



## Avaya Solution & Interoperability Test Lab

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# Application Notes for Calabrio Data Management Release 11.6 with Avaya Aura® Contact Center Release 7.1 – Issue 1.0

### Abstract

These Application Notes describe the configuration steps required for Calabrio Data Management to interoperate with Avaya Aura® Contact Center. Calabrio Data Management is a work force management solution that provides forecasting, scheduling, and monitoring of work for contact center agents. Calabrio Data Management uses the historical call measurement data from Avaya Aura® Contact Center to produce productivity statistics and call anatomy reports for contact center agents.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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 required for Calabrio Data Management interoperates with Avaya Aura® Contact Center's Contact Center Manger Server (CCMS) 7.1, using Historical Reporting database via ODBC.

Calabrio Data Management is a work force management solution that provides forecasting, scheduling, and monitoring of work for contact center agents. Calabrio Data Management uses the historical call measurement data from Avaya Aura® Contact Center (AACC) to produce productivity statistics and call anatomy reports for contact center agents.

## 2. General Test Approach and Test Results

Voice skillset based routing calls were sent to the Contact Center test bed. As calls were progressing, the historical reporting on Contact Center Manager Server were collected and displayed on the CDM dashboard. Manual call controls and work mode changes from the agent telephones were exercised to populate specific fields in the data stream.

At the end of a measured interval, custom historical reports were generated and transferred to the Calabrio Data Management server. Various Calabrio reports were brought up through a web browser to check proper display and correctness of each field against the data in the Contact Center Manager Administration reports.

As calls were made to the agents and work mode changes were performed by the agents, a supervisor user interface supported by Calabrio Data Management was brought up to verify proper display and correctness of the real-time data.

The serviceability test cases were performed manually by forcing solution components to go out of service and come back in service and verifying Calabrio server's ability to recover.

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 this Application Note, the interface between Avaya systems and the Calabrio did not include use of any specific encryption features.

This test was conducted in a lab environment simulating a basic customer enterprise network environment. The testing focused on the standards-based interface between the Avaya solution and the third party solution. The results of testing are therefore considered to be applicable to either a premise-based deployment or to a hosted or cloud deployment where some elements of the third party solution may reside beyond the boundaries of the enterprise network, or at a different physical location from the Avaya components.

Readers should be aware that network behaviors (e.g., jitter, packet loss, delay, speed, etc.) can vary significantly from one location to another, and may affect the reliability or performance of the overall solution. Different network elements (e.g., session border controllers, soft switches, firewalls, NAT appliances, etc.) can also affect how the solution performs.

If a customer is considering implementation of this solution in a cloud environment, the customer should evaluate and discuss the network characteristics with their cloud service provider and network organizations, and evaluate if the solution is viable to be deployed in the cloud.

The network characteristics required to support this solution are outside the scope of these Application Notes. Readers should consult the appropriate Avaya and third party documentation for the product network requirements. Avaya makes no guarantee that this solution will work in all potential deployment configurations.

## **2.1. Interoperability Compliance Testing**

The feature testing focused on verifying Calabrio Data Management correctly parsing and displaying, Skill, and Agent data from AACC. A number of call center scenarios including agent login, agent mode change, agent logout, incoming call to queue, abandon call, call waiting in queue, call waiting at agent, hold/resume, transfer, conference, direct agent call, extension call from agent, incoming call to agent extension, and redirect on no answer were exercised and a number of vector commands such as queue-to, busy, disconnect, and route-to were executed to generate data for specific fields in the historical reports and real-time supervisor interface.

The serviceability testing focused on verifying the ability of the Calabrio server to recover from adverse conditions, such as stopping the AACC services, disconnecting the Calabrio server from the network, and rebooting the Calabrio server. The serviceability testing also included recovery of historical data.

## 2.2. Test Results

All test cases were executed successfully.

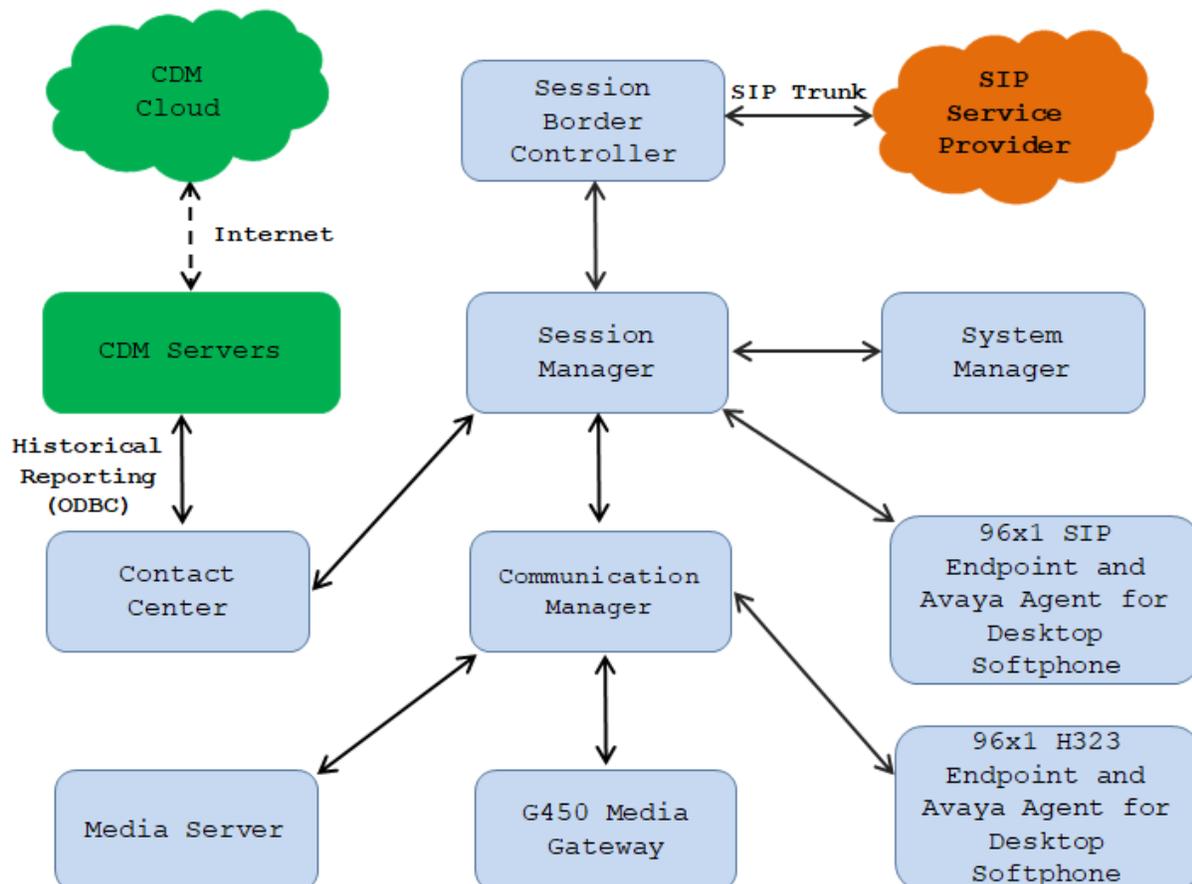
## 2.3. Support

Technical support on Calabrio Data Management can be obtained through the following:

- Phone: 1-800-303-1248
- Email: [calabriosupport@calabrio.com](mailto:calabriosupport@calabrio.com)

## 3. Reference Configuration

The compliance test was done with some Calabrio Data Management (CDM) VMware virtual machine servers installed and configured locally in the DevConnect Lab while the reports and dashboards were configured via CDM cloud. The Avaya side equipment included Communication Manager, Session Manager, Contact Center, and several IP phones. All calls to and from the public network were routed through Avaya Session Border Controller for Enterprise via SIP trunks.



**Figure 1: Calabrio Data Management with Avaya Call Management System**

## 4. Equipment and Software Validated

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

<b>Equipment/Software</b>	<b>Release/Version</b>
Avaya Aura® Communication Manager running on Virtual Environment	8.1.3 8.1.3.2.0.890.26989
Avaya G450 Media Gateway	41.34.0
Avaya Aura® Media Server running on Virtual Environment	8.0 8.0.2.163
Avaya Aura® Contact Center running on Virtual Environment	7.1.2
Avaya Aura® System Manager running on Virtualized Environment	8.1.3 8.1.3.0.1011784
Avaya Aura® Session Manager running on Virtualized Environment	8.1.3 8.1.3.0.813014
Avaya Session Border Controller for Enterprise	8.1.2 8.1.2.0-37-21065
Avaya 9611G IP Deskphone (SIP)	7.1.9.0.8
Avaya Agent for Desktop SIP Softphone (H.323 and SIP)	2.0.6.0.10
Avaya 9641G IP Deskphone (H.323)	6.8304
Calabrio Data Management running in Windows Server 2016 Calabrio Data Management Historical: Calabrio Data Management Realtime:	11.6.1.060 Master-229

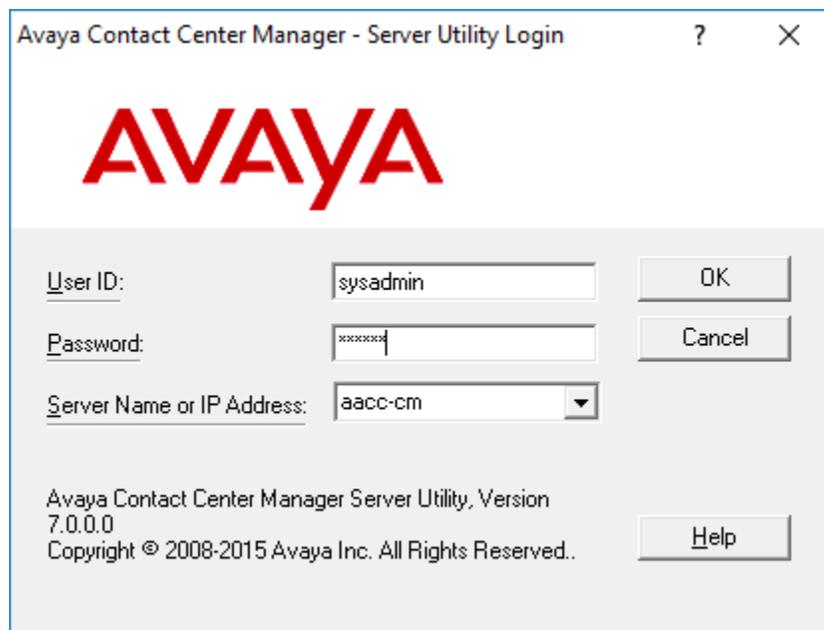
## 5. Configure Avaya Aura® Contact Center

This section describes the steps to configure the CCMS, so that the CDM is able to connect to the CCMS. Assumption is made that the CCMS is installed successfully and all the required scripts are running. Assumption is also made that the CCMS is interfaced and working successfully with Session Manager.

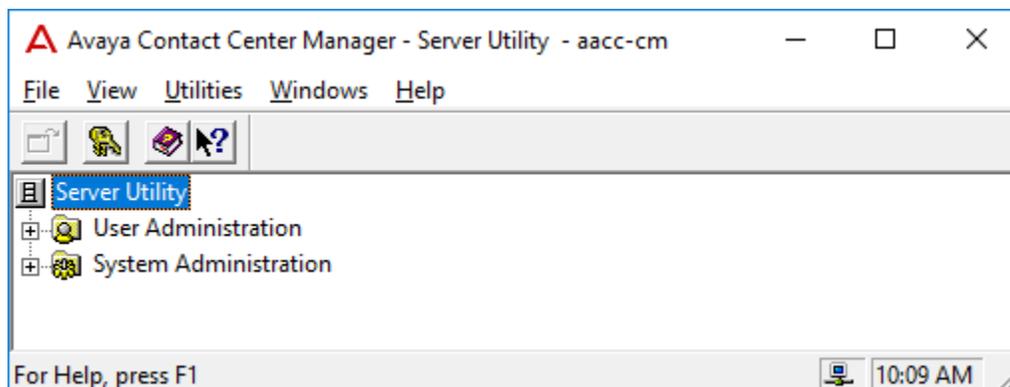
### 5.1. Configure a new user

This section explains the steps to add a new user that is required to interface and connect to the CDM system. To add a new user, navigate through **Start → Avaya → Contact Center Server Utility** on the server the CCMS is installed on (not shown).

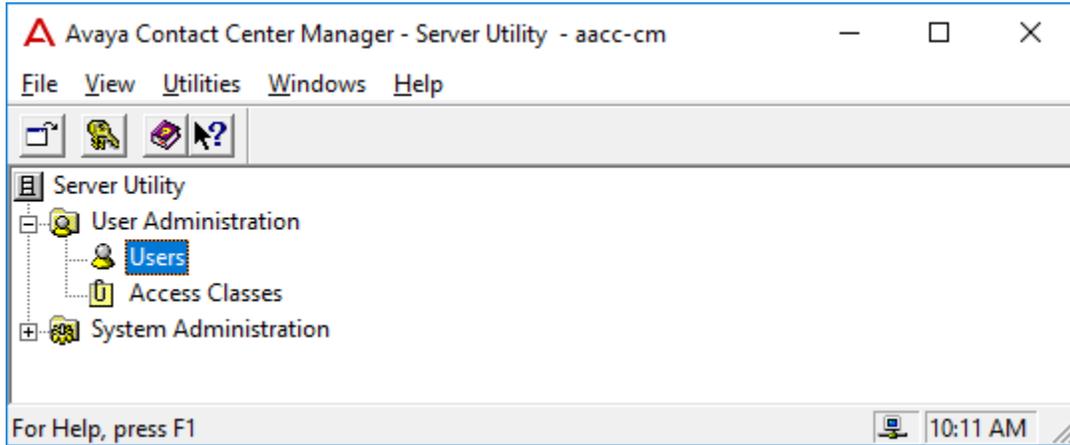
Screen below shows the Server Utility Login screen. Enter the administrator User ID and Password. Click on OK to continue.



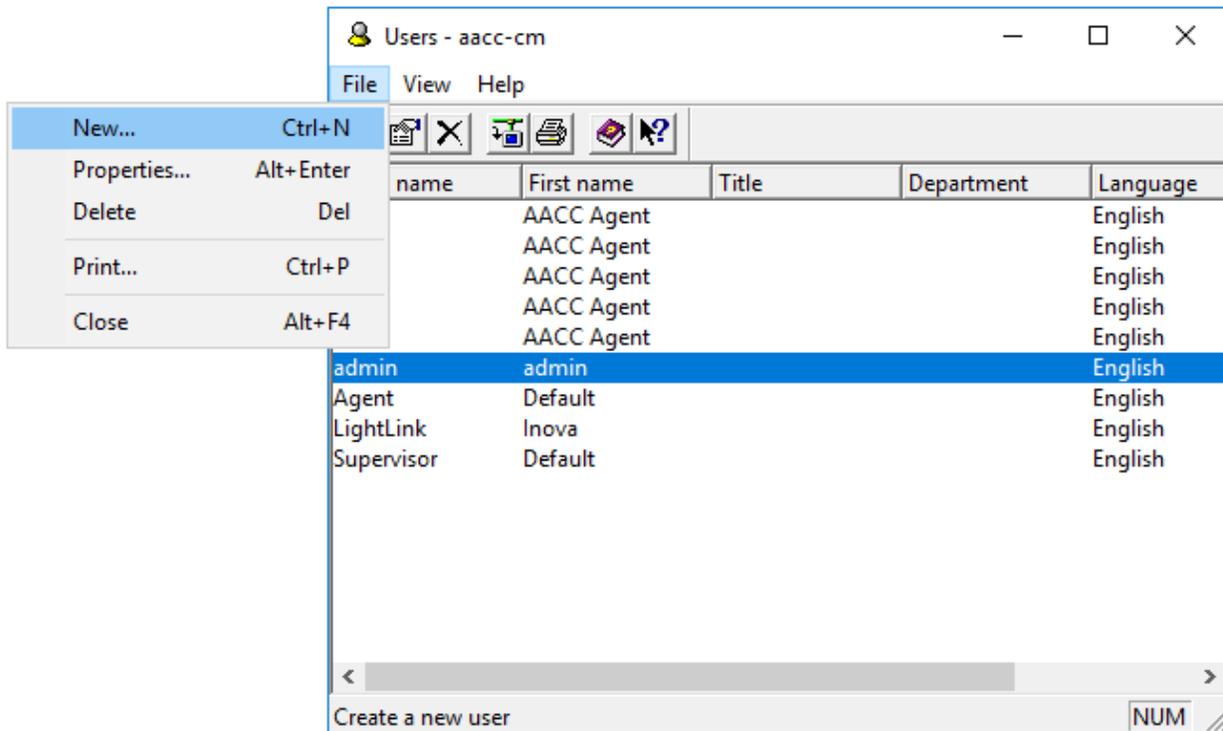
Screen below shows the **Server Utility** main screen.



To add a new user, expand the **User Administration** tree and double-click on **Users** as shown in the screen below.



The screen below shows the **Users** window with the navigation to the **File** menu.



The screen below shows the **New User** being configured. Populate the **First name** and **Last name** fields that is seen under the **General** tab.

The screenshot shows a 'New User' dialog box with two tabs: 'General' and 'Desktop'. The 'General' tab is active. It contains the following fields and controls:

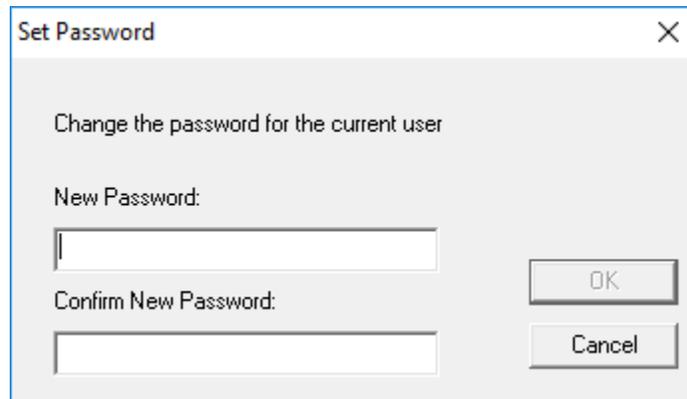
- First name:** Text box containing 'Calabrio'
- Last name:** Text box containing 'CDM'
- Comments:** A large empty text area with a vertical scrollbar.
- Title:** Empty text box
- Department:** Empty text box
- Language:** Dropdown menu set to 'English'
- Buttons:** 'Save', 'Cancel', and 'Help' at the bottom.

From the **Desktop** tab populate the **User ID** field and select **Call Centre Admin** under **Access Class** field as shown in the screen below. Click on **Set Password** to continue.

The screenshot shows the 'New User' dialog box with the 'Desktop' tab active. It contains the following fields and controls:

- User ID:** Text box containing 'cala' with a 'Set Password' button to its right.
- Password retry count:** Spin box set to '0' and a checkbox for 'Password Expires' (unchecked).
- User desktop status:** Text box containing 'OK' with a 'Lock Out' button to its right.
- Access Class:** Dropdown menu set to 'Call Centre Admin'
- Buttons:** 'Save', 'Cancel', and 'Help' at the bottom.

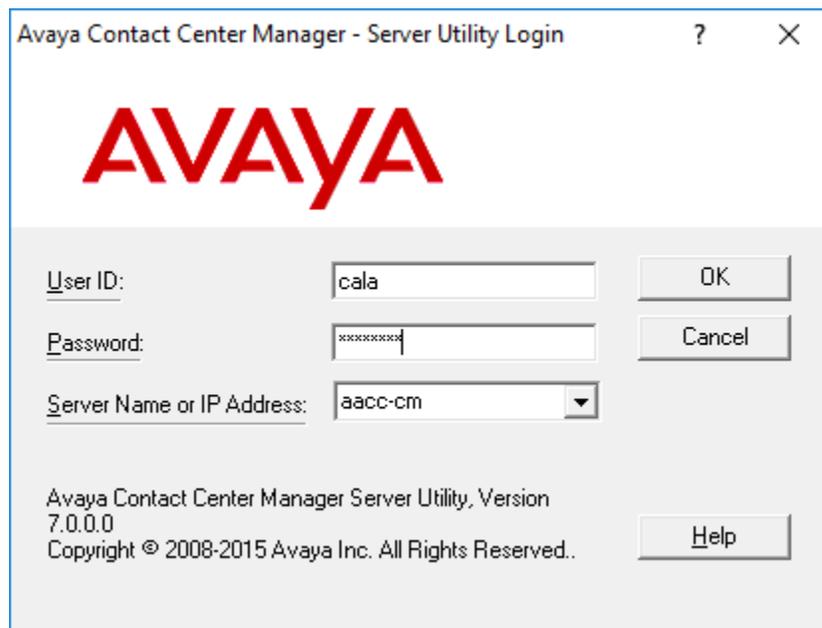
Configure the password and click on **OK** to continue as shown below. Select the **Save** button on the **New User** window above to complete the creation of the new user.



The image shows a 'Set Password' dialog box with a close button (X) in the top right corner. The text inside reads 'Change the password for the current user'. Below this, there are two input fields: 'New Password:' and 'Confirm New Password:'. To the right of these fields are two buttons: 'OK' and 'Cancel'.

To confirm the configuration of the New User created, exit from the **Server Utility** application and navigate back to it as explained in **Section 5.1**.

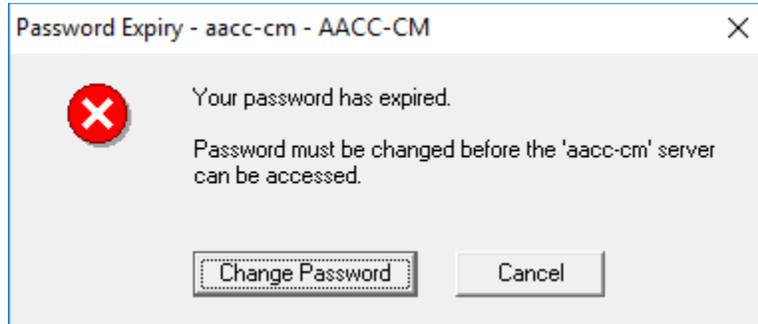
Screen below shows the Server Utility Login screen. Populate the **User ID** and **Password** fields with the values that were configured above. Click on **OK** to continue.



The image shows the 'Avaya Contact Center Manager - Server Utility Login' window. It features the Avaya logo in red at the top. Below the logo, there are three input fields: 'User ID:' with the value 'cala', 'Password:' with masked characters 'xxxxxxx', and 'Server Name or IP Address:' with a dropdown menu showing 'aacc-cm'. To the right of these fields are 'OK' and 'Cancel' buttons. At the bottom left, there is copyright information: 'Avaya Contact Center Manager Server Utility, Version 7.0.0.0 Copyright © 2008-2015 Avaya Inc. All Rights Reserved.'. A 'Help' button is located at the bottom right.

While logging in for the first time using the new user, the system forces the password to be changed. Click on **Change Password** as shown in the screen below.

Configure the required fields and click on **OK** to complete the changing of the password.



## 6. Calabrio Data Management (CDM)

### 6.1. Supported modes

The following modes are supported by Calabrio Data Management.

- On Premise: AACC Reports and Dashboards are available via CDM on-premises
- Hybrid: AACC Reports and Dashboards are available via CDM Cloud

Note: During the compliance test, the CDM servers were installed and configured locally in the DevConnect Lab while the reports and dashboards were displayed via CDM cloud.

### 6.2. Minimum Requirements

CDM is scalable supporting customers from small to large. Please see below CDM's minimum requirements for historical data.

Description	Database	Application
Server Role	Database	Application
Operating System Version	CentOS/Redhat 7.9 (x86_64)	CentOS/Redhat 7.9 (x86_64)
Processor (Cores)	8	8
RAM (Memory)	64 GB	64 GB
Storage	850 GB	200 GB
Database Version	PostgreSQL 11	Not Required

The customer is also required to complete the following prerequisites

Prerequisite	On Prem	Hybrid
Setup required Linux servers	×	×
Provide SSL Certificates for Application servers	×	×
Provide a Remote Mount Share location for CDM Data Contributions	×	
Provide an SMTP to be used by CDM to send emails	×	
Provide database connection details for AACC source	×	×

### 6.3. Install CDM Software

#### On Premise

- Deploy the SSL certificate
- Install the latest version of the CDM Software
- Configure the Remote Mount Share (on prem only)
- Configure the SMTP (on prem only)
- Create Required Data Management UDM and LBA accounts
- Provision Tenant with the AACC adapter

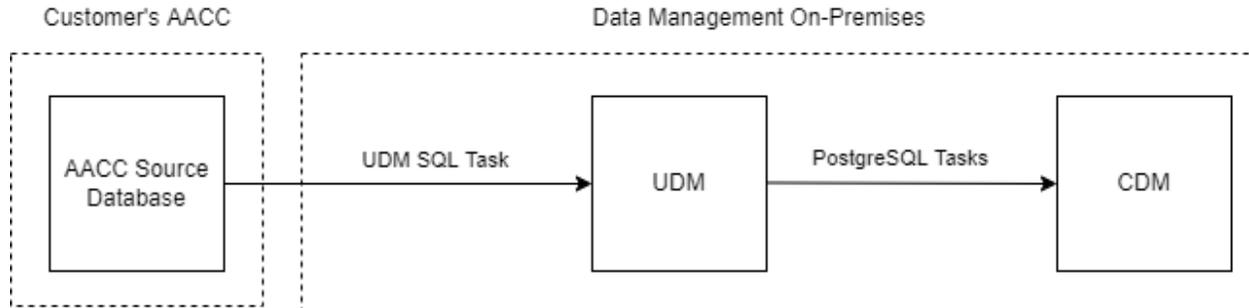
#### Hybrid

- Deploy the SSL certificate
- Install the latest version of the CDM Software
- Create Required Data Management UDM accounts
- Provision Tenant with the AACC adapter
- Deploy ground agent to allow on prem to cloud communication

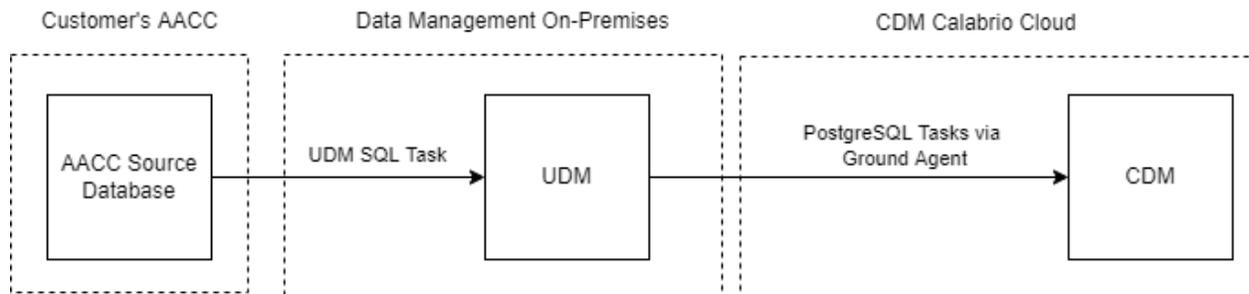
## 6.4. Deploy AACC Adapter

CDM agency service processes batch jobs on a scheduled basis to load data in to CDM reporting models. For hybrid mode ground agent is used to allow the data to flow from on premise to CDM cloud.

### On-premise Architecture



### Hybrid Architecture



### 6.4.1. AACC UDM SQL Task

The AACC UDM SQL task uses the below details to connect and load AACC data from the customers AACC Source data into Data Management UDM. The AACC UDM task is configured to run on a scheduled interval.

- AACC Database URL
- AACC Database Name
- AACC Database User
- AACC Database Password
- AACC Database Vendor
- AACC Database Schema

### 6.4.2. AACC Reporting

The latest version of the AACC Data Library will be uploaded into the AACC LBA account. The Data Library contains the default AACC reports and dashboards and the below data Sets.

- Activity Code Stat
- Agent By Application Stat
- Agent By Skillset Stat
- Agent Login Stat
- Agent Performance Stat
- Application Stat
- CSR Code Stat
- CSR Stat
- Skillset Stat

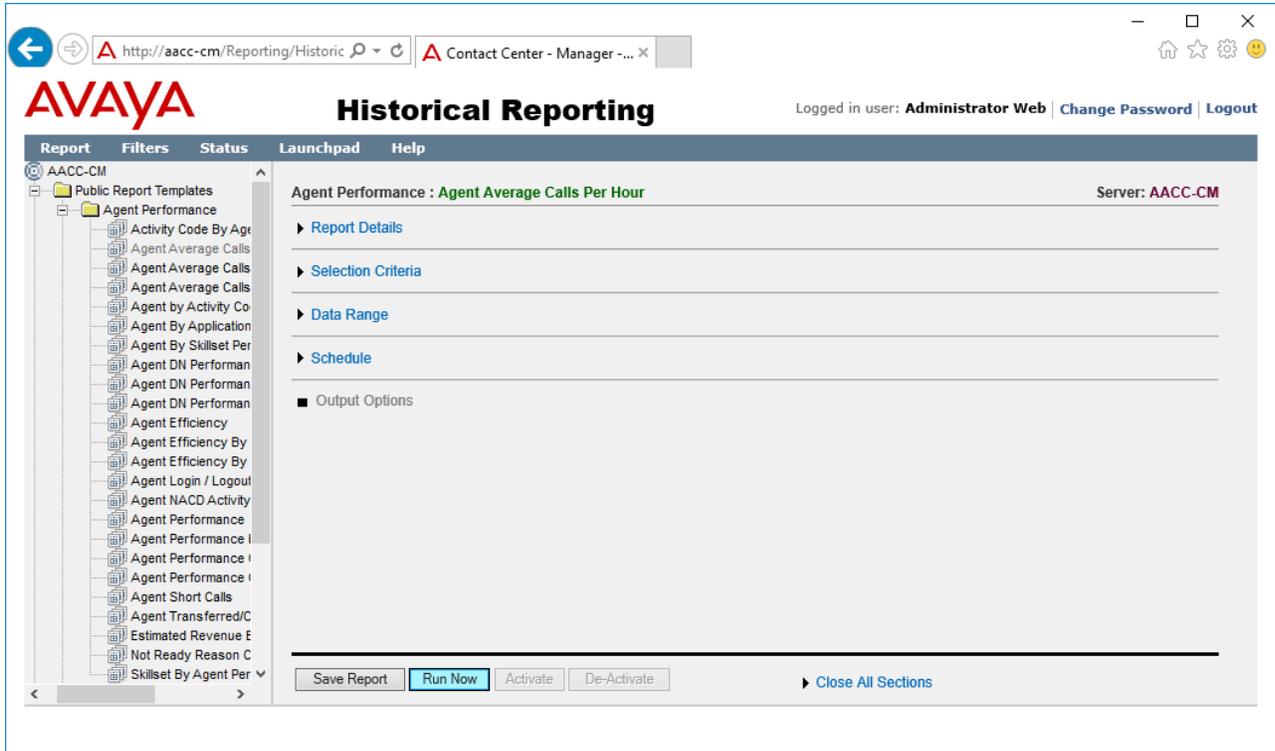
Each dataset above is configured with a PostgreSQL task to connect to UDM and load the required AACC data into Data Management.

## 7. Verification Steps

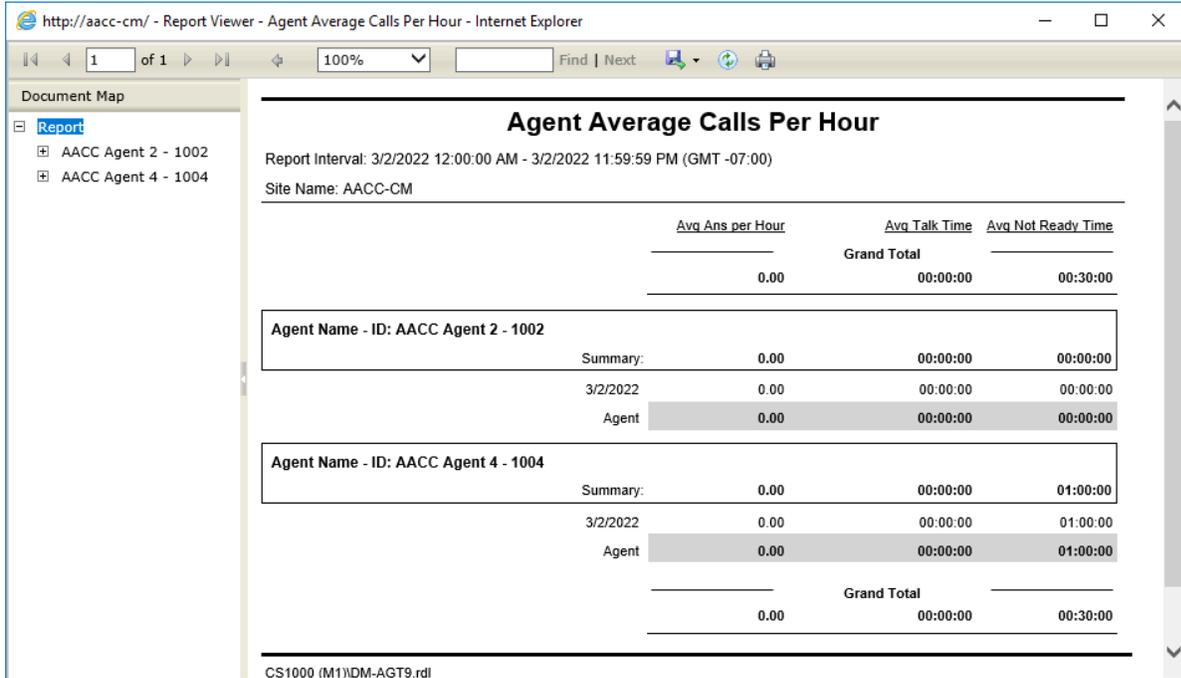
This section provides the tests that can be performed to verify proper configuration of AACC and Calabrio Data Management.

### 7.1. Verify Avaya Aura® Contact Center

Historical Report Displays were launched on Contact Center Manager Administrator to monitor real-time activity of calls being placed into the system. This was used to verify the data observed on the CDM dashboard.



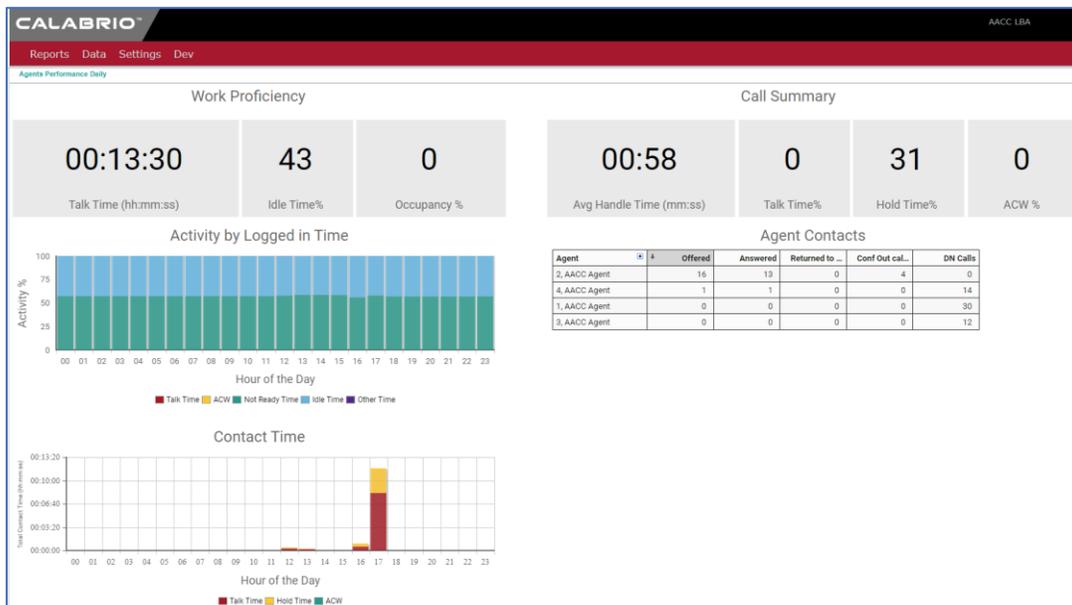
The screen below shows the Historical Reporting for the Agent Average Calls Per Hour.



## 7.2. Verify Calabrio Data Management

Prior to verifying Calabrio Data Management, make calls to the measured resources on Communication Manager, to enable measurement data to be sent to AACC.

### 7.2.1. Verify Call Historical Report



## 8. Conclusion

These Application Notes describe the configuration steps required for Calabrio Data Management R11.6 to interoperate with Avaya Aura® Contact Center R7.1, via historical reporting. All feature and serviceability test cases were completed successfully.

## 9. Additional References

Product documentation for Avaya products may be found at <http://support.avaya.com>.

- [1] Administering Avaya Aura® Communication Manager, Release 8.1.x, Issue 12, July 2021.
- [2] Administering Avaya Aura® Session Manager, Release 8.1.x, Issue 10, September 2021.
- [3] Administering Avaya Call Management System, Release 19.x, Issue 11, March 2021.

Product documentation related to Calabrio Data Management can be obtained directly from Calabrio.

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