Avaya Solution and Interoperability Test Lab

Application Notes for Calabrio Call Recording and Quality Management Release 9.2.1.5 SR3 with Avaya Aura® Contact Center Release 6.4 and Avaya Communication Server 1000 Release 7.6 via Meridian Link Services – Issue 1.0

Abstract

These Application Notes describe a solution comprised of Avaya Aura® Contact Center Release 6.4 and Calabrio Call Recording and Quality Management Release 9.2.1.5 SR3. During the compliance testing, the Calabrio Call Recording and Quality Management Release 9.2.1.5 SR3was able to connect to Contact Center Manager Server and Contact Center Control Toolkit using Meridian Link Services, acquire and monitor keys of IP Phone, and record Voice over IP calls made from/to IP Phone of Avaya Communication Server 1000.

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

The objective of this interoperability compliance testing is to verify that the Calabrio Call Recording and Quality Management Release 9.2.1.5 SR3 (hereafter referred as CQM) can successfully connect to the Avaya Aura® Contact Center Release 6.4 (hereafter referred as Contact Center) using Meridian Link Services (MLS) and record Voice over IP calls for the IP Phones of Avaya Communication Server 1000 Release 7.6 (hereafter referred as Communication Server 1000).

2. General Test Approach and Test Results

The general test approach was to verify that CQM is able to acquire the status of all agents by using the Contact Center Control Toolkit (CCT) API integration, collect all the user information from the Call Center Manager Administrator (CCMA) API integration and monitor keys of IP Phones of Communication Server 1000 by communicating with the MLS server of Contact Center system to monitor all the events and record the calls.

CQM uses CCT integration to manage VoIP-table-less recording. CQM detects agent login/logout via the CCT and not MLS. CQM does not do direct Directory Number (DN) recording absent any agent association. CQM either associates an agent with DNs via events from CCT or have a static knowledge worker association with DNs via the VoIP table. For ACD calls CQM does not get Agent ID and name details as well as skillset number from the call feed. Agent-DN association comes via the CCT integration, and all other call metadata comes from MLS.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

The focus of this compliance testing was to prove and verify that CQM was able to interoperate with Contact Center and Communication Server 1000 system. The following areas were tested:

- CQM successfully utilizes CCT to get status of all agents.
- CQM successfully utilizes CCMA to get all user information.
- CQM successfully utilizes MLS to access the functionality of the Contact Center Manager Server (CCMS) and Communication Server 1000 to record all calls.
- Recording provides information of the Automated Call Distribution (ACD) Agent, Dialed Number Identification Service (DNIS), Calling Line Identification (CLID), Directory Number (DN), Day/Time, Days of week, and Call Duration.
- Agent Resiliency Information.
- Can record multiple agents and their associated DN simultaneously.

2.2. Test Results

The objectives outlined in the **Section 2.1** were verified and met. All test cases were executed and they all passed with the following observations,

- CQM will not provide information on any recording that is less than 5 seconds.
- CQM does not support recording of multiple appearance DN.
- During recording, if there is network disruption; CQM will record the conversations up to the point when the disruption occurred. Once the network is restored CQM will not start any new recording until the Monitoring and Recording CTI service is restarted.
- CQM does not provide any call information if the user is not a logged in agent or a knowledge worker and no conversation is recorded.
- As per CQM design, if calls come into the agent's position ID and DN simultaneously, the entire conversation for both the agent's position ID and DN is recorded however call information is only provided to the call that was presented to the agent's position ID.

2.3. Support

Technical support for Calabrio CQM can be obtained by contacting Calabrio via

- Web: http://calabrio.com/about-calabrio/services/ or
- Phone: +1 (800) 303-1248 (North America)
  +1 (763) 592-4680 (International)
- Email: calabriosupport@calabrio.com

3. Reference Configuration

Figure 1 illustrates the network diagram configuration used during the compliance testing event between the CQM and Contact Center.

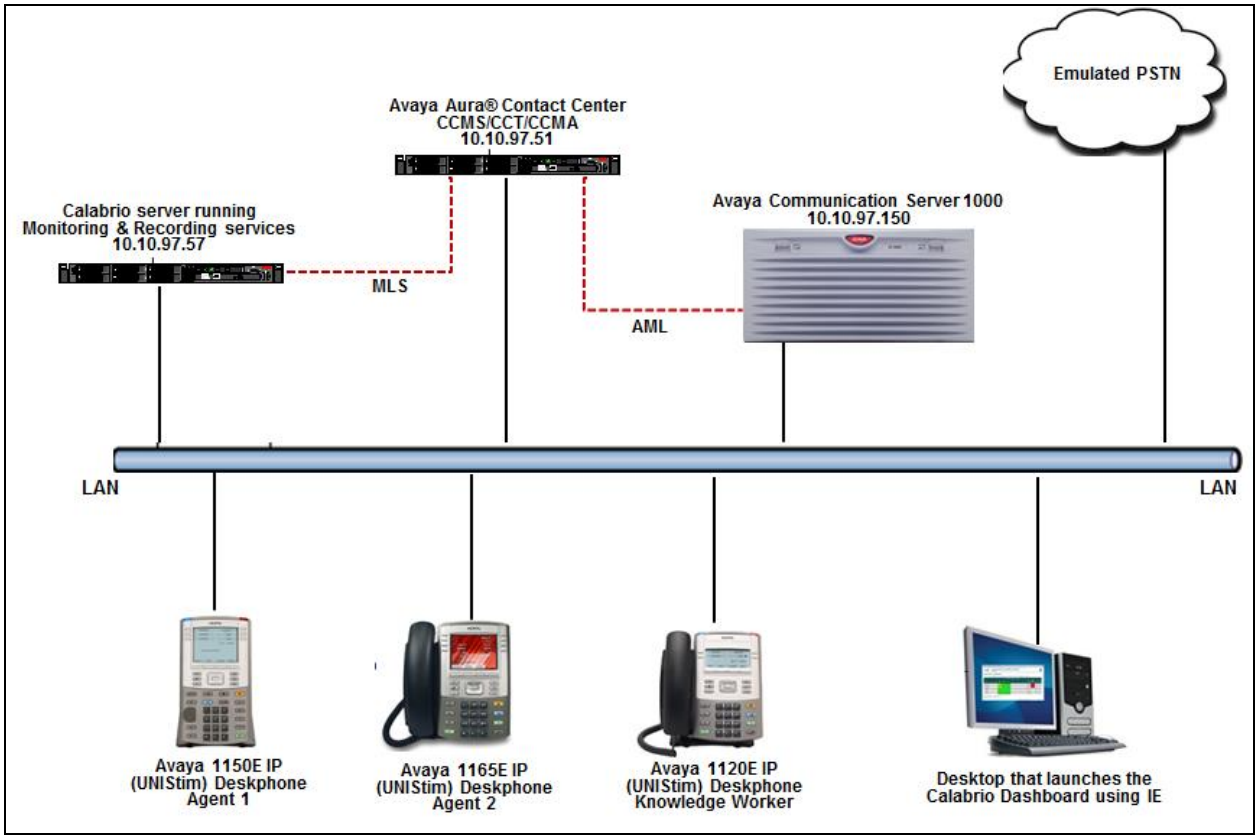


Figure 1: Network Diagram Configuration

4. Equipment and Software Validated

The following equipment and software were used during the lab testing:

Equipment	Release/Version
Avaya Communication Server 1000	7.65 SP4
Avaya Aura® Contact Center	6.4.212.0-0603_Service Pack
Avaya IP (UNIStim) Deskphones: 1150E 1165E 1120E	 0x27C8V 0x25C8V 0x24C8V
Calabrio CQM Server OS Calabrio CQM Desktop OS launching Calabrio Dashboard	Windows Server 2008 R2 Enterprise SP1 64-bit 9.2.1.549 SR3 Windows 7 Professional SP1 32-bit

5. Configure Avaya Communication Server 1000

This document assumes that Communication Server 1000 is properly installed and configured. These Application Notes provide the necessary configuration that has to be done on Communication Server 1000 to work with Contact Center and CQM. For more information about how to install and configure Avaya Communication Server 1000, refer to **Section 10.**

5.1. Create ELAN for Contact Center application on the Call Server

Log in to the command line interface of Call Server with the appropriate credentials and issue overlay **LD 17** to access the **ADAN** gate opener to create a new ELAN for the Contact Center application. During compliance testing, **ELAN 19** was created as shown below.

```
REQ  chg
TYPE adan
ADAN new elan 19
CTYP elan
DES  AACC62
LCTL
```

5.2. Create VAS for the ELAN of Contact Center on the Call Server

Log in to the command line interface of Call Server with the appropriate credentials and issue overlay **LD 17** to access the **VAS** gate opener to create a value added server (VAS) for the ELAN 19 created above for the Contact Center application. During compliance testing, **VSID 19** was created as shown below.

```
REQ  chg
VAS  new
VSID 19
ELAN 19
SECU
INTL
MCNT
VSID
```

5.3. Enable IPIE feature for IP call recording on the Call Server

Log in to the command line interface of Call Server with the appropriate credentials and issue overlay **LD 17** to access the **PARM** gate opener to enable the **Enhanced Unsolicited Status Message (USM) IE (IPIE)** as shown in the screen below.

```
PARM
  LPIB 3500
  HPIB 3500
  .
  .
  .
  MARP YES
  IPIE YES
  FRPT NEFR
  .
  .
```

5.4. Enable class of service RECA for IP Phone

Log in to the command line interface of Call server with the appropriate credentials and issue overlay **LD 11** to add or change the configuration of a Deskphone. Screen below shows that the **Recording Allowed (RECA)** has been added to the class of service for the deskphone.

```
DES  AGENT6
TN   096 0 02 05  VIRTUAL
TYPE 1150
.
.
.CAC_MFC 0
CLS  CTD FBA WTA LPR MTD FNA HTA TDD HFA CRPD
     MWA LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1
     POD SLKD CCSD SWD LND CNDA
     CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCBD
     ICDA CDMD LLCN MCTD CLBD AUTU
     GPUD DPUD DNDA CFXA ARHD CNTD CLTD ASCD
     CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD
     UDI RCC HBTD AHA IPND DDGA NAMA MIND PRSD NRWD NRCD NROD
     DRDD EXR0
     USMD USRD ULAD CCBD RTDD RBDD RBHD PGND OCBD FLXD FTTC DNDY DNO3
MCBN
     FDSD NOVD VOLA VOUD CDMR PRED RECA MCDD T87D SBMD
     KEM3 MSNV FRA  PKCH MUTA MWTD DVLD CROD ELCD VMSA
CPND_LANG ENG
.
.
```

5.5. Configure the Associated Set Assignment (AST) for IP phone

Log in to the command line interface of Call Server with the appropriate credentials and issue overlay **LD 11** to add or change the configuration of a Deskphone. To define which key/s of IP Phone needs to be recorded, assign them at the **AST** prompt. During compliance testing, calls coming to keys **00** and **03** were recorded as shown in the screen below.

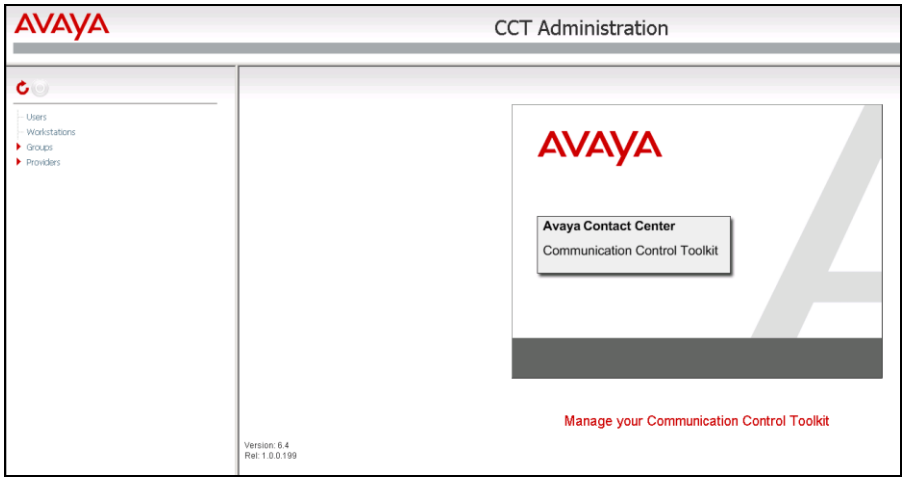
```
DES  AGENT6
TN   096 0 02 05  VIRTUAL
TYPE 1150
.
.
.
SPID NONE
AST  00 03
IAPG 0
.
.
```

6. Configure Avaya Aura® Contact Center

This document assumes that the Contact Center system with all its modules including CCT, CCMS and MLS are installed and configured correctly and it communicates to the Communication Server 1000. For more information how to install and configure the Contact Center please refer to **Section 10.**

6.1. Creating a CCT User using Terminal Group

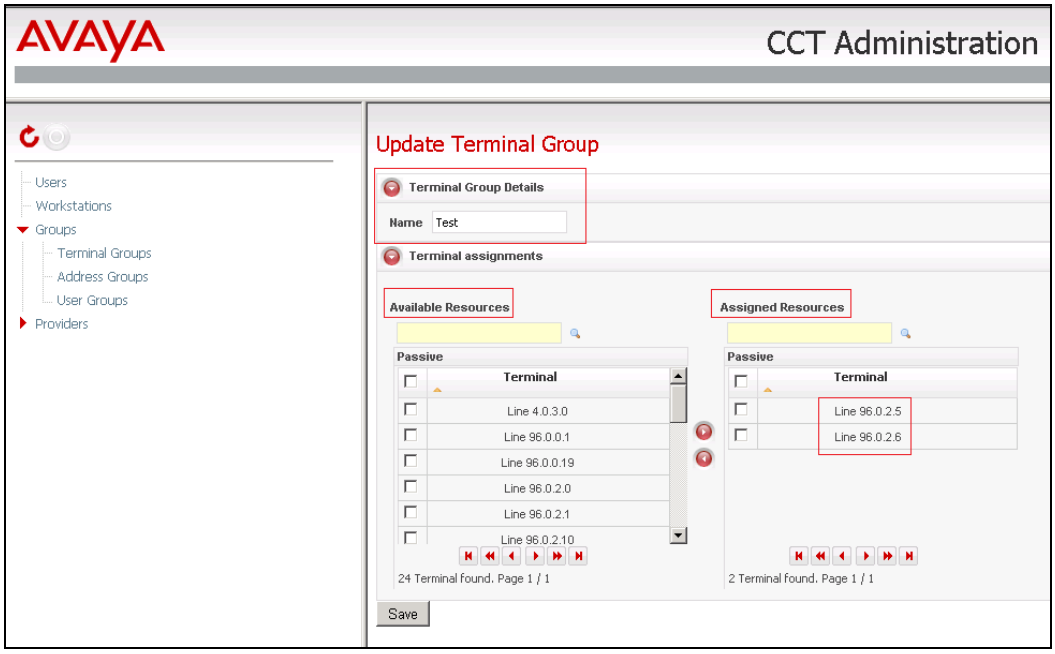
Launch the **CCT Console** from the **Contact Center – Manager → CCT Administrator** (not shown). Screen below shows the CCT Administration window.



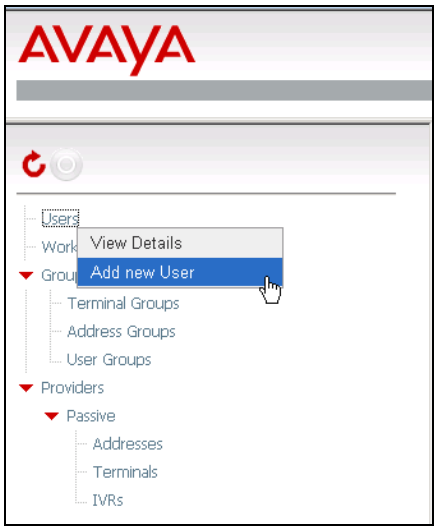
Navigate to **Groups → Terminal Groups** and right click on **Terminal Groups** to **Add new Terminal Group** as shown in the screen below.

Configure the following values as shown below for the newly created terminal group,

- Under **Terminal Group Details** section enter a descriptive name for the **Name** field.
- From the **Available Resources** column on the left, select the required terminals that user wants to assign to the new group and move it to the **Assigned Resources** column on the right. During compliance testing terminals *96.0.2.5* and *96.0.2.6* were used.
- Click on **Save** to complete the creation of the new terminal group.

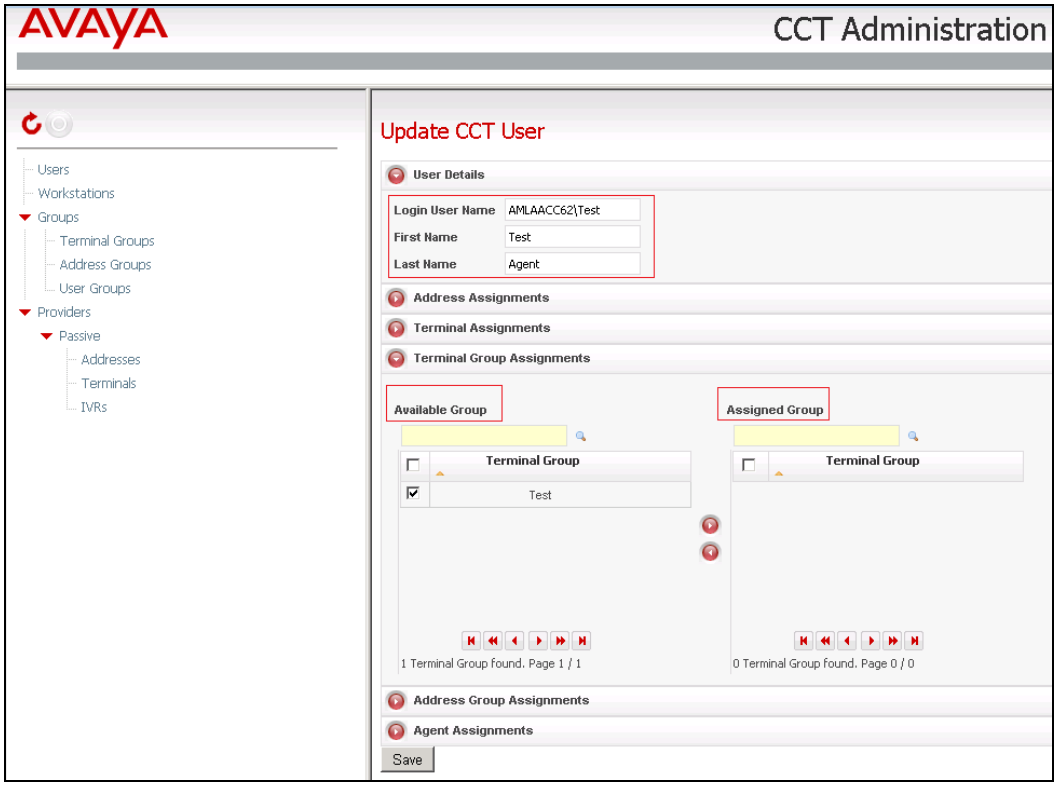


Navigate to **Users** and right click to **Add new User** as shown in the screen below.



Configure the following values as shown below for the newly created user,

- Under **User Details** section enter configure the following,
  - **Login User Name**: *AMLAACC62\Test*; this is the user that is created as a local Windows user on the server running the Contact Center applications (not shown).
  - **First Name**: Any descriptive name.
  - **Last Name**: Any descriptive name.
- Under the **Terminal Group Assignments** section, from the **Available Group** column on the left, select the required group and move it to the **Assigned Group** column on the right. During compliance testing the Terminal Group *Test* as configured above was selected.
- Click on **Save** to complete the creation of the new user.



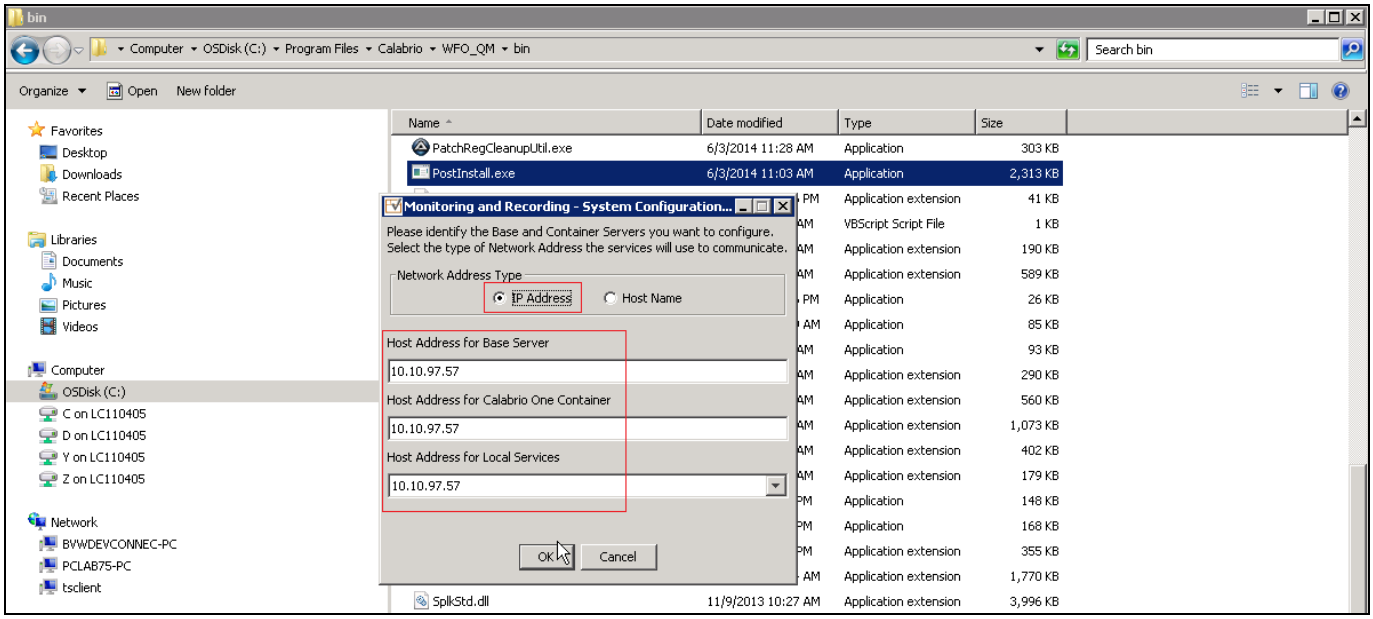
7. Configure Calabrio CQM Server

This section only provides the detailed configuration on the CQM server for recording VoIP calls of agent's deskphones and knowledge worker residing on Communication Server 1000. For more information about how to install and configure Calabrio CQM server, refer to **Section 10.**

7.1. System Configuration

To start the system configuration, launch the *PostInstall.exe* file which is typically found in the Program Files\Calabrio\WFO_QM\bin folder. The **Monitoring and Recording – System Configuration** window is seen as shown below.

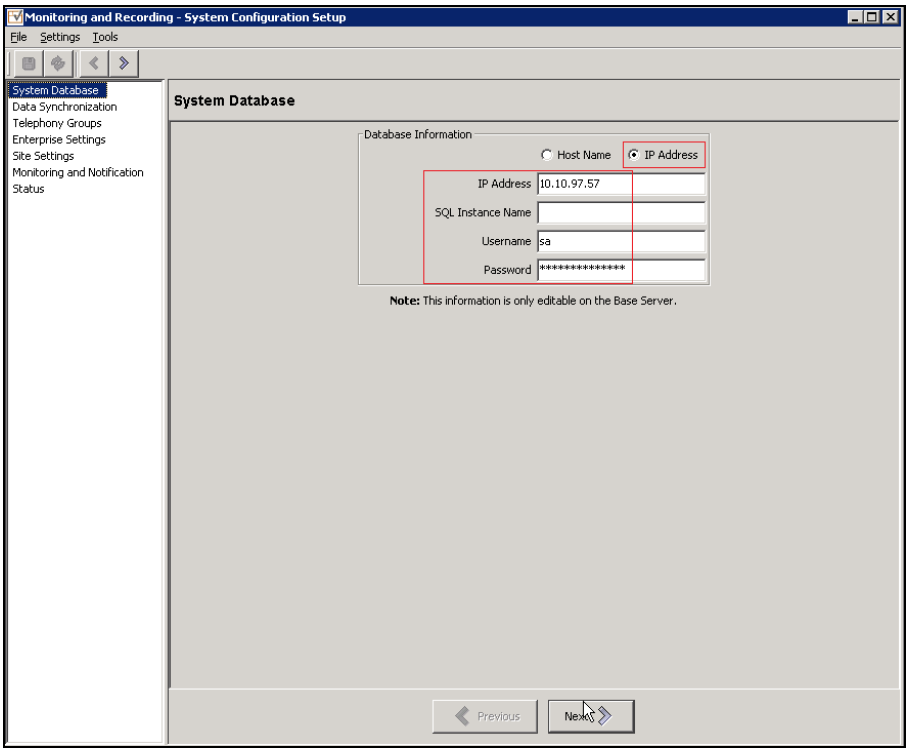
Select the **IP Address** radio button and enter the IP addresses for **Host Address for Base Server**, **Host Address for Calabrio One Container** and **Host Address for Local services**. For compliance testing, all these resided on the same server of *10.10.97.57*. Click on the **OK** button.



Select the **System Database** section of the **Monitoring and Recording – System Configuration Setup** window as shown below and configure the following values,

- Select **IP Address** radio button.
- **IP Address**: *10.10.97.57*; this is the IP address of the CQM SQL Database server.
- **Username**: Username with access to the database instance.
- **Password**: Password with access to the database instance. .

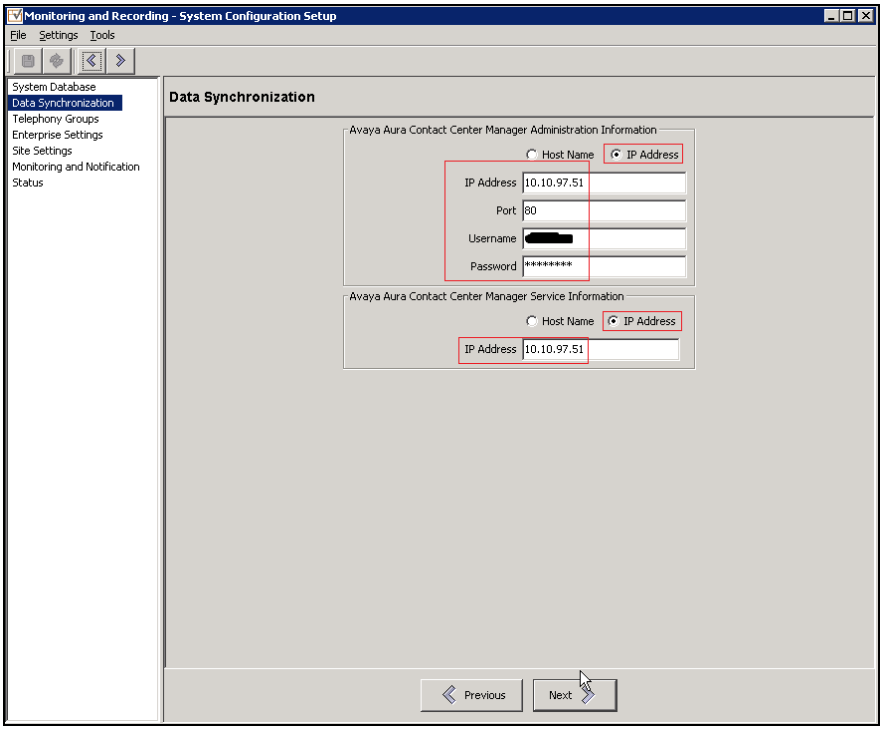
Retain default values for all other fields and click on the **Next** button.



Select the **Data Synchronization** section of the **Monitoring and Recording – System Configuration Setup** window as shown below and configure the following values,

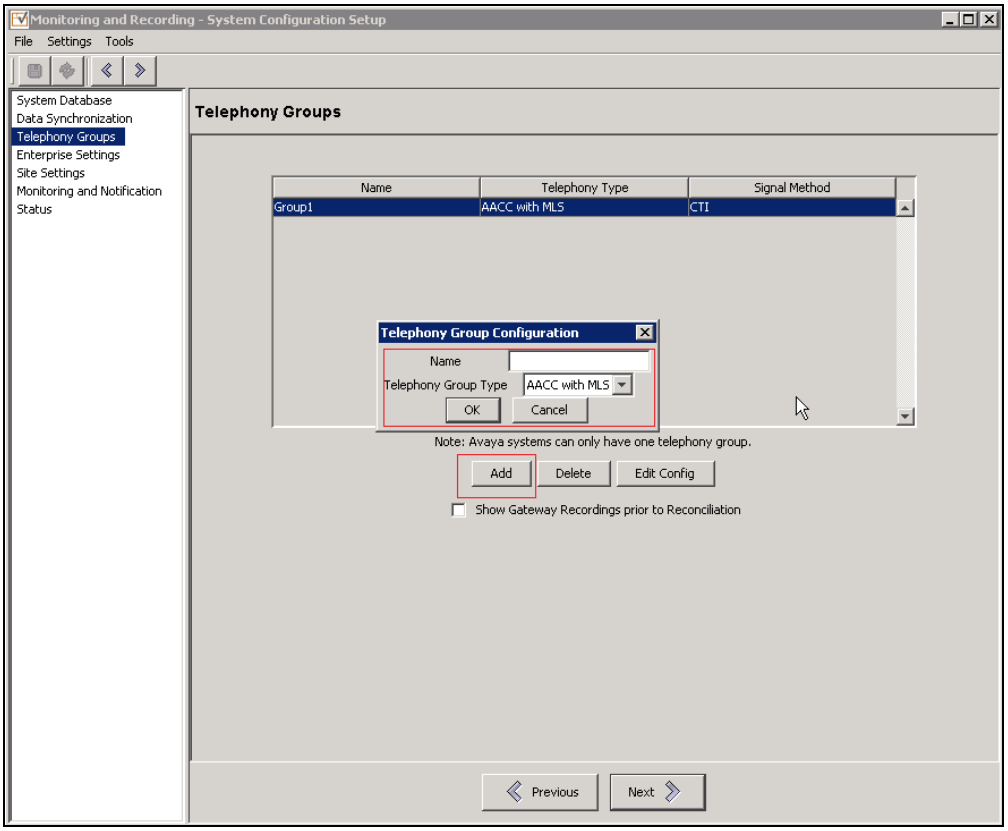
- Select **IP Address** radio button.
- **IP Address**: *10.10.97.51*; this is the IP address of the Contact Center Server.
- **Port**: *80*; default value.
- **Username**: A valid username to connect to the CCMA.
- **Password**: A valid password to connect to the CCMA.
- Select **IP Address** radio button under the **Avaya Aura Contact Center Manager Service Information** section.
- **IP Address**: *10.10.97.51*; this is the IP address of the Contact Center Server.

Click on the **Next** button.



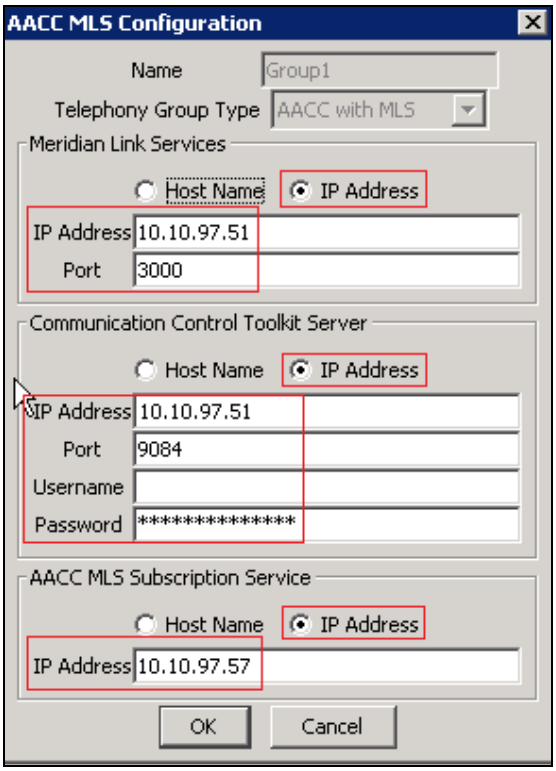
Select the **Telephony Groups** section of the **Monitoring and Recording – System Configuration Setup** window as shown below and configure the following values,

- Click on the **Add** button to add a new Telephony group.
- In the **Telephony Group Configuration** window provide a descriptive name in the **Name** field.During compliance, testing *Group1* was used.
- From the drop down menu for **Telephony Group Type** field, select *AACC with MLS*.
- Click on the **OK** button.



The **AACC MLS Configuration** window is opened as shown below. Configure the following values for the same,

- Select **IP Address** radio button under the **Meridian Link Services** section.
- **IP Address**: *10.10.97.51*; this is the IP address of the Contact Center Server.
- **Port**: *3000*; retain default value.
- Select **IP Address** radio button under the **Communication Control Toolkit Server** section.
- **IP Address**: *10.10.97.51*; this is the IP address of the Contact Center Server.
- **Port**: *9084*; this is the value configured on the CCT module.
- **Username** and **Password**: Use the same values as configured in **Section 6.1**.
- Select **IP Address** radio button under the **AACC MLS Subscription Service** section.
- **IP Address**: *10.10.97.57*; this is the IP address of the CQM Server.
- Click on the **OK** button.

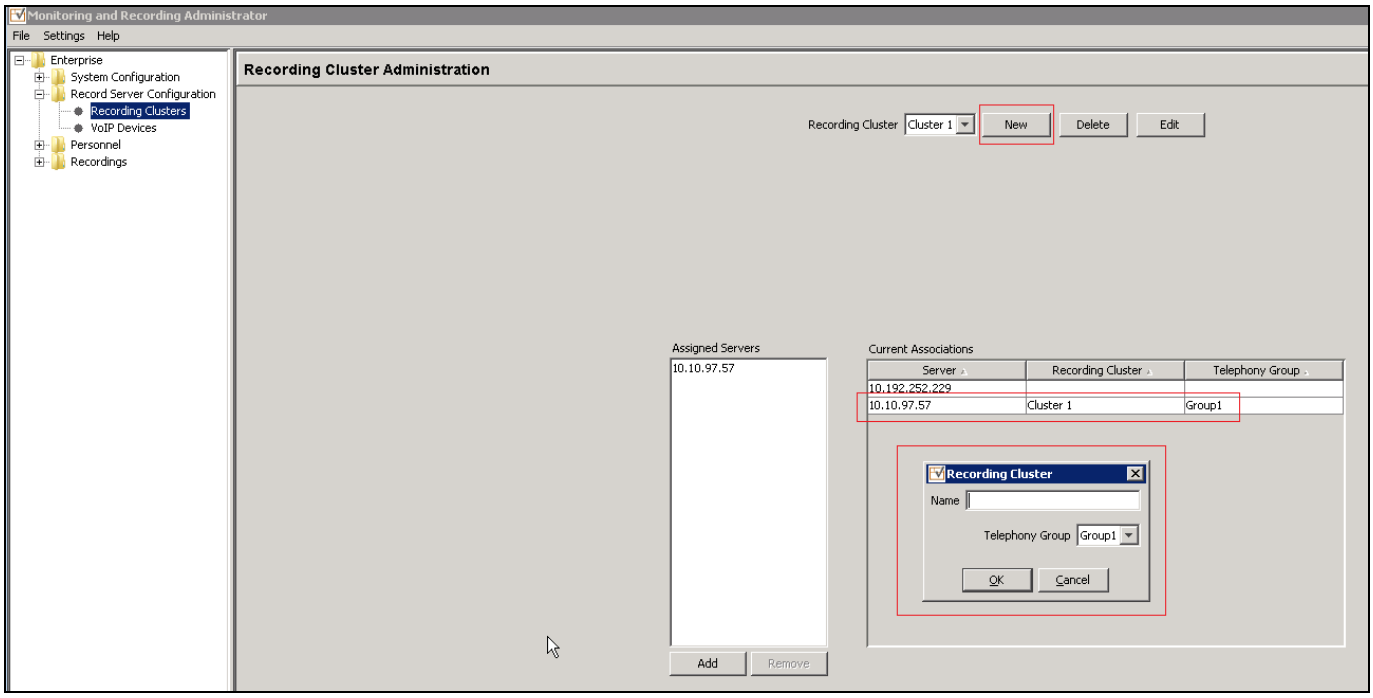


Click on the **Next** button and continue with this process retaining default values for **Enterprise Settings**, **Site Settings**, **Monitoring and Notification** and **Status** sections to complete the system configuration setup of monitoring and recording.

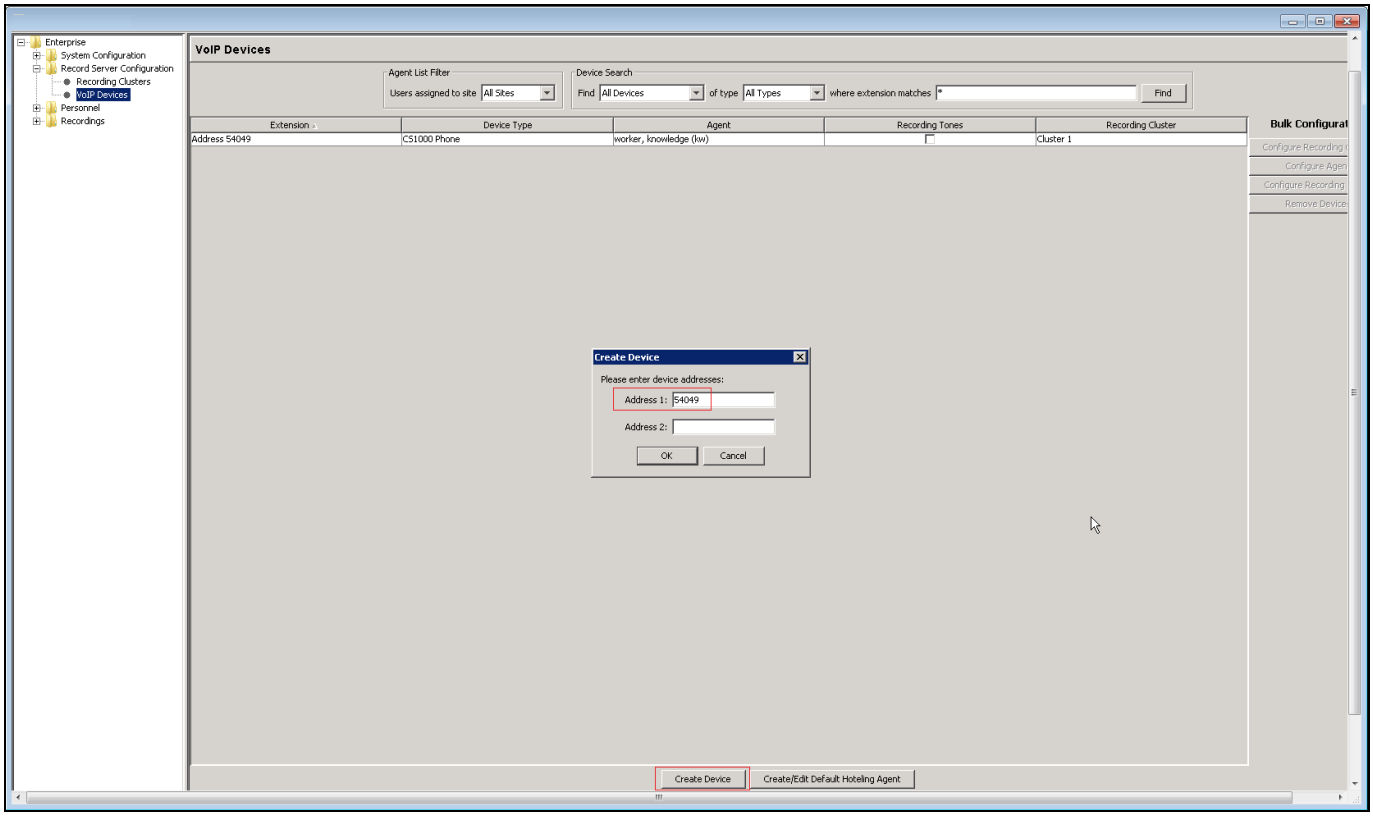
7.2. Configure Monitoring and Recording Administrator

Navigate to **Start → All Programs → Calabrio → WFO → Monitoring and Recording Administrator** to launch the Login screen (not shown). Enter the valid credentials to login to the Monitoring and Recording Administrator.

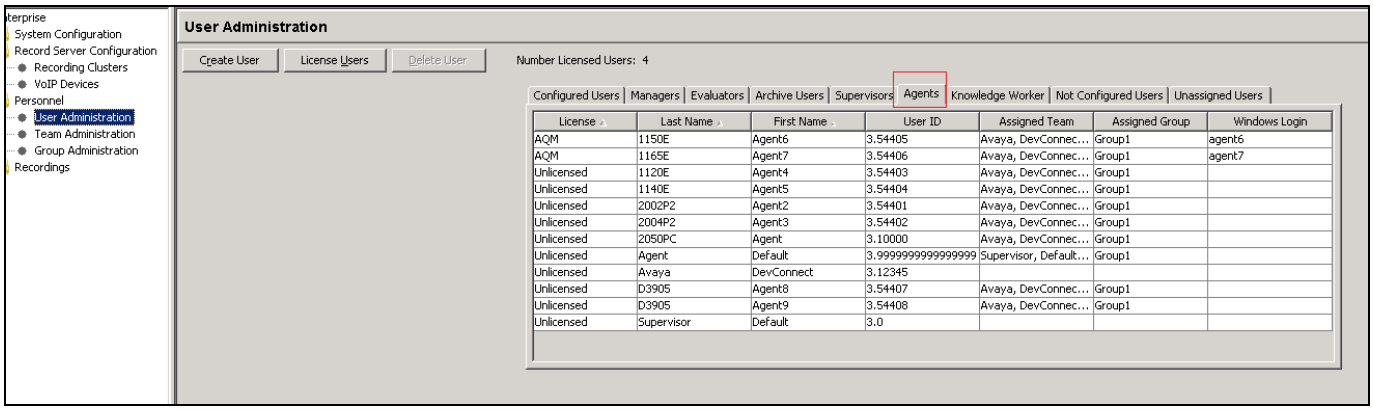
In the **Monitoring and Recording Administrator** window as shown below, navigate to **Enterprise → Record server Configuration → Recording Clusters**. Click on the **New** button to add a new cluster. The **Recording Cluster** window opens. Enter a descriptive name in the **Name** field. During compliance testing, *Cluster 1* was entered. Select *Group1* that was configured in **Section 7.1** from the **Telephony Group** drop down menu. Click on the **OK** button.



In the **Monitoring and Recording Administrator** window as shown below, navigate to **Enterprise → Record server Configuration → VoIP Devices**. Click on the **Create Device** button to add a new device. The **Create Device** window opens. Enter an extension that needs to be monitored and recorded in the **Address 1** field. During compliance testing, *54049* was entered. Click on the **OK** button. This extension was then assigned to be a *CS1000 Phone* in the **Device Type** column, a *worker, knowledge (kw)* in the **Agent** column and *Cluster 1* in the **Recording Cluster** column. Note that this is only needed to configure knowledge worker (non-agent) devices and is not required in configuring agent devices.

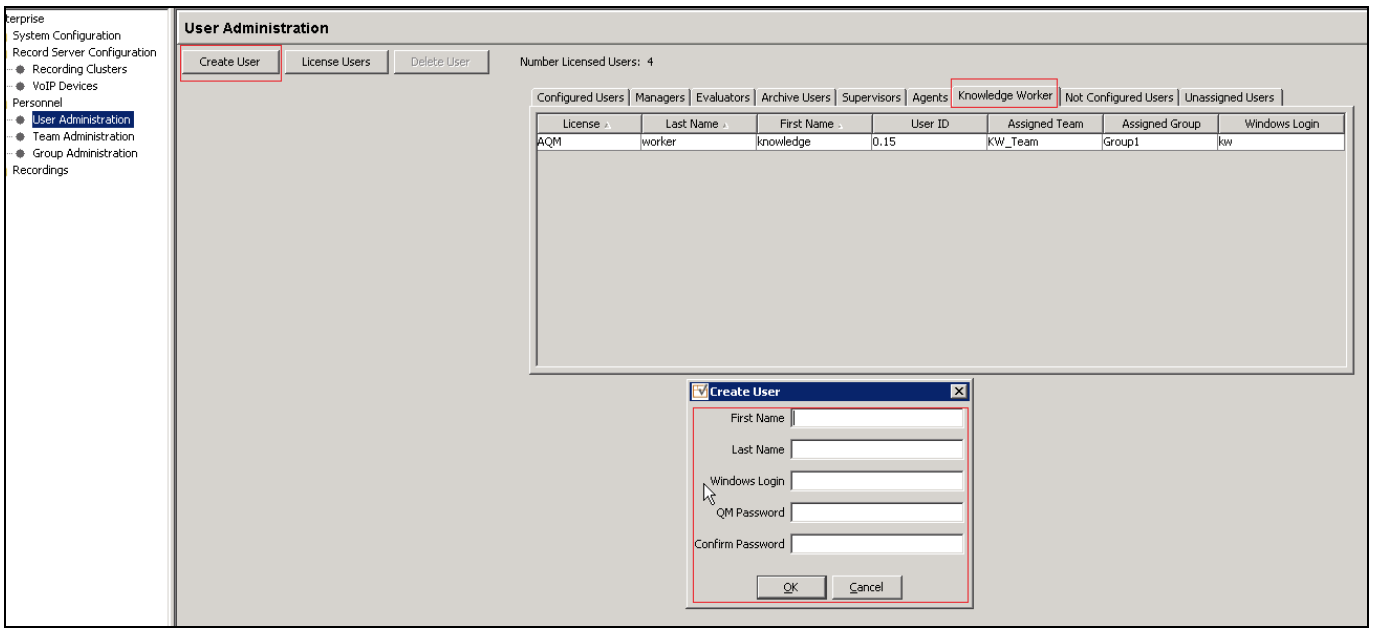


In the **Monitoring and Recording Administrator** window as shown below, navigate to **Enterprise → Personnel → User Administration**. Under the **Agents** tab all agents that are configured in the Contact Center are populated here when the CQM server synchronizes with the Contact Center.

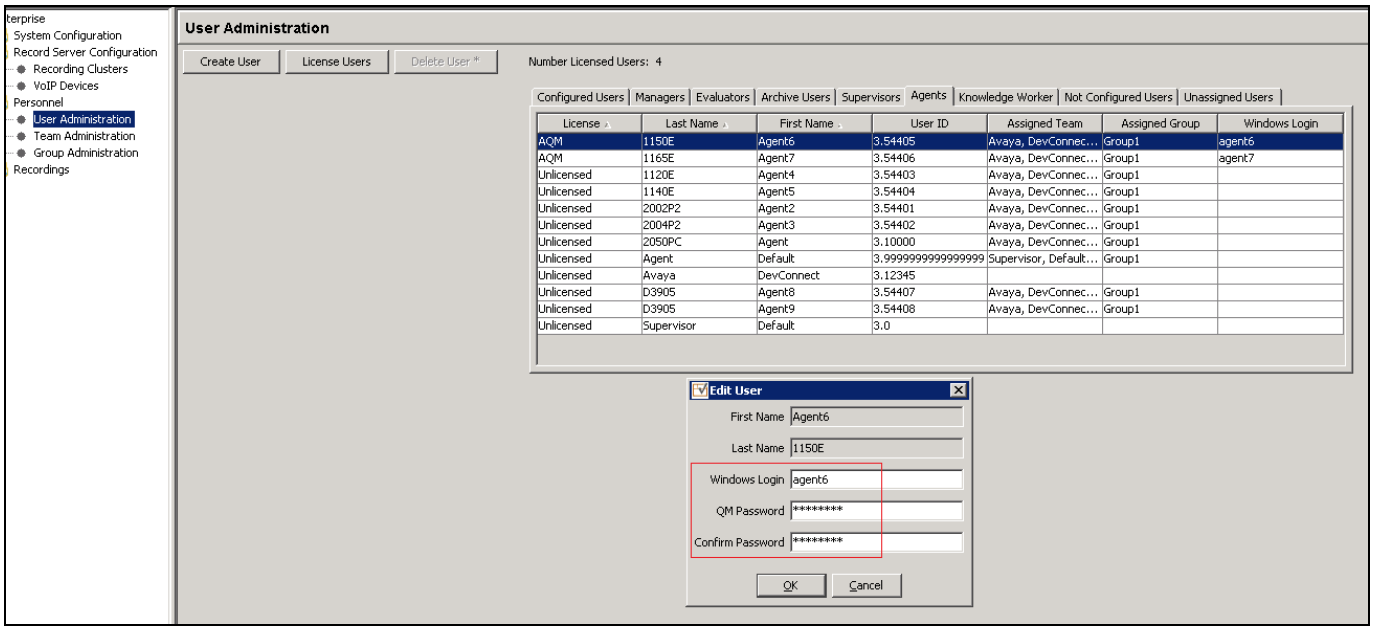


Under the **Knowledge Worker** tab create a user by clicking on the **Create User** button. The **Create User** window opens as shown below. Configure the following values,

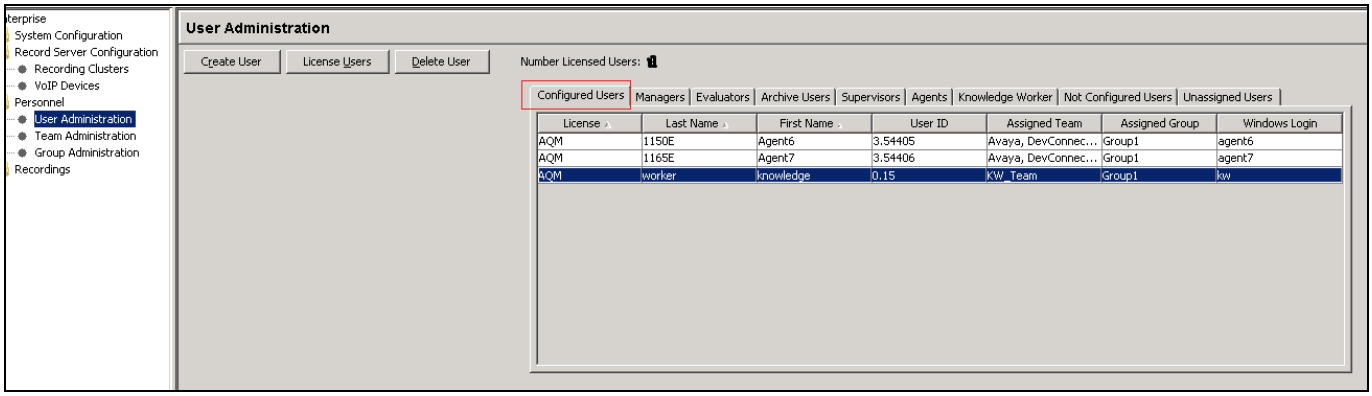
- **First Name**: During compliance testing, *knowledge* was used.
- **Last Name**: During compliance testing, *worker* was used.
- Enter valid values for **Windows Login**, **QM Password** and **Confirm Password** fields.
- Click on the **OK** button.



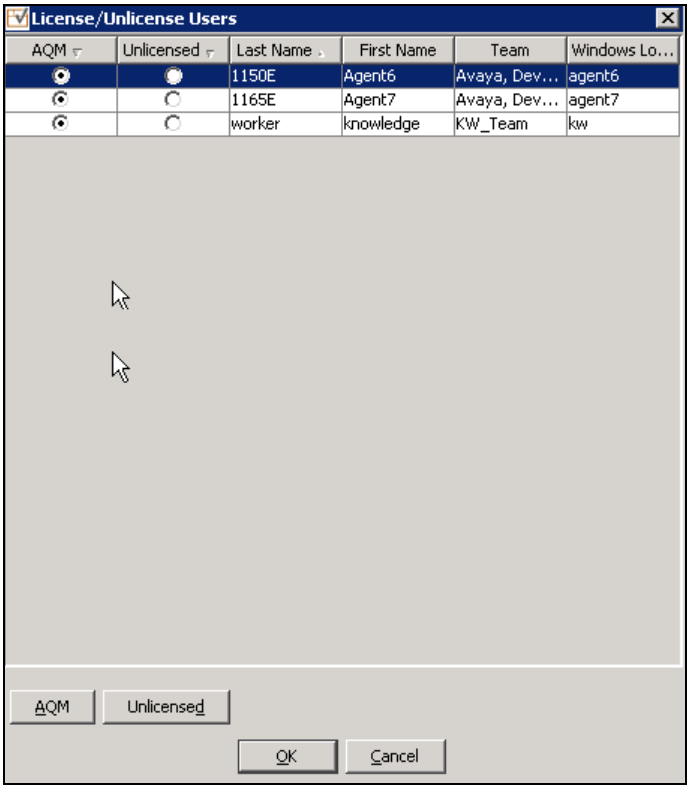
Similarly edit the user information for an agent that will be monitored and recorded. In the example below, from the **Agents** tab double click on an agent. The **Edit User** window opens. Enter valid values for **Windows Login**, **QM Password** and **Confirm Password** fields. Click on the **OK** button.



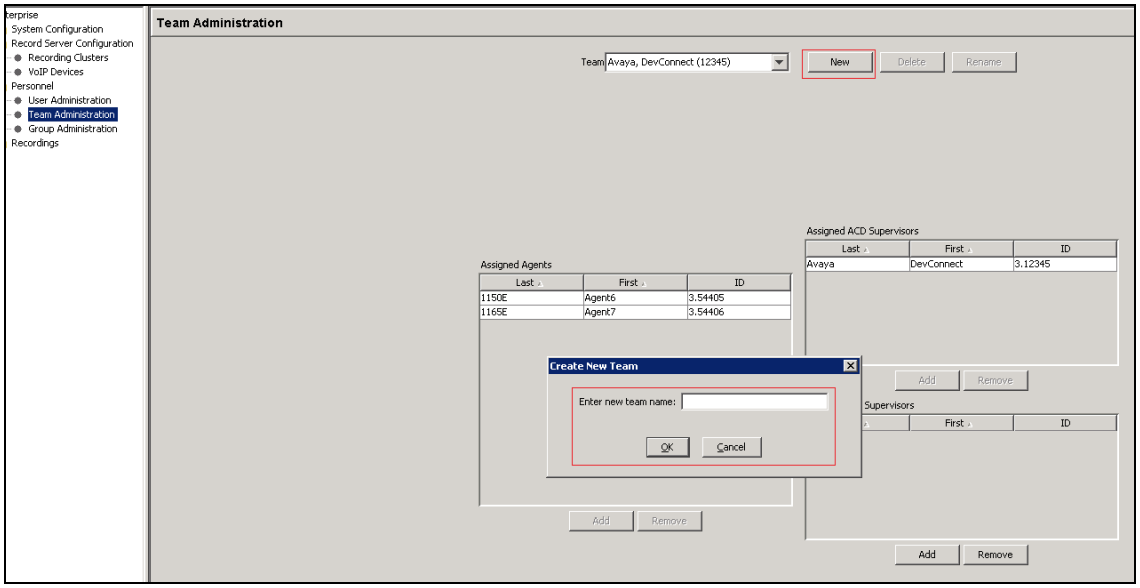
Screen below shows the users that were configured during compliance testing in the **Configured Users** tab.



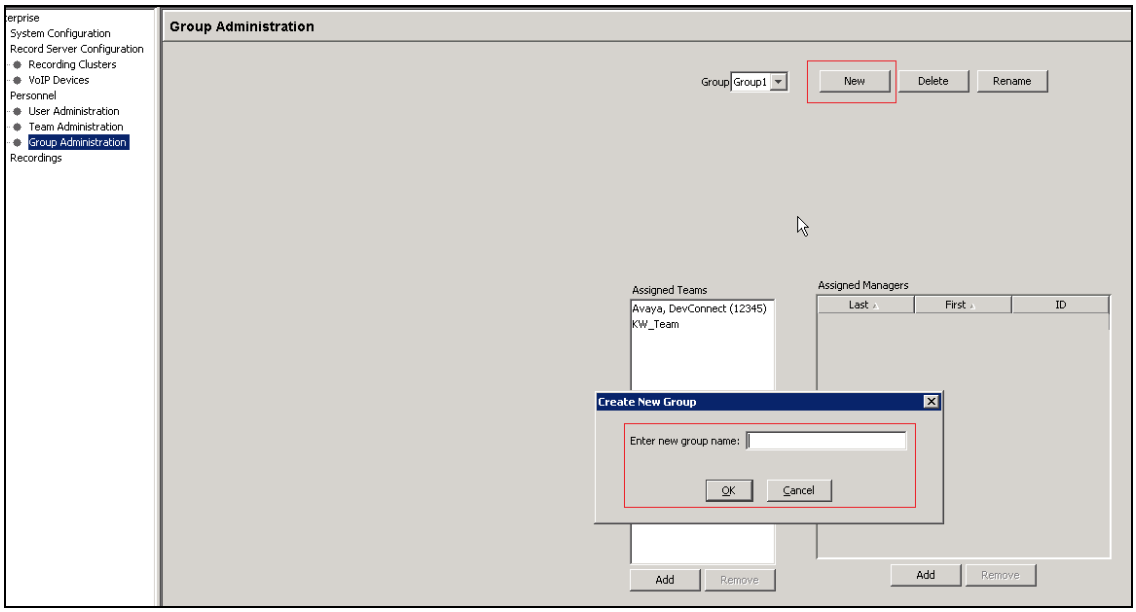
From the above screen click on the **License Users** button and the **License/Unlicense Users** window opens as shown below. Ensure that the above configured users are licensed by selecting the radio button under the AQM column.



In the **Monitoring and Recording Administrator** window as shown below, navigate to **Enterprise → Personnel → Team Administration**. Click on the **New** button to create a new team. A **Create New Team** window opens. Enter a descriptive name in the **Enter new team name** and click on the **OK** button. During compliance testing, *Avaya, DevConnect (12345)* was created. Similarly another team called *KW_Team* was created (not shown). The agents and knowledge worker that will be monitored and recorded were assigned to the *Avaya, DevConnect (12345)* and *KW_Team* respectively.



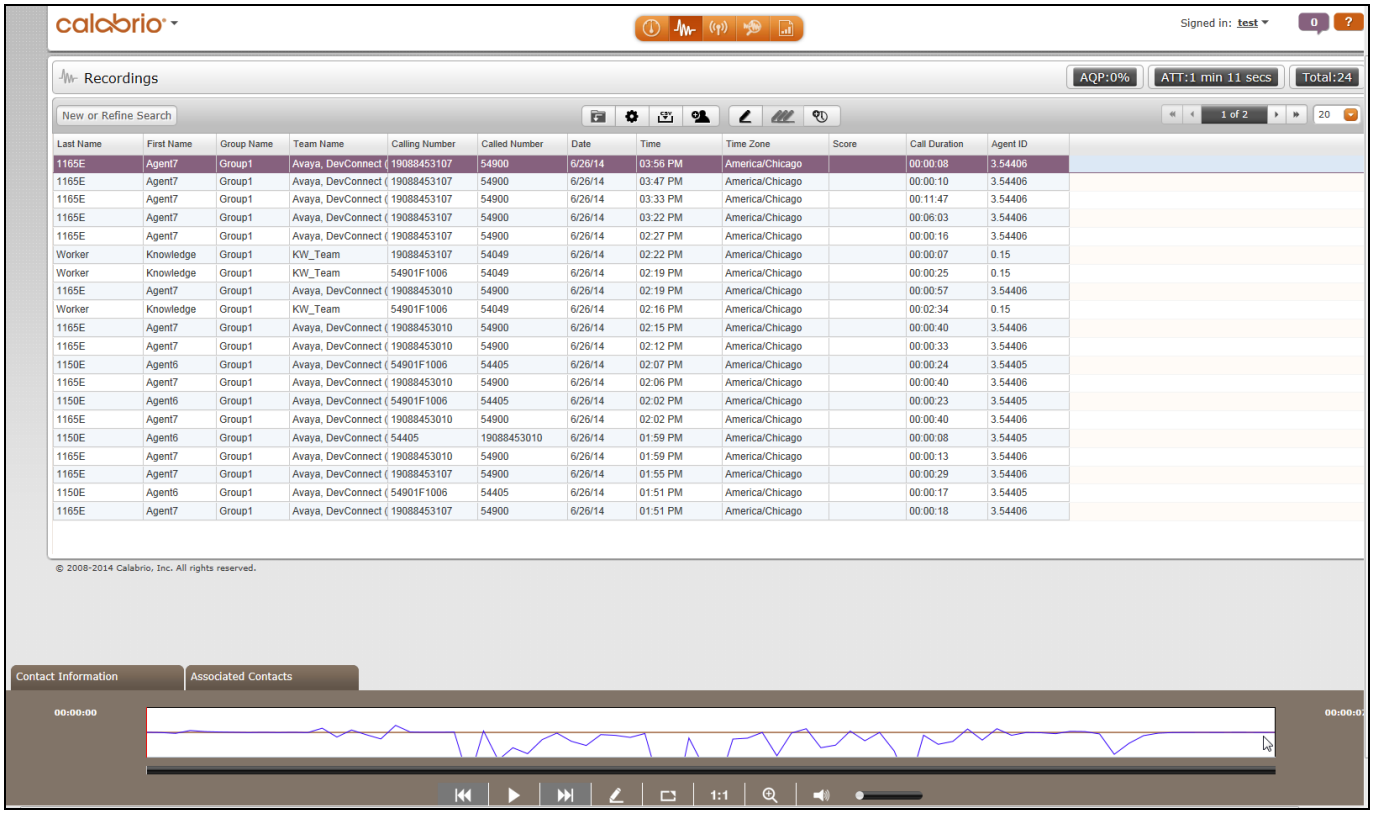
In the **Monitoring and Recording Administrator** window as shown below, navigate to **Enterprise → Personnel → Group Administration**. Click on the **New** button to create a new group. A **Create New Group** window opens. Enter a descriptive name in the **Enter new group name** and click on the **OK** button. During compliance testing, *Group1* was created. The above created teams *Avaya, DevConnect (12345)* and *KW_Team* were assigned to this group.



8. Verification Steps

The following are typical steps to verify the interoperability between the CQM and Contact Center and Avaya Communication Server 1000.

- Ensure that the CQM can connect to the Contact Center and acquire the required information from CCT and CCMA API Integration.
- Ensure that CQM can record the calls based on the call events provided through MLS and play it back along with the call information. Screen below shows the CQM Dashboard that can be launched on a browser by typing in the IP address of the CQM server. This dashboard provides the call information which can then be selected to play the recording back.



9. Conclusion

All of the executed test cases have passed and met the objectives outlined in **Section 2** with any observations or exceptions noted in **Section 2.2**. The Calabrio Call Recording and Quality Management Release 9.2.1.5 SR3 is considered compliant with Avaya Aura® Contact Center Release 6.4 and Avaya Communication Server 1000 Release 7.6.

10. Additional References

Product documentation for Avaya Communication Server 1000 products may be found at:
https://support.avaya.com/css/Products/

Product documentation for Calabrio CQM may be found by emailing at: CIShelpdesk@calabrio.com
Or registering on: https://portal.calabrio.com

[1] Avaya Communication Server 1000 Documents:
Avaya Communication Server 1000E Installation and Commissioning, Release 7.6, NN46041- 310
Co-resident Call Server and Signaling Server Fundamentals - Avaya Communication Server 1000, Release 7.6, NN43001-509
Software Input Output Reference —Administration Avaya Communication Server 1000, NN43001-611
Element Manager System Reference – Administration - Avaya Communication Server 1000, Release 7.6, NN43001-632

[2] Avaya Aura® Contact Center R6.4 Documents:
Avaya Aura® Contact Center Planning and Engineering (NN44400-210)
Avaya Aura® Contact Center Installation (NN44400-311)
Avaya Aura® Contact Center Server Administration (NN44400-610)
Avaya Aura® Contact Center Overview (NN44400-111)
Avaya Aura® Contact Center Fundamentals (NN44400-110)
Avaya Aura® Contact Center Manager Administration – Client Administration (NN44400-611)

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.