Avaya Solution & Interoperability Test Lab

Application Notes for configuring Formula Totalview Connector for Avaya IP Office™ with Avaya IP Office using Centralized CTI Web Services - Issue 1.0

Abstract

These Application Notes describe the configuration steps for configuring Formula Totalview Connector for Avaya IP Office™ 2019 with Avaya IP Office R11.0 using the Centralized CTI Web Services API to give presence information, call control, device control and call monitoring.

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.

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1. Introduction

These Application Notes describe the configuration steps for configuring Formula Totalview Connector for Avaya IP Office™ 2019 with Avaya IP Office R11.0. Formula Totalview Connector for Avaya IP Office™ (Totalview) integrates with Avaya IP Office using the Centralized CTI Web Services API to provide presence information, call control, device control and call monitoring.

Totalview can be categorized within the following 3 sub-processes:

- Identify an employee by means of comprehensive advanced search function.
- Observe the employee's availability with information such as status for fixed and mobile phone, 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.

The Avaya IP Office solution consists of a primary server and an IP500 V2 expansion. Both systems are linked by IP Office Line IP trunks that can enable voice networking across these trunks to form a multi-site network. Each system in the solution automatically learns each other's extension numbers and user names. This allows calls between servers and support for a range of internal call features. Totalview integrates with Avaya IP Office using the Centralized CTI Web Services API on the Server edition only, there is no connection to the IP500 V2 expansion.

Centralized CTI Web Services API was introduced on IP Office Server Edition R11.0 and provides, along with other services, presence services to the third party. With previous versions of IP Office, a TAPI connection to each IP Office node was required in order to provide 'Presence'. With the introduction of Centralized CTI Web Services API, a single third-party server is now the requirement which will provide presence for all IP Office nodes. Centralized CTI Web Services API has also been called "OpenAPI". Centralized CTI Web Services uses one-X® Portal, which is installed with IP Office Server edition by default and this must be configured along with some security settings on IP Office, (see **Section 5**).

2. General Test Approach and Test Results

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

Totalview is installed on a Windows 2016 server. Totalview switchboards are installed at the users and are used for call control, device control and call monitoring.

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Totalview integrates with Avaya IP Office using the Centralized CTI Web Services API to provide presence information, call control, device control and call monitoring.

- Call control is used, for example, to make/receive/transfer/forward calls.
- Device control is used to enable and disable Forwarding and Do Not Disturb on all sets.
- Call monitoring is used to follow the call in the system, for example, to see who is calling, who was called, when was the call answered, dropped, transferred etc.

Totalview also uses the "Management API" to do hunt group management, to view who is a member of a hunt group and to add and remove members from hunt groups.

Centralized CTI Web Services API is used to provide presence information to Totalview, with one server connecting to the IP Office Server Edition. Note that some configuration of Avaya one-X® Portal is required on the Server Edition which is covered in **Section 5.2**.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and Totalview did not include use of any specific encryption features as requested by Formula.

2.1 Interoperability Compliance Testing

The interoperability compliance testing evaluates the ability of Totalview to control Avaya endpoints on IP Office using the CTI Web Services API. The testing included typical functions including:

- Answer internal/external calls.
- Make calls using Totalview lookup.
- Calls to busy numbers.
- Hold/Unhold.
- Transfers (Blind/Supervised).
- Transfers to External/Mobile numbers.

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- Set/Cancel Call Forwards.
- Toggle DND
- Add/remove hunt group member
- Hunt Group member sign in/out
- Calls to Hunt Groups.
- Serviceability/simulated LAN failures

2.2 Test Results

Tests were performed to insure full interoperability between Totalview 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 observations noted.

1. When implementing a blind transfer to a 'busy' or an 'invalid' number using the Totalview switchboard GUI the call behaves differently if the switchboard is in control of a digital set or an IP set. The digital set will not transfer the caller to a busy or invalid number where the IP set will, and this call will return to the switchboard if the recall timer is configured on IP Office.
2. The 'Divert' feature on the Totalview switchboard does not work when the switchboard diverts calls to Avaya SIP phones. The Divert feature allows incoming calls get diverted to an IP Office user. If this user happens to be using a SIP phone, then the call fails to divert, although the call logs claim it has. Avaya are investigating the issue.

2.3 Support

Technical support from Formula can be obtained through the following:

Web: https://www.total-view.com
Phone: +298 344000
E-mail: support@total-view.com

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3. Reference Configuration

Figure 1 illustrates the network topology used during compliance testing. Totalview was configured to connect to IP Office Server Edition using the Centralized Web Services API. Calls were routed to an Avaya SIP and an Avaya H.323 phone on the IP Office Server Edition and a Digital phone on the IP500 V2 expansion. The Totalview switchboard used each of these Avaya phones during compliance testing to allow call control and device control. Centralized CTI Web Services API is used to provide presence information, call control, device control and call monitoring information to the Totalview Operator, with one Windows 2016 server connecting to the IP Office Server Edition.

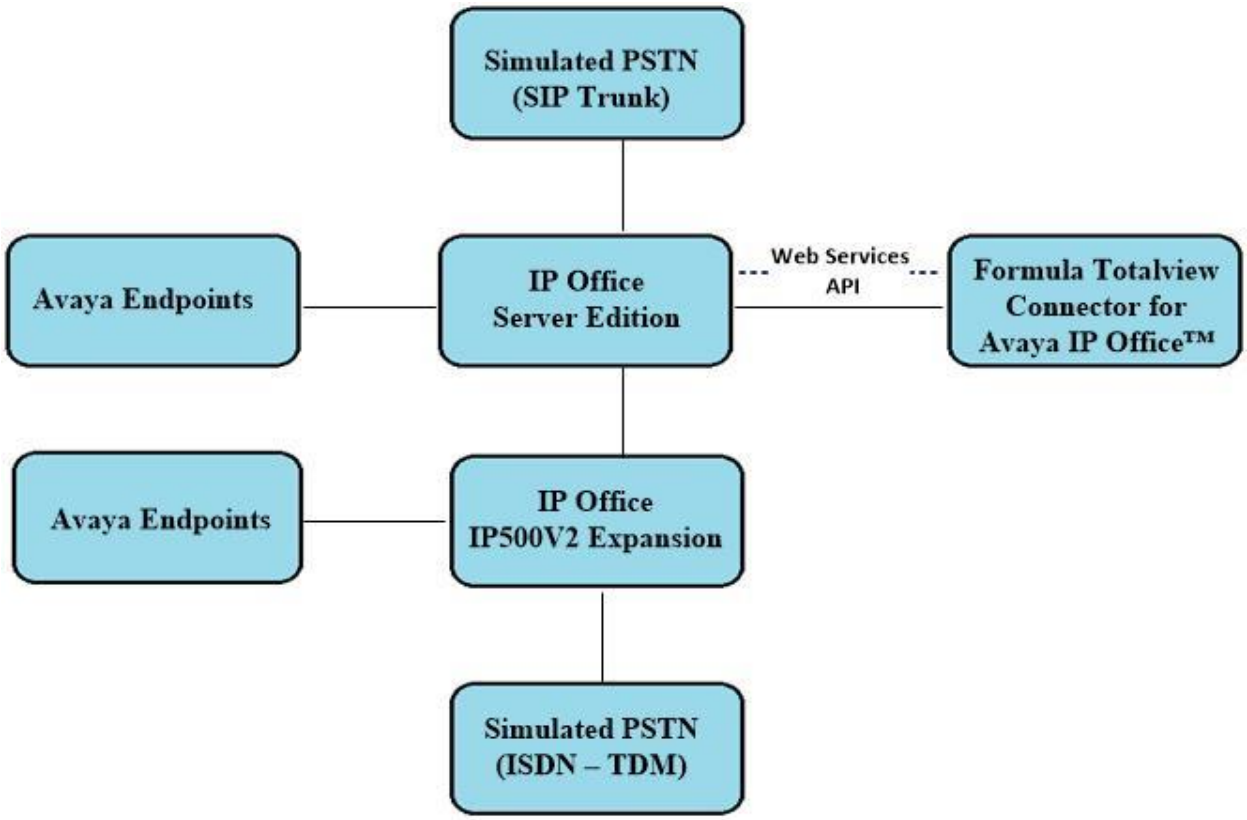

Figure 1: Formula Totalview Connector for Avaya IP Office™ with Avaya IP Office using Centralized Web Services API

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4. Equipment and Software Validated

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

Equipment/Software	Version/Release
Avaya IP Office Server Edition running on a virtual platform	R11.0.4.1.0 Build 11
Avaya IP Office IP500 V2	R11.0.4.1.0 Build 11
Avaya 1140e Deskphone (SIP)	R04.04.33.00
Avaya 96x1 Deskphone (H.323)	R6.6.115
Avaya 1608-I Deskphone (H.323)	R1.350B
Avaya 9508 Digital Deskphone	R60
Formula Totalview Connector for Avaya IP Office™ running on a Windows 2016 Server	2019.1.7.0

Note: Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office IP500 V2 and also when deployed with IP Office Server Edition in all configurations.

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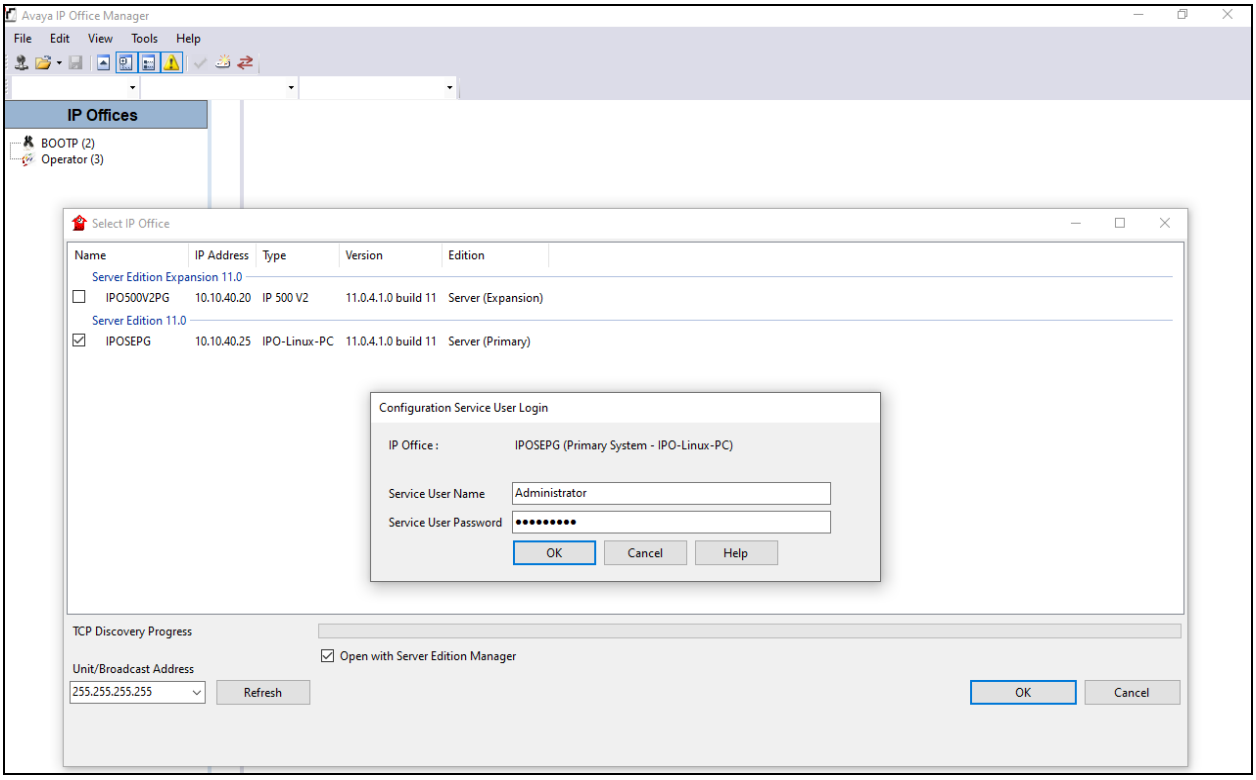
5. Configuration of Avaya IP Office

Configuration and verification operations on 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. 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:

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 into, seen as the connection is to the IP Office Server Edition, this was ticked below. Log in using the appropriate credentials.



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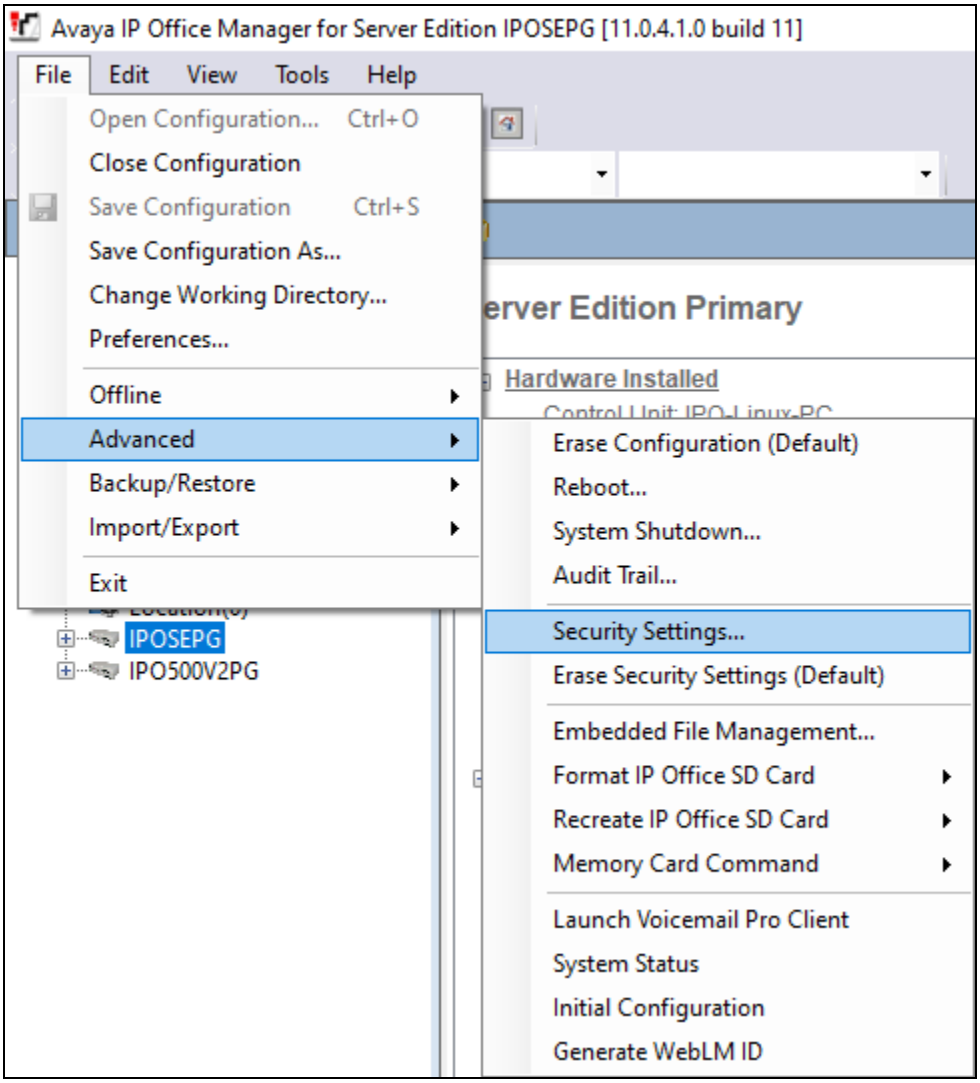
5.1 Configure Centralized CTI Web Services

This section goes through the steps required in order to setup CTI Web Services on IP Office in order to provide presence information, call control, device control and call monitoring to the Totalview server.

To get access to CTI Web Services from the Totalview server an application user must be created for this purpose. This user must not have the same name as an ordinary One-X® Portal user, so create a unique user group and user as shown in the following steps.

Navigate to **File → Advanced → Security Settings**, to open **Security Settings** in the IP Office Manager as shown.



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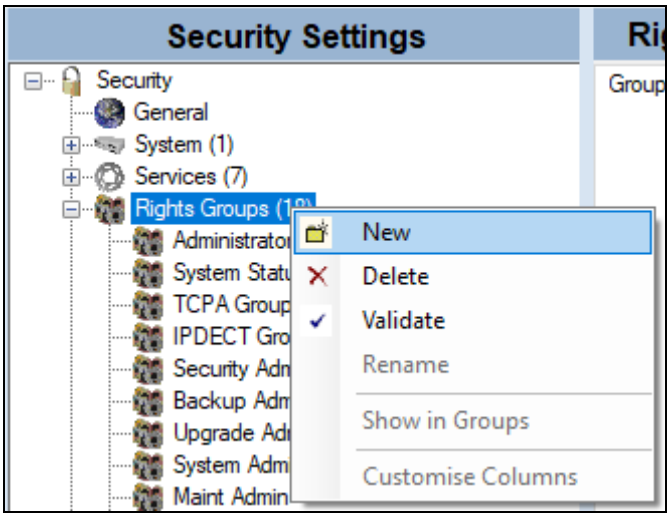
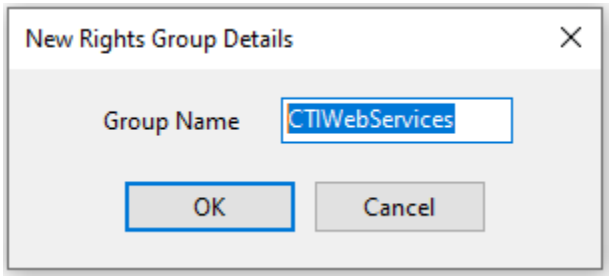
Create a new Rights Group and give that group rights to both the one-X CTI API and Management API. Right-click on **Rights Groups** and select **New**, as shown below.



Give the new group a suitable **Group Name**.



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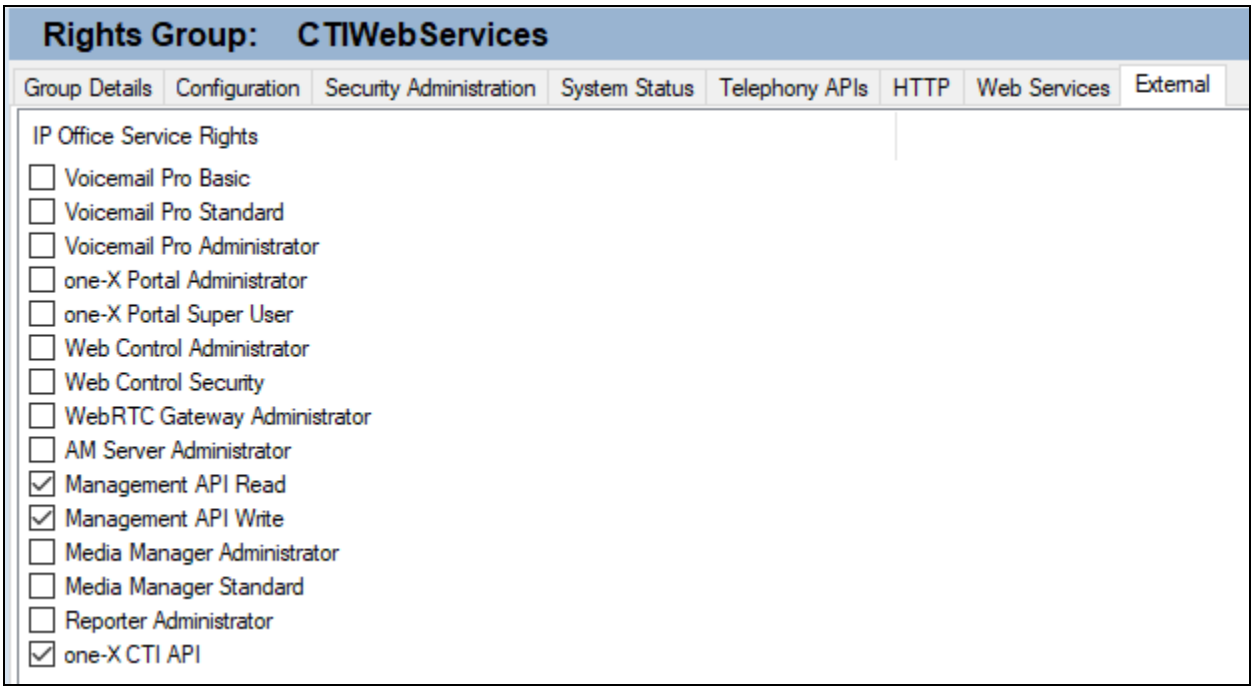
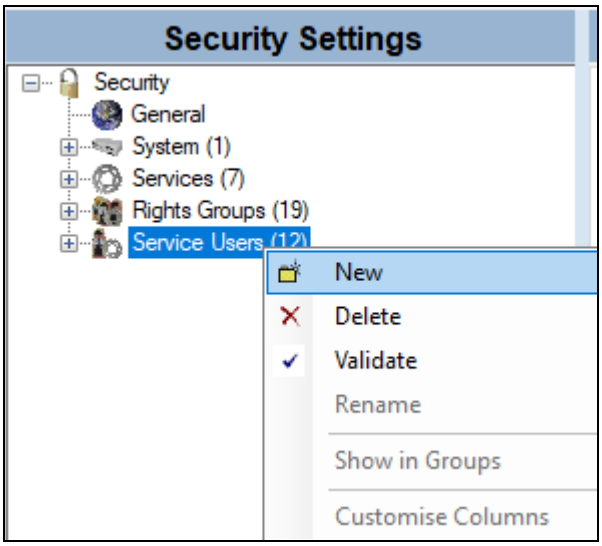
Click on the **External** tab and tick the **one-X CTI API** box and both **Management API** boxes, as shown below.



Right-click on **Service Users** and select **New**, as shown, this will create a new user that can be used by the Totalview server as per **Section 6**.



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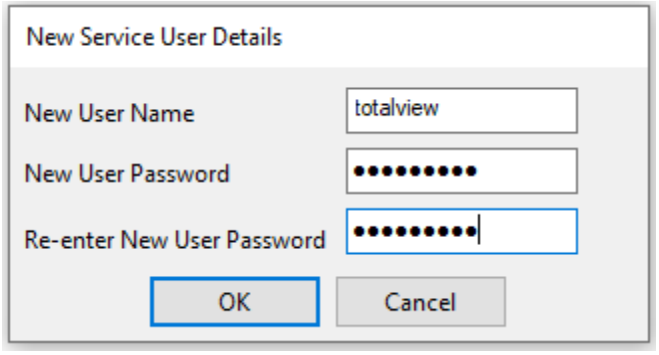
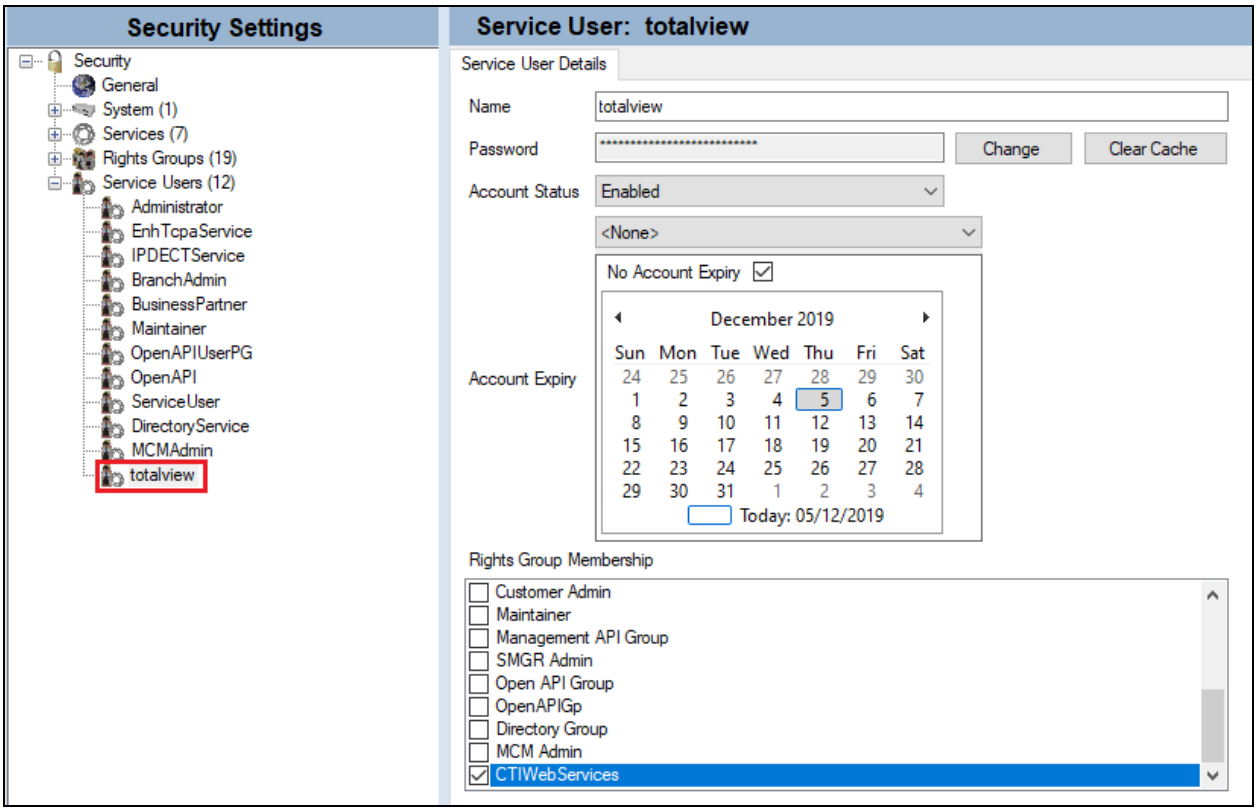
Enter a suitable **Name** and **Password** for the user as shown and click on **OK**.



Ensure that the user is part of the group that was configured previously and that **No Account Expiry** is ticked as shown. Click on **OK** at the bottom of the screen (not shown below).



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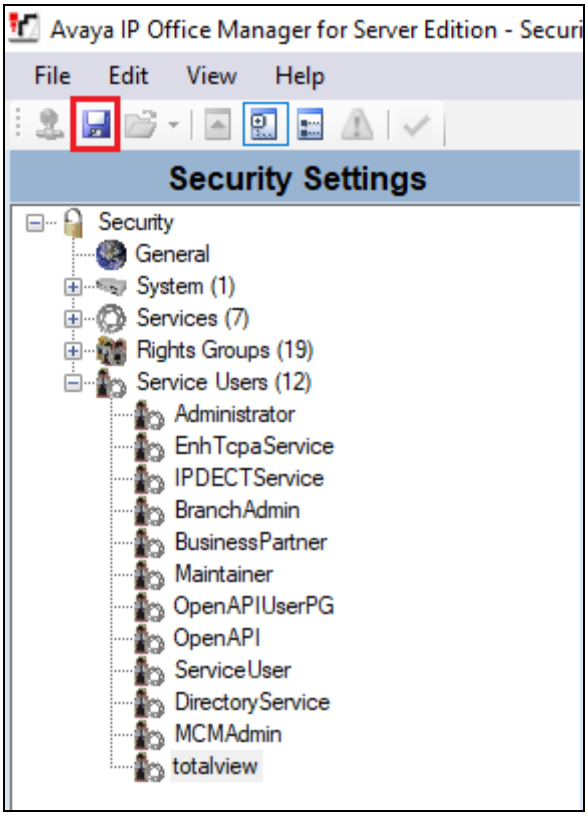
Click on the **Save** icon at the top of the screen, as shown.



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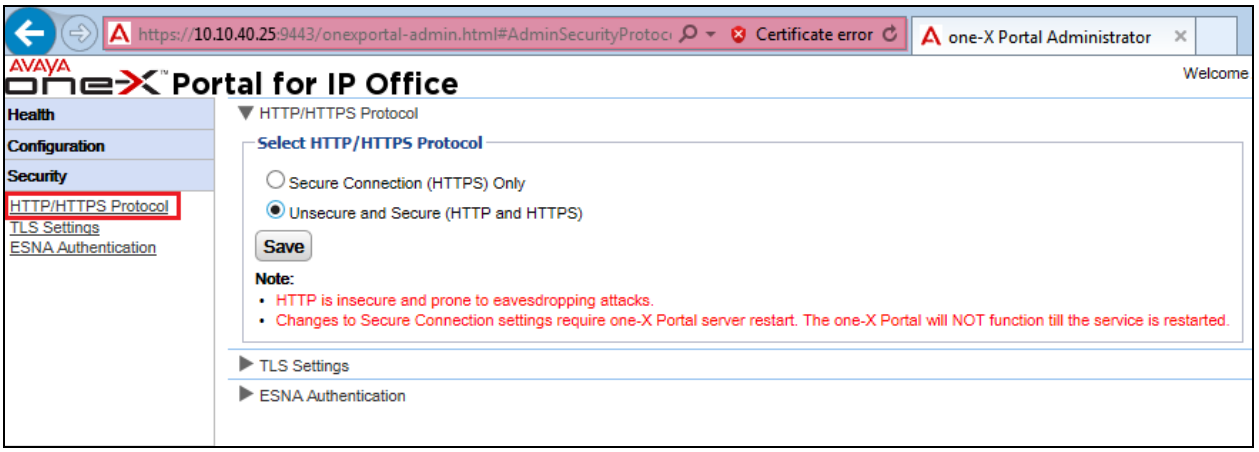
5.2 Configure Avaya one-X® Portal

If the connection from the Totalview connector is not using SSL the CTI Web Services must be allowed access to HTTP on port 8080. This is done on One-X® Portal Administrator under security.

Open a web browser to the IP Office Server Edition on **https://<Server IP>:9443/onexportal-admin.html**. Enter the appropriate credentials and click on **Login**.

Click on **Security** in the left window and on **HTTP/HTTPS Protocol** and ensure that that **Unsecure and Secure (HTTP and HTTPS)** button is selected and click on **Save**.



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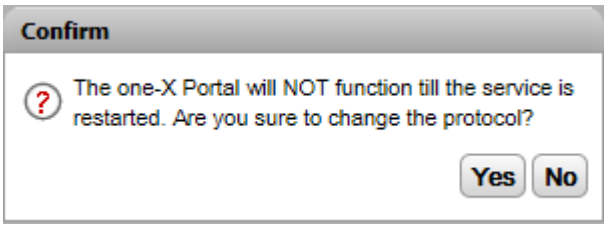
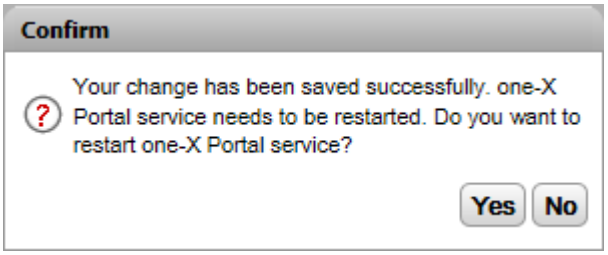
Once Save is pressed above the following message is displayed, click on **Yes**.



Once Yes is pressed above the following message is displayed, click on **Yes** again. The One-X® Portal will now restart and will log out the user automatically and will be offline for 2-3 mins.



This concludes the setup on IP Office for CTI Web Services connections.

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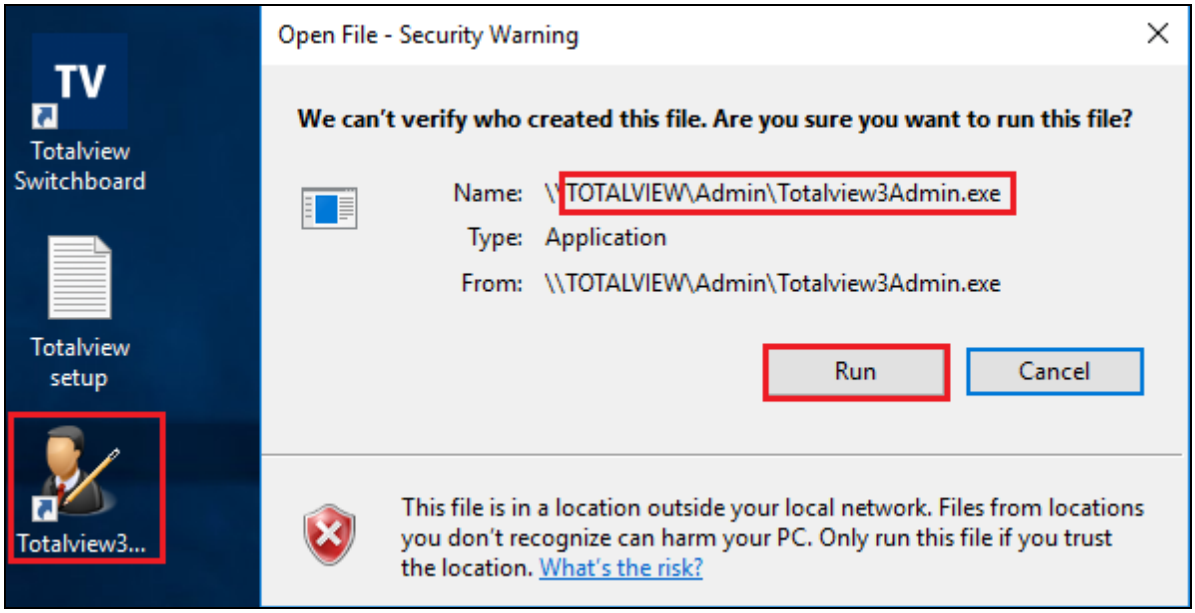
6. Configure Formula Totalview Connector for Avaya IP Office™

This section describes the steps performed to configure Totalview. It is implied that the Totalview software is already installed. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**.

To configure the connection to IP Office, open the **Totalview3Admin** as shown below.



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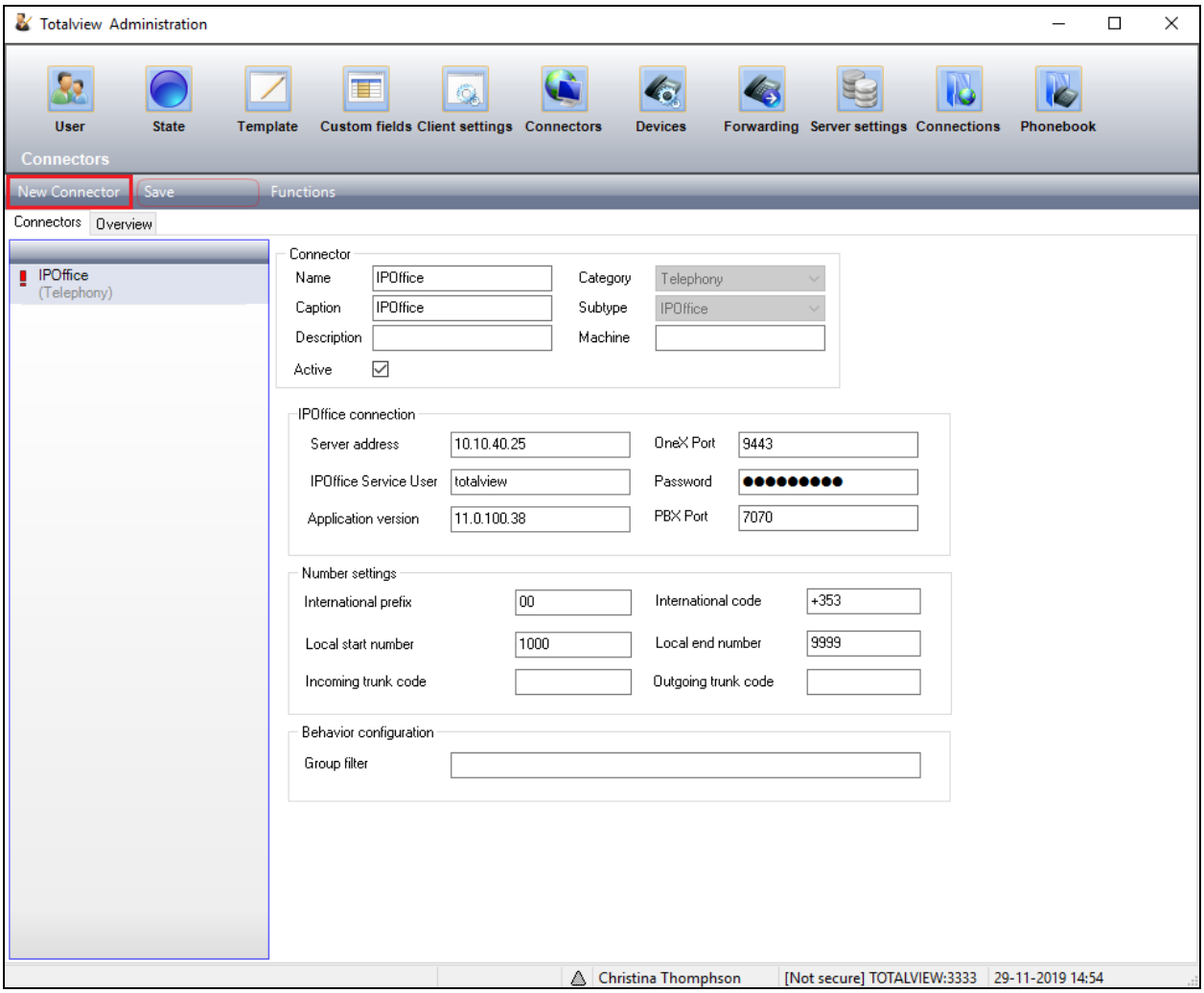
To add a new connection, click on **New Connector**. Telephony should be selected as the Category and **IPOffice** selected as the **Subtype**. The **OneX Port** should be set to **9443** and **PBX Port** to **7070**. The **IPOffice Service User** and **Password** should be set to that configured in **Section 5.1**.



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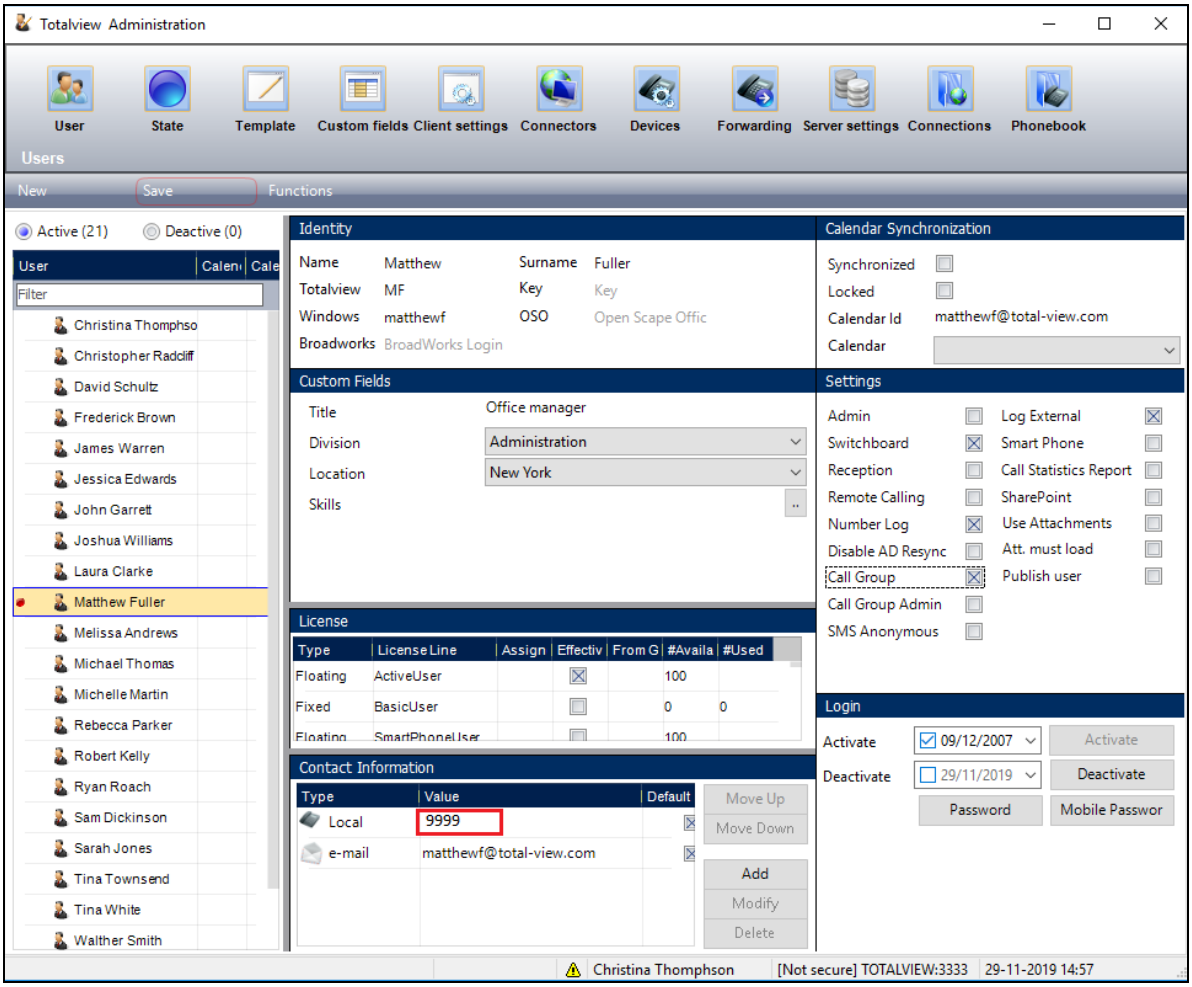
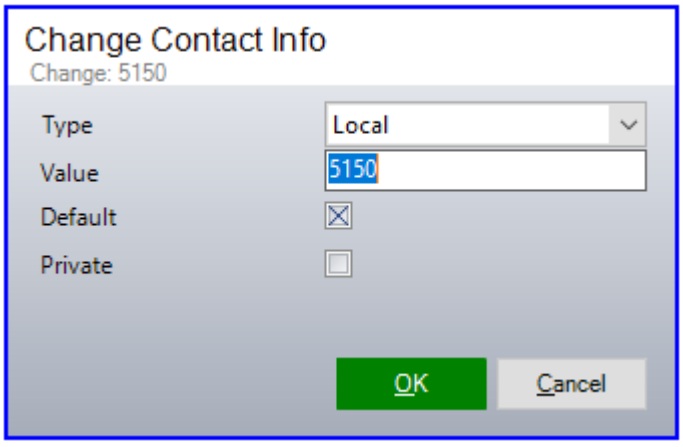
There were a number of users already configured and one of these was edited to add the IP Office extension number to this user. The user below, **Matthew Fuller**, was selected and the **Value** under **Contact Information** was double-clicked.



The **Value** is then changed to **5150** as shown, click on OK to save.



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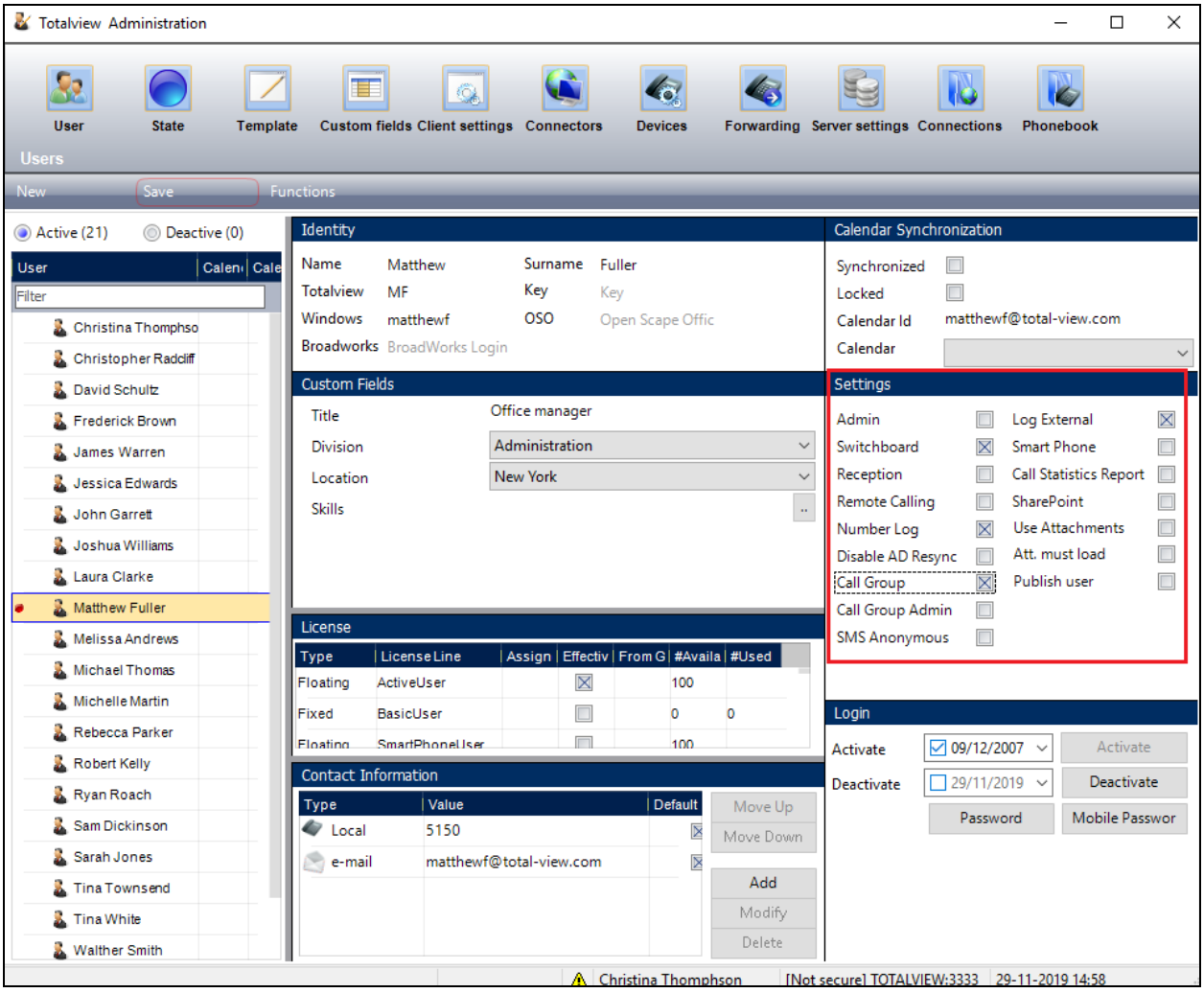
The settings for this user can be altered as shown below under the **Settings** module. The user can be added to a **Call Group** and to the **Switchboard,** so they are log into the Totalview switchboard.



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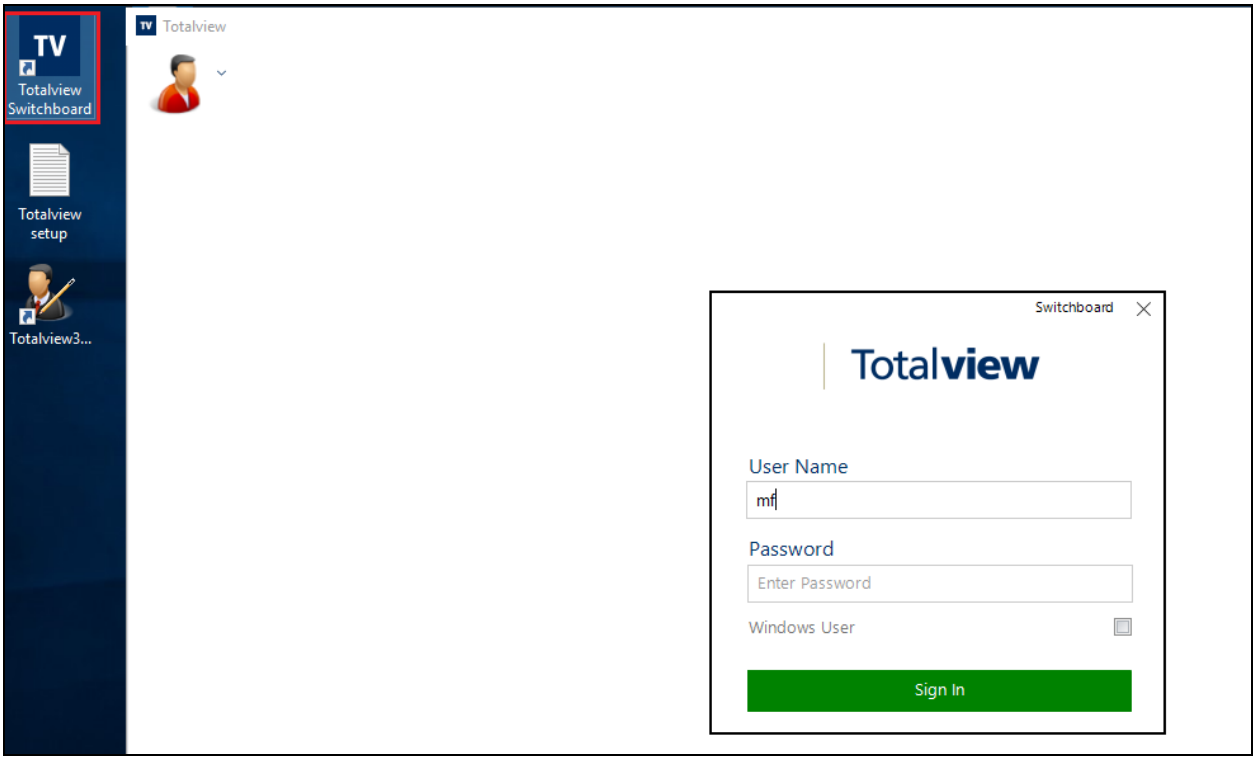
7. Verification Steps

This section illustrates the steps necessary to verify that the Totalview is configured correctly to connect to IP Office.

From the PC that has Totalview installed, open the **Totalview Switchboard** as shown below. Enter the appropriate credentials and click on **Sign In**.



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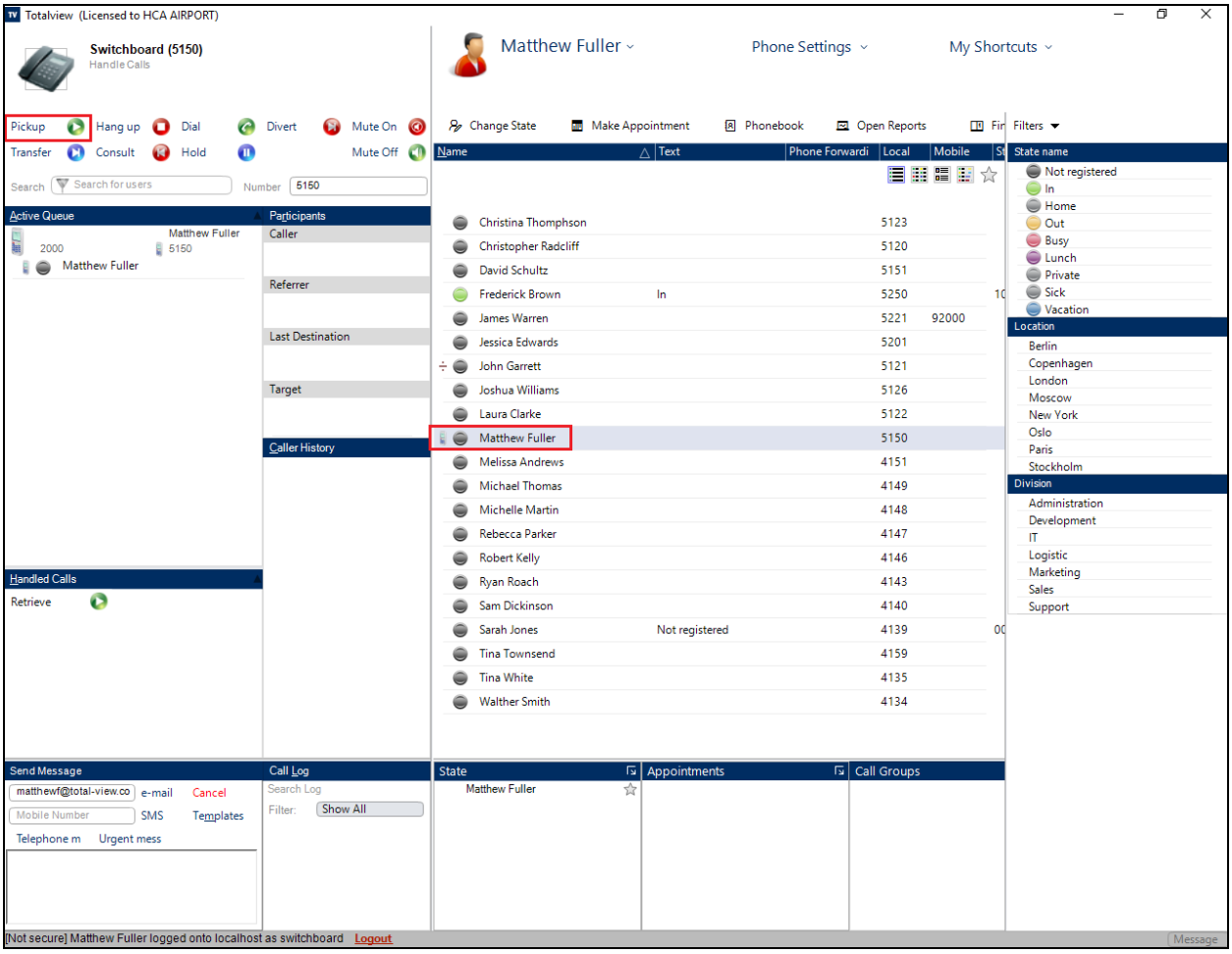
Once the application is opened, a screen something like the following appears. Please note that the contacts and group information shown below is that of the DevConnect lab and this will look different for different customer sites. The screen below shows an idle switchboard, with a call queued at the Totalview user **Matthew Fuller** as described in **Section 6** with associated IP Office user **5150**.



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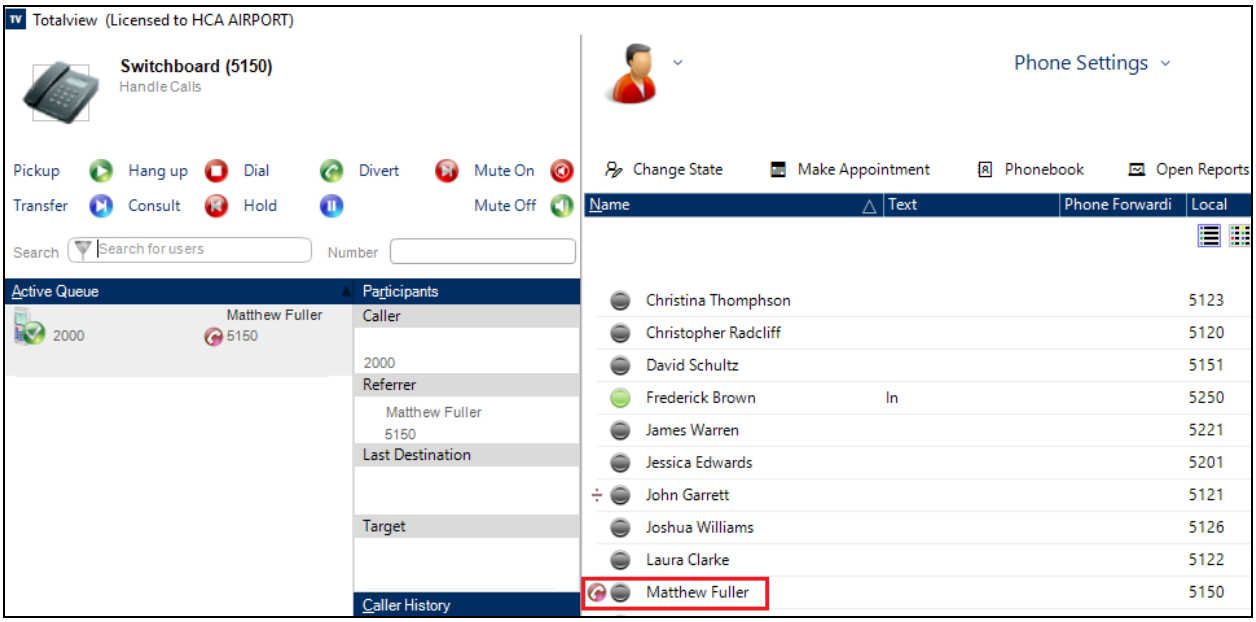
With the call answered by clicking on **Pickup,** (top left of the screen below**)**, the call can then be processed using the buttons displayed on the screen below.



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8. Conclusion

These Application Notes describe the configuration steps for Totalview Connector for Avaya IP Office™ 2019 from Formula to interoperate with Avaya IP Office R11.0 using the Centralized CTI Web Services API to provide presence information, call control, device control and call monitoring. 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 Formula 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 R11 Manager 11*

[2] *Avaya IP Office R11 Doc library*

Product Documentation for Formula can be obtained at http://www.Total-view.com

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