



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring NMS Adaptive Hybrid Call Recording with Avaya IP Office R8 using a Call Recording PCI Board from OptiLogix -Issue 1.0

Abstract

These Application Notes describe the configuration steps required for NMS Adaptive Call Recording module to interoperate with Avaya IP Office. Adaptive Call Recording is one module of the NMS Adaptive Suite which allows the recording of inbound and outbound phone 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 Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the compliance tested configuration used to validate the NMS Adaptive Hybrid Call Recorder module of the Adaptive Suite with Avaya IP Office using a PCI Call Recording Board from OptiLogix. The Adaptive Suite interoperates with Avaya IP Office using third party Telephony Application Programming Interface (TAPI). A module of the Adaptive Suite, the Adaptive CTI Gateway handles all communication between the Adaptive solution and Avaya IP Office.

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 Hybrid Call Recorder is a trunk-side recorder that records all telephone calls made and received. The Adaptive Call Recorder is called hybrid because it can be configured to record from any mixture of SIP, Analogue, and T1/E1 telephone lines, Adaptive Hybrid Call Recorder will also be referred to as Adaptive Call Recorder throughout the document. Recordings are stored on a central PC and can be searched and played back. They can also be exported in an industry-standard WAV format. Recordings can be backed-up and archived using any standard computer media including: Tape, DVD and Network Attached Storage (NAS). An integration toolkit is available for customers who wish to access call recordings through their own applications. The calls are recorded using either a USB connected unit or a PCI card that is fitted inside the computer.

2. General Test Approach and Test Results

The interoperability compliance testing included feature and serviceability testing. The feature testing focused on verifying NMS Adaptive Call Recorders handling of CTI messages in the areas of call control, event notification and routing. Various types of calls including intra-switch, PSTN, outgoing and incoming calls were tested. The compliance testing focused primarily on the following types of calls:

- Basic Inbound/Outbound Calls
- Hold/Transfer Functionality
- Search and playback of call recordings
- Failover Testing

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

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 recording and playback of the following types of call:

- **IP Office Inbound/Outbound calls**– Test call recording for inbound/outbound calls to/from the IP Office users from PSTN callers.
- **IP Office Hold/Transferred/Conference calls** – Test call recording for calls transferred to and in conference with PSTN callers.

The serviceability testing focused on verifying the ability of NMS Adaptive Web Assist 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

All tests passed successfully however the following observations were noted during testing:

- [1] 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] Only blind transfers are possible using Adaptive desktop.

2.3. Support

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

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

3. Reference Configuration

Figure 1 shows the network topology for compliance testing. NMS Adaptive Call Recorder which resides on a Windows 2003 Server with IP Office TAPI3 Service Provider to provide CTI connection to Avaya IP Office. Avaya 2400 Series digital deskphones are associated with Adaptive Desktop operators giving each Adaptive Desktop operator telephony functionality from the IP Office.

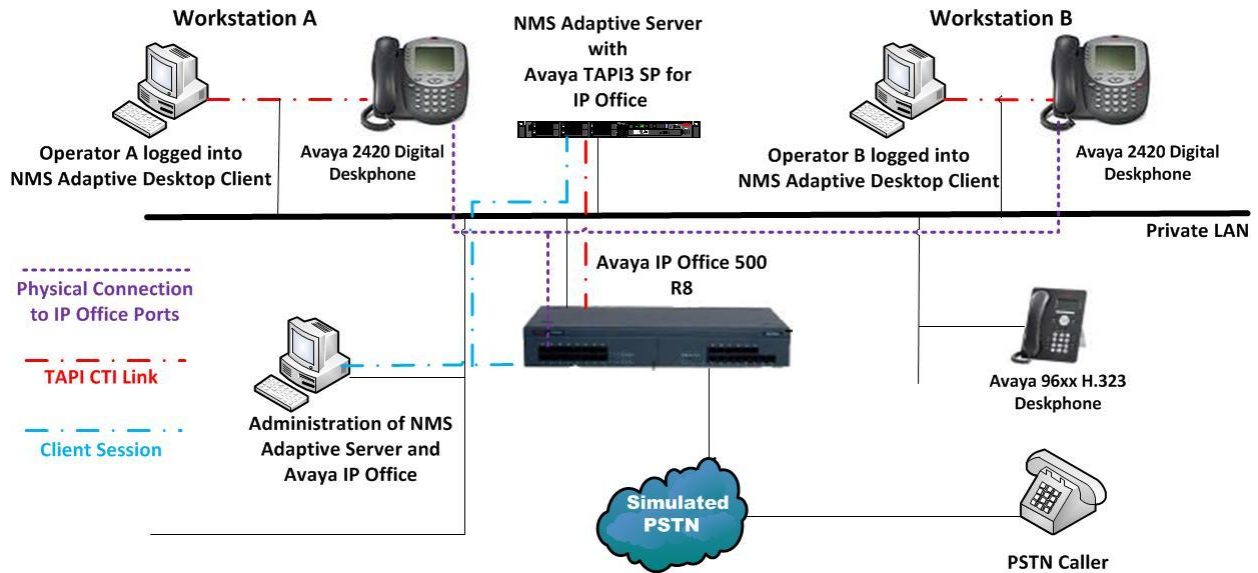


Figure 1: Connection of NMS Adaptive Hybrid Call Recorder with Avaya IP Office R8

4. Equipment and Software Validated

The following equipment and software were 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 Hybrid Call Recorder Release 9.4
OptiLogix PCI Call Recording PCI board	Release 9.4
Client Workstation with Windows XP and NMS Adaptive Desktop	NMS Adaptive Desktop Release 9.4

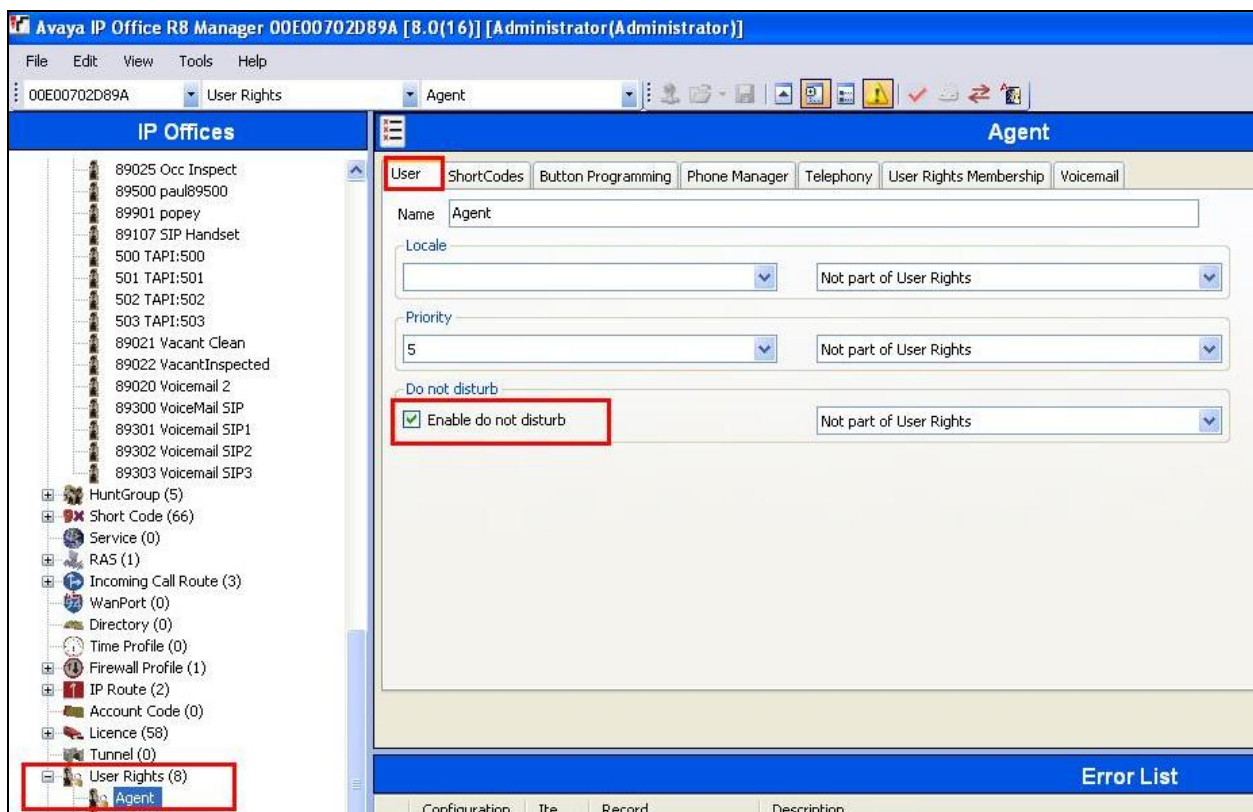
5. Configuration of Avaya IP Office

IP Office is administered using IP Office Manager installed on a PC. It is assumed that a 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 Call Recorder to interoperate correctly.

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 will need to be configured to allow the do not disturb feature. Click on **User Rights** in the left window and 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).



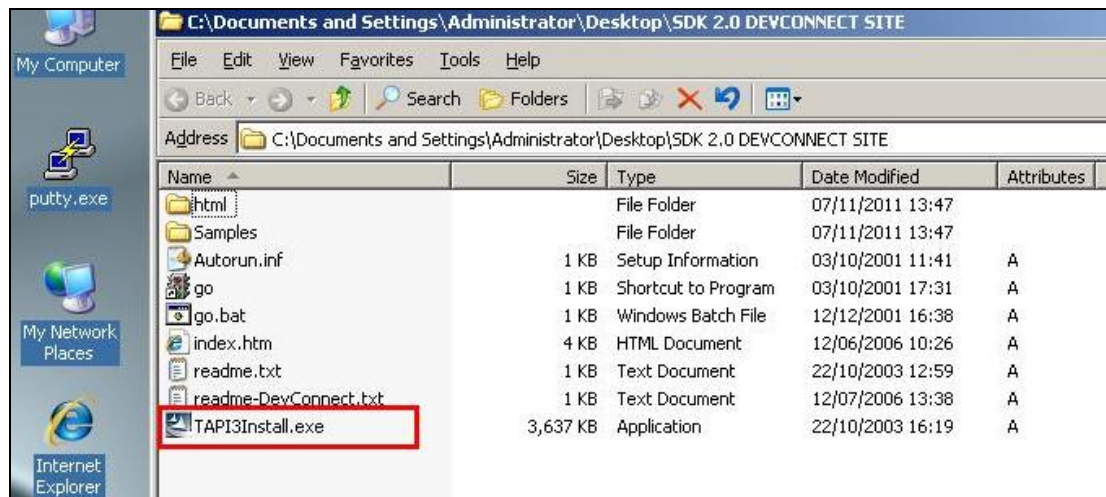
Expand on **User** in the left window and select the user to modify. Under the **User** tab in the right window, ensure that **Working hours User Rights** is set to that user rights configured above.

The screenshot displays the Avaya IP Office configuration interface. On the left, the 'IP Offices' tree is expanded to 'User (51)', and '8910 Ext8910' is selected. The right pane shows the 'User' configuration for 'Ext8910: 8910'. The 'User' tab is active, showing settings for 'System Phone Rights' (None), 'Profile' (Teleworker User), and 'Device Type' (Avaya 2420). Under the 'User Rights' section, 'Working hours User Rights' is set to 'Agent', which is highlighted with a red box. Other tabs include Voicemail, DND, ShortCodes, Source Numbers, Telephony, Forwarding, Dial In, Voice Recording, and Button Programming.

System Phone Rights	Profile	Device Type	User Rights view	Working hours time profile	Working hours User Rights	Out of hours User Rights
None	Teleworker User	Avaya 2420	Working hours User Rights	<None>	Agent	

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

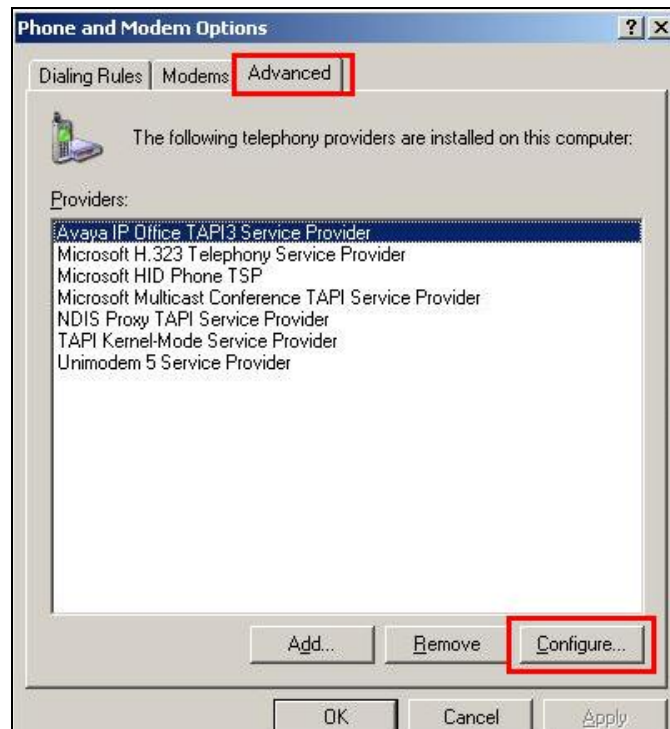
TAPI3 Service Provider is included in the IP Office CTI Link Software Development Kit (SDK) located on the DevConnect website (<http://www.avaya.com/gcm/master-usa/en-us/corporate/alliances/devconnect/index.htm>) under the product name IP Office. Once downloaded, the install is initiated by running **TAPI3Install.exe**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



To configure the TAPI Service Provider, navigate to **Control Panel** and right click on **Phone and Modem Options** highlighted below and select properties (not shown).



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.

Avaya TAPI3 configuration [X]

Switch IP Address: 192.168.30.31 [OK] [Cancel]

☐ Single User

User Name: []

User Password: []

☒ Third Party

Switch Password: []

☐ Ex Directory Users

☒ WAV Users

☒ ACD Queues

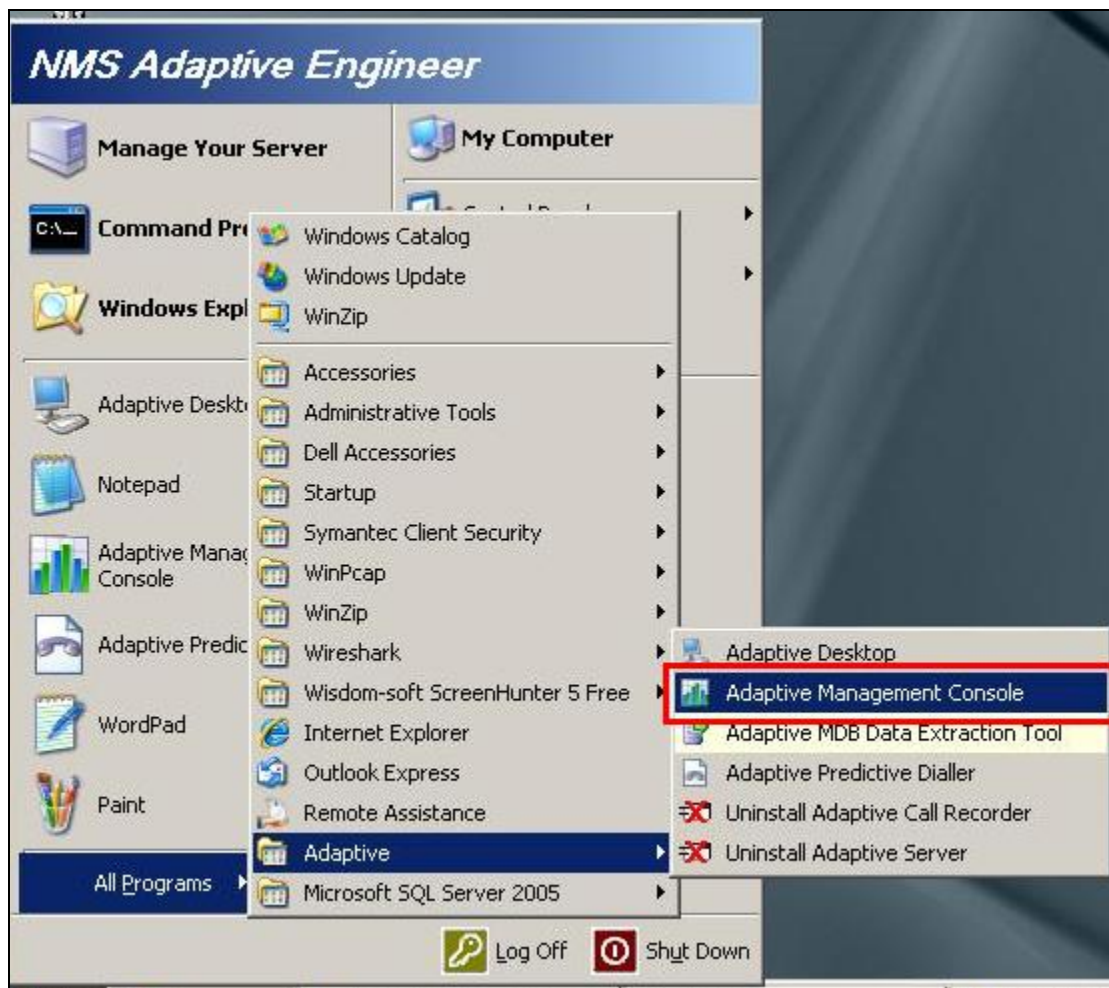
7. Configuration of NMS Adaptive Hybrid Call Recorder

This section outlines the steps necessary to configure the NMS Adaptive Call Recorder to enable the recording of all voice calls across the E1/T1 link. All configuration changes on the Adaptive Server are done through Adaptive Management Console installed on the Adaptive Server.

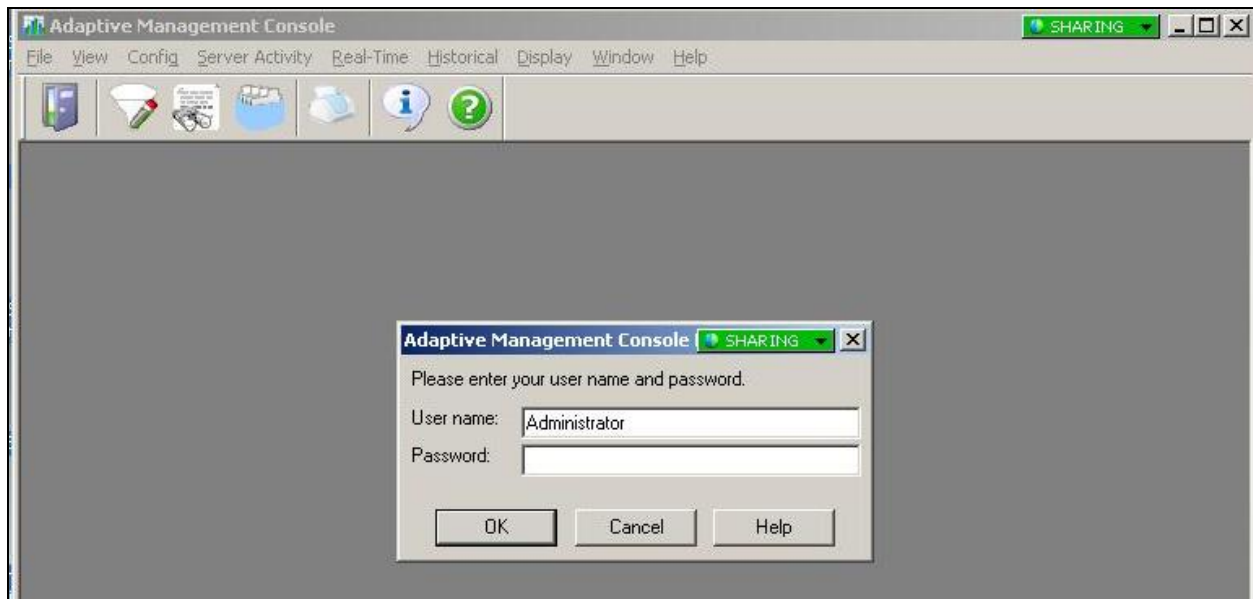
Note: Installation of the Adaptive Call Recorder software is outside the scope of this document and information regarding the installation can be found in **Section 11** of these Application Notes.

7.1. Configuration of NMS Adaptive CTI Gateway

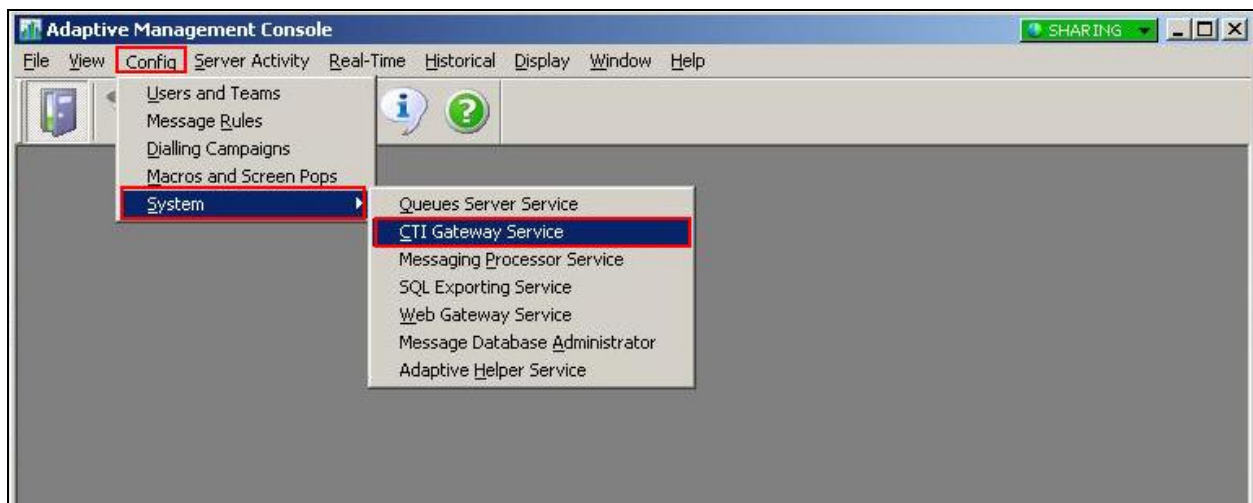
The steps below describe the configuration for Adaptive CTI Gateway. This configuration enables the Adaptive Suite to communicate with IP Office via TAPI. Open the program **Adaptive Management Console** as shown below.



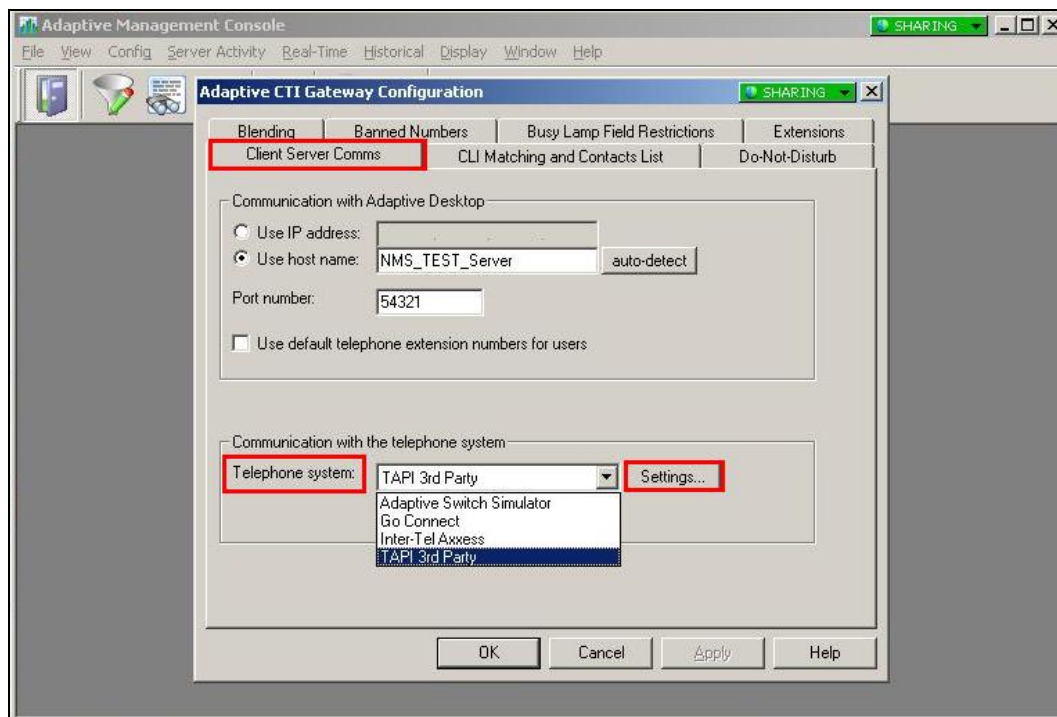
Enter the appropriate credentials into the **Adaptive Management Console** login screen as shown.



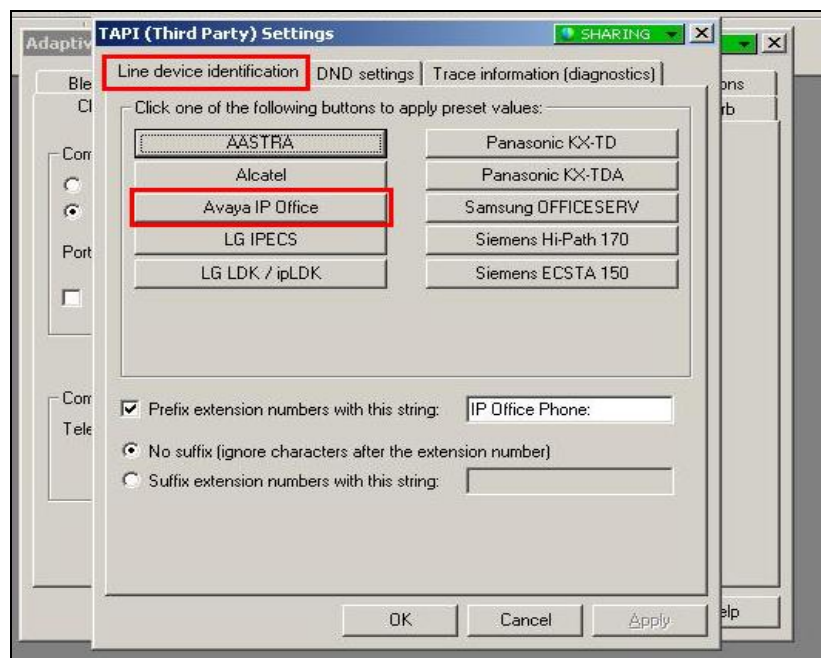
Once logged in, configure the CTI Gateway Service by clicking on **Config** in the toolbar at the top of the screen and under **System** select **CTI Gateway Service** as shown below.



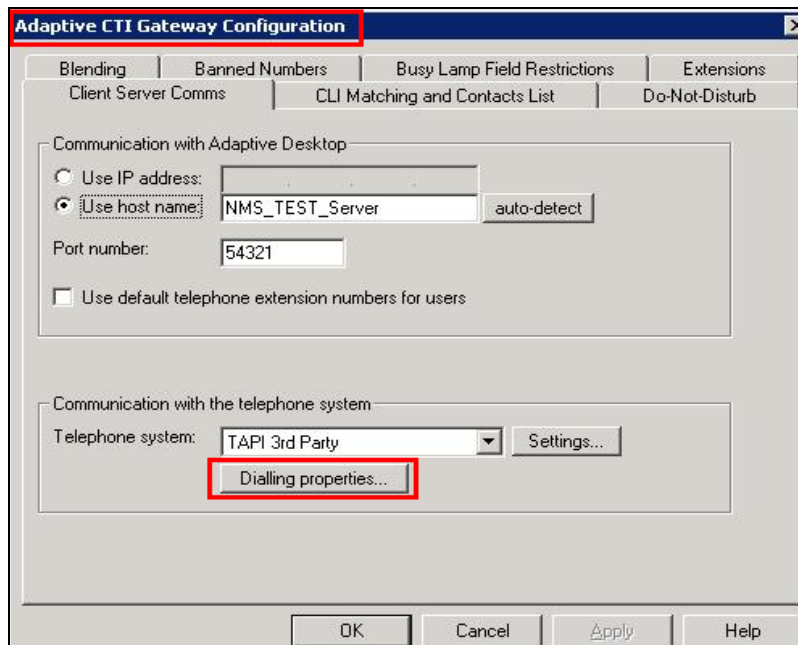
The **Adaptive CTI Gateway Configuration** window opens. Select **Client Server Comms** tab and select **TAPI 3rd Party** for the **Telephone system** as highlighted below. Click **Settings** to configure the TAPI Settings.



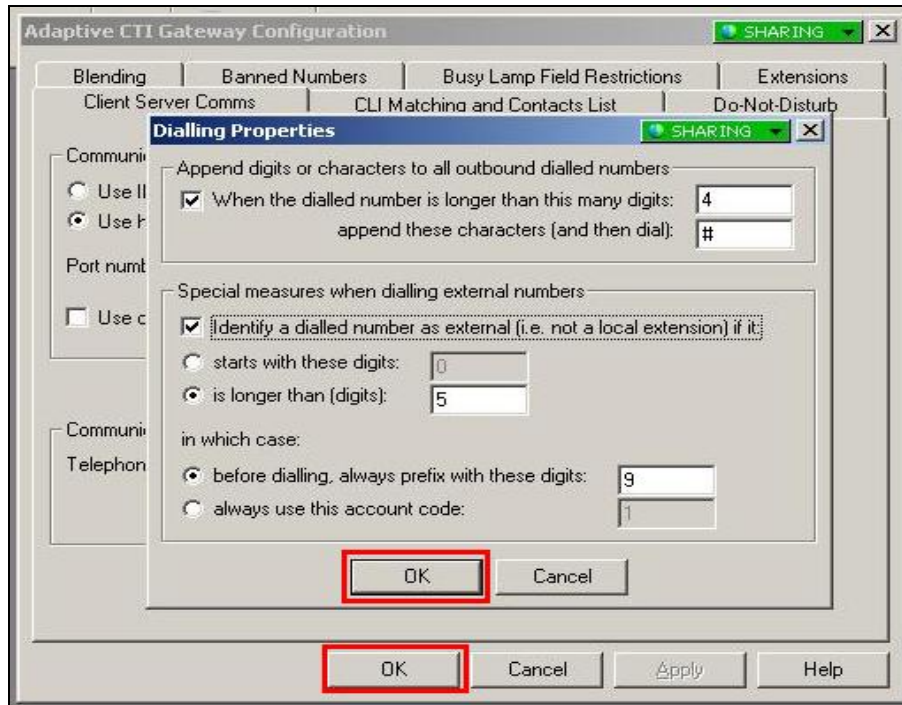
The **TAPI (Third Party) Settings** window opens. Click the **Avaya IP Office** button under the **Line device identification** tab and click **OK** to submit. All other entries are default.



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.

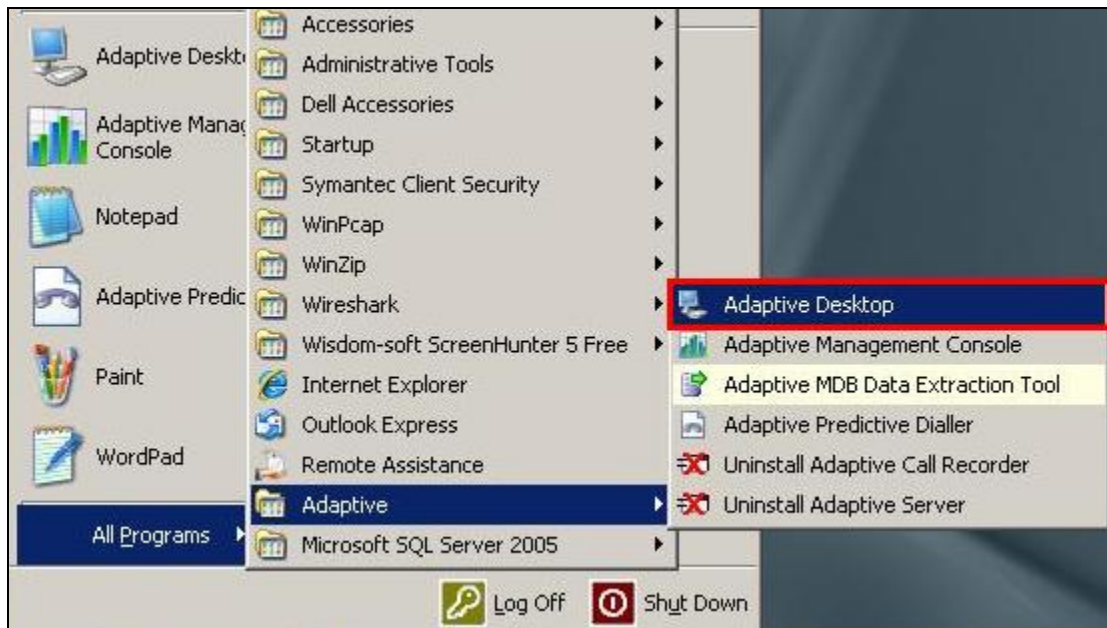


7.2. Configuration of NMS Adaptive Call Recorder

All configuration of Adaptive Call Recorder is done during the installation process and is therefore outside the scope of these Application Notes. For further information on the Installation and Configuration of NMS Adaptive Call Recorder please see **Section 11** of these Application Notes.

7.3. Configure Adaptive Desktop

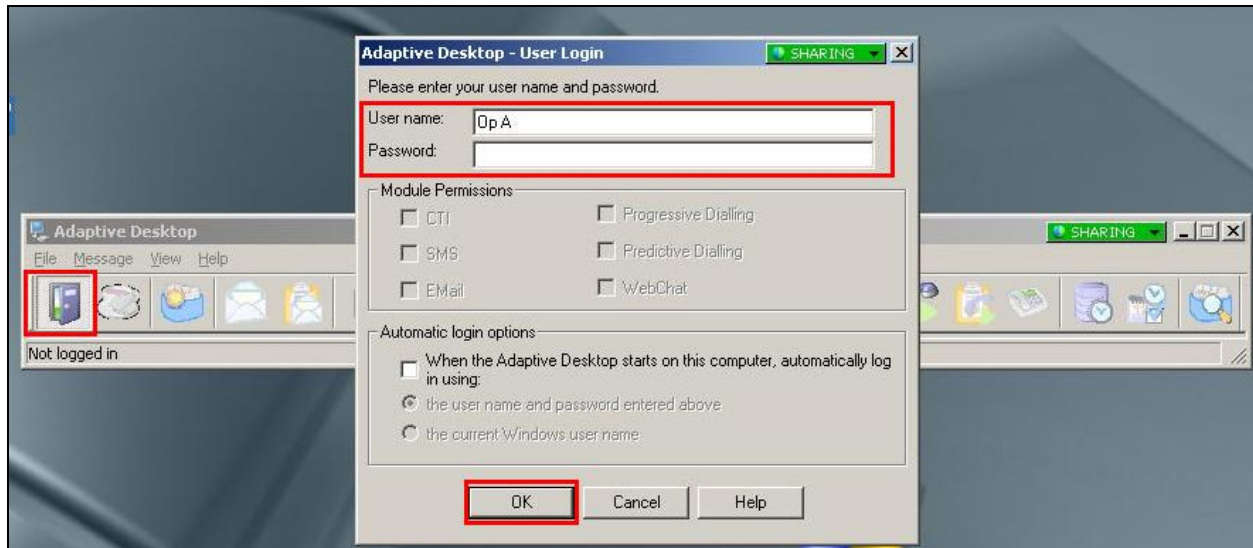
Open **Adaptive Desktop** as shown below.



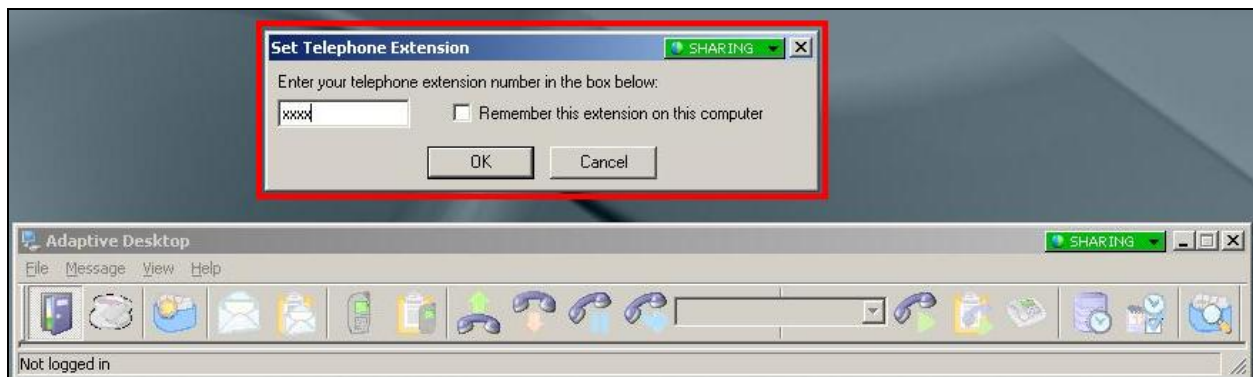
This opens the **Adaptive Desktop** window as shown.



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**.

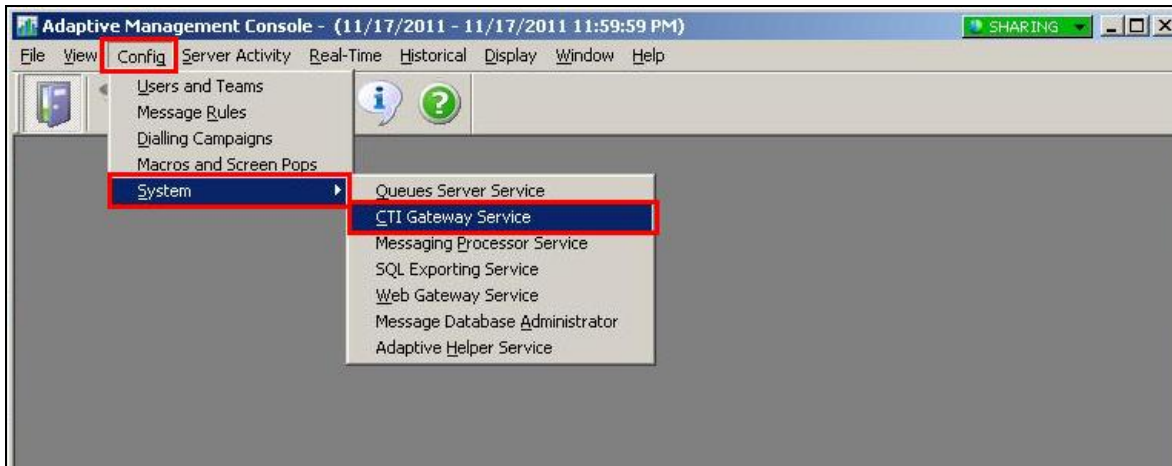


Once logged in, information on **messages**, **calls**, and **Call Queue** is displayed as highlighted below.

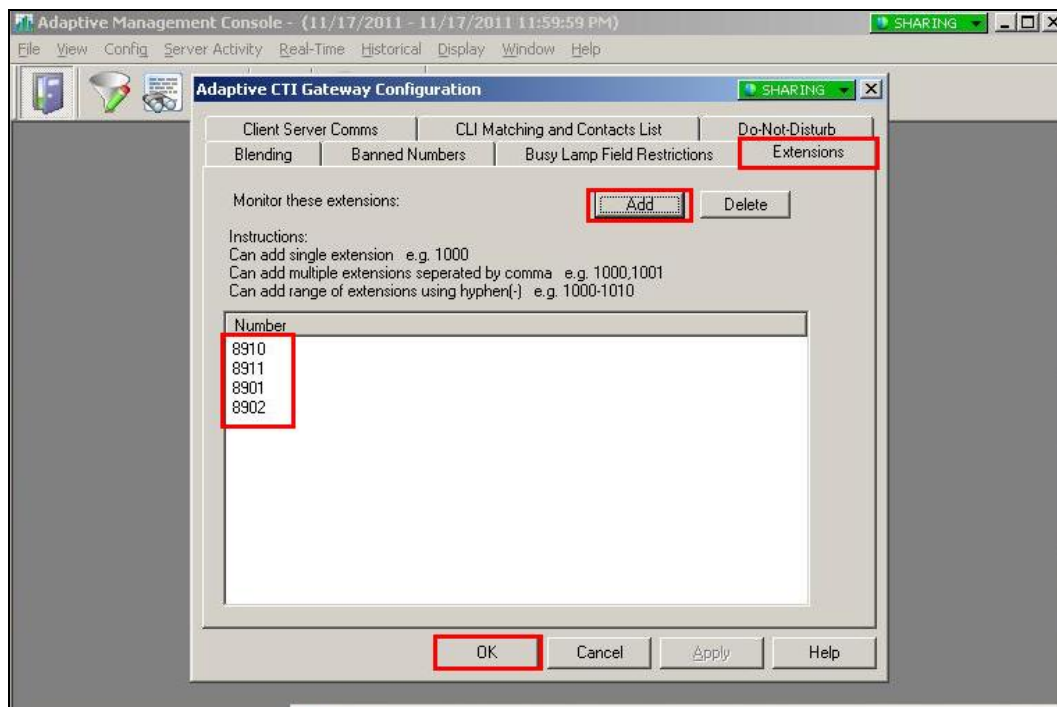


7.4. Configure Voice Call Recording and Call Detail Recording on Adaptive Server

Open **Adaptive Management Console** as described in **Section 7.1**. Click on **Config** in the menu at the top of the **Adaptive Management Console** window and under **System** click on **CTI Gateway Service** as shown below.

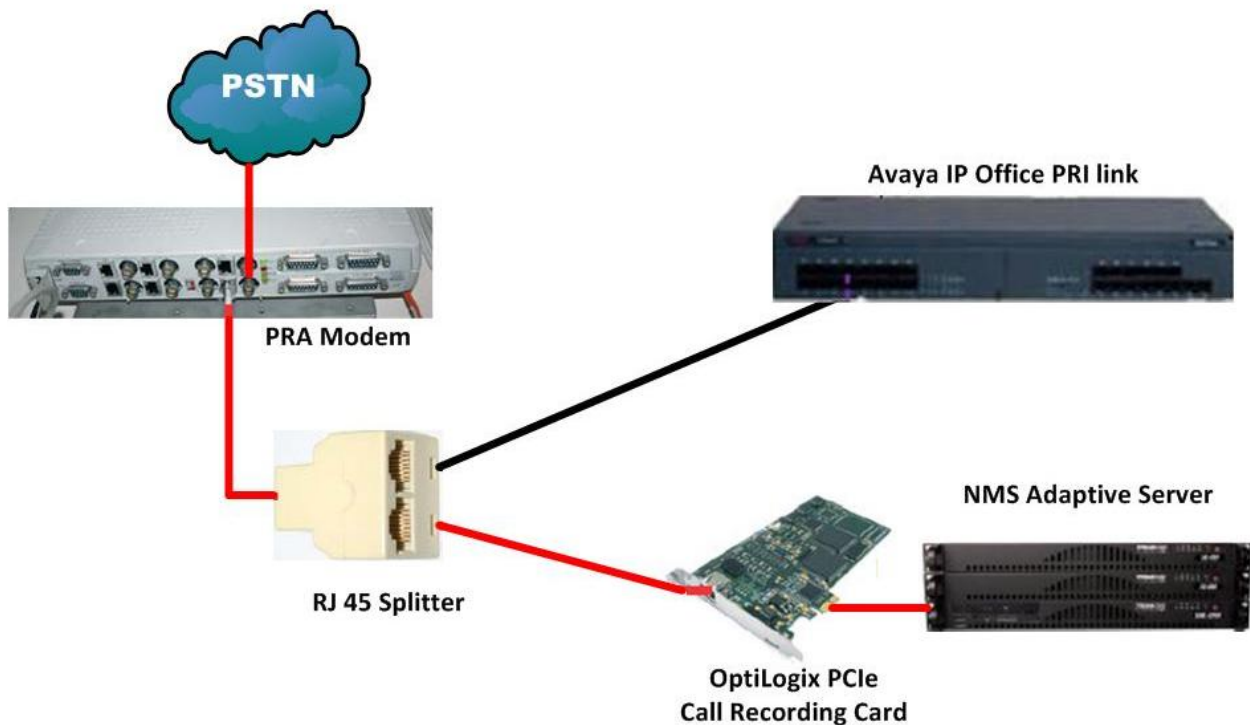


The **Adaptive CTI Gateway Configuration** window is opened. Click on the **Extensions** Tab and click **Add** to include the extensions required for monitoring. Click **OK** once all the required extensions are added. The extensions added in this window will be reported on for Call Detail Recording (CDR) and Voice Recording.



8. Installing the OptiLogix PCI Call Recording card

The High Impedance tap is achieved using an **RJ45 Splitter** in order to split the E1-ISDN cable coming from the PSTN to the IP Office PRI link as illustrated below. The split cables then run into the **Avaya IP Office PRI Link** and the **OptiLogix PCIe Call Recording Card** installed into the **NMS Adaptive Server**.

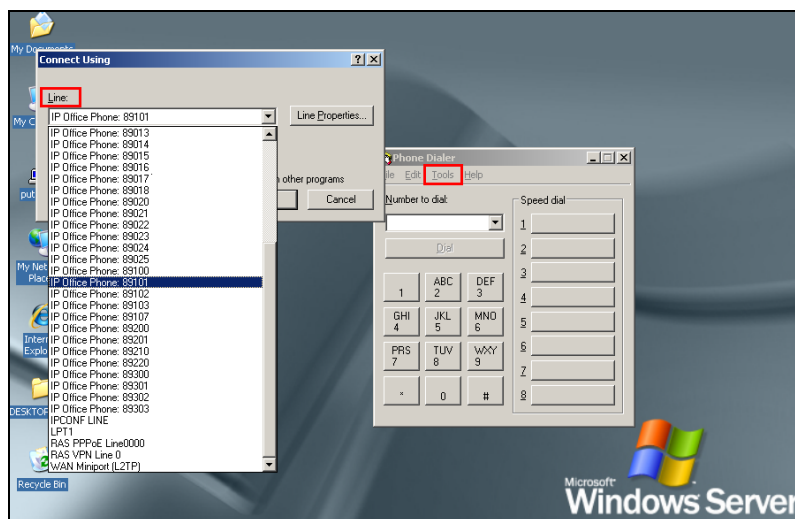


9. Verification Steps

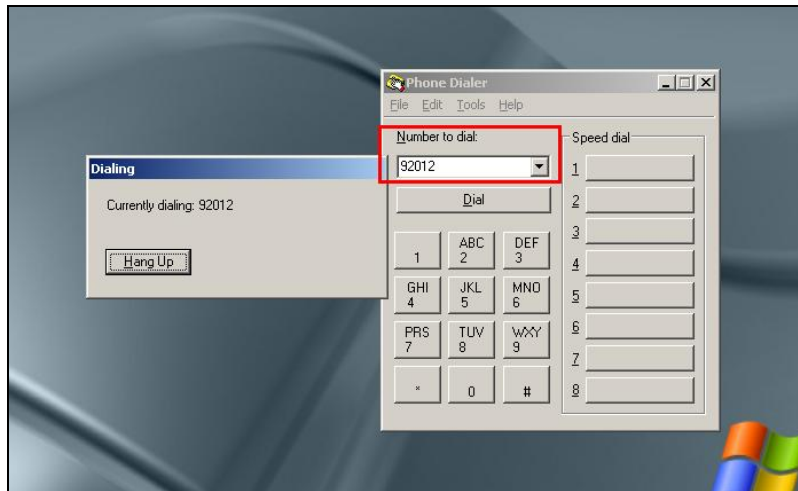
This section illustrates the steps necessary to verify that the NMS Adaptive Call Recorder is connected to the IP Office correctly.

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

Open **Phone Dialer** (Windows program installed on all Windows platforms) on the Adaptive 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.

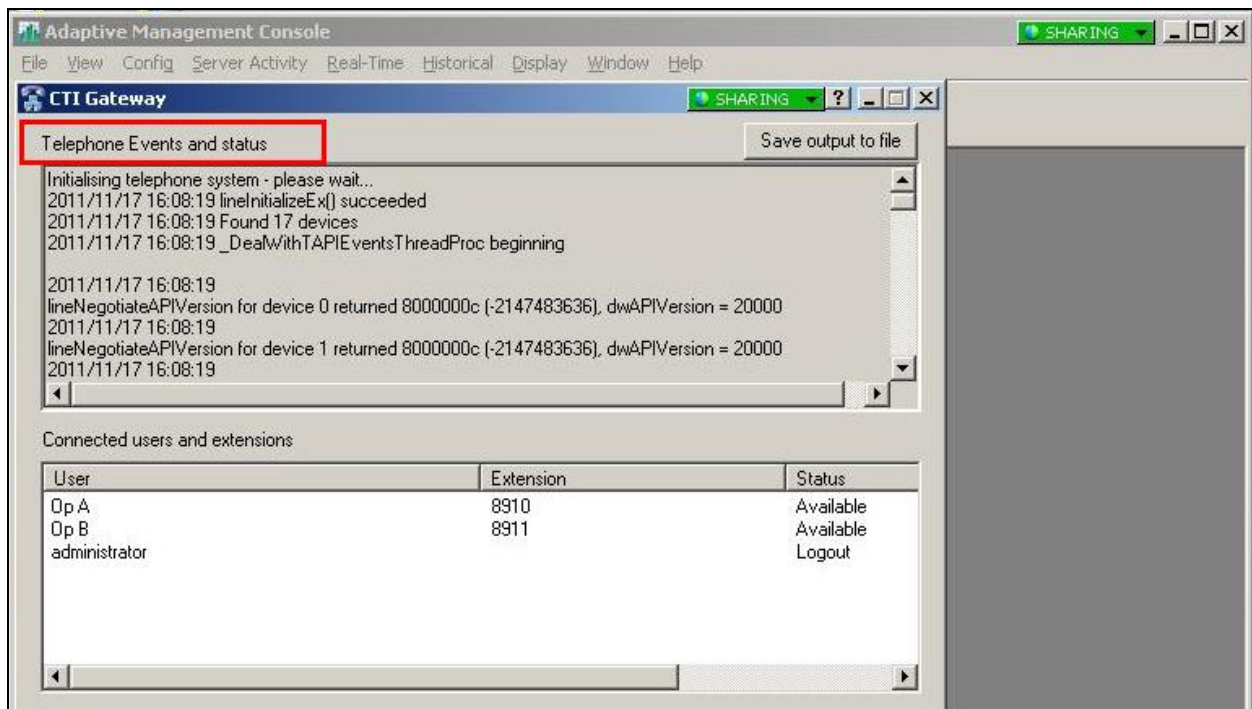


9.2. Verify that NMS Adaptive Server has CTI functionality

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

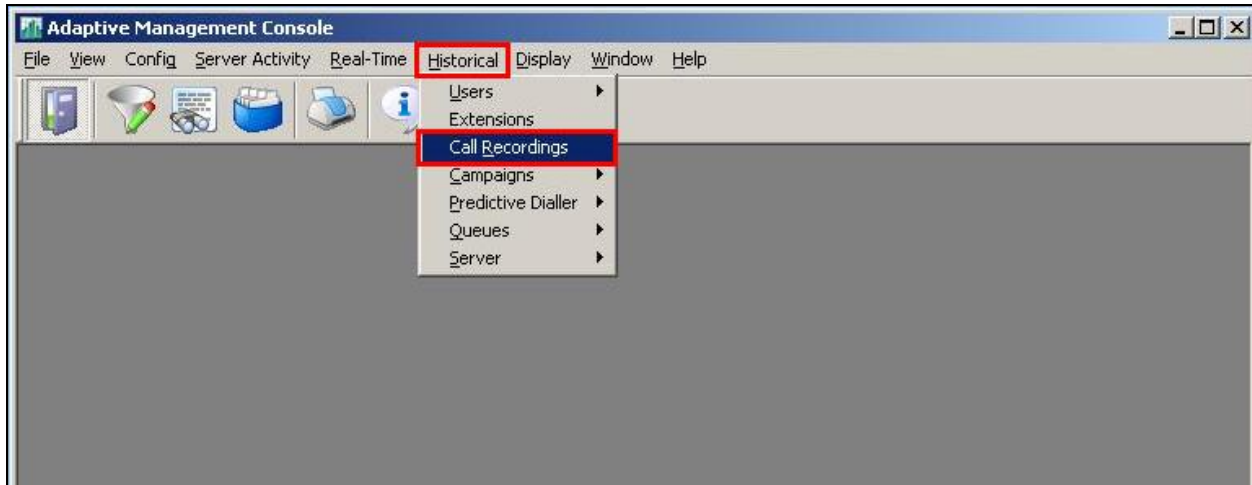


Telephone Events and status are displayed in the **CTI Gateway** window as shown below.

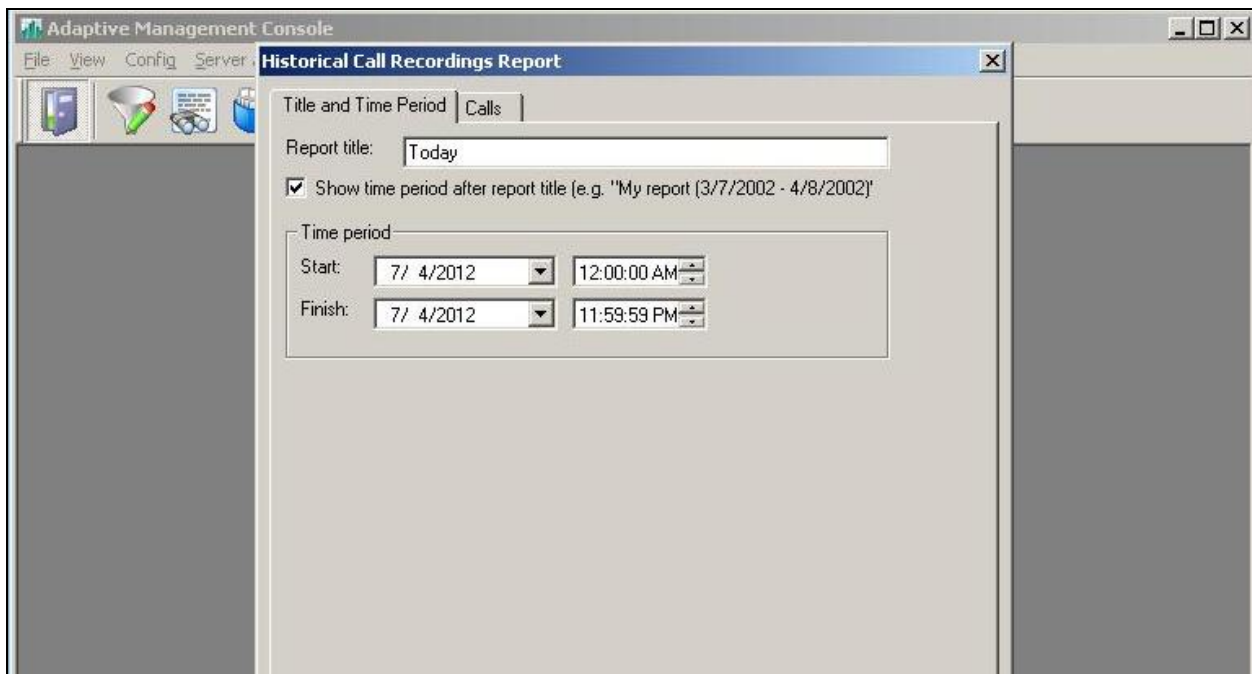


9.3. Verify Call Detail Recording (CDR) Records are being monitored correctly

Open Adaptive Management Console as shown in **Section 7.1**. Click on **Historical** in the top menu and **Call Recordings** as shown below.



This opens **Historical Call Recordings Report**. Under the **Title and Time Period** tab enter a suitable **Report title** and **Time Period** as shown below.



This opens the **Call Recordings Report** for the selected time period and information for calls made and received will be shown as in the example below. Click on any of the calls to playback the call recording.

Start Date/Time	End Date/Time	Duration	DDI	CLI	Called Nu...	Direction	Company	Contact
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03		88880008...	99000088...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:01	00:00:02	99999001...	00111111...		Inbound		
18/04/2012 10:37:59	18/04/2012 10:38:03	00:00:04		77770007...	99000077...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03	99999001...	00111111...		Inbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03		55550005...	99000055...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:01	00:00:02	99999002...	00222222...		Inbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03		77770007...	99000077...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03		55550005...	99000055...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:01	00:00:02	99999004...	00444444...		Inbound		
18/04/2012 10:37:59	18/04/2012 10:38:01	00:00:02		88880008...	99000088...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:01	00:00:02	99999004...	00444444...		Inbound		
18/04/2012 10:37:59	18/04/2012 10:38:01	00:00:02	99999001...	00111111...		Inbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03		66660006...	99000066...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03	99999001...	00111111...		Inbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03		66660006...	99000066...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03		88880008...	99000088...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03	99999001...	00111111...		Inbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03		88880008...	99000088...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:01	00:00:02		77770007...	99000077...	Outbound		
18/04/2012 10:37:59	18/04/2012 10:38:02	00:00:03	99999004...	00444444...		Inbound		
18/04/2012 11:21:12	18/04/2012 11:21:15	00:00:03		88880008...	99000088...	Outbound		
18/04/2012 11:21:12	18/04/2012 11:21:17	00:00:05	99999001...	00111111...		Inbound		
18/04/2012 11:21:12	18/04/2012 11:21:12	00:00:00		77770007...	99000077...	Outbound		
18/04/2012 11:21:12	18/04/2012 11:21:18	00:00:06	99999001...	00111111...		Inbound		

PG; Reviewed:
SPOC 9/21/2012

10. Conclusion

As illustrated in these Application Notes the procedures for configuring NMS Adaptive Hybrid Call Recorder to interoperate with Avaya IP Office R8.0. In the configuration described in these Application Notes, various types of calls including intra-switch, PSTN, outgoing and incoming calls were tested. During compliance testing, all test cases were completed successfully as outlined in **Section 2.2**.

11. 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/>

©2012 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

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.