Avaya Solution & Interoperability Test Lab

Application Notes for Configuring miALERT miLink Event Management Server with Avaya IP Office Server Edition – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for miALERT miLink Event Management Server to interoperate with Avaya IP Office Server Edition. miALERT miLink Event Management Server is an emergency communication solution that provides two-way speech between resident and nurse/aid and details of the emergency call.

In the compliance testing, miALERT miLink Event Management Server used the SIP Line interface from Avaya IP Office to provide connectivity between resident and nurse/aid and DevLink3 to provide details of the 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.

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

1. Introduction

These Application Notes describe the configuration steps required for miALERT miLink Event Management Server to interoperate with Avaya IP Office Server Edition. miALERT miLink Event Management Server (EMS) is an emergency communication solution that provides two-way speech between resident and nurse/aid and details of the emergency call. In the compliance testing, EMS used the SIP Line (trunk) interface from Avaya IP Office (IP Office) to provide connectivity between resident and nurse/aid and collected the emergency call details using DevLink3 interface of IP Office.

EMS integrates with facility IP PBX, nurse call panels, room control units and pager alarm system. It provides two-way speech patch between a patient call point and a nurse station when an emergency call is activated by the patient call point. It also records this emergency call and displays it in a user-friendly alarm report. EMS can also store pre-configured announcement and play it back when the appropriate button like Menu or Activity is pressed at a patient call point.

When the resident user activates emergency on EMS via a call point to reach the nurse staff, the call point originates a call to the nurse hunt group via EMS. After the call is connected to an available nurse, the nurse can then accept the emergency notification and be connected to the resident with two-way voice communication. EMS is connected to Avaya IP Office Server Edition using SIP trunks. The detail of the emergency call is collected using DevLink3 and stored in EMS.

The EMS can also be programmed for system announcements, for example a kitchen menu or activities for the week. When the menu or activity button is pressed the residents will hear through the nurse call speaker a pre-recorded message.

2. General Test Approach and Test Results

The general test approach was to configure a simulated enterprise voice network using IP Office. The EMS uses a SIP Line to connect to the IP Office. See **Figure 1** for a network diagram. When a resident place an emergency call, one call leg generates a call between the resident and EMS and another call leg generates a call between EMS and a nurse/aid. Both these calls are mixed in EMS to provide a two-way speech path between the resident and a nurse staff. EMS is connected to the IP Office via SIP trunk. A resident can also press the Menu or Activity button and hear a pre-recorded message that is configured in EMS. EMS collects the details of the emergency call using DevLink3 and publishes it in the Alarm list of EMS.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in this DevConnect Application Note included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with this Application Note, the interface between Avaya systems and miLink Event Management Server did not include use of any specific encryption features as requested by miALERT.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the ability of EMS to connect calls between residents and nurse stations placed from various call points. The verification included proper connected two-way talk paths, proper call termination and proper call escalation. Verification also included the proper connectivity for Menu and Activity buttons. Note that all nurse station and hunt groups included both IP Office Primary and Expansions systems. The configuration of resident call point with IP Office is not the scope of this application notes. Refer to **Section 9** for details of the same.

The testing also focused on verifying the ability of EMS to collect the call details of the emergency call using DevLink3 and displaying the same in a user-friendly way.

The serviceability testing focused on verifying the ability of EMS to recover from adverse conditions, such as disconnecting and reconnecting the network cable to the device.

2.2. Test Results

All test cases were executed and passed with the following observations,

- As per design feature of EMS, Transfer, Conference and Forwarding features are not supported.
- Only when Cancel button is activated at a call point, both legs of call will be terminated. Disconnecting the call at the nurse station will only terminate the call leg between EMS and the nurse station and will not terminate the call leg between call point and EMS.
- When the Cancel button is activated, it was noted during compliance testing that it took about 6-7 seconds for both call legs to be terminated by EMS to return the call point to an idle state.
- Allow Direct Media Path must be disabled at the SIP Line (trunk) between IP Office and EMS and at SCN between Primary and Expansion for this solution. Refer to **Section 5.5** for details.
- During compliance testing, only the codec G711-MU was tested.

2.3. Support

Technical support on miALERT miLink Event Management Server can be obtained through the following:

- **Phone:** 1-855-382-8999
- **Email:** support@mialert.com
- **Web:** http://mialert.com/

3. Reference Configuration

As shown in the test configuration below, the EMS solution consists of a SIP Line connectivity to Avaya IP Office.

Different types of call points like miSip Resident Unit, miPatient 4B, miPatient 2B, Wired Pull Cord etc. were used to generate emergency calls.

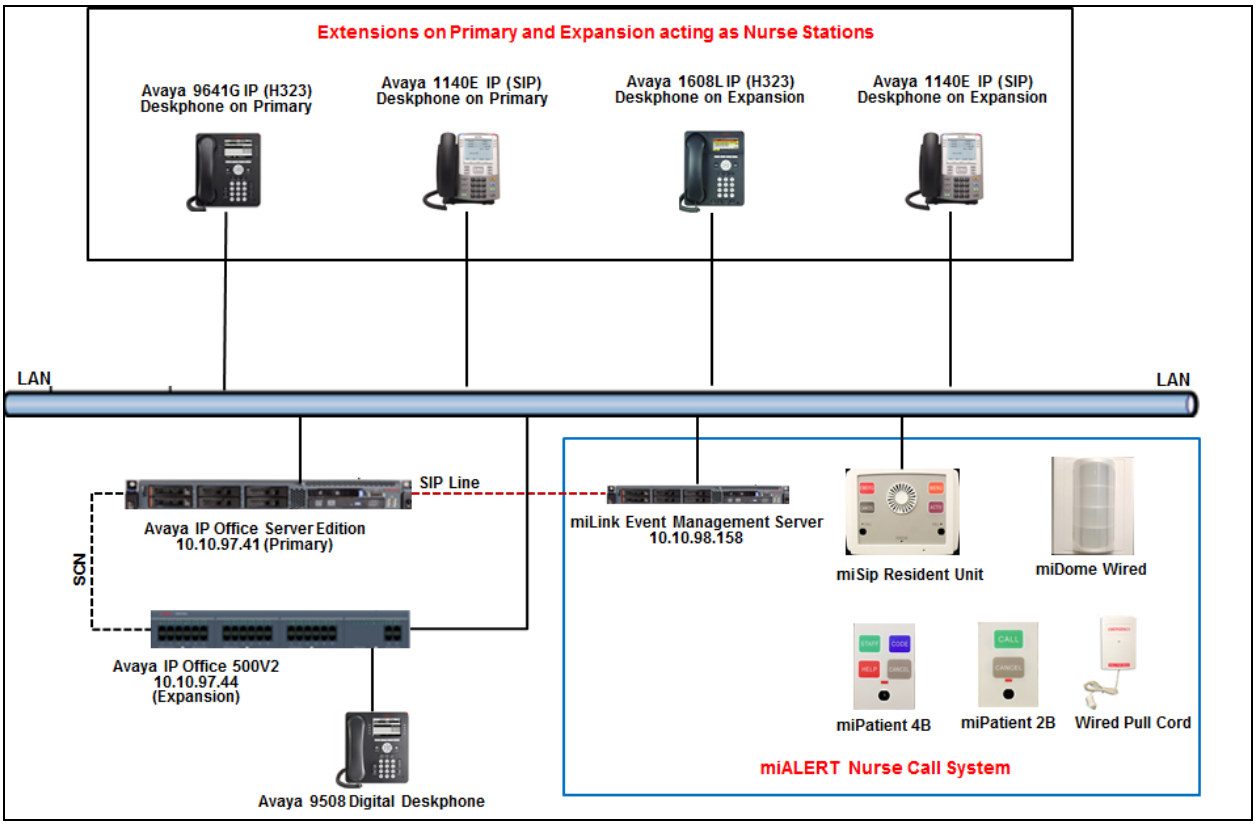


Figure 1: Avaya and miLAERT Reference Configuration

4. Equipment and Software Validated

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

Equipment	Release/Version
Avaya IP Office Server (Primary)	11.0.0.2.0 build 23
Avaya IP Office 500V2 (Expansion)	11.0.0.2.0 build 23
Avaya IP Deskphones: 1140E (SIP on Server) 1140E (SIP on Expansion) 9641G (H323 on Server) 1608L (H323 on Expansion)	 04.04.23.00 04.04.23.00 6.6604 1.3110
Avaya 9508 Digital Deskphone	R60
miALERT miLink Event Management Server installed on Windows 10 Pro OS	2.0.6900.23214

Note: Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office IP500V2 and also when deployed with IP Office Server Edition in all configurations.

5. Configure Avaya IP Office

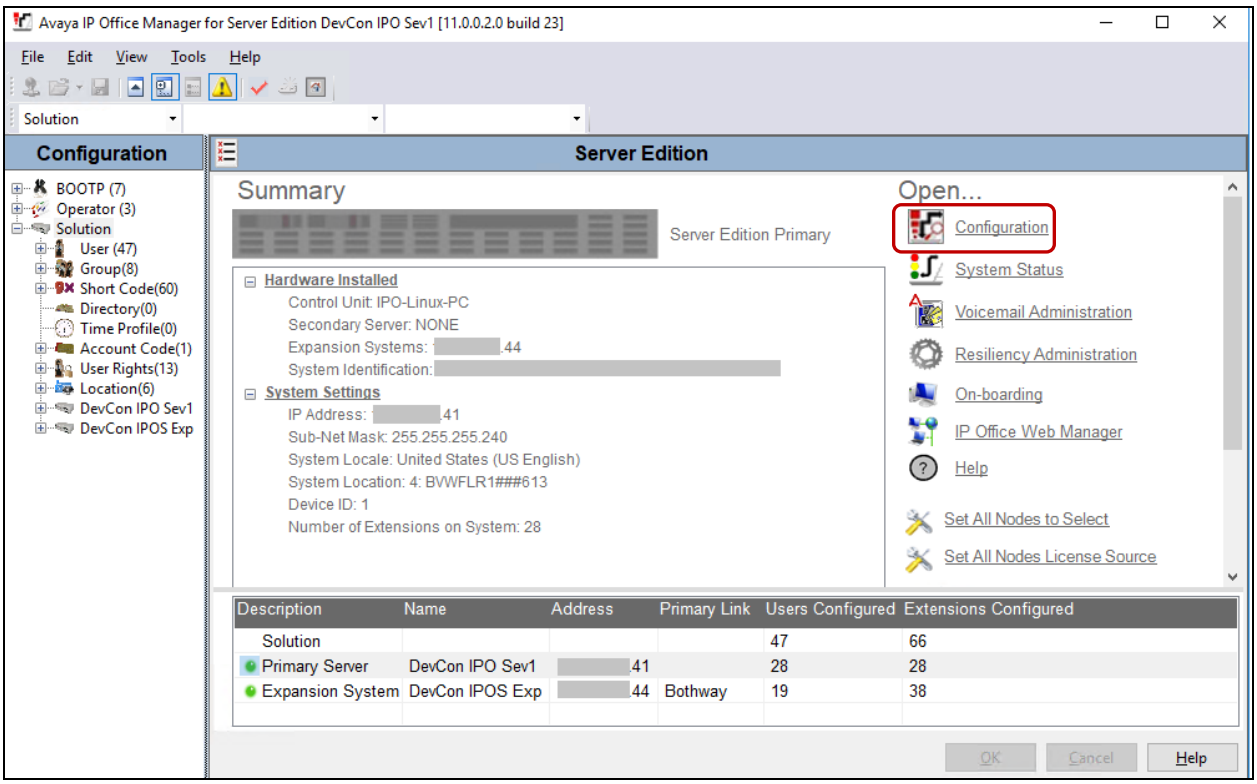
The document assumes that IP Office Server Edition has been installed and configured to work with a 500V2 expansion. This section only describes the details on how to configure the IP Office Server Edition (Primary) since the SIP trunk only needs to be established between Primary and EMS.

Configuration and verification operations on the IP Office illustrated in this section were all performed using Avaya IP Office Manager. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration operations described in this section can be summarized as follows:

- Launch Avaya IP Office Manager
- Verify IP Office license
- Obtain LAN IP address
- Enable SIP trunks
- Administer SIP line
- Administer incoming call route
- Administer short code
- Save Configuration
- Enable DevLink3

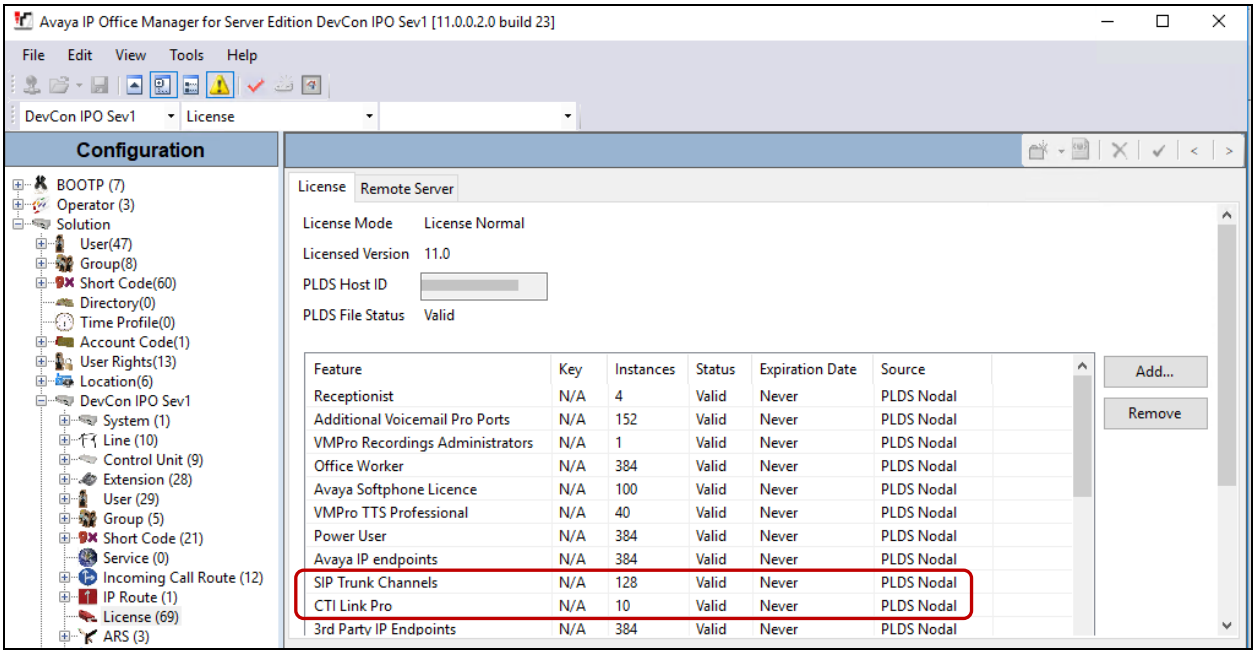
5.1. Launch Avaya IP Office Manager

From a PC running the IP Office Manager application, select **Start → Programs →IP Office → Manager** to launch the Manager application. Select the proper IP Office system, and log in using the appropriate credentials (not shown). The **Avaya IP Office Manager for Server Edition** screen is displayed as shown in the screen below. Click on **Configuration** that is highlighted on the right side of the screen below.



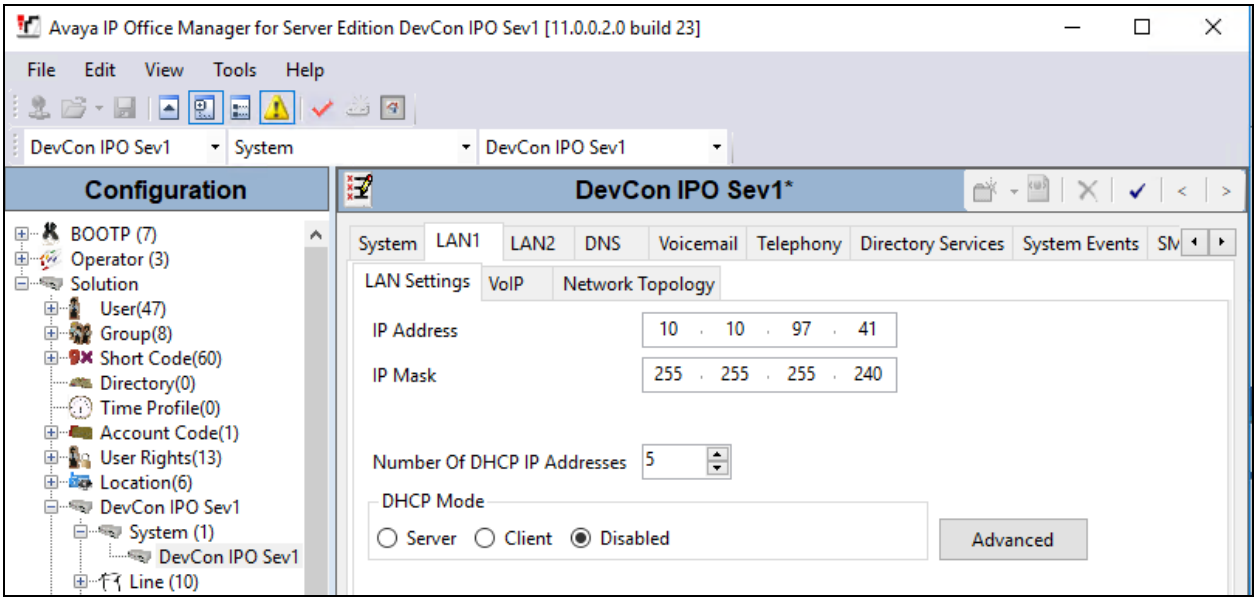
5.2. Verify IP Office License

Once the **Avaya IP Office Manager for Server Edition** screen is displayed, from the configuration tree in the left pane, select the Primary System, which in this case is **DevCon IPO Sev1** and click on **License** to display the **License** screen in the right pane. Verify that the **Feature** for **SIP Trunk Channels Status** is "Valid", and that the **Instances** value is sufficient for the desired maximum number of simultaneous calls. If there is insufficient capacity of SIP Trunks, contact an Avaya representative to make the appropriate changes. Also ensure the same for **CTI Link Pro** license.



5.3. Obtain LAN IP Address

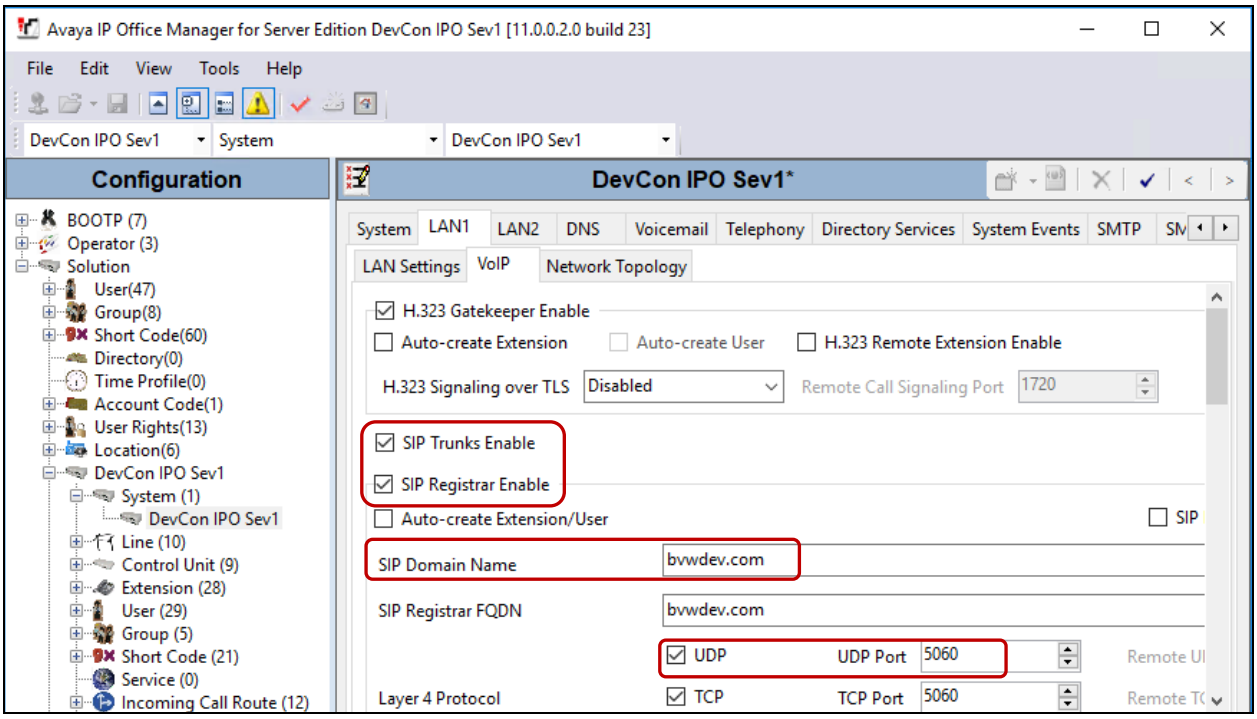
From the configuration tree in the left pane, navigate to **DevCon IPO Sev1 → System (1)** to display the **DevCon IPO Sev1** screen in the right pane, where **DevCon IPO Sev1** is the name of the IP Office Primary system. Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used later while configuring EMS in **Section 6.1**. Note that IP Office can support SIP trunks on the LAN1 and/or LAN2 interfaces, and the compliance testing used the LAN1 interface.



5.4. Enable SIP Trunks

Select the **VoIP** sub-tab and ensure the configuration is as shown below:

- Check **SIP Trunks Enable** box.
- Check **SIP Registrar Enable** box.
- **Domain Name**: During compliance testing "bvwdev.com" was used.
- Check **UDP** protocol with the correct port numbers. During testing only UDP was used.

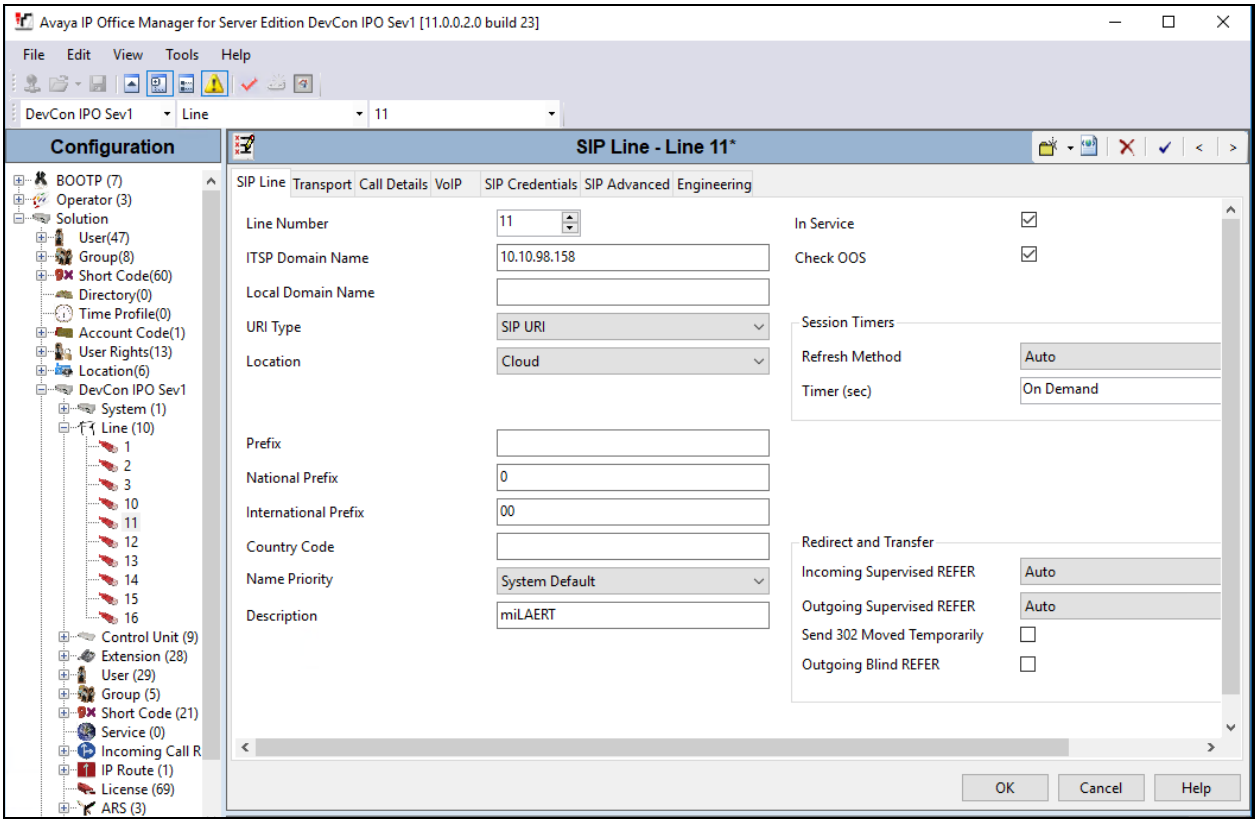


5.5. Administer SIP Line

From the configuration tree in the left pane, right-click on **Line** and select **New → SIP Line** from the pop-up list to add a new SIP line (not shown). During compliance testing **Line 11** was added. Select the **SIP Line** tab in the right pane and configure the following:

- **ITSP Domain Name**: IP address of EMS.
- Enter a valid description in the **Description** field (optional).

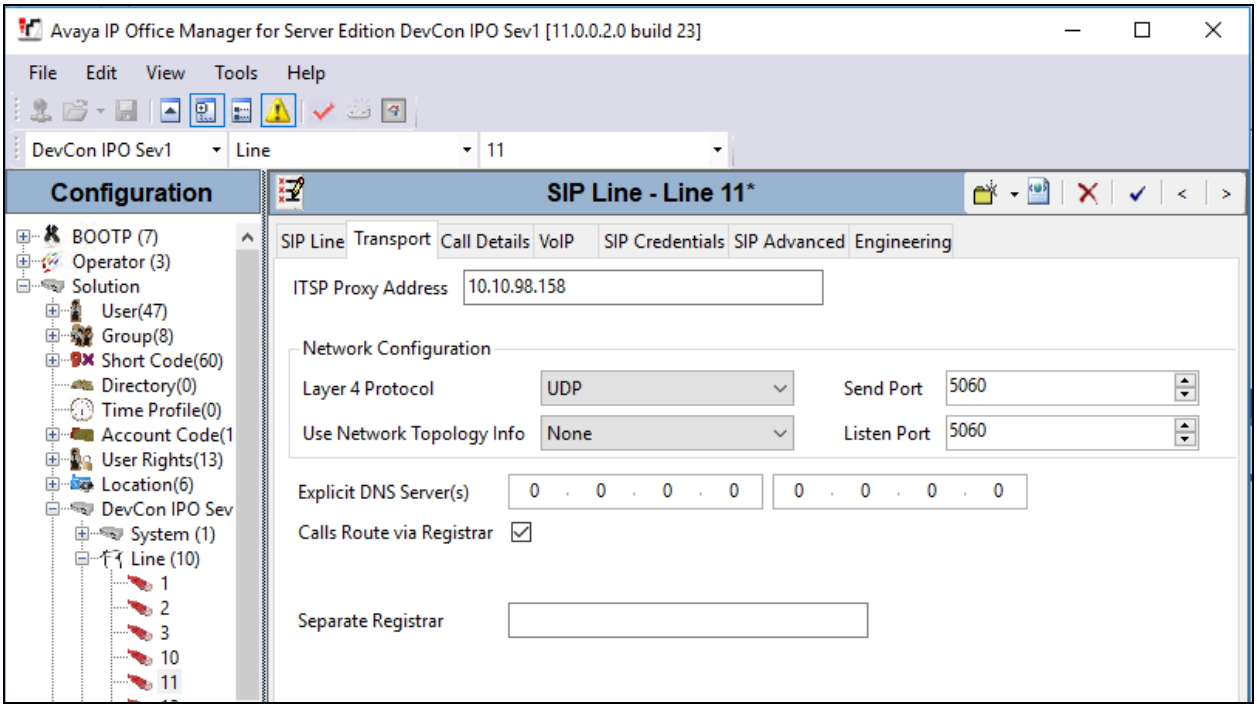
Retain default values for all other fields.



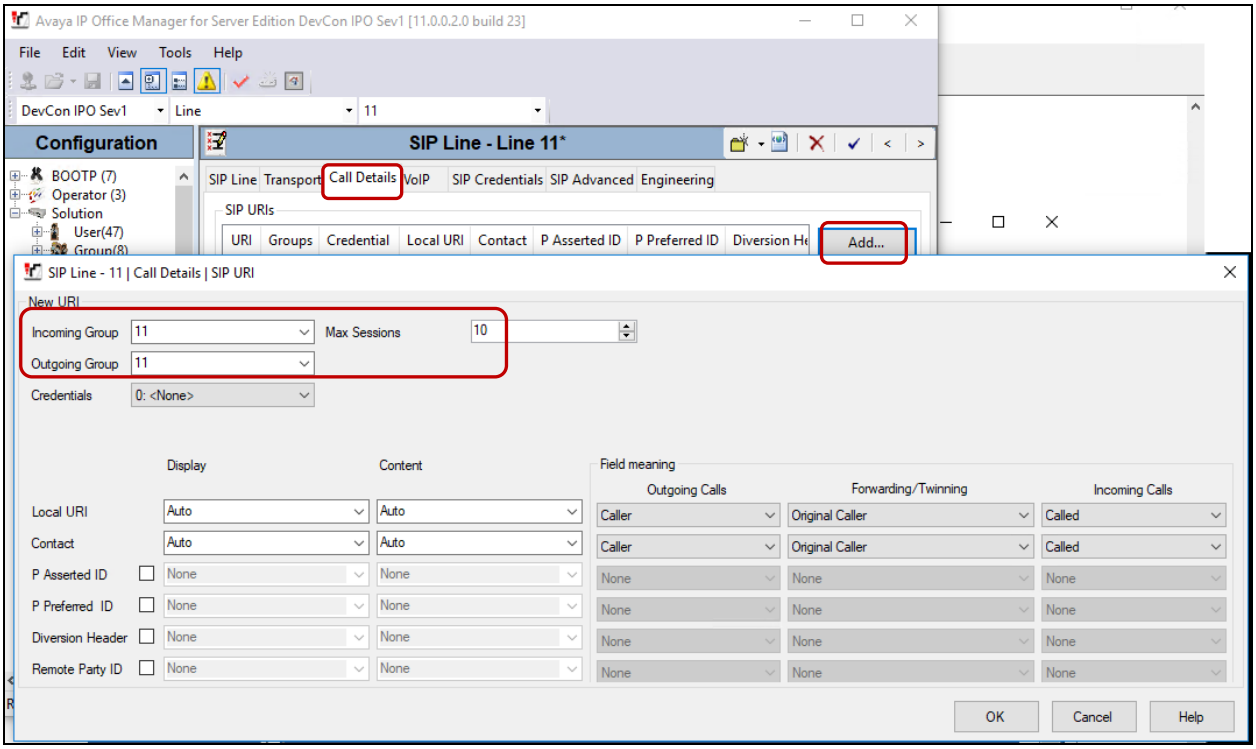
Select the **Transport** tab in the right pane and configure the following:

- **ITSP Proxy Address**: IP address of EMS.
- Under **Network Configuration → Layer 4 protocol**, select "UDP" and its **Send Port** as "5060".

Retain default values for all other fields.

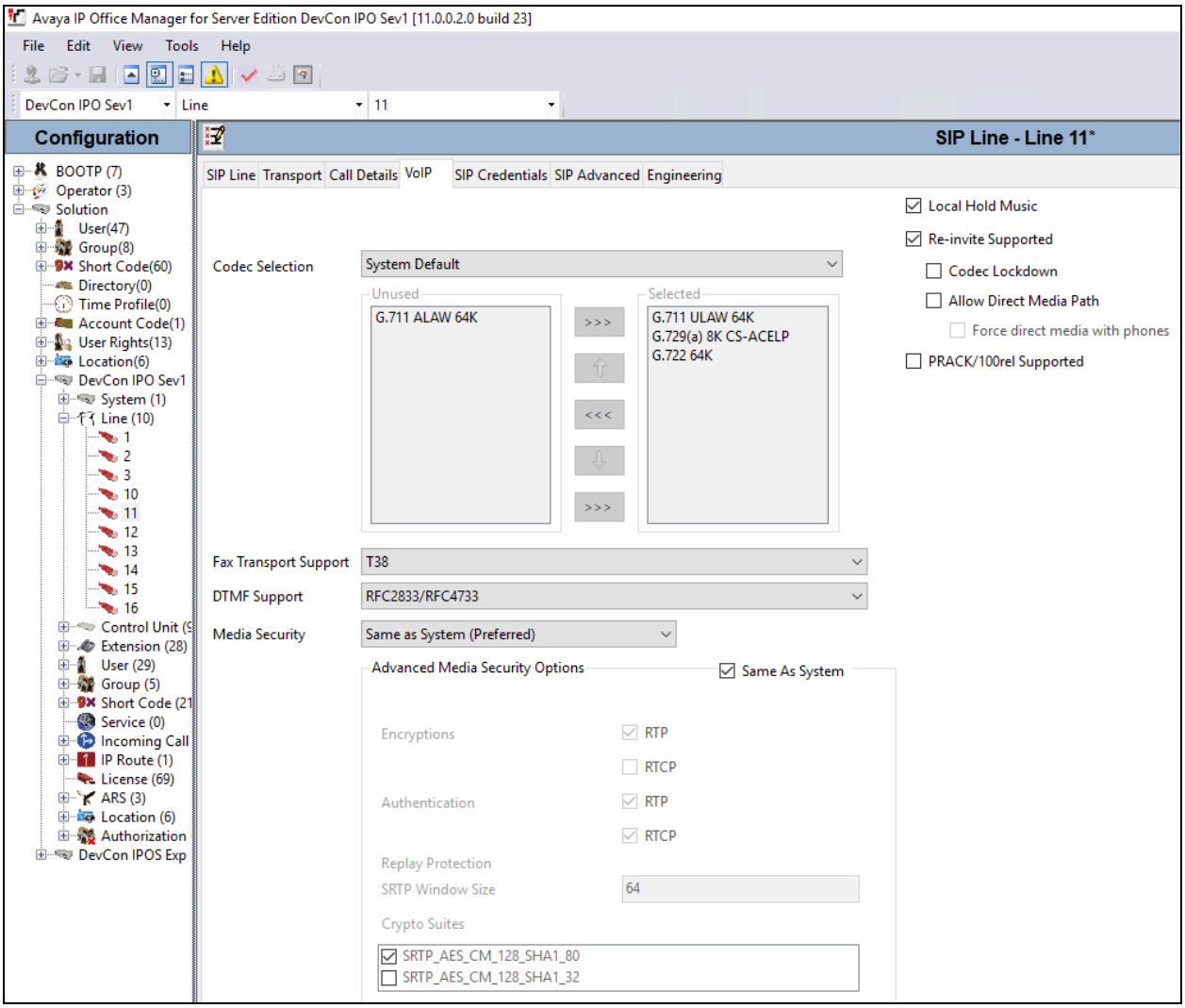


Select the **Call Details** tab and under **SIP URIs** click on **Add** to display the **New URI** section as shown below. Enter an unused group number such as "11" for **Incoming Group** and **Outgoing Group**. Set **Max Sessions** to the maximum number of simultaneous calls allowed, during compliance testing "10" was configured. Retain the default values in the remaining fields. Click **OK**.



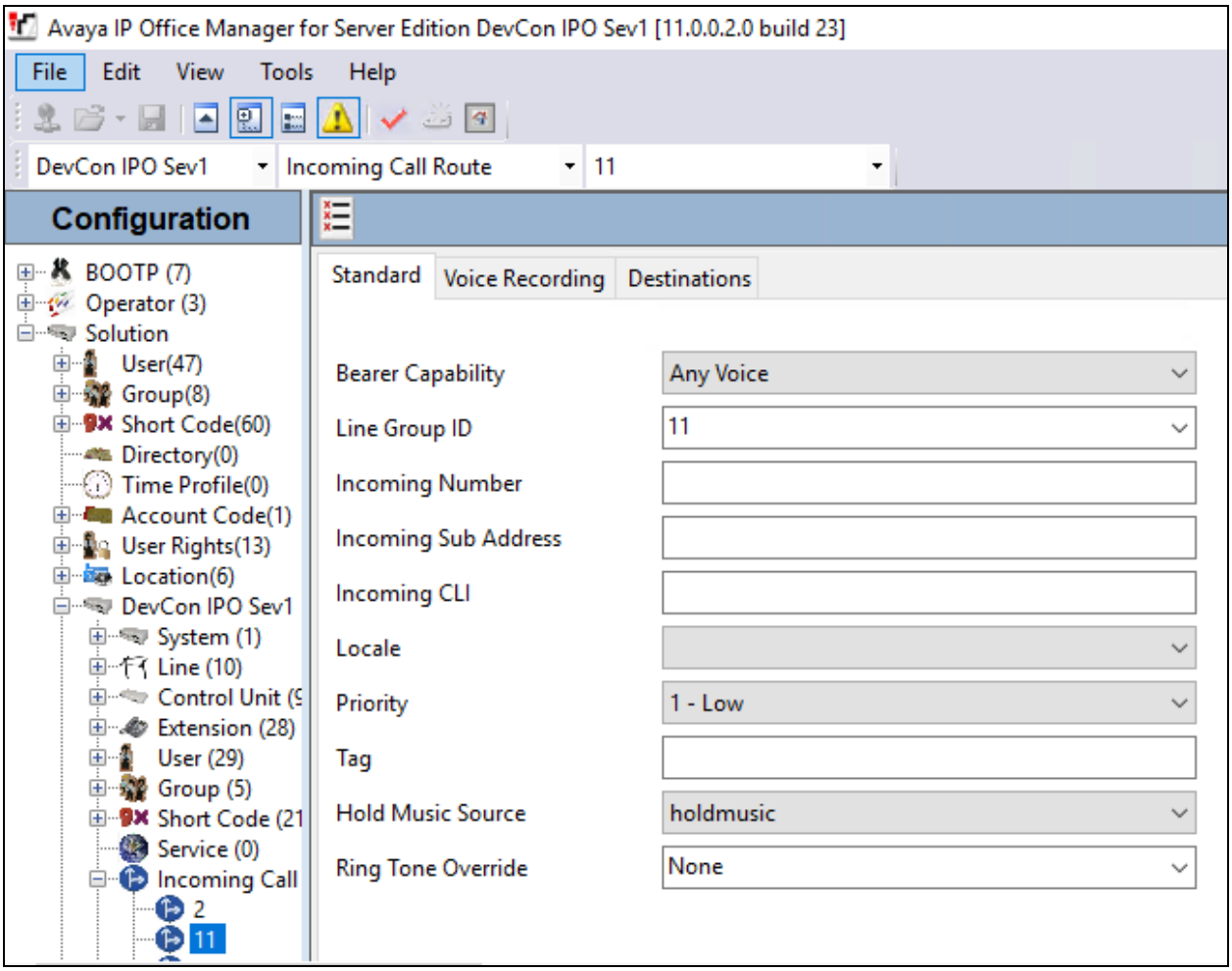
Select the **VoIP** tab. The default **Codec Selection** in the system is shown below and the same was used for compliance testing. In the **VoIP** tab ensure that for **DTMF Support**, **RFC2833/RFC4733** is selected from the drop-down menu. Disable the **Allow Direct Media Path** field and for **Media Security**, select **Same as System (Preferred)** from the drop-down menu. Retain default values for all remaining fields. During compliance testing only, the **G.711 ULAW** codec was tested.

Note: *The **Allow Direct Media Path** field in both the SCN line between Primary and Expansion also needs to be disabled.*

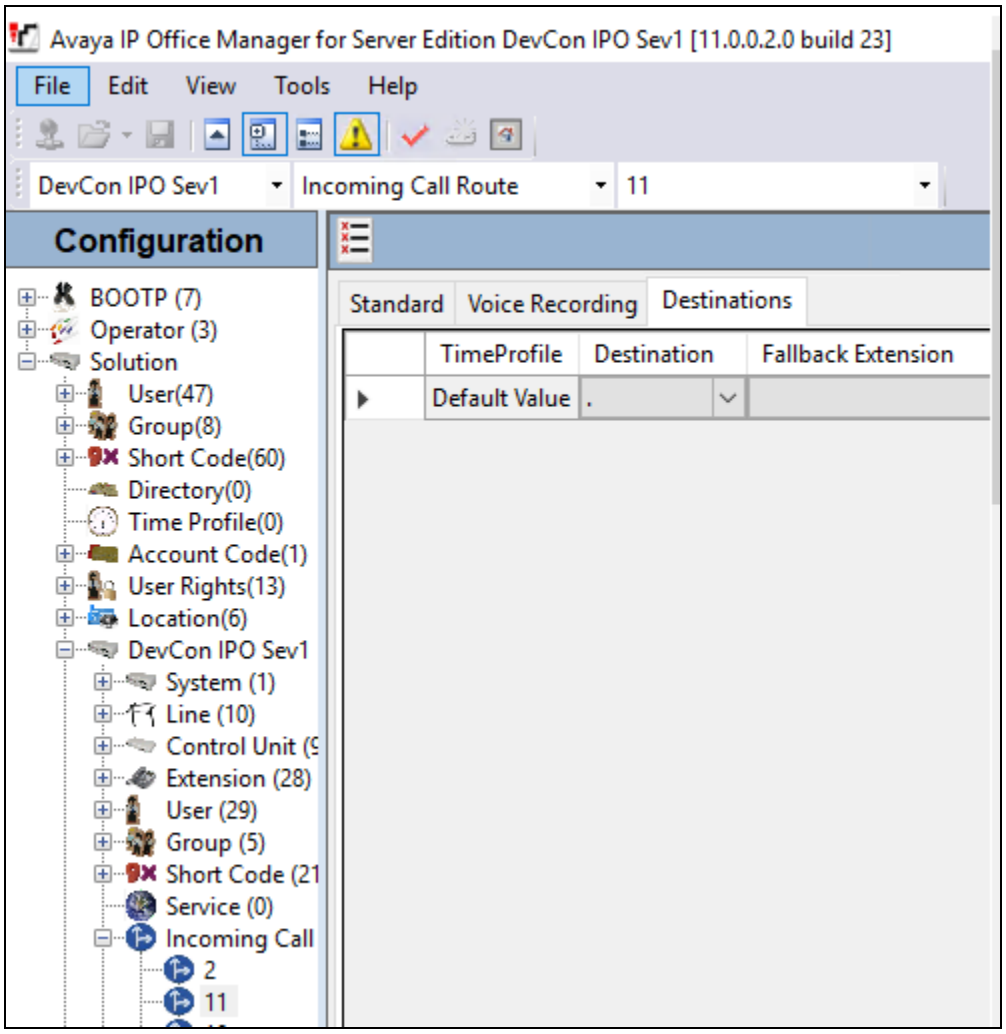


5.6. Administer Incoming Call Route

From the configuration tree seen in the left pane, right-click on the **Incoming Call Route**. Select **New** from the pop-up list (not shown) to add a new route. For **Line Group ID**, select the incoming group number from **Section 5.5**, in this case "11". Retain default values for all other fields.



Select the **Destinations** tab. For **Destination**, enter "." to match any dialed number from EMS and click on the **OK** button (not shown) to complete the configuration.



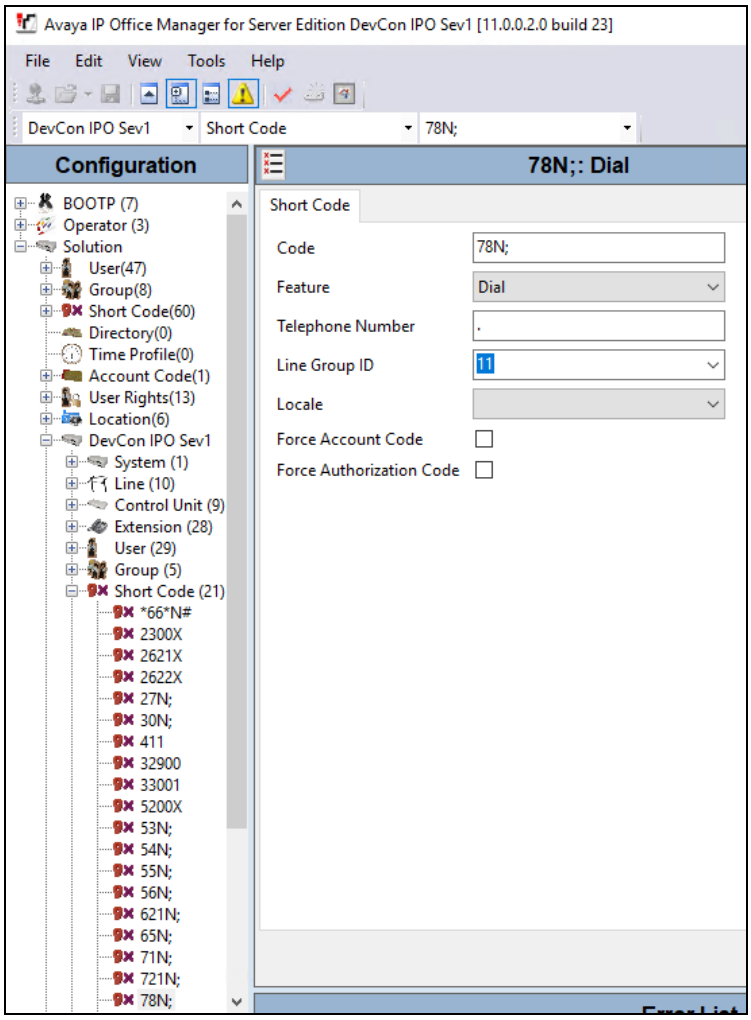
5.7. Administer Short Code

From the configuration tree in the left pane, right-click on **Short Code** and select **New** from the pop-up list (not shown) to add a new short code to route calls to EMS. In the compliance testing, 78xxx dialing plan was used for calls to be routed over the SIP trunks to EMS.

Configure the following values:

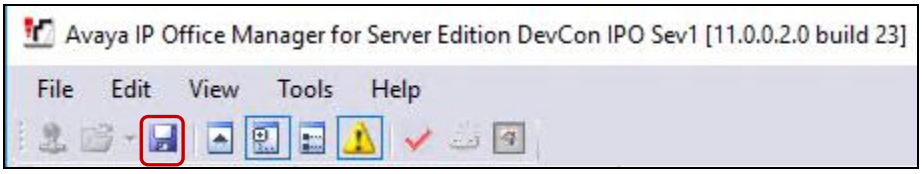
- **Code**: Enter "78N;".
- **Feature**: Keep the default value of "Dial".
- **Telephone Number**: Enter ".".
- **Line Group ID**: Select "11" which is the outgoing group number configured in **Section 5.5**.

Retain default values for all other fields and click on **OK** (not shown) to complete the configuration. Configure the same short code on the Expansion system. However, note that the Line Group in the Expansion will depend on the Line number that is configured for SCN to connect to the Primary



5.8. Save Configuration

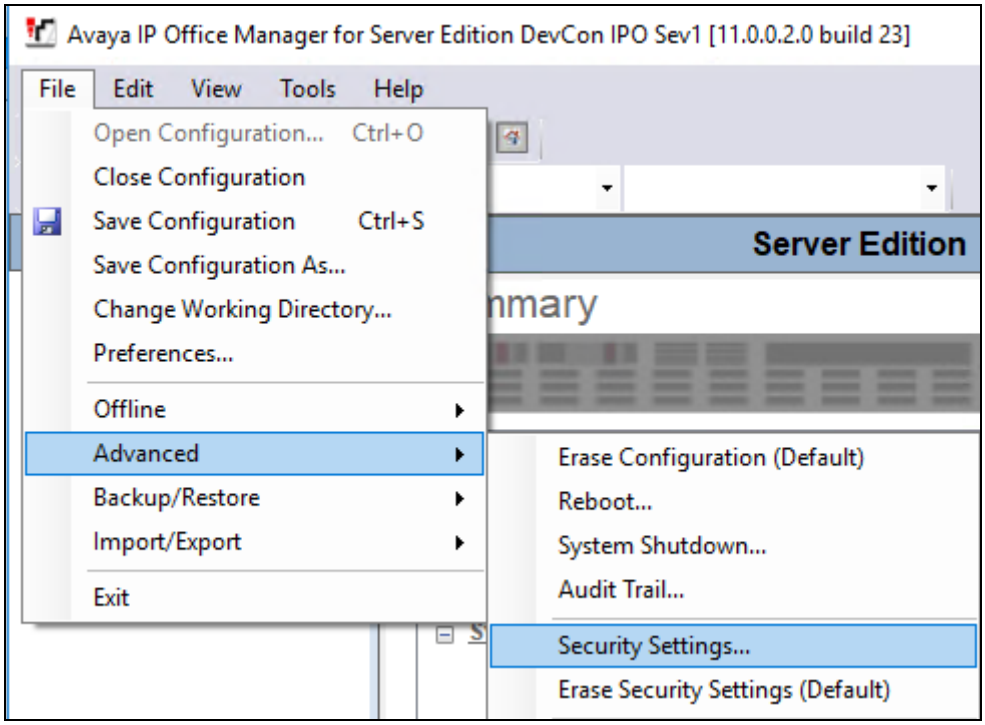
Navigate to **File → Save Configuration** (not shown) in the menu bar at the top of the screen or click on the **Save** Icon as shown below to save the configuration performed in the preceding sections.



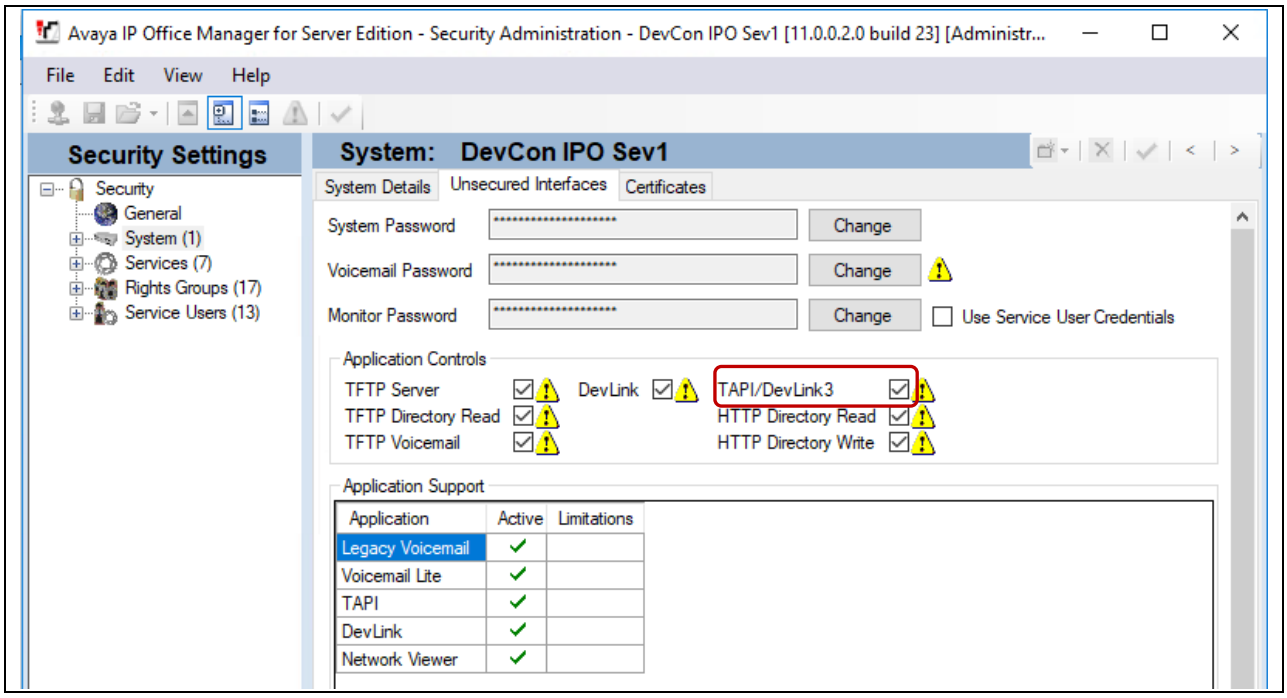
5.9. Enable DevLink3

For EMS to collect the call details in real time for any emergency calls, the DevLink3 interface needs to be enabled. This needs to be enabled on both Primary and Expansion Systems. Below explanation is only shown for Primary.

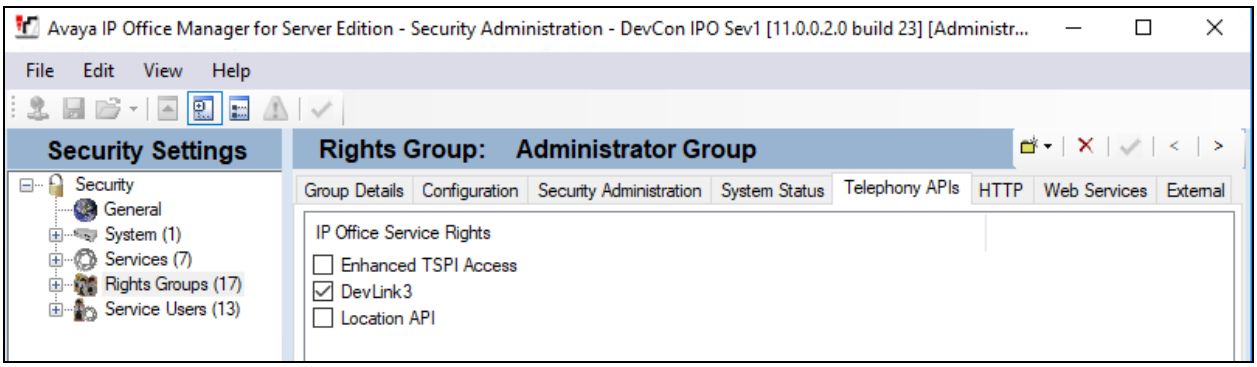
From **Avaya IP Office Manager for Server Edition**, navigate to **File → Advanced → Security Settings** as shown in the screen below.



Select **System** and under the **Unsecured Interfaces** tab ensure that **TAPI/DevLink3** box is selected as shown below.



Select **Rights Groups** and select the **Administrators Group**. In the **Telephony APIs** tab ensure that **DevLink3** box is selected as shown below. Then click on **OK** (not shown) and save the settings. Repeat this entire process on IP Office Expansion system.



6. Configure miALERT miLink Event Management Server

This section provides the procedures for configuring miALERT miLink Event Management Server.

For detail provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9.** The procedures fall into the following areas:

- Configure the miAlertCallService.exe configuration file
- Login to EMS Web Interface
- Configure Escalation List
- Configure Facility List

6.1. Configure the miAlertCallService.exe Configuration File

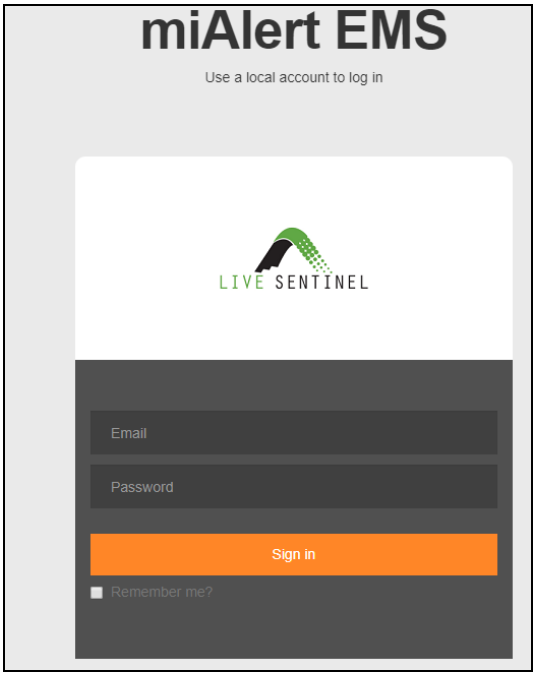
The **miAlertCallService.exe** configuration file is typically located under the **\Program Files (x86)\LiveSentinel\miAlertCallService** directory. This file is used to configure the SIP Domain, SIP Users, Devices that call into EMS, CDRType etc. During compliance testing the following values were configured in this file.

- IP Address of IP Office Primary System for "SipDomain".
- "SipUsers" field is SIP ID of SIP Trunk or list of sip extensions to use. During compliance testing 78000 was configured since 78xxx was the short code created in **Section 5.7** for IP Office to dial EMS.
- "SipDefaultDevType" allows for setting device type of other numbers dialing thru to EMS server on trunk.
- "CDRType" is used to obtain call detail from DevLink3 for an emergency call. The format of the CDRType argument is "Avaya:port:user:password".

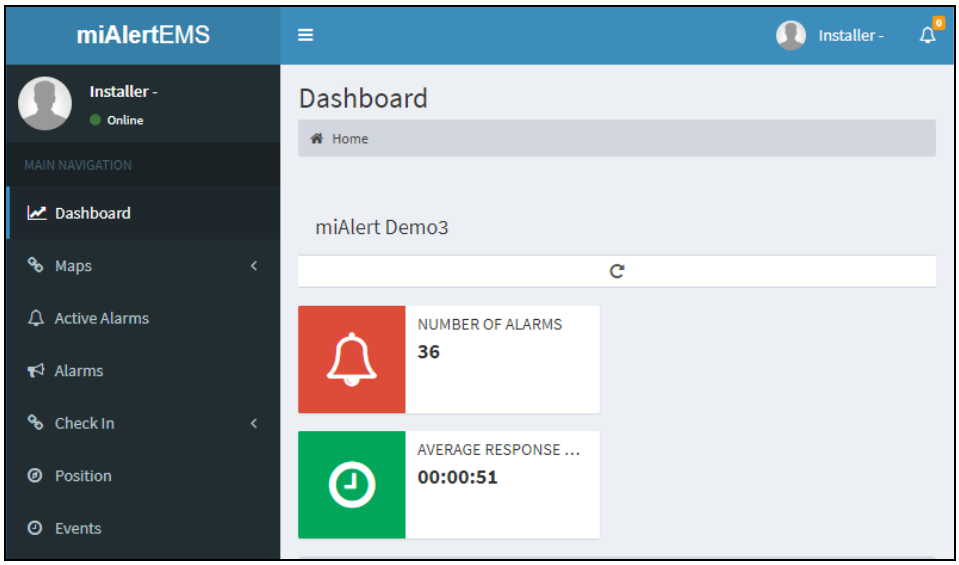
```
<miAlertCall.Properties.Settings>
      <setting name="EMSServer" serializeAs="String">
        <value>http://127.0.0.1/api</value>
      </setting>
      <setting name="SipDomain" serializeAs="String">
        <value>10.10.97.41</value>
      </setting>
      <setting name="SipUsers" serializeAs="Xml">
        <value>
          <ArrayOfString xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
            xmlns:xsd="http://www.w3.org/2001/XMLSchema">
            <string>78000</string>
          </ArrayOfString>
        </value>


      </setting>
      <setting name="SipDefaultDevType" serializeAs="Xml">
        <value>
          <ArrayOfString xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
            xmlns:xsd="http://www.w3.org/2001/XMLSchema">
            <string>78004,08,1</string>
                    <string>78005,1A,1</string>
                    <string>78006,1C,1</string>
            <string>78007,1E,1</string>
            <string>78008,0C,1</string>
          </ArrayOfString>
        </value>

         </setting>
         <setting name="CDRType" serializeAs="String">
        <value>Avaya:50797:Administrator:xxxx</value>
```

6.2. Login to EMS Web Interface

The miLink Event Management Server can be configured using a web interface. To access EMS, enter the IP address of EMS in a browser and login to the unit with the correct credentials as shown below.

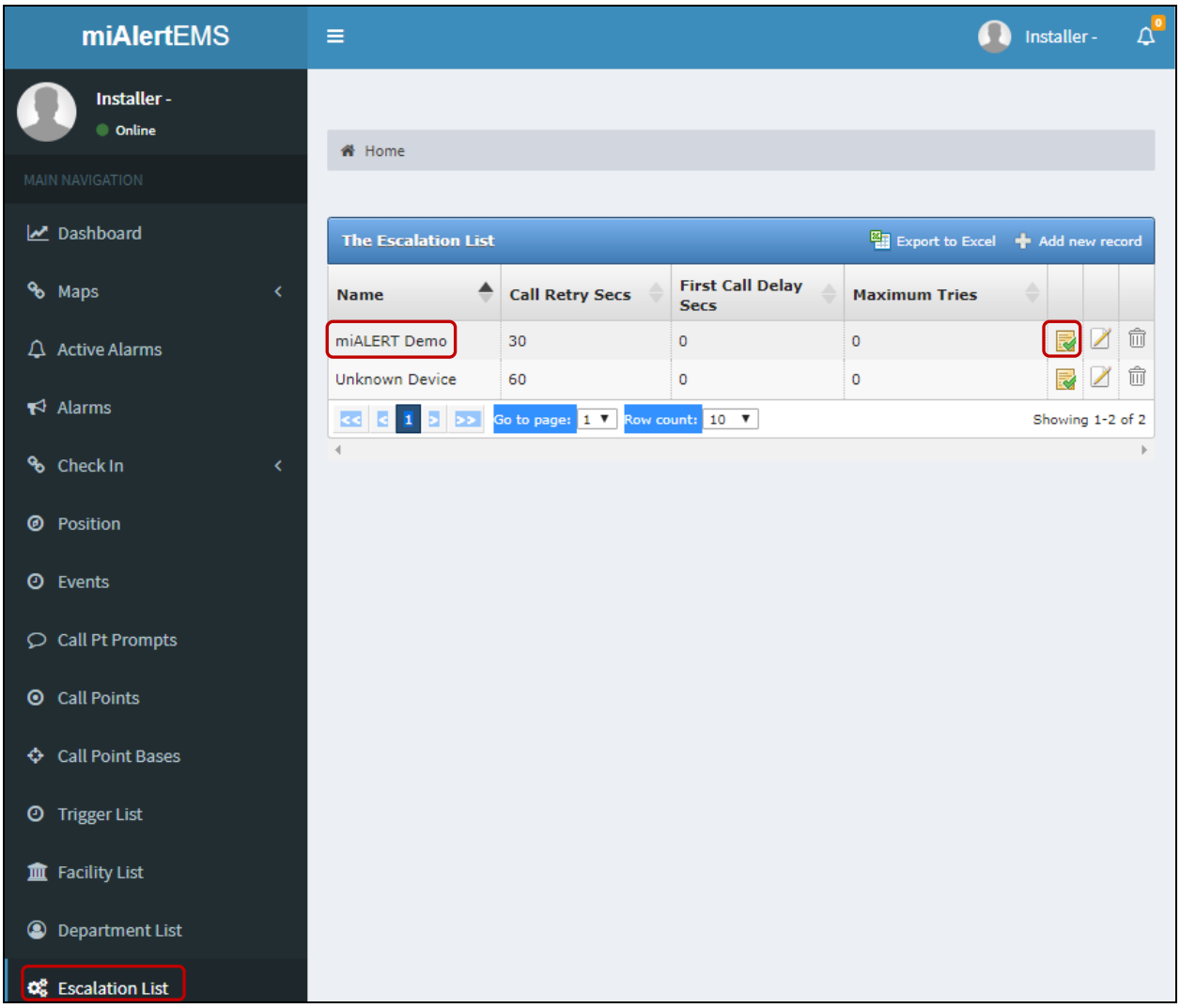


The **miAlertEMS** main page is displayed as shown below.



6.3. Configure Escalation List

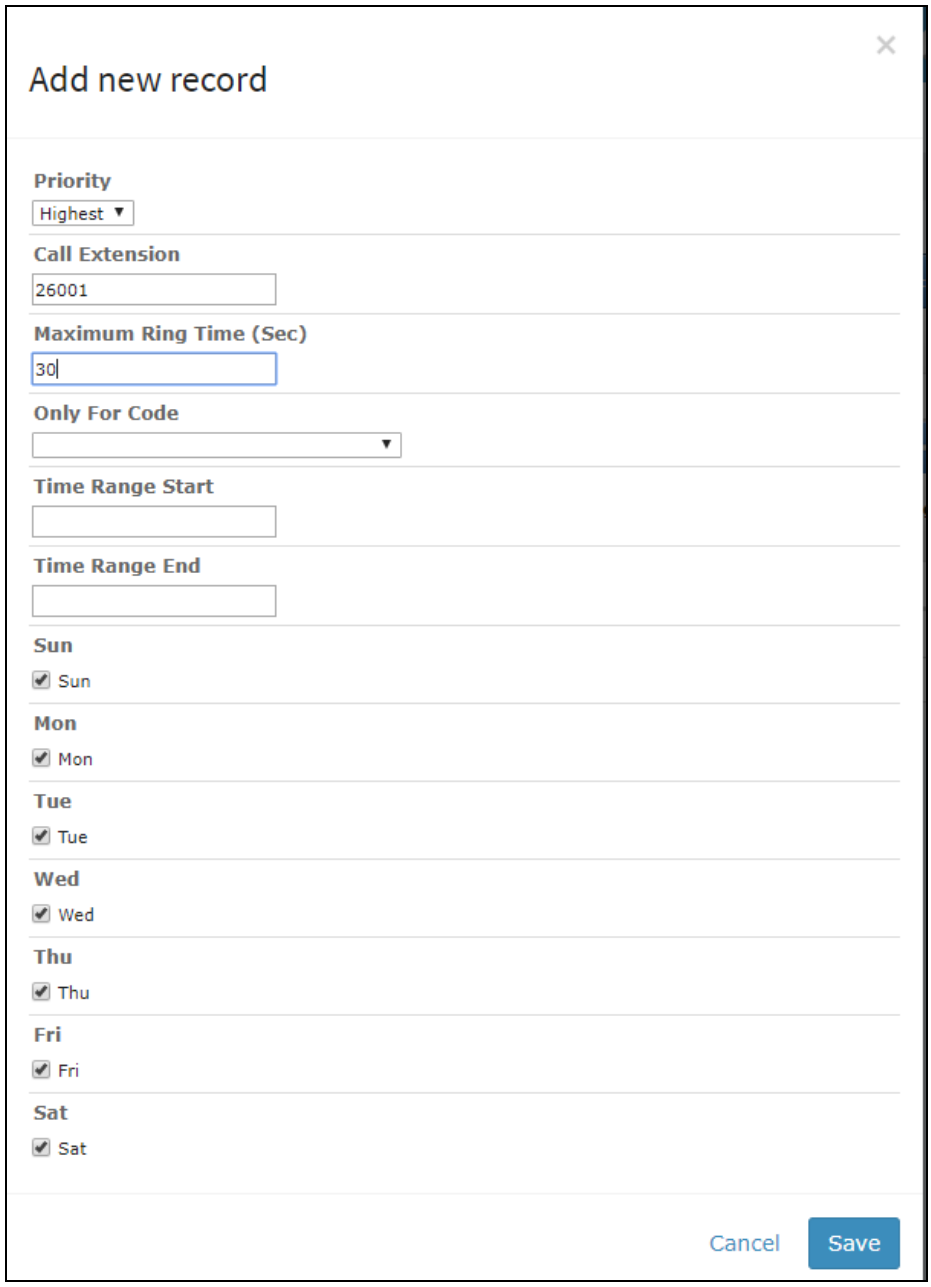
In the main **miAlertEMS** page, click on the **Escalation List** on the left as shown in the screen below. On the right side, **The Escalation List** names are seen. During compliance testing an escalation list by the name of **miALERT Demo** was created. Click on the edit button to configure this escalation list.



In the **Add new record** screen, configure the following values.

- **Priority:** Select "Highest" from the drop-down menu.
- **Call Extension:** During compliance testing, a hunt group "26001" was configured in IP Office.
- **Maximum Ring time (Sec):** During compliance testing, a time of "30" seconds was configured.

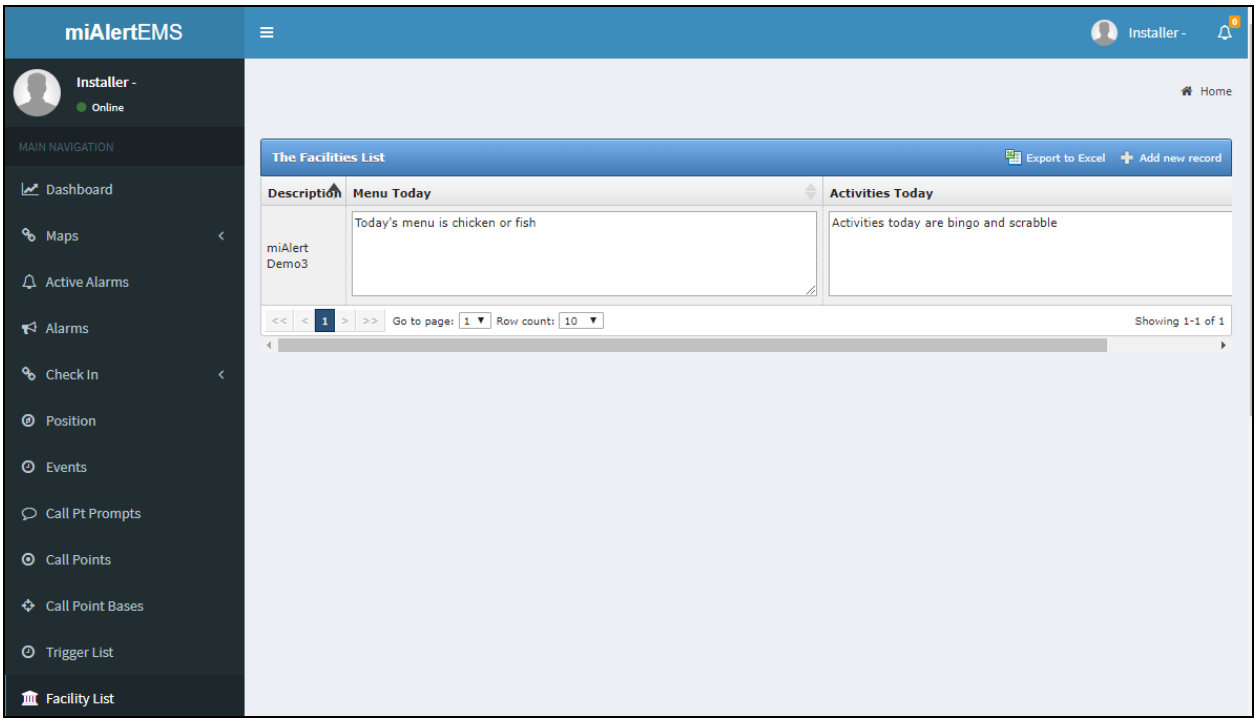
Retain default values for all other fields and click on **Save**.



6.4. Configure Facility List

The facility list is created so that when a resident activates the Menu or Activity button at their call point, a message is read to them. The message is configured in the EMS facility list and when activated, it does a text to speech conversion.

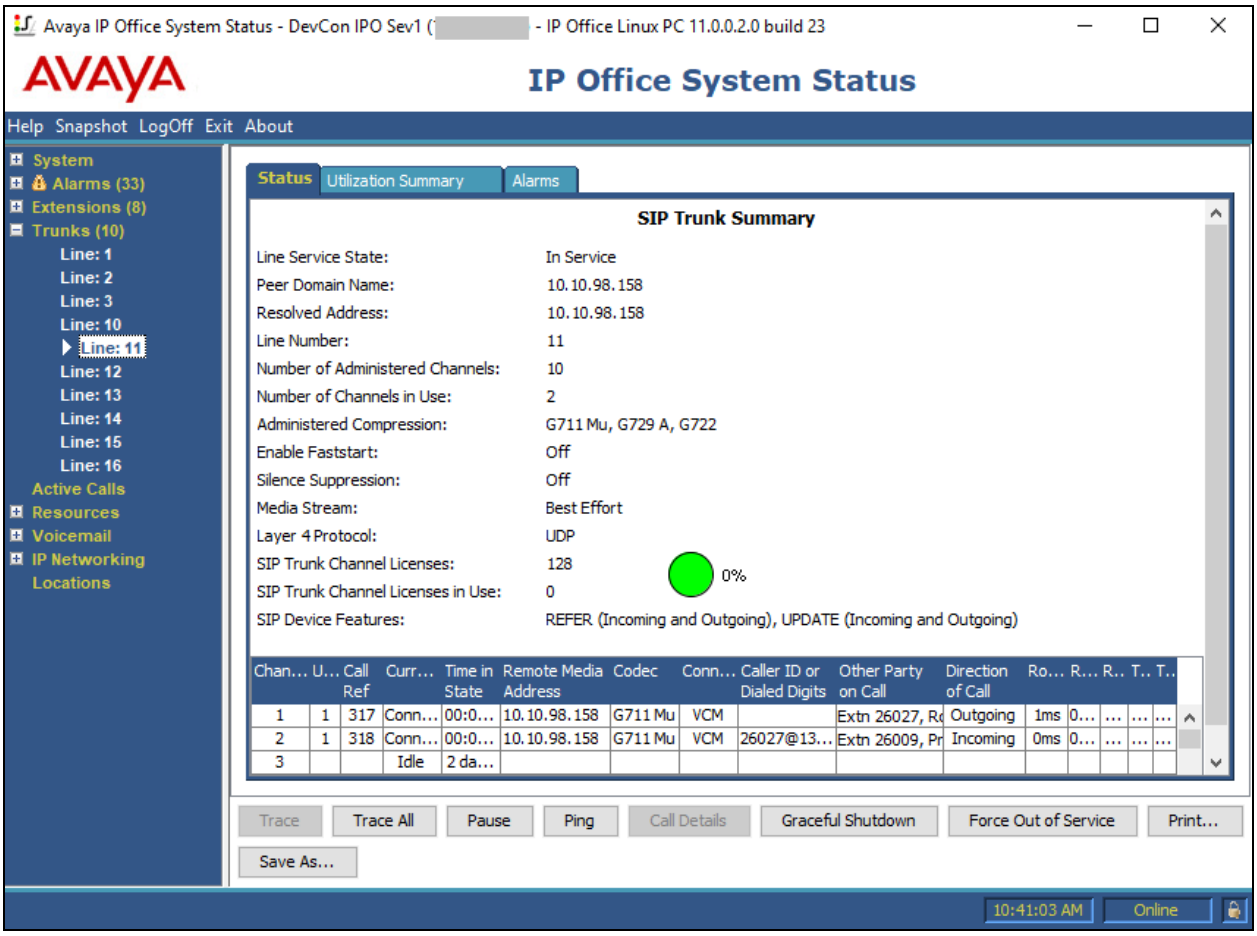
To configure a facility list, in the main **miAlertEMS** page click on **Facility List** on the left as shown in the screen below. On the right side, **The Escalation List** is seen. During compliance testing a facility list with the description **miALERT Demo3** was created with messages in the **Menu Today** and **Activities Today** section.



7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya IP Office and miALERT miLink Event Management Server.

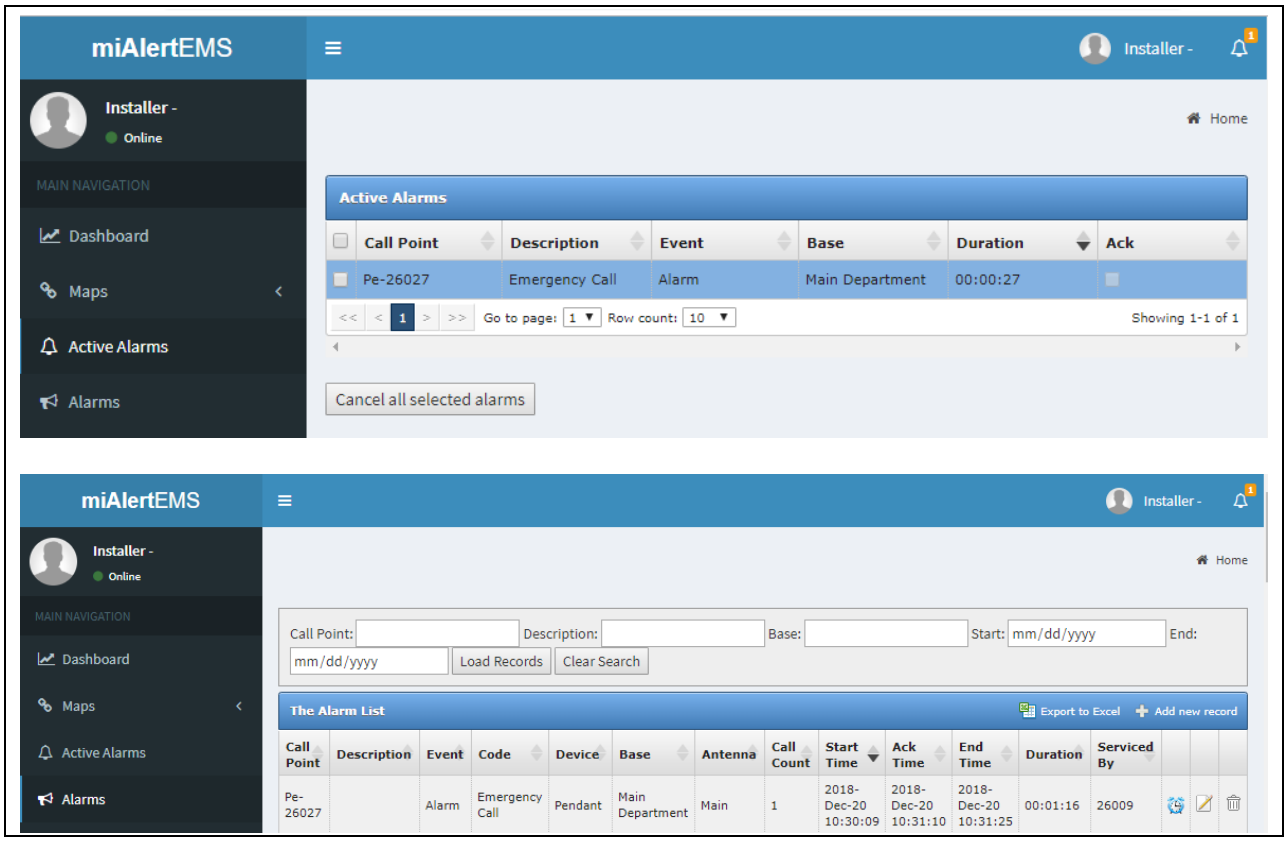
From IP Office Manager server, launch IP Office System Status and login to the required IP Office, in this case the Primary System (not shown). Navigate to **Trunks** and select the trunk that was configured to connect to EMS. Screen below shows the trunk **In Service** and description of an active call in the channel section.



For feature verifications, from a call point activate a call to the nurse hunt group (such as pulling the cord or pressing the emergency button, depending on the type of call point). Verify that the call is ringing at an available nurse. Answer the call at the nurse and verify two-way speech path. Once the call is completed, press the cancel button and verify that the call is terminated properly. Verify that the call follows the proper escalation path as configured in EMS if a call is not answered at the called nurse station. Verify that the call follows the proper overflow path configured in IP Office if a call is not answered by any nurse stations of the called nurse hunt group.

From a call point, activate the menu or activity button and verify that the proper pre-recorded message is heard. Once the recording is completed, press the cancel button and verify that the call is terminated properly.

From the EMS alarm list, verify that the alarm shows all the correct values for an emergency call made from a call point to a nurse station. Screens below show an **Active Alarms** and a list of **Alarms** with all the required call details once the emergency call has been completed.



8. Conclusion

These Application Notes describe the configuration steps required for miALERT miLink Event Management Server to interoperate with Avaya IP Office Server Edition. All feature and serviceability test cases were completed successfully with observations noted in **Section 2.2**.

9. Additional References

This section references the product documentation relevant to these Application Notes.

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

[1] *Deploying IP Office™ Platform Server Edition Solution*, Release 11.0, May 2018.
[2] *Deploying IP Office Essential Edition (IP500 V2)*, Release 11.0, 15-601042 Issue 33I - (Tuesday, December 4, 2018).
[3] *Administering Avaya IP Office™ Platform with Manager*, Release 11.0, Issue 17a, August 2018.
[4] *IP Office™ Platform Description of Devlink3 API Introduced in Release 10.0*, Issue 1.0.
[5] *Application Notes for Configuring miALERT miSip Resident Unit with Avaya IP Office Server Edition*, 2019.

Product Documentation for miALERT can be obtained by directly contacting miALERT.

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.