

#### Avaya Solution & Interoperability Test Lab

Application Notes for Amcom Enterprise Alert and Amcom ALI Alert with Avaya Aura® Application Enablement Services and Avaya Aura® Communication Manager – Issue 1.0

#### **Abstract**

These Application Notes contain instructions for Amcom Enterprise Alert and Amcom ALI Alert with Avaya Aura® Application Enablement Services and Avaya Aura® Communication Manager to successfully interoperate.

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

Amcom Enterprise Alert (Enterprise Alert) and Amcom ALI Alert (ALI Alert) are Enhanced E911 solutions. Enterprise Alert integrates with the Avaya Aura® Communications Manager by integrating with a PRI trunk which routes emergency (911) calls. By monitoring the D channel, Enterprise Alert captures 911 call events, performs ANI substitution, records the call and provides passive monitoring that bridges one or more phones on the call so that internal resources can listen to the call. ALI Alert monitors a crises alert phone to capture 911 call events. It provides the same features as Enterprise Alert except Passive monitoring and call recording. Both solutions rely on Avaya Site Administration to automatically obtain the extension and extension location of the non-IP phones. Both solutions rely on the Amcom Avaya inventory function to automatically obtain extension and MAC address of Avaya IP phones (SIP and H.323). Both solutions rely on Amcom's IP phone tracking function and Avaya's Push interface to automatically obtain the location of each IP phone extension. Link layer discovery is used to track the location of the IP phones' MAC address.

To achieve the above functionality Amcom Enterprise Alerts uses the following Avaya Interfaces:

- Avaya Aura® Communication Manager PRI Interface (Enterprise Alert)
- Avaya Aura® Communications Manager Crises Alert phone (ALI Alert)
- Avaya Aura® Application Enablement Services SMS Interface
- Avaya Aura® Communications Manager H.323 phone inventory
- Avaya Aura® Session manager SIP phone inventory
- Avaya Site Administration
- Avaya Aura® Communication Manager and Avaya IP Deskphones SNMP interface
- Avaya IP Deskphones Push Interface

## 2. General Test Approach and Test Results

General test approach was to verify that Amcom Enterprise Alert and ALI Alert are able to successfully integrate with various Avaya Interfaces. Function test scenarios are mentioned in **Section 2.1** 

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

Interoperability testing contained functional test scenarios:

- Location information retrieval using Avaya Site Administration and upload to Amcom ALI Database table
- Avaya IP Endpoints extension and MAC address upload to Amcom ALI database table
- Avaya 9600 Deskphone registration to Amcom Push Application
- Update Emergency Location Extension for Avaya IP Endpoints
- Obtain Emergency Location Extension for Avaya IP Endpoints
- Tracking Avaya IP Endpoints
- Bridging on a phone to an active 911 call via a listen only bridge
- Display of 911 caller extension and location on a networked PC via the Amcom Sentry notification feature.

#### 2.2. Test Results

All planned test cases passed.

#### 2.3. Support

Technical support for the Amcom Enterprise Alert and ALI Alert solution can be obtained by contacting Amcom:

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

# 3. Reference Configuration

**Figure 1** illustrates a sample configuration that consists of Avaya Products and Amcom Enterprise Alert and Amcom ALI Alert. Enterprise Alert uses a configuration that enables the 911 event determination, Passive Monitoring and ANI insertion on the PRI. ALI Alert uses a configuration that uses the Crises Alert phone for 911 call event determination and SMS for ANI insertion (i.e. setting the emergency location extension in the station record).

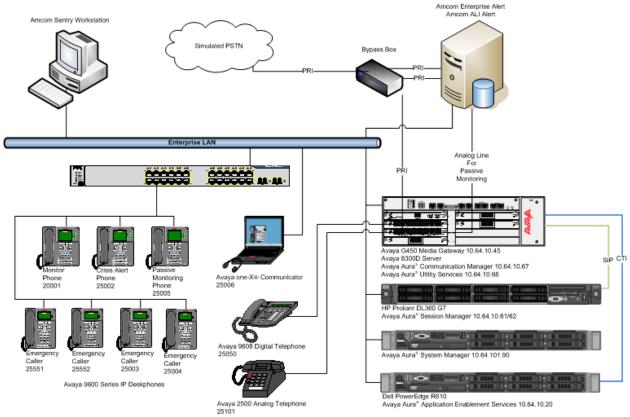


Figure 1: Test Configuration for Amcom

## 4. Equipment and Software Validated

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

<b>Equipment/Software</b>	Release/Version	
Avaya S8300D Server	6.3 SP3	
Avaya Aura® Communication Manager	R016x.03.0.124.0	
Avaya Aura <sup>®</sup> Session Manager	6.3 SP5	
Avaya Aura Session Manager	6.3.5.0.635005	
Avaya Aura® System Manager	6.3 SP5	
	6.3.0.8.5682	
Avaya G450 Media Gateway	31.20.0	
Avaya Aura® Application Enablement	6.3.0.0.212	
Services	0.3.0.0.212	
Avaya 9600 Series Deskphones	Various – Latest	
Amcom Enterprise Alert/ALI Alert	11.1	

## 5. Configure Avaya Aura® Communication Manager

This section contains steps necessary to configure Amcom Enterprise Alert and Amcom ALI Alert successfully with Communication Manager.

All configurations in Communication Manager were performed via SAT terminal.

#### 5.1. Verify Feature and License

Enter the **display system-parameters customer-options** command and ensure that the following features are enabled.

One Page 3, verify **Computer Telephone Adjunct Links** is set to **y**.

```
Page 3 of 11
display system-parameters customer-options
                                OPTIONAL FEATURES
   Abbreviated Dialing Enhanced List? y
Access Security Gateway (ASG)? n
Analog Trunk Incoming Call ID? y

Audible Message Waiting? y
Authorization Codes? 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
ASAI Link Plus Capabilities? v
                                                         DCS Call Coverage? y
         ASAI Link Plus Capabilities? y
                                                        DCS with Rerouting? y
     Async. Transfer Mode (ATM) PNC? n
 DS1 MSP? y
DS1 Echo Cancellation? y
                                                           DS1 MSP? y
             ATM WAN Spare Processor? n
                                 ATMS? y
                  Attendant Vectoring? y
```

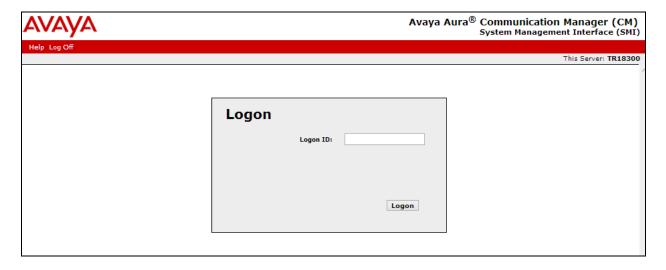
# On Page 4, verify **ISDN Feature Plus, ISDN-PRI, IP Trunks** and **Multimedia IP SIP Trunking** are set to **y.**

```
4 of 11
display system-parameters customer-options
                                                                Page
                               OPTIONAL FEATURES
                                                                 IP Stations? y
  Emergency Access to Attendant? y
         Enable 'dadmin' Login? y
          Enhanced Conferencing? y
                                                           ISDN Feature Plus? y
                                       ISDN/SIP Network Call Redirection? y
                Enhanced EC500? y
                                                             ISDN-BRI Trunks? y
   Enterprise Survivable Server? n
      Enterprise Wide Licensing? n
                                                                    ISDN-PRI? y
             ESS Administration? y
                                                 Local Survivable Processor? n
         Extended Cvg/Fwd Admin? y
                                                       Malicious Call Trace? y
    External Device Alarm Admin? y
                                                    Media Encryption Over IP? n
 Five Port Networks Max Per MCC? n Mode Code for Centralized Voice Mail? n
               Flexible Billing? n
  Forced Entry of Account Codes? y
                                                    Multifrequency Signaling? y
                                    Multimedia Call Handling (Basic)? y
Multimedia Call Handling (Enhanced)? y
     Global Call Classification? y
            Hospitality (Basic)? y
Hospitality (G3V3 Enhancements)? y
                                                 Multimedia IP SIP Trunking? y
                      IP Trunks? y
```

#### On Page 10, verify **IP\_API\_A** has a sufficient limit.

```
Page 10 of 11
display system-parameters customer-options
                MAXIMUM IP REGISTRATIONS BY PRODUCT ID
Product ID Rel. Limit
                          Used
AgentSC * : 2400
         * : 2400
       * : 2400
* : 2400
IP API A
                          6
IP Agent
IP_NonAgt * : 2400
                         0
IP eCons * : 68
oneX Comm * : 2400
                          0
           : 0
        IP Attendant Consoles? y
```

From a web browser, use the <a href="http://<ip-address">http://<ip-address</a>>, where ip-address is the ip address of Communication Manager, URL to access System Management Interface for Communication Manager. Log in using appropriate credentials.



Navigate to Administration → Licensing → Feature Administration. Select Current Settings and click Display.



Verify **ASAI Link Core Capabilities** and **ASAI Link Plus Capabilities** are available and turned on.



### 5.2. Configure Site Data

To configure specific building codes for a site, use **change site-data** command.

One **Page 1**, add entries for building codes. For compliance test, two entries of **ABC** and **EFG** were added.

```
change site-data

SITE DATA USER DEFINITION

VALID BUILDING FIELDS

ABC

EFG
```

#### 5.3. Configure Stations

Use **add station** *n* command to add a station, where *n* is an available station extension. This station will be used my Amcom Enterprise Alert as a monitoring station for Crisis Alert. Configure the station as follows, on Page 1:

- In Name field, enter a descriptive name
- Set **Type** to the type of the telephones
- Enter a **Security Code**
- Set **IP SoftPhone** to **y**

```
add station 25002
                                                            Page 1 of
                                    STATION
                                        Lock Messages? n
Security Code: 123456
Extension: 25002
                                                                      BCC: 0
    Type: 9630
                                                                      TN: 1
                                      Coverage Path 1: 1
    Port: IP
                                                                      COR: 1
    Name: IP Station 1
                                     Coverage Path 2:
                                                                      cos: 1
                                      Hunt-to Station:
STATION OPTIONS
                                         Time of Day Lock Table:
             Loss Group: 19 Personalized Ringing Pattern: 1
       Speakerphone: 2-way
Display Language: english
                                               Message Lamp Ext: 25001
                                            Mute Button Enabled? y
                                                  Button Modules: 0
Survivable GK Node Name:
         Survivable COR: internal
                                              Media Complex Ext:
                                                    IP SoftPhone? y
  Survivable Trunk Dest? y
                                             IP Video Softphone? n
                             Short/Prefixed Registration Allowed: default
```

One Page 4, enter a building code in **Building** (one of the buildings added in **Section 5.2**) and under **BUTTON ASSIGNMENTS**, add **crss-alert** and **release**, as shown below:

```
add station 25002
                                                                           5
                                                             Page
                                                                    4 of
                                     STATION
 SITE DATA
                                                        Headset? n
      Room:
      Jack:
                                                        Speaker? n
     Cable:
                                                       Mounting: d
     Floor:
                                                    Cord Length: 0
  Building: EFG
                                                      Set Color:
ABBREVIATED DIALING
   List1:
                              List2:
                                                         List3:
BUTTON ASSIGNMENTS
1: call-appr
                                         5: crss-alert
2: call-appr
                                         6: release
3: call-appr
                                         7:
 4: call-disp
                                         8:
```

Add another station for an Incoming DID. For example if the incoming DID is 732-277-2872, use the last five digits as a station extension. This station is a virtual station that will be used by Amcom Enterprise alert to remotely perform call forwarding for callbacks from PSAP.

- In Name field, enter a descriptive name
- Set **Type** to **9630**
- Enter a **Security Code**

```
add station 72872
                                                              Page 1 of 5
                                      STATION
                                         Lock Messages? n
Security Code: 123456
                                                                        BCC: 0
Extension: 72872
     Type: 9630
                                                                         TN: 1
                                      Coverage Path 1:
Coverage Path 2:
                                                                         COR: 1
     Port: IP
     Name: DID Station 1
                                                                         cos: 1
                                      Hunt-to Station:
                                                                      Tests? y
STATION OPTIONS
              Time of Day Lock Table:
Loss Group: 19 Personalized Ringing Pattern: 1
                                                 Message Lamp Ext: 72872
       Speakerphone: 2-way
Display Language: english
                                             Mute Button Enabled? y
                                                   Button Modules: 0
 Survivable GK Node Name:
        Survivable COR: internal
                                               Media Complex Ext:
   Survivable Trunk Dest? y
                                                      IP SoftPhone? n
                                                          IP Video? n
                              Short/Prefixed Registration Allowed: default
```

#### 5.4. Configure DS1

For an available T1 card on the Avaya gateway, use **change ds1** *n*, where *n* is the location of the T1 card. PRI trunk from this T1 card will be connected to Amcom Enterprise Alert on PBX port. Configure as follows:

- Type in a descriptive name in **Name** field
- Set **Bit Rate** to **1.544**
- Set Line Coding to b8zs
- Set Framing Mode to esf
- Set Signaling Mode to isdn-pri
- Set Connect to network

```
change ds1 1v6
                                                             Page
                                                                   1 of
                              DS1 CIRCUIT PACK
           Location: 001V6
                                                    Name: to AMCOM
           Bit Rate: 1.544
                                            Line Coding: b8zs
  Line Compensation: 1
                                            Framing Mode: esf
     Signaling Mode: isdn-pri
            Connect: network
  TN-C7 Long Timers? n
                                        Country Protocol: 1
Interworking Message: PROGress
                                        Protocol Version: b
                                                    CRC? n
Interface Companding: mulaw
         Idle Code: 11111111
                            DCP/Analog Bearer Capability: 3.1kHz
                                         T303 Timer(sec): 4
     Slip Detection? n
                                      Near-end CSU Type: other
  Echo Cancellation? n Block Progress Indicator? n
```

#### 5.5. Configure Signaling Group

User **add signaling-group** n, where n is an available signaling group number, to add a signaling group. Configure as follows:

- Set Group Type to isdn-pri
- Set the **Primary D-Channel** according to the DS1 configured. Use channel number 24 as a D-Channel
- Set TSC Supplementary Service Protocol to b
- Once the trunk group has been configured return to this form and set the Trunk Group for Channel Selection

```
add signaling-group 2

SIGNALING GROUP

Group Number: 2

Group Type: isdn-pri

Associated Signaling? y

Primary D-Channel: 001V624

Max number of NCA TSC: 0

Trunk Group for Channel Selection:
TSC Supplementary Service Protocol: b

Page 1 of 5

Max number of NCA TSC: 0

Trunk Group for NCA TSC: X-Mobility/Wireless Type: NONE

Network Call Transfer? n
```

### 5.6. Configure Trunk Group

Use **add trunk-group** n, where n is an available trunk group number, to add a trunk group. On Page 1, configure as follows:

- Set Group Type to isdn
- Provide a descriptive name in **Group Name**
- Set **TAC** according to the dial plan
- Set Carrier Medium to PRI/BRI
- Set Service Type to tie

```
add trunk-group 2

Group Number: 2

Group Name: to_AMCOM

Direction: two-way
Dial Access? y
Queue Length: 0

Service Type: tie

Auth Code? n

Far End Test Line No:

TestCall BCC: 4

Page 1 of 21

TRUNK GROUP

CDR Reports: r

CARRIE TAC: *002

Carrier Medium: PRI/BRI

Dial Access? y
Auth Code? n

TestCall ITC: rest

Far End Test Line No:
```

On Page 3, configure as follows:

- Set Send Name and Send Calling Number to y
- Set **Format** to **unk-pvt**

```
add trunk-group 2
                                                                           Page 3 of 21
TRUNK FEATURES
                                              Measured: none Wideband Supporting
Maintenance Tests? y

Member: 2
           ACA Assignment? n
                                     Internal Alert? n Maintenance Tests? y
Data Restriction? n NCA-TSC Trunk Member: 2
Send Name: y Send Calling Number: y
Hop Dgt? n Send EMU Visitor CPN? n
   Used for DCS? n Hop Dgt?
Suppress # Outpulsing? n Format: unk-pvt
 Outgoing Channel ID Encoding: preferred
                                                     UUI IE Treatment: service-provider
                                                            Replace Restricted Numbers? n
                                                           Replace Unavailable Numbers? n
                                                                  Send Connected Number: y
                                                             Hold/Unhold Notifications? y
                                     Modify Tandem Calling Number: no
               Send UUI IE? y
                  Send UCID? n
 Send Codeset 6/7 LAI IE? y
                                                                Ds1 Echo Cancellation? n
    Apply Local Ringback? n
 Show ANSWERED BY on Display? y
                                   Network (Japan) Needs Connect Before Disconnect? n
```

On Page 5 and 6, add the **Port** 1-23 according to the location of the T1 board on Avaya Media Gateway.

```
Page 5 of 21
add trunk-group 2
                               TRUNK GROUP
                                 Administered Members (min/max): 1/23
                                        Total Administered Members: 23
GROUP MEMBER ASSIGNMENTS
             Code Sfx Name
                                Night
      Port
                                                  Sig Grp
 1: 001V601 MM710
 2: 001V602 MM710
                                                   2
 3: 001V603 MM710
                                                   2
 4: 001V604 MM710
                                                   2
 5: 001V605 MM710
                                                   2
 6: 001V606 MM710
                                                   2
 7: 001V607 MM710
 8: 001V608 MM710
 9: 001V609 MM710
                                                   2
10: 001V610 MM710
                                                   2
11: 001V611 MM710
12: 001V612 MM710
                                                   2
13: 001V613 MM710
                                                   2
                                                   2
14: 001V614 MM710
15: 001V615 MM710
```

#### 5.7. Configure Route Pattern

Configure route pattern to use the trunk group configured in previous section. Use **change route-pattern 2** command, and configure as follows:

- Set **Grp No** for Line 1 to the trunk group configure in previous section
- Set FRL to 0
- Set **Number Format** to **unk-unk** as configured in the screen capture below.

```
change route-pattern 2
                                                            1 of
                                                      Page
                                   Pattern Name: PSTN Hub
                Pattern Number: 2
                        SCCAN? n
                                   Secure SIP? n
   DCS/ IXC
                                                            QSIG
                        Dgts
                                                            Intw
1: 2
                                                             n user
2:
                                                             n
                                                                user
                                                             n
γ.
                                                                user
4:
                                                             n user
5:
                                                             n user
                                                             n user
    BCC VALUE TSC CA-TSC
                         ITC BCIE Service/Feature PARM No. Numbering LAR
   0 1 2 M 4 W Request
                                                 Dgts Format
                                                Subaddress
1: yyyyyn y none
                         rest
                                                      unk-unk
                                                               none
2: y y y y y n n
                         rest
                                                               none
3: y y y y y n n
                         rest
                                                                none
4: y y y y y n n
                                                                none
5: yyyyyn
                         rest
                                                                none
6: yyyyyn n
                         rest.
                                                                none
```

## 5.8. Configure Private Numbering

Use **change private-number 0** command to configure the private numbering. This will ensure that the calling party number is sent to Amcom Enterprise Alerts when a call is placed from any of the Avaya Endpoints. For the test configuration, extensions starting with 2 and 5 digits long were used.

```
Page 1 of
change private-numbering 0
                         NUMBERING - PRIVATE FORMAT
Ext Ext
                 Trk
                            Private
                                            Total
Len Code
                 Grp(s)
                            Prefix
                                            Len
11 1
                                            11
                                                  Total Administered: 2
 5 2
                                            5
                                                    Maximum Entries: 540
```

#### 5.9. Configure Crisis Alert

Use change system-parameters crisis-alert command and set Every User Respond to y.

```
change system-parameters crisis-alert

CRISIS ALERT SYSTEM PARAMETERS

ALERT STATION

Every User Responds? y

ALERT PAGER

Alert Pager? n
```

## 5.10. Configure ARS Routing

Use the **change ars analysis 911** command to configure 911 calls to route to Amcom Emergency Alerts and enable crisis alerts. The following configuration shows that when 911 is called, the call is routed to Amcom Emergency Alerts and a crisis alert is sent to all the phones that are configured with crss-alert buttons.

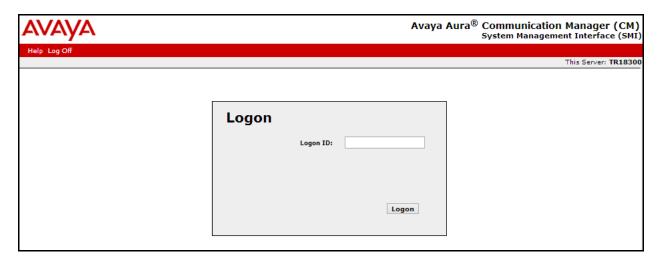
- Set **Dialed String** to **911**
- Set Total Min and Max to 3
- Set Route Pattern to the pattern configured in Section 5.6
- Set Call Type to alrt

change ars analysis 911		Page 1 of 2	
	ARS DIGIT ANALYSIS TABLE Location: all Percent Full: 1		
Dialed String <b>911</b>	Total Route Call Noo Min Max Pattern Type Num 3 3 2 alrt	· -	

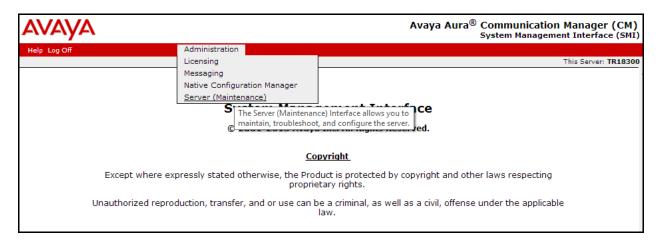
#### 5.11. Add a User

Add a user for Amcom Enterprise Alert to provide access for Avaya Site Administration and SMS interface.

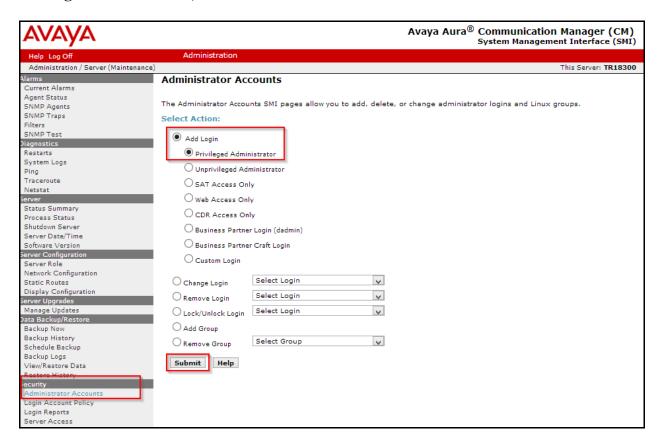
Navigate to <a href="https://<ip-address">https://<ip-address</a> where ip-address is the ip-address of Communication Manager and log in using appropriate credentials.



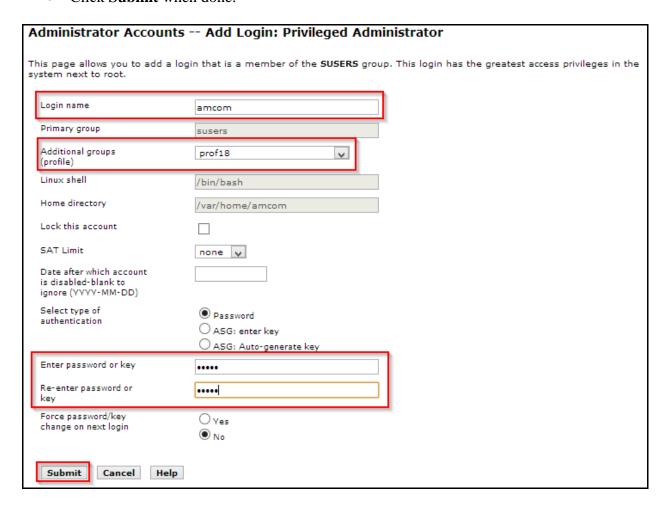
Navigate to **Administration** → **Server Maintenance**.



On the left pane, navigate to **Security**  $\rightarrow$  **Administrator Accounts**, and select **Add Login**  $\rightarrow$  **Privileged Administrator**; click **Submit**.



- Type in a **Login Name**.
- Set Additional Groups to a profile configured in Communication Manager. Please note
  that this profile was pre-configured in Communication Manager and is not shown in this
  document. To add a profile in Communication Manager via SAT, use the add userprofile command.
- Type in a password in **Enter Password or key** and **Re-enter password or key**.
- Click **Submit** when done.



# 5.12. Configure AES connection

An existing standard configuration was used for AES connection and is directly not relevant for this document. Thus, it is not captured in this document.

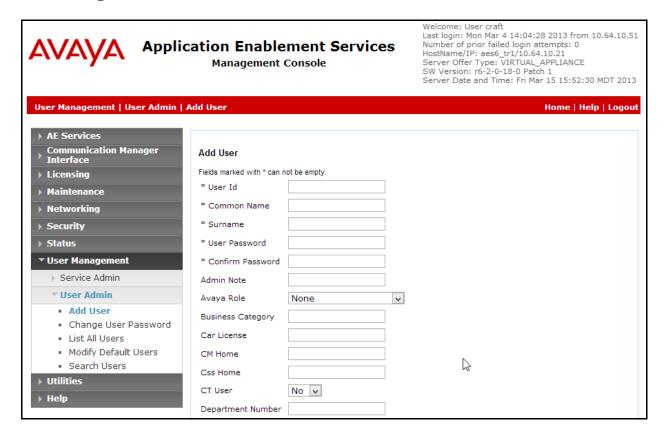
## 6. Configure Avaya Aura® Application Enablement Services

Configuration of Application Enablement Services requires a user account to be configured for Amcom Enterprise Alert.

#### 6.1. Configure User

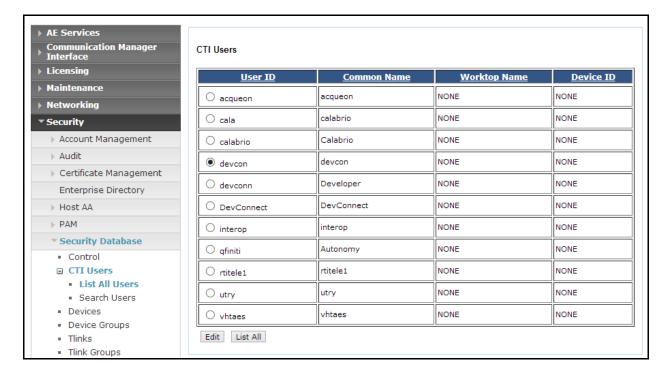
All administration is performed by web browser, https://<aes-ip-address>/.

A user needs to be created for Amcom Enterprise Alert to communicate with AES. Navigate to User Management → User Admin → Add User.

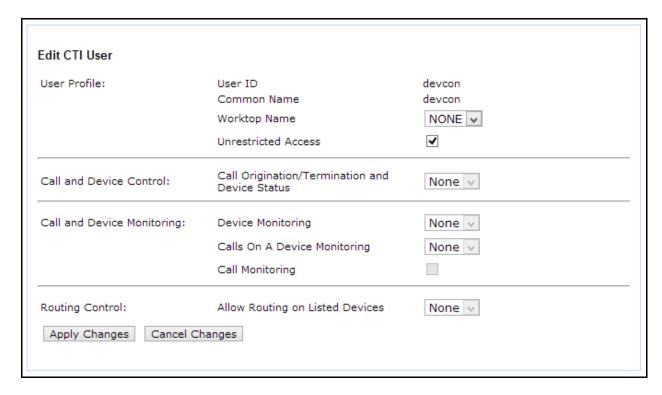


Fill in User Id, Common Name, Surname, User Password and Confirm Password. Set the CT User to Yes, and Apply.

#### Navigate to Security → Security Database → CTI Users → List All Users.



Select the recently added user and click **Edit**. Check the box for **Unrestricted Access** and click **Apply Changes**.



# 7. Configure 46xxSetting.txt

To configure the Push and Subscribe setting for Avaya 9600 Series IP Deskphones, configure the 46xxSetting.txt file with the following settings. Once configured, reboot the phones to take the change.

```
SET TPSLIST <ip-address>
SET SUBSCRIBELIST http://<ip-address>/avayapush/processingpage.aspx
SET PUSHCAP 22222
SET PUSHPORT 80
```

<ip-address> is the IP Address of Amcom Enterprise Alert.

# 8. Configure Amcom Enterprise Alert

Amcom installs, configures, and customizes the Enterprise Alert and ALI Alert applications for their end customers.

#### 9. Verification

To verify the connectivity to Amcom Enterprise Alert, use status trunk <n> where n is the trunk number of the PRI trunk connected to Amcom Enterprise Alert. Verify **Service State** for all trunk members is **in-service/idle**.

status trunk 11			
TRUNK GROUP STATUS			
Member	Port	Service State	Mtce Connected Ports Busy
0011/002 0011/003 0011/004 0011/005 0011/006 0011/007 0011/008 0011/009	001V701 001V702 001V703 001V704 001V705 001V706 001V707 001V708 001V709	in-service/idle in-service/idle in-service/idle in-service/idle in-service/idle in-service/idle in-service/idle in-service/idle	no n
0011/010	001V710	in-service/idle	no

To verify Amcom ALI Alert, generate a test call that will initiate a crisis alert to a crisis alert configured station. Verify Amcom ALI Alert receives the crisis alert.

## 10. Conclusion

Amcom Enterprise Alert and ALI Alert were able to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Application Enablement Services.

## 11. References

Documentation related to Avaya products may be obtained via <a href="http://support.avaya.com">http://support.avaya.com</a>.

- [1] Administering Avaya Aura® Communication Manager, Release 6.3.
- [2] Administering Avaya Aura® Application Enablement Services, Release 6.3, Issue 2, October 2013.

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