



Avaya Solution & Interoperability Test Lab

Application Notes for configuring Scantalk TeamView® Unified Operator with Avaya IP Office Server Edition and IP Office 500 V2 Expansion R9.1 - Issue 1.0

Abstract

These Application Notes describe the configuration steps for configuring Scantalk TeamView® Unified Operator with Avaya IP Office Server Edition R9.1. Scantalk TeamView® Unified Operator integrates with Avaya IP Office using the TAPI interface.

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 configuring Scantalk TeamView® Unified Operator with Avaya IP Office Server Edition and IP Office 500 V2 Expansion R9.1. Scantalk TeamView® Unified Operator integrates with Avaya IP Office using the Telephony Application Programming Interface on IP Office.

TeamView® Unified Operator as part of the TeamView® application suite is a dedicated application for employees in the company's reception/switchboard function, where it is used to manage all communications. The application provides the user with a complete organizational overview, advanced search functions, together with the current status of colleagues' availability. Finally, it takes care of relevant telephone functions and integrated information services so that customers see the organization as service-oriented, efficient and professional.

The many features can be categorized within the following 3 sub-processes:

- Identify an employee by means of comprehensive advanced search function with phonetic search, free text search and partial search in many flavours.
- Observe the employee's availability with information such as status for fixed and mobile phone, PC status (login/out and screensaver), physical presence (from in/out system), calendar appointments and cause of absence.
- Serve the caller in this context, including directly or announced transfer to landline or mobile phone, call waiting on busy station, call on hold, or transfer call to vacant department colleague (all dept. colleagues can readily be observed when an employee is identified, including their current phone status). Alternatively, send message to staff via e-mail or SMS, or paste text message on employees for the information of colleagues (not tested).

TeamView® Unified Operator is usually installed on a client PC which is part of the same domain as the TeamView® server. The client PC will also have installed an Avaya IP Office Telephony Application Programming Interface configured in Single User mode.

2. General Test Approach and Test Results

This section describes the compliance testing used to verify interoperability of Scantalk TeamView® Unified Operator (Unified Operator) with IP Office and covers the general test approach and the test results. The general test approach was to configure the Unified Operator to communicate with IP Office as implemented on a typical customer's premises.

IP Office Telephony Application Programming Interface (TAPI) is used to control an Avaya deskphone (used as the switchboard). A Hunt Group is configured on IP Office which contains the extension of the deskphone to be used as the switchboard and a Short Code for Call Queue is configured to allow Unified Operator display the queue information.

Unified Operator uses Microsoft SQL Server via a direct connection or ODBC. TeamView® AD LookUp acquires user information from Microsoft Active Directory; TeamView® Calendar LookUp acquires calendar information from Microsoft Exchange/Notes and puts both into the Microsoft SQL Server. Unified Operator is usually installed on a client PC which is part of a domain. The Unified Operator is configured to connect to the TeamView® Status Server to get phone status information of all contacts in the database. Because the Avaya IP Office was a Server Edition with a 500 V2 expansion there were two TeamView® servers installed, one connecting to the Server Edition and the other connecting to the 500 V2 cabinet, with both connections using 3rd party TAPI connections.

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 testing evaluates the ability of Unified Operator to control Avaya endpoints on IP Office using the TAPI interface. The testing included typical functions including:

- Answer internal/external calls.
- Make calls using TeamView® AD LookUp.
- Transfers, Blind/Supervised.
- Transfers to External/Mobile numbers.
- Calls to busy numbers.
- Hold/Unhold.
- Set/Cancel Call Forwards.

2.2 Test Results

Tests were performed to insure full interoperability between Unified Operator and IP Office. The tests were all functional in nature and performance testing was not included. All the test cases passed successfully with the following issue noted.

1. The issue was observed when using the keyboard to complete a Blind Transfer to external contacts. When the * key is pressed to complete the transfer, an error message is displayed saying, "We are not able to complete your request. Please make the call active and try again". However once the * key is pressed again it works on all occasions. This issue is fixed in version 1.4.16.470.

2.3 Support

Technical support from Scantalk can be obtained through the following:

Web: www.scantalk.com

Phone: Sales: +45 48 10 49 10 or Support: +45 48 10 49 11

E-mail: Sales@scantalk.com or Support@scantalk.com

3. Reference Configuration

Figure 1 illustrates the network topology used during compliance testing. Unified Operator was configured to connect to either IP Office Server Edition or the IP Office 500 V2 expansion using Avaya IP Office TAPI configured in Single User mode. Two hunt groups were configured on the IP Office to route calls to the switchboard but more importantly to give information on the calls being presented using the “Call Queue” short code. An Avaya 1140 SIP phone was used on the Server Edition and an Avaya 9630 H323 phone was used on the 500 V2 as the switchboard phone. Two TeamView® servers were added to the network in order to get status information on the users on both the IP Office Server Edition and the 500 V2 using 3rd party TAPI connection.

Note: On a typical customer site Unified Operator is installed on a client PC, which would be added to the same domain as the TeamView® Server. The Avaya IP Office TAPI driver, configured in Single User mode must also be installed on the same PC.

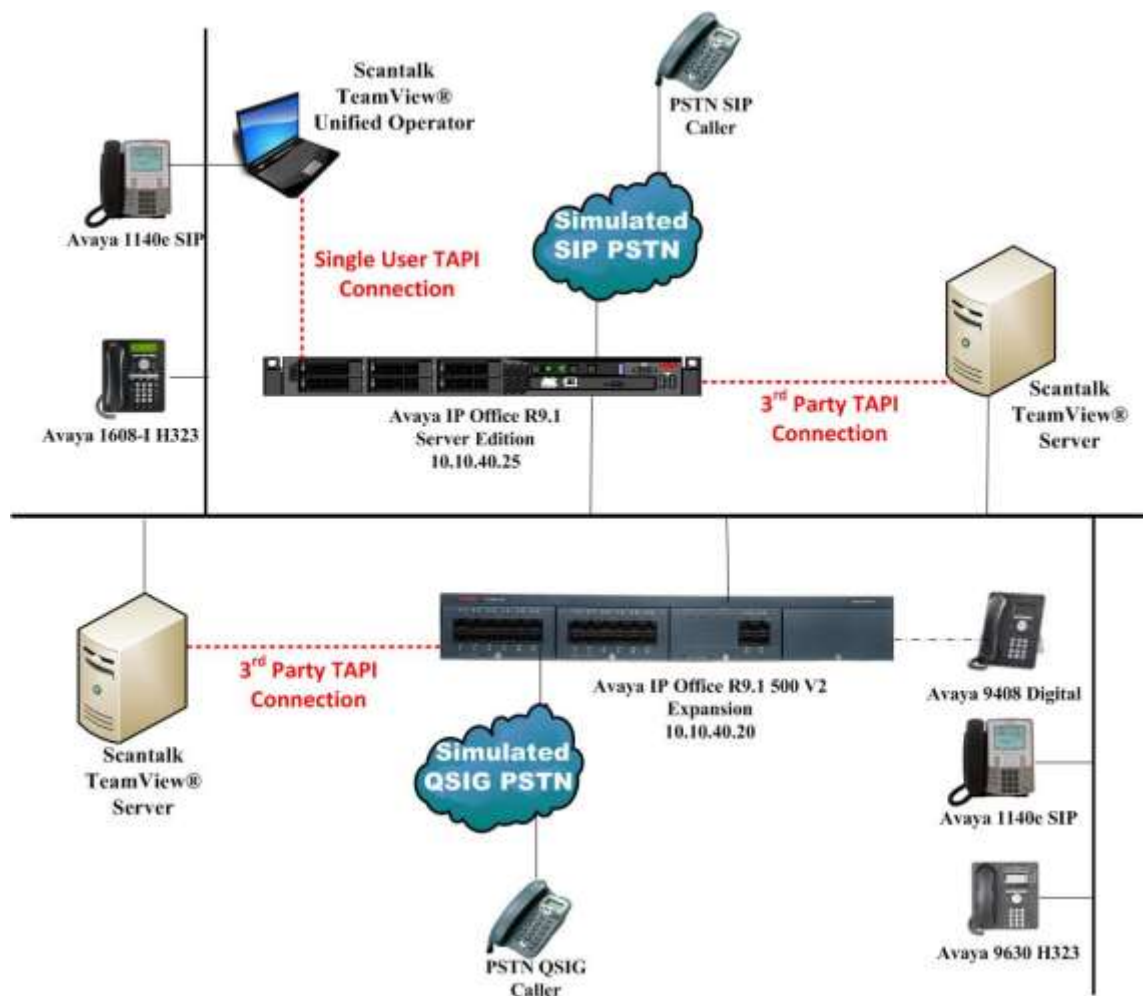


Figure 1: Scantalk TeamView® Unified Operator with Avaya IP Office Server Edition and IP Office 500 V2.

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Server Edition running on a Virtual Platform	R9.1.4.0 Build 137
Avaya IP Office 500 V2	R9.1.4.0 Build 137
Avaya IP Office Manager running on a Windows 7 PC	R9.1.4.0 Build 137
Avaya 1608-I H323 Deskphone	1608UA1_350B.bin
Avaya 9630 H323 Deskphone	R6.4014U
Avaya 1140e SIP Deskphone	R04.03.12.00
Avaya 9408 Digital Deskphone	V2.0
Scantalk TeamView® Unified Operator running on a Windows 2008 R2 server	
TeamView® Unified Operator	1.4.16.466
TeamView® AD LookUp	3.1.5.166
TeamView® Calendar LookUp (optional)	3.3.0.199
TeamView® Status Server	1.0.10.41
Microsoft SQL Express	2008
Microsoft .Net Framework	3.5 SP1
Microsoft Windows Installer	4.5
Microsoft PowerShell	1.0

Note: Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

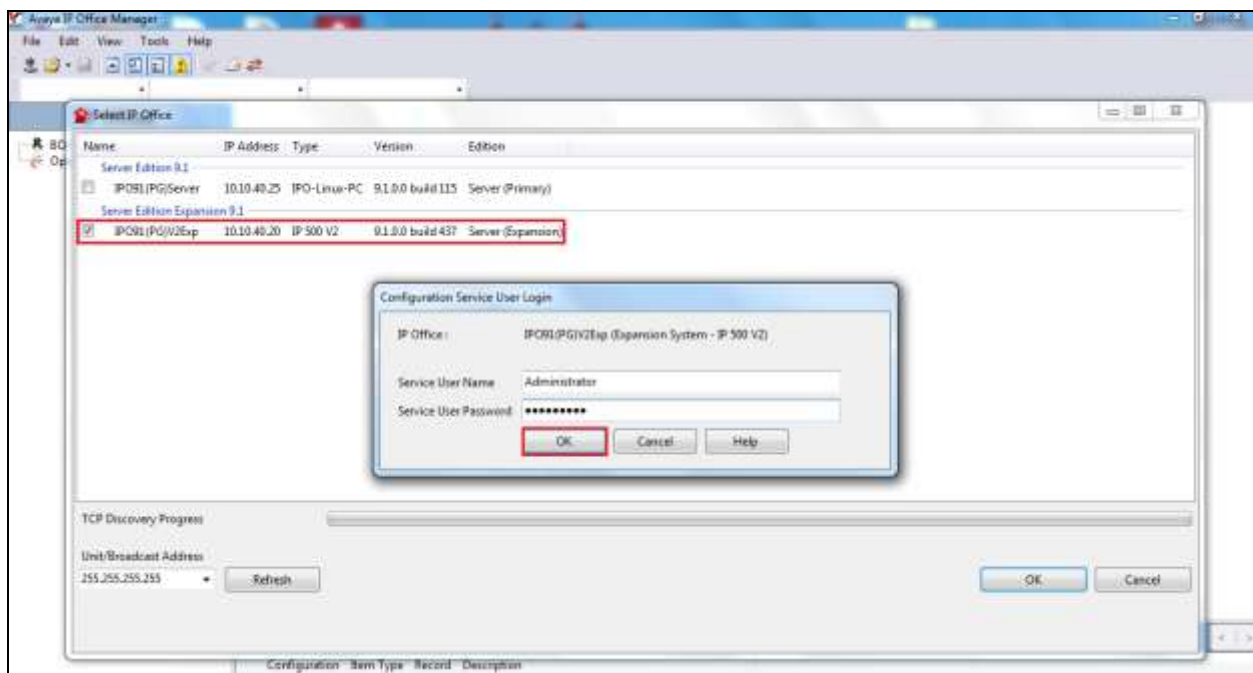
5. Configuration of Avaya IP Office

Configuration and verification operations on the 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 IP Office for this solution. It is implied that a working system is already in place with a PRI fully configured. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration operations described in this section can be summarized as follows:

- Launch Avaya IP Office Manager.
- Check for CTI Pro Licenses.
- Create Hunt Groups.
- Add Short Code.
- Save Configuration.

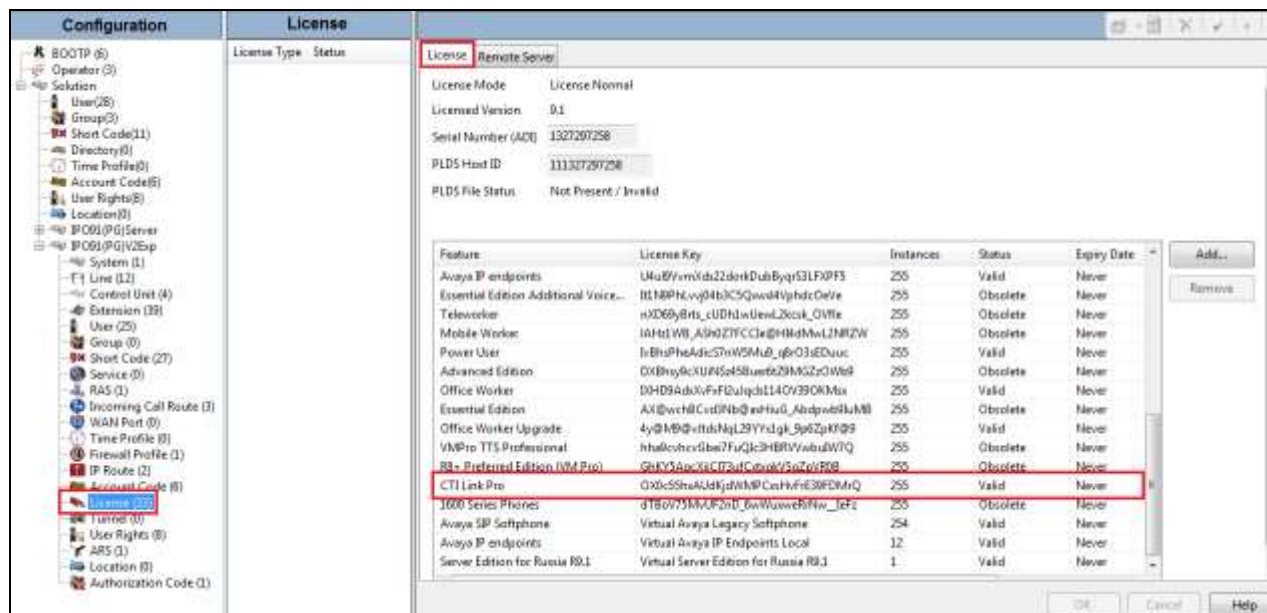
5.1 Launch Avaya IP Office Manager

From the Avaya IP Office Manager PC, go to **Start → Programs → IP Office → Manager** to launch the Manager application (not shown). Tick the required server to log in to, this will be the IP Office 500 V2, then log in using the appropriate credentials to receive the configuration.



5.2 Check for CTI Pro Licenses

Click on **License** in the left window and ensure that the **License** tab is selected in the main window. All the licenses should be displayed as shown below.



A closer look at this **CTI Link Pro** license shows that there are 255 CTI Link Pro Licenses available and so in theory **255** simultaneous call recordings could be achieved.

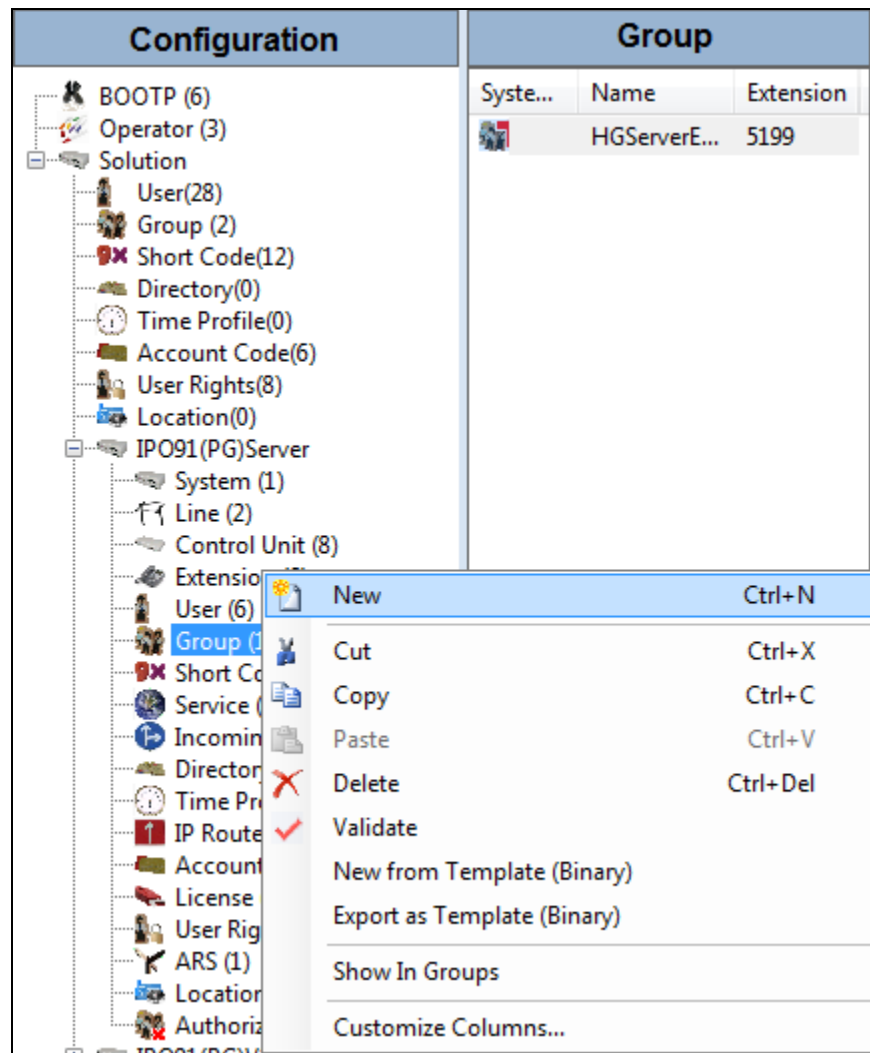
Feature	License Key	Instances	Status	Expiry Date
Avaya IP endpoints	U4u9VvmXds22dorkDubByqrS3LFXPF5	255	Valid	Never
Essential Edition Additional Voice...	It1N9PhLvjj04b3C5Qxw4VphdcOeVe	255	Obsolete	Never
Teleworker	nXD69yBrts_cUDh1wUewL2kcsk_OVfle	255	Obsolete	Never
Mobile Worker	IAH21WB_ASh0Z7FCCle@H4dMwL2NRZW	255	Obsolete	Never
Power User	IvBhsPheAdicS7nW5Mu9_q8rO3sEDuuc	255	Valid	Never
Advanced Edition	DXBhsy9cXUINsZ45Buer6tZ9MGZzOWb9	255	Obsolete	Never
Office Worker	IXHD9AdxXvFxFI2uJqcb114OV39OKMsx	255	Valid	Never
Essential Edition	AX@wchBCvd3Nb@axHiuG_Abdpwb9IuMB	255	Obsolete	Never
Office Worker Upgrade	4y@M9@vJtdsNqL29YYx1gk_9p6ZpKf@9	255	Valid	Never
VMPro TTS Professional	hha9cvhcvGbei7FuQIc3HBRVvwbUW7Q	255	Obsolete	Never
R8+ Preferred Edition (VM Pro)	GhKY5AacXiiC73ufCxtxakVSqZpVR0B	255	Obsolete	Never
CTI Link Pro	OX0c55hxAUdKjdWMP CxsHvFrE39FDMrQ	255	Valid	Never
1600 Series Phones	dTB0V75MvUF2nD_6wWuxweRrNw_IeFz	255	Obsolete	Never
Avaya SIP Softphone	Virtual Avaya Legacy Softphone	254	Valid	Never
Avaya IP endpoints	Virtual Avaya IP Endpoints Local	12	Valid	Never
Server Edition for Russia R9.1	Virtual Server Edition for Russia R9.1	1	Valid	Never

5.3 Create Hunt Groups on Avaya IP Office

A hunt group is created with a single user added so that calls can be queued to the single user. Because compliance testing included both the Server Edition and the 500 V2, two hunt groups were created each containing a single user that was to be associated with the Unified Operator as the “Switchboard phone set”.

5.3.1 Create a Hunt Group on the IP Office Server Edition

Expand the IP Office Server Edition system and right click on **Group** and select **New** as shown below.



Within the Group tab enter the following information:

- **Name** Enter an informative name (i.e., **HGServerEdition**).
- **Extension** Enter the extension which will be dialed to reach the switchboard Operator. (i.e., **5199**).
- **Ring Mode** Select **Sequential** from the dropdown box.

Scroll down the page. Click on the **Edit** button (not shown).

Group

Collective Group HGServerEdition: 5199

Group Queuing Overflow Fallback Voicemail Voice Recording Announcements SIP

Name HGServerEdition

Extension 5199

Ring Mode Sequential

Hold Music Source No Change

Ring Tone Override None

Agent's Status on No-Answer Applies To None

Central System IPO91(PG)Server

Profile Standard Hunt Group

Ex Directory

No Answer Time (secs) 6

Advertise Group

User List

Extension	Name	System
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OK Cancel Help

The following window appears allowing the addition of any IP Office extension into the group, for compliance testing extension **5101** was added. Click on **OK** to continue.

Sequential | Hunt Group | 5199 HGServerEdition - Select Members

Filters

Edtn Name Edtn Number PBX Name PBX Address

Available Users (28/28)

Name	Edtn	PBX Name	PBX Address
3535250	3535250	IPO91(PG)V2Exp	10.10.40.20
5100	5100	IPO91(PG)Server	10.10.40.25
5101	5101	IPO91(PG)Server	10.10.40.25
5102	5102	IPO91(PG)Server	10.10.40.25
5150	5150	IPO91(PG)Server	10.10.40.25
5151	5151	IPO91(PG)Server	10.10.40.25
5201	5201	IPO91(PG)V2Exp	10.10.40.20
5202	5202	IPO91(PG)V2Exp	10.10.40.20
5220	5220	IPO91(PG)V2Exp	10.10.40.20
5221	5221	IPO91(PG)V2Exp	10.10.40.20
5222	5222	IPO91(PG)V2Exp	10.10.40.20
5250	5250	IPO91(PG)V2Exp	10.10.40.20
5251	5251	IPO91(PG)V2Exp	10.10.40.20
5252	5252	IPO91(PG)V2Exp	10.10.40.20
5255550	5255550	IPO91(PG)V2Exp	10.10.40.20
5280	5280	IPO91(PG)V2Exp	10.10.40.20
5281	5281	IPO91(PG)V2Exp	10.10.40.20
5282	5282	IPO91(PG)V2Exp	10.10.40.20
5283	5283	IPO91(PG)V2Exp	10.10.40.20
5284	5284	IPO91(PG)V2Exp	10.10.40.20
5285	5285	IPO91(PG)V2Exp	10.10.40.20

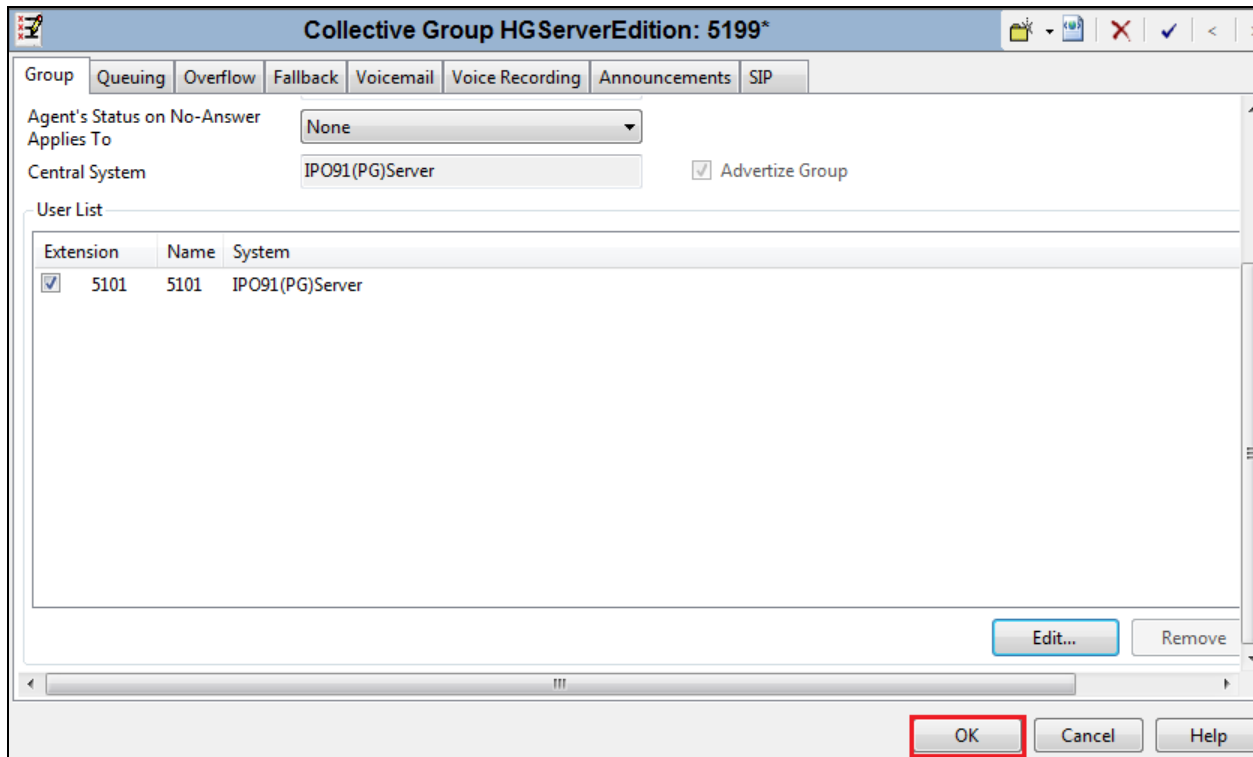
Members (1/1)

Order	Enabled	Name	Edtn	PBX Name	PBX Address
1	<input checked="" type="checkbox"/>	5101	5101	IPO91(PG)Server	10.10.40.25

Add Below Add After Append Remove

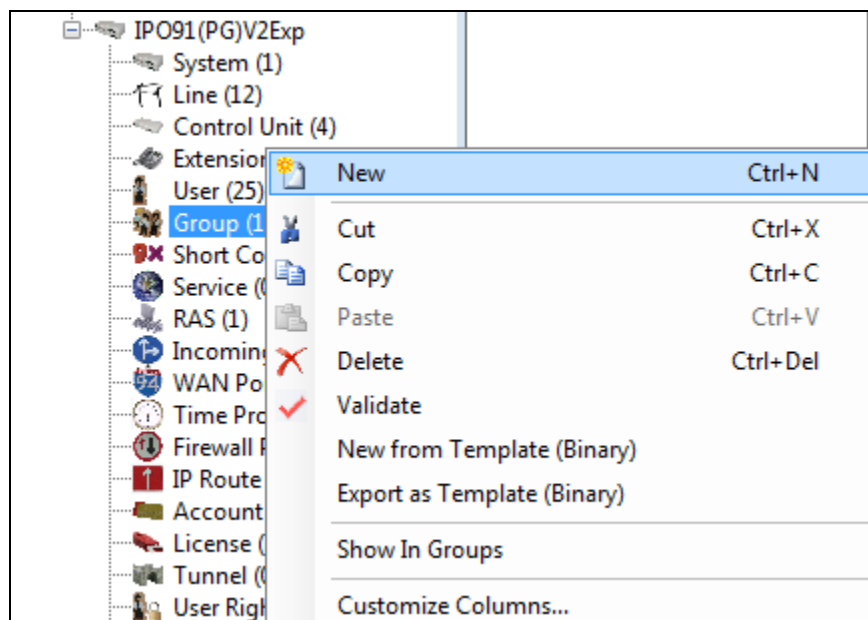
OK Cancel Help

Click on **OK** again to save the new hunt group.



5.3.2 Create a Hunt Group on the Avaya IP Office 500 V2 Expansion

The same procedure is used to create a hunt group on the IP Office 500 V2. Expand the IP Office 500 V2 system and right click on **Group** as shown below. Select **New**.



Within the Group tab enter the following information:

- **Name** Enter an informative name (i.e., **HG500V2**).
- **Extension** Enter the extension which will be dialled to reach the switchboard Operator. (i.e., **5299**).
- **Ring Mode** Select **Sequential** from the dropdown box.

Scroll down the page. Click on the **Edit** button (not shown).

Sequential Group HG500V2: 5299

Group | Queuing | Overflow | Fallback | Voicemail | Voice Recording | Announcements | SIP

Name: HG500V2
Extension: 5299
Ring Mode: Sequential
Hold Music Source: No Change
Ring Tone Override: None
Agent's Status on No-Answer Applies To: None

Profile: Standard Hunt Group
☐ Ex Directory
No Answer Time (secs): System Default (11)
☒ Advertise Group

User List

Extension	Name
<input checked="" type="checkbox"/> 5250	5250

OK Cancel Help

On this occasion extension **5250** is associated with hunt group 5299.

Sequential | Hunt Group | 5299 HG500V2 - Select Members

Filters
Extn Name Extn Number

Available Users (28/28)

Name	Extn
3535250	3535250
5100	5100
5101	5101
5102	5102
5150	5150
5151	5151
5201	5201
5202	5202
5220	5220
5221	5221
5222	5222
5250	5250
5251	5251
5252	5252
5255550	5255550
5280	5280
5281	5281
5282	5282
5283	5283
5284	5284
5285	5285

Members (1/1)

Order	Enabled	Name	Extn
1	<input checked="" type="checkbox"/>	5250	5250

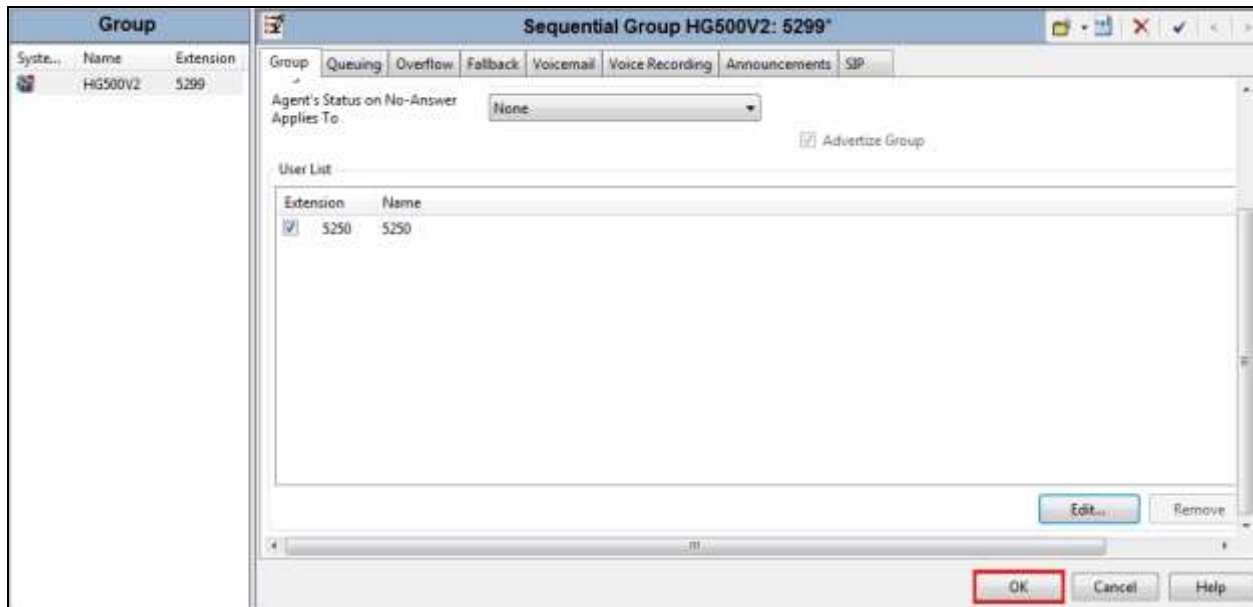
↑

Add Before
Add After
Append
Remove

↓

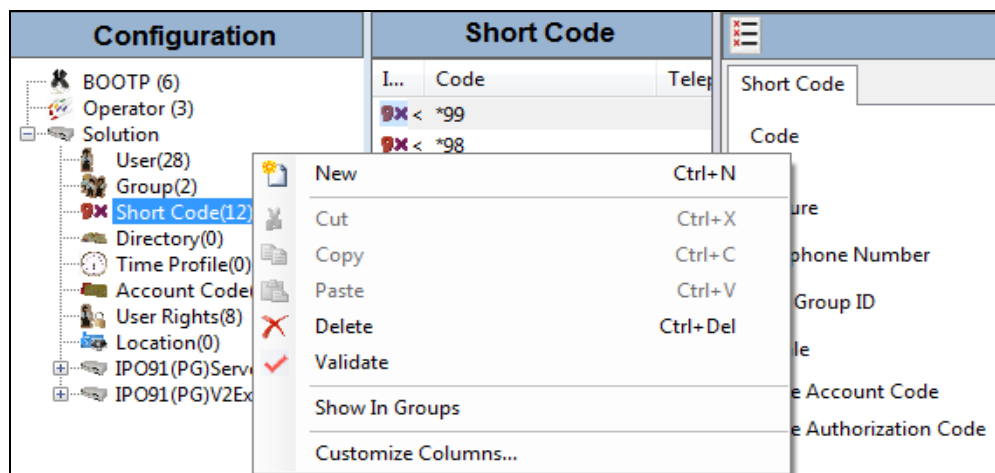
OK Cancel Help

With this hunt group created click on **OK** to submit these changes.



5.4 Add Short Code for Call Queue

A short code needs to be created in order for Unified Operator to use the “Call Queue” function in order to show the waiting time while queueing on the switchboard. In the Manager window, go to the Configuration Tree, right-click **Short Code** and select **New**.



Enter the following:

- **Code** Enter ***33*N#**
- **Feature** Select **Call Queue** from the dropdown box
- **Telephone Number** Enter **N**
- **Line Group ID** Enter **0**

Click **OK** button.

Note: The Code ***33*N#** is used as the **Camp on** short code in **Section 6.2.2** (system tab).

The screenshot shows a software window titled "Short Code" with a subtitle "*33*N#: Call Queue". On the left is a list of short codes with their corresponding telephone numbers and line group IDs. The right side contains a form for configuring the selected short code. The "Code" field is set to "*33*N#" with a red warning message below it: "* This Short Code is common to all systems." The "Feature" dropdown is set to "Call Queue". The "Telephone Number" field is set to "N" and the "Line Group ID" dropdown is set to "0". There are checkboxes for "Force Account Code" and "Force Authorization Code", both of which are currently unchecked. At the bottom right, there are three buttons: "OK" (highlighted with a red box), "Cancel", and "Help".

Code	Telephone Number	Line Group ID
*99		
*98		
*62		
*50		
*59*N#	N	
*58N	N	
*56		
*38*N#	N	
*37*N#	N	
*33*N#	N	
*22		
*21		

Short Code: *33*N#

Code: *33*N#
* This Short Code is common to all systems.

Feature: Call Queue

Telephone Number: N

Line Group ID: 0

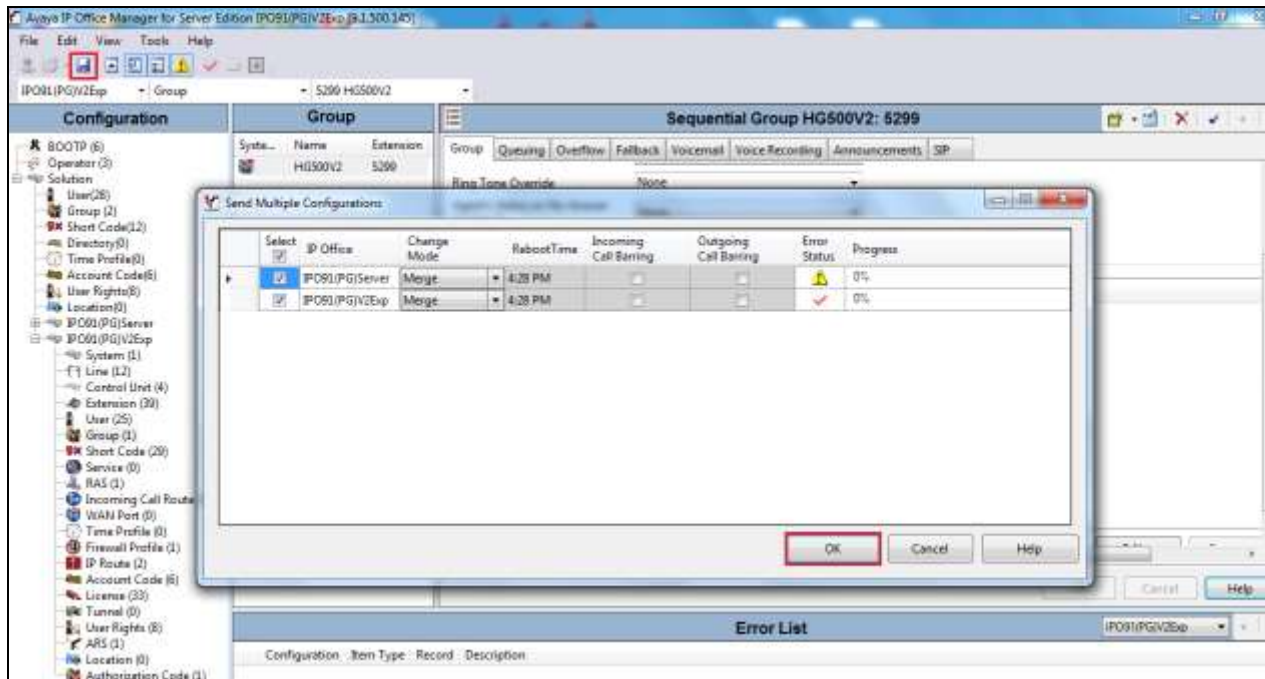
Force Account Code: ☐

Force Authorization Code: ☐

OK Cancel Help

5.5 Save Configuration

Click on the **Save** icon at the top left of the screen and this will save the configurations to both the IP Office Server Edition and the IP Office 500 V2. Click on **OK** at the bottom of the screen to complete this.



6. Configure Scantalk TeamView® Unified Operator

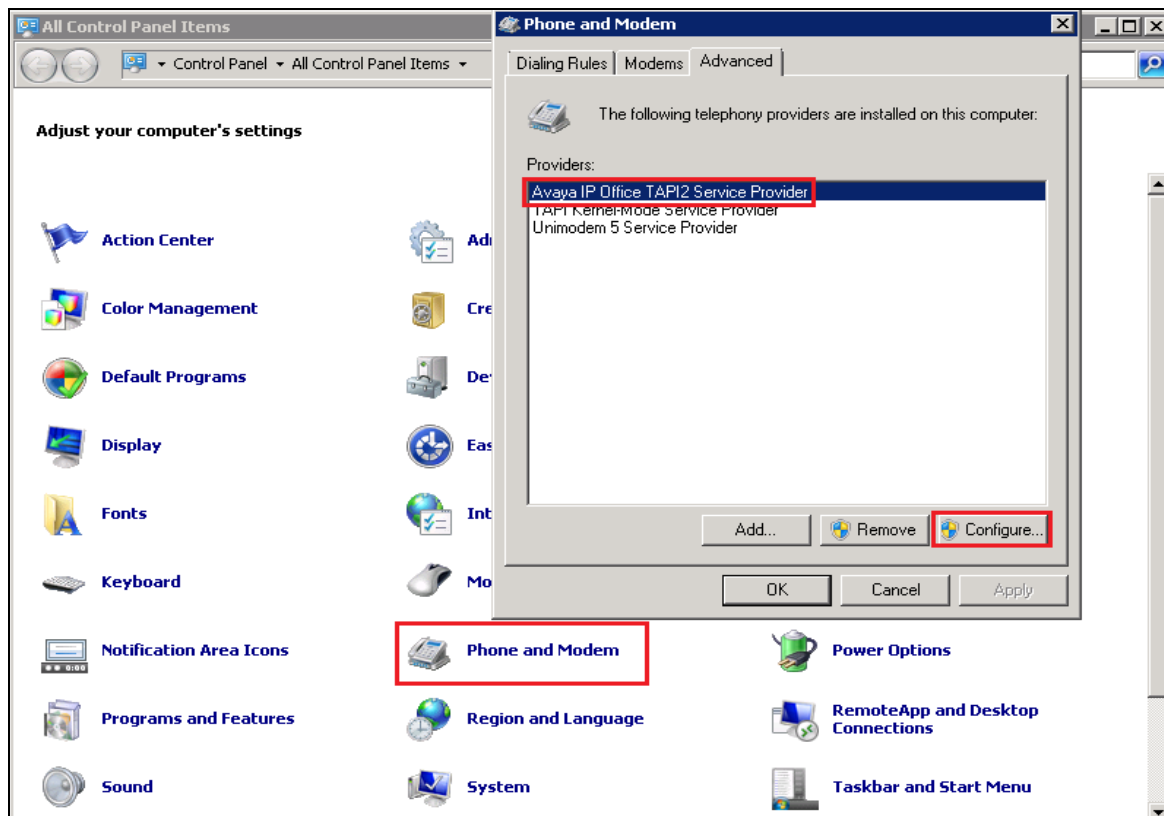
This section describes the steps performed to configure the Unified Operator. It is implied that the Unified Operator software is already installed. It is also implied that the TeamView® AD LookUp application and prerequisite software is installed and configured. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. These configurations can be summarised as follows:

Note: For compliance testing two TeamView® servers were installed each one connecting to the IP Office Server Edition and the IP Office 500 V2 using 3rd party TAPI. Unified Operator was installed on a client PC which connected to either the IP Office Server Edition or the IP Office 500 V2 using Single User TAPI.

6.1 Configure TeamView® Server

The configuration of TeamView® server involves the configuration of the Avaya TAPI driver installed on that server in order to connect to the Avaya IP Office in question.

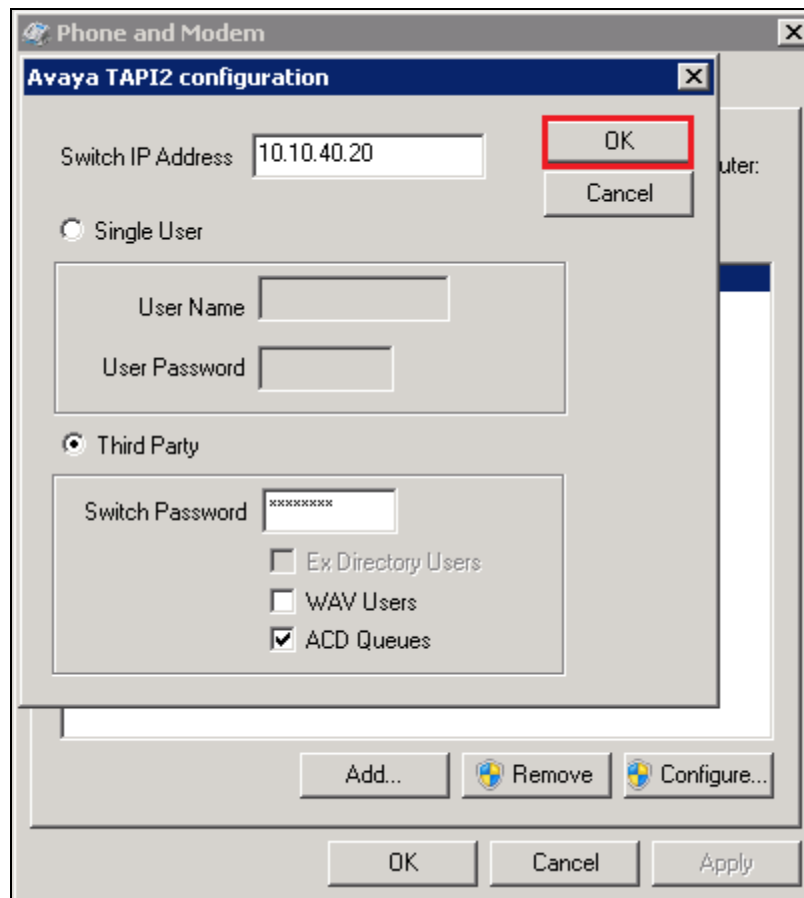
Click on **Start → Control Panel → Phone and Modem**. Select the **Advanced** tab and click on **Configure**.



Once the **Avaya TAPI2 configuration** window opens, enter the following:

- **Switch IP address** Enter the IP address of the IP Office.
- **Third Party** Click on the **Third Party** radio button.
- **Switch Password** Enter the password of the IP Office.
- **ACD Queues** Tick the ACD Queue button.

Click the **OK** button.



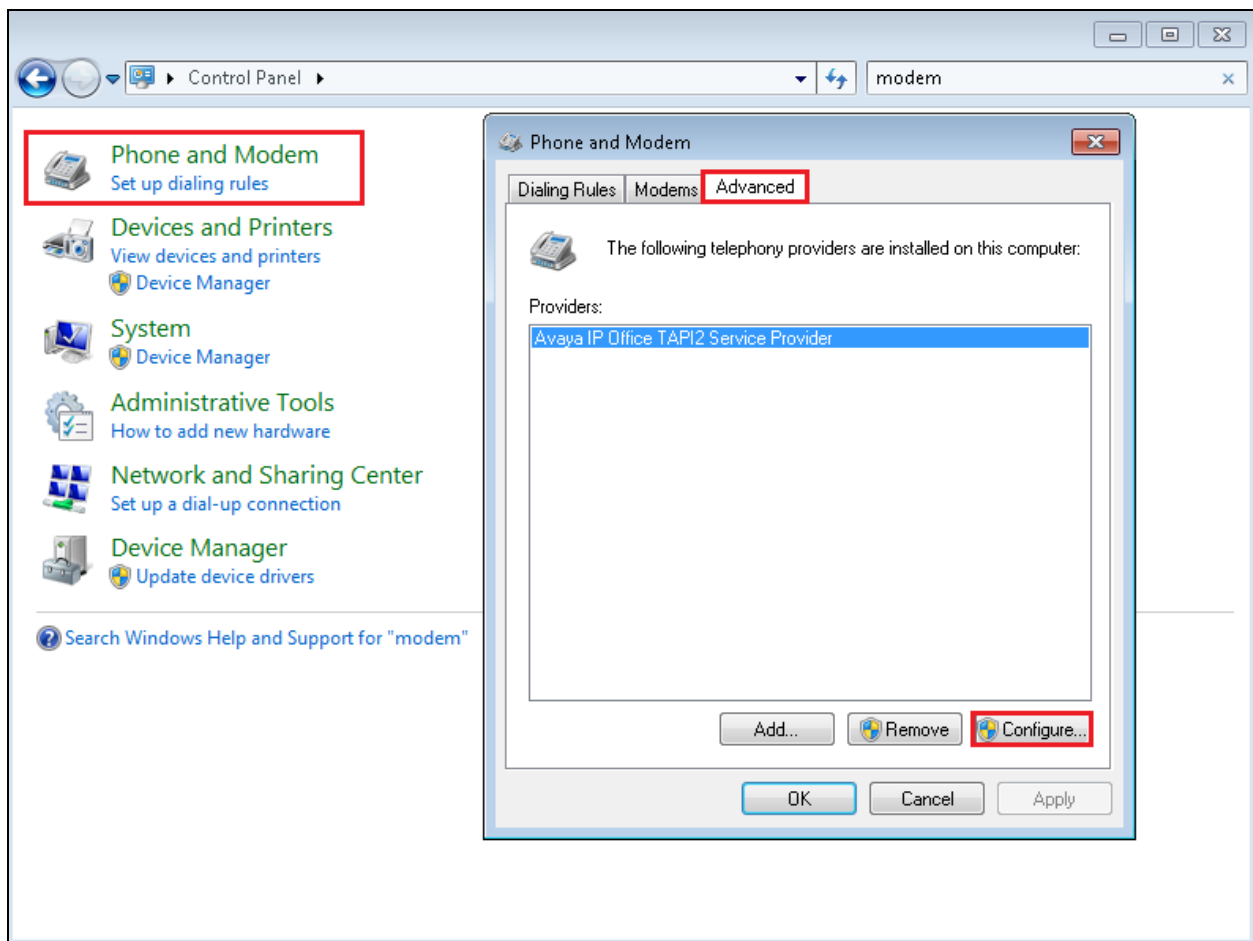
Note: The second TeamView® server was set up in the same way to connect to the other IP Office.

6.2 Configure TeamView® Unified Operator

The configuration of the Unified Operator involves the configuration of the TAPI driver as well as some configuration of the Unified Operator application.

6.2.1 Configure the TAPI driver

The TAPI driver must also be installed on the client PC. TAPI must be configured in Single User mode. Click on **Start** → **Control Panel** → **Phone and Modem**. Select the **Advanced** tab and click on **Configure**.



Once the **Avaya TAPI2 configuration** window opens, enter the following:

- **Switch IP address** Enter the IP address of the IP Office.
- **Single User** Click on the **Single User** radio button.
- **User Name** Enter the user number of the phone to be used as the Switchboard, in the example below this is **5101**.
- **User Password** Enter the password of the phone user that is to be used as the switchboard.

Phone and Modem

Avaya TAPI2 configuration

Switch IP Address: 10.10.40.20

☒ Single User

User Name: 5101

User Password: xxxxxx

☐ Third Party

Switch Password:

☐ Ex Directory Users

☐ WAV Users

☐ ACD Queues

OK

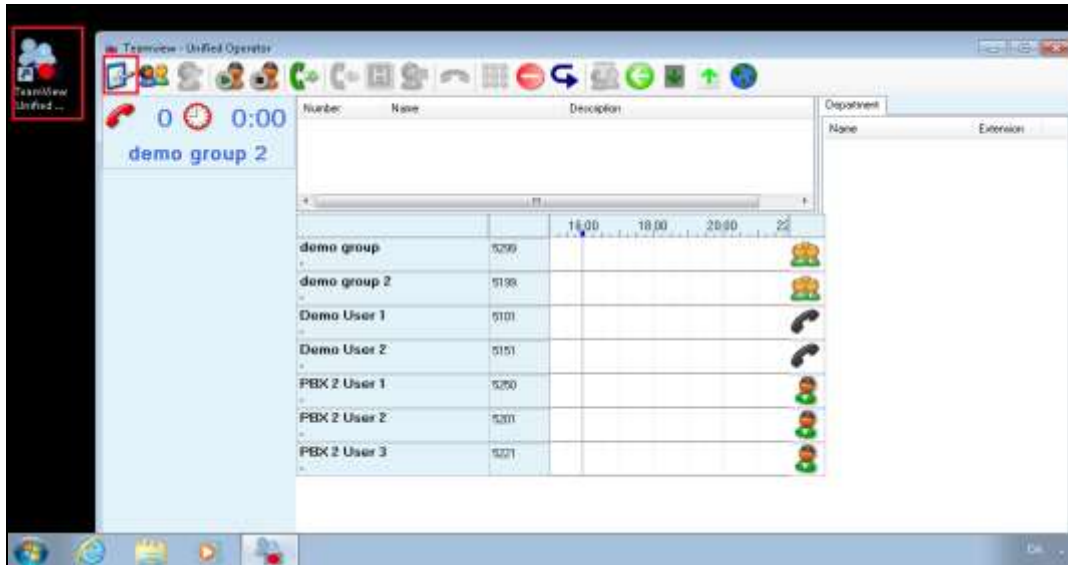
Cancel

Add... Remove Configure...

Close Cancel Apply

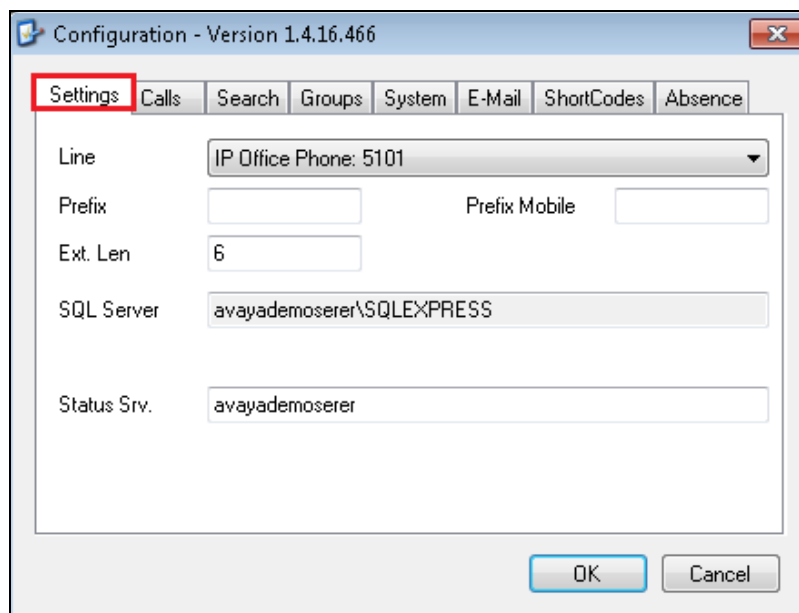
6.2.2 Configure the Unified Operator application

Open the Unified Operator application using the icon from the Desktop which appears after installation. Once the Unified Operator window opens click on the **Configuration** icon.



Once the **Configuration** window opens enter the following in the **Settings** tab:

- **Line** Select the IP Office phone which is going to act as the switchboard from the dropdown box.
- **Prefix** Enter the Prefix to dial to get an outside line.
- **SQL Server** Enter the Server name hosting the SQL Express followed \SQLEXPRESS.
- **Status Srv.** Enter the IP address of the TeamView® Status Server.



Click on the **Calls** tab and enter the following.

In the **on new call** frame,

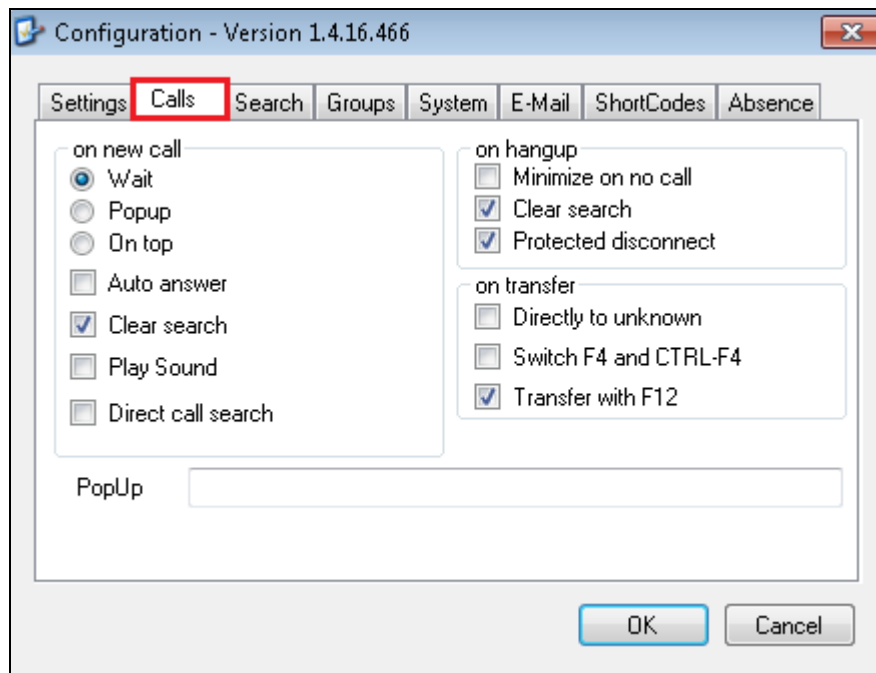
- Select the **Wait** radio button.
- Check the **Clear search** check box.

In the **on hangup** frame,

- Check the **Clear search** check box.
- Check the Protected disconnect check box.

In the **on transfer** frame,

- Check the **Transfer with F12** check box.



Click on the **Search** tab and enter the following as shown below. These are the settings that were put in place by the Scantalk engineer.

The screenshot shows the 'Configuration - Version 1.4.16.466' dialog box with the 'Search' tab selected. The 'Search' tab is highlighted with a red box. The 'Search' section contains a checkbox for 'Search Numbers Left -> Right' (unchecked), a 'Min. length' field set to '3', and a checkbox for 'Show picture' (unchecked). The right side of the dialog has several fields with radio button options: 'Name' (selected), 'Extension' (selected), 'Initials' (selected), 'Title' (selected), 'Department' (selected), and 'Skills' (selected). The 'OK' and 'Cancel' buttons are at the bottom right.

Click on the **Groups** tab and enter the following:

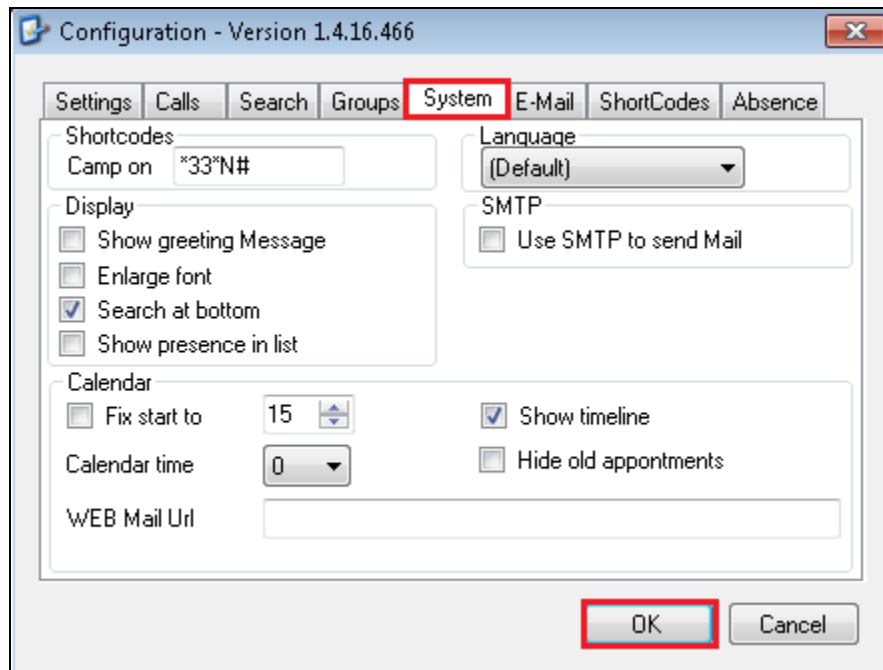
- Select **demo group 2** from the dropdown box. (This is a group configured by Scantalk to monitor the hunt group configured in **Section 5.3.1.**)
- Enter the **HuntGroup** number that was setup in **Section 5.3.1.**

The screenshot shows the 'Configuration - Version 1.4.16.466' dialog box with the 'Groups' tab selected. The 'Groups' tab is highlighted with a red box. The first dropdown menu is set to 'demo group 2' and is highlighted with a red box. Below it are four more dropdown menus, all set to '(Not Used)'. There is a checkbox for 'Alternative Queue Info' (unchecked). The 'HuntGroup' field is set to '5199' and is highlighted with a red box. The 'OK' and 'Cancel' buttons are at the bottom right.



Click on the **System** tab and enter the following.

- **Camp on** Enter ***33*N#** (this is the Short code for Call Queue as configured in **Section 5.4**).
- Check the **search at bottom** check box.

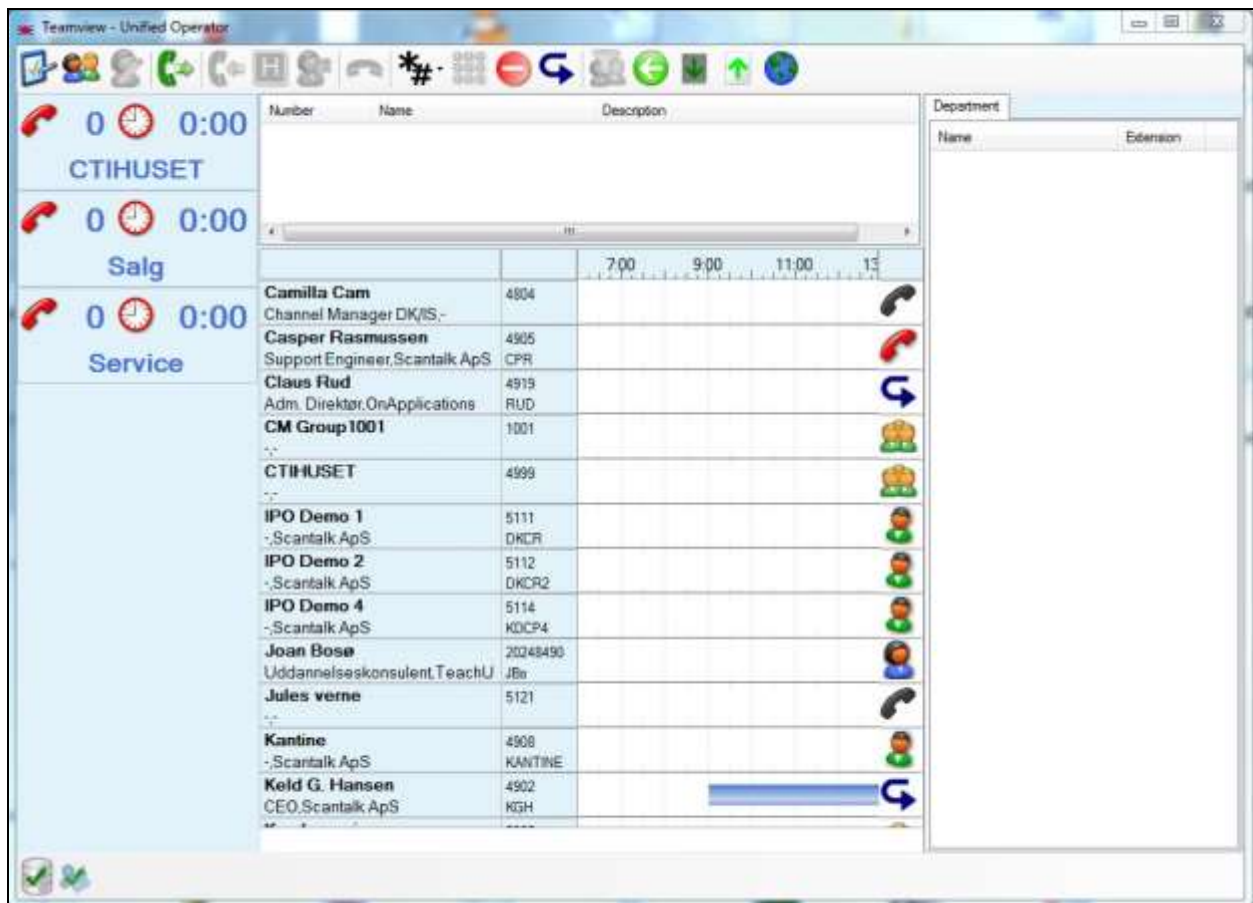
Click the **OK** button to save the configuration.



6.3 Start Unified Operator

To start Unified Operator click on the Unified Operator icon from the Desktop (not shown). Once the Unified Operator window opens, the following two icons   should appear on the bottom left corner to signify that the Unified Operator is connected to SQL server (first icon) and that the TAPI is functioning correctly.

Note: Below is an example of what a typical Unified Operator would look like on a typical customer site. This is not an example of Unified Operator used for compliance testing which can be found in **Section 7.1**.

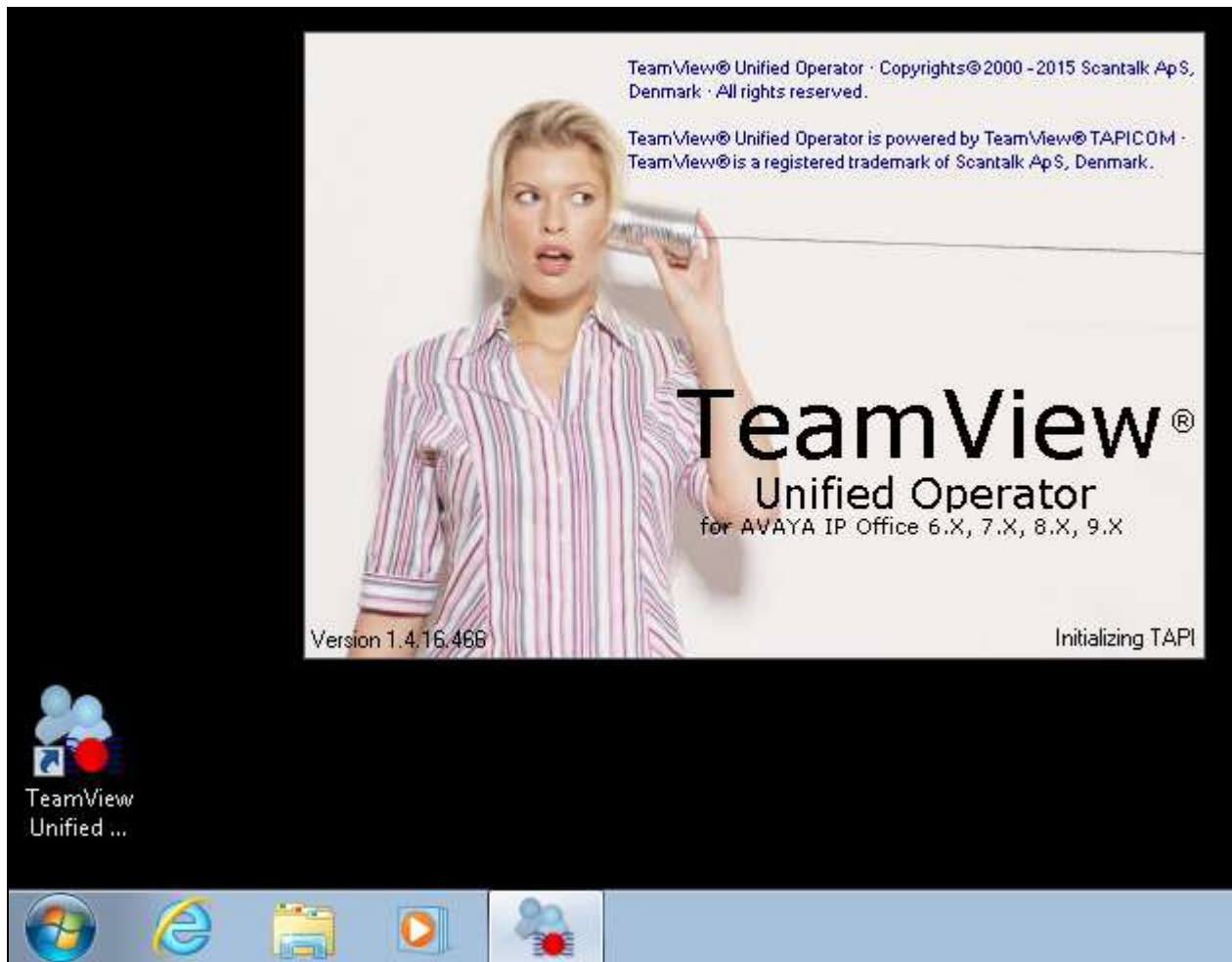


7. Verification Steps

This section illustrates the steps necessary to verify that the TeamView® Unified Operator is configured correctly to connect to IP Office.

7.1 Verify Scantalk TeamView® Unified Operator

From the PC that has Unified Operator installed open the application as shown below.

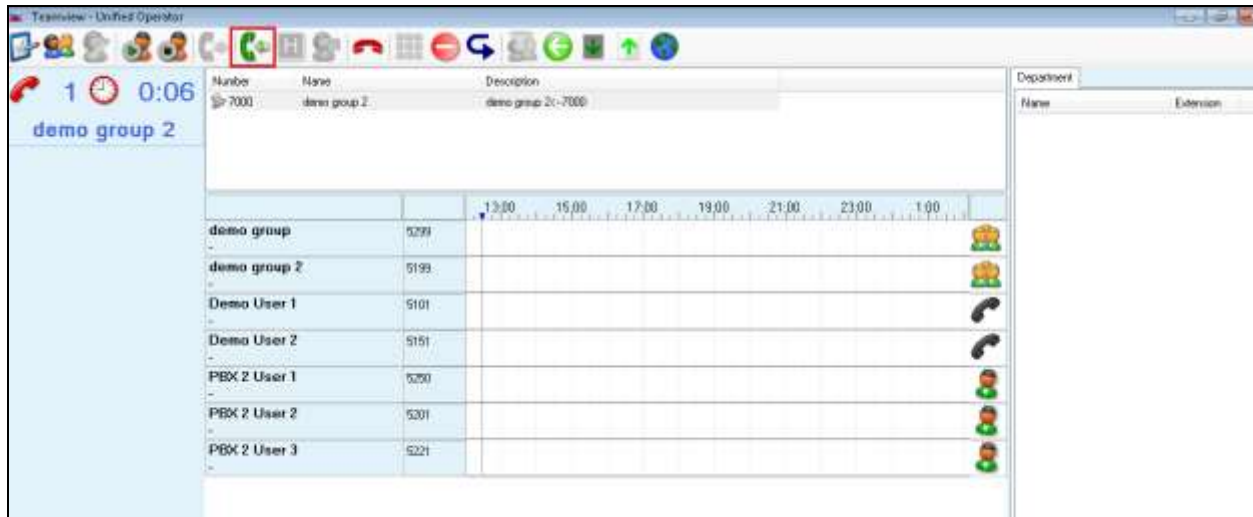


Teamview - Unified Operator

0 0:00
demo group 2

Number	Name	Description	Department
		13:00 15:00 17:00 19:00 21:00 23:00 1:00	
	demo group	5299	
	demo group 2	5199	
	Demo User 1	5101	
	Demo User 2	5151	
	PBX 2 User 1	5250	
	PBX 2 User 2	5201	
	PBX 2 User 3	5221	

Place a call to the hunt group number associated with the switchboard for Unified Operator. The following should appear showing a call being presented to the switchboard and the call is answered using the icon highlighted. Note the waiting time of six seconds on the group at the top left of the window.



Once the call is answered the group time reverts back to zero and the call can then be disconnected again using the icon shown.



8. Conclusion

These Application Notes describe the configuration steps for TeamView® Unified Operator from Scantalk to interoperate with Avaya IP Office Server Edition and Avaya IP Office 500 V2 Expansion R9.1. Unified Operator integrates with Avaya IP Office using the IP Office TAPI interface. All feature functionality test cases were completed successfully with any issues and observations noted in **Section 2.2**.

9. Additional References

This section references the Avaya and Scantalk 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 R9.1 Manager 10.1, Document Number 15-601011*

[2] *Avaya IP Office R9.1 Doc library*

Product Documentation for Scantalk can be obtained at:

Sales: http://www.scantalk.com/viewpage.php?page_id=7

Support: http://www.scantalk.com/downloads.php?cat_id=42

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