



Avaya Solution & Interoperability Test Lab

Application Notes for configuring Imperium CRM Connect for Microsoft Dynamics CRM from Protocol Systems FZC with Avaya IP Office R9.0 using Avaya IP Office TAPI Service Provider - Issue 1.0

Abstract

These Application Notes describe the configuration steps for Protocol Systems FZC Imperium CRM Connect for Microsoft Dynamics CRM to interoperate with Avaya IP Office R9.0. FZC Imperium CRM Connect for Microsoft Dynamics CRM integrates with Avaya IP Office using the Avaya IP Office TAPI Service Provider connection for call control.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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

1. Introduction

These Application Notes describe the configuration steps for Protocol Systems FZC Imperium CRM Connect for Microsoft Dynamics CRM to interoperate with Avaya IP Office R9.0. FZC Imperium CRM Connect for Microsoft Dynamics CRM integrates with Avaya IP Office using the Avaya IP Office TAPI Service Provider connection for call control.

Imperium CRM Connect for Microsoft Dynamics CRM presents to the user information such as caller name and company information retrieved from the CRM Database and offers “click to open” for CRM records related to a Caller ID, such as a contact record, opportunities/orders list or a notes/activity record containing information from previous calls with the customer. It provides call handling options including: answer incoming call, release call before or after answering, initiate call, place call on hold, retrieve held call, transfer call to another contact or telephone number, view call history and list of missed calls.

Imperium CRM Connect for Microsoft Dynamics CRM (IMCC for MSCRM) uses the Avaya IP Office TAPI Service Provider driver installed on each IMCC for MSCRM Agent Desktop to allow businesses a client based agent desktop program that works alongside existing systems, or a fully integrated CTI solution that combines existing systems into one unified desktop interface and extracts and updates caller information, the CTI application helps ensure customers are served effectively and efficiently.

2. General Test Approach and Test Results

This section describes the compliance testing used to verify interoperability IMCC for MSCRM with IP Office and covers the general test approach and the test results.

IMCC for MSCRM consists of a server component and client component. The Server component is a Solution file which will be imported to customer’s MSCRM server which will enable dialling contacts in various forms from within the MSCRM webpage itself. Once the contact is dialled, the client component called IMCC for MSCRM Agent Desktop is triggered and it provides all call control functionalities like Call Hold, Transfer, Conference, Call Drop, Open activity from the IMCC for MSCRM Agent Desktop itself. IMCC for MSCRM Agent Desktop has a client tool which runs on a user’s PC. When there is an incoming call, based on CLID, the corresponding customer details is matched in MSCRM and a “New Activity” or “New Lead window” is opened with in MSCRM itself and the IMCC for MSCRM Agent Desktop to provide all call control functionalities. Each user/agent that is running IMCC for MSCRM Agent Desktop, will have a unique connection to the IP Office, using the Avaya IP Office TAPI Service Provider driver for call control.

Feature testing covered the ability of IMCC for MSCRM Agent Desktop to gain control of existing IP Office endpoints and focused on the handling of calls offered to IP Office by IMCC for MSCRM Agent Desktop. The serviceability testing focused on the ability of IMCC for MSCRM to recover from adverse conditions such as loss of network connectivity.

Note: During compliance testing, SIP endpoints were also included.

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 Interoperability Compliance Testing

The interoperability compliance test included both feature functionality and serviceability testing. The feature functionality testing focused on manually making and receiving calls to IP Office. The tests included:

- **Basic calls** – Basic incoming and outgoing calls using IMCC for MSCRM Agent Desktop.
- **Call Hold** – Tests held calls using IMCC for MSCRM Agent Desktop.
- **Call Transfer** Tests transferred calls using IMCC for MSCRM Agent Desktop.
- **Call Conference** Tests conferenced calls using IMCC for MSCRM Agent Desktop.
- **Failover/Service** – Tests the behaviour of IMCC for MSCRM Agent Desktop when there are certain failed conditions.

2.2 Test Results

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

- When calling from a SIP phone there is both an incoming and outgoing screen but there should only be one for outgoing.
- Calling a busy number will not clear the phone after disconnect is pressed on the screen.
- Calling an unobtainable number will not clear the phone after disconnect is pressed on the screen.

2.3 Support

Technical support can be obtained for Imperium CRM Connect for Microsoft Dynamics CRM from the website <http://imperiumapp.com/contact.aspx> or from the following:

Protocol Systems FZC
Q3-133, SAIF Zone,
Sharjah, UAE.
Tel: +9716 5578383
Fax: +9716 5578384
Email: support@protocolsystems-me.com

3. Reference Configuration

The configuration in **Figure 1** is used to compliance test Imperium CRM Connect for Microsoft Dynamics CRM from Protocol Systems FZC with Avaya IP Office to gain call control of the various Avaya endpoints as shown below. IMCC for MSCRM consists of a server component and client component. The server component is a solution file which will be imported to customer's MSCRM server which will enable dialling contacts in various forms from within the MSCRM webpage itself. The client component is consists of IMCC for MSCRM Agent Desktop software running on each user/agent that will have a unique connection to IP Office using the Avaya IP Office TAPI Service Provider driver.

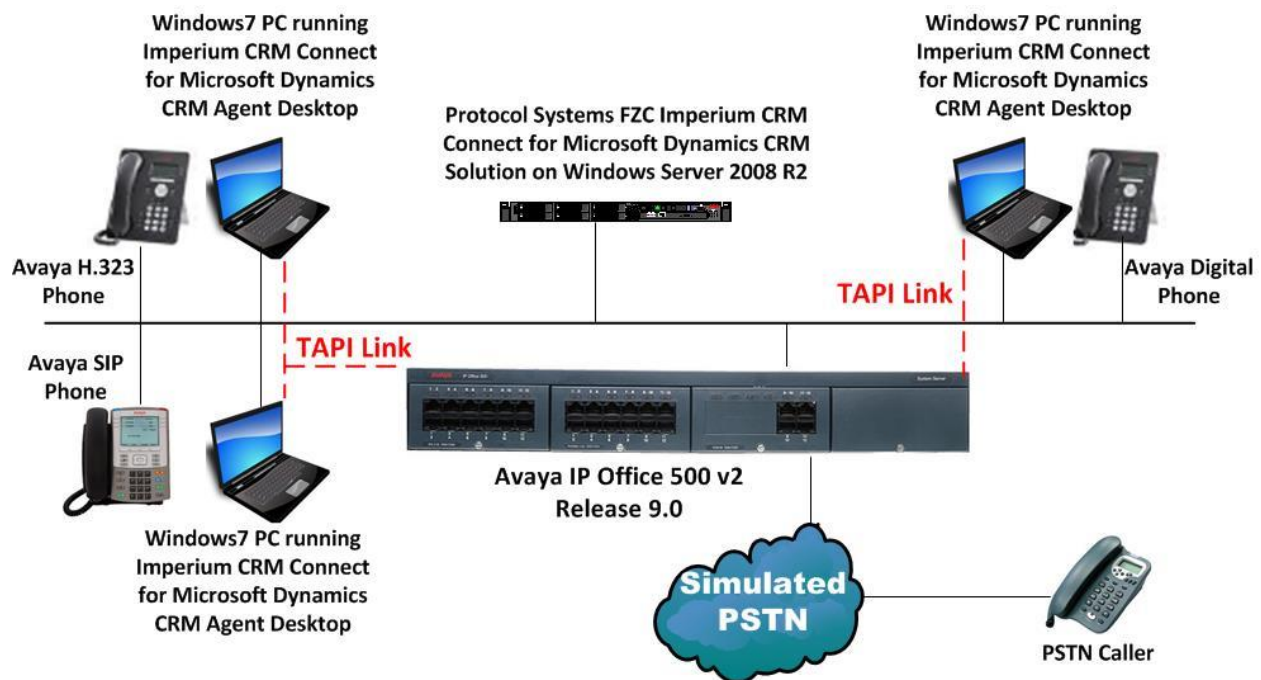


Figure 1: Connection of Imperium CRM Connect for Microsoft Dynamics CRM from Protocol Systems FZC with Avaya IP Office 500v2 R9.0.

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office v500	R9.0
Avaya 9630 H323 Deskphone	96xx H.323 Release 6.4014U
Avaya 1140e SIP	R04.03.12.00
Windows 2008 Virtual Server Protocol Systems FZC Imperium CRM Connect for Microsoft Dynamics CRM **	Windows 2008 R2 R1.0
Windows 7 Client PC Imperium CRM Connect for Microsoft Dynamics CRM Agent Desktop	Windows 7 Enterprise R1.0

Note: Testing was performed with IP Office 500 R9.0. Testing does not apply to an IP Office Server Edition.

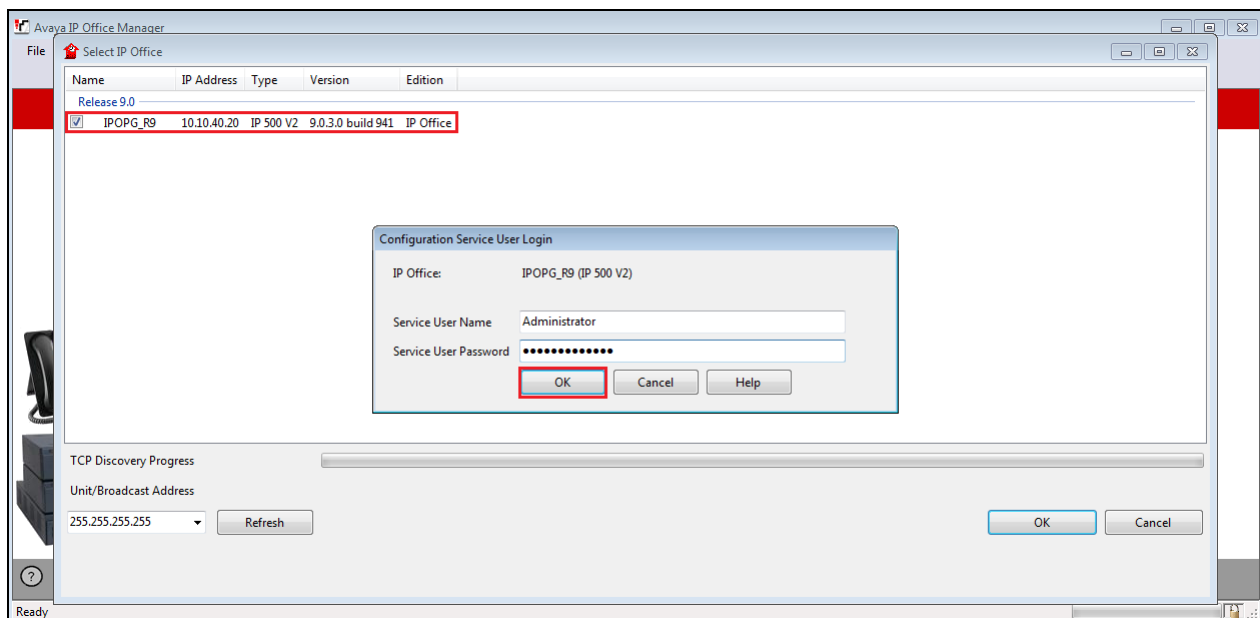
5. Configuration of Avaya IP Office

Configuration and verification operations on the Avaya IP Office illustrated in this section were all performed using Avaya IP Office Manager. The information provided in this section describes the configuration of the Avaya IP Office for this solution. It is implied a working system is already in place. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 10**. The configuration operations described in this section can be summarized as follows:

- Launch Avaya IP Office Manager
- Configuration of an IP Office User
- Save Configuration

5.1 Launch Avaya IP Office Manager

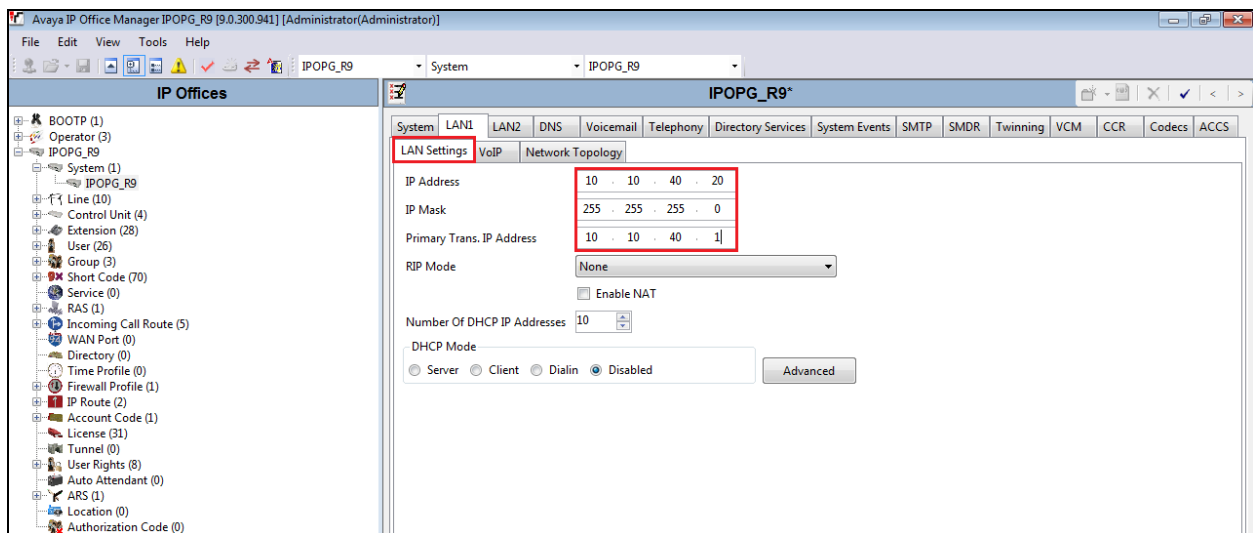
From the Avaya IP Office Manager PC, go to **Start→Programs→IP Office→Manager** to launch the Manager application (not shown). Log in to Avaya IP Office using the appropriate credentials to receive its configuration.



5.2 Display LAN Configuration

In the IP Offices window expand the configuration tree in the left pane and double-click **System**. During compliance testing the System was called **00E00702D89A**. Select the **LAN** tab and note the following information:

- **IP Address** IP Address of the IP Office that will be required in **Section 6** for the configuration of the TAPI Driver and again in **Section 7.1** during the configuration of the Imperium Server
- **IP Mask** Subnet mask for the IP Office
- **Primary Trans IP** Gateway IP Address



5.3 Configure an IP Office User

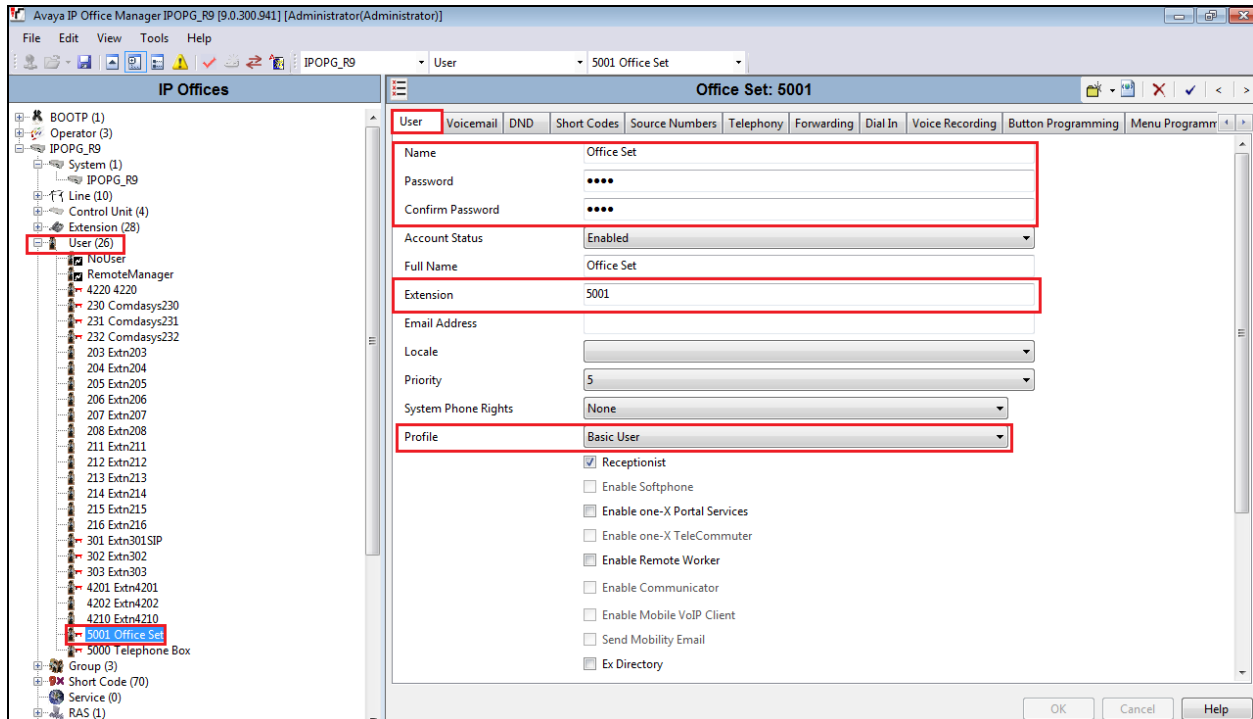
This section shows how to add a new user in order to login to a H323 extension.. Enter the extension number into the **Base Extension** highlighted below. Note that this number will be automatically filled in by the IP Office and can be changed by accessing the extension in the left window.

The screenshot displays the Avaya IP Office Manager interface. The title bar indicates the application is running as Administrator. The main window is titled "H323 Extension: 8011 5001". On the left, a tree view under "IP Offices" shows a hierarchy: BOOTP (1), Operator (3), IPOPG_R9, System (1), IPOPG_R9, Line (10), Control Unit (4), and Extension (28). The "Extension (28)" folder is expanded, and the "8011 5001" extension is selected and highlighted with a red box. The main configuration area on the right shows the following fields:

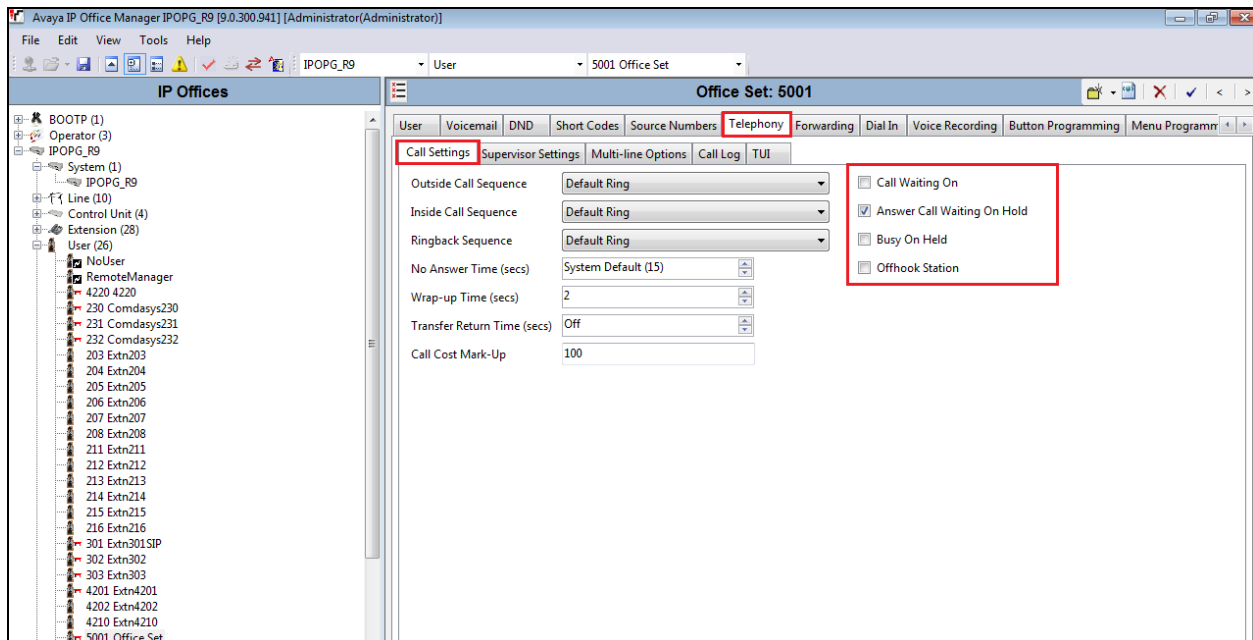
Field	Value
Extension Id	8011
Base Extension	5001
Phone Password	****
Confirm Phone Password	****
Caller Display Type	On
Reset Volume After Calls	<input type="checkbox"/>
Device Type	Unknown IP handset
Location	Automatic
Module	0
Port	0
Disable Speakerphone	<input type="checkbox"/>

At the bottom right, there are three buttons: "OK", "Cancel", and "Help". The "OK" button is highlighted with a red box.

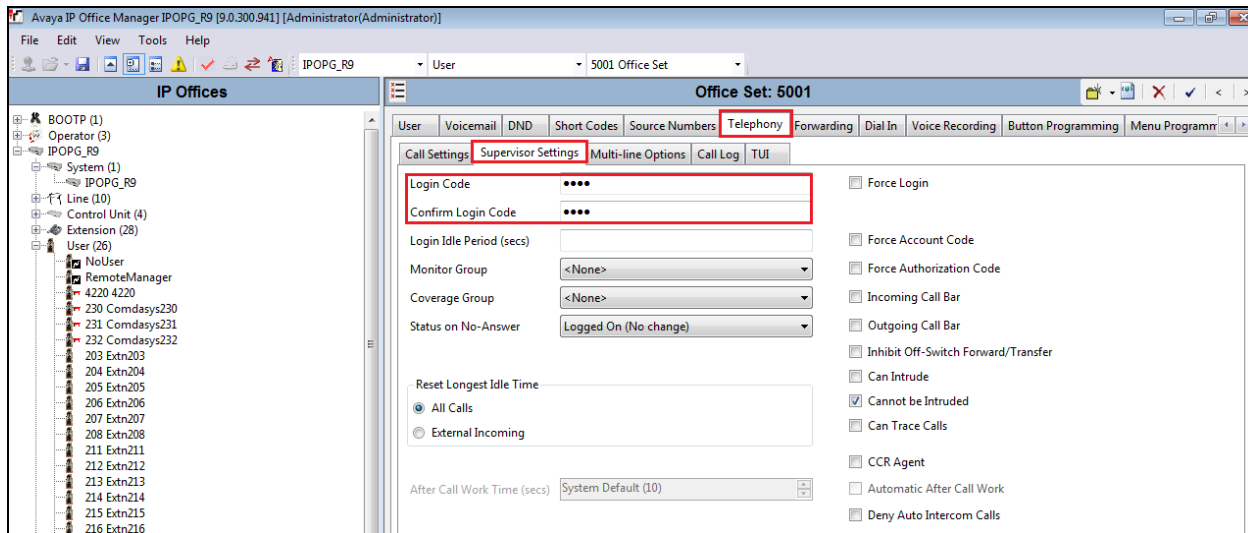
In order to add a new user right click in Users in the left window and a new window will appear where New can be selected (not shown). Shown below is an example of an existing user **5001**. Information such as the **Name**, **Password** and **Extension** are filled in or noted. Note, the example below is setup as a **Basic User**.



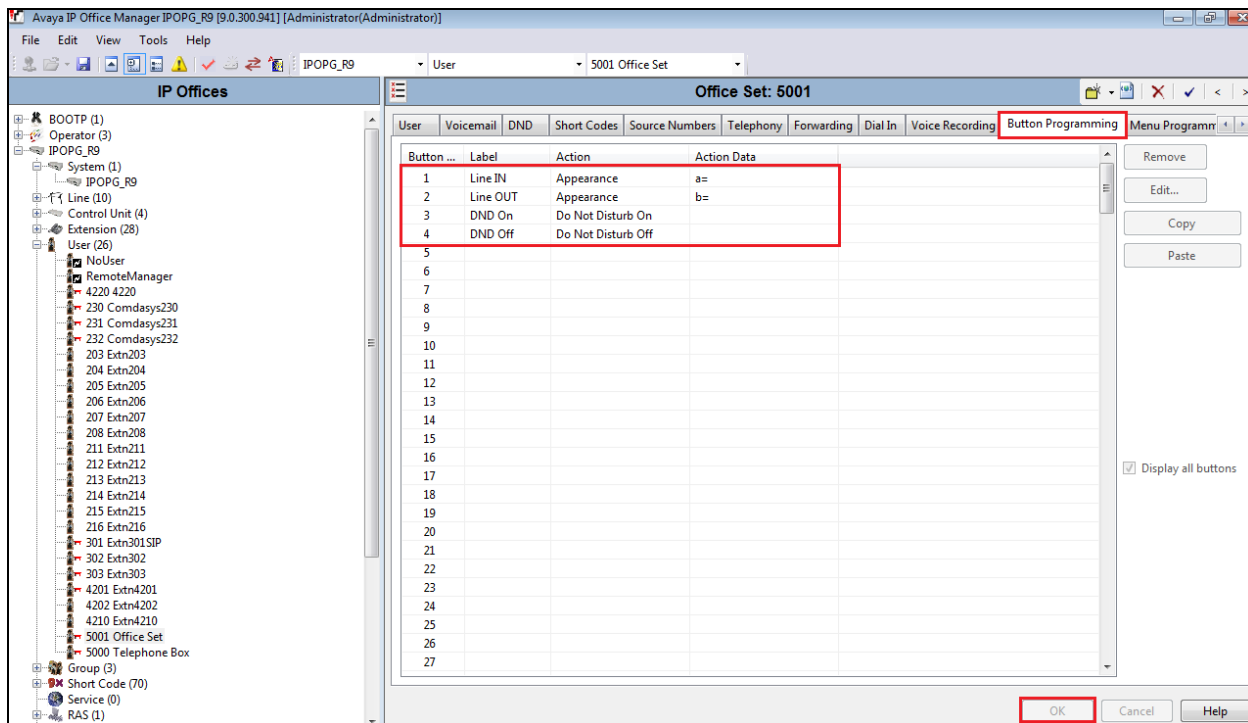
Under the **Telephony** Tab, click on another tab called **Call Settings** to change or note call settings such as **Call Waiting**.



Click on the **Supervisor Settings** tab to note the **Login Code** for the user.

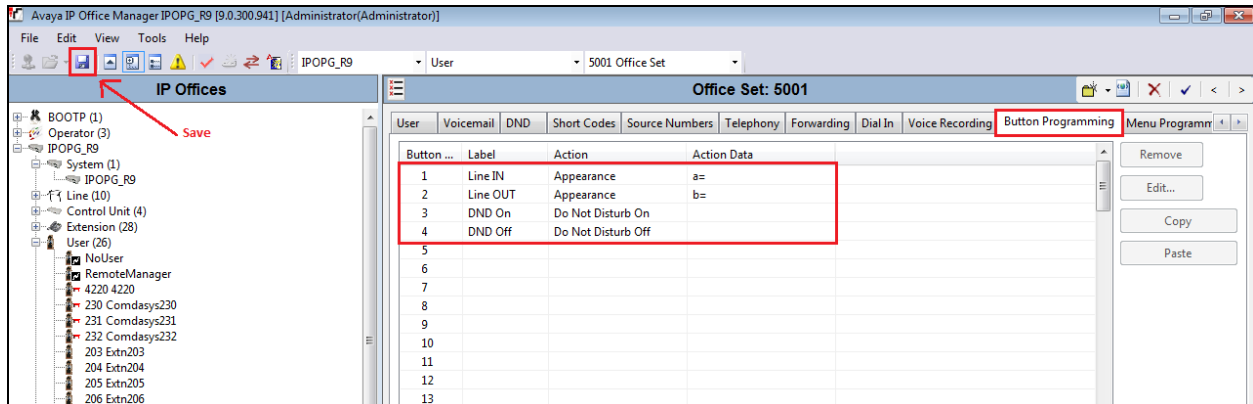


Click on the **Button Programming** tab in order to change the buttons that are programmed on that user's phone set. Note there are two call **Appearance** buttons programmed below with a **DND On** and **DND Off** programmed also. Click on **OK** to complete the new user.

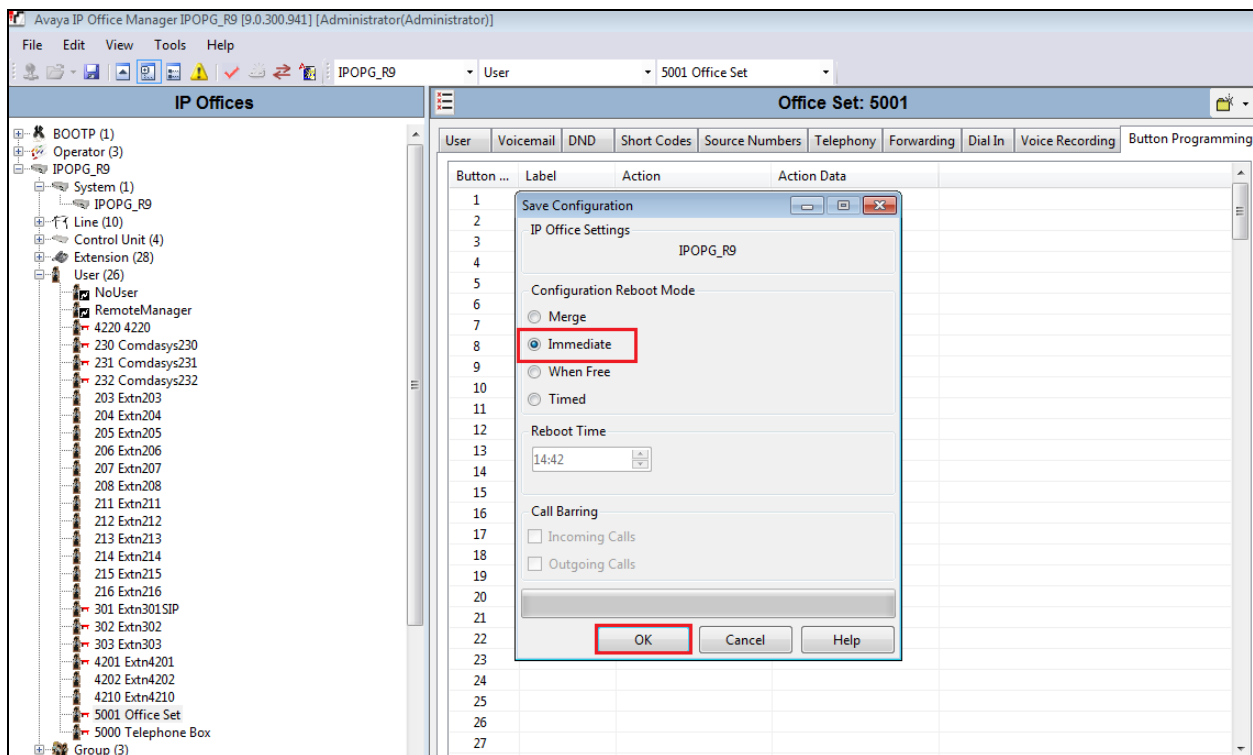


5.4 Save Configuration

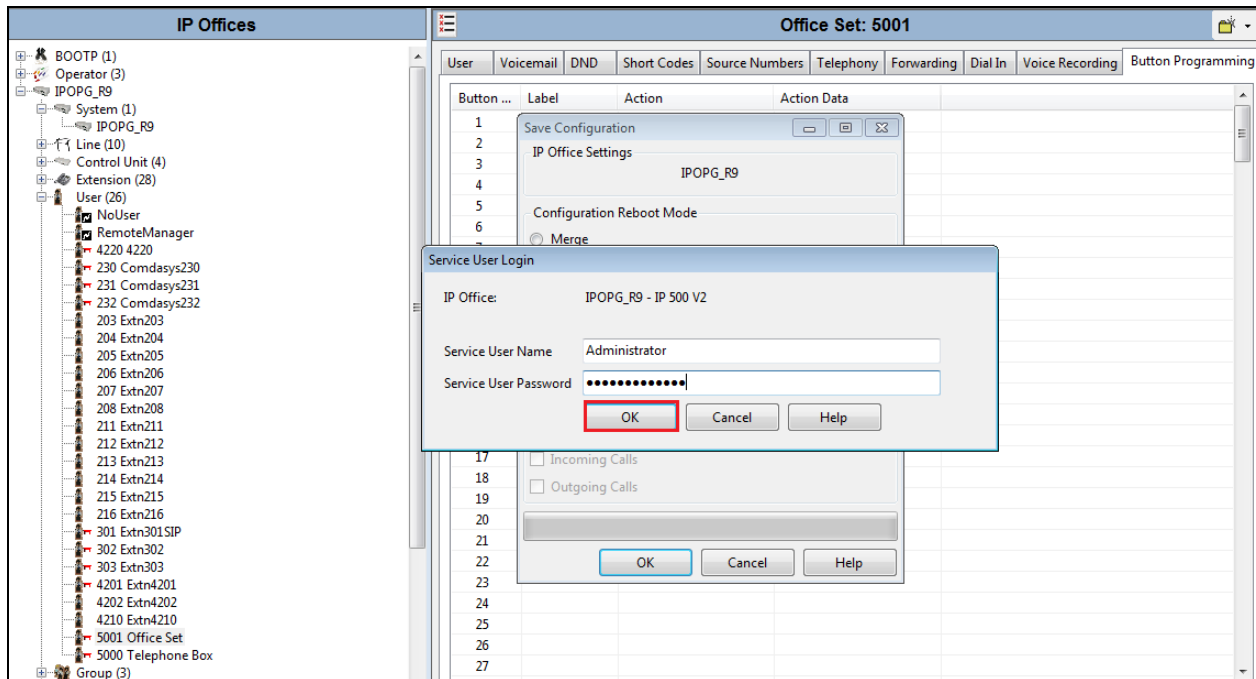
Once the configuration has been made it must be sent to the IP Office. Click on the **Save** Icon as shown below.



Once the **Save Configuration** window opens, either the **Merge** or **Immediate** button will be filled in depending on the changes that are made. Click on the **OK** button.

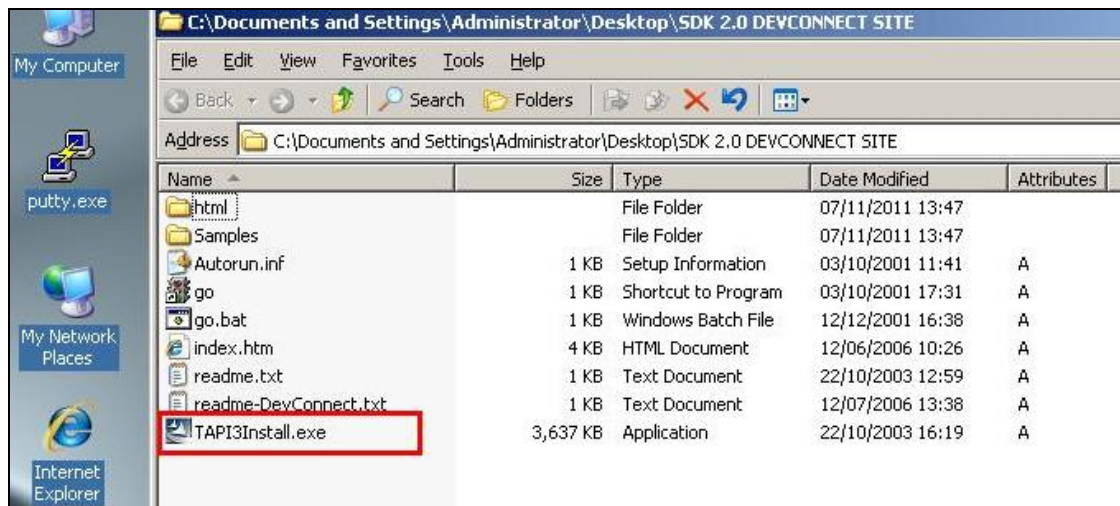


Enter the **Administrator** password and click on **OK** to complete the configuration save.

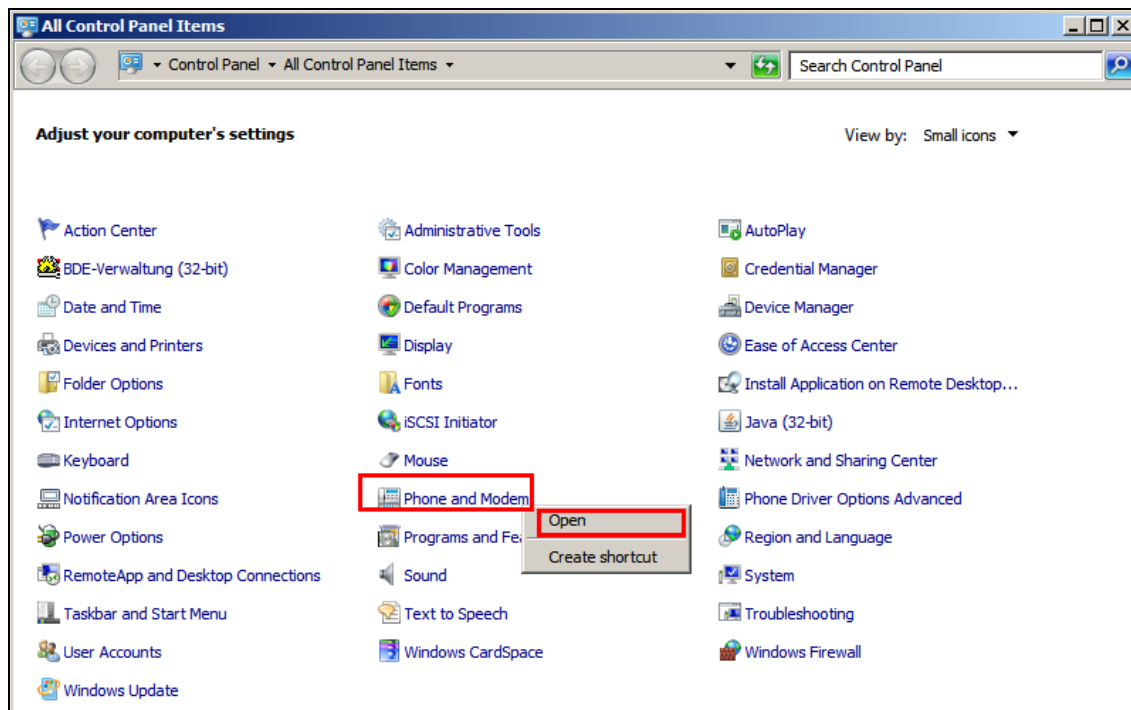


6. Installation and Configuration of Avaya IP Office TAPI3 Service Provider

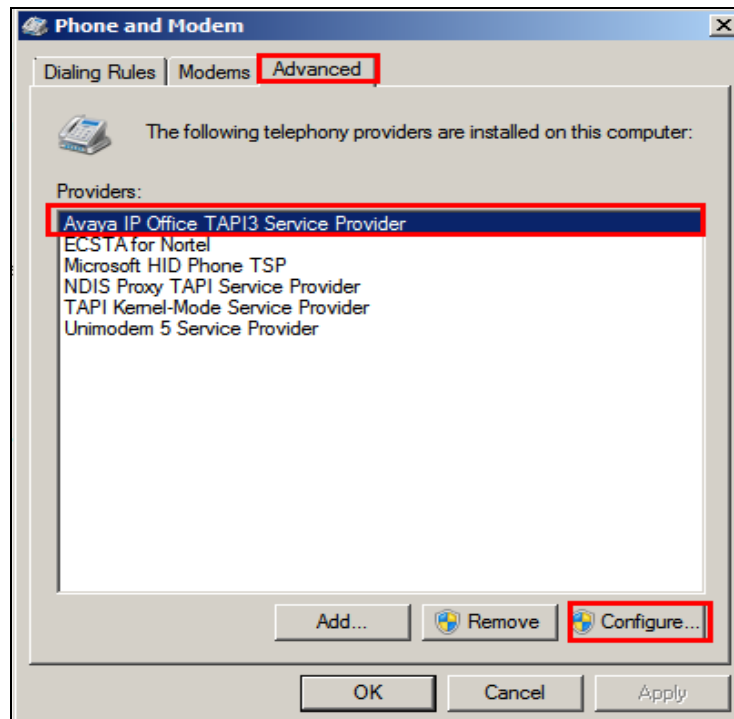
TAPI3 Service Provider is included in the IP Office CTI Link Software Development Kit (SDK) located on the DevConnect website (<http://www.avaya.com/gcm/master-usa/en-us/corporate/alliances/devconnect/index.htm>) under the product name IP Office. Once downloaded the install is initiated by running **TAPI3Install.exe**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



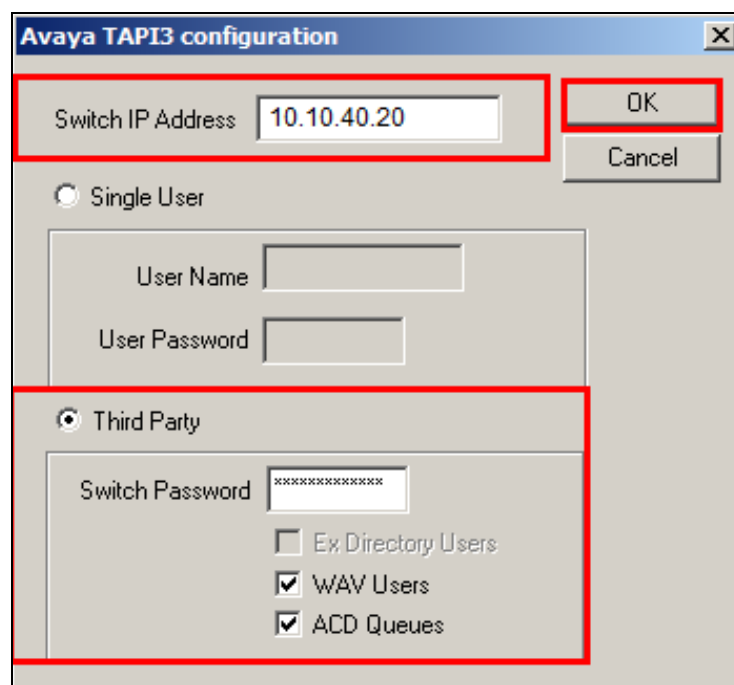
To configure the TAPI Service Provider navigate to **Control Panel** and right click on **Phone and Modem Options** and **Open** as highlighted below.



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.

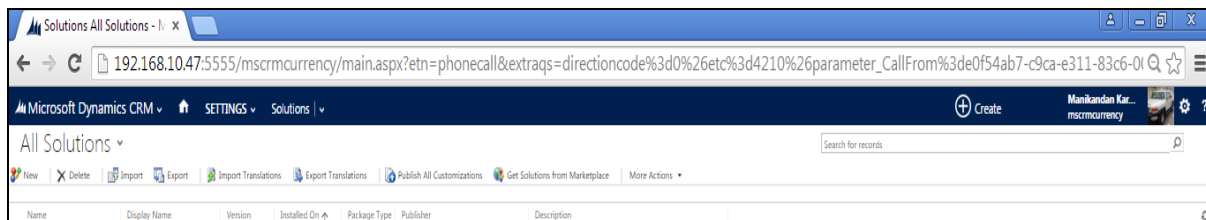


7. Configuration of Protocol Systems FZC Imperium CRM Connect for Microsoft Dynamics CRM

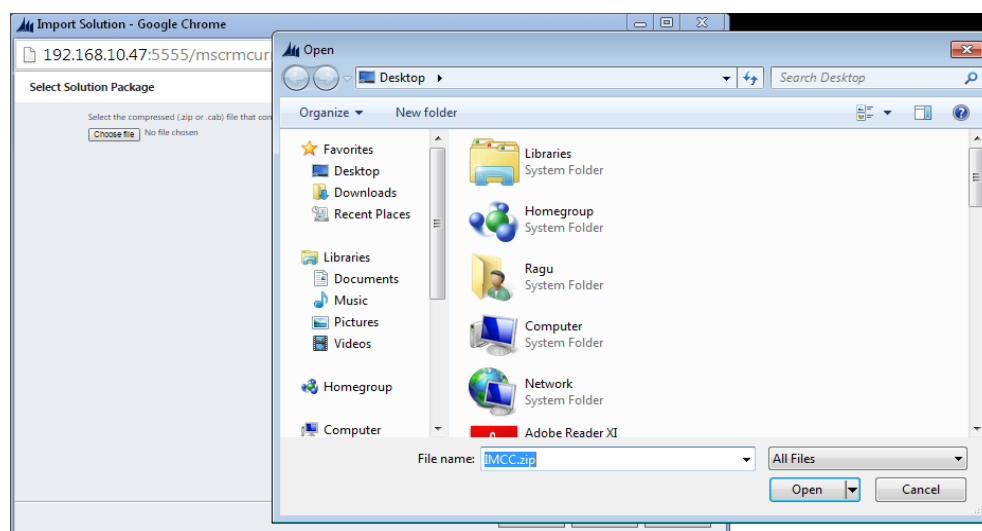
The IMCC for MSCRM Server Solution is imported to MSCRM which customer is already running and it does not require any separate server. IMCC for MSCRM Agent Desktop will connect to the IMCC for MSCRM server in order to obtain information on each caller from a central database. Once a call is presented to an agent the IMCC for MSCRM Agent Desktop can use the Call Line ID information obtained from IP Office to lookup the MSCRM and present to the agent all the customer information associated with that CLID. Each agent that is running IMCC for MSCRM Agent desktop will have a unique connection to the IP Office using the Avaya IP Office TAPI Service Provider for call control and to monitor the caller's information.

7.1 Importing Imperium CRM Connect for Microsoft Dynamics CRM Solution Template

The setup of the Imperium CRM Connect for Microsoft Dynamics CRM Solution is done by engineers from Protocol Systems FZC and is therefore outside the scope of these Application Notes. However a quick outline of the procedure is included in this section. Protocol Systems FZC will share a solution template which will be imported to the MSCRM as a Managed solution. Browse to **Settings** → **Solutions** in the MSCRM console.

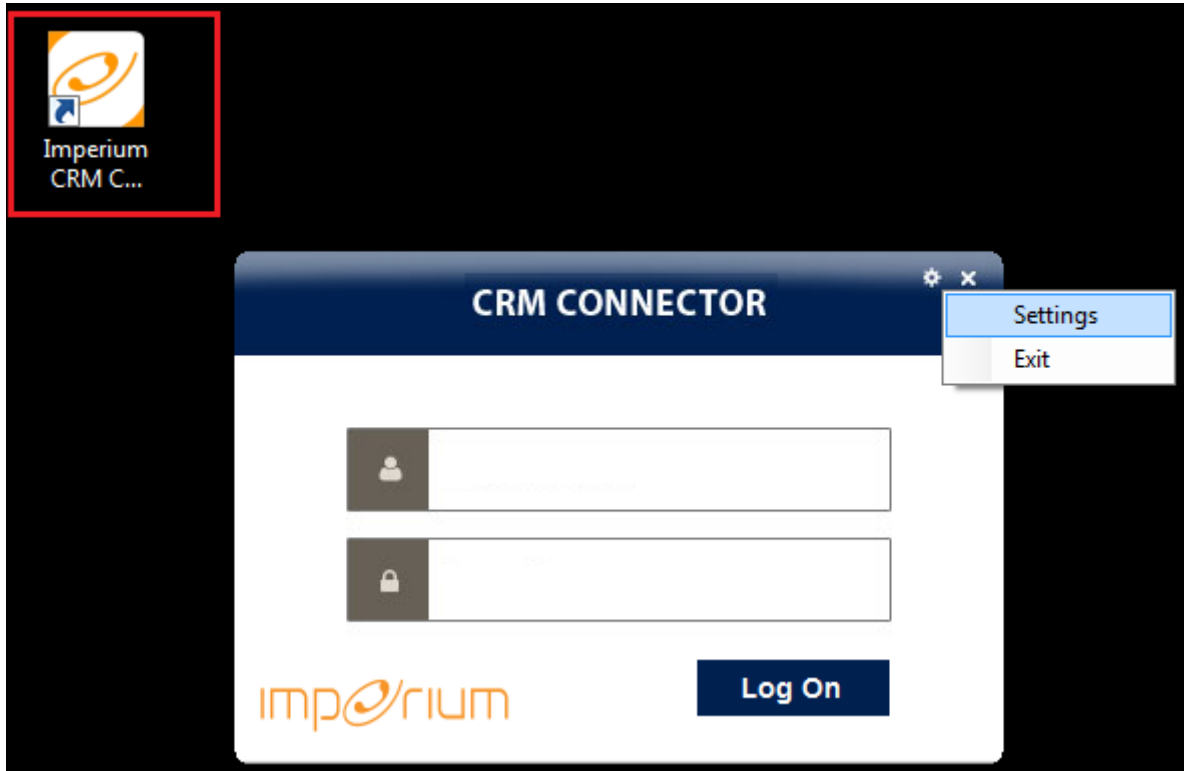


Select **Choose File** and browse to the provided solution template file which is in ZIP format.



7.2 Configure Imperium CRM Connect for Microsoft Dynamics CRM Agent Desktop connection to Avaya Aura® Application Enablement Services

The connection for the IMCC for MSCRM Agent Desktop running on the client PC is configured as follows. Run the **Imperium CRM Connect** shortcut on the desktop. This will open the IMCC for MSCRM Agent Desktop window as shown. Click on the setting icon at the top of the window and select **Settings** as shown.



Enter the following information.

- **Extension** This is the IP Office extension number that is to be monitored.
- **Main Prefix** This is the number used to dial out from the PBX.
- **Country Code** This is the country code for example **353** for Ireland.
- **CRM Datasource** This is IP Address/Hostname of MSCRM Database.
- **CRM Db Password** This is password of MSCRM Database.
- **CRM DB Name** This is the MSCRM Database Name.
- **CRM Connection URL** This is the MSCRM URL.

Click on **OK** at the bottom of the screen once the information is filled in correctly.

The image shows two overlapping windows from the Imperium CRM software. The 'CRM CONNECTOR' window on the left has a dark blue header and contains two input fields with user and password icons, a 'Log On' button, and the Imperium logo. The 'SETTINGS' window on the right also has a dark blue header and lists configuration fields: Extension (5001), Main Prefix (9), Country Code (+353), CRM Datasource (192.168.10.47), CRM Db Password (masked), CRM Db Name (mscmcurrency_MSCRM), and CRM Connection URL (192.168.10.47:5555/mscmcurrency_MSCRM). It includes 'Ok' and 'Close' buttons and the Imperium logo at the bottom.

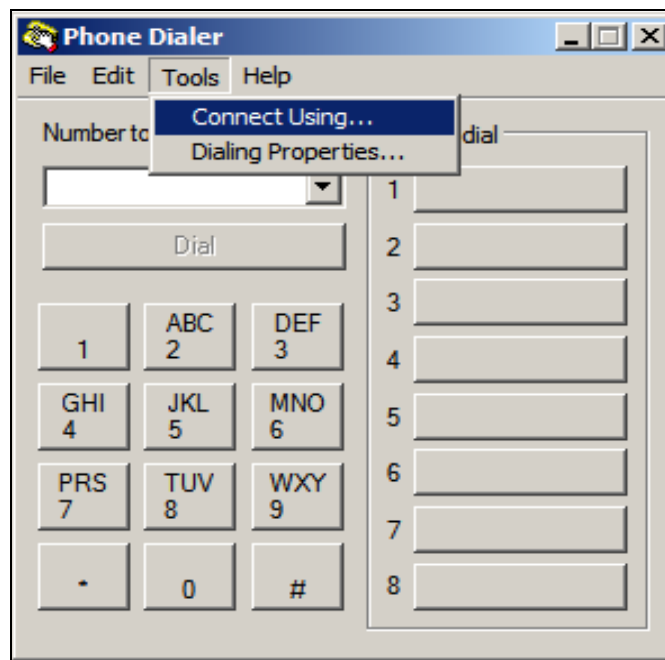
Field	Value
Extension	5001
Main Prefix	9
Country Code	+353
CRM Datasource	192.168.10.47
CRM Db Password	*****
CRM Db Name	mscmcurrency_MSCRM
CRM Connection URL	192.168.10.47:5555/mscmcurrency_MSCRM

8. Verification Steps

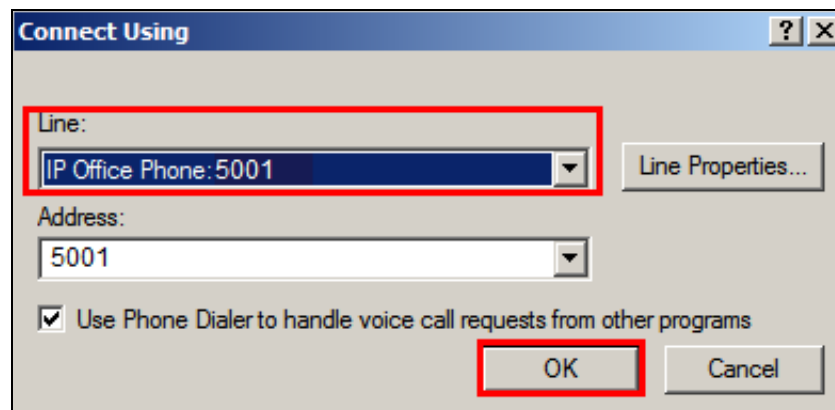
This section illustrates the steps necessary to verify that the Imperium Server is connected to the IP Office correctly in order to receive screen pop information.

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

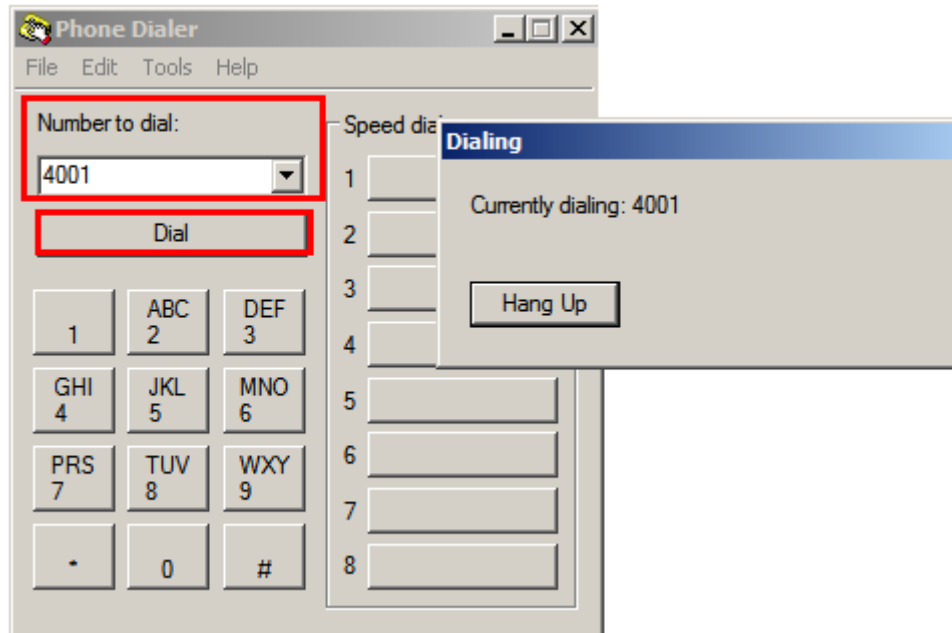
Open **Phone Dialer** (Windows program installed on all Windows platforms) on the IMCC for MSCRM Agent Desktop where TAPI is installed. Click on the Tools menu and select **Connect Using**.



Another box opens as shown below. Open the **Line** dropdown box and all the IP Office users should appear as an available line to use. Click on **OK**.



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.



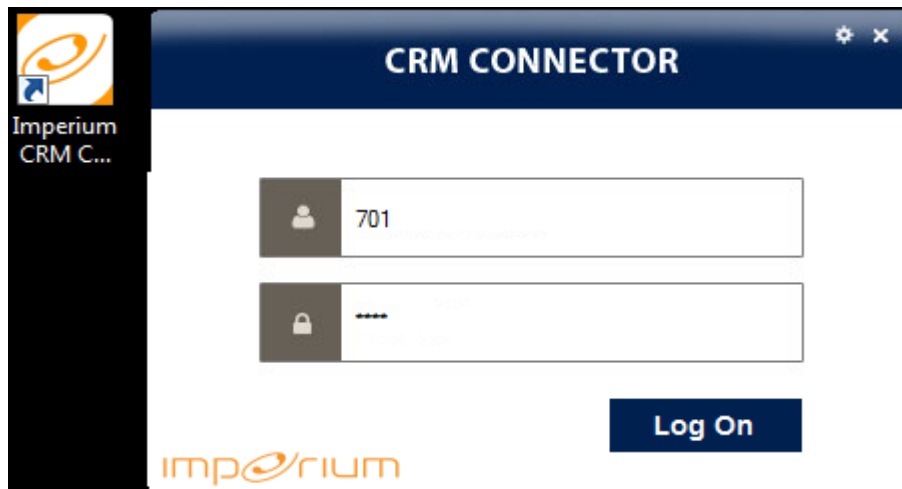
8.2 Verify 3rd Party Call Control using Imperium CRM Connect for Microsoft Dynamics CRM Agent Desktop

The section will show the full working solution by demonstrating a call being made and answered from the IMCC for MSCRM Agent Desktop.

Note: The example calls shown below are not taken from the system tested during compliance testing. Rather these were taken from a fully working system connected to a Microsoft CRM database.

8.2.1 Log in to the Imperium CRM Connect for Microsoft Dynamics CRM Agent Desktop

Run the **Imperium CRM Connect** shortcut on the desktop. This will open the IMCC for MSCRM Agent Desktop window as shown. Enter the correct username and password i.e., the IP Office station number and password, and click on **Log On**.



8.2.2 Make an outgoing call using Imperium CRM Connect for Microsoft Dynamics CRM Agent Desktop

Once logged in click on the phonebook icon at the top left to show the list of contacts and each of these contacts can be dialed by right clicking on the name and selecting **Call** as is shown.

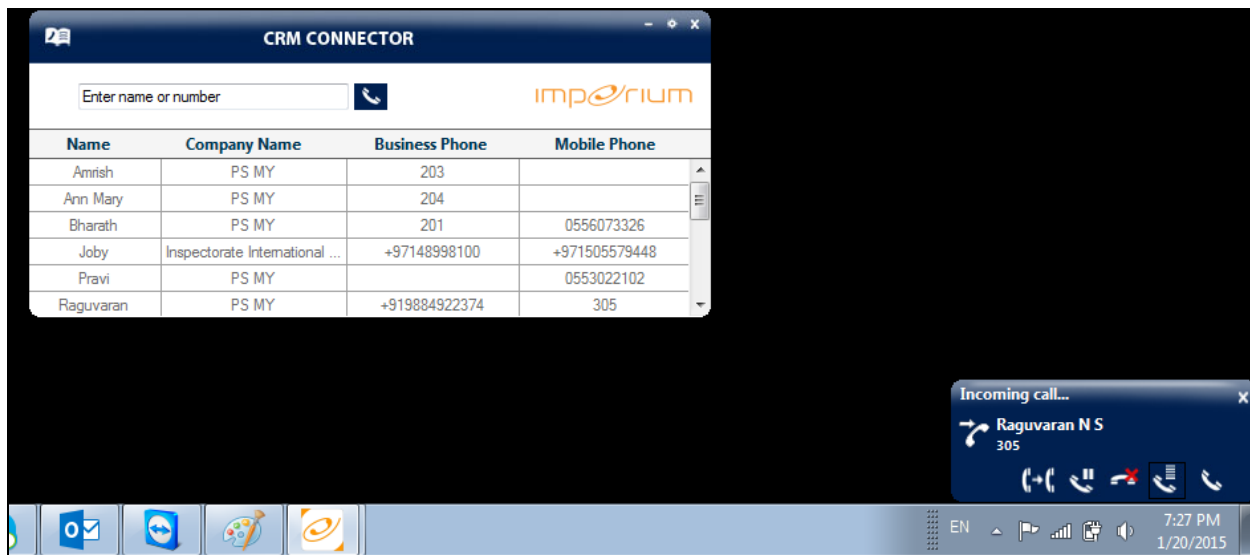


The screenshot shows the CRM CONNECTOR application window. At the top, there is a search bar with the text "Enter name or number" and a phone icon. Below the search bar is a table with the following columns: Name, Company Name, Business Phone, and Mobile Phone. The table contains the following data:

Name	Company Name	Business Phone	Mobile Phone
Amrisha	PS MY	203	
Ann Mary	PS MY	204	
Bharath	PS MY	201	0556073326
Joby	Inspectorate International ...	+97148998100	+971505579448
Pravi	PS MY		0553022102
Raguvaran	PS MY	+919884922374	305

A right-click context menu is open over the 'Joby' row, showing the option "Call +97148998100".

On the second agent's PC this can be seen as an **Incoming call**.



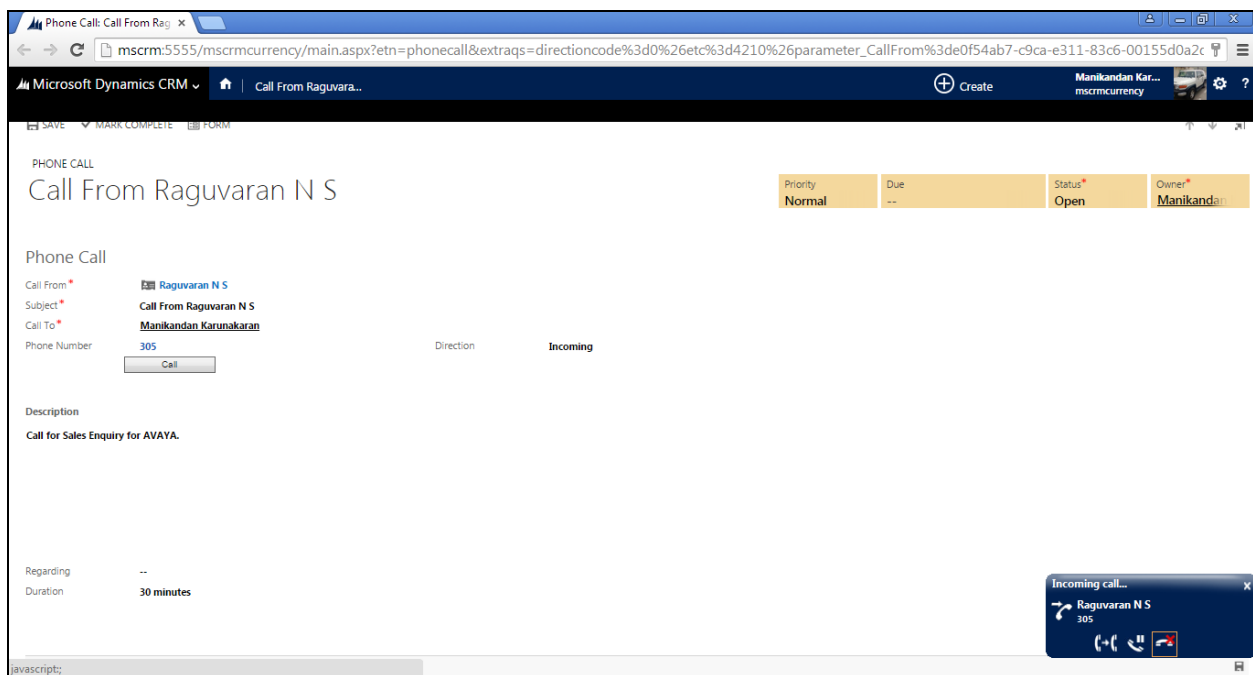
The screenshot shows the CRM CONNECTOR application window on a second agent's PC. The contact 'Raguvaran N S' is shown as an incoming call in a notification window. The notification window has the title "Incoming call..." and the name "Raguvaran N S" with the number "305". Below the name are icons for answering, rejecting, and other call actions. The CRM CONNECTOR application window in the background shows the same contact list as the first screenshot.

8.2.3 Answer an incoming call using Imperium CRM Connect for Microsoft Dynamics CRM Agent Desktop

An incoming call is presented to the agent as shown below. Click on the icon highlighted to answer the call with a screen pop of the customer's information.

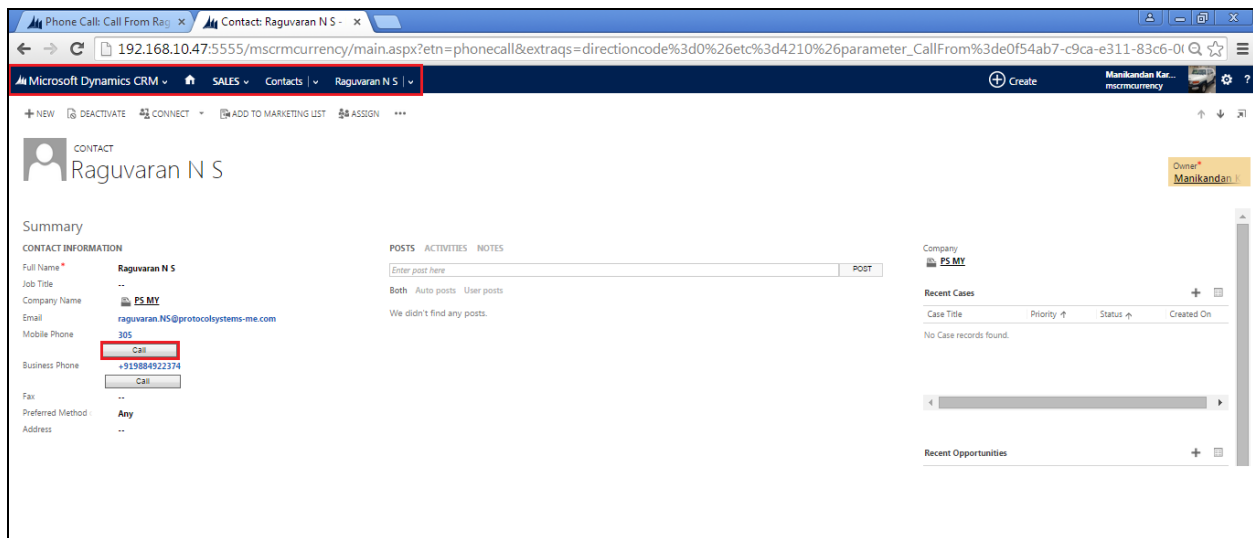


A screen pop showing the customers information is shown.



8.3 Make an outgoing using Imperium CRM Connect for Microsoft Dynamics CRM to click to call

With IMCC for MSCRM users can make a call from within the MSCRM web interface itself from the Contacts page, Accounts Page, Phone Activity page, etc. In the example below the MSCRM web interface navigate to **Microsoft Dynamics CRM → Sales → Contacts** and click on a contact and press the **Call** button which will then make a call out.



This call is then seen as an outgoing call as highlighted at the bottom right of the screen.

The screenshot displays the Microsoft Dynamics CRM interface for a contact named Raguvaran N S. The browser address bar shows the URL: 192.168.10.47:5555/mscrrmcurrency/main.aspx?etn=phonecall&extraqs=directioncode%3d0%26etc%3d4210%26parameter_CallFrom%3de0f54ab7-c9ca-e311-83c6-00... The CRM navigation bar includes 'SALES', 'Contacts', and 'Raguvaran N S'. The contact's summary page shows fields for Full Name, Job Title, Company Name (PS MY), Email (raguvaran.NS@protocolsystems-me.com), Mobile Phone (305), and Business Phone (+919884922374). A map of India is visible, with a message stating: 'The specified credentials are invalid. You can sign up for a free developer account at http://www.bingmapsportal.com'. On the right, there are sections for 'Recent Cases' and 'Recent Opportunities', both showing 'No records found'. In the bottom right corner, a blue notification box indicates an 'Outgoing call...' to Raguvaran N S (305), with icons for call, hold, and end call.

9. Conclusion

These Application Notes describe the configuration steps required for Protocol Systems FZC Imperium CRM Connect for Microsoft Dynamics CRM to successfully interoperate with Avaya IP Office R9.0. All feature functionality and serviceability test cases were completed successfully with any issues and observations noted in **Section 2.2**.

10. Additional References

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

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

[1] *Avaya IP Office R9.0 Manager 10.1, Document Number 15-601011*

[2] *Avaya IP Office R9.0 Doc library*

Technical documentation can be obtained for Imperium CRM Connect for Microsoft Dynamics CRM from the website <http://imperiumapp.com/>

Support for Imperium Reporter can be found at:

Protocol Systems FZC

Tel: +9716 5578383

Fax: +9716 5578384

Email: support@protocolsystems-me.com

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