



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for Configuring NMS Adaptive Predictive Dialler with Avaya IP Office R8.0 using Avaya IP Office TAPI Service Provider – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for the NMS Adaptive Predictive Dialler module to interoperate with Avaya IP Office. NMS Adaptive Predictive Dialler is one module of the NMS Adaptive Suite which allows a user to create outbound Predictive Dialling campaigns using IP Office Deskphones to connect users to the outbound calls.

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 Solutions and Interoperability Test Lab.

# 1. Introduction

These Application Notes describe the compliance tested configuration used to validate the NMS Adaptive Predictive Dialler module of the Adaptive Suite with Avaya IP Office R8.0 using Avaya IP Office TAPI3 Service Provider. The Adaptive Suite interoperates with Avaya IP Office using Third Party Telephony Application Programming Interface (TAPI).

NMS Adaptive is a Computer Telephony Integration platform that provides call control, media blending, progressive and predictive dialling and monitoring functionality to end users. Adaptive Desktop allows operators to control making and receiving calls via an Avaya handset registered to the Avaya IP Office. The Adaptive Predictive Dialler module of the Adaptive Suite leverages the power of making multiple calls per user. The dialler predicts when the next user will become free and starts to make multiple calls based on its prediction. By the time a user is free, one of the calls is likely to have been answered and the user can take that call. Overdialling leverages the power of making multiple calls per user. Unlike fully predictive dialling, however, the dialler does not try to predict when users will be free: instead, it waits until a user is actually free before it starts to make calls for them. This guarantees that when one of the calls is answered, a user will be available to take that call.

The Adaptive Predictive Dialler can have multiple campaigns operating in different modes. This means that the best dialling method can be chosen based on the exact requirements of the current outbound campaign. When Adaptive Predictive Dialler is started in Overdial or Predictive modes, the software monitors the users. As each user becomes available (or is predicted to be available), the Adaptive Predictive Dialler starts making multiple calls. As soon as a call is answered, the call is automatically transferred to an available user. The user's extension automatically answers the transferred call and the user's computer displays a campaign call dialog, showing the user details of the call, such as the name of the person who was called. Any configured screen pop is also run, presenting the corresponding record in the customer database.

## 2. General Test Approach and Test Results

The interoperability compliance testing included feature and serviceability testing. The feature testing focused on verifying NMS Adaptive handling of CTI messages in the areas of call control, event notification and routing. Predictive Dialling in an outbound campaign was the main focus of the compliance testing. Using CTI users who are not on a call are utilised in the outbound campaign by transferring the outbound call to a user's deskphone.

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. Compliance testing

The compliance testing focused primarily on the following types of calls:

- Predictive Dialler Single Number tests
- Predictive Dialler Multi Number tests

The serviceability testing focused on verifying the ability of NMS Adaptive to recover from adverse conditions, disconnecting the Ethernet cable for the CTI link and the reboot of Adaptive server under test.

### 2.2. Test Results

The following observations were noted during testing:

- Adaptive Desktop does not login a user as a part of the CTI functionality. Call Control is taken for a user already logged in to an extension.

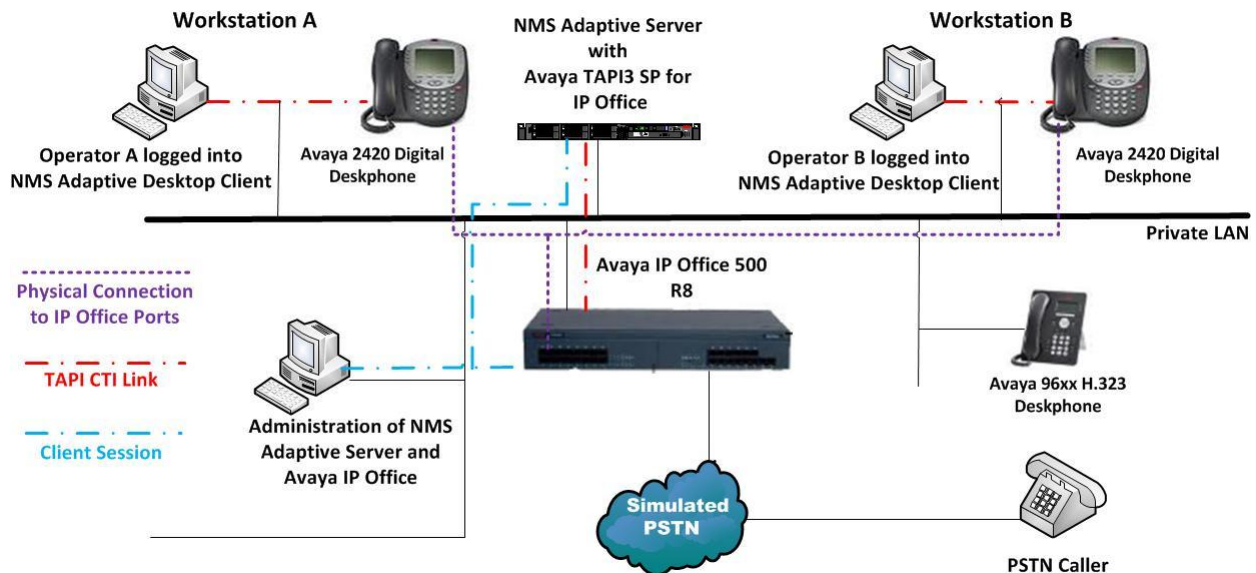
### 2.3. Support

For technical support on NMS Adaptive products please contact the NMS Adaptive support team at:

Web address	:	<a href="http://www.nms-adaptive.com/support-options.html">http://www.nms-adaptive.com/support-options.html</a>
Telephone	:	+44 845 612 4000
Email	:	support@nms-adaptive.com

### 3. Reference Configuration

**Figure 1** shows the network topology for compliance testing. NMS Adaptive Predictive Dialler which resides on a Windows 2003 Server with IP Office TAPI3 Service Provider to provide a CTI connection to Avaya IP Office. Avaya 2400 Series digital deskphones are associated with Adaptive Desktop operators/users giving each Adaptive Desktop user telephony functionality from the IP Office. Avaya H.323 IP deskphones can also be used to provide telephony functionality.



**Figure 1: Connection of NMS Adaptive Predictive Dialler with Avaya IP Office R8.0**

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office 500	Avaya IP Office R8.0.16
Avaya 96xx H.323 Deskphone	Avaya H323 IP Office Firmware Ha96xxua3_Hbas.bin
Avaya 2420 Digital Extension	N/A
Avaya TAPI3 Telephony Service Provider Client for IP Office Installed on Adaptive Server.	Avaya TSPI3w.tsp 1.0.0.17
Platform Independent Server with Windows 2003 Server O/S and NMS Adaptive Server.	NMS Adaptive Predictive Dialler Release 9.4
Client Workstation with Windows XP and NMS Adaptive Desktop	NMS Adaptive Desktop Release 9.4

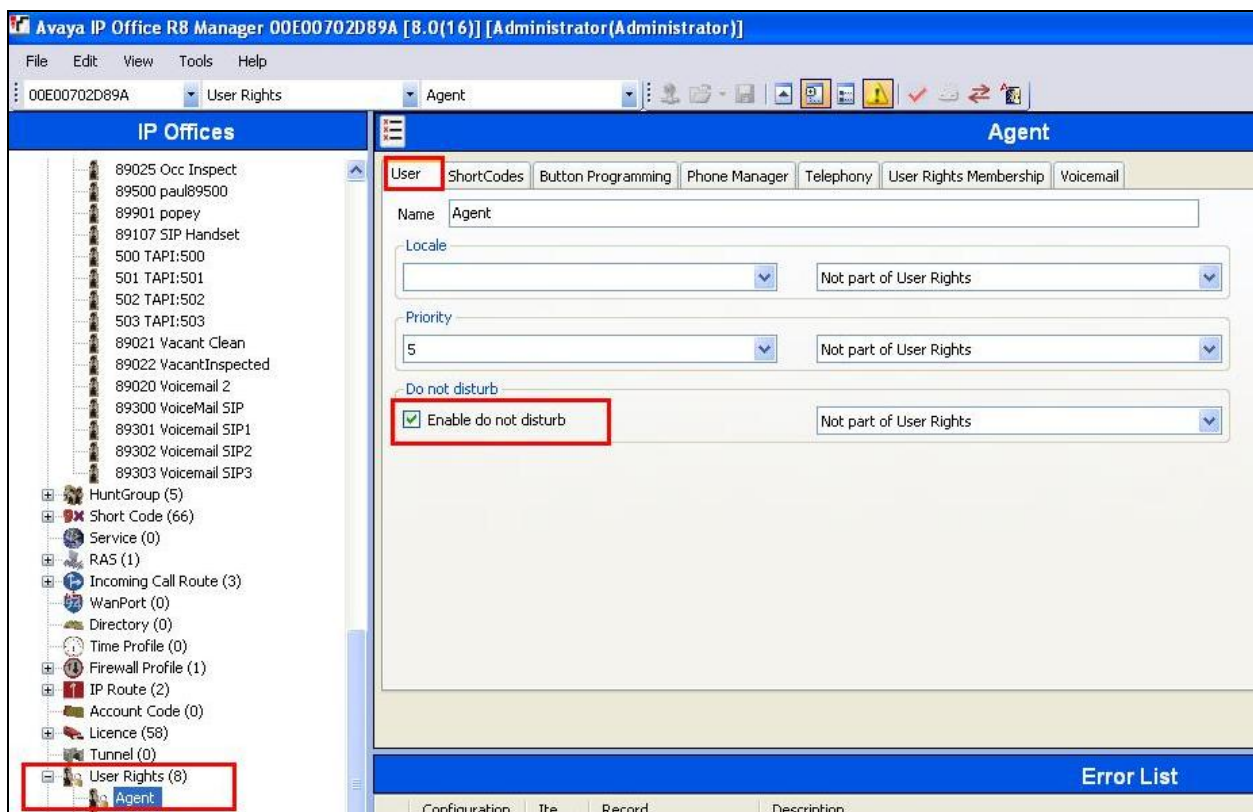
## 5. Configuration of Avaya IP Office

IP Office is administered using IP Office Manager installed on a client PC. It is assumed that a fully working IP Office is in place with extensions and users preconfigured. This section shows what changes to the IP Office configuration is required for NMS Adaptive Predictive Dialler to interoperate correctly with IP Office.

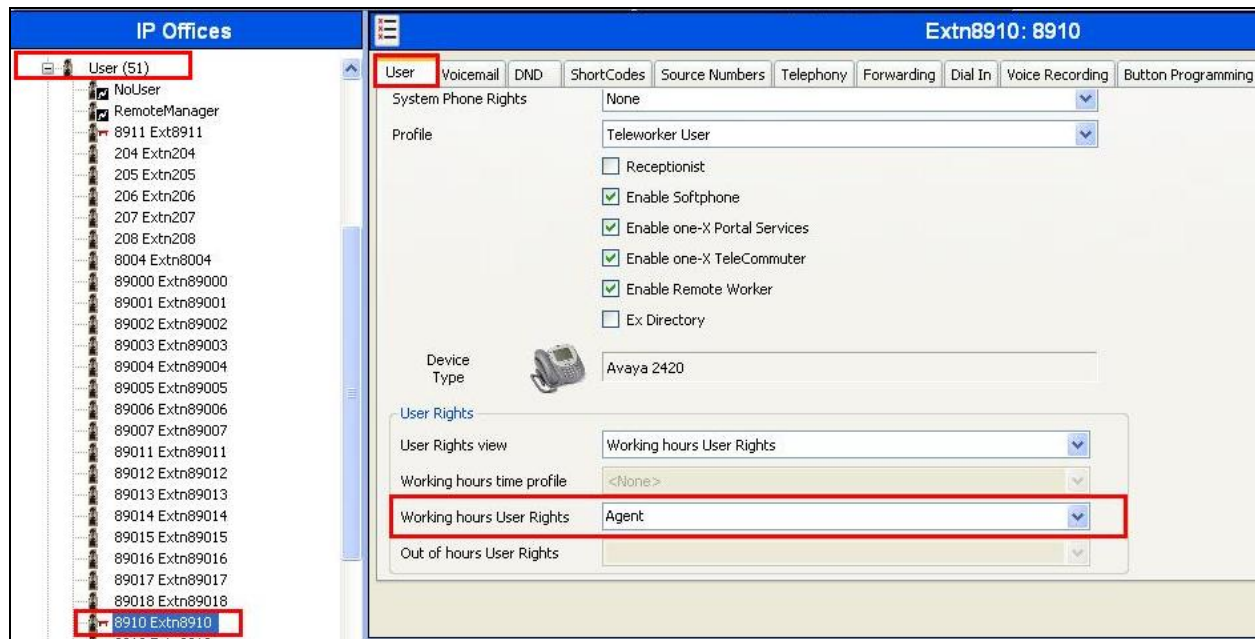
**Note:** A user must be logged into the extension before the Adaptive Desktop can assume control of the extension.

### 5.1. Configuration of Avaya IP Office Users

Each user needs to be configured to allow the do not disturb feature. Click on **User Rights** in the left window select the user right associated with the users. In the example below this is called **Agent**. Under the **User** tab ensure **Enable do not disturb** is ticked as shown. Enter a suitable name for the User rights as this will be referenced in the User configuration to follow. Click **OK** once the information is entered correctly (not shown).

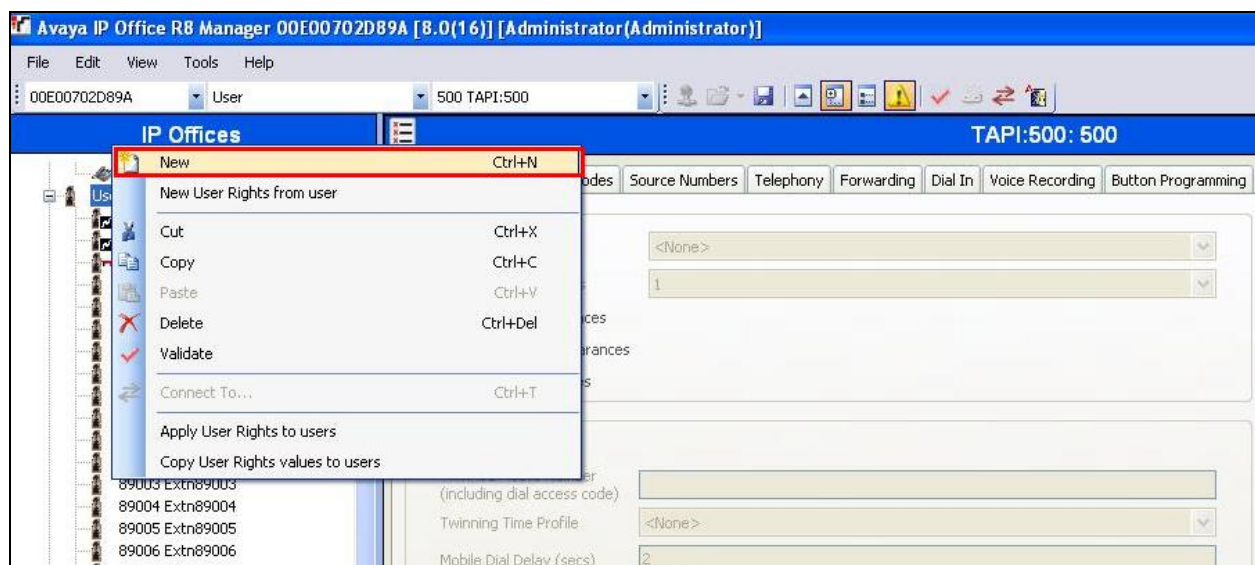


Expand on **User** in the left window and select the user to modify. Under the **User** tab in the right window ensure that **Working hours User Rights** is set to that user rights configured above.



## 5.2. Adding IP Office Users for Predictive Dialling

Adaptive Predictive Dialler uses an IP office extension in order to make an outbound call in the Predictive campaign and then transfers the caller to an Adaptive user. To add a new IP Office user right-click on users in the left window and select new as highlighted below.



This brings up the user window as shown below. Enter a suitable **Name** and **Password** for the new user along with the **Extension** number and **Profile** which should be set to **Basic User**. Click on **OK** once configured correctly.

**Note:** A new user must be added for each simultaneous outbound call required.

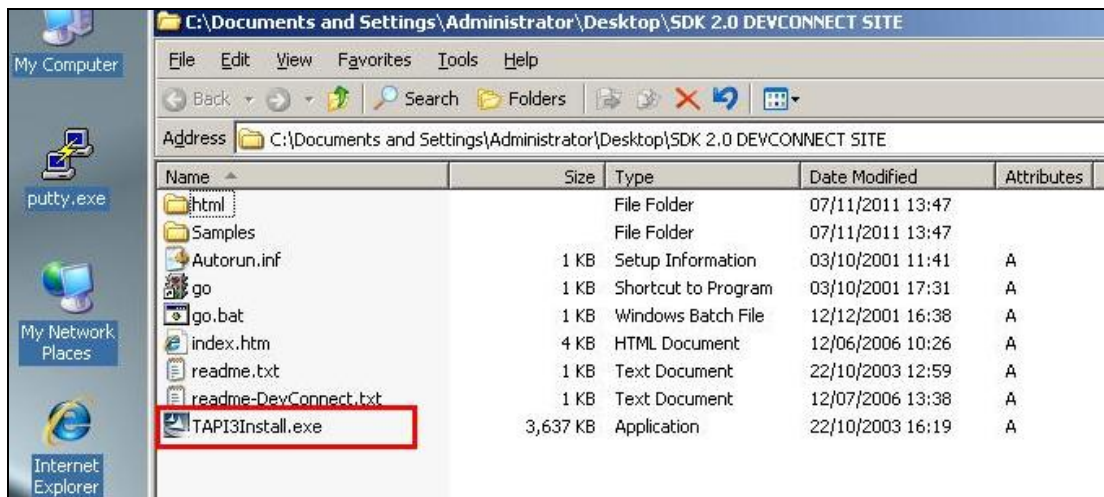
The screenshot displays the Avaya IP Office R8 Manager interface. The title bar reads "Avaya IP Office R8 Manager 00E00702D89A [8.0(16)] [Administrator/Administrator]]". The menu bar includes File, Edit, View, Tools, and Help. Below the menu bar, there's a toolbar with various icons. The main window is divided into two panes. The left pane, titled "IP Offices", shows a tree view of the system configuration, including a list of extensions under "User (50)". The right pane, titled "Ext8911: 8911\*", contains the configuration fields for a specific user. The "User" tab is selected, showing fields for Name, Password, Confirm Password, Full Name, Extension, Locale, Priority, System Phone Rights, and Profile. The "Profile" dropdown is set to "Basic User". Below the dropdown, there are several checkboxes: "Receptionist", "Enable Softphone", "Enable one-X Portal Services", "Enable one-X TeleCommuter", and "Enable Remote Worker". An "OK" button is located at the bottom right of the configuration pane.

Field	Value
Name	Ext8911
Password	*****
Confirm Password	*****
Full Name	
Extension	8911
Locale	
Priority	5
System Phone Rights	None
Profile	Basic User
Receptionist	<input type="checkbox"/>
Enable Softphone	<input type="checkbox"/>
Enable one-X Portal Services	<input type="checkbox"/>
Enable one-X TeleCommuter	<input type="checkbox"/>
Enable Remote Worker	<input type="checkbox"/>



## 6. Installation and Configuration of Avaya IP Office TAPI3 Service Provider

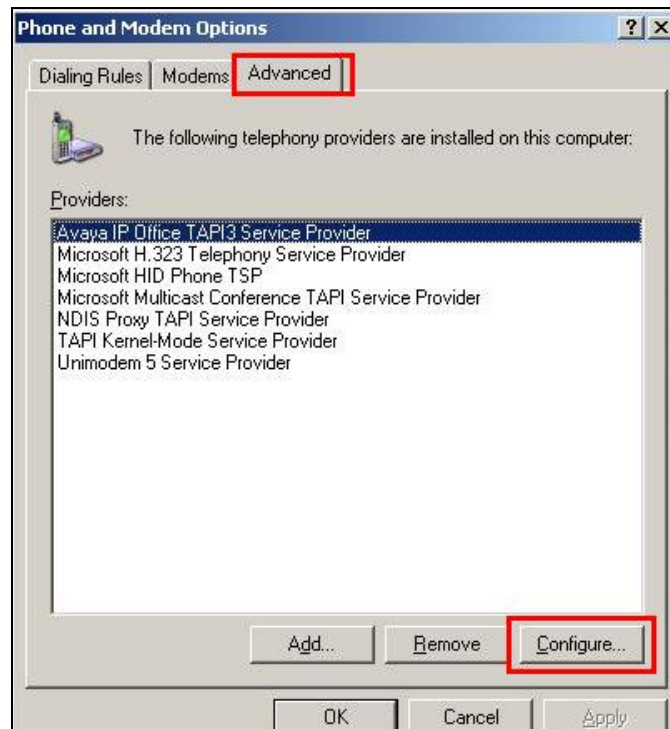
TAPI3 Service Provider is included in the IP Office CTI Link Software Development Kit (SDK) located on the DevConnect website (<http://www.avaya.com/gcm/master-usa/en-us/corporate/alliances/devconnect/index.htm>) under the product name IP Office. Once downloaded the install is initiated by running **TAPI3Install.exe** as shown below.



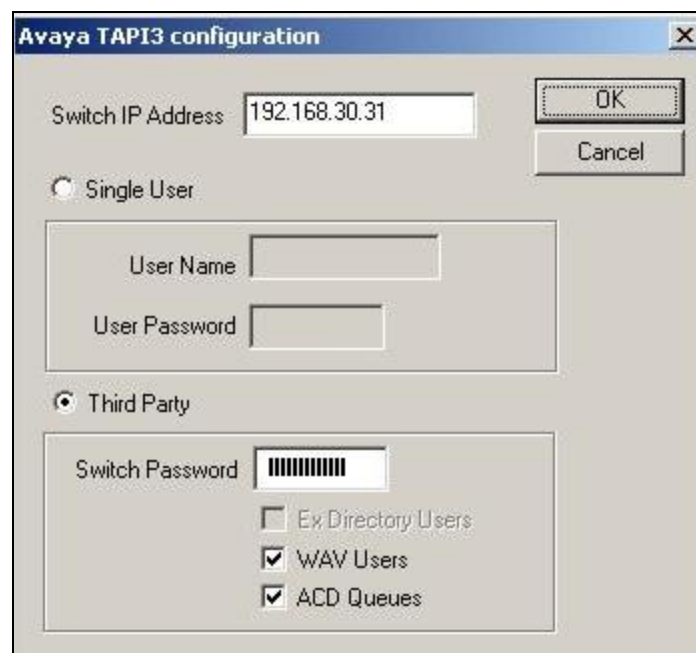
To configure the TAPI Service Provider, navigate to **Control Panel** and right click on **Phone and Modem Options** and properties as highlighted below.



Click on the **Advanced** tab and highlight **Avaya IP Office TAPI3 Service Provider** and click **Configure**.



Enter the IP Office IP address into the **Switch IP Address** box. Select **Third Party** and enter the IP Office Administrators password into the **Switch Password** box. Ensure **WAV Users** and **ACD Queues** are ticked as shown below.



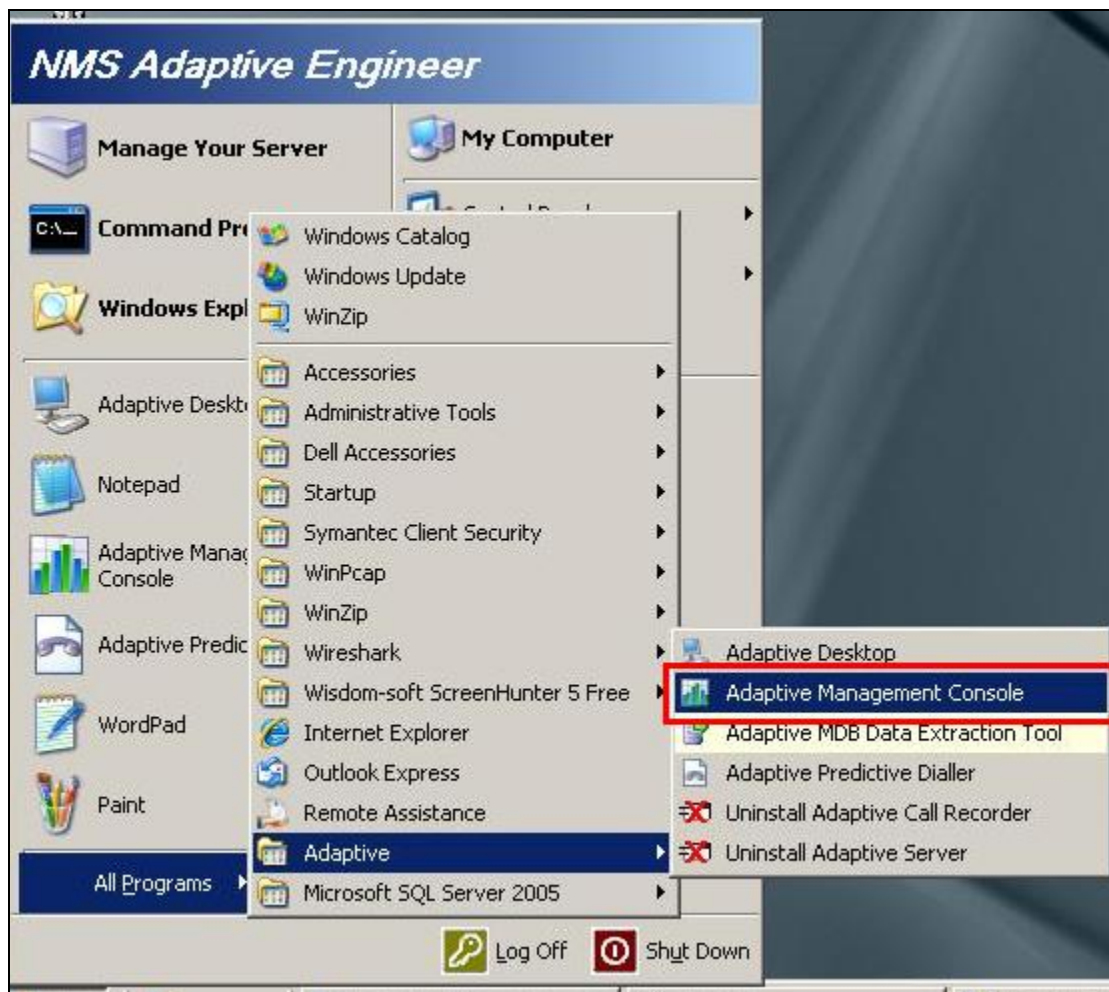
## 7. Configuration of NMS Adaptive Predictive Dialler

This section outlines the steps necessary to configure the NMS Adaptive Predictive Dialler to enable the Adaptive Desktop users use the Avaya IP Office deskphones in a predictive dialling outbound campaign. All configuration changes on the Adaptive Server are done through Adaptive Management Console installed on the Adaptive Server.

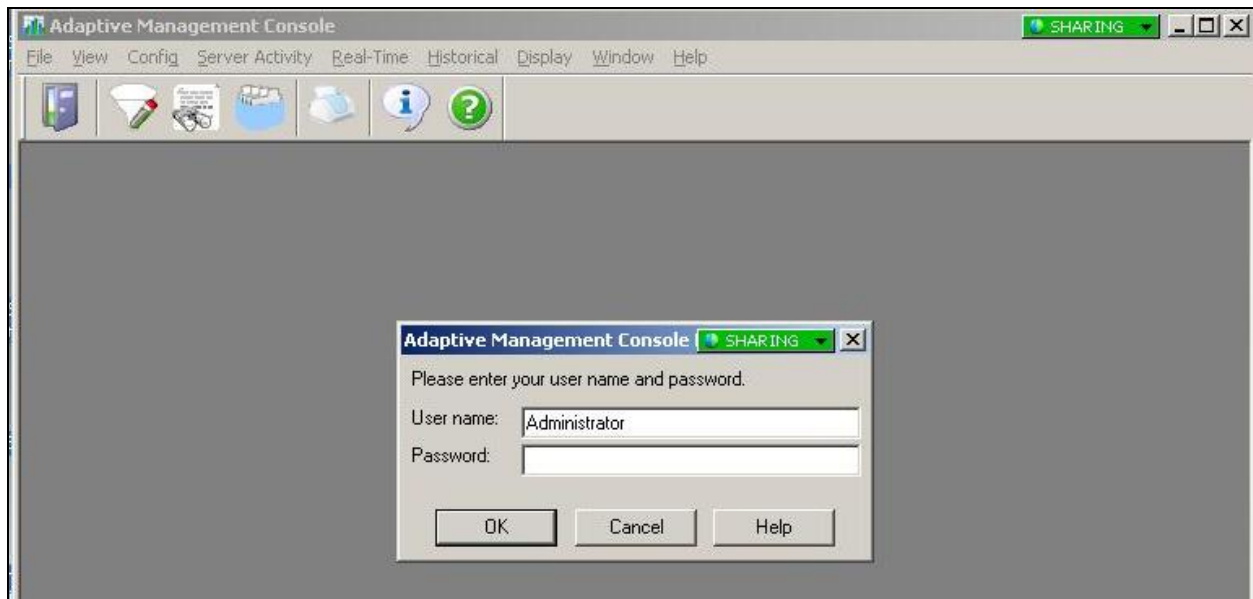
**Note:** Installation of the Adaptive CTI software is outside the scope of this document, for additional information regarding the installation please see **Section 10** of these Application Notes.

### 7.1. Configuration of NMS Adaptive CTI Gateway

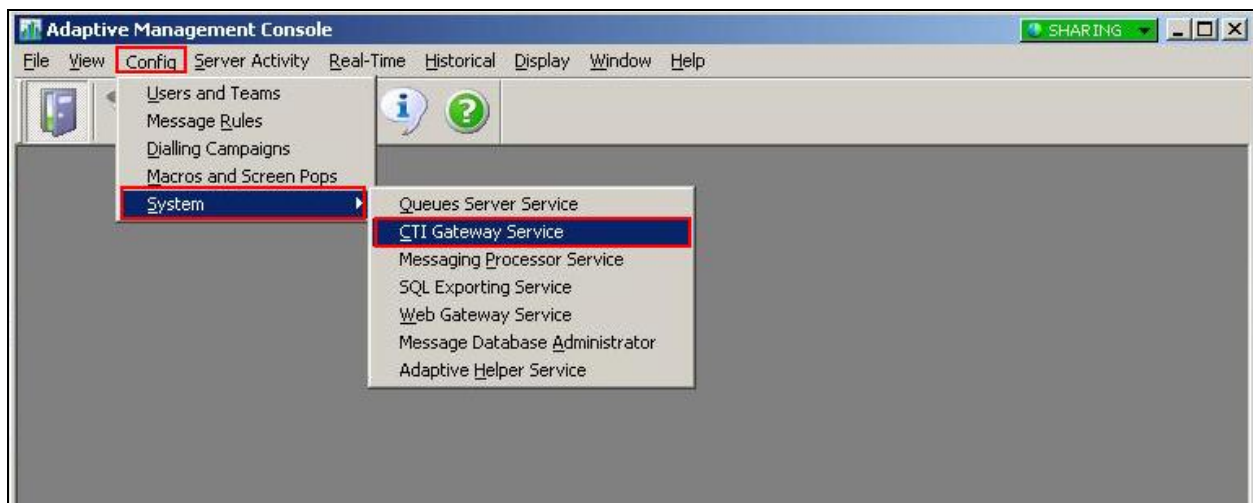
The steps below describe the configuration for Adaptive CTI Gateway. This configuration enables the Adaptive Predictive Dialler communicate with IP Office via TAPI. Open the program **Adaptive Management Console** as shown below.



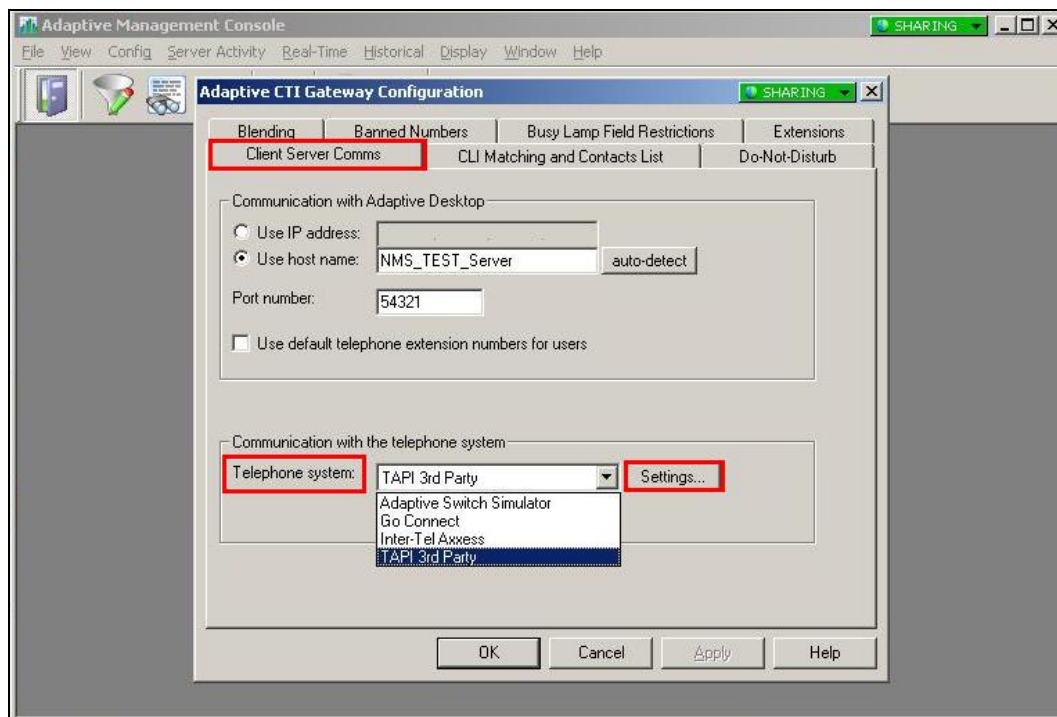
Enter the appropriate credentials into the **Adaptive Management Console** login screen as shown.



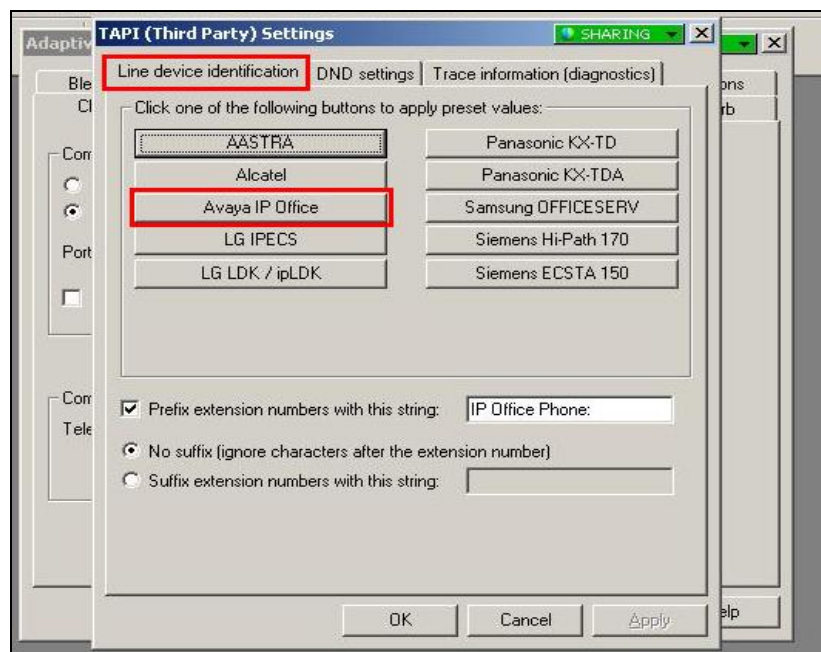
Once logged in configure the CTI Gateway Service by clicking on **Config** in the toolbar at the top of the screen and under **System** select **CTI Gateway Service** as shown below.



The **Adaptive CTI Gateway Configuration** window opens. Select **Client Server Comms** tab and select **TAPI 3<sup>rd</sup> Party** for the **Telephone system** as highlighted below. Click **Settings** to configure the TAPI Settings.

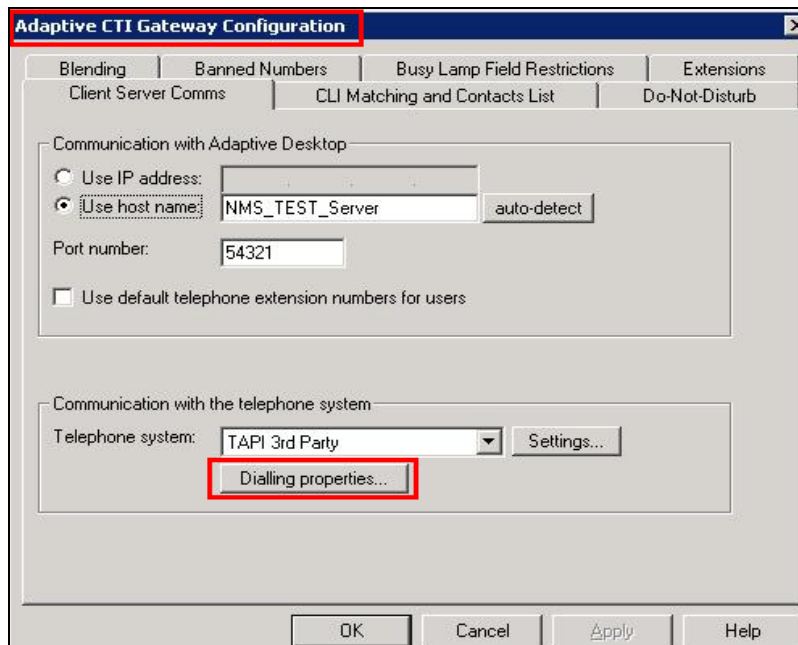


The **TAPI (Third Party) Settings** window opens. Click the **Avaya IP Office** button under the **Line device identification** tab and click **OK** to submit. All other entries are default.

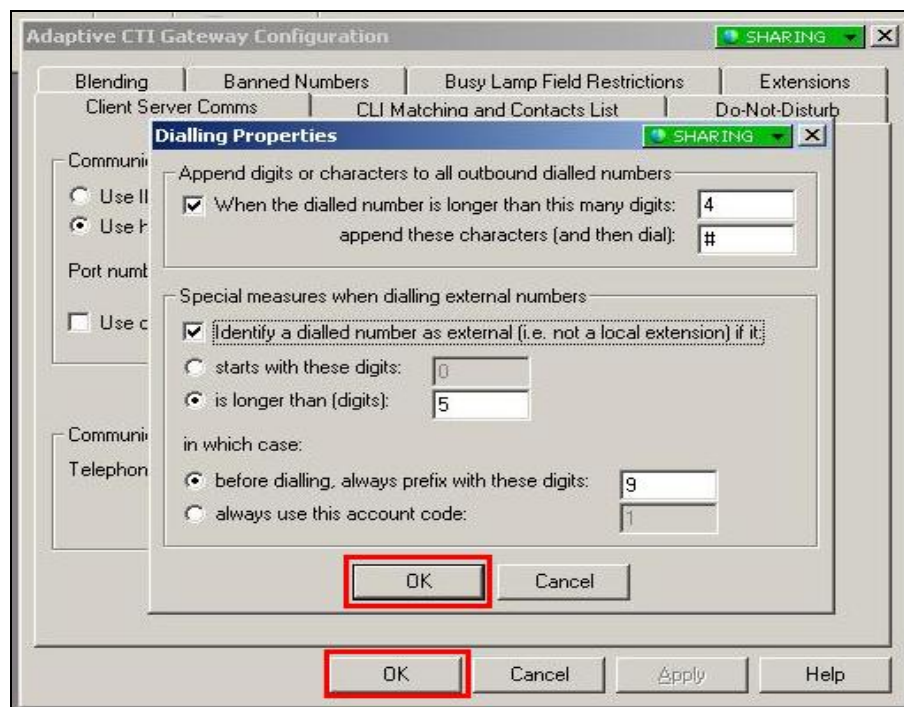




Click on **Dialling properties** on the **Adaptive CTI Gateway Configuration** window as shown below.

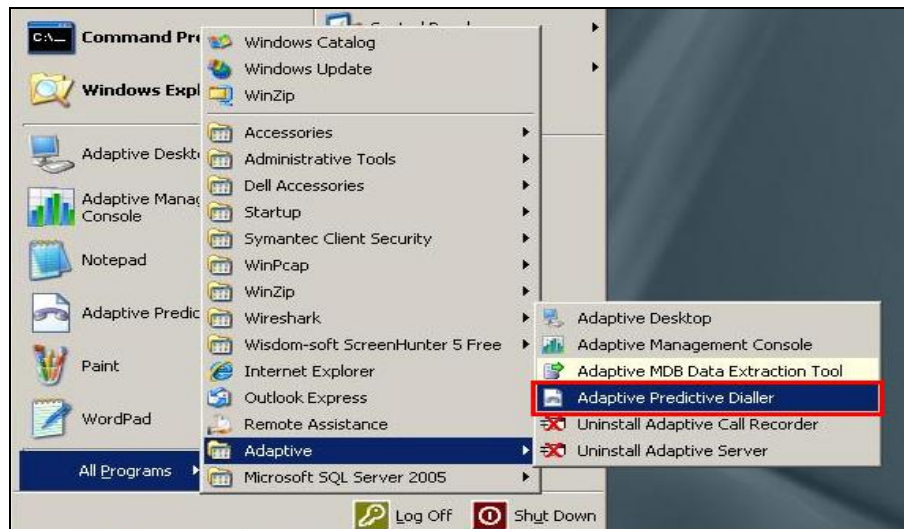


Prefix numbers for outside lines and appended numbers are added for the system on this screen. The information added here is non-specific as it is unique for each site. Once the relevant information is added, click **OK** and **OK** on the **Adaptive CTI Gateway Configuration** window, as shown.

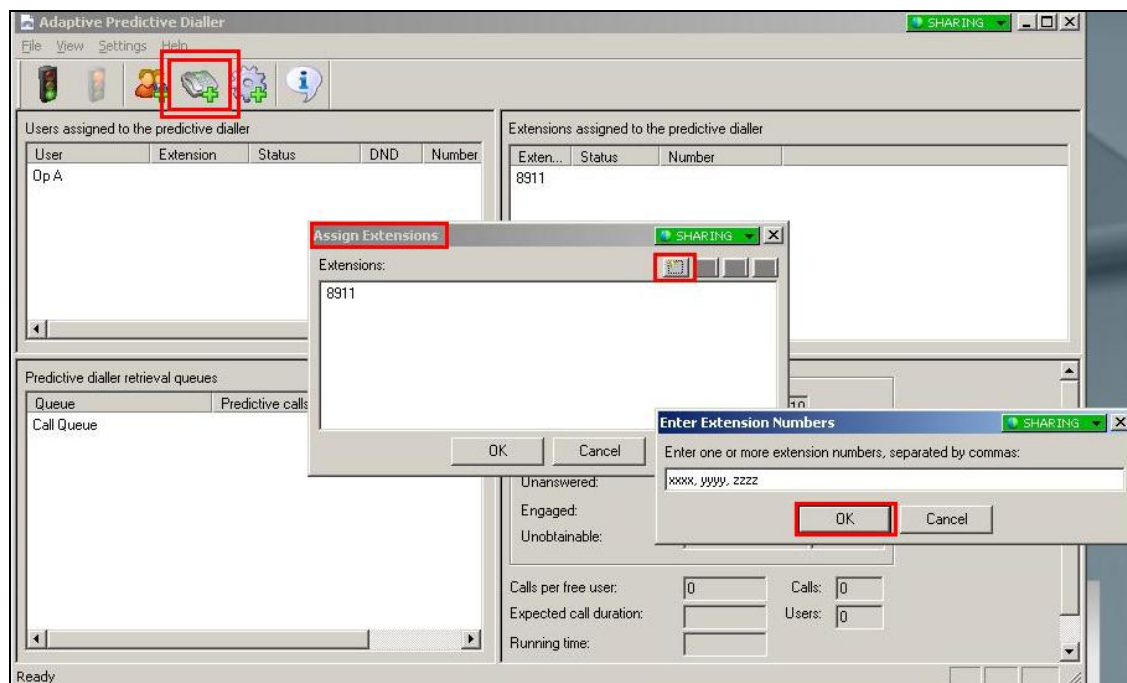


## 7.2. Configuration of NMS Adaptive Predictive Dialler

This section shows the configuration steps necessary to select the IP Office extensions used for predictive dialling. Adaptive Predictive Dialler dials selected telephone numbers and the client then gets automatically transferred to the Adaptive Desktop user. Open the program **Adaptive Predictive Dialler** as shown below.

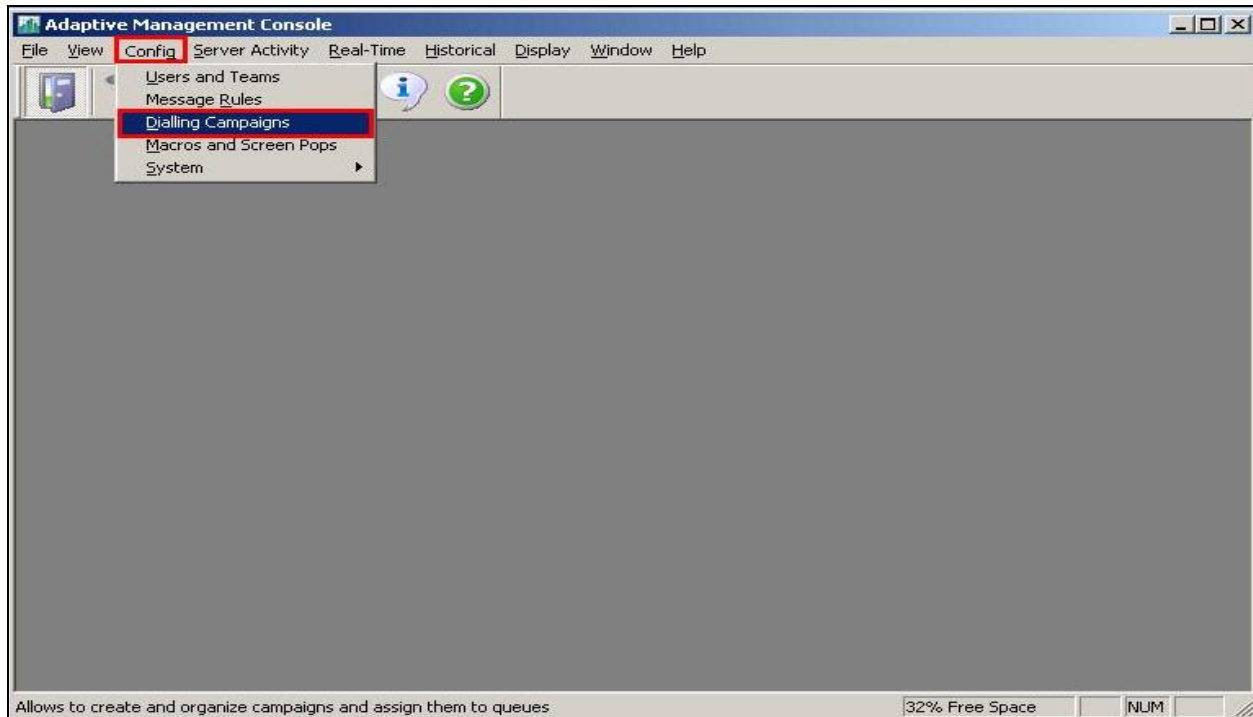


Click on the **Assign Extensions** icon at the top of the screen highlighted below. This opens the **Assign Extensions** window. Click on the new extensions icon at the top of that window highlighted and enter the IP Office **Extension Numbers** that will be used for dialling out by the **Adaptive Predictive Dialler**. Click **OK** on each window to save the configuration.

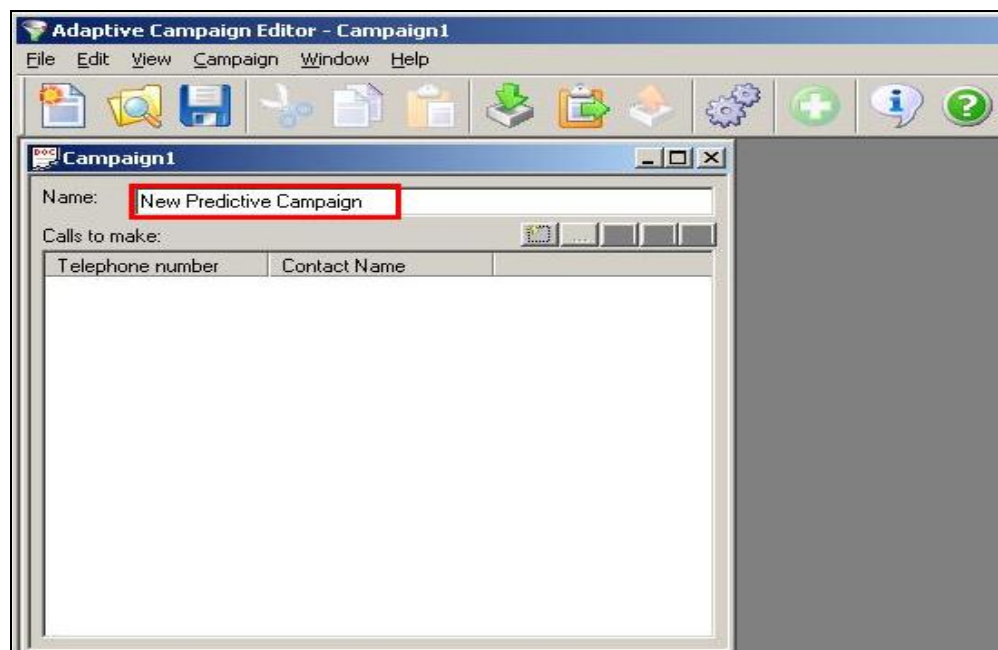


### 7.3. Configure Adaptive Predictive Dialling Campaign

Open the Adaptive Management Console as described in **Section 7.1**. Select **Config** in the tool bar and click on **Dialling Campaigns** as shown below.

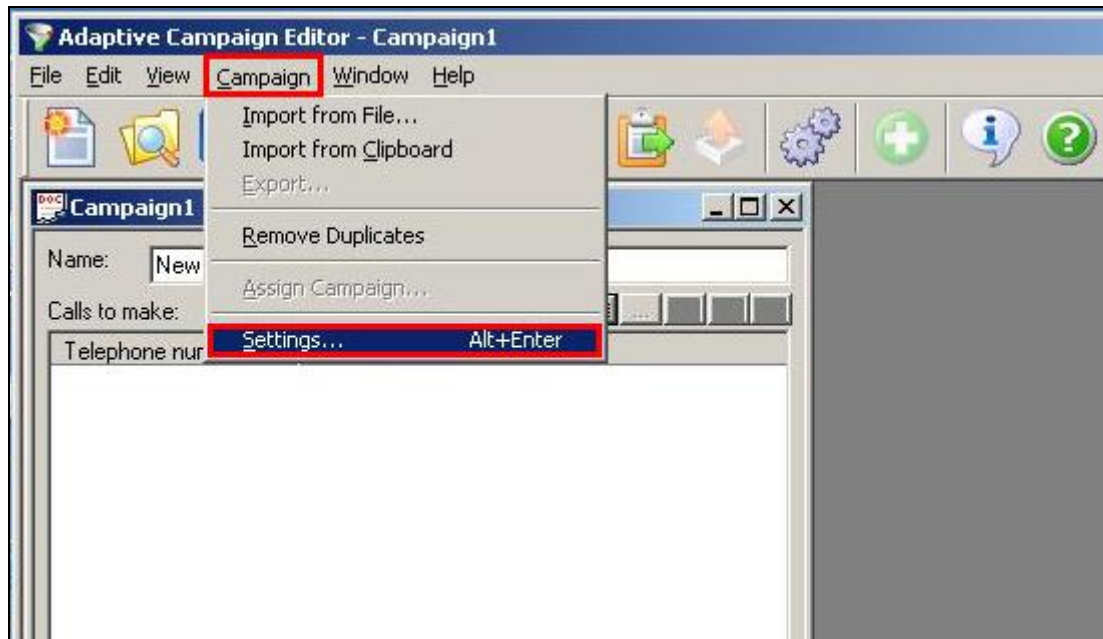


Enter a suitable name for the new campaign.

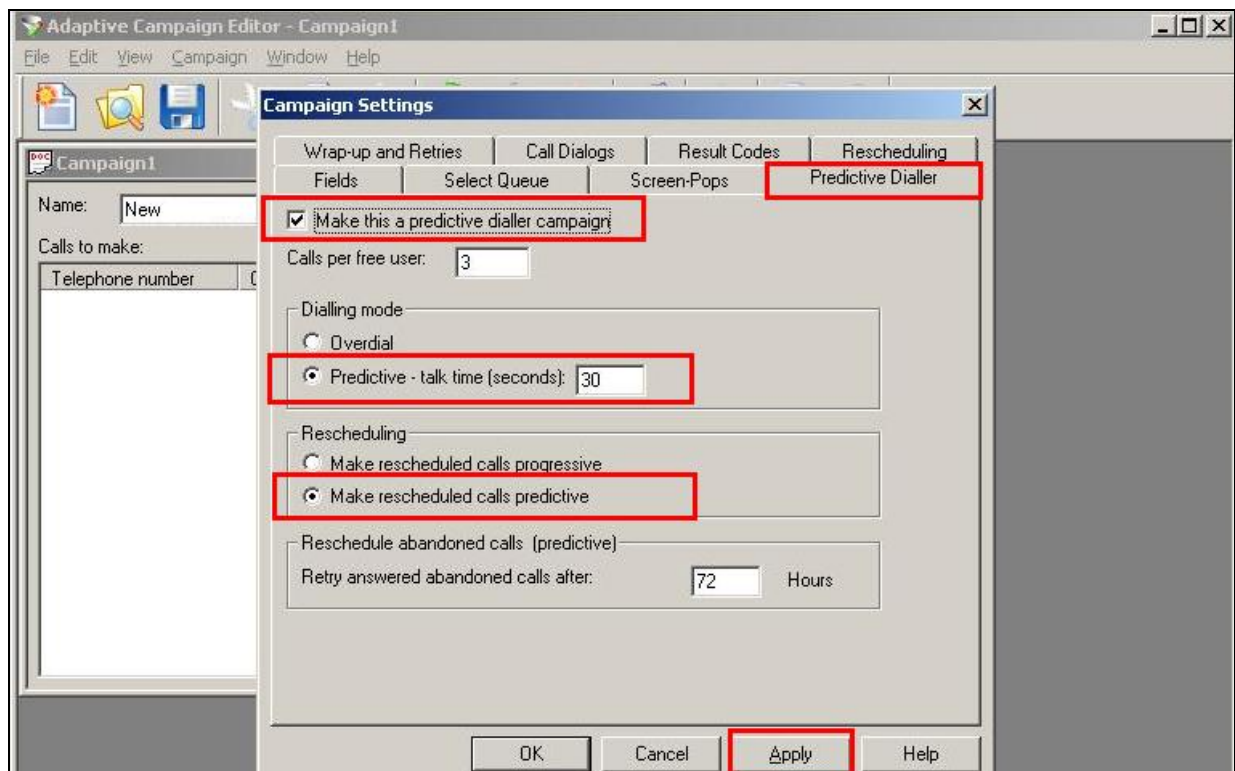




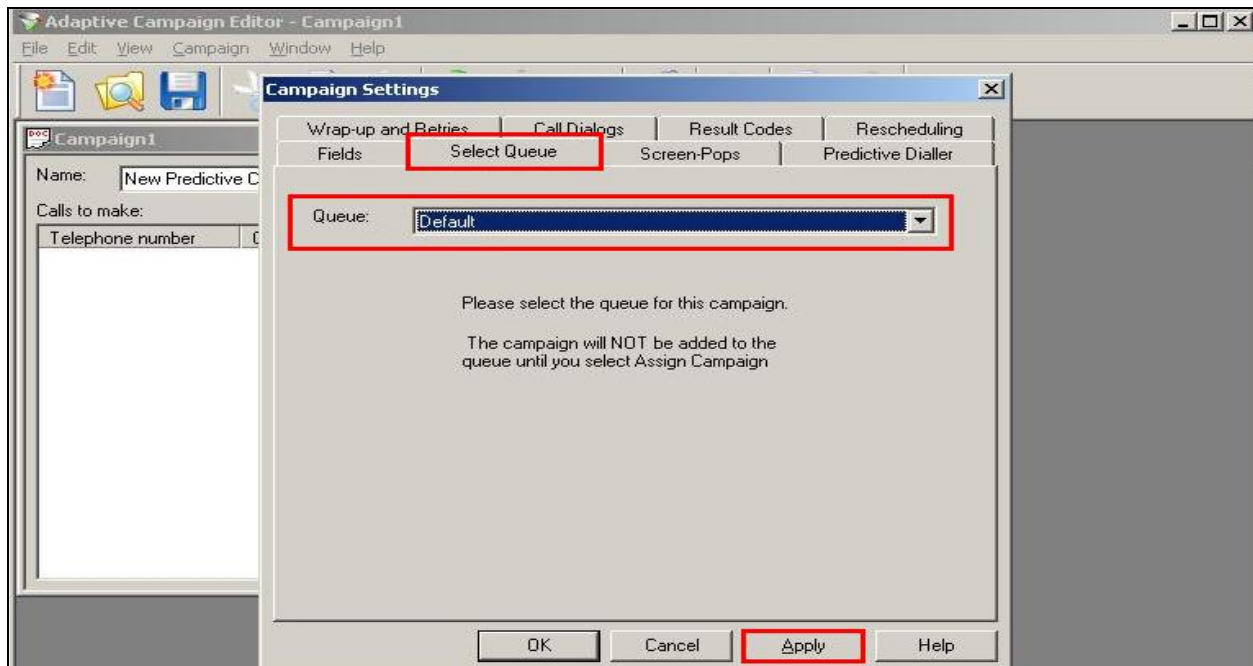
Select **Campaign** from the top toolbar and **Settings** as shown below.



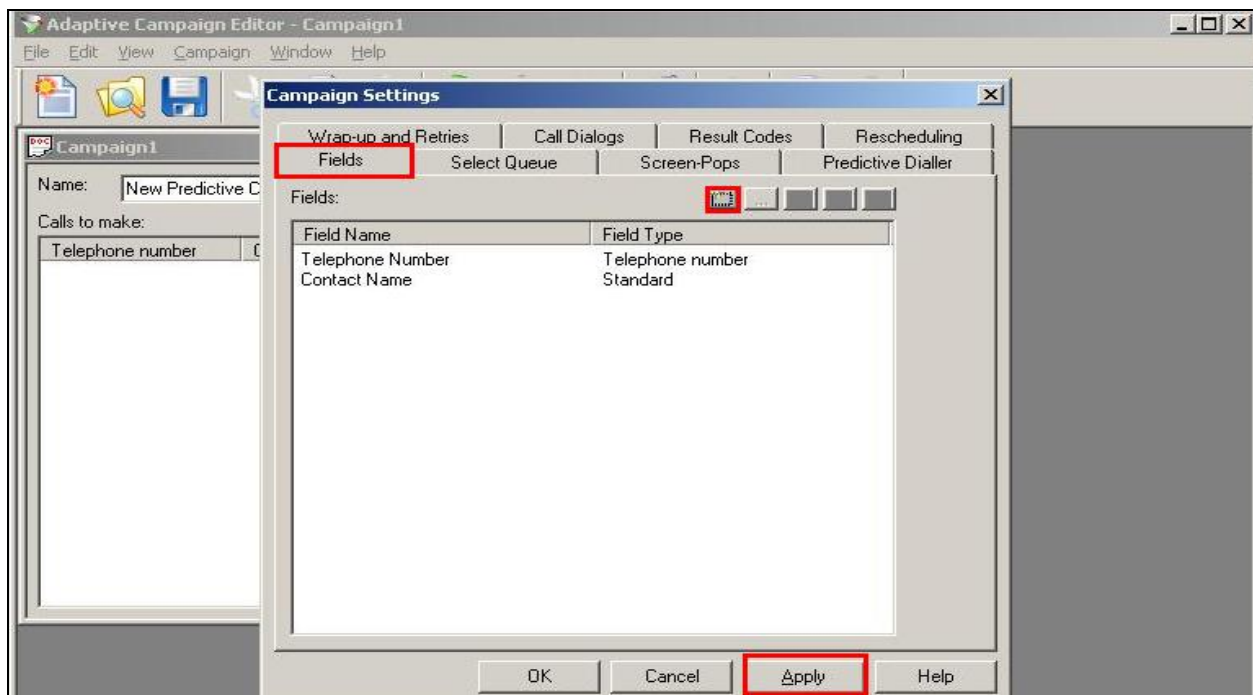
Select the **Predictive Dialler** tab. Ensure that **Make this a predictive dialler campaign** is ticked. Select **Predictive – talk time (seconds)** for **Dialling mode** and **Make rescheduled calls predictive** for **Rescheduling**. Click **Apply** once all necessary selections are completed.



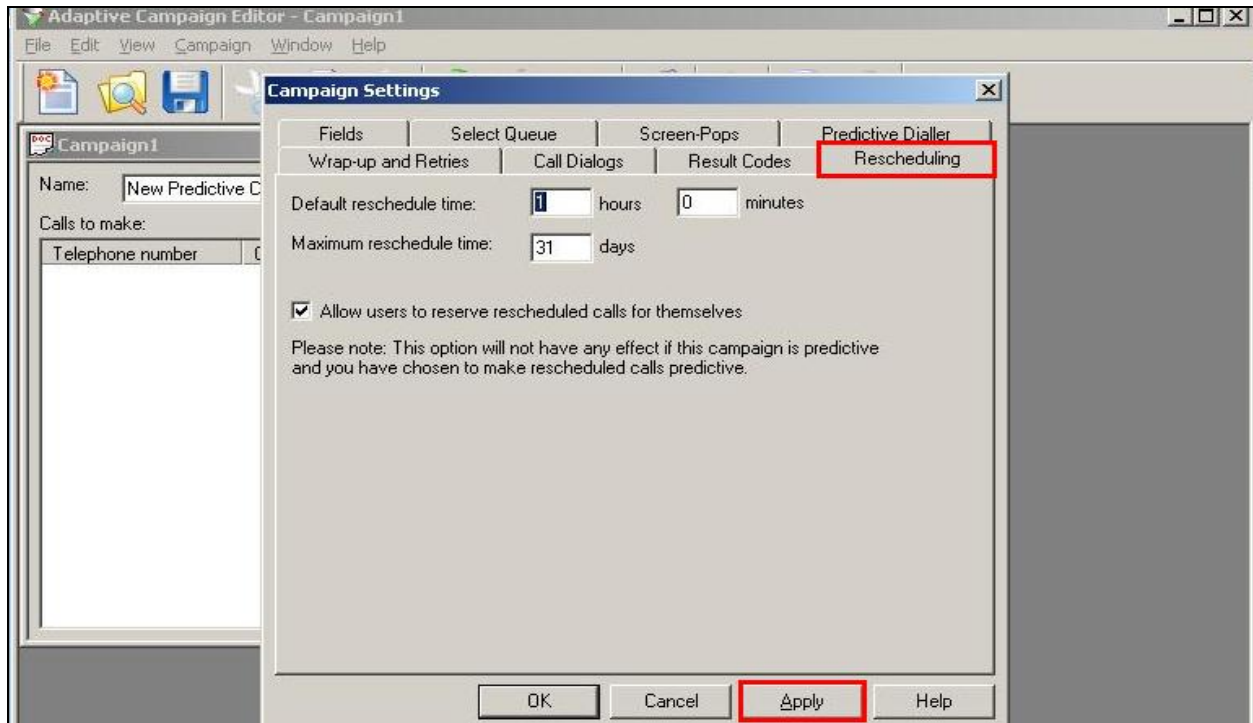
Select the queue to which the Predictive Campaign belongs to under the **Select Queue** tab, click **Apply** once selected.



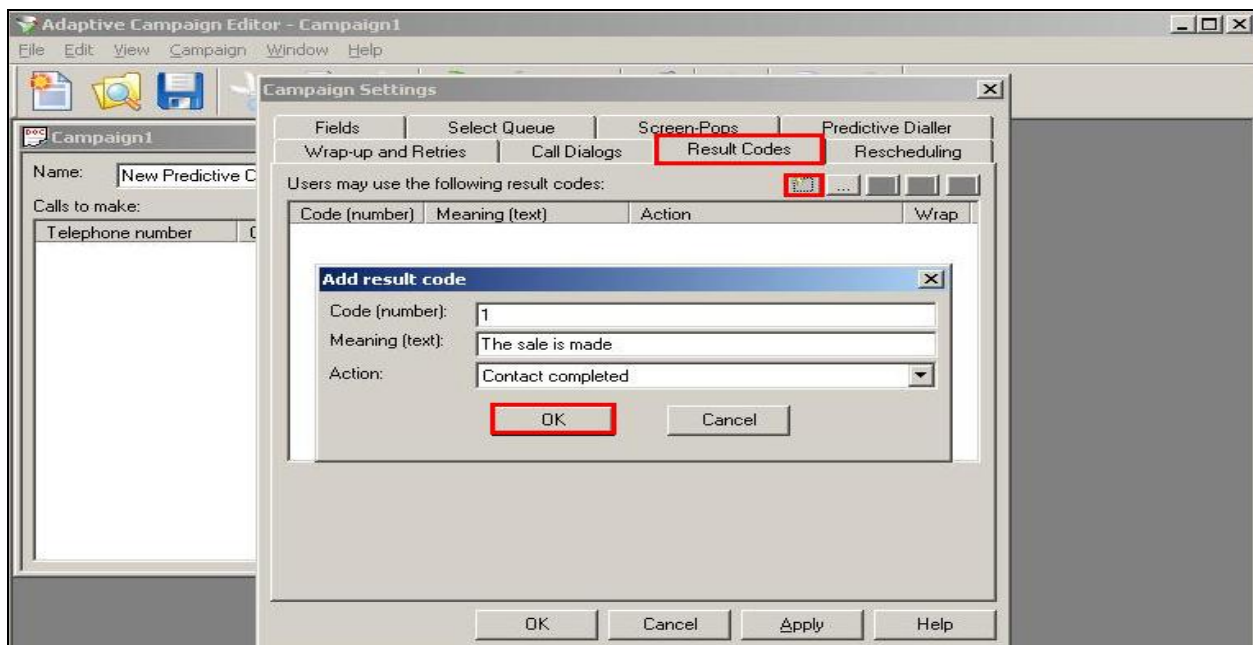
The Predictive Dialler fields such as **Contact Name** or **Telephone Number** can be altered or added to by selecting the icon highlighted below in the **Fields** tab. These fields will be evident in **Section 7.4** when adding calls to a campaign.



The default rescheduling time can be altered under the **Rescheduling** tab.

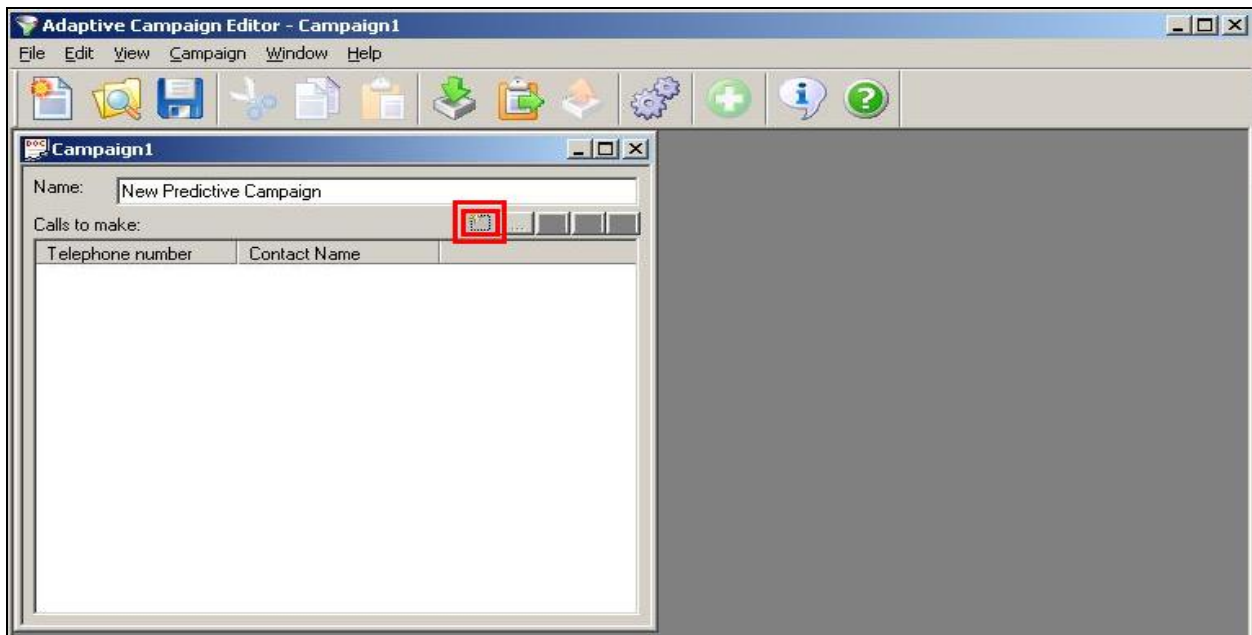


Once a call is completed a result code must be entered to report on how the call was finished, for example if the agent made a sale or if the customer was not interested or perhaps would require a call back in the future. Click on **Result Codes** tab and select the icon highlighted to **Add result code**. Enter a suitable **Meaning** and choose an **Action** from the drop-down menu. Click **OK** once completed.

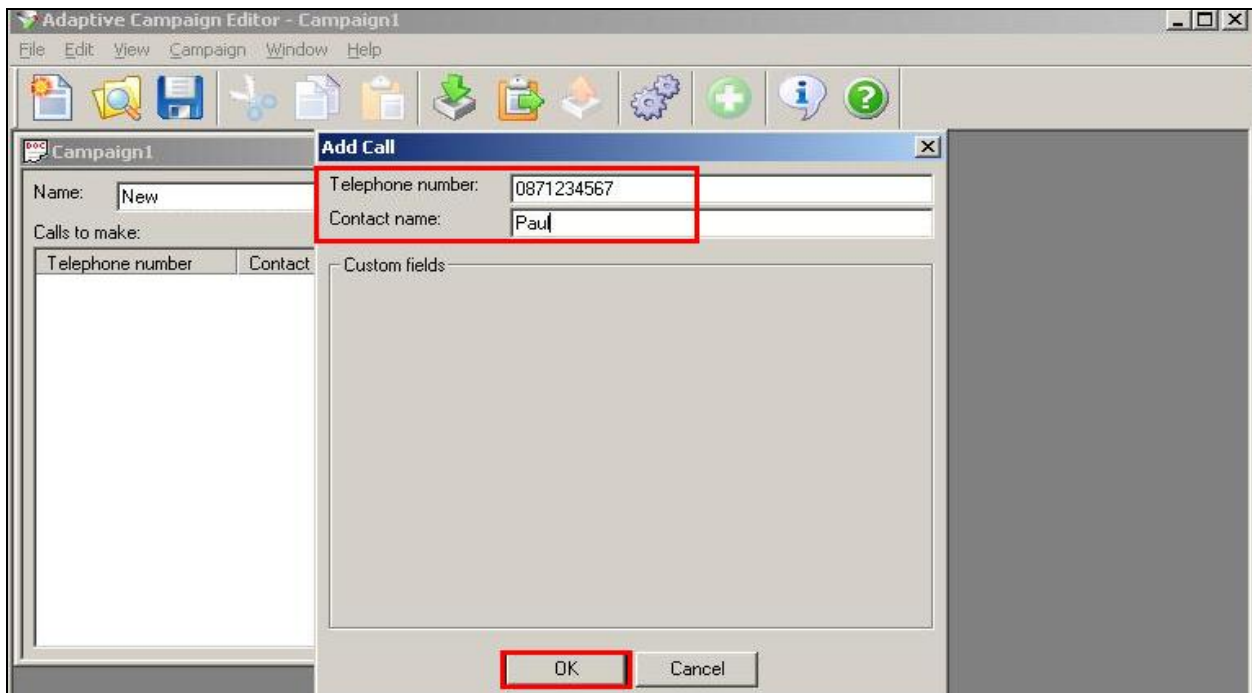


## 7.4. Adding callers to a campaign

Click on the icon highlighted below to add some users/numbers to the predictive campaign.

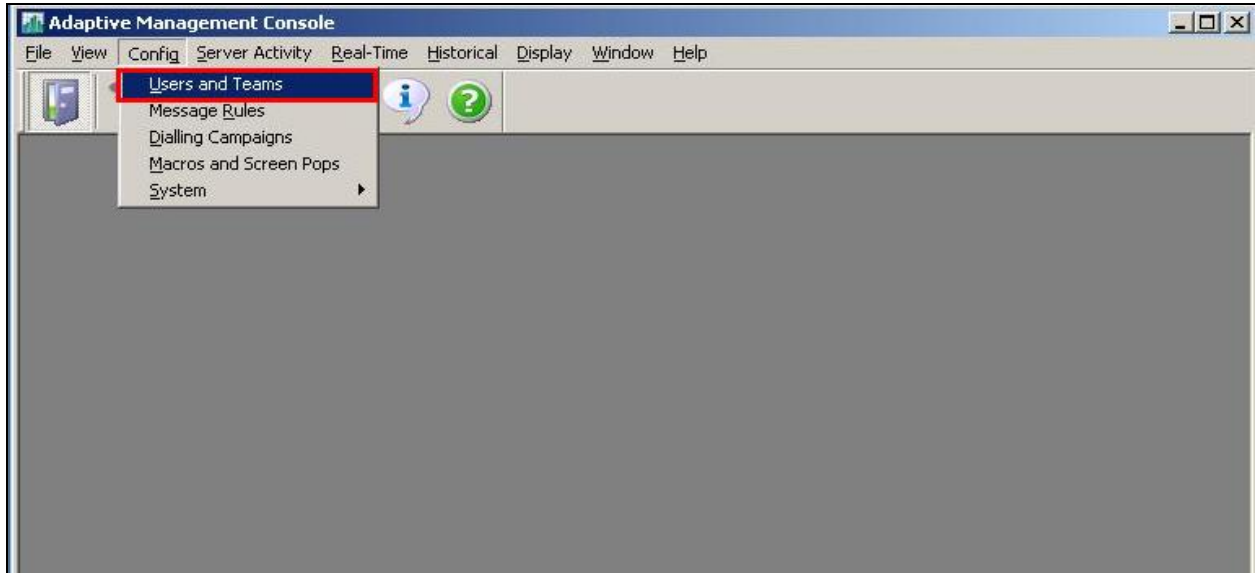


Note the fields present in the Add Call window. These fields correspond to those added in the **Section 7.3** above. Click on OK once completed. Any number of calls can be added to the campaign.

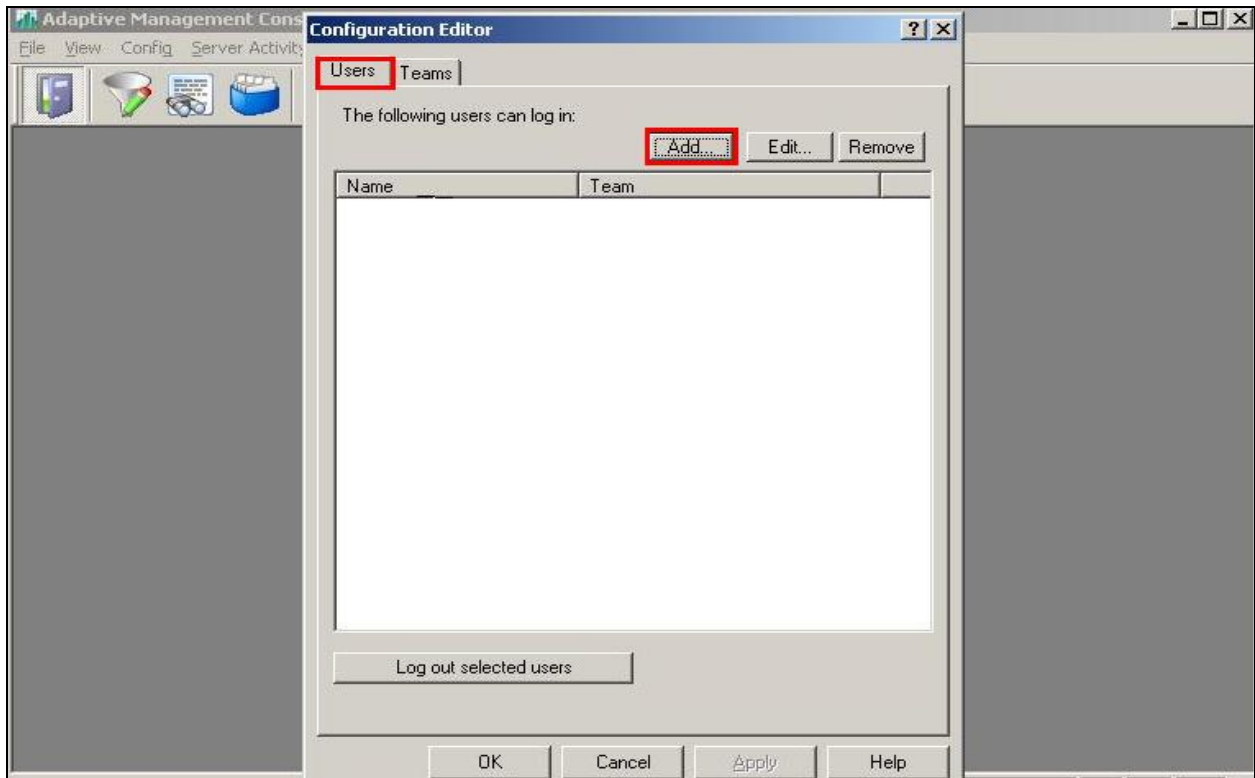


## 7.5. Adding Adaptive Users

Open the **Adaptive Management Console** as described in **Section 7.1**. Under **Config** select **Users and Teams** highlighted below.

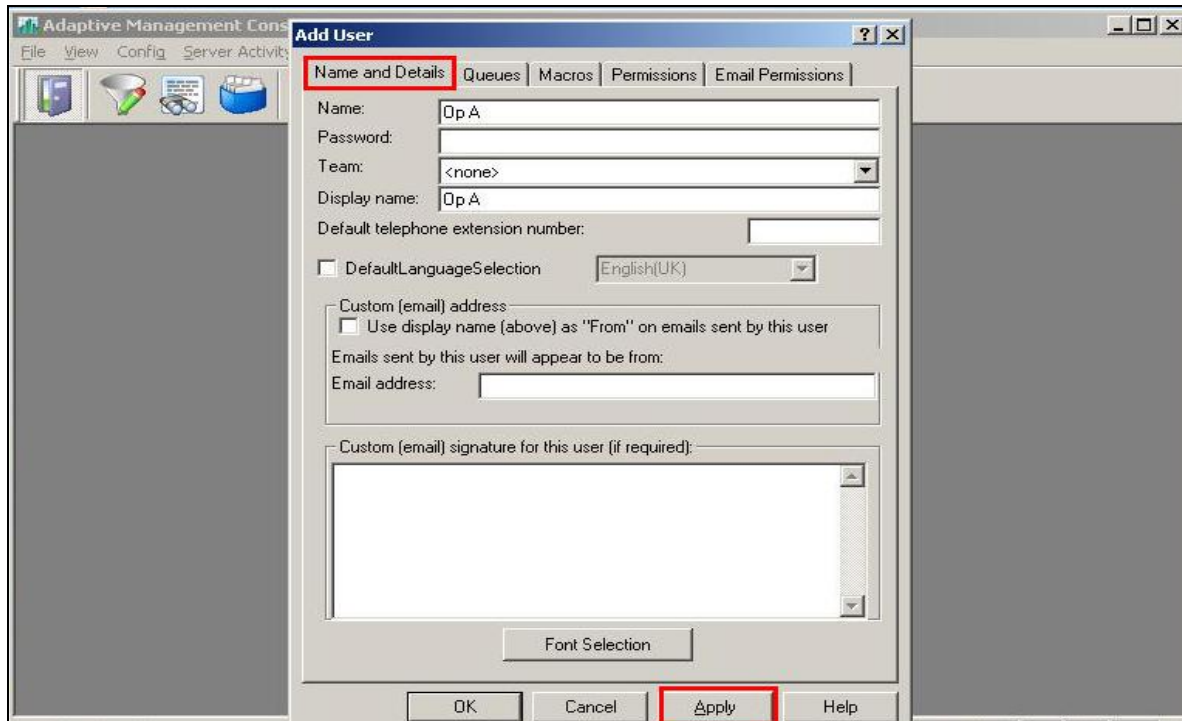


Select the **Users** tab and click on the **Add** button highlighted below.

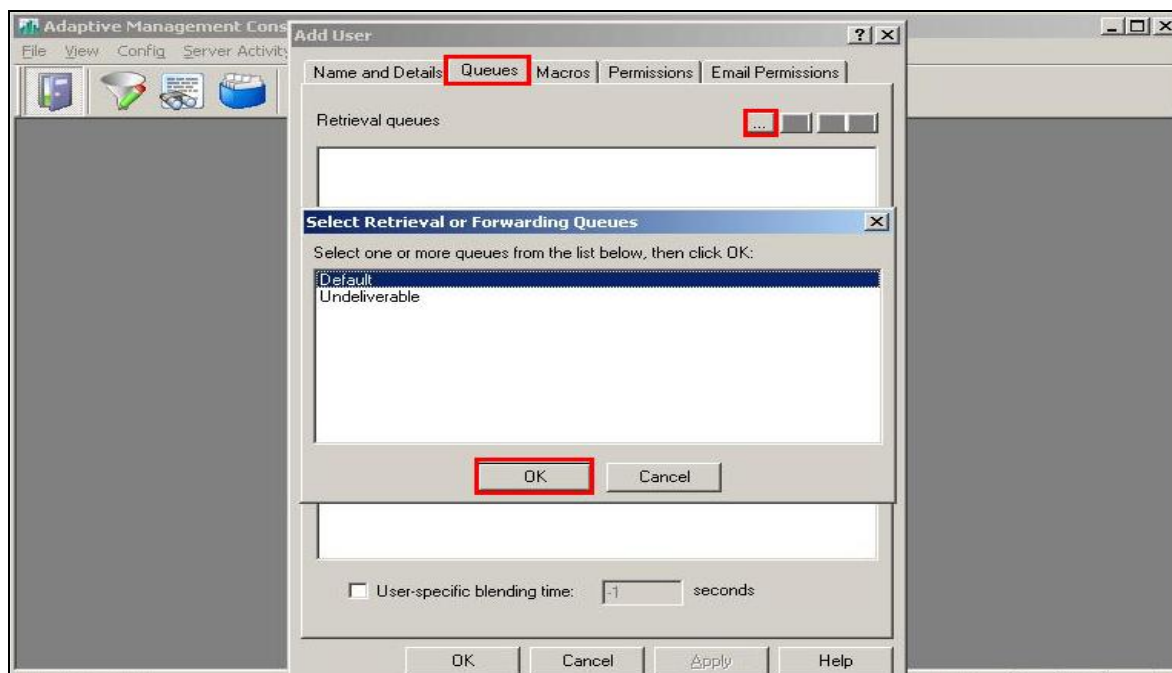




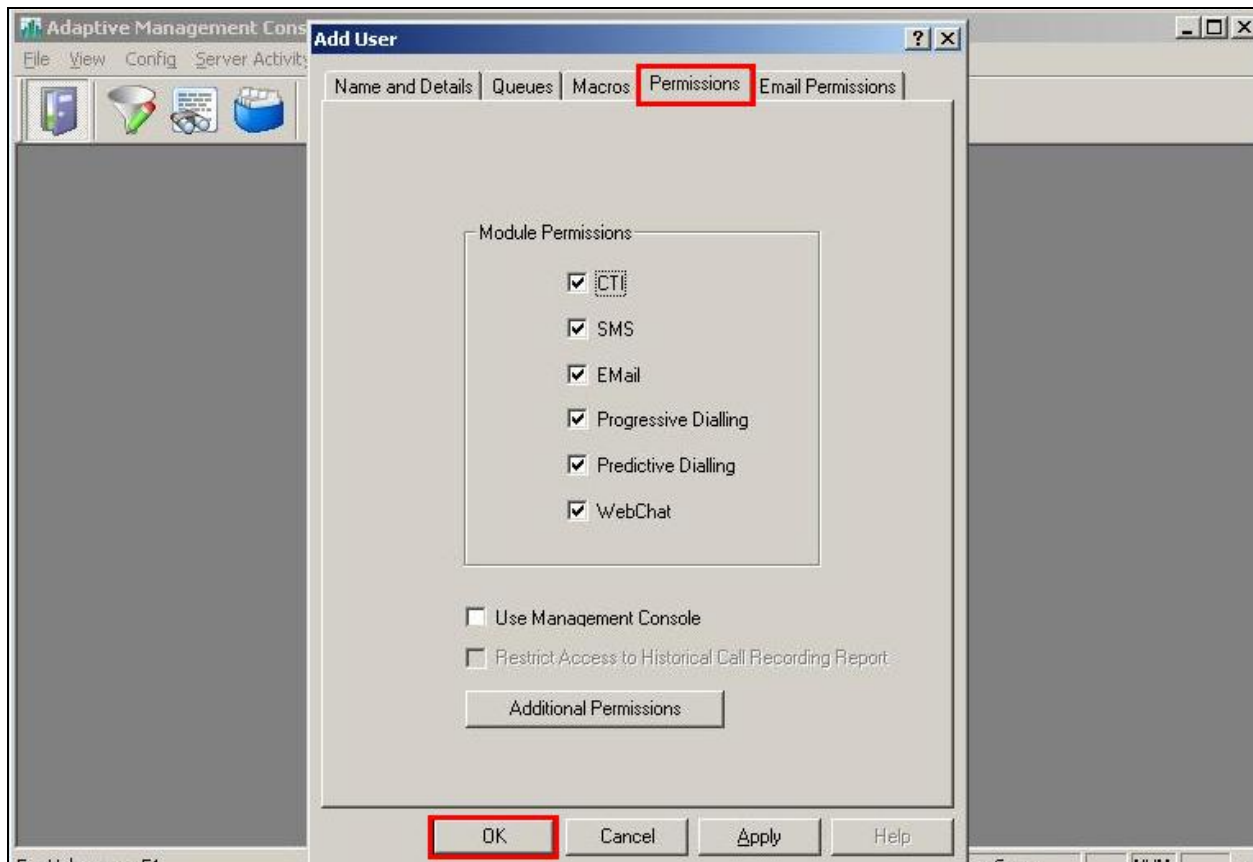
The **Add User** window is opened, under the **Name and Details** tab enter a suitable **Name** and **Password** and click **Apply**.



Select the **Queues** tab and click on the icon highlighted below. The **Select Retrieval or Forwarding Queues** window is opened. Select the required queue that will be associated with the new user and click **OK**.

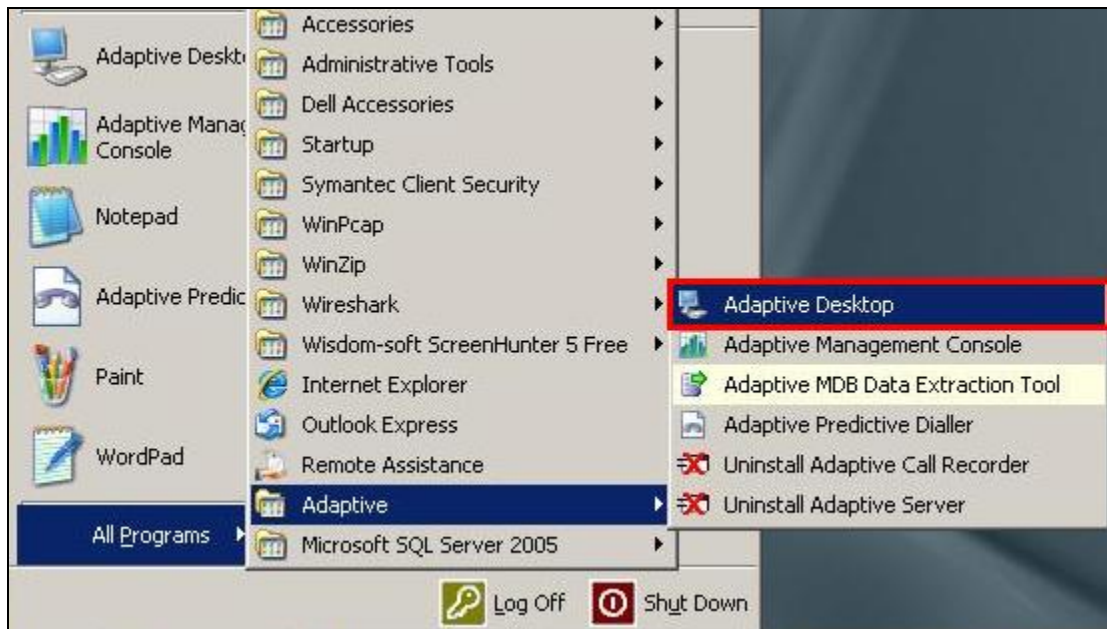


Click on the **Permissions** tab and select the **Module Permissions** required for the user, the example below shows all possible modules selected for the user. Click on OK once selected.

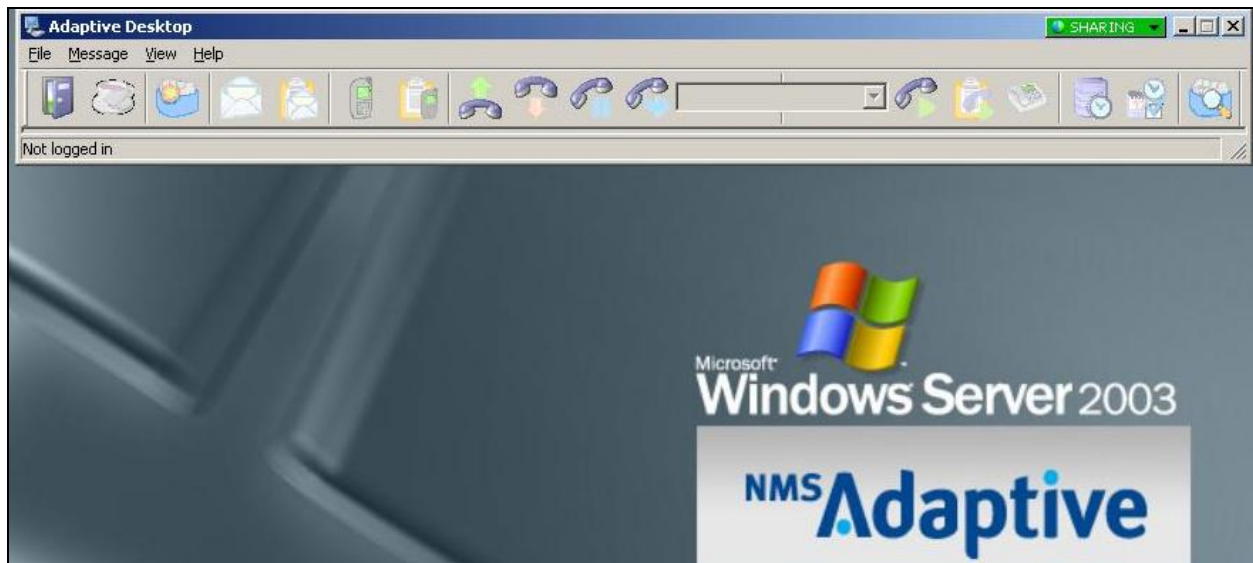


## 7.6. Configure Adaptive Desktop

Open **Adaptive Desktop** as shown below.

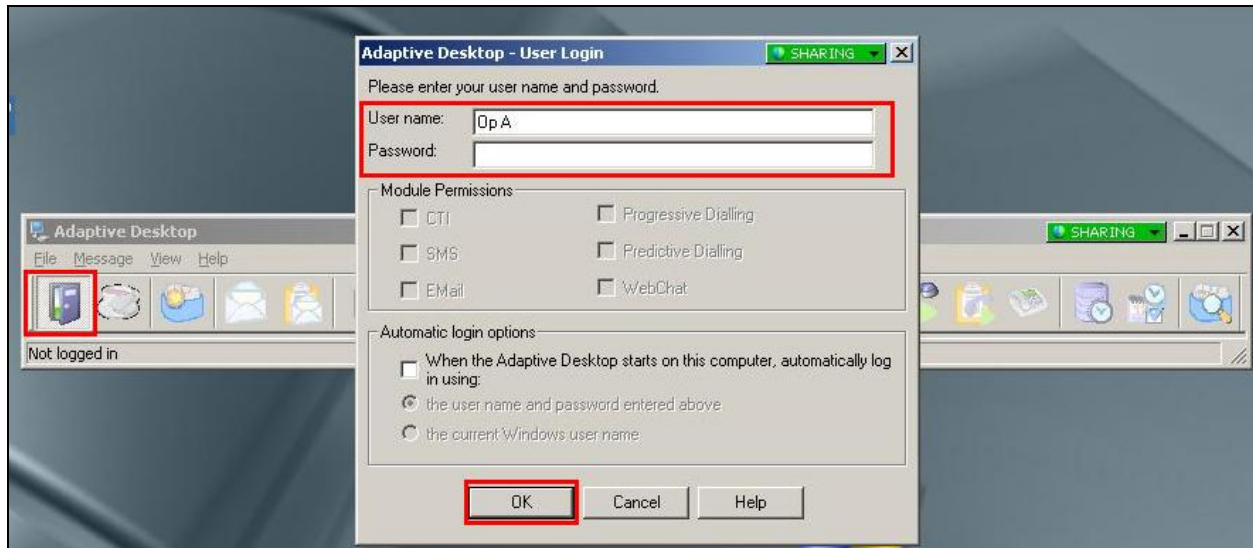


This opens the **Adaptive Desktop** window as shown.

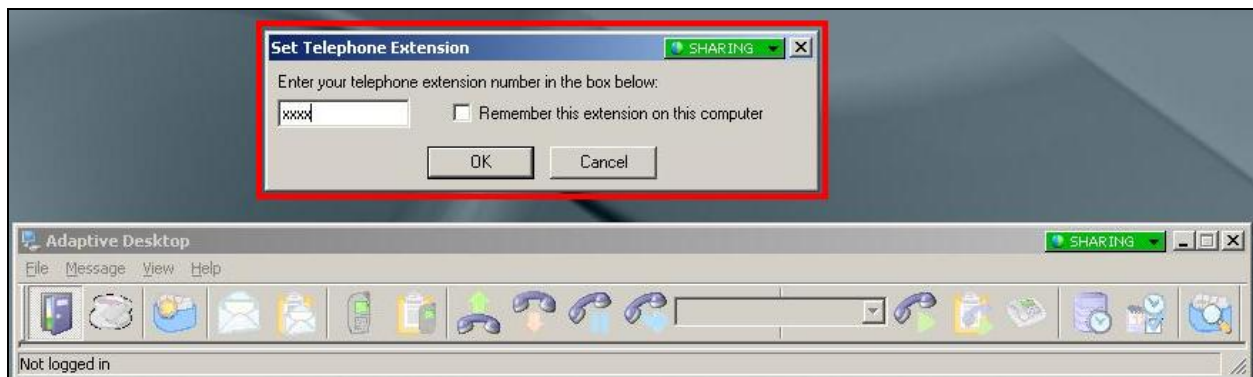




Click on the Login Icon highlighted. This opens the **Adaptive Desktop – User Login** window, Enter the required **User name** and **Password** and click **OK**.



Once **OK** is clicked above the **Set Telephone Extension** window opens. Enter the IP Office extension that is to be associated with the Adaptive Desktop operator and click **OK**.



Once logged in information on **messages**, **calls**, and **Call Queue** is displayed as highlighted below.

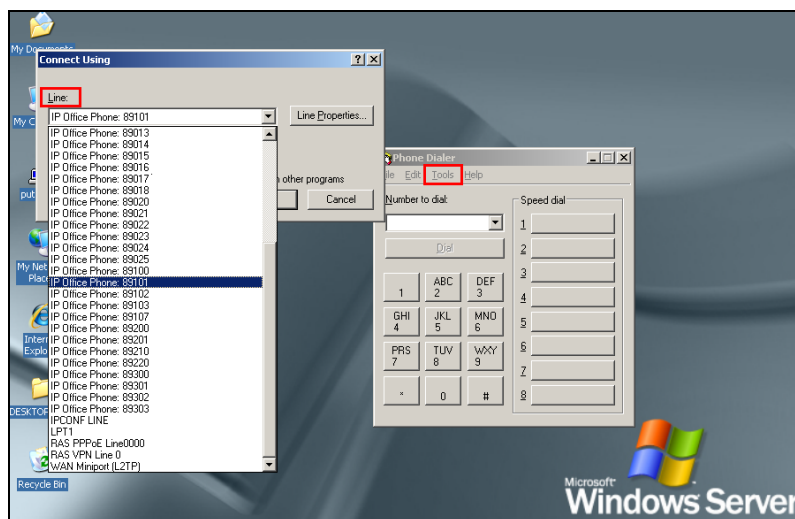


## 8. Verification Steps

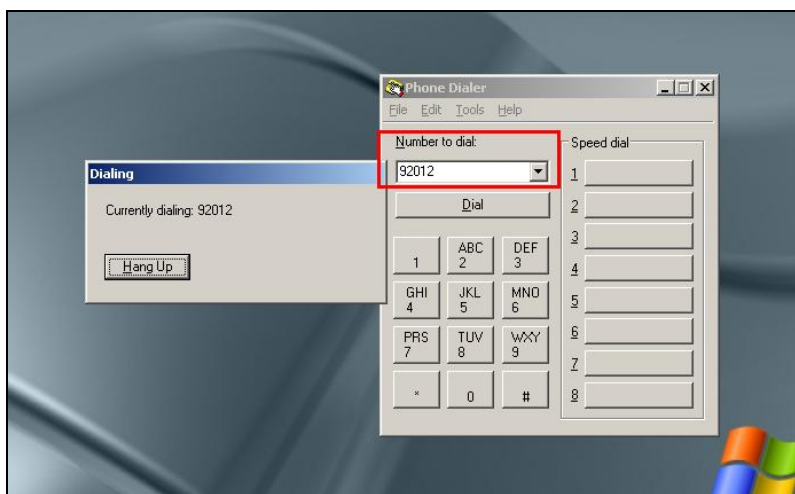
This section illustrates the steps necessary to verify that the NMS Adaptive Predictive Dialler is connected to the IP Office correctly.

### 8.1. Verify that Avaya IP Office TAPI Service Provider is running correctly

Open **Phone Dialer** (Windows program installed on all Windows platforms) on the Evolution Server where TAPI is installed. Click on the Tools menu and select **Connect Using**. Another box opens as shown below. Open the **Line** dropdown box and all the IP Office users should here as an available line to use.



Choose any line and in the box **Number to dial** enter a valid IP Office extension number as shown below and click **Dial**. The **Phone Dialer** should successfully call the chosen extension number.

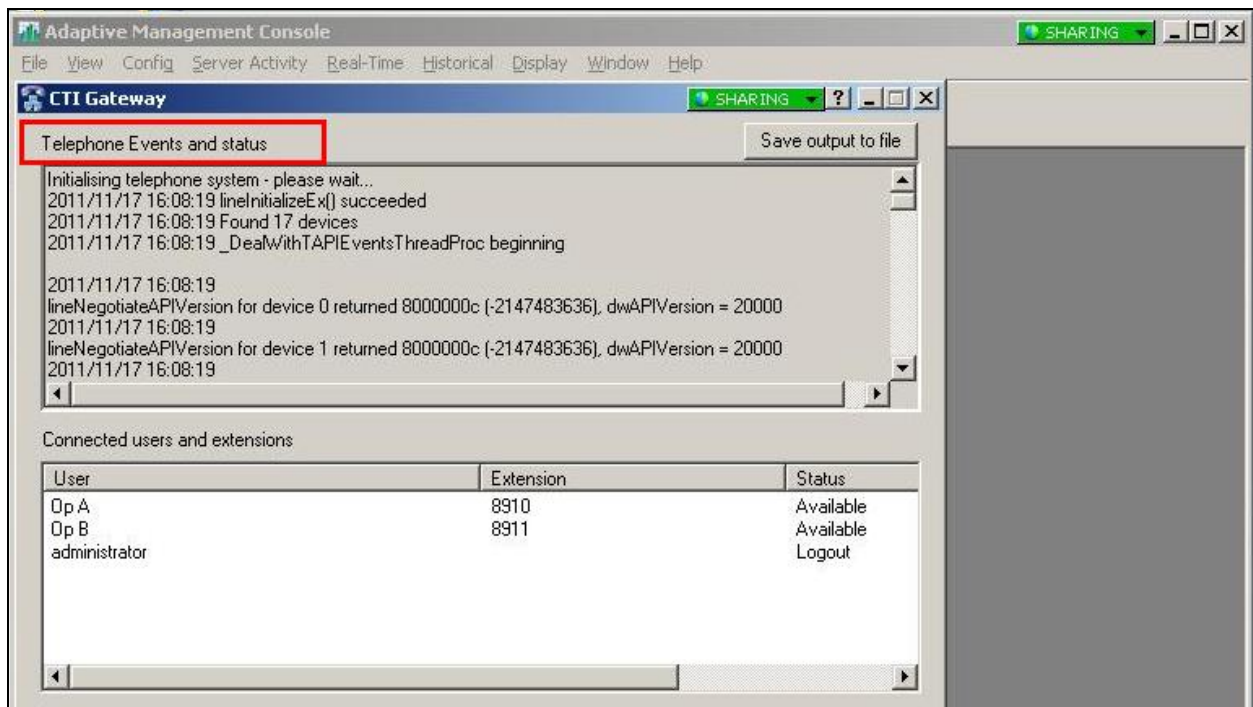


## 8.2. Verify that NMS Adaptive Server has CTI functionality

Open Adaptive Management Console as shown in **Section 7.1**. Click on **Server Activity** in the top menu and **Telephone Events** as shown below.

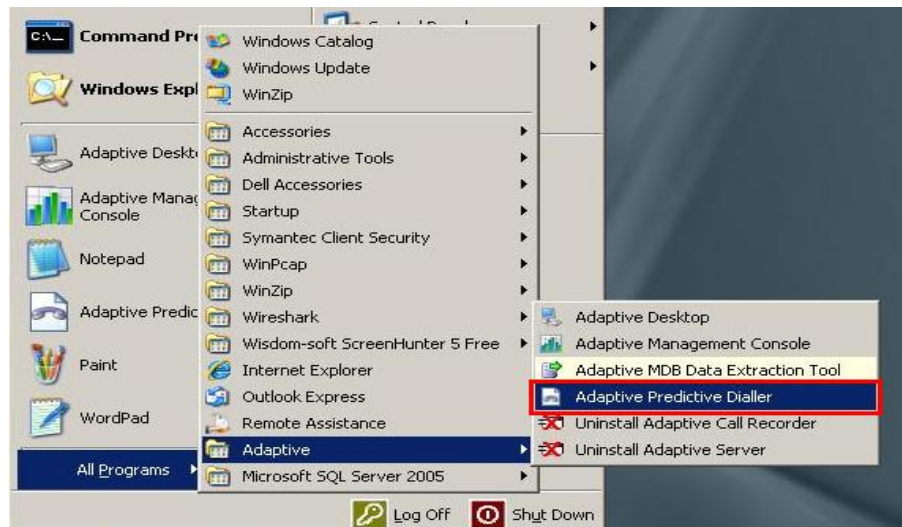


**Telephone Events and status** are displayed in the **CTI Gateway** window as shown below.



### 8.3. Verify Predictive Dialler is operating correctly

Open the program **Adaptive Predictive Dialler** as shown below.

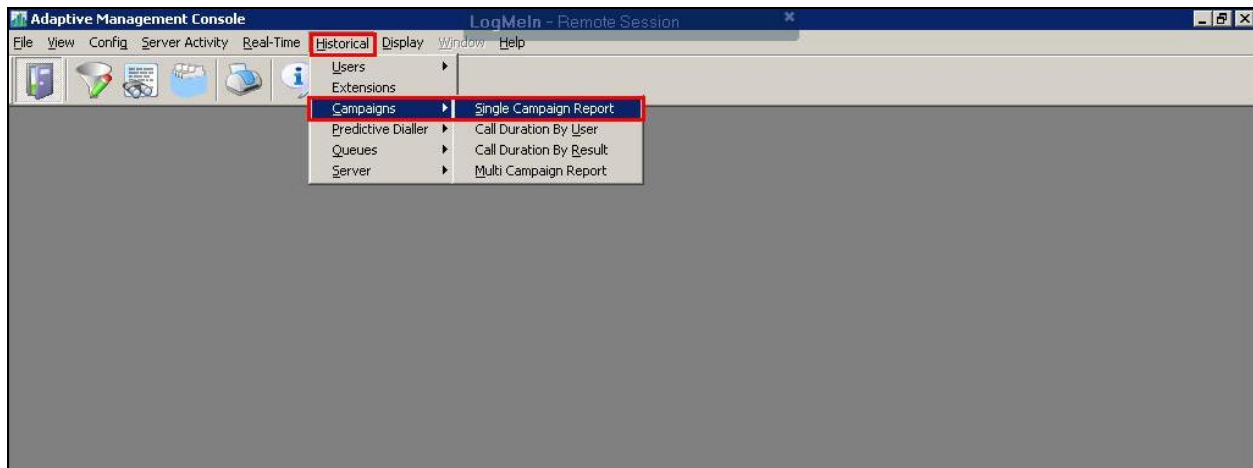


Once opened the Adaptive Predictive Dialler window shows information on the Avaya Extensions assigned to the predictive dialler, Users assigned to the predictive dialler.

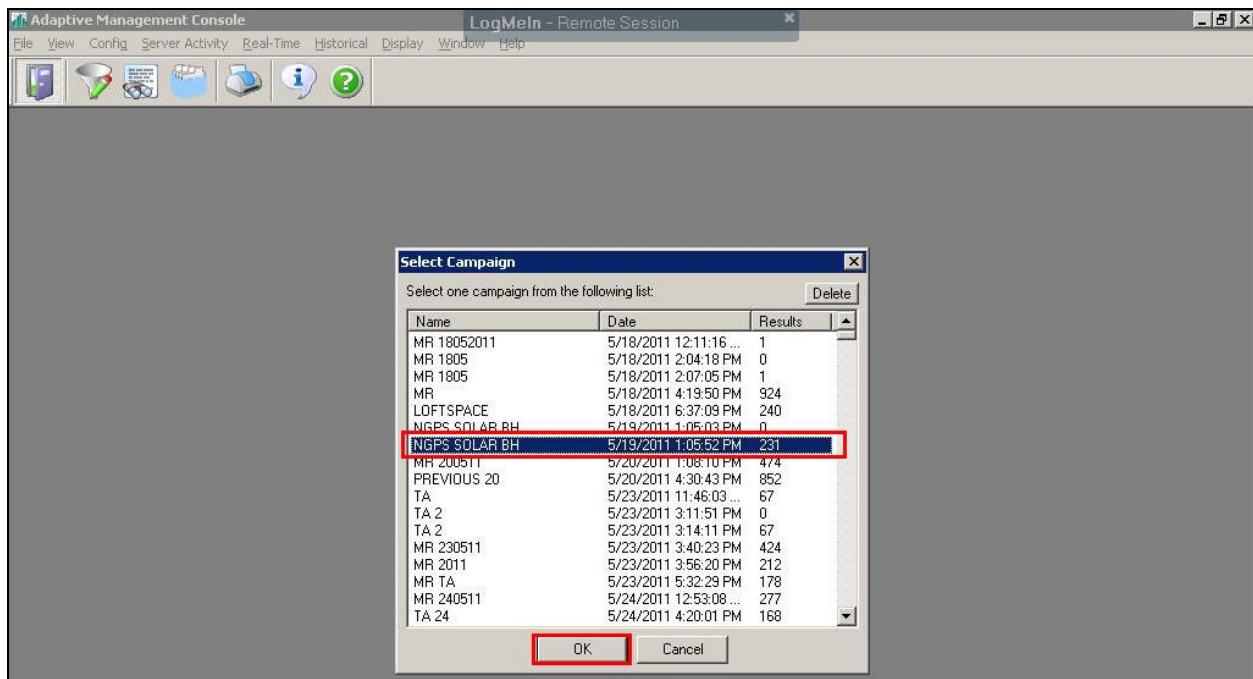
A screenshot of the 'Adaptive Predictive Dialler' application window. The window has a menu bar (File, View, Settings, Help) and a toolbar. It is divided into several sections:

- Users assigned to the predictive dialler:** A table with columns: User, Extension, Status, DND, Number.
- Extensions assigned to the predictive dialler:** A table with columns: Extension, Status, Number.
- Predictive dialler retrieval queues:** A table with columns: Queue, Predictive calls, Progressive calls.
- Call statistics for today:** A summary of call metrics.
- Call controls:** Input fields for 'Calls per free user', 'Expected call duration', 'Running time', 'Calls', and 'Users'.

Reports on predictive calls made are available on the Adaptive Management Console. Open Adaptive Management Console as shown in **Section 7.1**. Click on **Historical** in the top menu and **Campaigns → Single Campaign Report** as shown below.



Select the predictive campaign required from the **Select Campaign** window.





An example of a report showing the predictive calls made and the results of these calls is shown in the report below.

Adaptive Management Console - [Outbound dialer campaign: NGPS SOLAR BH]										
File View Config Server Activity Real-Time Historical Display Window Help										
Date and time	Number	Name	Engaged	Unanswered	Rescheduled	Result	Code	User	Prep time	Dial time
2011/05/19 13:...	01202515619	Paul Wheatley	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	07989355978	Waters	0	1	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	01929553733	Rowe	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	01202549419	BARTLETT	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	01202552133	Murphy	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	07979268458	Turner	0	1	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	07976027093	Garside	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	07974240401	Phillips	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	07974116342	William Hill	0	1	0	Fact Find	1	CarolWalsh	0 s	0 s
2011/05/19 13:...	07970620134	Gunovsky	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	07969802850	Elizabeth Horn	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	07967400697	MCDONALD	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	07966449770	Goodman	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 13:...	07963455012	Kennedy	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 14:...	01425617653	MASON	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 14:...	01202573869	Patricia Lurens	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 14:...	01202814594	Sherwood	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 14:...	01202431706	Mansell	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 14:...	01202483781	Hopkins	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 14:...	01202798480	Morland	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 14:...	07940401704	Moulton	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 14:...	01425271010	MCMASTERRA...	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 15:...	07900951638	Briers	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 15:...	07890326763	Hopking	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 15:...	07882973595	CONWAY	0	1	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 15:...	01202650308	Bird	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 15:...	01202733743	Neil	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 15:...	07854523797	Thomas	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/19 15:...	07842604343	Wrobel	0	0	0	Fact Find	1	CarolWalsh	0 s	0 s
2011/05/19 16:...	01202674542	Parker	0	0	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/20 10:...	07988898319	Prasad	0	1	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/20 10:...	01202304595	Isidro	0	1	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/20 10:...	01202380709	Barents	0	2	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/20 10:...	01202486982	Prosser	0	2	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/20 10:...	01202640120	Bell	0	1	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/20 10:...	01202696536	DAVEY	0	1	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/20 10:...	01425611555	FOGDEN	0	2	0	Not Interested	2	CarolWalsh	0 s	0 s
2011/05/20 10:...	07886684631	MOTT	0	1	0	Fact Find	1	CarolWalsh	0 s	0 s
2011/05/20 11:...	07972689730	Fulmar	0	3	0	Not Interested	2	CarolWalsh	0 s	0 s

## 9. Conclusion

As illustrated in these Application Notes the procedures for configuring NMS Adaptive Predictive Dialler to interoperate with Avaya IP Office R8.0. Using the configuration described in these Application Notes an outbound Predictive Dialling Campaign was tested. During compliance testing, all test cases were completed successfully any observations are outlined in **Section 2.2**.

## 10. Additional References

This section references documentation relevant to these Application Notes. The Avaya product documentation is available at <http://support.avaya.com>.

- [1] *TAPI Link installation Doc # 15-601034 Issue 11d*
- [2] *TAPI Link Doc # 15-601035 Issue 11f*
- [3] *IP Office R8 Doc library*

The following NMS Adaptive product documentation can be found at <http://nms-adaptive.com/downloads/>

- [1] *Adaptive Software Suite – User Guide*

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