Avaya Solution & Interoperability Test Lab

Application Notes for Amcom AnswerPro, utilizing Amcom 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 Amcom AnswerPro desktop applications.

Amcom AnswerPro allows a user to operate a physical telephone and view call and telephone display information through a graphical user interface (GUI). Amcom AnswerPro integrates with Amcom CTI Layer, which is a middleware between Amcom AnswerPro and Avaya Aura® Application Enablement Services, to control and monitor phone states.

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.

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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 Amcom AnswerPro applications.

Amcom AnswerPro is a Windows-based attendant console application for a corporate attendant group, and enables call center staff to respond more quickly, be more productive, reduce expenses, and improve a caller's overall experience. Amcom AnswerPro allows a user to operate a physical telephone and view call and telephone display information through a graphical user interface (GUI). Amcom AnswerPro integrates with Amcom CTI Layer, which is a middleware between Amcom AnswerPro and Avaya Aura® Application Enablement Services, to control and monitor phone states.

It is the Amcom 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. Amcom AnswerPro in turn uses the Amcom CTI Layer service to control and monitor a physical telephone. The AnswerPro 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 Amcom desktop application. The main objectives were to verify that:

- The user may successfully use AnswerPro 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 AnswerPro 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 AnswerPro GUI.
- AnswerPro and manual telephone operations may be used interchangeably; for example, go off-hook using AnswerPro and manually dial digits.
- Display and call information on the physical telephone is accurately reflected in the AnswerPro GUI.
- Call states are consistent between AnswerPro and the physical telephone.

For serviceability testing, failures such as cable pulls and resets were applied. All test cases passed.

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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 Amcom AnswerPro, Application Enablement Services, and Communication Manager.

2.2. Support

Technical support for the Amcom AnswerPro solution can be obtained by contacting Amcom:

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

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3. Reference Configuration

Figure 1 illustrates the configuration used in these Application Notes. The sample configuration shows an enterprise with an Application Enablement Services server and an Avaya S8300D Server running Communication Manager software with an Avaya G450 Media Gateway. The AnswerPro was located in a different VLAN. Endpoints include Avaya 9600 Series H.323 IP Telephones and an Avaya 6408D Digital Telephone. Avaya S8720 Servers with an Avaya G650 Media Gateway was included in the test to provide an inter-switch scenario.

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

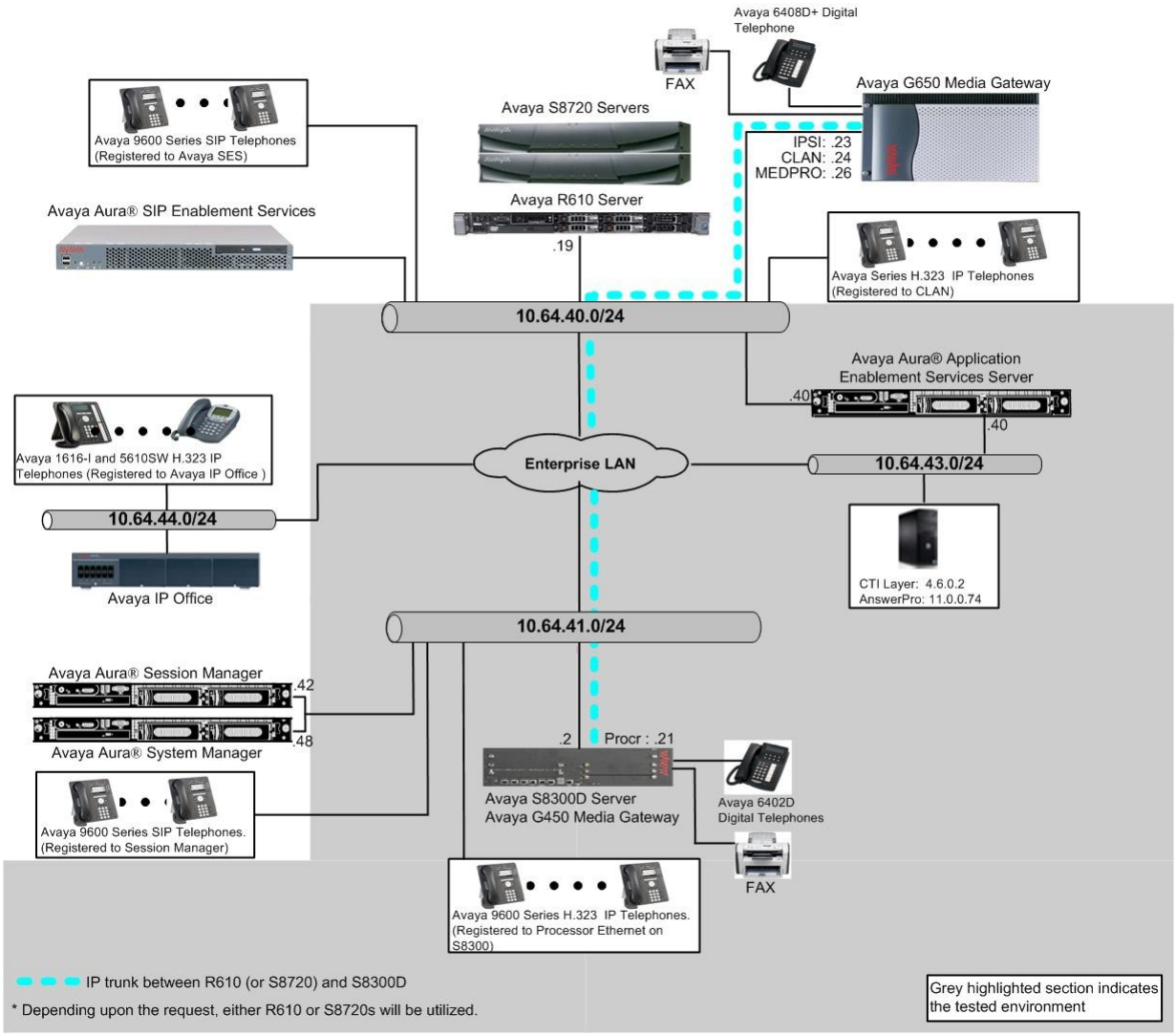

Figure 1: Amcom AnswerPro Test Configuration.

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4. Equipment and Software Validated

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

Equipment		Software/Firmware
Avaya S8300D Server with Avaya G450 Media Gateway		Avaya Aura® Communication Manager 6.0.1(R016x.00.1.510.1) w/ patch 00.1.510.1-19303
Avaya Aura® Application Enablement Services Server		6.1.1 (r6-1-1-30-0)
Avaya S8720 Servers with Avaya G650 Media Gateway (*used for inter-switch test scenarios*)		Avaya Aura® Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya 9600 Series IP Telephones		
	9620 (H.323) 9630 (H.323) 9650 (H.323)	3.1 3.1 3.1
Avaya 6408D+ Digital Telephone		-
Amcom AnswerPro		11.0.0.74

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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   1
                                   IP NODE NAMES
    Name                IP Address
aes                   10.64.43.40
procr                 10.64.41.21
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   4

                                   IP SERVICES
 Service      Enabled      Local        Local        Remote       Remote
  Type                     Node         Port         Node         Port
AESVCS         y       procr            8765
CDR1                   procr            0        rdtt             9002
```

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   4 of   4
                             AE Services Administration

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


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5.2. Configure Feature Access Codes (FAC)

Enter the **display feature-access-codes** command. On **Page 5** of the **feature-access-codes** form, configure and enable the following access codes:

- After Call Work Access Code
- Auto-In Access Code
- Aux Work Access Code
- Login Access Code
- Logout Access Code

```
display feature-access-codes                                    Page   5 of  11
                              FEATURE ACCESS CODE (FAC)

                                Call Center Features
  AGENT WORK MODES
                    After Call Work Access Code: 120
                             Assist Access Code: 121
                            Auto-In Access Code: 122
                           Aux Work Access Code: 123
                              Login Access Code: 124
                             Logout Access Code: 125
                          Manual-in Access Code: 126
  SERVICE OBSERVING
            Service Observing Listen Only Access Code: 127
            Service Observing Listen/Talk Access Code: 128
                Service Observing No Talk Access Code: 129
   Service Observing Next Call Listen Only Access Code:
```

5.3. Configure Abbreviated Dialing

Enter **add abbreviated-dialing group g** command, where **g** is the number of an available abbreviated dialing group. In the **DIAL CODE** list, enter the Feature Access Codes for ACD Login and Logout from **Section 5.2**.

```
add abbreviated-dialing group 1                                  Page   1 of   1
                        ABBREVIATED DIALING LIST

              Group List: 1        Group Name: Call Center
    Size (multiple of 5): 5       Program Ext:               Privileged? n
DIAL CODE
     11: 124
     12: 125
     13:
```


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5.4. 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 Amcom AnswerPro application.

```
change station 72001                                          Page   1 of   5
                                    STATION

Extension: 72001                       Lock Messages? n              BCC: 0
     Type: 9620                        Security Code: *               TN: 1
     Port: S00002                    Coverage Path 1:                COR: 1
     Name: Console-72001             Coverage Path 2:                COS: 1
                                     Hunt-to Station:
STATION OPTIONS
                 Location:                  Time of Day Lock Table:
              Loss Group: 19          Personalized Ringing Pattern: 1
                                                Message Lamp Ext: 72001
           Speakerphone: 2-way               Mute Button Enabled? y
        Display Language: english
 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 2**, enter the abbreviated dialing group configured in **Section 5.2**. On **Pages 4** and **5** of the station forms, configure the following BUTTON ASSIGNMENTS in addition to the call-appr (call appearance) buttons:

- auto-in (on Page 4)
- aux-work (on Page 4)
- abrv-dial – configure two of these buttons, one for Login and one for Logout, along with the Dial Codes from Abbreviated Dialing List 2 for ACD Login and Logout, respectively (on Page 5)
- release (On Page 5)

```
change station 72001                                          Page   4 of   5
                                    STATION
 SITE DATA
       Room: 1001                                      Headset? n
       Jack:                                           Speaker? n
      Cable:                                          Mounting: d
      Floor:                                       Cord Length: 0
   Building: Store1                                  Set Color:

ABBREVIATED DIALING
     List1: personal 1         List2: group     1        List3:

BUTTON ASSIGNMENTS
 1: call-appr                          4: brdg-appr  B:2  E:72002
 2: call-appr                          5: auto-in              Grp:
 3: brdg-appr  B:1  E:72002            6: aux-work    RC:      Grp:
```


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```
change station 72001                                          Page   5 of   5
                                    STATION

BUTTON ASSIGNMENTS

 7: abrv-dial  List: 2 DC: 01     HL? n  10: ec500      Timer? n
 8: abrv-dial  List: 2 DC: 02     HL? n  11: extnd-call
 9: release                              12:
```

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

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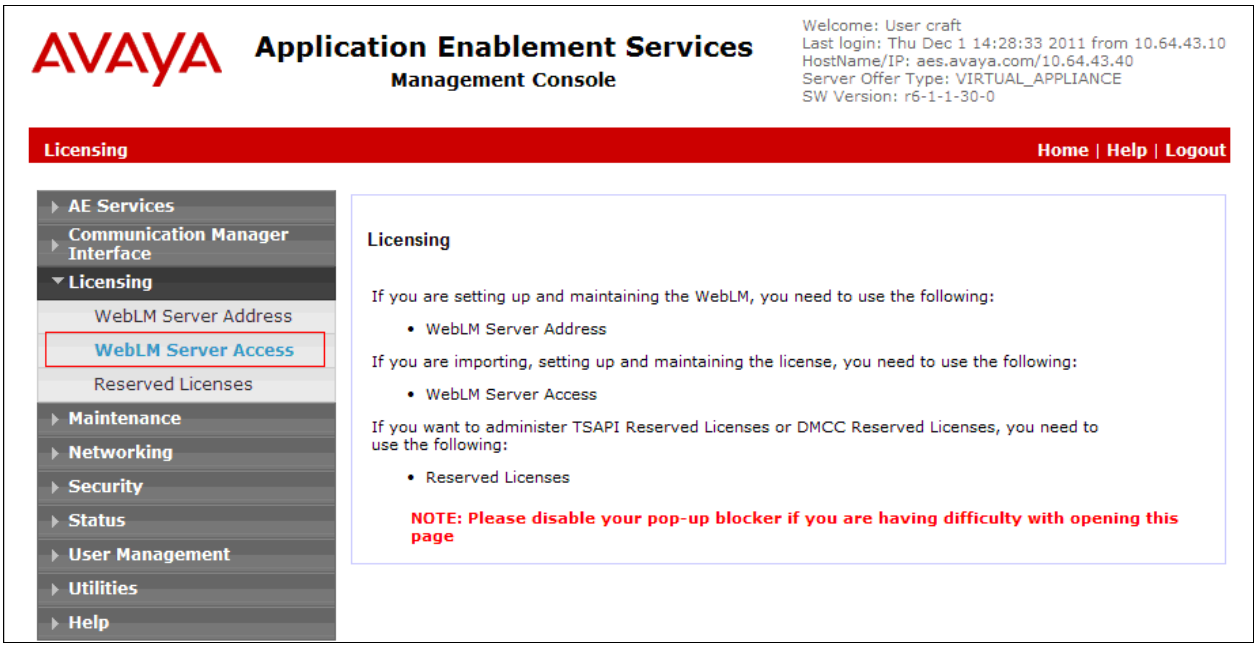
6. Configure Avaya Aura® Application Enablement Services

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, and a DMCC port.

6.1. Device and Media Call Control API Station Licenses

The Amcom AnswerPro 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.



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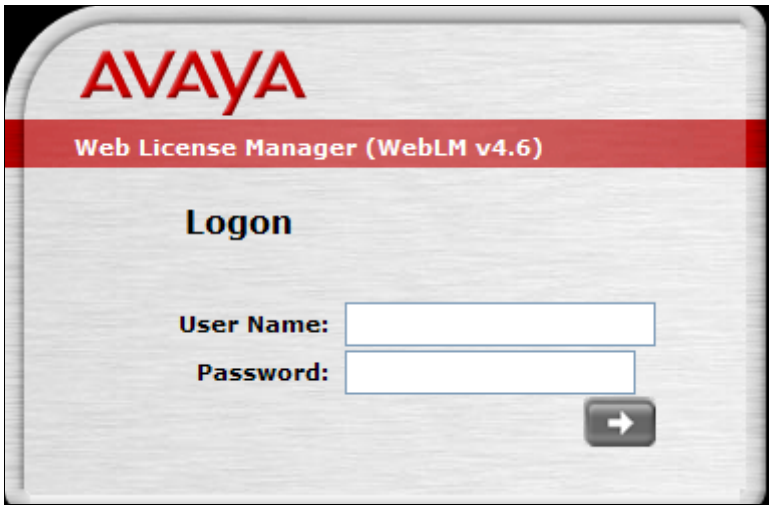
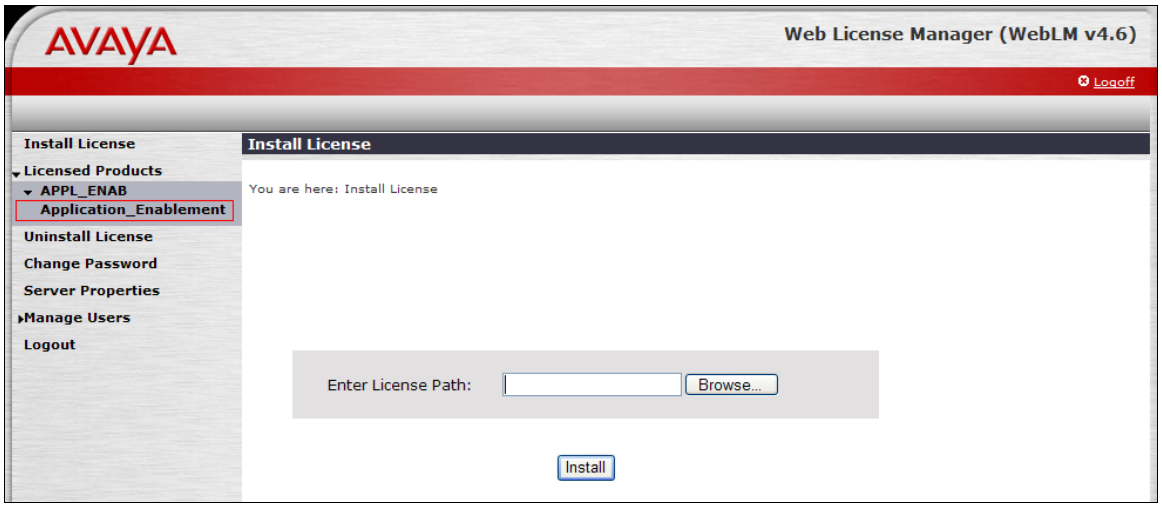
Provide appropriate login credentials to access the Web License Manager page.



On the Install License page, select **License Products → APPL_ENAB → Application_Enablement** link from the left pane of the window.



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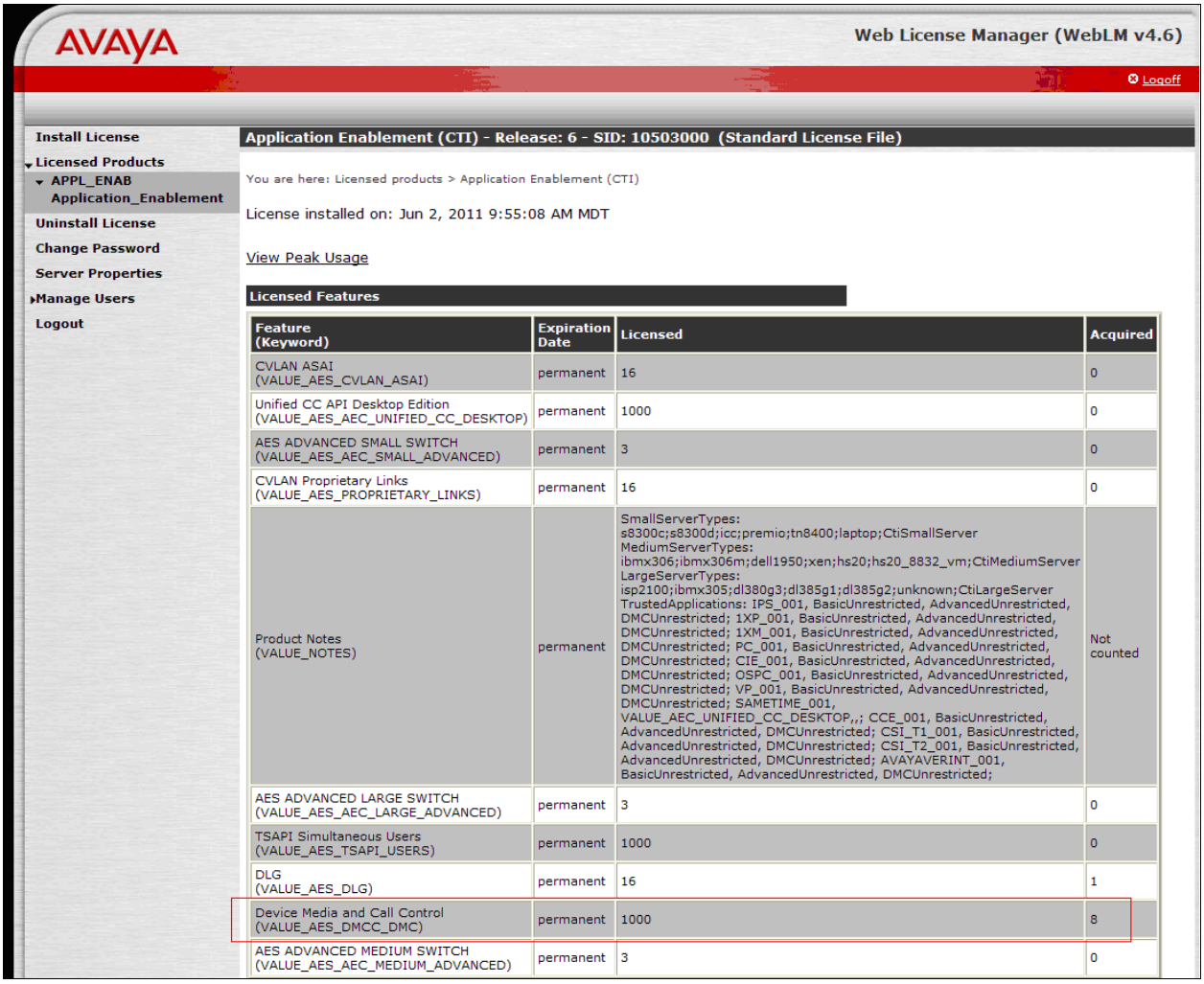
On the Licensed Features page, verify that there are sufficient DMCC licenses.



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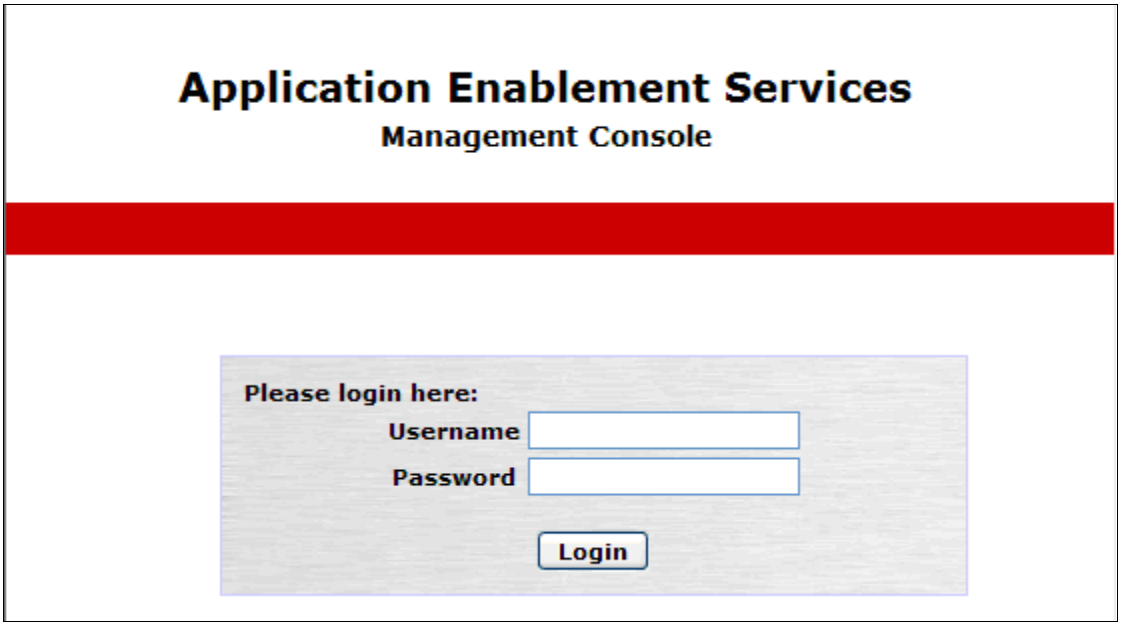
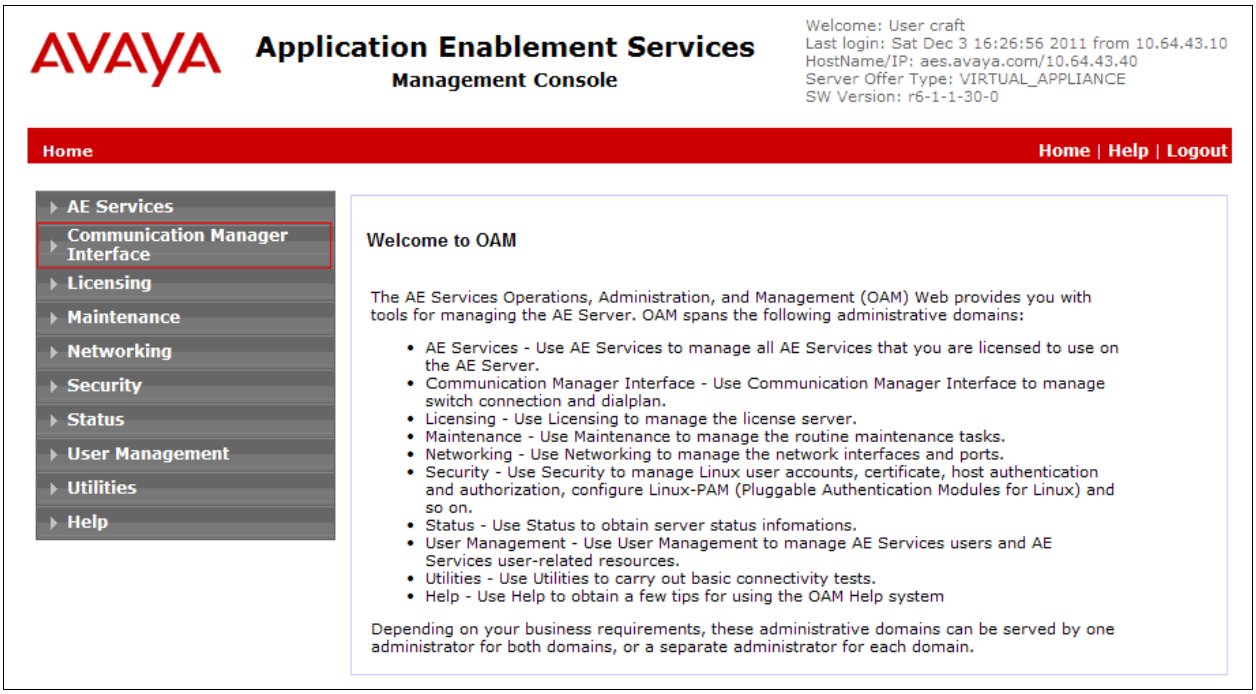
6.2. Configure Switch Connection

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.



Click on **Communication Manager Interface → Switch Connection** in the left pane to invoke the Switch Connections page.



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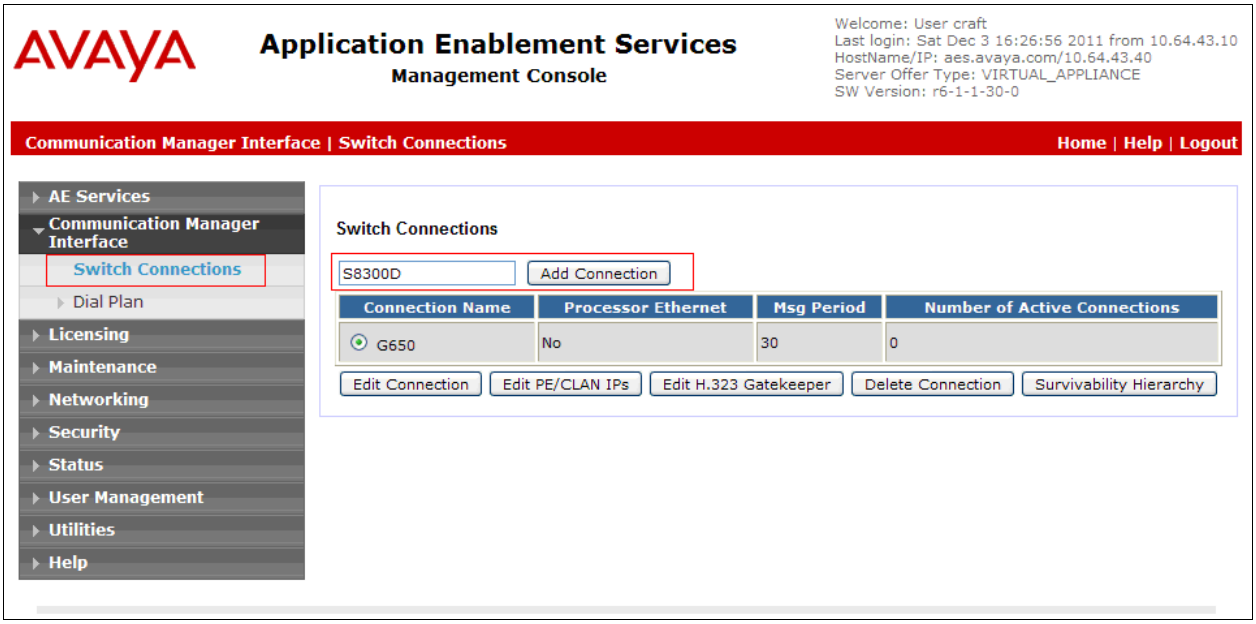
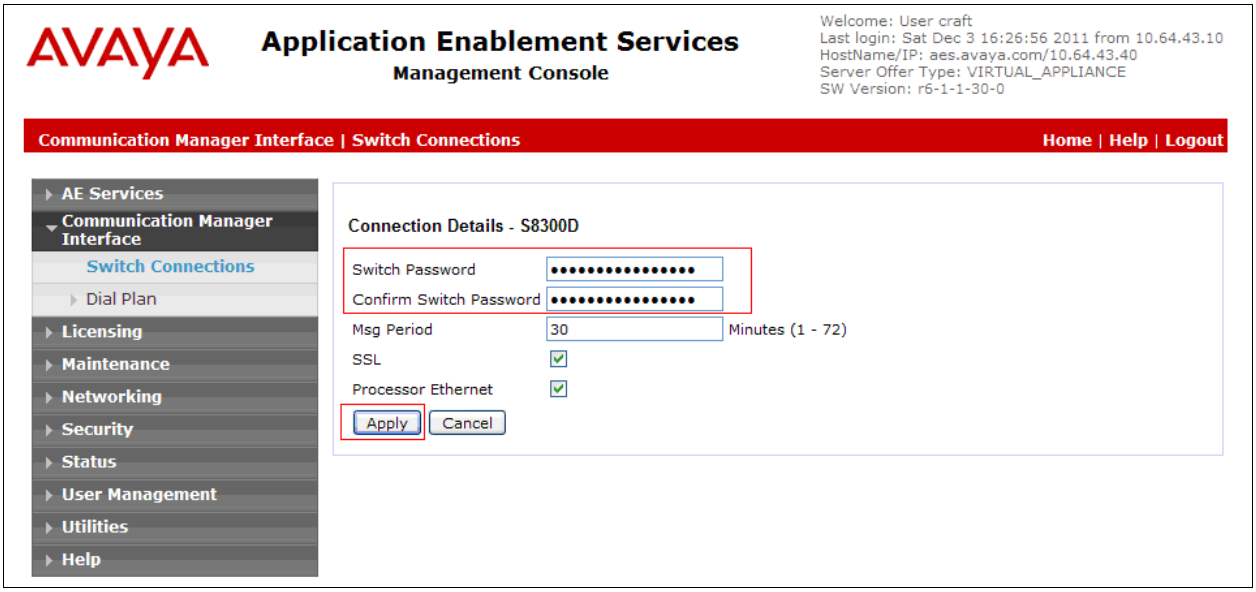
A Switch Connection defines a connection between the Application Enablement Services server and Communication Manager. Enter a descriptive name for the switch connection and click on **Add Connection**.



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



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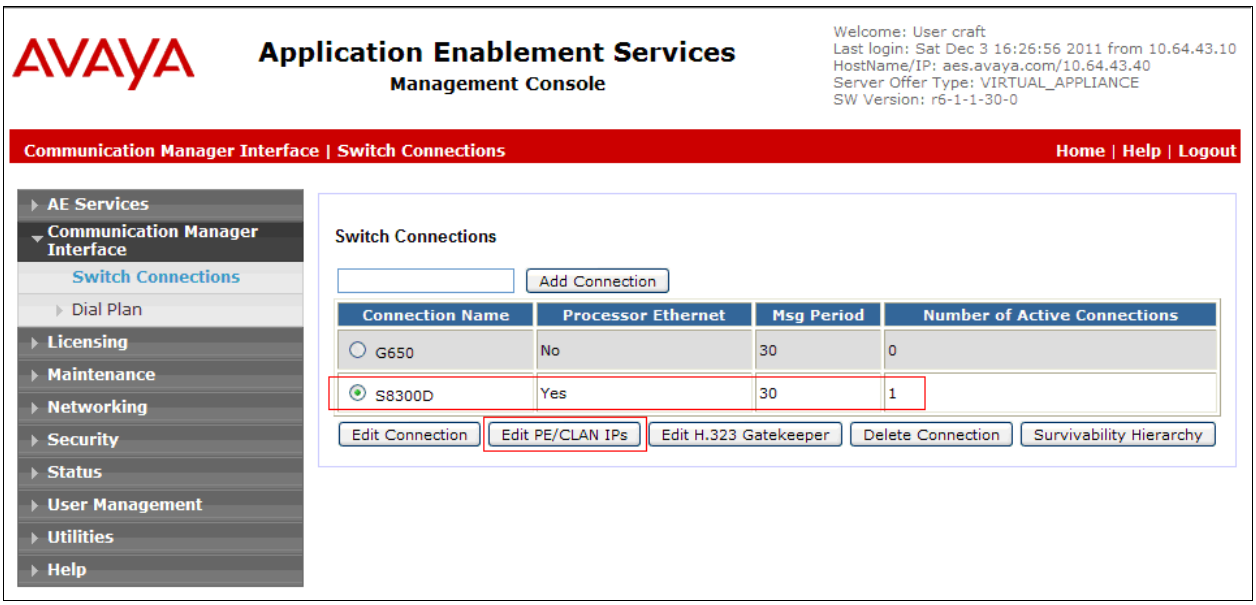
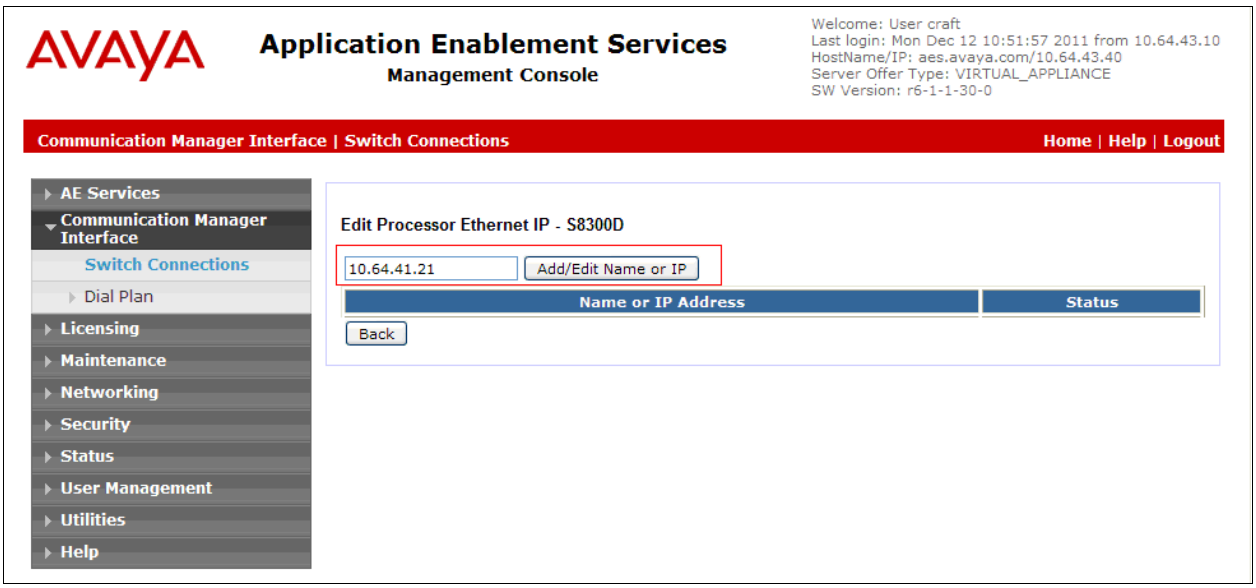
After returning to the Switch Connections page, select the radio button corresponding to the switch connection added previously, and click on the **Edit PE/CLAN IPs** button.



On the **Edit Processor Ethernet IP – S8300D** page, enter the procr IP address which will be used for the DMCC service. Click on **Add/Edit Name or IP**.



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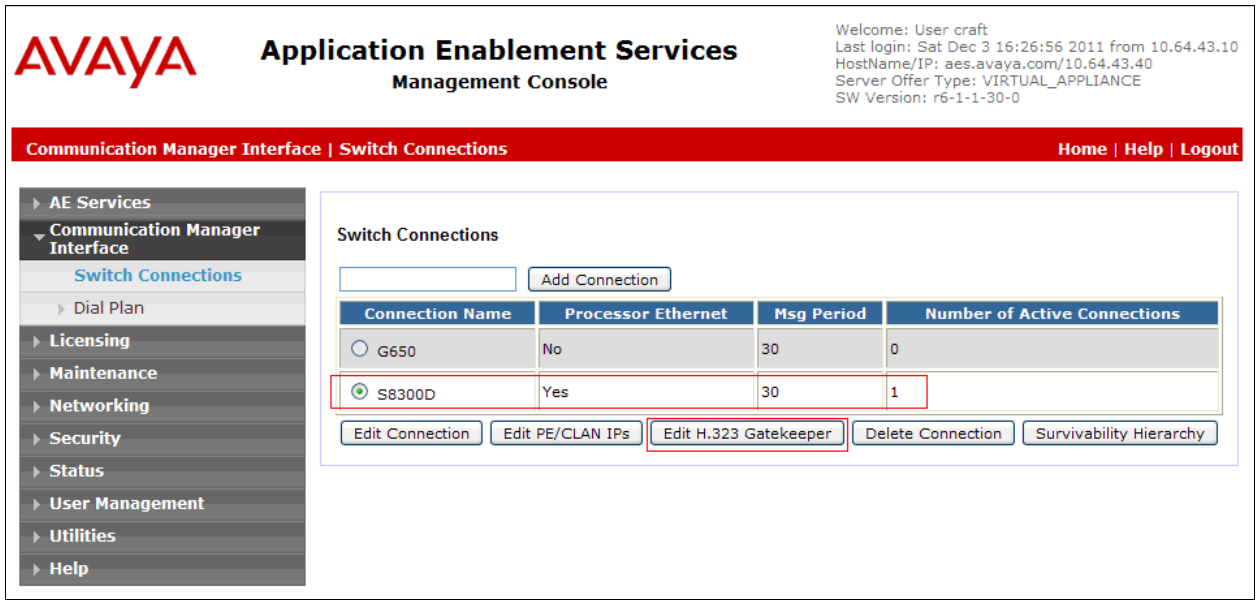
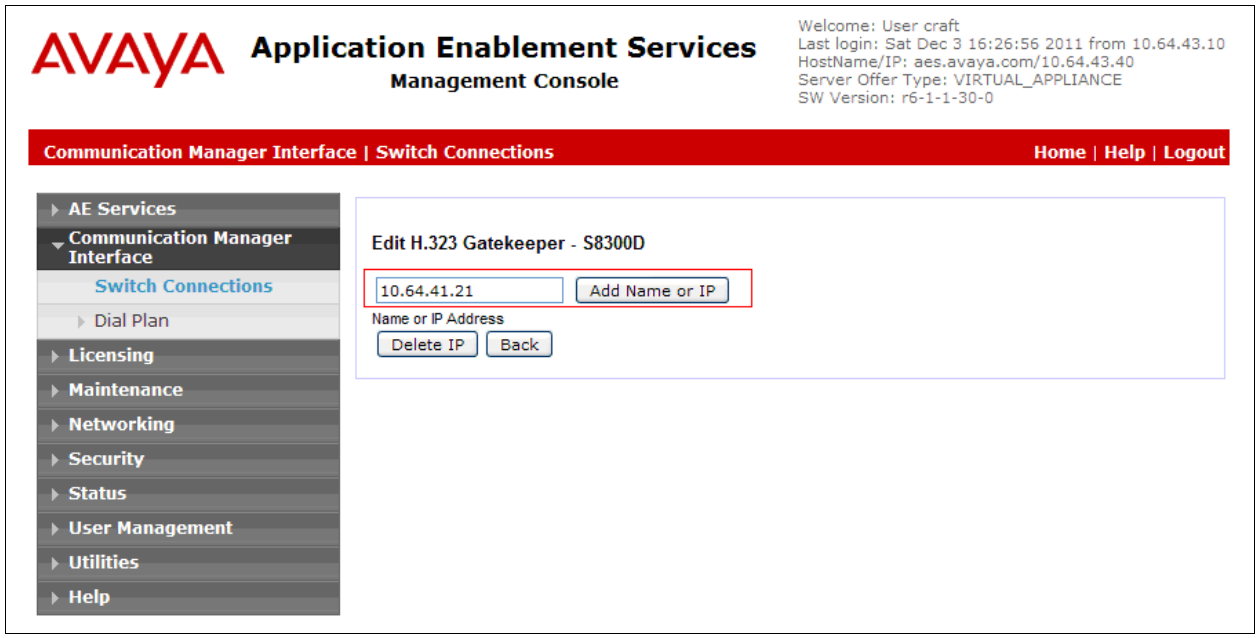
After returning to the Switch Connections page, select the radio button corresponding to the switch connection added previously, and click on the **Edit H.323 Gatekeeper** button for DMCC call control and monitor.



On the **Edit H.323 Gatekeeper – S8300D** page, enter the procr IP address which will be used for the DMCC service. Click on **Add Name or IP**.



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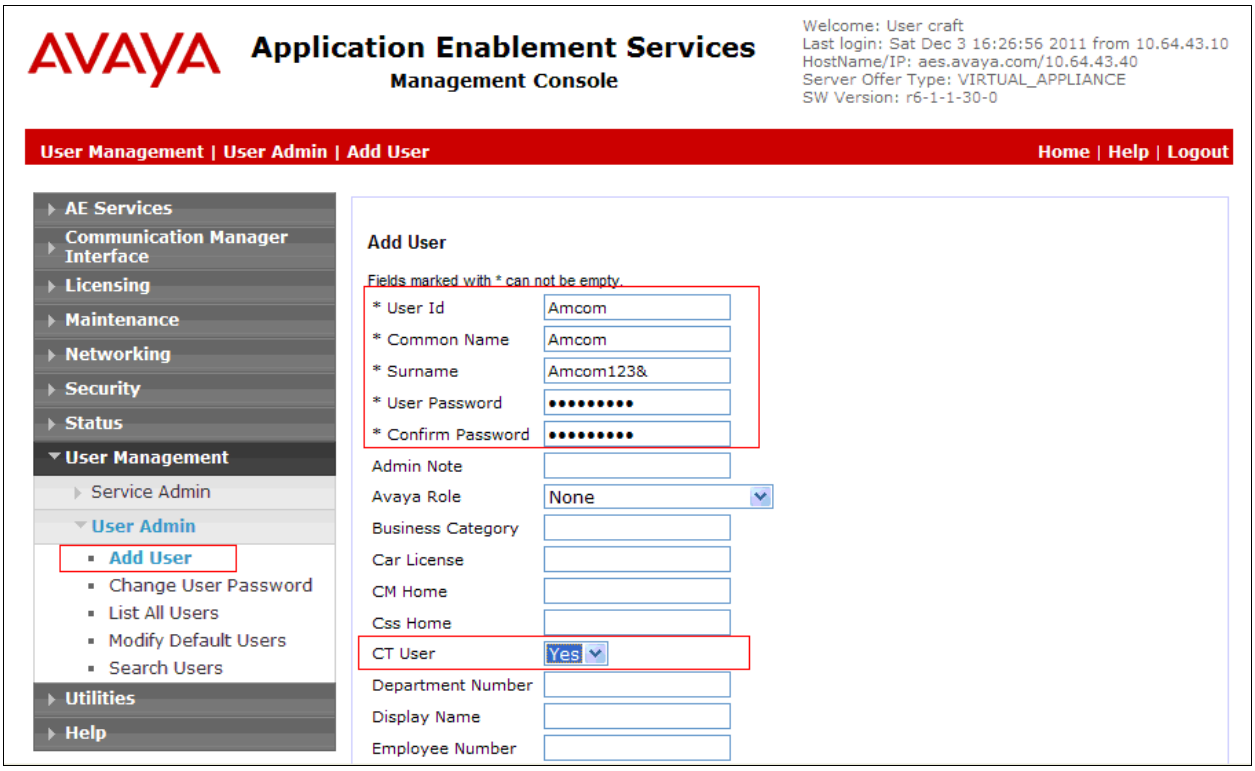
6.3. Configure the CTI Users

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

The above information (User ID and User Password) must match with the information configured in the Amcom AnswerPro Configuration page in **Section 7**.

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.



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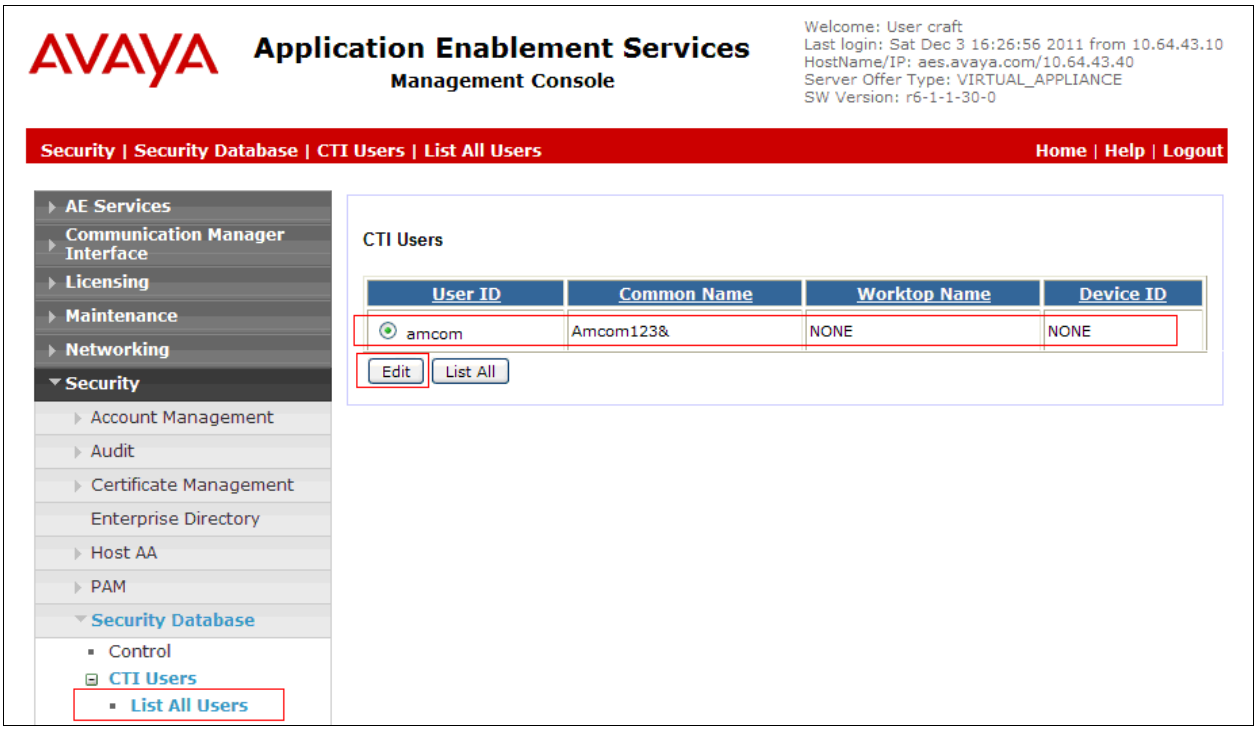
Once the user is created, navigate to the **Security → Security Database → CTI Users → List All Users** link from the left pane of the window. Select the User ID created previously, and click the **Edit** button to set the permission of the user.



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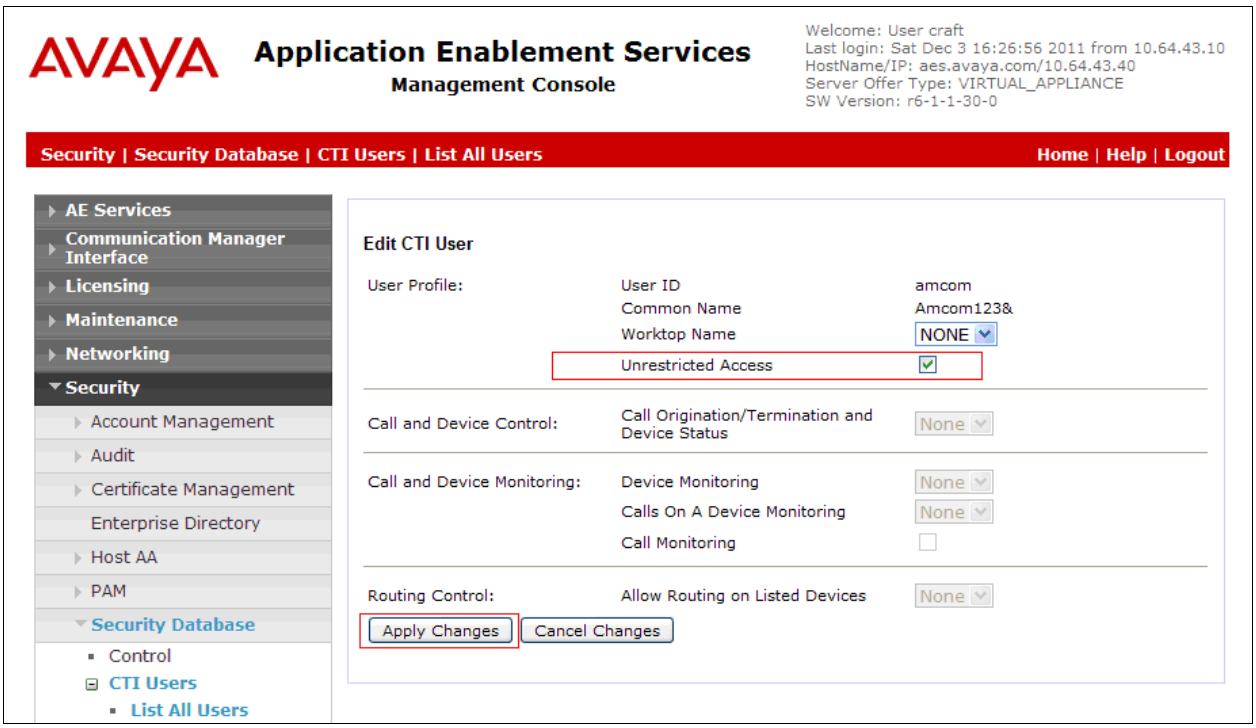
Provide the user with unrestricted access privileges by checking the **Unrestricted Access** checkbox. Click on the **Apply Changes** button.



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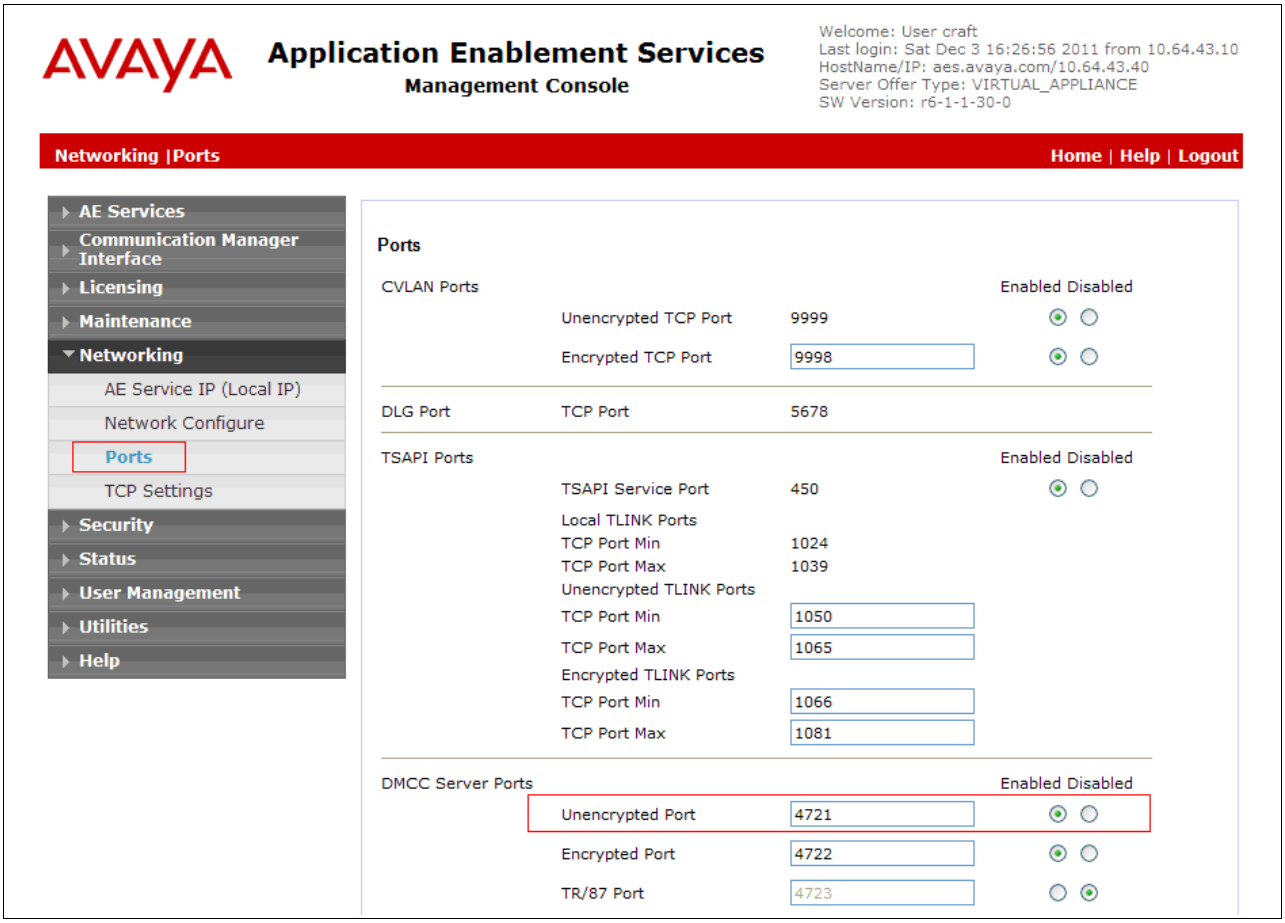
6.4. Configure the DMCC Port

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.



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7. Configure Amcom AnswerPro

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

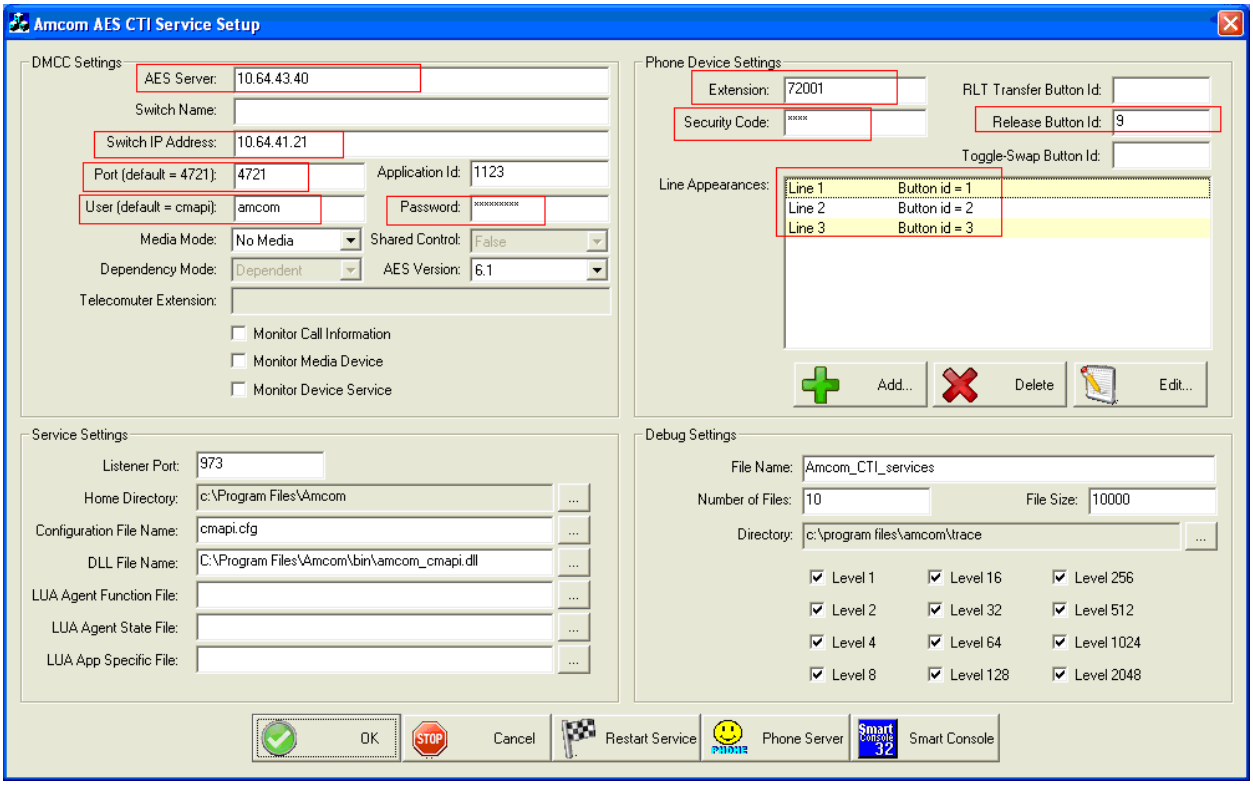
The following shows the **Amcom AES CTI Services Setup** page. Provide the following information:

Under DMCC Settings

- **AES Server** – Enter the IP address of the Application Enablement Services server.
- **Switch IP Address** – Enter the procr IP address of Avaya S8300D server.
- **Port** – Enter the DMCC port (4721) configured in utilized during the compliance test.
- **User** – Enter the user name created for Amcom AnswerPro in **Section 6.3**.
- **Password** – Enter the password created for Amcom AnswerPro in **Section 6.3**.

Under Phone Device Settings

- **Extension** –Enter the extension that will be controlled by Amcom AnswerPro.
- **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.



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8. Verification Steps

The following steps may be used to verify the configuration:

- From the Amcom 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 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 using Amcom AnswerPro to verify consistency.
- Place and answer calls from the controlled telephones manually and using Amcom AnswerPro 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 Amcom AnswerPro application. Amcom AnswerPro 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 Amcom AnswerPro application.

10. Additional References

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

[1] *Administering Avaya Aura™ Communication Manager*, Issue 6.0, June 2010, Document Number 03-300509

[2] *Avaya Aura® Application Enablement Services Administration and Maintenance Guide*, Release 6.1, Issue 2, February 2011.

Product information for Amcom products may be found at http://www.amcomsoft.com/products.cfm.

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