



Avaya Solution & Interoperability Test Lab

Application Notes for aurenz GmbH UC-Analytics with Avaya Aura® Communication Manager to collect Call Detail Records (CDR) – Issue 1.0

Abstract

These Application Notes describe the configuration steps necessary for provisioning aurenz GmbH's product UC-Analytics v13.0 to successfully interoperate with Avaya Aura® Communication Manager R8.1 to collect CDR.

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 necessary for provisioning aurenz GmbH's product UC-Analytics v13.0 to successfully interoperate with Avaya Aura® Communication Manager R8.1 to collect CDR. UC-Analytics from aurenz GmbH is an add on module used specifically to provide additional statistical information based on data, in the form of Call Detail Records (CDR), collected from Avaya Aura® Communication Manager using the Data Collector installed on UC-Analytics. For further information please go to <https://www.aurenz.de>

Based on the call data generated on Communication Manager and collected into the Data Collector, UC-Analytics offers different evaluation options. Personal reports of corporate communication on the integrated dashboard, peak time reports and analyses to optimize processes. In addition to reports and analyses, the UC-Analytics offers the full scope of a modern call accounting solution. This way additional costs (other than call data) such as working hours, equipment costs (devices) and services can be distributed and charged according to the originator.

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

Note: UC-Analytics contains the AlwinPro UC-Edition module which is used to display billing and accounting information based on the CDR received into the Data Collector, for more information on AlwinPro UC-Edition please search for *Application Notes for aurenz GmbH AlwinPro UC-Edition with Avaya Aura® Communication Manager to collect Call Detail Records (CDR)*.

2. General Test Approach and Test Results

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

There are some differences in Communication Manager in the call records generated by SIP endpoints compared to Digital and H.323 endpoints. As a result, in certain scenarios involving SIP endpoints (e.g., two-party call, transfer, or conference), a CDR application may see more or less records, or records with condition codes/calling party other than expected.

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 UC-Analytics 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 Communication Manager.

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 Communication Manager from PSTN callers.
- **Outbound calls** – Test CDR records for outbound calls from the Communication Manager 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 Communication Manager 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.
- **Bridged Appearance and Hunt Groups** – Calls were made using Bridged Appearance and calls were made to Hunt Groups to see how they are reported on.
- **Serviceability** - The behaviour of UC-Analytics under different simulated LAN failures were also observed.

Note: Two PSTN lines were used, ISDN and SIP trunk using a Session Border Controller. Private trunk calls (Inter-Switch calls) are routed via AAR and SIP Trunk based upon the extension dialed instead of the AAR facility access code.

Each CDR record was inspected for the accuracy of specific information shown below:

- Call termination time
- Call duration
- Condition code
- Dialed number
- Calling number
- Access code dialed (outbound)
- Access code used (outbound)
- Outgoing/incoming TAC and circuit ID

2.2. Test Results

Tests were performed to ensure full interoperability of Communication Manager with aurenz GmbH UC-Analytics. Performance and load testing is outside the scope of the compliance testing. All the test cases passed successfully. With the following observations noted.

1. Supervised Transfer, PSTN calls to SIP1, SIP1 then transfers the PSTN caller to SIP2. Specific information on “leg 2” of the transfer is not sent by Communication Manager.
2. Supervised Transfer, SIP1 calls to SIP2, SIP2 then transfers SIP1 to the PSTN. All durations are shown but Communication Manager does not pass on all information on parties on the final leg of the call.
3. Supervised Transfer, SIP calls to H323, H323 then transfers SIP to another H323. Only produces one record and that was for leg 1, that is all Communication Manager sends out.
4. Blind Transfer, SIP calls to H323, H323 then transfers SIP to another H323. Only produces one record for leg 1, that is all Communication Manager sends out.
5. Blind Transfer, H323 calls to H323, H323 then transfers H323 to a SIP. Only produces one record for leg 1, that is all Communication Manager sends out.
6. SIP1 calls out to PSTN, PSTN then transfers SIP1 into SIP2 leaving SIP1 and SIP2 talking to each other. All legs are being sent by Communication Manager on this occasion, but UC Analytics is not displaying leg 2 correctly. For H.323 making the same calls, Phone1 to PSTN number (outbound trunk call) and PSTN number to Phone2 (inbound trunk call) are being reported on. For SIP making the calls, then Phone1 to PSTN number (outbound trunk call) is reported on but the second leg does not show PSTN number to Phone2, it shows Phone1 and Phone2 instead. aurenz is investigating the issue.

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 a Communication Manager, System Manager, Session Manager, a Media Server and a G430 Media Gateway. Communication Manager is configured to output CDR over a TCP/IP port. CDR is sent in customized format and retrieved by UC-Analytics. 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. Session Manager shown in the diagram is used for SIP telephones and SIP trunks.

Note: UC-Analytics was connected directly to Communication Manager using a direct TCP/IP connection.

Note: Two simulated PSTN lines were used, ISDN and SIP trunk using a Session Border Controller.

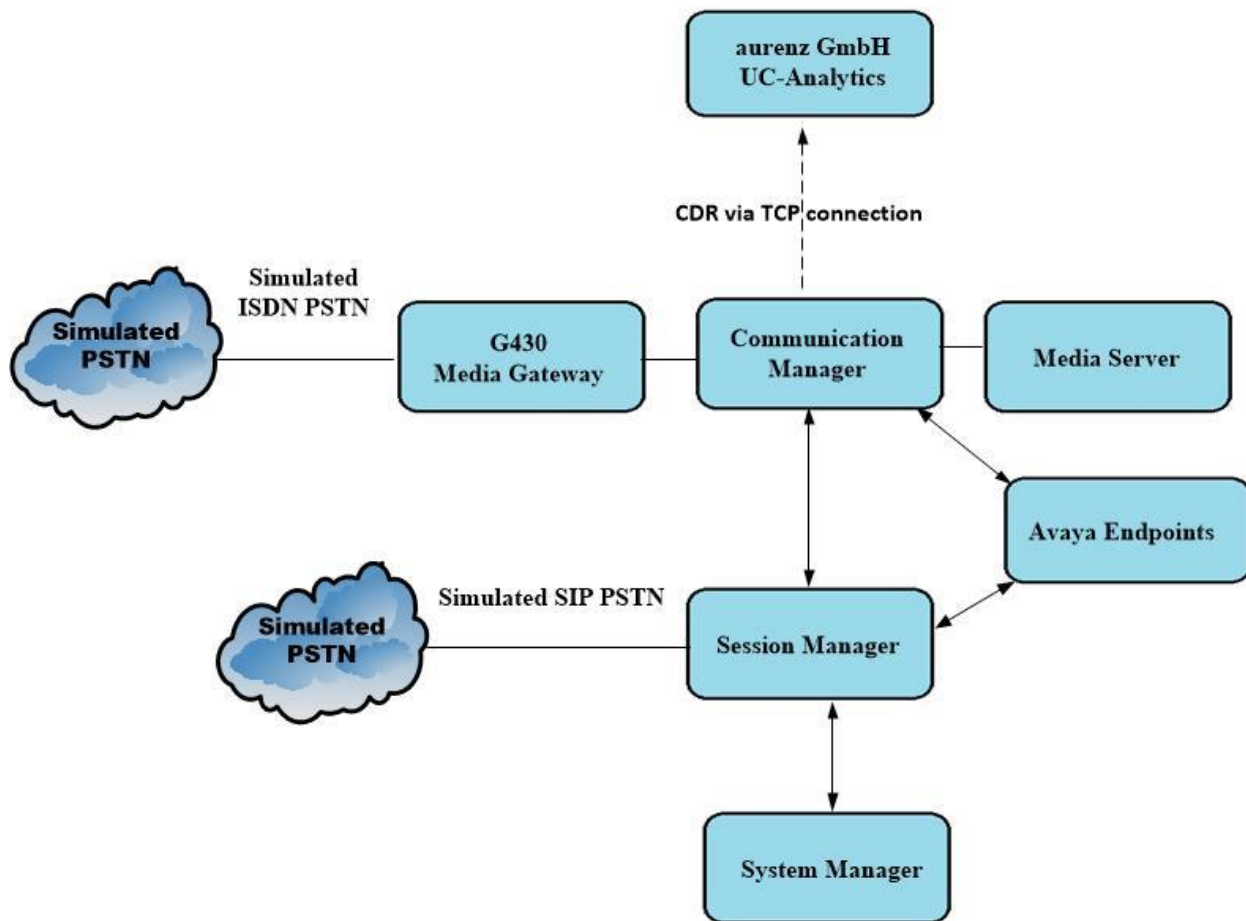


Figure 1: Avaya Aura® Communication Manager and aurenz GmbH reference configuration

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® System Manager running on a virtual server	8.1.3.2 Build No. – 8.1.0.0.733078 Software Update Revision No: 8.1.3.2.1012646 Service Pack 2
Avaya Aura® Session Manager running on a virtual server	8.1.3.2 Build No. – 8.1.3.2.813207
Avaya Aura® Communication Manager running on a virtual server	8.1.3.2 – FP3SP2 R018x.01.0.890.0 Update ID 01.0.890.0-26989
Avaya Aura® Media Server	8.0.2.184
Avaya G430 Media Gateway	41.16.0/1
Avaya J179 IP Phone (H.323)	6.8502
Avaya J189 IP Phone (SIP)	4.0.10.1.2
Avaya 9404 Digital Phone	2.00
aurenz GmbH UC-Analytics running on Windows 10 PC	13.0.1.02

5. Configure Avaya Aura® Communication Manager

Configuration and verification operations on the Communication Manager illustrated in this section were all performed using Avaya Site Administrator Emulation Mode. The information provided describes the configuration of the Communication Manager 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:

- Create Node Name for UC-Analytics
- Define the CDR Link
- Change System Parameters CDR
- Set System Parameters Special Applications
- Set Class of Service
- Configure Trunks for CDR Reporting

5.1. Create Node Name for UC-Analytics

A Node Name needs to be created to associate UC-Analytics with Communication Manager. Use the **change node-names ip** command to configure the following:

- **Name** Enter an informative name i.e., **UC-Analytics**
- **IP address** Enter the IP address of the UC-Analytics PC/Server

change node-names ip		Page	1 of	2
IP NODE NAMES				
Name	IP Address			
UC-Analytics	10.10.40.182			

5.2. Define the CDR Link

A CDR link needs to be defined between the Communication Manager and UC-Analytics. Use the **change ip-services** command to configure the following:

- **Service Type** Enter **CDR1**
- **Local Node** Enter **procr**
- **Remote Node** Enter **UC-Analytics**
- **Remote Port** Enter **9000**

change ip-services						Page 1 of 4
IP SERVICES						
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port	TLS Encryption
AESVCS	y	procr	8765			
CDR1		procr	0	UC-Analytics	9000	n

TLS Encryption was set to **n**, as encryption was not used.

Navigate to **Page 3** and set the **Reliable Protocol** field to **n**. This will disable Reliable Session Protocol (RSP) for CDR transmission. In this case, the CDR link will use TCP without RSP.

change ip-services						Page 3 of 4
SESSION LAYER TIMERS						
Service Type	Reliable Protocol	Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer	
CDR1	n	30	3	3	60	

5.3. Change System Parameters CDR

Certain parameter changes are required for Communication Manager to interoperate with UC-Analytics. The screen shots below show the settings used during compliance testing. Use the **change system-parameters cdr** command to configure the following.

change system-parameters cdr		Page 1 of 2
CDR SYSTEM PARAMETERS		
Node Number (Local PBX ID):		CDR Date Format: day/month
Primary Output Format: customized		Primary Output Endpoint: CDR1
Secondary Output Format:		
CDR Retention (days): 20		
Use ISDN Layouts? n		Enable CDR Storage on Disk? n
Use Enhanced Formats? n		Condition Code 'T' For Redirected Calls? n
Use Legacy CDR Formats? y		Remove # From Called Number? n
Modified Circuit ID Display? n		
Record Outgoing Calls Only? n		Outg Trk Call Splitting? y
Suppress CDR for Ineffective Call Attempts? n		Outg Attd Call Record? y
Disconnect Information in Place of FRL? y		Interworking Feat-flag? n
Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n		
Calls to Hunt Group - Record: member-ext		
Record Called Vector Directory Number Instead of Group or Member? y		
Record Agent ID on Incoming? n		Record Agent ID on Outgoing? y
Inc Trk Call Splitting? y		Inc Attd Call Record? y
Record Non-Call-Assoc TSC? n		Call Record Handling Option: warning
Record Call-Assoc TSC? n		Digits to Record for Outgoing Calls: dialed
Privacy - Digits to Hide: 0		CDR Account Code Length: 5
Remove '+' from SIP Numbers? y		

Navigate to **Page 2** and enter **Data Item** and **Length** as shown in the screen below.

change system-parameters cdr				Page 2 of 2	
CDR SYSTEM PARAMETERS					
Data Item - Length		Data Item - Length		Data Item - Length	
1: date	- 6	17: clg-num/in-tac	- 15	33: location-from	- 3
2: space	- 1	18: space	- 1	34: space	- 1
3: start-time	- 6	19: acct-code	- 15	35: location-to	- 3
4: space	- 1	20: space	- 1	36: return	- 1
5: end-time	- 6	21: in-trk-code	- 4	37: line-feed	- 1
6: space	- 1	22: space	- 1	38:	-
7: sec-dur	- 5	23: out-crt-id	- 3	39:	-
8: space	- 1	24: space	- 1	40:	-
9: cond-code	- 1	25: in-crt-id	- 3	41:	-
10: space	- 1	26: space	- 1	42:	-
11: code-dial	- 4	27: frl	- 1	43:	-
12: space	- 1	28: space	- 1	44:	-
13: code-used	- 4	29: auth-code	- 13	45:	-
14: space	- 1	30: space	- 1	46:	-
15: dialed-num	- 23	31: vdn	- 13	47:	-
16: space	- 1	32: space	- 1	48:	-
Record length = 147					

5.4. Set System Parameters Special Applications

There are Special Applications that need to be set to allow for certain CDR conditions such as **Start Time and 4-Digit Year CDR Custom Fields**, this is **SA8201**, and it should be set to y as shown below.

change system-parameters special-applications	Page 3 of 11
SPECIAL APPLICATIONS	
(SA8141) - LDN Attendant Queue Priority? n	
(SA8143) - Omit Designated Extensions From Displays? n	
(SA8146) - Display Update for Redirected Calls? n	
(SA8156) - Attendant Priority Queuing by COR? n	
(SA8157) - Toll Free Vectoring until Answer? n	
(SA8201) - Start Time and 4-Digit Year CDR Custom Fields? y	
(SA8202) - Intra-switch CDR by COS? y	
(SA8211) - Prime Appearance Preference? n	
(SA8240) - Station User Admin of FBI? n	
(SA8312) - Meet-Me Paging? n	
(SA8323) - Idle Call Preference Display? n	
(SA8339) - PHS X-Station Mobility? n	
(SA8348) - Map NCID to Universal Call ID? n	
(SA8428) - Station User Button Ring Control? n	
(SA8434) - Delay PSTN Connect on Agent Answer? n	
(SA8439) - Forward Held-Call CPN? n	
(SA8440) - Unmodified QSIG Reroute Number? n	
(SA8475) - SOSM? n	

5.5. Set Class of Service

Intra-switch CDR can be set to **y** as shown below. This was set for COS 1 and can be then assigned to each trunk group or station as required.

change cos-group 1											Page		1 of		2	
CLASS OF SERVICE	COS Group: 1				COS Name: PG Default											
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Auto Callback	n	y	y	n	y	n	y	n	y	n	y	n	y	n	y	n
Call Fwd-All Calls	n	y	n	y	y	n	n	y	y	n	n	y	y	n	n	y
Data Privacy	n	y	n	n	n	y	y	y	y	n	n	n	n	y	y	y
Priority Calling	n	y	n	n	n	n	n	n	n	y	y	y	y	y	y	y
Console Permissions	n	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Off-hook Alert	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Client Room	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Restrict Call Fwd-Off Net	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y
Call Forwarding Busy/DA	n	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Personal Station Access (PSA)	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Extended Forwarding All	n	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Extended Forwarding B/DA	n	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Trk-to-Trk Transfer Override	n	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
QSIG Call Offer Originations	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Contact Closure Activation	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Intra-switch CDR	n	y	n	n	n	n	n	n	n	n	n	n	n	n	n	n

5.6. Configure Trunks for CDR Reporting

For each trunk group for which CDRs are desired, verify that CDR reporting is configured to generate CDR's. Use the **change trunk-group n** command, where **n** is the trunk group number, to verify that the **CDR Reports** field is set to **r**. This applies to all types of trunk groups.

Setting the CDR Reports field to **r** means that CDR records are generated for both incoming and outgoing calls. In addition, the following ringing interval CDR records are generated:

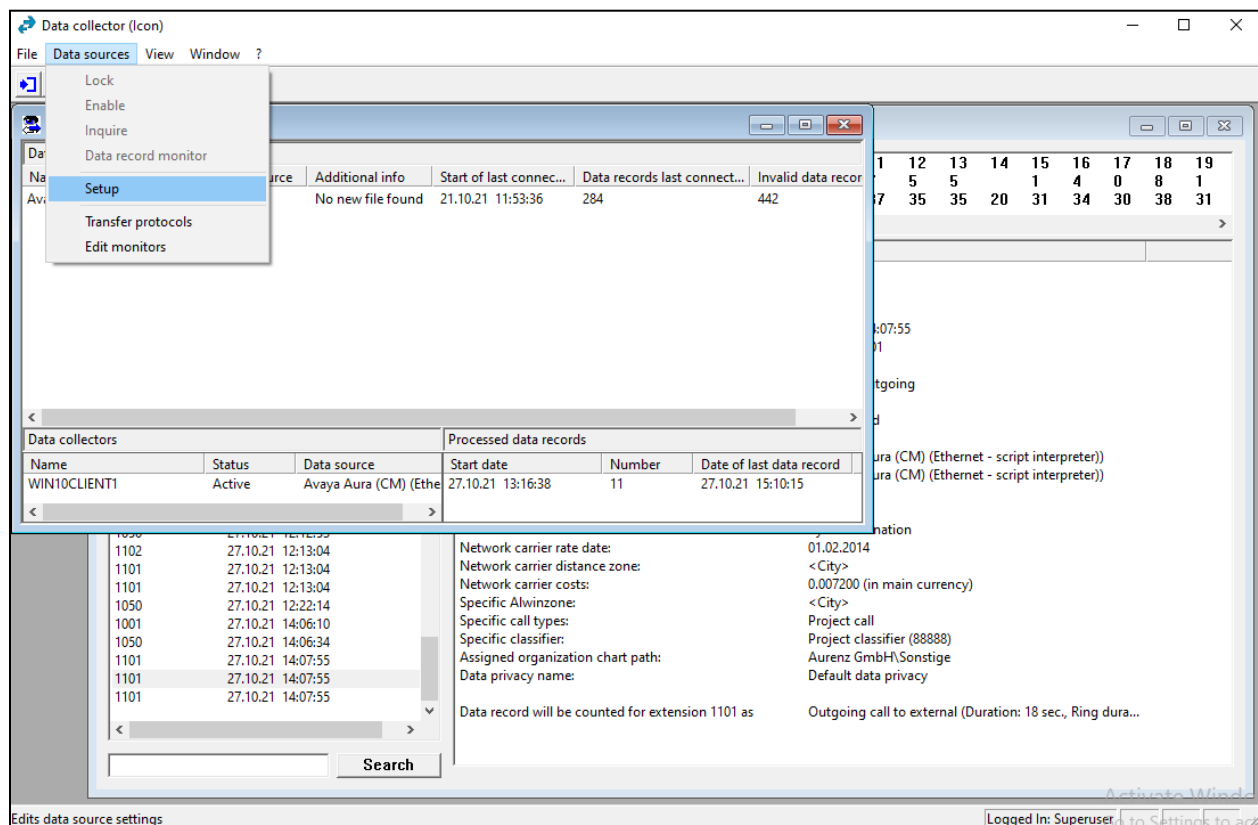
- Abandoned calls: The system creates a record with a condition code of "H" indicating the time until the call was abandoned.
- Answered calls: The system creates a record with a condition code of "G" indicating the interval from start of ring to answer.
- Calls to busy stations: The system creates a record with a condition code of "I" indicating a recorded interval of 0.

change trunk-group 22			Page	1 of	5
TRUNK GROUP					
Group Number: 22		Group Type: sip		CDR Reports: r	
Group Name: To Simulated PSTN		COR: 1		TN: 1	TAC: *822
Direction: two-way		Outgoing Display? n			
Dial Access? n		Night Service:			
Queue Length: 0					

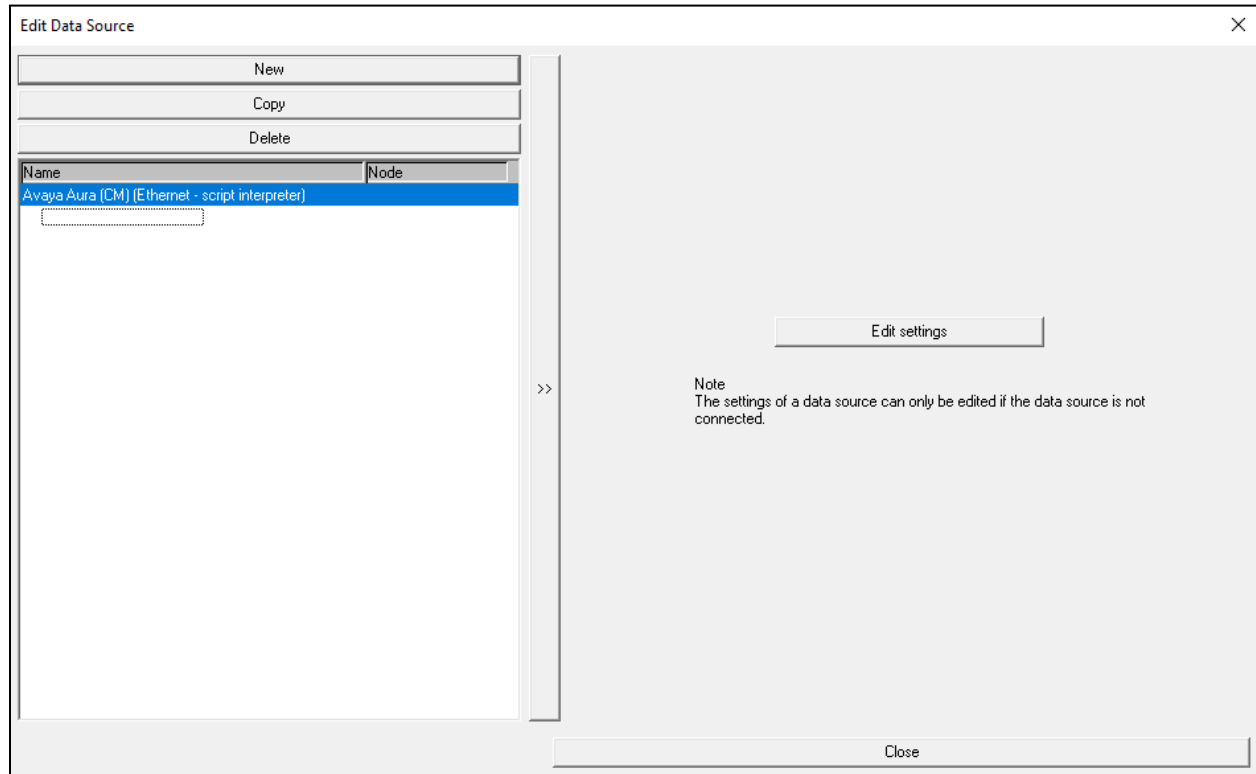
6. Configuration of aurenz GmbH UC-Analytics

This section outlines the steps to configure the UC-Analytics to collect CDR data. UC-Analytics 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 UC-Analytics can be found in **Section 9** of this document.

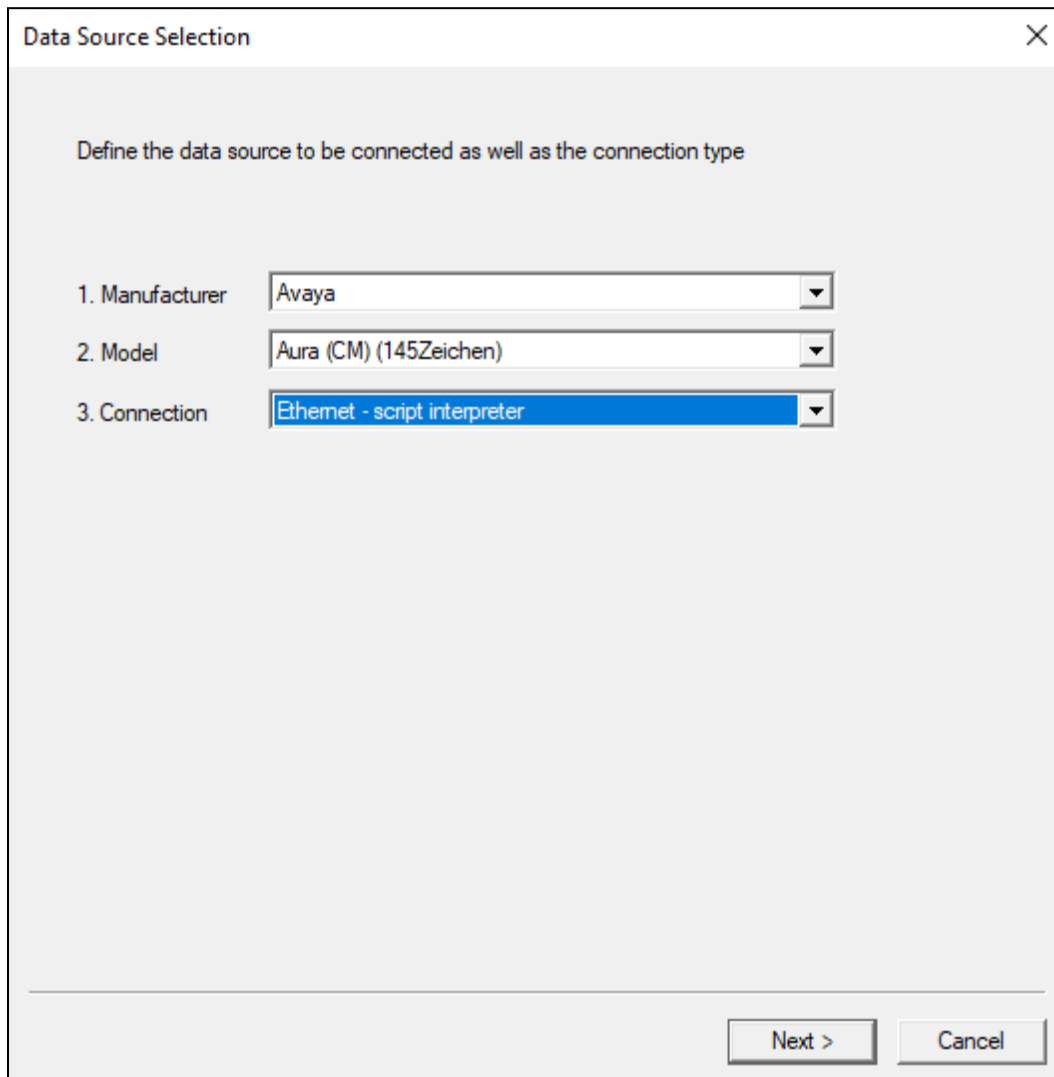
Once the software is installed the connection to Communication Manager can be created by accessing the Data Collector wizard. The Data Collector is running in the system tray at the bottom of the screen, once opened the following screen is displayed where a new Data Source can be created by navigating to **Data Sources → Setup**.



Click on **New** from the screen shown below.



Select **Avaya** as the **Manufacturer** and the **Model** should be set to **Aura (CM) (145Zeichen)** as shown below, the **Connection** is set to **Ethernet – script interpreter**. Click on **Next** to continue.

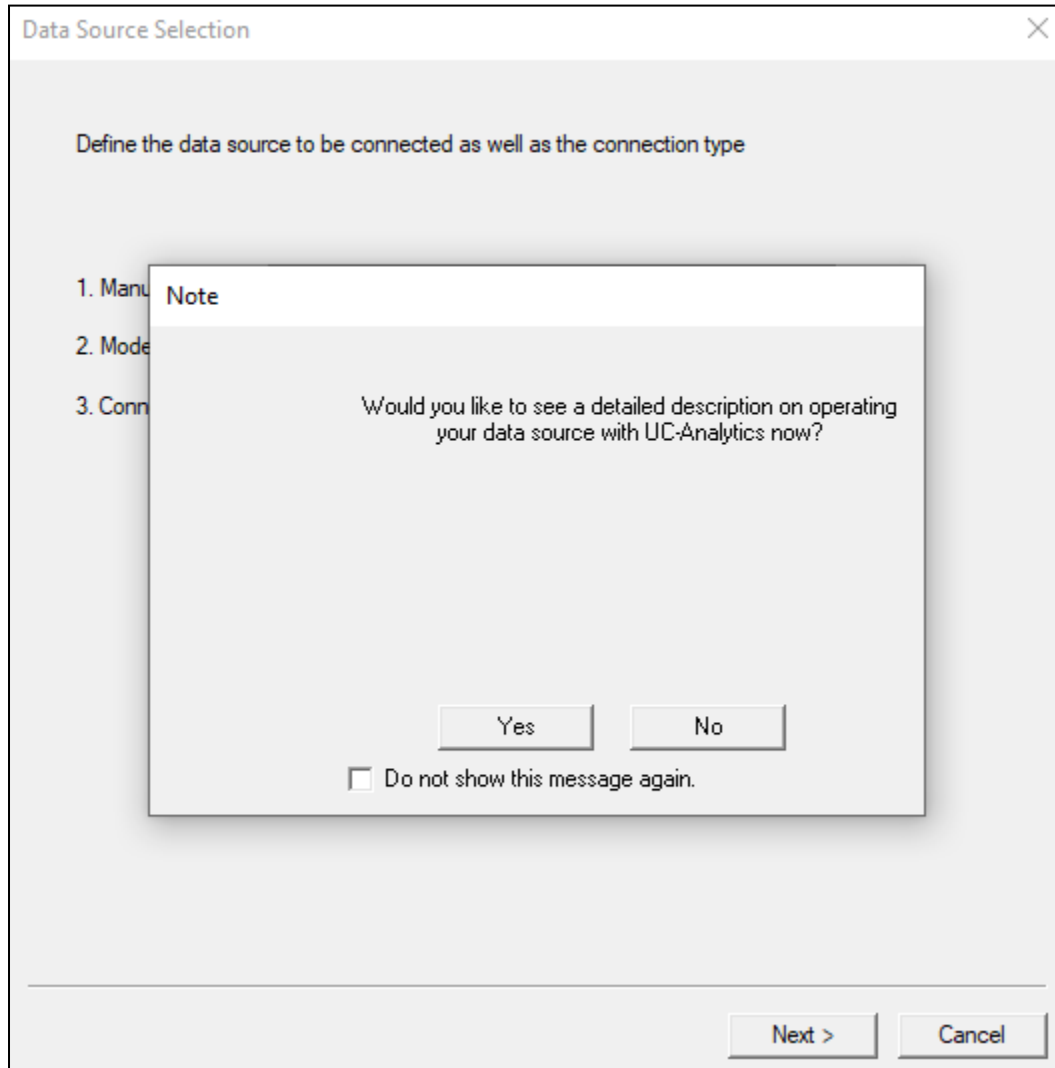


The image shows a 'Data Source Selection' dialog box with a close button (X) in the top right corner. The dialog contains the instruction 'Define the data source to be connected as well as the connection type'. Below this, there are three dropdown menus labeled '1. Manufacturer', '2. Model', and '3. Connection'. The 'Manufacturer' dropdown is set to 'Avaya', the 'Model' dropdown is set to 'Aura (CM) (145Zeichen)', and the 'Connection' dropdown is set to 'Ethernet - script interpreter'. At the bottom right of the dialog, there are two buttons: 'Next >' and 'Cancel'.

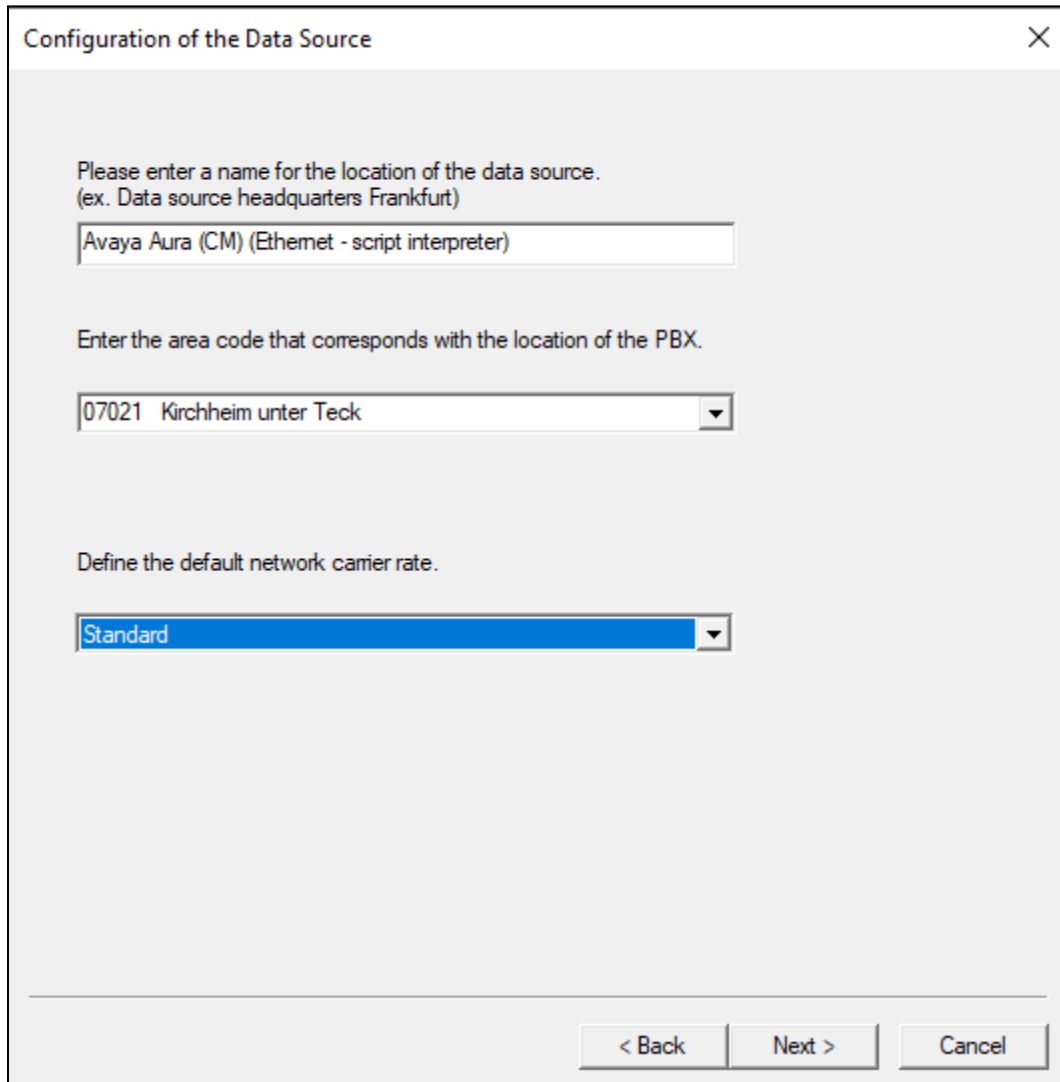
Label	Value
1. Manufacturer	Avaya
2. Model	Aura (CM) (145Zeichen)
3. Connection	Ethernet - script interpreter

Next > Cancel

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



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

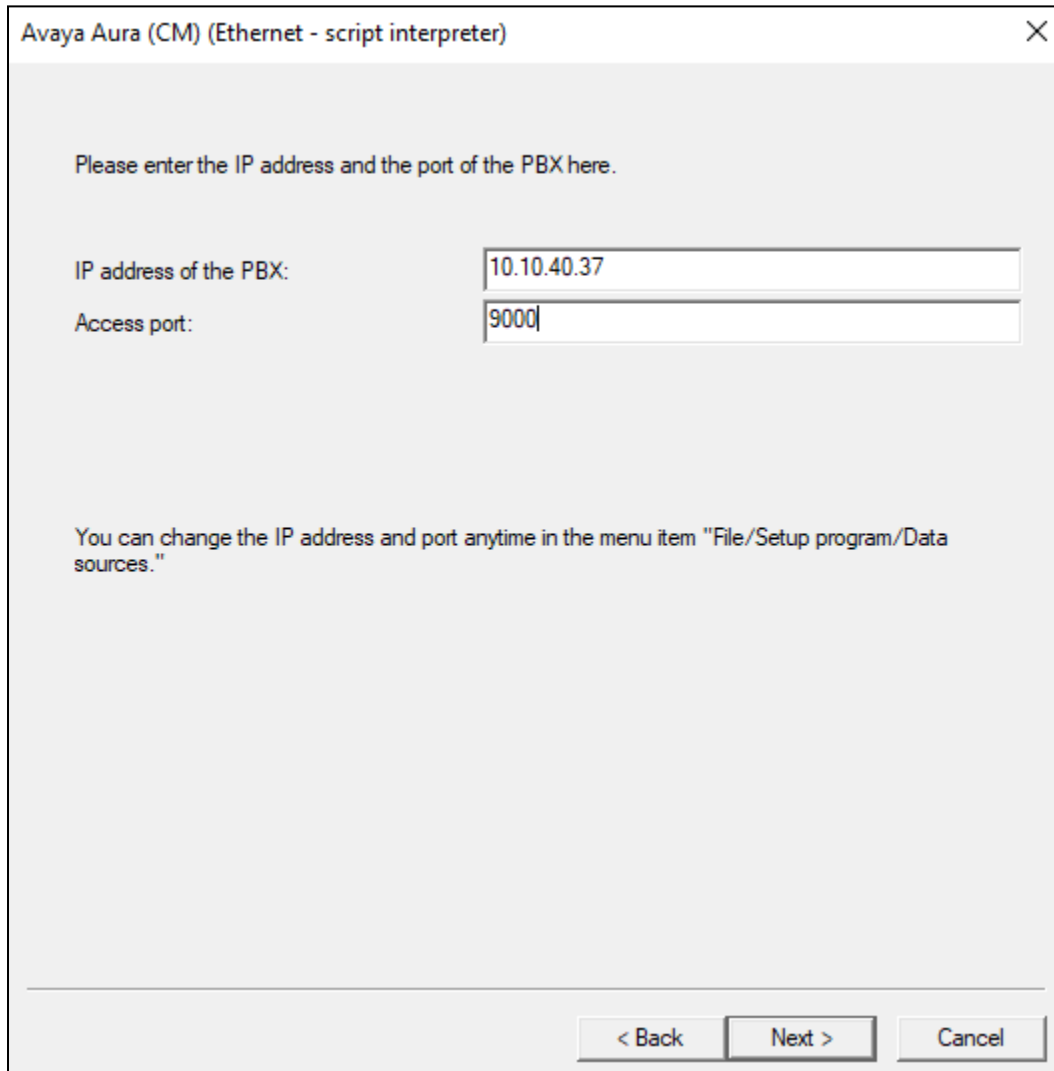


The image shows a dialog box titled "Configuration of the Data Source" with a close button (X) in the top right corner. The dialog contains three sections for configuration:

- Location Name:** A text input field with the placeholder text "Please enter a name for the location of the data source. (ex. Data source headquarters Frankfurt)". The field contains the text "Avaya Aura (CM) (Ethernet - script interpreter)".
- Area Code:** A dropdown menu with the placeholder text "Enter the area code that corresponds with the location of the PBX.". The selected option is "07021 Kirchheim unter Teck".
- Default Network Carrier Rate:** A dropdown menu with the placeholder text "Define the default network carrier rate.". The selected option is "Standard".

At the bottom right of the dialog, there are three buttons: "< Back", "Next >", and "Cancel".

Enter the **IP address** of Communication Manager and the **Access port** as defined in **Section 5.2**.



A screenshot of a Windows-style dialog box titled "Avaya Aura (CM) (Ethernet - script interpreter)". The dialog has a close button (X) in the top right corner. Inside, it says "Please enter the IP address and the port of the PBX here." Below this, there are two input fields. The first is labeled "IP address of the PBX:" and contains the text "10.10.40.37". The second is labeled "Access port:" and contains the text "9000". Below the input fields, there is a line of text: "You can change the IP address and port anytime in the menu item 'File/Setup program/Data sources.'" At the bottom right of the dialog, there are three buttons: "< Back", "Next >", and "Cancel".

Avaya Aura (CM) (Ethernet - script interpreter)

Please enter the IP address and the port of the PBX here.

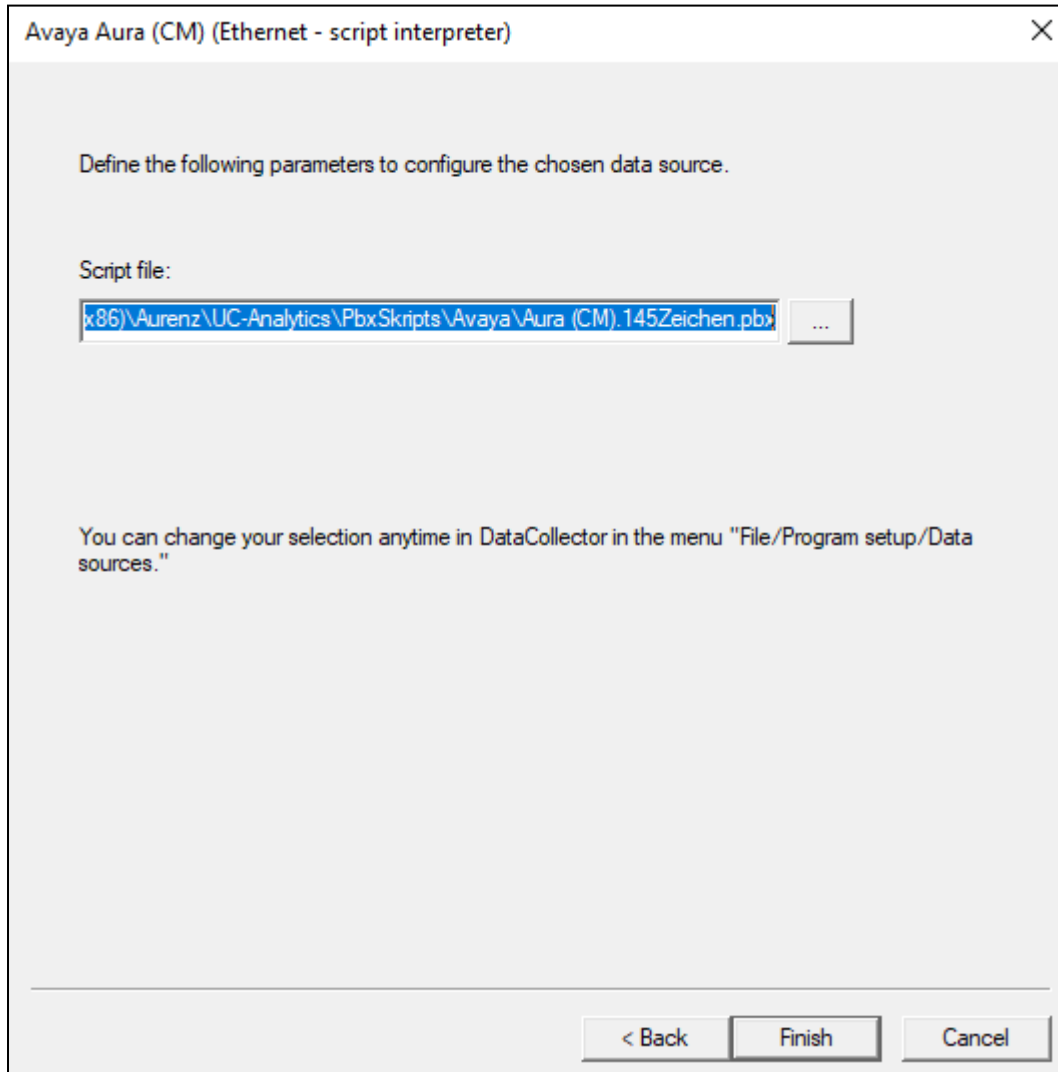
IP address of the PBX: 10.10.40.37

Access port: 9000

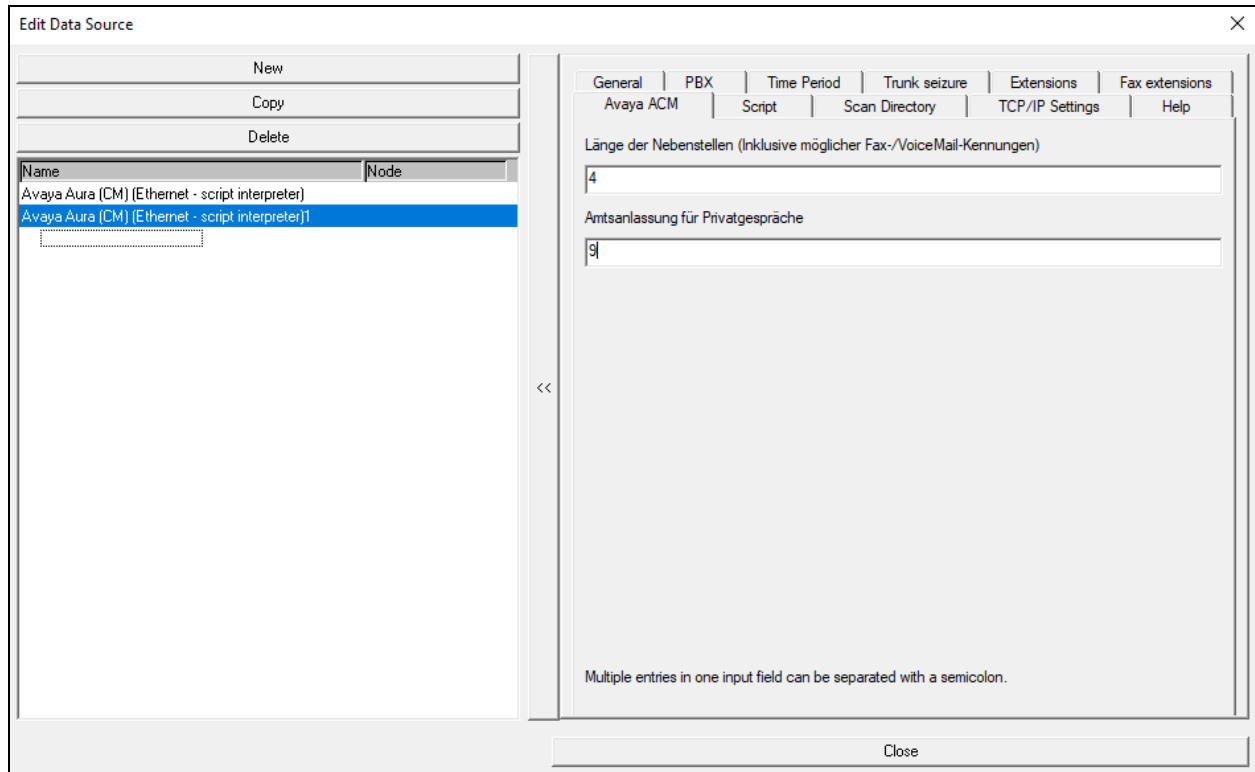
You can change the IP address and port anytime in the menu item "File/Setup program/Data sources."

< Back Next > Cancel

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 ACM** tab allows the extension length to be specified as **4** and the outside line number added as **9**.



Communication Manager is configured to send the data to the UC-Analytics. 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 on Communication Manager.

The screenshot shows the 'Edit Data Source' dialog box. On the left, there is a list of data sources with columns 'Name' and 'Node'. The list contains two entries: 'Avaya Aura (CM) [Ethernet - script interpreter]' and 'Avaya Aura (CM) [Ethernet - script interpreter]1', which is currently selected. Above the list are buttons for 'New', 'Copy', and 'Delete'. The main area on the right is titled 'Edit Data Source' and contains several tabs: 'General', 'PBX', 'Time Period', 'Trunk seizure', 'Extensions', 'Fax extensions', 'Avaya ACM', 'Script', 'Scan Directory', 'TCP/IP Settings', and 'Help'. The 'TCP/IP Settings' tab is active. It contains the following settings: 'Type of connection' with radio buttons for 'Active' and 'Passive' (selected); 'IP address of the PBX' with a text field containing '0.0.0.0'; 'Access port' with a text field containing '7000'; 'IP address for access' with a dropdown menu set to 'All IP addresses' and a text field containing '0.0.0.0'; and 'Access port' with a text field containing '9000'. A note at the bottom states: '*) An ip address for the data collector must be entered here [NOT the ip address of the PBX]! You can also select the "All ip addresses" option, then all ip addresses on the entered port are waited for a connection.' A 'Close' button is at the bottom right.

Name	Node
Avaya Aura (CM) [Ethernet - script interpreter]	
Avaya Aura (CM) [Ethernet - script interpreter]1	

Avaya Aura (CM) [Ethernet - script interpreter]1

General | PBX | Time Period | Trunk seizure | Extensions | Fax extensions
Avaya ACM | Script | Scan Directory | TCP/IP Settings | Help

Type of connection: ☐ Active ☒ Passive

IP address of the PBX: 0.0.0.0

Access port: 7000

IP address for access: All IP addresses (dropdown), 0.0.0.0 (text field)

Access port: 9000

*) An ip address for the data collector must be entered here [NOT the ip address of the PBX]!
You can also select the "All ip addresses" option, then all ip addresses on the entered port are waited for a connection.

Close

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

The screenshot shows the 'Edit Data Source' window with the 'Time Period' tab selected. The left pane shows a list of data sources with 'Avaya Aura (CM) [Ethernet - script interpreter]1' selected. The right pane shows the configuration for the 'Time Period' tab, which includes a table for setting operation times for each day of the week. The table has columns for 'from' and 'to' times, and an 'Interval' column. The settings are as follows:

	from	to	from	to	Interval
Monday	00:00	00:00	21:00	23:59	1
Tuesday	00:00	00:00	21:00	23:59	1
Wednesday	00:00	00:00	21:00	23:59	1
Thursday	00:00	00:00	21:00	23:59	1
Friday	00:00	00:00	21:00	23:59	1
Saturday	00:00	00:00	21:00	23:59	1
Sunday	00:00	00:00	21:00	23:59	1

Below the table is a button labeled 'Copy settings from monday to other days.' and a 'Close' button at the bottom right.

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 Aura® Communication Manager CDR Link

Use the **status cdr-link** command to verify that the link between Communication Manager and UC-Analytics is in service. **Link State: up** and **Reason Code: OK** confirms successful connection.

status cdr-link		CDR LINK STATUS	
	Primary		Secondary
Link State: up			CDR administered
Number of Retries: 999			
Date & Time: 2021/01/28 18:01:12			0000/00/00 00:00:00
Forward Seq. No: 0			0
Backward Seq. No: 0			0
CDR Buffer % Full: 0.03			0.00
Reason Code: OK			

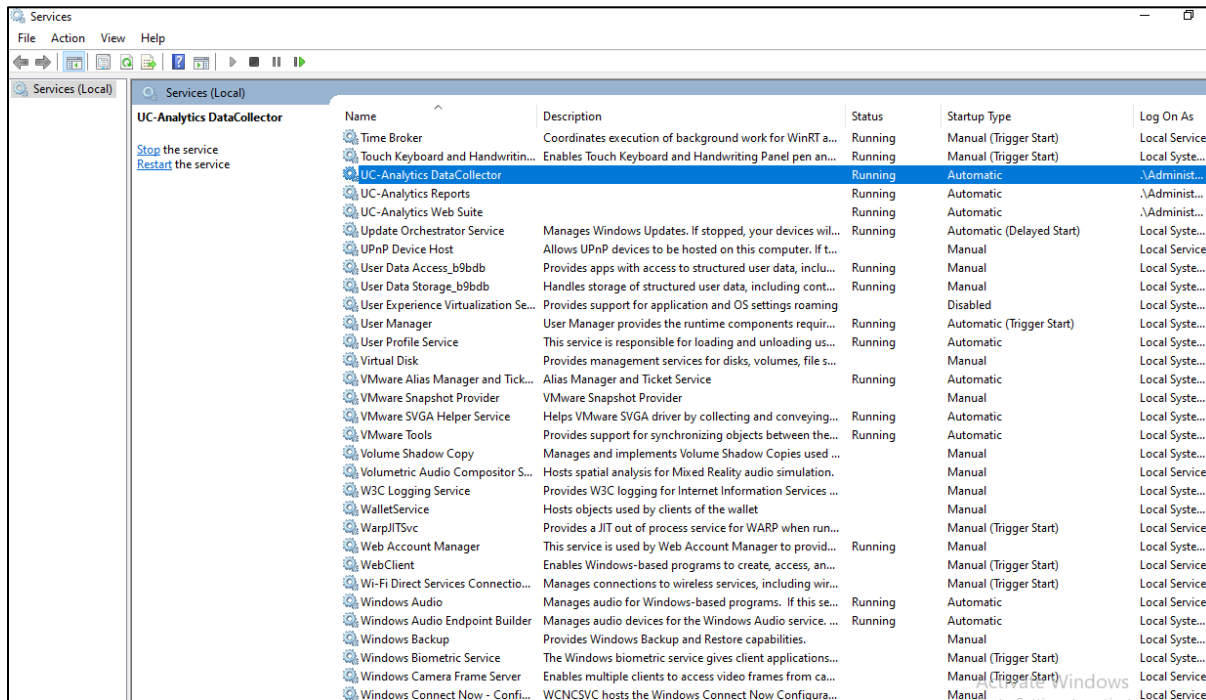
7.2. Verify CDR data is being sent from Avaya Aura® Communication Manager

Setup a port listening tool on a PC and set it to listen on port 9000. Once connected make an incoming and outgoing call and on completion of the calls CDR data should be visible on the port listening tool. An example is shown below.

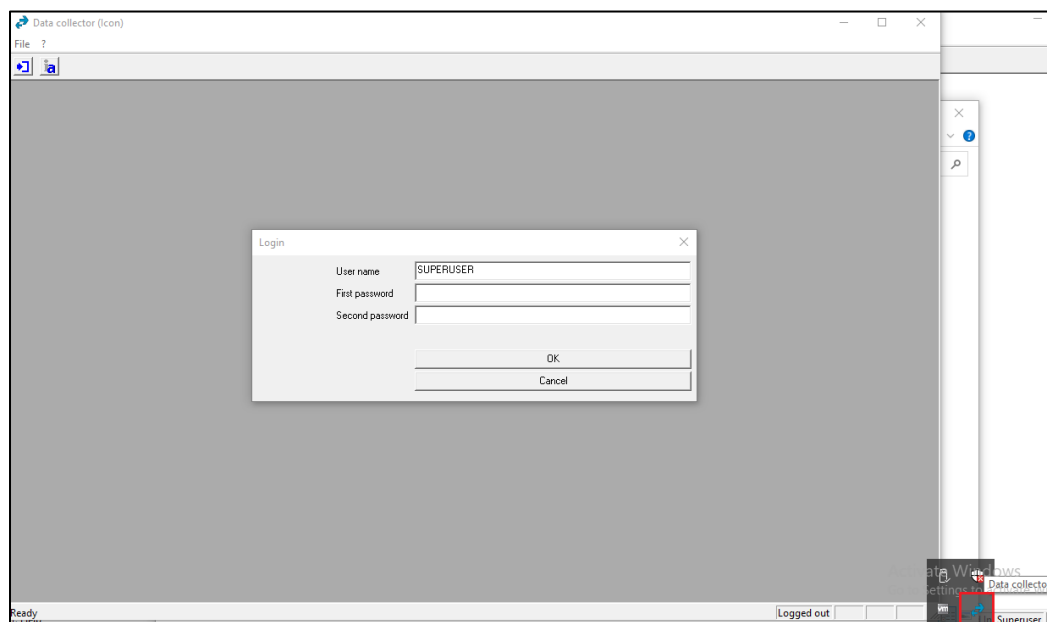
270115	1614	00007	0	701	1003	1003		007	0	0	8888
270115	1614	00007	C		1003	3005	710	015	0	0	
270115	1623	00004	9		710	1003	701	001	0	0	8888
270115	1623	00004	7	9 710	3005	1003		001 009	0	0	8888
270115	1623	00002	7	9 710	3005	1016		010	0	0	
270115	1632	00004	C		1003	1016					
270115	1632	00004	0	701	1003	1003		008	0	0	8888
270115	1633	00004	C		1003	1016					
270115	1633	00004	0	701	1003	1003		009	0	0	8888
270115	1633	00004	C		1003	1016					
270115	1633	00004	0	701	1003	1003		010	0	0	8888
270115	1635	00006	C		1003	1016					
270115	1635	00006	0	701	1003	1003		011	0	0	8888
270115	1637	00004	9		710	1003	701	001	0	0	8888
270115	1637	00004	7	9 710	3005	1003		001 011	0	0	8888
270115	1638	00003	9		1015	1003	701	001	0	0	8888
270115	1638	00002	C		1003	1016					

7.3. Verify CDR data is being received by the UC-Analytics

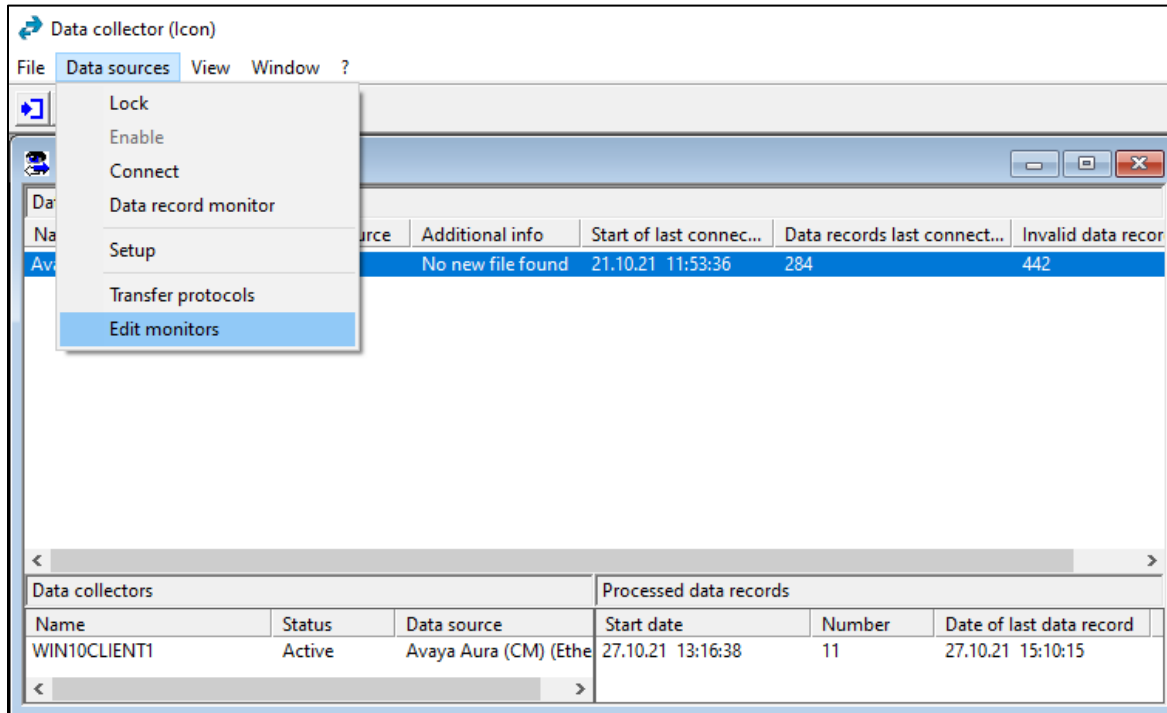
Before the application is run the services can be checked to ensure that they are in the **Running** state as shown below for the **UC-Analytics** services.



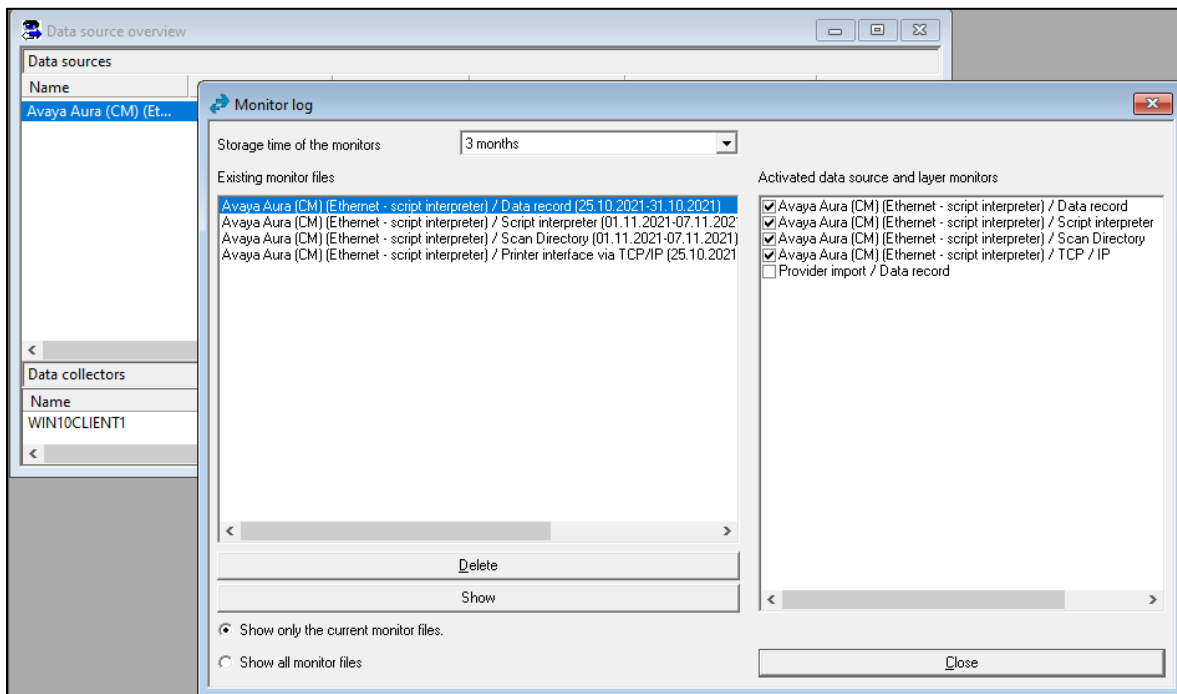
From the task bar at the bottom right of the screen, click on the icon highlighted, this will open the window shown. Enter the appropriate credentials and click on **OK**.



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.



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 **35391847001**.

Data record monitor: Avaya Aura (CM) (Ethernet - script interpreter) / Data record (25.10.2021-31.10.2021)

Extension	Date
1102	27.10.21 11:14:01
1101	27.10.21 11:13:52
1101	27.10.21 11:14:01
1101	27.10.21 11:14:01
1001	27.10.21 11:17:51
1101	27.10.21 11:18:31
1001	27.10.21 11:20:30
1001	27.10.21 11:21:10
1050	27.10.21 11:21:50
1001	27.10.21 11:25:28
1102	27.10.21 11:25:36
1102	27.10.21 11:25:36
1001	27.10.21 11:27:12
1101	27.10.21 11:27:17
1101	27.10.21 11:27:17
1102	27.10.21 12:03:24
1102	27.10.21 12:03:24
1001	27.10.21 12:03:26
1001	27.10.21 12:12:43
1050	27.10.21 12:12:53
1102	27.10.21 12:13:04
1101	27.10.21 12:13:04
1101	27.10.21 12:13:04
1050	27.10.21 12:22:14
1001	27.10.21 14:06:10
1050	27.10.21 14:06:34
1101	27.10.21 14:07:55
1101	27.10.21 14:07:55

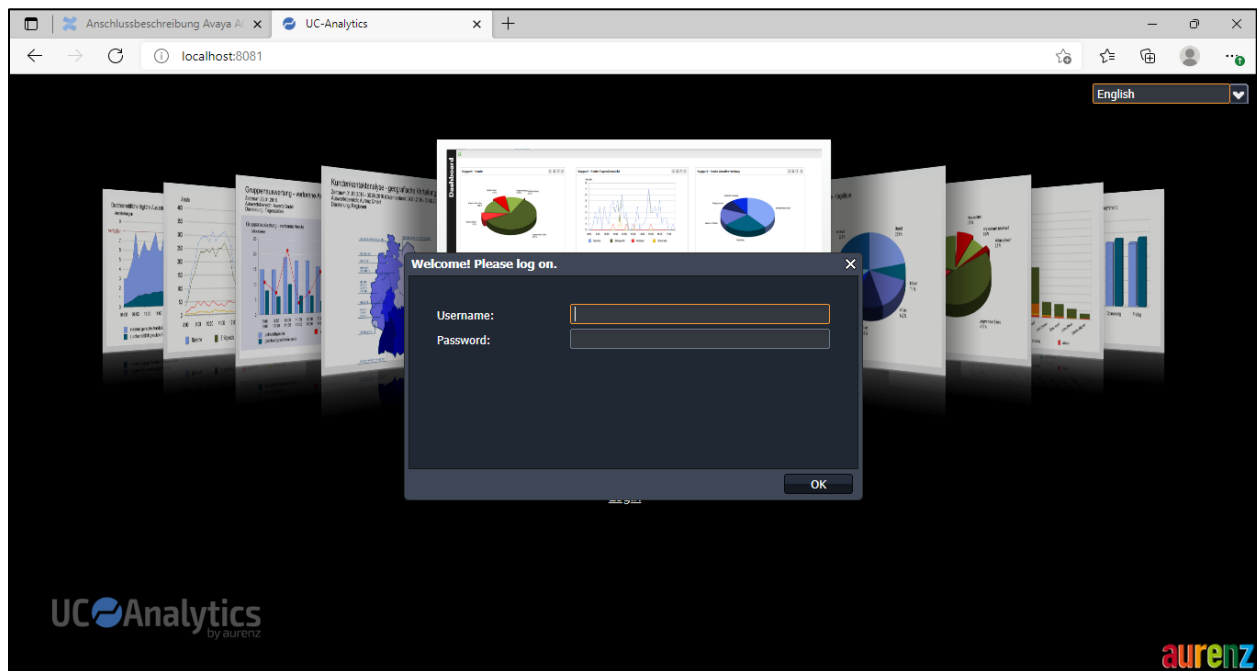
Data record telephony

Charged Subscriber	1101
Call Time	27.10.21 14:07:55
Dialed No.	35391847001
Duration	00:00:18
Call Direction	External outgoing
Original Access Code	88888
Call Service	Not defined
Assigned to PBX:	1 (Avaya Aura (CM) (Ethernet - script interpreter))
Assigned to PBX (trunk):	1 (Avaya Aura (CM) (Ethernet - script interpreter))
Network carrier selection:	by default
Network carrier name:	Standard
Network carrier calculation:	by determination
Network carrier rate date:	01.02.2014
Network carrier distance zone:	<City>
Network carrier costs:	0.007200 (in main currency)
Specific Alwinzone:	<City>
Specific call types:	Project call
Specific classifier:	Project classifier (88888)
Assigned organization chart path:	Aurenz GmbH\Sonstige
Data privacy name:	Default data privacy

Data record will be counted for extension 1101 as Outgoing call to external (Duration: 18 sec., Ring dura...

7.4. Verify UC-Analytics Call Data Reports

Open a web browser to the IP address of the UC-Analytics 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**.



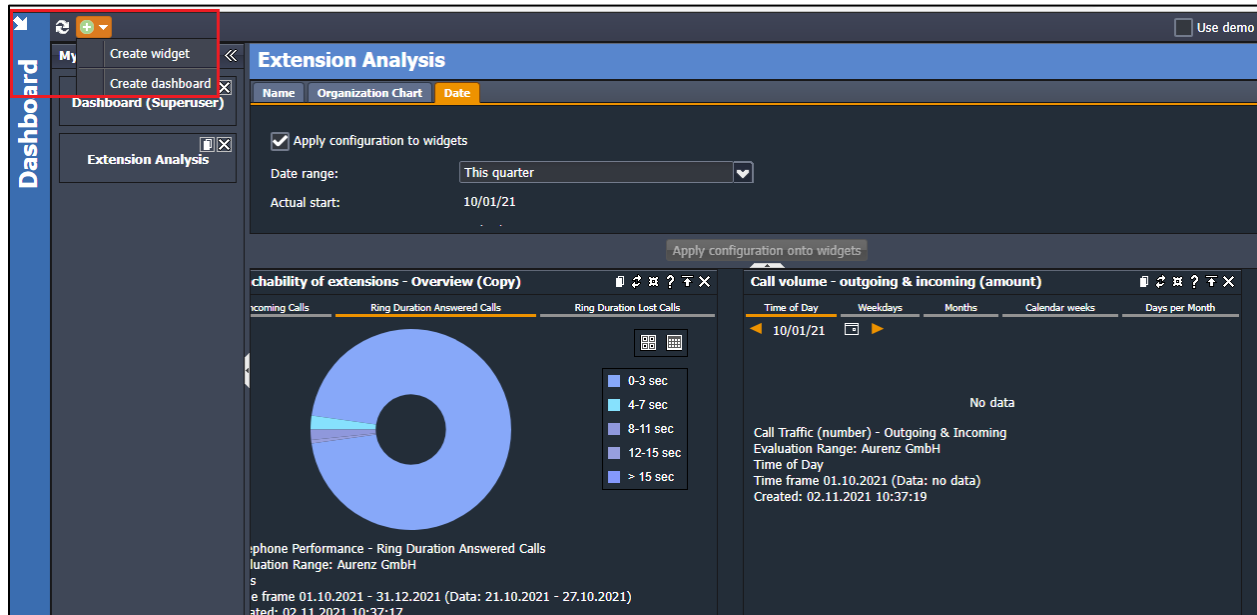
The report should give back call data, an example of this call Data is shown below.

Call ID	Date of connection	Clock time	Direction	Subscri...	Project number	Destination number	Call durat...	Call costs	Alwinzone	Call types	Settlement
0	27.10.2021 14:07:55	13:07:55	Outgoing local	1101	88888	*822	00:00:18	0.00		Project Call	27.10.2
0	27.10.2021 14:07:55	13:07:55	Incoming local	1102	88888	1101	00:00:35	0.00		Project Call	27.10.2
0	27.10.2021 14:07:55	13:07:55	Incoming local	*822	88888	1101	00:00:18	0.00		Project Call	27.10.2
0	27.10.2021 14:07:55	13:07:55	Outgoing	1101	88888	35391847001	00:00:18	0.01	<City>	Project Call	27.10.2
0	27.10.2021 14:07:55	13:07:55	Outgoing local	1101	88888	1102	00:00:35	0.00		Project Call	27.10.2
0	27.10.2021 14:06:34	13:06:34	Incoming	1050		35391847001	00:00:06	0.00	<City>	Business Call	27.10.2
0	27.10.2021 14:06:10	13:06:10	Outgoing	1001		35391847001	00:00:30	0.01	<City>	Business Call	27.10.2
0	27.10.2021 12:22:14	11:22:14	Outgoing local	1050		1001	00:00:10	0.00		Business Call	27.10.2
0	27.10.2021 12:22:14	11:22:14	Incoming local	1001		1050	00:00:10	0.00		Business Call	27.10.2
0	27.10.2021 12:13:04	11:13:04	Incoming local	1102	88888	1101	00:00:55	0.00		Project Call	27.10.2

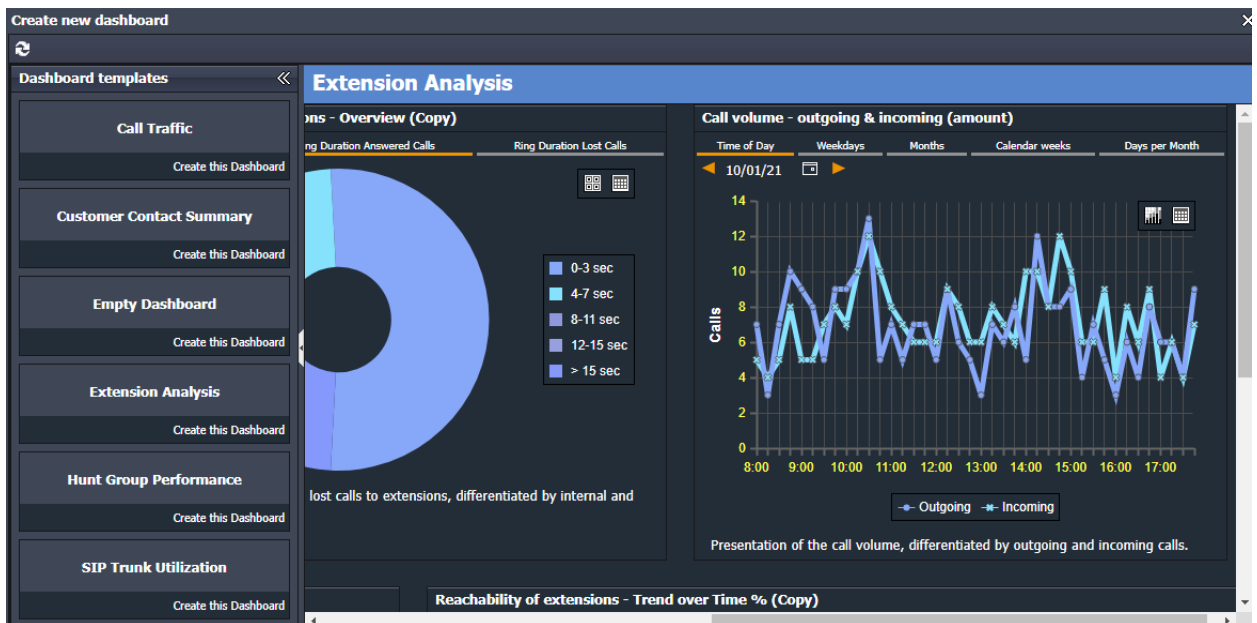
7.5. Verify UC-Analytics Reports

From the main page select **Dashboard** as shown below, where a new Dashboard or Widget can be created, or a default Dashboard opened.

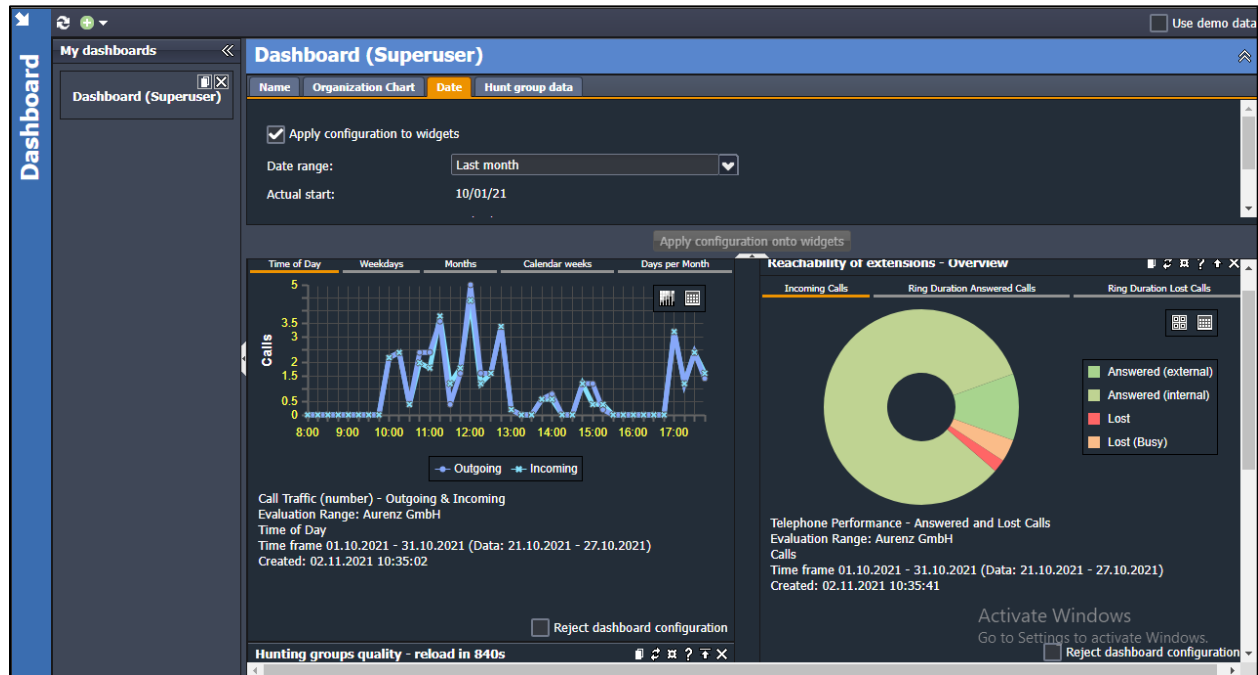
To create a new Dashboard, select **Create dashboard** from the drop-down as shown.



The type of Dashboard required can be selected from the left window.



Below shows some information on calls over the period of a month, displaying various statistics on the overall site.



8. Conclusion

A full and comprehensive set of feature functional test cases were performed during compliance testing. aurenz GmbH UC-Analytics v13.0 is considered compliant with Avaya Aura® Communication Manager R8.1. 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 Aura® Communication Manager*, Release 8.1.x, Issue 12, Jul 2021
- [2] *Administering Avaya Aura® Session Manager*, Release 8.1.x, Issue 8, Feb 2021
- [3] *Avaya Aura® Communication Manager Screen Reference*, Release 8.1.x Issue 12 September 2021
- [4] *Avaya Aura® Communication Manager Feature Description and Implementation*, Release 8.1.x Issue 17 August 2021
- [5] *Avaya Aura® Communication Manager Special Application Features*, October 2020

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

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