



Avaya Solution & Interoperability Test Lab

Application Notes for configuring Teleopti WFM Real Time Adherence and Avaya Call Management System R17.4 using the Generic-RTA Interface – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Teleopti WFM Real Time Adherence to successfully interoperate with Avaya Call Management System using the Generic Real-Time Adherence (RTA) package to access real-time data for agent and queue statistics.

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 required for Teleopti WFM Real Time Adherence to successfully interoperate with Avaya Call Management System using the Generic Real-Time Adherence (RTA) package to access real-time data for agent and queue statistics.

Teleopti WFM Real Time Adherence (Teleopti WFM) is a Workforce Management application suite. It is designed to help plan customer contact centers in optimising customer satisfaction, profitability, and employee satisfaction.

Note: Teleopti WFM can also connect to the Avaya CMS database in order to obtain historical data allowing supervisors of the contact center examine agent and queue statistics over a period of days, weeks or months. This connection is a separate connection to the one outlined in these Application Notes and uses an ODBC connection to the database on Avaya CMS. Information on this can be found in the *Application Notes for Teleopti WFM and Avaya Call Management System R17 using the ODBC Interface*. These Application Notes are available from the Avaya DevConnect website https://www.devconnectprogram.com/site/global/home/p_home.gsp.

The Teleopti Real Time Adherence component provides real-time updates from an Avaya CMS running the Generic-Real-Time Adherence (RTA) package. This allows the supervisor to see at a glance both the planned call centre activities overlaid with the actual situation. Coloured text is used to highlight discrepancies between the two situations, and whether these discrepancies are having a positive or negative effect on the performance of the contact center.

Although the link between Avaya CMS and Real Time Adherence Server is the Generic-RTA package of Avaya CMS, it is necessary for an ACD to be configured on Avaya Aura® Communication Manager for this interface to generate data. Relevant contact center resources consisting of Vector Directory Number (VDN), Skill, and Agent are configured to be “measured” by Avaya Call Management System. When a call travels through a “measured” resource on Communication Manager, the call measurement data is sent to Avaya Call Management System, which in turn provides the data to Teleopti WFM via the Generic-Real-Time Adherence (RTA) package developed by Avaya Professional Services.

The Generic-RTA adapter developed by Avaya Professional Services is installed on Avaya Call Management System. A TCP client-server model is used for the connection, with Avaya Call Management System being the “client”, and the Teleopti WFM server being the “server”. The Teleopti WFM server runs a TCP “listener” process to accept data in real-time from Avaya Call Management System.

Whilst a full description of the configuration of AvayaCMS is beyond the scope of these Application Notes, it is important to understand that this is essential for an operational system. These Application Notes focus on the configuration of the Generic-RTA package on Avaya CMS and the configuration of the Teleopti Real Time Adherence Server on the Teleopti WFM suite.

2. General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying Teleopti WFM's ability to receive Real-Time Adherence data from Avaya CMS (CMS) using the CMS Generic-RTA package. A small call center was setup on Communication Manager and various tests were executed including:

- Agent in various states, e.g. Available, Aux Work, After Call Work, etc.
- Agent on ACD calls.
- Agent on non-ACD calls.

Using the real-time reports available on CMS the real-time data was compared to the real-time statistics being displayed on the Teleopti WFM server.

The serviceability test cases were performed manually by forcing solution components to go out of service and come back and verifying Teleopti WFM 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.

2.1. Interoperability Compliance Testing

The feature testing focused on verifying Teleopti WFM correctly displaying VDN, Skill, and Agent data from CMS. A number of call center scenarios including agent login, agent mode change, agent logout, incoming call to VDN, abandon call, call waiting in queue, call waiting at agent, 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 real-time supervisor interface.

The serviceability testing focused on verifying the ability of the Teleopti WFM server to recover from adverse conditions, such as stopping the Generic RTA adapter on CMS, disconnecting the Teleopti WFM server from the network, and rebooting the Teleopti WFM server.

2.2. Test Results

All test cases passed successfully with no issues.

2.3. Support

For technical support on Teleopti WFM, use the following information.

- Email: support@teleopti.com
- Phone: +46 8 568 950 10

3. Reference Configuration

Figure 1 illustrates the network topology used during compliance testing. The Avaya solution consists of an Avaya CMS, Communication Manager, System Manager, and a G430 Gateway. The Generic-RTA adapter developed by Avaya Professional Services is installed on Avaya Call Management System. The Teleopti WFM server runs a TCP “listener” process to accept data in real-time from Avaya Call Management System.

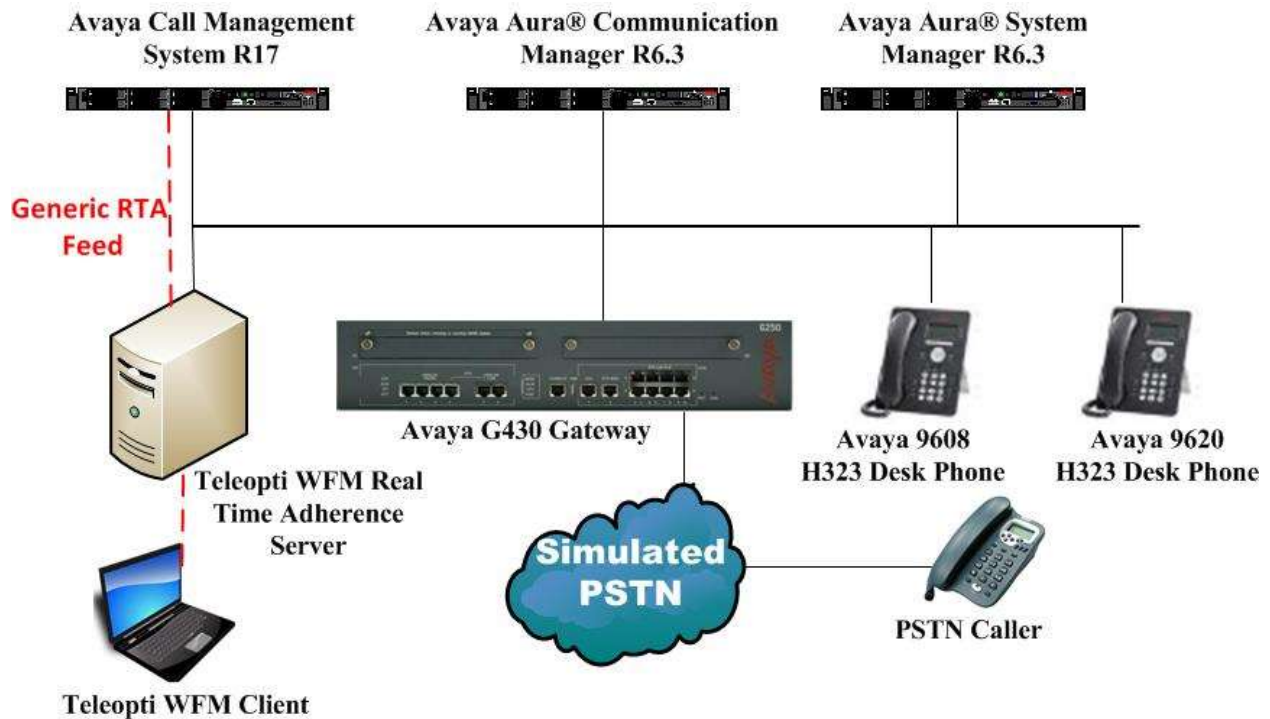


Figure 1: Teleopti WFM Real Time Adherence with Avaya Call Management System R17 using the Generic-RTA adapter on the Call Management System to display real-time data

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	System Manager 6.3.11 (SP11) Build No. – 6.3.0.8.5682-6.3.8.3204 Software Update Revision No: 6.3.7.7.2275
Avaya Aura® Communication Manager running on a virtual server	R6.3 SP9 R016x.03.0.124.0
Avaya Call Management System Generic RTA Package	R17.4
Avaya G430 Gateway	33.12.0 /1
Avaya 9620 Series Deskphone	96xx H.323 Release 3.1 SP2
Avaya 9608 Series Deskphone	96x1 H323 Release 6.4014U
Teleopti WFM Server running on a Windows 2012 Server	Teleopti WFM Release 8.2.426.34843 Windows 2012 R2

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 in this section describes the configuration of the Communication Manager for this solution. It is implied a working system is already in place, including Skills, Vectors, VDN's and Agents. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 10**.

This section provides the procedures for how to enable VDN, Skill, and Agent measurement data to be sent to CMS. The procedures include the following areas:

- Administer measured VDN
- Administer measured Skill and Agent

For the compliance testing, the following contact center devices were used.

VDN	Skill	Agent
2900	900	4404
2901	901	4405

5.1. Administer Measured VDN

Use the **change vdn x** command, where **x** is the extension of the VDN to be measured by CMS. Set the **Measured** field to **both** to enable measurement data on the VDN to be sent to CMS. Repeat this step for all VDNs that will be measured by CMS.

```
change vdn 2900                                     Page 1 of 3
                                                    VECTOR DIRECTORY NUMBER
                                                    Extension: 2900
                                                    Name*: SalesVoice
                                                    Destination: Vector Number      2900
Attendant Vectoring? n
Meet-me Conferencing? n
Allow VDN Override? n
COR: 1
TN*: 1
Measured: both
Acceptable Service Level (sec): 20
VDN of Origin Annc. Extension*:
1st Skill*:
2nd Skill*:
3rd Skill*:
* Follows VDN Override Rules
```

5.2. Administer Measured Skill and Agent

Use the **change hunt-group x** command, where **x** is the number of the Skill group to be measured by CMS. Navigate to **Page 2**, and set the **Measured** field to **both** to enable measurement data on the Skill group and the associated Agents to be sent to CMS. Repeat this step for all Skill groups that will be measured by CMS.

```

change hunt-group 900                                     Page 2 of 4
                                                         HUNT GROUP
Skill? y          Expected Call Handling Time (sec): 180
AAS? n           Service Level Target (% in sec): 80 in 20
Measured: both
Supervisor Extension:

Controlling Adjunct: none

VuStats Objective:

Multiple Call Handling: none

Timed ACW Interval (sec):          After Xfer or Held Call Drops? n

```

For the compliance testing, two Skill groups with group numbers **900** and **901** were configured to be measured. In addition, two agents with extensions **2015** and **2016** and agent ID **4404** and **4405** were used as available agents for the above Skill groups. Use the command **list agent LoginID** to show the agents configured and the Skills associated with these agents.

```

list agent-loginID
AGENT LOGINID
Login ID      Name          Extension      Dir Agt  AAS/AUD      COR Ag Pr
SO
              Skil/Lv Skil/Lv Skil/Lv Skil/Lv Skil/Lv Skil/Lv Skil/Lv
Skil/Lv
4404        Paul          2015                1  lv1
              900/01  901/01
4405        Russell       2016                1  lv1
              900/01  901/01

```

5.3. Save Avaya Aura® Communication Manager Configuration

From the Command Line enter **Save Translation**, in order to commit the changes that have been introduced to memory on Communication Manager.

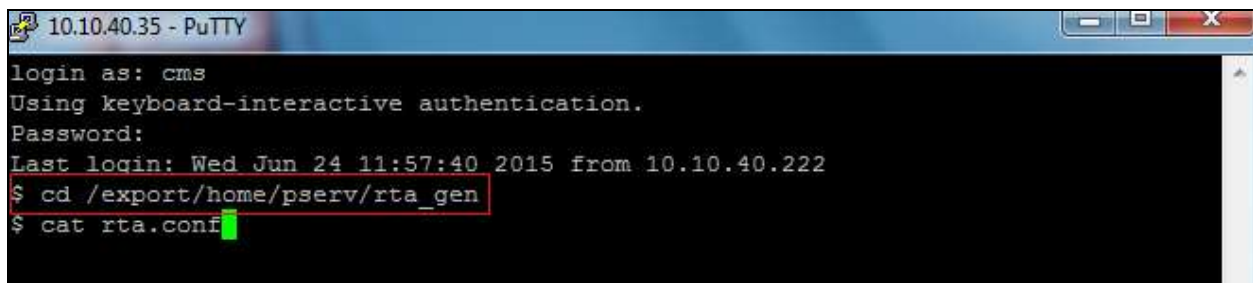
6. Configure Avaya Call Management System

It is implied that a working Avaya CMS is already in place and that the connections to Communication Manager are already configured. This section provides the procedures for the following:

- Configure Generic-RTA Adapter.
- Enable Generic-RTA Adapter.

6.1. Configure Generic-Real Time Adherence Adapter

The Generic-RTA adapter is configured through a configuration file named **rta.conf** located in the directory where the adapter software is installed. In the compliance test configuration, the path to the directory was **/export/home/pserv/rta_gen**. PuTTY can be used to open an SSH session to CMS. Enter the proper credentials and navigate to **/export/home/pserv/rta_gen**. Open the file called **rta.conf**.



```
10.10.40.35 - PuTTY
login as: cms
Using keyboard-interactive authentication.
Password:
Last login: Wed Jun 24 11:57:40 2015 from 10.10.40.222
$ cd /export/home/pserv/rta_gen
$ cat rta.conf
```

In the **rta.conf** file, select a Session number and configure the following items:

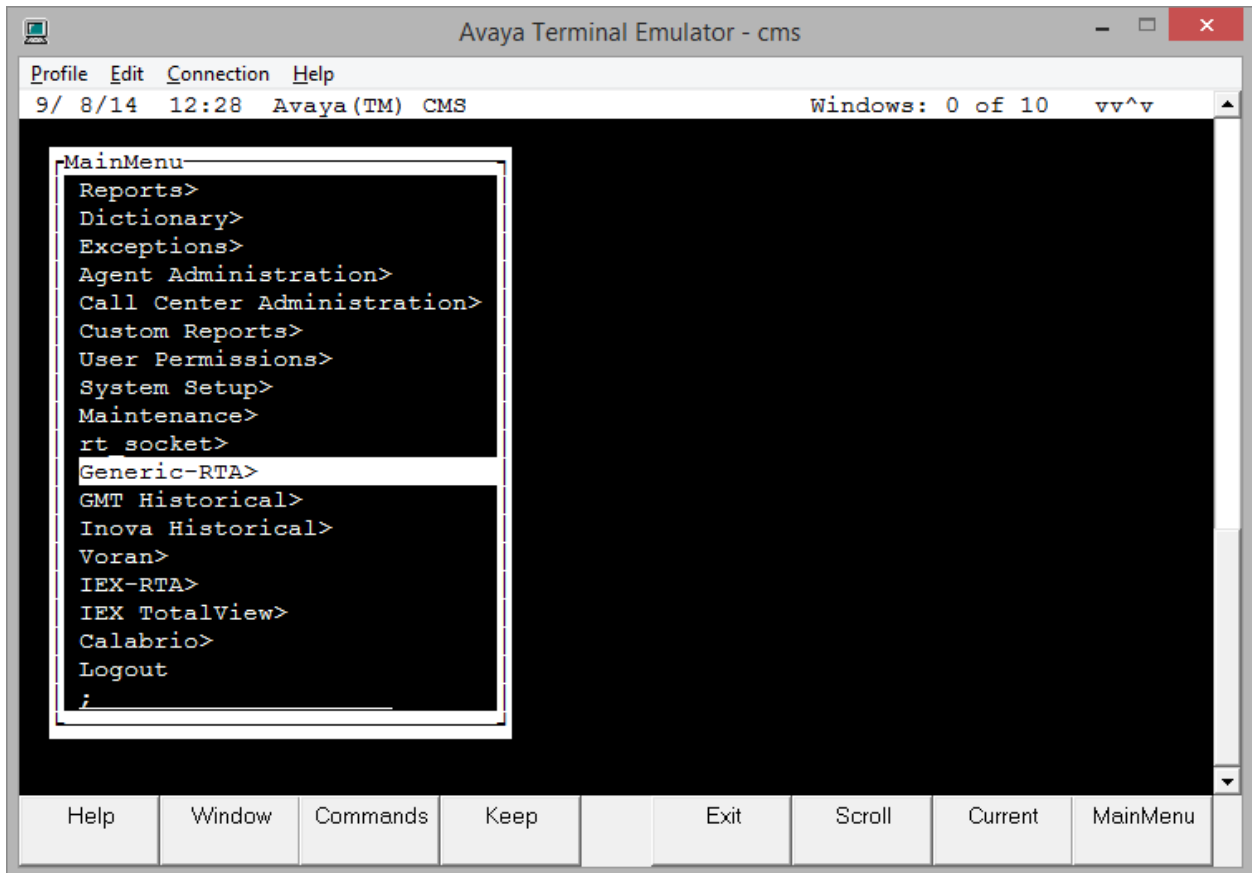
- **HOST:** hostname of the Teleopti server which is defined in **/etc/hosts**.
- **PORT:** port for the TCP/IP connection.
- **ACD:** ACD that sources the real-time date.
- **REFRESH:** real-time report refresh rate.

The following screenshot shows how the adapter was configured in the test configuration. It is advised, however, that CMS adapter configuration should only be performed by the Avaya Professional Services organization. Questions about adapter configuration should be directed to the Avaya Professional Services. Professional Services may be contacted through an Avaya account manager.

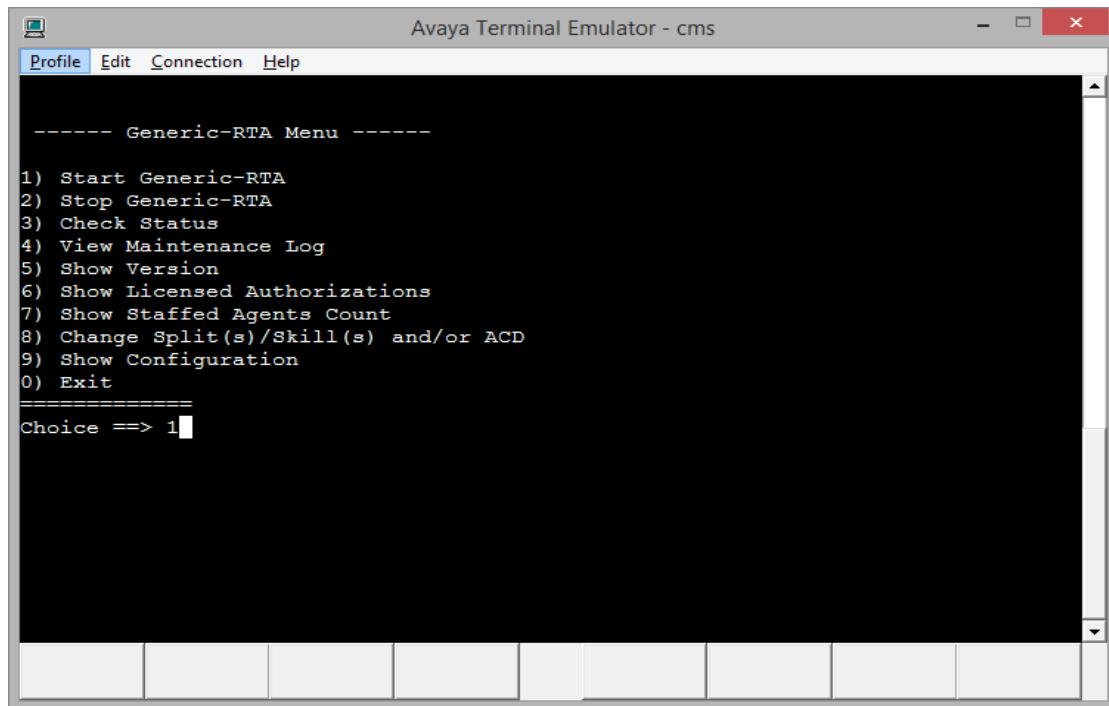
```
#----- Session 1 -----
HOST1=WIN2012Teleopti      # the receiving server's host name in /etc/hosts
PORT1=6996                 # the receiving server's port
ACD1=1                    # ACD being monitored
OPTS1=""                  # applicable command line options
REPORT1=rta_gen           # respective custom report name
MONITOR_LIST1="1-8000"    # skills to monitor
REFRESH1=5                # respective report refresh rate
```


6.2. Enable Generic-RTA Adapter

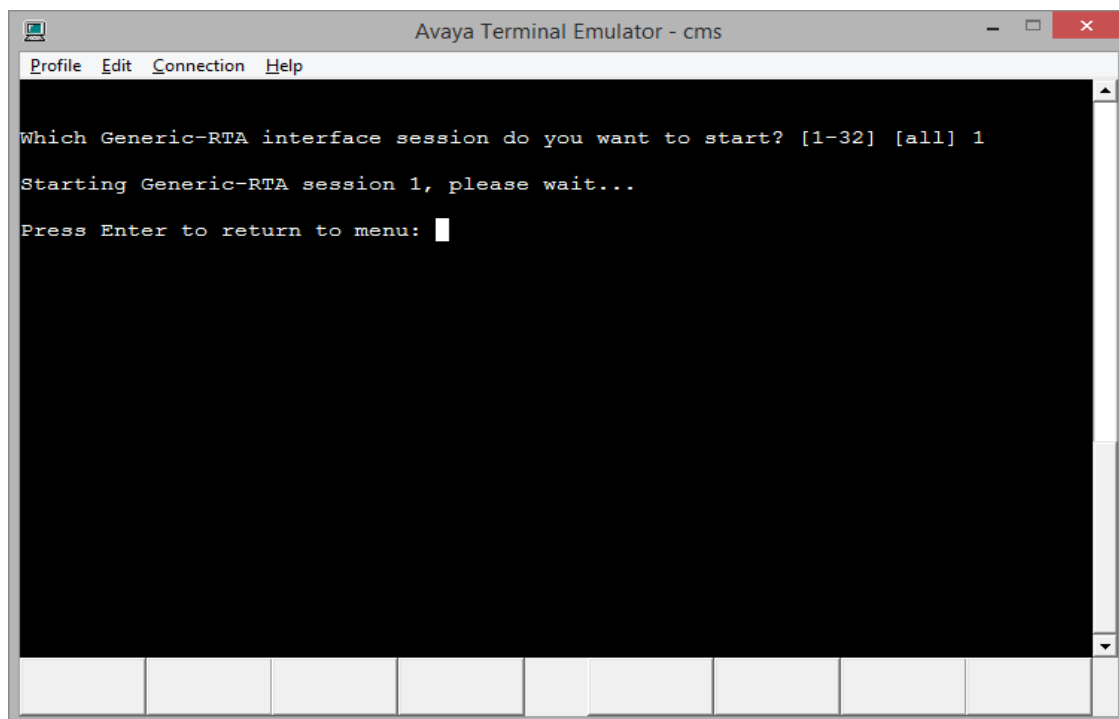
Use Avaya Terminal Emulator to connect to CMS, and log in with proper credentials (not shown). Enter **cms** at the command prompt to display the **MainMenu** screen. Select the option that corresponds to the customized real-time agent interface created by Avaya Professional Services for Teleopti, in this case the option is **Generic-RTA**. Note that the actual option name may vary. Press the **Enter** key.



The **Generic-RTA Menu** is displayed. Enter “1” followed by the **Enter** key, to start the interface.



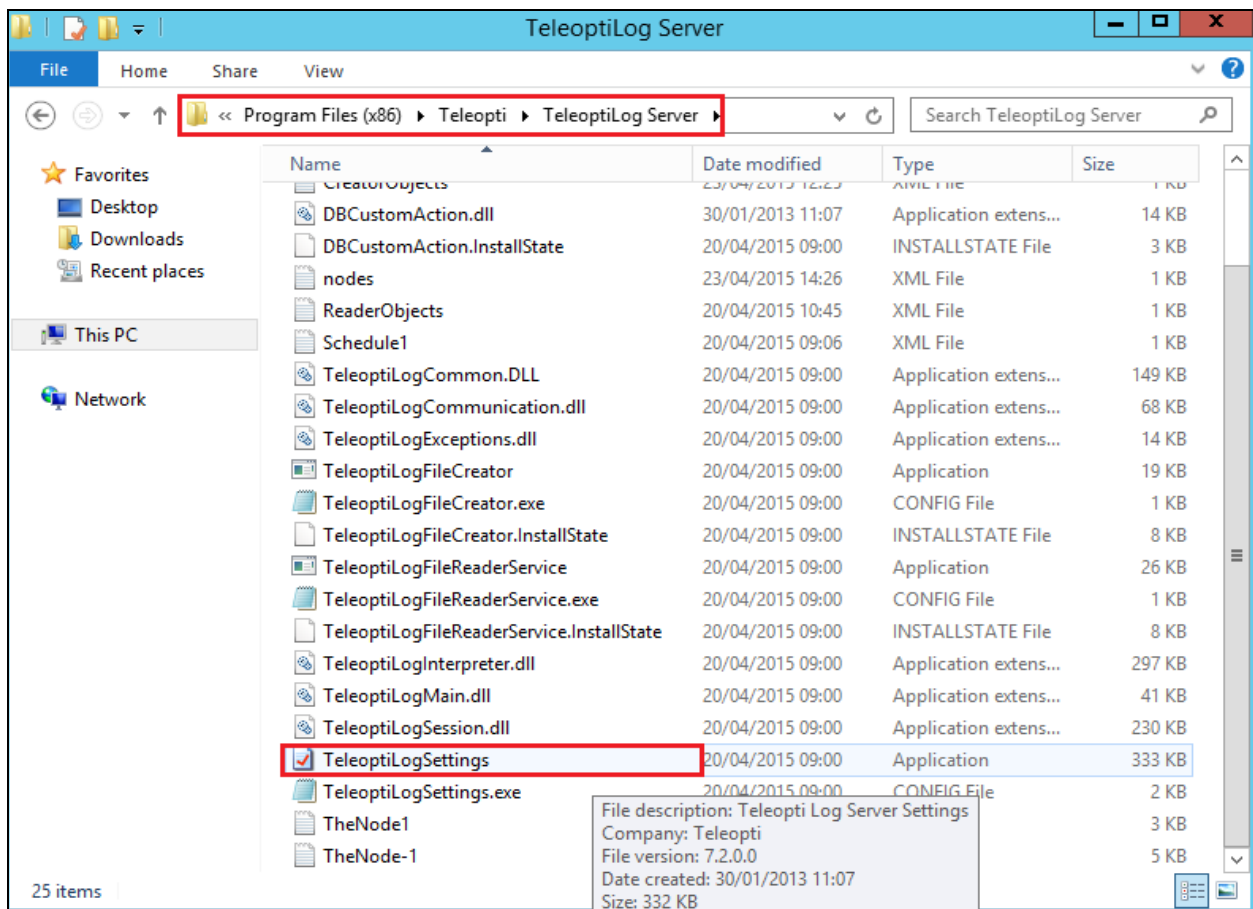
The system will prompt for the session number. Enter the session number selected in **Section 6.1** and the **Enter** key. Press the **Enter** key to return to the CMS **MainMenu**.



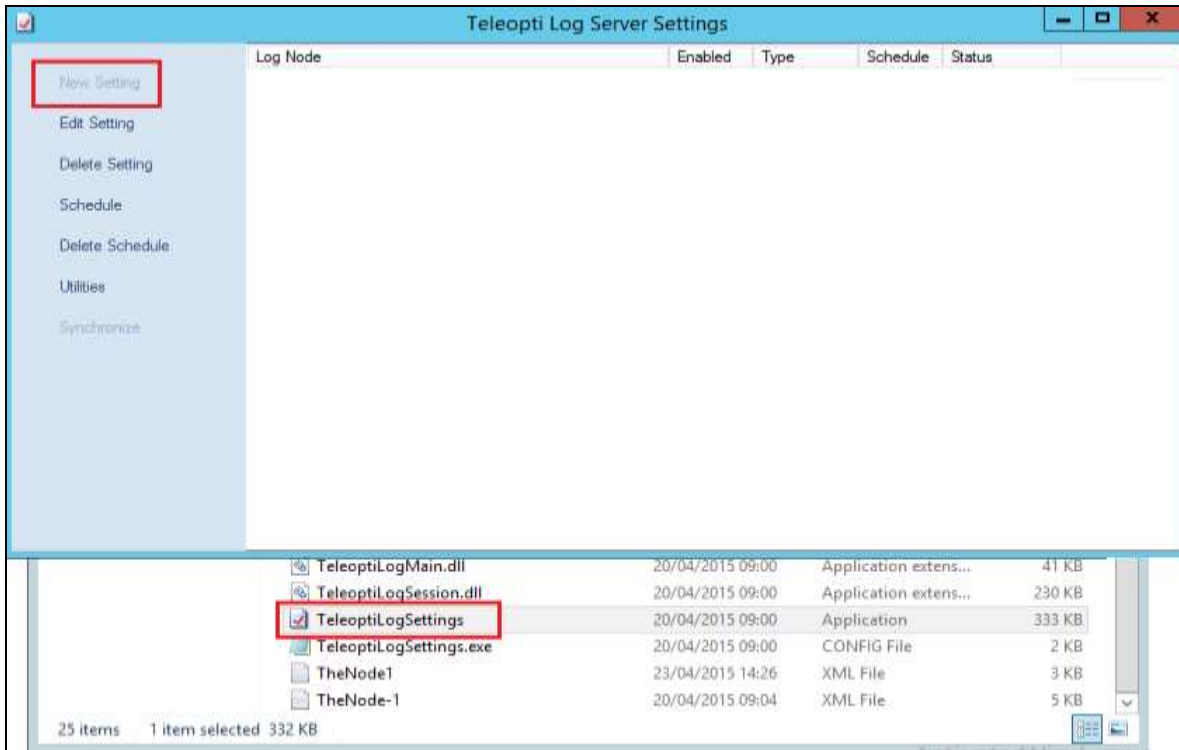
7. Configure Teleopti WFM Real Time Adherence Server

The following sections describe the steps required to configure the base configuration required to enable Teleopti WFM listen for real-time data given out from the Avaya CMS via the Generic-RTA adapter. It is implied 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 10**.

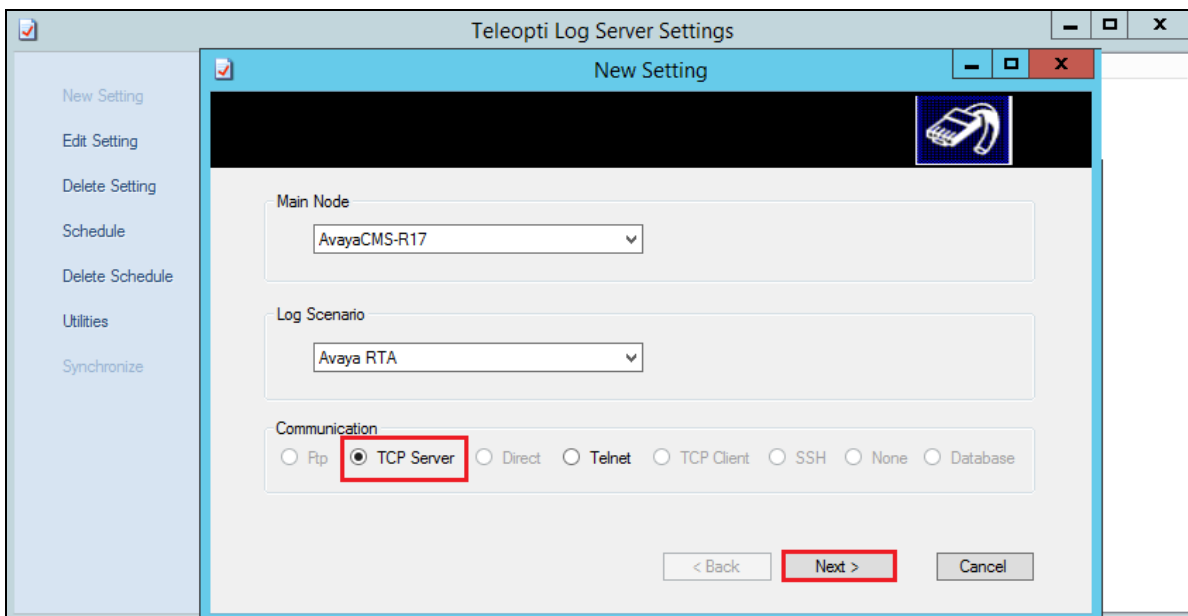
To configure the Teleopti WFM Real Time Adherence Server navigate to the **TeleoptiLogSettings** application, the location of this file may be different on different systems but in the example below this was located at **Program Files (x86) → Teleopti → TeleoptiLog Server** as shown on the screen below.



Double Click on the **TeleoptiLogSettings** application. This will bring up the Teleopti Log Server Settings window. In the left column of this window, click on **New Setting**.



Enter the data for the **Main Node** and **Log Scenario** from the drop-down menus as is shown below. Ensure that **TCP Server** is chosen and click on **Next** to continue.



In the resulting window select the following parameters need to be set. Enter a suitable name for the new real-time collector, such as **AvayaCMS-R17 Avaya RTA** as is shown below.

- **Port.** This needs to be set to the port number as per Section 6, in this case this was decided to be **6996**.
- **ActiveAgentInfoFile.** This is set to **True**.
- **Agent Format.** This is set to **<AgentId>**.
- **AvayaType.** This is set to **CMS**.
- **DataDestination.** This is set to **RtaService**.
- **RowDelimiter.** This is set to **VBCRLF**.

All other field can be left as default and should display like in the example below. Click on **Finish** to submit this data.

The screenshot shows a 'New Setting' dialog box with a title bar containing a checkmark icon, the text 'New Setting', and standard window control buttons (minimize, maximize, close). Below the title bar is a header area with a text input field containing 'AvayaCMS-R17 Avaya RTA' and a blue icon of a hand holding a telephone receiver. The main area contains a table with the following parameters and values:

parameter	value	
Port	6996	
ActivateAgentInfoFil...	True	▼
AgentFormat	<AgentId>	▼
AgentInfoTeleoptiAn...	TeleoptiAnalytics	
AvayaType	CMS	▼
DataDestination	RtaService	▼
DataDestinationServ...	http://win2012teleopti/TeleoptiWFM/RTA/TeleoptiRtaService.svc	
RowDelimiter	VBCRLF	▼
ShowDebug	False	▼
StartTag	TS	
StoppTag	EOD	
WriteToTextFile	False	▼

At the bottom of the dialog box are three buttons: '< Back', 'Finish >', and 'Cancel'.

The new Avaya real-time collector is now created and is shown below.

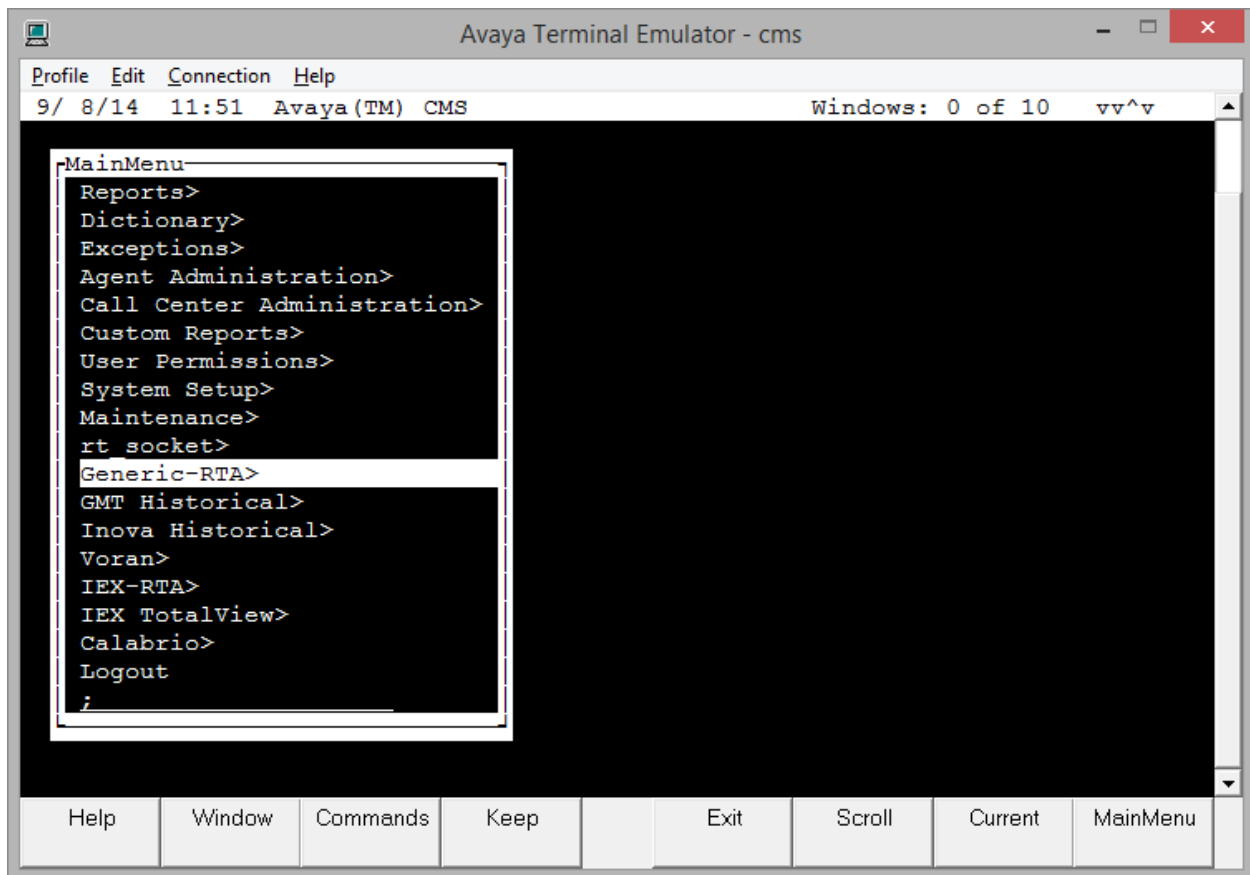
Log Node	Enabled	Type	Schedule	Status
AvayaCMS-R17 Avaya RTA FileCreator	Yes	FileCreator	No	STARTED

8. Verification Steps

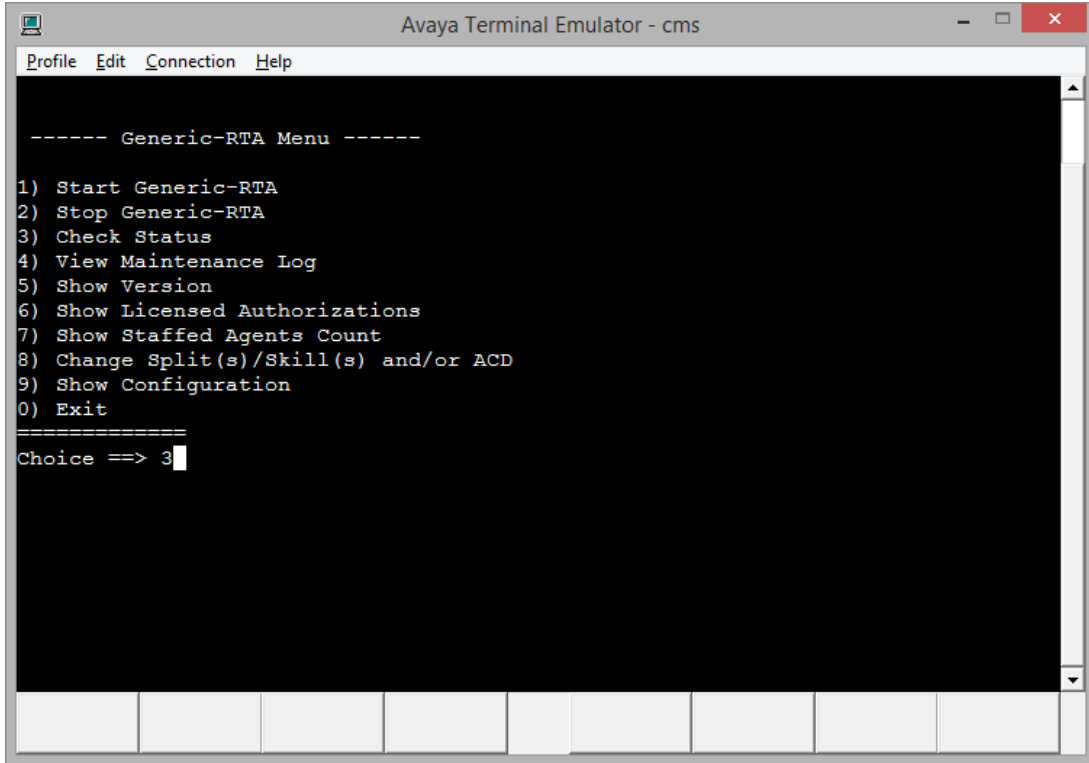
This section provides the tests that can be performed to verify proper configuration of CMS and Teleopti WFM.

8.1. Verify Avaya Call Management System Real-Time Adapter

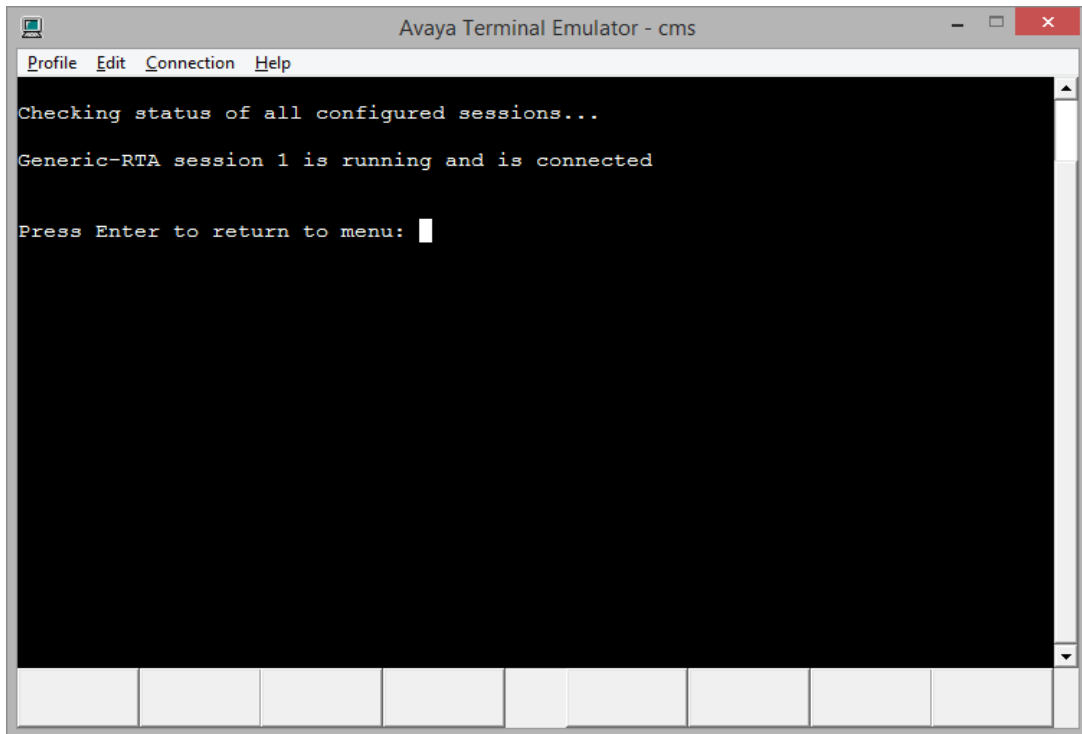
Use Avaya Terminal Emulator to connect to CMS, and log in with proper credentials (not shown). Enter `cms` at the command prompt to display the MainMenu screen. From the **MainMenu** screen, select the **Generic-RTA** option and press **Enter**.



The **Generic-RTA** Menu is displayed. Enter **3** to check the status of the Generic RTA session.

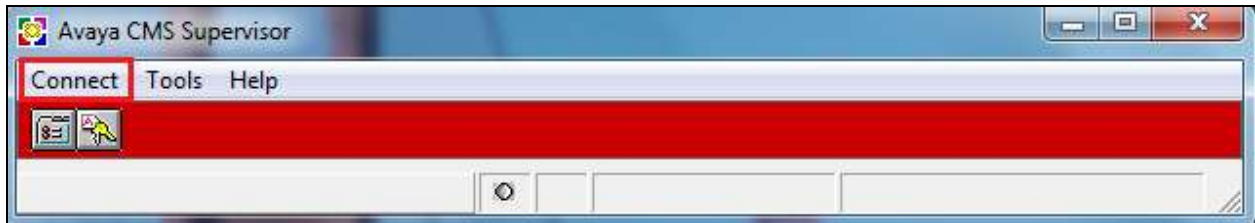


Verify that the session is running and is connected.

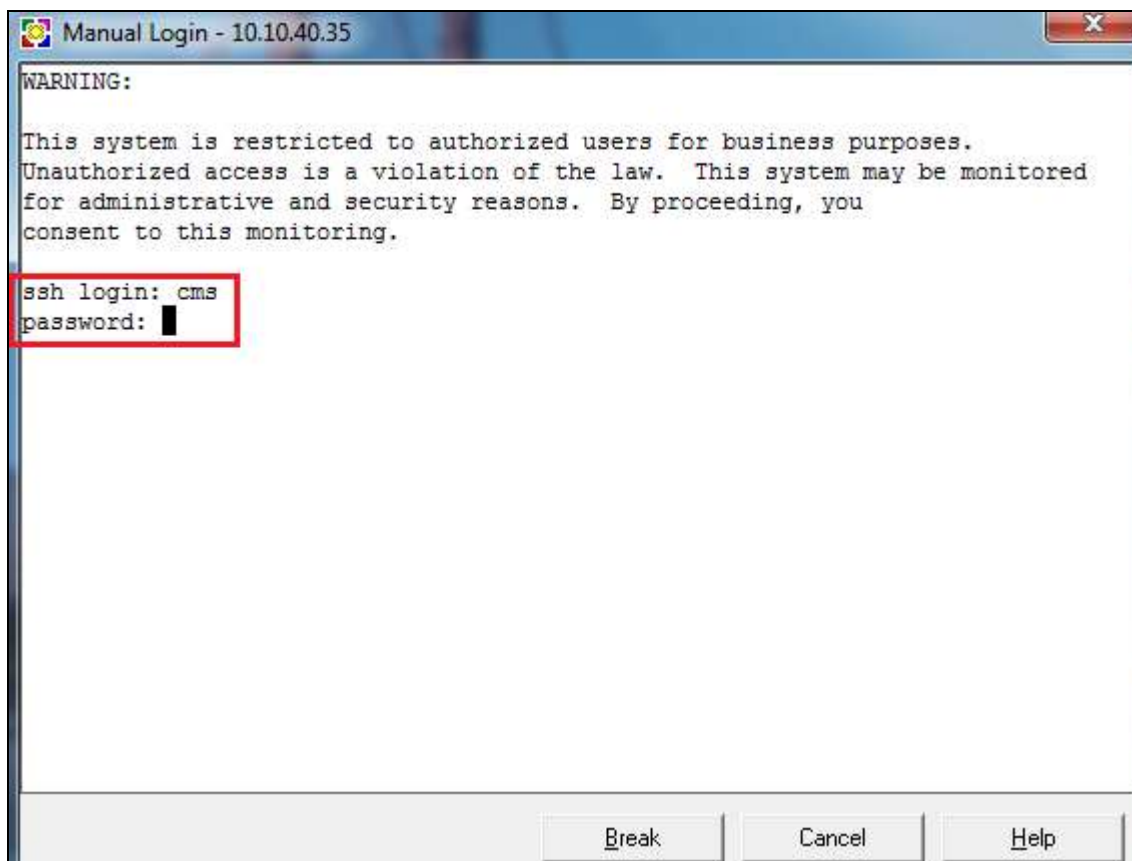


8.2. Verify CMS Agent Reports are running

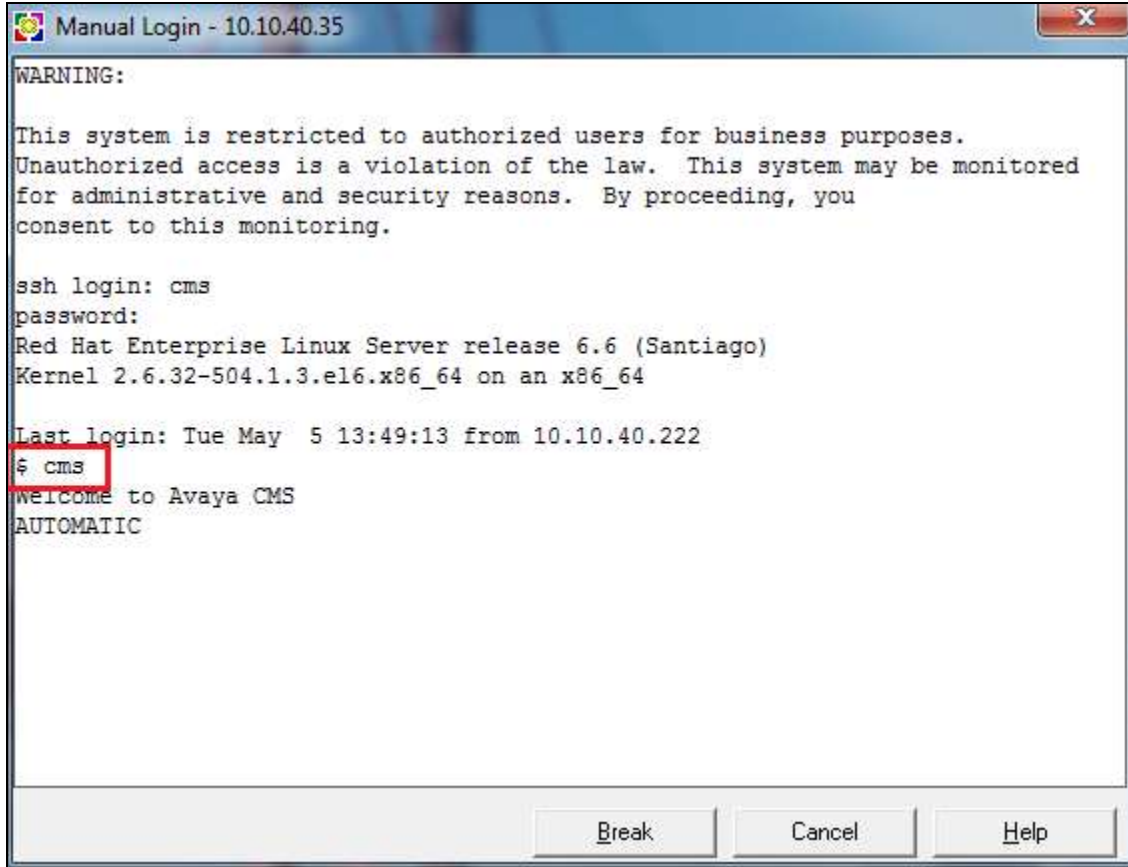
Open the Avaya CMS Supervisor program; this should open an application as shown below.



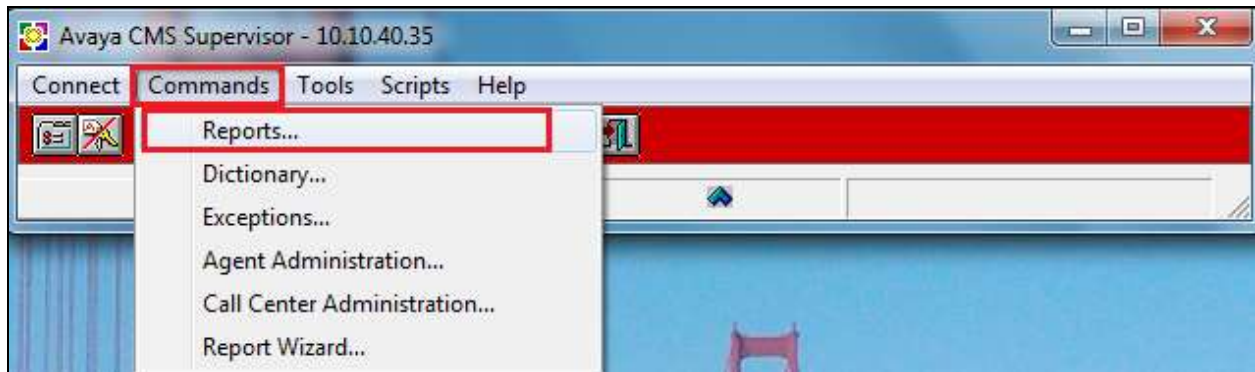
Click on Connect, this will open the login page. Enter the proper credentials and hit return.



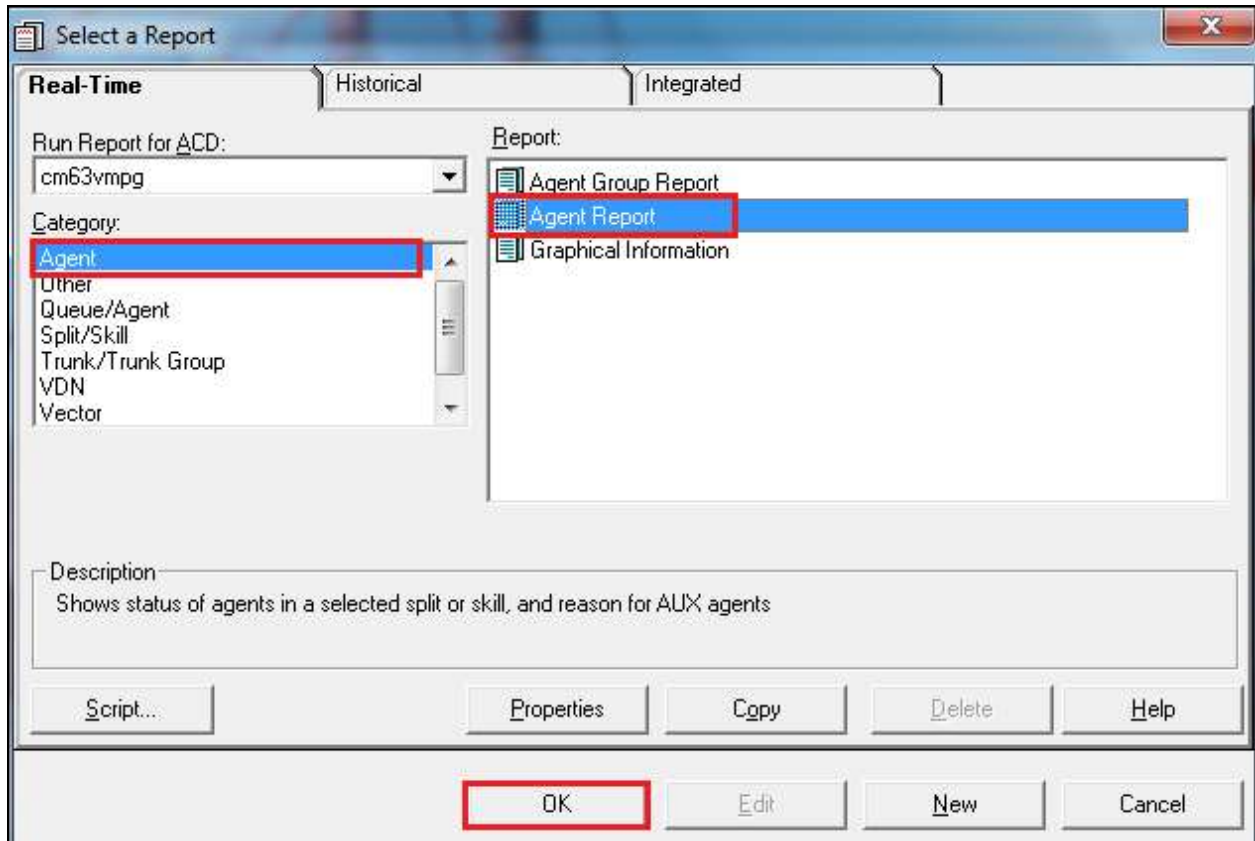
Once logged in, type **cms** and hit return.



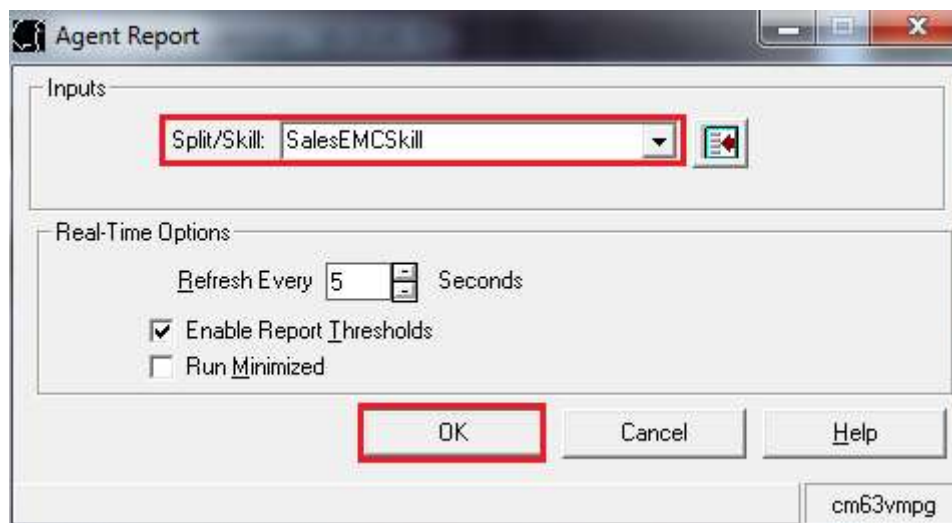
This will ensure that the CMS user is fully logged in and the Supervisor program can be now used to open reports. Click on **Commands** → **Reports** as shown below.



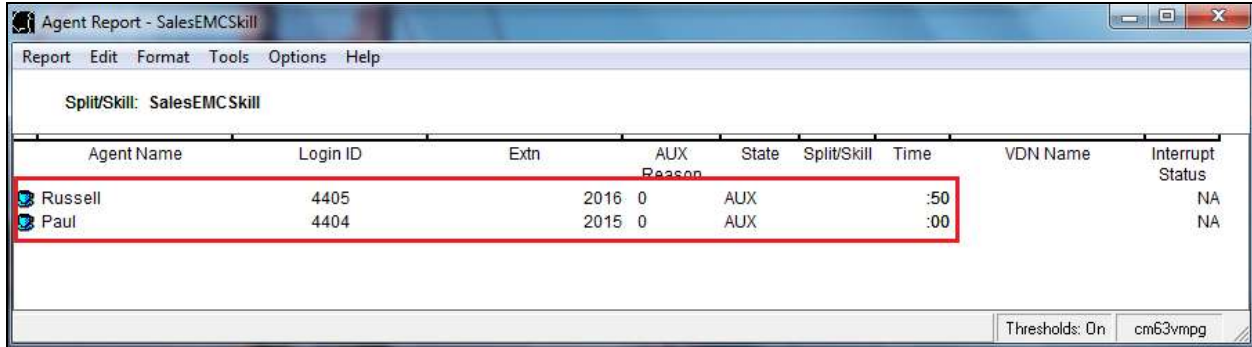
Select the report that is to be run. In this example an **Agent Report** is chosen. Click on **OK** to launch the report.



Choose the **Split/Skill** that is to be reported on. This will show all the agent activity for this particular Skill. Click on **OK** to continue.



The report then shows the agents that are logged into the **SalesEMCSkill** Skill.



Agent Report - SalesEMCSkill

Report Edit Format Tools Options Help

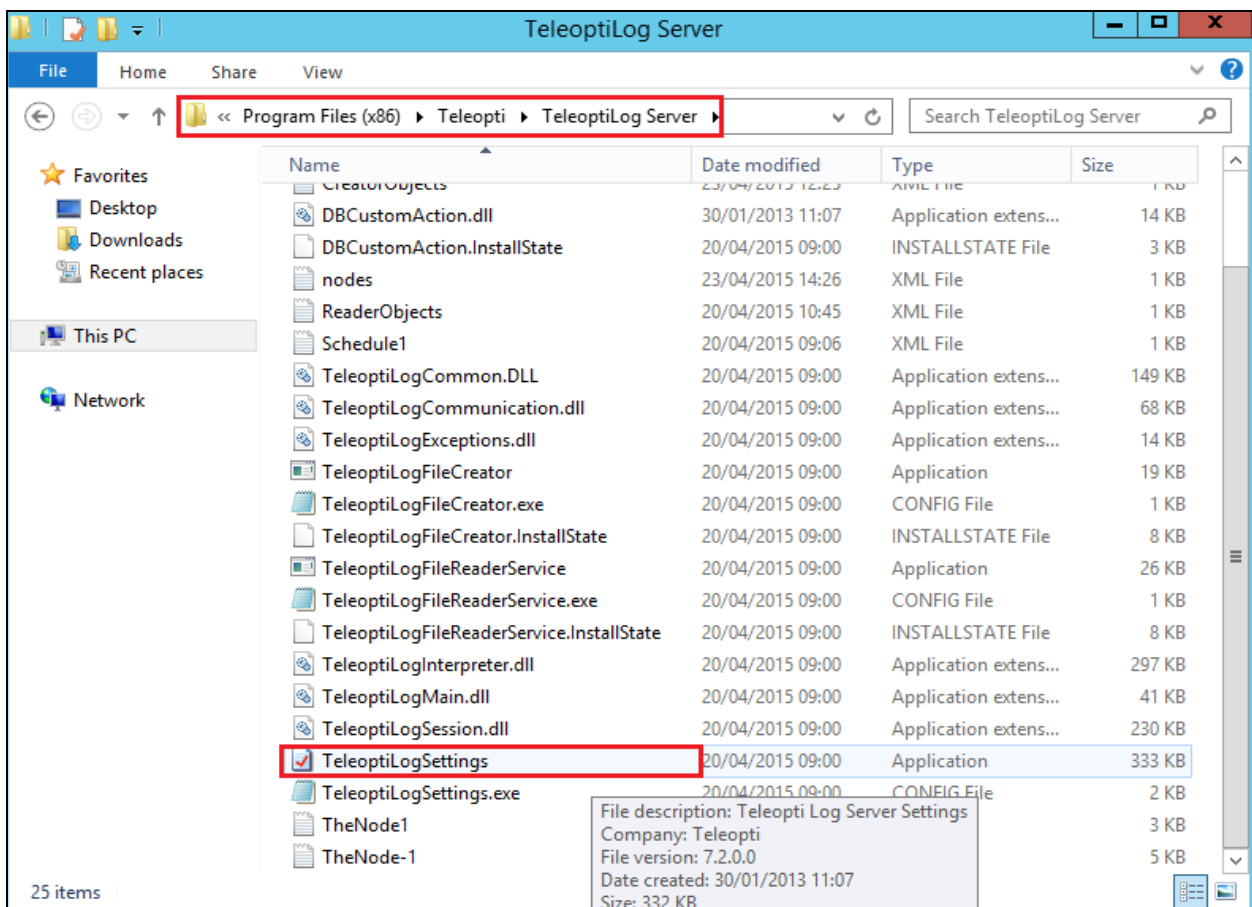
Split/Skill: SalesEMCSkill

Agent Name	Login ID	Extn	AUX Reason	State	Split/Skill	Time	VDN Name	Interrupt Status
Russell	4405	2016	0	AUX		:50		NA
Paul	4404	2015	0	AUX		:00		NA

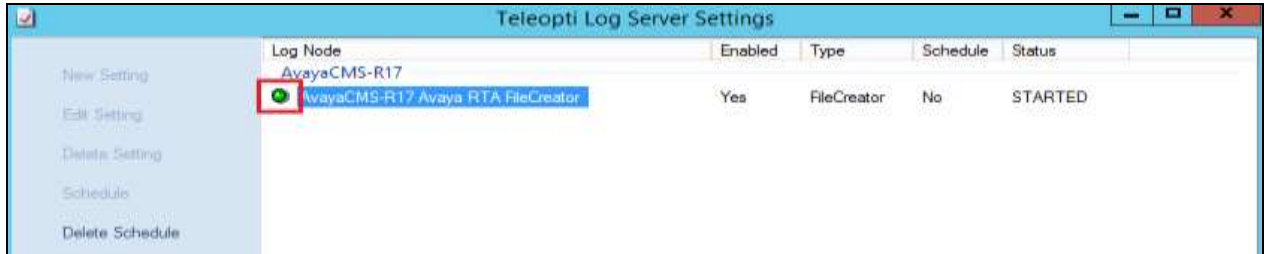
Thresholds: On cm63vmpg

8.3. Verify real-time data is being received

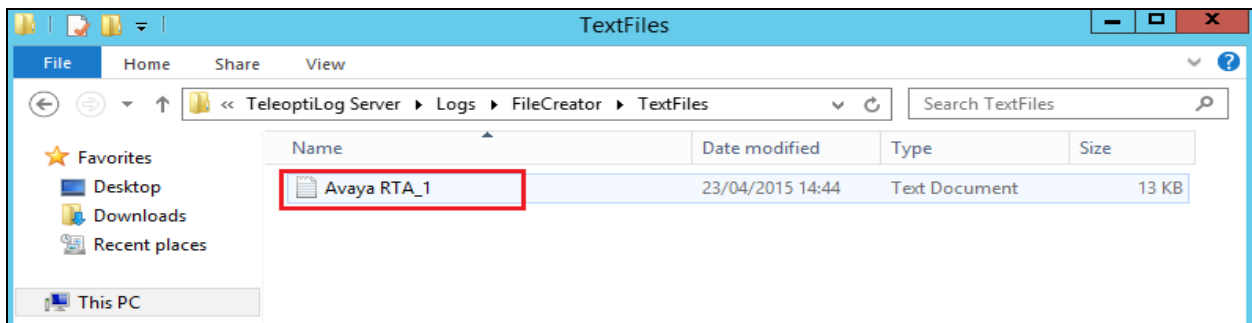
Navigate to the **TeleoptiLogSettings** application, the location of this file may be different on different systems but in the example below this was located at **Program Files (x86) → Teleopti → TeleoptiLog Server** as shown on the screen below.



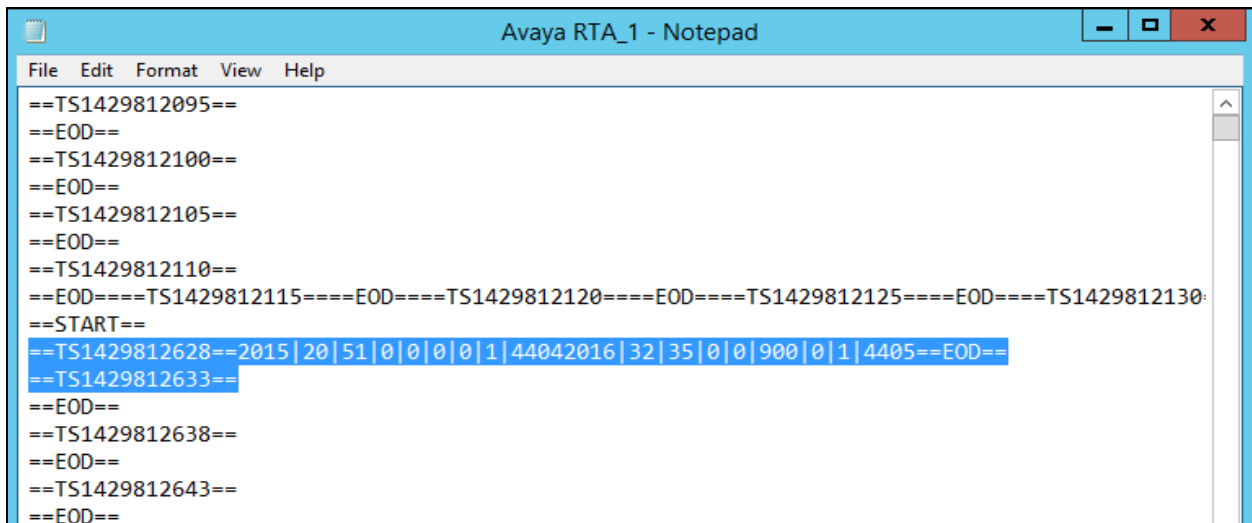
Double-click on the **TeleoptiLogSettings** Application in the screen shot above. This opens the **Teleopti Log Server Settings** window as shown and the **AvayaCMS-R17AvayaRTAFileCreator** is showing up and active as this green button appears, as is highlighted below.



Navigate to where the raw text files for real-time data are stored. This may be different depending on the installation but in the example below these files are located at **Program Files (x86) → Teleopti → TeleoptiLog Server → Logs → FileCreator → TextFiles**. The file present in this folder called **AvayaRTA_1** should contain real-time information.

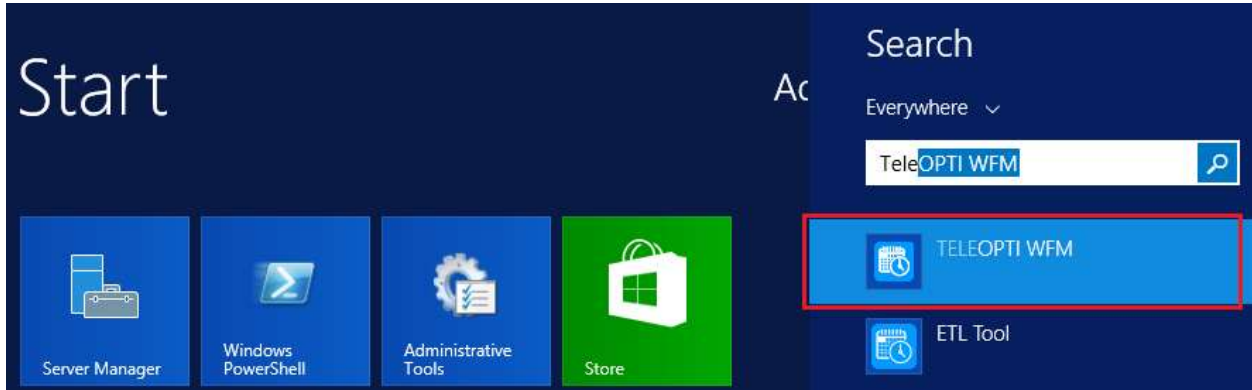


Open the **AvayaRTA_1** file in notepad and observe the data being displayed. The data should show information such as Agent ID (**4404**) the extension (**2016**) and other fields indicating calls in or out (**0** or **1**).

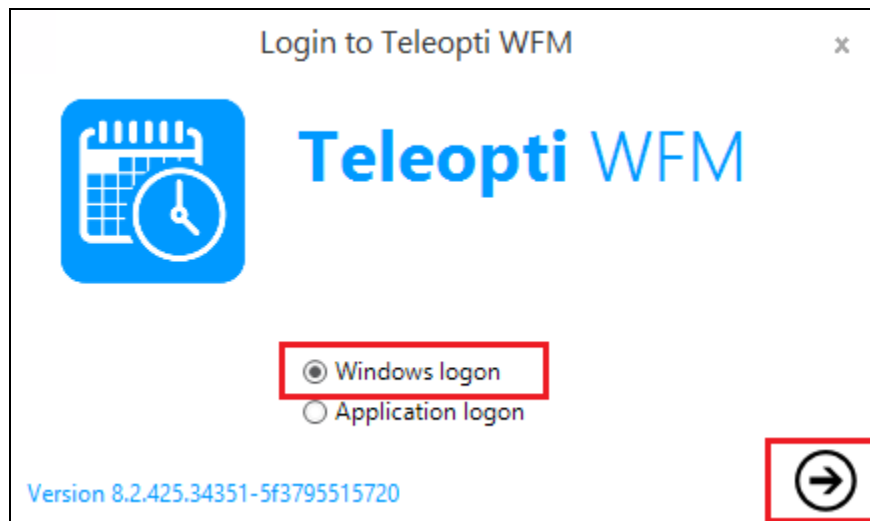


8.4. Verify a Real-Time Report is being displayed correctly

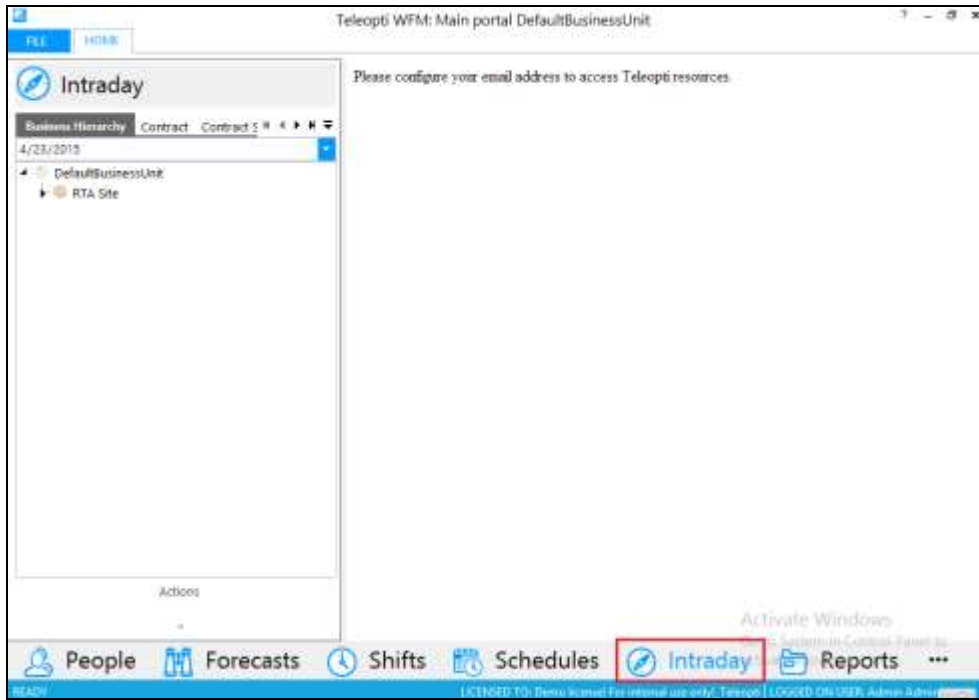
Open the **Teleopti WFM** client as follows.



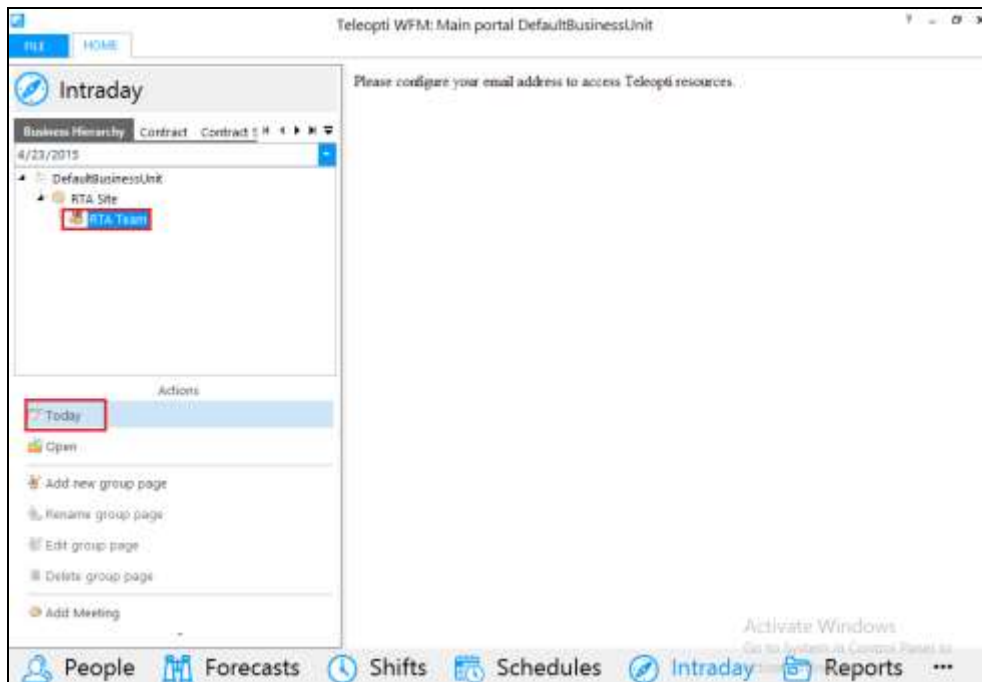
The following **Login** window is displayed, choose the **Windows Logon** and click on the **Login icon** highlighted.



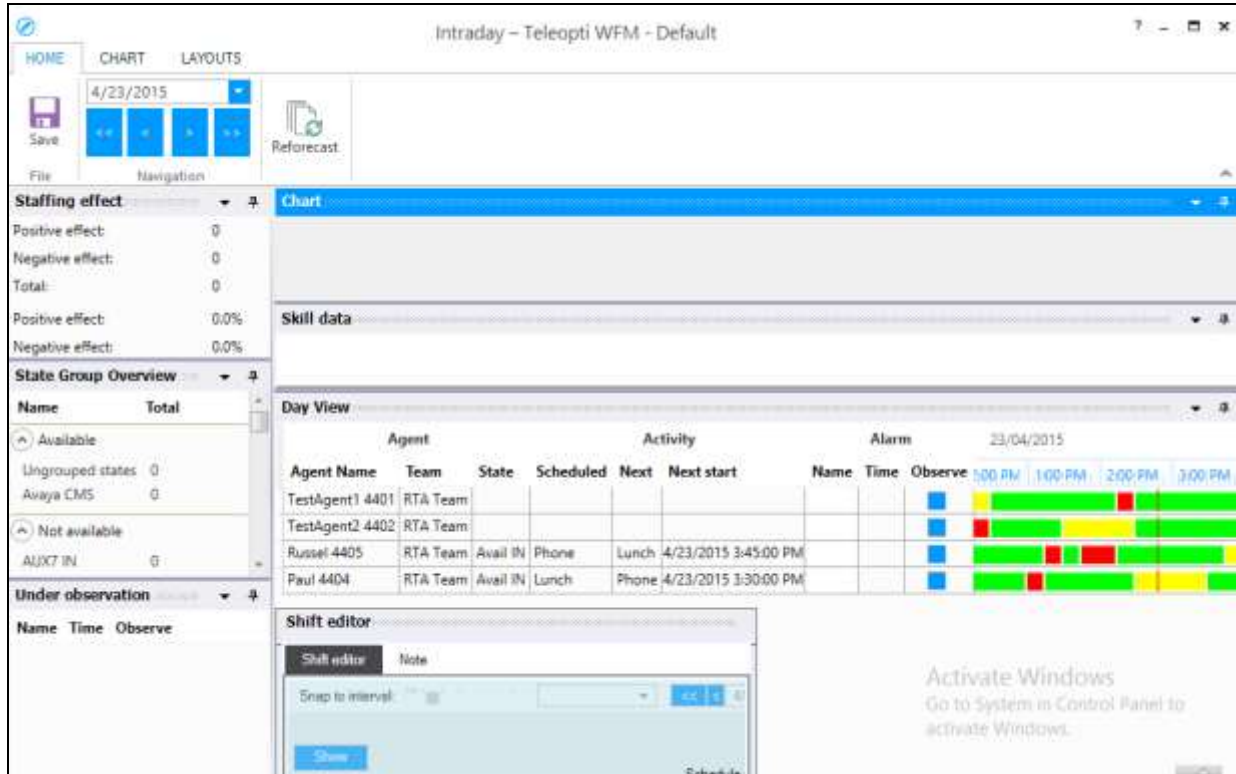
Click on the **Intraday** icon at the bottom of the screen. This will bring up the **Business Hierarchy** in the left window.



Expand on the **DefaultBusinessUnit** → **RTA Site** → **RTA Team**. Click on **Today** under **Actions** as highlighted below.



The following window is opened displaying real-time information on various agents configured on Communication Manager.



9. Conclusion

These Application Notes describe the configuration steps required for Teleopti WFM Real Time Adherence to successfully interoperate with Avaya Call Management System using the Generic Real-Time Adherence (RTA) package to access real-time data for agent and queue statistics. A full and comprehensive set of feature and functional test cases were performed during Compliance testing. All test cases passed with any issues and observations outlined in **Section 2.2**.

10. 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] *Avaya Aura® Communication Manager Feature Description and Implementation*, Release 6.3.
- [2] *Administering Avaya Aura® Communication Manager*, Release 6.3.
- [3] *Application Notes for Teleopti WFM and Avaya Call Management System R17 using the ODBC Interface*.
- [4] *Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux* Release 17 February 2015.
- [5] *Avaya Call Management System Database Items and Calculations* Release 17.x June 2014.

Teleopti WFM documentation can be found using the contact details listed in **Section 2.3**.

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