Avaya Solution & Interoperability Test Lab

Application Notes for LiveSentinel EMS 1000 with Avaya IP Office Server Edition 9.1 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Live Sentinel EMS 1000 to interoperate with Avaya IP Office Server Edition 9.1 using SIP trunks. LiveSentinel EMS 1000 is a nurse call solution that provides voice communication paths between care givers and care receivers in real time.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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 Live Sentinel EMS 1000 to interoperate with Avaya IP Office Server Edition 9.1 using SIP trunks. LiveSentinel EMS 1000 is a nurse call solution that provides voice communication paths between care givers and care receivers in real time.

The Avaya IP Office Server Edition configuration consisted of two Avaya IP Office systems, a primary Linux system and an expansion IP500V2 system that were connected via Small Community Network (SCN) trunks.

The LiveSentinel EMS 1000 configuration consisted of one EMS server, two miALERT A200 devices, and a third party adaptor that converted between analog and SIP. The adaptor connected the two miALERT devices via analog on the one end, and to the EMS server via SIP on the other.

The miALERT is essentially an analog speaker telephone that can be activated by the resident by pressing the emergency call button to reach the nurse staff on Avaya IP Office. Upon pressing the emergency call button, miALERT originates a call via the analog-SIP adaptor to EMS, with the pre-programmed nurse group destination.

EMS answers the resident call from miALERT, and originates a separate call via SIP trunks to the nurse group destination on Avaya IP Office. The available nurse that answers the call will hear the announcement from miALERT with the pertinent resident information, and can press the # key from the telephone to open up a two-way communication path with the resident's miALERT unit. EMS accomplishes the two-way communication path by "merging" the two calls.

The SIP trunks connection from EMS can be with either the primary Linux or the expansion IP500V2 IP Office system. The configuration shown in these Application Notes used the primary Linux IP Office system for SIP trunks connectivity.

2. General Test Approach and Test Results

The feature test cases were performed manually. Nurse calls were placed manually from residents by pressing the emergency call button on the miALERT units.

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

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing included G.711, session refresh, DTMF from EMS for acknowledgement and drop, no answer, do not disturb, busy, call forwarding, mobile twinning, hot desking, overflow, fallback, resiliency, call pickup, and simultaneous calls.

The feature testing call flows included calls from EMS with IP Office resources on the primary linux system, calls with IP Office resources on the expansion IP500V2 system, as well as calls with resources between the two IP Office systems.

The serviceability testing focused on verifying the ability of EMS to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet connection to EMS.

2.2. Test Results

All test cases were executed, and the following were observations on EMS:

- It took up to 7 seconds from press of emergency call button on miALERT to call ringing on an available nurse, with bulk of delay between miALERT and the analog-SIP adaptor. LiveSentinel shared that rack mount analog FXS gateway will be used in production environments, which should reduce the 7 seconds delay substantially.

- miALERT starts the repeated announcement upon ringing, and as such the announcement was already started prior to nurse answering. As the short announcement is repeated, the answering nurse is able to capture the entire announcement.

- Occasionally, roughly 5% of the time, the answering destination had to press # a second time to open up the communication path with the resident.

- Interactions with park/unpark, transfer, and conference are not supported.

2.3. Support

Technical support on EMS can be obtained through the following:

- **Phone:** (855) 382-8999
- **Email:** support@livesentinel.com
- **Web:** http://livesentinel.com/support

3. Reference Configuration

The IP Office Server Edition configuration used in the compliance testing consisted of a primary Linux system and an expansion IP500V2 system, with SCN trunks connectivity between the two systems. As shown in **Figure 1** below, one EMS server was deployed with SIP trunks connection to the primary IP Office system.

The detailed administration of IP Office resources is not the focus of these Application Notes and will not be described. In addition, the detailed administration of the analog-SIP adaptor and miALERT units are also outside the scope of these Application Notes.

Each miALERT unit can be programmed with up to five destinations. In the compliance testing, the miALERT units were pre-programmed with the following four destinations: a distributed nurse group destination consisting of nurses from both IP Office systems, a nurse station destination on the primary IP Office system, a nurse station destination on the expansion IP Office system, and one external destination on the PSTN.

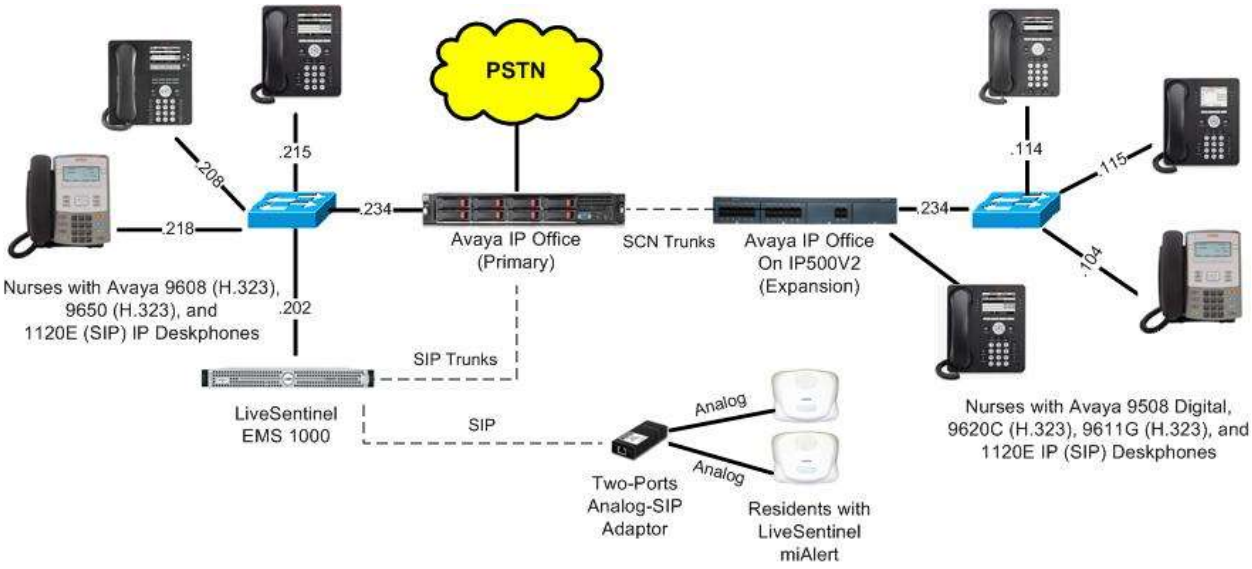


Figure 1: Compliance Testing Configuration

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Server Edition (Primary) in Virtual Environment	9.1.500.145
Avaya IP Office on IP500 V2 (Expansion)	9.1.500.145
Avaya 9620C & 9650 IP Deskphones (H.323)	3.250A
Avaya 9608 & 9611G IP Deskphones (H.323)	6.6029
Avaya 1120E IP Deskphones (SIP)	4.4.18.0
Avaya 9508 Digital Deskphone	NA
LiveSentinel EMS 1000 on Microsoft Windows 7 Professional	5.3.2 SP 1
LiveSentinel miALERT A200	3.0

Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

5. Configure Avaya IP Office

This section provides the procedures for configuring the IP Office systems. The procedures include the following area:

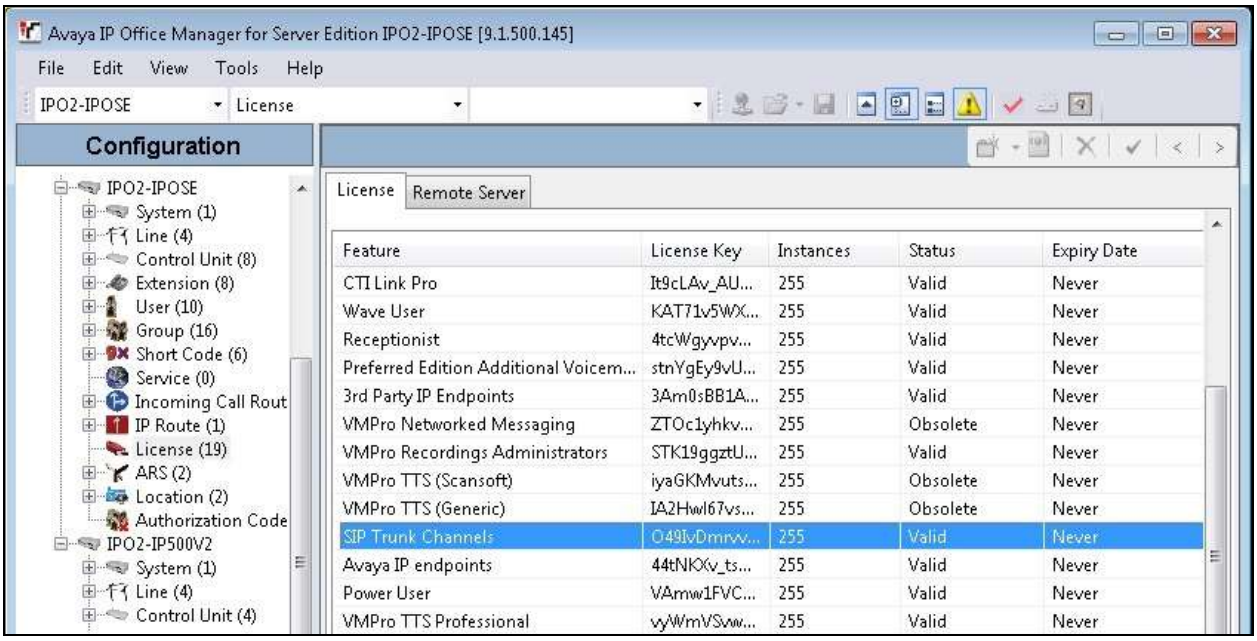
- Verify license
- Administer system
- Administer line
- Administer incoming call route
- Administer nurse group

5.1. Verify License

From a PC running the IP Office Manager application, select **Start → Programs → IP Office → Manager** to launch the application. Select the proper primary IP Office system, and log in using the appropriate credentials.

The **Avaya IP Office Manager for Server Edition IPO2-IPOSE** screen is displayed, where **IPO2-IPOSE** is the name of the primary IP Office system.

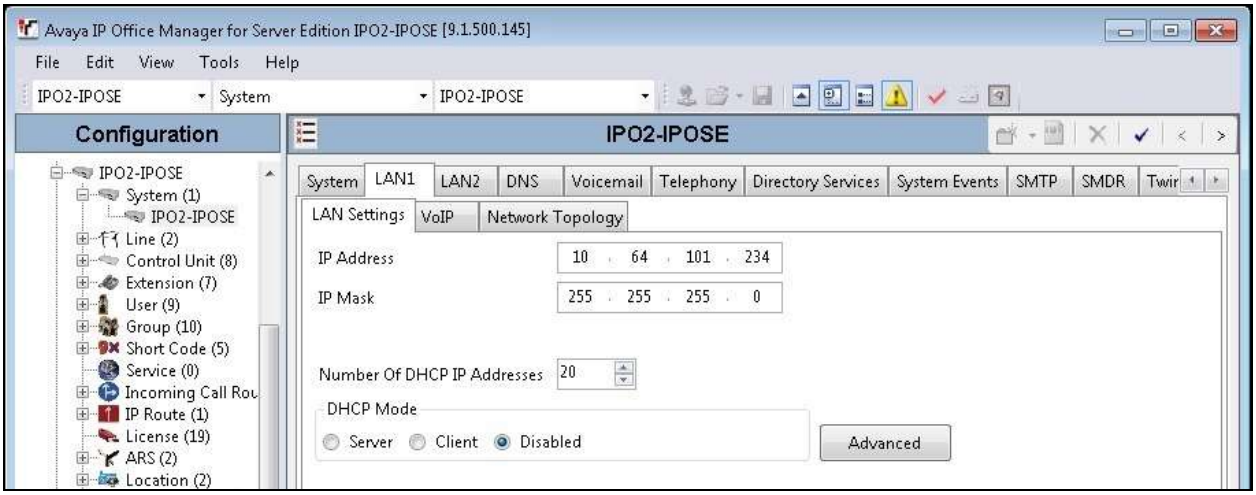
From the configuration tree in the left pane, select **License** under the IP Office system that will be used for SIP trunks connection with EMS, in this case "IPO2-IPOSE", and a list of licenses is displayed in the right pane. Verify that there is a license for **SIP Trunk Channels** and that the **Status** is "Valid", as shown below.



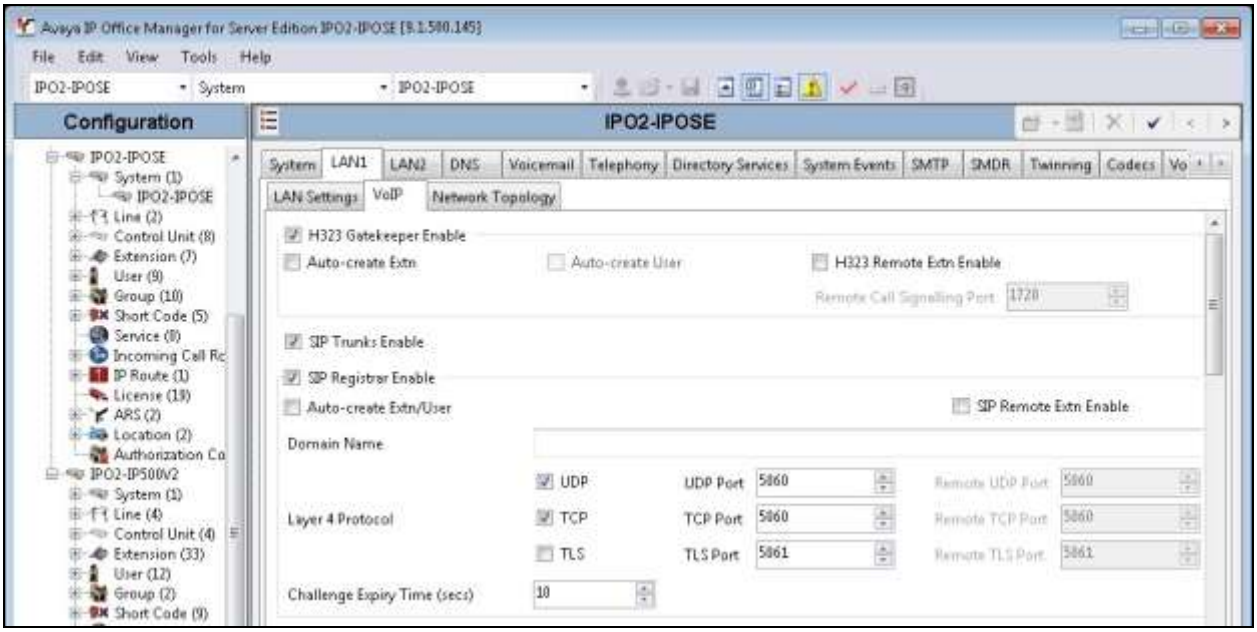
5.2. Administer System

From the configuration tree in the left pane, select **System** under the IP Office system used for SIP trunks connection with EMS, to display the system screen in the right pane.

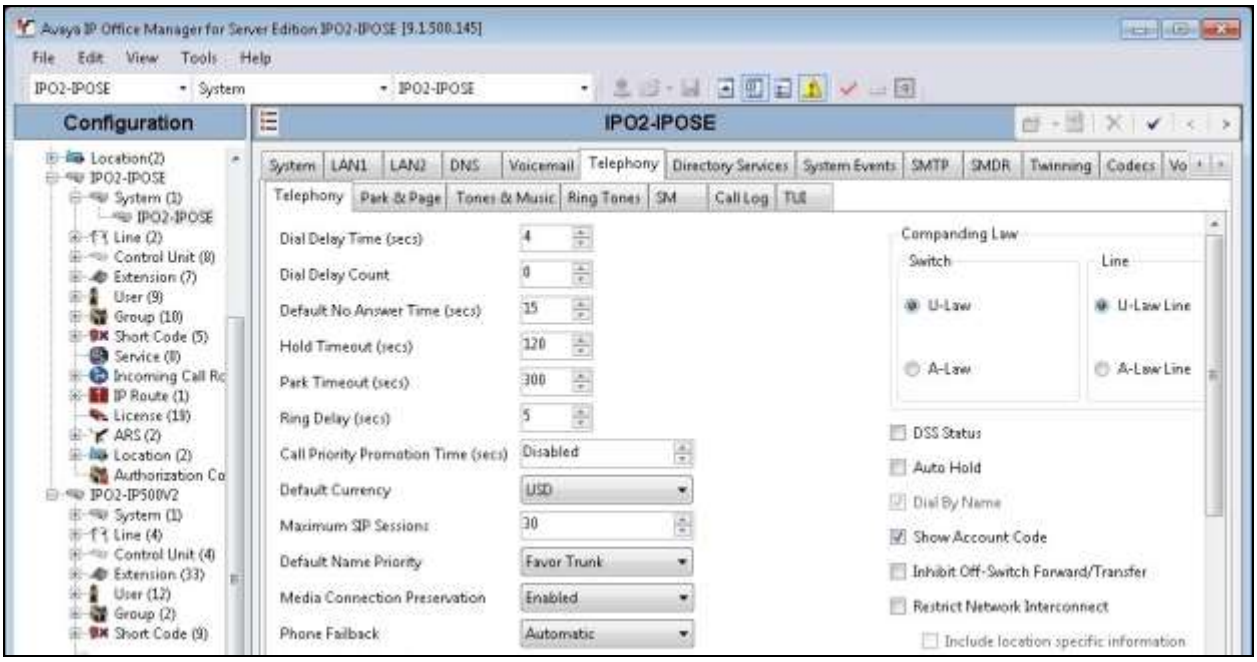
Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used later to configure EMS Note that IP Office can support SIP trunks on the LAN1 and/or LAN2 interfaces, and the compliance testing used the LAN1 interface.



Select the **VoIP** sub-tab. Make certain that **SIP Trunks Enable** is checked, as shown below. Retain the default values in the remaining fields.



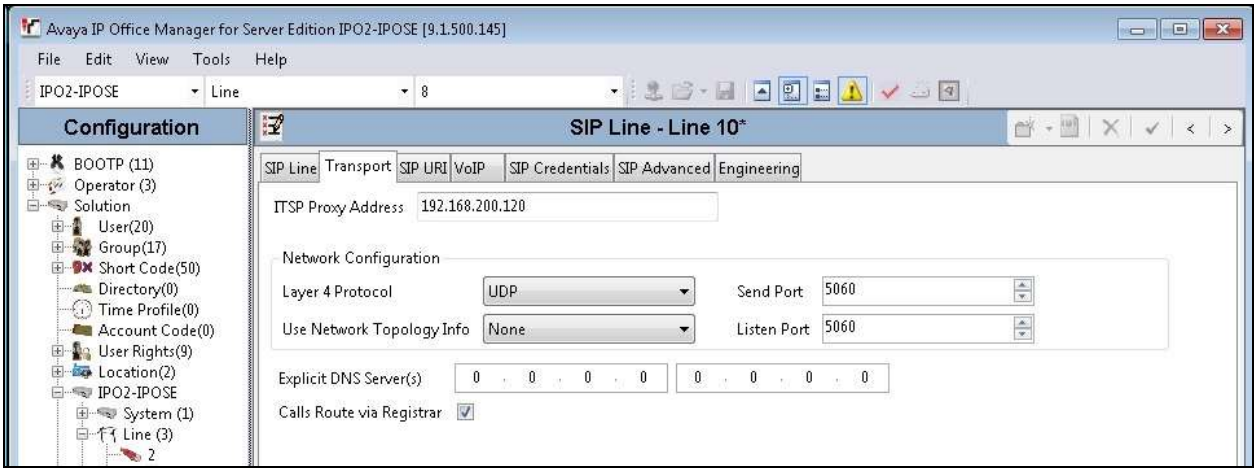
Select the **Telephony** tab, followed by the **Telephony** sub-tab in the right pane. For **Maximum SIP Sessions**, set to the desired total number of SIP telephone and trunk calls that can occur at the same time. Uncheck **Inhibit Off-Switch Forward/Transfer** to allow call forwarding with EMS over SIP trunks if desired, which was the case for the compliance test.



5.3. Administer Line

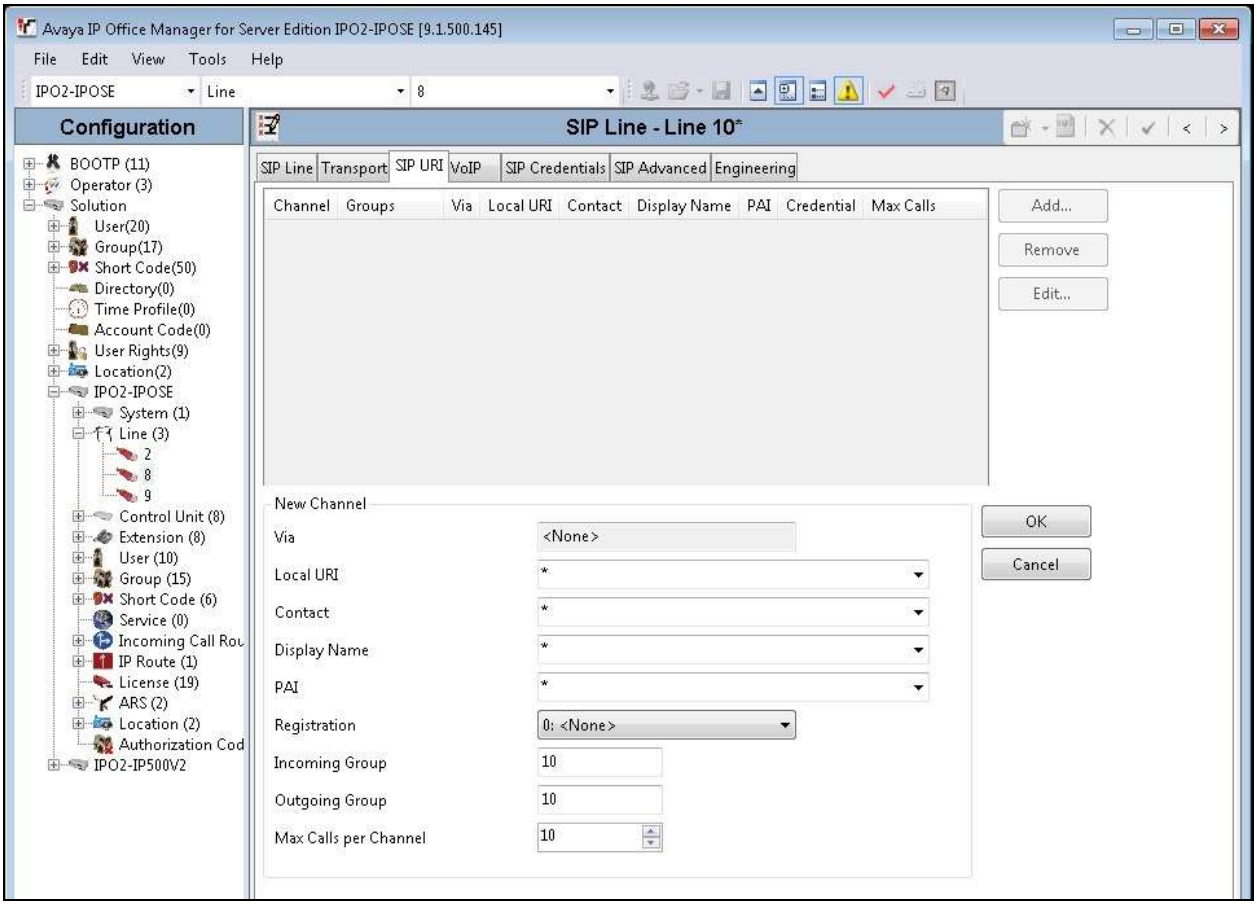
From the configuration tree in the left pane, right-click on **Line** under the IP Office system used for SIP trunks connection with EMS, and select **New → SIP Line** from the pop-up list to add a new SIP line.

Select the **Transport** tab. For **ITSP Proxy Address**, enter the IP address of the EMS server. Retain the defaults in the remaining fields.



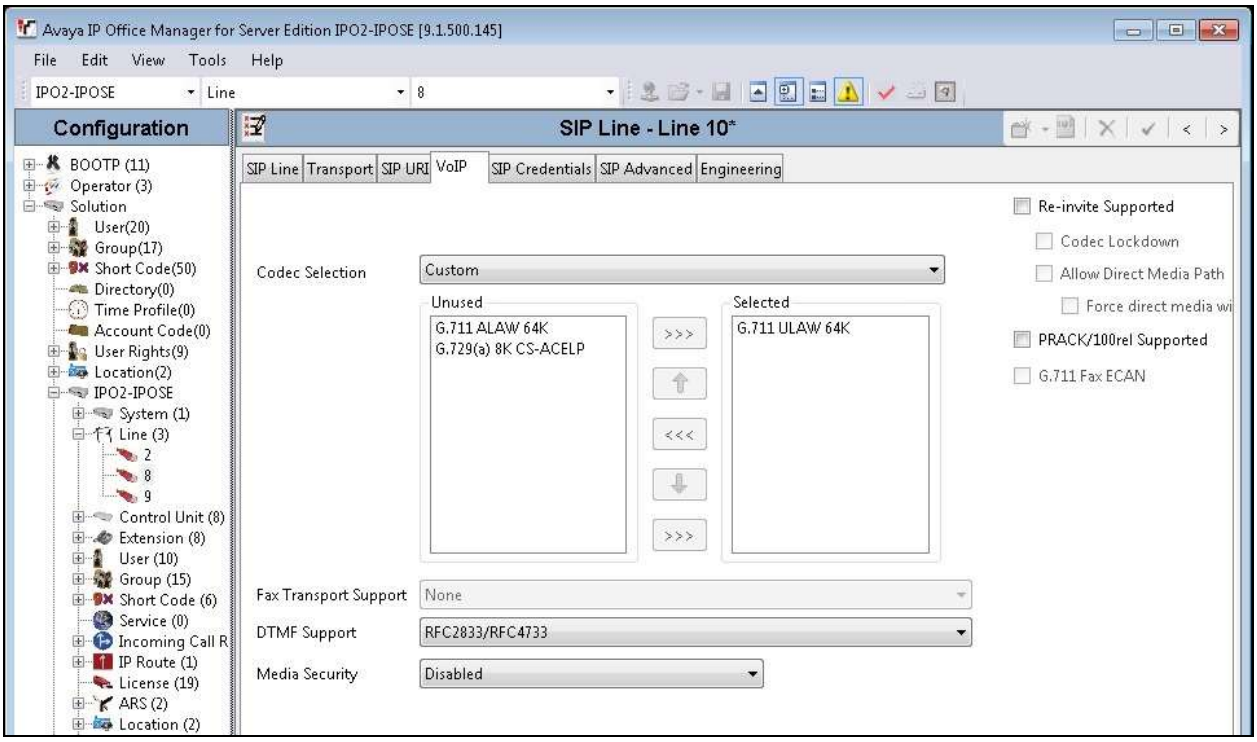
Select the **SIP URI** tab, and click **Add** to display the **New Channel** sub-section. Enter the wildcard character "*" for **Local URI**, **Contact**, **Display Name**, and **PAI**.

For **Incoming Group** and **Outgoing Group**, enter available group numbers. Set **Max Calls per Channel** to support the applicable maximum number of simultaneous calls. Retain the default values in the remaining fields.



Select the **VoIP** tab. For **Codec Selection**, select "Custom" from the drop-down list. Retain the applicable G.711 codec variant in the **Selected** column, in this case "G.711 ULAW 64K".

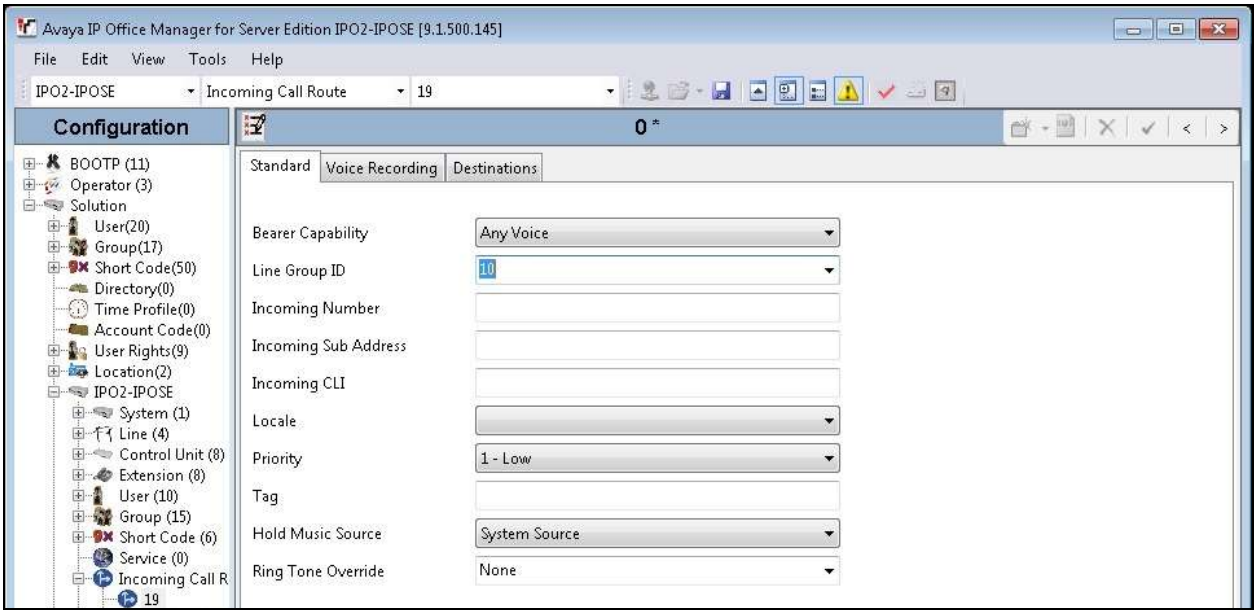
Retain the default values in the remaining fields.



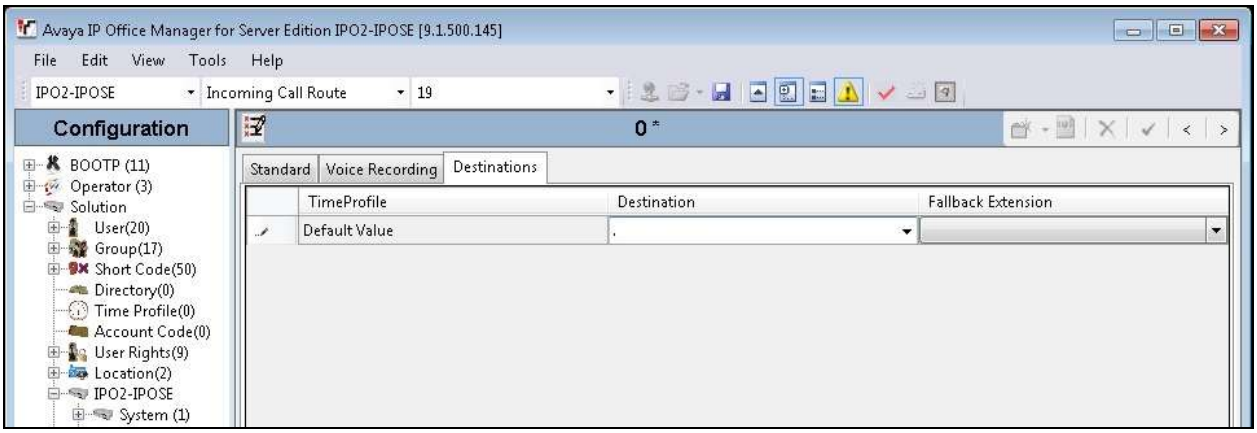
5.4. Administer Incoming Call Route

From the configuration tree in the left pane, right-click on **Incoming Call Route** under the IP Office system used for SIP trunks connection with EMS, and select **New** from the pop-up list to add a new route for incoming calls from EMS.

For **Line Group Id**, select the incoming group number from **Section 5.3**, in this case "10". Retain the default value in the remaining fields.



Select the **Destinations** tab. For **Destination**, enter "." to match any dialed number from EMS.

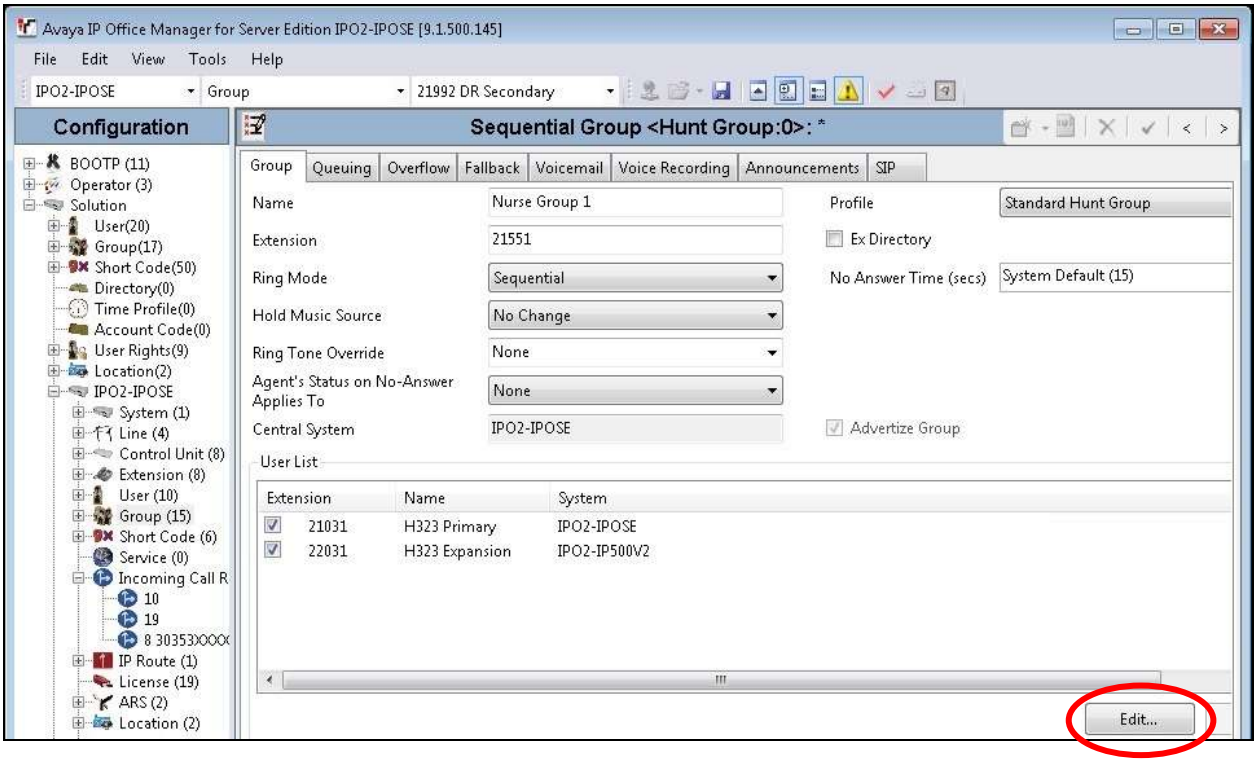


5.5. Administer Nurse Group

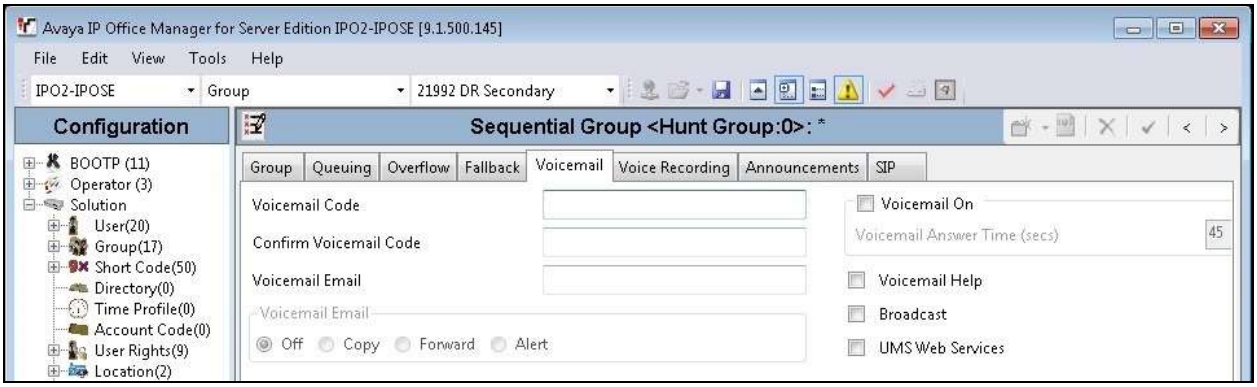
From the configuration tree in the left pane, right-click on **Solution → Group** and select **New** from the pop-up list to add a new common group. For **Name** and **Extension**, enter desired values. Retain the default values for the remaining fields.

Click **Edit** in the bottom right pane, and select desired nurse users from the subsequent screen (not shown) as members to this group. The resultant selection is shown below.

In the compliance testing, the nurse group consisted of nurse users from both IP Office systems, and the nurse group extension was pre-programmed into both miALERT units.



Select the **Voicemail** tab, and uncheck **Voicemail On** as shown below.



6. Configure LiveSentinel EMS 1000

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

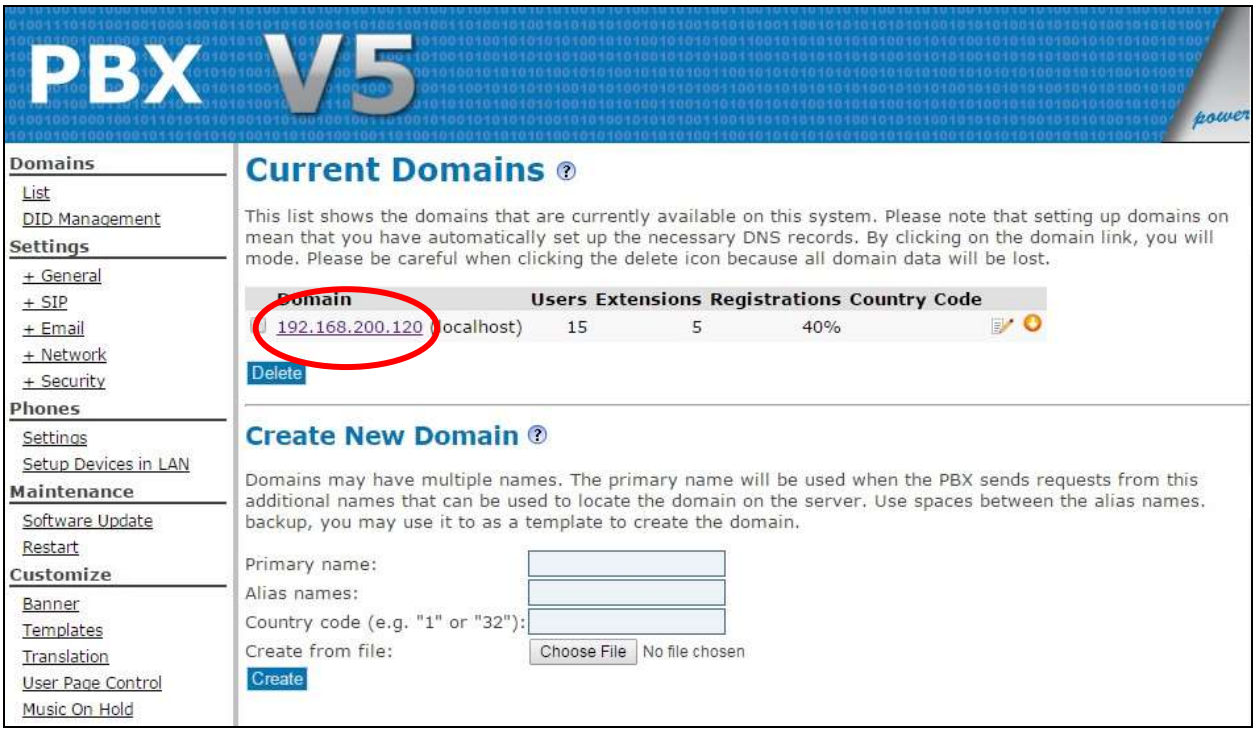
- Launch web interface
- Administer trunks
- Administer dial plans
- Administer general settings

6.1. Launch Web Interface

Access the EMS web-based interface by using the URL "http://ip-address" in an Internet browser window, where "ip-address" is the IP address of the EMS server. Log in using the appropriate credentials.

6.2. Administer Trunks

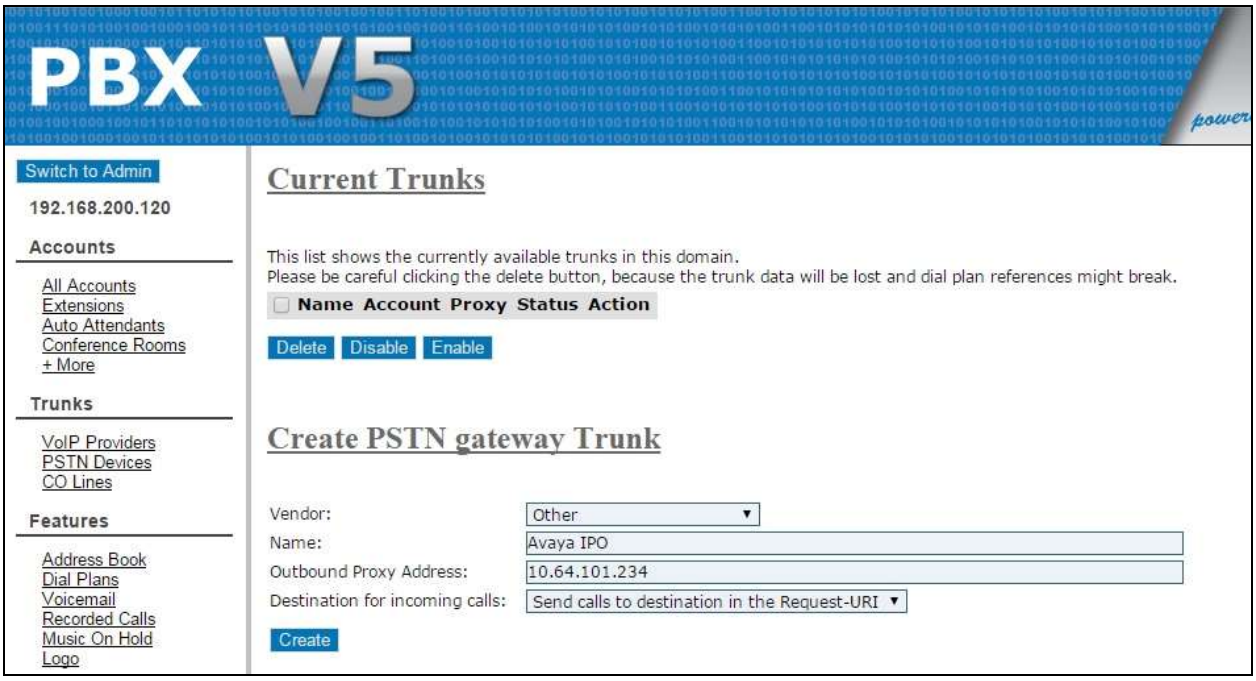
The screen below is displayed. Select the pre-configured domain entry, in this case "192.168.200.120", which is the IP address of the EMS server.



In the next screen (not shown), select **Trunks → PSTN Devices** from the left pane to display the screen below.

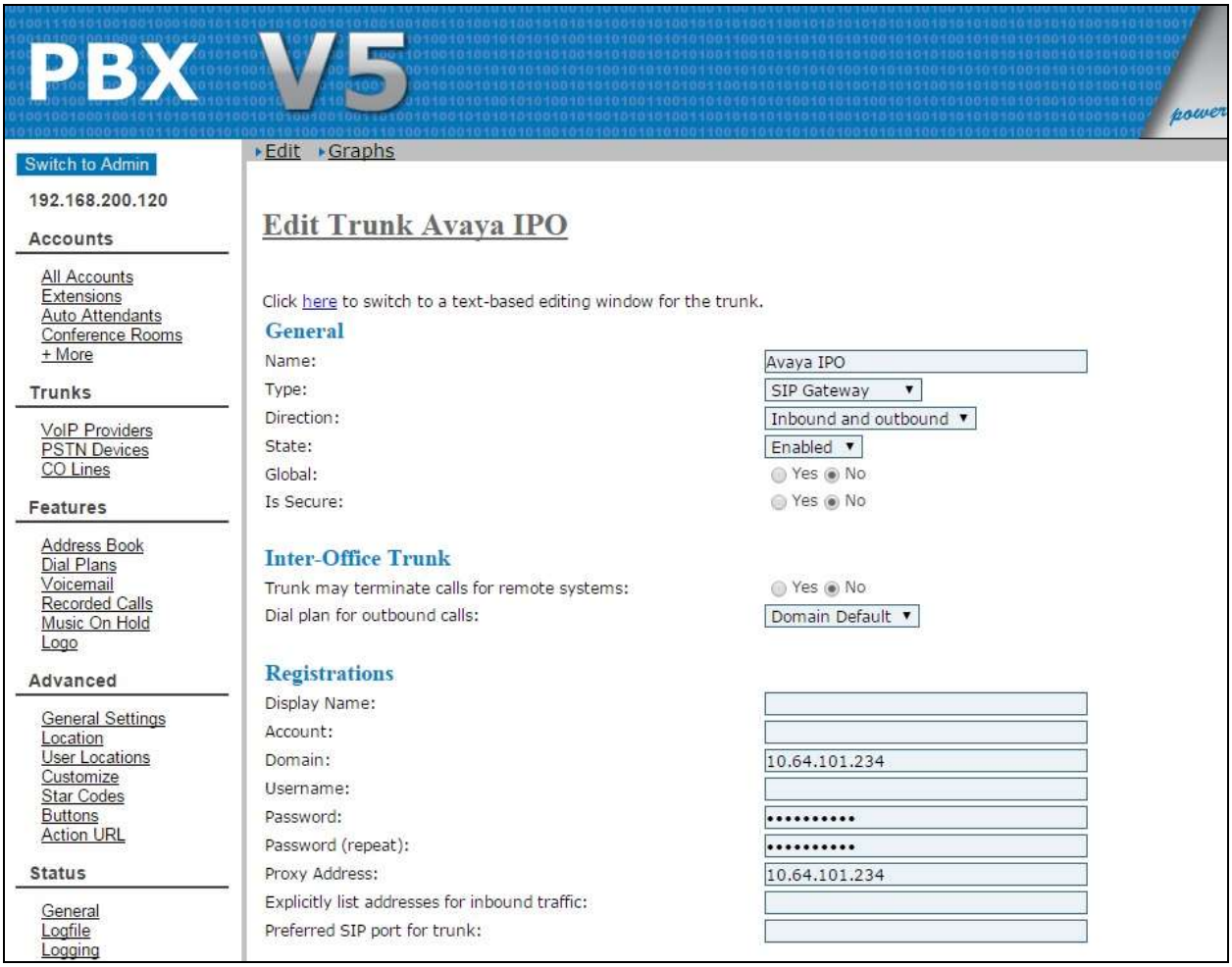
In the **Create PSTN gateway Trunk** sub-section, enter the following values for the specified fields, and retain the default values for the remaining fields. Click **Create**.

- **Vendor:** "Other"
- **Name:** A desired name.
- **Outbound Proxy Address:** IP address of the IP Office system for SIP trunk connectivity.

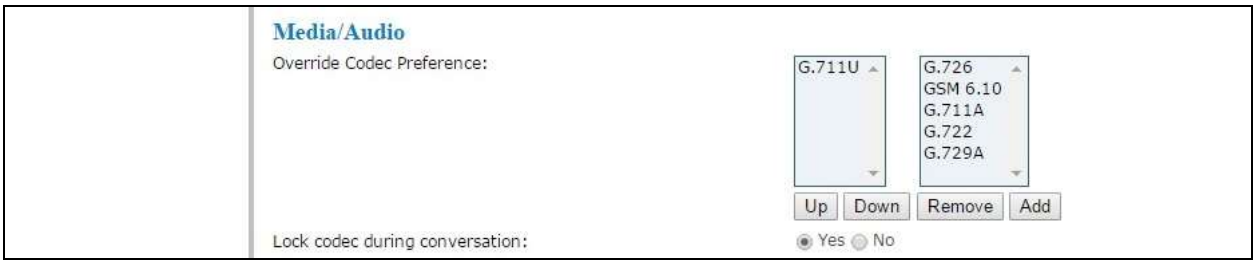


The screen is updated with the newly added trunk, as shown below. Select the new trunk, in this case "Avaya IPO".

The **Edit Trunk Avaya IPO** screen is displayed, where **Avaya IPO** is the name of the trunk. In the **Registrations** sub-section, for **Domain**, enter the IP address of the IP Office system used for SIP trunk connectivity, as shown below.



Scroll down to the **Media/Audio** sub-section. For **Override Codec Preference**, select the applicable G.711 codec variant as **Section 5.3**, in this case "G.711U" as shown below.

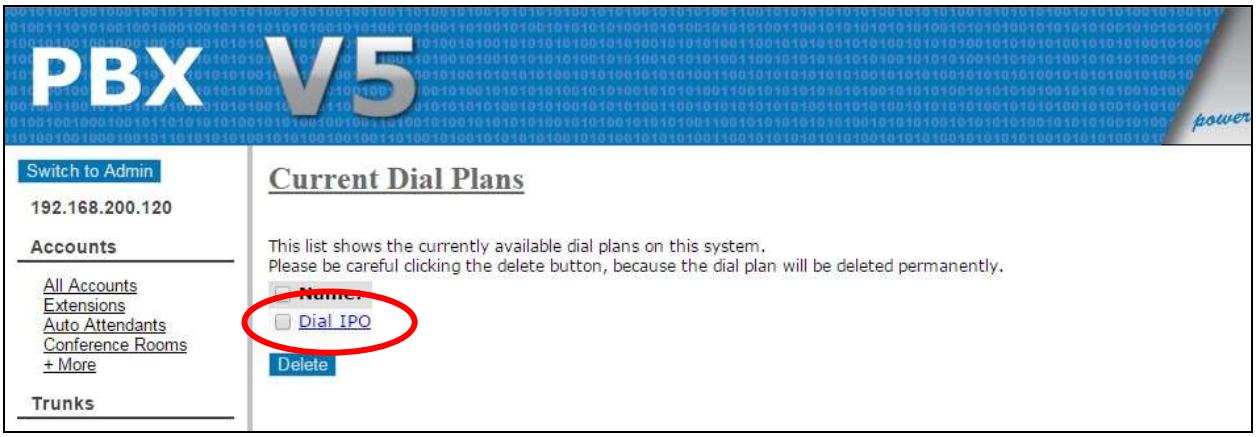


6.3. Administer Dial Plans

Select **Features → Dial Plans** from the left pane to display the screen below.

In the **New Dial Plan** sub-section, enter desired values for **Name** and click **Create**.

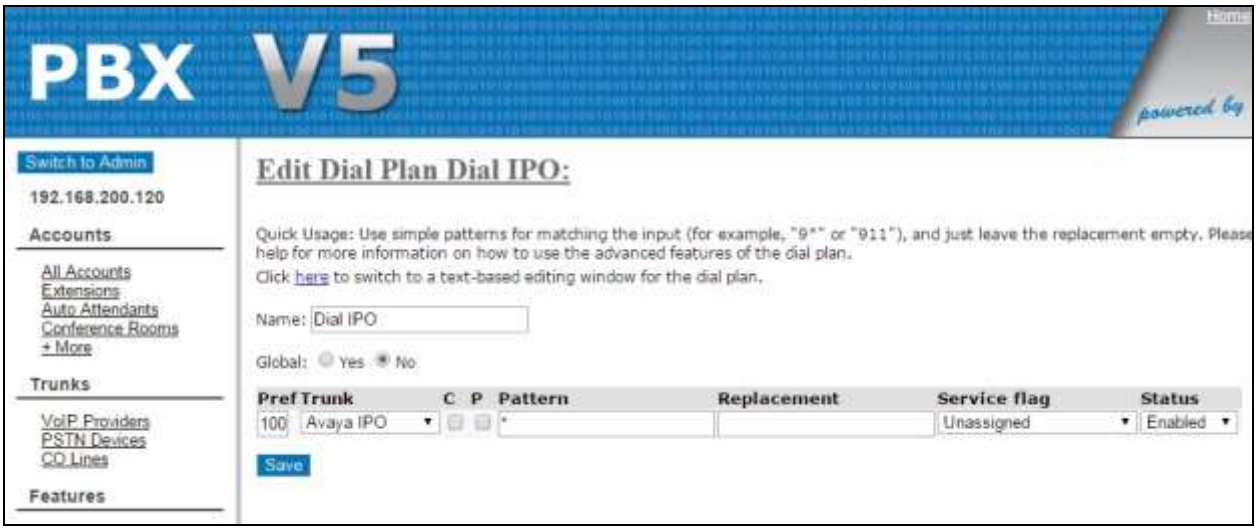
The screen is updated with the newly added dial plan, as shown below. Select the new dial plan, in this case "Dial IPO".



The **Edit Dial Plan Dial IPO** screen is displayed, where **Dial IPO** is the name of the dial plan. Enter the following values for the specified fields, and retain the default values for the remaining fields.

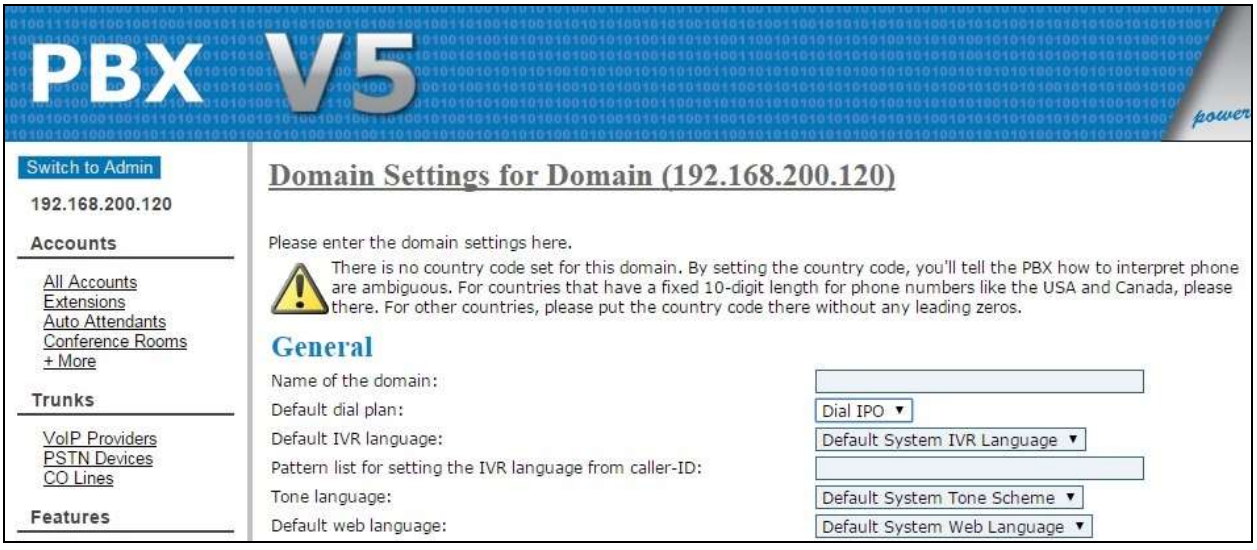
- **Trunk:** Select the trunk name from **Section 6.2**.
- **Pattern:** A desired dial pattern.

Create additional dial patterns as needed for the network configuration. In the compliance testing, one dial pattern was created with "*" as the pattern value to match to any number.



6.4. Administer General Settings

Select **Advanced → General Settings** (not shown below) from the left pane to display the screen below. For **Default dial plan**, select the dial plan name from **Section 6.3**, as shown below.



7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of IP Office and EMS.

Activate a call from a resident's miALERT by pressing the emergency call button, and verify that the call is ringing on an available nurse telephone.

Answer the call from the nurse telephone, and verify that the nurse hears the proper announcement "emergency room number x", where "x" is the room number pre-programmed into the miALERT unit. In the compliance testing, the room number associated with the two miALERT units were "201" and "501".

Press "#" from the nurse telephone, and verify that the nurse is connected with the resident's miALERT unit with two-way talk path.

8. Conclusion

These Application Notes describe the configuration steps required for LiveSentinel EMS 1000 to successfully interoperate with Avaya IP Office Server Edition 9.1 using SIP trunks. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

9. Additional References

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

1. *Administering Avaya IP Office™ Platform with Manager*, Release 9.1.0, Issue 10.03, February 2015, available at http://support.avaya.com.

2. *miAlert Event Management Server Guide*, April 2015, available at http://livesentinel.com.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.