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Avaya Solution & Interoperability Test Lab

Application Notes for aurenz GmbH AlwinPro UC-Edition with Avaya IP Office to collect Call Detail Records (CDR) – Issue 1.0

Abstract

These Application Notes describe the configuration steps necessary for provisioning aurenz GmbH's product AlwinPro UC-Edition v13.0 to successfully interoperate with Avaya IP Office R11.1 to collect CDR/SMDR.

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 necessary for provisioning aurenz GmbH's product AlwinPro UC-Edition v13.0 to successfully interoperate with Avaya IP Office R11.1 to collect CDR/SMDR. Avaya IP Office consists of an IP Office Server Edition running on a virtual platform as the primary server with an IP Office IP500 V2 running as the secondary expansion system. Both systems are linked by IP Office Line IP trunks that can enable voice networking across these trunks to form a multi-site network. AlwinPro UC-Edition collects CDR from both the primary Server Edition and the secondary IP500 V2 expansion and presents them together as one system.

Note: *Call Detail Records on IP Office is referred to as Station Message Detail Recorder (SMDR).*

AlwinPro UC-Edition from aurenz GmbH is a telephone call accounting system that uses Call Detail Records (CDR) information from Avaya IP Office and produces management reports. SMDR generated by IP Office is captured by AlwinPro UC-Edition using its Data Collector. Costs for manpower, equipment (devices) and services are collected and allocated properly. AlwinPro UC-Edition is used by customer for calculating internal costs or third-party billing. All data is generated and processed with regard for data protection requirements. For further information please go to https://www.aurenz.de

Note: AlwinPro uses a module called Data Collector to process CDR from IP Office, this module and its interaction with IP Office is the primary focus of these Application Notes. The reports produced by AlwinPro are used to verify that the data collected by the Data Collector is processed correctly.

2. General Test Approach and Test Results

Compliance testing focused on verifying that calls that were made and received by various endpoints on IP Office were reported on correctly and that the addition of AlwinPro UC-Edition did not interfere with the overall operation of IP Office. CDR information is transferred via TCP/IP stream, so AlwinPro UC-Edition is listening on a port awaiting CDR output. Various calls were made to and from IP Office endpoints/extensions and the CDR produced examined to ensure all calls were reported on appropriately.

CDR on IP Office is referred to as Station Message Detail Recorder (SMDR). IP Office Server Edition and IP500 V2 produce separate SMDR outputs which are collected into the aurenz GmbH Data Collector installed on the AlwinPro UC-Edition server.

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.

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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 AlwinPro UC-Edition did not include use of any specific encryption features as requested by aurenz GmbH.

2.1. Interoperability Compliance Testing

The objective of Interoperability Compliance Testing is to provide assurance to the potential customers that the tested products operate as specified and can interoperate in an environment similar to the one that will be encountered at a customer's premises. The interoperability compliance testing focused on a Real-Time TCP/IP connection listening on a port awaiting CDR data from IP Office.

The testing focused on the following types of calls:
- **Internal calls** – Calls made internally between H.323, SIP and Digital endpoints.
- **Inbound calls** – Test CDR records for inbound calls to the IP Office from PSTN callers.
- **Outbound calls** – Test CDR records for outbound calls from the IP Office to PSTN callers.
- **Hold/Transferred/ calls** – Test CDR records for calls transferred to PSTN callers.
- **Conference calls -** Test CDR records for calls in conference between the IP Office and PSTN callers.
- **Forwarded calls** – Test CDR records for calls made to desk phones that are forwarded to the PSTN.
- **Account Code and Authorization Codes** – Outbound calls were made using Account Codes and Authorization Codes to see how they are reported on.
- **Mobile Twinning and Hunt Groups** – Calls were made using Mobile Twinning and calls were made to Hunt Groups to see how they are reported on.
- **Serviceability** - The behaviour of AlwinPro UC-Edition under different simulated LAN failures was also observed.

Note: Two PSTN lines were used, ISDN on the IP500 V2 expansion and SIP trunk to Session Manager on the Server Edition.

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Each CDR/SMDR record was inspected for the accuracy of specific information shown below:
- Call termination time
- Call duration
- Condition code
- Dialed number
- Calling number
- Access code used (outbound)

2.2. Test Results

Tests were performed to ensure full interoperability of IP Office with aurenz GmbH AlwinPro UC-Edition. Performance and load testing is outside the scope of the compliance testing. All the test cases passed successfully. With the following observation noted.
1. When an internal call was made to an IP Office user with Mobile Twinning, IP Office did not generate an extra SMDR record with U MT as cause. Avaya is investigating.

2.3. Support

Information on aurenz GmbH and product support can be obtained through the following:
Phone: +49 (0) 7021 73888-0
Fax: +49 (0) 7021 73888-30
E-Mail: info@aurenz.de

Support-Hotline
Mo.-Fr. 08:00-17:00
Phone: +49 (0) 7021 73888-33
Fax: +49 (0) 7021 73888-30
E-Mail: support@aurenz.de

3. Reference Configuration

Figure 1 illustrates the network topology used during compliance testing. The Avaya solution consists of an IP Office Server Edition running on a virtual platform as the primary server with an IP Office IP500 V2 running as the secondary expansion system. Both systems are linked by IP Office Line IP trunks that can enable voice networking across these trunks to form a multi-site network. AlwinPro collects CDR from both the primary Server Edition and the secondary IP500 V2 expansion and presents them together as one system. A variety of Avaya deskphones were used to generate intra-switch calls (calls between phones on the same system), and outbound/inbound calls to/from the PSTN.

Note: Two simulated PSTN lines were used, ISDN and SIP trunk to Session Manager.
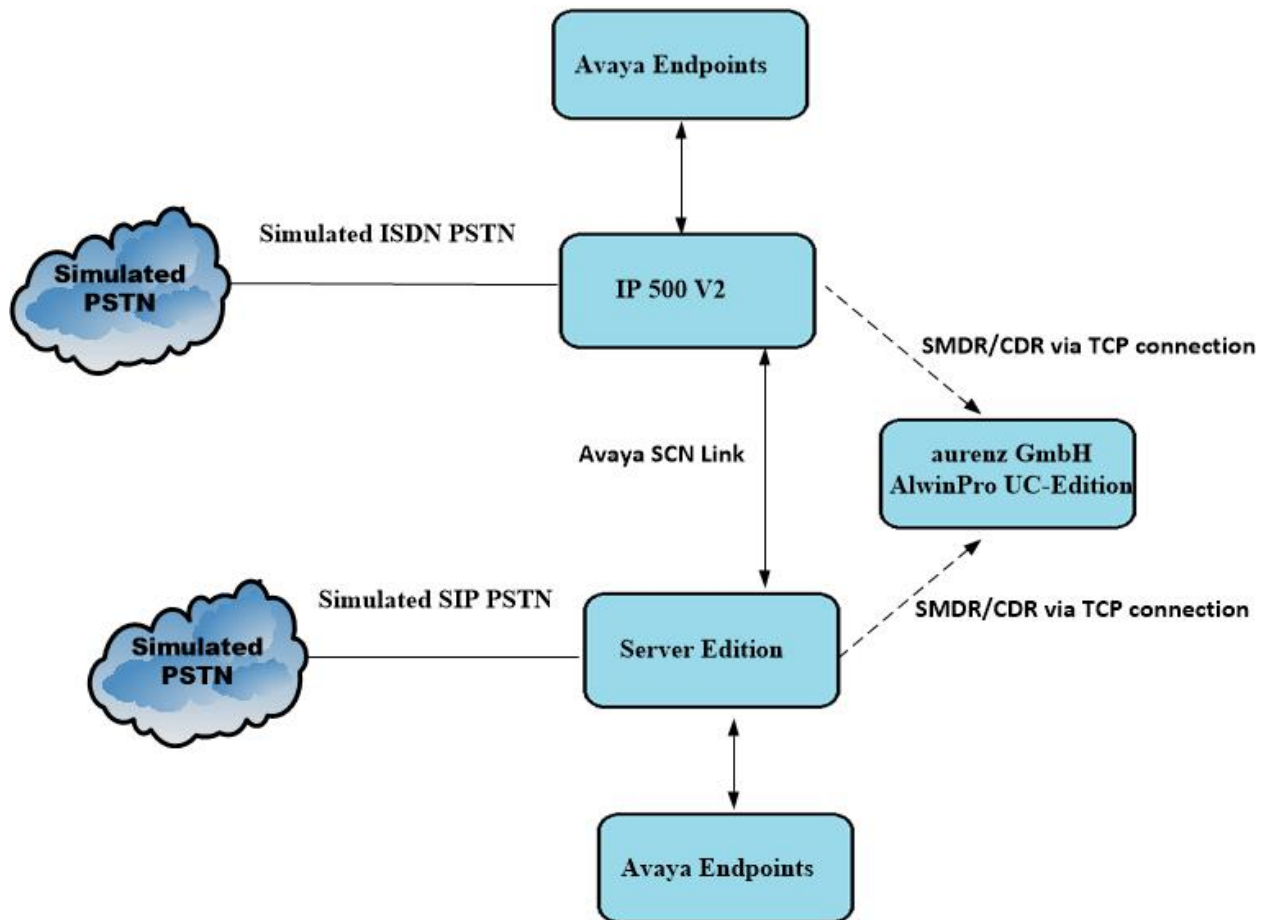
Figure 1: Avaya IP Office and aurenz GmbH reference configuration

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Server Edition running on a Virtual Platform	11.1.1.0.0 Build 209
Avaya IP Office 500 V2	11.1.1.0.0 Build 209
Avaya IP Office Manager running on a Windows 7 PC	11.1.1.0.0 Build 209
Avaya J179 IP Phone (H.323)	6.8304
Avaya 96x1 H323 Deskphone	6.8304
Avaya J189 IP Phone (SIP)	4.0.6.1.1b4
Avaya 9508 Digital Deskphone	V0.6
aurenz GmbH AlwinPro UC-Edition running on Windows 10 PC	13.0.1.02

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.

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5. Configure Avaya IP Office

IP Office needs to be configured to send SMDR to AlwinPro. Open IP Office Manager (not shown) and the following screen appears where the appropriate credentials are entered, and the system is accessed.

Note: Both the Server Edition and the IP500 V2 will need to be configured to send separate SMDR feeds out to the same AlwinPro IP address on different ports.
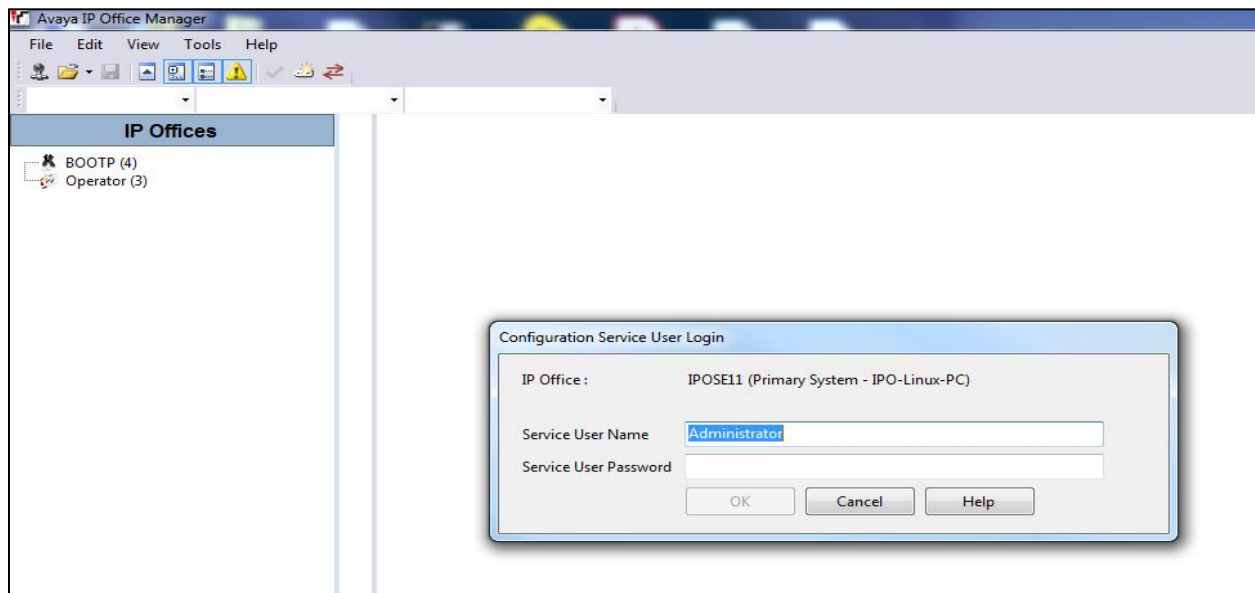
Navigate to the Server Edition system in the left window and click on the SMDR tab in the main window. Enter the **IP Address** of the AlwinPro server and the **TCP Port** number to send out the SMDR on. **Call Splitting for Diverts** must be ticked and the number of **Records to Buffer** can be set appropriately for that site.

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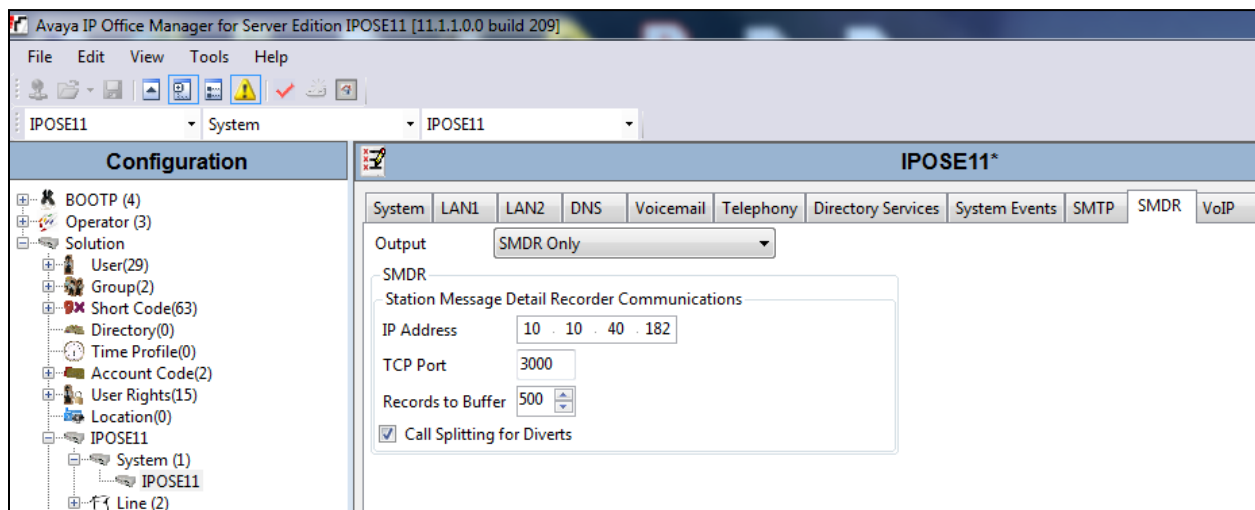
The screen below shows a similar configuration for the IP500 V2. Again, navigate to the IP500 V2 system in the left window and click on the **SMDR** tab in the main window. Enter the **IP Address** of the AlwinPro server and the **TCP Port** number (note that this port number is different than the number on the previous page for Server Edition). **Call Splitting for Diverts** must be ticked and the number of **Records to Buffer** can be set appropriately for that site.
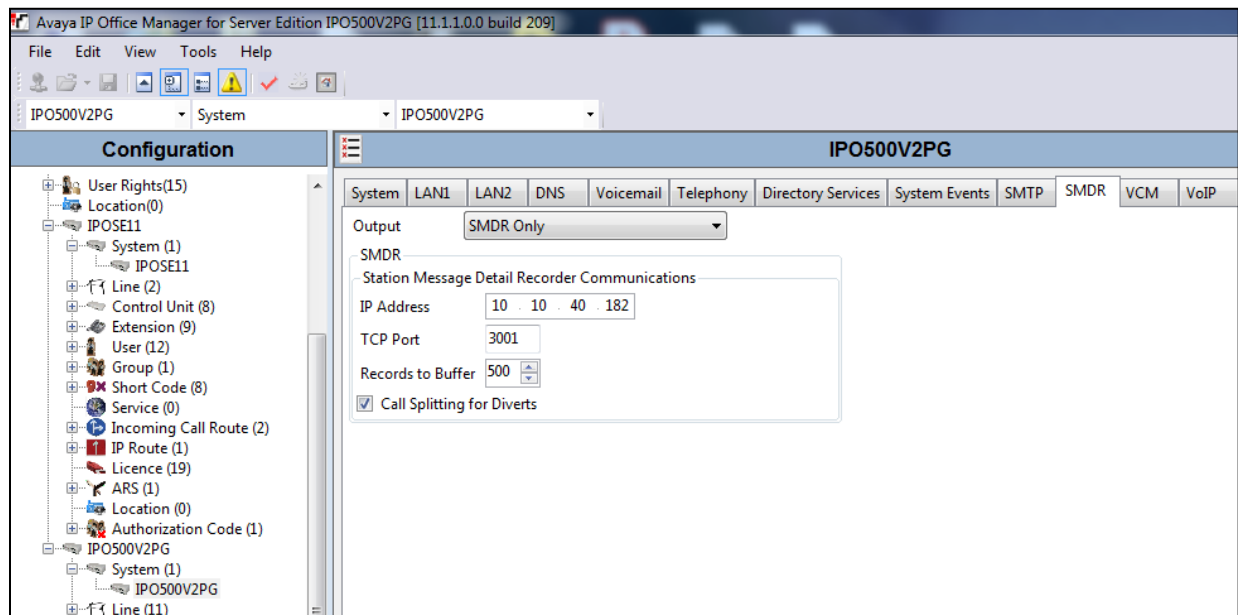
Note: The IP address of the Server Edition and the IP500V2 can be found by clicking on the **LAN1** tab on each if the screens above.

To save the configuration, click on the **Save** icon highlighted and click on **OK** in the main popup window.
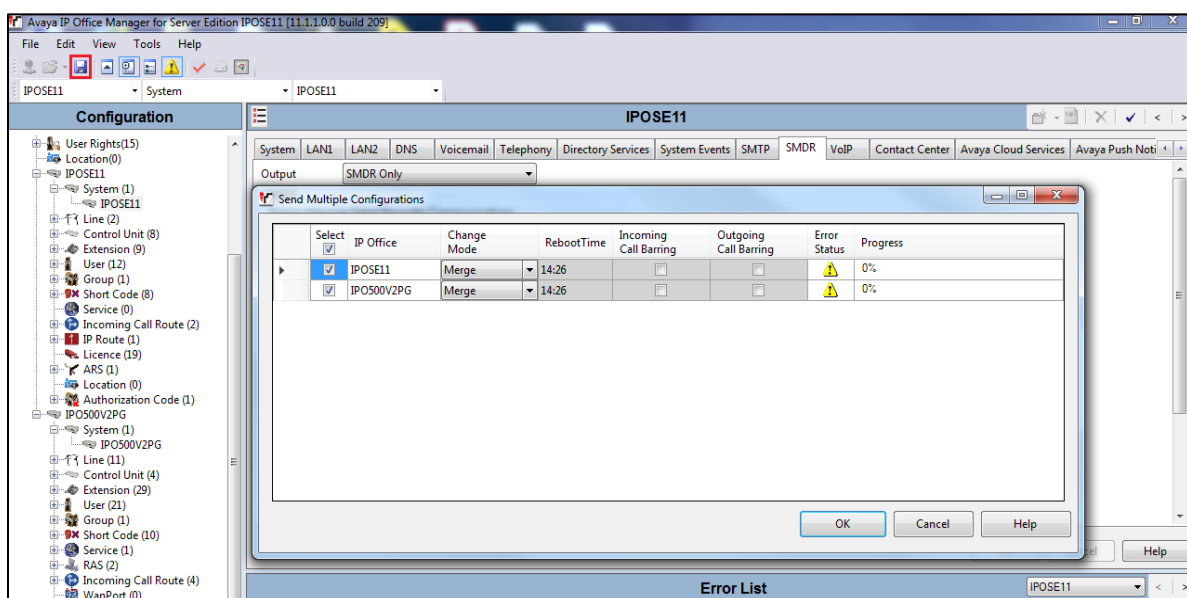
6. Configuration of aurenz GmbH AlwinPro UC-Edition

This section outlines the steps to configure the AlwinPro UC-Edition to collect CDR data. AlwinPro UC-Edition can be installed on a server or desktop PC. Installation is carried out using software provide by aurenz GmbH. Installation instructions are outside the scope of this document but information on installation of AlwinPro UC-Edition can be found in **Section 9** of this document.

Once the software is installed the connection to IP Office can be created by accessing the Data Collector wizard. The Data Collector is running in the system tray at the bottom of the screen, once opened the following screen is displayed where a new Data Source can be created by navigating to **Data Sources → Setup**.
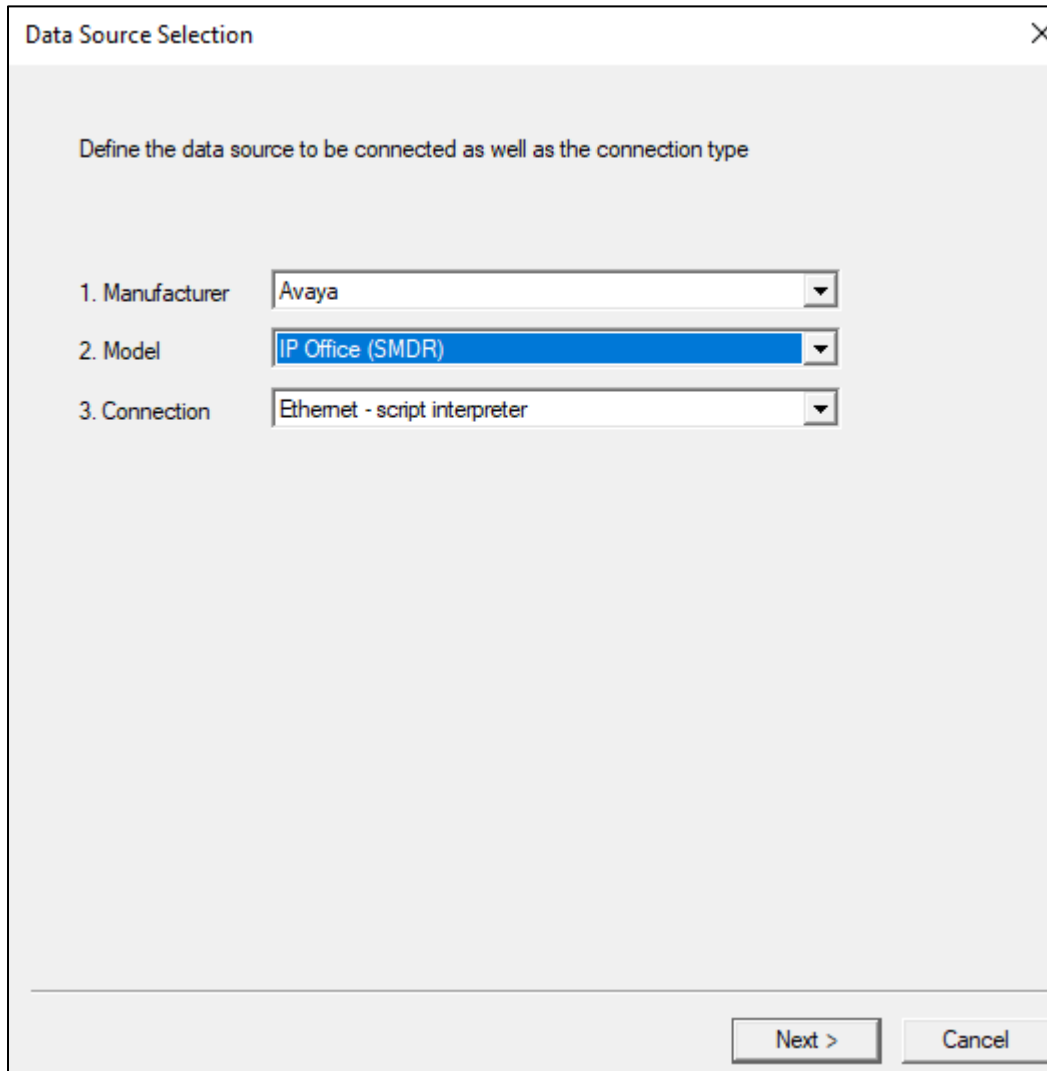
Note: A separate Data Source will to be setup for <u>both</u> the Server Edition and the IP500V2.

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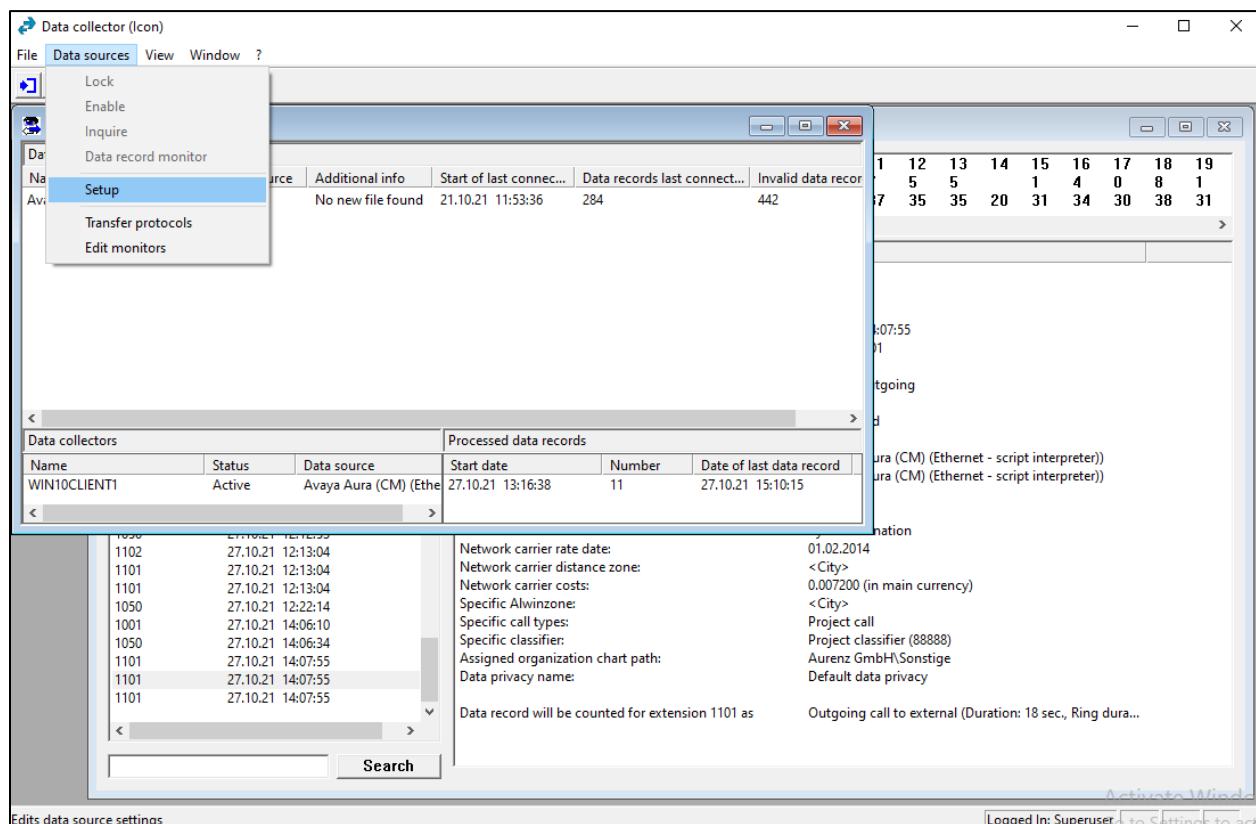
Click on **New** from the screen shown below.
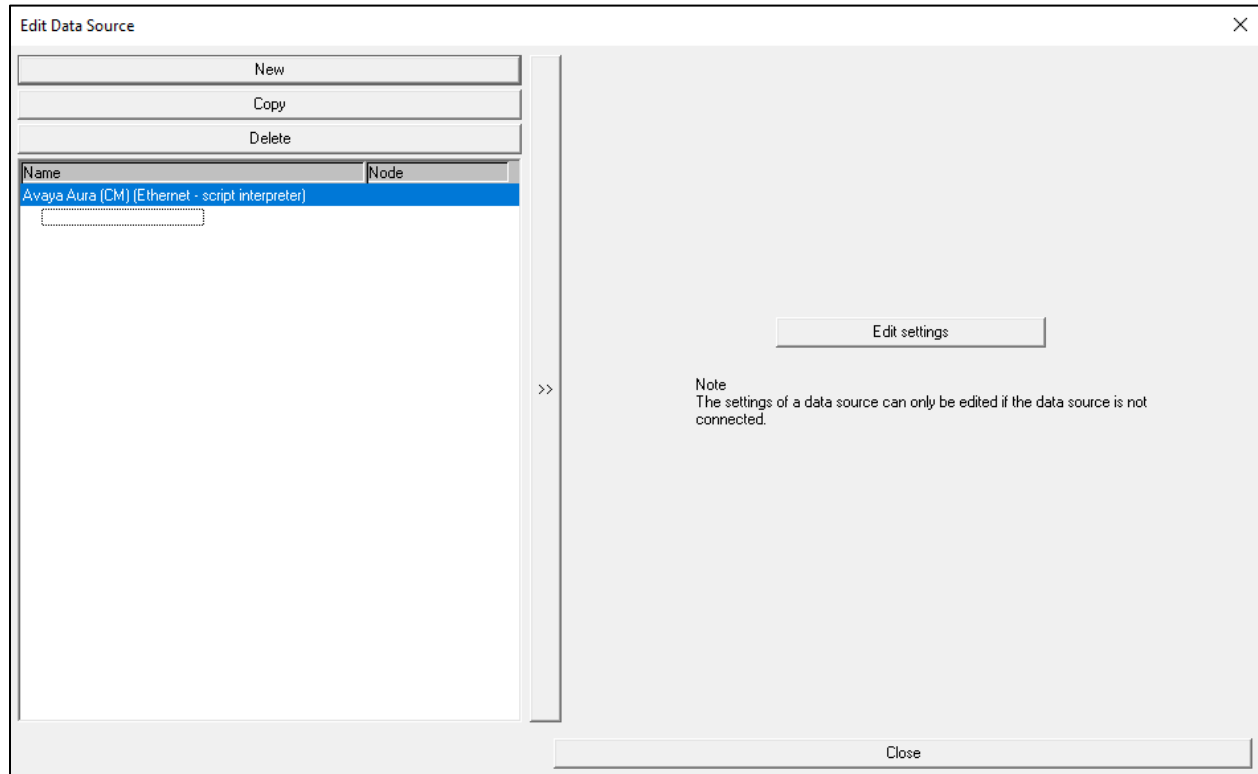
Select **Avaya** as the **Manufacturer** and the **Model** should be set to **IP Office (SMDR)** as shown below, the **Connection** is set to **Ethernet – script interpreter**. Click on **Next** to continue.

Click on **No** for the following, or if a description of the connection is required, then click on yes.

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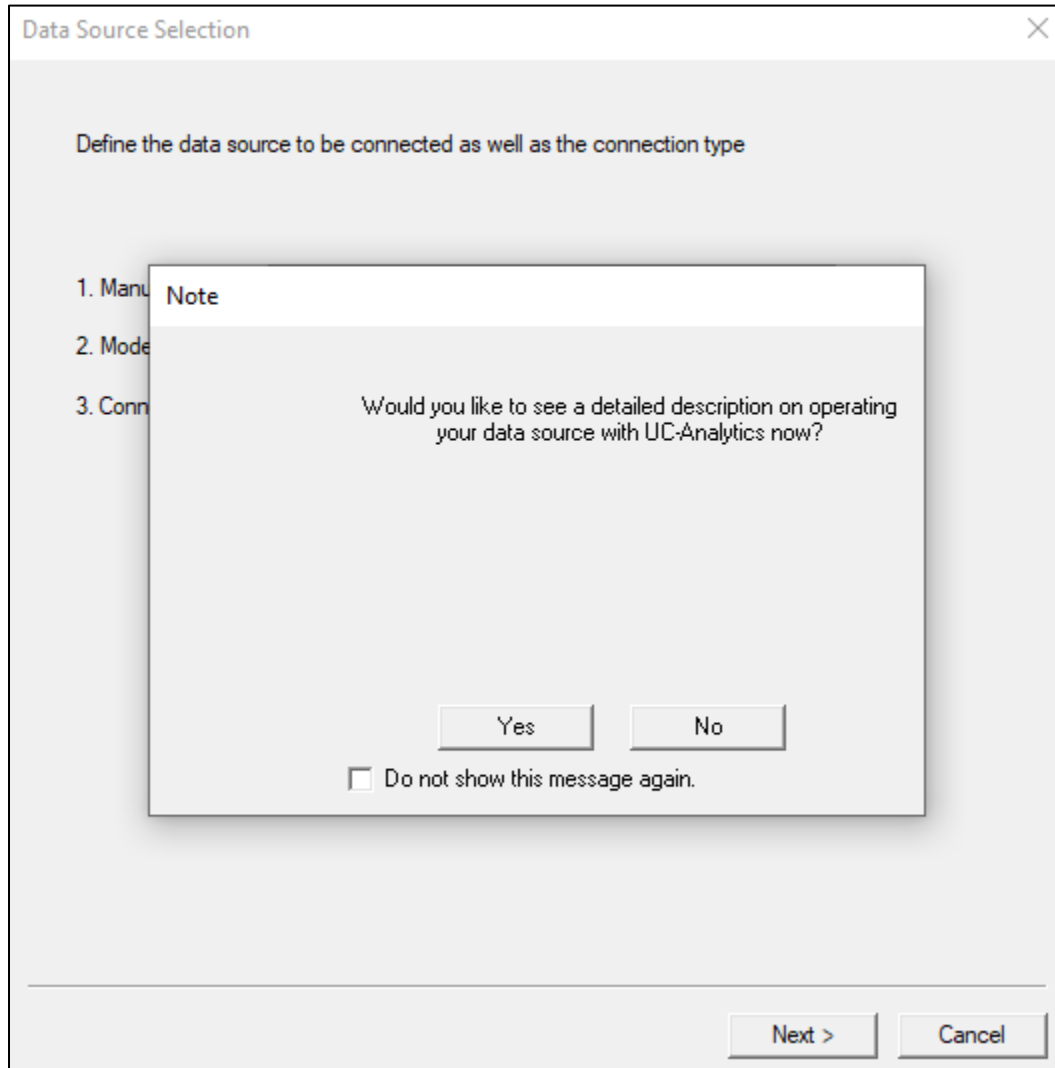
From the drop-down menu, select the local postcode and the **Default network carrier rate** was set to **Standard**. Click on **Next** to continue.

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Enter the **IP address** of IP Office and the **Access port** as defined in **Section 5**. Shown below is the IP address Access port that was setup for the Server Edition.

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The **Script file** was automatically populated and was not changed, click on **Finish** to complete.
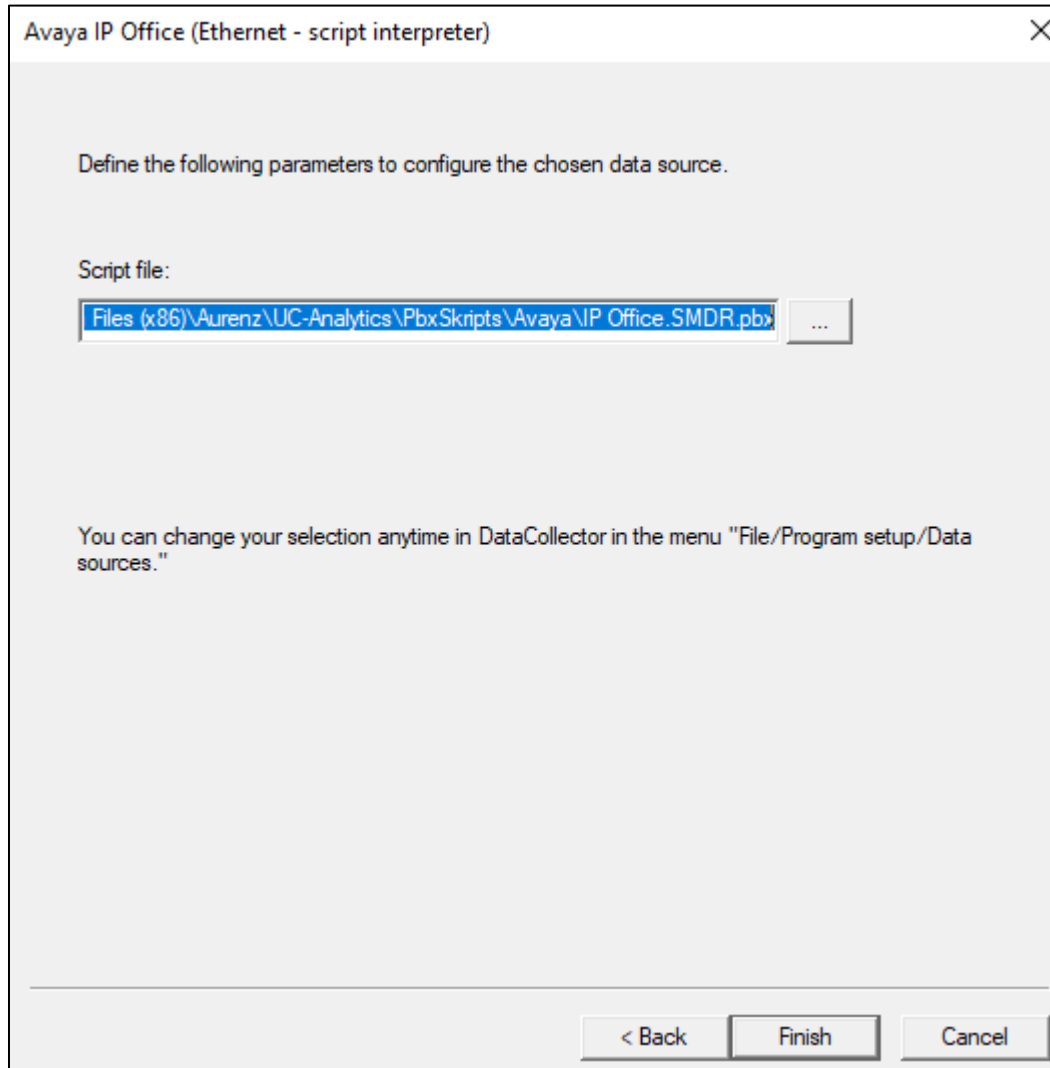
Once the new Data Source is added, it is visible in the left window as shown below. Clicking on the **Data Source** in question will allow the settings to be changed, should this be required. Clicking on the **Avaya IP Office** tab allows the extension length to be specified, for compliance testing **4** was the extension length.

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Avaya IP Office is configured to send the data to the AlwinPro UC-Edition. Therefore, the data source must be configured to listen for an incoming connection. On the tab **TCP/IP Settings** the **Type of connection** must be set to **Passive** and the **Access port** must be the same as configured in the Avaya IP Office.

Clicking on the **Time Period** tab allows the period of operation to be set.

The IP address of the IP Office in question needs to be set under the **Avaya Venetzung** tab. As shown below, a **Data Source** must be added for both the Server Edition (**Master**) and the IP500V2 (**Expansion**). This setup shows the configuration for the Server Edition only.

7. Verification Steps

This section provides tests that can be performed to verify correct configuration of the Avaya and aurenz GmbH solution.

7.1. Verify Avaya IP Office SMDR

IP Office SysMonitor can be used to verify that SMDR is being sent. The IP Address and Password of the IP Office in question should be entered.
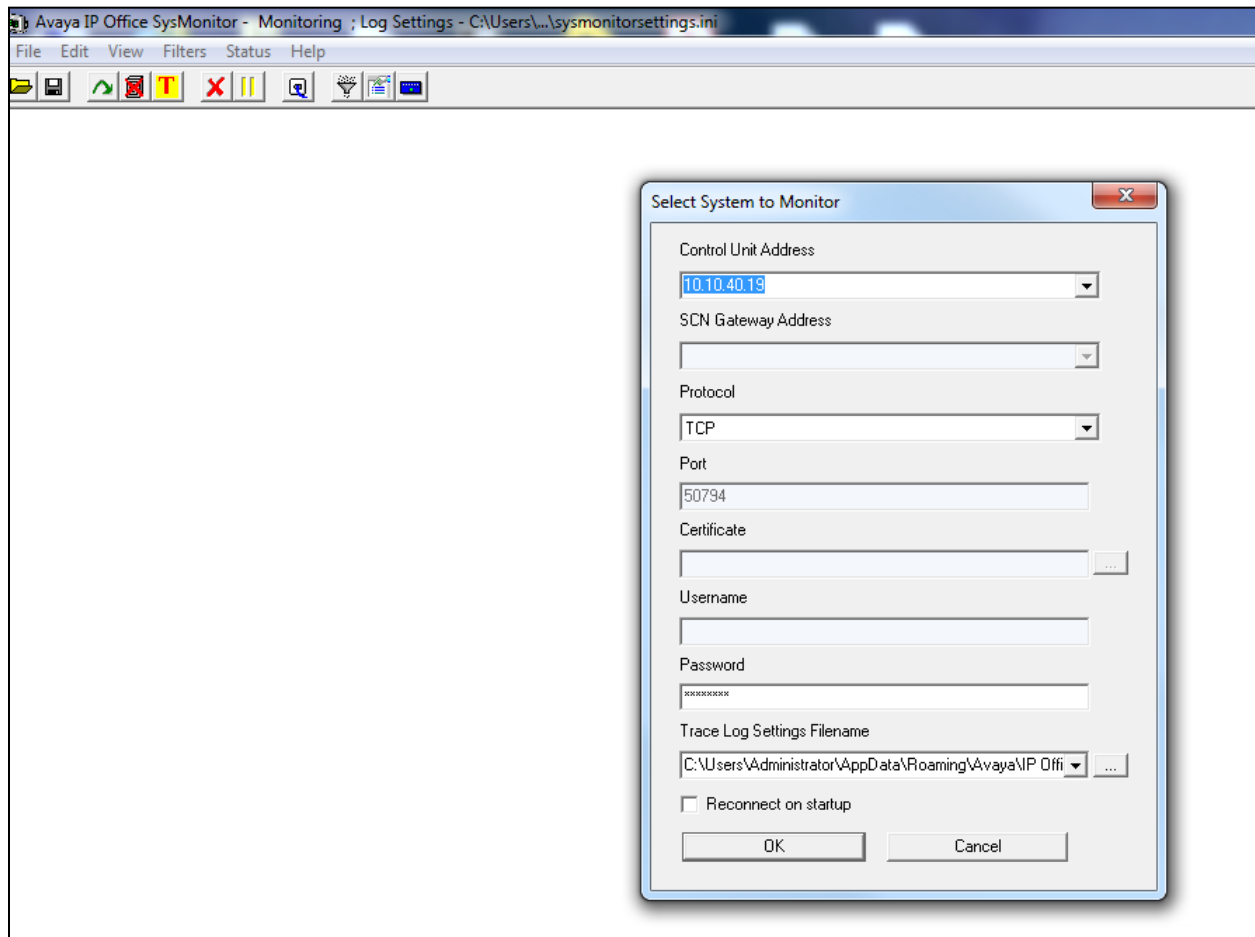
The Trace Options are set to allow **Call Detail Records** and **CDR Extra diagnostics** to be shown.

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The Monitor shows the raw SMDR data being sent out.

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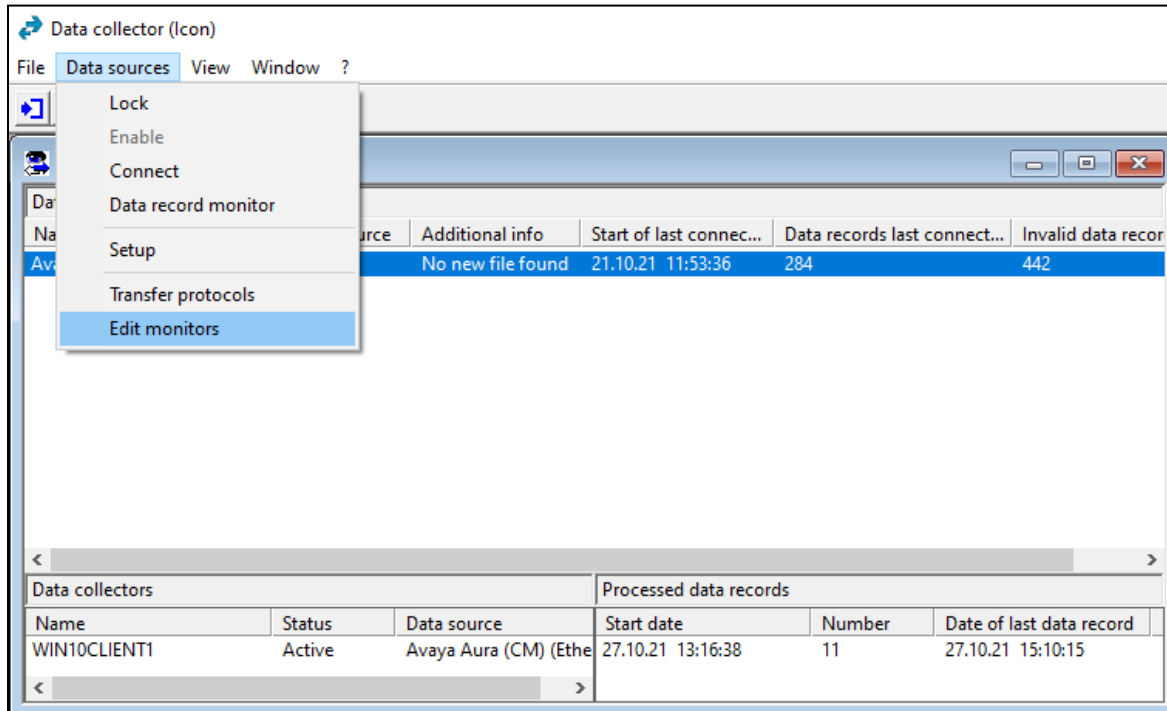## 7.2. Verify CDR data is being received by the AlwinPro UC-Edition

Before the application is run the services can be checked to ensure that they are in the **Running** state as shown below for the **UC-Analytics** services.
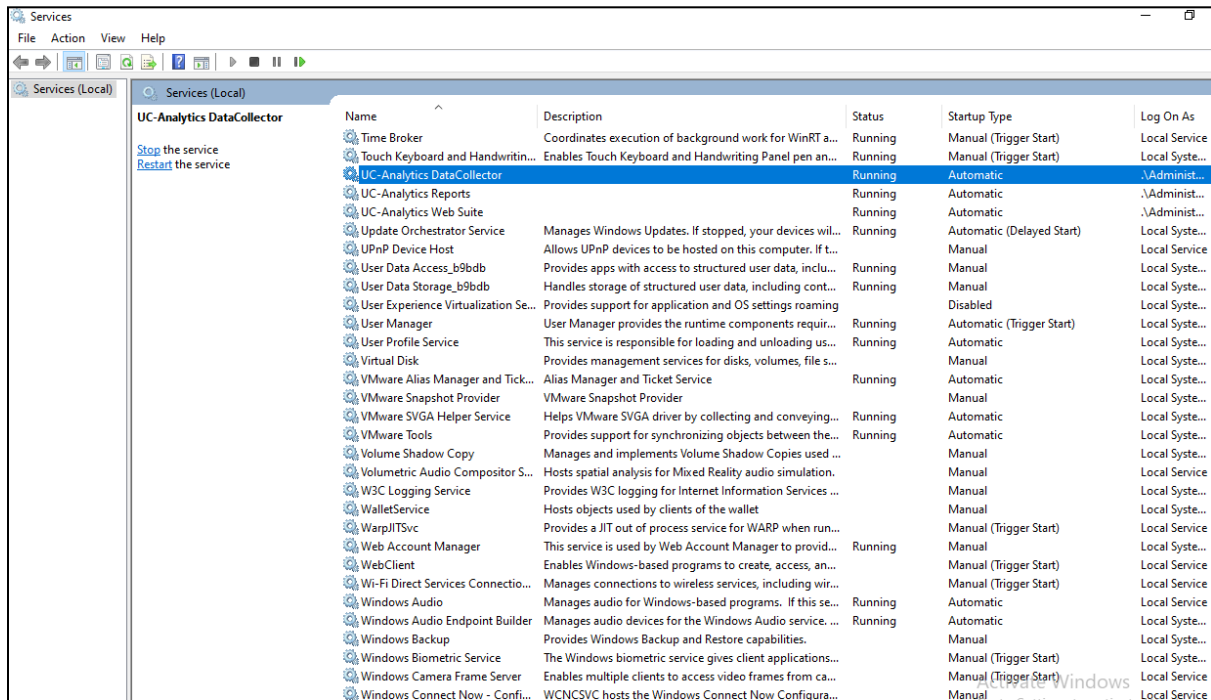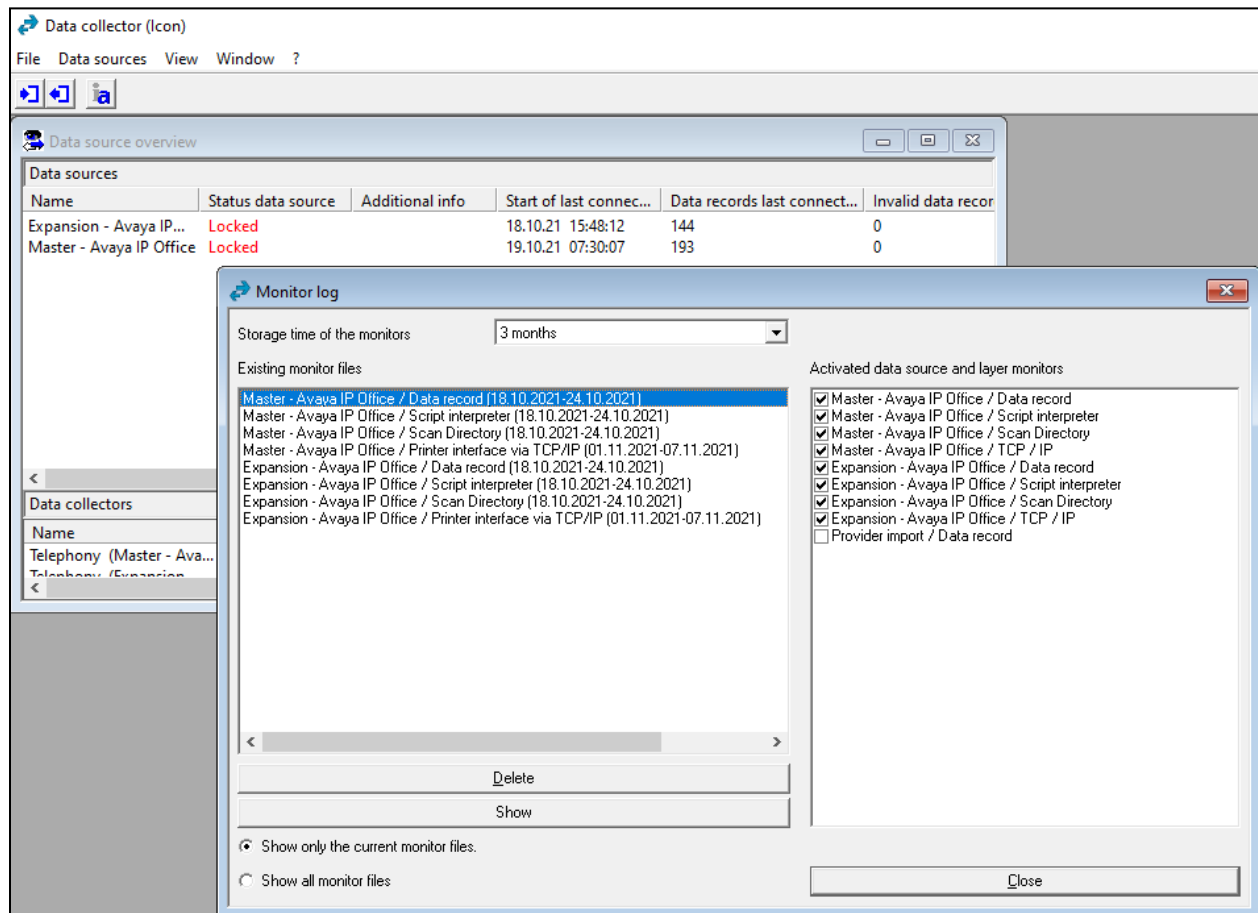

From the task bar at the bottom right of the screen, click on the icon highlighted, this will open the window shown. Enter the appropriate credentials and click on **OK**.

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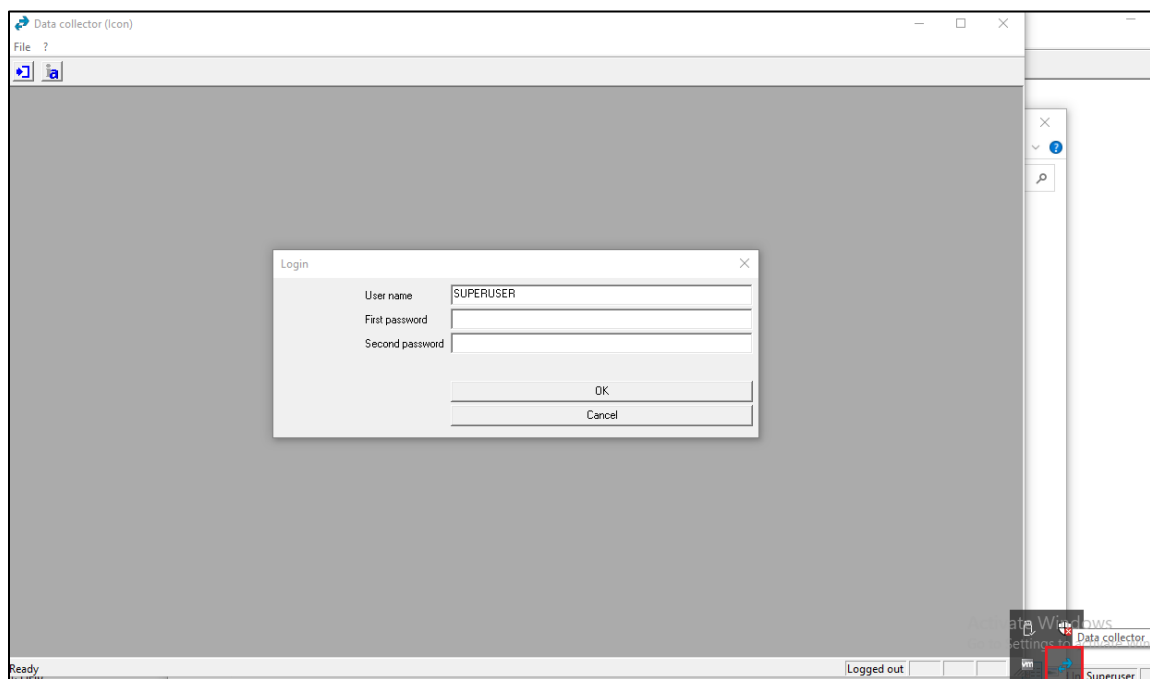
From the menu, navigate to **Data sources → Edit monitors**.

Click on the **Data record** line as shown below with the various monitors ticked as shown and click on **Show** at the bottom of the screen.

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The list of calls made appear in the left window and clicking on them reveal information about that call such as shown below for a call to **091731001**.

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7.3. Verify AlwinPro UC-Edition Reports

Open a web browser to the IP address of the AlwinPro UC-Edition server as shown below and enter the appropriate credentials.
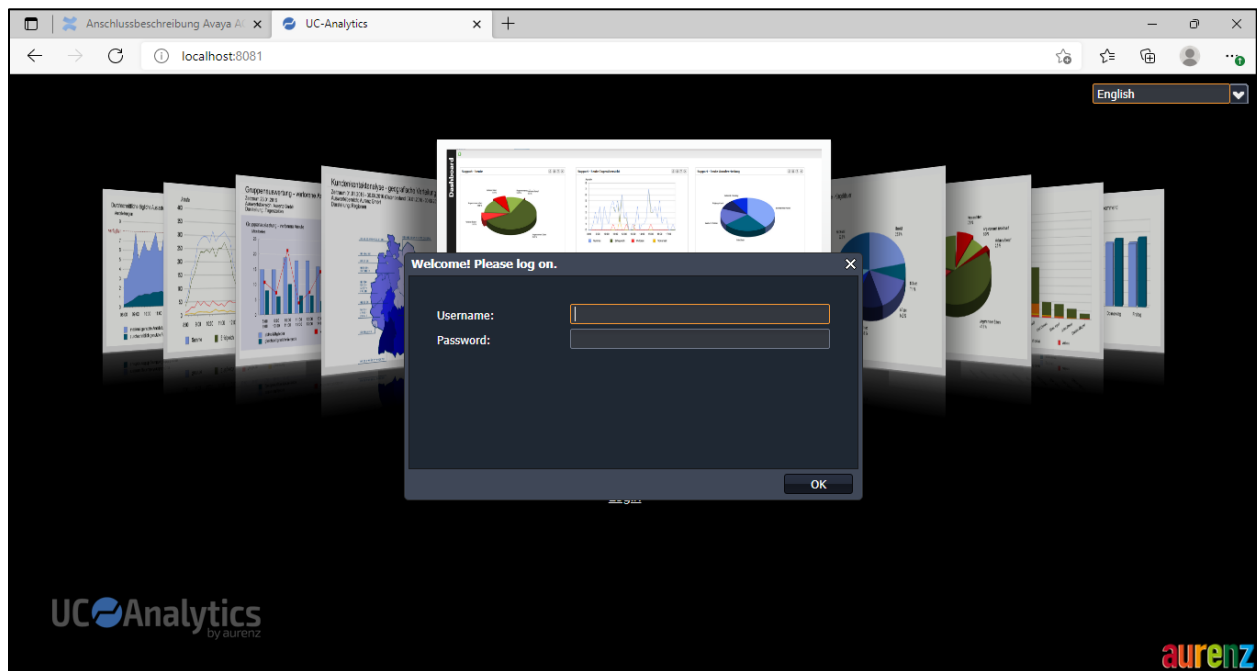
From the main data from the **Call Data Explorer** can be displayed for example, **Today's data**.
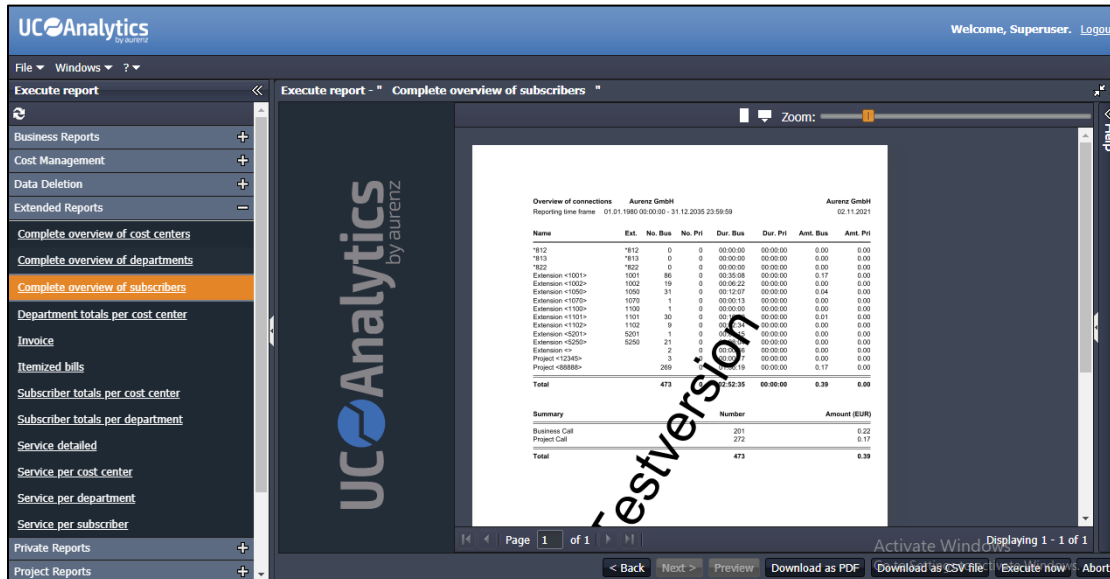
The report should give back call data, an example of this call data is shown below.

Other reports can also be run from the **Extended Reports** menu on the left window.

These reports can be viewed and downloaded.

This is an example of such a report downloaded to PDF.

Name	Ext.	No. Bus	No. Pri	Dur. Bus	Dur. Pri	Amt. Bus	Amt. Pri
*812	*812	0	0	00:00:00	00:00:00	0.00	0.00
*813	*813	0	0	00:00:00	00:00:00	0.00	0.00
*822	*822	0	0	00:00:00	00:00:00	0.00	0.00
Extension <1001>	1001	86	0	00:35:08	00:00:00	0.17	0.00
Extension <1002>	1002	19	0	00:06:22	00:00:00	0.00	0.00
Extension <1050>	1050	31	0	00:12:07	00:00:00	0.04	0.00
Extension <1070>	1070	1	0	00:00:13	00:00:00	0.00	0.00
Extension <1100>	1100	1	0	00:00:00	00:00:00	0.00	0.00
Extension <1101>	1101	30	0	00:1	00:00:00	0.01	0.00
Extension <1102>	1102	9	0	00: 2:34	00:00:00	0.00	0.00
Extension <5201>	5201	1	0	00: 15	00:00:00	0.00	0.00
Extension <5250>	5250	21	0	9:04	00:00:00	0.00	0.00
Extension <>		2	0	00:0 6	00:00:00	0.00	0.00
Project <12345>		3	0	00:00 7	00:00:00	0.00	0.00
Project <88888>		269	0	01:56:19	00:00:00	0.17	0.00
Total		**473**	**0**	**02:52:35**	**00:00:00**	**0.39**	**0.00**

Summary	Number	Amount (EUR)
Business Call	201	0.22
Project Call	272	0.17
Total	**473**	**0.39**

8. Conclusion

A full and comprehensive set of feature functional test cases were performed during compliance testing. aurenz GmbH AlwinPro UC-Edition v13.0 is considered compliant with Avaya IP Office R11.1. All test cases have passed with all observations noted in **Section 2.2**.

9. Additional References

These documents form part of the Avaya official technical reference documentation suite. Further information may be had from *http://support.avaya.com* or from your Avaya representative.

[1] *Administering Avaya IP Office™ Platform with Manager.* Release 11.0, February 2019

Information on the installation and configuration of AlwinPro UC-Edition can be found at https://www.aurenz.de.

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