Avaya Solution & Interoperability Test Lab

Application Notes for the Spok PC/PSAP, utilizing Spok CTI Layer, with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services - Issue 1.0

Abstract

These Application Notes describe a compliance-tested configuration comprised of Avaya Aura® Communication Manager, Avaya Aura® Application Enablement Services, Avaya IP and Digital Telephones, and Spok PC/PSAP desktop applications.

Spok PC/PSAP is a Windows-based intelligent E911 workstation solution for a campus or municipality. Using the existing PBX telephone system as an "Automatic Number Identification (ANI)/Automatic Location Information (ALI) controller", Spok PC/PSAP eliminates the need for external proprietary switching solutions and is able to perform all necessary telephony functions from the call taker's PC keyboard. Spok PC/PSAP integrates with Spok CTI Layer, which is a middleware between Spok PC/PSAP and Avaya Aura® Application Enablement Services, to control and monitor phone states.

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 a compliance-tested configuration comprised of Avaya Aura® Communication Manager, Avaya Aura® Application Enablement Services, Avaya IP and Digital Telephones, and Spok PC/PSAP applications.

Spok Communications PC/PSAP is a PC and LAN based system, which allows Communication Manager to be used in a PSAP (Public Safety Answering Position – a physical location where 911 emergency telephone calls are received and then routed to the proper emergency services by the security agent or "911 operator" at the PSAP). Campuses or municipalities can set up a public or private PSAP using Spok PC/PSAP, which has the capabilities to extract ANI (Automatic Number Identification – phone number of the caller) from Emergency 911 trunks and retrieve corresponding ALI (Automatic Location Information – information about the call based on the ANI such as name, phone number, address, nearest cross street, etc.). Spok PC/PSAP integrates with Spok CTI Layer, which is a middleware between Spok PC/PSAP and Avaya Aura® Application Enablement Services, to control and monitor phone states.

It is the Spok CTI Layer service that actually uses the Avaya Aura® Application Enablement Services Device and Media Call Control (DMCC) Application Programming Interface (API) to share control of and monitor a physical telephone and receive the same terminal and first party call information received by the physical telephone. Spok PC/PSAP in turn uses the Spok CTI Layer service to control and monitor a physical telephone. The PC/PSAP applications regularly provide the Database server with call and lamp state information concerning the controlled telephones.

2. General Test Approach and Test Results

The general approach was to exercise basic telephone and call operations on Avaya IP and Digital telephones using the aforementioned Spok desktop application.

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 features and serviceability. The focus of the compliance test was primarily on verifying the interoperability between Spok PC/PSAP, Application Enablement Services, and Communication Manager. The main objectives were to verify that:

- The user may successfully use PC/PSAP to perform off-hook, on-hook, dial, answer, hold, retrieve, transfer, conference, and release operations on the physical telephone.
- The agent user may successfully use PC/PSAP to log into and out of an ACD, and move between agent work modes.

- Manual operations performed on the physical telephone are correctly reflected in the PC/PSAP GUI.
- PC/PSAP and manual telephone operations may be used interchangeably; for example, go off-hook using PC/PSAP and manually dial digits.
- Display and call information on the physical telephone is accurately reflected in the PC/PSAP GUI.
- Call states are consistent between PC/PSAP and the physical telephone.

Serviceability testing such as network failure and server reset for Spok PC/PSAP was also performed.

2.2. Test Results

All test cases were executed and passed with the exception of the following observation.

During a scenario where the network connection from Spok PC/PSAP is lost, the CTI service on Spok PC/PSAP needed to be manually restarted to register the DMCC station again.

2.3. Support

Technical support for the Spok PC/PSAP solution can be obtained by contacting Spok:

- URL – http://www.spok.com
- Phone – (888) 797-7487

3. Reference Configuration

Figure 1 illustrates the configuration used in these Application Notes. The sample configuration shows an enterprise with an Application Enablement Services, Communication Manager, Media Server with an Avaya G450 Media Gateway. The PC/PSAP is configured to be in the same network as the enterprise. Endpoints include Avaya 9600 Series H.323 IP and Digital Telephones.

Note: Basic administration of Communication Manager and Application Enablement Services server is assumed. For details, see [1] and [2].

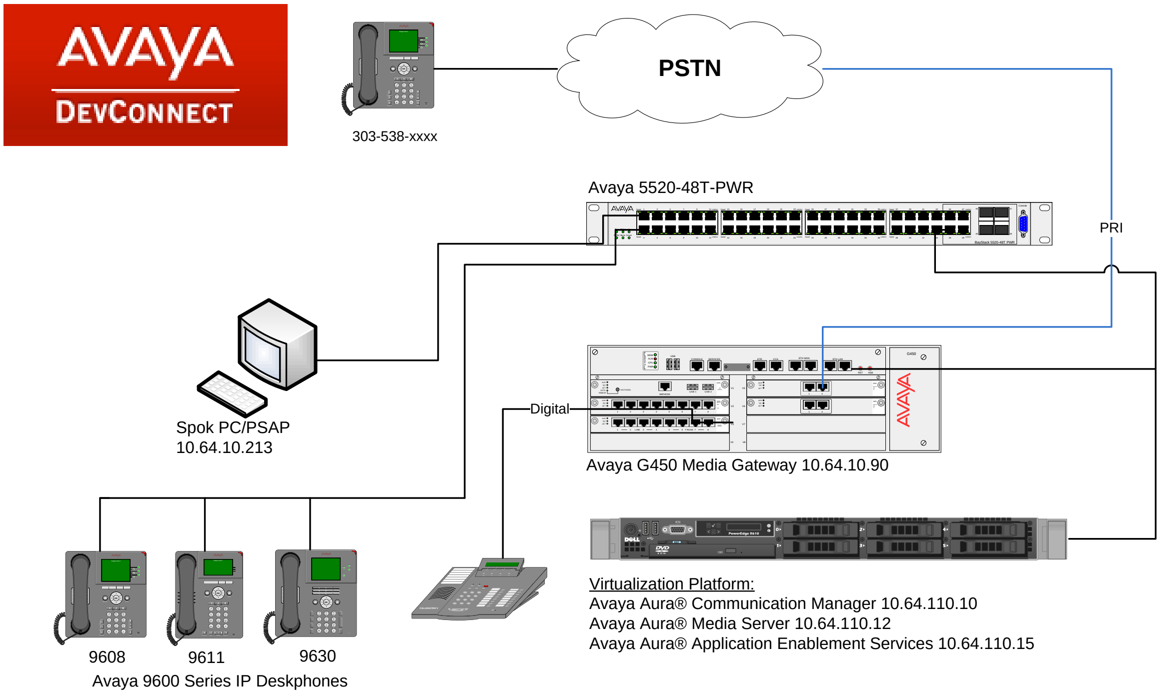

AVAYA
DEVCONNECT
303-538-xxxx
PSTN
Avaya 5520-48T-PWR
PRI
Spok PC/PSAP
10.64.10.213
Digital
Avaya G450 Media Gateway 10.64.10.90
Virtualization Platform:
Avaya Aura® Communication Manager 10.64.110.10
Avaya Aura® Media Server 10.64.110.12
Avaya Aura® Application Enablement Services 10.64.110.15
9608
9611
9630
Avaya 9600 Series IP Deskphones

Figure 1: Spok PC/PSAP Test Configuration.

4. Equipment and Software Validated

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

Equipment		Software/Firmware
Avaya Aura® Communication Manager		R017x.00.0.441.0 – 23012
Avaya Aura® Application Enablement Services		7.0.1.0.2.15-0
Avaya Aura® Media Server		7.7.0.334 A15
Avaya G450 Media Gateway		37.19.0
Avaya 9600 Series IP Telephones		
	9641/9611/9608 (H.323) 9630 (H.323)	6.6.2 3.2.6
Spok CTI Layer		5.9.112.112
Spok PC/PSAP		11.x

5. Configure Avaya Aura® Communication Manager

This section describes the procedures for configuring IP Services, Feature Access Codes, Abbreviated Dialing, and controlled telephones.

5.1. Configure IP Services

Enter the **change node-names ip** command. In the compliance-tested configuration, the procr IP address was used for registering H.323 endpoints, and for connectivity to Application Enablement Services.

```
change node-names ip                                          Page   1 of   2
                                  IP NODE NAMES
    Name              IP Address
acms                10.64.110.18
aes                 10.64.110.15
ams                 10.64.110.16
asm                 10.64.110.13
biscom              10.64.101.152
cms17               10.64.10.85
default             0.0.0.0
egw1                10.64.110.200
egw2                10.64.110.201
procr               10.64.110.10
procr6              ::
```

Enter the **change ip-services** command. On **Page 1**, configure the Service Type field to **AESVCS** and the Enabled field to **y**. The Local Node field should be pointed to the **procr** that was configured previously in the IP NODE NAMES form in this section. During the compliance test, the default port was used for the Local Port field.

```
change ip-services                                            Page   1 of   3


                                   IP SERVICES
 Service     Enabled     Local        Local       Remote      Remote
  Type                   Node         Port        Node        Port
AESVCS         y      procr           8765

```

On **Page 4**, enter the hostname of the Application Enablement Services server for the AE Services Server field. The server name may be obtained by logging in to the Application Enablement Services server using ssh, and running the command **uname –a**. Enter an alphanumeric password for the Password field. Set the Enabled field to **y**. The same password will be configured on the Application Enablement Services server in **Section 6.2**.

```
change ip-services                                            Page   3 of   3
                            AE Services Administration

   Server ID    AE Services       Password          Enabled    Status
                   Server
      1:      aes               *                    y        idle
      2:
```

5.2. Configure Feature Access Codes (FAC)

Enter the **change feature-access-codes** command. On **Page 1** of the FEATURE ACCESS CODE (FAC) form, verify the Auto Route Selection (ARS) – Access Code 1 field is set to **9**.

```
change feature-access-codes                                    Page   1 of  11
                               FEATURE ACCESS CODE (FAC)
         Abbreviated Dialing List1 Access Code:
         Abbreviated Dialing List2 Access Code:
         Abbreviated Dialing List3 Access Code:
Abbreviated Dial - Prgm Group List Access Code:
                      Announcement Access Code:
                       Answer Back Access Code: #25
                         Attendant Access Code:
      Auto Alternate Routing (AAR) Access Code: 8
    Auto Route Selection (ARS) - Access Code 1: 9     Access Code 2:
                 Automatic Callback Activation:        Deactivation:
Call Forwarding Activation Busy/DA: *97    All: *99    Deactivation: *98
```

5.3. Configure Dialplan

Enter the **change dialplan analysis** command. Create a single digit dial string with 9 and associate it with **Feature Access Code (fac)**.

```
change dialplan analysis                                       Page   1 of  12
                             DIAL PLAN ANALYSIS TABLE
                                   Location: all           Percent Full: 1

    Dialed   Total  Call     Dialed   Total  Call     Dialed   Total  Call
    String   Length Type     String   Length Type     String   Length Type
   1           3   dac
   1           4   ext
   1           5   ext
   3           10  ext
   8           1   fac
   9           1   fac
   *           3   dac
   #           3   dac
```

5.4. Configure Hunt Group

Enter the **add hunt-group n** command, where **n** is an unused hunt group number. On **Page 1** of the HUNT GROUP form, assign a descriptive Group Name and Group Extension valid in the provisioned dial plan.

```
add  hunt-group 1                                             Page   1 of   4
                                  HUNT GROUP

            Group Number: 1                              ACD? y
              Group Name: Hunt Group 1                 Queue? y
         Group Extension: 12001                       Vector? y
              Group Type: ucd-mia
                      TN: 1
                     COR: 1                  MM Early Answer? n
           Security Code:             Local Agent Preference? n
 ISDN/SIP Caller Display:

             Queue Limit: unlimited
 Calls Warning Threshold:      Port:
  Time Warning Threshold:      Port:
```

5.5. Configure Abbreviated Dialing

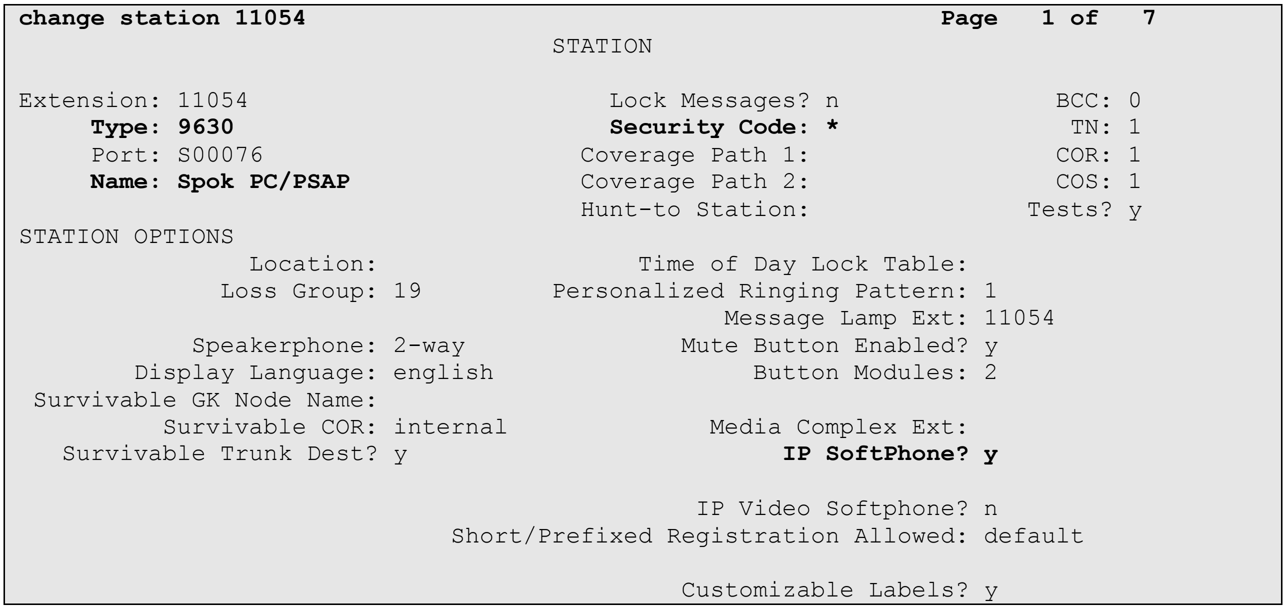
Enter the **add abbreviated-dialing system** command. In the **DIAL CODE** list, enter the Feature Access Codes for ACD Login and Logout.

```
change abbreviated-dialing system                               Page   1 of   1
                        ABBREVIATED DIALING LIST
                                SYSTEM LIST

Size (multiple of 5): 5       Privileged? n     Label Language:english
DIAL CODE                            LABELS (FOR STATIONS THAT DOWNLOAD LABELS)
     01: *01                               01: Log-in
     02: *06                               02: Log-out
     03:                                   03: *************
     04:                                   04: *************
     05:                                   05: *************
```

5.6. Configure Controlled Telephones

Enter the **change station r** command, where **r** is the extension of a registered, physical Avaya IP or Digital telephone. On **Page 1** of the **station** form, enter a phone Type, descriptive name, Security Code and set IP SoftPhone field to **y** to allow the physical station to be controlled by a softphone such as the Spok PC/PSAP application.



```
change station 11054                                            Page   1 of   7
                                     STATION

Extension: 11054                         Lock Messages? n               BCC: 0
     Type: 9630                          Security Code: *                TN: 1
     Port: S00076                      Coverage Path 1:                 COR: 1
     Name: Spok PC/PSAP                Coverage Path 2:                 COS: 1
                                       Hunt-to Station:               Tests? y
STATION OPTIONS
                Location:                  Time of Day Lock Table:
              Loss Group: 19       Personalized Ringing Pattern: 1
                                                 Message Lamp Ext: 11054
            Speakerphone: 2-way               Mute Button Enabled? y
        Display Language: english                  Button Modules: 2
 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

                                              Customizable Labels? y
```

On **Page 4** of the station form, for **ABBREVIATED DIALING List 1**, enter the abbreviated dialing group configured in previous section. On **Pages 4**, **5**, and **6** of the station forms, configure the following BUTTON ASSIGNMENTS in addition to the call-appr (call appearance) buttons as shown below:

```
change  station 11054                                          Page   4 of   7
                                     STATION
 SITE DATA
       Room:                                           Headset? n
       Jack:                                           Speaker? n
      Cable:                                          Mounting: d
      Floor:                                       Cord Length: 0
   Building:                                         Set Color:

ABBREVIATED DIALING
     List1: system             List2:                    List3:




BUTTON ASSIGNMENTS
 1: call-appr                          5: call-pkup
 2: call-appr                          6: next
 3: call-appr                          7: aux-work    RC:    Grp:
 4: brdg-appr  B:1  E:11010            8: auto-in            Grp: 3: brdg-appr  B:1


change station 11054                                          Page   5 of   7
                                     STATION

BUTTON ASSIGNMENTS

 9: abrv-dial  List: 1 DC: 01    HL? n
10: abrv-dial  List: 1 DC: 02    HL? n
11: release
12: togle-swap

change station 11054                                          Page   6 of   7
                                     STATION

                         BUTTON MODULE #1 ASSIGNMENTS

 1: brdg-appr  B:1  E:11011           13:
 2: brdg-appr  B:2  E:11011           14:
 3: brdg-appr  B:3  E:11011           15:
 4: brdg-appr  B:4  E:11011           16:
 5: brdg-appr  B:5  E:11011           17:
 6:                                   18:
 7:                                   19:
 8:                                   20: brdg-appr  B:1  E:11012
 9:                                   21: brdg-appr  B:2  E:11012
10:                                   22: brdg-appr  B:3  E:11012
```

Repeat the instructions provided in this section for each physical station that is to be controlled / monitored by the Spok CTI Layer.

6. Configure Application Enablement Services

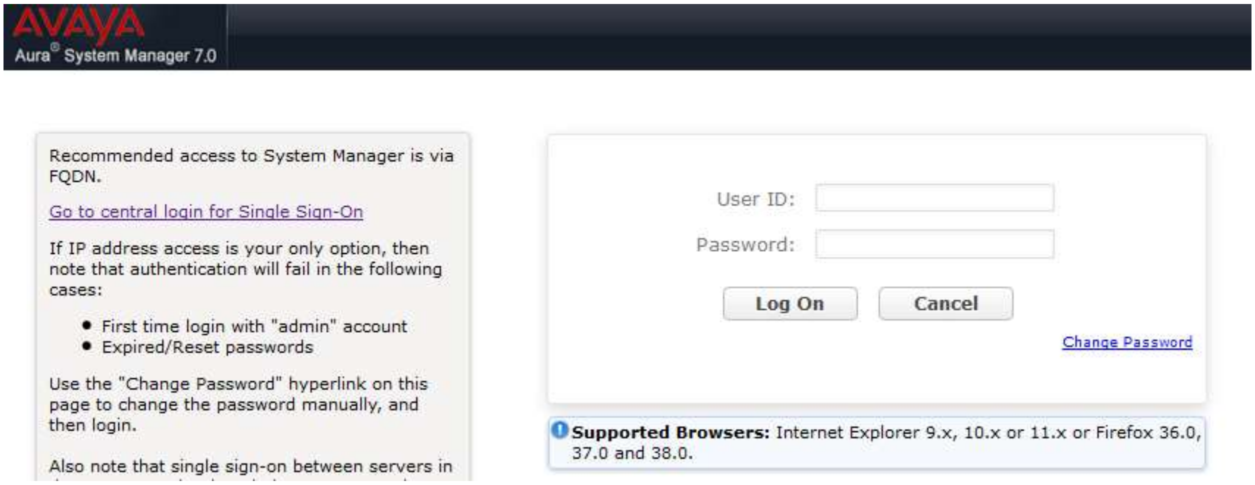
The Application Enablement Services server enables Computer Telephony Interface (CTI) applications to control and monitor telephony resources on Communication Manager.

This section assumes that installation and basic administration of the Application Enablement Services server has been performed. The steps in this section describe the configuration of a Switch Connection, a CTI user, a DMCC port.

6.1. Device and Media Call Control API Station Licenses

The Spok PC/PSAP Service instances appear as "virtual" stations/softphones to Communication Manager. Each of these virtual stations, hereafter called Device and Media Call Control API station, requires a license. Note that this is separate and independent of Avaya IP Softphone licenses, which are required for Avaya IP Softphones but not required for Device and Media Call Control API stations. To check and verify that there are sufficient DMCC licenses, log in to https://<IP address of the Application Enablement Services server>/index.jsp, and enter appropriate login credentials to access the Application Enablement Services Management Console page.
Select the **Licensing → WebLM Server Access** link from the left pane of the window (not shown). During the compliance testing, Avaya Aura System Manager was used as a license server.

Provide appropriate login credentials and log in.



Recommended access to System Manager is via FQDN.

Go to central login for Single Sign-On

If IP address access is your only option, then note that authentication will fail in the following cases:

- First time login with "admin" account
- Expired/Reset passwords

Use the "Change Password" hyperlink on this page to change the password manually, and then login.

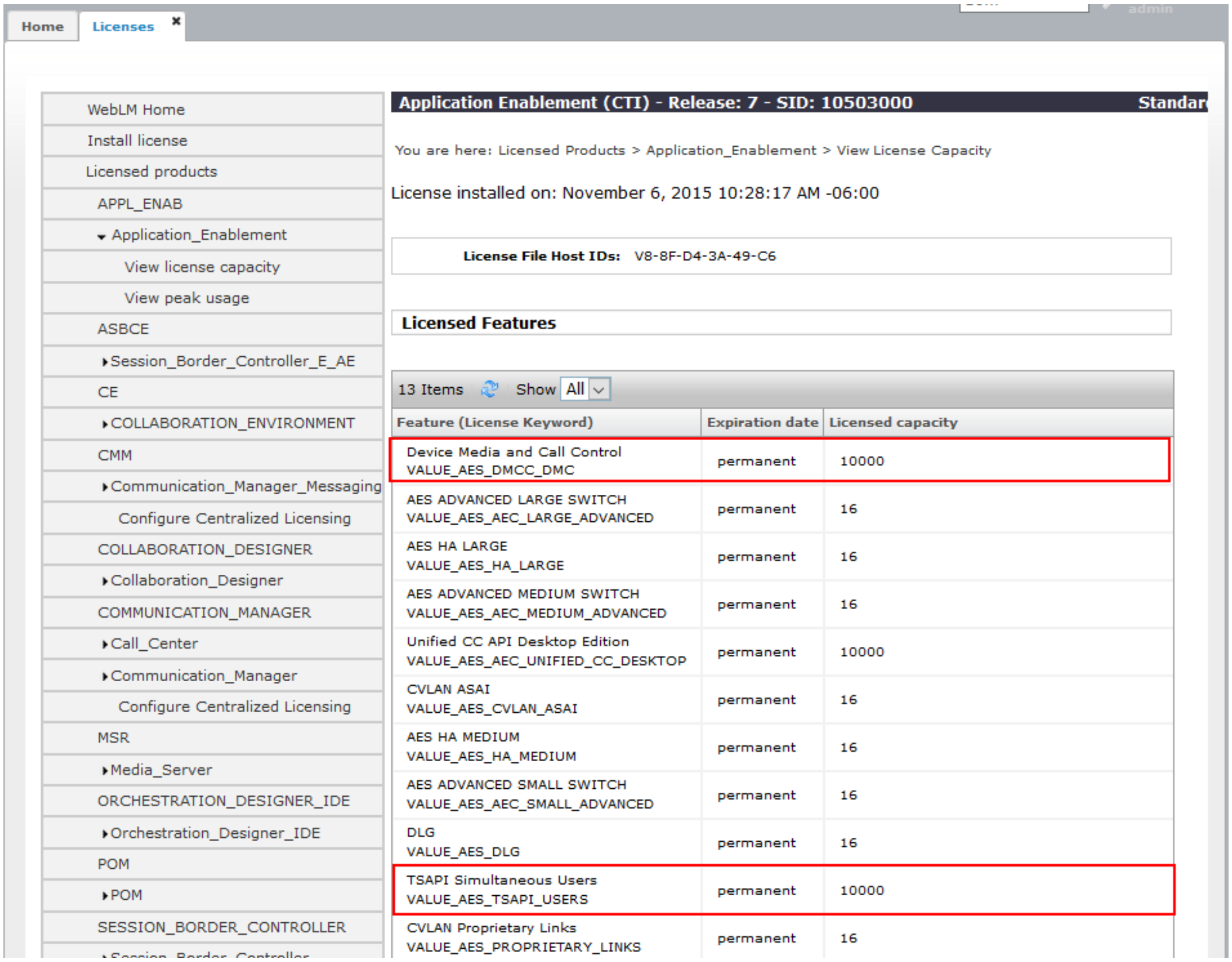
Also note that single sign-on between servers in

Supported Browsers: Internet Explorer 9.x, 10.x or 11.x or Firefox 36.0, 37.0 and 38.0.

Navigate to **Home → Licenses.** On the WebLM Home page, select **License Products → Application_Enablement** link from the left pane of the window.

On the Licensed Features page, verify that there are sufficient DMCC licenses.

Note: TSAPI licenses (1 per agent station) are also required if calls routed to agent stations via ACD. Without TSAPI licenses, the agents will not see the First Party Call Control (1PCC) calling party information. i.e., Calling Party Number.



Application Enablement (CTI) - Release: 7 - SID: 10503000 Standar

You are here: Licensed Products > Application_Enablement > View License Capacity

License installed on: November 6, 2015 10:28:17 AM -06:00

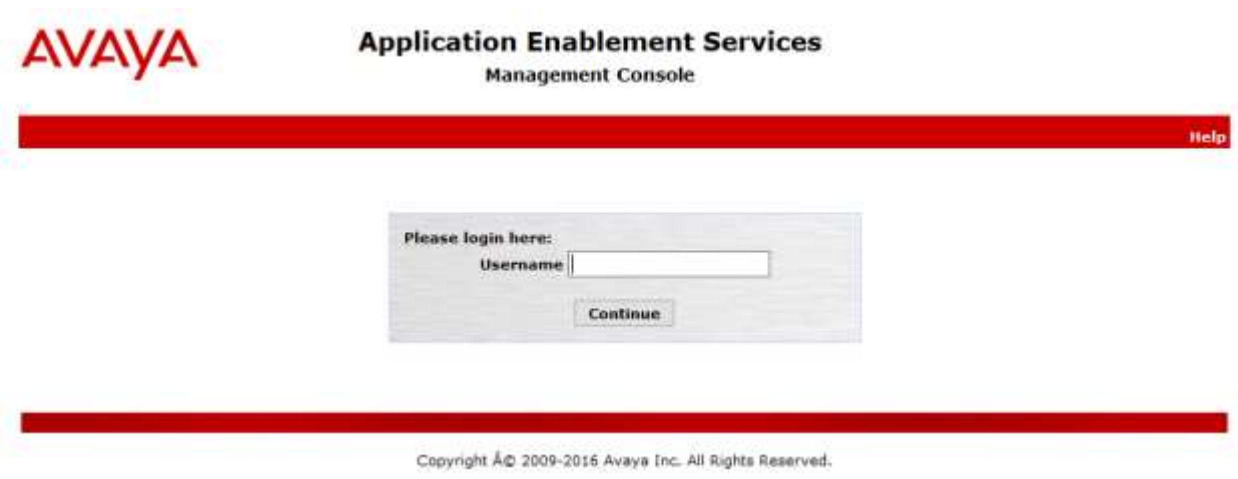
License File Host IDs: V8-8F-D4-3A-49-C6

Licensed Features

Feature (License Keyword)	Expiration date	Licensed capacity
Device Media and Call Control VALUE_AES_DMCC_DMC	permanent	10000
AES ADVANCED LARGE SWITCH VALUE_AES_AEC_LARGE_ADVANCED	permanent	16
AES HA LARGE VALUE_AES_HA_LARGE	permanent	16
AES ADVANCED MEDIUM SWITCH VALUE_AES_AEC_MEDIUM_ADVANCED	permanent	16
Unified CC API Desktop Edition VALUE_AES_AEC_UNIFIED_CC_DESKTOP	permanent	10000
CVLAN ASAI VALUE_AES_CVLAN_ASAI	permanent	16
AES HA MEDIUM VALUE_AES_HA_MEDIUM	permanent	16
AES ADVANCED SMALL SWITCH VALUE_AES_AEC_SMALL_ADVANCED	permanent	16
DLG VALUE_AES_DLG	permanent	16
TSAPI Simultaneous Users VALUE_AES_TSAPI_USERS	permanent	10000
CVLAN Proprietary Links VALUE_AES_PROPRIETARY_LINKS	permanent	16

6.2. Configure Switch Connection

Launch a web browser, enter https://<IP address of the Application Enablement Services server> in the address field, and log in with the appropriate credentials for accessing the Application Enablement Services Management Console pages.



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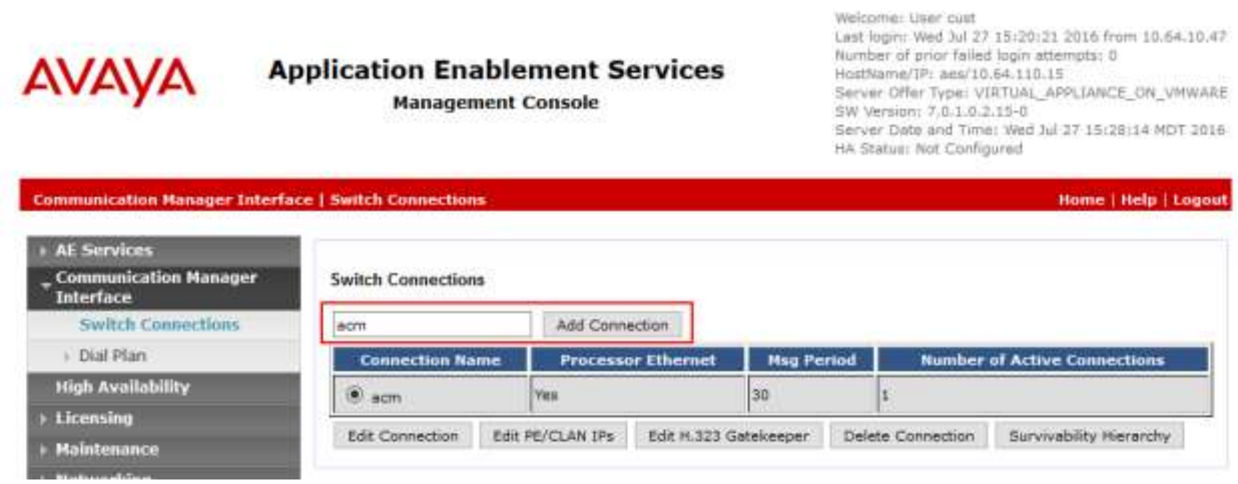
Click on **Communication Manager Interface → Switch Connection** in the left pane to invoke the Switch Connections page. A Switch Connection defines a connection between the Application Enablement Services and Communication Manager. Enter a descriptive name for the switch connection and click on **Add Connection**.



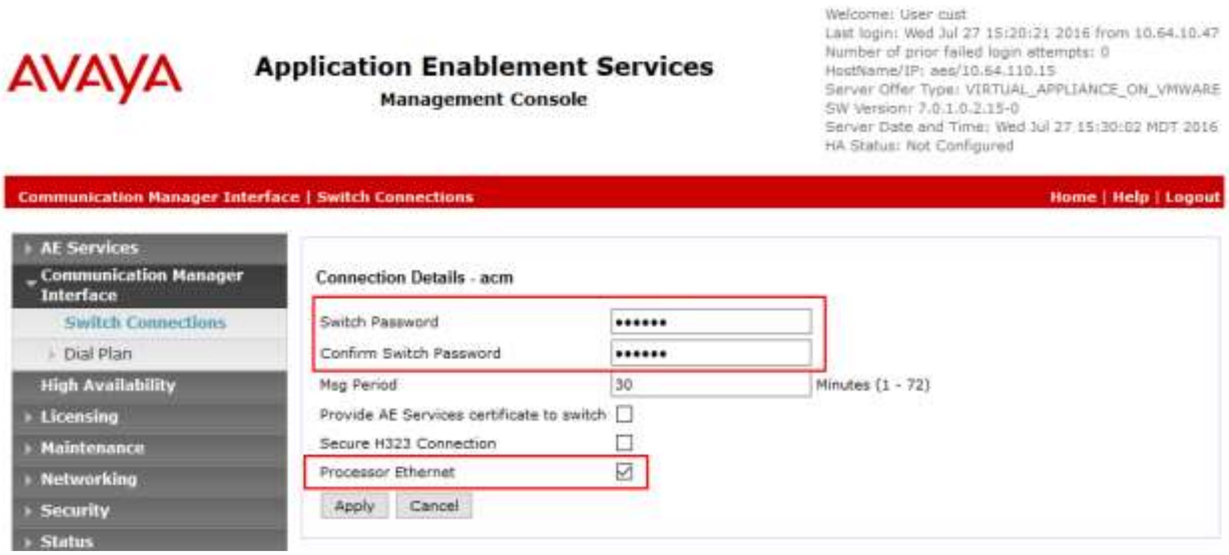
Welcome: User cust
Last login: Wed Jul 27 15:20:21 2016 from 10.64.10.47
Number of prior failed login attempts: 0
HostName/IP: aes/10.64.110.15
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 7.0.1.0.2.15-0
Server Date and Time: Wed Jul 27 15:28:14 MDT 2016
HA Status: Not Configured

Switch Connections

acm

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
● acm	Yes	30	1

The next window that appears prompts for the **Switch Password**. Enter the same password that was administered in Communication Manager in **Section 5.1**. Check box for **Processor Ethernet**. Click on **Apply**.

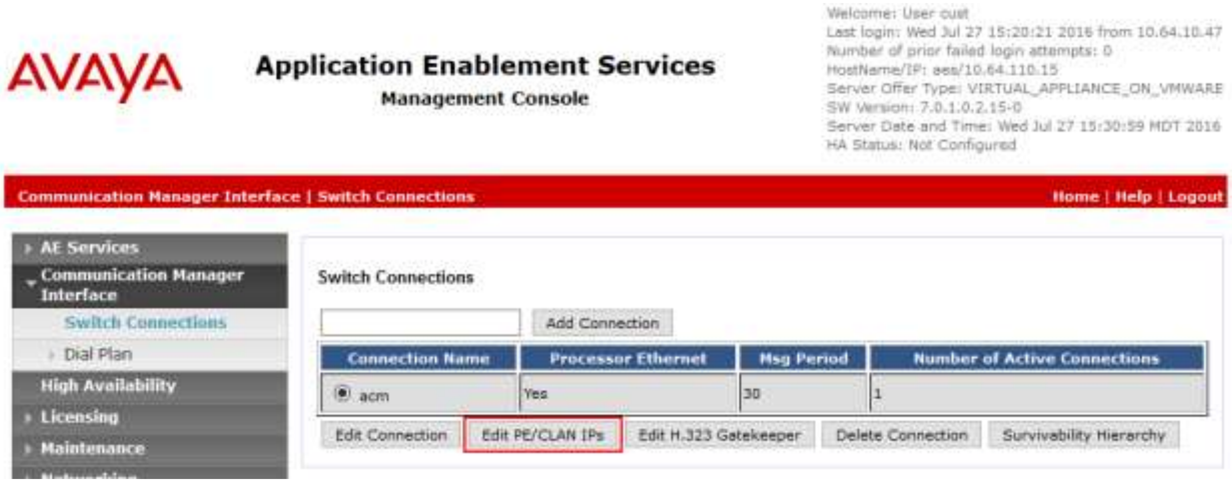


Welcome: User cust
Last login: Wed Jul 27 15:20:21 2016 from 10.64.10.47
Number of prior failed login attempts: 0
HostName/IP: aes/10.64.110.15
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 7.0.1.0.2.15-0
Server Date and Time: Wed Jul 27 15:30:02 MDT 2016
HA Status: Not Configured

Connection Details - acm

Switch Password	••••••	
Confirm Switch Password	••••••	
Msg Period	30	Minutes (1 - 72)
Provide AE Services certificate to switch	□	
Secure H323 Connection	□	
Processor Ethernet	☑	

After returning to the Switch Connections page, select the radio button corresponding to the switch connection added previously, and click on **Edit PE/CLAN IPs**.

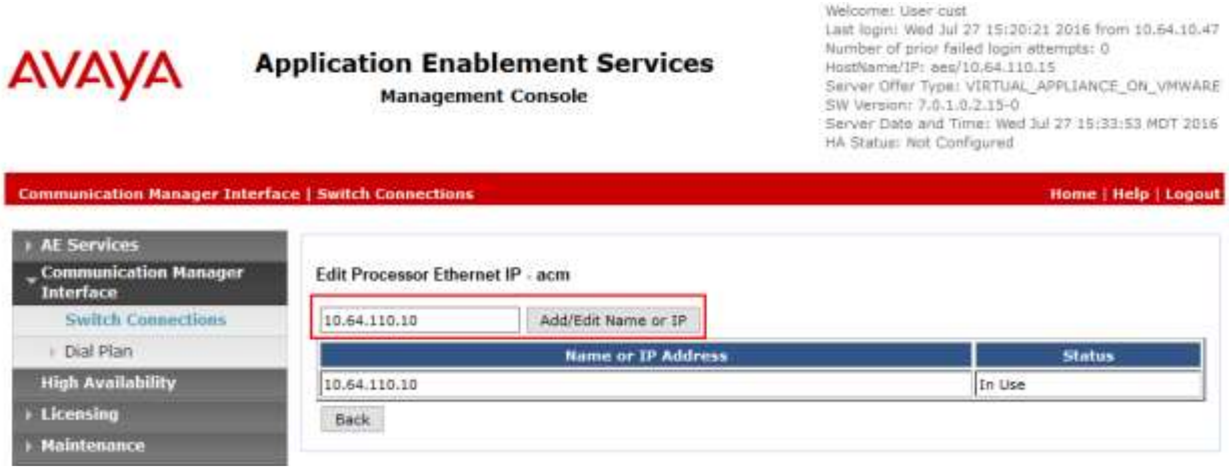


Welcome: User cust
Last login: Wed Jul 27 15:20:21 2016 from 10.64.10.47
Number of prior failed login attempts: 0
HostName/IP: aes/10.64.110.15
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 7.0.1.0.2.15-0
Server Date and Time: Wed Jul 27 15:30:59 MDT 2016
HA Status: Not Configured

Switch Connections

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
● acm	Yes	30	1

Enter the IP address of Procr used for Application Enablement Services connectivity from **Section 5.1**, and click on **Add Name or IP**.



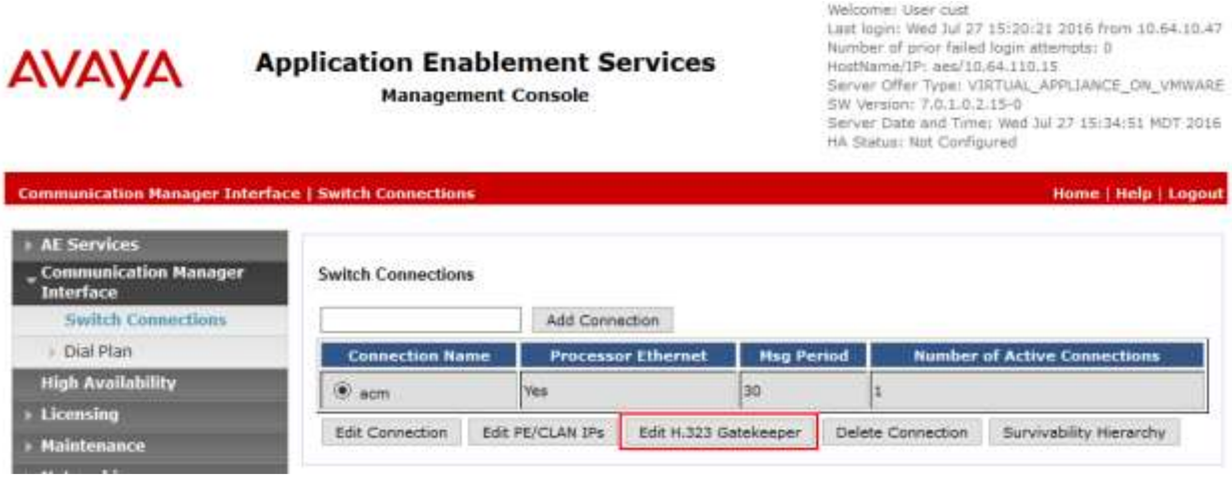
Welcome: User cust
Last login: Wed Jul 27 15:20:21 2016 from 10.64.10.47
Number of prior failed login attempts: 0
HostName/IP: aes/10.64.110.15
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 7.0.1.0.2.15-0
Server Date and Time: Wed Jul 27 15:33:53 MDT 2016
HA Status: Not Configured

Edit Processor Ethernet IP - acm

10.64.110.10

Name or IP Address	Status
10.64.110.10	In Use

After returning to the Switch Connections page, select the radio button corresponding to the switch connection added previously, and click on the **Edit H.323 Gatekeeper** button.

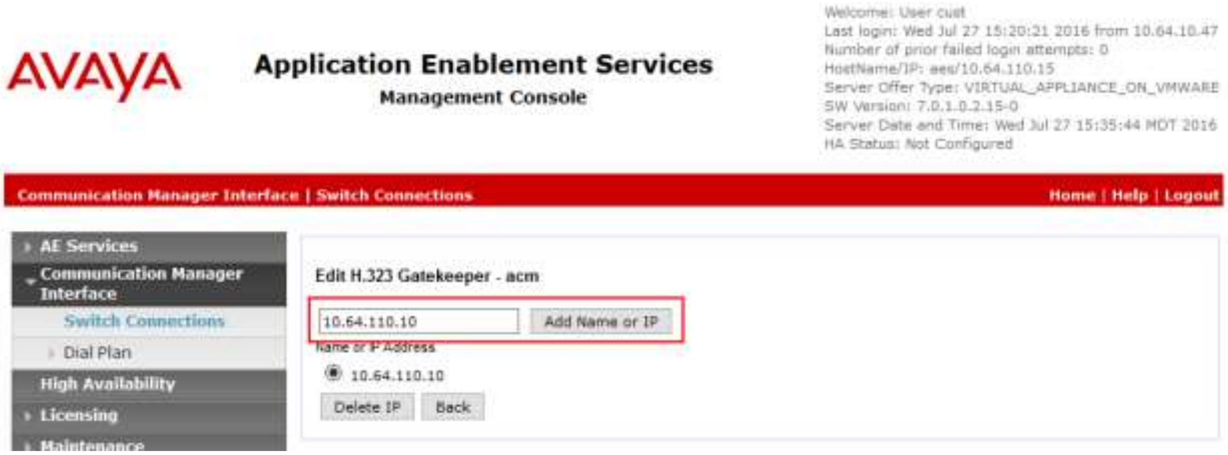


Welcome: User cust
Last login: Wed Jul 27 15:20:21 2016 from 10.64.10.47
Number of prior failed login attempts: 0
HostName/IP: aes/10.64.110.15
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 7.0.1.0.2.15-0
Server Date and Time: Wed Jul 27 15:34:51 MDT 2016
HA Status: Not Configured

Switch Connections

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
● acm	Yes	30	1

On the **Edit H.323 Gatekeeper – acm** page, enter the procr IP address which will be used for the DMCC service. Click on **Add Name or IP**.



Welcome: User cust
Last login: Wed Jul 27 15:20:21 2016 from 10.64.10.47
Number of prior failed login attempts: 0
HostName/IP: aes/10.64.110.15
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 7.0.1.0.2.15-0
Server Date and Time: Wed Jul 27 15:35:44 MDT 2016
HA Status: Not Configured

Edit H.323 Gatekeeper - acm

10.64.110.10 | Add Name or IP

Name or IP Address

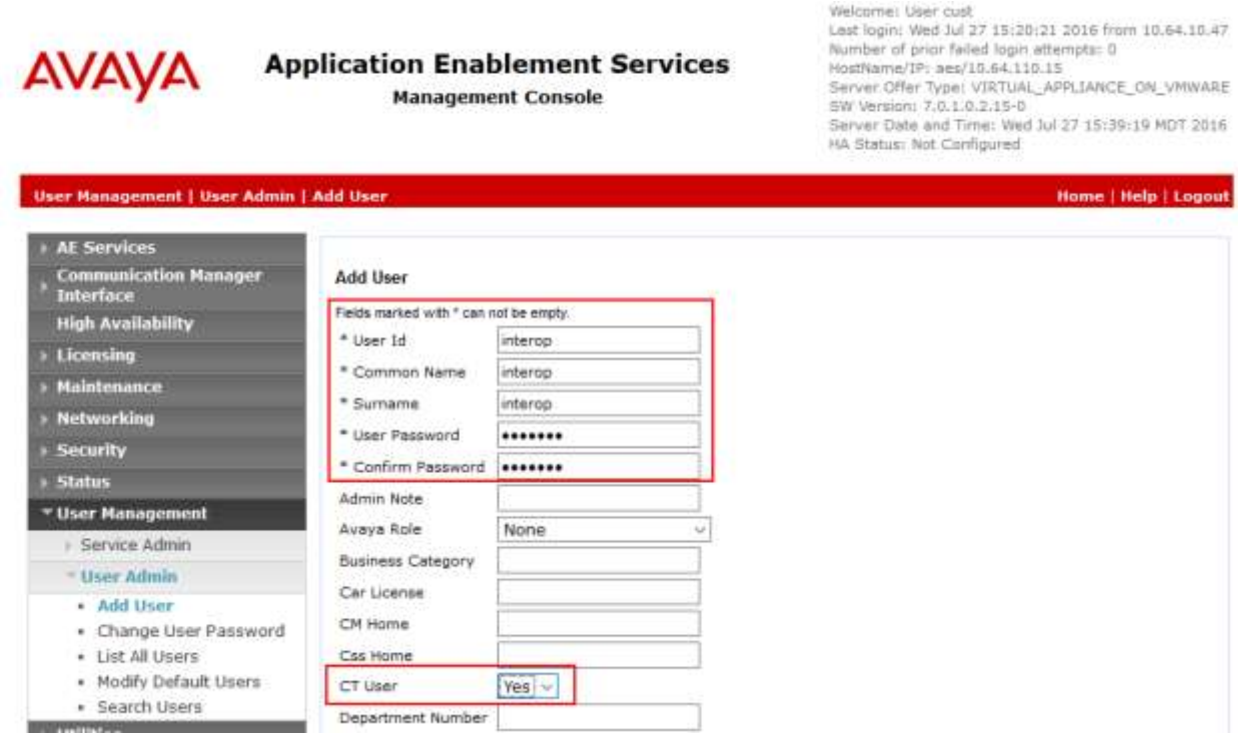
● 10.64.110.10

6.3. Configure the CTI Users

Navigate to **User Management → User Admin → Add User** link from the left pane of the window. On the Add User page, provide the following information:

- User Id
- Common Name
- Surname
- User Password
- Confirm Password

Select **Yes** using the drop down menu on the CT User field. This enables the user as a CTI user. Default values may be used in the remaining fields. Click the **Apply** button (not shown) at the bottom of the screen to complete the process.



Welcome: User cust
Last login: Wed Jul 27 15:20:21 2016 from 10.64.10.47
Number of prior failed login attempts: 0
HostName/IP: aes/10.64.110.15
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 7.0.1.0.2.15-0
Server Date and Time: Wed Jul 27 15:39:19 MDT 2016
HA Status: Not Configured

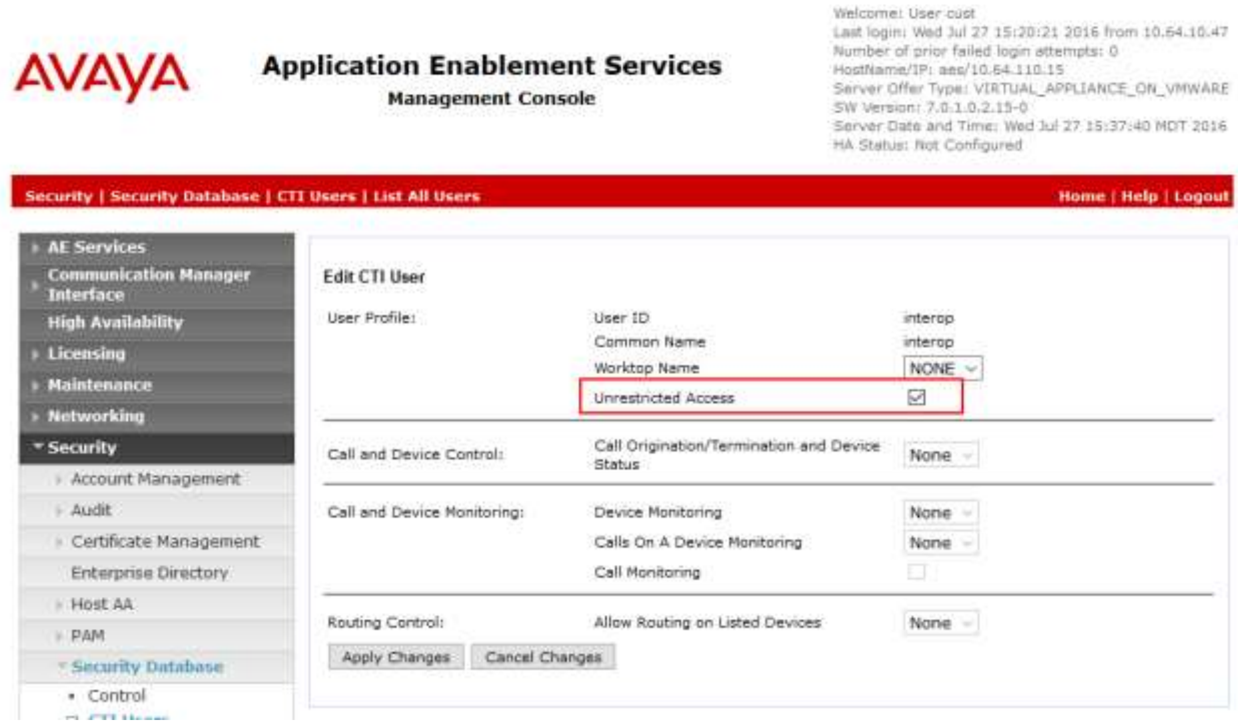
Add User

Fields marked with * can not be empty.
* User Id: interop
* Common Name: interop
* Surname: interop
* User Password: •••••••
* Confirm Password: •••••••
Admin Note:
Avaya Role: None
Business Category:
Car License:
CM Home:
Css Home:
CT User: Yes
Department Number:

The above information (User ID and User Password) must match with the information configured in the Spok PC/PSAP Configuration page in **Section 7**.

Once the user is created, navigate to the **Security → Security Database → CTI Users → List All Users** link from the left pane of the window. Select the User ID created previously, and click the **Edit** button to set the permission of the user (not shown).

Provide the user with unrestricted access privileges by checking the **Unrestricted Access** checkbox. Click on the **Apply Changes** button.



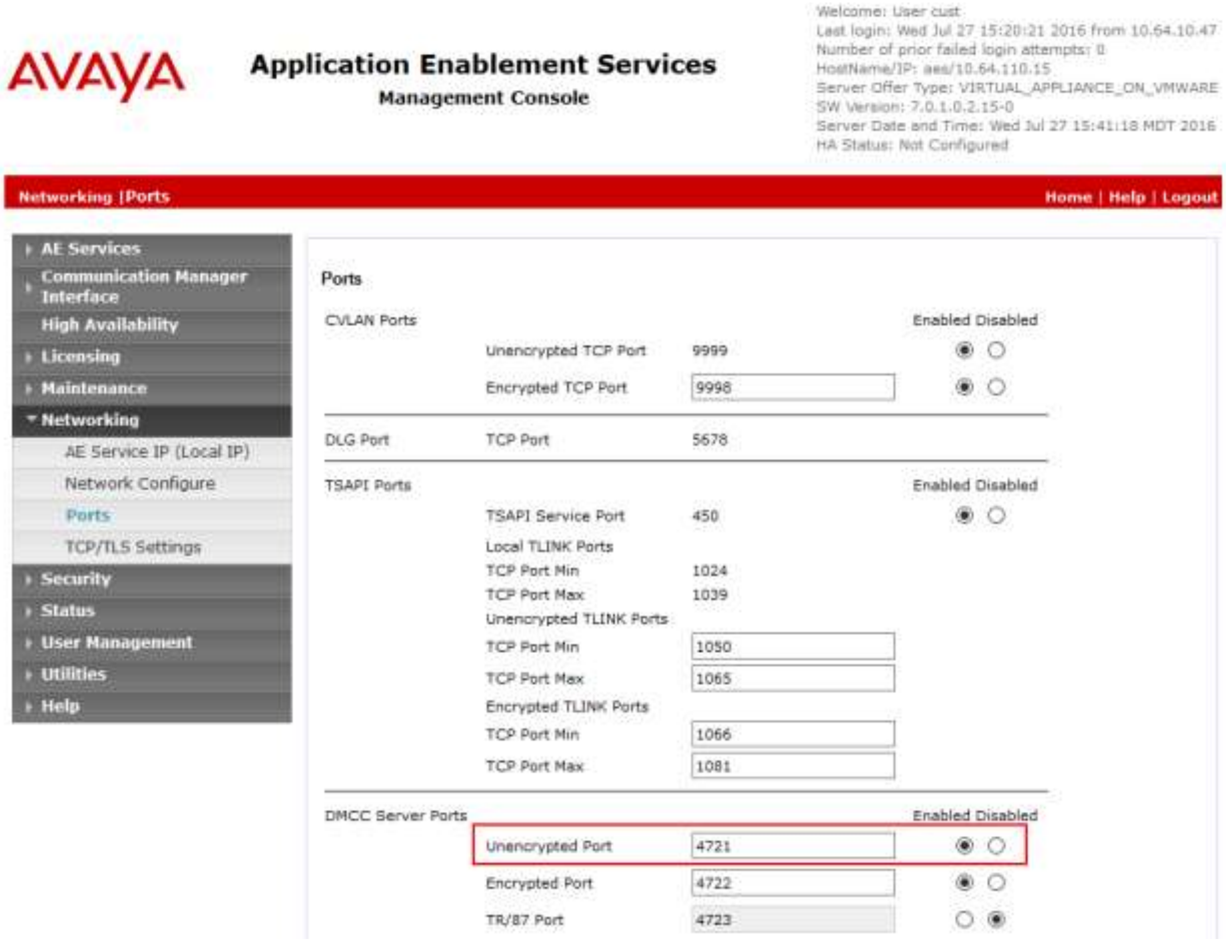
Welcome: User cust
Last login: Wed Jul 27 15:20:21 2016 from 10.64.10.47
Number of prior failed login attempts: 0
HostName/IP: aes/10.64.110.15
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 7.0.1.0.2.15-0
Server Date and Time: Wed Jul 27 15:37:40 MDT 2016
HA Status: Not Configured

Edit CTI User

User Profile:	User ID	interop
	Common Name	interop
	Worktop Name	NONE
	Unrestricted Access	☑
Call and Device Control:	Call Origination/Termination and Device Status	None
Call and Device Monitoring:	Device Monitoring	None
	Calls On A Device Monitoring	None
	Call Monitoring	□
Routing Control:	Allow Routing on Listed Devices	None

6.4. Configure the DMCC Port

Navigate to the **Networking → Ports** link, from the left pane of the window, to set the DMCC server port. During the compliance test, the default port values were utilized. The following screen displays the default port values. Since the unencrypted port was utilized during the compliance test, set the Unencrypted Port field to **Enabled**. Default values may be used in the remaining fields. Click the **Apply Changes** button (not shown) at the bottom of the screen to complete the process.



Welcome: User cust
Last login: Wed Jul 27 15:20:21 2016 from 10.64.10.47
Number of prior failed login attempts: 0
HostName/IP: aes/10.64.110.15
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 7.0.1.0.2.15-0
Server Date and Time: Wed Jul 27 15:41:18 MDT 2016
HA Status: Not Configured

Ports

			Enabled	Disabled
CVLAN Ports				
	Unencrypted TCP Port	9999	●	○
	Encrypted TCP Port	9998	●	○
DLG Port	TCP Port	5678		
TSAPI Ports				
	TSAPI Service Port	450	●	○
	Local TLINK Ports			
	TCP Port Min	1024		
	TCP Port Max	1039		
	Unencrypted TLINK Ports			
	TCP Port Min	1050		
	TCP Port Max	1065		
	Encrypted TLINK Ports			
	TCP Port Min	1066		
	TCP Port Max	1081		
DMCC Server Ports				
	Unencrypted Port	4721	●	○
	Encrypted Port	4722	●	○
	TR/87 Port	4723	○	●

7. Configure Spok PC/PSAP

Spok installs, configures, and customizes the PC/PSAP applications for their end customers. Spok PC/PSAP integrates with Spok CTI Layer, which is a middleware between Spok PC/PSAP and Application Enablement Services, to control and monitor the phone states. Thus, only the Spok CTI layer will be discussed in these Application Notes.

Note: Avaya phones as the network supplier for the agent workstations is not supported by Spok. Agent workstations should have their own network connection, separate from Avaya phones.

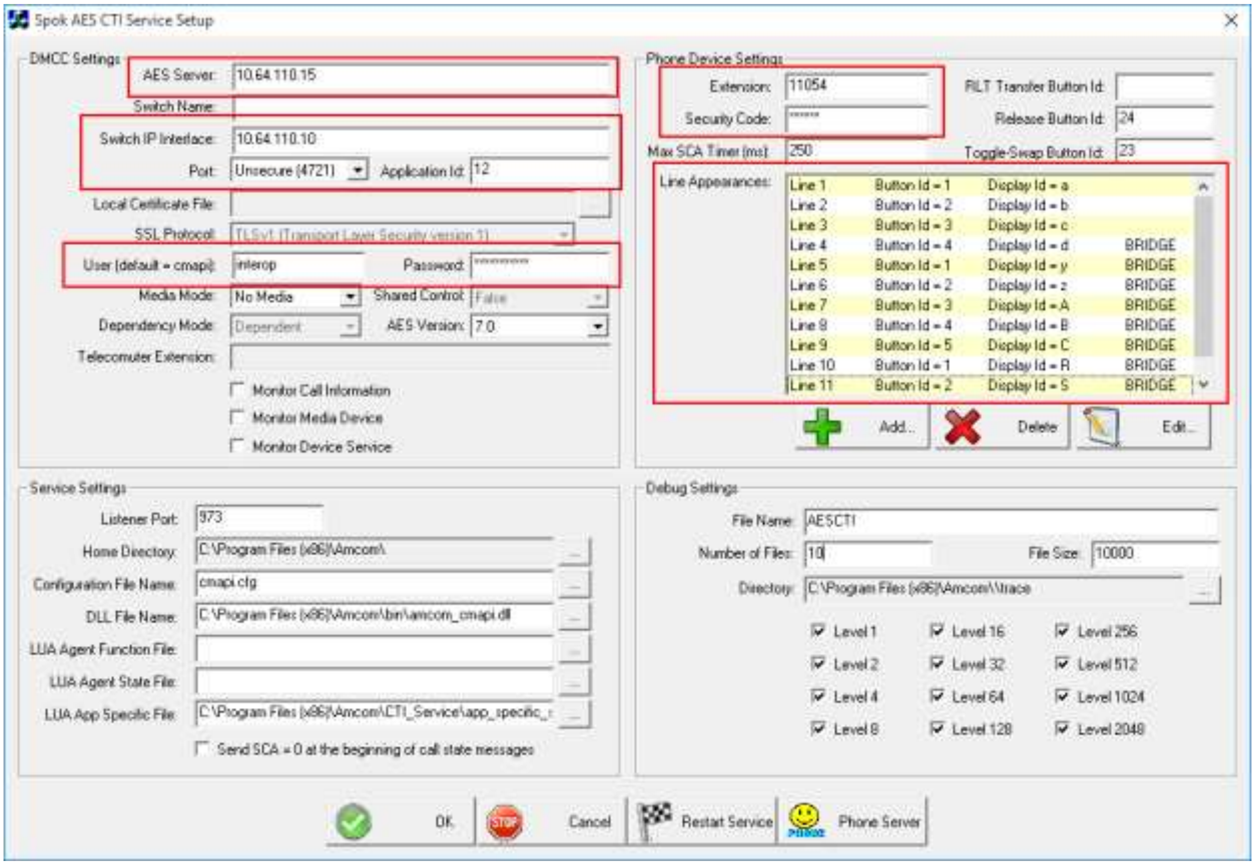
The following shows the **Spok AES CTI Services Setup** page. Provide the following information:

Under DMCC Settings

- **AES Server** – Enter the IP address of the Application Enablement Service.
- **Switch IP Address** – Enter the procr IP address of Communication Manager.
- **Port** – Enter the DMCC port (4721).
- **User** – Enter the user name created for Spok PC/PSAP in **Section 6.3**.
- **Password** – Enter the password created for Spok PC/PSAP in **Section 6.3**.

Under Phone Device Settings

- **Extension** –Enter the extension that will be controlled by the Spok PC/PSAP.
- **Security Code** – Enter the security code for the controlled station.
- **Release Button** – Enter the Release button assigned for the controlled station.
- **Line Appearances** – Enter the line appearances used for the controlled station.



Spok AES CTI Service Setup

DMCC Settings

- AES Server: 10.64.110.15
- Switch Name:
- Switch IP Interface: 10.64.110.10
- Port: Unsecure (4721)
- Application Id: 12
- Local Certificate File:
- SSL Protocol: TLSv1 (Transport Layer Security version 1)
- User (default = cmapi): interop
- Password: **********
- Media Mode: No Media
- Shared Control: False
- Dependency Mode: Dependent
- AES Version: 7.0
- Telecomuter Extension:

☐ Monitor Call Information

☐ Monitor Media Device

☐ Monitor Device Service

Phone Device Settings

- Extension: 11054
- Security Code: ******
- Max SCA Timer (ms): 250
- RLT Transfer Button Id:
- Release Button Id: 24
- Toggle-Swap Button Id: 23

Line Appearances:

Line 1	Button Id = 1	Display Id = a	
Line 2	Button Id = 2	Display Id = b	
Line 3	Button Id = 3	Display Id = c	
Line 4	Button Id = 4	Display Id = d	BRIDGE
Line 5	Button Id = 1	Display Id = y	BRIDGE
Line 6	Button Id = 2	Display Id = z	BRIDGE
Line 7	Button Id = 3	Display Id = A	BRIDGE
Line 8	Button Id = 4	Display Id = B	BRIDGE
Line 9	Button Id = 5	Display Id = C	BRIDGE
Line 10	Button Id = 1	Display Id = R	BRIDGE
Line 11	Button Id = 2	Display Id = S	BRIDGE

Service Settings

- Listener Port: 973
- Home Directory: C:\Program Files (x86)\Amcom\
- Configuration File Name: cmapi.cfg
- DLL File Name: C:\Program Files (x86)\Amcom\bin\amcom_cmapi.dll
- LUA Agent Function File:
- LUA Agent State File:
- LUA App Specific File: C:\Program Files (x86)\Amcom\CTI_Service\app_specific_

☐ Send SCA = 0 at the beginning of call state messages

Debug Settings

- File Name: AESCTI
- Number of Files: 10
- File Size: 10000
- Directory: C:\Program Files (x86)\Amcom\\trace

☑ Level 1 ☑ Level 16 ☑ Level 256

☑ Level 2 ☑ Level 32 ☑ Level 512

☑ Level 4 ☑ Level 64 ☑ Level 1024

☑ Level 8 ☑ Level 128 ☑ Level 2048

8. Verification Steps

The following steps may be used to verify the configuration:

- From the Spok client computers, ping IP interfaces, in particular the Application Enablement Services server, and verify connectivity.
- For the physical IP telephones, verify that the physical telephones are registered by using the **list registered-ip-stations** command on the Communication Manager System Access Terminal (SAT). For the physical Digital telephones, verify that the telephones are attached to the correct ports.
- Go off-hook and on-hook on the controlled telephones manually and use PC/PSAP to verify consistency.
- Place and answer calls from the controlled telephones manually and use PC/PSAP to verify consistency.

9. Conclusion

These Application Notes described a compliance-tested configuration comprised of Communication Manager, Application Enablement Services, Avaya IP and Digital Telephones, and the Spok PC/PSAP application. Spok PC/PSAP allows a user to operate a physical telephone and view call and telephone display information through a graphical user interface (GUI). During compliance testing, calls were successfully placed to and from Avaya IP and Digital Telephones that were controlled and monitored by the Spok PC/PSAP application.

10. Additional References

Product documentation for Avaya products may be found at http://support.avaya.com.

[1] *Administering Avaya Aura® Communication Manager, Release 7.0.1, 03-300509, Issue 2, May 2016.*
[2] *Administering Avaya Aura® Avaya Aura® Application Enablement Services, Release 7.0.1, Issue 2, May 2016.*

Product information for Spok products may be found at http://www.spok.com.

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