



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

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# **Application Notes for configuring recordX from Oak Telecom with Avaya IP Office R8 using a Passive Tap on ISDN Q.931 Trunk - Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps for provisioning Oak Telecom's recordX trunk side call recorder to successfully interoperate with Avaya IP Office R8 using a high impedance tap on an Integrated Services Digital Network (ISDN) Q.931 signalling connection to PSTN.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

# 1. Introduction

These Application Notes describe the configuration steps required for recordX Call Recording from Oak Telecom to successfully record telephone calls from Avaya IP Office R8 using ISDN Q.931 signalling.

Oak Telecom's recordX Call Recording (recordX) records telephone calls by monitoring ISDN trunk groups. recordX uses OptiLogix PCI cards to capture and process voice data. The OptiLogix PCI card is connected to an E1 trunk group by use of a high impedance tap. Integration is achieved using ISDN Q.931 messaging over the D-Channel. Q.931 events are used by recordX as triggers to control recordings on the B-Channels. recordX has a web interface, through which the system may be configured and maintained and through which users can search for and review recordings.

## 2. General Test Approach and Test Results

The general test approach was to manually place inter-switch calls, inbound trunk, outbound trunk calls, conference calls, transferred calls, and forwarded calls to and from telephones controlled by IP Office and verify that recordX records all telephone calls and places these into a specified location for future playback. For serviceability testing, logical links such as Ethernet connections to the LAN were disabled/re-enabled.

### 2.1. Compliance Test Cases

The principle objective of Interoperability Compliance testing is to provide assurance to the potential customers that the tested products operate as specified and can interoperate in an environment similar to the one that will be deployed at a customer's premises. Performance and load testing is outside the scope of the compliance testing. The compliance testing is concerned with verifying that the addition of recordX does not interfere with the operation of IP Office in any way.

Compliance testing focused on the response of the recordX to IP Office for the following call types:

- **Inbound calls** – Test call recording for inbound calls to IP Office from PSTN callers.
- **Outbound calls** – Test call recording for outbound calls from IP Office to PSTN callers.
- **Hold/Transferred calls** – Test call recording for calls transferred to PSTN callers.
- **Conference calls** - Test call recording for calls in conference between IP Office and PSTN callers.
- **Forwarded calls** – Test call recording for calls made to deskphones that are forwarded to the PSTN.
- **Failover of recordX** - The behaviour of recordX under different failure conditions will also be observed.

## 2.2. Test Results

All tests passed successfully. No errors were observed on IP Office.

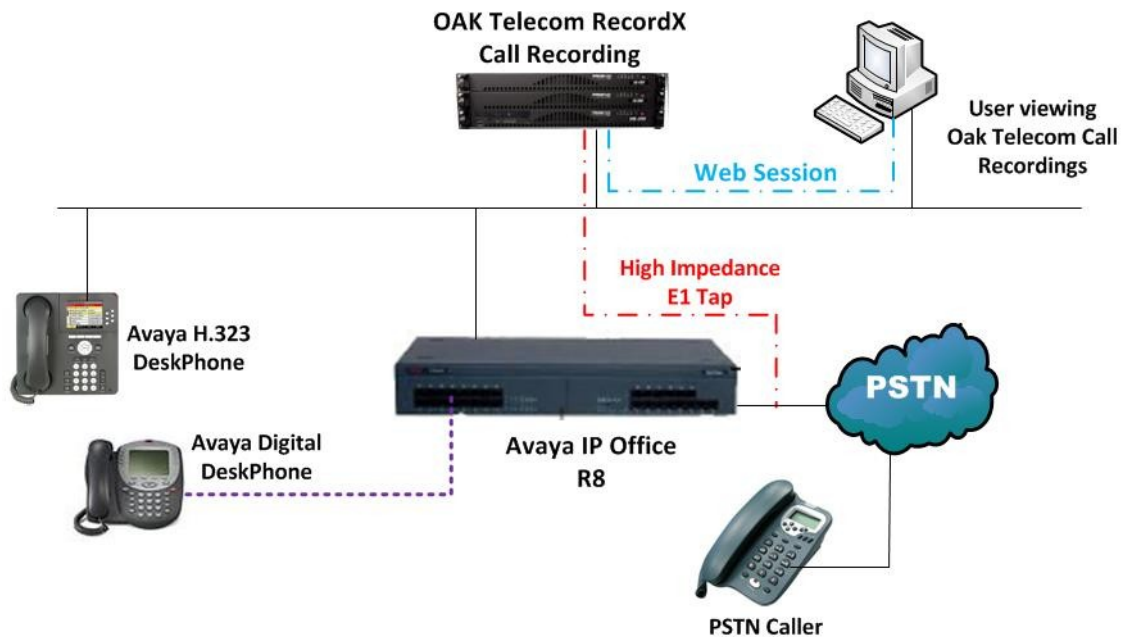
## 2.3. Support

Support from Avaya is available at <http://support.avaya.com>. Technical support for recordX can be obtained as shown below.

Oak Telecom  
Unit 7 Albany Park,  
Cabot Lane, Poole,  
Dorset BH17 7BX  
United Kingdom  
Tel: +441202607000  
Email: [support@oak.co.uk](mailto:support@oak.co.uk)  
Website: <http://www.oak.co.uk>

### 3. Reference Configuration

**Figure 1** shows the network topology during compliance testing. Oak Telecom's recordX Server uses a high impedance tap to record telephone calls on the ISDN Q.931 link to the PSTN. These recorded calls are archived on the recordX server and can be accessed and played through a web browser session to the server.



**Figure 1: Connection of Oak Telecom recordX Call Logging and Avaya IP Office R8.0.16.**

## 4. Equipment and Software Validated

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

Equipment Description	Software Release
Avaya IP Office 500	Avaya IP Office R8.0.16
Avaya 96xx Series H.323 Set	96xx H.323 Release 3.1 SP2
Avaya 24xx Series Digital Set	N/A
Oak Telecom recordX Call Recording	recordX Call Recording release 10.4.2.0

## 5. Configuration of Avaya IP Office

Configuration of IP Office is performed using Avaya IP Office Manager R10.0.16. It is the assumption that a working and fully configured IP Office is in place with extensions and users preconfigured. For all provisioning information, such as Administering Avaya IP Office, refer to product documentation in **Section 10** of these Application Notes.

### 5.1. Avaya IP Office PRI 30 link to PSTN

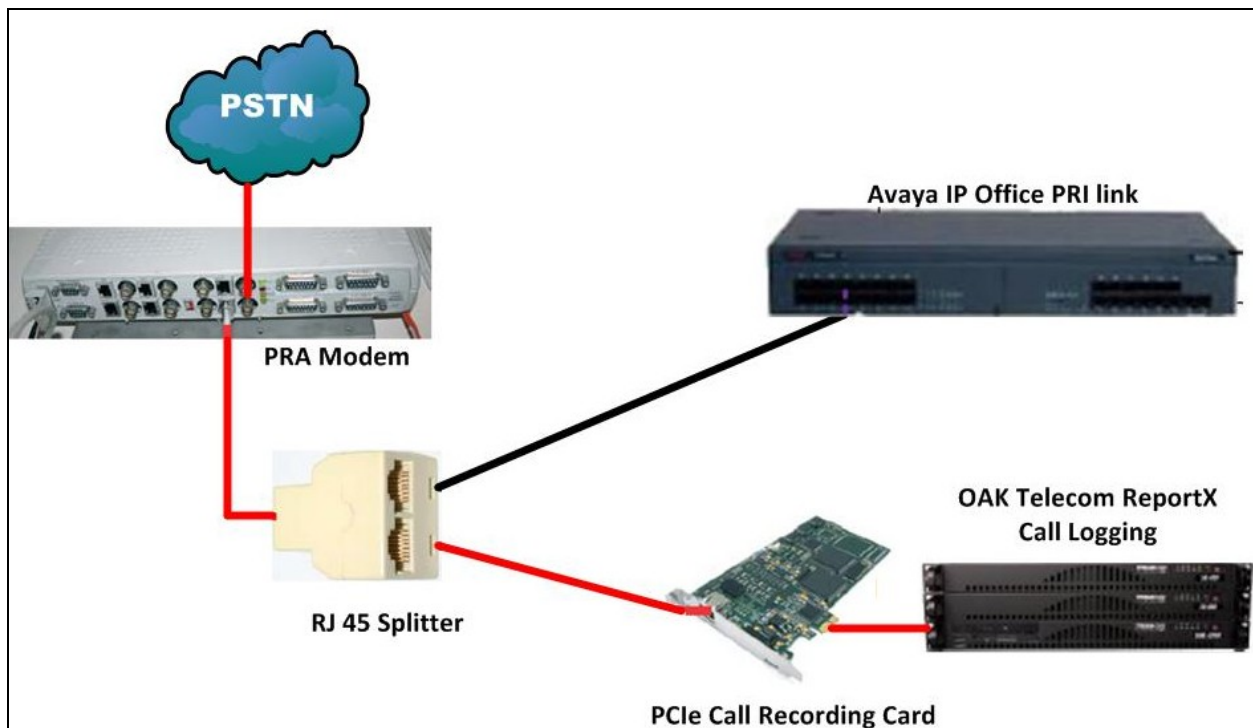
Below is an example of the **PRI 30** link used on IP Office. Under **Line** in the left hand pane click on the line number associated with the PRI to the PSTN to view the setup.

The screenshot displays the Avaya IP Office Manager R10.0.16 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 are dropdowns for "00E00702D89A" and "Line", and a text field showing "13". The main window is divided into two panes. The left pane, titled "IP Offices", shows a tree view of the system configuration. The "Line (9)" folder is expanded, and "13" is selected. The right pane, titled "PRI 30 - Line 13", shows the configuration details for this line. The "PRI Line" tab is active, and the "Short Codes" sub-tab is selected. The configuration fields are as follows:

Field	Value	Field	Value
Line Number	13	Line SubType	QSIG B
Card	4	Admin	In Service
Port	P1	TEI	0
Telephone Number		Outgoing Group ID	13
Incoming Group ID	13	Number of Channels	6
Prefix			
National Prefix	0		
International Prefix	00		
CRC Checking	<input checked="" type="checkbox"/>		
Clock Quality	Network		
Add 'Not end-to-end ISDN' Information Element	Never		
Send Redirecting Number	<input type="checkbox"/>		

## 6. Splitting the PRI (ISDN-30 & E1) feed to install a recordX PCIe 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 **PCIe Call Recording Card** on recordX Server.

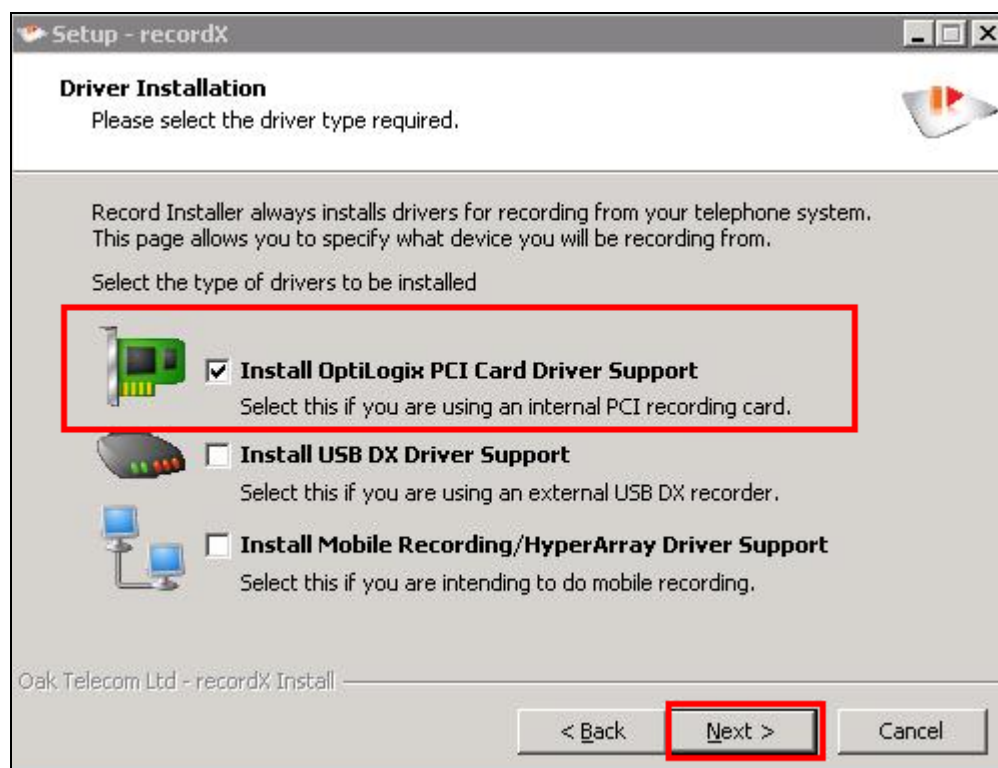


## 7. Configuration of Oak Telecom's recordX Server

The configuration information provided in this section describes the steps required to set up recordX to record telephone calls from IP Office using a passive high impedance tap on the ISDN Q.931 connection to the PSTN. For all other provisioning information, such as recordX software installation, refer to Oak Telecom recordX product documentation in **Section 10** of these Application Notes.

### 7.1. Driver installation for Oak Telecom OptiLogix PCI Card

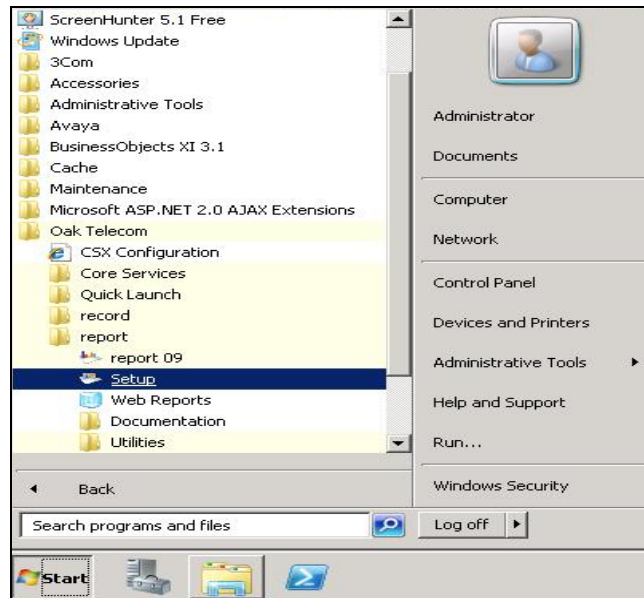
During the installation of recordX the user is prompted to select the driver type for the hardware installed. Select **Install OptiLogix PCI Card Driver Support** as highlighted below and click **Next** to continue the install.



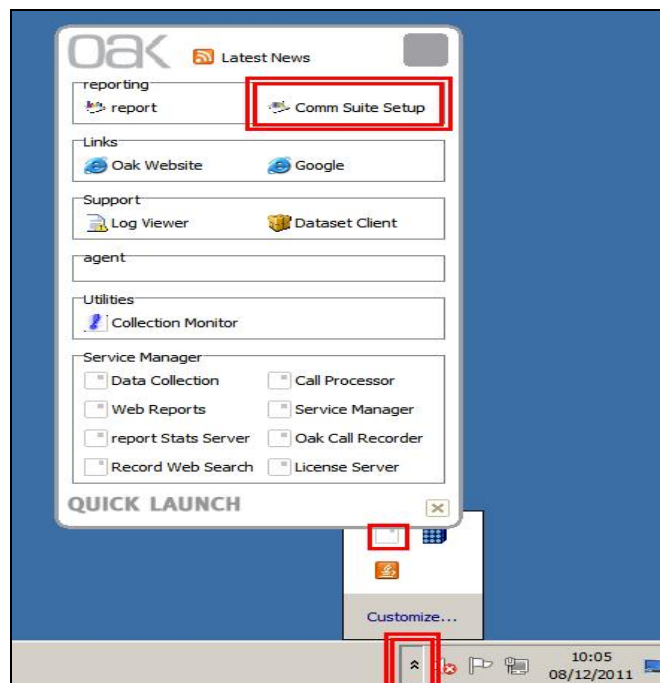


## 7.2. Configuration of Oak Telecom's recordX software to correctly interoperate with Avaya IP Office

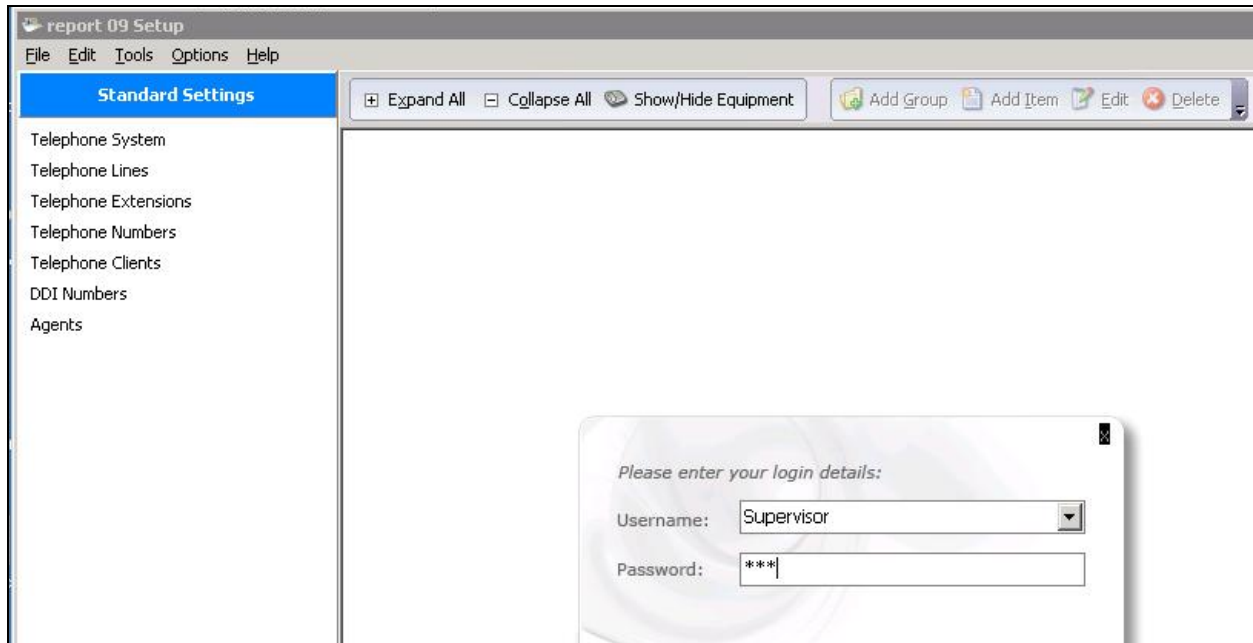
Once recordX is fully installed configure the software by opening **Setup** as shown below by navigating to **Start –Programs - Oak Telecom- report- Setup**.



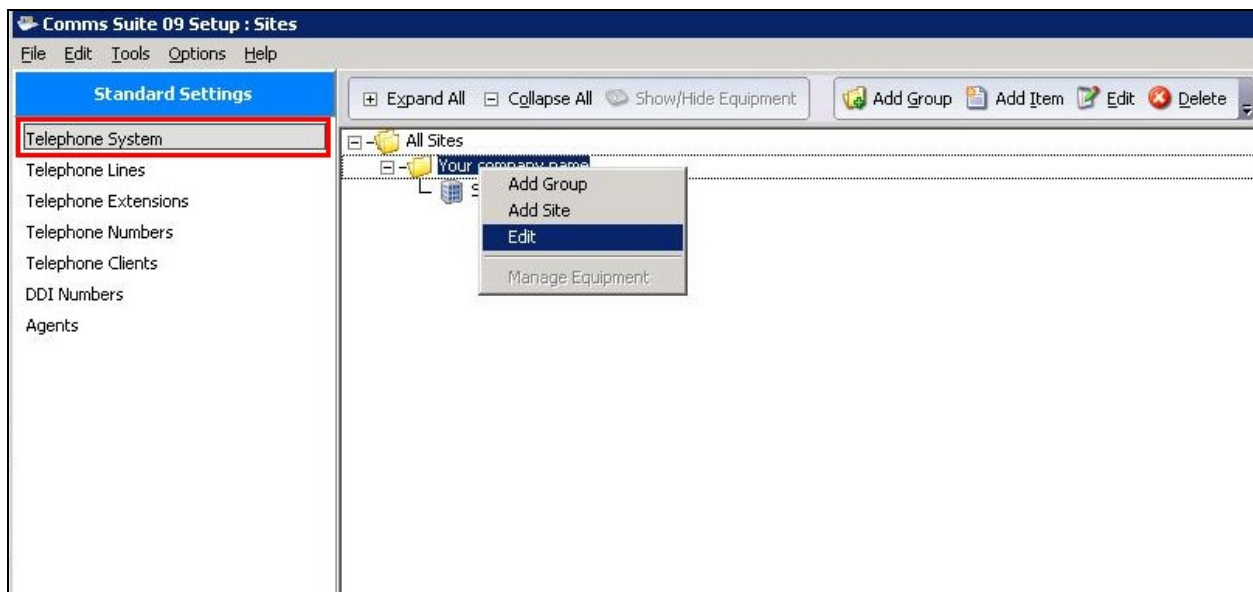
Alternatively this Setup can be launched from the Quick Launcher in task bar as shown below. Click on the blank icon in the **QUICK LAUNCH** and select **Comms Suite Setup**.



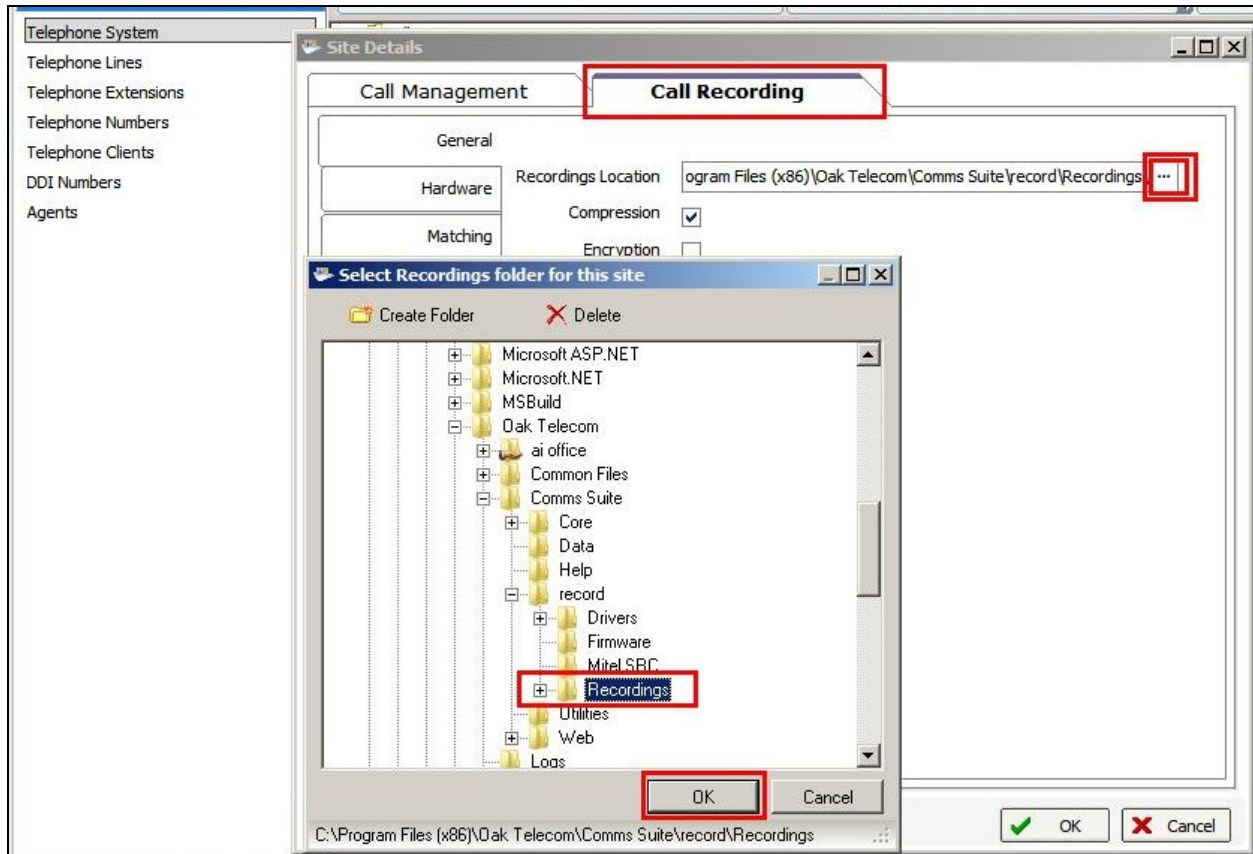
Select **Supervisor** for the **Username** and enter the appropriate **Password**. Click **OK**.



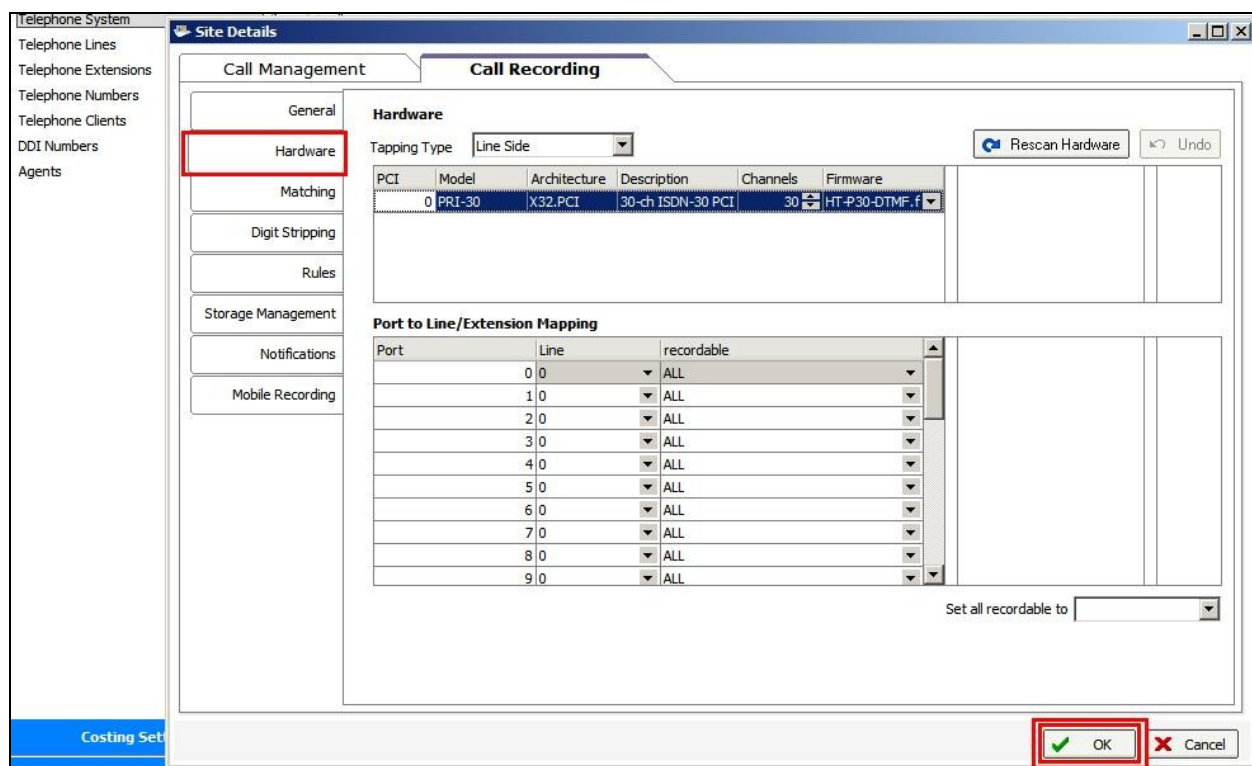
From the **Standard Settings** section in the left pane, select **Telephone System** to bring up the sites configured. All default installations will provide a default site for configuration, Right-Click on the default site and **Edit** this site as shown below.



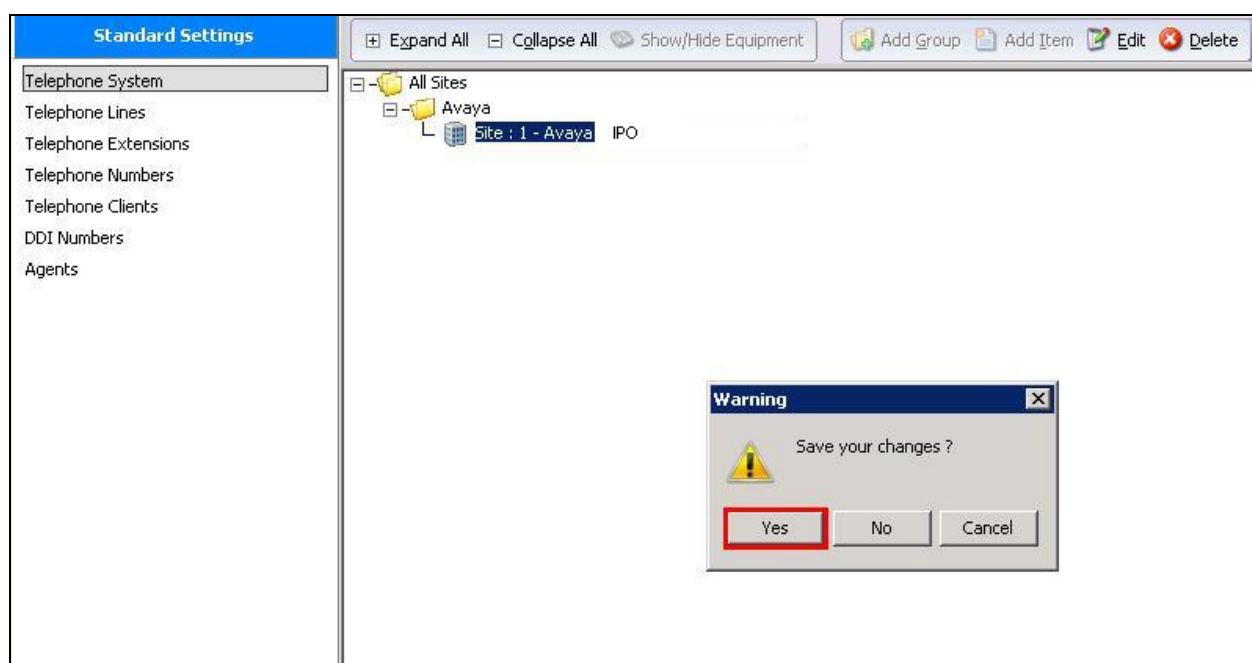
In the **Site Details** window select the **Call Recording** tab to configure the site as shown below. Click on the **General** tab and ensure **Recordings Location** is automatically populated with the location where the recordings are to be stored but if this is blank simply click on the icon as highlighted and browse to the Recordings folder as shown and click **OK**.



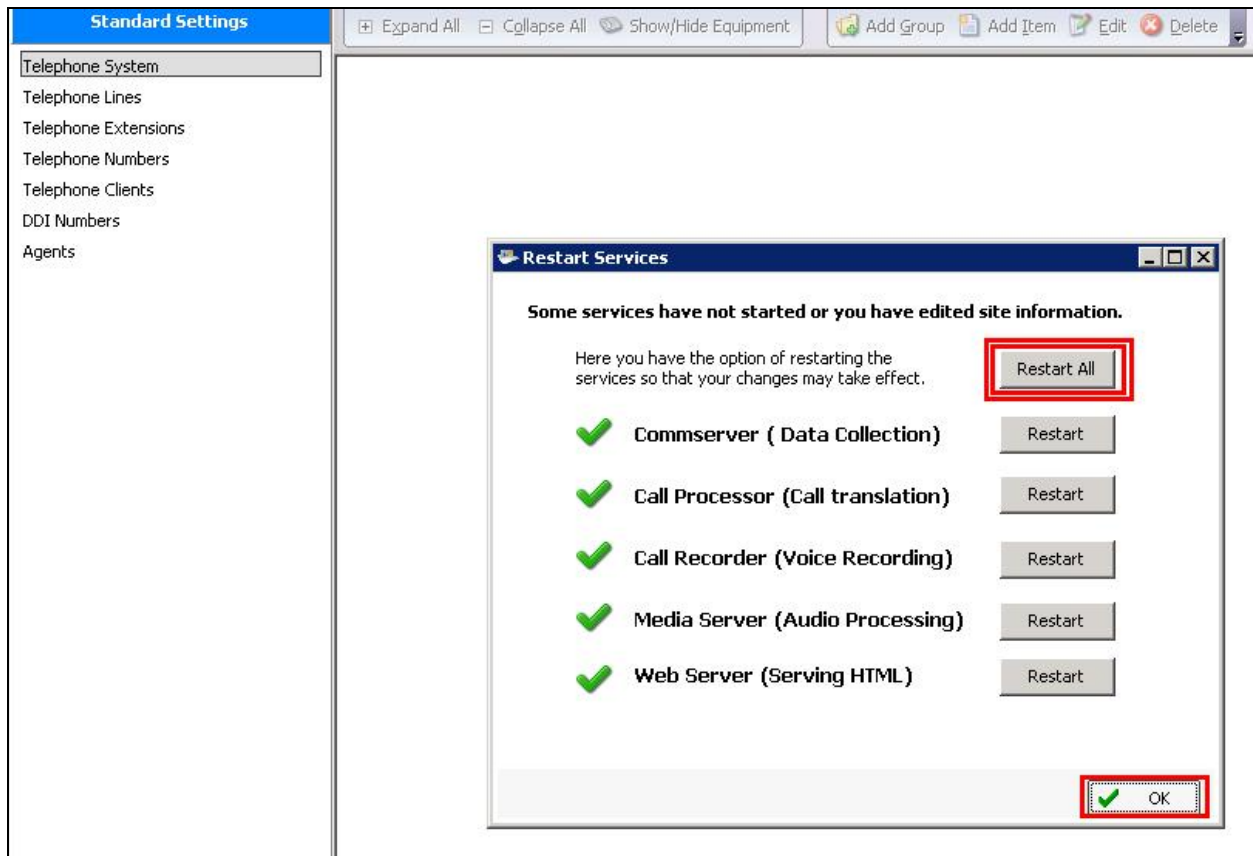
Under the **Hardware Tab** ensure that the information on the x32.PCI card is populated as shown below this is automatically populated as a result of the driver install in **Section 7.1**. Click **OK**.



A system window opens prompting the user to save changes. Click **Yes** as highlighted below to save all changes made in this section.



Once the changes are saved a window automatically opens prompting the restart of all Comms Suite Services. Click on **Restart All** and then **OK** as highlighted below.

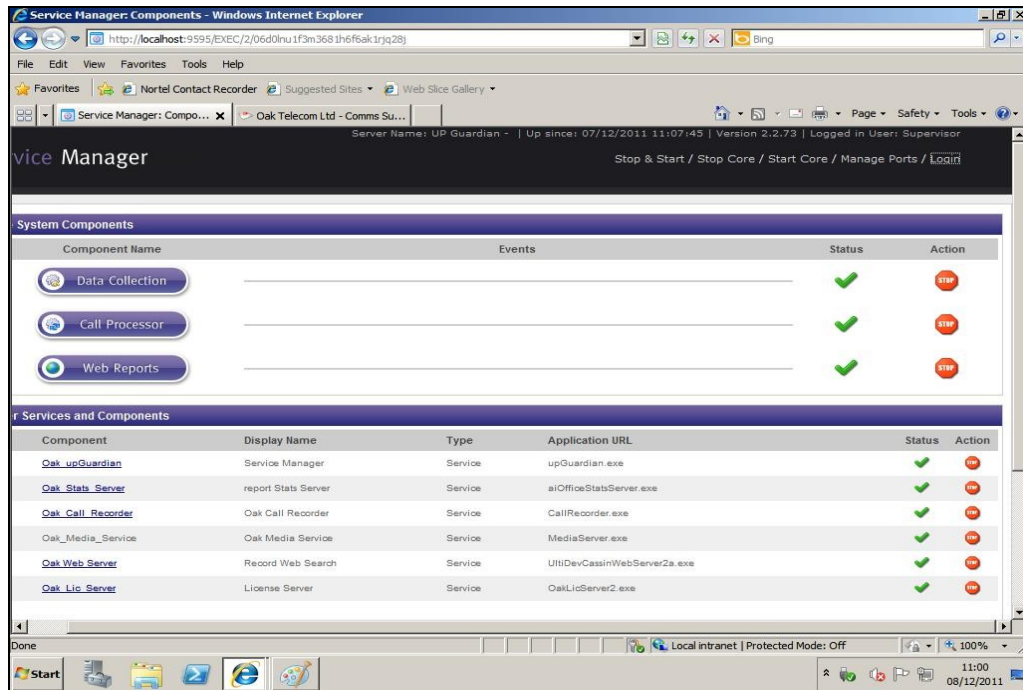


## 8. Verification Steps

The following steps can be used to verify that the recordX system has been configured correctly and that calls can be recorded.

### 8.1. Verify Oak telecom recordX Services are running

Open a web browser session to <http://<servername>:9595>, where <servername> is the IP address or hostname of recordX Server, in order to view the services as highlighted below.



## 8.2. Verify that telephone call recordings are being received by Oak Telecom's recordX Server

Open a web browser session to <http://<servername>:9100>, where <servername> is the IP address or hostname of recordX Server, in order to view the recordings as highlighted below.

The screenshot shows the 'Search For Calls' interface in the Oak Telecom Comms Suite. The browser address bar shows 'http://localhost:9100/Search.aspx'. The interface includes search filters for Date (Yesterday), Time of day (All), Call Type (All Call Types), Call Connected Duration (All to All), Extension Filtering (From and To checked), Extension (All Extensions), Phone Number Filtering (From and To checked), and Phone Number (All Phone Numbers). A 'Search Recordings' button is present. Below the filters, a table displays search results. One result is highlighted with a red box:

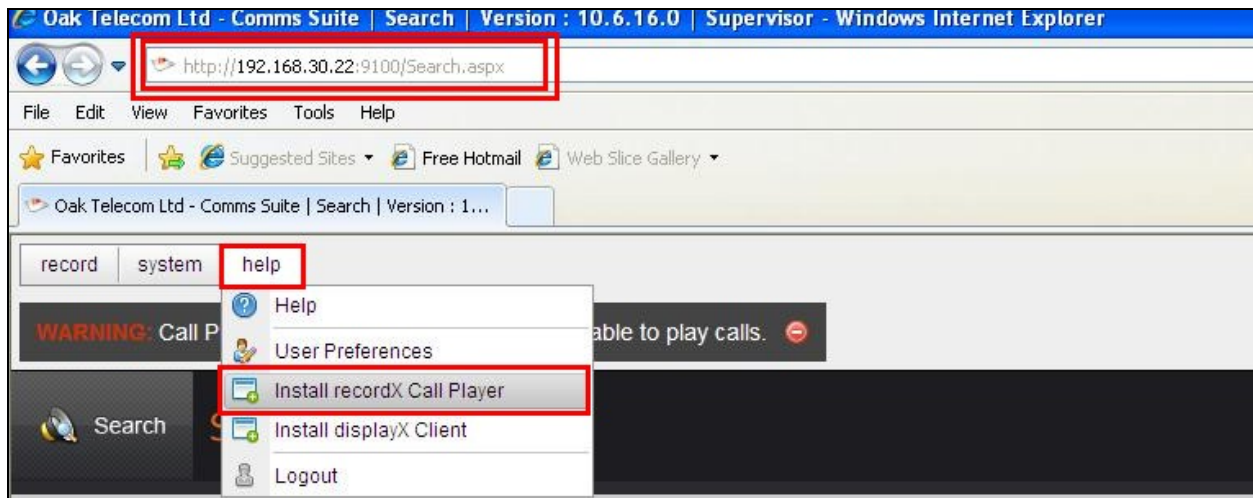
	Call Date/Time	Call Type	Call From	Call To	Extension(s)	Duration
	Wed 07 Dec 11, 11:37:46 AM	Incoming...	5181	2011		00:00:04

Below the table, there is an 'Add to playlist' button and a playback control bar. The page footer indicates 'Page 1 of 1 (1 Recordings)'.

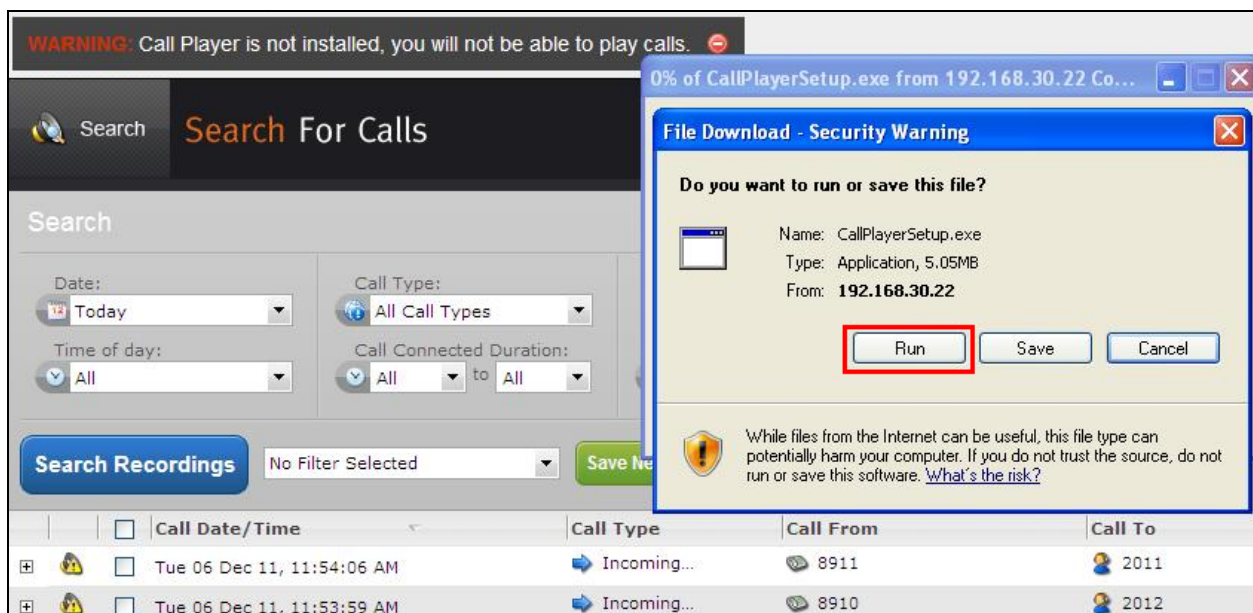


### 8.3. Verify that telephone call recordings can be played back and heard correctly

In order to play saved recordings **recordX Call Player** must be installed on a client machine that has a sound card. Open a web browser session to <http://<servername>:9100>, where <servername> is the IP address or hostname of recordX Server. Under **help**, click on **Install recordX Call Player** as shown below.

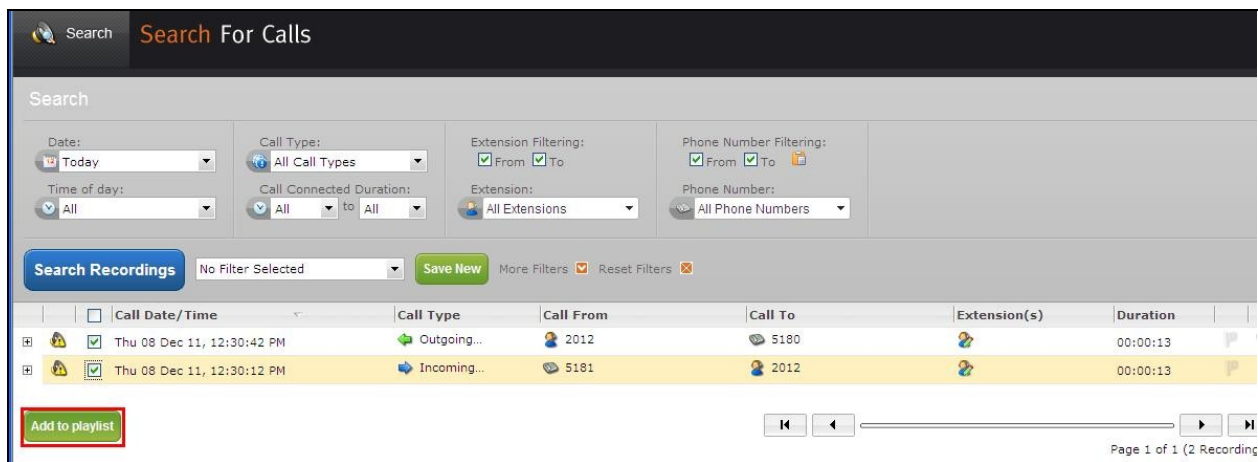


Click on **Run** to install this application onto the client machine.

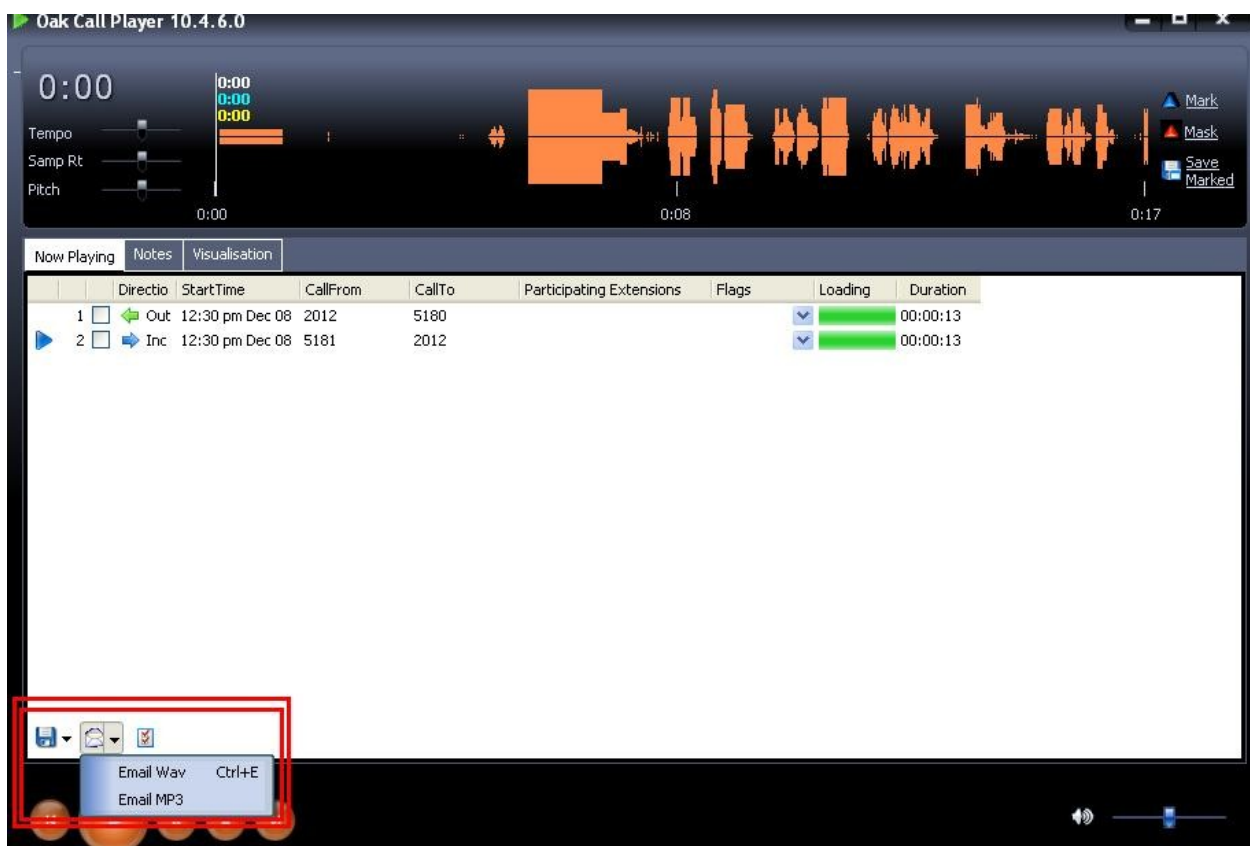




Once the player has been installed, select the recordings that are to be played and click **Add to playlist** as shown below. Alternatively each individual recording can be played by clicking on the individual recording.



The **Oak Call Player** then plays the recordings over the sound card on the client PC. These recordings can be saved as **.WAV** or **.MP3** files and emailed as highlighted below.



## 9. Conclusion

As illustrated in this Application Notes, recordX from Oak Telecom can be configured to successfully interoperate with Avaya IP Office R8. All call types were recorded successfully and stored for playback on the recordX server.

## 10. Additional References

This section references documentation relevant to these Application Notes. The Avaya product documentation is available at <http://support.avaya.com> where the following documents can be obtained.

[1] *IP Office R8 Doc library*

All information on the product installation and configuration for Oak Telecom recordX can be found at <http://help.oak.co.uk>. This online help contains documentation and video guides supporting all Oak Telecoms product range.

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