



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring iCALL Solution with Avaya IP Office 9.0 - Issue 1.0

Abstract

These Application Notes describe the procedures for configuring iCALL Solution with Avaya IP Office. iCALL Solution integrates with Avaya IP Office by the Microsoft Telephony Application Programmer Interface (TAPI).

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 iCALL Solution to successfully interoperate with Avaya IP Office. iCALL solution is made up of 3 major components, namely Computer Telephony Integration (CTI), Interactive Voice Response (IVR) and Recording System. CTI allows for screen-pops with customer information available to agent prior to the call connection with the customer. IVR allows detection of voice and keypad inputs. The Recording System records voice for inbound and outbound calls. It can store correspondence in multiple formats.

2. General Test Approach and Test Results

For feature testing, the general test approach was to queue incoming calls to the agents. The call flow is developed with a service builder tools with the IVR. Agents use OCX application on their desktop to manage incoming and outgoing calls. Call Management System (CMS) was used to collect call records for the agents' inbound and outbound calls. For serviceability testing, failures such as reboot of the iCALL Server and the Avaya IP Office were applied.

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 and serviceability testing.

The feature testing focused on verifying iCALL Solution's handling of TAPI messages to request and respond to Avaya IP Office features. The serviceability testing introduced failure scenarios to verify iCALL Server could resume operation after failure recovery.

2.2. Test Results

All feature and serviceability tests passed. Note that for TAPI control, the agent cannot reject incoming calls and hence this feature is not supported.

2.3. Support

For technical support on iCALL Solution, contact NSE Telecom at:

- Phone: +86-21-62290011
- Fax: +86-21-62348877
- Email: nsetelecom@nsetelecom.com

3. Reference Configuration

Figure 1 illustrates the test configuration used to verify the iCALL Solution. The setup of this compliance testing comprised of an Avaya IP Office 500V2 which has connections to the following: Avaya 9621 IP Deskphone (H323), Avaya 9630 IP Deskphone (H323), Avaya 1408 Digital Telephone, Avaya analog telephone and an ISDN-PRI trunk to the PSTN. At one time, only 3 agents are used for testing. So, only 3 logical agents are created. The spare IP stations can be used as utility phones.

iCALL Solution is installed on a server running Microsoft Windows 2003 R2. In short, it is termed as iCALL Server. It has connections to the IP Office 500V2 via two IVR SIP extensions for queuing of calls and playing announcements and one SIP extension for recording of calls. Agent OCX is installed on desktop PCs running Microsoft Windows 7 Enterprise version Service Pack 1 and is used to control the IP, Digital and analog telephones respectively.

In this compliance testing, IP Office Manager is installed on a separate Windows 2003 R2 server (not shown) for managing the setup of the phones and hunt group. The Avaya 5520-48T-PWR Ethernet Routing Switch provides Ethernet connectivity to the servers and IP telephones and Layer 3 IP routing.

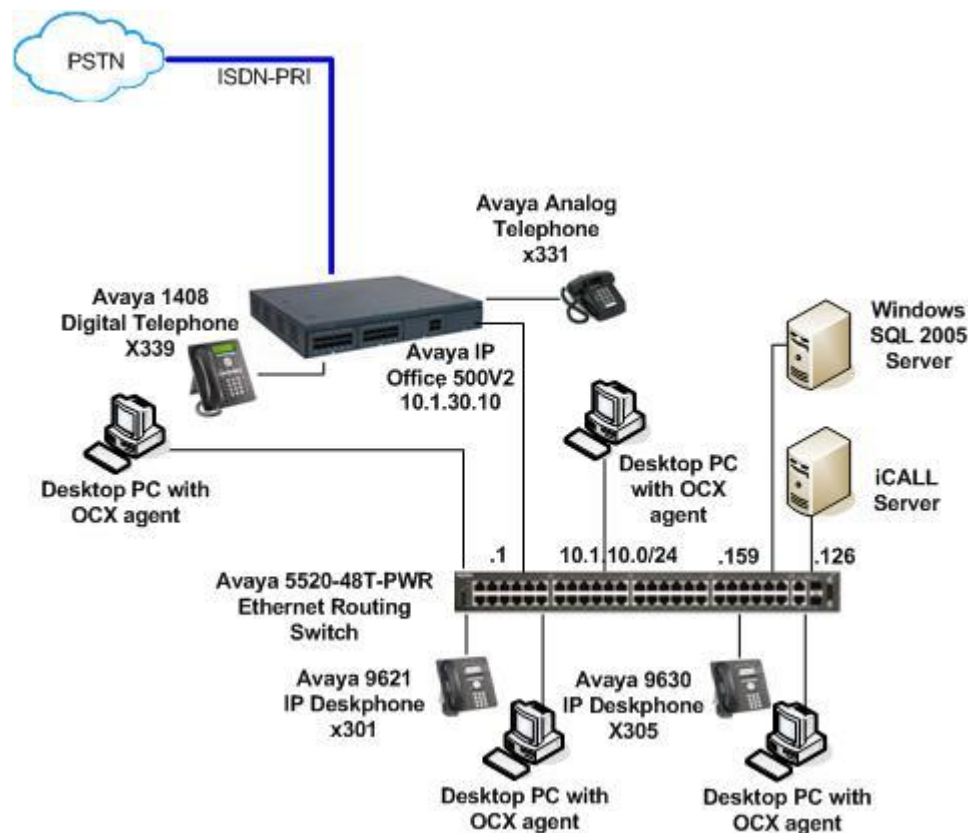


Figure 1: Test Configuration

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office 500V2	9.0
Avaya IP Office Manager on Windows 2003 R2 Server	9.0.200.860
Avaya 9621 IP Deskphone (H.323)	6.3.1
Avaya 9630 IP Deskphone (H.323)	3..2.1
Avaya 1408 Digital Telephone	R38
Avaya Analog Telephone	-
Avaya 5520-48T-PWR Ethernet Routing Switch	V6.2.4.010
iCALL Server on Windows 2003 R2 Server	2.0
OCX Agent PCs on Windows 7 SP1	2.0

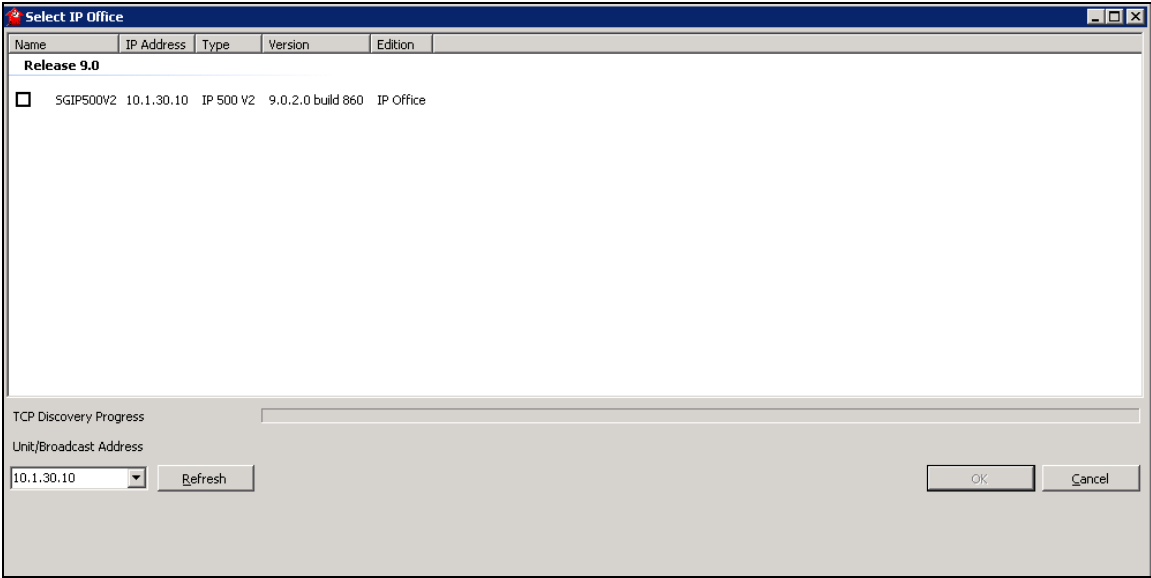
5. Configure Avaya IP Office

This section provides the procedures for configuring Avaya IP Office. The procedures include the following areas:

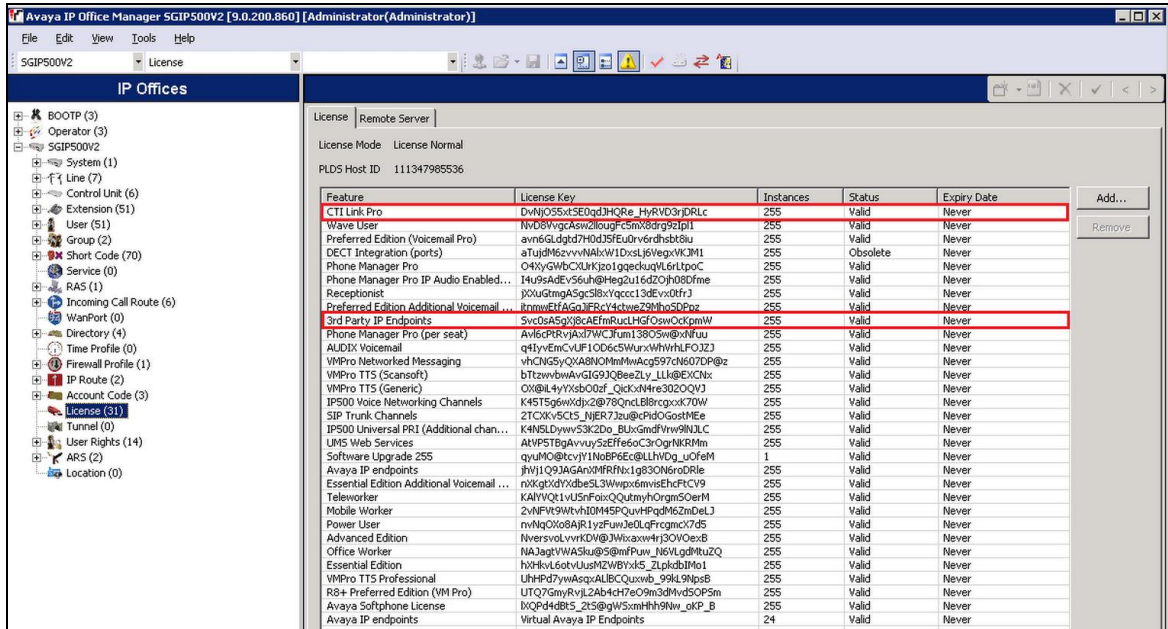
- Verify IP Office license
- Obtain LAN IP address
- Configure Call Listen Short Code
- Administer SIP Registrar
- Administer SIP extensions for IVR and Recording line
- Administer SIP users for IVR and Recording line
- Administer Agent users
- Configuring Monitoring Hunt Group
- Configuring Call Center Hunt Group
- Administer incoming call route

It is expected that the installer is familiar with configuring users, hunt groups, short codes, etc. on Avaya IP Office as the focus of these Application Notes is on the configuration of the TAPI interface only. For all other provisioning information, such as software installation, installation of optional components, basic configuration of Avaya IP Office, etc., refer to the Avaya IP Office product documentation in reference [1] of **Section 9**.

5.1. Verify IP Office License

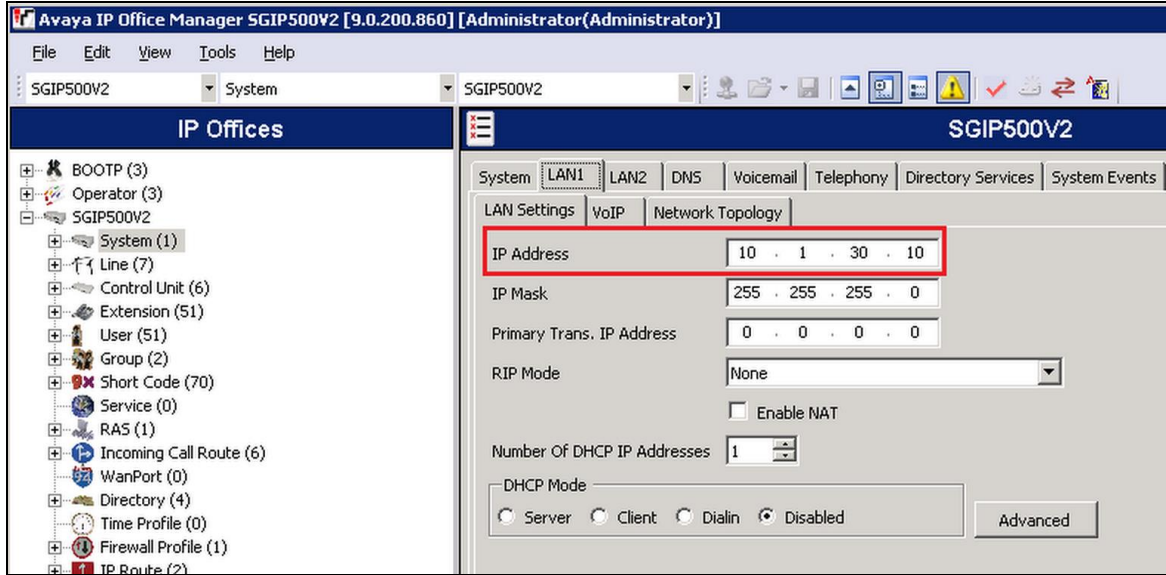
Step	Description
1.	<p>From a PC running the Avaya IP Office Manager application, select Start → All Programs → IP Office → Manager to launch the Manager application. Select the proper IP Office system, and log in with the appropriate credentials.</p>  <p>Log into the Avaya IP Office Manager application by using the appropriate user name and password (not shown).</p>

Step	Description
2.	<p>It is assumed that appropriate trunk and other basic licenses are acquired. The CTI Link Pro license is required for iCALL Server to connect to Avaya IP Office via TAPI. Scroll down the left pane and select License, to display the CTI Link Pro screen in the right pane. Verify that the license Status is “Valid”. This license is required for iCALL Server to use third-party TAPI control mode on IP Office. Verify also the 3rd Party IP Endpoints license Status is also “Valid”.</p>

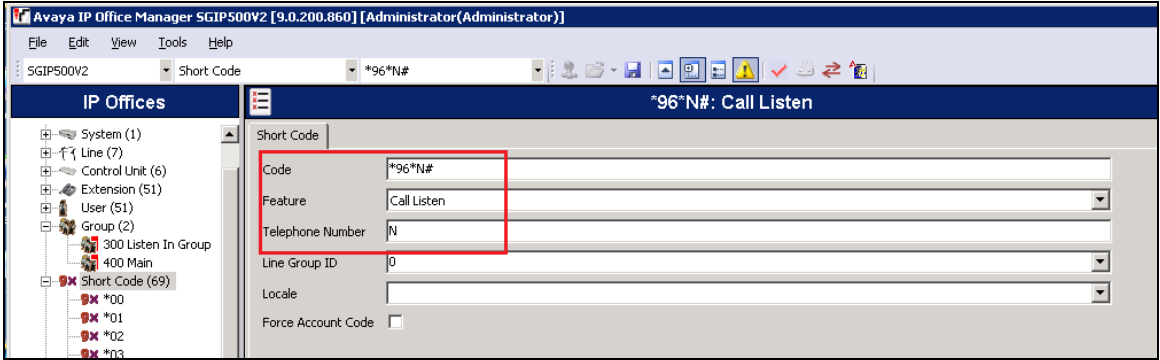


Feature	License Key	Instances	Status	Expiry Date
CTI Link Pro	DvNjO55xtSE0qdJHQRc_HyRVd3nDRLc	255	Valid	Never
Wave User	NvD8VgcA5wZlougC5mV8drg92p11	255	Valid	Never
Preferred Edition (Voicemail Pro)	avN6GLdgd7H0d3F5FeU0v6rdhbt8iu	255	Valid	Never
DECT Integration (ports)	aTujdM6zvvNAlxW1DxSLj6VegxVKJMI	255	Obsolete	Never
Phone Manager Pro	O4xyGwBtXUAKBp1gpdJuLxLELtpoC	255	Valid	Never
Phone Manager Pro IP Audio Enabled...	I4u9sADEv56uhH8eq2u16d2OjH0dme	255	Valid	Never
Receptionist	pxUxGtmgA5gcSL8xyQccc13dEvx0tfrJ	255	Valid	Never
Preferred Edition Additional Voicemail ...	knmwEHfAgo3FRcy4ctweZ9MhoSDPoz	255	Valid	Never
3rd Party IP Endpoints	SvcDsA5gXj8cAEfmRucLHGF0swOdcpmW	255	Valid	Never
Phone Manager Pro (per seat)	Avl6cPRRvJA37WCJum13805w@xHfuU	255	Valid	Never
AUDIX Voicemail	q41yVfncVUF1006c5WunxWfWHLFOJ3J	255	Valid	Never
VMPro Networked Messaging	vHCN5ByQvABN0mfmwAkc597fM607DP@z	255	Valid	Never
VMPro TTS (Scansoft)	bTzvvbWAvGIG9JQ8eeZLy_LLLk@EXCNx	255	Valid	Never
VMPro TTS (Generic)	OX@LL4yYXsb0dz_QickZMre3020QVJ	255	Valid	Never
IP500 Voice Networking Channels	K45TSg6wXdpj2@78QndLB8rcyxK70W	255	Valid	Never
SIP Trunk Channels	2TCXkv5Ct5_NJER73zu@cPidGostMEe	255	Valid	Never
IP500 Universal PRI (Additional chan...	K4NSLDyvv53K2Do_BUxGmdfVmw9NULC	255	Valid	Never
UMS Web Services	ANP5TBgaVuyv5eEFe6c3QvNKRm	255	Valid	Never
Software Upgrade 255	qyM0@tccvY1N06P6Ec@LLH0Dg_uOfeM	1	Valid	Never
Avaya IP endpoints	jhw1jQ9JAGAnMFRfx1g83ON6roDRle	255	Valid	Never
Essential Edition Additional Voicemail ...	nXKgtXdydbsSL3WwpxmvisEhcFCV9	255	Valid	Never
Teleworker	KAlVQ11vU5nFoXQqutmyhOrgm5OerM	255	Valid	Never
Mobile Worker	2vNPFv9WtVh10M45SPQuvHPqdM6ZmDeLJ	255	Valid	Never
Power User	nVnqOXo8ARj1yzFunDeLqFrgmnc7d5	255	Valid	Never
Advanced Edition	NversvLvnKDv@JWtoawwPj0V0exB	255	Valid	Never
Office Worker	NAJagtVWASlu@S@mfPuw_N6VLgdMtu2Q	255	Valid	Never
Essential Edition	hXhkvL6otvUustMZWBvXs5_ZlpkdbIMo1	255	Valid	Never
VMPro TTS Professional	UthHPd7yWsqxALBCQuwmb_99kL9NpsB	255	Valid	Never
R8+ Preferred Edition (VM Pro)	UTQ7GmyRvJL2Ab4d7eO9m3dMvd5OPSm	255	Valid	Never
Avaya Softphone License	lxQPd4d8t5_2t5@gW5zmHhh9Nw_oKP_B	255	Valid	Never
Avaya IP endpoints	Virtual Avaya IP Endpoints	24	Valid	Never

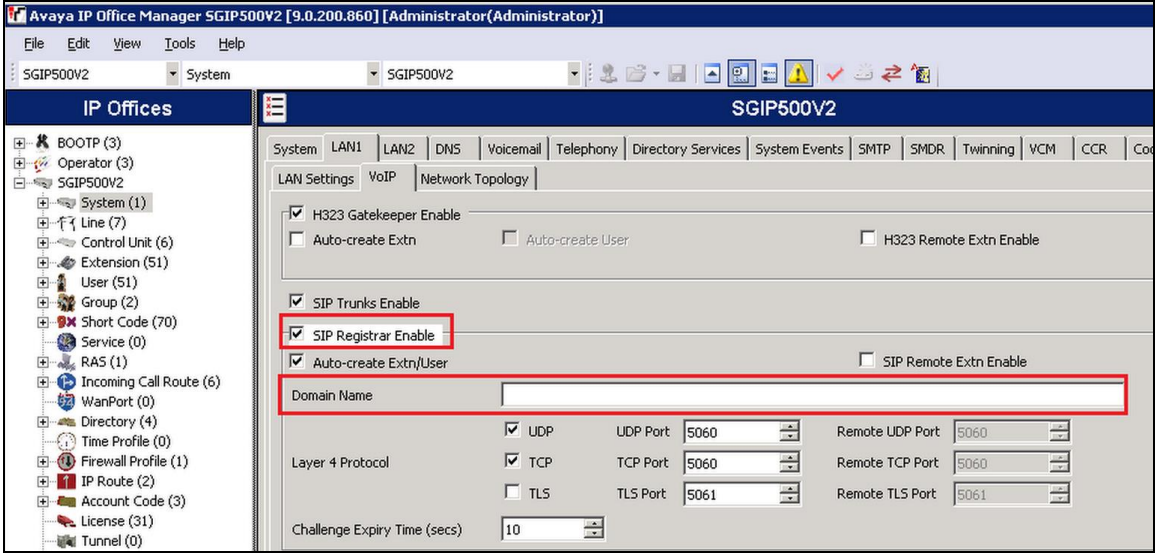
5.2. Obtain LAN IP address

Step	Description
1.	<p>From the configuration tree in the left pane, select System to display the system being configured in the right pane. Select the LAN1 tab, followed by the LAN Settings sub-tab in the right pane. Make a note of the IP Address, which will be used later to configure iCALL Server. Note that IP Office can support SIP on the LAN1 and/or LAN2 interfaces, and the compliance testing used the LAN1 interface.</p>  <p>The screenshot shows the Avaya IP Office Manager interface. On the left, the configuration tree is expanded to 'System (1)'. On the right, the 'LAN1' tab is selected, and the 'LAN Settings' sub-tab is active. The 'IP Address' field is highlighted with a red box and contains the value '10 . 1 . 30 . 10'. Other fields include 'IP Mask' (255 . 255 . 255 . 0), 'Primary Trans. IP Address' (0 . 0 . 0 . 0), 'RIP Mode' (None), 'Enable NAT' (unchecked), and 'Number Of DHCP IP Addresses' (1). The 'DHCP Mode' section shows 'Server', 'Client', 'Dialin', and 'Disabled' (selected) radio buttons. An 'Advanced' button is located at the bottom right of the settings pane.</p>

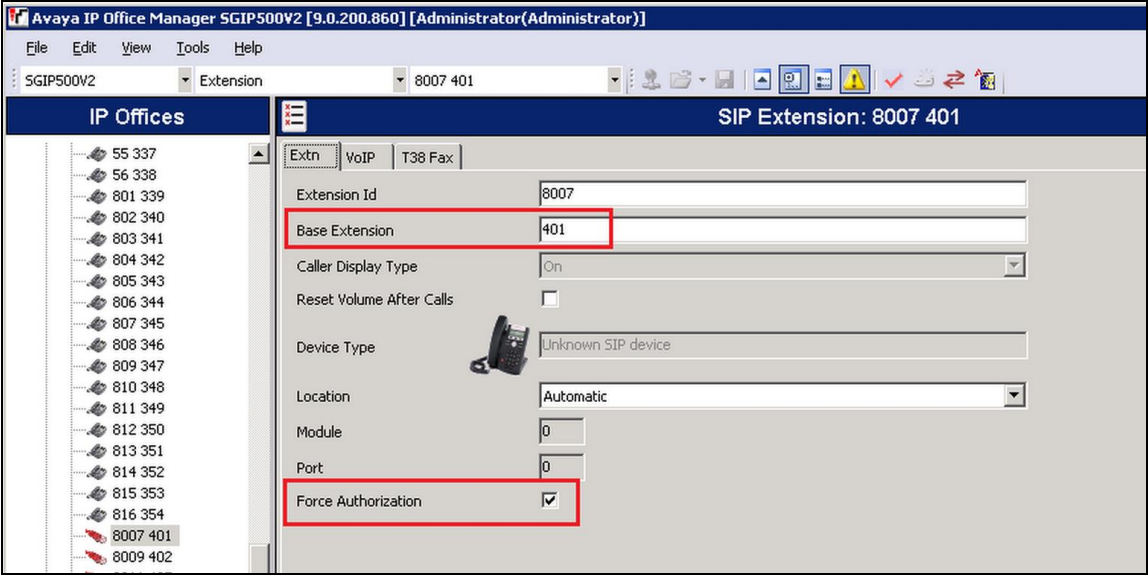
5.3. Configure Call Listen short code

Step	Description
1.	<p>From the configuration tree in the left pane, select Short Code and right click to select New. Enter the following for Call Listen feature to be used for recording by SIP line later.</p> <ul style="list-style-type: none">• Code: *96*N#• Feature: Call Listen• Telephone Number: N 

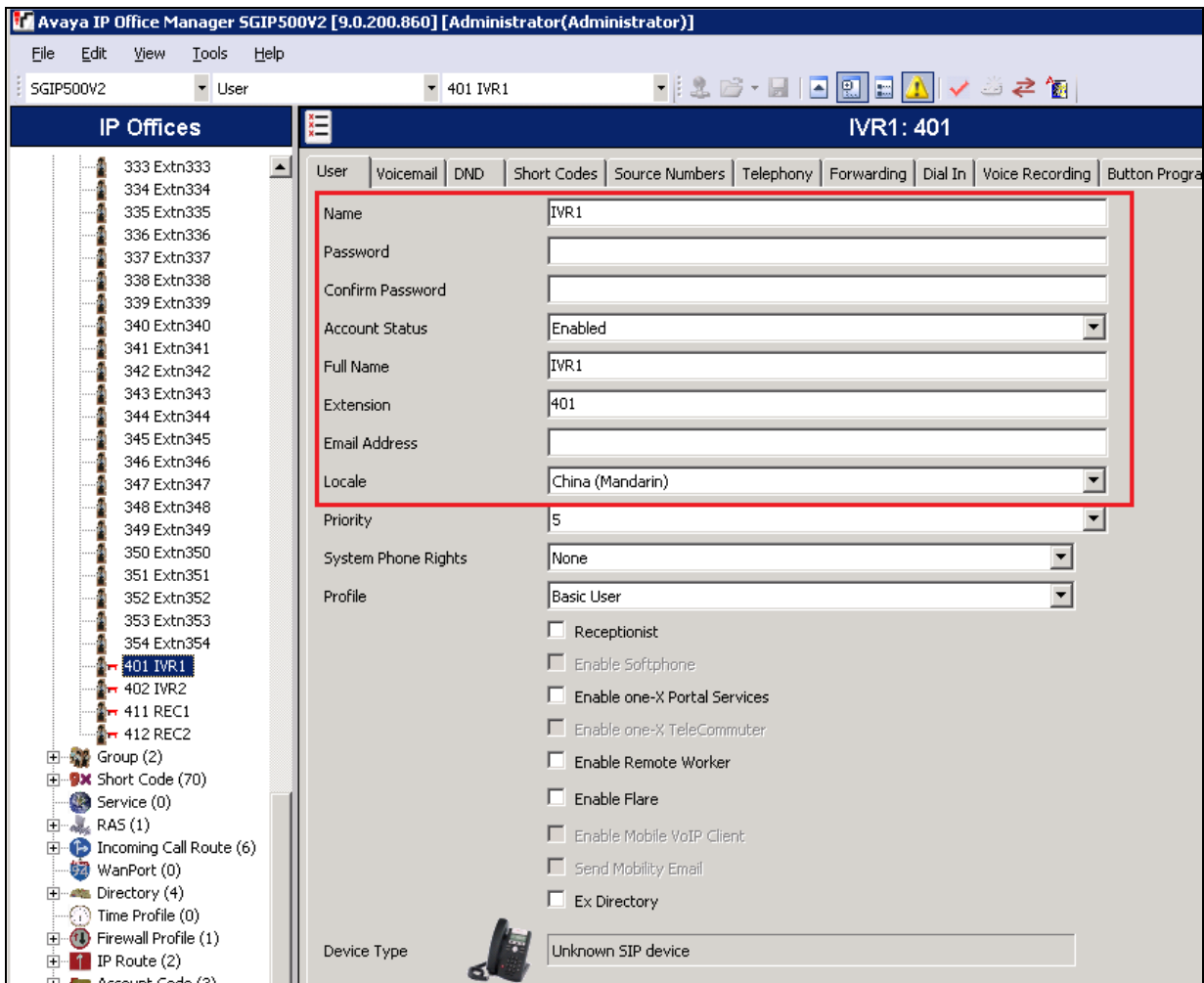
5.4. Administer SIP Registrar

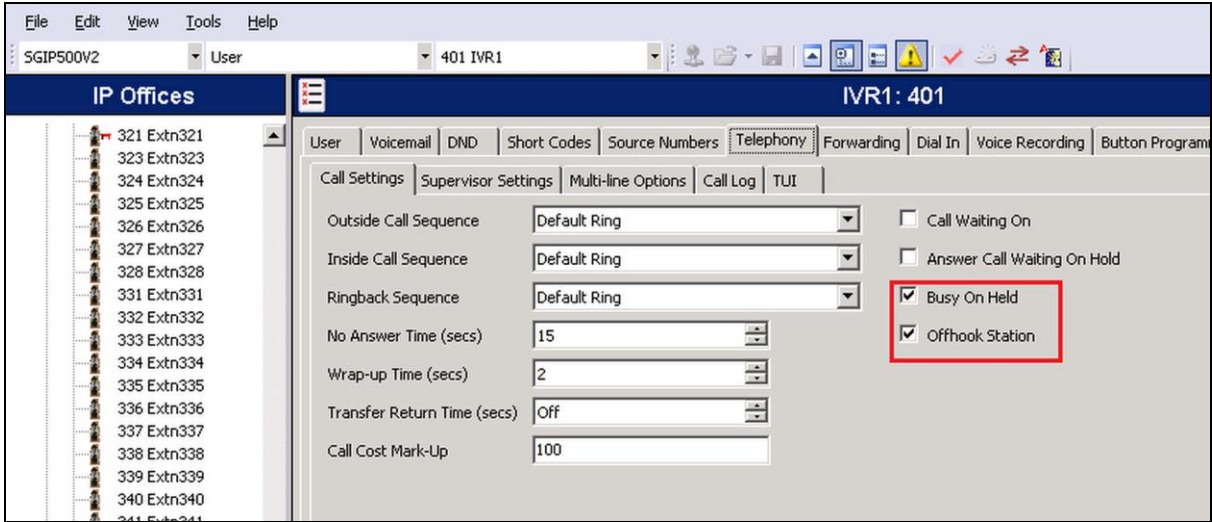
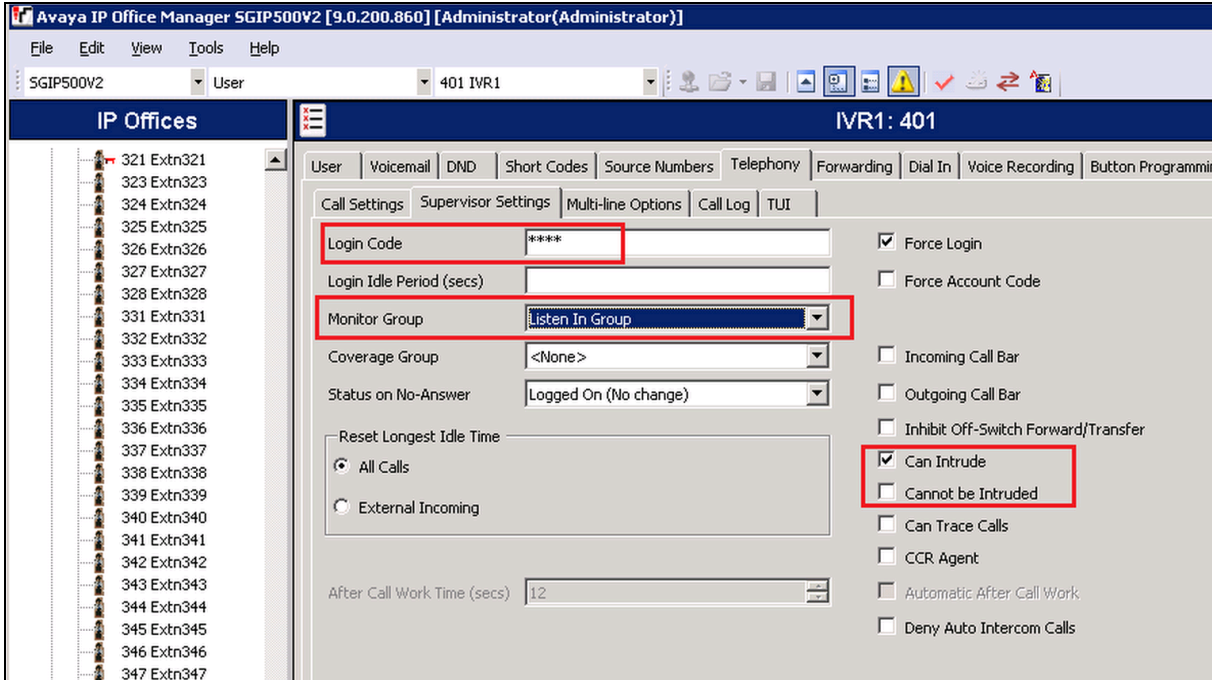
Step	Description
1.	<p>Select the VoIP sub-tab. Make certain that SIP Registrar Enable is checked as shown below. Enter a valid Domain Name for SIP endpoints to use for registration with IP Office. In the compliance testing, the Domain Name was left blank, so the LAN IP address was used for registration.</p> 

5.5. Administer SIP extensions for IVR/Recording

Step	Description
1.	<p>From the configuration tree in the left pane, right-click on Extension and select New → SIP Extension from the pop-up list to add a new SIP extension. Enter the desired digits for Base Extension, and check Force Authorization, as shown below. In this case, “401” for IVR line. Repeat for extensions 402 for IVR line and 411 for recording line.</p> 

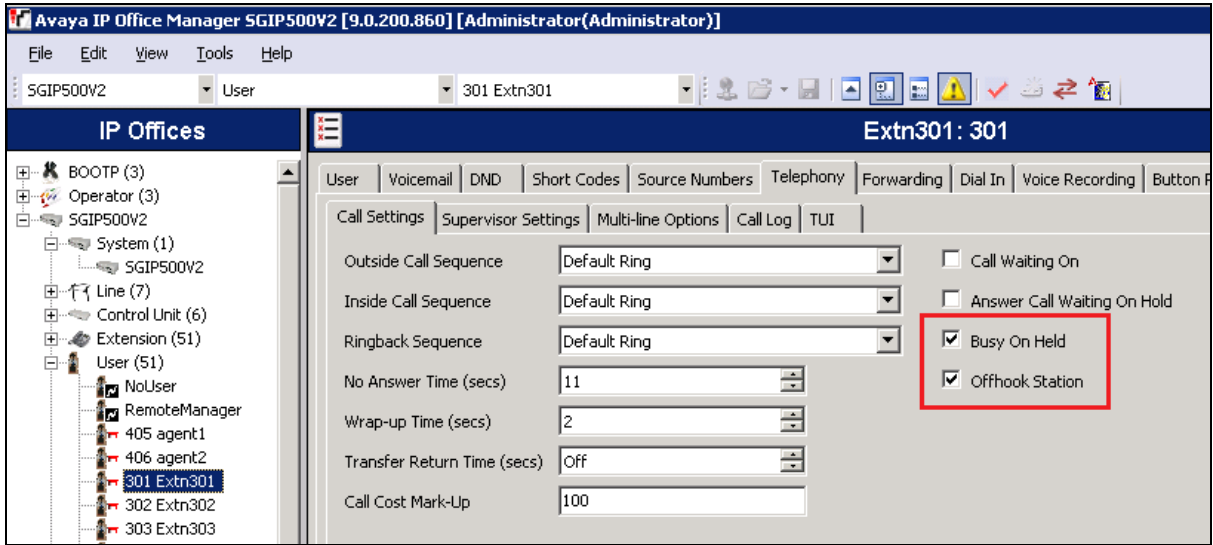
5.6. Administer SIP users for IVR/Recording

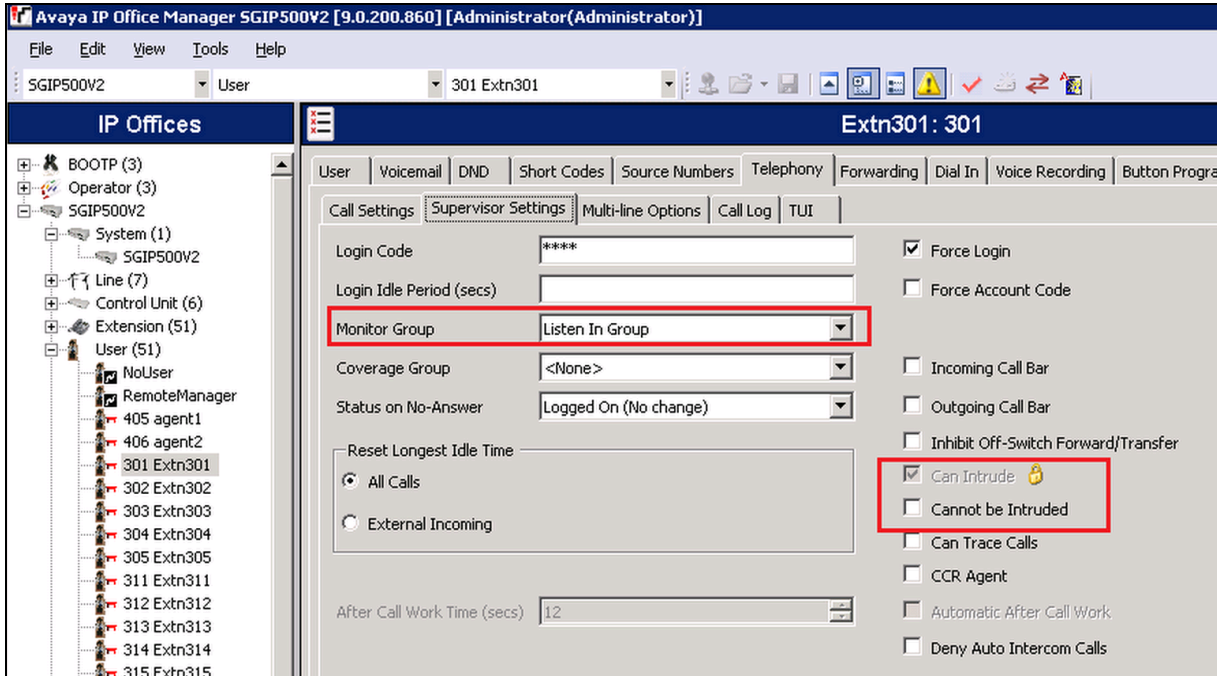
Step	Description
1.	<p>iCALL Server registers with the SIP User which is used to queue calls redirected from incoming call hunt group by TAPI control. From the configuration tree in the left pane, right-click on User and select New from the pop-up list (not shown). Enter desired values for Name and Full Name. For Extension, enter the first Base Extension from Section 5.5. Enter desired Password and Confirm Password. Depending on country, for the Locale, China (Mandarin) is selected for this Compliance Testing. Repeat for extensions 402 for IVR line and 411 for recording line.</p> 

Step	Description
2.	<p>Select the Telephony tab; followed by the Call Settings sub-tab. Check Busy On Held and Offhook Station, as shown below. Repeat for extensions 402 for IVR line and 411 for recording line.</p> 
3.	<p>Select the Supervisor Settings sub-tab. Check the Can Intrude field and make sure the Cannot be Intruded is not checked, as shown below. Specify the Login Code field, which will be used by iCALL Server to log in the SIP User. This login code should be the same as the password set in Step 1 of this section. Also specify the Monitor Group as Listen In Group created in Section 5.7 for Call Listen to work. Repeat for extensions 402 for IVR line and 411 for recording line.</p> 

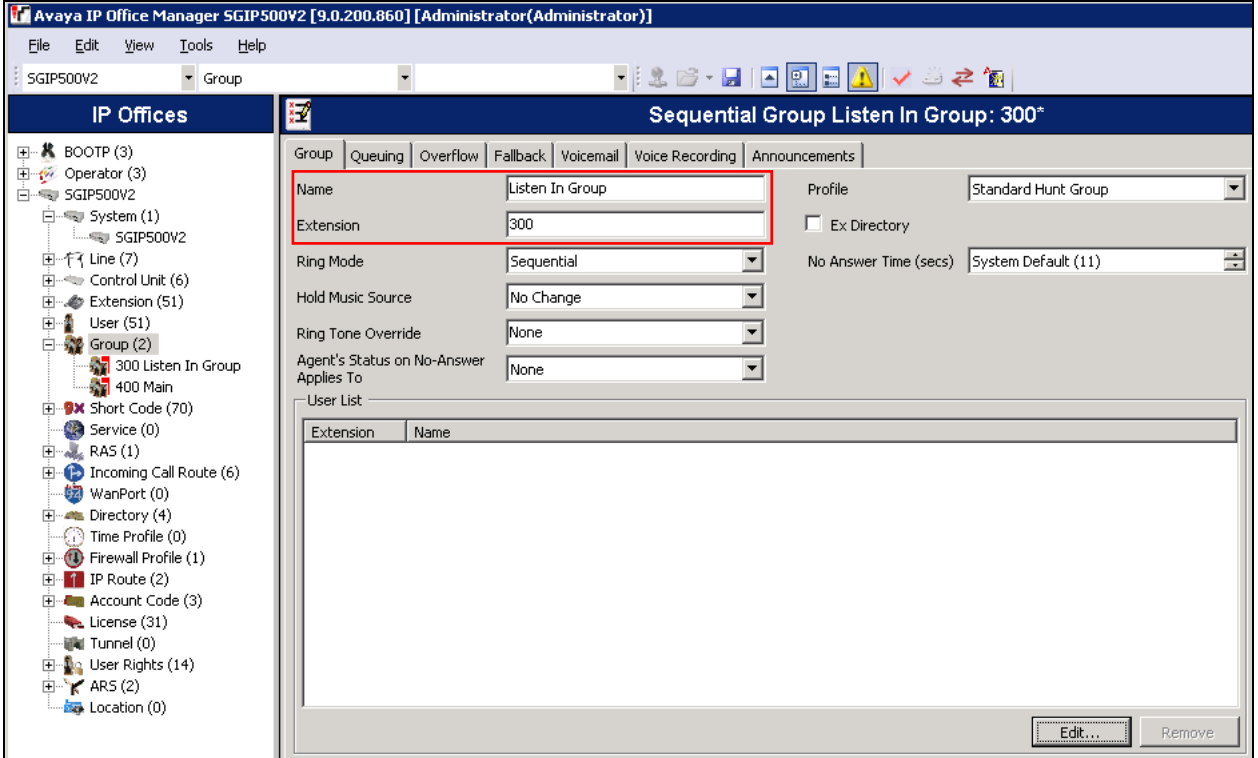
5.7. Administer Agent Users

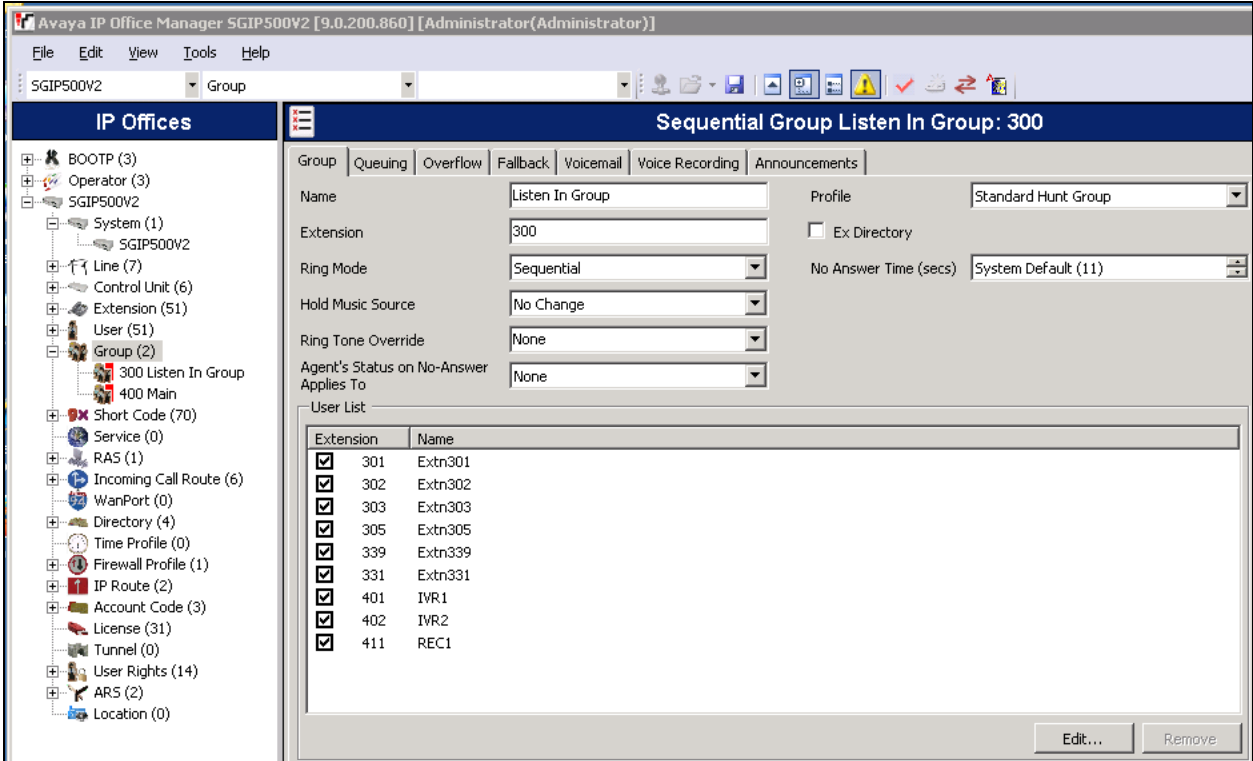
This section assumes agent extensions are already setup. The agent users are configured as detailed below.

Step	Description
1.	<p>From the configuration tree in the left pane, select User and 301 Extn301. On the right pane, select the Telephony tab; followed by the Call Settings sub-tab. Check Busy On Held and Offhook Station, as shown below. Repeat for Agent Users 305, 331 and 339.</p> 

Step	Description
2.	<p>Select the Supervisor Settings sub-tab. Check the Can Intrude field and make sure the Cannot be Intruded is not checked, as shown below. Also specify the Monitor Group as Listen In Group created in Section 5.7 for Call Listen to work. Repeat for Agent Users 305, 331 and 339.</p>  <p>The screenshot shows the Avaya IP Office Manager interface. The left pane displays a tree view of the system hierarchy, including IP Offices, System, Line, Control Unit, Extension, and User. The right pane shows the Supervisor Settings for Ext301: 301. The Monitor Group is set to Listen In Group. The Can Intrude checkbox is checked, and the Cannot be Intruded checkbox is unchecked.</p>

5.8. Configuring Monitoring Hunt Group

Step	Description
1.	<p>This hunt group will be used for the recording by SIP Line 411 to use the Call Listen feature. From the configuration tree in the left pane, right-click on Group and select New from the pop-up list to add a new hunt group. Enter desired values for the Name and Extension fields, and retain the default values in the remaining fields. Click on Edit in the User List section to add members.</p> 

Step	Description																				
2.	<p>Select all the Agent Users, IVR Users and the Recording User and Append to the Members list as shown below.</p>  <p>The screenshot displays the Avaya IP Office Manager interface. The left-hand tree view shows the system hierarchy, with 'Group (2)' selected under 'SGIP500V2'. The right-hand pane is titled 'Sequential Group Listen In Group: 300' and contains several tabs: 'Group', 'Queuing', 'Overflow', 'Fallback', 'Voicemail', 'Voice Recording', and 'Announcements'. The 'Group' tab is active, showing configuration fields for 'Name' (Listen In Group), 'Extension' (300), 'Ring Mode' (Sequential), 'Hold Music Source' (No Change), 'Ring Tone Override' (None), and 'Agent's Status on No-Answer Applies To' (None). Below these fields is a 'User List' table with columns 'Extension' and 'Name'. The table contains the following entries, all of which are checked:</p> <table border="1"> <thead> <tr> <th>Extension</th> <th>Name</th> </tr> </thead> <tbody> <tr><td><input checked="" type="checkbox"/></td><td>301 Extn301</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>302 Extn302</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>303 Extn303</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>305 Extn305</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>339 Extn339</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>331 Extn331</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>401 IVR1</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>402 IVR2</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>411 REC1</td></tr> </tbody> </table> <p>At the bottom right of the configuration pane are 'Edit...' and 'Remove' buttons.</p>	Extension	Name	<input checked="" type="checkbox"/>	301 Extn301	<input checked="" type="checkbox"/>	302 Extn302	<input checked="" type="checkbox"/>	303 Extn303	<input checked="" type="checkbox"/>	305 Extn305	<input checked="" type="checkbox"/>	339 Extn339	<input checked="" type="checkbox"/>	331 Extn331	<input checked="" type="checkbox"/>	401 IVR1	<input checked="" type="checkbox"/>	402 IVR2	<input checked="" type="checkbox"/>	411 REC1
Extension	Name																				
<input checked="" type="checkbox"/>	301 Extn301																				
<input checked="" type="checkbox"/>	302 Extn302																				
<input checked="" type="checkbox"/>	303 Extn303																				
<input checked="" type="checkbox"/>	305 Extn305																				
<input checked="" type="checkbox"/>	339 Extn339																				
<input checked="" type="checkbox"/>	331 Extn331																				
<input checked="" type="checkbox"/>	401 IVR1																				
<input checked="" type="checkbox"/>	402 IVR2																				
<input checked="" type="checkbox"/>	411 REC1																				

5.9. Configuring Call Center Hunt Group

Step	Description
1.	<p>This hunt group will be used to receive inbound calls to call queuing for a typical call center environment. From the configuration tree in the left pane, right-click on Group and select New from the pop-up list to add a new hunt group. Enter desired values for the Name and Extension fields, and retain the default values in the remaining fields. Click on Edit in the User List section to add members.</p>

Avaya IP Office Manager SGIP500V2 [9.0.200.860] [Administrator/Administrator]

File Edit View Tools Help

SGIP500V2 Group 400 Main

IP Offices

- BOOTP (3)
- Operator (3)
- SGIP500V2
 - System (1)
 - SGIP500V2
 - Line (7)
 - Control Unit (6)
 - Extension (51)
 - User (51)
 - Group (2)
 - 300 Listen In Group
 - 400 Main
 - Short Code (70)
 - Service (0)
 - RAS (1)
 - Incoming Call Route (6)
 - WanPort (0)
 - Directory (4)
 - Time Profile (0)
 - Firewall Profile (1)
 - IP Route (2)
 - Account Code (3)
 - License (31)
 - Tunnel (0)
 - User Rights (14)
 - ARS (2)
 - Location (0)

Rotary Group Main: 400*

Group Queuing Overflow Fallback Voicemail Voice Recording Announcements

Name: Main

Extension: 400

Profile: Standard Hunt Group

☐ Ex Directory

No Answer Time (secs): System Default (11)

Ring Mode: Rotary

Hold Music Source: System Source

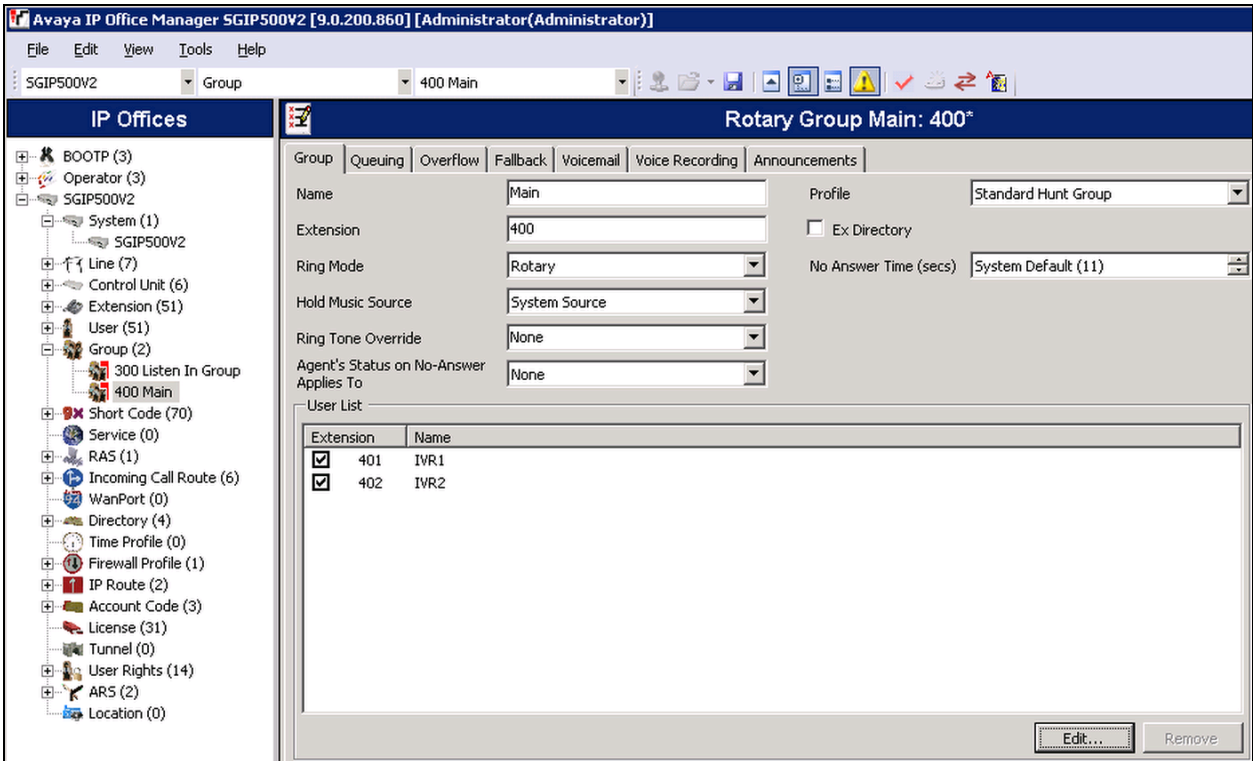
Ring Tone Override: None

Agent's Status on No-Answer Applies To: None

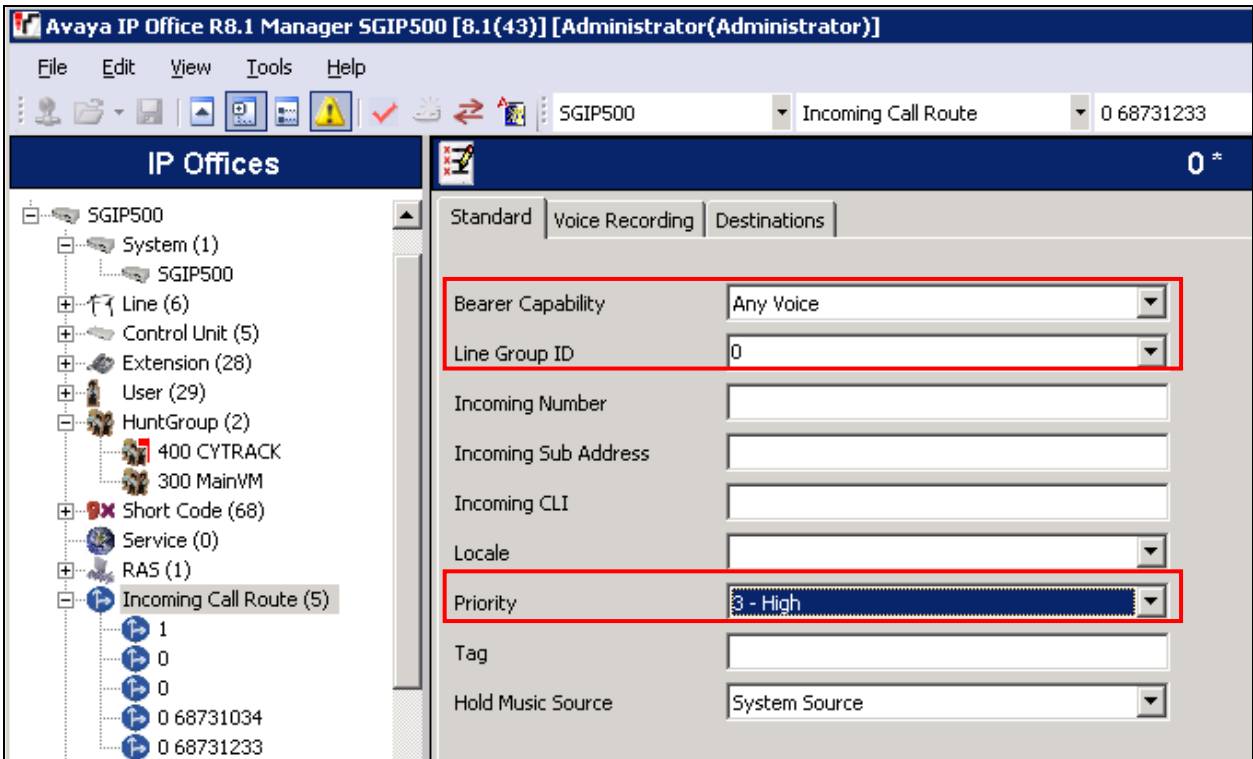
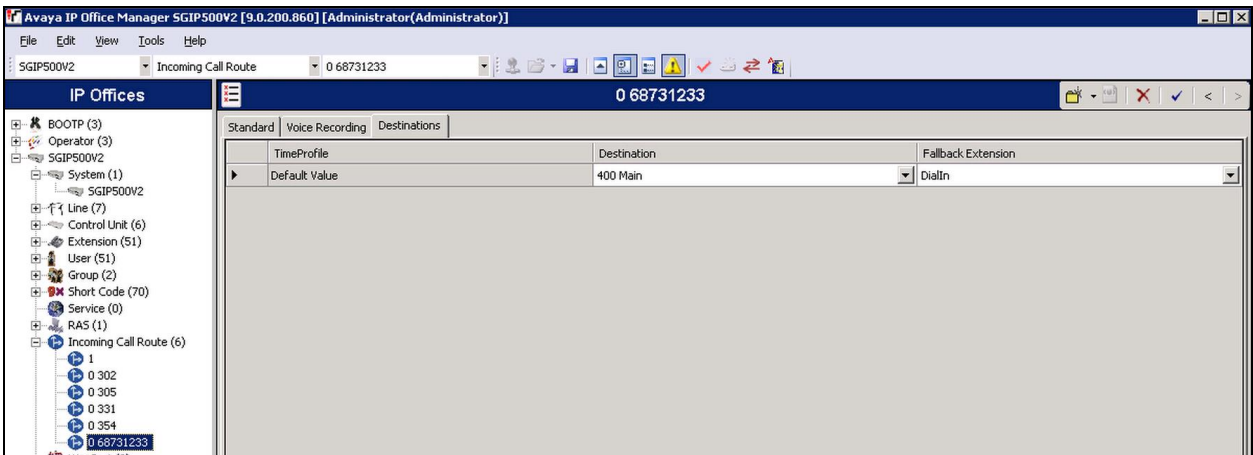
User List

Extension	Name
-----------	------

Edit... Remove

Step	Description
2.	<p>Select an IVR Users 401 and 402, and Append to the Members list as shown below.</p>  <p>The screenshot displays the Avaya IP Office Manager interface. The title bar indicates the version is 9.0.200.860 and the user is Administrator. The left-hand tree view shows the system hierarchy, with '400 Main' selected under the 'Group (2)' category. The right-hand pane is titled 'Rotary Group Main: 400*' and contains several tabs: Group, Queuing, Overflow, Fallback, Voicemail, Voice Recording, and Announcements. The 'Group' tab is active, showing fields for Name (Main), Extension (400), Ring Mode (Rotary), Hold Music Source (System Source), Ring Tone Override (None), and Agent's Status on No-Answer Applies To (None). Below these fields is a 'User List' table with two entries: 401 IVR1 and 402 IVR2, both of which have their checkboxes selected. At the bottom right of the configuration pane are 'Edit...' and 'Remove' buttons.</p>

5.10. Administer incoming call route

Step	Description
1.	<p>From the configuration tree in the left pane, right-click on Incoming Call Route and select New from the pop-up list to add a new incoming call route. Select Any Voice for the Bearer Capability and Priority to be 3-High as this is incoming trunk for receiving service calls. The Line Group ID will depend on what trunk is setup for receiving incoming calls. In this case, ISDN PRI trunk (Line Group ID 0) is selected and assumed to be configured.</p> 
2.	<p>Select Destinations tab and pick the hunt group 400 created in Section 5.9 as the Destination.</p> 

6. Configure iCALL Solution

This section provides the procedures for configuring the iCALL solution. The procedures include the following areas:

- Install and configure Avaya TAPI driver
- Configure iCALL Server
- Configure Agent OCX on the PCs

Please note that not all the configured details are mentioned. Only those essential for setup and interface with Avaya are stated. For all other provisioning information, such as software installation, installation of optional components, basic configuration of Avaya IP Office, etc., refer to the Avaya IP Office product documentation in reference [1] of **Section 9**.


6.1. Install and configure Avaya TAPI Driver

This section provides the procedures for configuring the Avaya TAPI Driver on the iCALL Server. The procedures include the following areas:

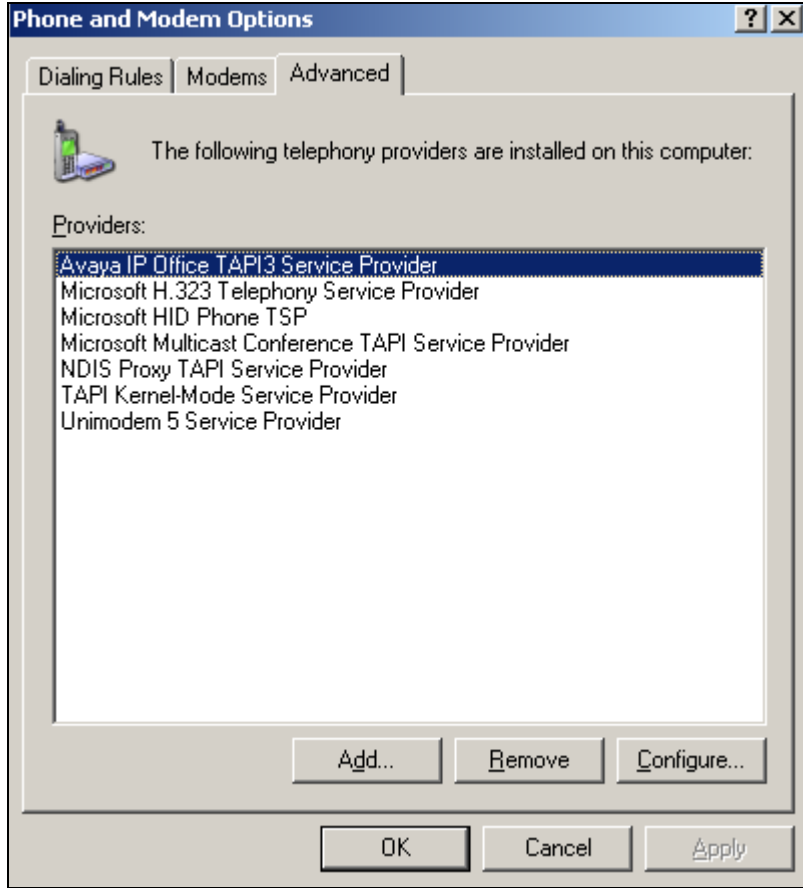
- Install Avaya TAPI driver
- Configure Avaya TAPI driver

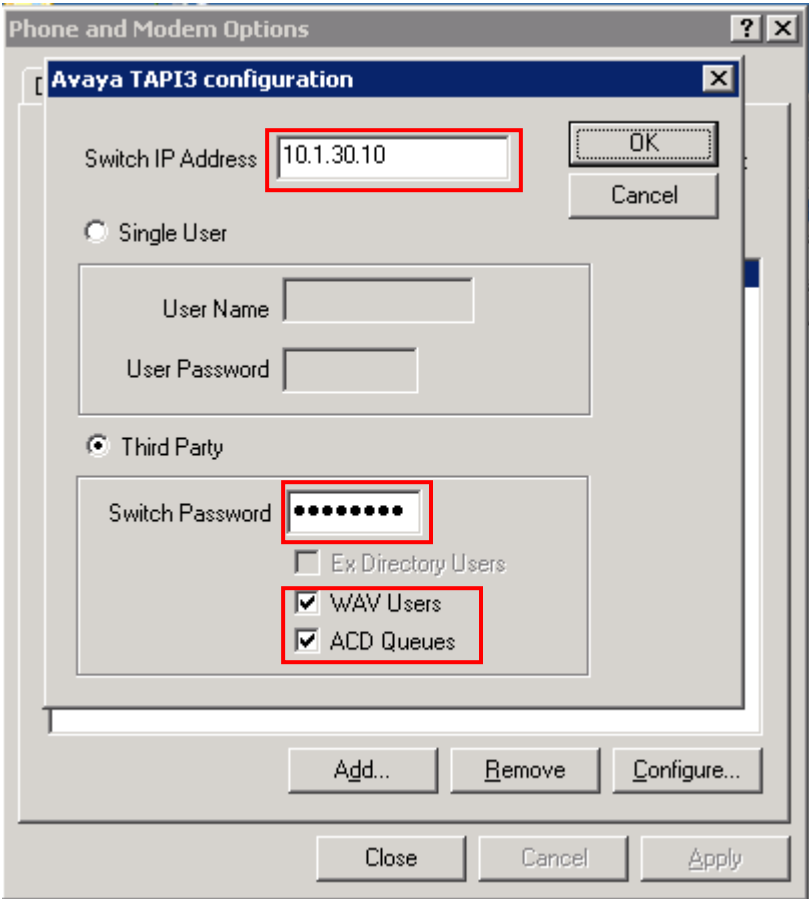
6.1.1. Install Avaya TAPI Driver

Avaya TAPI driver can be obtained from the IP Office User CD which is also available on Avaya Support portal at <http://support.avaya.com/>. The latest driver is used for installation on the iCALL Server in this compliance testing.

Step	Description
1.	<p>Log into the iCALL Server with administrative privileges and double click the driver installation program “tapiSetup.exe”. You may need to enter the following information if the IP Office is not detected. Click Next to complete the installation of the TAPI driver. At the InstallShield Wizard Complete window, click Finish (not shown).</p> 

6.1.2. Configure Avaya TAPI Driver

Step	Description
1.	<p>Go to the Windows Control Panel and open Phone and Modem Options. Click the Advanced tab, select Avaya IP Office TAPI3 Service Provider and click Configure....</p> 

Step	Description
2.	<p>In the Avaya TAPI3 configuration window that is displayed, set Switch IP Address to the IP address of Avaya IP Office, select Third Party and set Switch Password to the IP Office System password provided by the administrator. Click OK.</p> 
3.	<p>In the Phone and Modem Options window, click OK. Reboot the server for the new changes to take effect.</p>

6.2. Configure iCALL Server

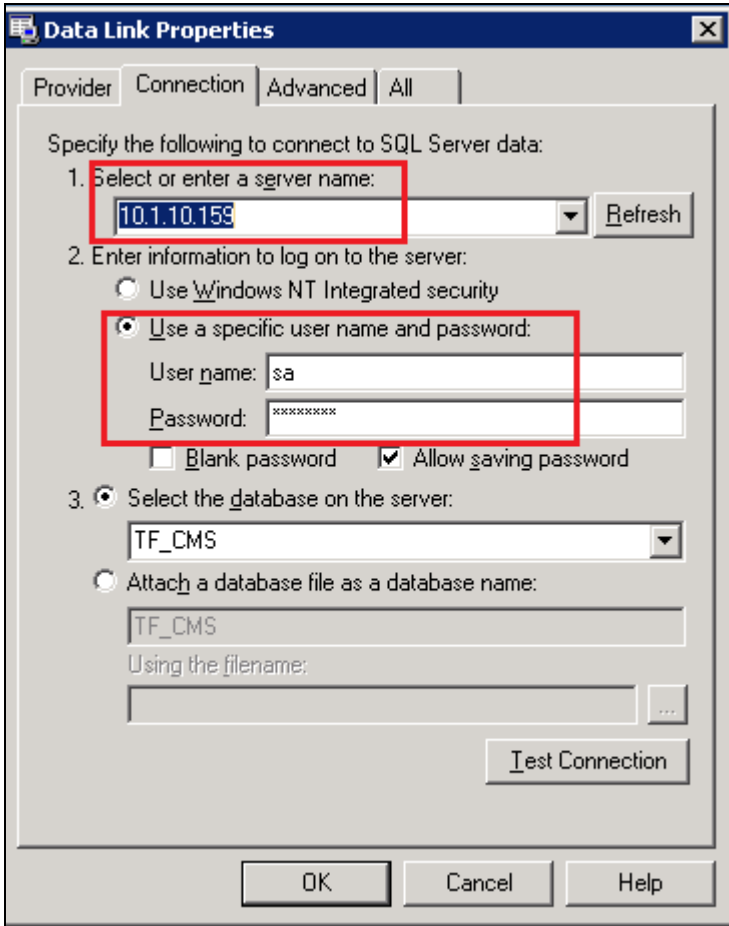
The installation of the components on the iCALL Server and the Database Server is assumed to be completed and activated with the appropriate license. The complete steps required to configure iCALL Server for service is beyond the scope of this document. Refer to NSE Telecom for details.

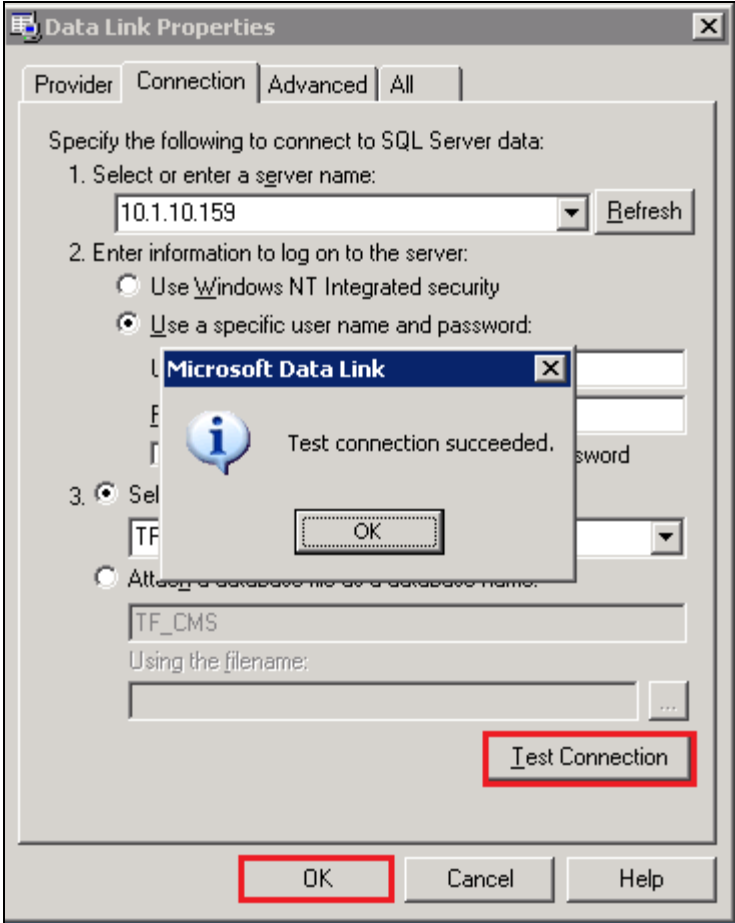
This section provides the procedures for configuring iCALL Server. The procedures include the following areas:

- Database Connection configuration
- IVR configuration
- CTI Core Service configuration
- IVR Channel configuration
- Recording Channel configuration
- Restart IVR and CTI service
- Agent configuration
- Recording System configuration

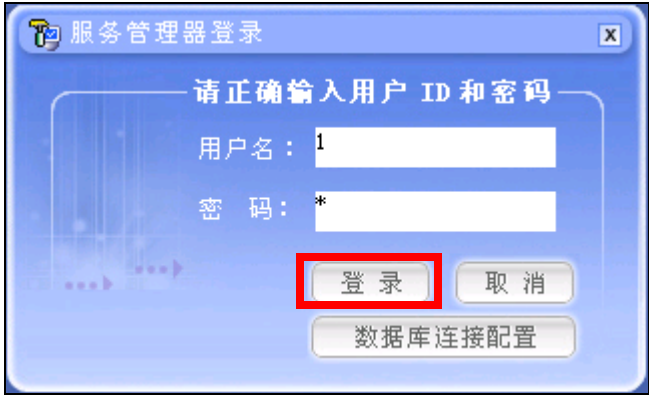

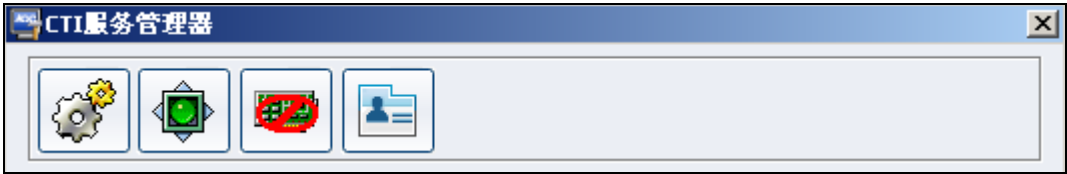
6.2.1. Database Connection configuration

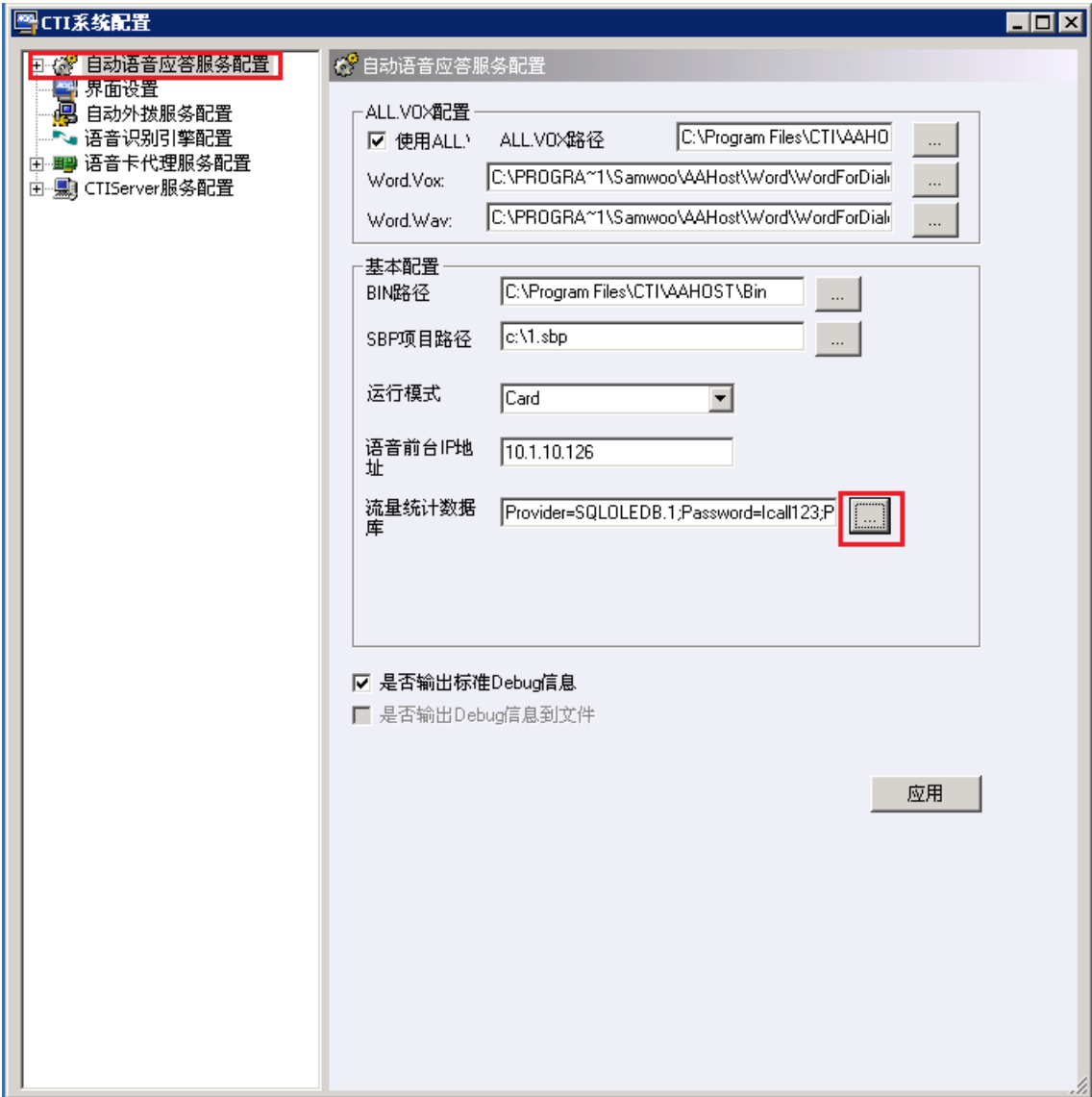
Step	Description
1.	<p>Log into the iCALL Server with administrative privileges. Click Start → All Programs → CTI → AAManager. Log in with the appropriate credentials and click the database connection setup below.</p> 

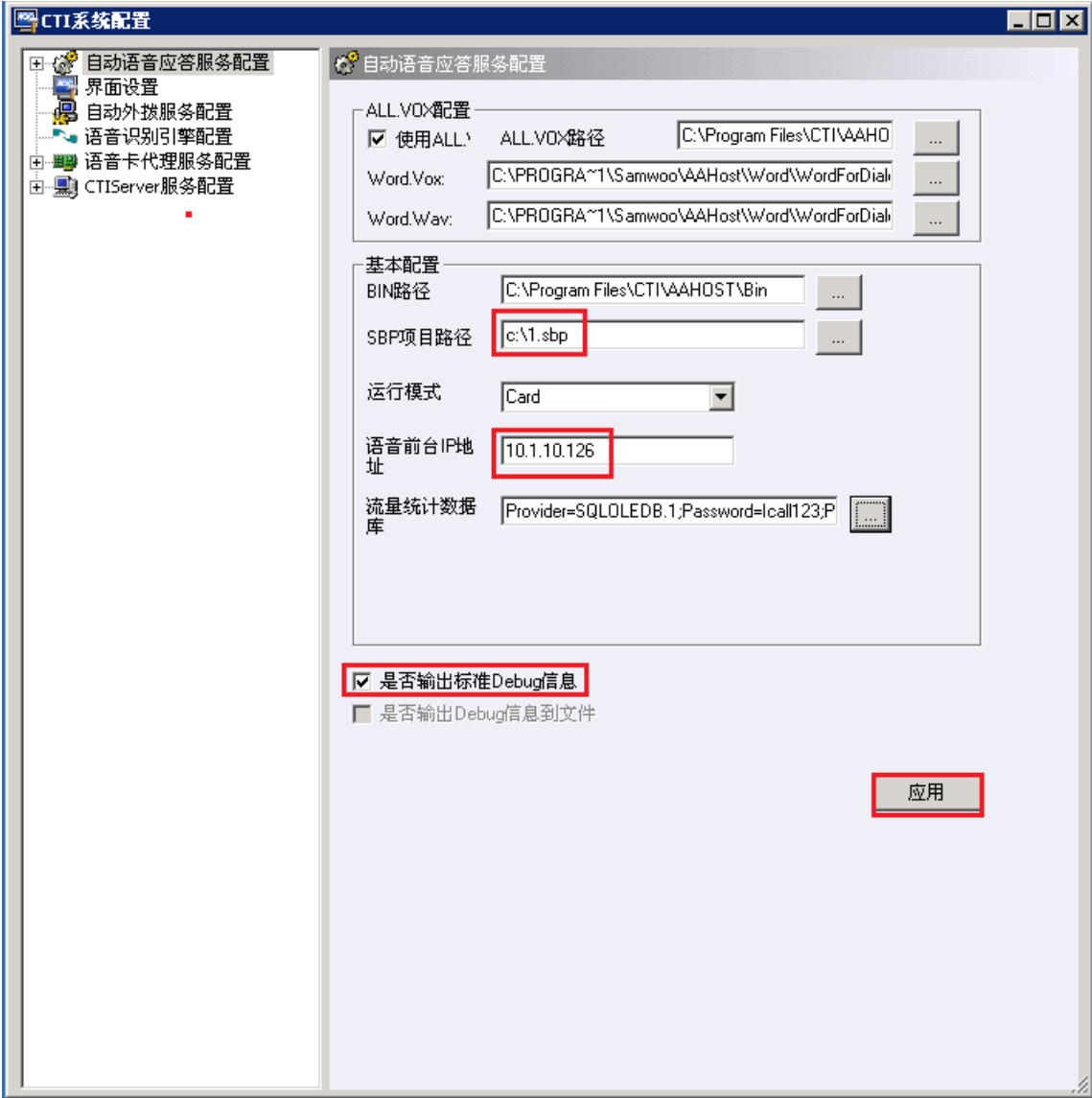
Step	Description
2.	<p>Enter the database server IP address in the Select or enter a server name field and select Use a specific user name and password. Enter the User name sa and Password. Leave the rest as default.</p>  <p>The screenshot shows the 'Data Link Properties' dialog box with the 'Advanced' tab selected. The 'Specify the following to connect to SQL Server data:' section contains three numbered steps. Step 1, 'Select or enter a server name:', has a text box containing '10.1.10.159' and a 'Refresh' button. Step 2, 'Enter information to log on to the server:', has two radio buttons: 'Use Windows NT Integrated security' (unselected) and 'Use a specific user name and password:' (selected). Below the selected radio button are text boxes for 'User name:' containing 'sa' and 'Password:' containing 'xxxxxxx'. There are also checkboxes for 'Blank password' (unchecked) and 'Allow saving password' (checked). Step 3, 'Select the database on the server:', has a dropdown menu showing 'TF_CMS'. Below this is an option to 'Attach a database file as a database name:' with a text box containing 'TF_CMS' and a 'Using the filename:' section with a text box and a browse button. At the bottom right is a 'Test Connection' button. At the very bottom are 'OK', 'Cancel', and 'Help' buttons.</p>

Step	Description
3.	<p>Click the Test Connection to verify the database connection is properly setup. A message “Test connection succeeded” will be displayed. Press OK to confirm setup.</p>  <p>The screenshot shows the 'Data Link Properties' dialog box with the 'Connection' tab selected. The 'Server name' is set to '10.1.10.159'. Under 'Enter information to log on to the server', the 'Use a specific user name and password' option is selected. The 'Test Connection' button at the bottom right is highlighted with a red rectangle. Overlaid on this is a smaller 'Microsoft Data Link' dialog box with the message 'Test connection succeeded.' and an 'OK' button.</p>

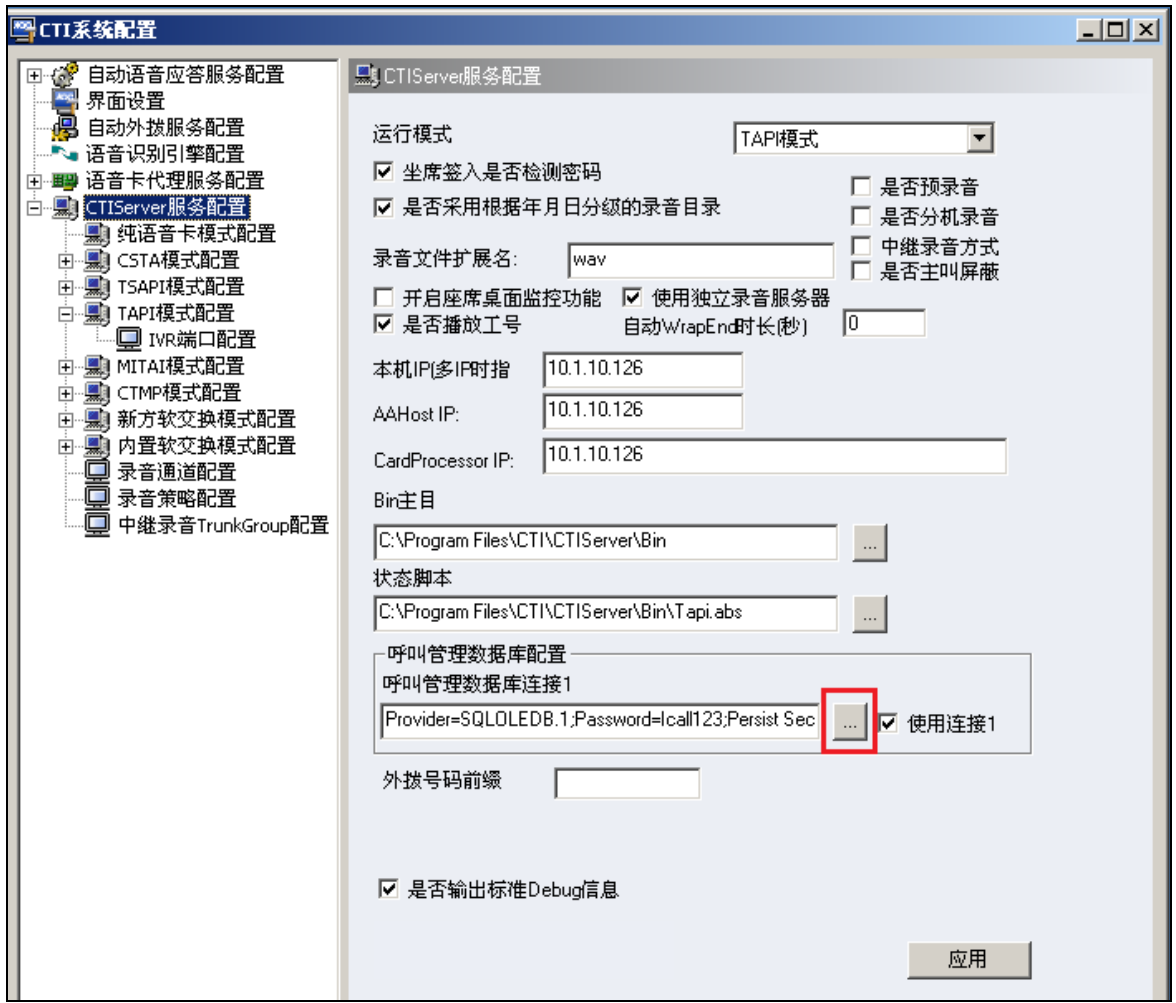
6.2.2. IVR configuration

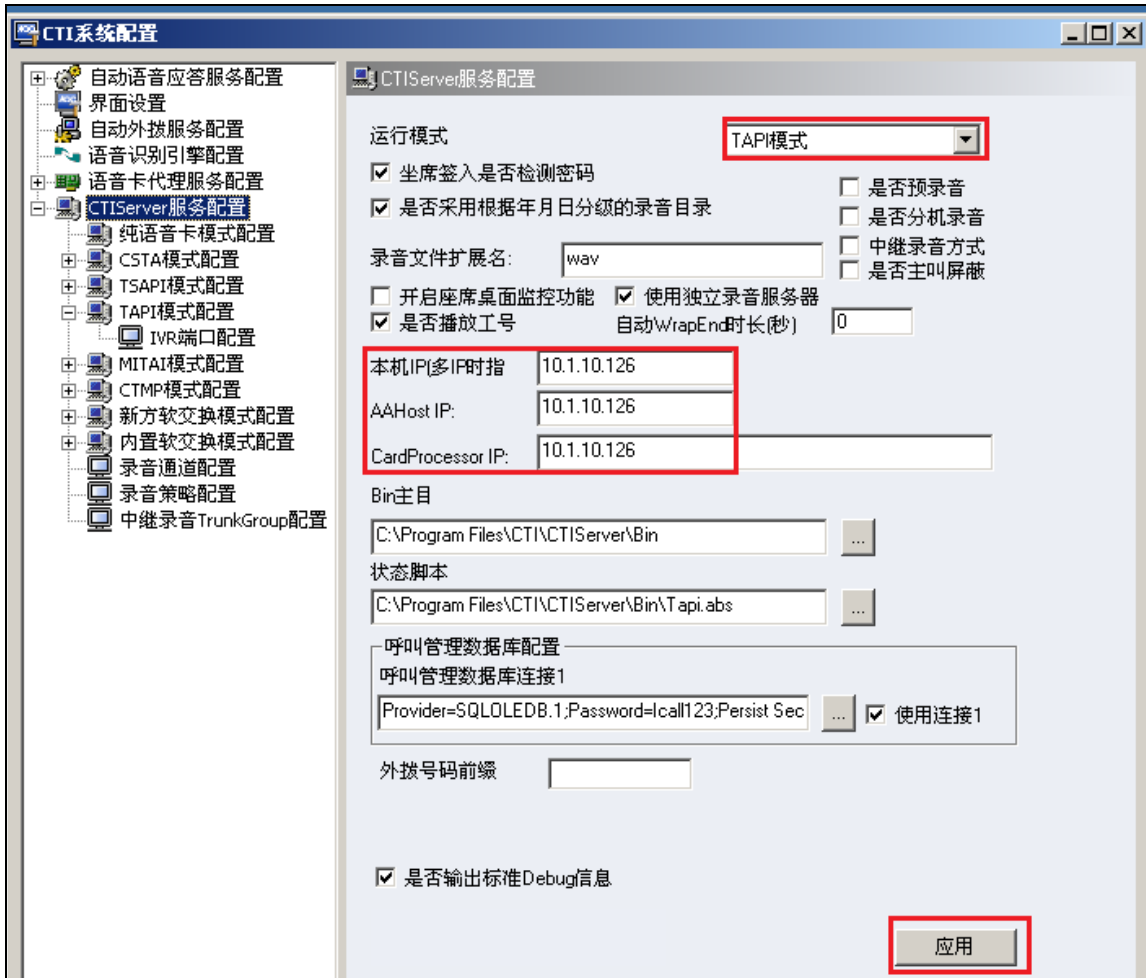
Step	Description
1.	<p>Log into the iCALL Server with administrative privileges. Click Start → All Programs → CTI → AAManager. Log in with the appropriate credentials and click Enter as below.</p> 
2.	<p>On the next screen, click  to enter the Setup.</p> 

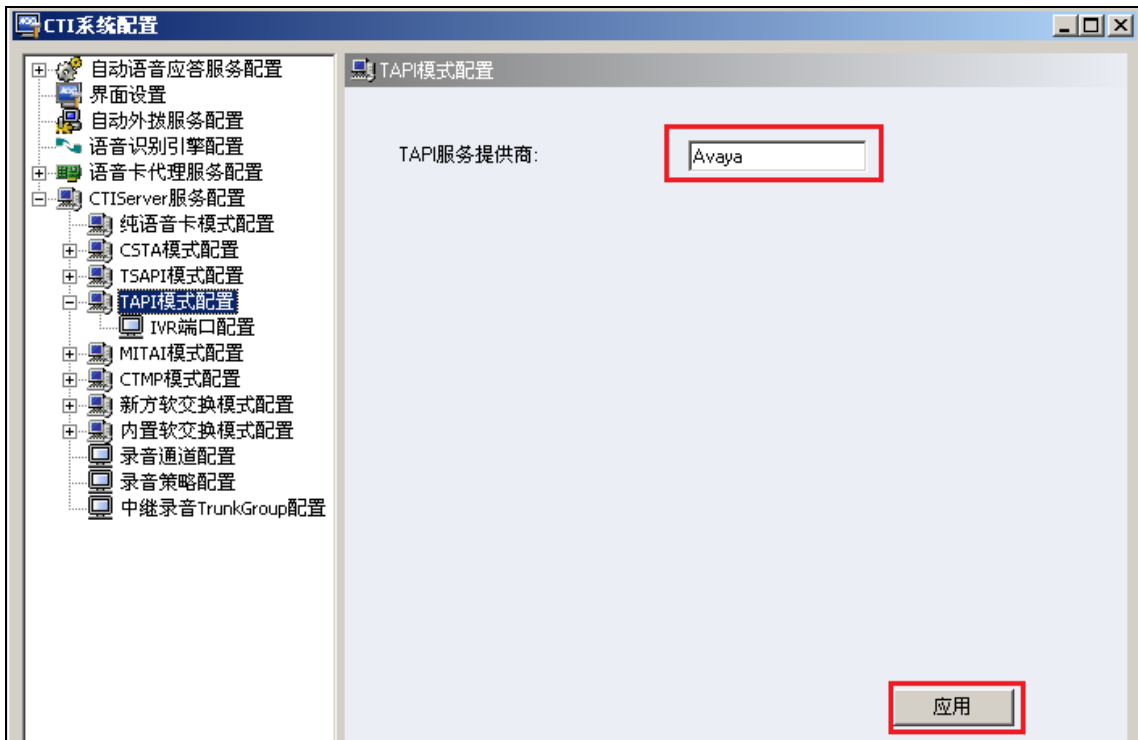
Step	Description
3.	<p>On the left panel, select the IVR configuration setup and click the “analysis data” symbol as below and complete the database connection information, the same as in Section 6.2.1 Step 2 and 3.</p> 

Step	Description
4.	<p>Enter the IP address of the iCALL server for the IVR service. In this Compliance Testing, the iCALL server performs the IVR function as well. The script file for handling the call flow is located at c:\1.sbp as set as below. Detail on the design of the script will not be described here. Check the box at the bottom for basic debug log output. Click Apply to finish configuration.</p>  <p>The screenshot shows the 'CTI系统配置' (CTI System Configuration) window. The left sidebar lists several configuration categories, with '自动语音应答服务配置' (Automatic Voice Response Service Configuration) selected. The main panel is titled '自动语音应答服务配置' and contains two sections: 'ALL VOX配置' and '基本配置'. In the '基本配置' section, the 'SBP项目路径' (SBP Project Path) is set to 'c:\1.sbp' and the '语音前台IP地址' (Voice Front-End IP Address) is set to '10.1.10.126'. Both of these fields are highlighted with red boxes. Below this section, the checkbox '是否输出标准Debug信息' (Whether to output standard Debug information) is checked and also highlighted with a red box. At the bottom right of the window, the '应用' (Apply) button is highlighted with a red box.</p>

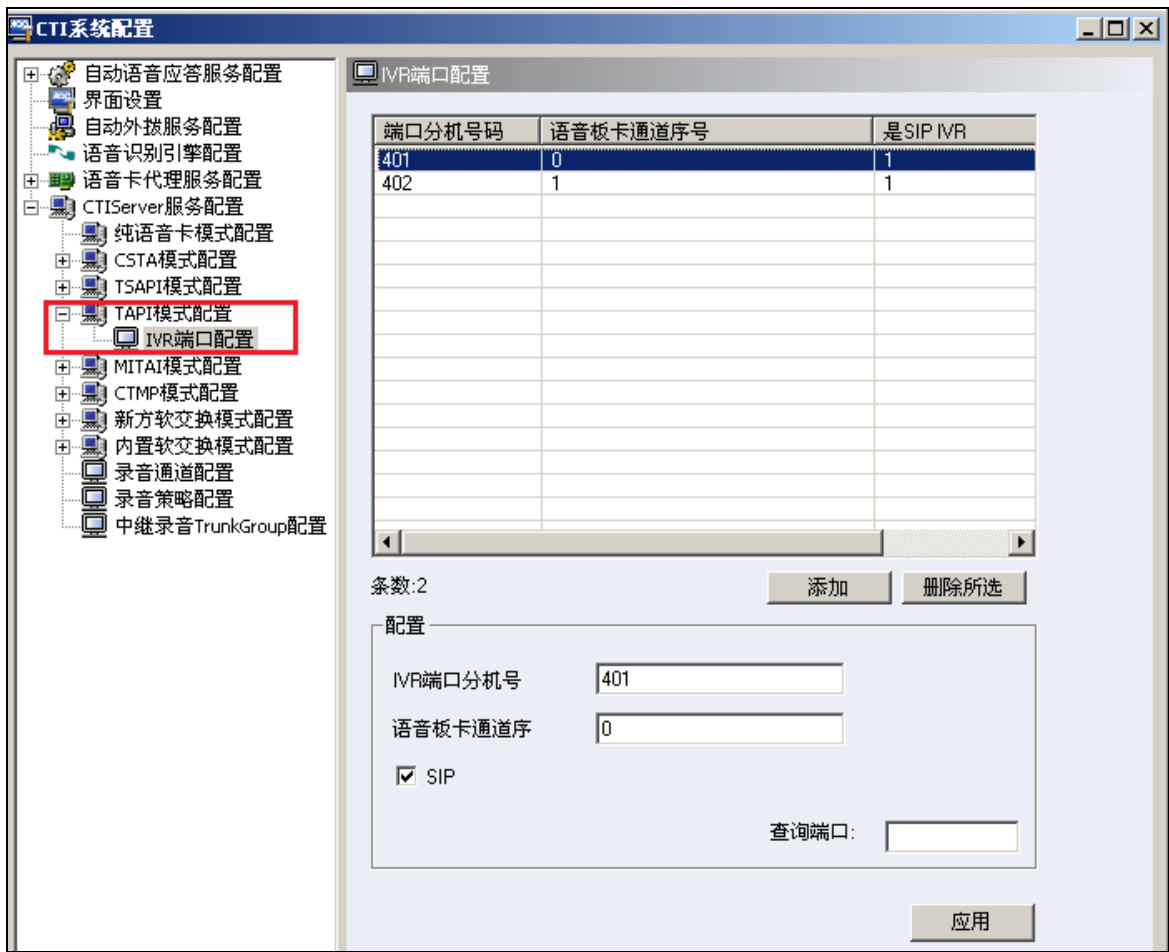
6.2.3. CTI Core Service configuration

Step	Description
1.	<p>Repeat Step 1 and 2 in Section 6.2.2 and select CTIServer on the left panel below. Click on the “analysis data” symbol below and complete the database connection information the same as in Section 6.2.1 Step 2 and 3.</p> 

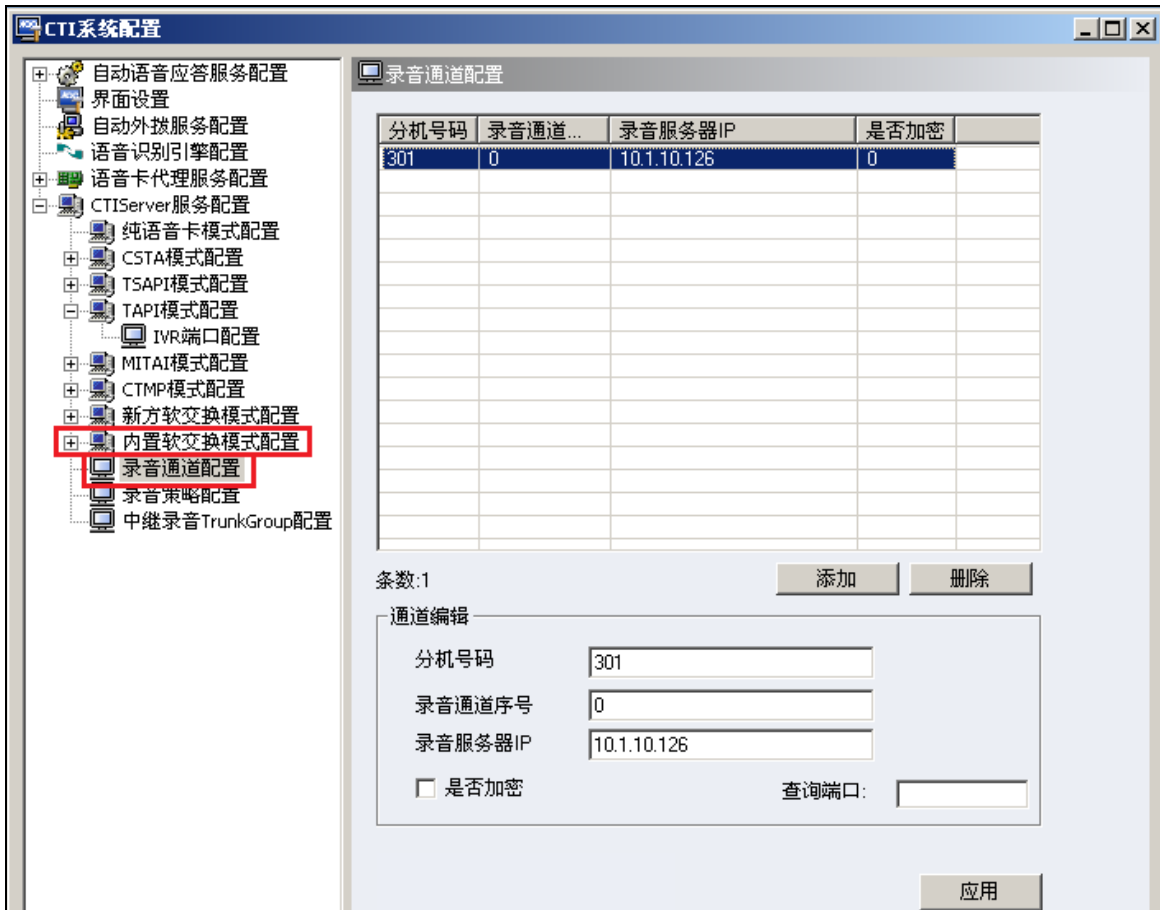
Step	Description
2.	<p>On the same screen, configure the local IP address for the following:</p> <ul style="list-style-type: none"> • Local IP: IP address of the CTI Server • AAHost IP: IP address of the AA Host. • CardProcessor IP: IP address of IVR Server <p>Select also TAPI as the type of connection to PBX from the drop down menu. Check the box at the bottom for basic debug log output. Click Apply to finish configuration.</p> 

Step	Description
3.	<p>On the left panel, select TAPI model configuration and enter Avaya on the right panel. Click Apply to finish configuration.</p> 



6.2.4. IVR Channel configuration

Step	Description									
1.	<p>On the left panel, expand the TAPI model configuration. Click on the IVR port configuration. The diagram shows the 2 IVR Users configured corresponding to the IP Office configuration.</p>  <p>The screenshot shows the 'CTI系统配置' (CTI System Configuration) window. On the left, the tree view is expanded to 'TAPI模式配置' (TAPI Model Configuration), and 'IVR端口配置' (IVR Port Configuration) is selected. The main area displays a table with the following data:</p> <table><thead><tr><th>端口分机号码</th><th>语音板卡通道序号</th><th>是SIP IVR</th></tr></thead><tbody><tr><td>401</td><td>0</td><td>1</td></tr><tr><td>402</td><td>1</td><td>1</td></tr></tbody></table> <p>Below the table, there are buttons for '添加' (Add) and '删除所选' (Delete Selected). A configuration section for the selected entry shows:</p> <ul style="list-style-type: none">IVR端口分机号: 401语音板卡通道序: 0<input checked="" type="checkbox"/> SIP查询端口: (empty field) <p>An '应用' (Apply) button is at the bottom right.</p>	端口分机号码	语音板卡通道序号	是SIP IVR	401	0	1	402	1	1
端口分机号码	语音板卡通道序号	是SIP IVR								
401	0	1								
402	1	1								

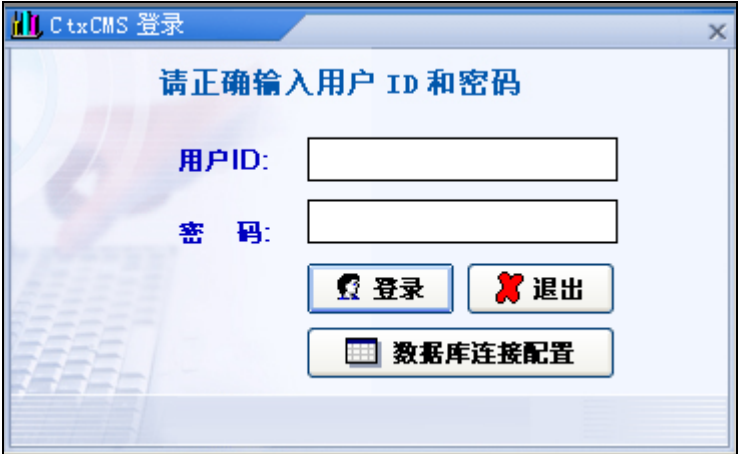

6.2.5. Recording Channel configuration

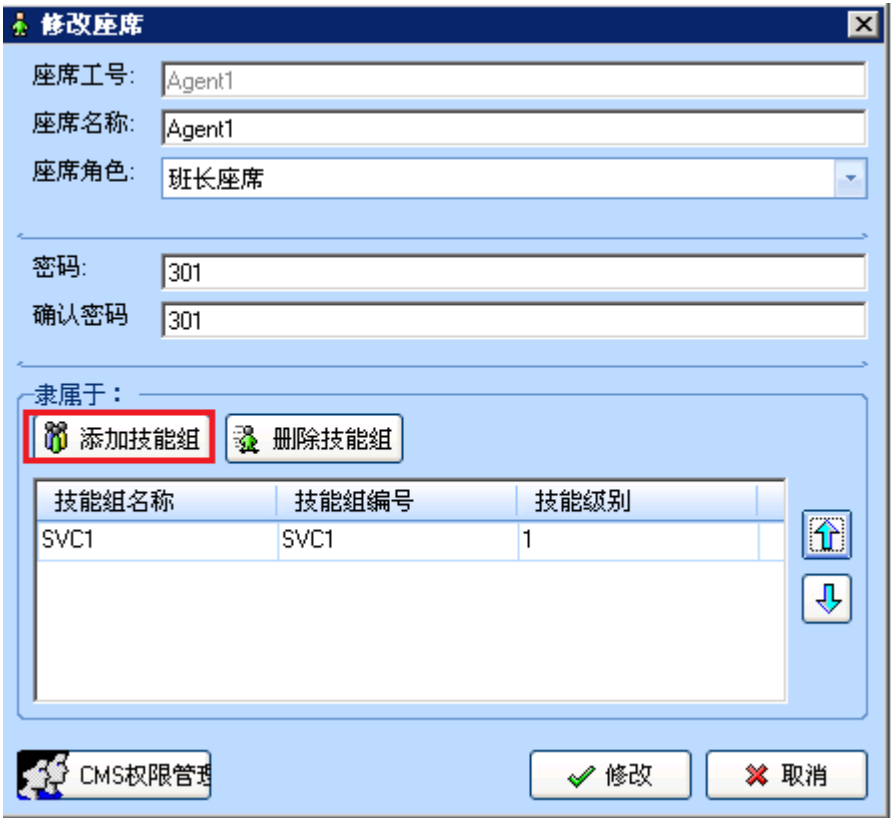
Step	Description
1.	<p>On the left panel, expand the built-in soft model configuration. Click on the recording port configuration. The diagram below shows the Recording User 411 configured corresponding to the IP Office configuration.</p> 

6.2.6. Restart IVR and CTI service

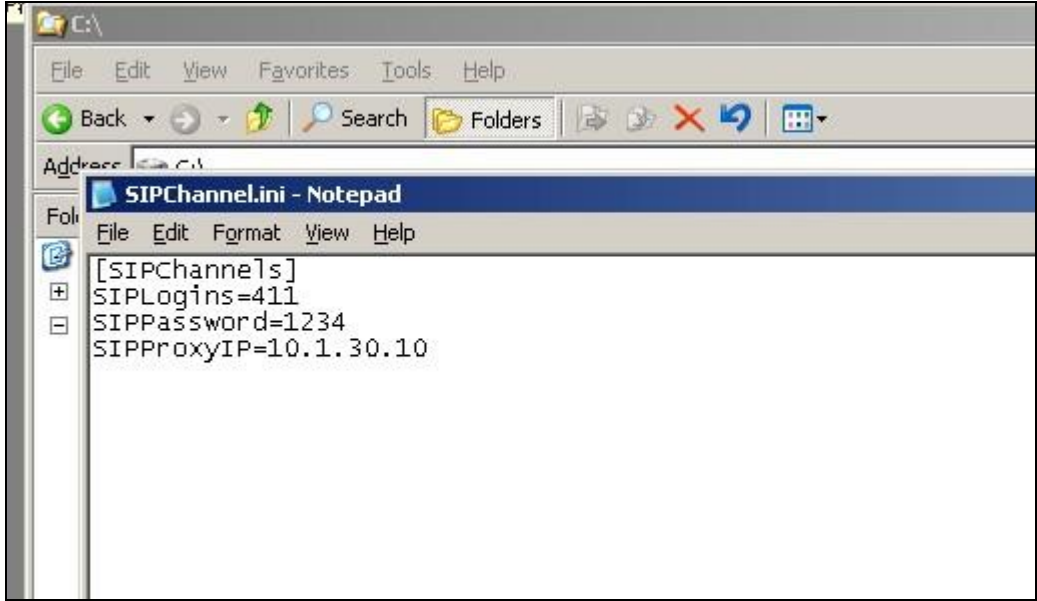
Step	Description
1.	<p>Log into the iCALL Server with administrative privileges. Click Start → All Programs → CTI → AAManager. Log in with the appropriate credentials and click Enter as below.</p> 
2.	<p>After the configuration in the components of CTI and IVR, the services has to be restarted. Ensure that the automatic restart is ticked for IVR and CTI service. Restart these services by clicking the STOP button. These services will automatically be stopped and restarted.</p> 

6.2.7. Agent configuration

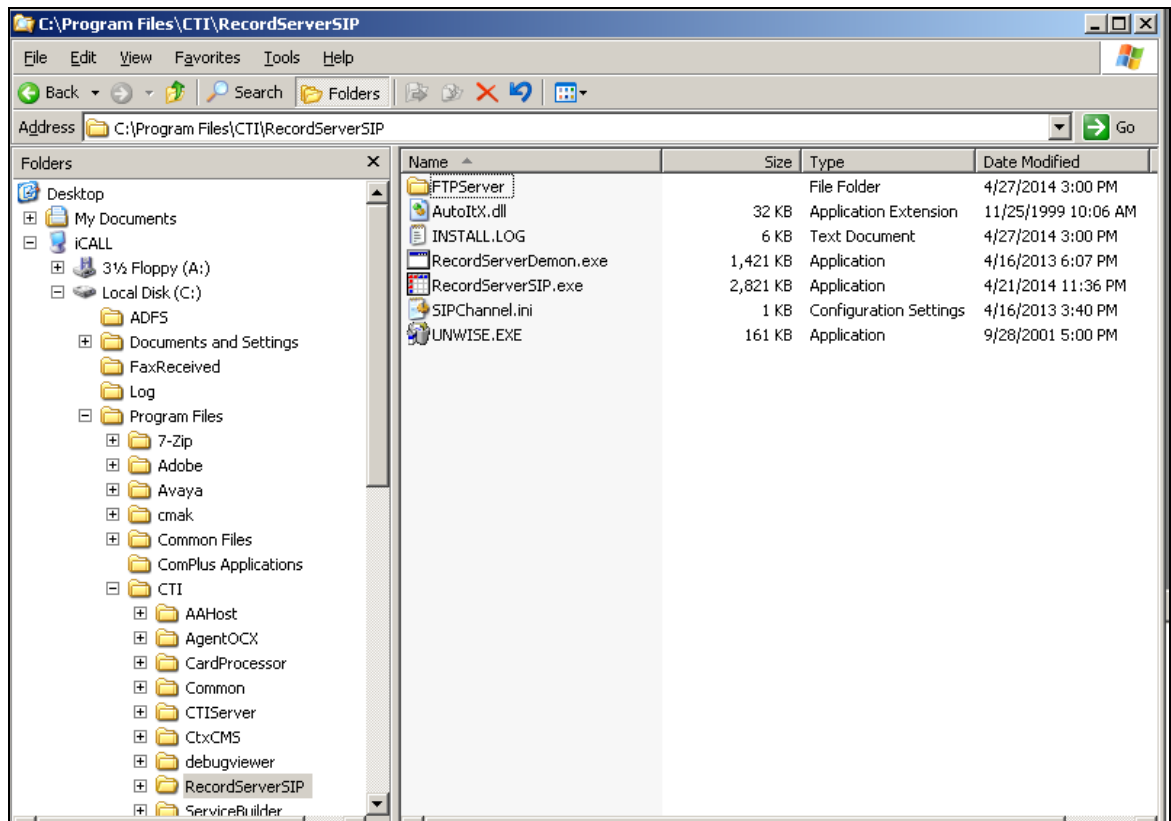
Step	Description
1.	<p>Select Start → All Programs → CTI → CtxCMS → CtxCMS for login into Call Management System (CMS). Log in with the appropriate credentials and click Enter as below.</p> 
2.	<p>Click Add Seats to add agents.</p> 

Step	Description
3.	<p>Enter the following information:</p> <ul style="list-style-type: none"> • User ID: Agent1 • User Name: Agent1 • User function: Supervisor • Password: 301 • Confirm Password: 301 <p>Assuming Skills are already setup, click on Add Skills (not shown) below to enter the appropriate skills for the agent.</p> 

6.2.8. Recording System configuration

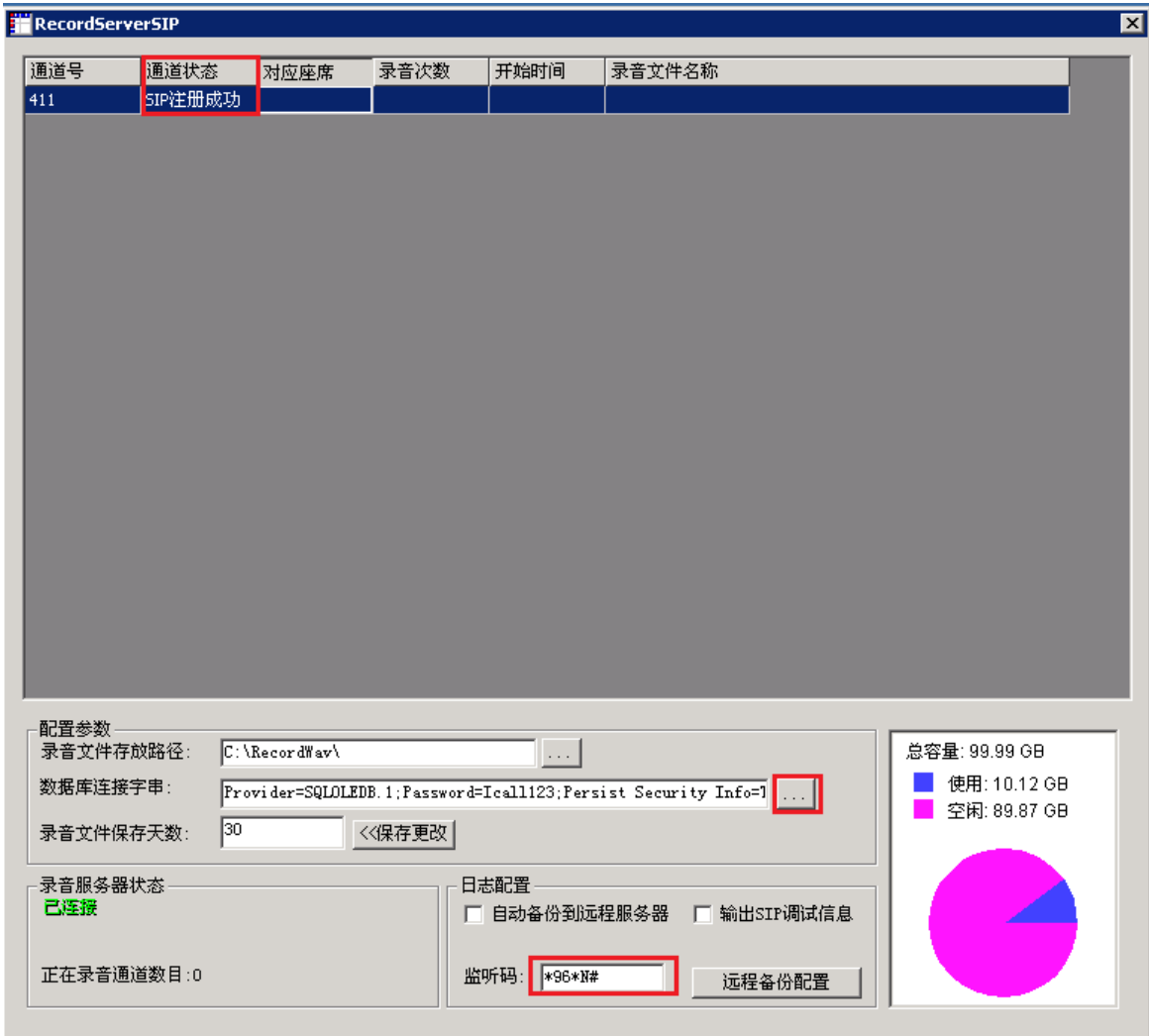
Step	Description
1.	<p>Locate the SIPChannel.ini file in the C drive root. Edit the parameters for the Recording SIP Users Login and Password configured on IP Office as below.</p> 

Step	Description
2.	Locate and run the RecordServerSIP.exe from the directory C:\Program Files\CTI\ .

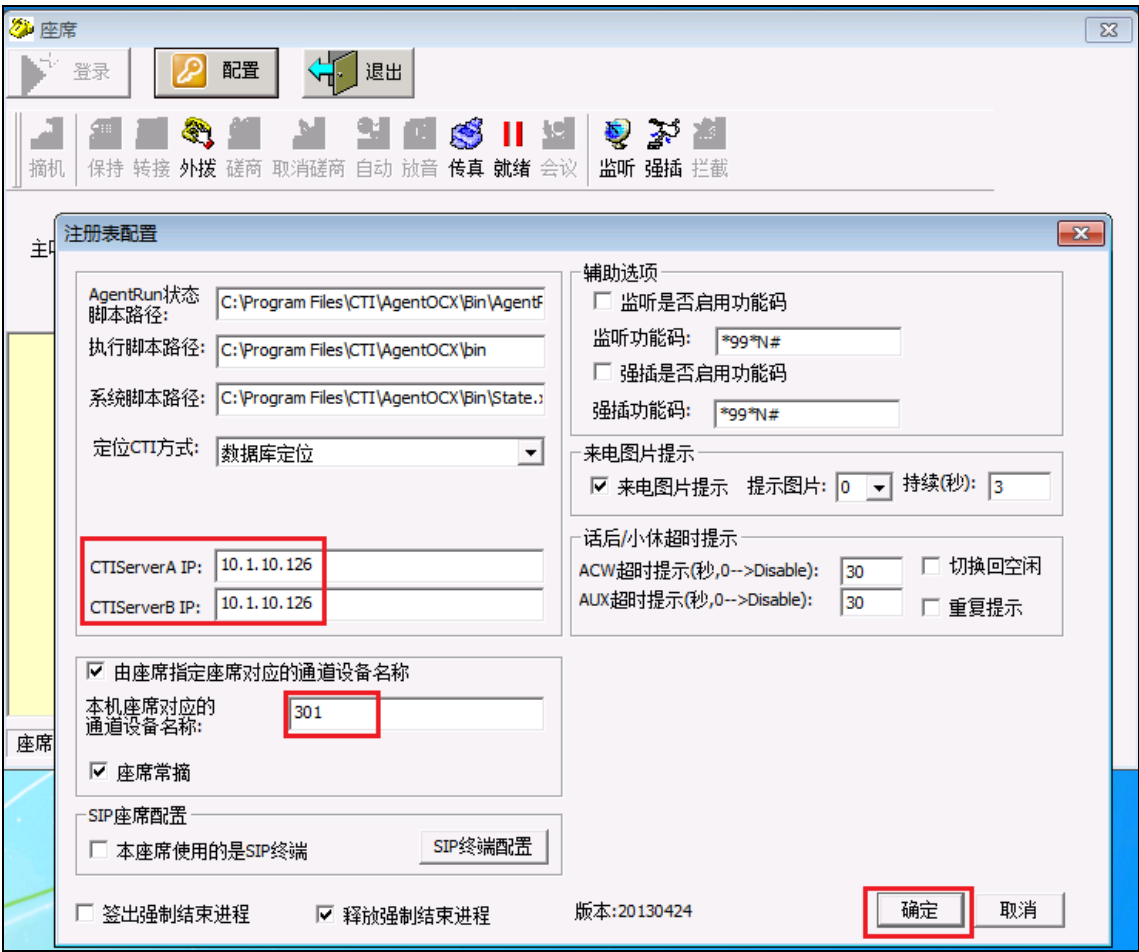


The screenshot shows a Windows Explorer window titled "C:\Program Files\CTI\RecordServerSIP". The address bar shows the path "C:\Program Files\CTI\RecordServerSIP". The left-hand pane shows the "Folders" view with "RecordServerSIP" selected under "Program Files". The right-hand pane shows a list of files and folders:

Name	Size	Type	Date Modified
FTPServer		File Folder	4/27/2014 3:00 PM
AutoItX.dll	32 KB	Application Extension	11/25/1999 10:06 AM
INSTALL.LOG	6 KB	Text Document	4/27/2014 3:00 PM
RecordServerDemon.exe	1,421 KB	Application	4/16/2013 6:07 PM
RecordServerSIP.exe	2,821 KB	Application	4/21/2014 11:36 PM
SIPChannel.ini	1 KB	Configuration Settings	4/16/2013 3:40 PM
UNWISE.EXE	161 KB	Application	9/28/2001 5:00 PM

Step	Description
3.	<p>Verify that the SIP User 411 is registered under the Status column. Ensure that Call Listen Short Code *96*N# is configured as in Section 5.3. Click the “analysis data” symbol below and complete the database connection information the same as in Section 6.2.1 Step 2 and Step 3.</p> 

6.3. Configure Agent OCX on the PCs

Step	Description
1.	<p>Log into the PC running Agent OCX with administrative privileges. Click Start → All Programs → CTI → AgentOCX → Project1 to configure Agent OCX. Enter the IP address of the iCALL Server for CTIServerA IP and CTIServerB IP and the Station number for the Agent as 301. Click Confirm to apply configuration. Repeat this for the other agents. The available Station numbers are 305 (IP), 331 (Analog) and 339 (Digital).</p> 

7. Verification Steps

The following steps may be used to verify the configuration.

- Verify the CTI Link Pro license is enabled on Avaya IP Office (see **Section 5.1**).
- Log in and make the agent available. Place an incoming call to the inbound queue. Verify that the agent's phone rings and the agent is able to answer the call with Agent OCX softphone.
- Verify also the call is recorded for inbound call.
- Log in with the agent in AUX mode. Verify that an outbound call is placed.
- Verify also the call is recorded for outbound call.
- Using the CMS, verify that Call Records were captured after call completion.



呼叫建立时间	主叫号码	IVR持续时间	ACD+应答速度	坐席服务时间	客户通话时间	客户通话时间(分)	服务座席	被叫号码
5/6/2014 10:12:34 AM	68731267	00:00:50	00:00:04	00:00:02	00:00:45	-0.75	AGENT1	400
5/6/2014 10:26:06 AM	68731267	00:00:27	00:00:27	00:00:09	00:00:15	-0.25	AGENT3	400
5/6/2014 10:58:58 AM	68731267	00:00:49	00:00:39	00:00:12	00:00:02	-0.03	AGENT3	400
5/6/2014 11:01:24 AM	68731233	00:00:50	00:00:32	00:00:17	00:00:04	-0.07	AGENT1	400
5/6/2014 11:03:31 AM	68731233	00:00:49	00:00:31	00:00:37	00:00:16	0.27	AGENT3	400
5/6/2014 11:04:59 AM	68731267	00:00:51	00:00:31	00:00:13	00:00:10	-0.17	AGENT2	400
5/6/2014 2:03:25 PM	68731233	00:00:60	00:00:09	00:00:29	00:00:26	-0.43	AGENT1	400
5/6/2014 2:04:21 PM	68731233	00:00:61	00:00:05	00:00:16	00:00:43	-0.72	AGENT1	400
5/6/2014 2:05:20 PM	68731267	00:00:61	00:00:06	00:01:23	00:00:25	0.42	AGENT1	400
5/6/2014 3:57:38 PM	68731267	00:00:64	00:00:06	00:03:04	00:02:03	2.05	AGENT1	400
5/6/2014 3:59:57 PM	68731233	00:00:66	00:00:05	00:02:07	00:01:03	1.05	AGENT1	400
5/6/2014 4:02:17 PM	68731233	00:00:66	00:00:05	00:01:56	00:00:52	0.87	AGENT2	400
5/6/2014 4:03:39 PM	68731267	00:00:66	00:00:04	00:01:49	00:00:45	0.75	AGENT1	400
5/6/2014 4:05:43 PM	68731267	00:00:60	00:00:11	00:00:30	00:00:27	-0.45	AGENT1	400
5/6/2014 4:06:58 PM	68731233	00:00:66	00:00:05	00:01:37	00:00:33	0.55	AGENT1	400
5/6/2014 4:08:51 PM	68731233	00:00:66	00:00:05	00:00:54	00:00:10	-0.17	AGENT1	400
5/6/2014 4:23:59 PM	68731267	00:00:64	00:00:06	00:00:52	00:00:11	-0.18	AGENT3	400
5/6/2014 4:25:22 PM	68731267	00:00:65	00:00:07	00:00:37	00:00:25	-0.42	AGENT3	400
5/6/2014 4:26:51 PM	68731233	00:00:66	00:00:09	00:01:14	00:00:14	0.23	AGENT2	400
5/6/2014 4:28:32 PM	68731233	00:00:65	00:00:05	00:01:04	00:00:00	0.00	AGENT2	400
5/6/2014 4:30:02 PM	68731267	00:00:66	00:00:06	00:00:32	00:00:31	-0.52	AGENT1	400
5/6/2014 4:31:07 PM	68731267	00:00:66	00:00:05	00:00:24	00:00:40	-0.67	AGENT1	400
5/6/2014 4:41:30 PM	68731233	00:00:65	00:00:07	00:00:35	00:00:27	-0.45	AGENT1	400
5/6/2014 4:42:21 PM	68731233	00:00:66	00:00:04	00:00:30	00:00:35	-0.58	AGENT1	400
5/6/2014 4:43:15 PM	68731267	00:00:66	00:00:04	00:00:21	00:00:44	-0.73	AGENT3	400
5/6/2014 4:44:04 PM	68731267	00:00:66	00:00:05	00:00:27	00:00:37	-0.62	AGENT3	400
合计		-01:27:38	00:03:07	00:22:21	-01:02:10	-1.17分钟		
平均时间	满足条件28条	-01:01:57	00:00:07	00:00:48	-01:01:02	0分钟		

8. Conclusion

These Application Notes describe the compliance-tested configuration used to validate Avaya IP Office 9.0 with iCALL Solution. All test cases were completed successfully with a note indicated in **Section 2.2** test results.

9. Additional References

The following documents are available at <http://support.avaya.com>.

[1] *Avaya IP Office Knowledgebase CD*, Release 9.0, Build: 01, 24th Sept 2013

Documents available from NSE Telecom can be obtained upon request.

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