



## Avaya Solution & Interoperability Test Lab

### **Application Notes for configuring ICR Evolution Software with Avaya IP Office R8 using Avaya IP Office TAPI Service Provider - Issue 1.0**

#### **Abstract**

These Application Notes describe the configuration steps required for ICR Evolution Software to successfully interoperate with Avaya IP Office via Avaya TAPI Service Provider.

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 ICR Evolution software with Avaya IP Office R8.0.16 (IP Office) using Avaya IP Office TAPI3 Service Provider (TAPI).

Evolution from ICR is a Computer Telephony Integration (CTI) platform that provides call control, predictive dialing and monitoring functionality to end users via the TAPI3 Service Provider installed on the Evolution server. ICR Evolution utilizes a client/server model. The server component of the software will connect to Avaya IP Office via TAPI. The client component of the software, iAgent, communicates with the Evolution server components. The iAgent client allows agents to control making and receiving calls via an Avaya handset connected to Avaya IP Office.

## **2. General Test Approach and Test Results**

The interoperability compliance testing included feature and serviceability testing. The feature testing focused on verifying ICR Evolution 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:

- Inbound ACD calls
- Outbound calls in Preview mode
- Outbound calls in Predictive/Progressive mode

The serviceability testing focused on verifying the ability of ICR Evolution to recover from adverse conditions, such as stopping the TAPI service, disconnecting the Ethernet cable for the CTI link and the reboot of Evolution server under test.

### **2.1. Compliance testing**

The following observations were noted during testing:

- [1] Transfer and conference options on iAgent were not included in the compliance tests.
- [2] When using an IP phone (as opposed to a digital phone) the iAgents cannot log into (take control) this phone if it is in a “logged out” state. There must be a user already logged into an IP Phone for the iAgent to log into this type of deskphone.
- [3] If the TAPI service is stopped, upon restart of this service CTI functionality is not restored until the server is rebooted.

### **2.2. Test Results**

All tests passed successfully.

## 2.3. Support

For technical support on ICR products please contact ICR Evolution support team at:

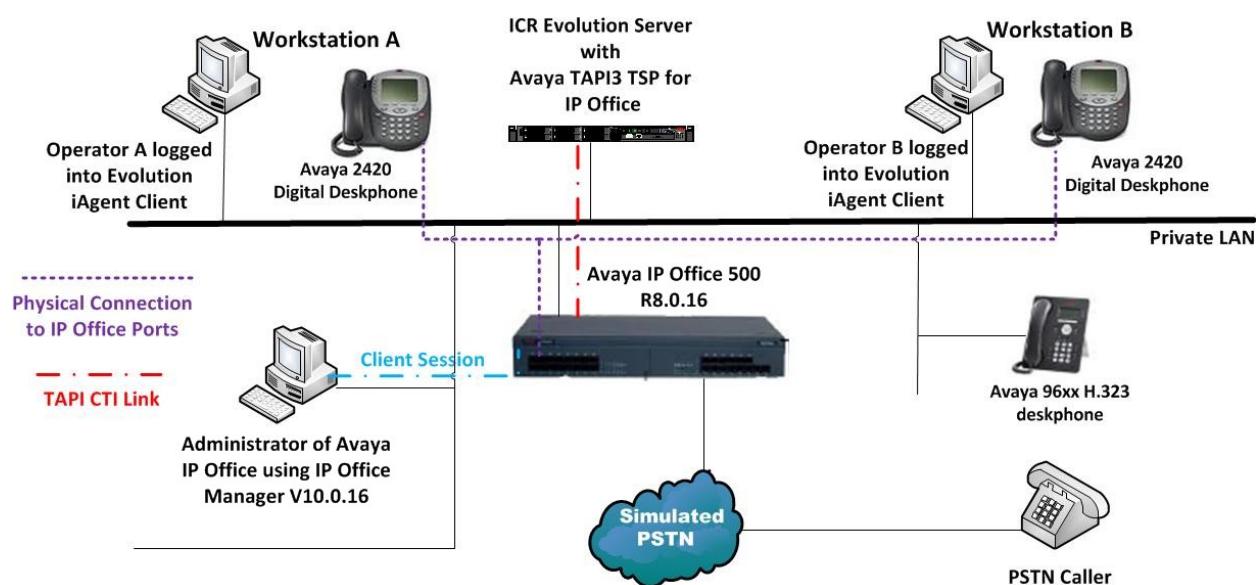
Web address: [www.evolutioncallcenter.com](http://www.evolutioncallcenter.com)

Email address: [soporte@icr.es](mailto:soporte@icr.es)

Phone Number: +34 93 228 9310

## 3. Reference Configuration

**Figure 1** shows the network topology for the compliance testing. The TAPI3 Service Provider is installed on the Evolution Server to provide a CTI connection to IP Office. Avaya 2400 Series digital deskphones are associated with iAgent users giving each iAgent operator telephony functionality from the iAgent software.



**Figure 1: Connection of ICR Evolution Server with Avaya IP Office R8**

## 4. Equipment and Software Validated

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

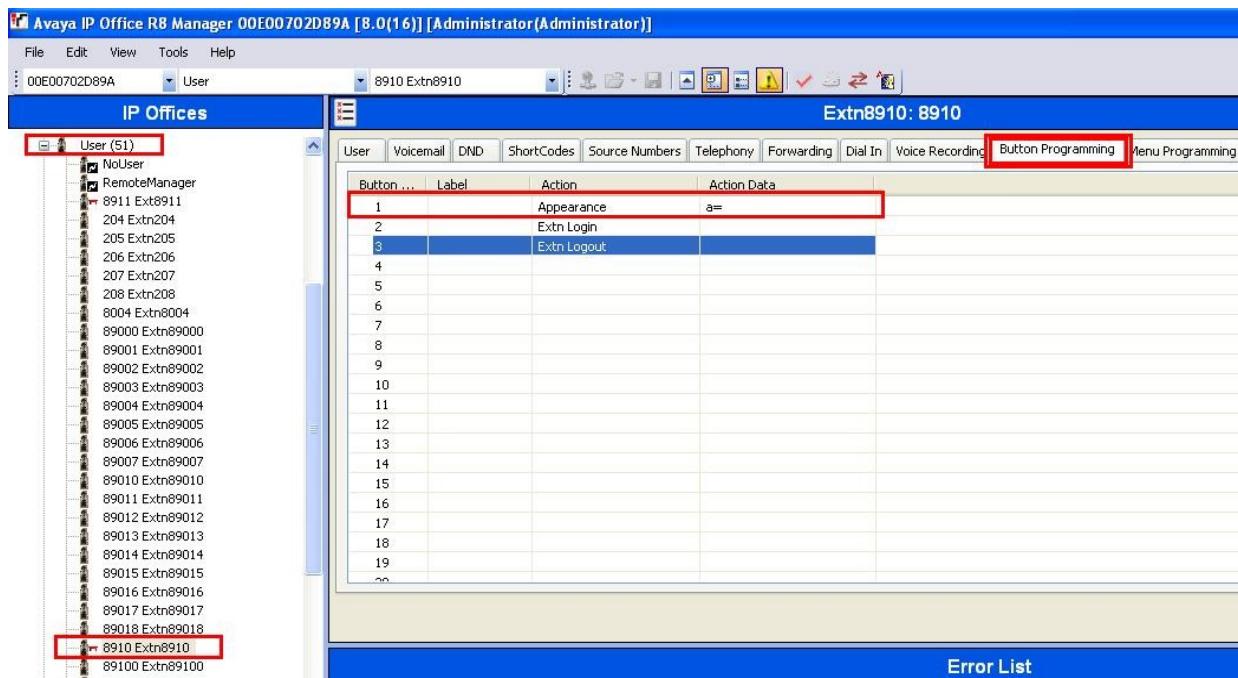
Equipment Description	Software Release
Avaya IP Office 500	Avaya IP Office R8.0.16
Avaya 96xx H.323 Deskphone	Avaya H323 IP Office Firmware Ha96xxua3_Hbas.bin
Avaya 2420 Digital Sets	N/A
Avaya TAPI3 Telephony Service Provider Client for IP Office Installed on Evolution Server.	Avaya TSPI3w.tsp 1.0.0.17
Platform Independent Server with Windows 2003 Server O/S and ICR Evolution Server.	ICR Evolution Server R10.1
Client Workstation with Windows XP and ICR Evolution iAgent	ICR Evolution iAgent R10.1

## 5. Configuration of Avaya IP Office

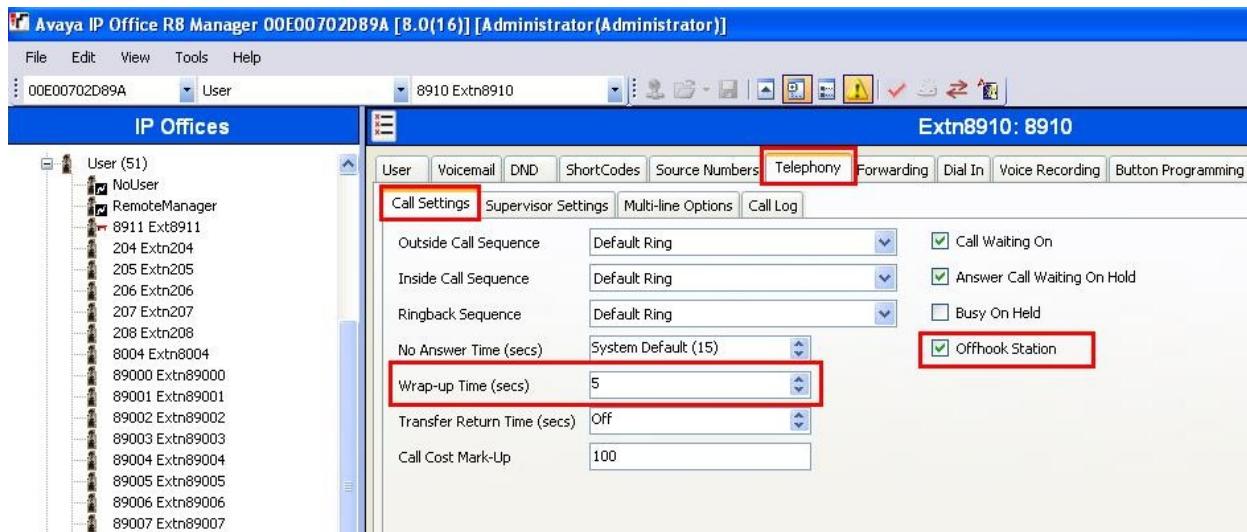
IP Office is administered using IP Office Manager Software installed on a client PC. It is the assumption that a working and fully configured IP Office is in place with extensions and users preconfigured. This section will show what changes to the IP Office configuration is required for the ICR Evolution software to interoperate correctly.

### 5.1. Configuration of Avaya IP Office Users

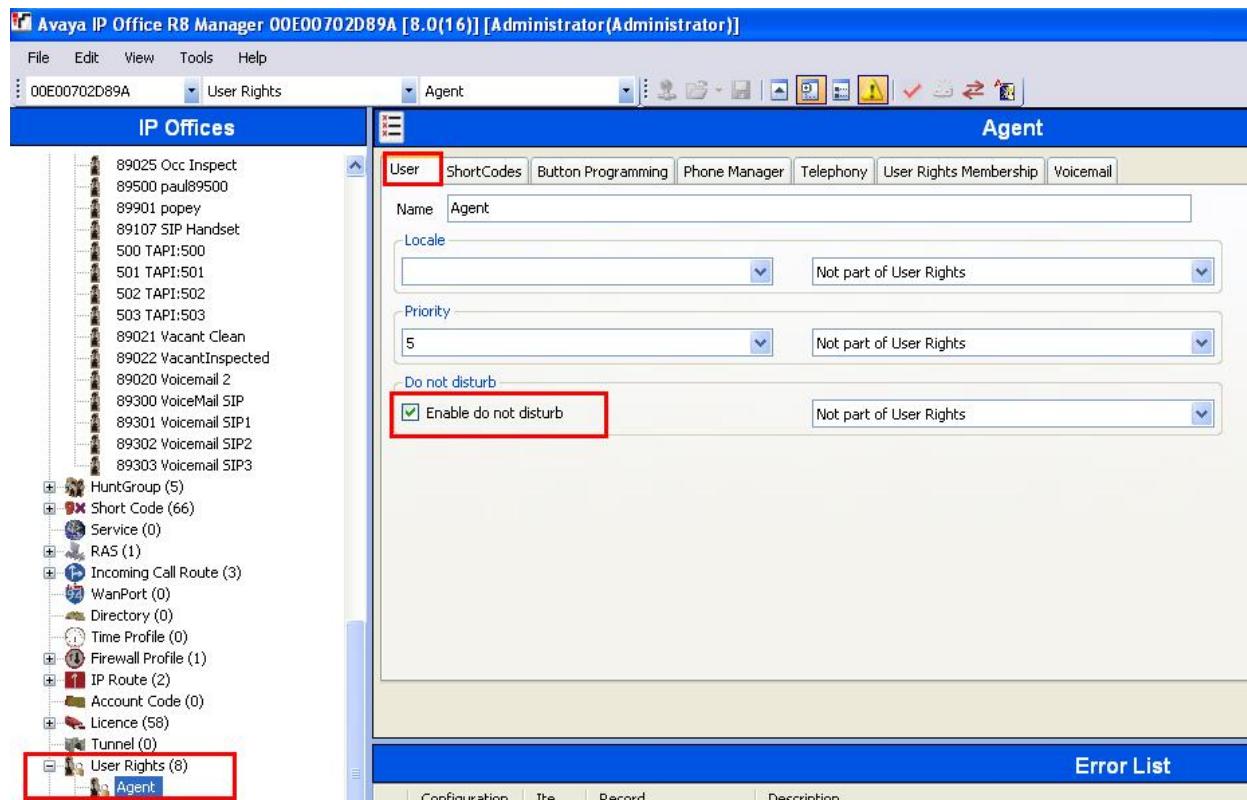
Each user chosen as an Evolution iAgent user will need to be configured in a specific fashion in order to work as an iAgent user. Click on the selected user in the left hand pane to make changes to this user and click on the **Button Programming** tab. Only one **Appearance** should be configured as shown below.



Click on the **Telephony** tab and then the **Call Settings** tab. The **Wrap-up Time (secs)** should be set to **5** and **Offhook Station** should be ticked as shown below.

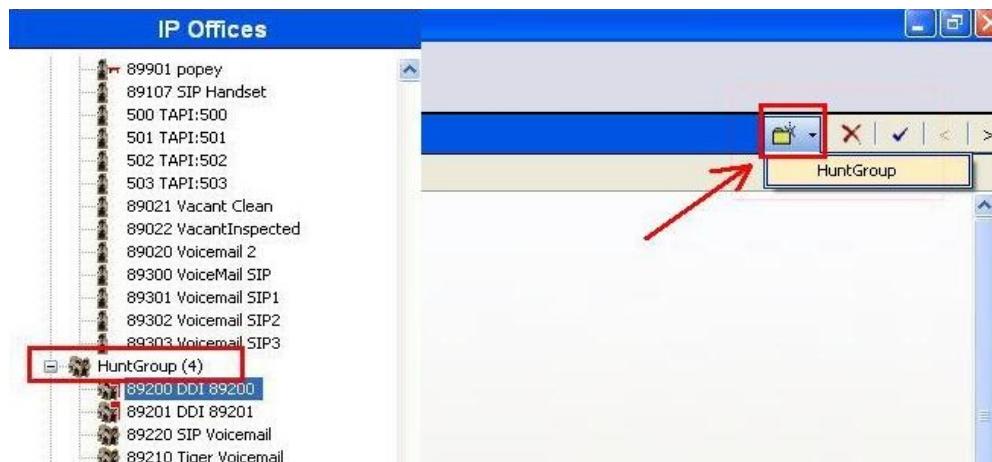


Click on **User Rights** in the left hand pane and select the user rights associated with the iAgent users. In the example below this is called **Agent**. Under the **User** tab, ensure **Enable do not disturb** is ticked as shown.



## 5.2. Configuration of Hunt groups

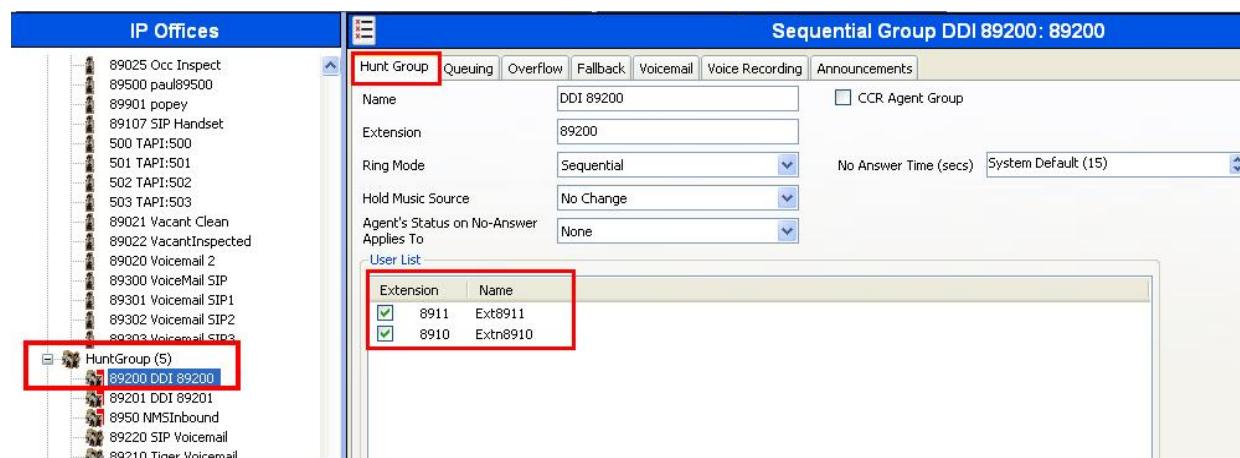
Hunt Groups are created in IP Office as they are associated with a particular service on the Evolution Server. iAgent users are associated with services, as shown in **Section 7.5**, in the same fashion these IP Office users are added to a Hunt Group associated with this same service. Click on **HuntGroup** in the left hand pane and click on the **Create a New Record** icon at the top right as shown below, to create a new Hunt Group.



For an inbound campaign, the DN number of the campaign will correspond to the **Extension** number setup for the **Hunt Group** highlighted below. All users associated with this campaign should be included in this Hunt Group.

**Note:** In the example below two users **8910** and **8911** are associated with this Hunt Group Extension **89200**.

**Note:** For an outbound campaign another Hunt Group should be setup to include users associated with such a campaign.

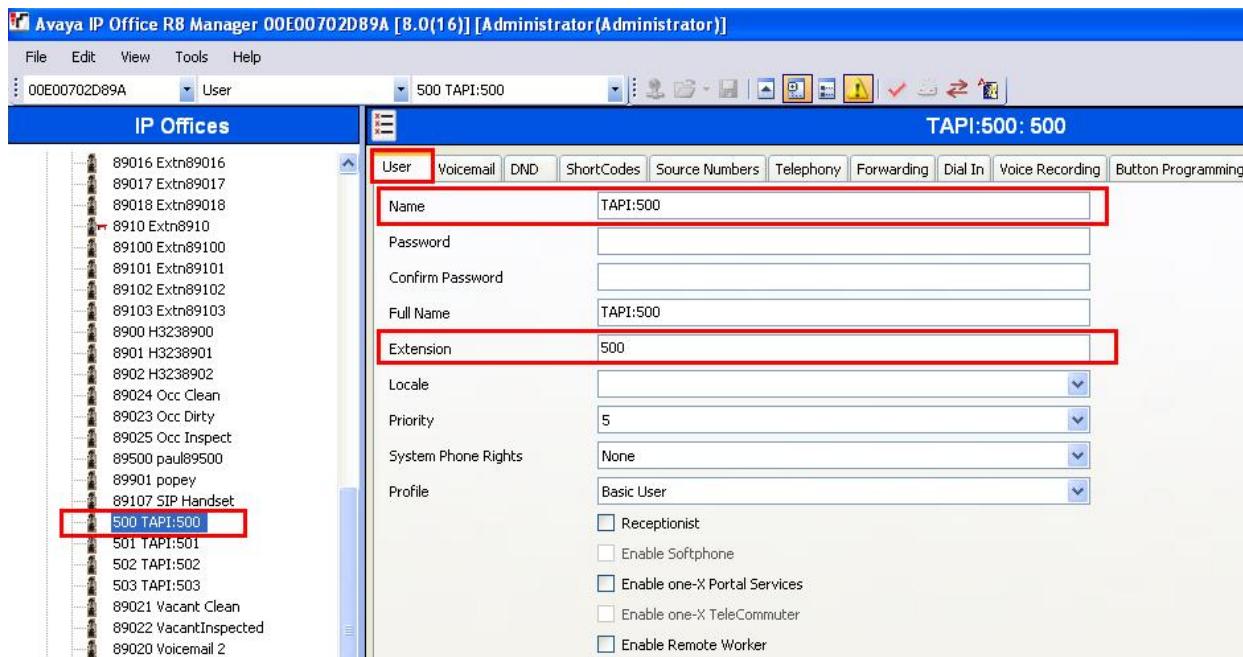


### 5.3. Setting up TAPI WAVE Ports in Avaya IP Office

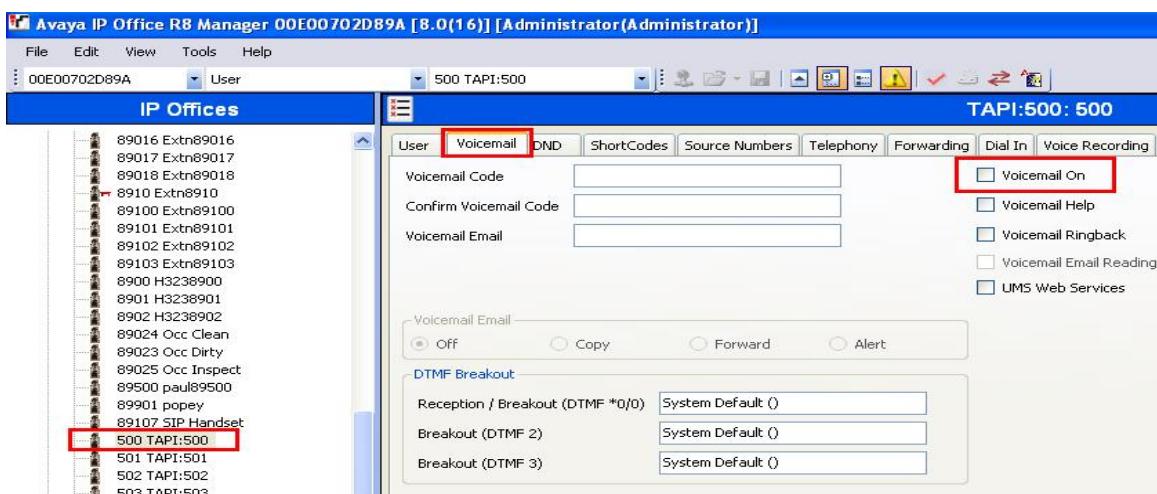
Each dialling device in Evolution Server must be associated with a TAPI Wave Port in IP Office. TAPI Wave ports should be configured in a consecutive range. Click on users in the left hand pane and select new user. Fill in the information as shown below under the **User** tab.

- **Name:** Enter a valid and unused extension number to identify the TAPI Wave port
- **Extension:** Enter the same extension number as configured for the **Name** field above

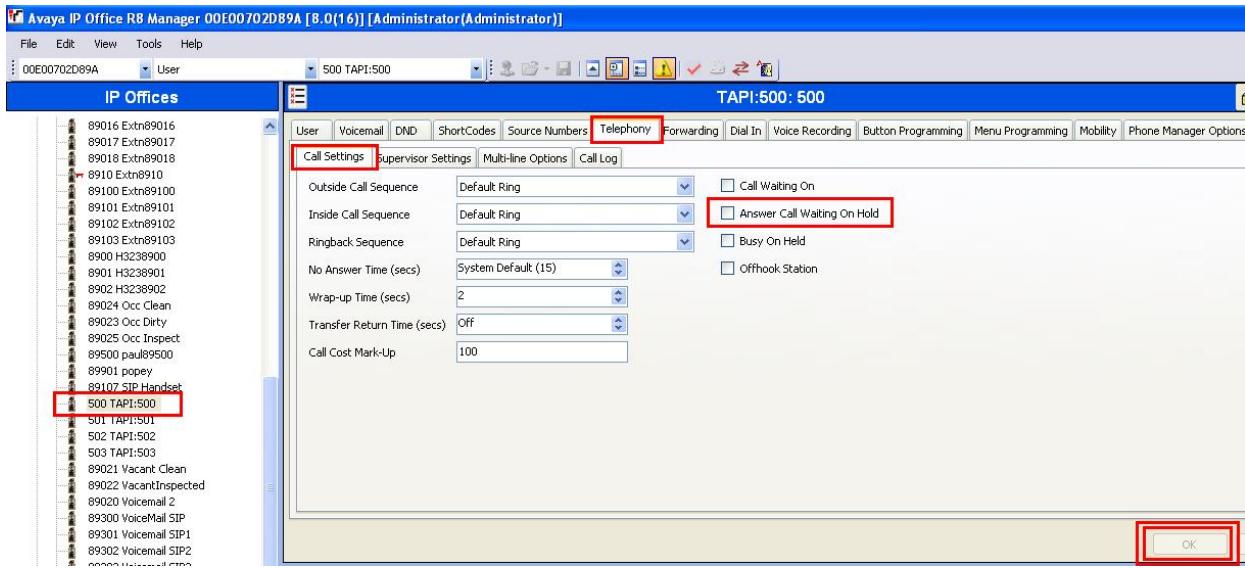
**Note:** Each user added will have the same **Extension** number as the dialler extension in **Section 7.6.**



Click on the **Voicemail** tab and ensure **Voicemail On** is not ticked as shown below.



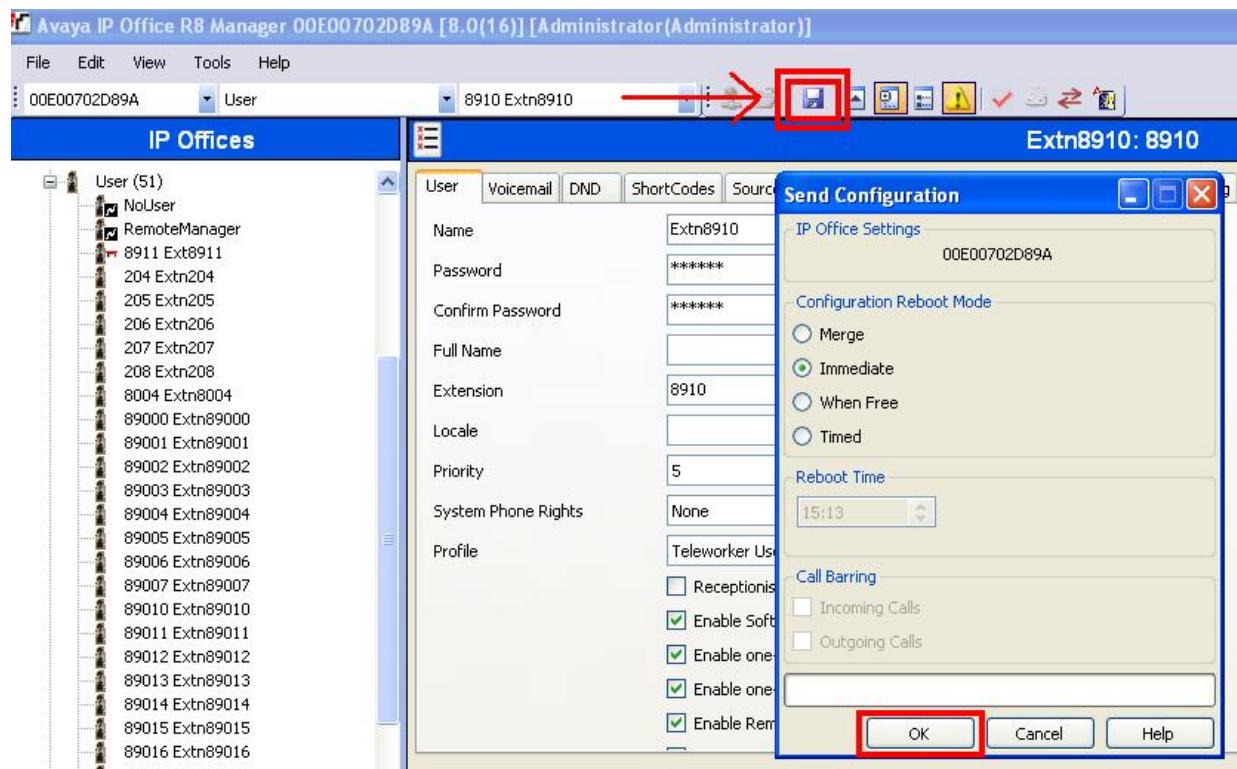
Click on the **Telephony** tab, under **Call Settings** ensure that **Answer Call Waiting On Hold** is not ticked as shown below.



Click on OK to complete the new user. This brings up a dialog box as shown. Ensure this is set to **None** as shown below and click **OK**.

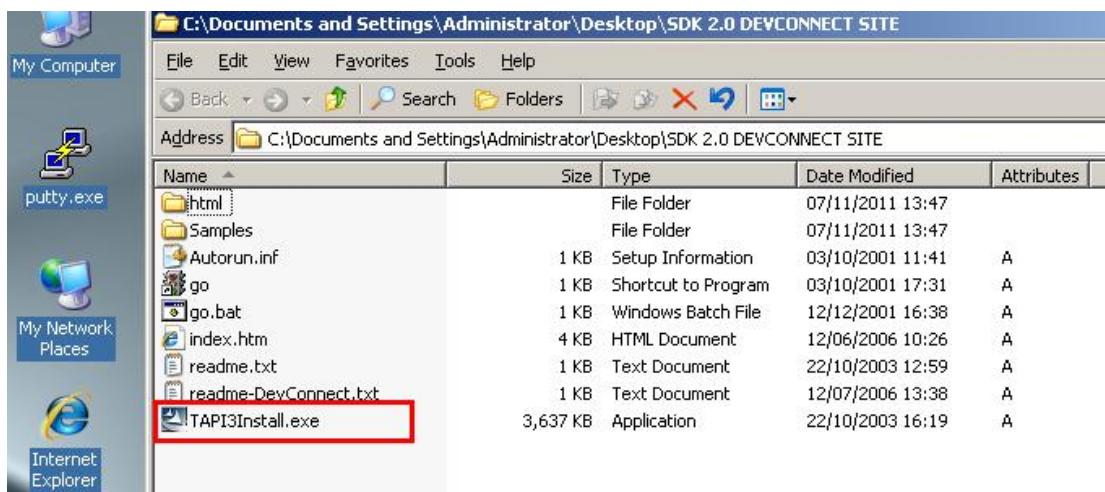


Once all configuration changes have been made, the new configuration must be saved to IP Office. Click on the save icon as highlighted below and this will bring up the **Send Configuration** window. Click **OK** to send the new configuration to IP Office.



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

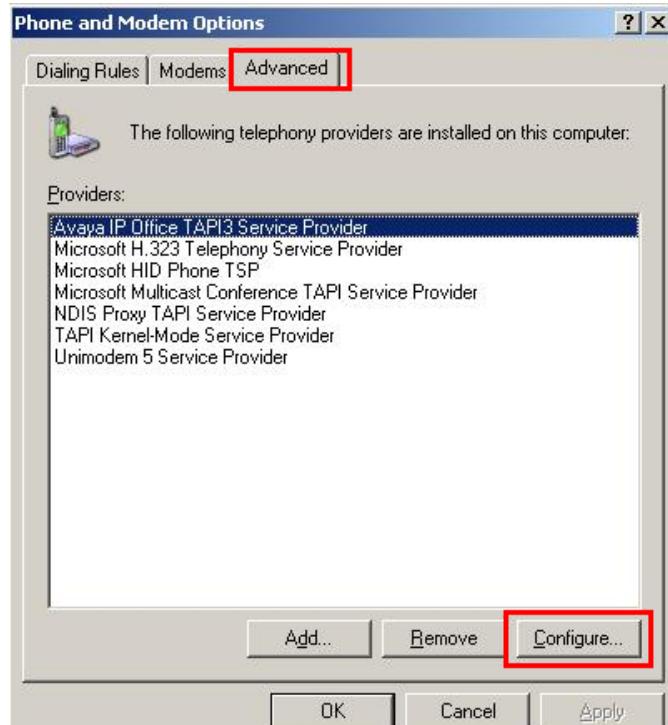
TAPI3 Service Provider is included in the IP Office CTI Link Software Development Kit (SDK) located on the DevConnect website (<http://www.avaya.com/gcm/master-usa/en-us/corporate/alliances/devconnect/index.htm>) under the product name IP Office. Once downloaded the install is initiated by running **TAPI3Install.exe**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



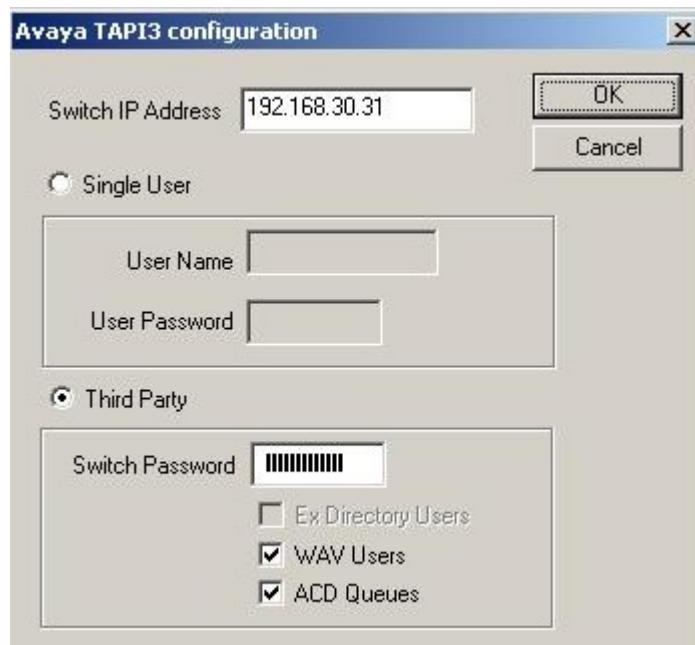
To configure the TAPI Service Provider navigate to **Control Panel** and right click on **Phone and Modem Options**, as highlighted below, and then click on properties (not shown).



Click on the **Advanced** tab, 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 Administrator's password into the **Switch Password** box. Ensure **WAV Users** and **ACD Queues** are ticked as shown below.



## 7. Configuration of ICR Evolution Server

This section outlines the steps necessary to configure the Evolution Server to enable the iAgents to log in to an IP Office deskphone and have control of the handset. All configuration changes on the Evolution Server are made using the web based Evolution Manager tool by entering <http://<IP address of Evolution Server>/manager>.

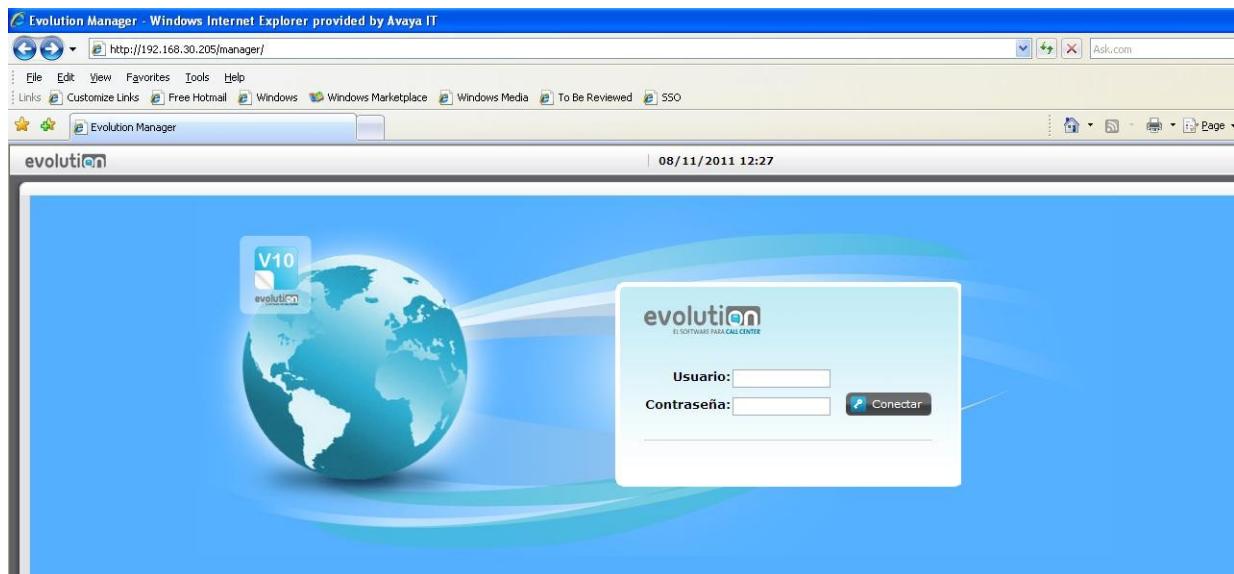
### 7.1. ICR Evolution install

The installation of the Evolution server software is outside the scope of this document and information regarding the installation can be found at <http://www.evolutioncallcenter.com/>. Please note that during the installation there is a step regarding the PBX that the server is connecting to. For IP office the PBX type is selected as shown below.

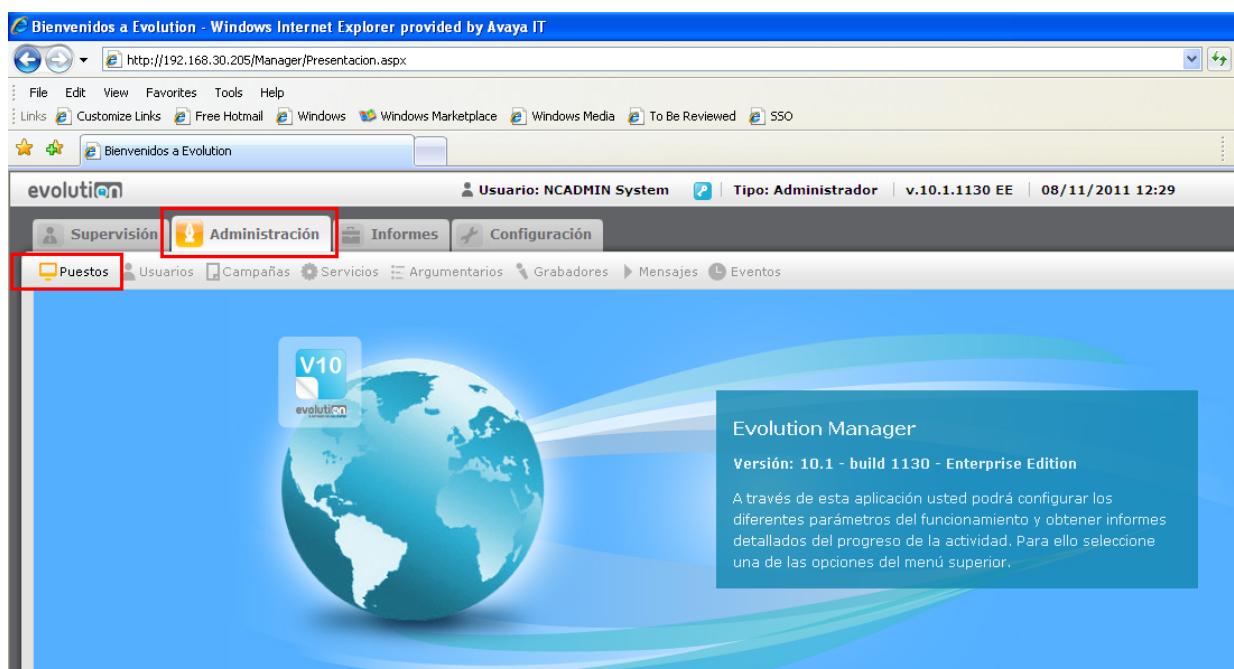


## 7.2. Configuration of Workstations on ICR Evolution Server

A workstation can be described as a location for the user or iAgent to log in to. Log in to the web based Evolution Manager tool by entering **http://<IP address of Evolution Server>/manager** using appropriate login credentials.



To create a new workstation select the **Administración** tab and click **Puestos**.



Click on **Nuevo** in order to add a new workstation.

The screenshot shows a list of workstations with columns: Id., Nombre, Teléfono, Telf. Lógico, Grabador, Estado, Motivo, and Clase. The 'Nuevo' button is highlighted with a red box at the top left of the list area.

Id.	Nombre	Teléfono	Telf. Lógico	Grabador	Estado	Motivo	Clase
100000013	PT-Paul	89012	#FLO				Puesto de Trabajo
100000014	PT-Server	89013	#FLO				Puesto de Trabajo
100000002	PT410	410					DEMO
100000004	PT411	411					DEMO
100000005	PT412	412					DEMO
100000006	PT413	413					DEMO
100000007	PT414	414					DEMO
100000008	PT415	415					DEMO

The following information must be added.

- Nombre** This is the Workstation name (unique identifier)
- Telefono** Physical IP office extension
- Clase Puesto** Type of Workplace
- Telefono logico** #FLO (means floating agent or hot desking user)

The screenshot shows a form for modifying a workstation. The 'Nuevo' button is highlighted with a red box at the top left of the form area.

(*) Nombre: PT-Paul	Id Puesto: 100000013
Teléfono: 89012	Teléfono lógico: #FLO
(*) Clase Puesto: Puesto de Trabajo	(*) Grabador:

## 7.3. Configuring Users on ICR Evolution Server

Evolution users are created on the Evolution Sever. These are actual users or agents in the contact centre. Click the **Administración** tab, click **Usuarios** and **Nuevo**.

Id.	Nombre	DNI	Usuario	UsrACD	PwdACD	Tipo	Servicio	P.Trabajo
100000017	► DEMO, AGENTE10		AGENTE10			Agente		
100000007	► DEMO, AGENTE		AGENTE	89101	123456	Agente		
100000009	► DEMO, AGENTE2		AGENTE2	89103	123456	Agente		
100000010	► DEMO, AGENTE3		AGENTE3			Agente		
100000011	► DEMO, AGENTE4		AGENTE4			Agente		
100000012	► DEMO, AGENTES		AGENTES			Agente		
100000013	► DEMO, AGENTE6		AGENTE6			Agente		
100000014	► DEMO, AGENTE7		AGENTE7			Agente		

The following information must be filled in:

- **Tipo de Usuario** Agente (this is agent profile)
- **Nombre** Firstname of agent
- **Primer apellido** Surname of agent
- **Usuario** Username to login to iAgent
- **Contraseña** password for login to iAgent
- **Usuario ACD** User login configured in IP Office
- **Contraseña ACD** User Password configured in IP Office

(*) Tipo de usuario:	Agente	Id. usuario:	100000007
(*) Nombre:	AGENTE	DNI:	
(*) Primer apellido:	DEMO	Segundo apellido:	
(*) Usuario:	AGENTE	Confirmar contraseña:	*****
Contraseña:	*****		
La contraseña nunca expira:	<input checked="" type="checkbox"/>	Días de validez de la contraseña:	N/D
Cambiar contraseña próx. sesión:	<input type="checkbox"/>		
Parámetros de ACD			
Usuario ACD:	89101	Contraseña ACD:	123456

## 7.4. Configuration of Campaigns on ICR Evolution Server

There are two campaigns already preconfigured as a part of the installation of Evolution Server, as highlighted below.

- **ATENCION AL CLIENTE**, which is an inbound campaign
- **TELEMARKETING**, which is an outbound campaign

Id.	Nombre	Supervisor	Argumentario	Canal	Marcación	Routing	Disp.	TAC	TA	Pr	Est
100000002	ATENCION AL CLIENTE	NCSUPER System	Basico.NET	☎	Sin marcación	🕒	100	9	30	100	🕒
100000001	▶ Servicio técnico DBR e-mail	NCSUPER System	Basico.NET	✉	Vista Previa	🕒		30	100	🕒	
100000000	▶ Servicio técnico DBR teléfono	NCSUPER System	Basico.NET	☎	Vista Previa	🕒		30	100	🕒	
100000003	TELEMARKETING	NCSUPER System	Basico.NET	☎	Predictivo	🕒	89200	9	30	100	🕒

These campaigns are amended in order to add extensions associated with the Hunt Groups configured in **Section 5.2**.

### 7.4.1. Configuration of Inbound Campaigns

Click on the inbound campaign **ATENCION AL CLIENTE** highlighted above in order to amend this for IP office users, which will present the screen as shown below. Click on **Routing** to make changes to the inbound hunt group.

(*) Estado:	Activa
(*) Fecha de inicio:	22/01/2008
(*) Marcación:	Vista Previa
Disp. de control:	89200
Supervisor:	NCSUPER System
Trunk Access Code:	9

Click on the **DN** as highlighted below to change the inbound number associated with the campaign.

The screenshot shows the 'Administración de campañas - Parámetros de configuración de Routing' page. At the top, there are buttons for 'Guardar', 'Guardar y Cerrar', 'Cerrar', and 'Ver estrategias'. Below this, a section titled 'Parámetros de configuración de Routing para la campaña ATENCION AL CLIENTE' shows a dropdown menu set to 'Switch-based'. A table lists a single entry with ID 100000101, DN 89201, Encaminamiento DNIS, and Descripción DNIS. The 'DN' column is highlighted with a red box.

Change the **DN** to the hunt group number setup in **Section 5.2** for the inbound campaign. Click **Guardar y cerrar** to save and exit.

The screenshot shows the 'Administración de estrategias - Modificación' page. At the top, there are buttons for 'Guardar', 'Guardar y cerrar', 'Cerrar', 'Eliminar', and 'Asignar skills'. Below this, a section titled 'Parámetros generales' contains fields for ID (100000101), DN (89201, highlighted with a red box), Descripción (DNIS), and Encaminamiento (DNIS). Another section titled 'Parámetros encaminamiento' shows a dropdown menu for Campaign set to '100000002 - ATENCION AL CLIENTE'.

## 7.4.2. Configuration of Outbound Campaign

Click on **TELEMARKETING** as highlighted below.

Id.	Nombre	Supervisor	Argumentario	Canal	Marcación	Routing	Disp.	TAC	TA	Pr	Est
100000002	► ATENCION AL CLIENTE	NCSUPER System	Basico.NET		Sin marcación		100	9	30	100	
100000001	► Servicio técnico DBR e-mail	NCSUPER System	Basico.NET		Vista Previa			30	100		
100000000	► Servicio técnico DBR teléfono	NCSUPER System	Basico.NET		Vista Previa			30	100		
100000003	► TELEMARKETING	NCSUPER System	Basico.NET		Vista Previa		89200	9	30	100	

The following needs to be changed:

- **Disp de control** Hunt Group for the outbound campaign
- **Trunk Access Code** Number used to get an outside line

Click on the **Routing** tab to make further changes.

Datos generales	
(*) Nombre: <input type="text" value="TELEMARKETING"/>	Id: <input type="text" value="100000003"/>
Descripción: <input type="text" value="EMISION"/>	Fecha de creación: <input type="text" value="22/01/2008"/>

Detalles	
<a href="#">Cache</a>	<a href="#">SMS</a>
<a href="#">Alarms</a>	<a href="#">Opciones Avanzadas</a>
<a href="#">Finales</a>	<a href="#">Segmentos</a>
<a href="#">Datos</a>	<a href="#">Incentivos</a>
<a href="#">Routing</a>	<a href="#">Importar Clientes</a>

Parámetros de campaña		
(*) Estado: <input type="text" value="Activa"/>	(*) Fecha de inicio: <input type="text" value="22/01/2008"/>	(*) Fecha de final: <input type="text" value="31/12/2050"/>
(*) Marcación: <input type="text" value="Vista Previa"/>	Supervisor: <input type="text" value="NCSUPER System"/>	Aplicación: <input type="text" value="Basico.NET"/>
Disp. de control: <input type="text" value="89200"/>	Trunk Access Code: <input type="text" value="9"/>	Auto-Answer: <input type="text" value="Manual"/>
(*) Tiempo admin: <input type="text" value="90"/>	Planif. diaria: <input type="text" value="Automática"/>	(*) Máx. #Intentos: <input type="text" value="50"/>
Cuota máxima: <input type="text" value="0"/>	Cuota: <input type="text" value="0"/>	(*) Prioridad: <input type="text" value="100"/>
(*) Presencial?: <input type="text" value="Permitir"/>	(*) Días en histórico: <input type="text" value="60"/>	Canal: <input type="text" value="teléfono"/>
(*) Identificar clientes: <input type="text" value="No Mostrar pantalla"/>	(*) Permitir altas: <input type="text" value="No Permitir"/>	Permitir anónimos: <input type="text" value="No Permitir"/>
T. Predictivo: <input type="text" value="0"/>	Factor llamadas predictivo: <input type="text" value="100"/>	Máximas llamadas simultáneas: <input type="text" value="1"/>
NoAnswer timeout: <input type="text" value="30"/>	Grabaciones: <input type="text" value="Sin grabación"/>	

Click on the **DN** as highlighted below.

Administración de campañas - Parámetros de configuración de Routing

Guardar Guardar y Cerrar Cerrar Ver estrategias

Parámetros de configuración de Routing para la campaña TELEMARKETING

(\*) Tipo: Switch-based

Campaña asignada a las siguientes estrategias

ID.	DN	Encaminamiento	Descripción
100000102	89200	DNIS	DNIS

Change the **DN** as highlighted below. Click **Guardar y cerrar** to save and exit.

Administración de estrategias - Modificación

Guardar Guardar y cerrar Cerrar Eliminar Asignar skills

Parámetros generales

ID: 100000102  
(\*) DN: 89200  
Descripción: DNIS  
Encaminamiento: DNIS

Parámetros encaminamiento

(\*) Campaña: 100000003 - TELEMARKETING

## 7.5. Associate Services with Users

Click on the **Administración** tab followed by **Servicios** in order to associate the users with a service. The user is actually associated with a service and this service can contain a number of campaigns.

Id.	Nombre	Campañas	ACD
100000002	▶ ATENCION AL CLIENTE	▶ ATENCION AL CLIENTE	100
100000001	▶ Servicio técnico DBR	▶ Servicio técnico DBR teléfono ▶ Servicio técnico DBR e-mail	
100000003	▶ TELEMARKETING	▶ TELEMARKETING	101

Click on **Asignar participaciones** to associate the users.

Id.Servicio:	10000003
(*) Nombre:	TELEMARKETING
ACD:	101
Modo siguiente gestión:	Sistema
(*) Pausa tras gestión:	0
Política de selección:	Por antigüedad en cola

Select from a list of available users located in the right hand column, and then these desired users are added into the left column as shown below.

**Administración de servicios - Asignación de participaciones**

**Cerrar**

**Parámetros generales del servicio**

Id. Servicio:	10000002	
Nombre:	ATENCION AL CLIENTE	
ACD:	100	Contiene campañas que requieren de cola ACD switch-based.
Modo siguiente gestión:	Sistema	
Pausa tras gestión:	0	Tiempo en segundos que el sistema esperará para entregar la siguiente gestión.
Política de selección:	Por antigüedad en cola	Criterio para la entrega de interacciones en cola a agentes.

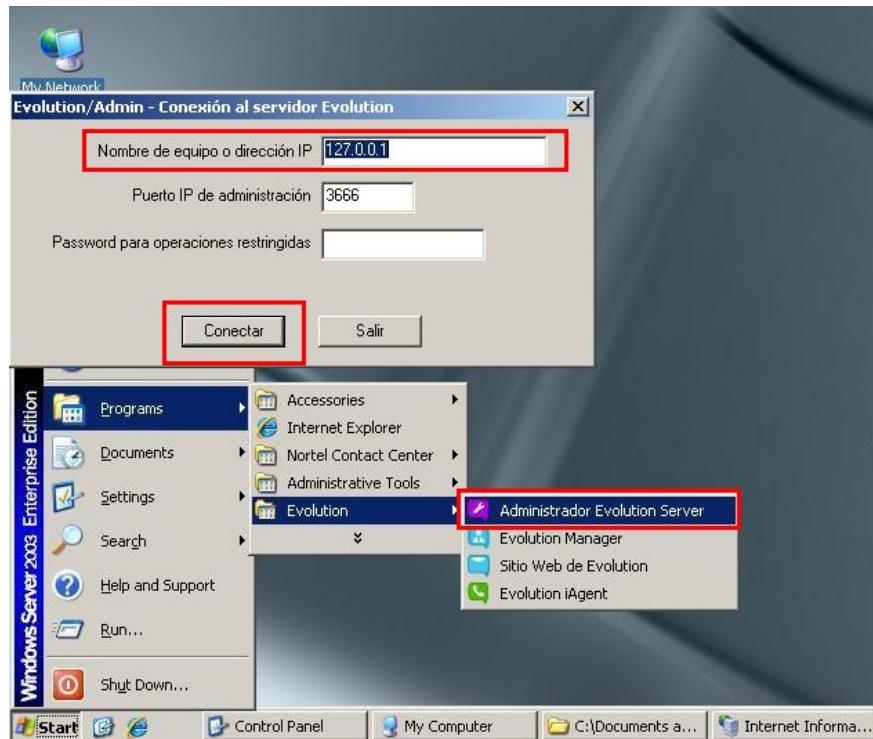
**Participación en servicios**

Agentes asignados al servicio				
Nombre Agente	T. inicio	T. Final	Opciones	Quitar
AGENTE DEMO	14/05/2003	01/01/2020		
AGENTE2 DEMO	14/05/2003	01/01/2020		

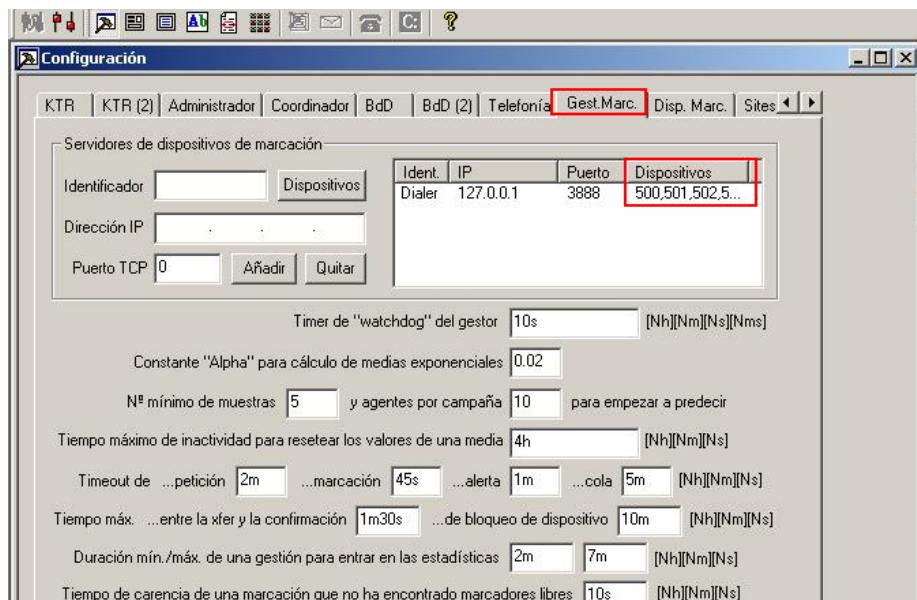
Agentes disponibles	
Añadir	Nombre Agente
	DEMO , AGENTE10
	DEMO , AGENTE3
	DEMO , AGENTE4

## 7.6. Configuration of Evolution Dialer on ICR Evolution Server

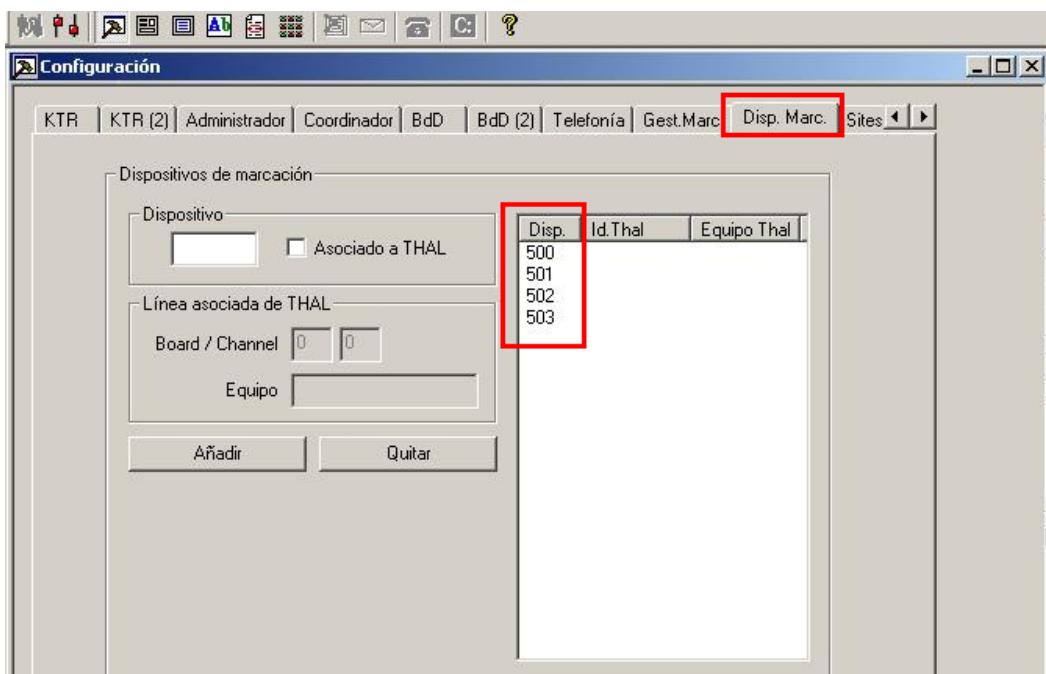
Dialer is used for predictive or progressive dialing on outbound campaigns. The default setup includes four dialing devices on Evolution server. These devices can be viewed on the Evolution server as shown below by opening **Administrador Evolution Server** and clicking on **Conectar** to connect.



Clicking on **Gest Marc** will show the configuration of the dialer on Evolution server.

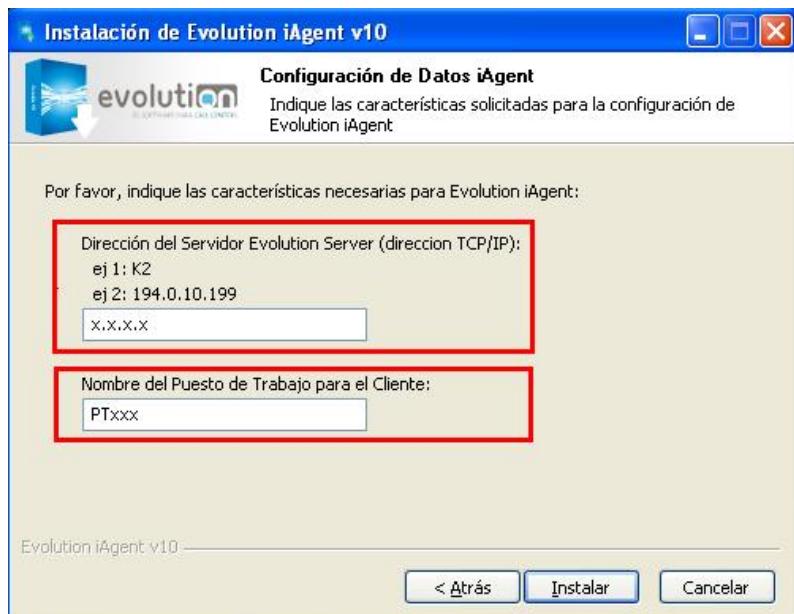


Clicking on **Disp. Marc.** will show the dialer numbers used. These numbers correspond to the IP Office user extensions created in **Section 5.3**.

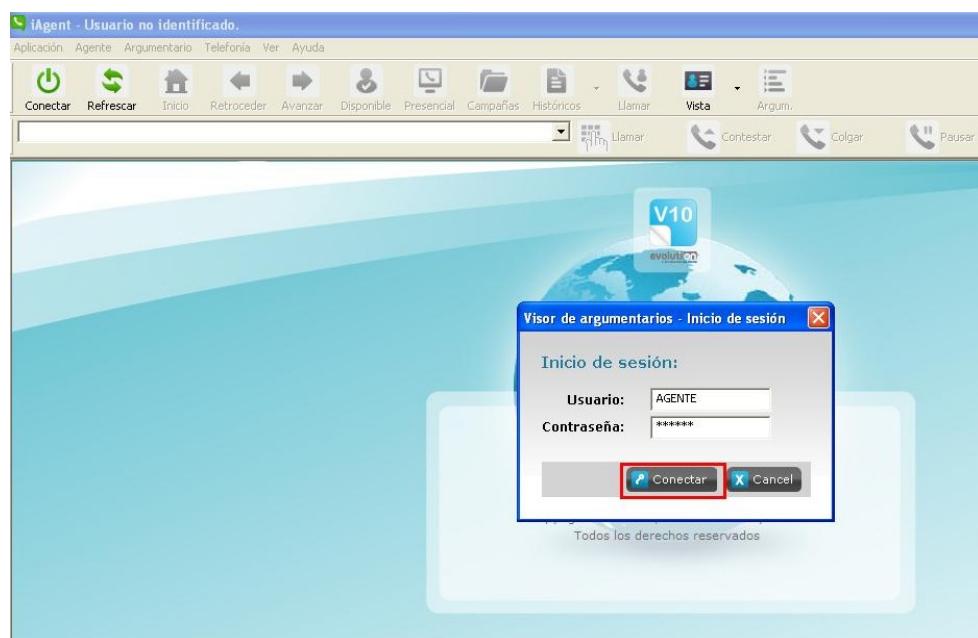


## 7.7. Configuration of ICR Evolution iAgent

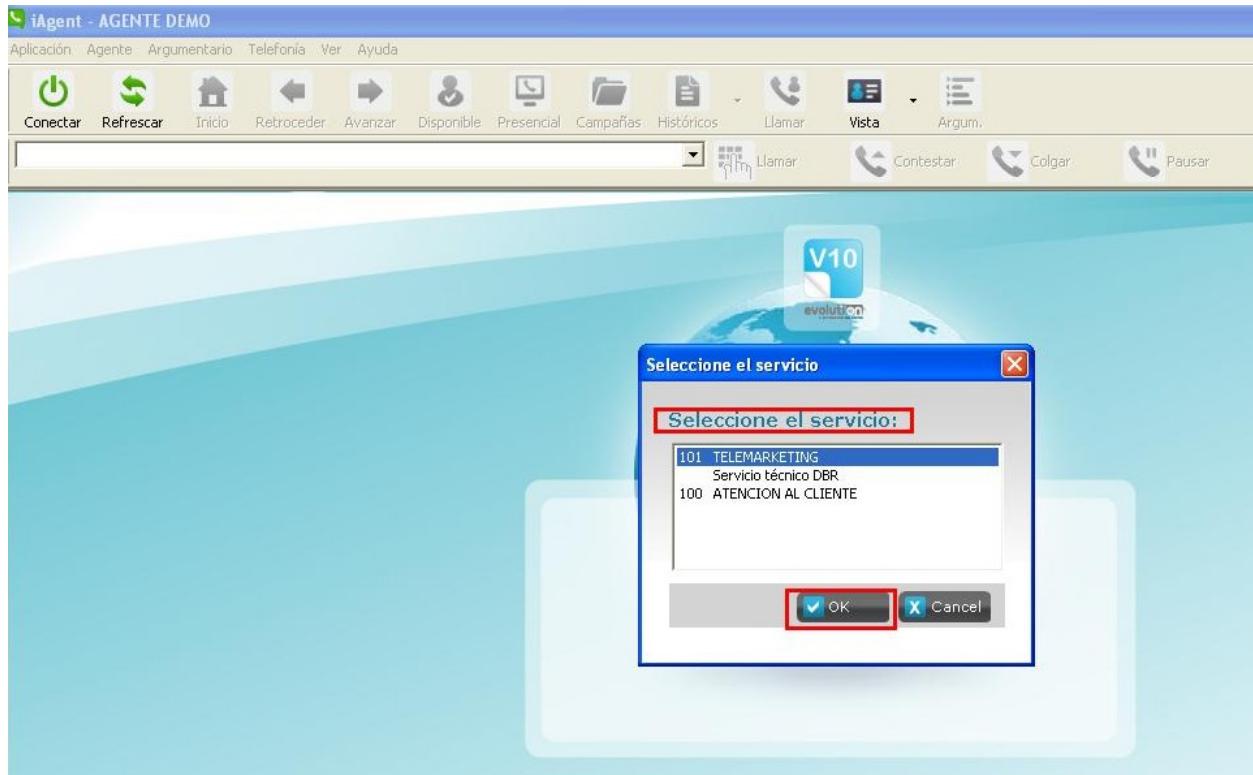
Information on the installation of iAgent can be found at <http://www.evolutioncallcenter.com/>. During the installation of iAgent, the IP Address of the Evolution Server and workstation must be added as shown below.



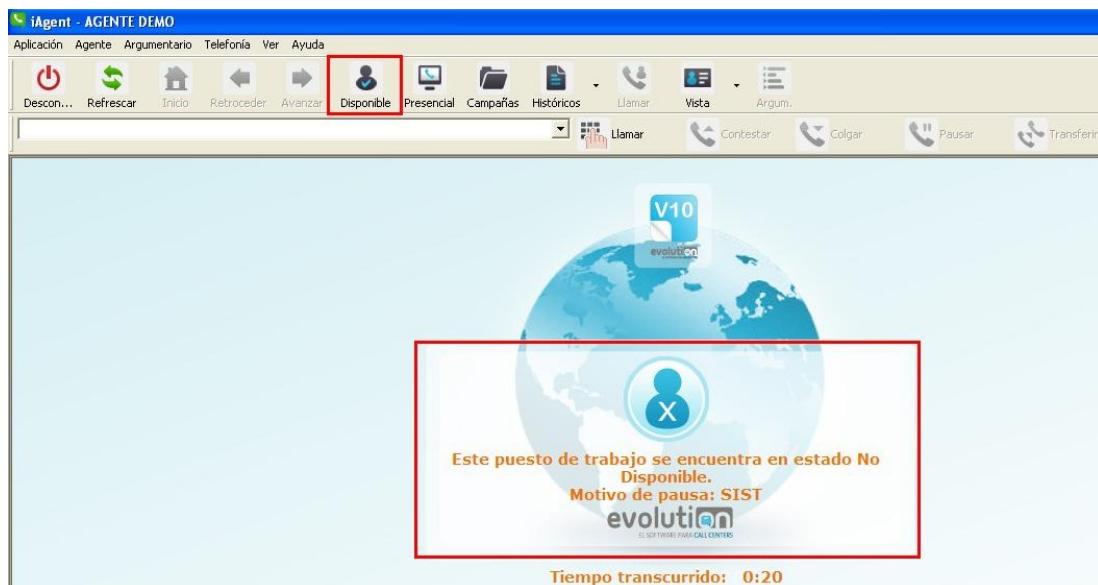
Once the iAgent program is run, it asks for a username and password as shown below. Enter the appropriate credentials and click on **Conectar** as highlighted.



The agent logs into a particular service and clicks **OK** as highlighted below. Note that only the services associated with that agent will appear in this screen.



Once fully logged into a service, the information highlighted explains that the agent is in a Not Ready state (**estado No Disponible**) and must click on the **Disponible** (Ready) icon at the top of the screen highlighted below. This brings the agent into a state where a call can be received.

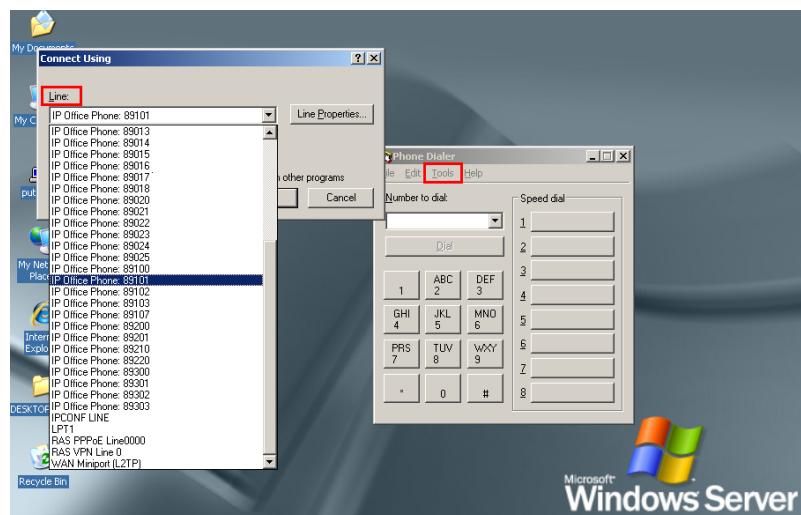


## 8. Verification Steps

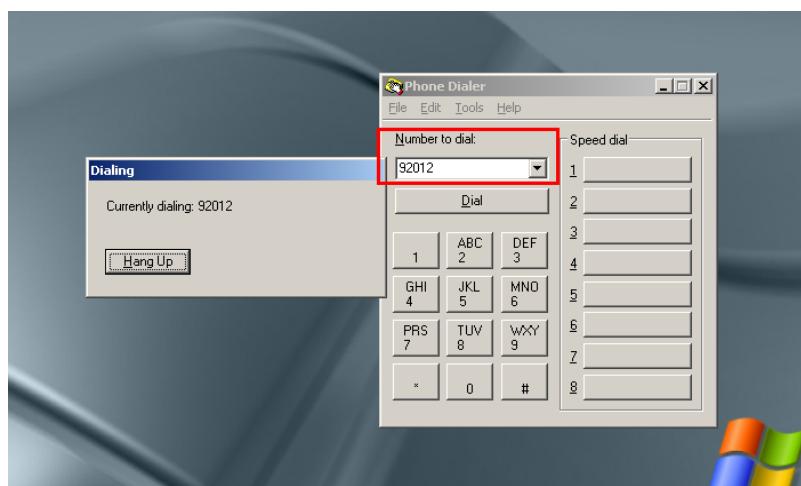
This section illustrates the steps necessary to verify that the Evolution Server is connected to IP Office correctly.

### 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 appear as an available line to use.

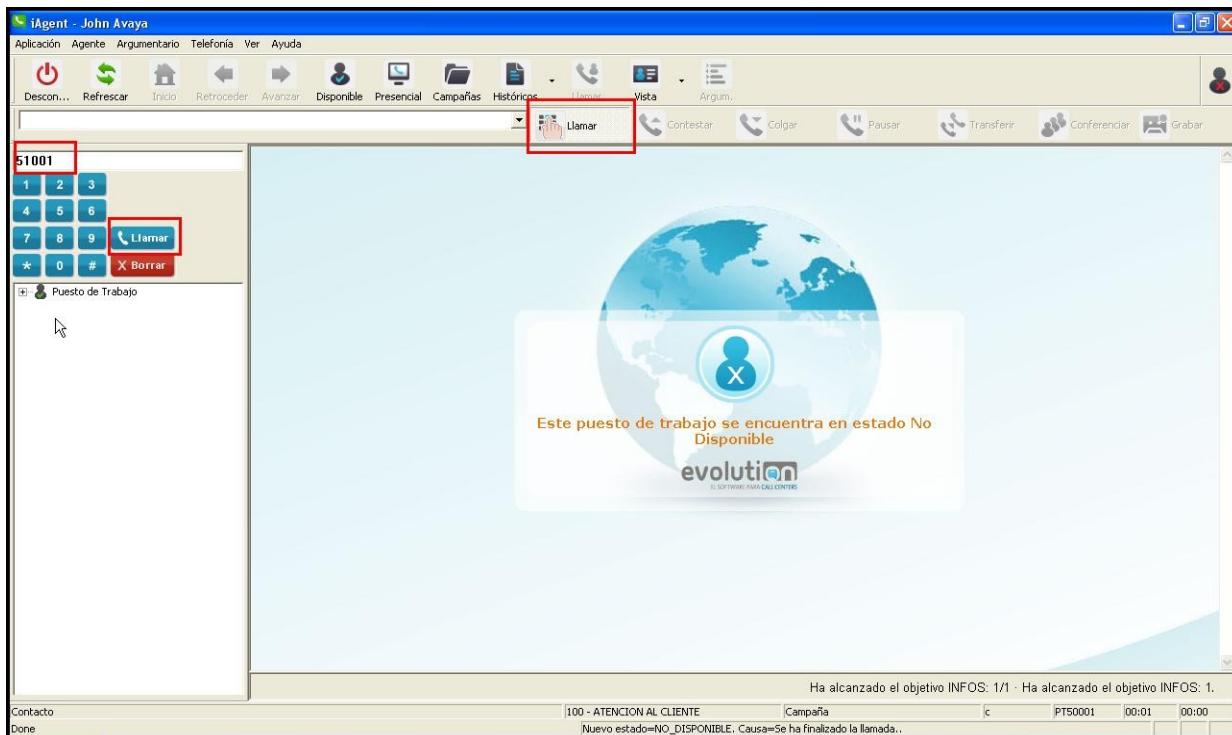


Choose any line and in the box **Number to dial** enter a valid IP Office extension number as shown below and click **Dial**. The **Phone Dialer** should successfully call the chosen extension number.



## 8.2. Verify that ICR Evolution iAgent can make calls using Avaya IP Office lines

Log in to the iAgent application as shown in **Section 7.7**. Click on **Llamar** to open the dial out window. Enter the number of a valid extension and click **Llamar**. A call should be initiated from the agent's handset to the destination number.



## 9. Conclusion

Illustrated in these Application Notes are the procedures for configuring ICR Evolution to interoperate with Avaya IP Office R8. 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 2.1**.

## 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 ICR Evolution product documentation can be found at  
<http://www.evolutioncallcenter.com>

- [1] *Evolution Manual de Instalación v10*
- [2] *Evolution Manual de Administración y Referencia v10*

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