

#### Avaya Solution & Interoperability Test Lab

# **Application Notes for 911 ETC CrisisConnect® for Softphones** and CrisisConnect® for VoIP with Avaya IP Office – Issue 1.0

#### **Abstract**

These Application Notes describe the procedures for configuring the 911 ETC CrisisConnect<sup>®</sup> for Softphones and CrisisConnect<sup>®</sup> for VoIP with Avaya IP Office.

911 ETCs' CrisisConnect<sup>®</sup> for VoIP solution enables E911 call routing to the correct Public Safety Answering Point (PSAP) and delivers the caller's address directly to the PSAP operator's panel in order to provide immediate emergency assistance.

911 ETCs' CrisisConnect<sup>®</sup> for Softphones forces Avaya one-X<sup>®</sup> Communicator users to provision their current location. Location information provisioned by users was stored in the 911 ETC VoIP Positioning Center through the SoftLoc server for Automation Location Identification (ALI) use, if users were to make an Emergency Call.

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.

Testing was performed using Avaya IP Office 500 V2 R9.1, but it also applies to Avaya IP Office Server Edition R9.1 (single site configuration only).

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

911 ETC provides a VoIP Positioning Center (VPC) Service that is able to deliver 911 calls to U.S. and Canada PSAPs independent of the region the call originates from; via a SIP trunk from Avaya IP Office (IP Office), 911 ETC provides SIP specifications for a primary and secondary Session Border Controller (SBC). 911 ETC configures SBC(s) for all customer SIP switches or SBCs that will be connecting to 911 ETC for E911 purposes.

CrisisConnect<sup>®</sup> for Softphones uses the 911 ETC VoIP Positioning Center (VPC) service to allow Avaya one-X<sup>®</sup> Communicator users to provision a location in near real-time. CrisisConnect<sup>®</sup> for VoIP is a required service. 911 ETC provides the SoftLoc server software and a distributable client software package to be installed on computers where the Avaya one-X<sup>®</sup> Communicator is installed. The suggested work flow for this solution is as follows:

911 ETC provides the SoftLoc Server software package along with requirements. 911 ETC will also aid in the installation and configuration. 911 ETC provides the SoftLoc Client software package. The software package can be distributed using most distribution methods that support MSI files (Active Directory Domain Policy, Windows scripting, etc.).

SoftLoc Client assists/requires users of soft phones to provision their current location to ensure accurate routing of an outgoing 911 call. It was developed because of concerns by 911 ETC's customers that soft phone users will ignore critical location information when logging onto their soft phones.

SoftLoc Client runs as a Windows system-tray application and quietly waits for the user to launch a configured soft phone application. Upon launch, SoftLoc will appear above all other applications and remind the user to provision an emergency location. Up to three frequently-used locations can be saved to the remote emergency server and quickly provisioned with just a few mouse clicks. If the user chooses not to provision an emergency location, the soft phone application will be forcibly closed. Responsibility, and therefore liability, is placed back upon the user and accurate location information is ensured in the event of an emergency.

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#### 2. General Test Approach and Test Results

The compliance test focused on verifying that 911 ETC CrisisConnect® for VoIP ability to route emergency call and 911 ETC CrisisConnect® for Softphone to update addresses.

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. Test Results

All test cases were successful.

#### 2.2. Interoperability Compliance Testing

The compliance test validated the ability of 911 ETC CrisisConnect<sup>®</sup> for Softphone and CrisisConnect<sup>®</sup> for VoIP to update users' address information in near real time, route emergency calls and provide ALI information to the PSAP. Feature tests also included the following:

- Call setup using SIP (UDP).
- Codec verification using G.711.
- Call routing based on Locations configured in IP Office.
- Calls from Analog, Digital, Avaya one-X Communicator<sup>®</sup>, Avaya 1100 Series IP Endpoints, and Avaya 9600 Series IP Endpoints.
- Mis-provision of ANI in 911 ETC database, which resulted in call getting routed to Emergency Calls Relay Center (ECRC).
- Verification of alerts generated when dialing emergency number from all types of endpoints.

Failover tests were also performed for the cases where the SIP trunk to 911 ETC is down (SIP 408) and a negative response from 911 ETC (SIP 503), which resulted in alternate routing to secondary route.

For this test effort, only calls related to audio, and PSAP ALI, were placed by dialing 911. The rest of the test calls, due to the nature of emergency calling, were placed to 933. 933 is an Address Verification Service provided by 911 ETC.

#### 2.3. Support

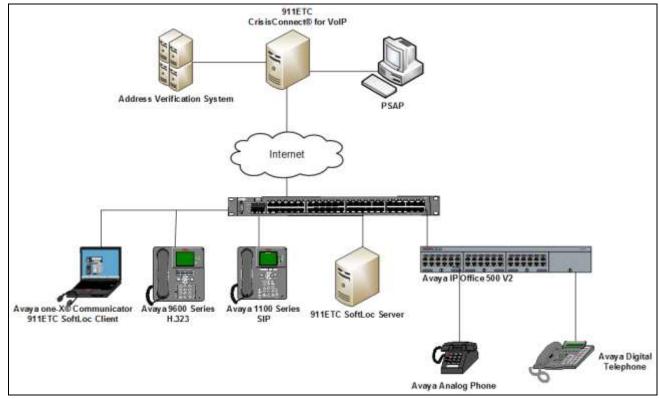
Technical support for 911 ETC can be obtained through the following:

• Web: http://www.911etc.com/contact-us

E-mail: <a href="mailto:support@911etc.com">support@911etc.com</a>Phone: (480) 719-8559

#### 3. Reference Configuration

**Figure 1** illustrates the test configuration. The test configuration shows an enterprise site connected to the 911 ETC CrisisConnect® for VoIP and 911 ETC SoftLoc Server and Client.



**Figure 1: Reference Configuration** 

### 4. Equipment and Software Validated

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

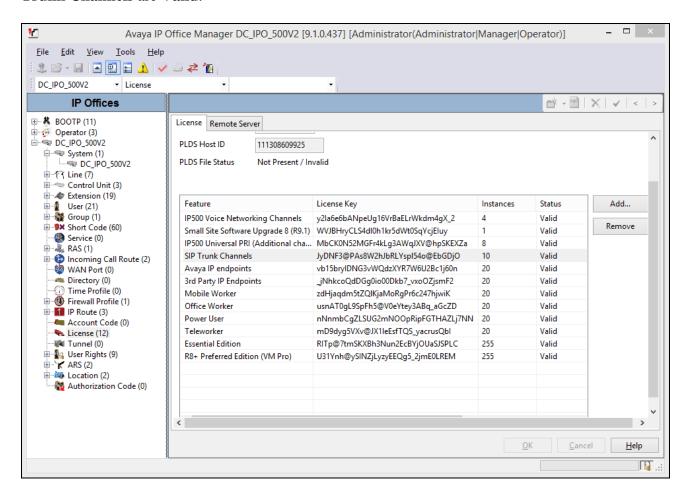
Equipment	Release
Avaya IP Office 500 V2 with Digital	R9.1
Expansion Module	
Avaya IP Office Manager	9.1.0.437
Avaya 9600 Series IP Deskphone (H.323)	3.2.4
Avaya 1100 Series IP Deskphone (SIP)	4.4.18
Avaya one-X® Communicator	6.2001
Avaya 5420 Digital Telephone	N/A
Avaya 6211 Analog Telephone	N/A
911 ETC CrisisConnect®	5.2.3
911 ETC SoftLoc Server	2.0
911 ETC SoftLoc Client	2.0.5.0

#### 5. Configure Avaya IP Office

This section describes Avaya IP Office configuration to support connectivity to the 911 ETC. Avaya IP Office is configured through the Avaya IP Office Manager, a PC desktop application. From a PC running the Avaya IP Office Manager application, select **Start**  $\rightarrow$  **Programs**  $\rightarrow$  **IP Office**  $\rightarrow$  **Manager** to launch the Manager application. Navigate to **File**  $\rightarrow$  **Open Configuration**, select the proper Avaya IP Office system from the pop-up window, and log in with the appropriate credentials. A management window will appear similar to the one in the next section, showing all the Avaya IP Office configurable components in a configuration tree in the left pane.

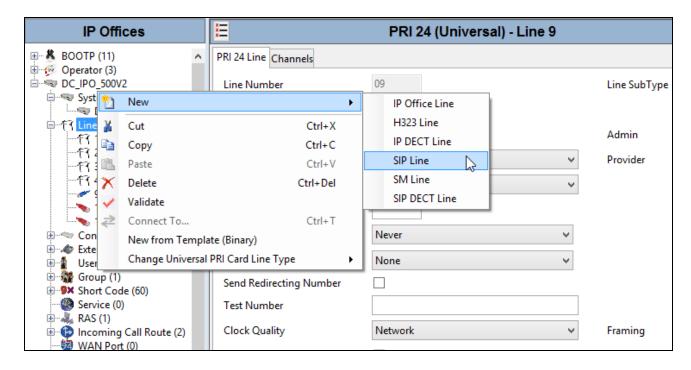
#### 5.1. Licenses

From the configuration tree in the left pane, select **License**. Verify the **License Status** for **SIP Trunk Channels** are **Valid**.

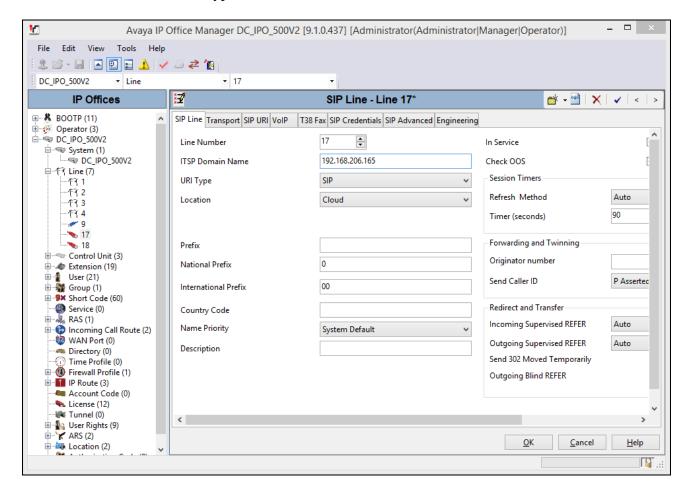


#### 5.2. Administer SIP Line

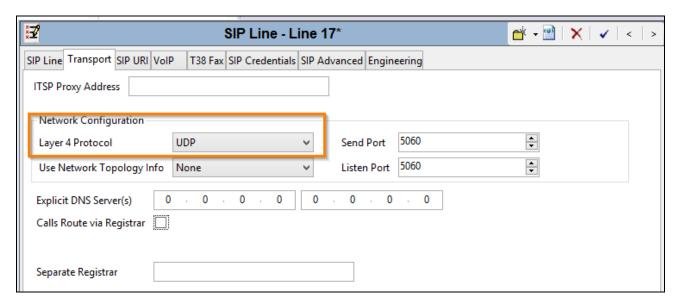
From the configuration tree in the left pane, select Line. Right click on Line  $\rightarrow$  New  $\rightarrow$  SIP Line.



#### In the **ITSP Domain Name**, type in the IP Address of 911 ETC SBC.



#### Select **Transport** tab and set **Layer 4 Protocol** to **UDP**

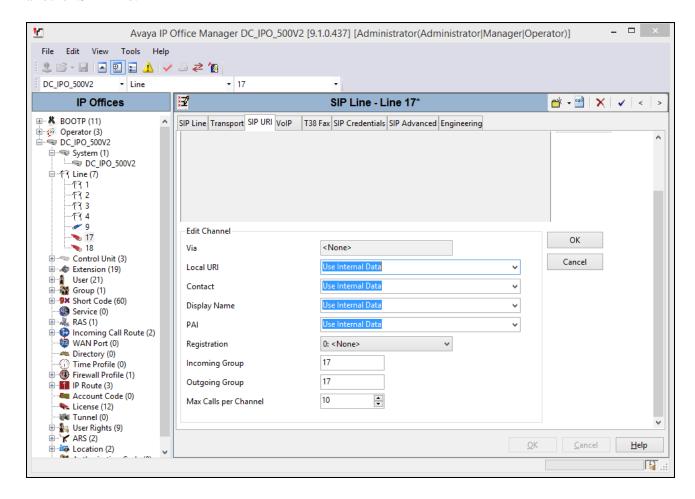


Select SIP URI tab and click Add.

- Type in the SIP Line number of the line that is being added in **Incoming Group** and **Outgoing Group**, i.e. 17 in this case.
- Type in a value in **Max Calls per Channel**.
- Select OK.

At the bottom o the window select **OK** to save configuration.

For Compliance, another SIP line – Line 18 was added for failover testing. Repeat this section to add another SIP Line.

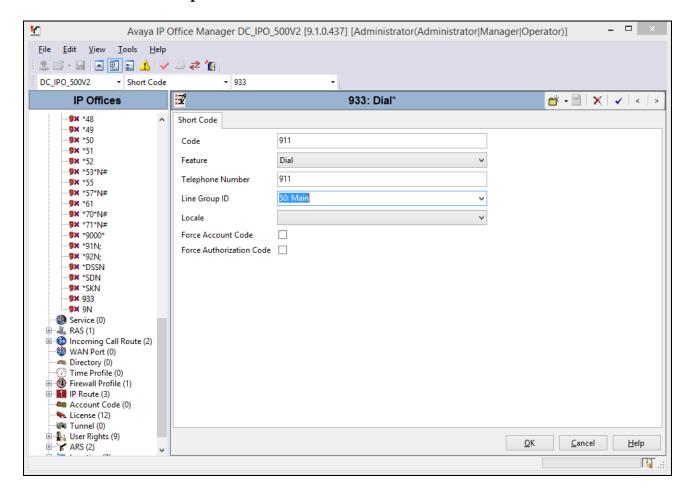


#### 5.3. Administer System Short Code For 911

In times of emergency, users will expect to dial a well known number to contact emergency services. In the United States, 911 is used for this purpose.

From the configuration tree in the left pane, right-click on **Short Code** and select **New** to add a new short code. In the right pane that appears, configure the following:

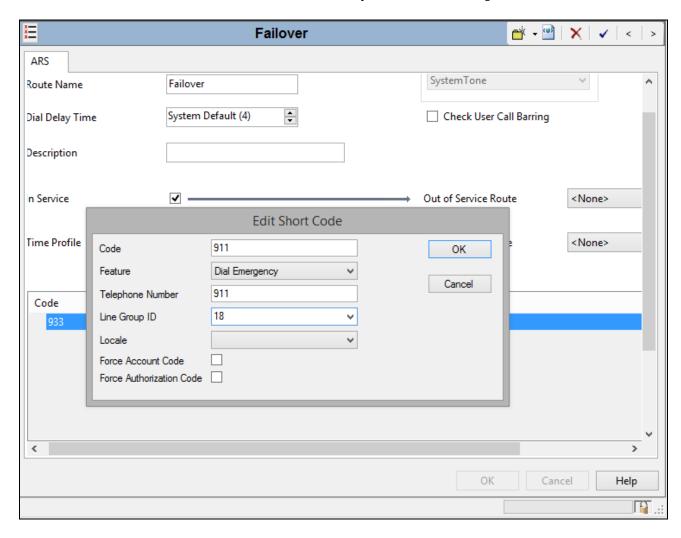
- In the **Code** field, enter the dial string which will trigger this short code. In this case, 911.
- Set the **Feature** field to *Dial* since the purpose of this short code is to dial a number.
- In the **Telephone Number** field, enter the number the system should dial when the user dials 911.
- Set the **Line Group Id** select ARS route that will be used to route 911 calls.



#### 5.4. Administer ARS Routing for 911 Calls

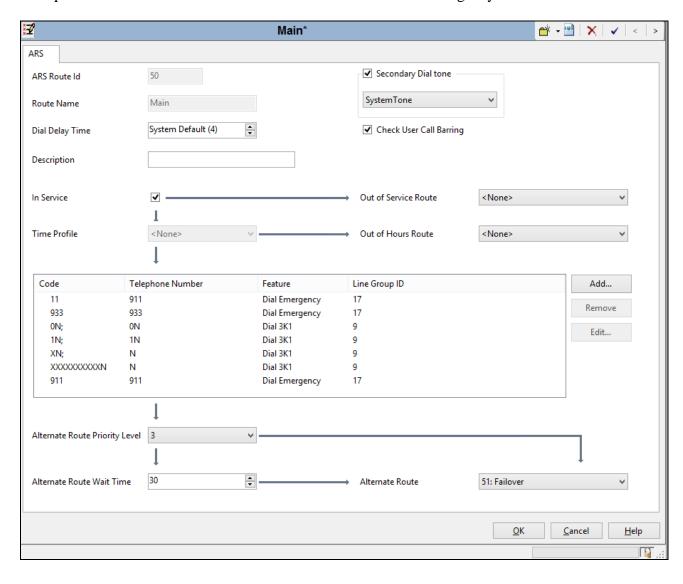
Before configuring the primary route, create a failover route. From the configuration tree on the left pane, right-click on **ARS** and select **New**.

- In the **Route Name** field, type in a name, i.e Failover.
- Edit the short code for **911**, by double clicking on it. In the **Telephone Number** field, type in **911**.
- Select a SIP line that was added as a secondary route, **Line Group ID** 18



Now configure the primary route and associate failover route to the **Main** ARS. From the configuration tree on the left pane, select **ARS** → **Main**. Select **Alternate Route** as Failover. Edit the short code for **911**, by double clicking on it; in the **Telephone Number** field, type in **911** and set **Line Group ID** to primary SIP Line.

Also please note that a code of 11 was also added for access to emergency calls.



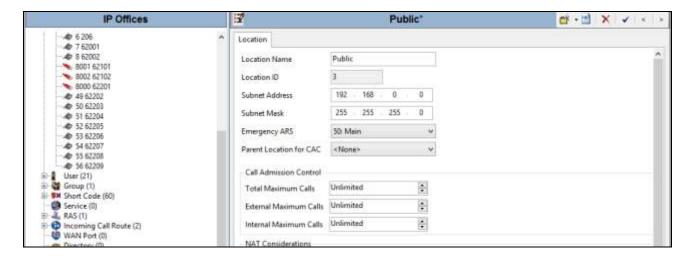
#### 5.5. Configure Locations

From the configuration tree on the left, select **Location**. Right click **Location** and select **New** to add a new location, (not shown). Configure the **Subnet Address** and **Subnet Mask** of the network region where the phones will reside. Select **Emergency ARS** of **Main** as configured in **Section 5.4**.

Configuring locations allows you to specify named locations for groups of phones, IP Office systems, or IP Trunks. The IP Office system must also be assigned a location. Multiple systems in a Small Community Network (SCN) or Server Edition group of systems may reside in the same location. In an SCN environment, locations must be configured at the top level and therefore, all systems must be configured with the same settings, except when the emergency ARS needs to be set at the system level.

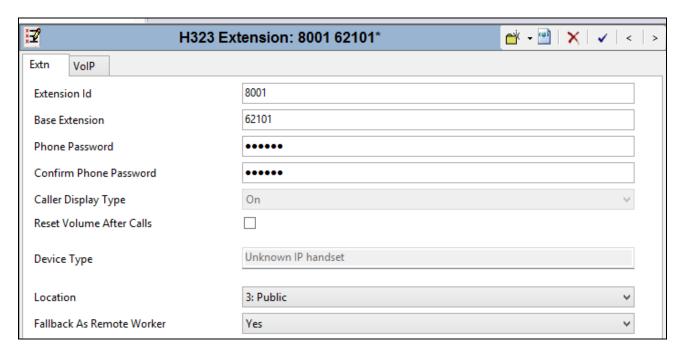
Once locations have been defined, extensions can be allocated to them in the extension configuration. IP phones can be identified by the IP address that they register from. Each location can have only one subnet defined, but phones outside that subnet can be explicitly assigned that location. During compliance testing, extensions were configured to use the location as mentioned in this section.

For more information regarding locations, please refer to the **Help** section.



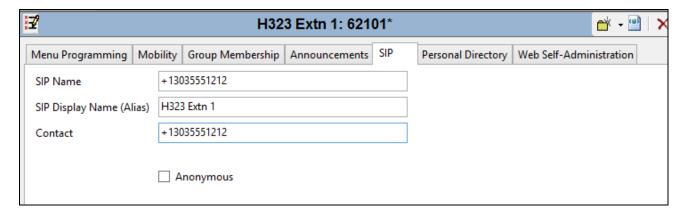
#### 5.6. Configure Extensions

From the configuration tree on the left, select **Extension**. Select an extension and under the **Extn** tab, select the location configured in previous section from the **Location** drop down menu.



#### 5.7. Configure User

From the configuration tree on the left, select **User**. Select a user and click **SIP** tab. Type in the a 10 digit number in **+CCNPANXXXXX** format in **SIP Name** and **Contact** fields. Type in a name in **SIP Display Name** (**Alias**). Please note that the number configured in SIP Name and Contact will be used by 911 ETC to provision a location against it.



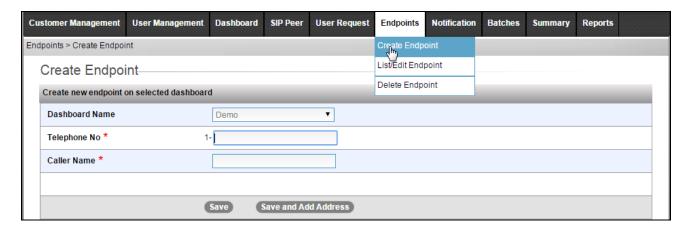
#### 5.8. Save Configuration

Navigate to File  $\rightarrow$  Save Configuration in the menu bar at the top of the screen to save the configuration performed in the preceding sections.

#### 6. Configure 911 ETC CrisisConnect® for VoIP

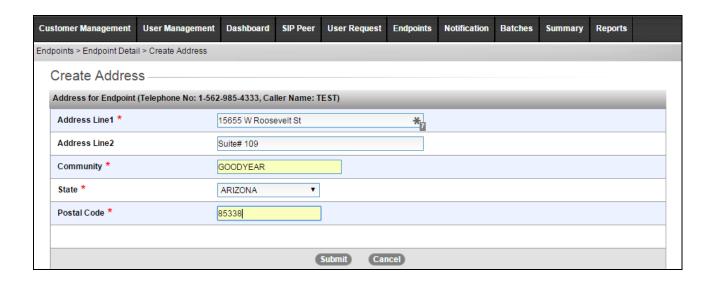
The customer and 911 ETC need to exchange SIP peering information. 911 ETC will configure their Session Border Controllers based on peering information provided by the customer. 911 ETC can provide dashboard access to the customer on request. Data needs to be provisioned prior to testing. Below are the steps to provision data via 911 ETC dashboard. The 911 ETC dashboard is accessed via a browser. For security purposes, the web address is not shown in the configuration below.

- 1. 911 ETC will setup customer and dashboard.
- 2. Configure endpoint: Select Endpoints → Create Endpoint; Type in Telephone No and Caller Name and click Save and Add Address.

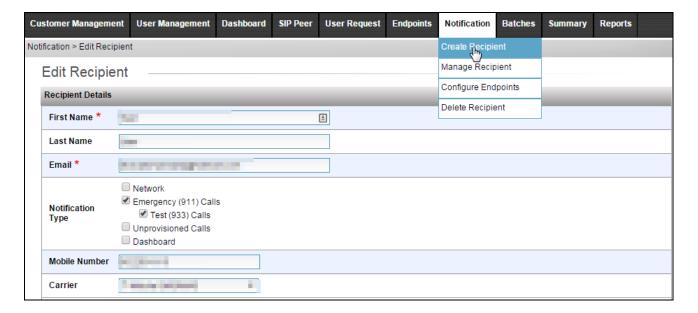


 Enter Address Line1 and Address Line2, Community, State and Postal Code and click Submit.

Note: Address Line2 contains all the additional information pertaining to an address, i.e., Suite 109. Address Line2 is an optional parameter.



4. In order to create a recipient for Text and Email notification, select Notification → Create Recipient. Provision First and Last Name, Email, Notification Type, Mobile Number and Carrier.

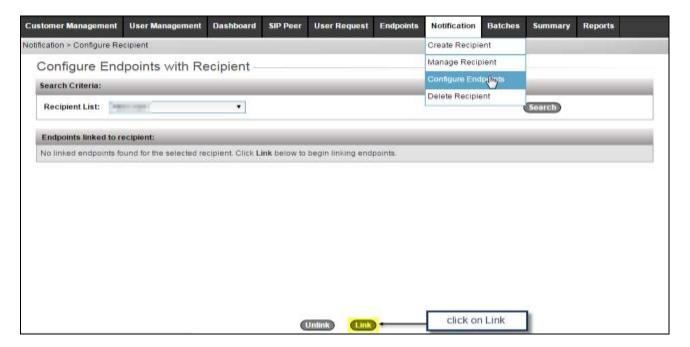


#### Note:

- Notifications may be truncated when using SMS as carriers generally limit SMS messages to 160 characters. If possible, select an MMS enabled carrier.
- SMS and MMS notifications make use of the carrier's email-to-SMS gateway. Carriers may limit usage or place other restrictions on messages.

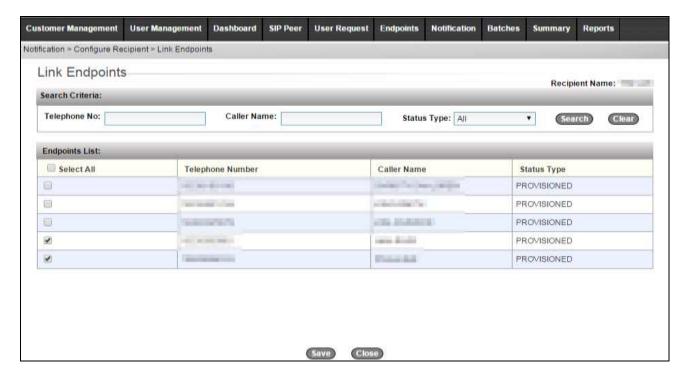
• Carriers may apply a fee for received SMS/MMS messages. Consult your carrier for fees associated with received SMS/MMS messages.

5. To link a recipient to specific endpoints in the dashboard, so that the recipient receives notifications only when specific endpoints makes an emergency call, select **Notification** → **Configure Endpoints** and then click **Link** at the bottom.

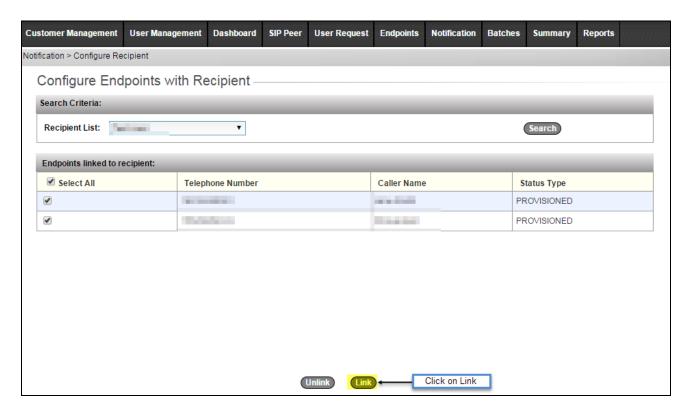


6. Select the endpoints that need to be configured for receiving notifications; click Save.

**Note:** If the recipient is not linked to an endpoint or endpoints, it will receive notification for every endpoint in the dashboard that makes an emergency call.



7. Select all the endpoints and click **Link** at the bottom.



## 7. Configure 911 ETC CrisisConnect® for SoftPhones

#### 7.1.1. Configure SoftLoc Server

Step Description

# Step Description 1. SoftLoc server is configured using browser. Enter the URL of SoftLoc server such as <a href="http://<hostname>/SoftLoc">http://<hostname>/SoftLoc</a> where <hostname> is the IP address or qualified domain name of the SoftLoc server. Login using appropriate credentials.

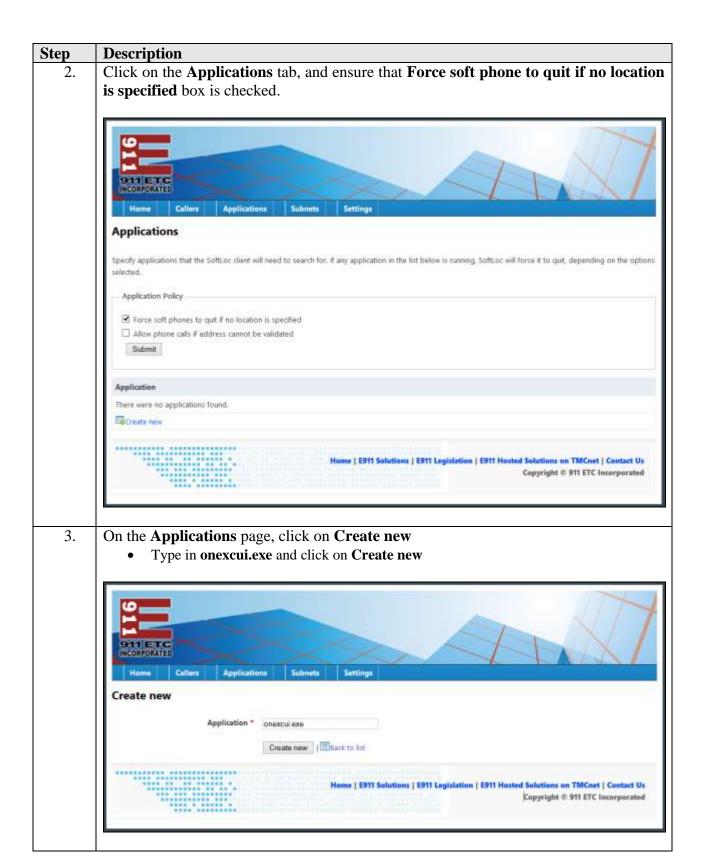
#### SoftLoc for Soft Phones

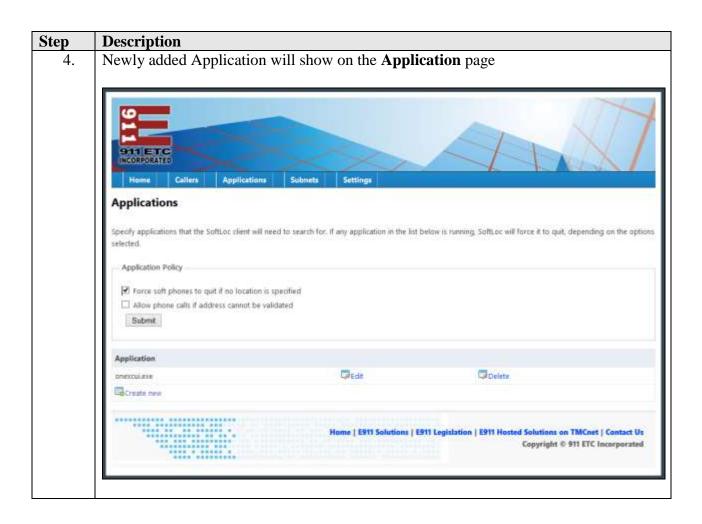
Softsoc assists/requires users of soft phones to provision their current location to ensure accurate routing of an outgoing 911 call. It was developed because of concerns by 911 ETC's customers that soft phones users will ignore critical location information when logging onto their soft phones.

Softioc runs as a Windows system-tray application and quietly waits for the user to launch a configured soft phone application. Upon launch, Softioc will appear above all other applications and reminder the user to provision an emergency location. Up to three frequently-used locations can be saved to the remote emergency server and quickly provisioned with just a few mouse clicks. Other locations can be saved locally for quick server updates, if the user chooses not to provision an emergency location, the soft phone application will be forcibly closed. Responsibility, and therefore liability, is placed back upon the user and accurate location information is ensured in the event of an emergency.

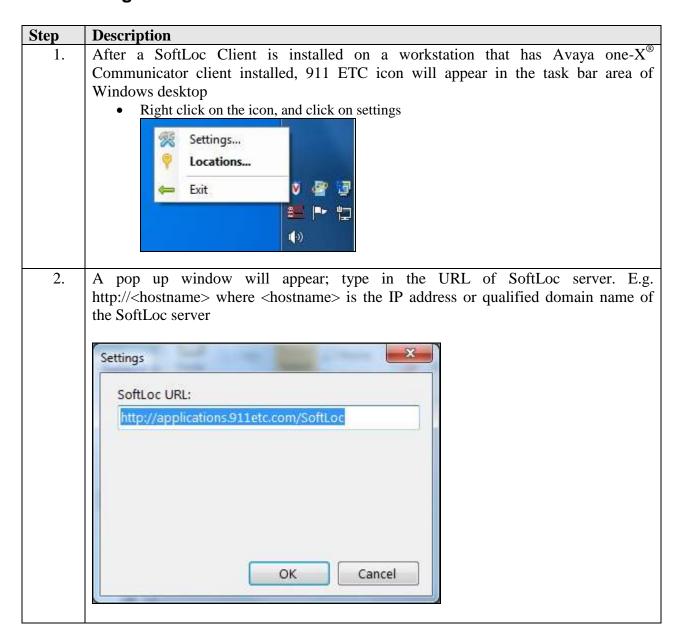
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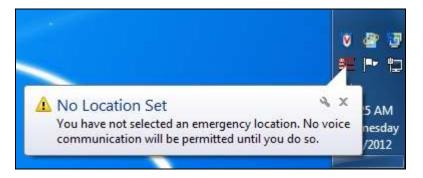




#### 7.2. Configure SoftLoc Client

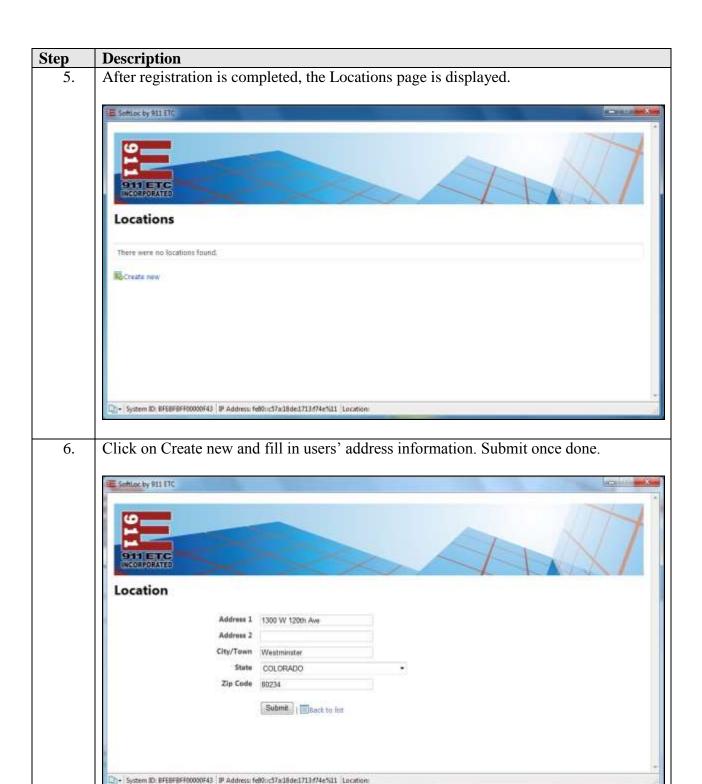


Step Description
 3. A notification will pop up in the notification area of windows desktop, alerting user that a Location needs to be set. Click on the Notification.



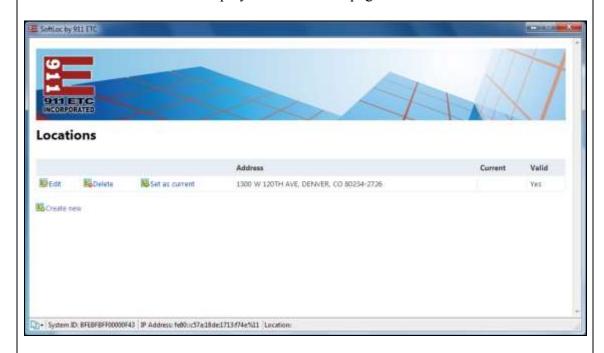
4. A pop up window with a Registration page will appear, prompting the user to register. Fill in the registration information and submit.





#### **Step** Description

7. Users' address will now be displayed in Locations page.



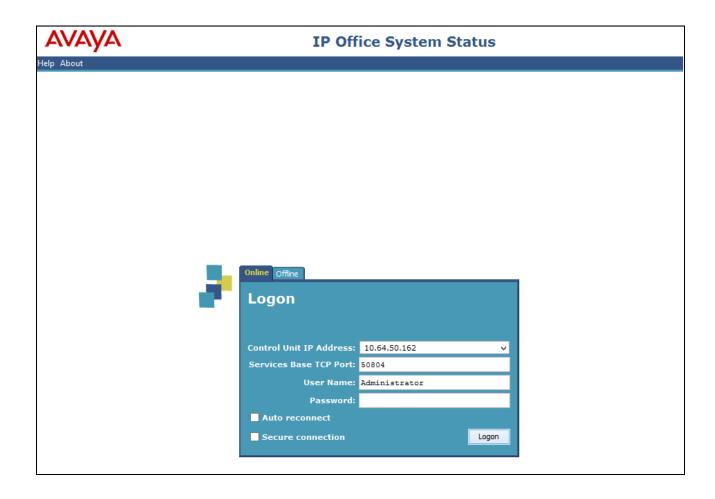
8. Click on **Set as current** to make the address as user's current address. **Current** will show up under **Current** column confirming that the address has been set as user's current address. A user can add up to 3 addresses.



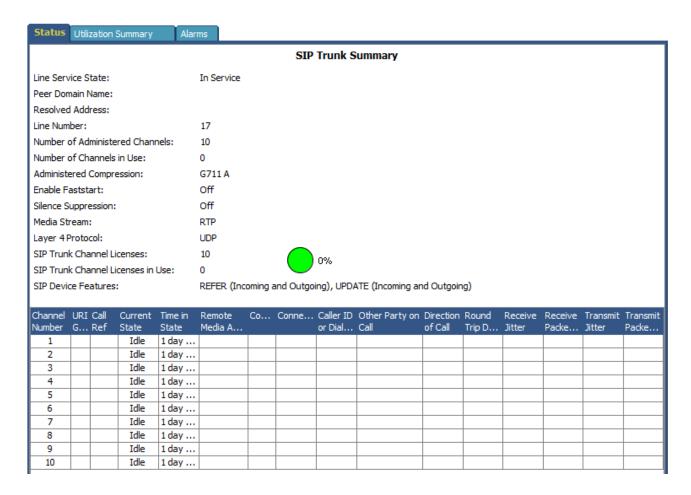
#### 8. Verification Steps

The following steps may be used to verify the configuration:

- From a web browser go to <a href="http://<IP\_Office\_IP\_Address">http://<IP\_Office\_IP\_Address</a>/ and select **System Status** (not shown).
- Fill-in Login information and click **Logon**.



To verify the connectivity to 911 ETC for SIP lines added in this document, navigate to **Trunks**  $\rightarrow$  **Line** n, where n is the SIP line number that was configured in this document. Verify the **Current State** for all channels is **Idle**.



Once 911 CrisisConnect for VoIP is configured place a test call. Verify that an email or SMS notification is received. Below are the screen captures of Email and SMS notifications.

#### Email:

#### 911/933 Call Notification

An emergency call has occurred and you are registered to receive notifications.

Call details:

Subscriber Name: Keyur Amin

Location: 12121 GRANT ST, RM 205, THORNTON, CO 80241

Telephone: 13035380123

Call Start Time: 6/17/2015 1:50:08 PM MST

Call Status: Started

Location information was retrieved from the 'Avaya IP Office-IVT' dashboard.

If you believe this notification is in error, please contact customer service at (480)719-8556 or by email at customerservice@911etc.com so that we can assist.

Thank you

**Customer Service** 

911 Emergency Telecom Company

(480)719-8556

customerservice@911etc.com

#### SMS:

911 Emergency Call Notification Subscriber Name: Keyur Amin

Location: 12121 Grant St, RM 205, Thornton, CO 80241

Telephone: 13035380123

Call Start Time: 6/17/2015 1:50:08 PM

Call Status: Started

#### 9. Conclusion

911 ETC's CrisisConnect<sup>®</sup> successfully completed compliance testing. These Application Notes describe the procedures required to configure the connectivity between Avaya IP Office and the 911 ETC CrisisConnect<sup>®</sup> as shown in **Figure 1**.

#### 10. Additional References

Product documentation for Avaya IP Office may be obtained via the following link. <a href="http://marketingtools.avaya.com/knowledgebase">http://marketingtools.avaya.com/knowledgebase</a>

Product documentation for the CrisisConnect<sup>®</sup> is available from 911 ETC.

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