Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Intrado / 911 Enable Emergency Gateway with Avaya Aura® Communication Manager, Avaya one-X® Deskphones and Avaya one-X® Communicator – Issue 1.0

Abstract

These Application Notes describe the procedures for configuring the Intrado / 911 Enable Emergency Gateway with Avaya Aura® Communication Manager, Avaya one-X® Deskphones and Avaya one-X® Communicator.

The 911 Enable Emergency Gateway offers E911 call routing and location provisioning solution for enterprises using both legacy and IP phone deployments. Avaya Aura® Communication Manager connects to the Emergency Gateway via a H.323 trunk and the Emergency Gateway connects to the public Internet to access the Emergency Routing Service. The compliance testing focused on placing 911 calls from Avaya one-X® Deskphones and Avaya one-X® Communicator connected to different network equipment to verify that their location and callback number could be properly determined.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in Section 2.1 as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the procedures for configuring the Intrado / 911 Enable (911 Enable) Emergency Gateway (EGW) with Avaya Aura® Communication Manager, Avaya one-X® Deskphones and Avaya one-X® Communicator.

The 911 Enable Emergency Gateway offers E911 call routing and location provisioning solution for enterprises using both legacy and IP phone deployments. Avaya Aura® Communication Manager connects to the Emergency Gateway via an H.323 trunk and the Emergency Gateway connects to the public Internet to access the 911 Enable Emergency Routing Service (ERS). The compliance testing focused on placing 911 calls from Avaya one-X® Deskphones and Avaya one-X® Communicator connected to different network equipment to verify that their location and callback number could be properly determined.

2. General Test Approach and Test Results

This section describes the compliance testing used to verify the interoperability of the EGW and the Communication Manager. This section covers the general test approach and the test results.

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 following features and functionality of the EGW were tested.

- Layer 2 discovery from (supported) SNMP enabled layer 2 switches.
- Layer 3 discovery of Avaya one-X® Deskphones that support the PUSH API.
- Layer 3 discovery of Avaya one-X® Communicator when used with 911 Enable E911 Softphone Locator (ESL) Software.
- Emergency calls from all endpoint types were routed to the ERS via the EGW.
- Proper location information provided for all “known” locations.
- Calls from “unknown” locations were routed to the 911 Enable Emergency Call Response Center (ECRC).
- Callback numbers were assigned using the EGW Extension-Bind feature.
- Calls placed using the provided callback number were routed to the proper extension.
- Failover to the secondary EGW, if the primary EGW was not available.
- If neither EGW was available, Communication Manager routed emergency calls to the ECRC via the PSTN.
- If the ERS was not available, the EGW routed emergency calls to the ECRC via Communication Manager.

Please note that EGW supports only G711MU audio codec and does not support IP-IP media shuffling.

2.2. Test Results

The features described in **Section 2.1** were tested. All test cases passed successfully

2.3. Support

For technical support on the EGW, contact 911 Enable at www.911enable.com.

3. Reference Configuration

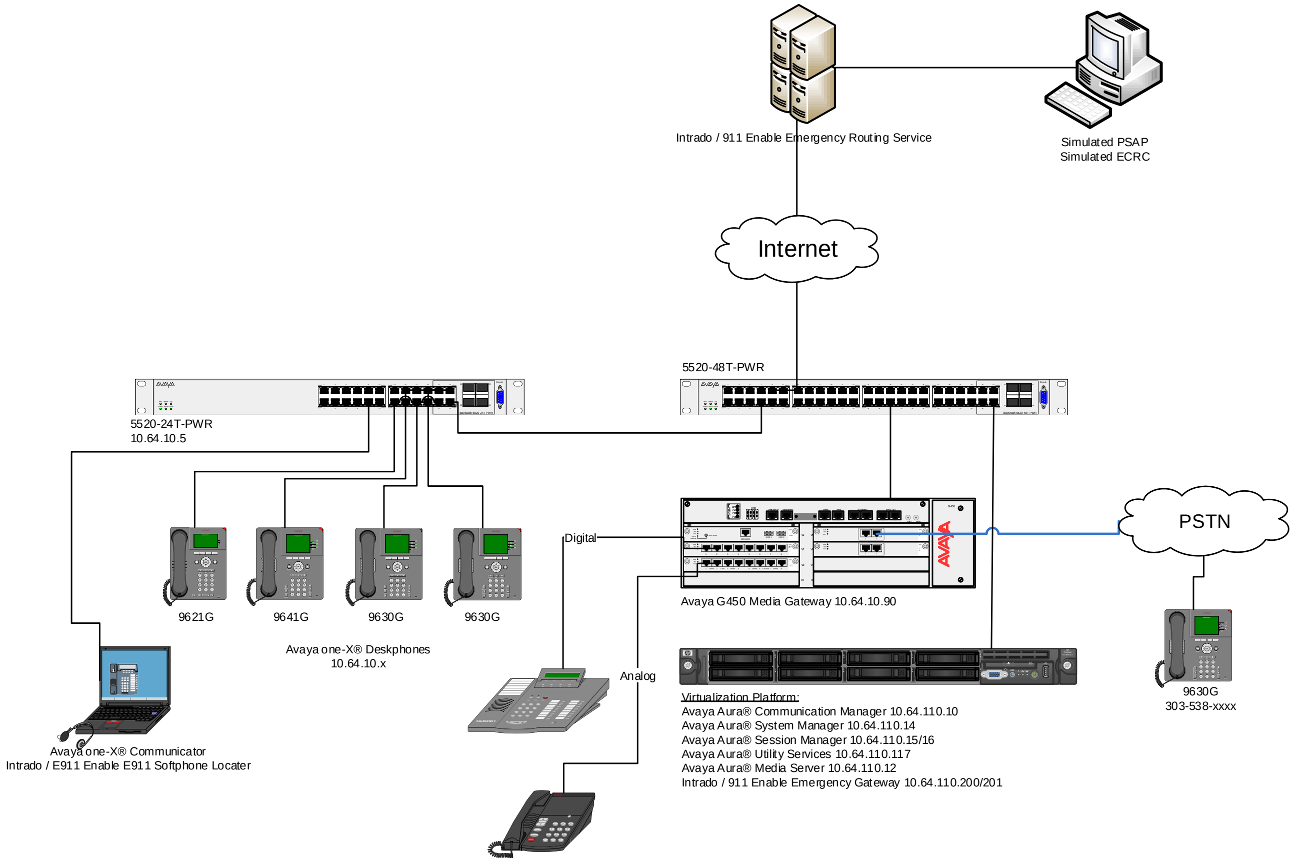

Intrado / 911 Enable Emergency Routing Service
Simulated PSAP
Simulated ECRC
Internet
5520-48T-PWR
5520-24T-PWR
10.64.10.5
Digital
PSTN
9621G
9641G
9630G
9630G
Avaya one-X® Deskphones
10.64.10.x
Avaya G450 Media Gateway 10.64.10.90
Analog
9630G
303-538-xxxx
Avaya one-X® Communicator
Intrado / E911 Enable E911 Softphone Locater
Virtualization Platform:
Avaya Aura® Communication Manager 10.64.110.10
Avaya Aura® System Manager 10.64.110.14
Avaya Aura® Session Manager 10.64.110.15/16
Avaya Aura® Utility Services 10.64.110.117
Avaya Aura® Media Server 10.64.110.12
Intrado / 911 Enable Emergency Gateway 10.64.110.200/201

Figure 1: Reference Configuration

Figure 1 illustrates the test configuration. The test configuration shows an enterprise site connected to the Intrado / 911 Enable Emergency Routing Service via the 911 Enable Emergency Gateway. The ERS can send calls to the Public Service Answering Point or to the ECRC.

3.1. Auto-Discovery of Endpoints

The EGW attempts to auto discover the presence and location of Avaya one-X® Deskphones by correlating data obtained through two mechanisms.

1. The first mechanism is known as layer 2 discovery. To support layer 2 discovery, each layer 2 switch where the above telephones types are connected must support certain SNMP V1, V2 or V3 MIB objects required by the EGW. In the test configuration, Avaya 5520-24T-PWR was used. The data obtained from layer 2 discovery includes the MAC address of the device connected to each port of the switch.

2. The second mechanism required for auto-discovery is known as layer 3 discovery. To support layer 3 discovery, each listed telephone type uses an application downloaded to it during initialization to report information to the EGW. Thus, the Avaya one-X® Deskphones telephone types used must support the PUSH API. The information collected includes the MAC address, IP address and extension of the phone. Correlating the information from layer 2 and 3, the EGW learns what extensions are physically connected to which layer 2 switch.

The location of Avaya one-X® Communicator is gathered in a similar manner. Layer 2 discovery is dependent upon which layer 2 switch the Windows PC running Avaya one-X® Communicator is connected. Layer 3 discovery is done by installing the 911 Enable ESL software on the same PC, to report the necessary information for these endpoints.

All digital and analog endpoints also must be manually provisioned.

3.2. Callback Numbers

A callback number (CBN) is assigned to each extension for use by the 911 operator to reach the caller if the emergency call is dropped. The callback number for each extension would be its Direct Inward Dial (DID) number if it has one assigned. However, all internal extensions may not have a DID assigned. In this case, where an extension does not have a DID assigned, the EGW will temporarily map a DID number to that extension for the duration of the emergency call. This is known as the EGW Extension-Bind feature. The pool of DIDs used by the EGW is assigned to the EGW from the DIDs owned by the enterprise. In the case of the compliance test, none of the extensions were assigned an individual DID number, instead all extensions were assigned a temporary DID from the EGW during an emergency call. In addition, a single DID number was allocated to the EGW for this purpose.

3.3. Emergency Call Flows

Emergency calls are routed differently depending on whether all components are operational and what information is available about the caller.

1. **Typical "Sunny Day" Scenario**: If all components and user information are available then the call flow is as follows: User Extension → Communication Manager → EGW → ERS → PSAP. If a callback call is needed and a temporary DID number is used from the EGW Extension-Bind pool, then the callback call flow is PSAP → PSTN → Communication Manager → EGW → Communication Manager → User Extension. If the user extension has its own DID number, then the callback call would not need to be routed through the EGW but would flow from PSAP → PSTN → Communication Manager → User Extension.
2. **Missing User Information**: If all components are operational, but the emergency call does not have the proper location or callback information, then the call is routed to the ECRC where a trained 911 operator collects the correct information before forwarding the call to the PSAP. This call can reach the ECRC in two different ways based on the provisioning of the EGW. The EGW can be provisioned to reject the call if all necessary information is not present, so that Communication Manager reroutes the call out the PSTN. This was done for the compliance test. The call flows from User Extension → Communication Manager → EGW (rejects the call), then the call is rerouted as Communication Manager → PSTN → ECRC → PSAP. Alternatively, the EGW can be provisioned to accept the call and send it to

the ERS. The ERS will determine that all information is not present and send the call to the ECRC. The call flow would be User Extension → Communication Manager → EGW → ERS → ECRC → PSAP. Either the ECRC or the PSAP can initiate a callback if necessary. If the callback is made from the PSAP, the callback call flow would be the same as described in scenario 1 above. If the ECRC places the callback, the call flow is the same as described in scenario 1 with the exception that the ECRC replaces the PSAP in the call flow.

3. **ERS Unavailable**: If the EGW is operational but the ERS is unavailable, then when the EGW receives an emergency call, it will originate a call to the ECRC (using the 10 digit ECRC number) through Communication Manager. The call flows from User Extension → Communication Manager → EGW, then EGW → Communication Manager → PSTN → ECRC → PSAP. The callback call flows would be the same as the callback call flows described in scenario 2 above.
4. **EGW Failover**: If the primary EGW fails, Communication Manager will reroute the call to the secondary EGW. The call flow would be the same as scenario 1 above.
5. **Both EGWs Fail**: If both EGWs fail, Communication Manager will reroute the call to the ECRC. The call flow is User Extension → Communication Manager → EGW (no response), then the call is rerouted as Communication Manager → PSTN → ECRC → PSAP. The callback call flows would be the same as the callback call flows described in scenario 2 above.

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	7.0 Service Pack 1
Avaya G450 Media Gateway	39.17.0
Avaya Aura® Session Manager	7.0.0
Avaya Aura® System Manager	7.0
Avaya Aura® Utility Services	7.0
Avaya Aura® Media Server	7.7.0.226
Avaya one-X® Deskphones	SIP 7.0.0 H.323 6.6.0 H.323 3.2.5
Avaya one-X® Communicator	6.2 Feature Pack 10
Avaya 6408D Digital Telephone	-
Avaya 6210 Analog Telephone	-
Intrado / 911 Enable Emergency Gateway	5.0.1
Intrado / 911 Enable Emergency Routing Service	3.8
Intrado / 911 Enable E911 Softphone Locator Software	2.3

5. Configure Avaya Aura® Communication Manager

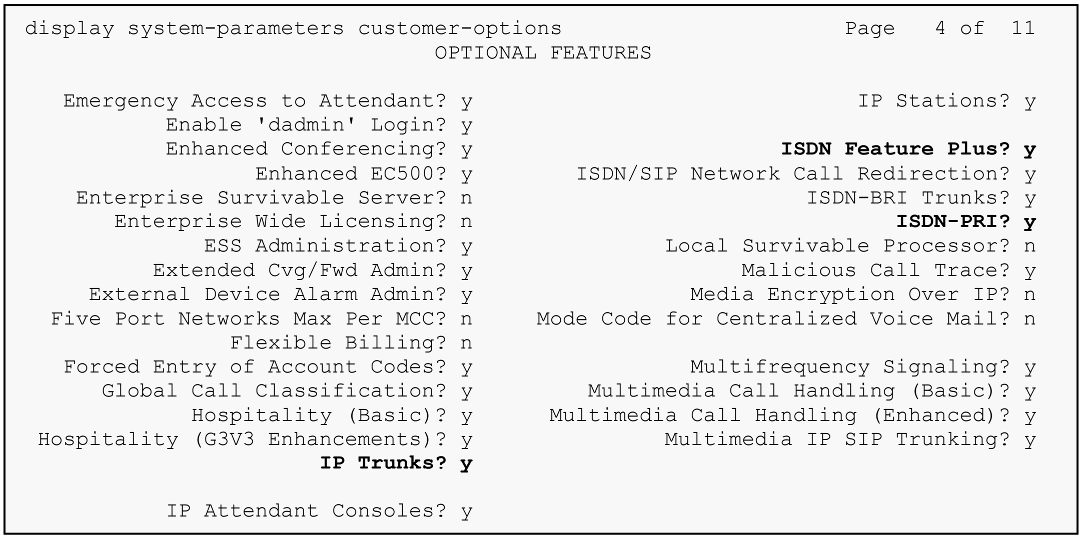
This section describes the Communication Manager configuration to support connectivity to the EGWs and related functionality. It assumes all other components of **Figure 1** have already been configured. For more detailed information on any other Communication Manager configuration shown in **Figure 1**, see [1].

The configuration of Communication Manager was performed using the System Access Terminal (SAT). After the completion of the configuration, perform a **save translation** command to make the changes permanent.

5.1. H.323 Trunk Related Configuration

This section summarizes the configuration of the H.323 trunks that connects the Communication Manager to each EGW.

Step	Description
1.	**System Parameters – Customer Options** Use the **display system-parameters customer-options** command to verify that the options highlighted below are enabled. The **IP Trunks** and **ISDN-PRI** options are required to support H.323 trunks in general. In addition, the **ISDN Feature Plus** option is required for EGW interoperability.



```
display system-parameters customer-options                      Page   4 of  11
                                OPTIONAL FEATURES

   Emergency Access to Attendant? y                               IP Stations? y
           Enable 'dadmin' Login? y
           Enhanced Conferencing? y                         ISDN Feature Plus? y
                  Enhanced EC500? y         ISDN/SIP Network Call Redirection? y
    Enterprise Survivable Server? n                           ISDN-BRI Trunks? y
       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
      Global Call Classification? y          Multimedia Call Handling (Basic)? y
             Hospitality (Basic)? y       Multimedia Call Handling (Enhanced)? y
 Hospitality (G3V3 Enhancements)? y                Multimedia IP SIP Trunking? y
                       IP Trunks? y

           IP Attendant Consoles? y
```

Step **Description**

2. **Node Names**

Use the **change node-names ip** command to create node names for each EGW and associate the node name with the IP address of the corresponding EGW.   The example below shows the node names and IP addresses used for the compliance test. These node names will be used in the administration of other forms on Communication Manager.

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

3. **IP network region**

Avaya endpoints were located in a single IP network region (IP network region 1) using the parameters described below. Use the **display ip-network-region** command to view these settings. By default, both EGWs will also be in IP network region 1 unless specifically placed in a separate region using the **ip-network-map** command. The example below shows the values used for the compliance test.

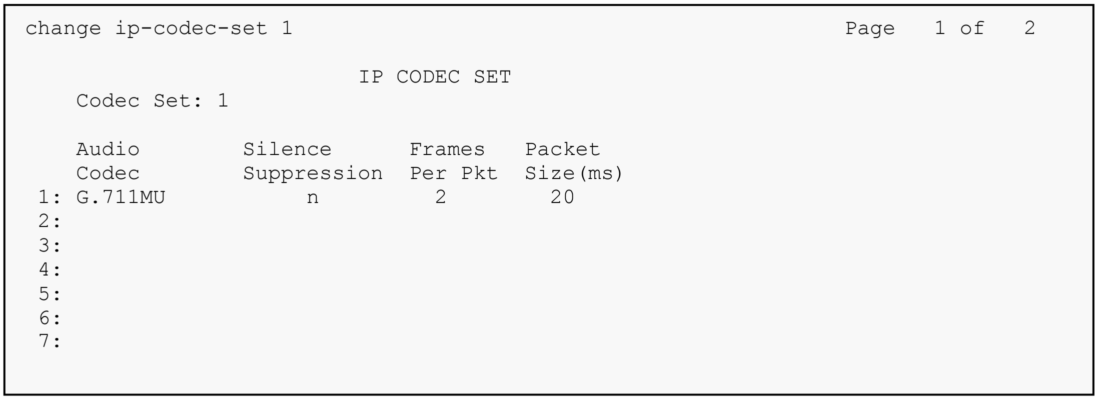
- A descriptive name was entered for the **Name** field.
- The **Codec Set** field was set to the IP codec set to be used for calls within this IP network region. In this case, IP codec set 1 was selected. This is the codec set that will be used for calls between the EGW and Communication Manager since all components are in IP network region 1.
- The default values were used for all other fields.

```
add ip-network-region 1                                       Page   1 of  20
                               IP NETWORK REGION
  Region: 1
Location: 1       Authoritative Domain: avaya.com
    Name: Main                 Stub Network Region: n
MEDIA PARAMETERS               Intra-region IP-IP Direct Audio: yes
      Codec Set: 1             Inter-region IP-IP Direct Audio: yes
   UDP Port Min: 2048                     IP Audio Hairpinning? n
   UDP Port Max: 3329
DIFFSERV/TOS PARAMETERS
 Call Control PHB Value: 46
        Audio PHB Value: 46
        Video PHB Value: 26
802.1P/Q PARAMETERS
 Call Control 802.1p Priority: 6
        Audio 802.1p Priority: 6
        Video 802.1p Priority: 5      AUDIO RESOURCE RESERVATION PARAMETERS
H.323 IP ENDPOINTS                                       RSVP Enabled? n
  H.323 Link Bounce Recovery? y
 Idle Traffic Interval (sec): 20
   Keep-Alive Interval (sec): 5
            Keep-Alive Count: 5
```

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>4.</td><td>

Codecs

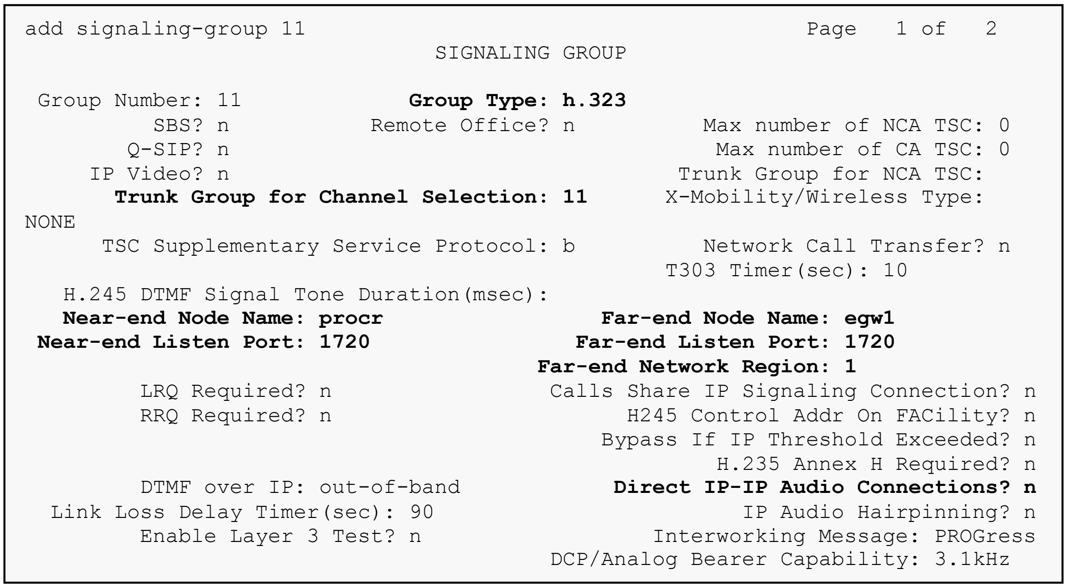
Use the **change ip-codec-set 1** command to define the codecs used by Communication Manager. The EGW only supports the G.711MU codec for use in North America. Thus for the compliance test, only G.711MU was set in the codec list.



```
change ip-codec-set 1                                           Page   1 of   2

                          IP CODEC SET
    Codec Set: 1

    Audio        Silence      Frames   Packet
    Codec        Suppression  Per Pkt  Size(ms)
 1: G.711MU           n         2        20
 2:
 3:
 4:
 5:
 6:
 7:
```

</td></tr>
</table>

Step	Description
5.	**Signaling Group** Use the **add signaling-group *n*** command, where ***n*** is an unused signaling group, to create a new signaling group for each H.323 trunk to each of the EGWs. For the compliance test, signaling group 11 was created for the trunk to the primary EGW and signaling group 12 was created for the trunk to the secondary EGW. Signaling group 11 was configured using the parameters highlighted below. Signaling group 12 was configured in the same way except where noted below. Default values were used for all other fields. ▪ Set the **Group Type** to ***h.323***. ▪ Set the **Trunk Group for Channel Selection** field to the trunk group created in the next step. This cannot be done until the trunk group is created. Thus, initially this field is left blank and later changed to the correct value after the trunk group is created. A separate trunk group will be created for each signaling-group. ▪ Set the **Near-end Node Name** to ***procr***. This node name maps to the IP address of the Avaya Server. Node names are defined using the **change node-names ip** command (**Step 2**). ▪ Set the **Far-end Node Name** to ***egw1***. This node name maps to the IP address of the primary EGW as defined using the **change node-names ip** command (**Step 2**). For signaling-group 32, set this field to ***egw2***. ▪ Set the **Near-end Listen Port** and **Far-end Listen Port** to ***1720***. ▪ Set the **Far-end Network Region** to ***1***. This is the IP network region which contains the EGW. ▪ Set the **Direct IP-IP Audio Connections** field to ***n***. The EGW does not support media shuffling so this field must be set to ***n***. ▪ The default values were used for all other fields.



```
add signaling-group 11                                          Page   1 of   2
                                SIGNALING GROUP

 Group Number: 11            Group Type: h.323
          SBS? n          Remote Office? n          Max number of NCA TSC: 0
        Q-SIP? n                                     Max number of CA TSC: 0
     IP Video? n                                  Trunk Group for NCA TSC:
       Trunk Group for Channel Selection: 11      X-Mobility/Wireless Type:
NONE
      TSC Supplementary Service Protocol: b          Network Call Transfer? n
                                                  T303 Timer(sec): 10
   H.245 DTMF Signal Tone Duration(msec):
   Near-end Node Name: procr                 Far-end Node Name: egw1
 Near-end Listen Port: 1720                Far-end Listen Port: 1720
                                        Far-end Network Region: 1
         LRQ Required? n                 Calls Share IP Signaling Connection? n
         RRQ Required? n                       H245 Control Addr On FACility? n
                                             Bypass If IP Threshold Exceeded? n
                                                      H.235 Annex H Required? n
         DTMF over IP: out-of-band              Direct IP-IP Audio Connections? n
  Link Loss Delay Timer(sec): 90                          IP Audio Hairpinning? n
         Enable Layer 3 Test? n                   Interworking Message: PROGress
                                         DCP/Analog Bearer Capability: 3.1kHz
```

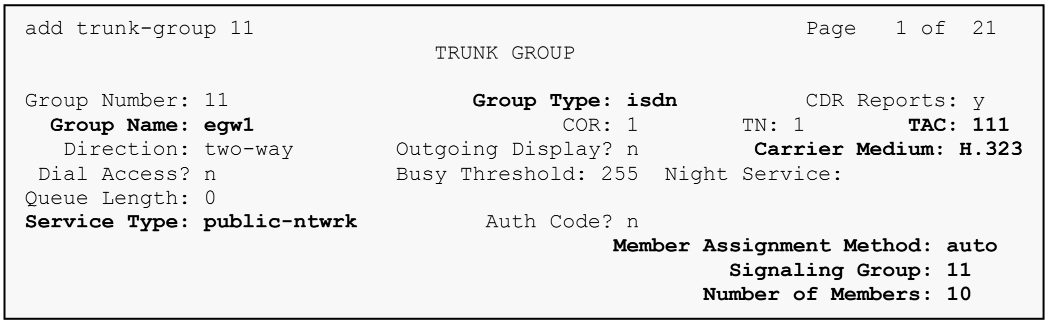
<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>6.</td><td>

Trunk Group

Use the **add trunk-group *n*** command, where ***n*** is an unused trunk group, to create a new trunk group for each H.323 trunk to each of the EGWs. For the compliance test, trunk group 4 was created for the trunk to the primary EGW and trunk group 5 was created for the trunk to the secondary EGW. Trunk group 4 was configured using the parameters highlighted below. Trunk group 5 was configured in the same way except where noted below. Default values were used for all other fields.

On **Page 1**:

- Set the **Group Type** to ***isdn***.
- Enter a descriptive name for the **Group Name**.
- Enter an available trunk access code (TAC) that is consistent with the existing dial plan in the **TAC** field.
- Set the **Carrier Medium** to ***H.323***.
- Set the **Service Type** to ***public-ntwrk***.
- Set the **Member Assignment Method** to ***auto***.
- Set the **Signaling Group** to the signaling group shown in the previous step.
- Set the **Number of Members** field to the number of channels available in this trunk. For an H.323 trunk, the number of members also represents the number of simultaneous calls that can be supported by the trunk. For the compliance test, the number of members was chosen to be ***10***.
- The default values were used for all other fields.



```
add trunk-group 11                                          Page   1 of  21
                                TRUNK GROUP

Group Number: 11                   Group Type: isdn          CDR Reports: y
  Group Name: egw1                        COR: 1        TN: 1        TAC: 111
   Direction: two-way        Outgoing Display? n        Carrier Medium: H.323
 Dial Access? n              Busy Threshold: 255  Night Service:
Queue Length: 0
Service Type: public-ntwrk          Auth Code? n
                                              Member Assignment Method: auto
                                                       Signaling Group: 11
                                                     Number of Members: 10
```

</td></tr>
</table>

Step **Description**

7. **Trunk Group – continued**

On **Page 3**:

- It is required that the **Send Name** field is set to ***y*** and the **Send Calling Number** field is set to ***y***.
- Set the **Format** field to ***pub-unk***. This field specifies the format of the calling party number sent to the far-end.
- The default values were used for all other fields.

```
change trunk-group 11                                           Page   3 of  21
TRUNK FEATURES
          ACA Assignment? n            Measured: none
                                                          Maintenance Tests? y
                                Data Restriction? n     NCA-TSC Trunk Member:
                                       Send Name: y      Send Calling Number: y
            Used for DCS? n             Hop Dgt? n     Send EMU Visitor CPN? n
   Suppress # Outpulsing? n    Format: pub-unk
                                             UUI IE Treatment: service-provider

                                                 Replace Restricted Numbers? n
                                                Replace Unavailable Numbers? n
                                                     Send Connected Number: n
                                                  Hold/Unhold Notifications? y
             Send UUI IE? y     Modify Tandem Calling Number: no
               Send UCID? n
 Send Codeset 6/7 LAI IE? y
```

8. **Public Unknown Numbering**

Public unknown numbering defines the calling party number to be sent to the far-end. An entry was created that will be used by the trunk groups defined in **Step 6**. In the example shown below, all calls originating from a 5-digit extension beginning with 1 and routed across trunk group 11 or 12 will be sent as a 5-digit calling number.

```
change public-unknown-numbering 0                               Page   1 of   2
                      NUMBERING - PUBLIC/UNKNOWN FORMAT
                                                    Total
Ext Ext           Trk       CPN              CPN
Len Code          Grp(s)    Prefix           Len
                                                   Total Administered: 4
 5  1             1                          5        Maximum Entries: 240
 5  1             11                         5
 5  1             12                         5     Note: If an entry applies to
 5  1             13                         5     a SIP connection to Avaya
                                                   Aura(R) Session Manager,
                                                   the resulting number must
                                                   be a complete E.164 number.

                                                   Communication Manager
                                                   automatically inserts
                                                   a '+' digit in this case.
                                                   Aura(R) Session Manager,
                                                   the resulting number must
                                                   be a complete E.164 number.
```

Step	Description
9.	**Automatic Route Selection (ARS)**

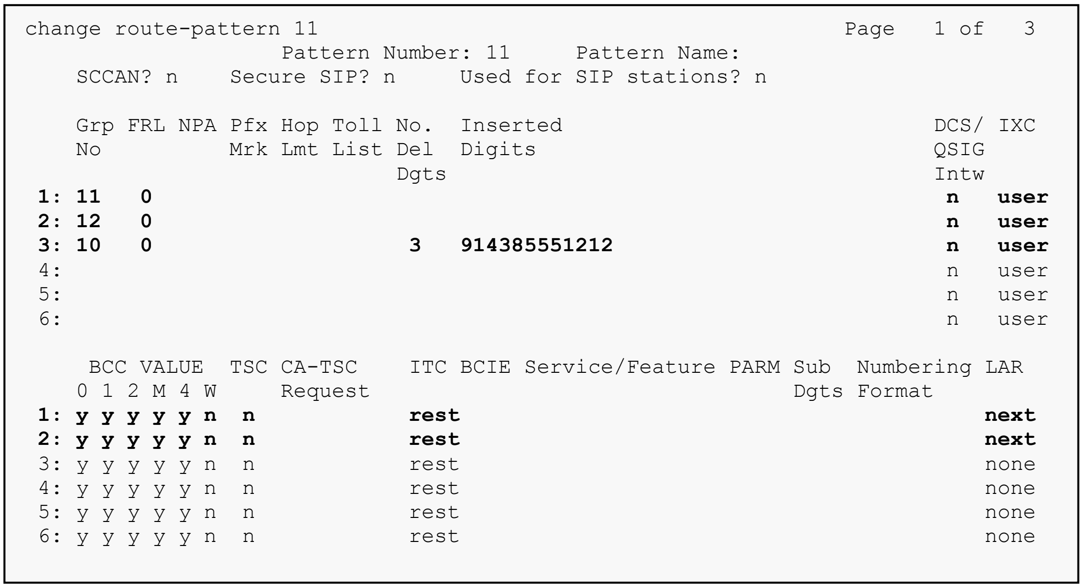
For the compliance test, ARS was used to route emergency calls to the EGW. The dialed string of 9 was configured as the feature access code (FAC) for ARS. Use the **change ars analysis** command to create an entry in the ARS table. Two entries can be created in the ARS table so that calls dialed with or without the ARS feature access code were routed to the EGW (e.g., 9911 or 911). Accessing ARS without first dialing the FAC, is only possible if the **ARS/AAR Dialing without FAC** field is enabled. Use the **display system-parameters customer-options** command to view its current state. In either case, the preceding 9 is removed by ARS before searching the table for a matching entry. The two resulting entries (for 11 and 911) are highlighted below.

For the current compliance test, only the user dialed string of both 911 and 9911 was tested. Both cases result in the same call to destination 911 being sent to the EGW. Thus, the difference in these approaches is more related to ARS than interoperability with the EGW.

A third entry is highlighted below which is used to route emergency calls to the ECRC. This is used if the ERS is unavailable and the EGW initiates a call to the ECRC number 1438. The ECRC number begins with the dialed string of ***1438***. This dialed string is mapped to route pattern ***11*** which routes calls to trunk 10 connected to the PSTN.

```
change ars analysis 0                                          Page   1 of   2
                             ARS DIGIT ANALYSIS TABLE
                                   Location: all           Percent Full: 0

          Dialed           Total     Route    Call   Node  ANI
          String          Min  Max  Pattern   Type   Num   Reqd
    1                     11   11    10       natl         n
    720977xxxx            10   10    11       natl         n
    911                   3    3     11       emer         n
    11                    2    2     11       emer         n
    1438                  11   11    10       natl         n
```

Step	Description
10.	**Route Patterns** Use the **change route pattern *n*** command, where ***n*** is an unused route pattern, to create a separate route pattern for each of the dialed strings used for emergency calls in the ARS table. Set the **Pattern Name** field to a descriptive name. Create an entry in the table for each trunk that will be used in an attempt to complete the emergency call. The example below shows route pattern 11 used in the compliance test. Route pattern 11 was accessed when ARS matches on a dialed string of 911. For the first entry, set the **Grp No.** field to the trunk group of the primary EGW1 (trunk group 11). Set the Facility Restriction Level (**FRL**) of the trunk to an appropriate level to allow authorized users to access the trunk. The level of ***0*** is the least restrictive. Set the Lookahead Routing (**LAR**) field to ***next***. This allows the next trunk in the table to be selected if the current one is unavailable. For the second entry, set the **Grp No.** field to the trunk group of the secondary EGW1 (trunk group 12). Set all other fields the same as the previous entry. For the third entry, set the **Grp No.** field to the trunk group of the PSTN trunk. In the case of the compliance test, this was trunk group 10. If both EGWs are unavailable, the call will be routed to the PSTN using the number of the ECRC where a trained operator will answer the call, collect location and callback information. Set the **FRL** to the same value as the previous entry. Set the **No. Del Dgts** field to ***3*** and set the **Inserted Digits** field to the PSTN number of the ECRC including the preceding 1. This setting deletes the post-processed ARS digits of 911 and replaces them with the PSTN number of the ECRC. The **LAR** field is left as ***none*** since this is the last entry.

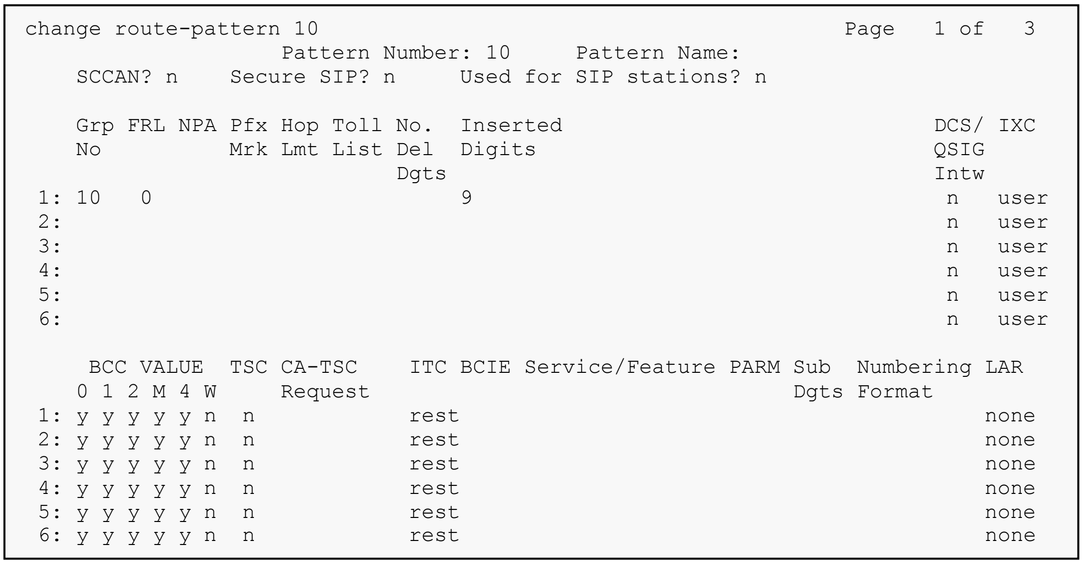


```
change route-pattern 11                                         Page   1 of   3
                    Pattern Number: 11     Pattern Name:
    SCCAN? n    Secure SIP? n     Used for SIP stations? n

    Grp FRL NPA Pfx Hop Toll No.  Inserted                          DCS/ IXC
    No          Mrk Lmt List Del  Digits                            QSIG
                             Dgts                                   Intw
 1: 11   0                                                           n   user
 2: 12   0                                                           n   user
 3: 10   0                    3   914385551212                       n   user
 4:                                                                  n   user
 5:                                                                  n   user
 6:                                                                  n   user

     BCC VALUE  TSC CA-TSC    ITC BCIE Service/Feature PARM Sub  Numbering LAR
    0 1 2 M 4 W     Request                                 Dgts Format
 1: y y y y y n  n            rest                                        next
 2: y y y y y n  n            rest                                        next
 3: y y y y y n  n            rest                                        none
 4: y y y y y n  n            rest                                        none
 5: y y y y y n  n            rest                                        none
 6: y y y y y n  n            rest                                        none
```

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>11.</td><td>

Route Pattern – PSTN Trunk

In cases where the EGW is operational but it can not reach the ERS due to a WAN failure, the EGW will place a call across the H.323 trunk to Communication Manager destined to the PSTN number of the ECRC. Communication Manager will then route the call out the PSTN trunk.

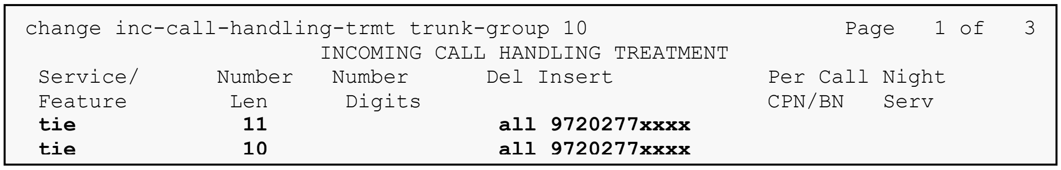


```
change route-pattern 10                                         Page   1 of   3
                    Pattern Number: 10     Pattern Name:
    SCCAN? n    Secure SIP? n     Used for SIP stations? n

    Grp FRL NPA Pfx Hop Toll No.  Inserted                             DCS/ IXC
    No          Mrk Lmt List Del  Digits                               QSIG
                             Dgts                                      Intw
 1: 10   0                        9                                     n   user
 2:                                                                     n   user
 3:                                                                     n   user
 4:                                                                     n   user
 5:                                                                     n   user
 6:                                                                     n   user

     BCC VALUE  TSC CA-TSC    ITC BCIE Service/Feature PARM Sub  Numbering LAR
    0 1 2 M 4 W     Request                                 Dgts Format
 1: y y y y y n  n            rest                                         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            rest                                         none
 5: y y y y y n  n            rest                                         none
 6: y y y y y n  n            rest                                         none
```

</td></tr>
<tr><td>12.</td><td>

Inbound Call Routing – Temporary Callback Numbers

When the PSAP uses the callback number, it must be routed to the correct destination. If the callback number is a DID number temporarily assigned by the EGW as a callback number, then the call must get routed to the EGW to determine the associated internal extension. Use the **change inc-call-handling-trmt trunk-group *n*** command, where ***n*** is the trunk group to the PSTN, to insert a 9 in front of all the DID numbers used by the EGW as temporary DIDs. The preceding 9 (which is the ARS feature access code) will instruct Communication Manager to process the digits using ARS to determine the route. The **xxxx** in the example below is simply to mask the DID number for security reasons.



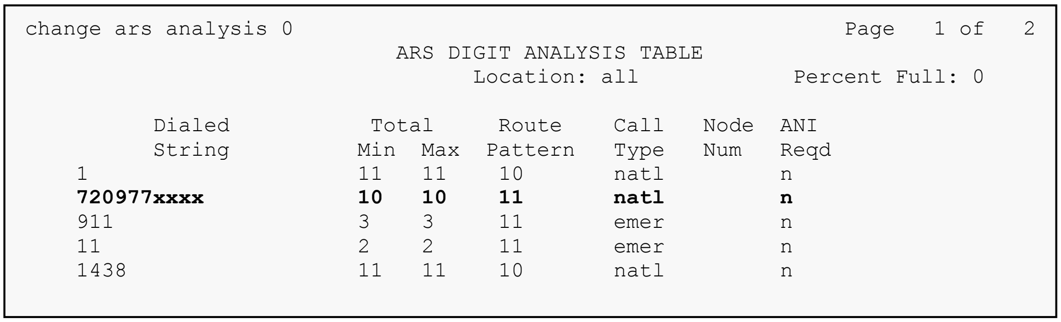
```
change inc-call-handling-trmt trunk-group 10                    Page   1 of   3
                       INCOMING CALL HANDLING TREATMENT
 Service/      Number   Number      Del Insert            Per Call Night
 Feature        Len      Digits                           CPN/BN   Serv
 tie             11                  all 9720277xxxx
 tie             10                  all 9720277xxxx
```

</td></tr>
</table>

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>13.</td><td>

Routing Callback Calls to the EGW

Use the **change ars analysis** command to add an entry in the ARS table for each DID used by the EGW. Each entry will match on the inbound DID number and map it to a route pattern that will route the call to the EGW. The example below was used for the compliance test. The dialed string is the actual DID number (the **xxxx** in the example below is simply to mask the DID number for security reasons). This dialed string is mapped to route pattern ***11*** defined in the next step.



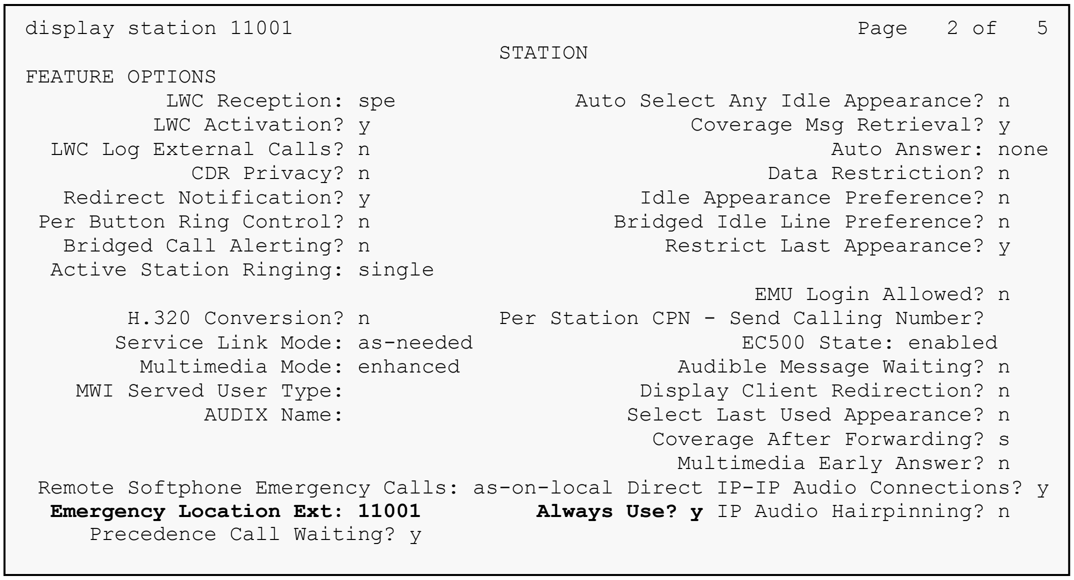
<pre>
change ars analysis 0   Page   1 of   2
                             ARS DIGIT ANALYSIS TABLE
                                   Location: all   Percent Full: 0

          Dialed   Total   Route   Call   Node   ANI
          String   Min Max Pattern   Type   Num   Reqd
    1   11   11   10   natl   n
    720977xxxx   10   10   11   natl   n
    911   3   3   11   emer   n
    11   2   2   11   emer   n
    1438   11   11   10   natl   n
</pre>

</td></tr>
</table>

5.2. Station Configuration

This section will describe the settings required of each of the different station types to support the EGW functionality. Each station is required to have an Emergency Location Extension configured.

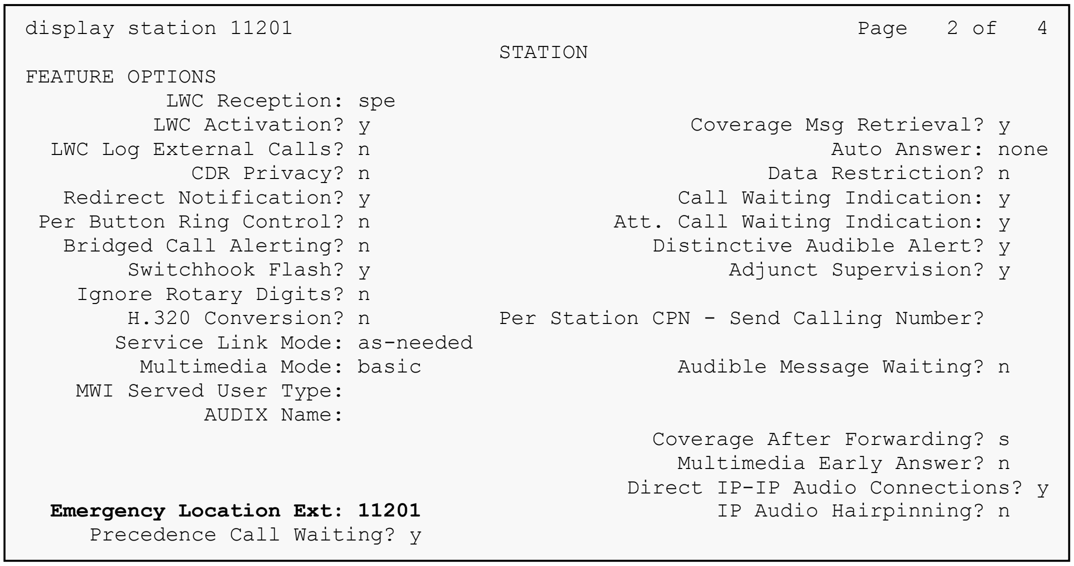
Step	Description
1.	**H.323 and SIP Telephones** The example below shows the Emergency Location Extension configuration for an Avaya 9630 IP Telephone (H.323). Use the **display station *n*** command, where ***n*** is the station extension, to view the settings. By default, the Emergency Location Extension is the same as the station extension and the **Always Use** field is set to ***y***. If the **Always Use** field is set to ***n***, then the Emergency Location Extension will be taken from the IP network map form if an extension is configured there. All H.323 and SIP telephones are configured in a similar way. 

```
display station 11001                                           Page   2 of   5
                                     STATION
FEATURE OPTIONS
           LWC Reception: spe             Auto Select Any Idle Appearance? n
          LWC Activation? y                        Coverage Msg Retrieval? y
  LWC Log External Calls? n                                   Auto Answer: none
             CDR Privacy? n                              Data Restriction? n
   Redirect Notification? y                    Idle Appearance Preference? n
 Per Button Ring Control? n                  Bridged Idle Line Preference? n
   Bridged Call Alerting? n                      Restrict Last Appearance? y
  Active Station Ringing: single
                                                        EMU Login Allowed? n
        H.320 Conversion? n          Per Station CPN - Send Calling Number?
       Service Link Mode: as-needed                      EC500 State: enabled
         Multimedia Mode: enhanced                  Audible Message Waiting? n
    MWI Served User Type:                        Display Client Redirection? n
              AUDIX Name:                       Select Last Used Appearance? n
                                                  Coverage After Forwarding? s
                                                    Multimedia Early Answer? n
 Remote Softphone Emergency Calls: as-on-local Direct IP-IP Audio Connections? y
  Emergency Location Ext: 11001        Always Use? y IP Audio Hairpinning? n
     Precedence Call Waiting? y
```

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>2.</td><td>

Digital and Analog Telephones

The example below shows the Emergency Location Extension configuration for a digital telephone. Use the **display station *n*** command, where ***n*** is the station extension, to view the settings. By default, the Emergency Location Extension is the same as the station extension. There is no **Always Use** field as there was for the H.323/SIP telephones. All digital and analog telephones are configured in a similar way.



```
display station 11201                                           Page   2 of   4
                                     STATION
FEATURE OPTIONS
           LWC Reception: spe
          LWC Activation? y                          Coverage Msg Retrieval? y
  LWC Log External Calls? n                                     Auto Answer: none
             CDR Privacy? n                                Data Restriction? n
   Redirect Notification? y                          Call Waiting Indication: y
 Per Button Ring Control? n                     Att. Call Waiting Indication: y
   Bridged Call Alerting? n                        Distinctive Audible Alert? y
         Switchhook Flash? y                             Adjunct Supervision? y
    Ignore Rotary Digits? n
        H.320 Conversion? n          Per Station CPN - Send Calling Number?
       Service Link Mode: as-needed
         Multimedia Mode: basic                       Audible Message Waiting? n
    MWI Served User Type:
              AUDIX Name:
                                                   Coverage After Forwarding? s
                                                     Multimedia Early Answer? n
                                                 Direct IP-IP Audio Connections? y
  Emergency Location Ext: 11201                          IP Audio Hairpinning? n
     Precedence Call Waiting? y
```

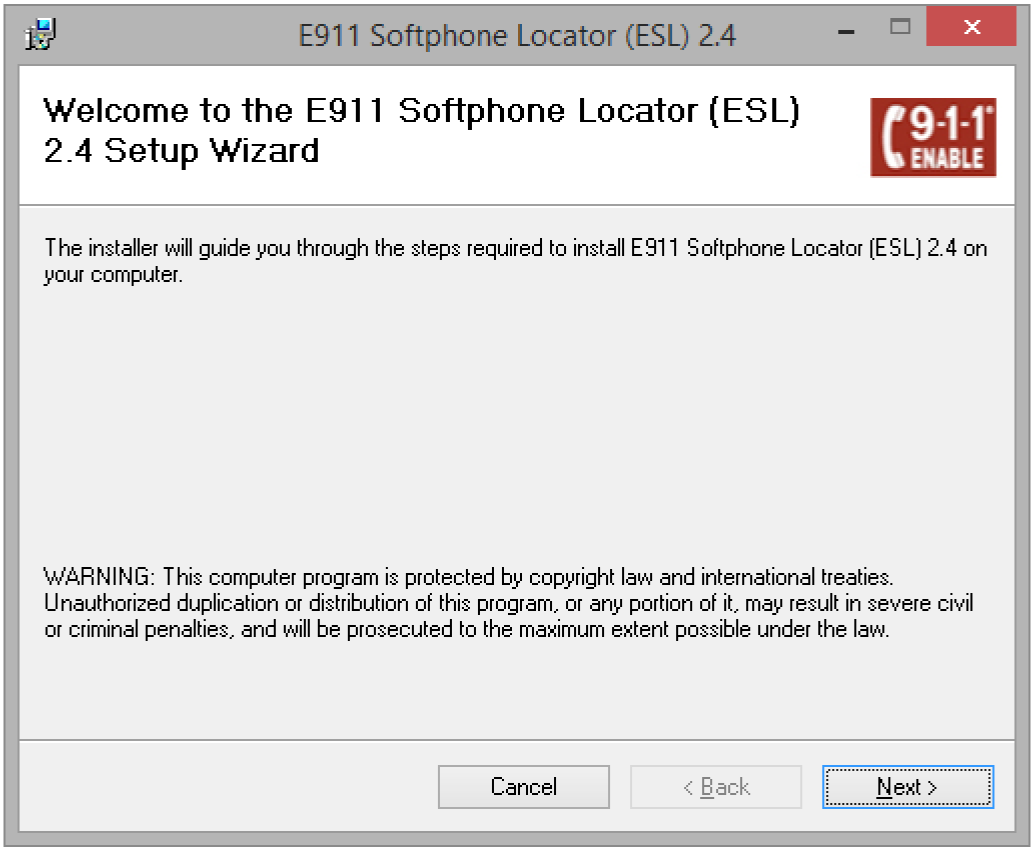
</td></tr>
</table>

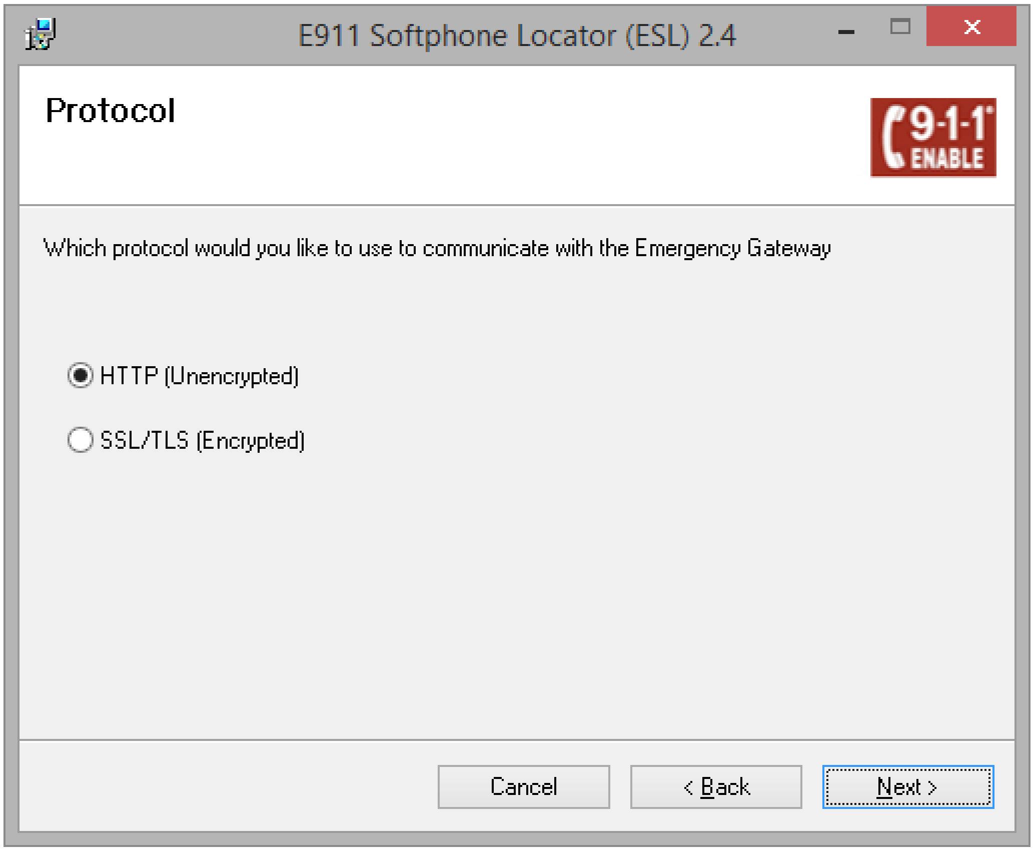
6. Configure Avaya Endpoints

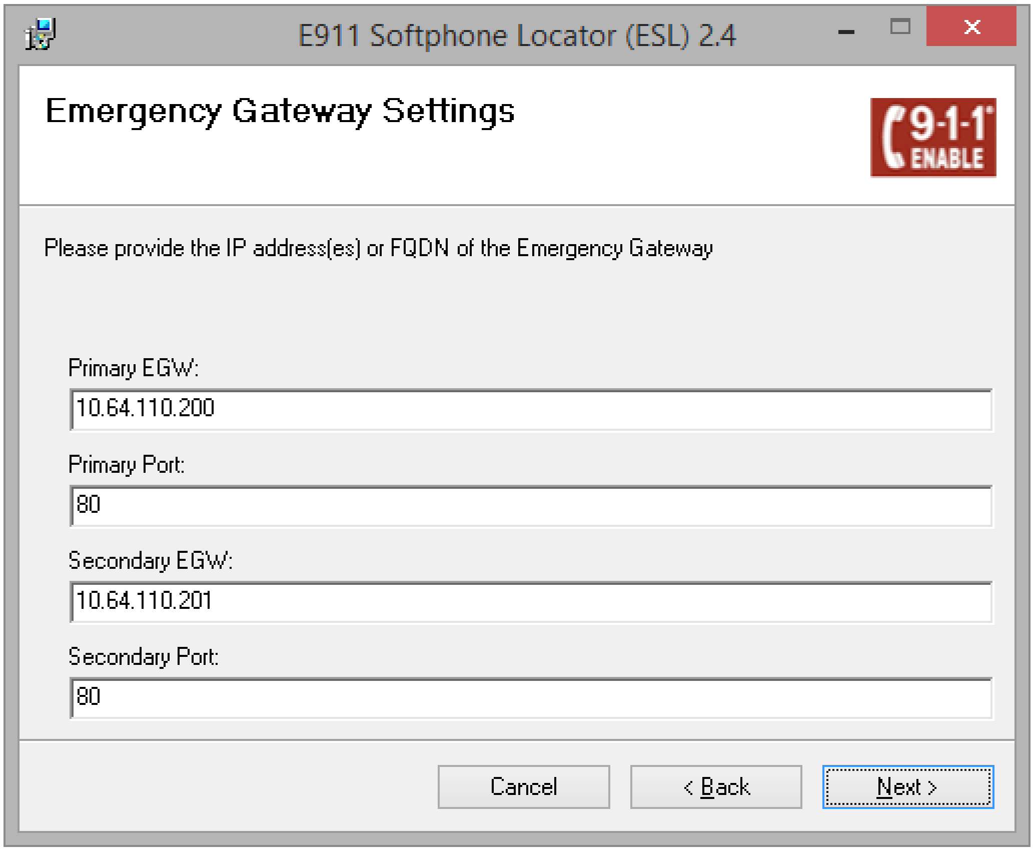
This section describes the configuration required of Avaya endpoints to support the EGW functionality. Avaya H.323 and SIP telephones require additions to the 46xxsettings.txt file to support layer 3 discovery. The Avaya one-X® Communicator requires installation of the ESL software on the same PC running the Avaya one-X® Communicator. No special configuration is required of analog or digital telephones.

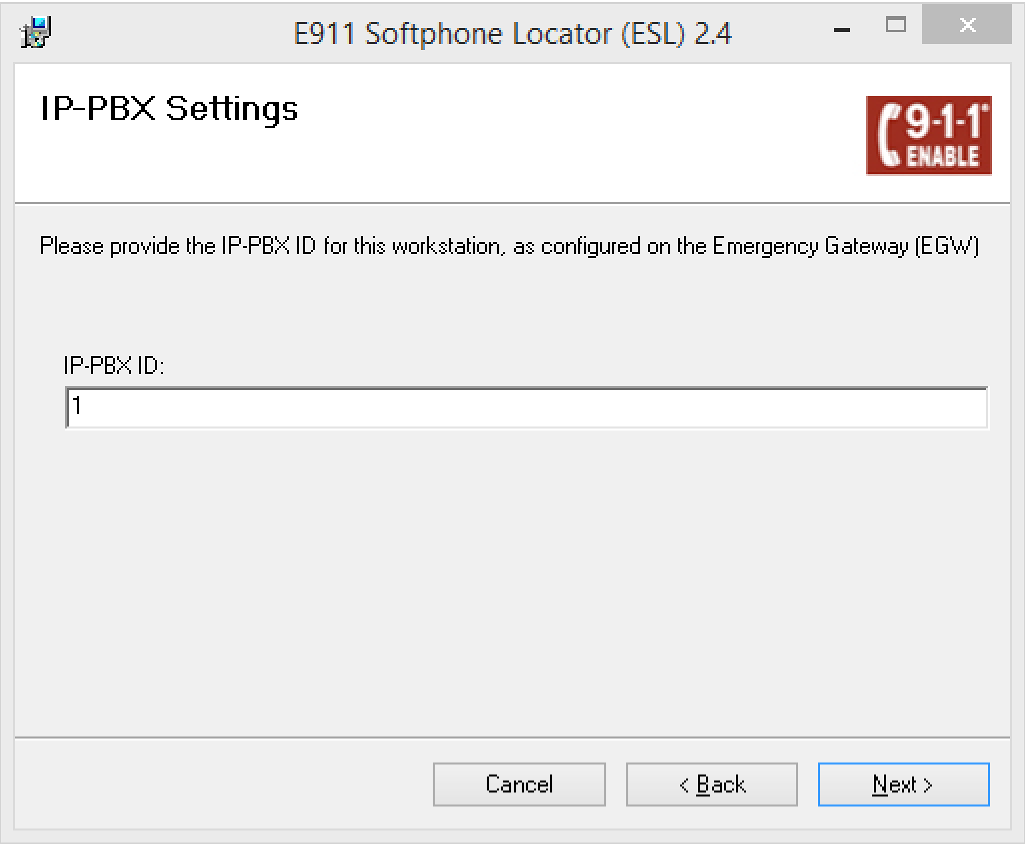
Step	Description

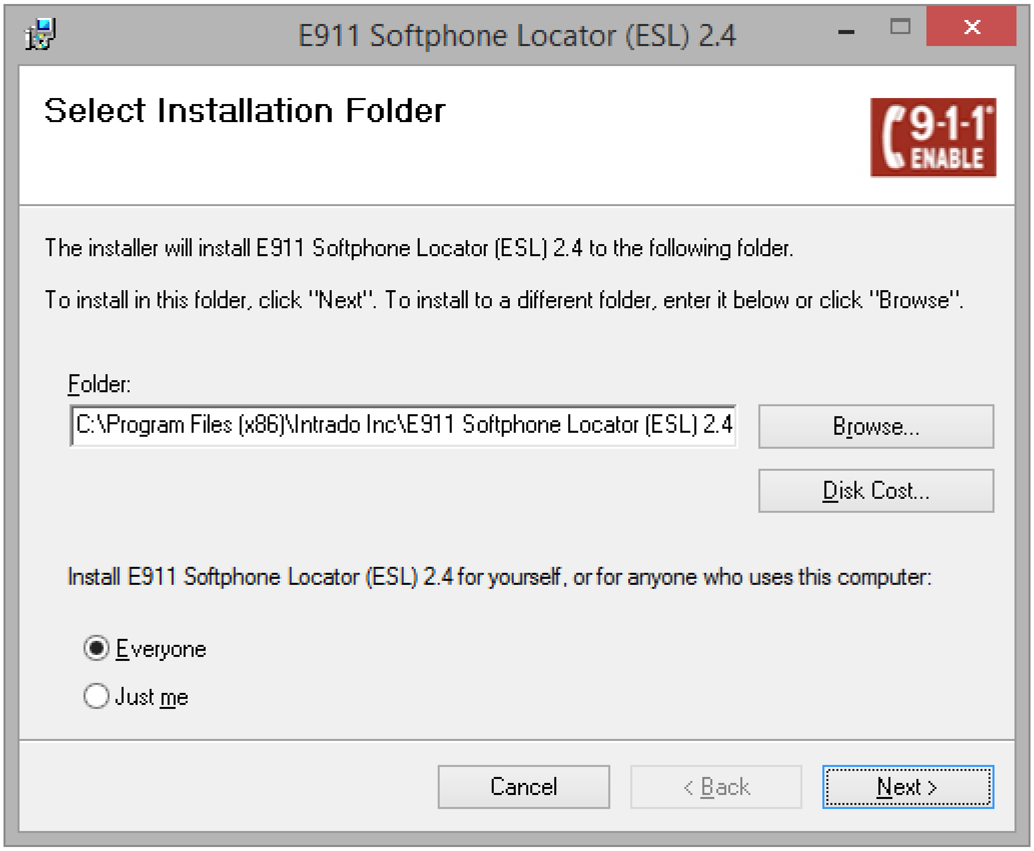
1.	**Avaya H.323 and SIP Telephone Configuration File**
	In order to support layer 3 discovery, the following lines need to be added to the 46xxsettings.txt configuration file for Avaya H.323 and SIP telephones. The two highlighted parameters in the **SUBSCRIBELIST** and **WMLHOME** URLs must be modified for a specific installation. The first parameter (***10.64.110.200***) represents the IP address of the private side of the primary EGW. The second parameter (***1***) is the **IP-PBX ID** number that is created while configuring EGW.
	
	`## 911 Enable Settings`
	`SET TPSLIST /`
	`SET SUBSCRIBELIST` **`http://10.64.110.200/1/r`**
	`SET PUSHPORT 80`
	`SET PUSHCAP 2`
	`SET WMLHOME` **`http://10.64.110.200/wml/1/service.html`**

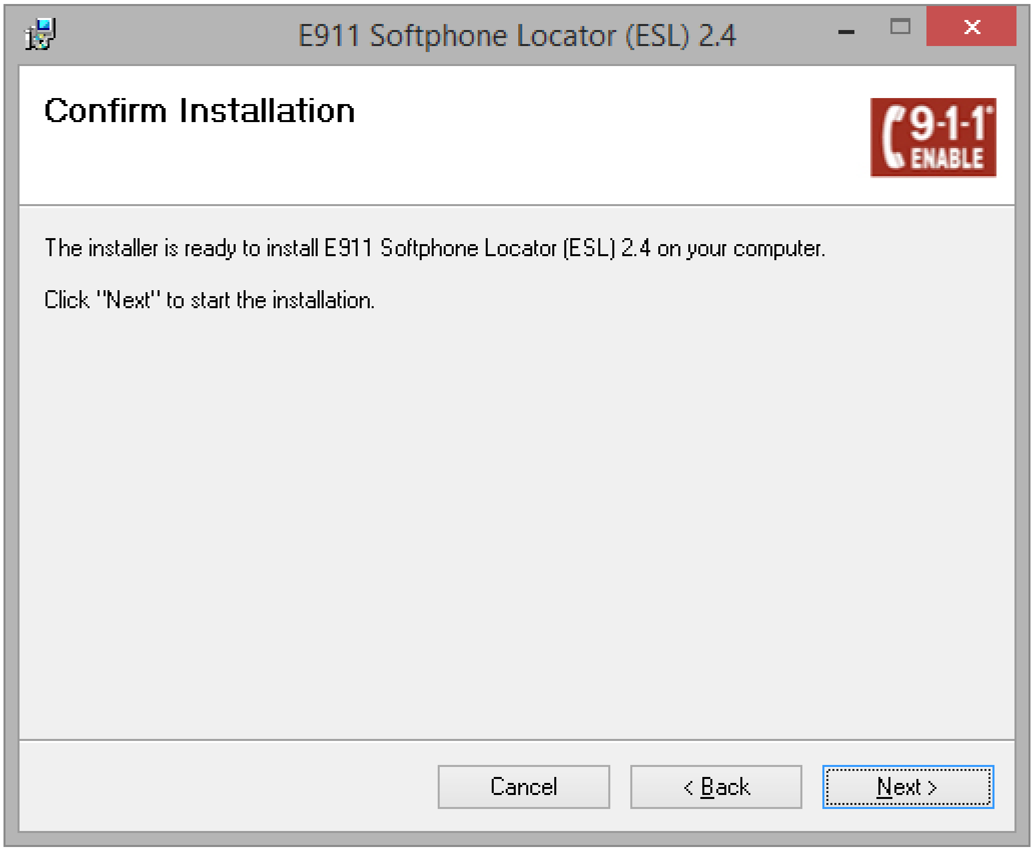
Step	Description
2.	**Avaya one-X® Communicator (H.323) – ESL software installation** On the PC running the Avaya one-X® Communicator, launch the ESL setup application. A welcome screen will appear. Click **Next** to proceed.  E911 Softphone Locator (ESL) 2.4 Welcome to the E911 Softphone Locator (ESL) 2.4 Setup Wizard The installer will guide you through the steps required to install E911 Softphone Locator (ESL) 2.4 on your computer. WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.

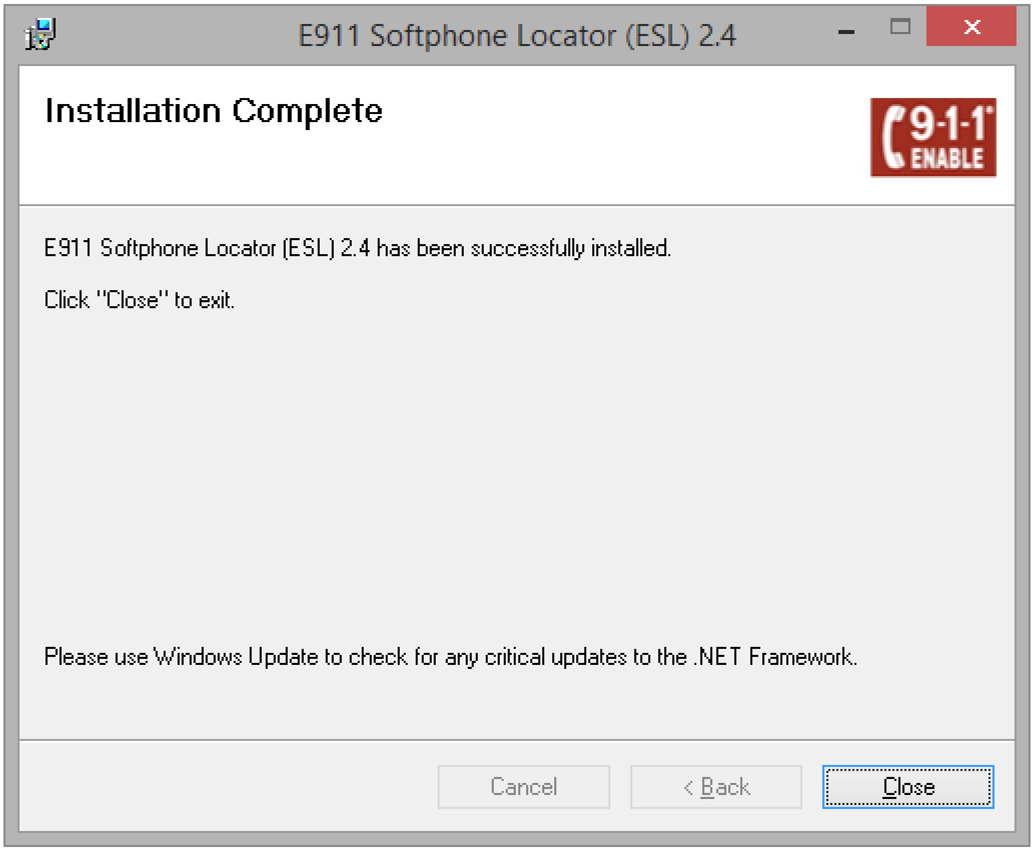
Step	Description
3.	**ESL Installation – Select Protocol** Select the desired protocol. HTTP was used for the compliance test. Click **Next**.  E911 Softphone Locator (ESL) 2.4 Protocol Which protocol would you like to use to communicate with the Emergency Gateway ● HTTP (Unencrypted) ○ SSL/TLS (Encrypted)

Step	Description
4.	**ESL Installation – EGW Settings** Enter the IP addresses for both EGWs. Use the default port ***80*** for HTTP. Click **Next**.  E911 Softphone Locator (ESL) 2.4 Emergency Gateway Settings Please provide the IP address(es) or FQDN of the Emergency Gateway Primary EGW: 10.64.110.200 Primary Port: 80 Secondary EGW: 10.64.110.201 Secondary Port: 80

Step	Description
5.	**ESL Installation – IP-PBX Settings** Enter an **IP-PBX ID**. Click **Next**.  E911 Softphone Locator (ESL) 2.4 IP-PBX Settings Please provide the IP-PBX ID for this workstation, as configured on the Emergency Gateway (EGW) IP-PBX ID: 1

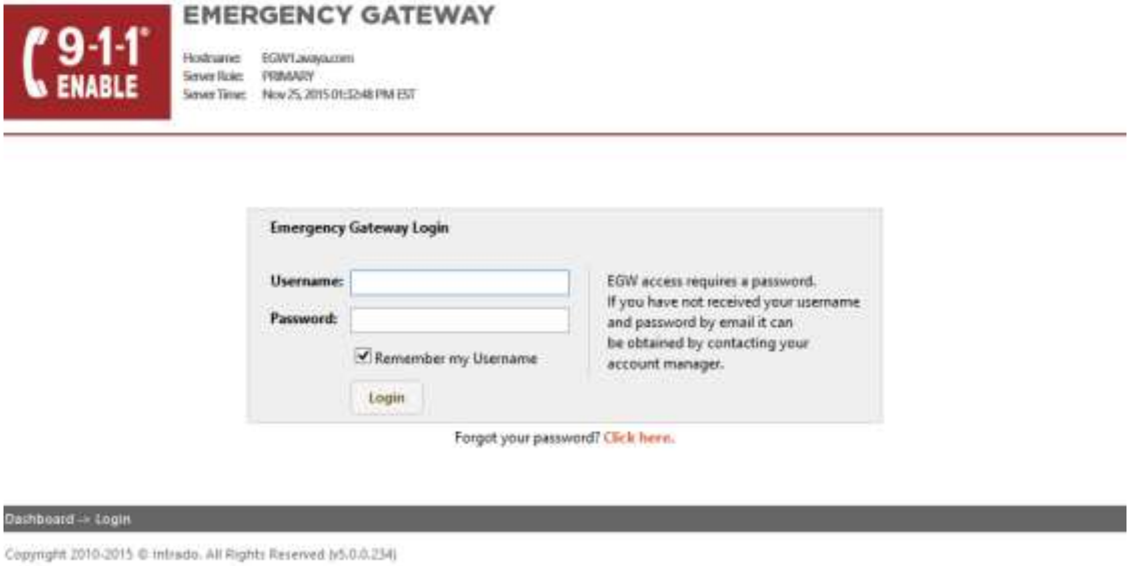
Step	Description
6.	**ESL Installation – Installation Folder** Enter the installation folder and who should have access to the software. Click **Next**.  E911 Softphone Locator (ESL) 2.4 Select Installation Folder The installer will install E911 Softphone Locator (ESL) 2.4 to the following folder. To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse". Folder: C:\Program Files (x86)\Intrado Inc\E911 Softphone Locator (ESL) 2.4 Install E911 Softphone Locator (ESL) 2.4 for yourself, or for anyone who uses this computer: ● Everyone ○ Just me 9-1-1 ENABLE Browse... Disk Cost... Cancel < Back Next >

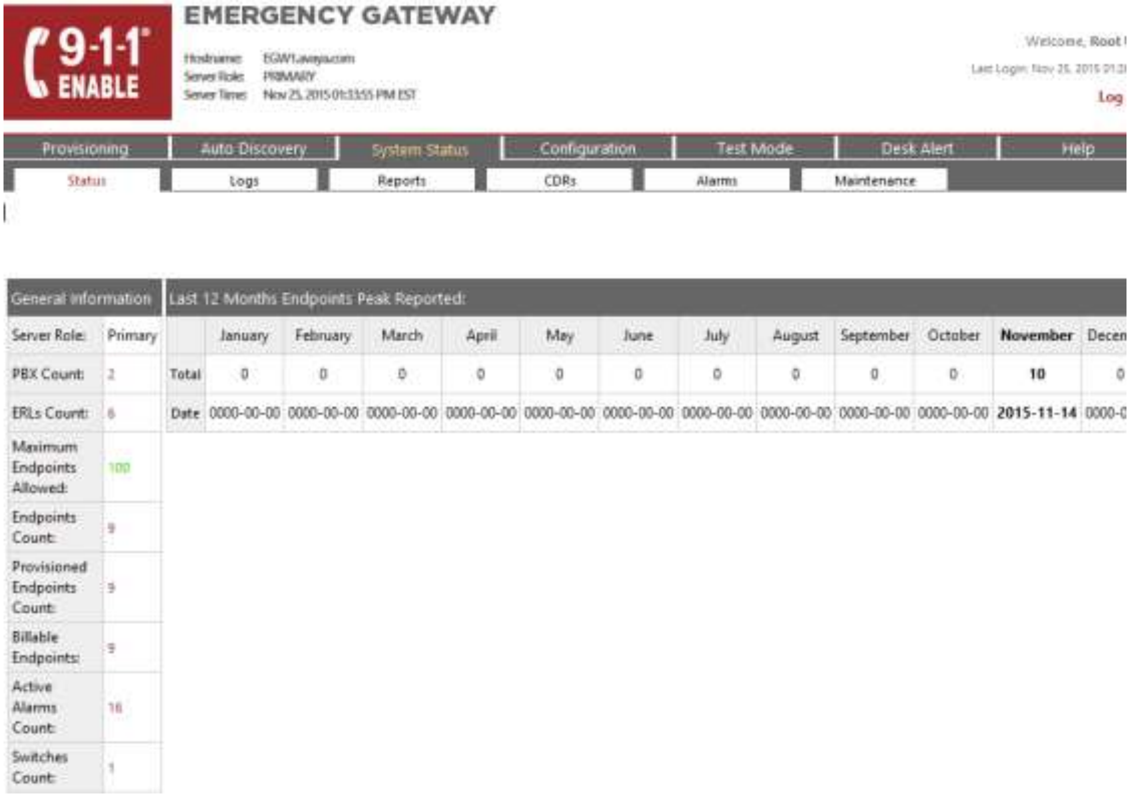
Step	Description
7.	**ESL Installation – Confirm** Confirm the installation by clicking **Next**.  E911 Softphone Locator (ESL) 2.4 Confirm Installation The installer is ready to install E911 Softphone Locator (ESL) 2.4 on your computer. Click "Next" to start the installation.

Step	Description
8.	**ESL Installation – Complete** The following screen appears when installation is complete. Click **Close** to exit the set-up application.  E911 Softphone Locator (ESL) 2.4 Installation Complete 9-1-1 ENABLE Cancel < Back Close E911 Softphone Locator (ESL) 2.4 has been successfully installed. Click "Close" to exit. Please use Windows Update to check for any critical updates to the .NET Framework.

7. Configure 911 Enable Emergency Gateway (EGW)

The configuration of the EGW is performed by 911 Enable for the customer when the customer subscribes to 911 Enable's Emergency Routing Service. The information in this section is included simply as a reference.

Step	Description
1.	**Login** The EGW is configured via a web browser. To access the web interface, enter http://<*ip-addr*> in the address field of the web browser, where <*ip-addr*> is the IP address of the primary EGW. Log in with the appropriate credentials. Click **Login**.  EMERGENCY GATEWAY Hostname: EGW1.avaya.com Server Role: PRIMARY Server Time: Nov 25, 2015 01:32:48 PM EST Emergency Gateway Login Username: Password: ☑ Remember my Username Login EGW access requires a password. If you have not received your username and password by email it can be obtained by contacting your account manager. Forgot your password? Click here. Dashboard -> Login Copyright 2010-2015 © Intrado. All Rights Reserved (v5.0.0.234)

Step	Description
2.	**Main Page** The main page of the EGW will appear. 

EMERGENCY GATEWAY

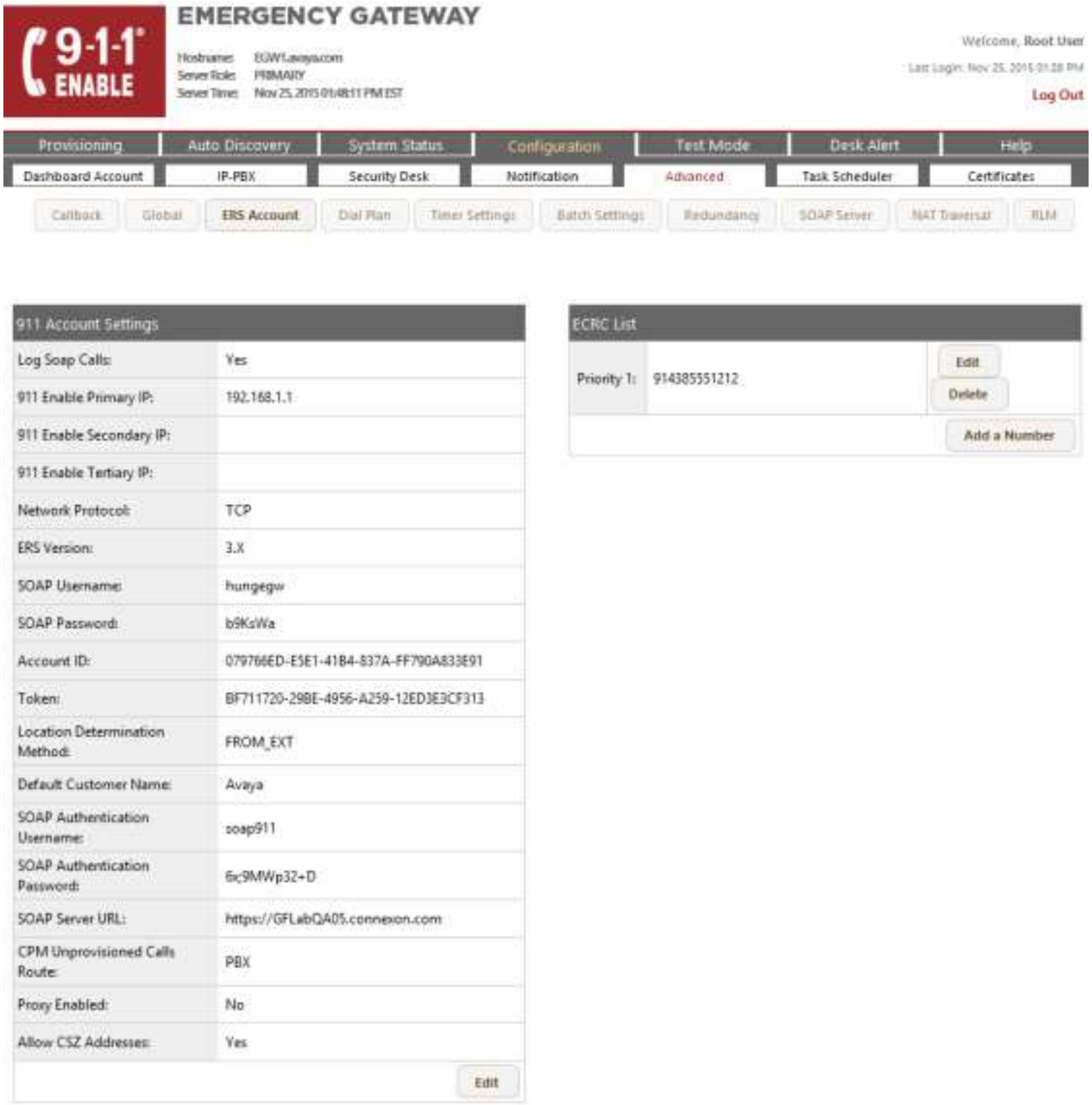
Hostname: EGW1.avaya.com
Server Role: PRIMARY
Server Time: Nov 25, 2015 01:33:55 PM EST

Welcome, Root !
Last Login: Nov 25, 2015 01:2

General Information	
Server Role:	Primary
PBX Count:	2
ERLs Count:	6
Maximum Endpoints Allowed:	100
Endpoints Count:	9
Provisioned Endpoints Count:	9
Billable Endpoints:	9
Active Alarms Count:	16
Switches Count:	1

Last 12 Months Endpoints Peak Reported:

	January	February	March	April	May	June	July	August	September	October	**November**	Decen
Total	0	0	0	0	0	0	0	0	0	0	**10**	0
Date	0000-00-00	0000-00-00	0000-00-00	0000-00-00	0000-00-00	0000-00-00	0000-00-00	0000-00-00	0000-00-00	0000-00-00	**2015-11-14**	0000-0

Step	Description
3.	**ERS Account** The ERS account defines the parameters used to connect to the Emergency Routing Service. Navigate to the **Configuration → Advanced → ERS Account** tab to configure these settings. The example below shows the settings used for the compliance test. The necessary values for each field shown for the **911 Account Settings** and the **ECRC List** are provided by 911 Enable for connection to the ERS. For security reasons, the public IP addresses of the ERS are not shown but some digits are replaced by an x. The ECRC list shows the phone number of the ECRC. This number is dialed through Communication Manager so it contains the preceding 9 (ARS feature access code) followed by the 11-digit number. For security reasons, 911 Enable Primary IP and ECRC List number has been changed. 

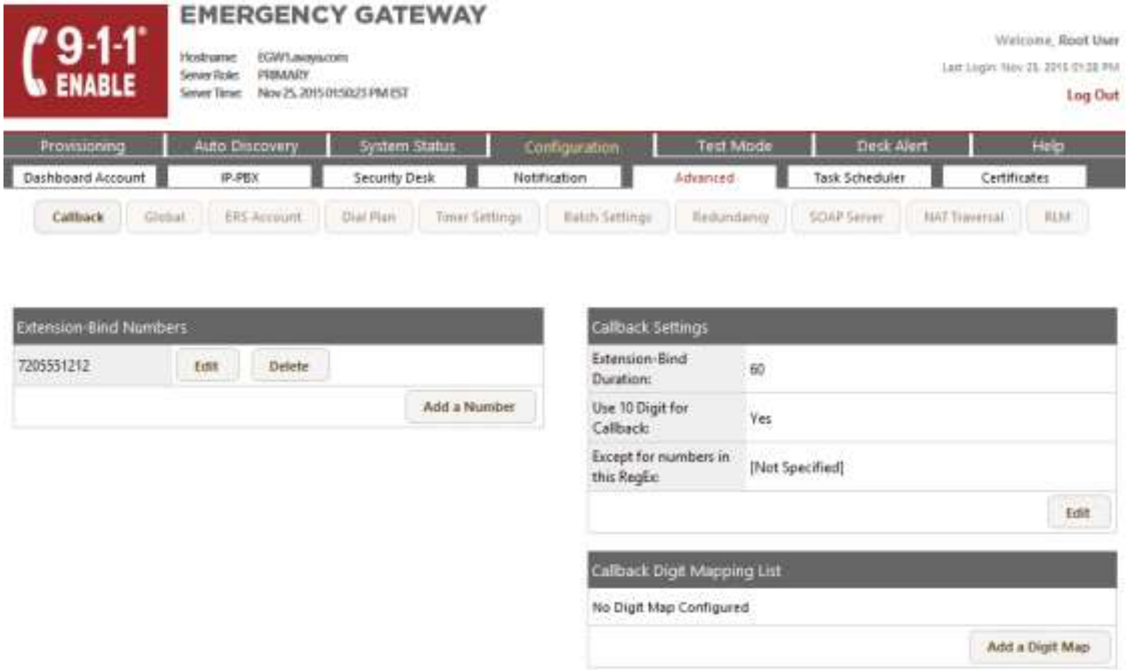
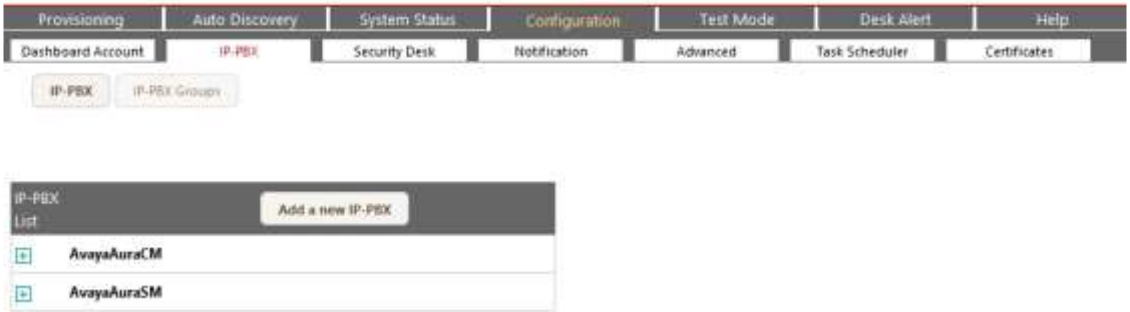
EMERGENCY GATEWAY

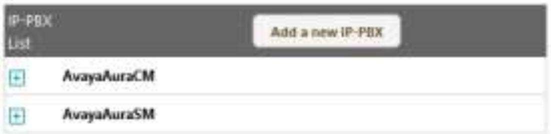
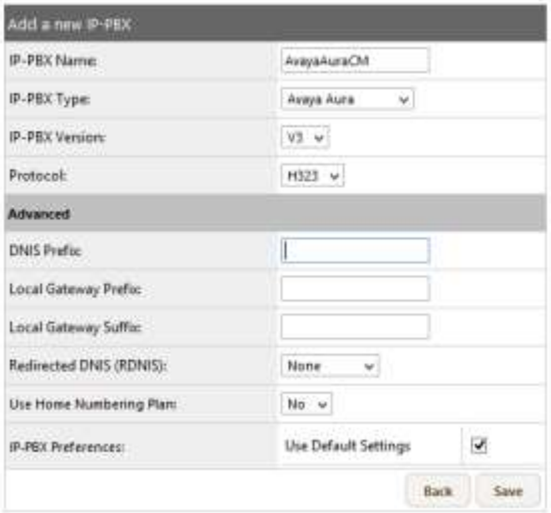
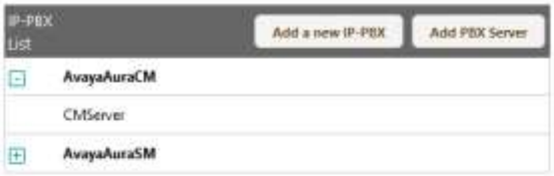
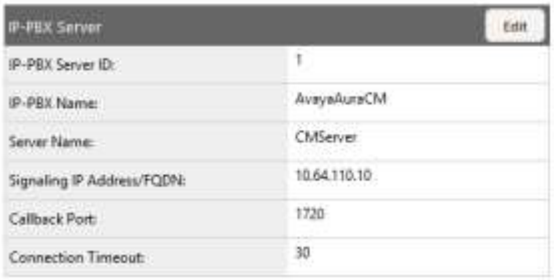
Hostname: EGW1.avaya.com
Server Role: PRIMARY
Server Time: Nov 25, 2015 01:48:11 PM EST

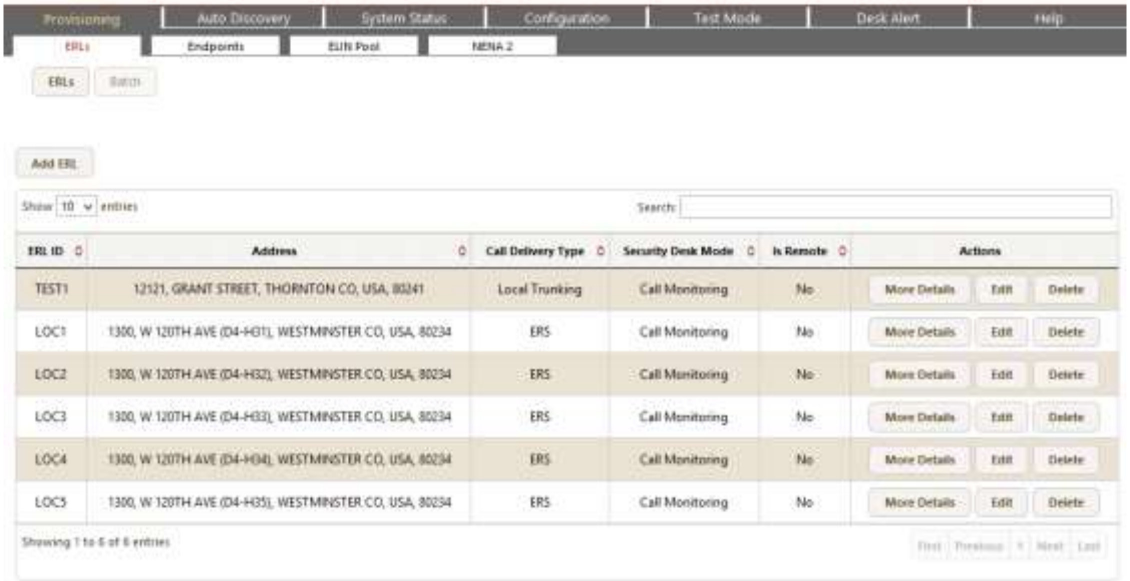
Welcome, Root User
Last Login: Nov 25, 2015 01:28 PM
Log Out

911 Account Settings	
Log Soap Calls:	Yes
911 Enable Primary IP:	192.168.1.1
911 Enable Secondary IP:	
911 Enable Tertiary IP:	
Network Protocol:	TCP
ERS Version:	3.X
SOAP Username:	hungegw
SOAP Password:	b9KsWa
Account ID:	079766ED-E5E1-41B4-837A-FF790A833E91
Token:	BF711720-29BE-4956-A259-12ED3E3CF313
Location Determination Method:	FROM_EXT
Default Customer Name:	Avaya
SOAP Authentication Username:	soap911
SOAP Authentication Password:	6x9MWp32+D
SOAP Server URL:	https://GFLabQA05.connexon.com
CPM Unprovisioned Calls Route:	PBX
Proxy Enabled:	No
Allow CSZ Addresses:	Yes

ECRC List	
Priority 1:	914385551212

Step	Description
4.	**Extension-Bind Numbers** The Extension-Bind numbers are the pool of DID numbers owned by the enterprise that the EGW can use as callback numbers for active 911 calls. Navigate to the **Configuration → Advanced → Callback** tab to configure these Extension-Bind numbers. For the compliance test, a single number was used in the Extension-Bind Numbers list. To add a number to the list, click the **Add a number** button. Enter the number in the subsequent window (not shown). Each number is represented by 10-digits. For security reasons, the full PSTN number is not shown.  9-1-1 ENABLE EMERGENCY GATEWAY Welcome, Root User Log Out Provisioning Auto Discovery System Status Configuration Test Mode Desk Alert Help Dashboard Account IP-PBX Security Desk Notification Advanced Task Scheduler Certificates Callback Global ERS Account Dial Plan Timer Settings Batch Settings Redundancy SOAP Server NAT Traversal RLM Edit Delete Add a Number Edit Add a Digit Map Hostname: EGW1.avaya.com Server Role: PRIMARY Server Time: Nov 25, 2015 01:50:23 PM EST Last Login: Nov 25, 2015 01:28 PM Extension-Bind Numbers 7205551212 Callback Settings Extension-Bind Duration: 60 Use 10 Digit for Callback: Yes Except for numbers in this RegEx: [Not Specified] Callback Digit Mapping List No Digit Map Configured
5.	**IP-PBX** **Steps 5 – 7** define the parameters needed to connect to Communication Manager via an H.323 trunk on the private side of the EGW. Navigate to **Configuration → IP-PBX** to configure these settings. First, an IP-PBX is defined by clicking the **Add a new IP-PBX** button. The example below shows the IP-PBX created for the compliance test. Click the IP-PBX name to view the details.  Provisioning Auto Discovery System Status Configuration Test Mode Desk Alert Help Dashboard Account IP-PBX Security Desk Notification Advanced Task Scheduler Certificates IP-PBX IP-PBX Groups Add a new IP-PBX IP-PBX List AvayaAuraCM AvayaAuraSM

Step	Description
6.	**IP-PBX – Continued** The IP-PBX was created with the following parameters. Use default values for all other fields. ▪ Set the **IP-PBX Name** to a descriptive name. ▪ Set the **PBX-Type** to ***Avaya Aura***. ▪ Set the **Protocol** to ***H323***. The EGW automatically assigned the IP-PBX ID number shown below. This value is needed for the configuration of the Avaya H.323 and SIP Telephone 46xxsettings file and the ESL installation.  AvayaAuraCM AvayaAuraSM  IP-PBX Name: AvayaAuraCM IP-PBX Type: Avaya Aura IP-PBX Version: V3 Protocol: H323 Advanced DNIS Prefix: Local Gateway Prefix: Local Gateway Suffix: Redirected DNIS (RDNIS): None Use Home Numbering Plan: No IP-PBX Preferences: Use Default Settings ☑
7.	**IP-PBX – Continued** The IP-PBX created in the previous step can be comprised of multiple servers. To view the list of servers, click the **+** icon next to the IP-PBX name. The example below shows the server list for the IP-PBX named ***Avaya*** created for the compliance test. The list contains a single server named ***Server1***. Click the server name to see the details. A server can be added by clicking the **Add a server** button. Enter a descriptive name for the **Server Name**. Set the **Signaling IP Address/FQDN** to the IP address of the Avaya Server terminating the H.323 trunk at the far-end. Use default values for all other fields. For security reasons, the Signaling IP Address is masked.  AvayaAuraCM CMServer AvayaAuraSM  IP-PBX Server ID: 1 IP-PBX Name: AvayaAuraCM Server Name: CMServer Signaling IP Address/FQDN: 10.64.110.10 Callback Port: 1720 Connection Timeout: 30

Step	Description
8.	**Emergency Response Locations (ERLs)** The ERL is a location identifier that is associated with a physical address. This association is contained in a batch file uploaded to the EGW. To perform this upload, navigate to the **Provisioning → ERLs** tab. Enter the file name in the **Batch File** field and click the **Upload** button. At the bottom of the screen, **Status** and **Actions columns** will appear associated with the batch file. The following actions are necessary to complete the upload but are not all shown in the screen below. Next, click **Validate** under **Actions** (not shown). Once the file is validated, click **Batch Process** which will appear under **Actions** (not shown). Once this completes, the **Status** will change to **Finished**. An example of an ERL batch file is shown in **Step 9**. 

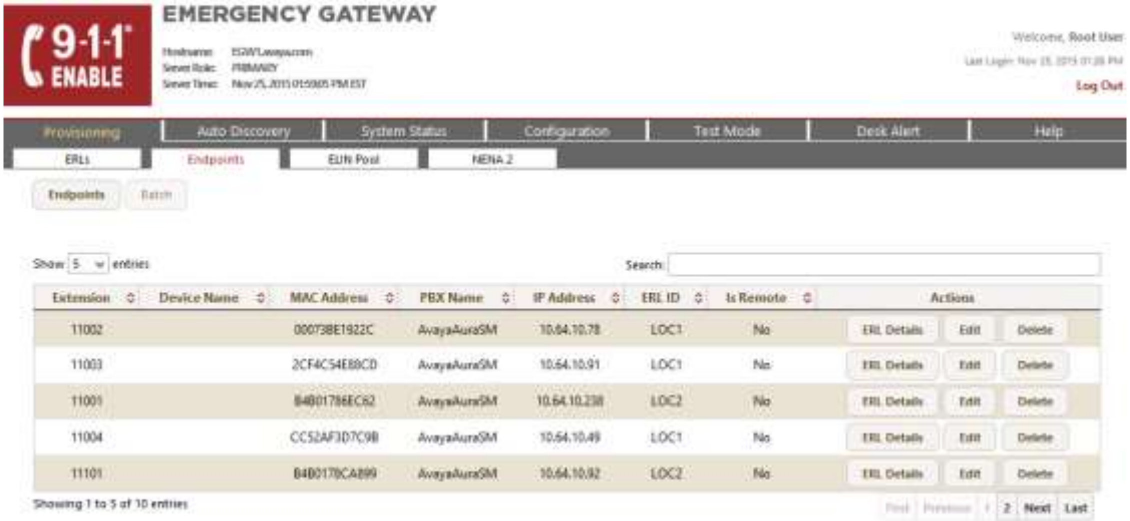
ERL ID	Address	Call Delivery Type	Security Desk Mode	Is Remote	Actions
TEST1	12121, GRANT STREET, THORNTON CO, USA, 80241	Local Trunking	Call Monitoring	No	More Details Edit Delete
LOC1	1300, W 120TH AVE (D4-H31), WESTMINSTER CO, USA, 80234	ERS	Call Monitoring	No	More Details Edit Delete
LOC2	1300, W 120TH AVE (D4-H32), WESTMINSTER CO, USA, 80234	ERS	Call Monitoring	No	More Details Edit Delete
LOC3	1300, W 120TH AVE (D4-H33), WESTMINSTER CO, USA, 80234	ERS	Call Monitoring	No	More Details Edit Delete
LOC4	1300, W 120TH AVE (D4-H34), WESTMINSTER CO, USA, 80234	ERS	Call Monitoring	No	More Details Edit Delete
LOC5	1300, W 120TH AVE (D4-H35), WESTMINSTER CO, USA, 80234	ERS	Call Monitoring	No	More Details Edit Delete

Showing 1 to 6 of 6 entries

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>9.</td><td>

Provisioned Endpoints

All endpoints that can not be auto-discovered, should be manually provisioned so that each extension that is not auto-discovered is associated with an ERL. This association is contained in a batch file uploaded to the EGW. To perform this upload, navigate to the **Provisioning → Endpoints** tab. Enter the file name in the **Batch File** field and click the **Upload** button. At the bottom of the screen, **Status** and **Actions columns** will appear associated with the batch file. The following actions are necessary to complete the upload but are not all shown in the screen below. Next, click **Validate** under **Actions**. Once the file is validated, click **Batch Process** which will appear under **Actions**. Once this completes, the **Status** will change to **Finished**.



Hostname: EGW1.avaya.com
Server Role: PRIMARY
Server Time: Nov 25, 2015 01:50:05 PM EST

Welcome, Root User
Last Login: Nov 25, 2015 01:28 PM

Show 5 entries
Search:

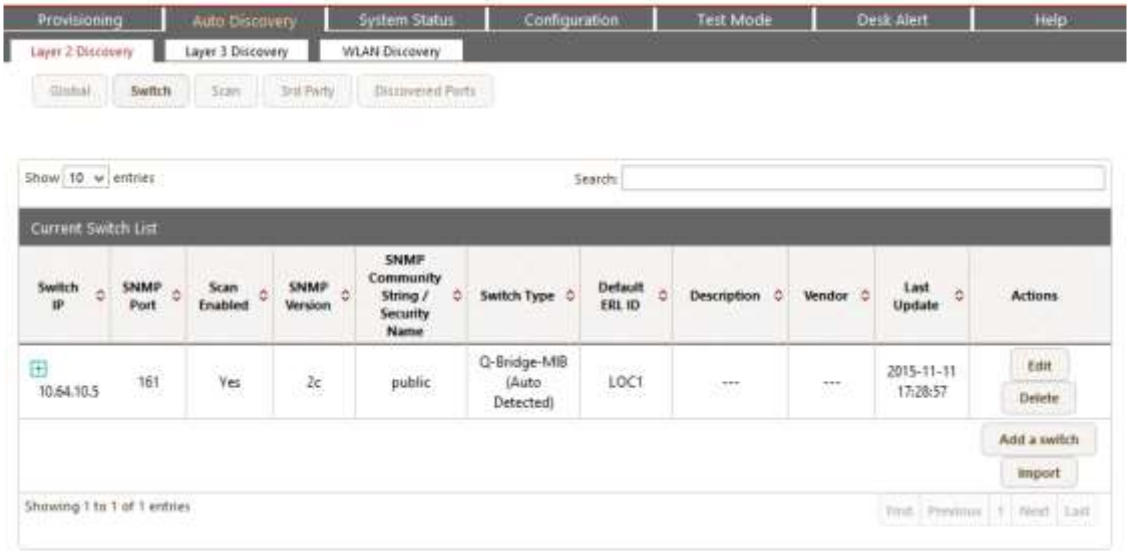
<table>
<tr><th>Extension</th><th>Device Name</th><th>MAC Address</th><th>PBX Name</th><th>IP Address</th><th>ERL ID</th><th>Is Remote</th><th>Actions</th></tr>
<tr><td>11002</td><td></td><td>00073BE1922C</td><td>AvayaAuraSM</td><td>10.64.10.78</td><td>LOC1</td><td>No</td><td>ERL Details Edit Delete</td></tr>
<tr><td>11003</td><td></td><td>2CF4C54E88CD</td><td>AvayaAuraSM</td><td>10.64.10.91</td><td>LOC1</td><td>No</td><td>ERL Details Edit Delete</td></tr>
<tr><td>11001</td><td></td><td>B4B01786EC62</td><td>AvayaAuraSM</td><td>10.64.10.238</td><td>LOC2</td><td>No</td><td>ERL Details Edit Delete</td></tr>
<tr><td>11004</td><td></td><td>CC52AF3D7C9B</td><td>AvayaAuraSM</td><td>10.64.10.49</td><td>LOC1</td><td>No</td><td>ERL Details Edit Delete</td></tr>
<tr><td>11101</td><td></td><td>B4B0178CA899</td><td>AvayaAuraSM</td><td>10.64.10.92</td><td>LOC2</td><td>No</td><td>ERL Details Edit Delete</td></tr>
</table>

Showing 1 to 5 of 10 entries

</td></tr>
</table>

<table>
<tr><th>Step</th><th>Description</th></tr>
<tr><td>10.</td><td>

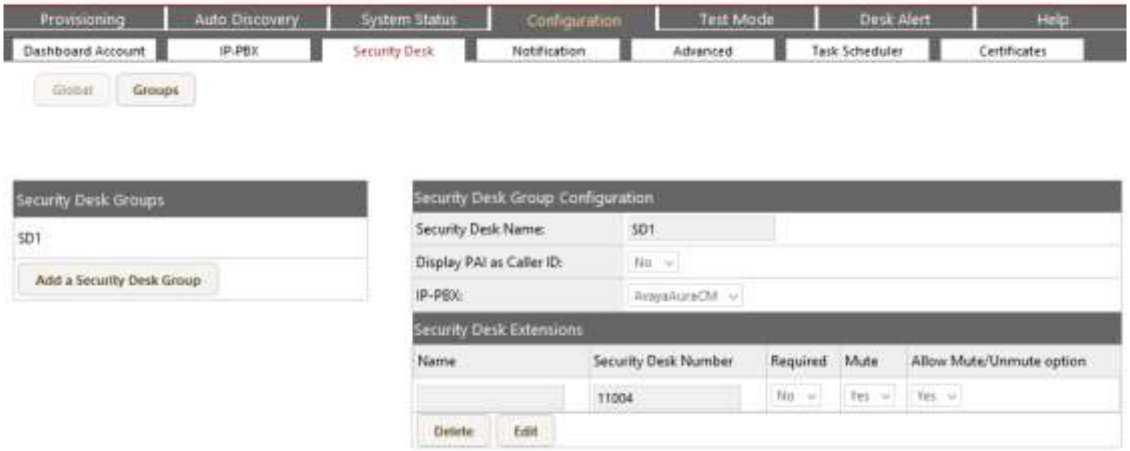
Layer 2 Discovery
Each enterprise layer 2 switch that has Avaya H.323 or SIP telephones connected to it must be configured on the EGW so that it can be queried as part of layer 2 discovery. Navigate to the **Auto Discovery → Layer 2 Discovery → Switch** tab to display the list of layer 2 switches. The example below shows the list used for the compliance test. The IP address of switch shown in **Figure 1** was entered. Click the **Add a switch** button to enter the switch parameters. Enter the management IP address of the switch in the **Switch IP** field and enter the appropriate string in the **SNMP Community String** field. Enter the ERL where the switch resides in the **Default ERL ID** field. Default values may be used for all other fields. For security reasons, IP address is masked.



<table>
<tr><th>Switch IP</th><th>SNMP Port</th><th>Scan Enabled</th><th>SNMP Version</th><th>SNMP Community String / Security Name</th><th>Switch Type</th><th>Default ERL ID</th><th>Description</th><th>Vendor</th><th>Last Update</th><th>Actions</th></tr>
<tr><td>10.64.10.5</td><td>161</td><td>Yes</td><td>2c</td><td>public</td><td>Q-Bridge-MIB (Auto Detected)</td><td>LOC1</td><td>---</td><td>---</td><td>2015-11-11 17:28:57</td><td>Edit
Delete</td></tr>
</table>

</td></tr>
<tr><td>11.</td><td>

Security Desk
Emergency calls may be routed to a Security Desk extension as well as being sent to the Emergency Routing Service. Navigate to the **Configuration → Security Desk → Groups** tab to create the Security Desk List. To create a security desk, click **Add a Security Desk Group**. The example below shows the Security Desk created for the compliance test. Click the **Edit** button to view the details.



Security Desk Name: SD1
Display PAI as Caller ID: No
IP-PBX: AvayaAuraCM

Security Desk Extensions

<table>
<tr><th>Name</th><th>Security Desk Number</th><th>Required</th><th>Mute</th><th>Allow Mute/Unmute option</th></tr>
<tr><td></td><td>11004</td><td>No</td><td>Yes</td><td>Yes</td></tr>
</table>

</td></tr>
</table>

8. Verification Steps

The following steps may be used to verify the configuration:

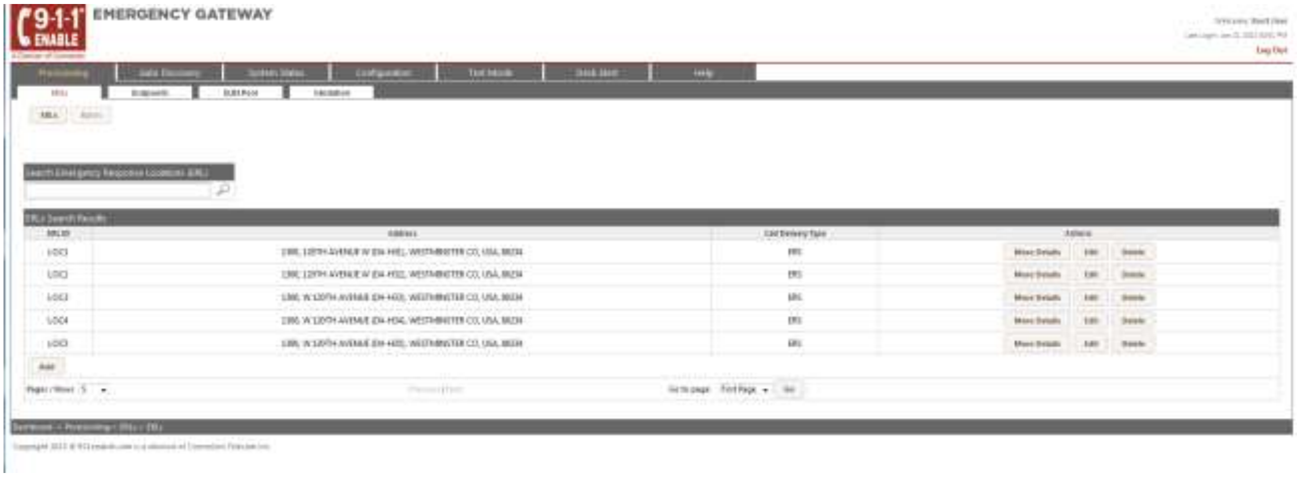
- From the Communication Manager SAT, use the **status signaling-group** command to verify that the H.323 signaling group Group State is **in-service**.

```
status signaling-group 11
                         STATUS SIGNALING GROUP

        Group ID: 11                             Active NCA-TSC Count: 0
      Group Type: h.323                           Active CA-TSC Count: 0

     Group State: in-service
```

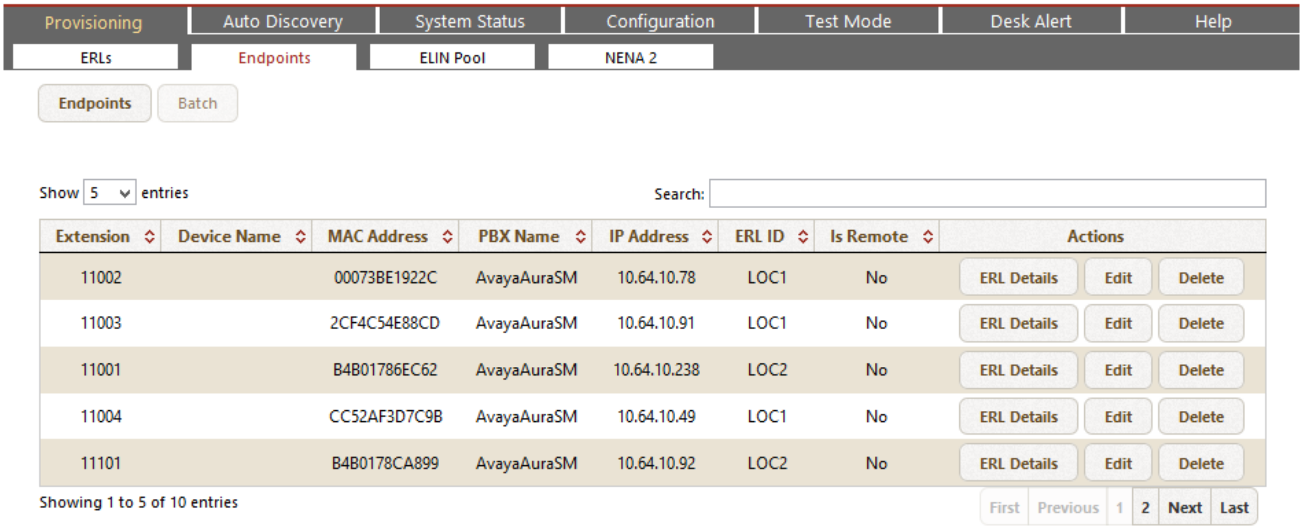
- From the Communication Manager SAT, use the **status trunk-group** command to verify that the H.323 trunk group members are in **in-service/idle** state.

```
status trunk 11

                             TRUNK GROUP STATUS

Member   Port     Service State      Mtce Connected Ports
                                     Busy

0011/001 T00011   in-service/idle    no
0011/002 T00012   in-service/idle    no
0011/003 T00013   in-service/idle    no
0011/004 T00014   in-service/idle    no
0011/005 T00015   in-service/idle    no
0011/006 T00016   in-service/idle    no
0011/007 T00017   in-service/idle    no
0011/008 T00018   in-service/idle    no
0011/009 T00019   in-service/idle    no
0011/010 T00020   in-service/idle    no
```

- On the EGW, verify the ERL information. Navigate to the **Search → ERLs** tab, verify that the locations provided in the batch file in **Section 7, Step 9** are displayed.



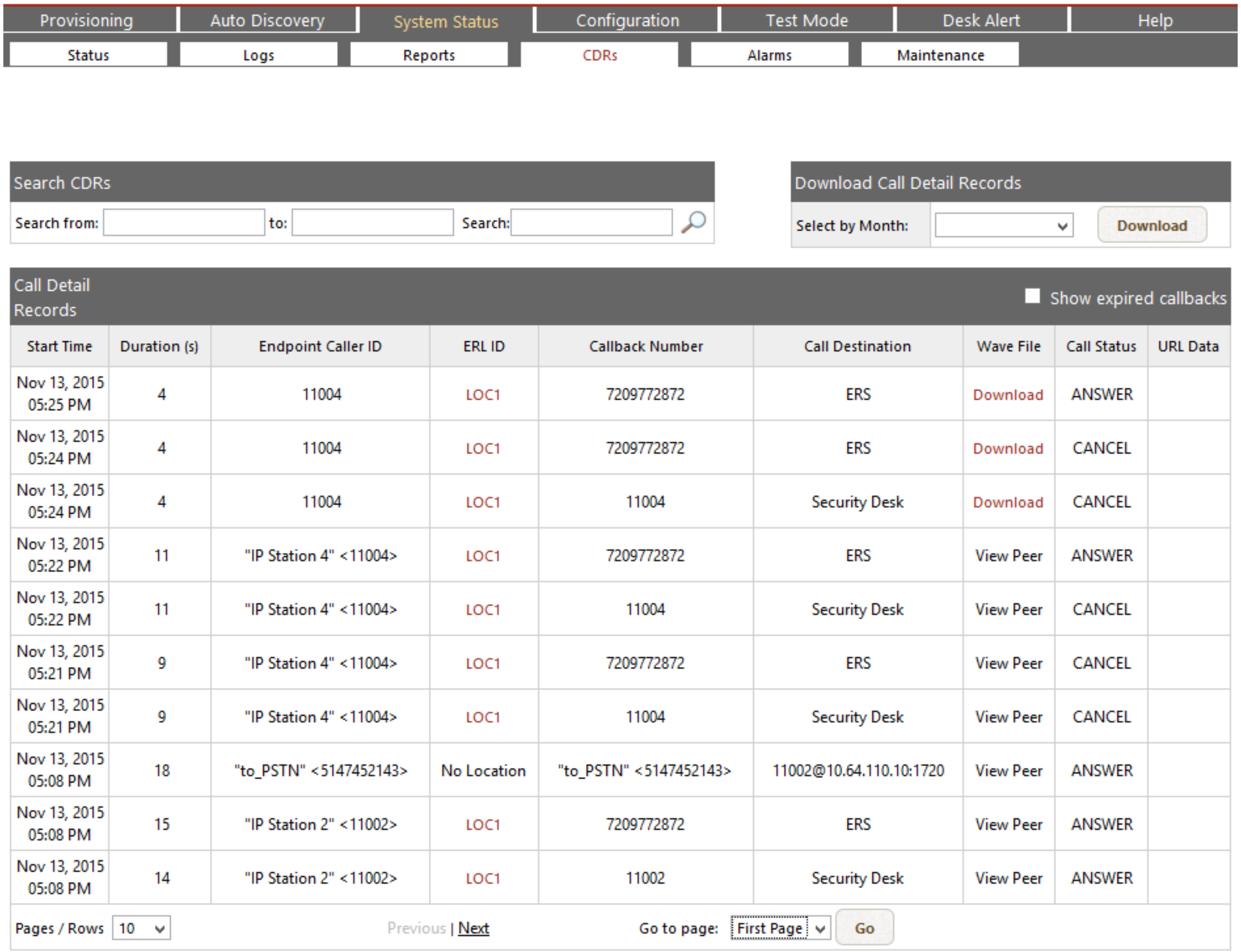
- On the EGW, verify the endpoints. Navigate to the **Search → Endpoints** tab, verify that all endpoints are displayed.



Extension	Device Name	MAC Address	PBX Name	IP Address	ERL ID	Is Remote	Actions
11002		00073BE1922C	AvayaAuraSM	10.64.10.78	LOC1	No	ERL Details Edit Delete
11003		2CF4C54E88CD	AvayaAuraSM	10.64.10.91	LOC1	No	ERL Details Edit Delete
11001		B4B01786EC62	AvayaAuraSM	10.64.10.238	LOC2	No	ERL Details Edit Delete
11004		CC52AF3D7C9B	AvayaAuraSM	10.64.10.49	LOC1	No	ERL Details Edit Delete
11101		B4B0178CA899	AvayaAuraSM	10.64.10.92	LOC2	No	ERL Details Edit Delete

Showing 1 to 5 of 10 entries

- Verify that 911 calls can be placed from different endpoints types from different locations. Verify from the EGW Call Detail Records (CDR), that the correct location and callback number is being passed to 911 Enable. Navigate to the **System Status → CDRs** tab to display this information. The example below shows two emergency 911 calls as represented by the value ***ERS*** in the **Call Destination** field. The example also shows three callback calls which show the local extension being called back in the **Call Destination** field. Each of the 911 calls shows the correct location and callback information for that endpoint.



Start Time	Duration (s)	Endpoint Caller ID	ERL ID	Callback Number	Call Destination	Wave File	Call Status	URL Data
Nov 13, 2015 05:25 PM	4	11004	LOC1	7209772872	ERS	Download	ANSWER	
Nov 13, 2015 05:24 PM	4	11004	LOC1	7209772872	ERS	Download	CANCEL	
Nov 13, 2015 05:24 PM	4	11004	LOC1	11004	Security Desk	Download	CANCEL	
Nov 13, 2015 05:22 PM	11	"IP Station 4" <11004>	LOC1	7209772872	ERS	View Peer	ANSWER	
Nov 13, 2015 05:22 PM	11	"IP Station 4" <11004>	LOC1	11004	Security Desk	View Peer	CANCEL	
Nov 13, 2015 05:21 PM	9	"IP Station 4" <11004>	LOC1	7209772872	ERS	View Peer	CANCEL	
Nov 13, 2015 05:21 PM	9	"IP Station 4" <11004>	LOC1	11004	Security Desk	View Peer	CANCEL	
Nov 13, 2015 05:08 PM	18	"to_PSTN" <5147452143>	No Location	"to_PSTN" <5147452143>	11002@10.64.110.10:1720	View Peer	ANSWER	
Nov 13, 2015 05:08 PM	15	"IP Station 2" <11002>	LOC1	7209772872	ERS	View Peer	ANSWER	
Nov 13, 2015 05:08 PM	14	"IP Station 2" <11002>	LOC1	11002	Security Desk	View Peer	ANSWER	

9. Conclusion

911 Enable Emergency Gateway passed compliance testing. These Application Notes describe the procedures required to configure the connectivity between Avaya Aura® Communication Manager and the 911 Enable equipment and service as shown in **Figure 1,** along with Avaya one-X® Deskphones and Avaya one-X® Communicator.

10. Additional References

This section references the documentation relevant to these Application Notes. Avaya product documentation is available at http://support.avaya.com. Product documentation for the EGW can be obtained from 911 Enable.

[1] Administering Avaya Aura® Communication Manager, Release 7.0, Document 03-300509, Issue 1, August 2015

[2] 911Enable Emergency Gateway System Guide 5.0 Nov 1st, 2015

[3] ESL Configuration Guide Rev. G, Nov 20, 2015

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.