Avaya Solution & Interoperability Test Lab

Application Notes for Bold Technologies Manitou with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Bold Technologies Manitou to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. Bold Technologies Manitou is an alarm automation solution for central stations.

In the compliance testing, Bold Technologies Manitou used the Device, Media, and Call Control interface from Avaya Aura® Application Enablement Services to support the Auto Dialer feature for central station operators.

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 Bold Technologies Manitou to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services. Bold Technologies Manitou is an alarm automation solution for central stations.

In the compliance testing, Bold Technologies Manitou used the Device, Media, and Call Control (DMCC) interface from Avaya Aura® Application Enablement Services to provide the Auto Dialer feature for central station operators.

The central station operators have desktop computers running the Bold Technologies ManitouCS Operator Workstation to handle alarms. The Auto Dialer feature allows an operator to select a customer contact phone number, and have the system place the outbound call on behalf of the operator. Bold Technologies Manitou accomplishes this by using the DMCC interface and the Multiple Registration feature from Avaya Aura® Application Enablement Services to register a virtual IP softphone for the operator, and initiate the outbound call from the virtual IP softphone. The Bold Technologies ManitouCS Operator Workstation can also be used to hang up the outbound call.

2. General Test Approach and Test Results

The feature test cases were performed manually. Initiation and termination of outbound calls were performed using the ManitouCS Operator Workstation. Additional call controls such as hold, resume, transfer, and conference were performed from the operator telephone.

The serviceability test cases were performed manually by disconnecting and reconnecting the Ethernet connection to Manitou and to the ManitouCS Operator Workstation.

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 Manitou:

- Use of DMCC registration and monitoring services to register and monitor the virtual IP softphones.
- Use of DMCC call control services to initiate and drop outbound calls via the virtual IP softphones.
- Proper passing of replacement calling party number in the User-to-User Information parameter.
- Proper handling of outbound call for scenarios involving invalid number, internal destination, external destination, drop, hold, resume, transfer, conference, multiple operators, and multiple calls.

The serviceability testing focused on verifying the ability of Manitou to recover from adverse conditions, such as disconnecting and reconnecting the Ethernet connection to Manitou and to the ManitouCS Operator Workstation.

2.2. Test Results

All test cases were executed and verified. The following were observations on Manitou from the compliance testing.

- When the operator uses ManitouCS Operator Workstation to drop from an active conference, by design the conference call is cleared and therefore all remaining parties are dropped.
- The ManitouCS Operator Workstation displays the generic "Unknown error in connecting" for any failures from the outbound call, including a busy destination.
- The ManitouCS Operator Workstation may generate multiple instances upon server and/or client Ethernet disruptions. The multiple instances do not have downside impact as any can continue to be used, and the operator can manually close the extra instances as desired.

2.3. Support

Technical support on Manitou can be obtained through the following:

- **Phone:** (719) 593-2829
- **Email:** support@boldgroup.com

3. Reference Configuration

Manitou can be configured on a single server or with components distributed across multiple servers. The compliance test configuration used a single server configuration, which also hosted the ManitouCS Supervisor Workstation application, as shown in **Figure 1**.

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

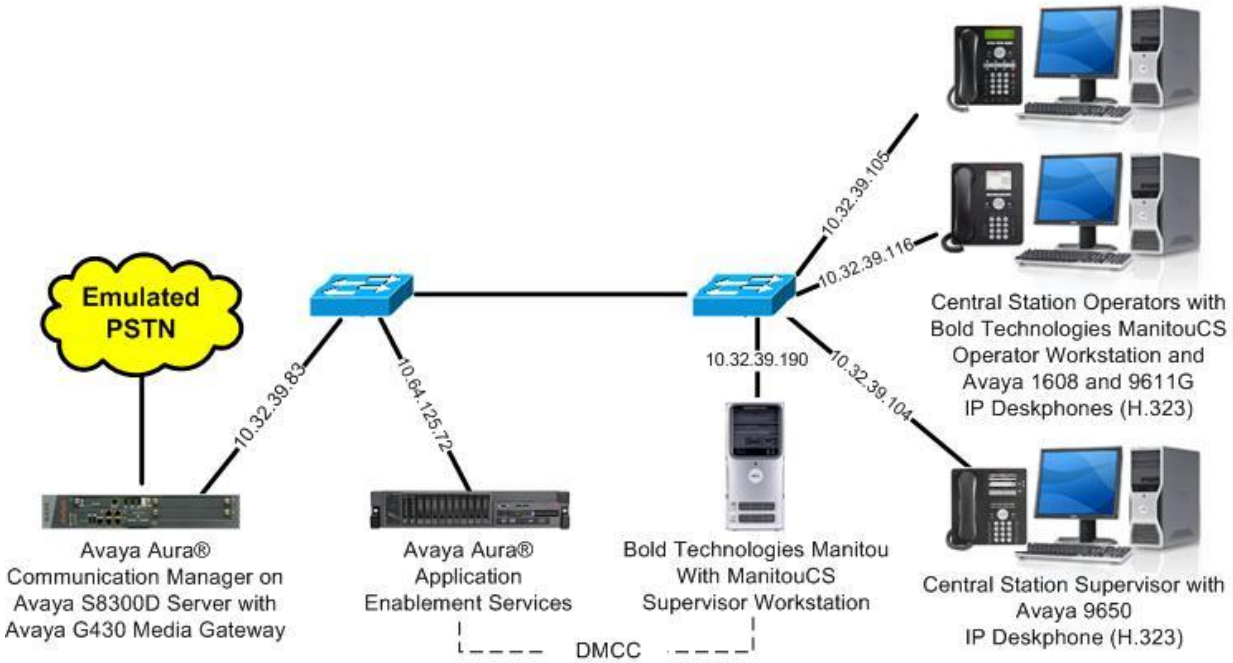


Figure 1: Compliance Testing Configuration

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	6.2 SP5 (R016x.02.0.823.0-20396)
Avaya Aura® Application Enablement Services	6.2 (r6-2-0-18-0 Patch 1)
Avaya 1608 IP Deskphone (H.323)	1.302S
Avaya 9611G IP Deskphone (H.323)	6.2209
Avaya 9650 IP Deskphone (H.323)	3.105S
Bold Technologies Manitou on Microsoft Windows 2008 R2 Standard • PBXServer • ManitouCS Supervisor Workstation • Avaya DMCC .NET (ServiceProvider.dll)	1.61.0.885 SP1 1.61.4827.650 1.61.0.682 6.2.0.29
Bold Technologies ManitouCS Operator Workstation on Microsoft Windows XP Professional • BoldPBX.tsp	1.61.0.885 2002 SP3 1.61.4827.381

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 special applications
- Administer operator stations

5.1. Verify License

Log into the System Access Terminal (SAT) 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)? y              Authorization Codes? y
        Analog Trunk Incoming Call ID? y                      CAS Branch? n
 A/D Grp/Sys List Dialing Start at 01? y                        CAS Main? n
Answer Supervision by Call Classifier? y                Change COR by FAC? n
                                ARS? y  Computer Telephony Adjunct Links? y
                ARS/AAR Partitioning? y  Cvg Of Calls Redirected Off-net? y
          ARS/AAR Dialing without FAC? y                      DCS (Basic)? y
          ASAI Link Core Capabilities? y                DCS Call Coverage? y
          ASAI Link Plus Capabilities? y               DCS with Rerouting? y
       Async. Transfer Mode (ATM) PNC? n
```

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: TSAPI Link
```

5.3. Administer Special Applications

Use the "change system-parameters special-applications" command, and navigate to **Page 4**. Enable the **(SA8481) – Replace Calling Party Number with ASAI ANI** special application, as shown below.

This feature allows Manitou to supply calling party number information as part of the third party make call request for outgoing ISDN calls.

```
change system-parameters special-applications                    Page   4 of  10
                            SPECIAL APPLICATIONS

     (SA8481) - Replace Calling Party Number with ASAI ANI? y
               (SA8500) - Expanded UUI Display Information? n
                 (SA8506) - Altura Interoperability (FIPN)? n
                (SA8507) - H245 Support With Other Vendors? n
                (SA8508) - Multiple Emergency Access Codes? n
 (SA8510) - NTT Mapping of ISDN Called-Party Subaddress IE? n
                      (SA8517) - Authorization Code By COR? n

          (SA8520) - Hoteling Application for IP Terminals? n
  (SA8558) - Increase Automatic MWI & VuStats (S8700 only)? n
                (SA8567) - PHS X-Station Mobility over IP? n
       (SA8569) - No Service Observing Tone Heard by Agent? n
                (SA8573) - Call xfer via ASAI on CAS Main? n
          (SA8582) - PSA Location and Display Enhancements? n
               (SA8587) - Networked PSA via QSIG Diversion? n
                         (SA8589) - Background BSR Polling? n
                   (SA8608) - Increase Crisis Alert Buttons? n
                        (SA8621) - SCH Feature Enhancements? n
```

5.4. Administer Operator Stations

Use the "change station n" command, where "n" is the first operator station extension, in this case "45001".

Enable **IP SoftPhone**, to allow for a virtual IP softphone to be registered against the station. Note the value of **Security Code**, which will be used later to configure Manitou.

```
change station 45001                                        Page   1 of   4
                                    STATION

Extension: 45001                        Lock Messages? n               BCC: 0
     Type: 1608                         Security Code: 12345            TN: 1
     Port: S00000                     Coverage Path 1: 1               COR: 1
     Name: Bold Operator #1           Coverage Path 2:                 COS: 1
                                      Hunt-to Station:
STATION OPTIONS
                                          Time of Day Lock Table:
             Loss Group: 19          Personalized Ringing Pattern: 1
                                               Message Lamp Ext: 45001
           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
```

Repeat this section to administer all operator stations. In the compliance testing, two stations were administered as shown below.

```
list station 45001 count 2

                                  STATIONS

Ext/          Port/   Name/                        Room/       Cv1/ COR/   Cable/
 Hunt-to       Type      Surv GK NN        Move     Data Ext    Cv2  COS TN Jack

45001         S00000  Bold Operator #1                        1    1
               1608                       no                      1   1
45002         S00045  Bold Operator #2                        1    1
               9611                       no                      1   1
```

6. Configure Avaya Aura® Application Enablement Services

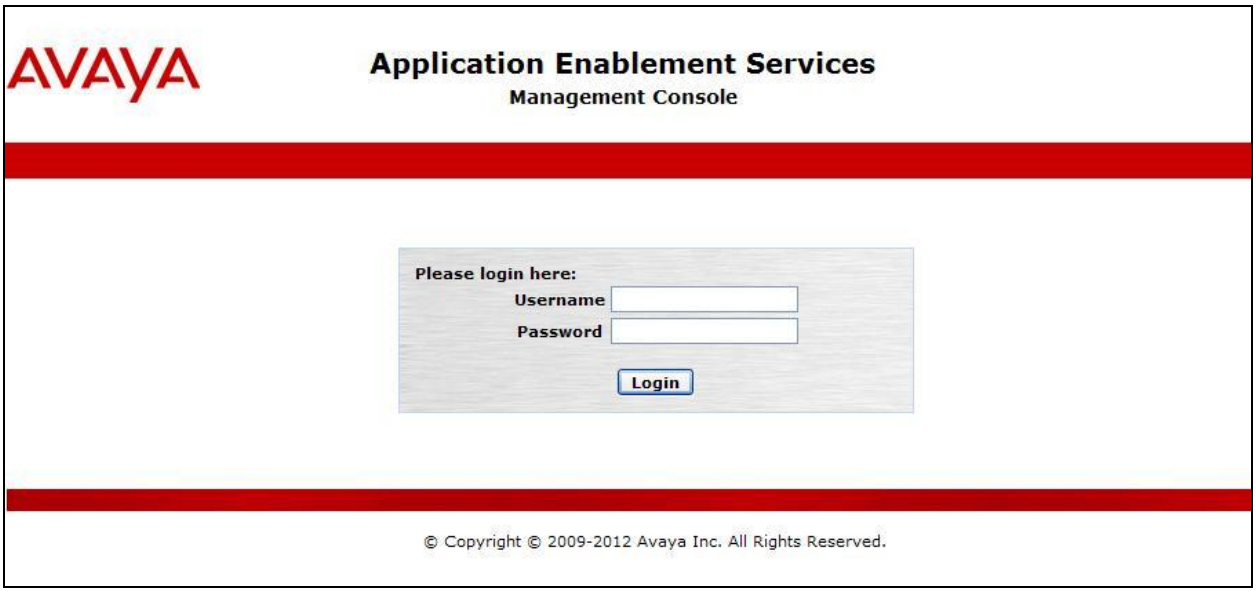
This section provides the procedures for configuring Application Enablement Services. The procedures include the following areas:

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

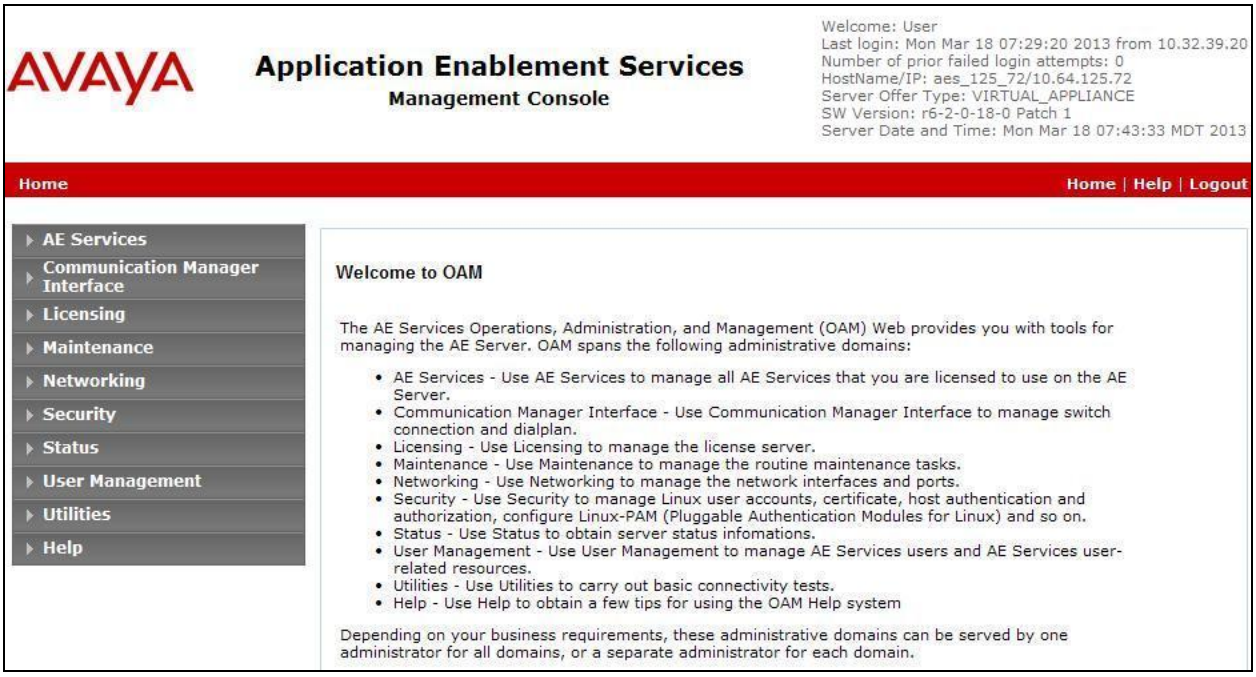
6.1. Launch OAM Interface

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

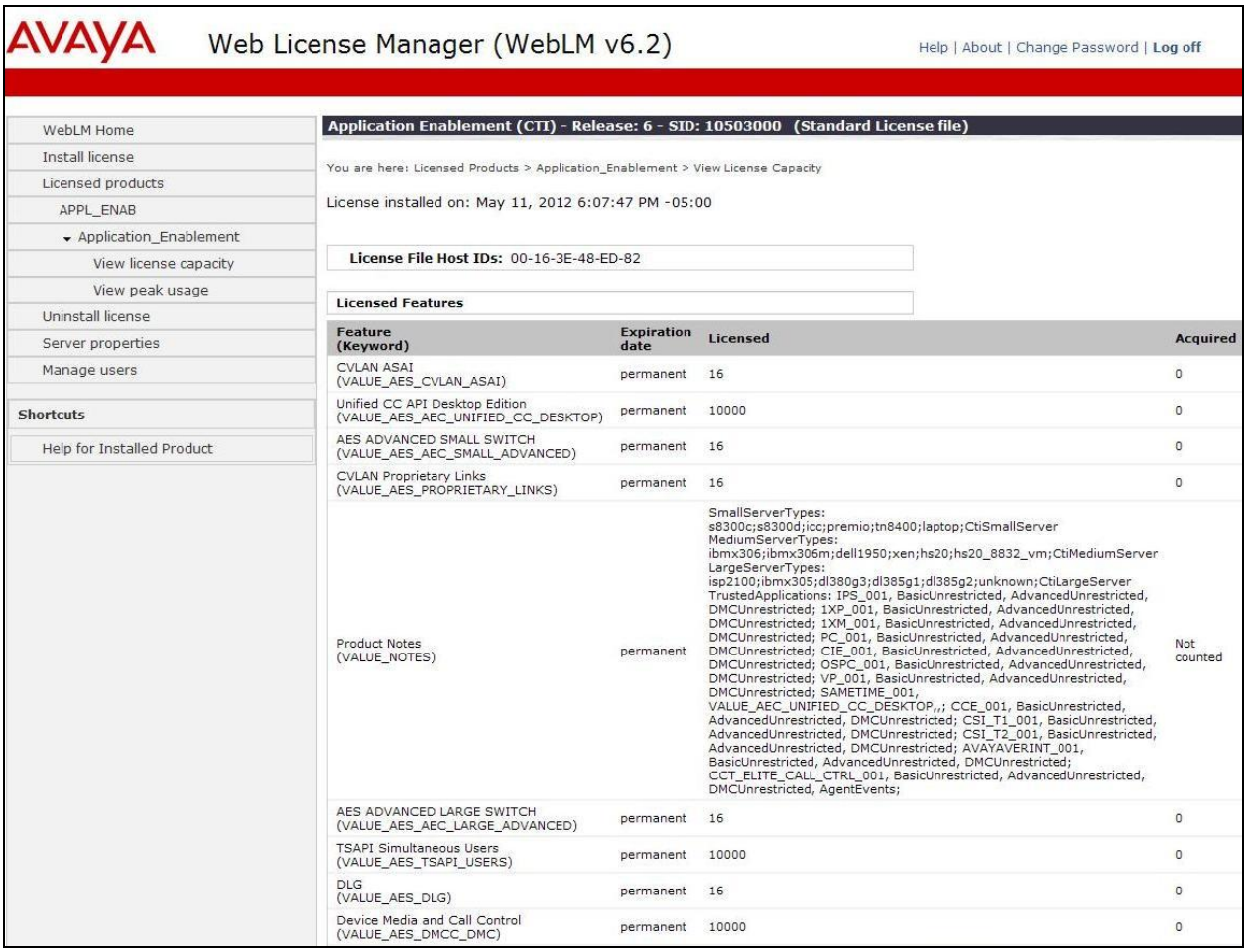


6.2. Verify License

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

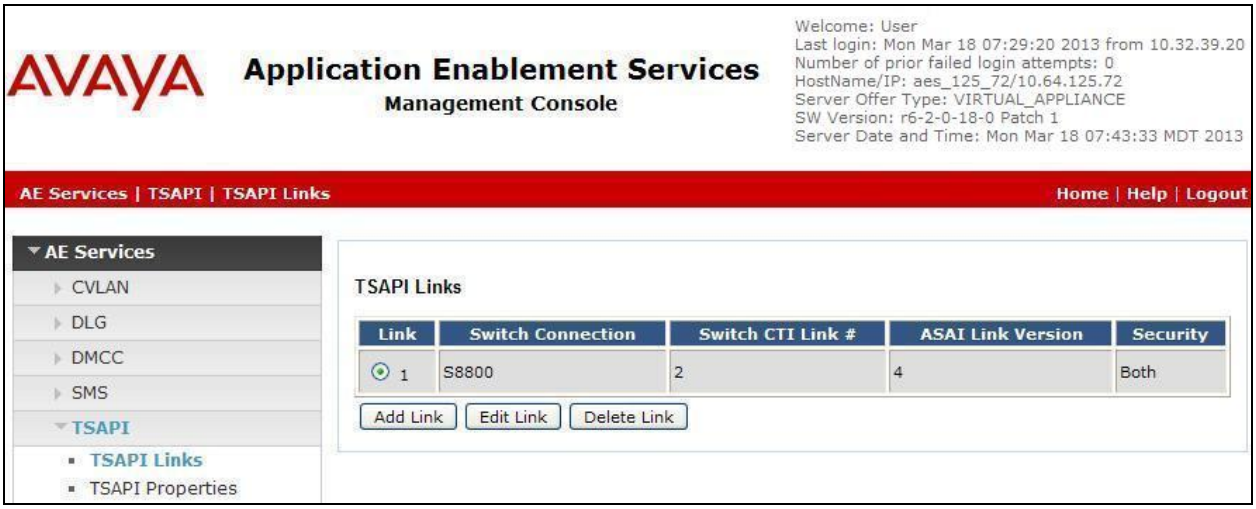
The **Web License Manager** screen below is displayed. Select **Licensed products → APPL_ENAB → Application_Enablement** in the left pane, to display the **Licensed Features** in the right pane.

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 for monitoring and call control via DMCC, and the DMCC license is used for the virtual IP softphones.



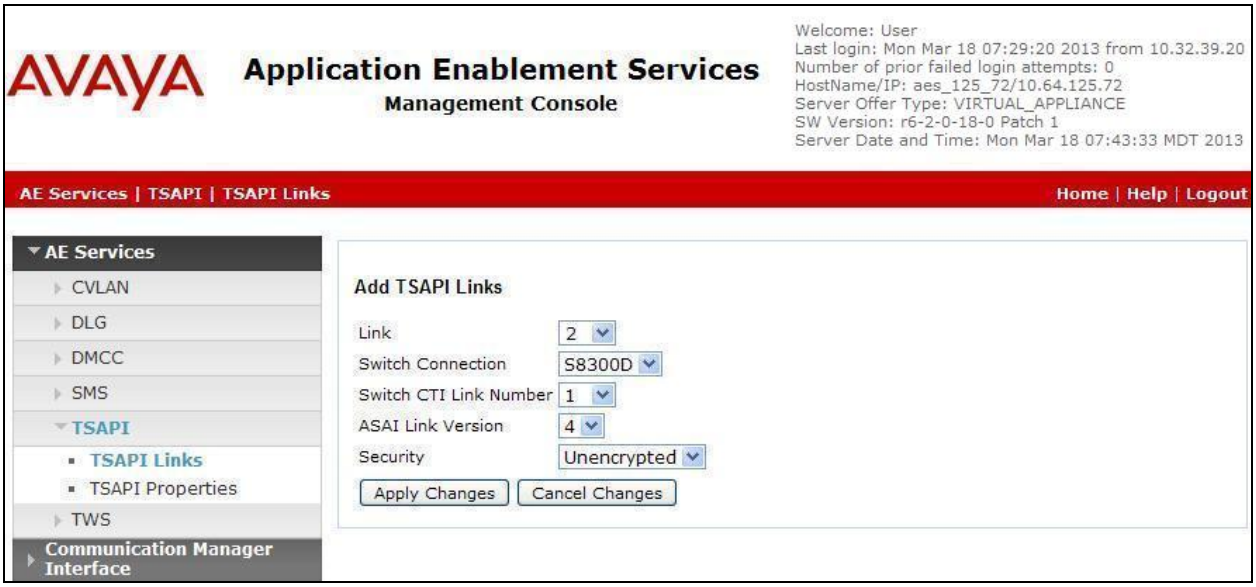
6.3. Administer TSAPI Link

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



6.4. Administer H.323 Gatekeeper

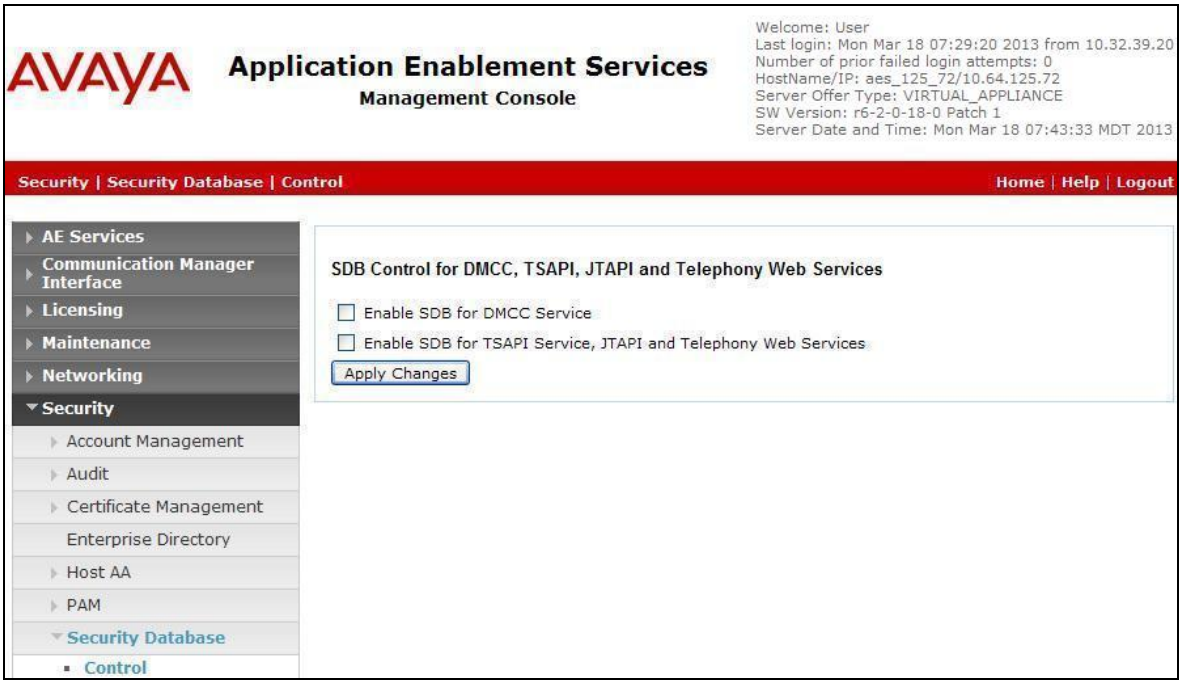
Select **Communication Manager Interface → Switch Connections** from the left pane. The **Switch Connections** screen shows a listing of the existing switch connections.

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 **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 be used as the H.323 gatekeeper, in this case "10.32.39.83" as shown below. Click **Add Name or IP**.

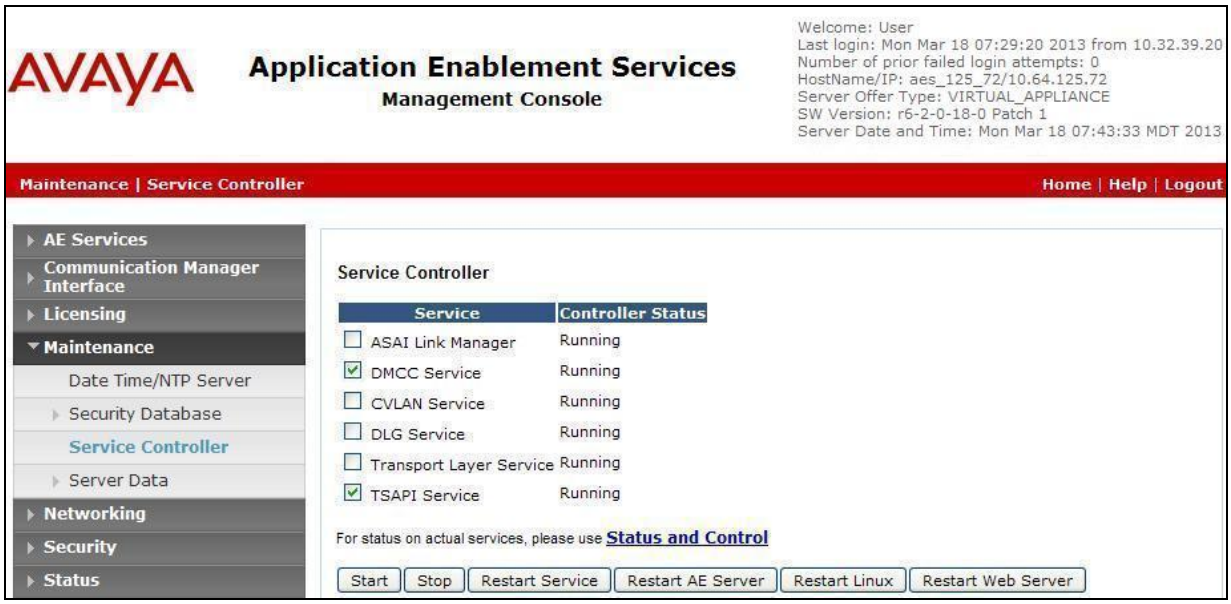
6.5. Disable Security Database

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.



6.6. Restart Services

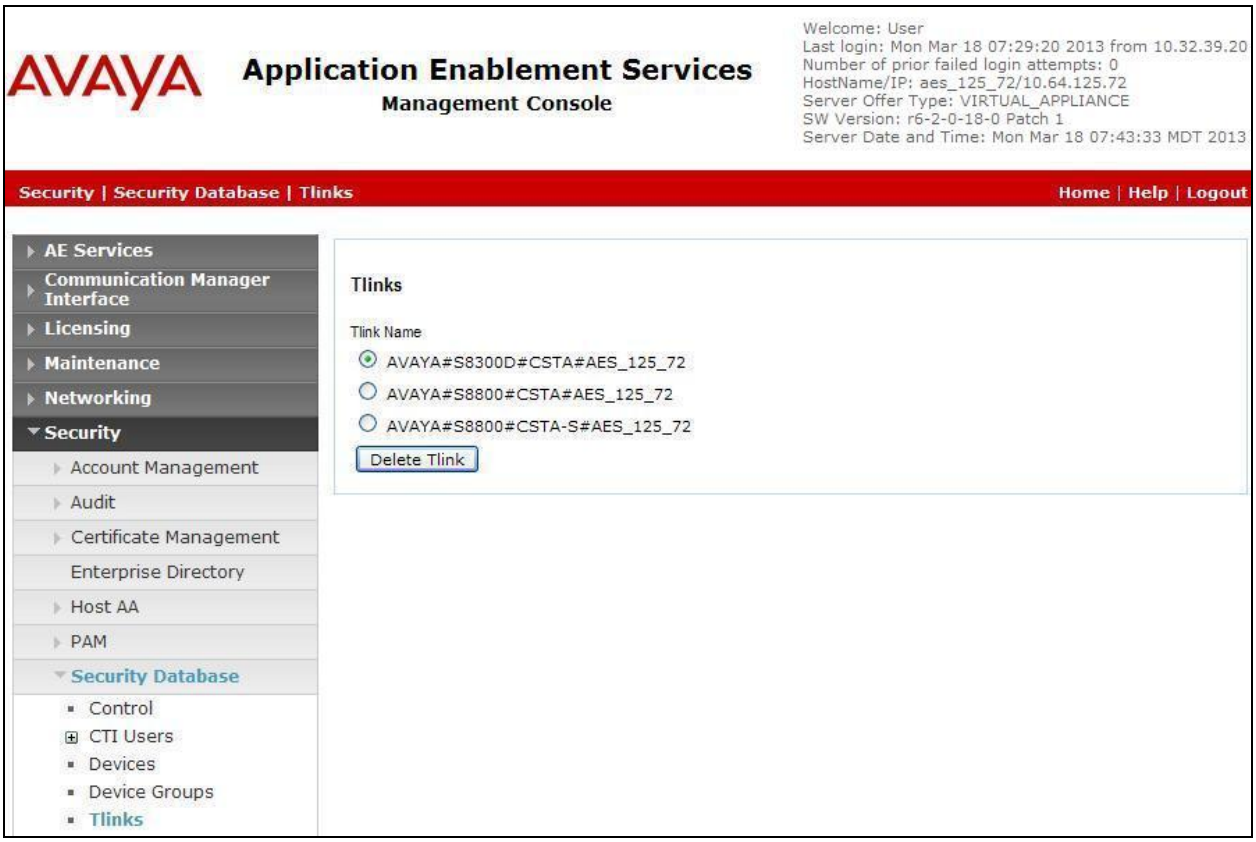
Select **Maintenance → Service Controller** from the left pane, to display the **Service Controller** screen in the right pane. Check **DMCC Service** and **TSAPI Service**, and click **Restart Service**.



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 Manitou.

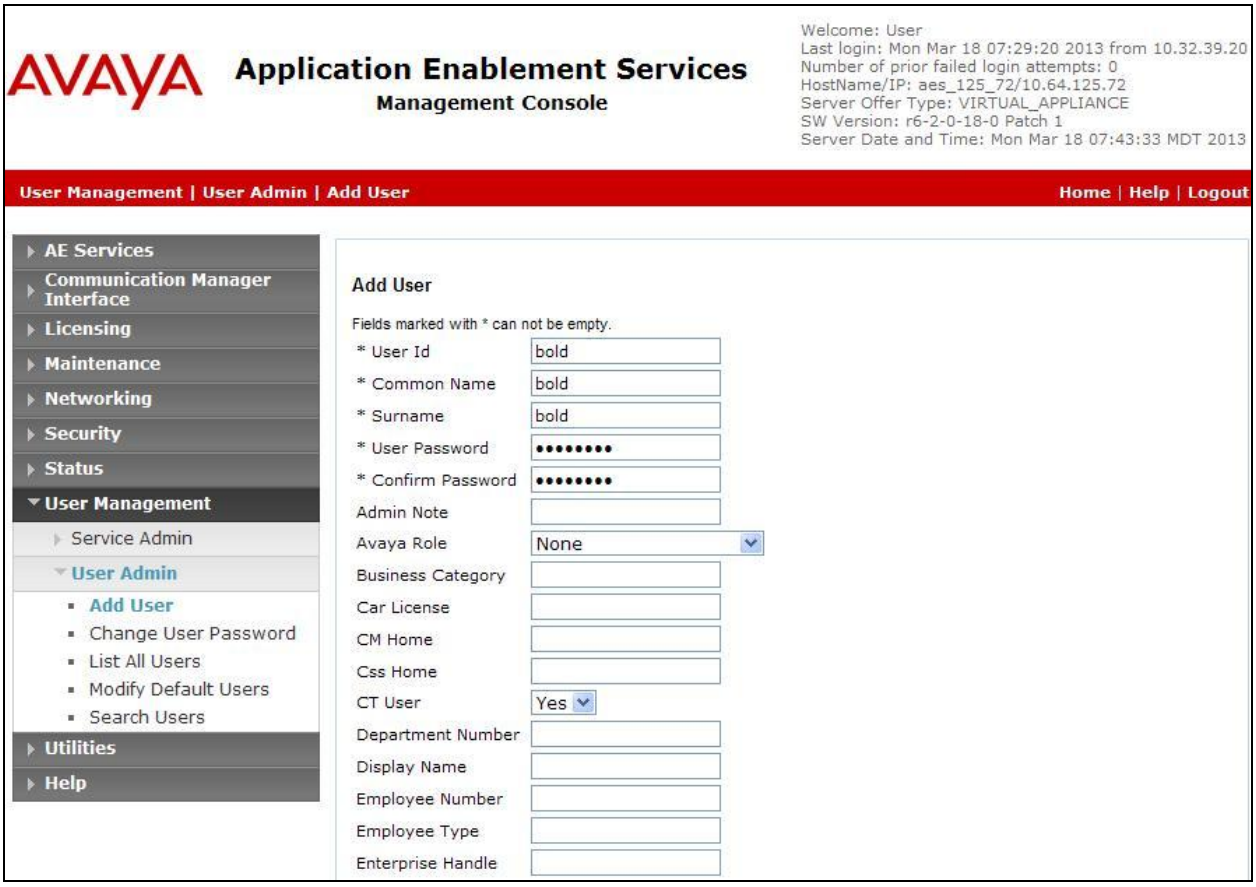
In this case, the associated Tlink name is "AVAYA#**S8300D**#CSTA#AES2-S8800". Note the use of the switch connection "S8300D" from **Section 6.3** as part of the Tlink name.



6.8. Administer Bold User

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

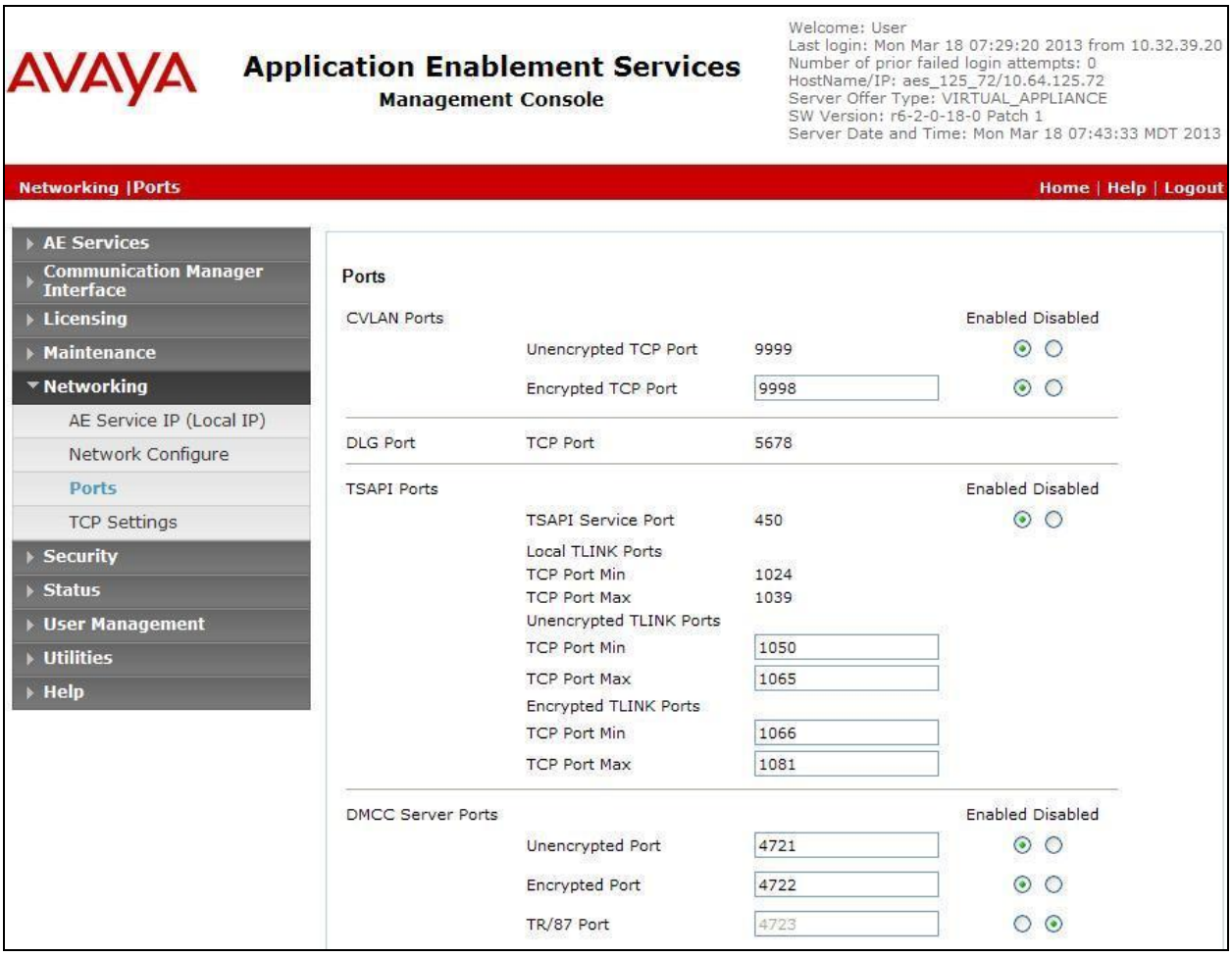
Enter desired values for **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password**. For **CT User**, select "Yes" from the drop-down list. Retain the default value in the remaining fields.



6.9. Enable 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 **Unencrypted Port** under the **Enabled** column, as shown below. Retain the default values in the remaining fields.



7. Configure Bold Technologies Manitou

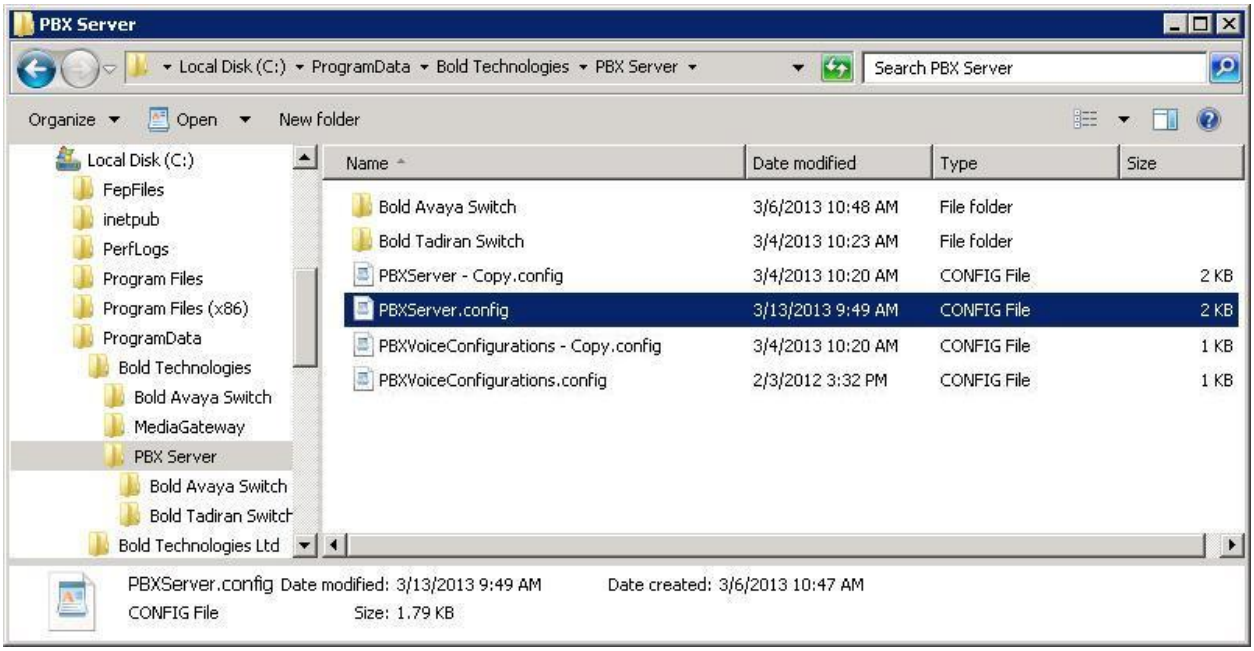
This section provides the procedures for configuring Manitou. The procedures include the following areas:

- Administer PBX server
- Administer Avaya switch
- Administer extensions

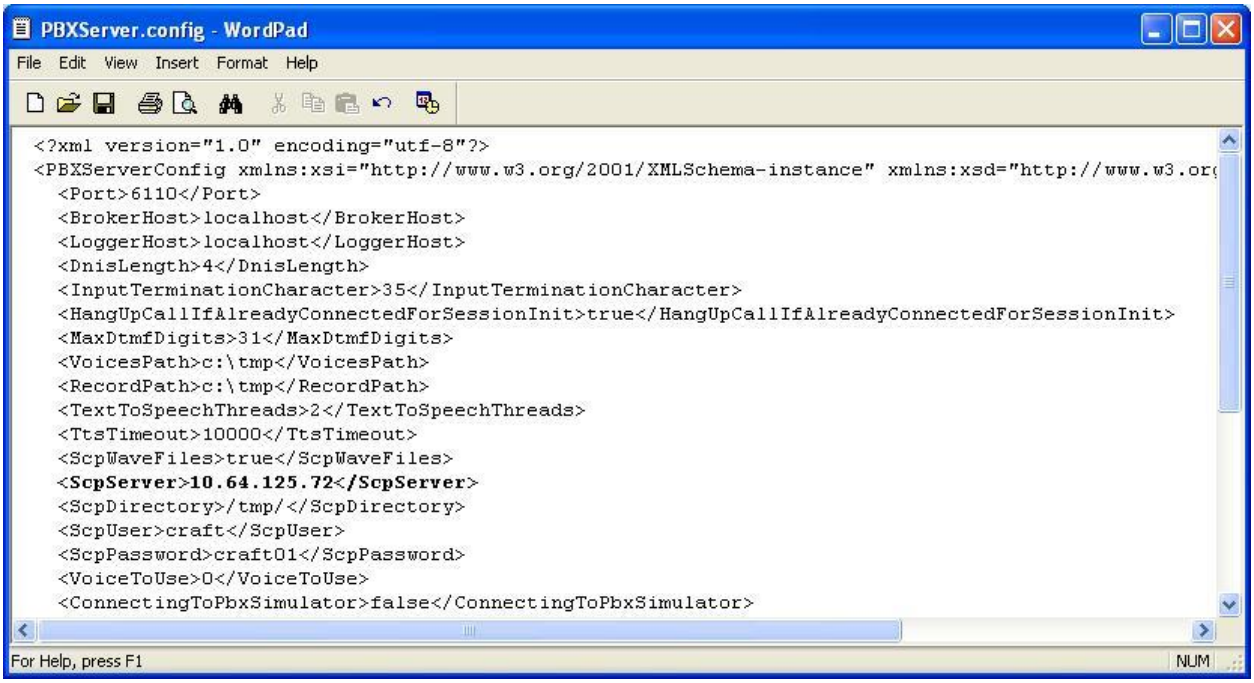
The configuration of Manitou is performed by Bold Technologies technicians. The procedural steps are presented in these Application Notes for informational purposes.

7.1. Administer PBX Server

From the Manitou server running the PBXServer component, navigate to the **C:\ProgramData\ Bold Technologies\PBX Server** directory to locate the **PBXServer.config** file shown below.

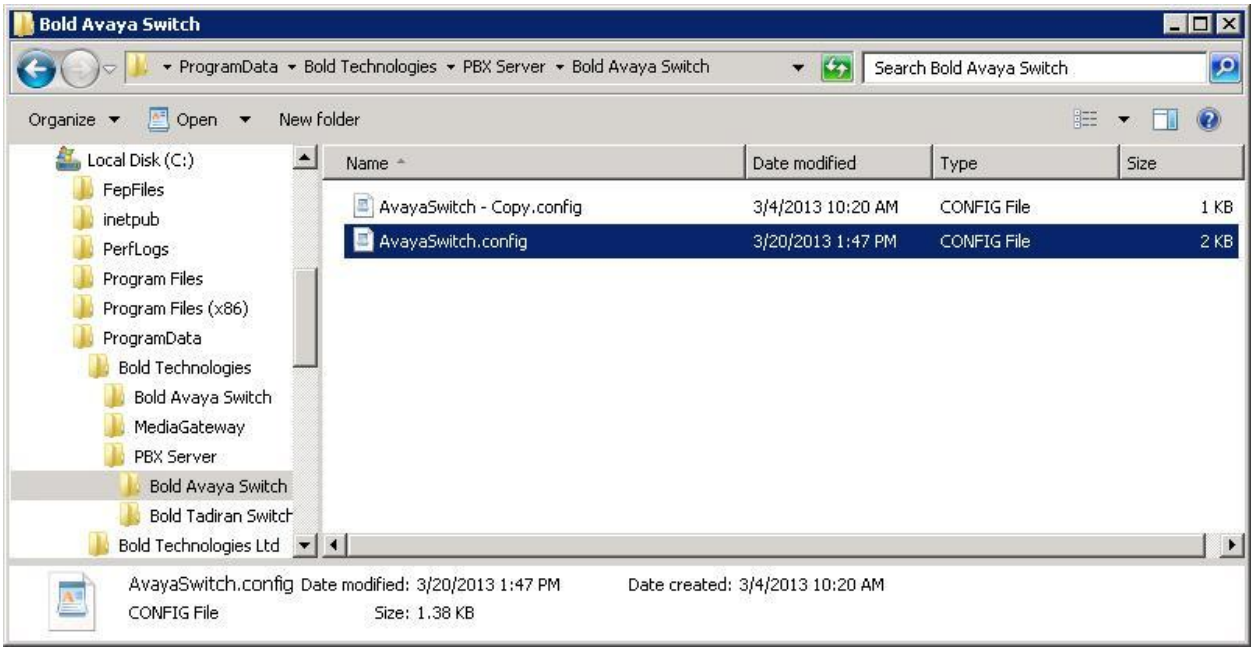


Open the **PBXServer.config** file with the WordPad application. Navigate to the **ScpServer** parameter, and set the value to the IP address of Application Enablement Services, as shown below. Retain the default values in the remaining fields.



7.2. Administer Avaya Switch

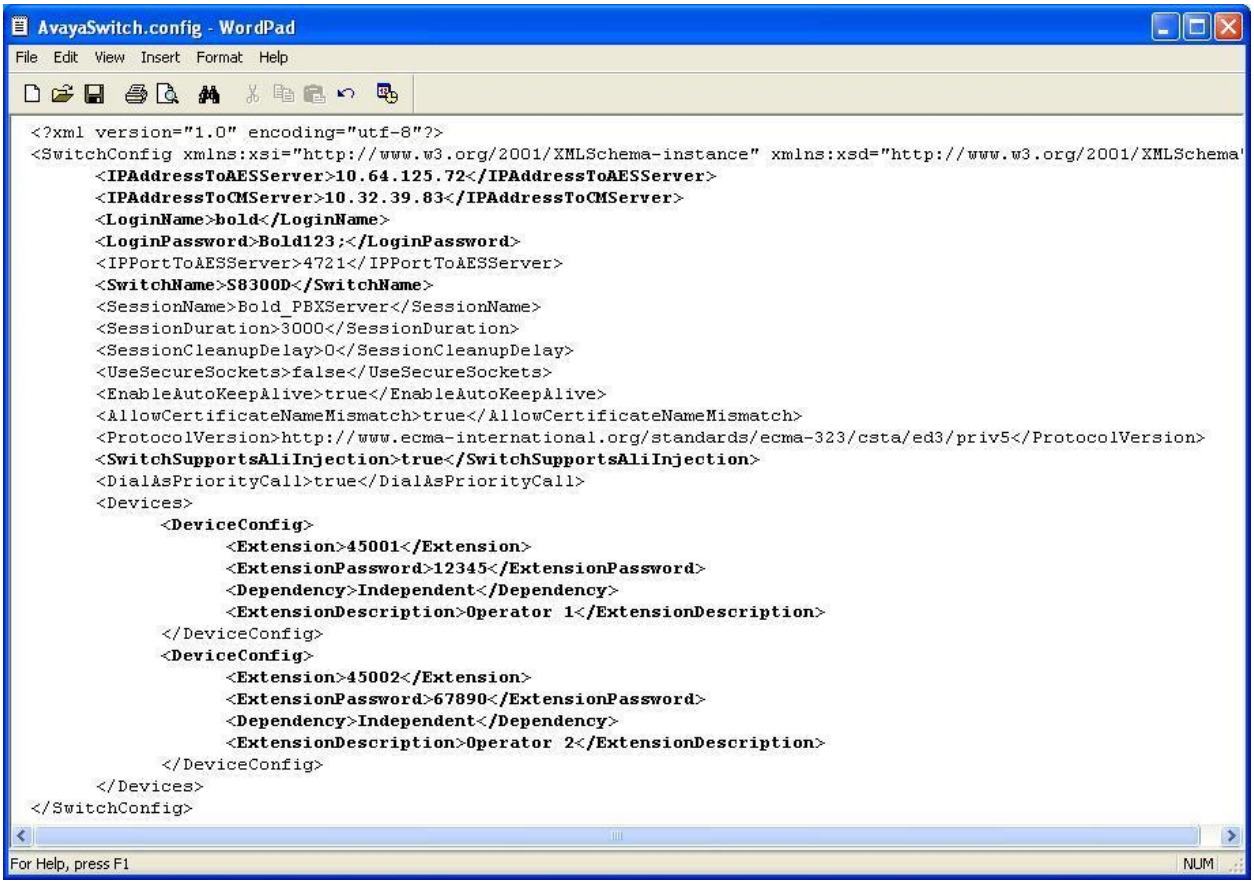
From the Manitou server running the PBXServer component, navigate to the **C:\ProgramData\ Bold Technologies\PBX Server\Bold Avaya Switch** directory to locate the **AvayaSwitch.config** file shown below.



Open the **AvayaSwitch.config** file with the WordPad application. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **IPAddressToAESServer:** IP address of Application Enablement Services.
- **IPAddressToCMServer:** IP address of H.323 gatekeeper from **Section 6.4**.
- **LoginName:** The Bold user credential from **Section 6.8**.
- **LoginPassword:** The Bold user credential from **Section 6.8**.
- **SwitchName:** Switch connection name from **Section 6.3**.
- **SwitchSupportsAliInjection:** "true"

For each operator station from **Section 5.4**, create a virtual IP softphone device in the **DeviceConfig** subsection as shown below. For **Extension** and **ExtensionPassword**, use the operator station extension and security code from **Section 5.4**. Use "Independent" for **Dependency**, and enter a desired description for **ExtensionDescription**.



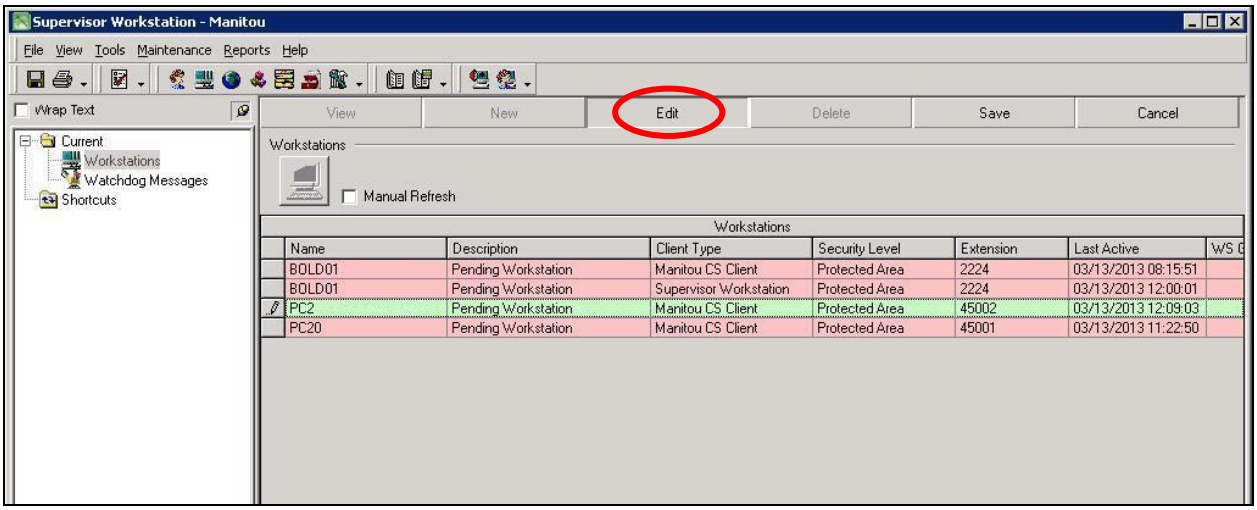
7.3. Administer Extensions

From the Manitou server running the ManitouCS Supervisor Application, select **Start → All Programs → Bold Technologies → Supervisor Workstation** to launch the application, and log in using the appropriate credentials.

The **Supervisor Workstation – Manitou** screen is displayed. Select **Maintenance → Workstations** from the top menu, to display the updated screen below.

Select a workstation entry that corresponds to an operator, in this case **PC2**. Click **Edit** toward the top of the screen.

In the workstation entry, click on the **Extension** field and enter the corresponding operator station extension from **Section 5.4**, in this case "45002". Repeat this section for all operator workstations.



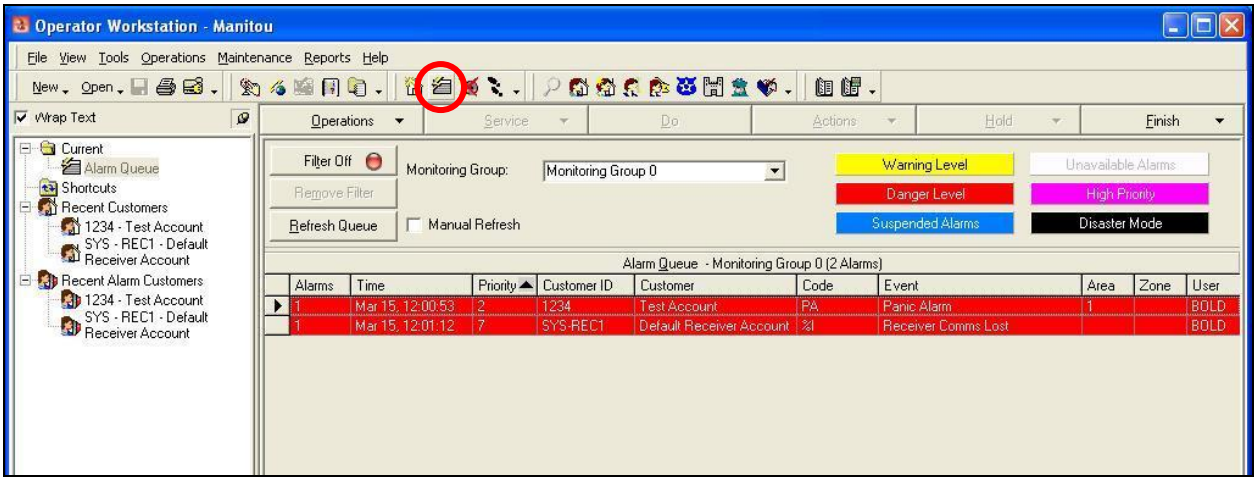
8. Verification Steps

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

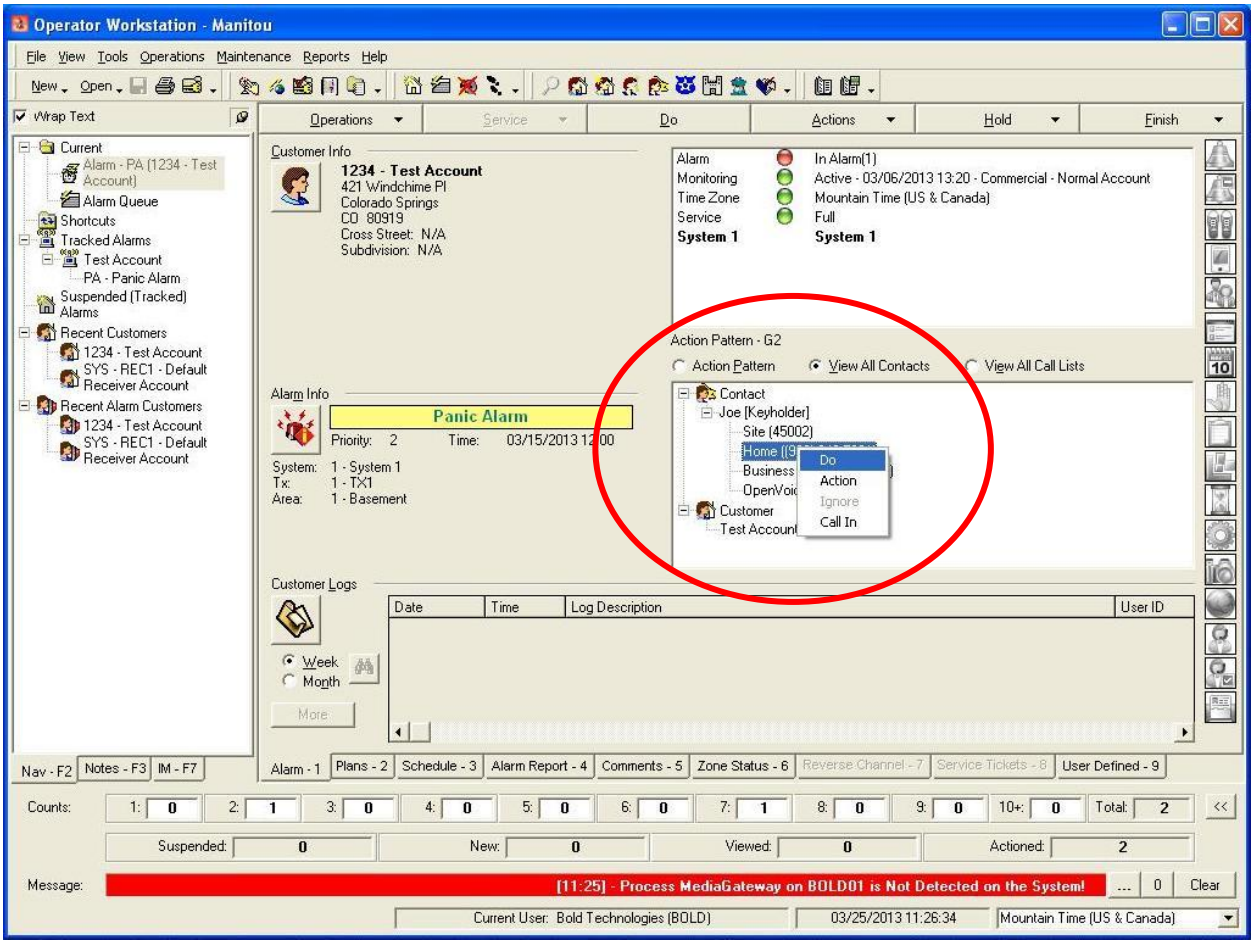
8.1. Verify Bold Technologies Manitou

From the operator PC running the ManitouCS Operator Workstation application, select **Start → All Programs → Bold Technologies → Manitou Workstation** to launch the application, and log in using the appropriate credentials.

The **Operator Workstation - Manitou** screen is displayed. Select the **Alarm Queue** icon from the top menu to display a list of outstanding alarms, as shown below. Double click on an alarm entry.



The screen is updated with the details of the alarm and associated customer information. Select **View All Contacts**, and expand the **Contact** listing. Right click on a contact entry and select **Do**, as shown below.

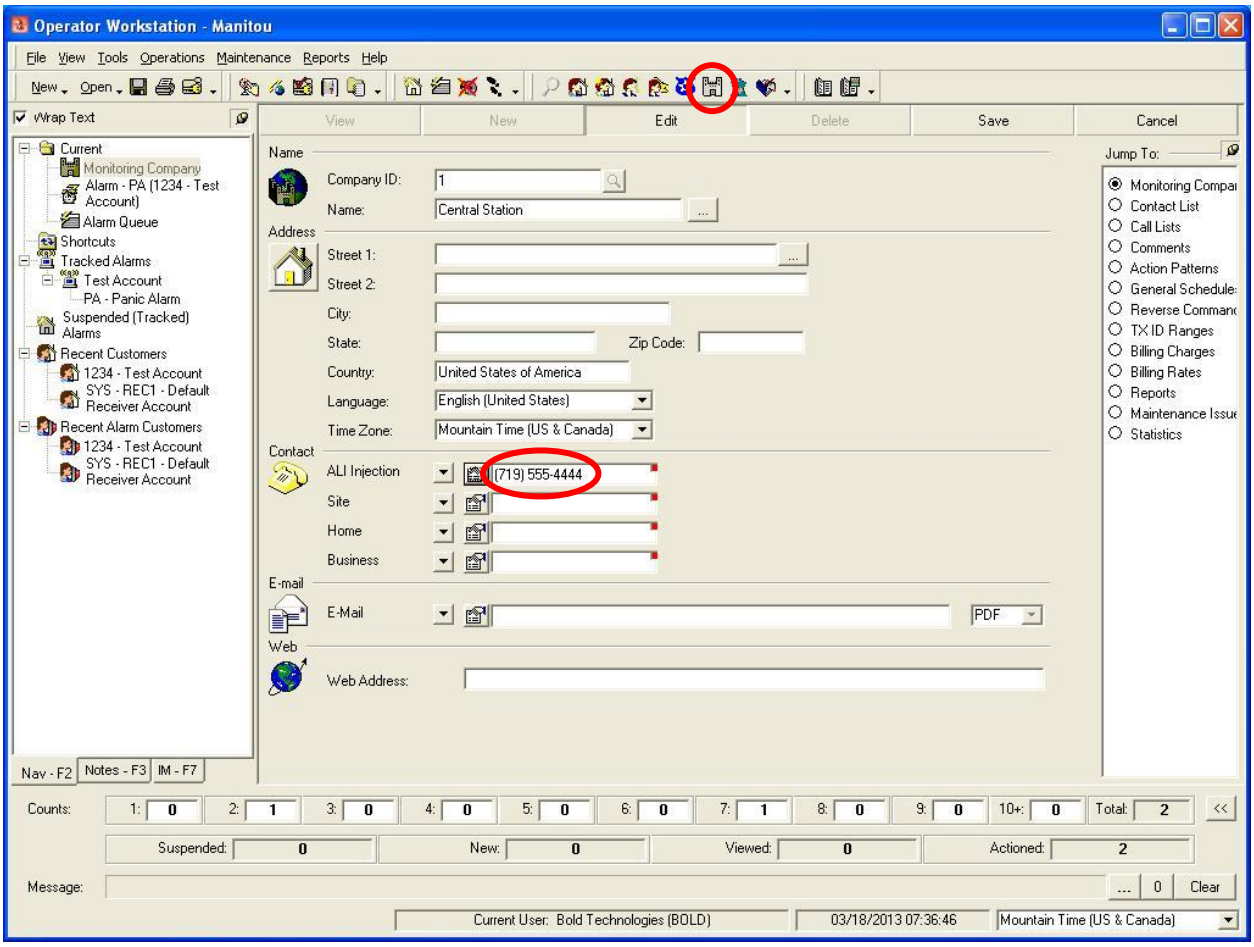


Verify that the **Auto-Dialer** screen is displayed, and that the **Status** is "Dialing", as shown below. Also verify that the call is ringing at the PSTN destination.

Answer the call at the PSTN. Verify that the **Auto-Dialer** screen is updated with **Status** of "Connected", and that the operator station is connected to the PSTN user with two-way talk paths.

From the **Operator Workstation – Manitou** screen, select the **Monitoring Company Maintenance** icon from the top menu, to display the details of the monitoring company.

Verify that the display of the connected PSTN telephone shows the calling number shown below in the **ALI Injection** field.



8.2. Verify Avaya Aura® Communication Manager

On Communication Manager, verify the status of the administered CTI link by using the "status aesvcs cti-link" command. Verify that the **Service State** is "established" for the CTI link administered in **Section 5.2**, as shown below.

```
status aesvcs cti-link

                          AE SERVICES CTI LINK STATUS

CTI   Version  Mnt   AE Services      Service       Msgs     Msgs
Link           Busy  Server           State         Sent     Rcvd

1     4        no    aes_125_72       established   23       21
```

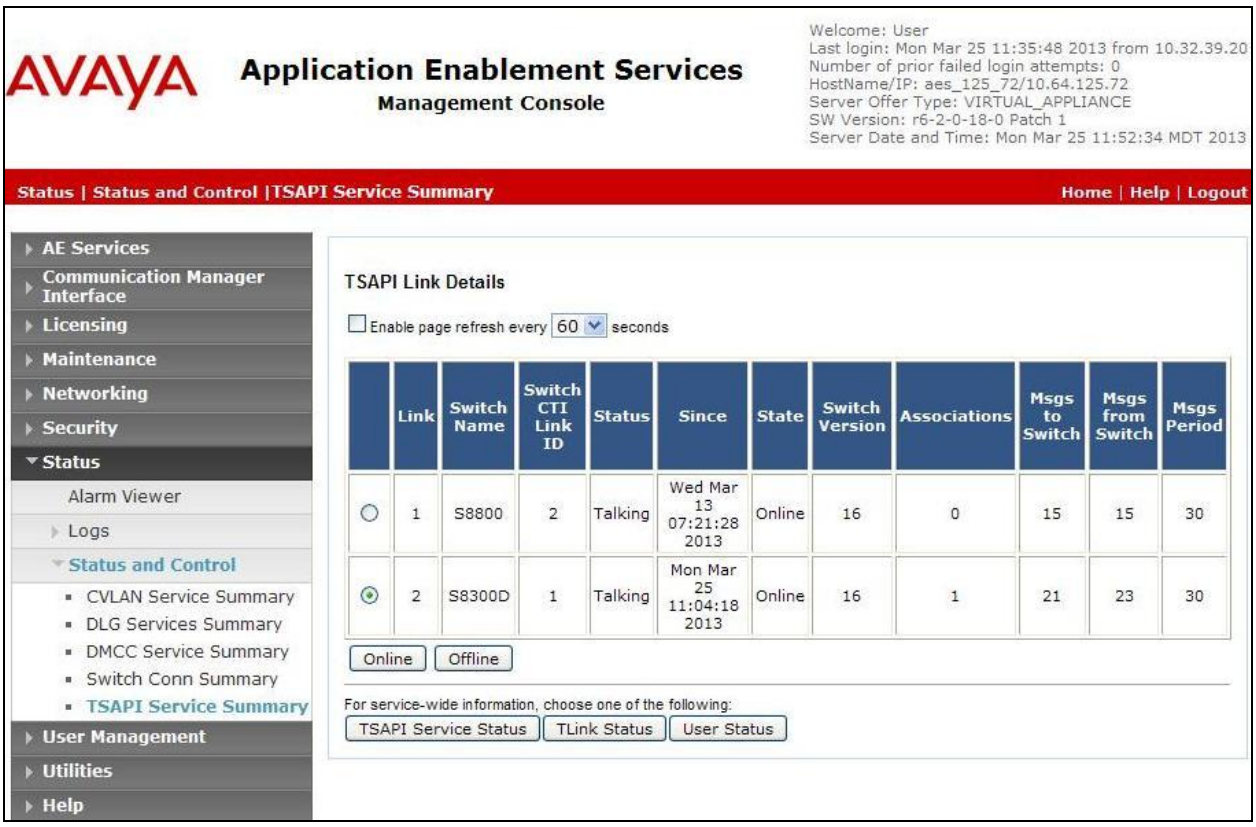
Verify the registration status of the virtual IP softphones by using the "list registered-ip-stations" command. Verify that there is a virtual IP softphone entry for each operator station that is active on an outbound call, as shown below.

```
list registered-ip-stations                                          Page   1

                            REGISTERED IP STATIONS

Station Ext   Set Type/ Prod ID/   TCP Station IP Address/
or Orig Port  Net Rgn   Release    Skt Gatekeeper IP Address
------------- --------- ---------- --- ---------------------------------------
45000         9650      IP_Phone    y  10.32.39.104
              1         3.105S         10.32.39.83
45001         1608      IP_Phone    y  10.32.39.105
              1         1.302S         10.32.39.83
45001         1608      IP_API_A    y  10.64.125.72
              1         3.2040         10.32.39.83
45002         9611      IP_Phone    y  10.32.39.106
              1         6.2209         10.32.39.83
```

8.3. Verify Avaya Aura® Application Enablement Services

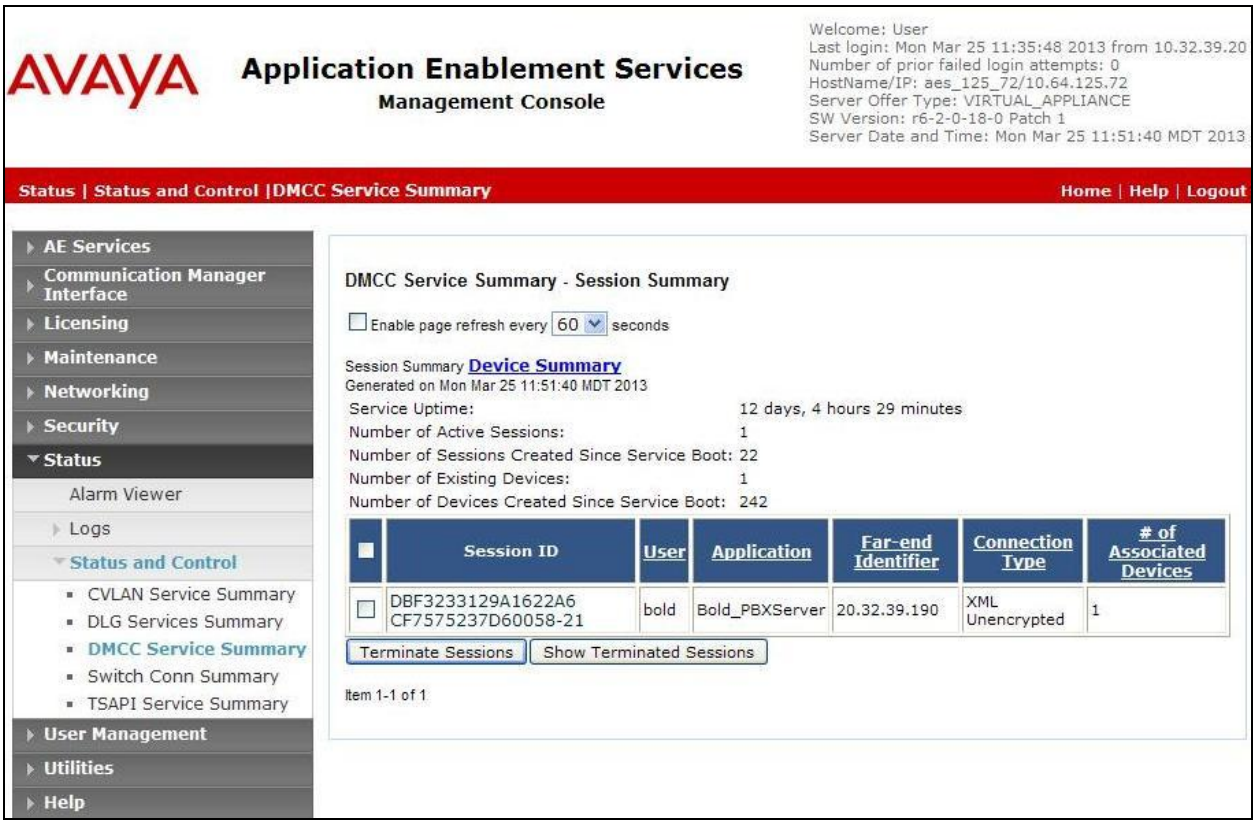
On Application Enablement Services, verify the status of the TSAPI link by selecting **Status → Status and Control → TSAPI Service Summary** from the left pane. The **TSAPI Link Details** screen is displayed.

Verify that the **Status** is "Talking" for the TSAPI link administered in **Section 6.3**, as shown below. Also verify that the corresponding **Associations** column reflects the number of active virtual IP softphones from **Section 8.2**.



Verify the status of the DMCC link by selecting **Status → Status and Control → DMCC Service Summary** from the left pane. The **DMCC Service Summary – Session Summary** screen is displayed.

In the lower portion of the screen, verify that the **User** column shows an active session with the Bold user name from **Section 6.8**, and that the **# of Associated Devices** column reflects the number of active virtual IP softphones from **Section 8.2**.



9. Conclusion

These Application Notes describe the configuration steps required for Bold Technologies Manitou 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 7.0, Release 6.2, July 2012, available at http://support.avaya.com.

2. *Avaya Aura® Application Enablement Services Administration and Maintenance Guide*, Release 6.2, Issue 1, July 2012, available at http://support.avaya.com.

3. *Bold Technologies Manitou CS Operator Workstation*, Manitou CS 1.6.0, February 2013, available at http://support.boldgroup.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.