Avaya Solution & Interoperability Test Lab

Application Notes for configuring novalink novaalert V10 with Avaya IP Office R10.1 - Issue 1.0

Abstract

These Application Notes describe the configuration steps for novaalert from novalink with Avaya IP Office R10.1. novaalert integrates with Avaya IP Office using SIP trunks.

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 for novaalert from novalink to interoperate with Avaya IP Office R10.1. The Avaya IP Office consists of a primary server which is the Avaya IP Office Server Edition and the Server Edition Expansion that being the Avaya IP Office IP500 V2. novaalert integrates with Avaya IP Office using SIP trunks connecting to the primary server.

novaalert is an application which is used in a health care, hotel or industrial environment for alerting, messaging or information services. novaalert can react to external alarm stimuli which indicate the existence of an emergency situation by informing affected persons of the situation. Alarms can be triggered from various possible input sources including manual input via Web browser, Smartphone Apps, Databases, E-Mails, serial interfaces, potential free contacts, SNMP, OPC, SMS, IP, etc. "Direct" alarms can also be defined which allow alarms to be input and triggered via telephone calls. The alarm triggering described is restricted to those methods which involve interaction with Avaya IP Office.

Once an alarm has been triggered, the medium selected when the alarm was configured is used to deliver the alarm. Possible delivery interfaces include phone calls (including conferences), Smartphone App's, Desktop-Clients, E-Mail, Pager, SMS, Fax, Printers, etc. Multiple recipients can be configured for an alarm, thus possibly creating multiple simultaneous telephone calls. This test plan focuses on those delivery methods which involve interaction with Avaya IP Office.

Alarms which are triggered via Avaya IP Office can include pre-recorded or ad hoc voice messages, or can generate voice messages via a text-to-speech mechanism. The calling party name can also be configured to contain a brief alarm message, so that this alarm message will appear in the caller list of intended recipients who are unable to answer an alarm call.

2. General Test Approach and Test Results

This section describes the compliance testing used to verify interoperability of novaalert with IP Office and covers the general test approach and the test results. Alarms were initiated from novaalert and sent to IP Office phone sets and hunt groups over SIP trunks. IP Office Server Edition with a Server Edition Expansion (IP500 V2) was used for compliance testing. Various Avaya endpoints were registered to the Server Edition and the IP500V2, see **Section 4**, using all endpoints during compliance testing. The SIP trunk was connected between the Server Edition and novaalert with a dial-plan setup with that in mind.

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 these DevConnect Application Notes 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 these Application Notes, the interface between Avaya systems and novaalert did not include use of any specific encryption features as requested by novalink.

2.1 Interoperability Compliance Testing

The interoperability compliance testing evaluated the ability of novaalert to carry out a variety of alarming functions, in various conditions, to multiple types of endpoint according to the configuration made via the web interface. These included recording of alarms from SIP/H.323/Digital endpoints.

- Delivery of voice recorded and TTS alarm to SIP/H.323/Digital endpoints.
- Delivery of voice recorded and TTS alarm to Hunt Groups.
- Verification of Alarm Display messages on each handset.
- Delivery of Alarms to the phone set speaker directly using Dial Paging.
- Following Call Forwarding to deliver alarms.
- DTMF PIN entry.
- Intrusion of Alarms to busy extensions using the Call Intrusion Short Code.
- Serviceability testing.

Serviceability testing consisted of verifying the ability of novaalert to recover from simulated network interruption to both IP Office and novaalert.

2.2 Test Results

All functionality and serviceability test cases were completed successfully. The following issues and observations were noted during the compliance testing.

1. ‘Special Characters’ such as ö,ü,ä, did not show up on the phone set display.
2. ‘Local User Name’ did not show up on the phone set display. Shown is the calling Party number e.g. 911 (to be defined in novaalert).
3. A Short Code for FNE was added in order to initiate the Call Intrusion Short Code; this was done because using the Call Intrusion Short Code directly by novaalert results in a forbidden so it must use the FNE for Mobile Call Control.
4. DTMF will only work using SIP INFO. See **Section 6.1** to view this specific setup.

2.3 Support

Technical support can be obtained for novaalert from the website http://www.novalink.ch/en/ or from the following.

novalink GmbH
Businesstower
Zuercherstrasse 310
8500 Frauenfeld
Switzerland
helpdesk@novalink.ch
Phone: +41 52 762 66 77
Fax: +41 52 762 66 99

3. Reference Configuration

The configuration in **Figure 1** is used to compliance test novalink novaalert with Avaya IP Office Server Edition and Avaya IP Office IP500 V2. The connection between the novaalert and the IP Office solution uses SIP trunks.

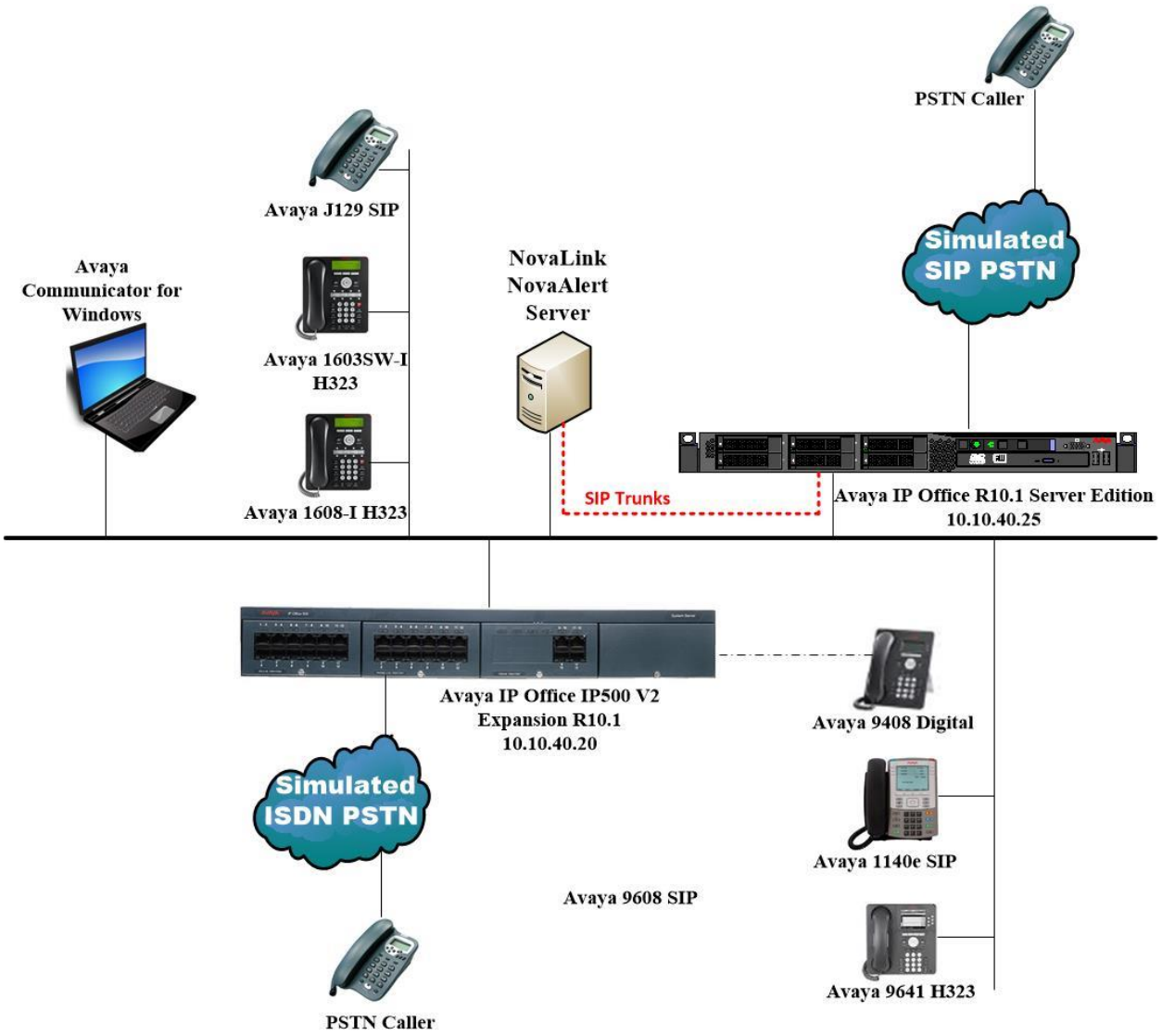


Figure 1: Connection of novaalert from novalink with Avaya IP Office Server Edition & Expansion R10.1

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Primary Server Server Edition running on a Virtual Platform	R10.1.0.1.0 Build 3
Avaya IP Office Expansion Server IP500 V2	R10.1.0.1.0 Build 3
Avaya IP Office Manager running on a Windows 7 PC	R10.1.0.1.0 Build 3
Avaya 1608-I H323 Deskphone	1608UA1_350B.bin
Avaya 1603SW-I H323 Deskphone	1603UA1_3110A.bin
Avaya 9641 H323 Deskphone	R6.6115
Avaya 1140e SIP Deskphone	R04.04.28.00
Avaya 9508 Digital Deskphone	R0.60
Avaya Communicator for Windows (SIP)	R2.1.8.80 (SIP)
Avaya J129 SIP Deskphone	R1.0.0.0.0.43
novalink novaalert running on a Windows 2012 virtual server	10.0.1.4

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.

Testing was performed with IP Office Server Edition R10.1. Note that IP Office Server Edition requires an Expansion IP Office IP500 V2 R10.1 to support analog or digital endpoints.

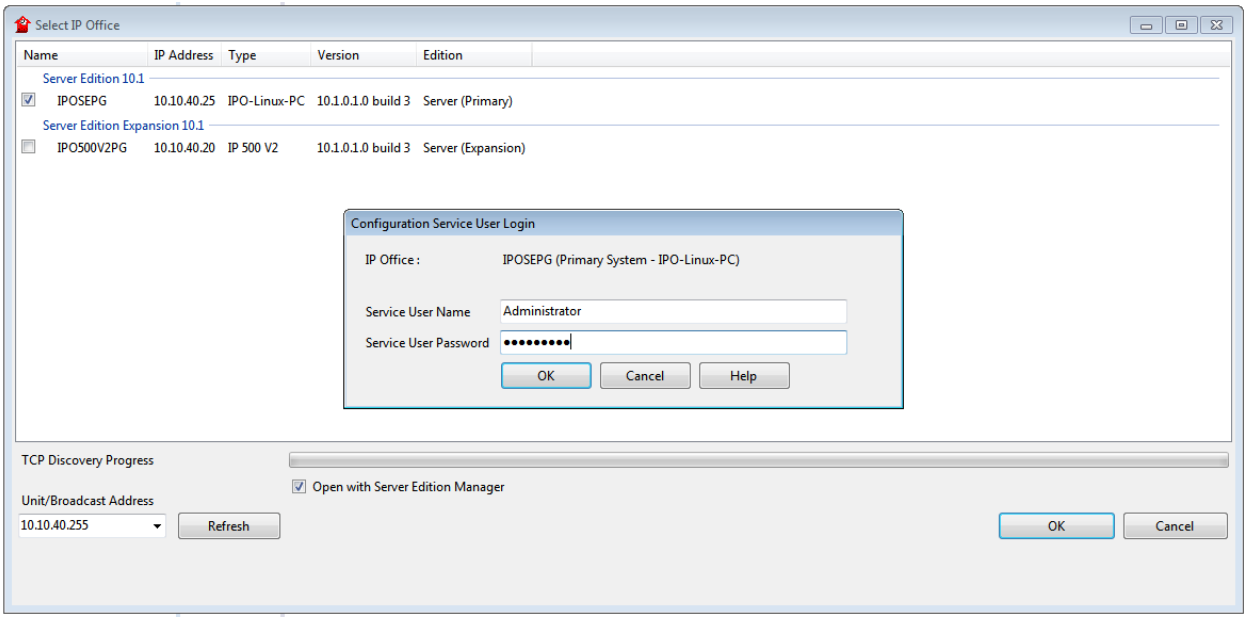
5. Configuration of Avaya IP Office

Configuration and verification operations on the Avaya IP Office illustrated in this section were all performed using Avaya IP Office Manager. The information provided in this section describes the configuration of the Avaya IP Office for this solution. It is implied a working system is already in place. 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:

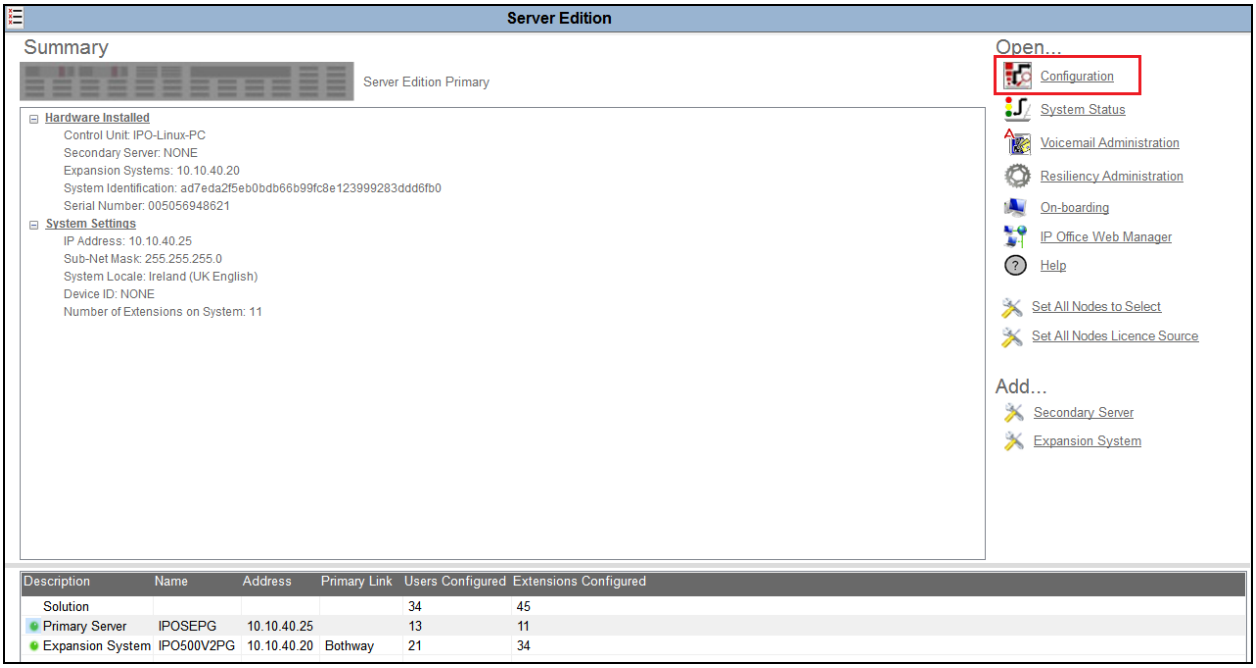
- Launch Avaya IP Office Manager.
- Display LAN Configuration.
- Configure Incoming Route for SIP Trunk.
- Configure SIP Trunk.
- Configure User for Mobile Call Control.
- Configure Short Codes.
- Save Configuration.

5.1 Launch Avaya IP Office Manager

From the Avaya IP Office Manager PC, go to **Start → Programs → IP Office → Manager** to launch the Manager application (not shown). Tick the required server to log in to, this should be the **Primary Server** (**Server Edition**) and log in to Avaya IP Office using the appropriate credentials to receive its configuration.

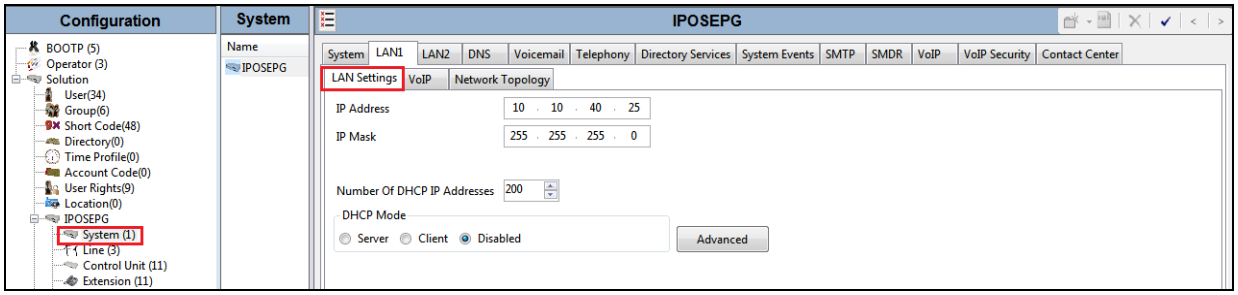


Click on **Configuration**, highlighted below.



5.2 Display LAN Configuration

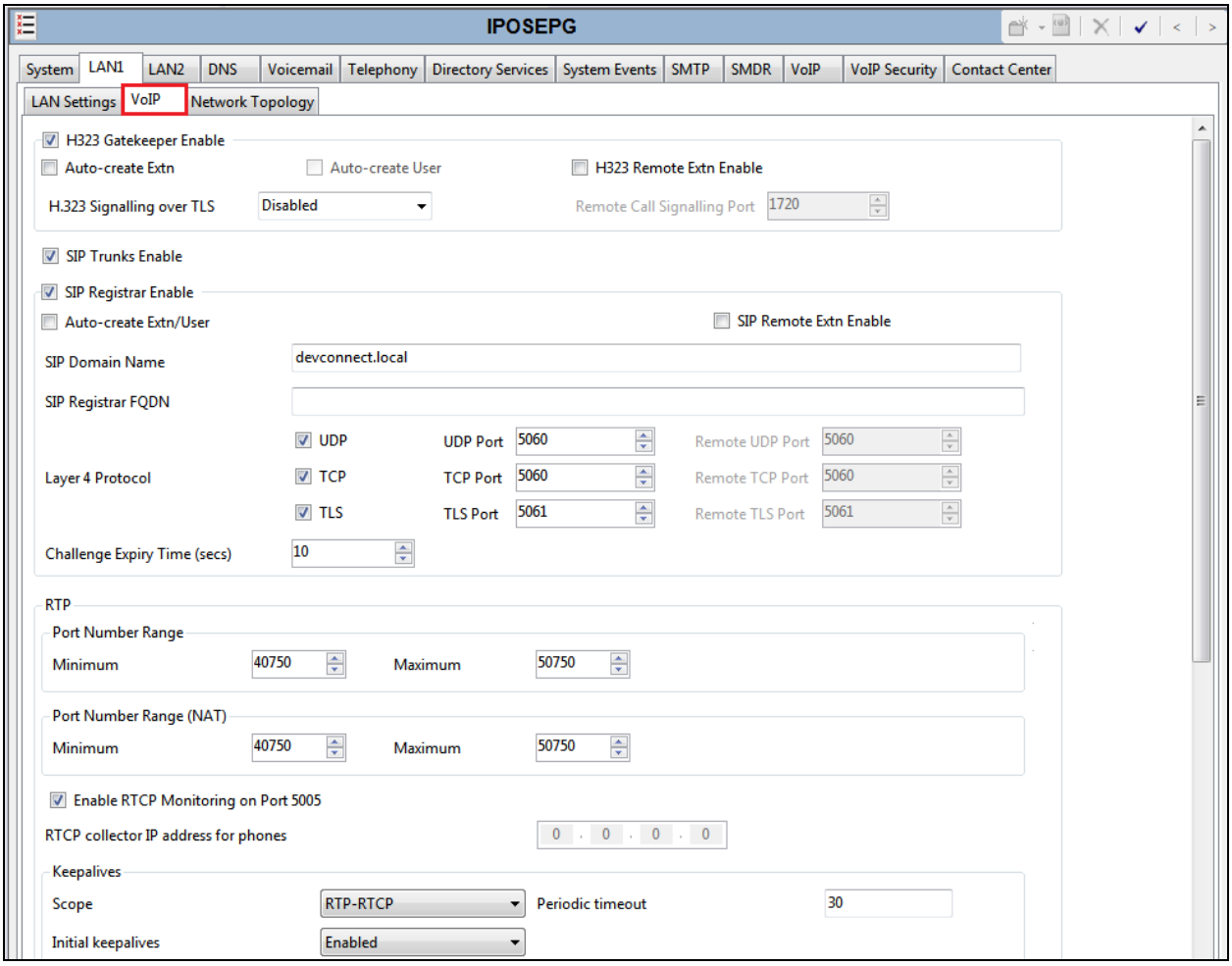
In the IP Office window expand the configuration tree in the left pane and double-click **System** (this may have a different name depending on the site). Select the **LAN Settings** tab within the **LAN1** tab and note the IP Address of the IP Office that will be required in **Section 6.1** for the configuration of the SIP Trunk on novaalert.



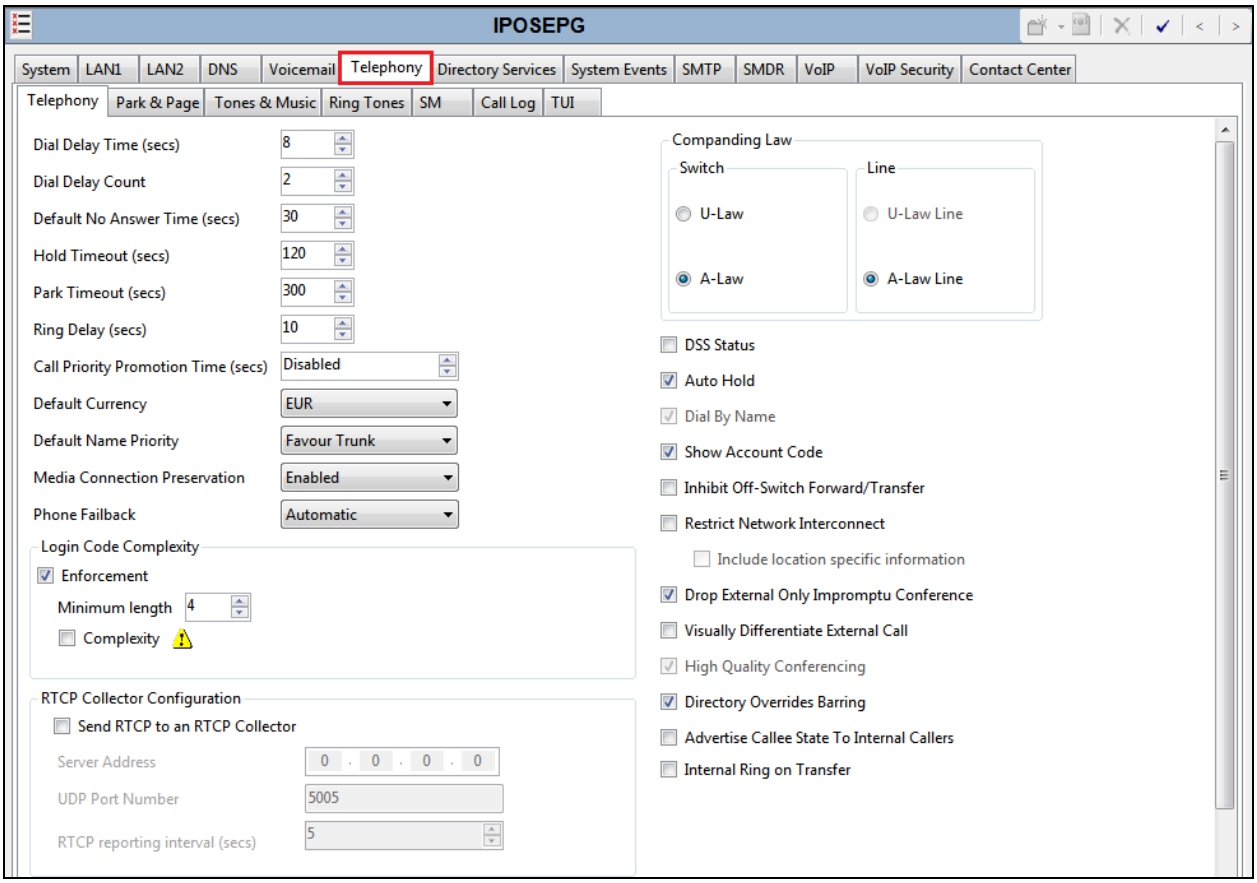
Click on the **VoIP** tab and ensure that the following are set correctly.

1. **SIP Trunks Enable**.
2. **SIP Registrar Enable**.
3. **Domain Name**, set this to the telephony domain name.
4. **UDP** set the UDP Port to **5060**.
5. **TCP** set the TCP Port to **5060**.

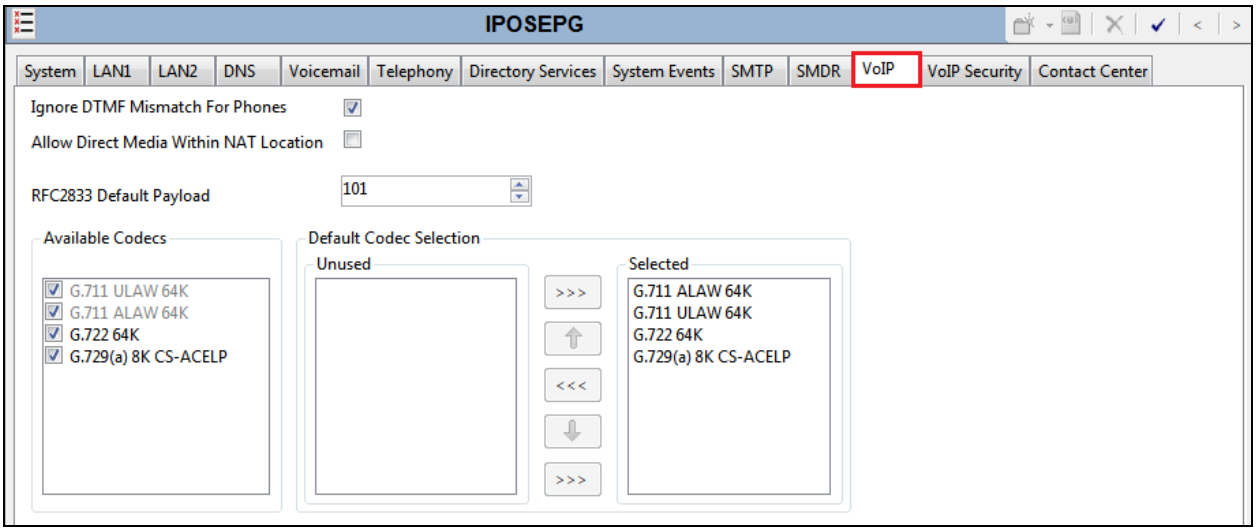
Note: novaalert uses UDP to connect to IP Office.



Click on the **Telephony** tab. Ensure that Telephony settings are correct for that particular setup. Below is just an example of what was used during compliance testing.

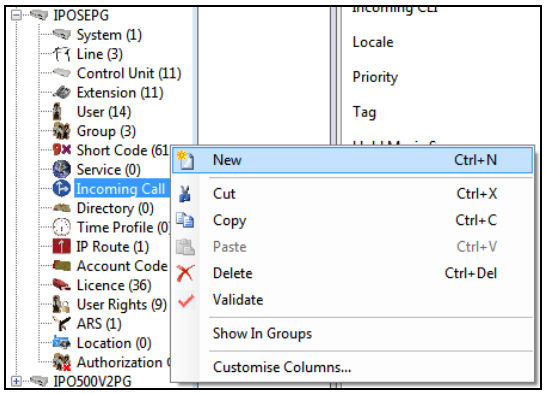


Click on the **VoIP** tab. Ensure that the correct codecs are selected. Again, below servers to show what was used during compliance testing.

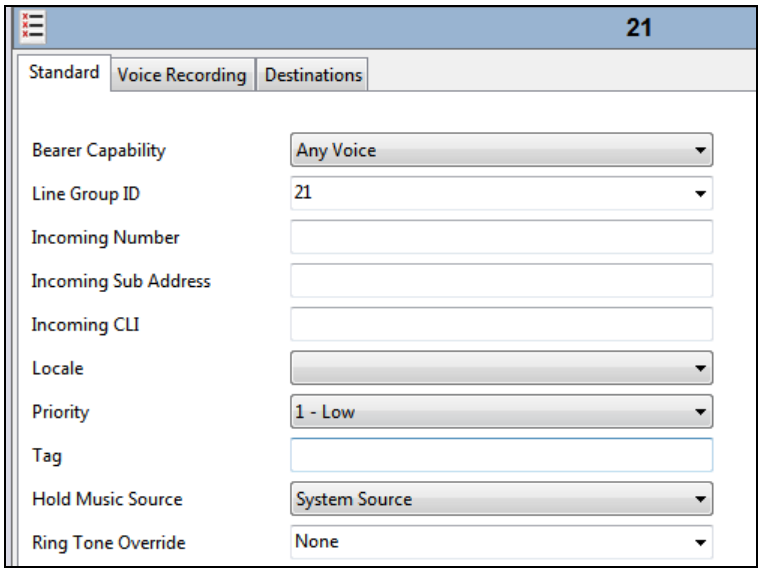


5.3 Configure Incoming Route for SIP Trunk

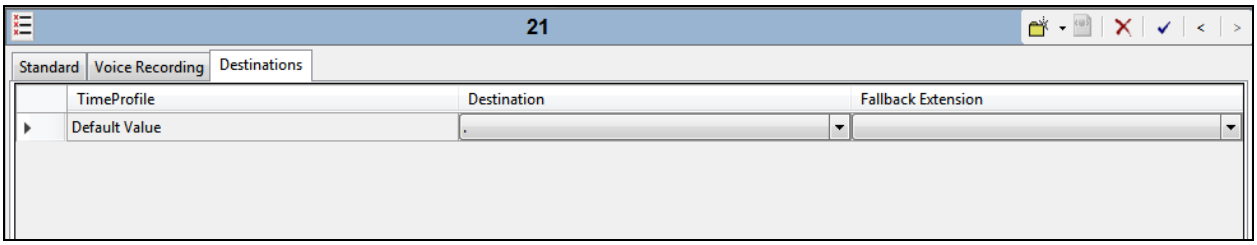
An incoming route must be added for the SIP trunk that will be setup in **Section 5.4**. Navigate to **Primary Server → Incoming Call Route**. Right click on Incoming Call Route select **New**.



From the **Standard** tab, enter the **Line Group ID;** this can be kept the same as the SIP Line that is to be created for convenience. **Bearer Capability** can be set to **Any Voice.**



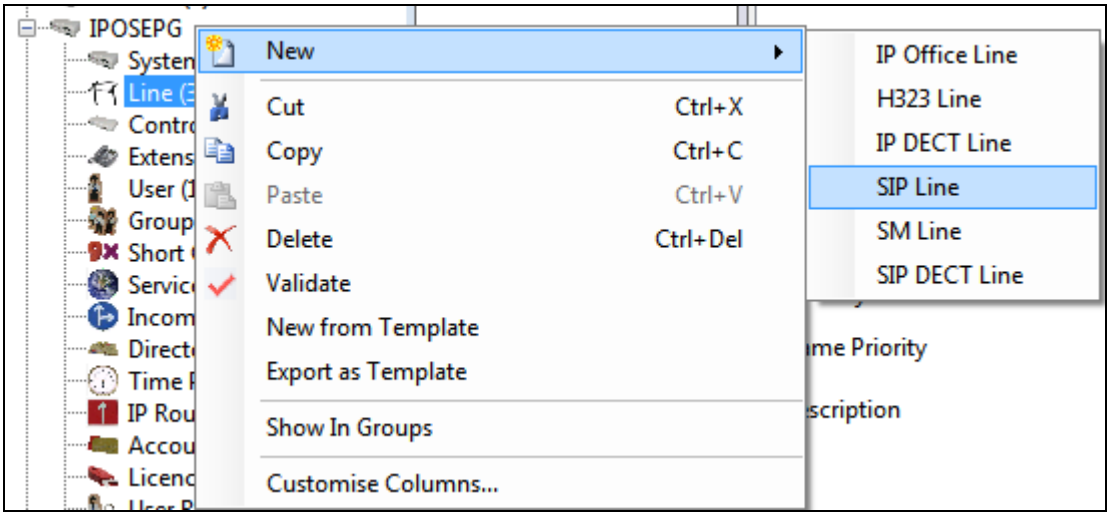
From the **Destinations** tab, select **.** for the **Destination**. Click on **OK** at the bottom of the screen (not shown).



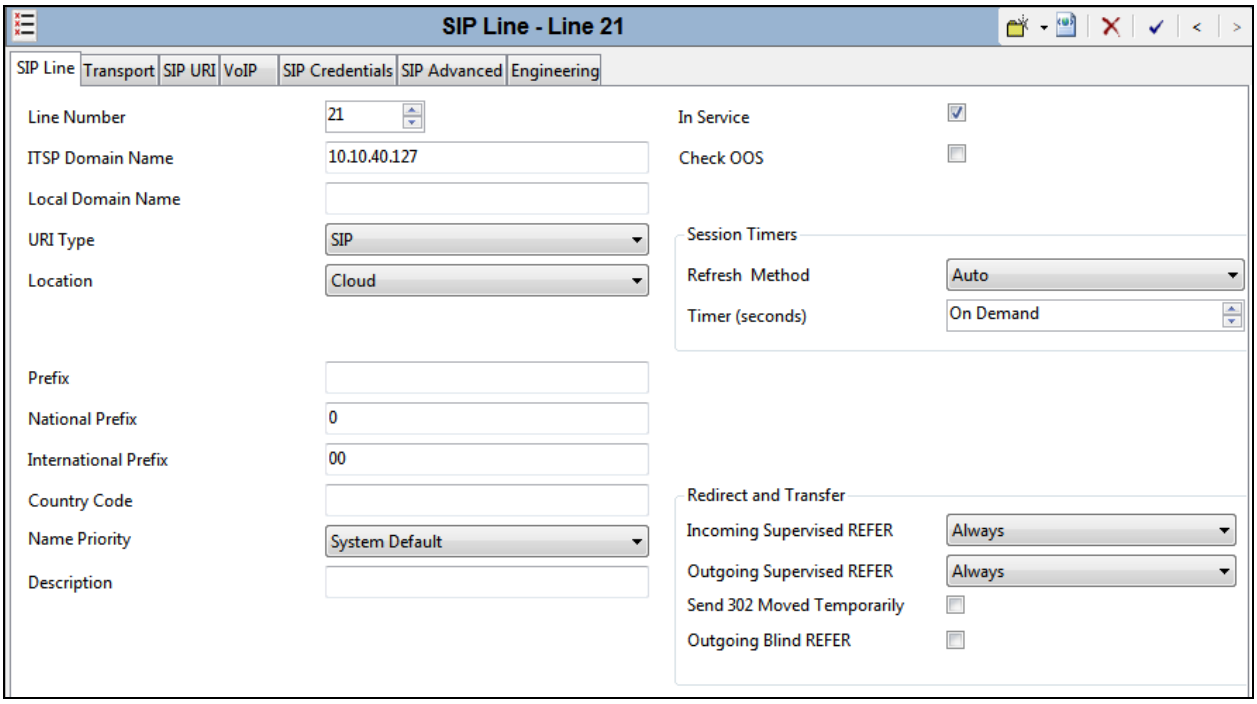
5.4 Configure SIP Trunk

This section shows how to add a new SIP Trunk in order to facilitate the connection to novaalert. Navigate to the Server Edition or the IP Office module that novaalert is connecting to. During compliance testing novaalert connected to the IP Office Server Edition using SIP trunks, the SIP Line was therefore created on the Server Edition.

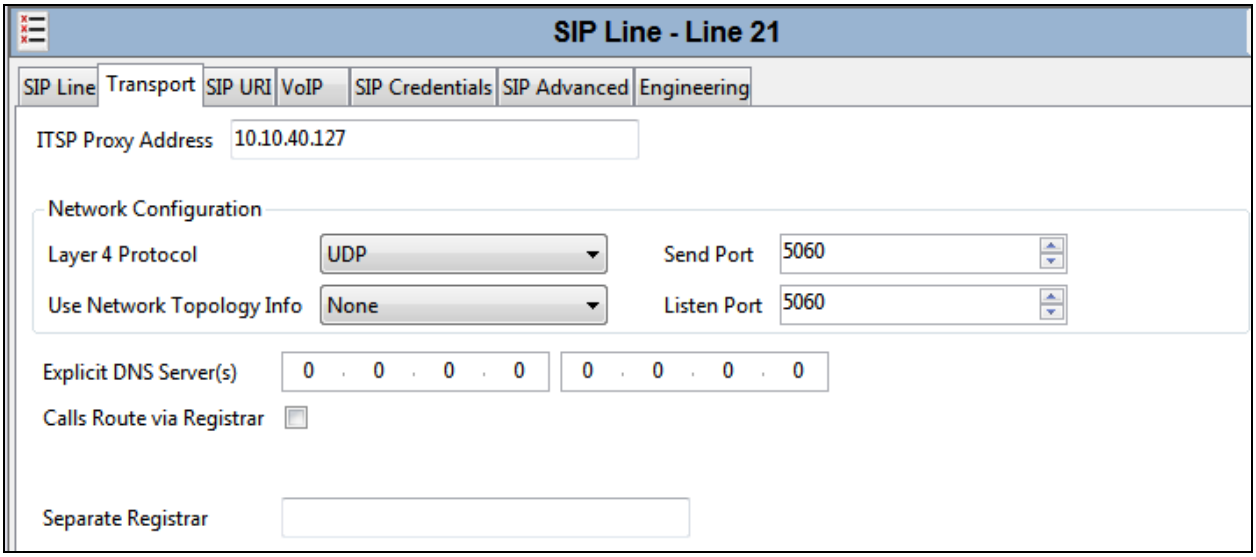
Navigate to **Primary Server → Line**, then right click on **Line** and select **New → SIP Line**.



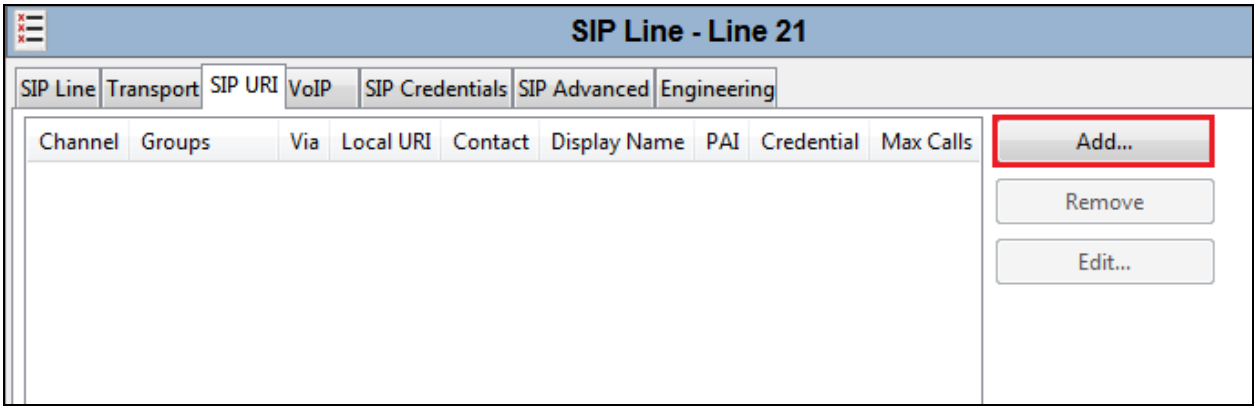
Click the **SIP Line** tab and select the new **Line Number** and insert the IP Address of the novaalert server for the **ITSP Domain Name**.



Click on the **Transport** tab and enter the IP Address of the novaalert server for **ITPS Proxy Address**. Ensure that the **Layer 4 Protocol** is set to **UDP** and that the **Send Port** and **Listen Port** are both set to **5060**.

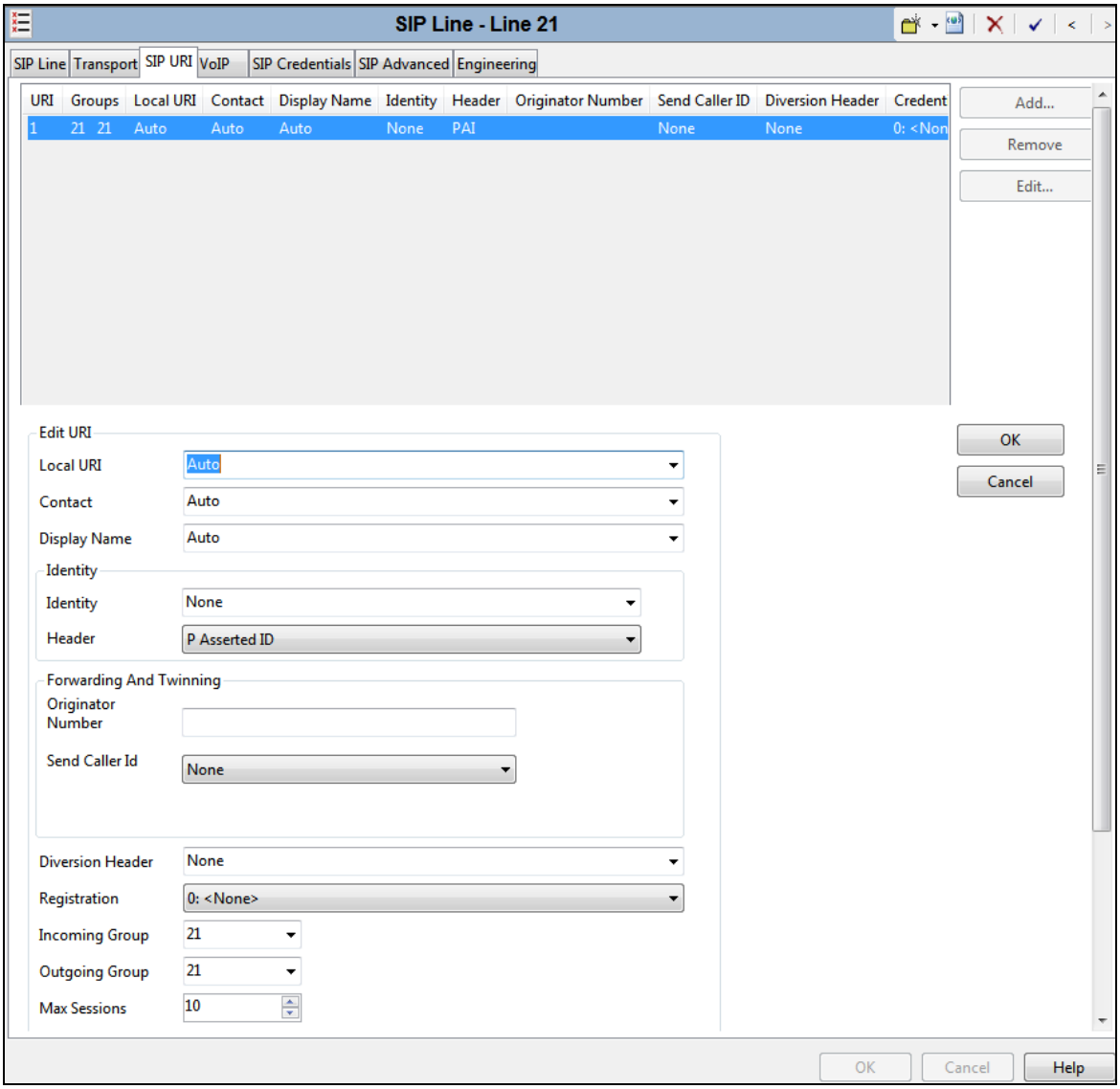


Click on the **SIP URI** tab and click on **Add**.

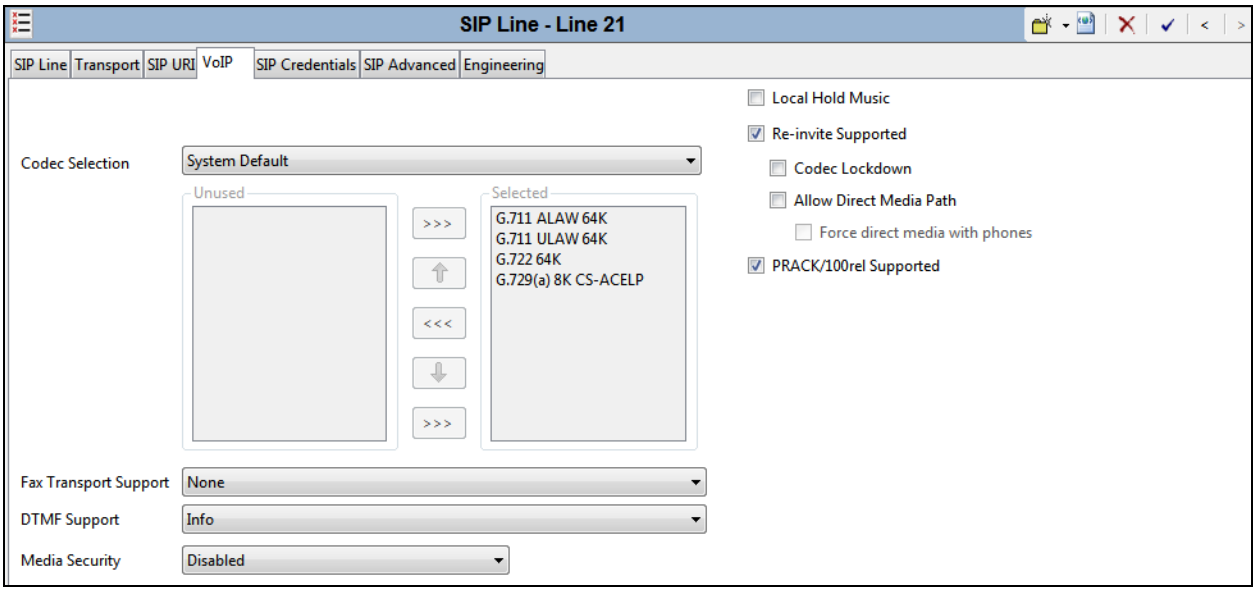


The following should be set as shown below; anything else can be left as default or as it is displayed in the screen shot below. Click on **OK** to continue.

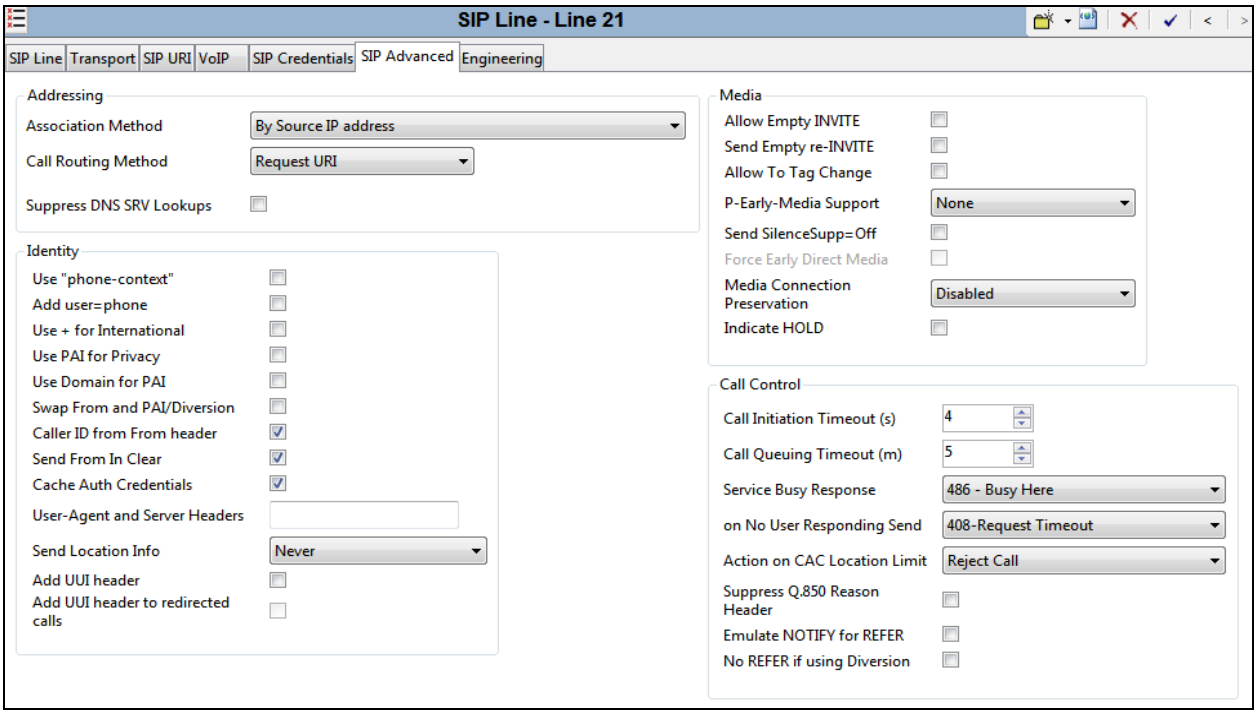
Local URI	Set to **Auto**
Contact	Set to **Auto**
Display Name	Set to **Auto**
Identity	Set to **None**
Incoming Group	Set to the incoming group number for the SIP trunk (**21** as per **Section 5.3**)
Outgoing Group	Set to the outgoing group number for the SIP trunk (**21** as per **Section 5.3**)
Max Calls per Channel	Will depend on the number of SIP Licenses on IP Office and novaalert



Select the **VoIP** tab and ensure that the correct **Codecs** are **Selected**. The **Re-invite Supported** and **Prack/100rel Supported** boxes are also ticked. **DTMF Support** must be set to **Info** in order to support the DTMF on novaalert which will be setup to use SIP INFO. Everything else can be left as default or as is shown below.



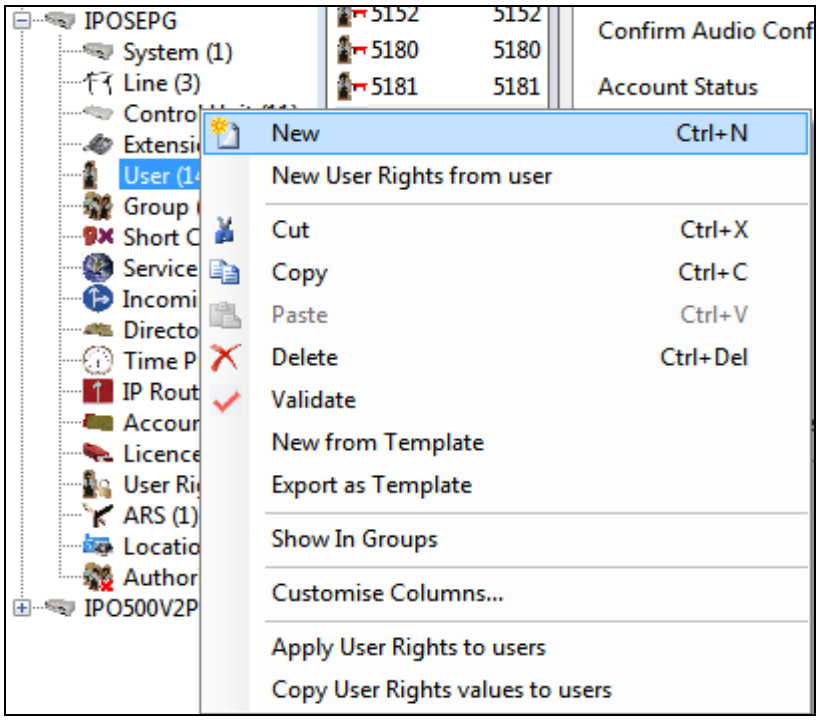
Under the **SIP Advanced** Tab, ensure that **Caller ID from From header** and **Send From In Clear** are both ticked. Click on **OK** at bottom of screen (not shown) and that will complete the **SIP Line** setup.



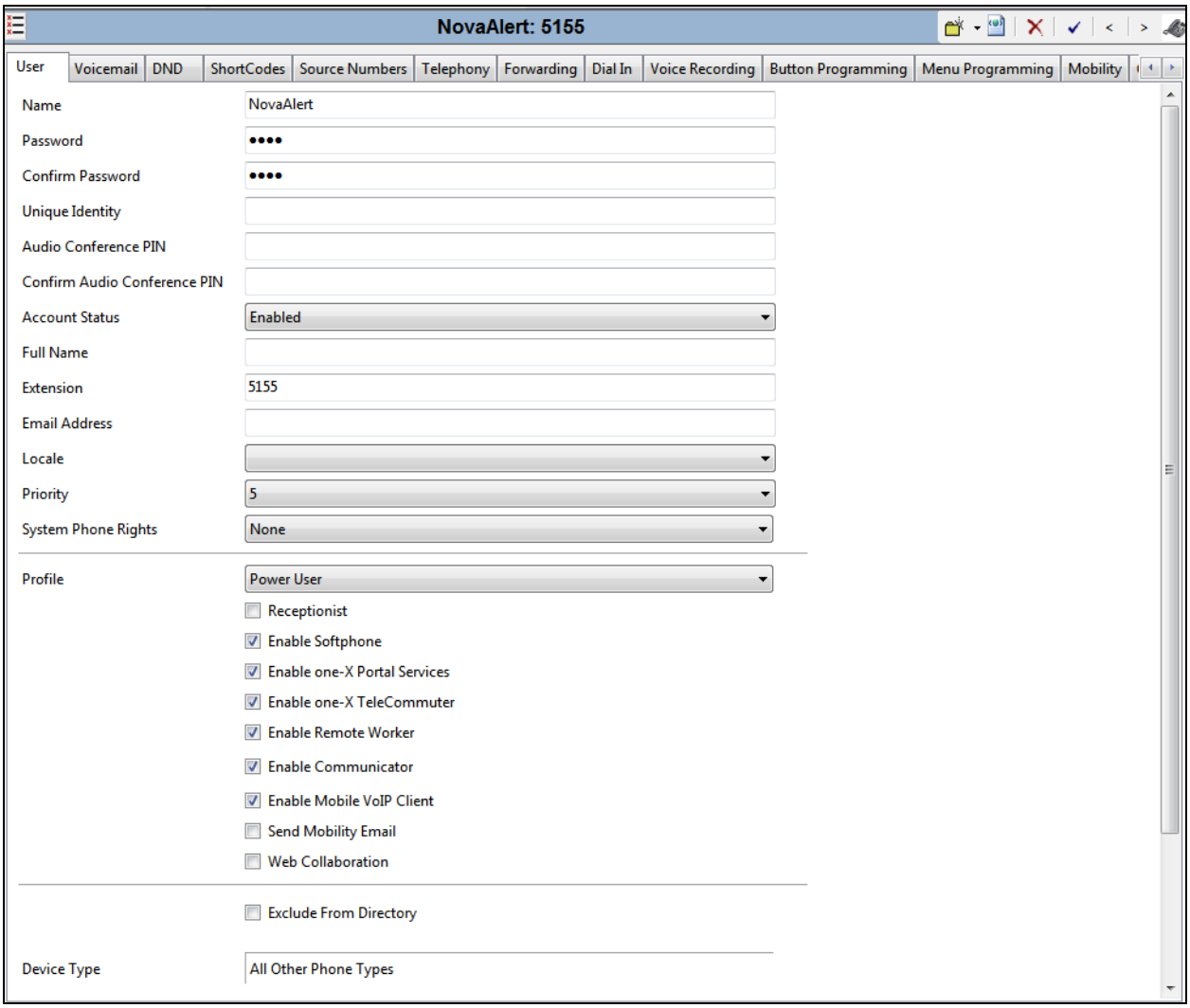
5.5 Configure User for Mobile Call Control

A new user needs to be created on IP Office in order to use FNE - Mobile Call Control. The FNE Short Code is used by novaalert in order to initiate the Call Intrude and Coaching Intrusion Short Codes.

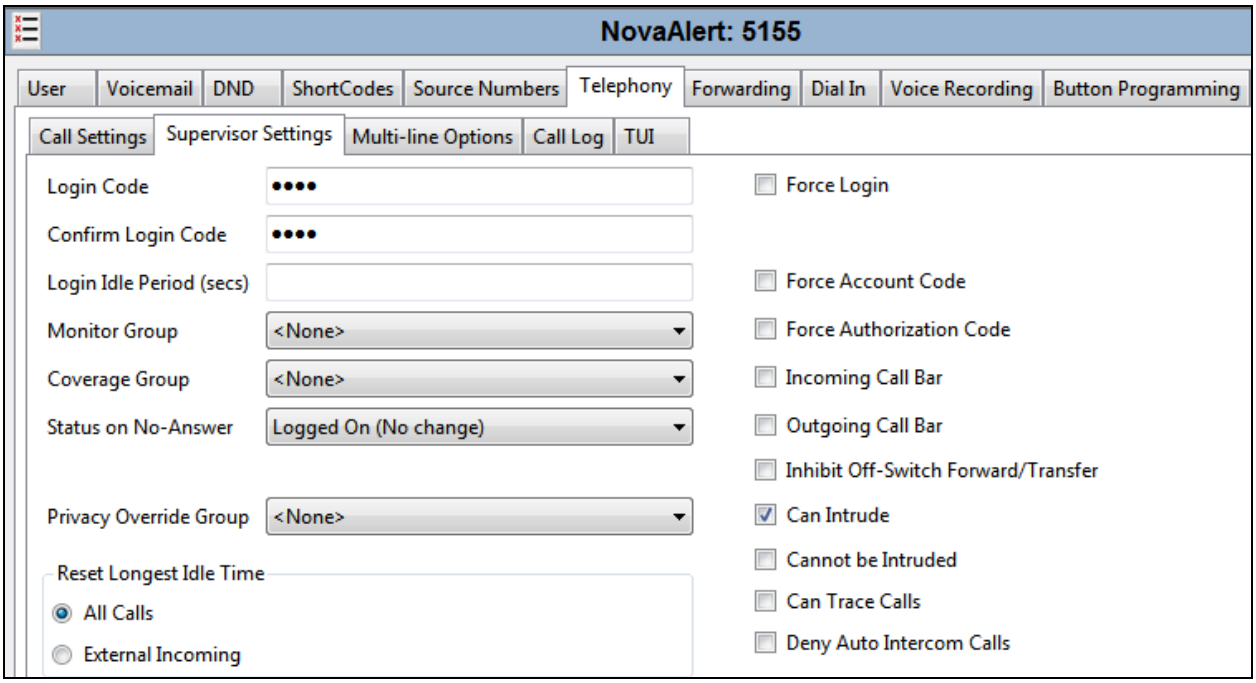
Navigate to **Primary Server → Users** and right-click and select **New** as shown below.



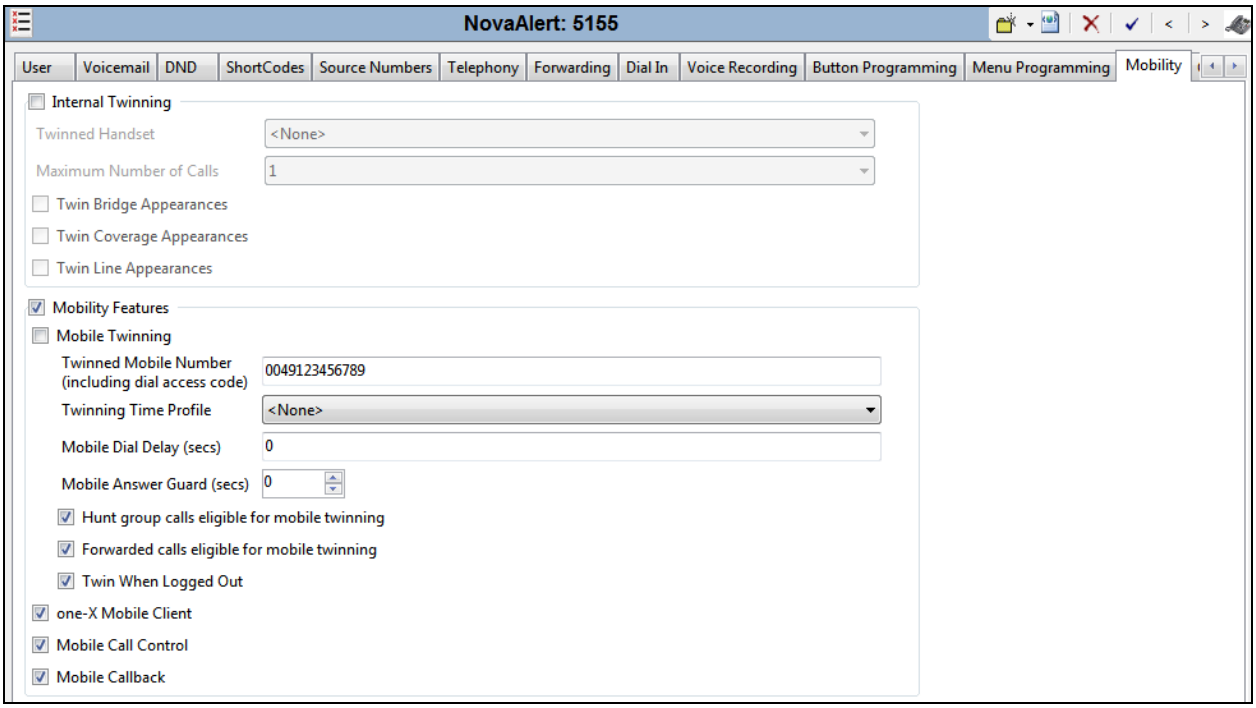
Under the **User** tab, enter a suitable **Name**, **Password** and **Extension** and ensure that **Power User** is selected as the **Profile**.



Under the **Telephony** tab and again under the **Supervisor Settings** tab ensure that **Can Intrude** is ticked as shown.

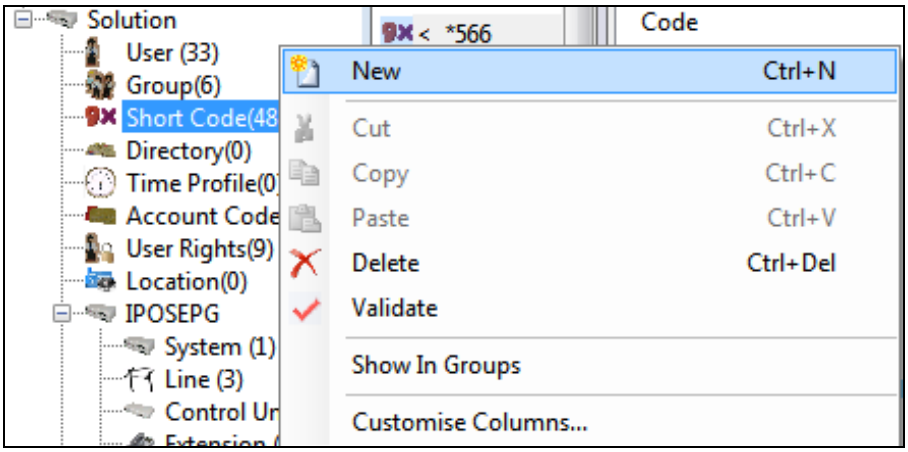


Under the **Mobility** tab tick the **Mobility Features** box and enter the number associated with novaalert, this is the number configured in **Section 6.1**. Ensure that all the tick boxes shown below are selected. Click on **OK** at the bottom of the screen to complete the setup (not shown).



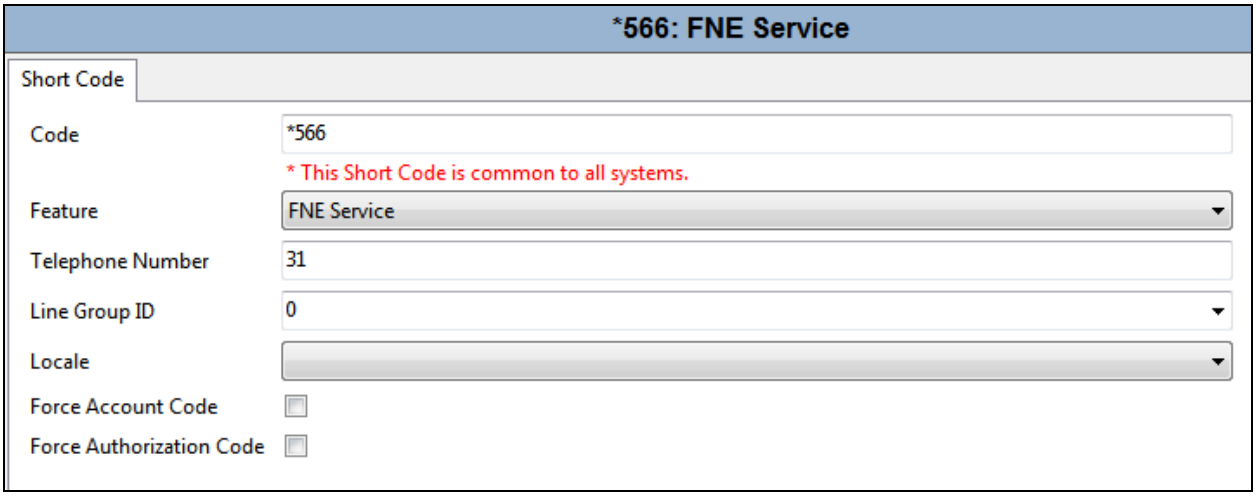
5.6 Configure Short Codes

Short Codes can be created for both systems, i.e., both the Primary Server and the Expansion Server. A short code such as Call Intrude or Coaching Intrusion would need to be created across all systems so navigate to **Solution → Short Code**, right-click on **Short Code** and select **New** as shown.



5.6.1 Short Code for FNE Service

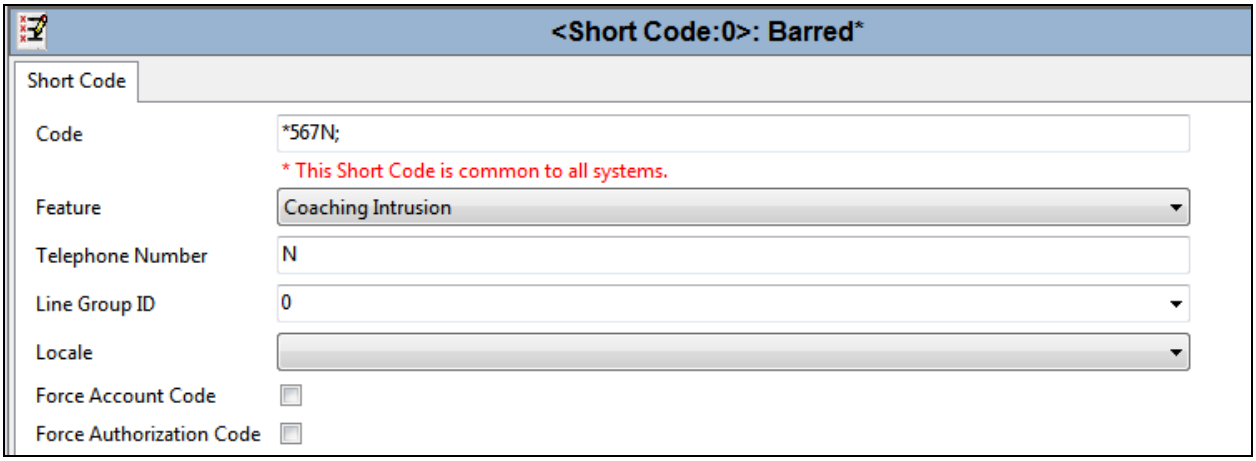
FNE – Mobile Call Control is used to allow a user called or calling the system to invoke mobile call control and to then handle and make calls as if they were at their system extension. FNE **31** is setup as a short code and this is done as shown below. ***566** is used to initiate the **FNE Service** and this will be configured on the novaalert system in **Section 6.1**.



5.6.2 Short Code for Coaching Intrusion

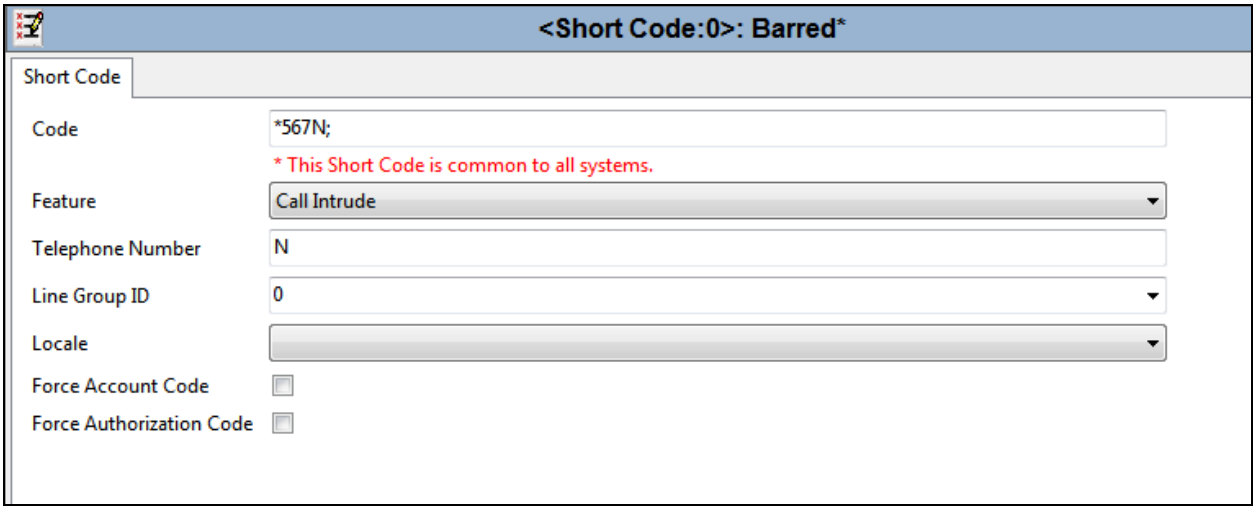
Coaching Intrusion is used in order to break in on an existing call when the phone set is busy. ***567N;** was used for this Short Code where N is the number that was dialled. This same Short Code will be configured in **Section 6.1**.

Note: Each user must have "Cannot be intruded" unchecked under the telephony tab.



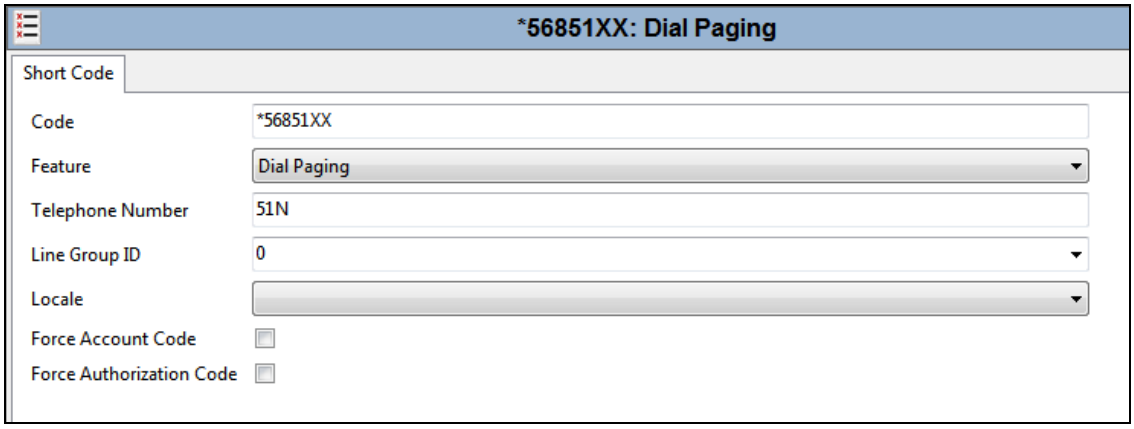
5.6.3 Short Code for Call Intrude

The same Short Code is illustrated here for Call Intrude. Note that the difference between Call Intrude and Coaching Intrusion is that Coaching Intrusion allows the Alarm to intrude on another user's call and play without being heard by the other call parties to which they can still talk. Call Intrude will play the Alarm to all users on the call.



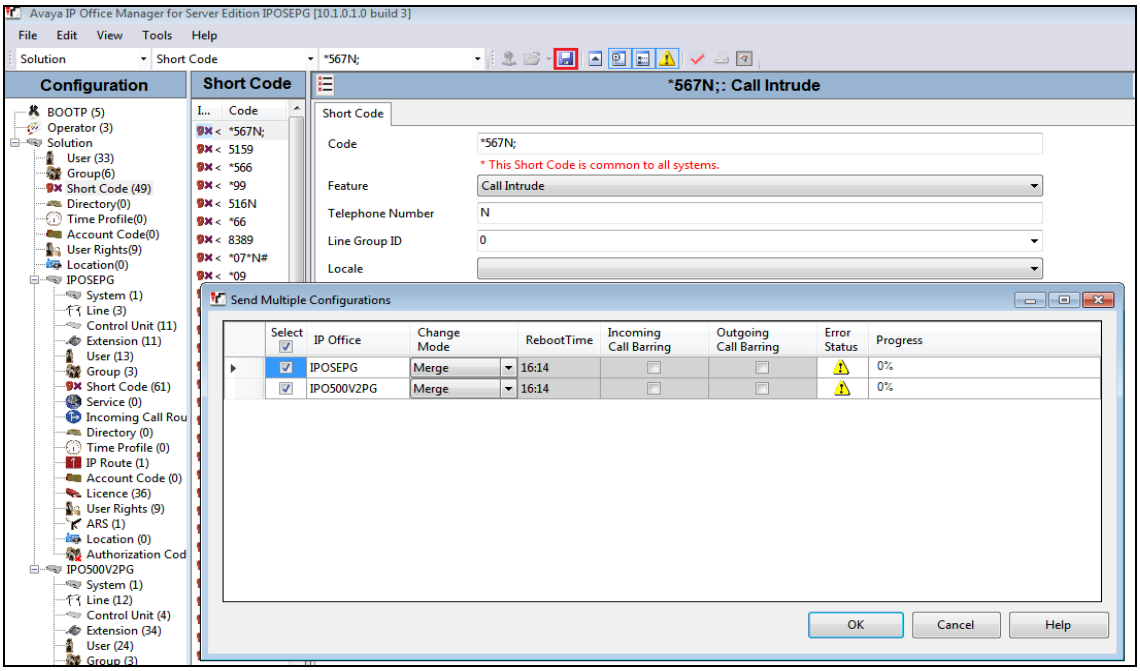
5.6.4 Short Code for Dial Paging

Dial paging is used to play an alarm directly to the phoneset speaker. When novaalert uses this short code with the extension number, that alarm gets played out on the extension's speaker. ***568** was used as the Short Code for **Dial Paging**, seeing as 51xx is the extension range for the Primary Server the full Short Code is ***56851XX** and this was used to initiate the alarm to extensions 51xx.



5.7 Save Configuration

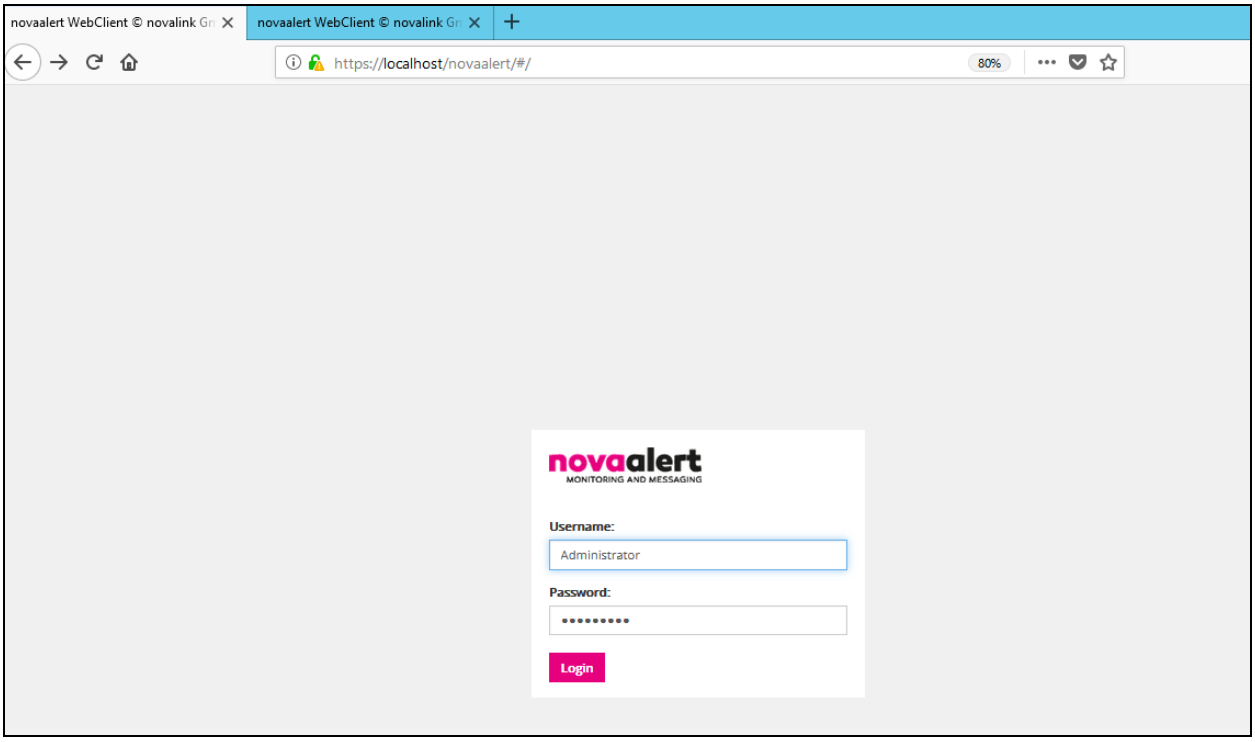
Once the configuration has been made it must be sent to the IP Office. Click on the **Save** Icon at the top left of the screen as shown below. Once the **Save Configuration** window opens, either the **Merge** or **Immediate** button will be filled in depending on the changes that are made. Click on the **OK** button.



6. Configuration of novaalert

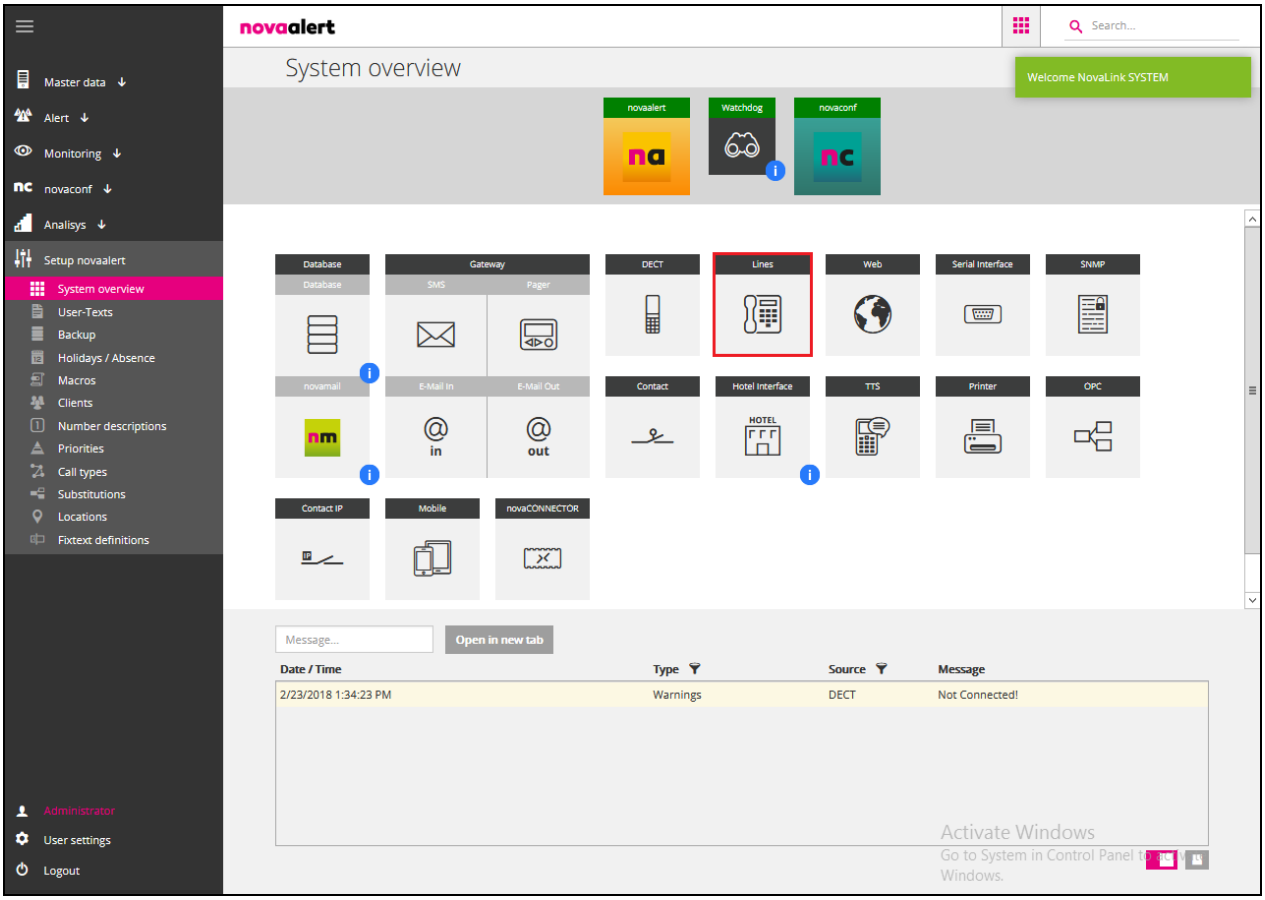
It is assumed that novaalert is already installed and configured by a novalink engineer. The following shows the steps that can be carried out in order to make changes or to examine a working system. The screen shots were taken after compliance testing was completed successfully and will show the configuration that was used for a successful integration to IP Office. This can be used as an example of a fully working system.

All configuration changes are made to novaalert using a web browser session to the novaalert server. Open a web browser session to the IP Address of the novaalert server followed by /novaalert, for example, for compliance testing **https://localhost/novaalert** was used. The following screen shown is asking for the **User Name** and **Password**, enter these and click on the **Login** button.

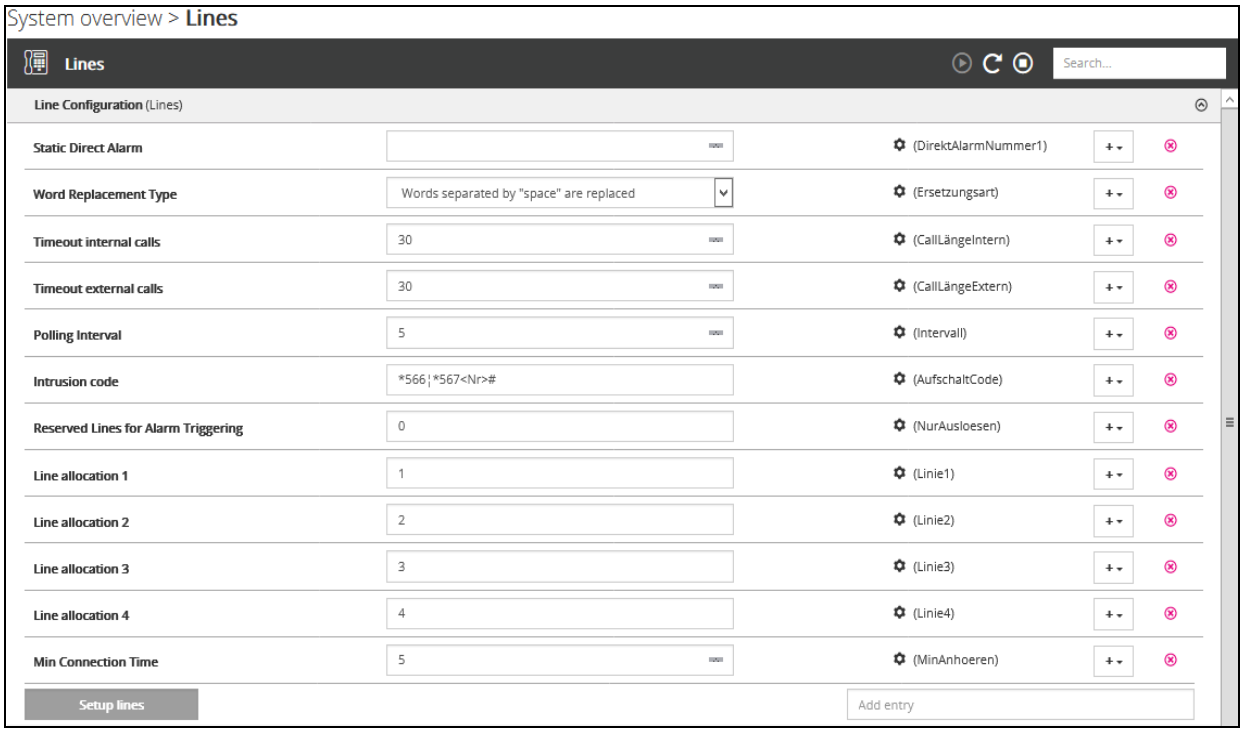


6.1 Connection setup to Avaya IP Office (SIP trunk connection)

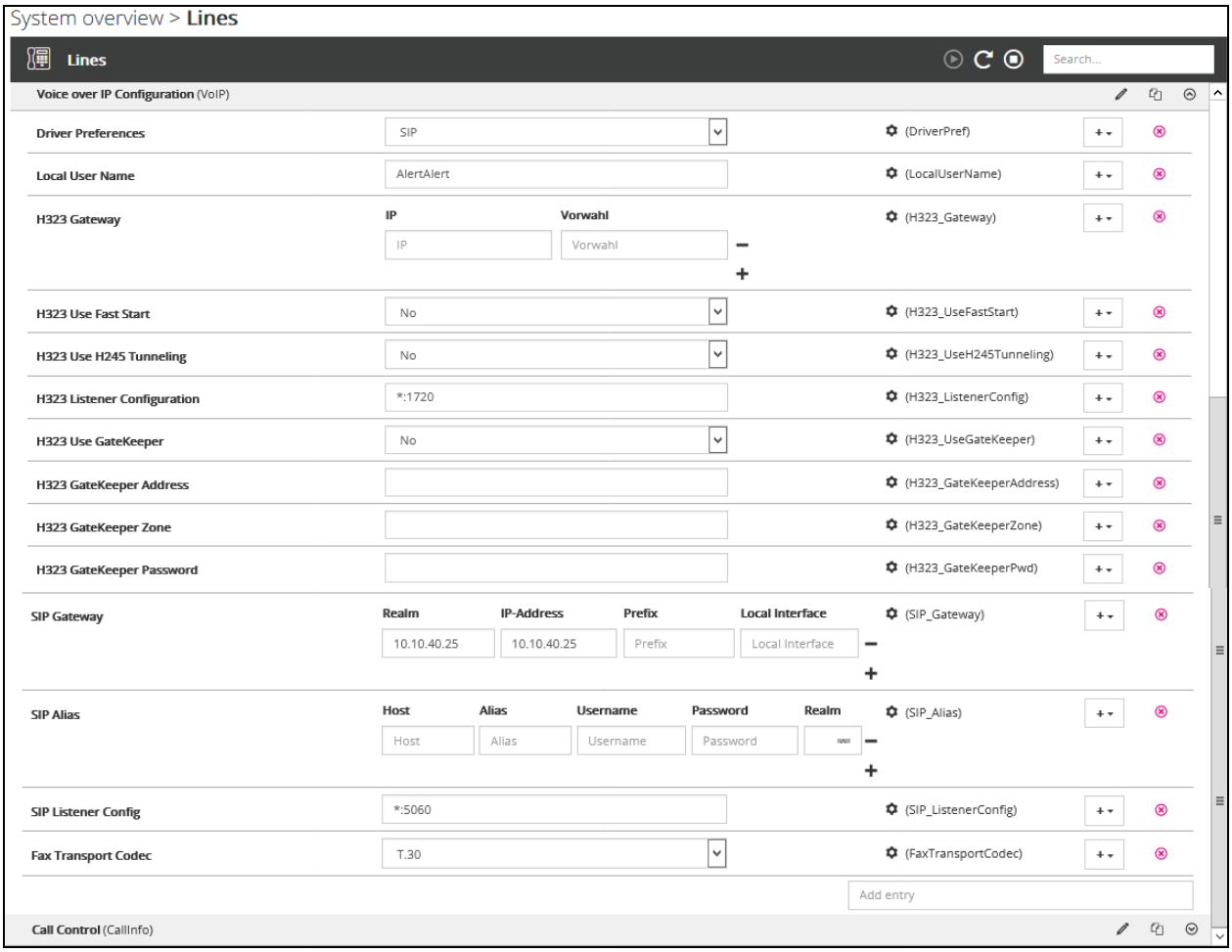
Once logged in, the following screen is presented to the user. Click on the **Lines** icon, highlighted below. All configuration with regards to the SIP connection to IP Office is set in this area.



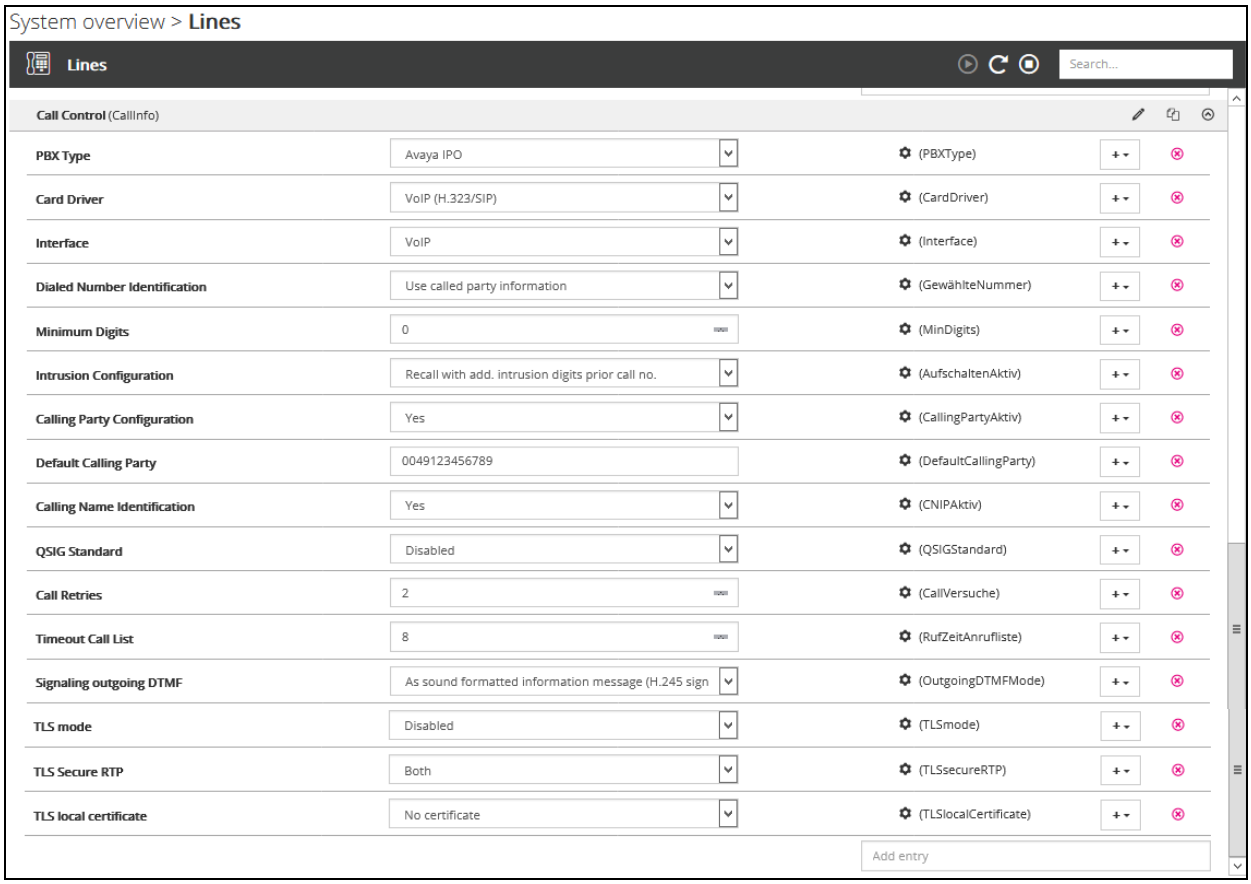
The first section shows the **Line Configuration**. This was the setup used for compliance testing; the most notable field is the Intrusion Code which is referenced in **Section 5.6**. The **Intrusion code** is entered using the FNE short code first followed by the Call Intrude/Coaching Intrusion short code and this looks like ***566¦*567<Nr>#**. This will call *566 first then using the FNE Mobile Call Control Service using that *567xxxx# is entered using DTMF.



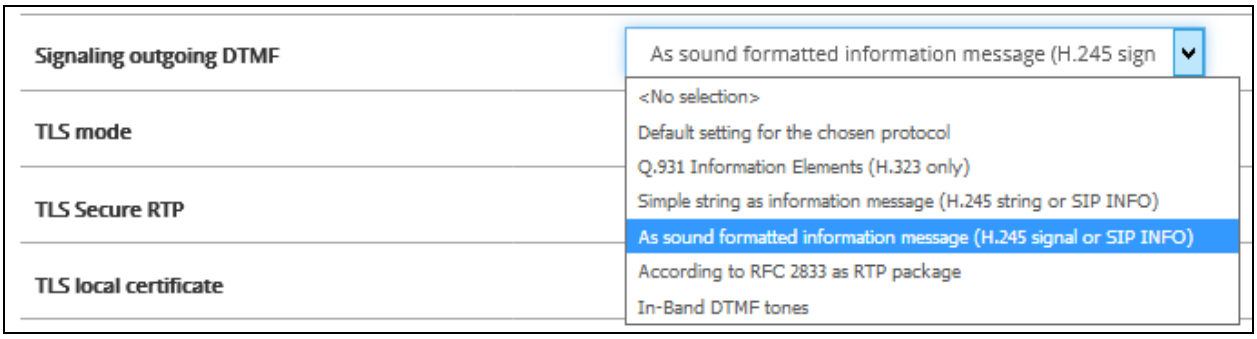
Select **Voice over IP Configuration** which is the next section. The settings shown below are what were used during compliance testing. Most notable that being **Driver Preferences**, which should be set to **SIP** and the **SIP Gateway** which has the IP Address of the IP Office Primary Server as per **Section 5.1**.



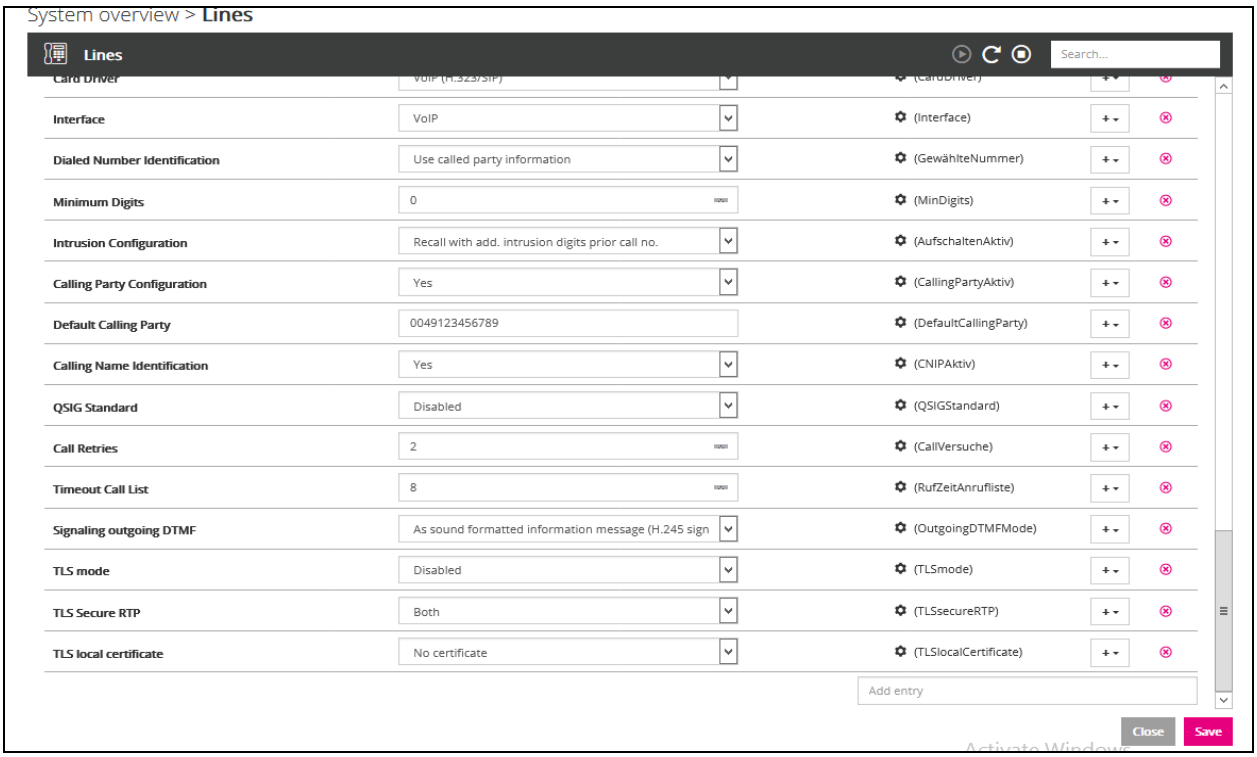
Click on **Call Control**, which is the next section down. The following shows the configuration used for compliance testing. The **PBX Type** is set to **Avaya IPO** and the **Card Driver** set to **VoIP (H.323/SIP)**. The **Default Calling Party** is entered and this much match exactly the Twinned Mobile Number configured for the FNE User in **Section 5.5**. **Signaling outgoing DTMF** is chosen as shown on the next page.



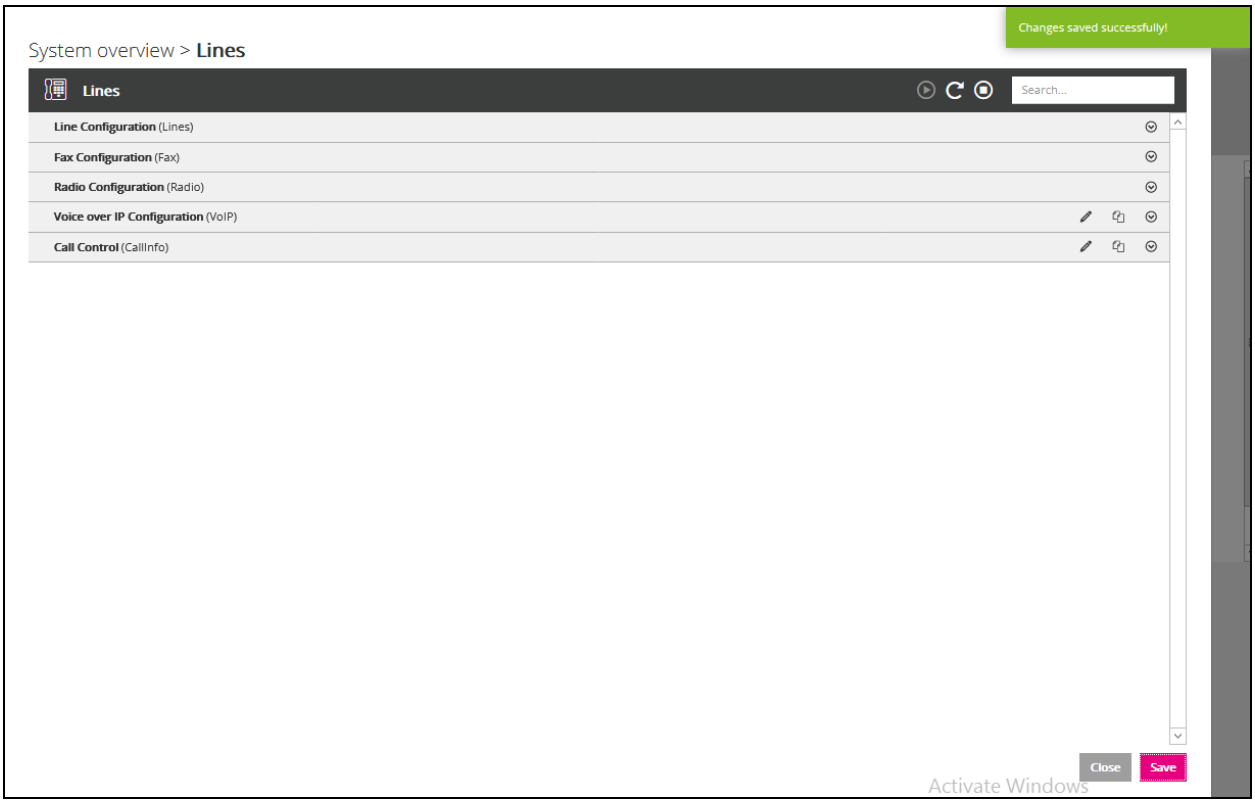
Signaling outgoing DTMF will determine what DTMF is used by novaalert when sending digits to IP Office. For compliance testing SIP Info was used and this must be set up on the SIP Line as shown in **Section 5.4**. The corresponding setting here is **As sound formatted information message (H.245 signal or SIP INFO)**.



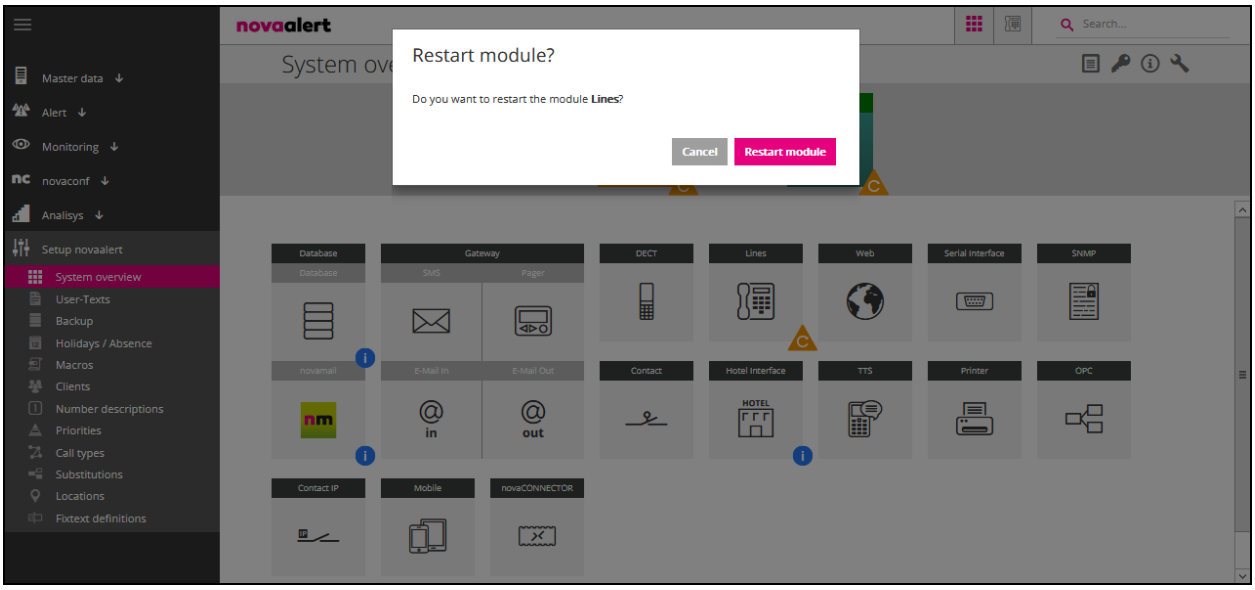
With this all set, click **Save** at the bottom right of the screen.



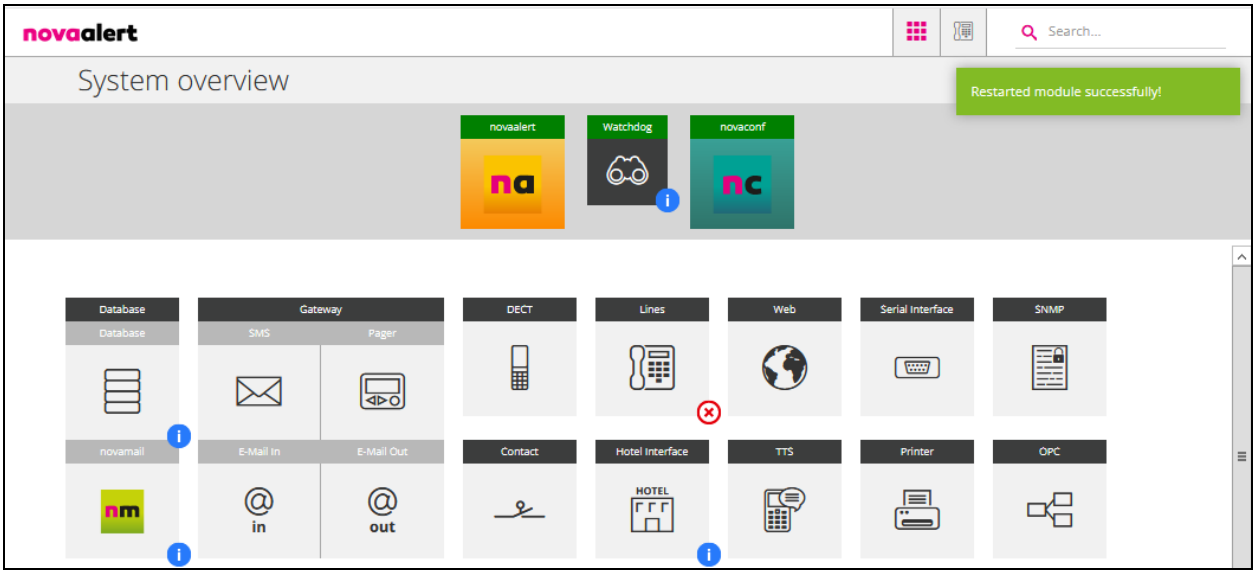
Changes saved successfully should be displayed at the top right of the screen and **Close** can then be clicked at the bottom right.



Once the setup is saved click on the **C** "triangle icon" under the **Lines** icon and the following screen is popped asking to **Restart module?**, click on **Restart module**.



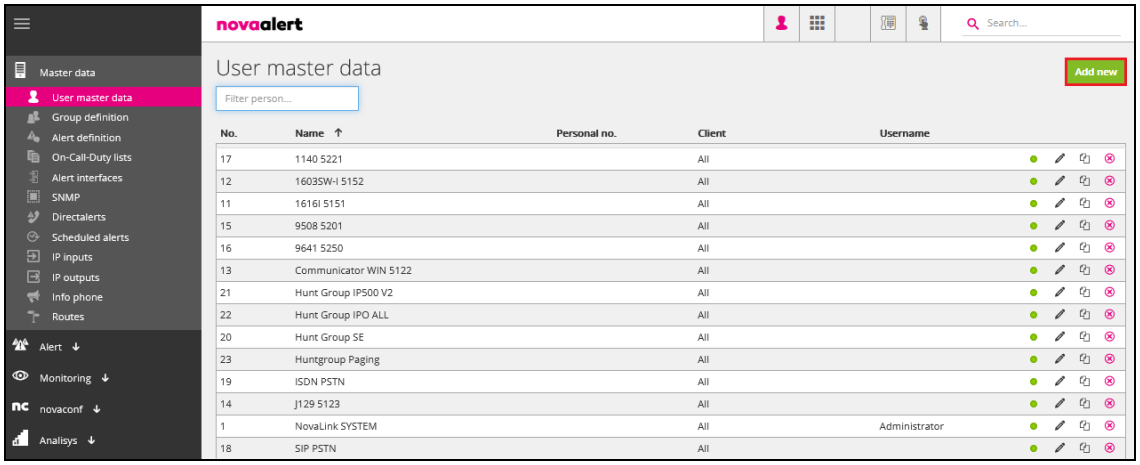
A message is displayed in the top right corner saying **Restarted module successfully**.



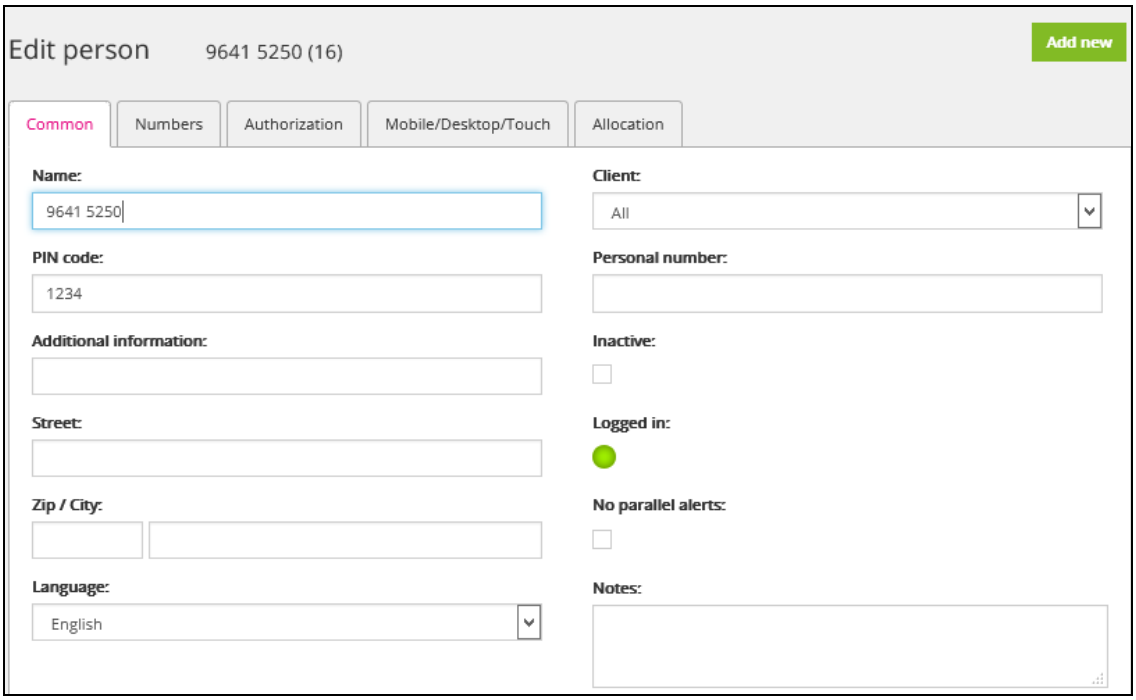
6.2 Creating an Alarm for Avaya IP Office

An alarm can be created and sent to a single IP Office user or a group of IP Office users. This section outlines the steps required to create an alarm that is ready to be sent.

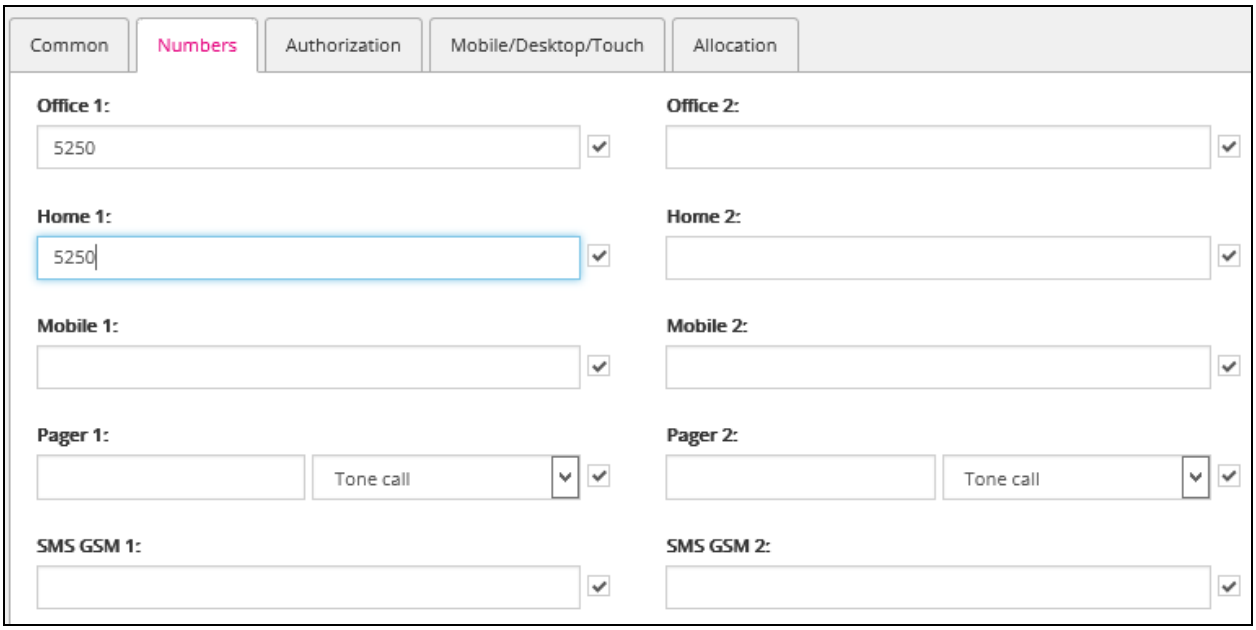
In order to send an alarm to IP Office, a user/extension will need to be added. This extension is then called by novaalert when the alarm is activated. From the main menu, navigate to **Master data → User master data**. In the main window select **Add new** as shown below.



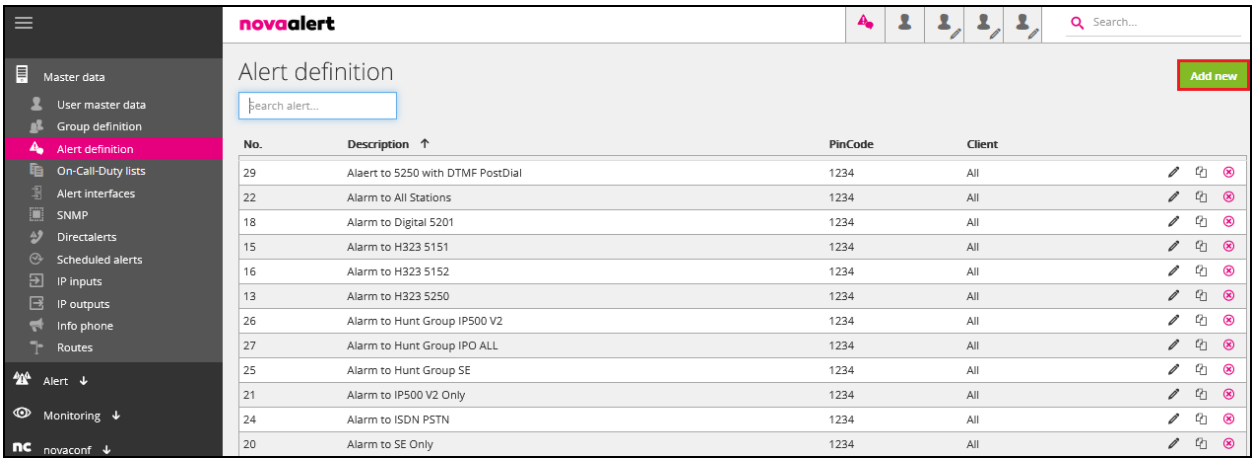
Note: The following screens show the data for an existing user, these are used to demonstrate what is required when adding a new user. Click on the **Common** tab and enter a suitable **Name** and **PIN code**.



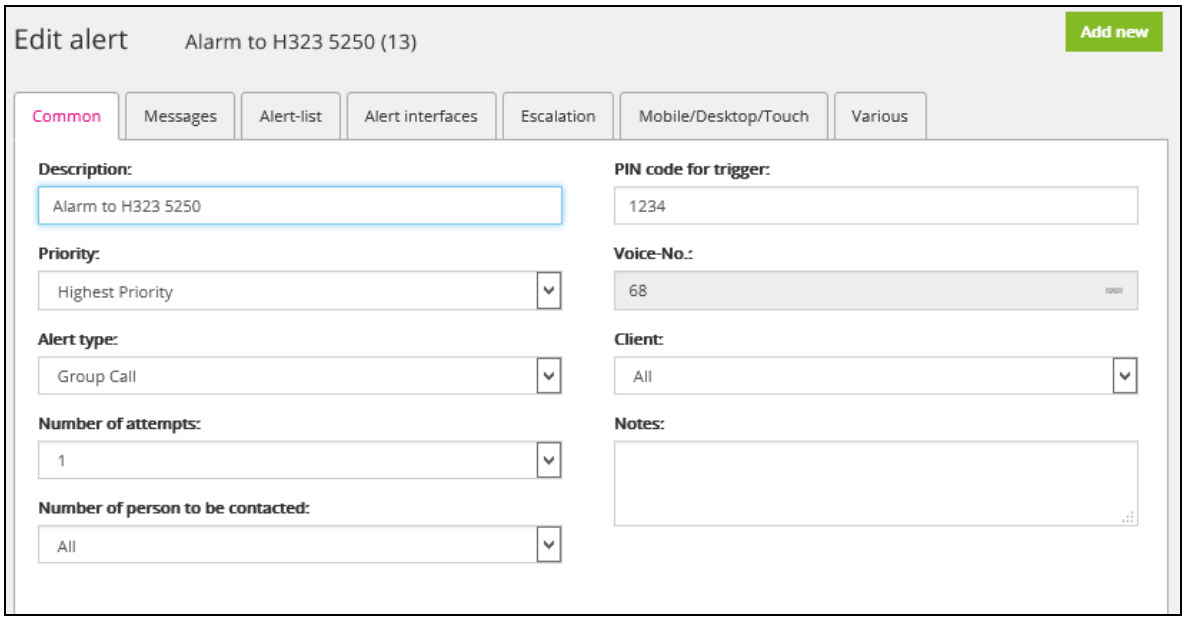
Click on the **Numbers** tab and enter the IP Office telephone number for this user and click on **Save Changes** at the bottom of the screen (not shown).



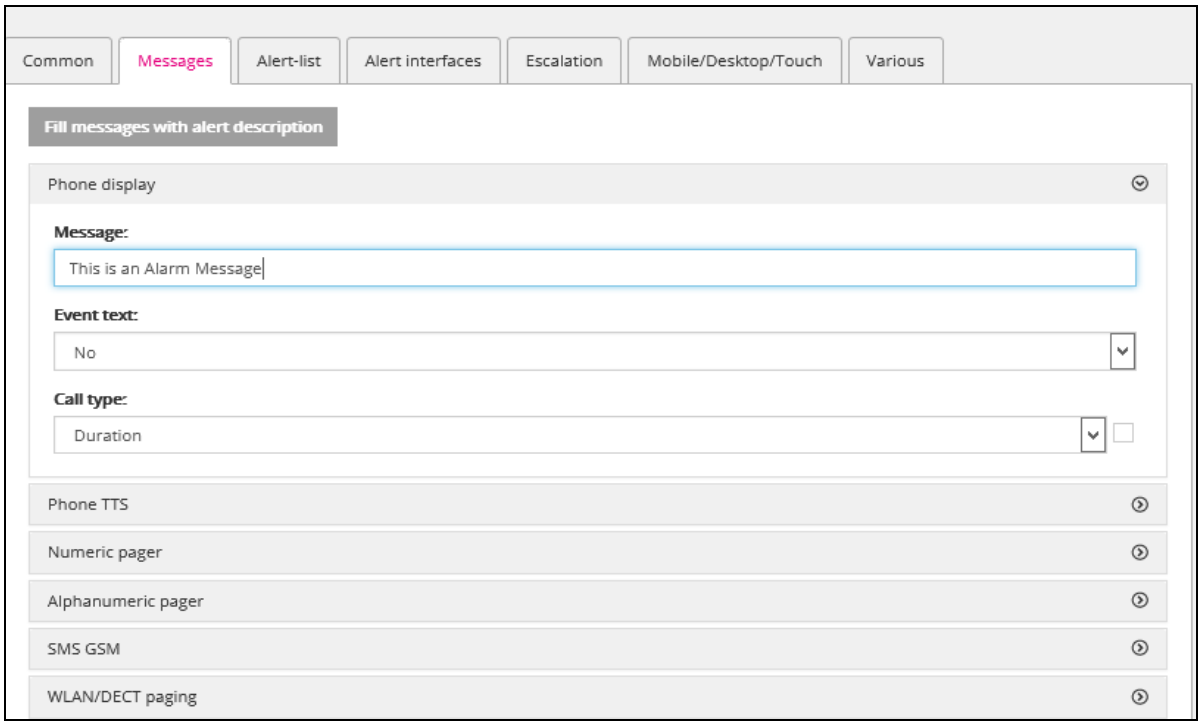
The next step is to create the Alert Definition, navigate to **Alert definition** in the left window and click on **Add new** in the main window.



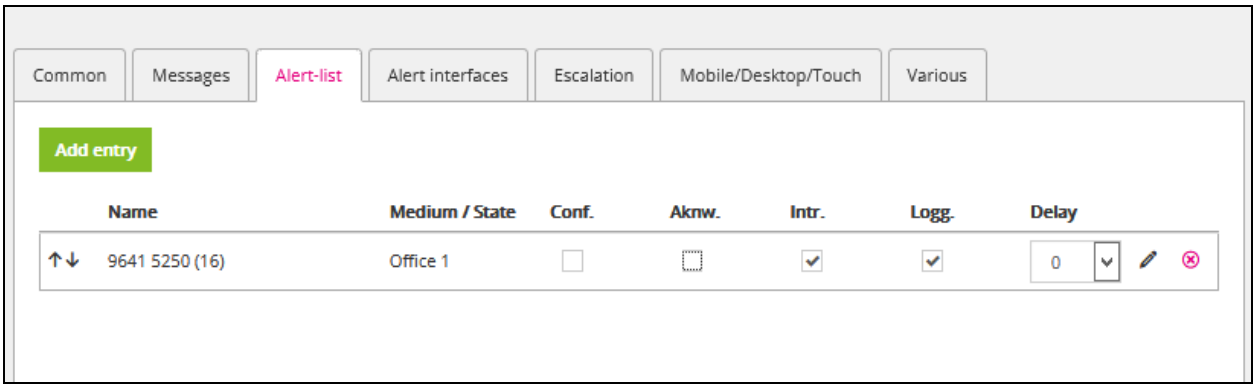
Again this example below shows an existing Alert but is used to demonstrate what needs to be configured for any Alert definition. Click on the **Common** tab and enter a suitable **Description**. The **Alert type** can be set depending on the type of Alert; this was set to **Group Call** for the example below. A **PIN code for trigger** also needs to be added.



Click on the **Messages** tab, a message can be delivered to the phone set display by opening the **Phone display** section and entering a suitable **Message** as shown below.

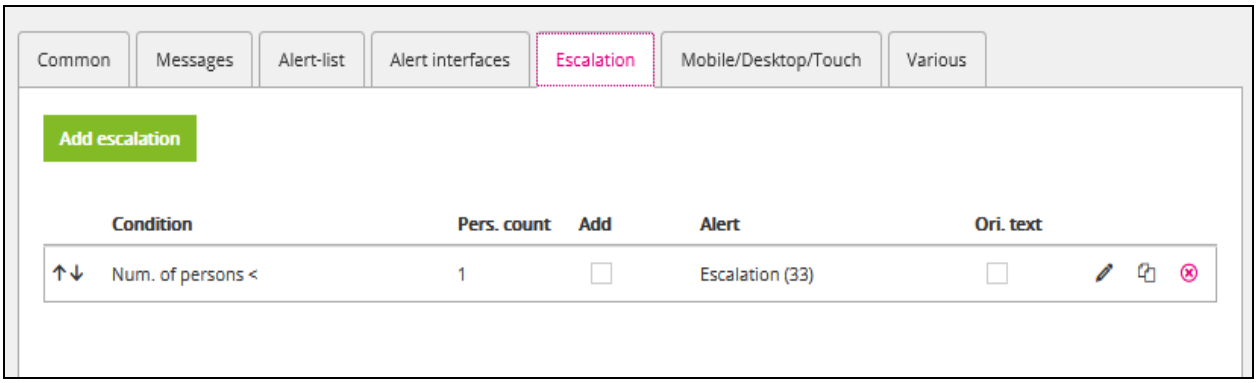


The list of users to be alerted by this alarm is entered under the **Alert-list** tab. In the example below one user **5250** (that created previously in this section) was added. However, a number of users can be added here depending on who should receive the alarm. The **Intr.** tick box was checked which would allow call intrusion for this user. If the user is busy then the alarm can intrude on the call and get played.



Under the **Escalation** tab an Escalation can be added in order to send the alarm to another user such as a manager or perhaps a secretary if the initial user fails to answer the alarm. This escalation must be configured first (not shown here) but can then be referenced under this Escalation tab.

Click on **Save** at the bottom right of the screen (not shown below) and this will save the Alert Definition. This concludes the setup of an alarm that will be sent to this IP Office user 5250.

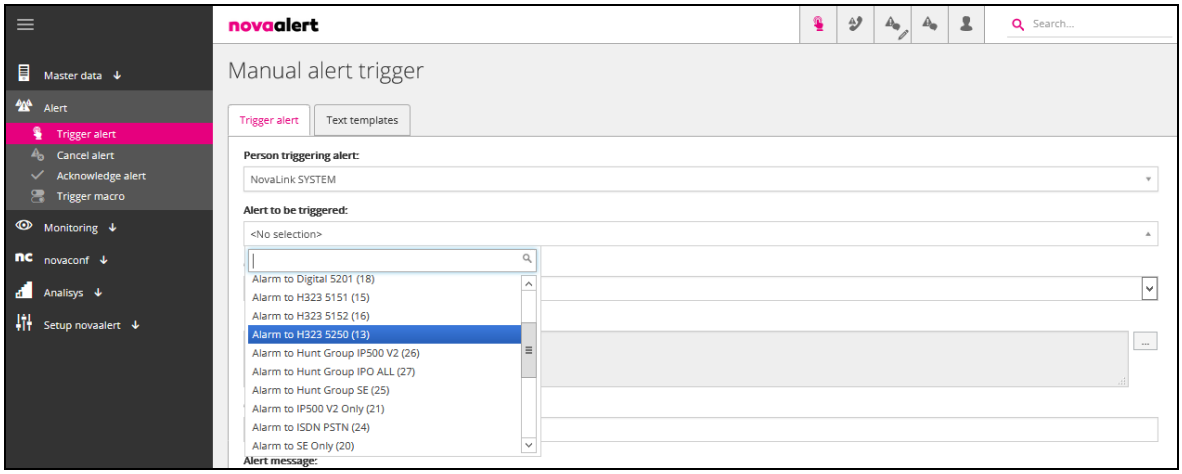


7. Verification Steps

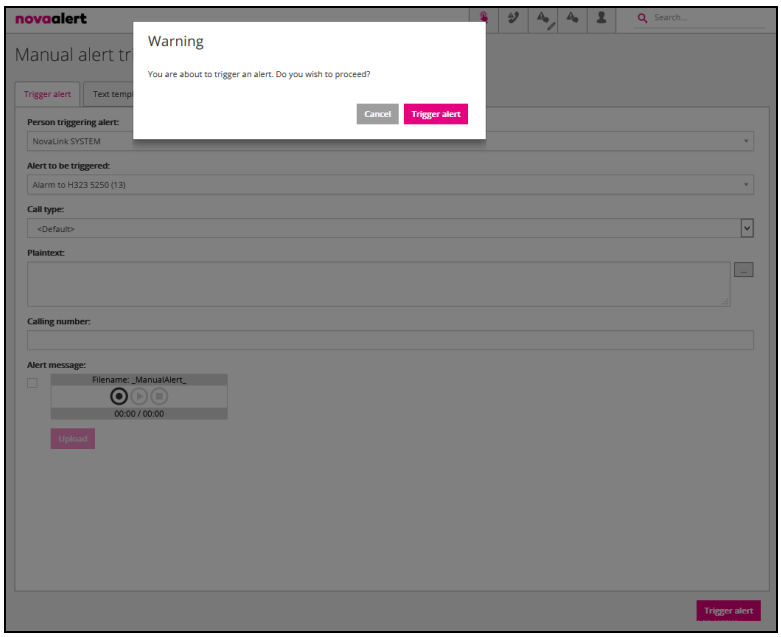
This section illustrates the steps necessary to verify that the novaalert is configured correctly to send an alarm to extensions on IP Office using SIP trunks.

7.1 Trigger an Alarm on novaalert

Log into novaalert as per **Section 6**. From the left menu navigate to **Alert → Trigger alert**. From the main window click on the **Alert to be triggered** drop down box and select the Alert to be triggered. In the example below the alert was **Alarm to H323 5250** which was created in **Section 6.2**.



Click on **Trigger alert** at the bottom right of the screen and a window opens asking to confirm the alarm trigger. Click on **Trigger alert** in that window.



7.2 Verify SIP trunk messages

SIP messages can be viewed by opening the IP Office **SysMonitor** as shown below. This monitor displays all the SIP messages coming to and going from the IP Office. If there is an issue with the alarms not being sent then this is a way to try and troubleshoot what is happening.

8. Conclusion

These Application Notes describe the configuration steps required for novaalert from novalink to interoperate with Avaya IP Office R10.1. All feature functionality and serviceability test cases were completed successfully with any issues and observations noted in **Section 2.2**.

9. Additional References

This section references the Avaya and novalink product documentation that are relevant to these Application Notes.

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

[1] *Avaya IP Office R10.1 Manager 10.1, Document Number 15-601011*
[2] *Avaya IP Office R10.1 Doc library*

Technical support can be obtained for novaalert from the website http://www.novalink.ch/en/ or from the following.

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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.