HA Status: Not Configured

Home | Help | Logout

Home

AE Services
Communication Manager Interface
High Availability
Licensing
Maintenance
Networking
Security
Status
User Management
Utilities
Help

Welcome to OAM

The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:

- AE Services - Use AE Services to manage all AE Services that you are licensed to use on the AE Server.
- Communication Manager Interface - Use Communication Manager Interface to manage switch connection and dialplan.
- High Availability - Use High Availability to manage AE Services HA.
- Licensing - Use Licensing to manage the license server.
- Maintenance - Use Maintenance to manage the routine maintenance tasks.
- Networking - Use Networking to manage the network interfaces and ports.
- Security - Use Security to manage Linux user accounts, certificate, host authentication and authorization, configure Linux-PAM (Pluggable Authentication Modules for Linux) and so on.
- Status - Use Status to obtain server status informations.
- User Management - Use User Management to manage AE Services users and AE Services user-related resources.
- Utilities - Use Utilities to carry out basic connectivity tests.
- Help - Use Help to obtain a few tips for using the OAM Help system

Depending on your business requirements, these administrative domains can be served by one administrator for all domains, or a separate administrator for each domain.

6.2. Verify License

Select **Licensing** → **WebLM Server Access** in the left pane, to display the **Web License Manager** pop-up screen (not shown), and log in using the appropriate credentials.

The screenshot shows the Avaya Application Enablement Services Management Console with the "Licensing" section selected in the left sidebar. The main content area displays the "Licensing" page, which provides instructions on how to set up and maintain the WebLM, import, set up, and maintain the license, and administer TSAPI Reserved Licenses or DMCC Reserved Licenses. It lists the required steps: WebLM Server Address, WebLM Server Access, and Reserved Licenses.

AVAYA Application Enablement Services Management Console

Welcome: User
Last login: Mon Nov 12 08:18:47 2014 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.3.1.10-0
Server Date and Time: Mon Nov 10 08:42:14 MST 2014
HA Status: Not Configured

Home | Help | Logout

Licensing

AE Services
Communication Manager Interface
Licensing
Maintenance
Networking
Security

Licensing

If you are setting up and maintaining the WebLM, you need to use the following:

- WebLM Server Address

If you are importing, setting up and maintaining the license, you need to use the following:


- WebLM Server Access

If you want to administer TSAPI Reserved Licenses or DMCC Reserved Licenses, you need to use the following:

- Reserved Licenses

The **Web License Manager** screen below is displayed. Select **Licensed products** → **APPL_ENAB** → **Application_Enablement** in the left pane, to display the **Application Enablement (CTI)** screen in the right pane.

Verify that there are sufficient licenses for **TSAPI Simultaneous Users** and **Device Media and Call Control**, as shown below. Note that the TSAPI license is used during automated testing, and that both the TSAPI and DMCC licenses are used during remote troubleshooting.


Web License Manager (WebLM v6.3)
Help | About | Change Password

WebLM Home
Install license
Licensed products
APPL_ENAB
▼ Application_Enablement
View license capacity
View peak usage
Uninstall license
Server properties
Manage users
Shortcuts
Help for Installed Product

Application Enablement (CTI) - Release: 6 - SID: 10503000
Standard License file

You are here: Licensed Products > Application_Enablement > View License Capacity
License installed on: May 11, 2012 7:07:47 PM -04:00

License File Host IDs: 00-16-3E-48-ED-82

Licensed Features

10 Items Show ALL

Feature (License Keyword)	Expiration date	Licensed capacity
CVLAN ASAI VALUE_AES_CVLAN_ASAI	permanent	16
Unified CC API Desktop Edition VALUE_AES_AEC_UNIFIED_CC_DESKTOP	permanent	10000
AES ADVANCED SMALL SWITCH VALUE_AES_AEC_SMALL_ADVANCED	permanent	16
CVLAN Proprietary Links VALUE_AES_PROPRIETARY_LINKS	permanent	16
Product Notes VALUE_NOTES	permanent	SmallServerTypes: s8300c;s8300d;icc;premio;tn8400;laptop;CtiS MediumServerTypes: ibmx306;ibmx306m;dell1950;xen;hs20;hs20_ LargeServerTypes: isp2100;ibmx305;dl380g3;dl385g1;dl385g2;u TrustedApplications: IPS_001, BasicUnrestrict DMCUnrestricted; 1XP_001, BasicUnrestricted DMCUnrestricted; 1XM_001, BasicUnrestricted DMCUnrestricted; PC_001, BasicUnrestricted, DMCUnrestricted; CIE_001, BasicUnrestricted DMCUnrestricted; OSPC_001, BasicUnrestrict DMCUnrestricted; VP_001, BasicUnrestricted, DMCUnrestricted; SAMETIME_001, VALUE_AES_UNIFIED_CC_DESKTOP,,, CCE_ AdvancedUnrestricted, DMCUnrestricted; CSI AdvancedUnrestricted, DMCUnrestricted; CSI AdvancedUnrestricted, DMCUnrestricted; AVA BasicUnrestricted, AdvancedUnrestricted, DMC CCT_ELITE_CALL_CTRL_001, BasicUnrestrict DMCUnrestricted, AgentEvents;
AES ADVANCED LARGE SWITCH VALUE_AES_AEC_LARGE_ADVANCED	permanent	16
TSAPI Simultaneous Users VALUE_AES_TSAPI_USERS	permanent	10000
DLG VALUE_AES_DLG	permanent	16
Device Media and Call Control VALUE_AES_DMCC_DMC	permanent	10000
AES ADVANCED MEDIUM SWITCH VALUE_AES_AEC_MEDIUM_ADVANCED	permanent	16

6.3. Administer TSAPI Link

Select **AE Services** → **TSAPI** → **TSAPI Links** from the left pane of the **Management Console**, to administer a TSAPI link. The **TSAPI Links** screen is displayed, as shown below. Click **Add Link**.

The screenshot shows the AVAYA Application Enablement Services Management Console. The top header includes the AVAYA logo, the title "Application Enablement Services Management Console", and a welcome message for the user. The left navigation pane shows "AE Services" expanded, with "TSAPI" selected, and "TSAPI Links" highlighted. The main content area displays the "TSAPI Links" screen, which includes a table with columns: Link, Switch Connection, Switch CTI Link #, ASAI Link Version, and Security. Below the table are buttons for "Add Link", "Edit Link", and "Delete Link".

The **Add TSAPI Links** screen is displayed next.

The **Link** field is only local to the Application Enablement Services server, and may be set to any available number. For **Switch Connection**, select the relevant switch connection from the drop-down list. In this case, the existing switch connection "S8300D" is selected. For **Switch CTI Link Number**, select the CTI link number from **Section 5.2**. Retain the default values in the remaining fields.

The screenshot shows the AVAYA Application Enablement Services Management Console with the "Add TSAPI Links" screen displayed. The left navigation pane shows "AE Services" expanded, with "TSAPI" selected, and "TSAPI Links" highlighted. The main content area displays the "Add TSAPI Links" form, which includes fields for Link, Switch Connection, Switch CTI Link Number, ASAI Link Version, and Security. The values entered are: Link: 2, Switch Connection: S8300D, Switch CTI Link Number: 1, ASAI Link Version: 6, and Security: Unencrypted. Below the form are buttons for "Apply Changes" and "Cancel Changes".

6.4. Administer H.323 Gatekeeper

Select **Communication Manager Interface** → **Switch Connections** from the left pane. The **Switch Connections** screen shows a listing of the existing switch connections.

Locate the connection name associated with the relevant Communication Manager, in this case “S8300D”, and select the corresponding radio button. Click **Edit H.323 Gatekeeper**.

The screenshot shows the Avaya Application Enablement Services Management Console. The left navigation pane is expanded to 'Communication Manager Interface' and 'Switch Connections'. The main content area displays a table of switch connections. The table has four columns: Connection Name, Processor Ethernet, Msg Period, and Number of Active Connections. There are two rows: S8300D and S8800. The S8300D row has a selected radio button. Below the table are buttons for 'Edit Connection', 'Edit PE/CLAN IPs', 'Edit H.323 Gatekeeper', 'Delete Connection', and 'Survivability Hierarchy'. The top right corner shows user information and system status.

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
<input checked="" type="radio"/> S8300D	No	30	1
<input type="radio"/> S8800	No	30	1

The **Edit H.323 Gatekeeper** screen is displayed. Enter the IP address of a C-LAN circuit pack or the Processor C-LAN on Communication Manager to use as the H.323 gatekeeper, in this case “10.32.39.83” as shown below. Click **Add Name or IP**.

The screenshot shows the 'Edit H.323 Gatekeeper - S8300D' screen. The left navigation pane is expanded to 'Communication Manager Interface' and 'Switch Connections'. The main content area has a text input field containing '10.32.39.83' and an 'Add Name or IP' button. Below the input field are 'Delete IP' and 'Back' buttons. The top right corner shows user information and system status.

6.5. Disable Security Database

Select **Security** → **Security Database** → **Control** from the left pane, to display the **SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services** screen in the right pane. Uncheck both fields below.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a user status block showing "Welcome: User", "Last login: Mon Nov 12 08:18:47 2014 from 10.32.39.20", "Number of prior failed login attempts: 0", "HostName/IP: aes_125_72/10.64.125.72", "Server Offer Type: VIRTUAL_APPLIANCE_ON_SP", "SW Version: 6.3.3.1.10-0", "Server Date and Time: Mon Nov 10 08:42:14 MST 2014", and "HA Status: Not Configured".

The main navigation bar is red and contains "Security | Security Database | Control" on the left and "Home | Help | Logout" on the right. The left sidebar menu lists various services: AE Services, Communication Manager Interface, High Availability, Licensing, Maintenance, Networking, Security (expanded), Account Management, Audit, Certificate Management, Enterprise Directory, Host AA, PAM, Security Database (expanded), and Control (selected).

The main content area is titled "SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services". It contains two unchecked checkboxes: "Enable SDB for DMCC Service" and "Enable SDB for TSAPI Service, JTAPI and Telephony Web Services". Below these checkboxes is an "Apply Changes" button.

6.6. Restart Services

Select **Maintenance** → **Service Controller** from the left pane, to display the **Service Controller** screen in the right pane. Check **DMCC Service** and **TSAPI Service**, and click **Restart Service**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for the user. The left navigation pane shows a tree structure with "Maintenance" selected, and "Service Controller" highlighted. The main content area shows the "Service Controller" page with a table of services and their status. The "DMCC Service" and "TSAPI Service" are checked, and the "Restart Service" button is visible.

Welcome: User
Last login: Mon Nov 12 08:18:47 2014 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.3.1.10-0
Server Date and Time: Mon Nov 10 08:42:14 MST 2014
HA Status: Not Configured

Maintenance | Service Controller Home | Help | Logout

Service Controller

Service	Controller Status
<input type="checkbox"/> ASAI Link Manager	Running
<input checked="" type="checkbox"/> DMCC Service	Running
<input type="checkbox"/> CVLAN Service	Running
<input type="checkbox"/> DLG Service	Running
<input type="checkbox"/> Transport Layer Service	Running
<input checked="" type="checkbox"/> TSAPI Service	Running

For status on actual services, please use [Status and Control](#)

6.7. Obtain Tlink Name

Select **Security** → **Security Database** → **Tlinks** from the left pane. The **Tlinks** screen shows a listing of the Tlink names. A new Tlink name is automatically generated for the TSAPI service. Locate the Tlink name associated with the relevant switch connection, which would use the name of the switch connection as part of the Tlink name. Make a note of the associated Tlink name, to be used later for configuring UCExpert.

In this case, the associated Tlink name is “AVAYA#S8300D#CSTA#AES_125_72”. Note the use of the switch connection “S8300D” from **Section 6.3** as part of the Tlink name.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for the user. The left sidebar contains a navigation menu with categories like AE Services, Communication Manager Interface, High Availability, Licensing, Maintenance, Networking, and Security. The Security Database section is expanded, showing sub-items like Control, CTI Users, Devices, Device Groups, and Tlinks. The main content area, titled "Tlinks", lists three Tlink names: AVAYA#S8300D#CSTA#AES_125_72 (selected), AVAYA#S8800#CSTA#AES_125_72, and AVAYA#S8800#CSTA-S#AES_125_72. A "Delete Tlink" button is visible below the list.

AVAYA Application Enablement Services Management Console

Welcome: User
Last login: Mon Nov 12 08:18:47 2014 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.3.1.10-0
Server Date and Time: Mon Nov 10 08:42:14 MST 2014
HA Status: Not Configured

Security | Security Database | Tlinks Home | Help | Logout

Tlinks

Tlink Name

- ☒ AVAYA#S8300D#CSTA#AES_125_72
- ☐ AVAYA#S8800#CSTA#AES_125_72
- ☐ AVAYA#S8800#CSTA-S#AES_125_72

Delete Tlink

6.8. Administer CT User

Select **User Management** → **User Admin** → **Add User** from the left pane, to display the **Add User** screen in the right pane.

Enter desired values for **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password**. For **CT User**, select “Yes” from the drop-down list. Retain the default value in the remaining fields.

AVAYA **Application Enablement Services**
Management Console

Welcome: User
Last login: Mon Nov 12 08:18:47 2014 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.3.1.10-0
Server Date and Time: Mon Nov 10 08:42:14 MST 2014
HA Status: Not Configured

User Management | User Admin | Add UserHome | Help | Logout

▶ AE Services

▶ Communication Manager Interface

High Availability

▶ Licensing

▶ Maintenance

▶ Networking

▶ Security

▶ Status

▼ User Management

▶ Service Admin

▼ User Admin

▪ Add User

▪ Change User Password

▪ List All Users

▪ Modify Default Users

▪ Search Users

▶ Utilities

▶ Help

Add User

Fields marked with * can not be empty.

* User Iducx

* Common Nameucx

* Surnameucx

* User Password*****

* Confirm Password*****

Admin Note

Avaya RoleNone

Business Category

Car License

CM Home

Css Home

CT UserYes

Department Number

Display Name

Employee Number

Employee Type

Enterprise Handle

Given Name

6.9. Administer Ports

Select **Networking** → **Ports** from the left pane, to display the **Ports** screen in the right pane.

In the **DMCC Server Ports** section, select the radio button for **Encrypted Port** under the **Enabled** column, as shown below. Retain the default values in the remaining fields.

AVAYA

Application Enablement Services
Management Console

Welcome: User
Last login: Mon Nov 12 08:18:47 2014 from 10.32.39.20
Number of prior failed login attempts: 0
HostName/IP: aes_125_72/10.64.125.72
Server Offer Type: VIRTUAL_APPLIANCE_ON_SP
SW Version: 6.3.3.1.10-0
Server Date and Time: Mon Nov 10 08:42:14 MST 2014
HA Status: Not Configured

Networking | Ports

Home | Help | Logout

▶ AE Services

▶ Communication Manager Interface

▶ High Availability

▶ Licensing

▶ Maintenance

▼ Networking

▶ AE Service IP (Local IP)

▶ Network Configure

▶ Ports

▶ TCP Settings

▶ Security

▶ Status

▶ User Management

▶ Utilities

▶ Help

Ports

CVLAN Ports

Unencrypted TCP Port9999

Enabled Disabled

Encrypted TCP Port9998

DLG PortTCP Port5678

TSAPI Ports

TSAPI Service Port450

Local TLINK Ports

TCP Port Min1024

TCP Port Max1039

Unencrypted TLINK Ports

TCP Port Min1050

TCP Port Max1065

Encrypted TLINK Ports

TCP Port Min1066

TCP Port Max1081

DMCC Server Ports

Unencrypted Port4721

Enabled Disabled

Encrypted Port4722

TR/87 Port4723

7. Configure Riverbed UCExpert

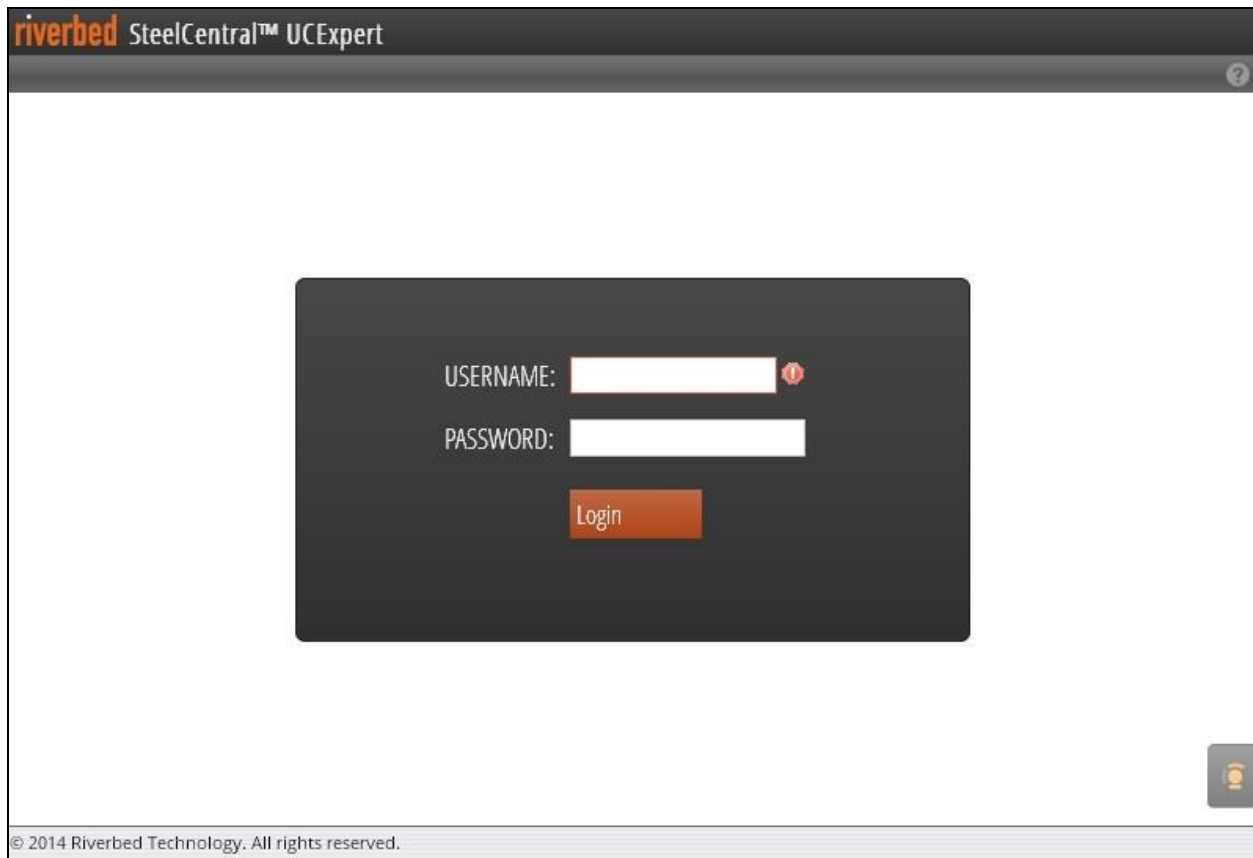
This section provides the procedures for configuring UCExpert. The procedures include the following areas:

- Launch web interface
- Administer systems
- Administer tasks

7.1. Launch Web Interface

Access the web-based interface by using the URL “https://ip-address:8443/ucxgui” in an Internet browser window, where “ip-address” is the IP address of the UCExpert server.

The screen below is displayed. Log in using the appropriate credentials.



The screenshot shows a web browser window with the title bar "riverbed SteelCentral™ UCExpert". The main content area displays a login form with the following elements:

- A dark gray rectangular box containing the login fields.
- Inside the box, the text "USERNAME:" is followed by a white input field with a red error icon to its right.
- Below that, the text "PASSWORD:" is followed by a white input field.
- At the bottom of the box is an orange "Login" button.
- A small help icon (?) is visible in the top right corner of the browser window.
- A footer bar at the bottom of the page contains the text "© 2014 Riverbed Technology. All rights reserved." and a small icon in the bottom right corner.

7.2. Administer Systems

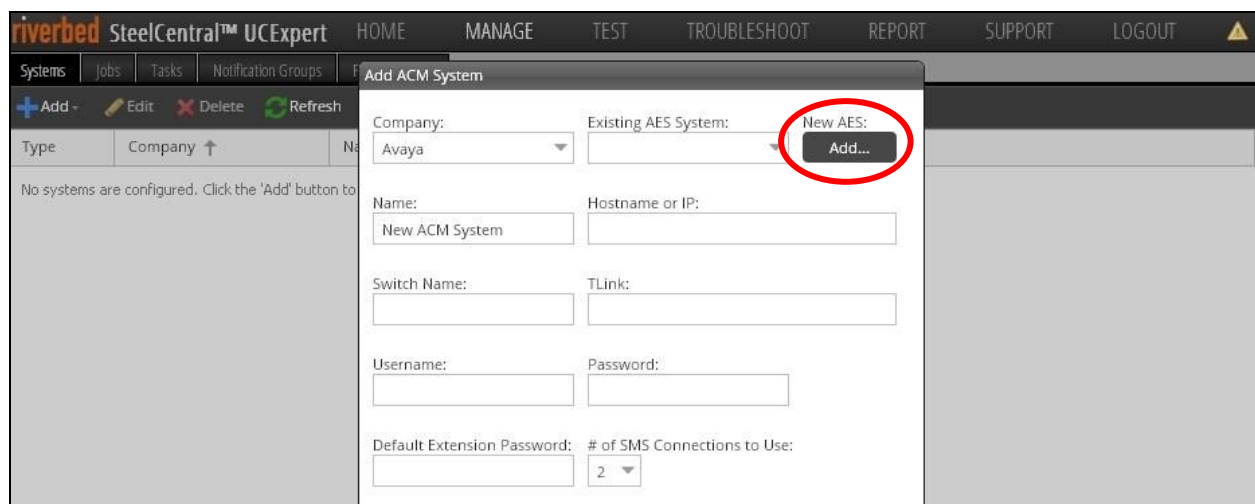
The **Welcome to UCExpert!** screen below is displayed. Click on the arrow for **Step 1**.



The screen below is displayed next. Click on **Add**, and select **Avaya ACM** from the subsequent drop-down list (not shown).



The screen is updated with an **Add ACM System** pop-up box. Enter a desired name for **Company**, and click on the **Add** icon under **New AES**.



The screen is updated with an **Add AES System** pop-up box. Enter the following values for the specified fields, and retain the default values in the remaining fields.

- **Name:** Enter a desired name, in this case “DevConnect AES”.
- **Hostname or IP:** The IP address of Application Enablement Services.
- **DMCC Username:** The CT user credentials from **Section 6.8**.
- **DMCC Password:** The CT user credentials from **Section 6.8**.
- **TSAPI Username:** The CT user credentials from **Section 6.8**.
- **TSAPI Password:** The CT user credentials from **Section 6.8**.
- **SMS Secure:** Check this field.

The screenshot shows the 'Add AES System' pop-up box in the Riverbed SteelCentral UCExpert interface. The form is titled 'Add AES System' and contains the following fields:

- Company:** Avaya (dropdown)
- Version:** 6.3 (dropdown)
- Name:** DevConnect AES (text input)
- Hostname or IP:** 10.64.125.72 (text input)
- DMCC Section:**
 - Username:** ucx (text input)
 - Password:** (masked with asterisks)
 - Port:** 4721 (text input)
 - Secure:** ☐
 - Session Duration Timer:** 20 (text input)
 - Session Cleanup Timer:** 40 (text input)
 - Allowed Licenses:** 10 (text input)
- TSAPI Section:**
 - Username:** ucx (text input)
 - Password:** (masked with asterisks)
 - Allowed Licenses:** 10 (text input)
- SMS Section:**
 - Port:** 443 (text input)
 - Secure:** ☒

At the bottom right of the form are 'Save' and 'Cancel' buttons. The background shows the main interface with a 'Systems' tab and a message: 'No systems are configured. Click the 'Add' button.'

The screen is updated with the **Add ACM System** pop-up box again. Enter the following values for the specified fields, and retain the default values in the remaining fields.

- **Hostname or IP:** The IP address of the H.323 gatekeeper from **Section 6.4**.
- **Switch Name:** The switch connection name from **Section 6.3**.
- **TLink:** The Tlink name from **Section 6.7**.
- **Username:** The account credentials from **Section 5.5**.
- **Password:** The account credentials from **Section 5.5**.

For **Default Extension Password**, enter the password to be used by the IP softphones for Multiple Registration against the stations for remote troubleshooting.

The screenshot shows the 'Add ACM System' pop-up form within the SteelCentral UCExpert application. The form is titled 'Add ACM System' and contains the following fields and controls:

- Company:** A dropdown menu with 'Avaya' selected.
- Existing AES System:** A dropdown menu with 'DevConnect AES' selected.
- New AES:** A button labeled 'Add...'.
- Name:** A text input field containing 'New ACM System'.
- Hostname or IP:** A text input field containing '10.32.39.83'.
- Switch Name:** A text input field containing 'S8300D'.
- TLink:** A text input field containing 'AVAYA#S8300D#CSTA#AES_125_72'.
- Username:** A text input field containing 'ucxs8300d'.
- Password:** A text input field with masked characters (dots).
- Default Extension Password:** A text input field with masked characters (dots).
- # of SMS Connections to Use:** A dropdown menu with '2' selected.
- Detailed:** A checkbox that is checked.
- Include Softphones:** A checkbox that is checked.
- Buttons:** 'Save', 'Cancel', and 'Verify' buttons at the bottom right.

The background of the application shows a navigation bar with 'HOME', 'MANAGE', 'TEST', 'TROUBLESHOOT', 'REPORT', 'SUPPORT', and 'LOGOUT'. Below the navigation bar, there are tabs for 'Systems', 'Jobs', 'Tasks', and 'Notification Groups'. The 'Systems' tab is active, and a table with columns 'Type' and 'Company' is visible, showing 'No systems are configured. Click the 'Add' button to...'. The 'Add' button is highlighted in blue.

7.3. Administer Tasks

Select **MANAGE** → **Tasks** from the top menu. Follow reference [4] to administer desired tasks for SMS sync and automated proactive testing.

The screenshot below shows the two tasks that were configured in the compliance testing, one for SMS sync and one for automated proactive testing.

The screenshot shows the Riverbed SteelCentral UCExpert interface. The top navigation bar includes links for HOME, MANAGE, TEST, TROUBLESHOOT, REPORT, SUPPORT, and LOGOUT. Below this, a secondary bar shows 'Systems', 'Jobs', 'Tasks', 'Notification Groups', and 'Phone Groups'. The 'Tasks' section is active, showing a list of tasks for the 'Avaya' system. The tasks are 'SMS Sync' and 'Auto Test 1', both marked as 'Completed'. The 'Task Summary' table lists the following data:

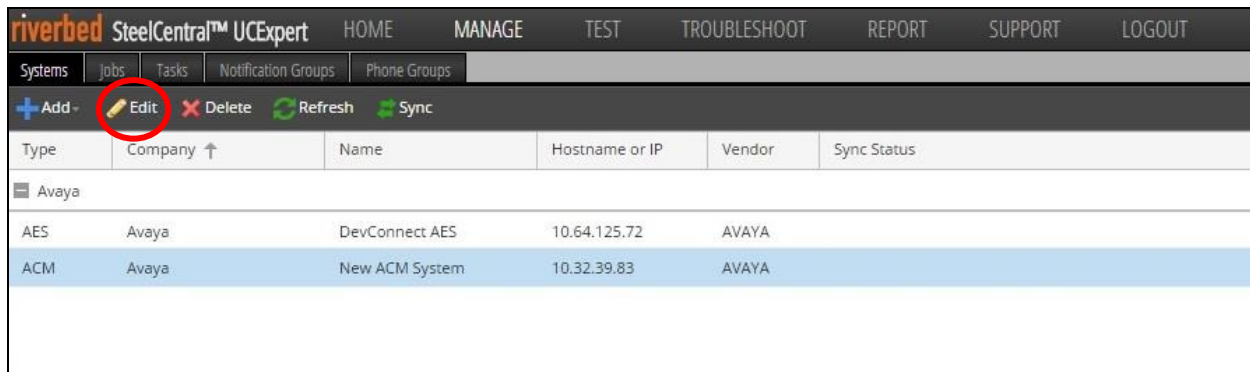
Name	Enabled	State	Start At	Last Run Time	Stop By	Next Run Time	...
SMS Sync	Yes	Completed	6-17-14 11:30 AM	11-13-14 11:30 ...		11-18-14 11:30
Auto Test 1	Yes	Completed	6-20-14 12:00 PM	11-13-14 12:00 ...		11-18-14 12:00

Below the table is a 'Task Job Details' section with a 'Cancel' button and a 'View Results' button. The details table has columns for 'Syst...', 'Type', 'Name', 'Task', 'State', 'Start Time', 'Duration', and 'Result'. A message states: 'There are no running jobs to display'.

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Communication Manager, Application Enablement Services, and UCExpert.

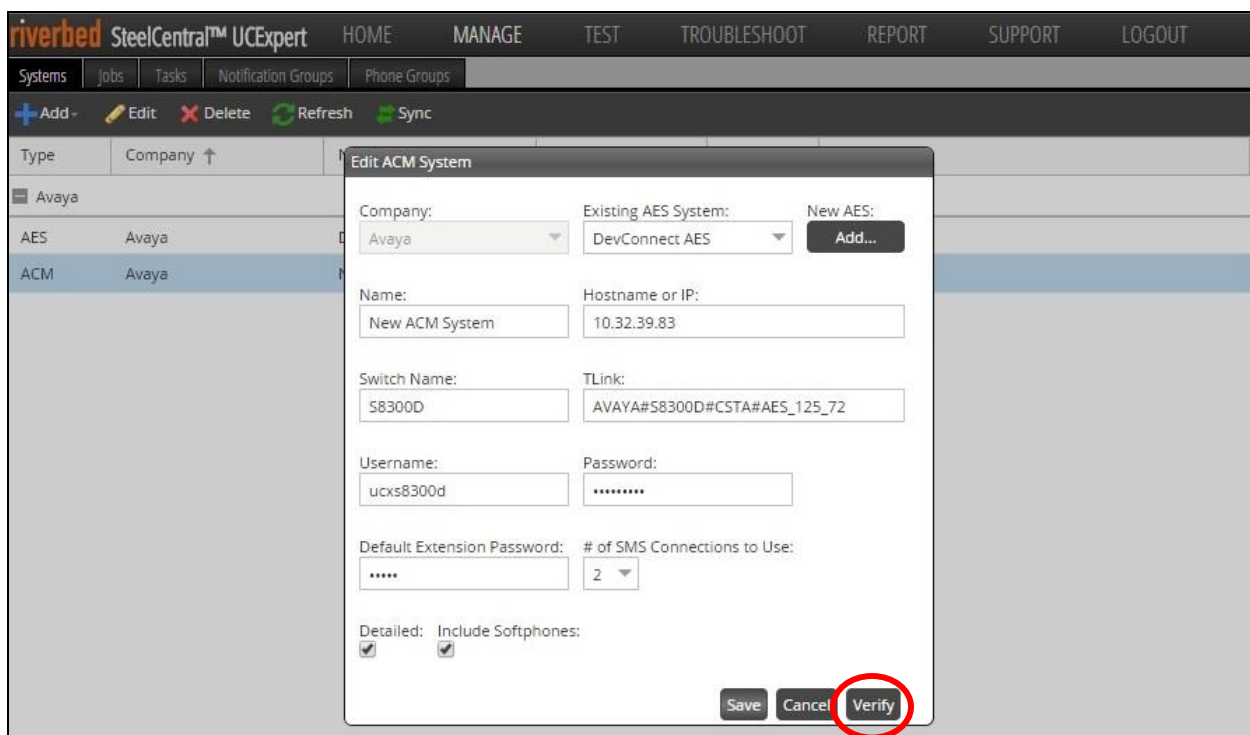
Follow the procedures in **Section 7.1** to launch the UCExpert web interface. Select **MANAGE** → **Systems** to display a list of configured systems, as shown below. Select the entry corresponding to the **ACM** system from **Section 7.2**, and click **Edit**.



The screenshot shows the UCExpert web interface with the 'MANAGE' tab selected. The 'Systems' sub-tab is active, displaying a table of configured systems. The 'Edit' button, represented by a pencil icon, is circled in red. The table lists two systems: 'AES' and 'ACM', both from the 'Avaya' company. The 'ACM' system is highlighted in blue.

Type	Company	Name	Hostname or IP	Vendor	Sync Status
AES	Avaya	DevConnect AES	10.64.125.72	AVAYA	
ACM	Avaya	New ACM System	10.32.39.83	AVAYA	

The screen is updated with an **Edit ACM System** pop-up box, as shown below. Click **Verify** to test all interface connections.



The screenshot shows the 'Edit ACM System' pop-up box. The 'Company' is set to 'Avaya'. The 'Existing AES System' is 'DevConnect AES'. The 'Name' is 'New ACM System' and the 'Hostname or IP' is '10.32.39.83'. The 'Switch Name' is 'S8300D' and the 'TLink' is 'AVAYA#S8300D#CSTA#AES_125_72'. The 'Username' is 'ucxs8300d' and the 'Password' is masked with asterisks. The 'Default Extension Password' is masked with asterisks and the '# of SMS Connections to Use' is set to '2'. The 'Detailed' checkbox is checked. The 'Include Softphones' checkbox is also checked. The 'Verify' button is circled in red.

Edit ACM System

Company: Avaya Existing AES System: DevConnect AES New AES: Add...

Name: New ACM System Hostname or IP: 10.32.39.83

Switch Name: S8300D TLink: AVAYA#S8300D#CSTA#AES_125_72

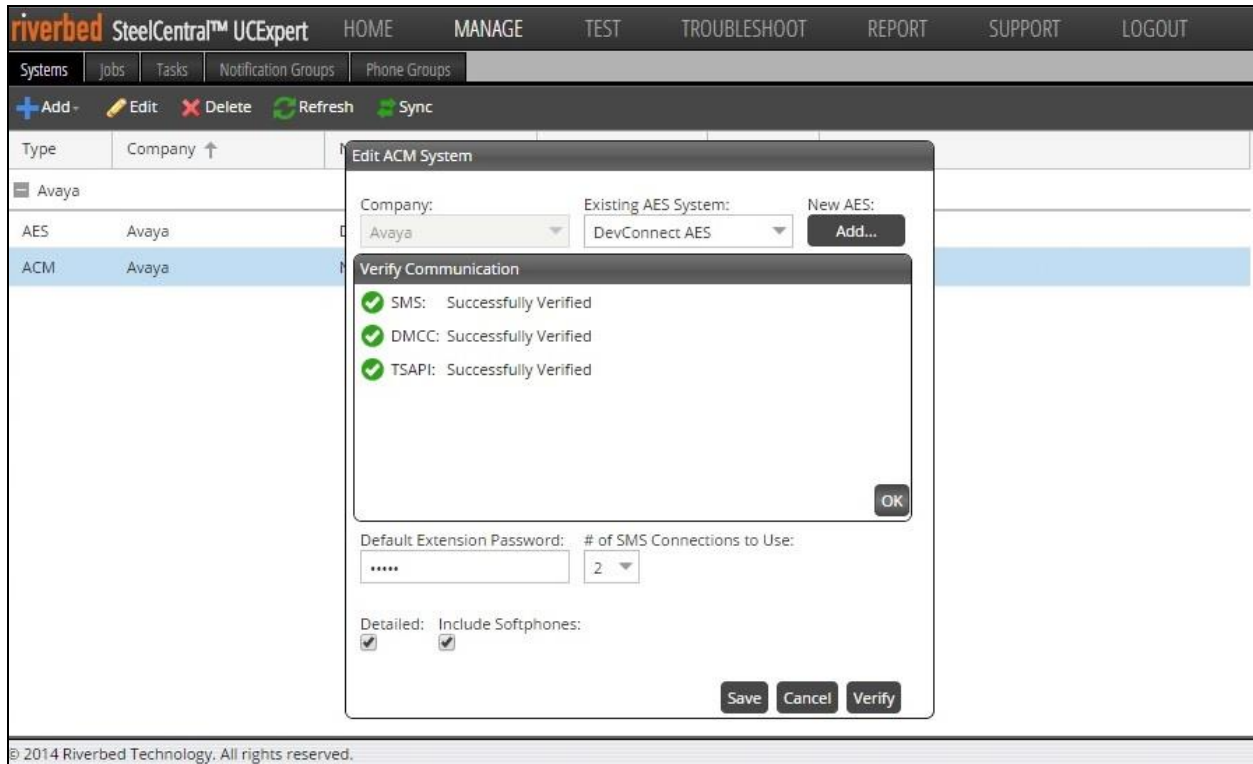
Username: ucxs8300d Password: *****

Default Extension Password: ***** # of SMS Connections to Use: 2

Detailed: ☒ Include Softphones: ☒

Save Cancel **Verify**

Verify that the **Edit ACM System** pop-up box is updated with successful connections to **SMS**, **DMCC**, and **TSAPI**, as shown below.



9. Conclusion

These Application Notes describe the configuration steps required for Riverbed UCExpert to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

10. Additional References

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

1. *Administering Avaya Aura® Communication Manager*, Document 03-300509, Issue 10, Release 6.3, June 2014, available at <http://support.avaya.com>.
2. *Avaya Aura® Application Enablement Services Administration and Maintenance Guide*, Release 6.3, 02-300357, June 2014, available at <http://support.avaya.com>.
3. *Riverbed® SteelCentral™ UCExpert Implementation Guide*, Release 5.0, Modified June 9, 2014, available at <http://support.riverbed.com>.
4. *Riverbed® SteelCentral™ OVA Quick Start Guide*, Release 5.0, available at <http://support.riverbed.com>.

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