## Avaya Solution & Interoperability Test Lab

# Application Notes for Trio Enterprise with Avaya IP Office 500 v2 R9.0 - Issue 1.0

## Abstract


These Application Notes describe the configuration steps required for Trio Enterprise to interoperate with Avaya IP Office 500v2 R9.0.

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.




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# 1. Introduction

These Application Notes outline the steps necessary to configure Trio Enterprise from Enghouse Interactive AB to interoperate with Avaya IP Office. Trio Enterprise is a client/server based application running on Microsoft Windows 2008 Server operating systems. Trio Enterprise provides users with an attendant answering position for IP Office, as well as a call referral function that provides spoken information about the status of the extension called, it also includes its own inbuilt voice mail called Trio VoiceMail. The Trio Enterprise Attendant client provides a view of contacts, schedules, and communication tasks and was installed on the same server as the Trio Server, but can be installed on a separate platform if required.
Trio Enterprise connects to the IP Office using a SIP trunk. Trio Enterprise is supplied with all prerequisite software including the relevant version of Avaya TAPI.

# 2. General Test Approach and Test Results

The general test approach was to configure a simulated enterprise voice network using IP Office. The Trio Enterprise server uses a SIP trunk to connect to the IP Office. See **Figure 1** for a network diagram. An Incoming Call Route and Short Code were configured on the IP Office to route calls to Trio Enterprise. Calls placed to the Trio Enterprise server automatically places a call to the telephone the Attendant is using for answering purposes. When the attendant answers the call the Trio Enterprise server bridges the two calls. When the attendant extends the call to another telephone, Trio Enterprise server performs a SIP path replacement, and the caller and the called user are now directly connected.
It is possible to have multiple Trio attendant positions on an IP Office system. A variety of Avaya telephones were installed and configured on the IP Office.

**Note:** During compliance testing an Avaya H.323 9640G was used as the attendant's telephone. It should also be noted that an IP Office Softphone (SIP) and an Avaya 2420 Digital telephone were also tested.

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.


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## 2.1. Interoperability Compliance Testing

The interoperability compliance testing included feature and serviceability testing. The serviceability testing introduced failure scenarios to see if Trio Enterprise could resume after a link failure with IP Office. The testing included:

- Incoming internal and external calls
- Outgoing internal and external calls
- Supervised and unsupervised transfer with answer
- Directing calls to busy extensions
- Call queuing and retrieval
- Loop detection for busy and unanswered extensions

## 2.2. Test Results

Tests were performed to insure full interoperability between Trio Enterprise and Avaya IP Office. The tests were all functional in nature and performance testing was not included. All the test cases passed successfully.

## 2.3. Support

For technical support for Enghouse Interactive AB products, please use the following web link.
http://www.trio.com/web/Support.aspx

Enghouse Interactive AB can also be contacted as follows.
Phone: +46 (0)8 457 30 00
Fax: +46 (0)8 31 87 00
E-mail: triosupport@enghouse.com


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# 3. Reference Configuration

**Figure** 1 illustrates the network topology used during compliance testing. The Avaya solution consists of an IP Office 500v2 which has a SIP Trunk connection to the Trio Enterprise server. TAPI is configured on the Trio Enterprise server which enables the Trio Enterprise to control a telephone via the IP Office to act as the Attendant telephone. An Avaya H.323 telephone was used as the Trio Enterprise Attendant telephone during compliance testing.
Digital, H323 and Soft phones were configured on the IP Office to generate outbound/inbound calls to/from the PSTN. A QSIG trunk was configured to connect to the PSTN.

**Note:** The Trio Enterprise Attendant (client) was installed on the same server as the Trio Enterprise Server, but can be installed on a separate platform if required.

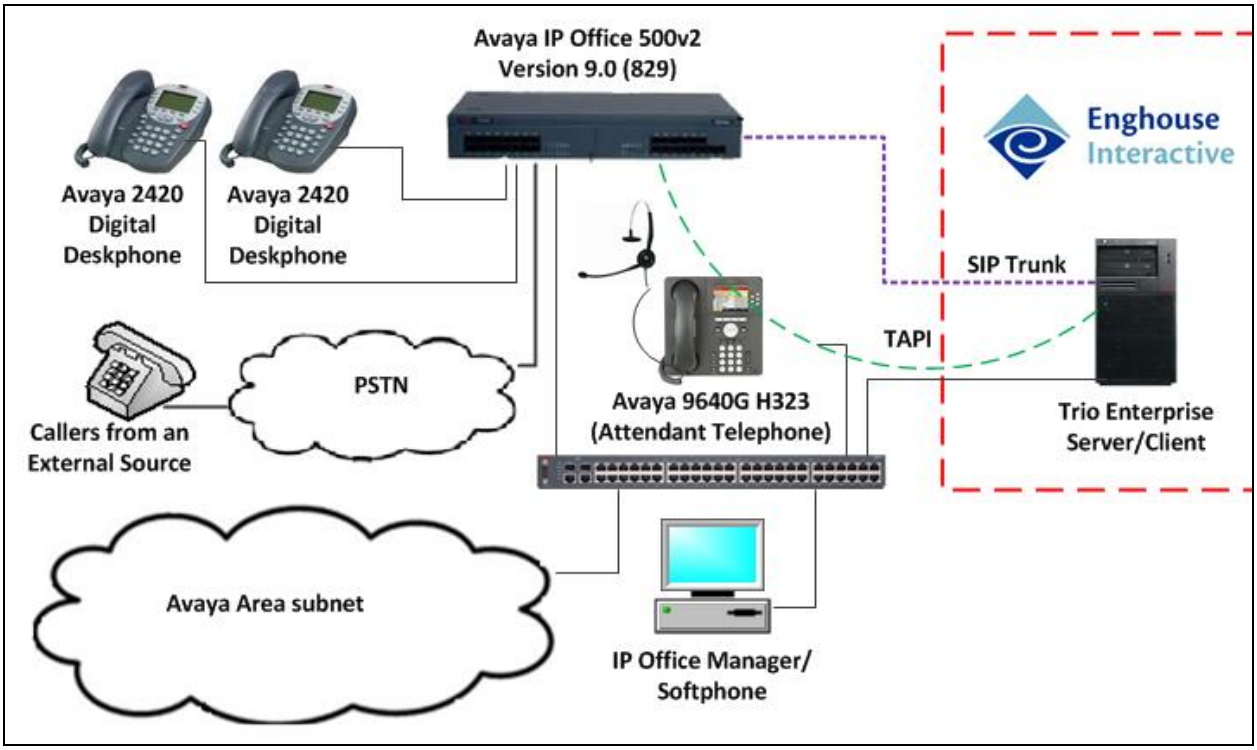


**Figure 1: Avaya and Trio Enterprise Reference Configuration**


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# 4. Equipment and Software Validated

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

| Avaya Equipment | Software / Firmware Version |
|---|---|
| Avaya IP Office 500v2<br>Phone8 Analog Module<br>DIGSTA8 Digital Module | 9.0 Build 829<br>9.0.0.829<br>9.0.0.829 |
| Avaya IP Office Manager | 9.0 Build 829 |
| Avaya 9630 IP Telephone | Release 3.2 |
| Avaya 2420 Digital Telephones | -- |
| Avaya IP Office softphone | 3.2.3.49 68975 |
| **Trio Enterprise Equipment** | **Software / Firmware Version** |
| Trio Enterprise running on Microsoft Windows 2008 R2 Server | Version 5.0 SP1 |

**Note:** Testing was performed with IP Office 500v2 R9.0, but it also applies to IP Office Server Edition R9.0. Note that IP Office Server Edition requires an Expansion IP Office 500 v2 R9.0 to support analog or digital endpoints or trunks. IP Office Server Edition does not support TAPI Wave or Group Voicemail.


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# 5. Avaya IP Office Configuration

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 with the necessary licensing. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 10**.The configuration operations described in this section can be summarized as follows:

- Launch Avaya IP Office Manager (Administration)
- Configure System Locale
- Create SIP Trunk
- Configure Incoming Call Route
- Create Short Code (Route Calls)
- Create Short Code (Set Absence)
- Create Short Code (Remove Absence)
- Save Configuration

## 5.1. Launch Avaya IP Office Manager (Administration)

From the IP Office Manager PC, click **Start→Programs→IP Office→Manager** to launch the Manager application. Log in to IP Office using the appropriate credentials (not shown) to receive the IP Office configuration.



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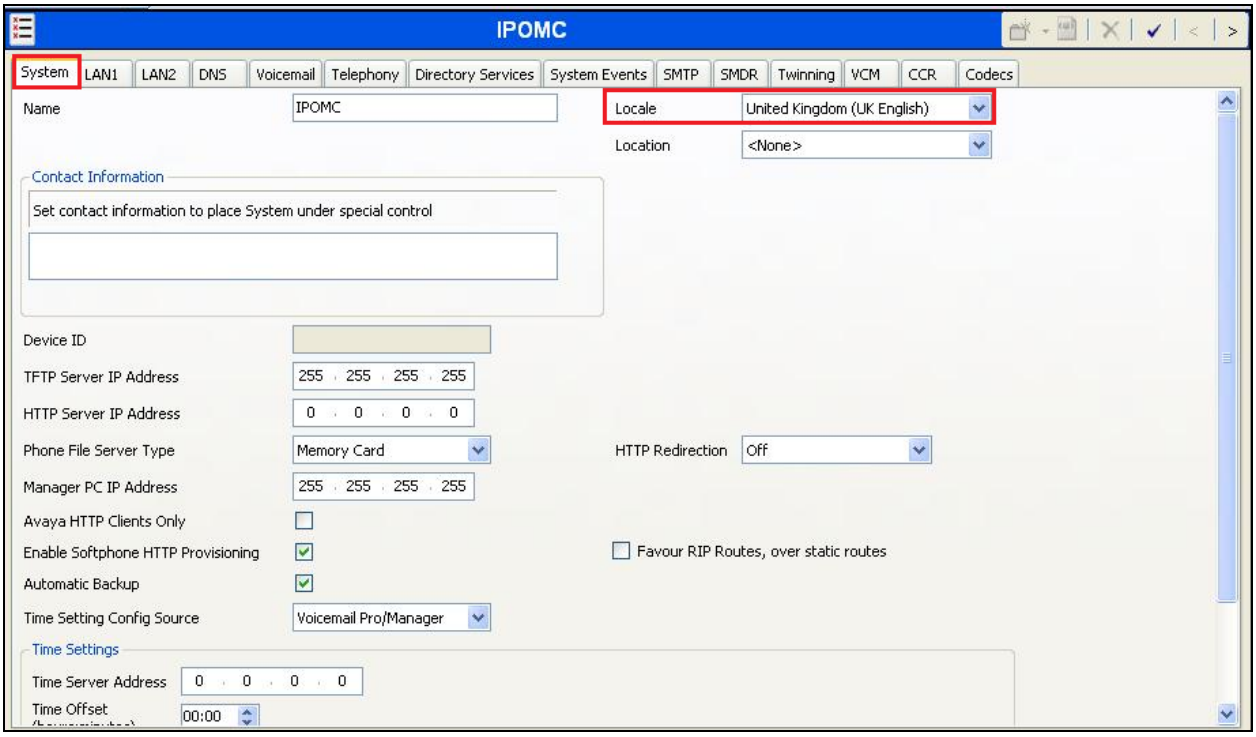
## 5.2. Configure System Locale

The Locale is usually the country were the IP Office is installed. By selecting the correct country a number of system defaults for that country will be used by the IP Office. To configure the Locale, select **System** from the IP Office Configuration Tree (not shown). During compliance testing the System was called IPOMC. In the right hand pane select the **System** tab, and from the **Locale** dropdown menu select the appropriate country (i.e. **United Kingdom (UK English)**). Click the **OK** button to save (not shown).





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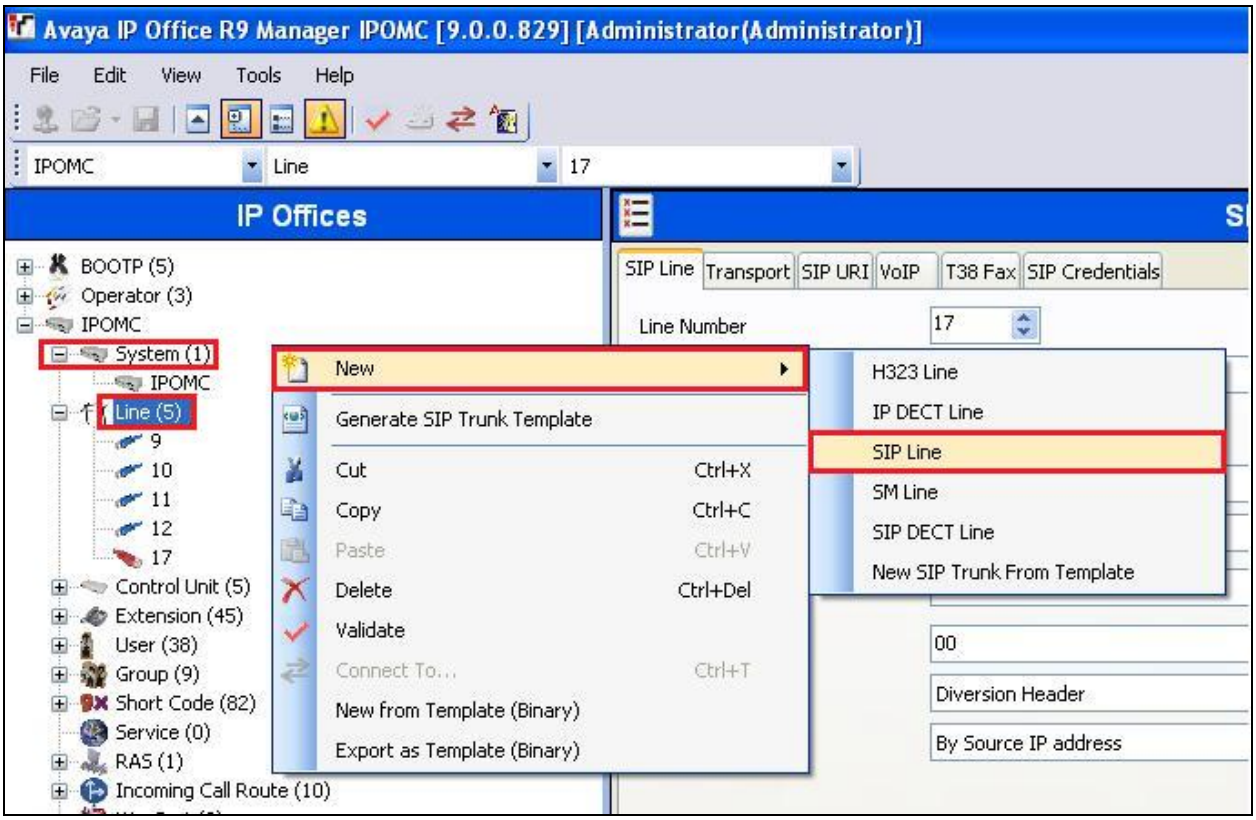
## 5.3. Create SIP Trunk

To create the SIP trunk from the IP Office to Trio Enterprise, navigate to **System** and right click on **Line** followed by **New →SIP Line**.





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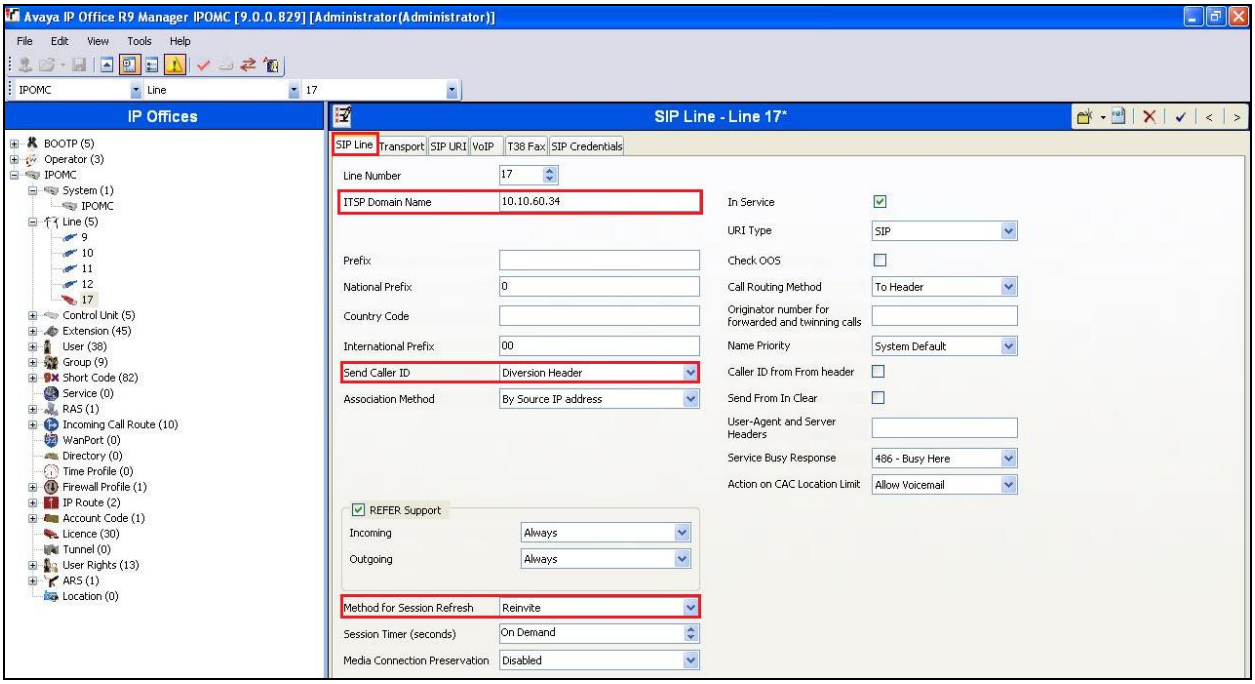
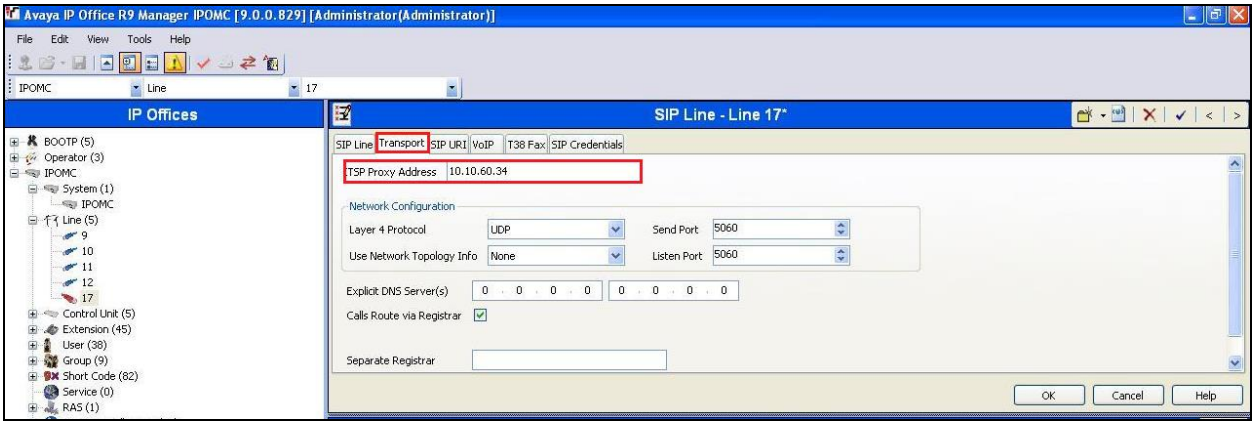
In the subsequent **SIP Line** window, enter the following in the **SIP Line** tab.
**Note:** The **Line number** is filled in automatically.

- **ITSP Domain Name:** Enter the IP address of the Trio Server
- **Sent Caller ID:** Select **Diversion Header** from the dropdown menu
- **Method for Session Refresh:** Select **Reinvite** from the dropdown menu

Defaults were used for the remaining fields.




In the **Transport** tab enter the IP address of the Trio Enterprise Server in the **ITSP Proxy Address** field.
Defaults were used for the remaining fields.





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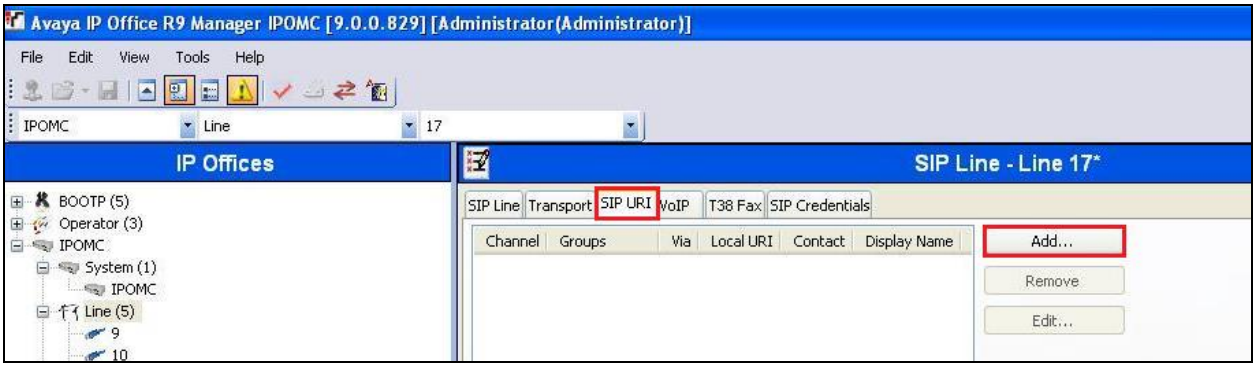
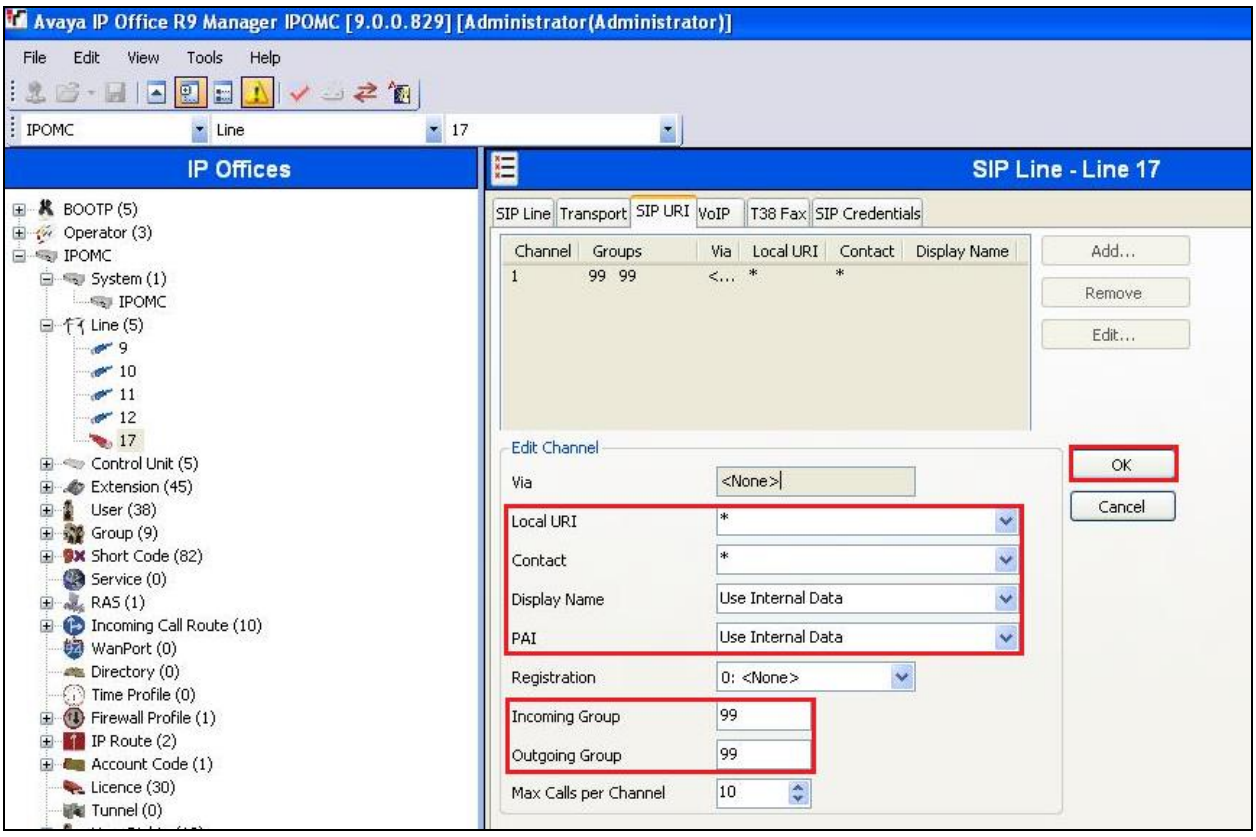
In the **SIP URI** tab click on the **Add** button.




In the subsequent window, enter the following:

- **Local URI:** Enter ***
- **Contact:** Enter *
- **Display Name** Select **Use Internal Data** from the dropdown menu
- **PAI** Select **Use Internal Data** from the dropdown menu
- **Incoming Group** Enter the Incoming Group number (see **Section** 5.4**)**
- **Outgoing Group** Enter the **Line Group ID** that will be used in the short code in **Section 5.5**

Defaults were used for the remaining fields. Click the **OK** button.





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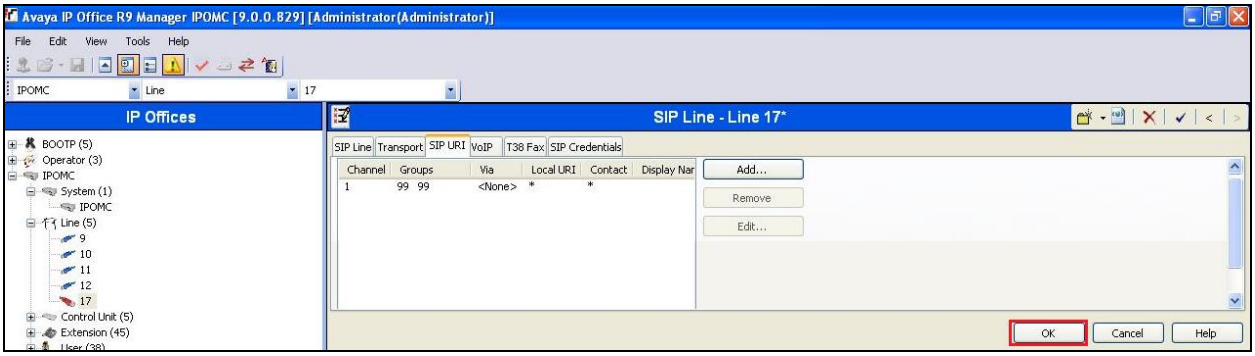
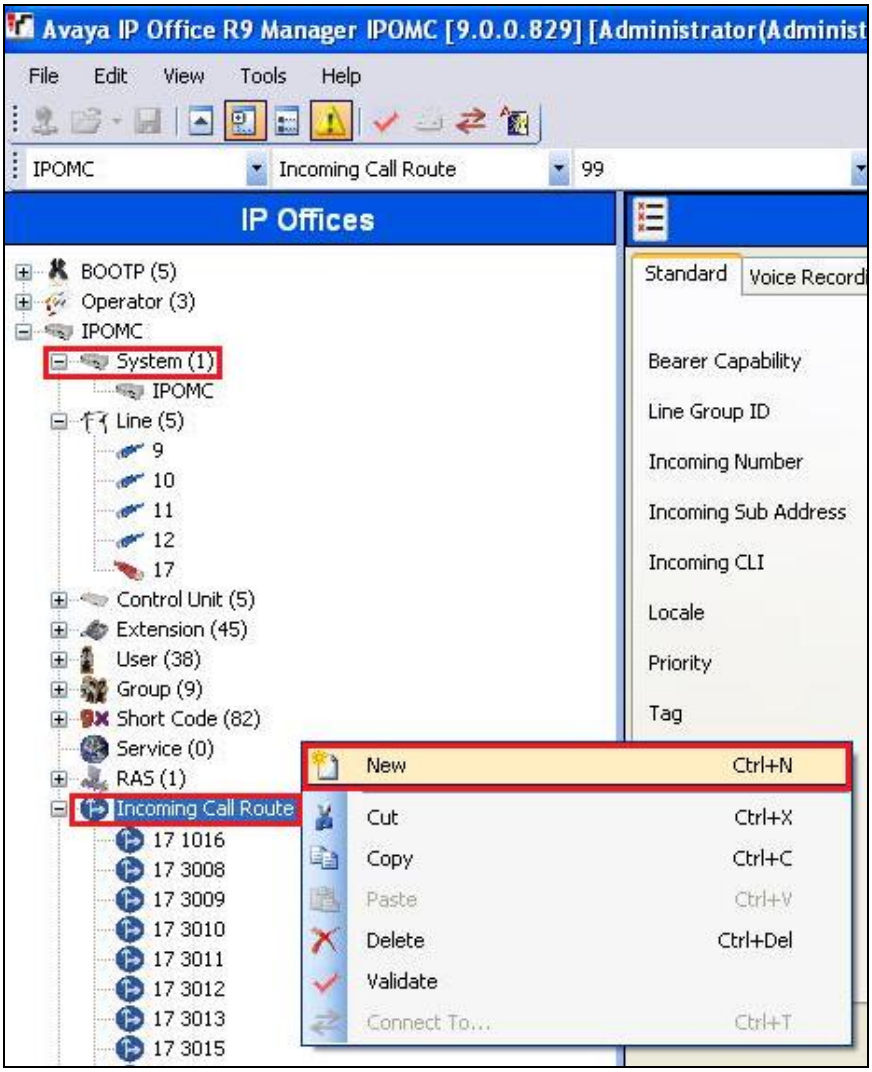
Defaults were used for the remaining fields and tabs. Click the **OK** button.




## 5.4. Configure Incoming Call Route

To configure the Incoming Call Route, navigate to **System** and right click on **Incoming Call Route** followed by **New**.





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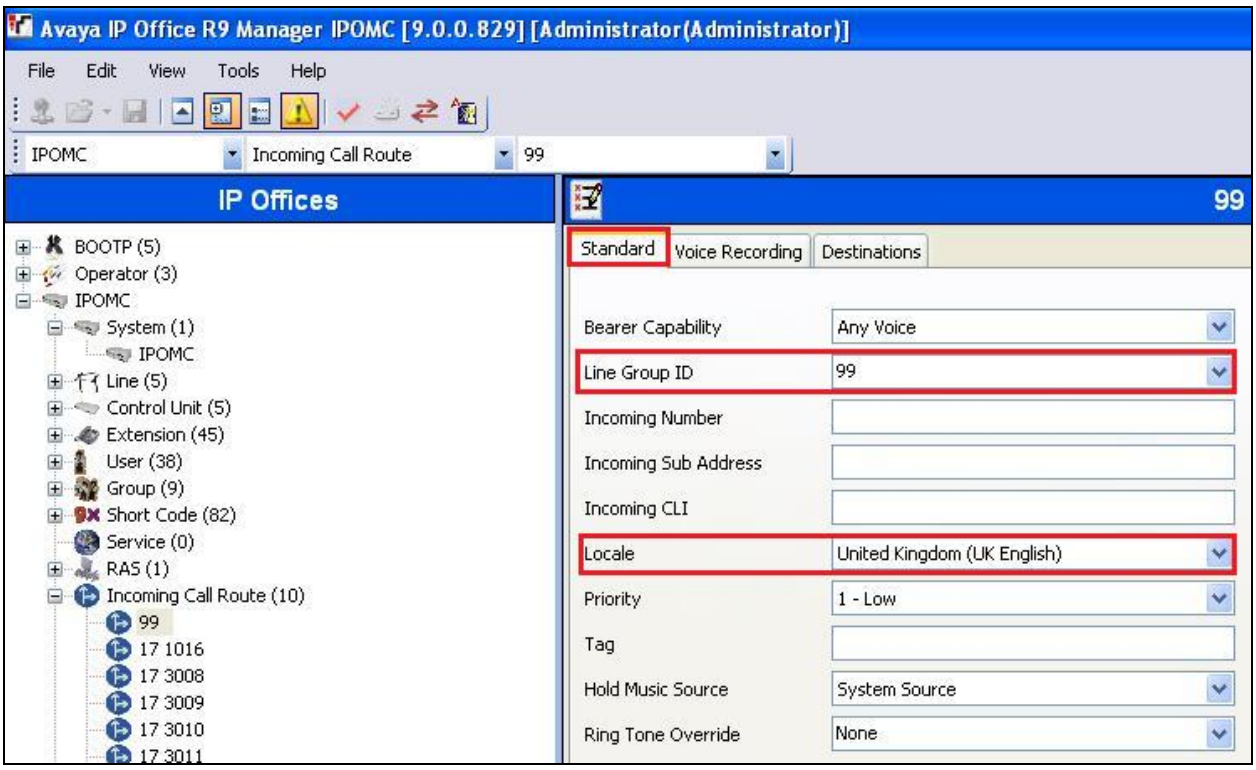
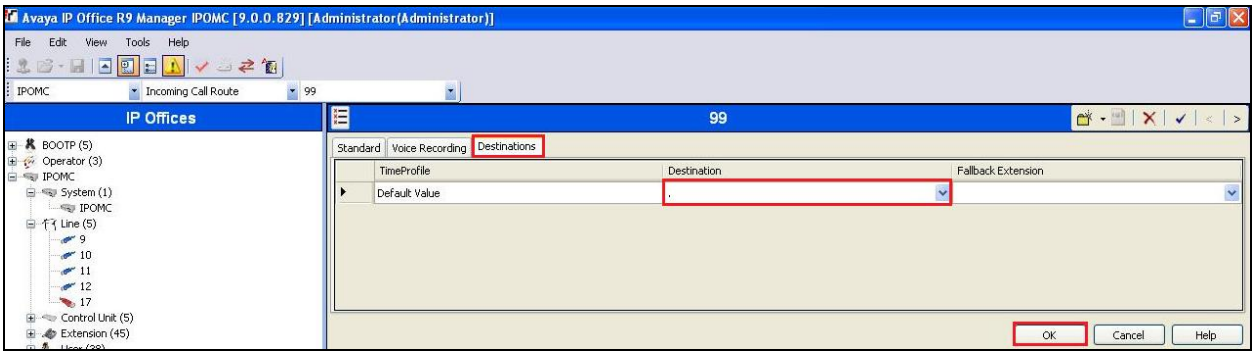
In the subsequent window, enter the following in the **Standard** tab.

- **Line Group ID** Enter the Incoming Group number as used in **Section 5.3**
- **Locale** Select the Locale as configured in **Section 5.2** from the dropdown menu

Defaults were used for the remaining fields.




In the **Destinations** tab, enter a **.** (Full stop/Period) in the **Destination** field. Defaults were used for the remaining fields and tabs. Click on the **OK** button.





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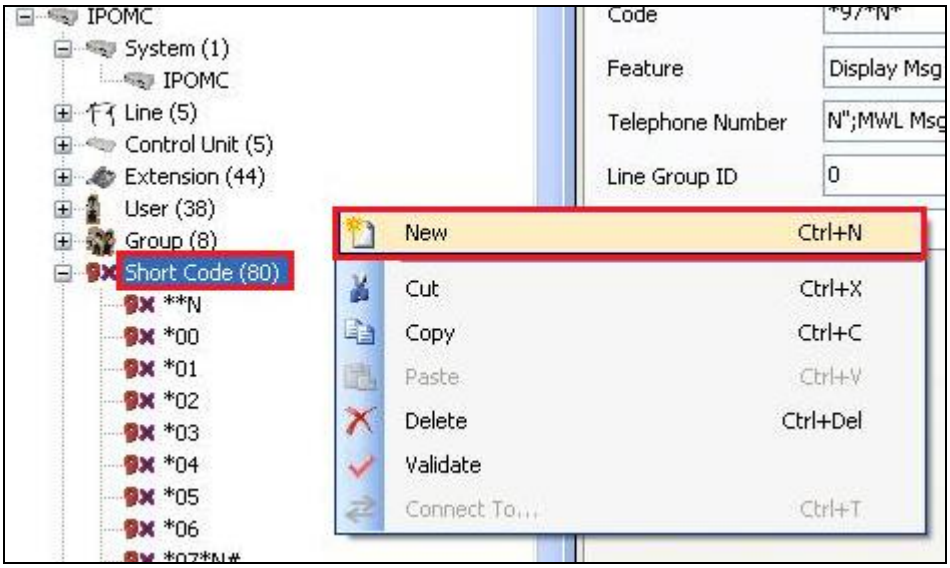
## 5.5. Create Short Code (Route Calls)

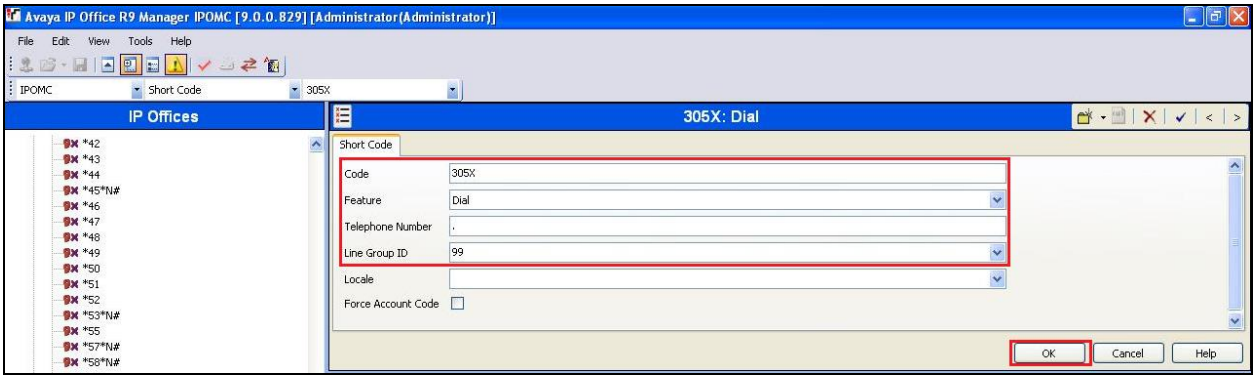
A Short Code needs to be configured on the IP Office to route calls to Trio Enterprise. Navigate to System and right click on **Short Codes,** and select **New**.




In the subsequent window, enter the following:

- **Code** Enter the number range that will be routed to Trio Enterprise (during compliance testing, all numbers beginning with 305 were sent to Trio Enterprise, therefore 305X was entered)
- **Feature** Select **Dial** from the dropdown menu
- **Telephone Number** Enter a **.** (Full stop/Period)
- **Group Line ID** Enter the Incoming Group number as used in **Section 5.4**

Defaults were used for the remaining fields. Click the **OK** button.





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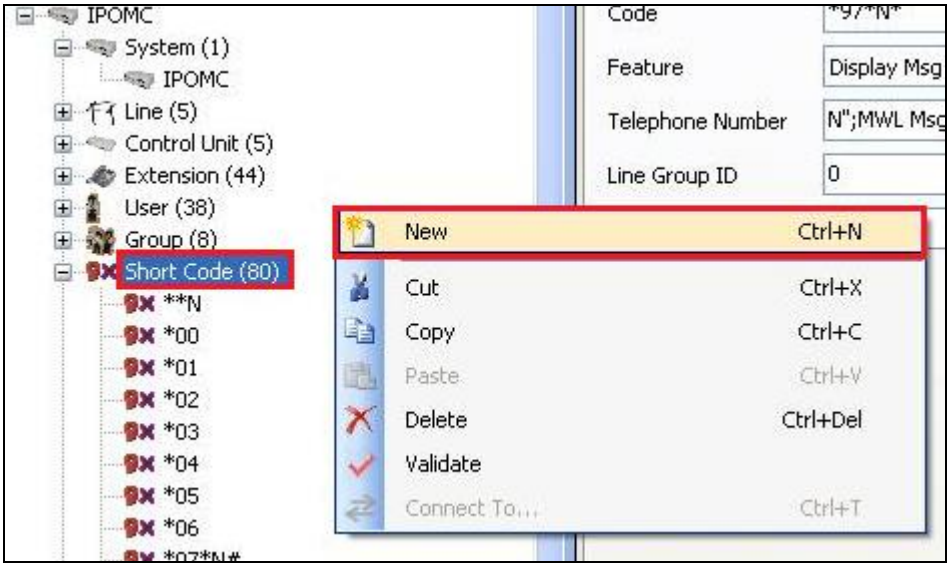
## 5.6. Create Short Code (Set Absence)

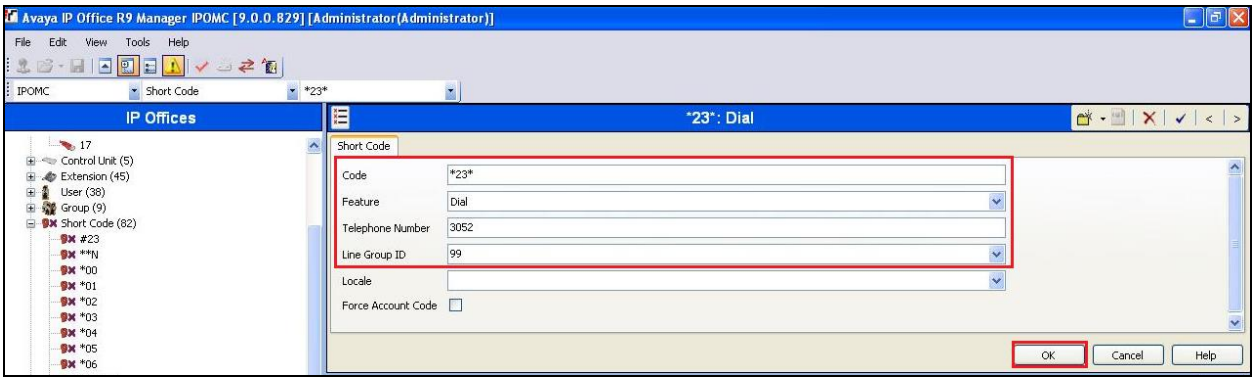
Navigate to System and right click on **Short Codes,** and select **New**.




In the subsequent Short Code window, enter the following:

- **Code** Enter ***23*** (used to set Absence reason)
- **Feature** Select **Dial** from the dropdown menu
- **Telephone number** Enter **3052** (this number was used by Trio Enterprise to monitor the Absence of IP Office users

Defaults were used for the remaining fields. Click the **OK** button.





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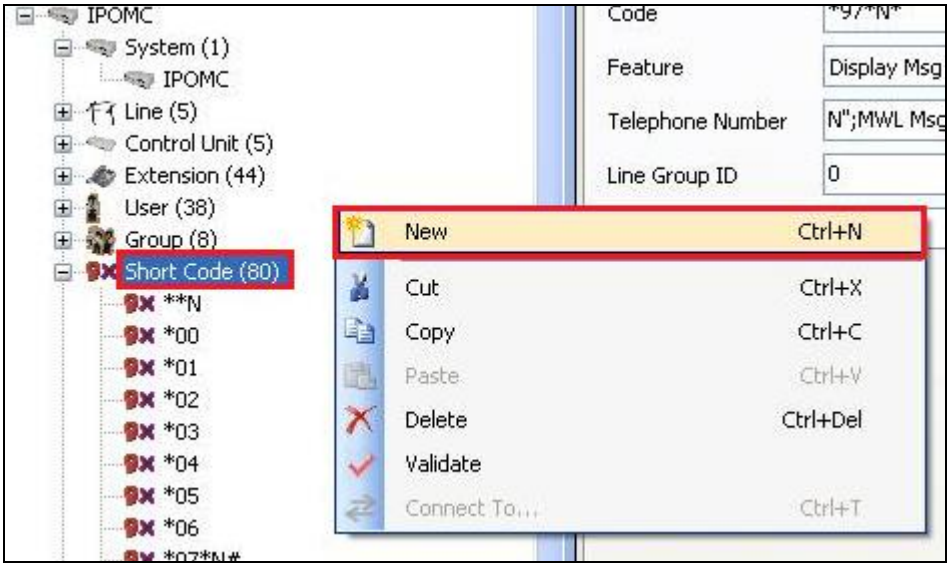
## 5.7. Create Short Code (Remove Absence)

Navigate to System and right click on **Short Codes,** and select **New**.




In the subsequent Short Code window, enter the following:

- **Code** Enter **#23*** (used to Remove Absence)
- **Feature** Select **Dial** from the dropdown menu
- **Telephone number** Enter **3052** (this number was used by Trio Enterprise to monitor the Absence of IP Office users

Defaults were used for the remaining fields. Click the **OK** button.



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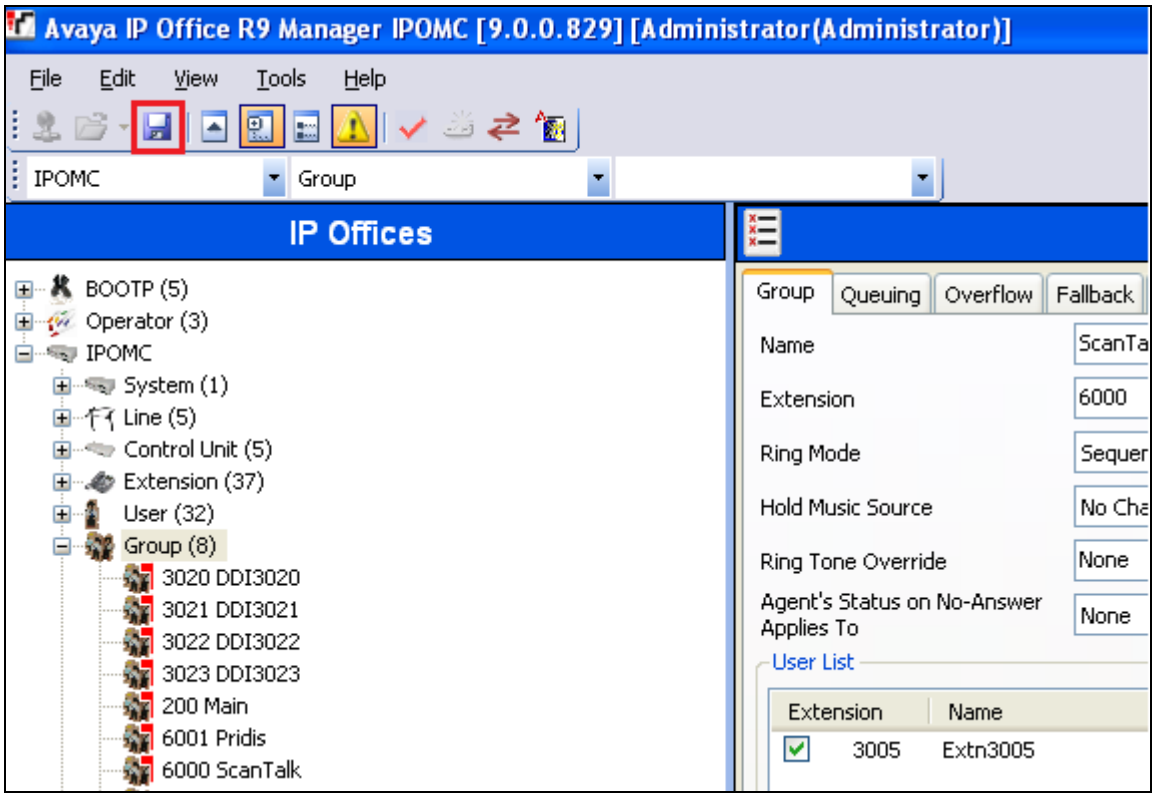
## 5.8. Save Configuration

Once all the configurations have been made it must be sent to the IP Office. Click on the Save Icon as shown below.





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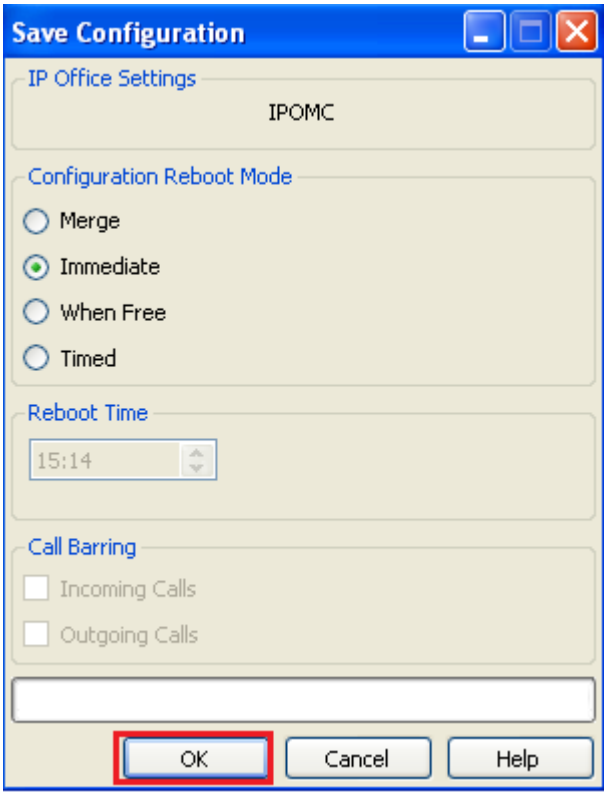
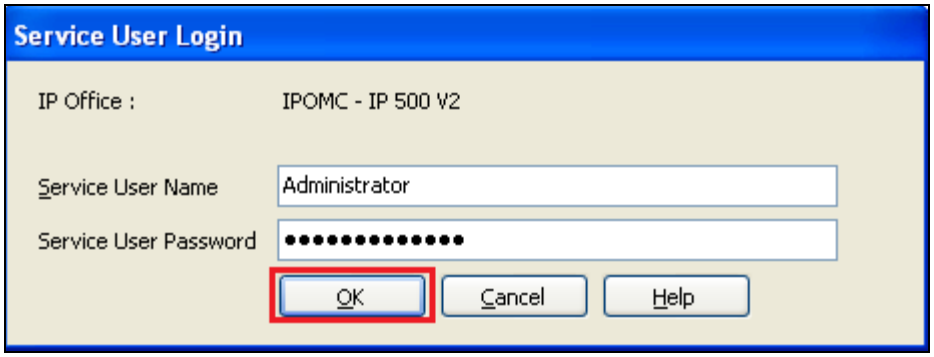
Once the **Save Configuration** Window opens, click the **OK** button.




When the **Service User Login** Window opens enter the appropriate credentials and click the OK button.





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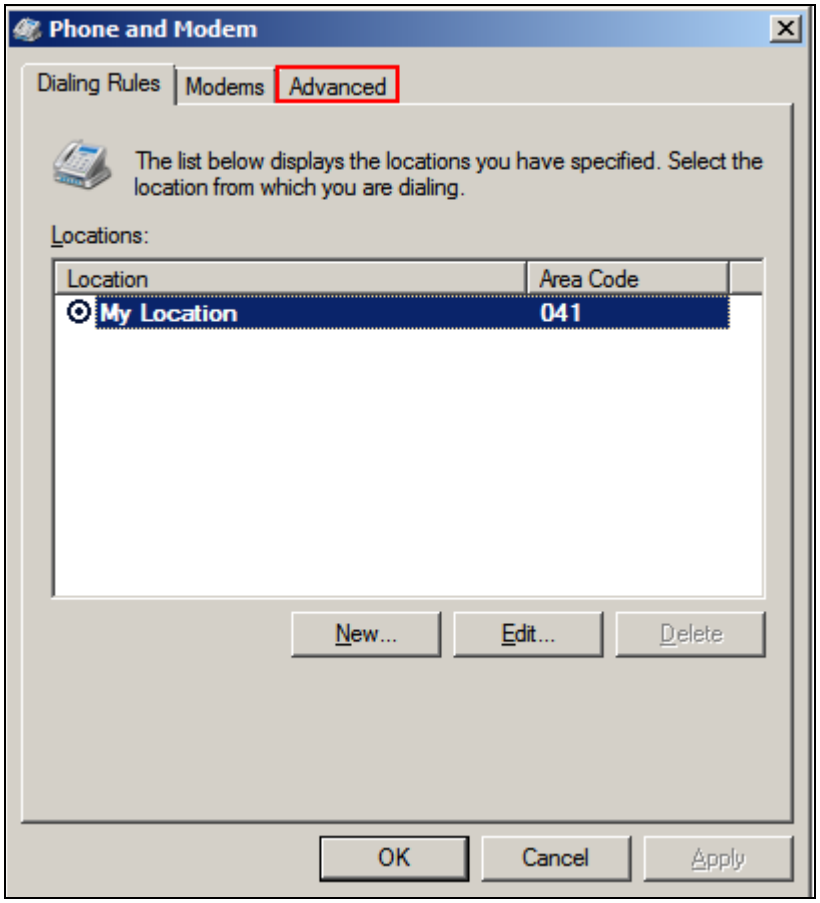
# 6. Configure Avaya IP Office TAPI

The Avaya IP Office TAPI is required so as to allow certain features of Trio Enterprise to interoperate with IP Office. It is implied that the TAPI software and Enterprise company directory is already installed. (It is important that the TAPI software was installation was run as administrator to ensure that the application receives the correct rights to run).

**Note:** The TAPI Software is installed on the Trio Enterprise server.

Click on **Start →Control Panel → Phone and Modem** (Not shown). Select the **Advanced** tab.





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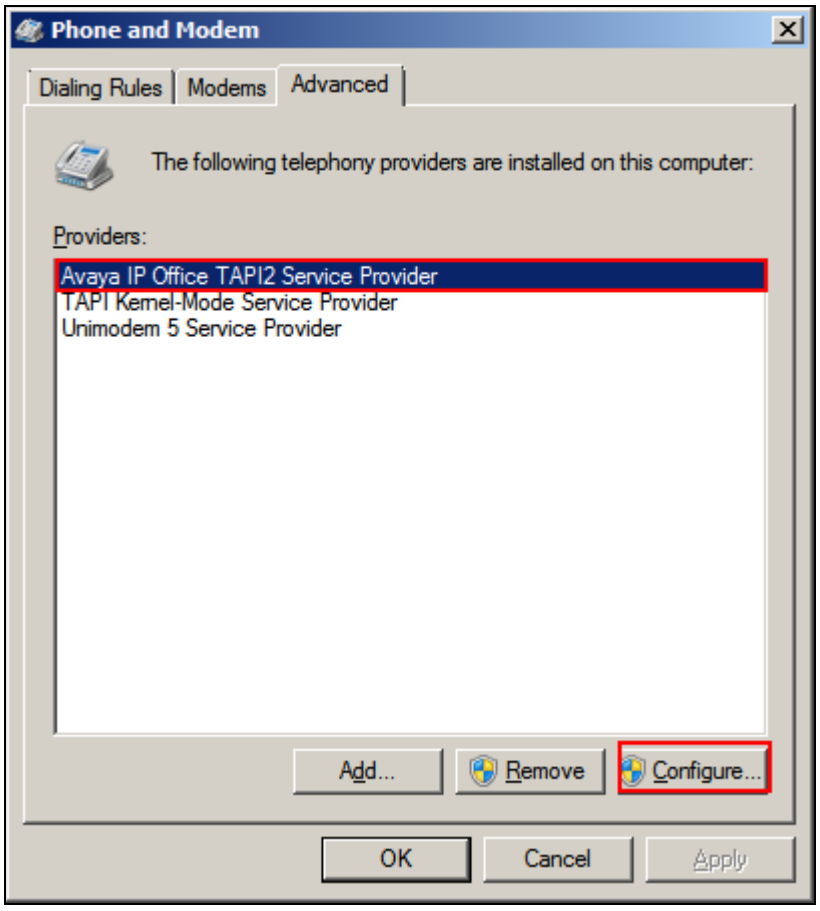
Once the **Advanced** tap opens, select **Avaya IP Office TAPI2 Service Provider** and click on the **configure** button.





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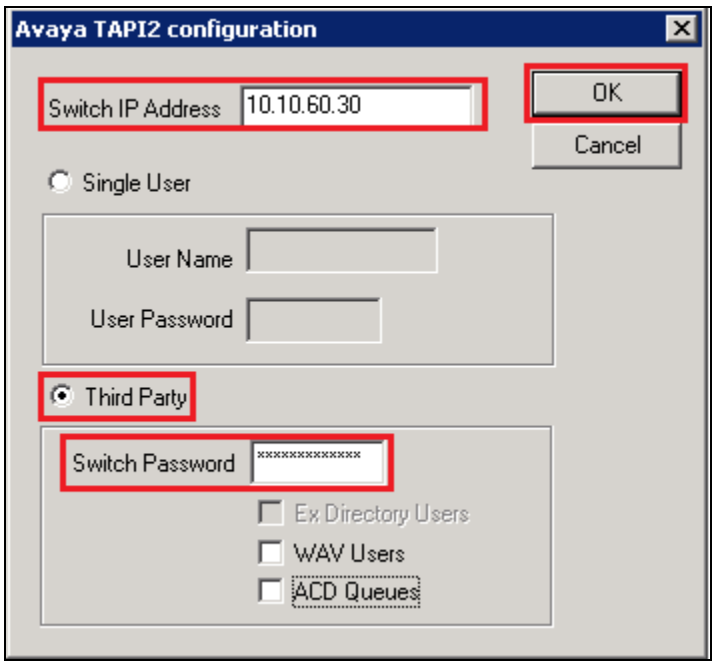
Once the **Avaya TAPI2 Configuration** window opens, enter the following:

- **Switch IP address** Enter the IP address of the IP Office
- **Third Party** Click on the Radio button
- **Switch Password** Enter the password of the IP Office

Click the **OK** button.




# 7. Configure Trio Enterprise

This section shows how to configure Trio Enterprise to successfully connect to IP Office. The installation of the Trio Enterprise software is assumed to be completed and the Trio services are up and running. The steps to configure SIP Trunks are as follows:

- Configure Trio Enterprise to use SIP Trunks
- Configure Trio Enterprise Attendant

**Note:** Configuration of loop Detection (no answer and busy) and Absence on Trio Enterprise is outside the scope of these Application Notes.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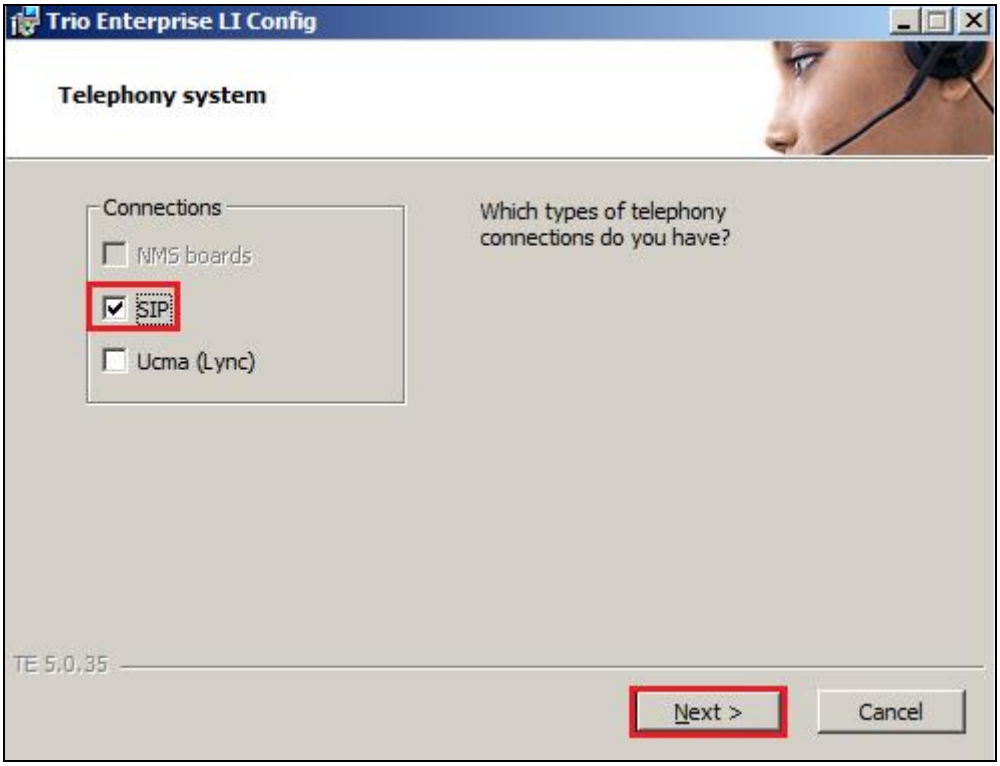
## 7.1. Configure Trio Enterprise to use SIP Trunks

Access Windows services. Select Start  Run, then type **services.msc** into the command line and press return (not shown). When the services window opens, locate the **Trio Televoice** service, right click and select **stop** to stop the service (not shown).

Launch the Trio configuration application. Select **Start → Programs → Trio Enterprise → Line Interface** and click on the **Config** entry (not shown). The configuration application starts and when the new window opens, check the **SIP** check box followed by the **Next** button.





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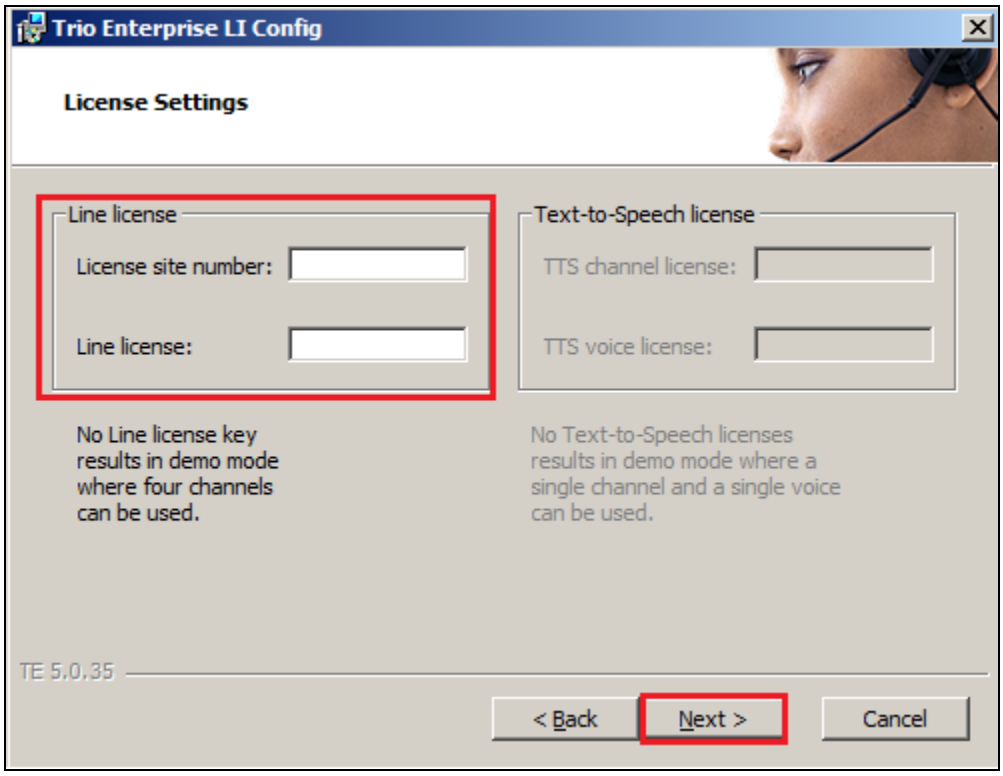
In the subsequent window, enter the **License site number** and **Line licence** as supplied directly by Enghouse Interactive AB or the Trio Enterprise reseller. Click on the **Next** button to continue.





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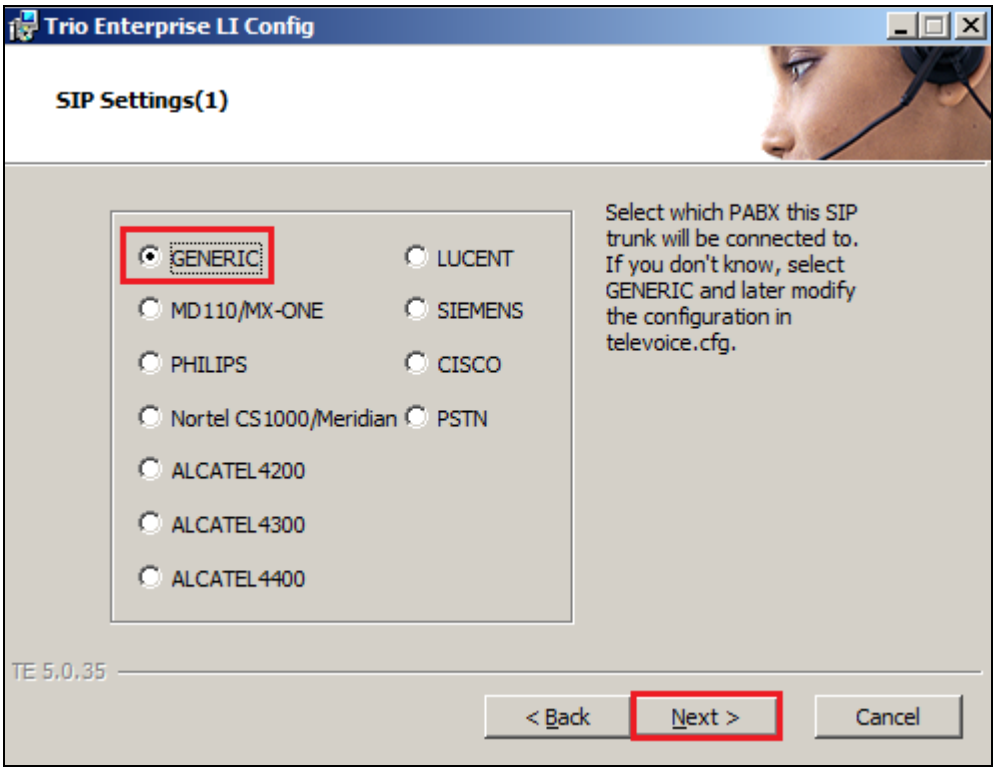
In the subsequent window click on the **Generic** radio button follow by the **Next** button to continue.





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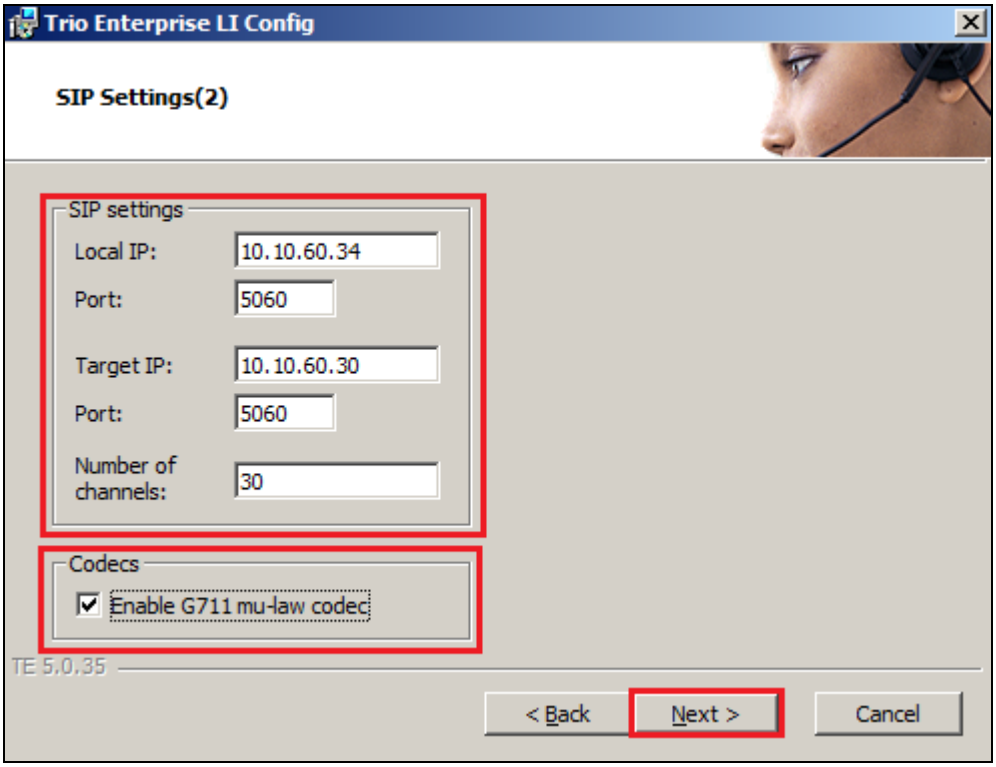
In the subsequent window enter the following settings:

- Local IP — Enter the local IP address of the Trio Enterprise server
- Port — Enter the SIP Port 5060
- Target IP — Enter the IP address of the IP Office
- Port — Enter the SIP Port 5060
- Number of channels — Enter 30 as the number of channels
- Enable G711 mu-law Codec — Click the check box
-

Click on the **Next** button to continue.





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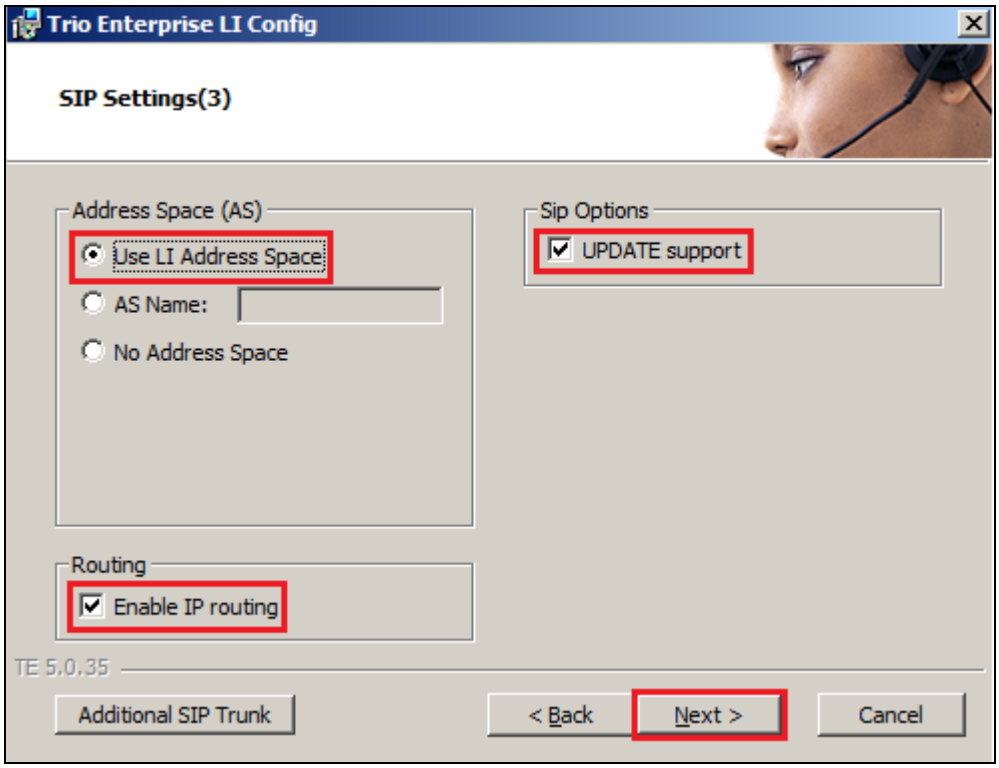
In the subsequent window enter the following settings:

- **Use LI Address Space** Click on the radio button
- **Enable IP routing** Check the check box
- **UPDATE support** Check the check box

Click on the **Next** button to continue.





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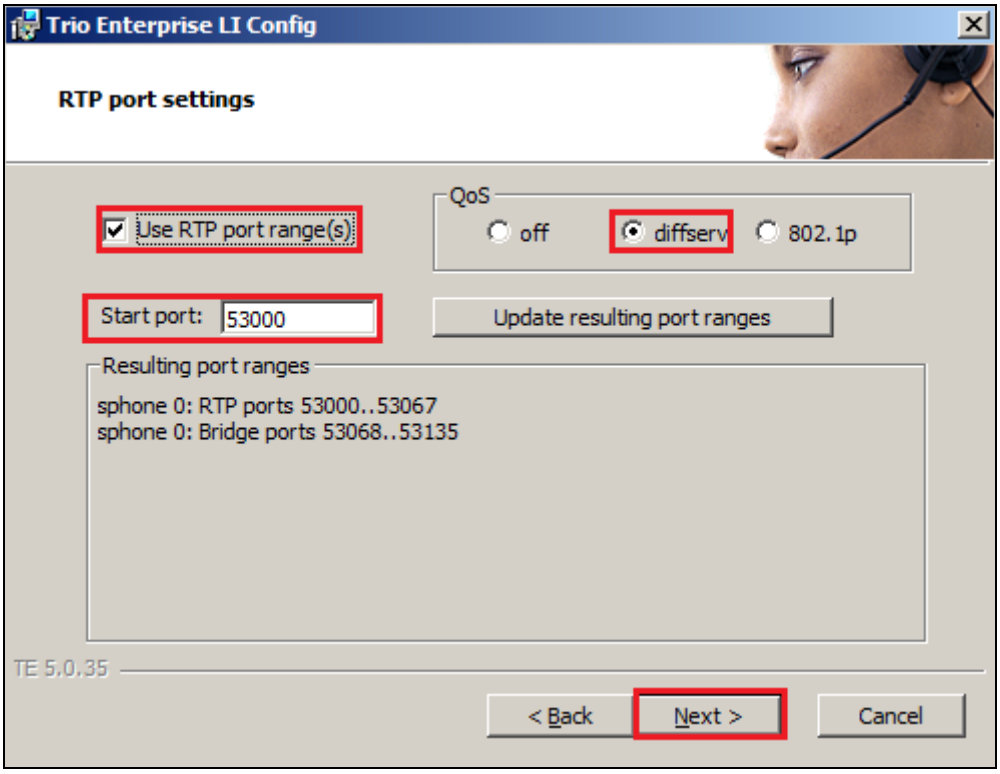
In the subsequent window enter the following settings:

- **Use RPT port range(s)** Check the check box
- **Diffserv** Click on the radio button
- **Start port** Enter **53000**

Click on the **Next** button to continue.





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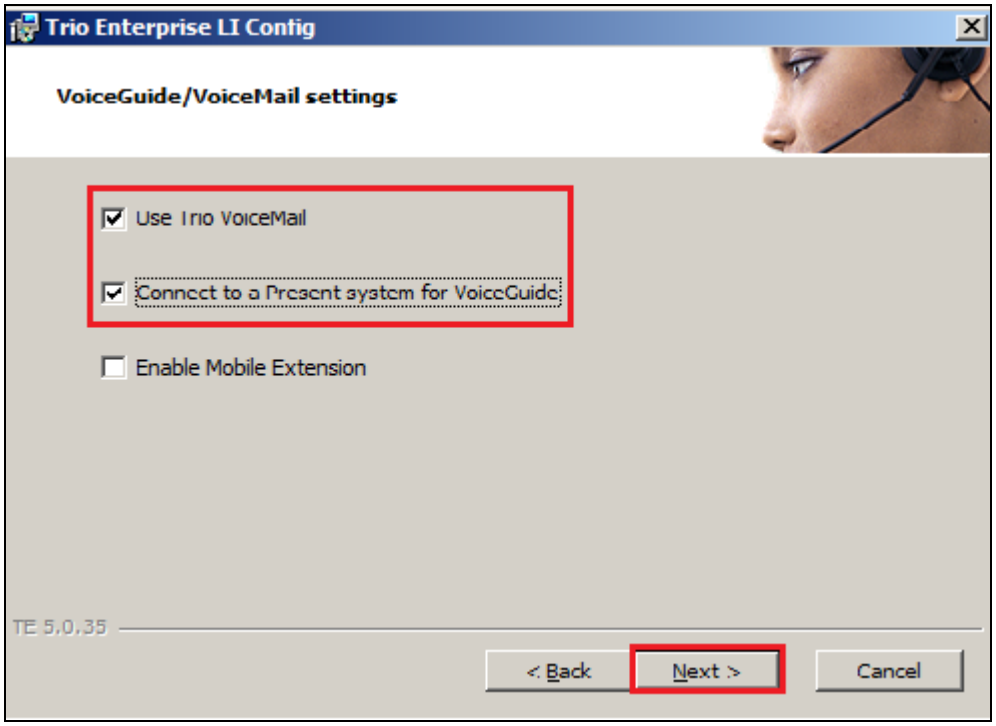
In the subsequent window enter the following settings:

- **Use Trio VoiceMail** Check the check box
- **Connect to a Present system for VoiceGuide** Check the check box

Click on the **Next** button to continue.





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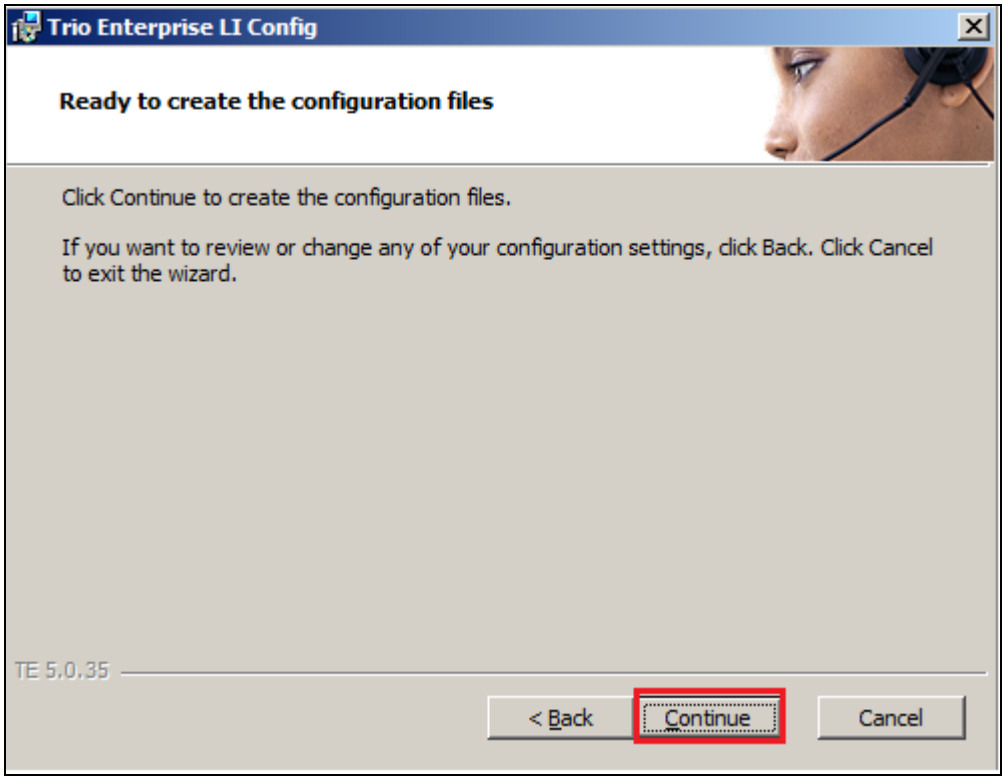
On the **Ready to create the configuration files** page click on **Continue** button.





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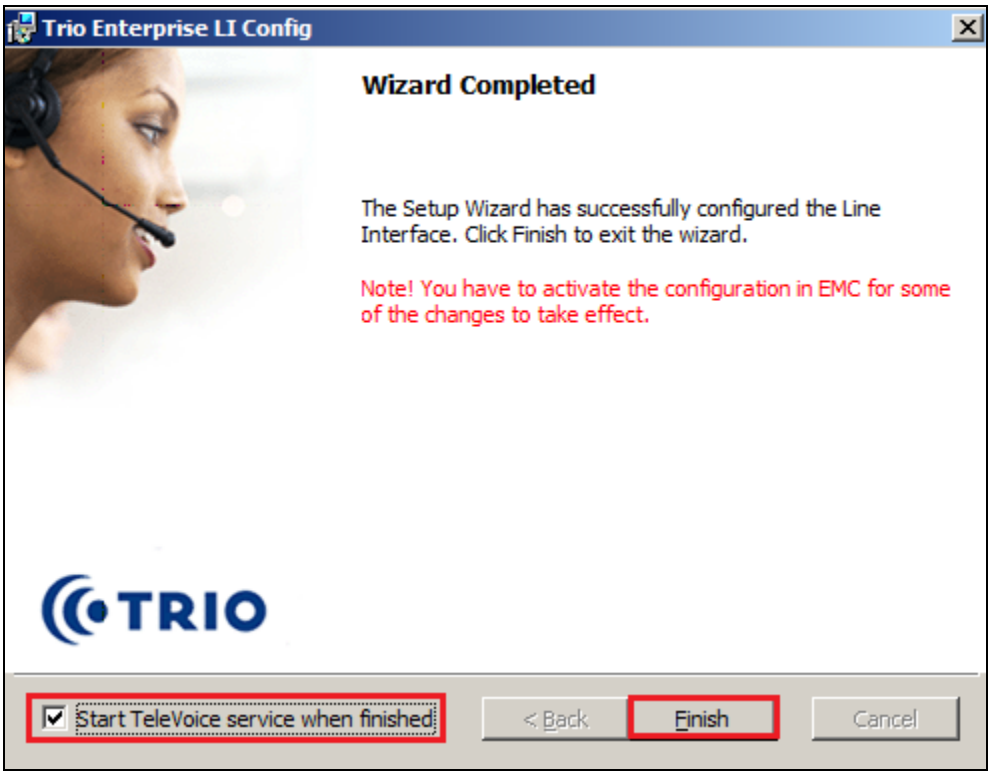
On the **Wizard Completed** page check the **Start TeleVoice service when finished** check box, followed by the **Finish** button.





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## 7.2. Configure Trio Enterprise Attendant

Trio Enterprise Attendant is a separate application to Trio Enterprise server and can run concurrently on the same platform. The attendant uses a regular IP Office telephone to make and receive calls, which are directed to the telephone by Trio Enterprise server. The steps to configure Trio Attendant are to click on **Start → Programs → Trio Enterprise → Contact Centre → Agent Client** (not shown).

When the Trio Agent window opens enter the following:

- **User ID** Enter a valid user ID
- **Password** Enter a valid Password

Note this user ID and password is created during the installation of Trio Enterprise Server.

- **Extension** Select the IP Office telephone number that will be used as the agent's audio device (number 3032 in this example).
- **Server** Select the correct Trio Enterprise server (default is the current Trio server).
- **Phone type** Select **Standard phone** from the dropdown menu

Click on the **OK** button to continue with log in.


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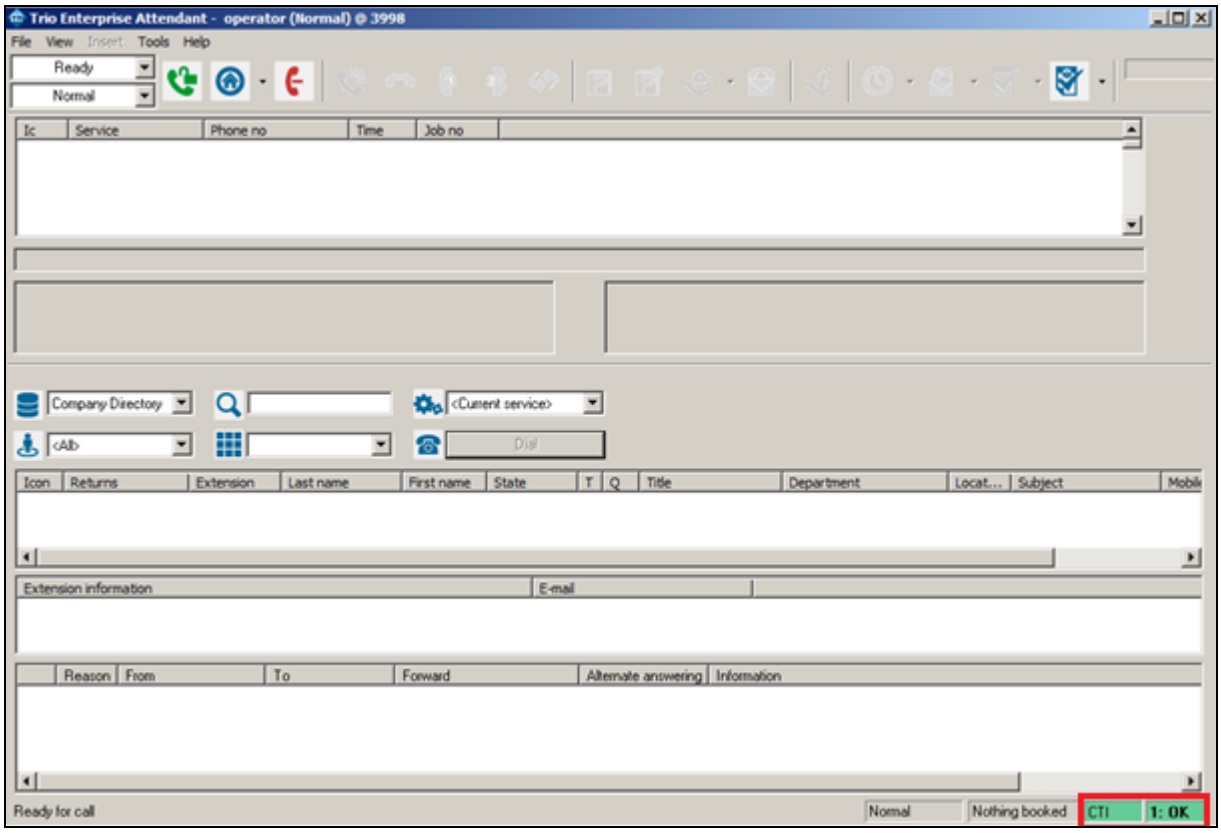
# 8. Verification Steps

To verify that Trio Enterprise is connected to IP Office, log in to the Trio Enterprise Attendant at **Start → Programs → Trio Enterprise → Contact Centre → Agent Client** (not shown). Complete log in with the appropriate credentials (not shown). Verify that the bottom right corner of the screen is highlighted as shown below.




# 9. Conclusion

A full and comprehensive set of feature and functional test cases were performed during Compliance testing. Trio Enterprise from Enghouse Interactive AB is considered compliant with Avaya IP Office 500v2 9.0. All test cases have passed and met the all objectives.

# 10. Additional References

These documents form part of the Avaya official technical reference documentation suite. Further information may be had from *http://support.avaya.com* or from the local Avaya representative.

*[1] Avaya IP Office Manager 9.0, Document 15-601011, Issue 9.01, September 2013*

Product Documentation for Enghouse Interactive AB can be obtained in the installed software or at: http://enghouseinteractive.com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