

Avaya Solution & Interoperability Test Lab

Application Notes for Teleopti CCC with Avaya IQ using the Generic RTA Interface – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate Teleopti CCC with Avaya IQ using the Generic RTA interface to capture agent data from Avaya AuraTM Communication Manager. Teleopti CCC is a work force management solution that provides forecasting, scheduling, and monitoring of work for contact center agents. Teleopti CCC uses the RTA interface to capture agent data from Avaya IQ to monitor agent performance. In addition, the length of time an agent spends in each specific state is also monitored. The Generic RTA interface is provided by Avaya Professional Services.

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 to integrate Teleopti CCC with Avaya IQ using the Generic RTA interface to capture agent data from Avaya AuraTM Communication Manager. Teleopti CCC is a work force management solution that provides forecasting, scheduling, and monitoring of work for contact center agents. Teleopti CCC uses the RTA interface to capture agent data from Avaya IQ to monitor agent performance. In addition, the length of time an agent spends in each specific state is also monitored. The Generic RTA interface is provided by Avaya Professional Services.

Real-time agent adherence data is captured from Avaya IQ using the Generic-RTA (Real-Time Agent/Adherence) interface. A TCP client/server model is used for the connection, with Avaya IQ being the "client" and the Teleopti CCC database being the "server". Teleopti CCC runs a TCP "listener" process to accept the data connection from Avaya IQ. Avaya Professional Services installs and configures the Generic RTA interface on Avaya IQ, and provides the TCP port number associated with the RTA interface to Teleopti to enable socket communication on Teleopti CCC.

1.1 Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying that Teleopti CCC can:

- establish a connection to Avaya IQ for the RTA interface
- capture real-time agent adherence data
- parse and display agent data received from Avaya IQ

The serviceability testing focused on verifying the ability of Teleopti CCC to recover from adverse conditions, such as restarting the RTA interface and re-establishing LAN connectivity.

1.2 Support

Technical support on Teleopti CCC can be obtained via phone, website, or email.

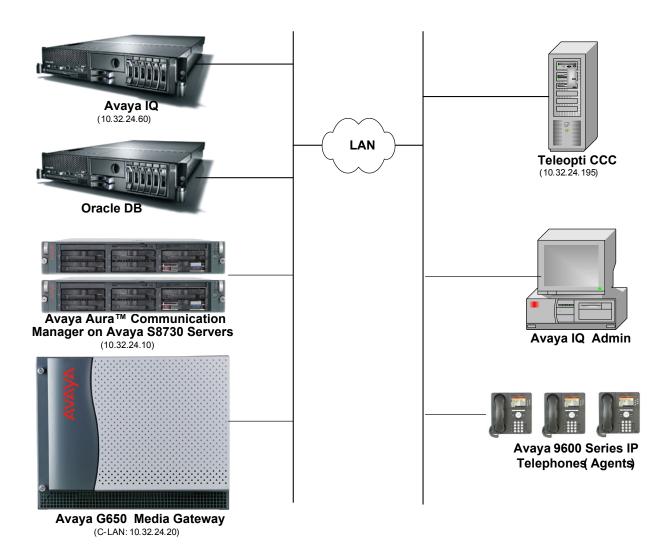
• Web: http://www.teleopti.com

■ **Phone:** +46 8 568 950 10

• Email: support@teleopti.com

2 Reference Configuration

The network diagram below illustrates the test configuration. In this configuration, Avaya AuraTM Communication Manager receives calls to the skills and VDNs monitored by Avaya IQ. The calls are then routed to available agents in the ACD call center. Call center information is then sent from Communication Manager to Avaya IQ over a configured link. Avaya IQ stores the agent data in its database and also sends the data to Teleopti CCC using the Generic RTA interface. The Teleopti CCC client software is used to view the real-time agent data. The Avaya IQ Admin PC is used to access the RTA interface menu via secure shell (SSH) and the Avaya IQ OAM and Reporting interfaces are accessed via an Internet browser.



Teleopti CCC with Avaya AuraTM Communication Manager and Avaya IQ

3 Equipment and Software Validated

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

Equipment	Software		
Avaya S8730 Servers	Avaya Aura TM Communication Manager 5.2.1 (R015x.02.1.016.4) with Service Pack 1 (Patch 17959)		
Avaya G650 Media Gateway			
■ TN799DP C-LAN Board	HW01 FW031		
Avaya IQ	5.0.1		
Avaya 9600 Series IP Telephones	3 (H.323)		
Teleopti CCC with Teleopti Log Server	7.1.206.31127		

4 Configure Avaya Aura[™] Communication Manager

This section provides the procedures for configuring Avaya AuraTM Communication Manager. The procedures include the following areas:

- Verify Communication Manager Options
- Administer reporting adjunct release
- Administer IP node names for C-LAN
- Administer IP interface for C-LAN
- Administer processor interface channel
- Administer measured VDN
- Administer measured Skill

The detailed administration of contact center devices such as ACD/Skill, VDN, Vector, and Agents are assumed to be in place. These Application Notes will only cover how to enable ACD/Skill, VDN, and Agent data to be sent to Avaya IQ.

4.1 Verify Communication Manager Software Options

Log into the System Access Terminal (SAT) to verify that the Avaya AuraTM Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the "display system-parameters customer-options" command to verify that the **G3 Version** field is set to "V15" on **Page 1**, as shown below.

```
display system-parameters customer-options
                                                                                     Page
                                                                                              1 of 11
                                          OPTIONAL FEATURES
      G3 Version: V15
                                                                 Software Package: Standard
        Location: 1
                                                             RFA System ID (SID): 1
         Platform: 6
                                                             RFA Module ID (MID): 1
                                          Platform Maximum Ports: 48000 222
                                                  Maximum Stations: 36000 149
                                       Maximum XMOBILE Stations: 0
                          Maximum Off-PBX Telephones - EC500: 5
Maximum Off-PBX Telephones - OPS: 100
Maximum Off-PBX Telephones - PBFMC: 0
Maximum Off-PBX Telephones - PVFMC: 0
                                                                                  0
                          Maximum Off-PBX Telephones - SCCAN: 0
                                                                                  0
```

Navigate to **Page 6** and verify that the **Call Center Release** field is set to "5.0", as shown below.

```
display system-parameters customer-options
                                                                        6 of 11
                                                                 Page
                         CALL CENTER OPTIONAL FEATURES
                          Call Center Release: 5.0
                                ACD? v
                                                                Reason Codes? y
                       BCMS (Basic)? y
                                                    Service Level Maximizer? n
                                          Service Dever Maximizet. ...
Service Observing (Basic)? y
         BCMS/VuStats Service Level? y
                                           Service Observing (Remote/By FAC)? y
  BSR Local Treatment for IP & ISDN? n
                  Business Advocate? y
                                                    Service Observing (VDNs)? y
                    Call Work Codes? y
                                                                   Timed ACW? y
      DTMF Feedback Signals For VRU? y
                                                           Vectoring (Basic)? y
                   Dynamic Advocate? y
                                                       Vectoring (Prompting)? y
                                                   Vectoring (G3V4 Enhanced)? y
       Expert Agent Selection (EAS)? y
                            EAS-PHD? y
                                                    Vectoring (3.0 Enhanced)? y
                   Forced ACD Calls? n
                                           Vectoring (ANI/II-Digits Routing)? y
                                           Vectoring (G3V4 Advanced Routing)? y
          Lookahead Interflow (LAI)? y
                                                            Vectoring (CINFO)? y
Multiple Call Handling (On Request)? y
                                            Vectoring (Best Service Routing)? y
   Multiple Call Handling (Forced)? y
                                                        Vectoring (Holidays)? n
  PASTE (Display PBX Data on Phone)? y
                                                       Vectoring (Variables)? y
        (NOTE: You must logoff & login to effect the permission changes.)
```

4.2 Administer Adjunct CCR Release

Use the "change system-parameters features" command and navigate to **Page 12**. Set the **IQ** (appl ccr) field under **Reporting Adjunct Release** to the software release of Avaya IQ. In this case, "5.0" is used to correspond to Avaya IQ software release 5.0.

```
change system-parameters features
                                                               Page 12 of 18
                       FEATURE-RELATED SYSTEM PARAMETERS
 AGENT AND CALL SELECTION
                        MIA Across Splits or Skills? y
                         ACW Agents Considered Idle? y
                         Call Selection Measurement: current-wait-time
   Service Level Supervisor Call Selection Override? n
                                Auto Reserve Agents: all
 CALL MANAGEMENT SYSTEM
                          REPORTING ADJUNCT RELEASE
                                     CMS (appl mis): R15
                                     IQ (appl ccr): 5.0
                              BCMS/VuStats LoginIDs? v
                  BCMS/VuStats Measurement Interval: hour
          BCMS/VuStats Abandon Call Timer (seconds):
                    Validate BCMS/VuStats Login IDs? n
                          Clear VuStats Shift Data: on-login
                Remove Inactive BCMS/VuStats Agents? n
```

4.3 Administer IP Node Name for C-LAN

Use the "change node-names ip" command, to add entries for Avaya IQ and the C-LAN that will be used for connectivity. In this case, "avayaiq" and "10.32.24.60" are entered as **Name** and **IP Address** for the Avaya IQ server, and "clancrm" and "10.32.24.20" are entered as **Name** and **IP Address** for the C-LAN. The actual node names and IP addresses may vary. Submit these changes.

change node-names	s ip			Page	1 of	2
		IP NODE	NAMES			
Name	IP Address					
avayaiq	10.32.24.60					
clancrm	10.32.24.20					

4.4 Administer IP Interface for C-LAN

Add the C-LAN to the system configuration using the "add ip-interface 1a04" command. The actual slot number may vary. In this case, "1a04" is used as the slot number. Enter the C-LAN node name assigned from **Section 4.3** in the **Node Name** field, which is "clancrm". Enter the proper value for the **Subnet Mask**. In this case 255.255.255.0 is used, so "/24" is entered. Set the **Enable Interface** field to "y". Default values may be used in the remaining fields. Note the **Ethernet Link** value as it will be used in **Section 4.5** for configuring the IQ link. Submit these changes.

```
add ip-interface 1a04
                                                                 1 of
                                                                         3
                                                           Page
                                 IP INTERFACES
                 Type: C-LAN
                 Slot: 01A04
                                  Target socket load and Warning level: 400
                                  Receive Buffer TCP Window Size: 8320
          Code/Suffix: TN799 D
     Enable Interface? y
                                                  Allow H.323 Endpoints? y
                                                   Allow H.248 Gateways? y
                 VLAN: n
       Network Region: 1
                                                    Gatekeeper Priority: 5
                                IPV4 PARAMETERS
            Node Name: clancrm
          Subnet Mask: /24
    Gateway Node Name: Gateway001
        Ethernet Link: 1
        Network uses 1's for Broadcast Addresses? y
```

4.5 Administer Processor Interface Channel

Assign a new processor interface channel with the "change communication-interface processor-channels" command. Add an entry with the following values and submit the changes.

Enable: "y"Appl.: "ccr"

■ **Mode:** "s" for server mode.

Interface Link: Link number for the C-LAN configured in Section 4.4.
 Interface Chan: TCP channel number for Avaya IQ. In this case "5002".

• **Destination Node:** Avaya IQ server node name from **Section 4.3**.

■ **Destination Port:** "0"

• Session Local: Corresponding channel number in **Proc Chan** field. In this case "1".

• Session Remote: Corresponding channel number in Proc Chan field. In this case "1".

The **Interface Chan** field contains the Avaya IQ TCP channel number, which is defined as part of the Avaya IQ installation. For the compliance testing, TCP channel number of "5002" was used.

```
change communication-interface processor-channels

PROCESSOR CHANNEL ASSIGNMENT

Proc Gtwy Interface Destination Session Mach
Chan Enable Appl. To Mode Link/Chan Node Port Local/Remote ID

1: y ccr s 1 5002 avayaiq 0 1 1

2: n
```

4.6 Administer Measured VDN

Use the "change vdn n" command, where "n" is the extension of the VDN to be measured by Avaya IQ. Set the **Measured** field to "external" or "both" to enable measurement data on the VDN to be sent to Avaya IQ. Repeat this step for all VDNs that will be monitored by Avaya IQ.

```
1 of
change vdn 75000
                                                                              3
                                                                Page
                            VECTOR DIRECTORY NUMBER
                             Extension: 75000
                                Name*: IQ VDN 1
                          Destination: Vector Number
                                                             250
                  Attendant Vectoring? n
                 Meet-me Conferencing? n
                   Allow VDN Override? n
                                  COR: 1
                                  TN*: 1
                             Measured: both
       Acceptable Service Level (sec): 20
         Service Objective (sec): 20
       VDN of Origin Annc. Extension*:
                            1st Skill*:
                            2nd Skill*:
                            3rd Skill*:
* Follows VDN Override Rules
```

4.7 Administer Measured Skill

Use the "change hunt-group n" command, where "n" is the extension of the ACD/Skill group number to be measured by Avaya IQ. Set the **Measured** field to "external" or "both" to enable real-time measurement data on the ACD/Skill group and the associated agents to be sent to Avaya IQ. Repeat this step for all ACD/Skill groups that will be measured by Avaya IQ.

```
change hunt-group 250
                                                                Page
                                                                       2 of
                                  HUNT GROUP
                    Skill? y
AAS? n
                                 Expected Call Handling Time (sec): 180
                                 Service Level Target (% in sec): 80 in 20
                Measured: both
                                           Service Objective (sec): 20
                                           Service Level Supervisor? n
    Supervisor Extension:
      Controlling Adjunct: none
       VuStats Objective:
Timed ACW Interval (sec):
                                             Dynamic Queue Position? n
  Multiple Call Handling: none
Interruptible Aux Threshold: none
                                 Redirect on No Answer (rings):
                                              Redirect to VDN:
                   Forced Entry of Stroke Counts or Call Work Codes? n
```

5 Configure Avaya IQ

Configuration of the Generic RTA interface is performed by Avaya Professional Services and is outside the scope of these Application Notes. After the interface is configured, the user can follow the procedure below to enable the interface. The RTA interface was configured to establish a session to Teleopti CCC with port number 6996 for capturing agent information.

Note: For detailed instructions on configuring Avaya IQ, including administering the link to Communication Manager, refer to [3]. Link administration is not covered in these Application Notes since the focus is on the RTA interface.

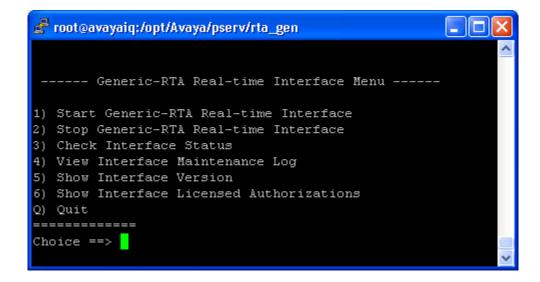
5.1 Configure the rta.conf File

The rta.conf file located in the /opt/Avaya/pserv/rta_gen directory was configured as follows.

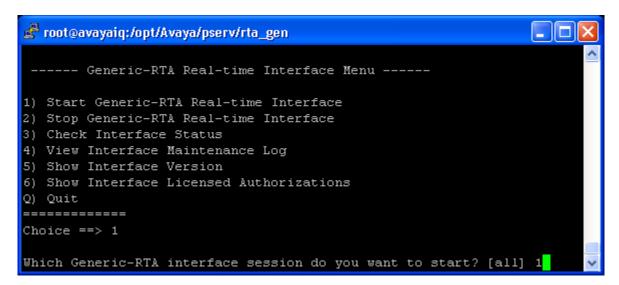
5.2 Enable Generic RTA Interface

Use a terminal emulator to connect to Avaya IQ and log in with the appropriate credentials. At the command prompt, follow these steps:

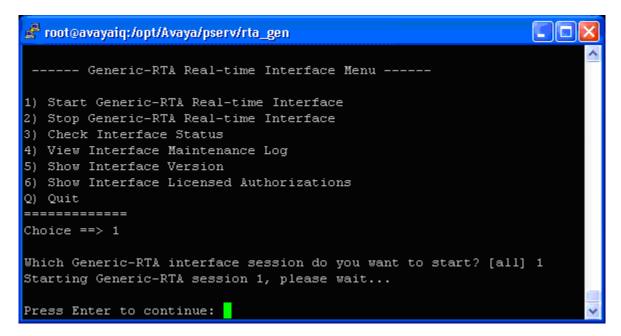
- Change to the /opt/Avaya/pserv/rta gen directory.
- Run the ./menurta command to display the Generic-RTA Real-time Interface Menu shown below.



The Generic RTA interface may be stopped and started. Enter '1' to start the interface, followed by the **Enter** key.



When prompted for the session to start, enter the appropriate session number, followed by the **Enter** key. In the configuration, session number '1' was used. Avaya IQ indicates that the session is being started as shown below.



To check the session status, enter '3', i.e. *Check Interface Status* option in the **Generic RTA Real-Time Interface Menu**, followed by the appropriate session number as shown in the figure below. The status screen should indicate that the session is running and connected to the Teleopti server.

```
Which Generic-RTA interface session do you want to check? [1-10] [all] 1

Checking status of all configured sessions...

Generic-RTA session 1 is running.

Generic-RTA session 1 is connected to teleopti.

Press Enter to continue:
```

From the **Generic RTA Real-Time Interface Menu**, enter 'Q' to exit from the menu, followed by the **Enter** key.

6 Configure Teleopti CCC

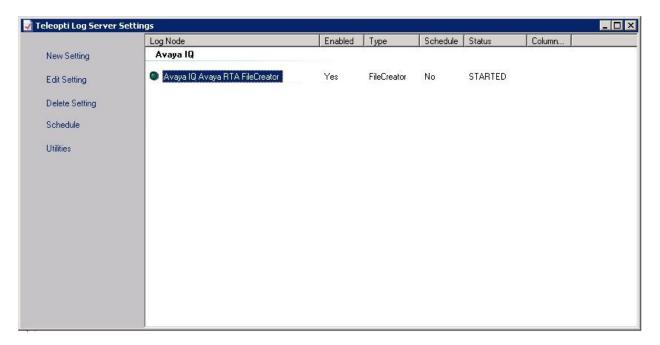
This section provides the procedures for configuring Teleopti CCC. The procedures fall into the following areas:

- Administer RTA interface for capturing Agent data
- Administer people (i.e., agents)
- Administer agent states

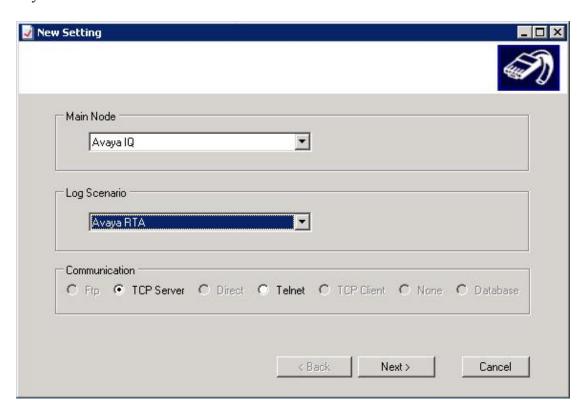
Configuration of Teleopti CCC is typically performed by Teleopti technicians. The procedural steps are presented in these Application Notes for informational purposes.

6.1 Administer RTA Interface

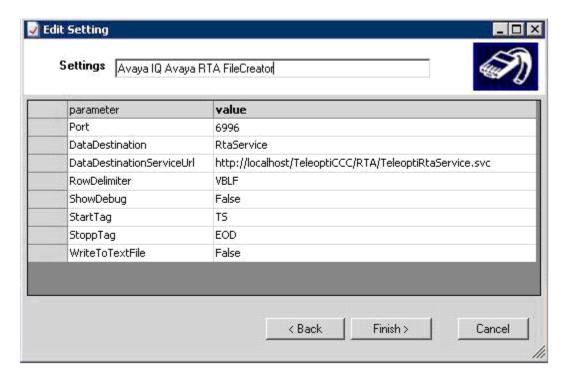
The RTA interface is configured via the **Teleopti Log Server**. Launch the **Teleopti Log Server** by navigating to **Teleopti Log Server Settings**. Click on the **New Setting** option.



In the **New Setting** window, set the **Main Node** field to "Avaya IQ" and the **Log Scenario** field to "Avaya RTA". The **Communication** field should be set to "TCP Server". Click **Next**.

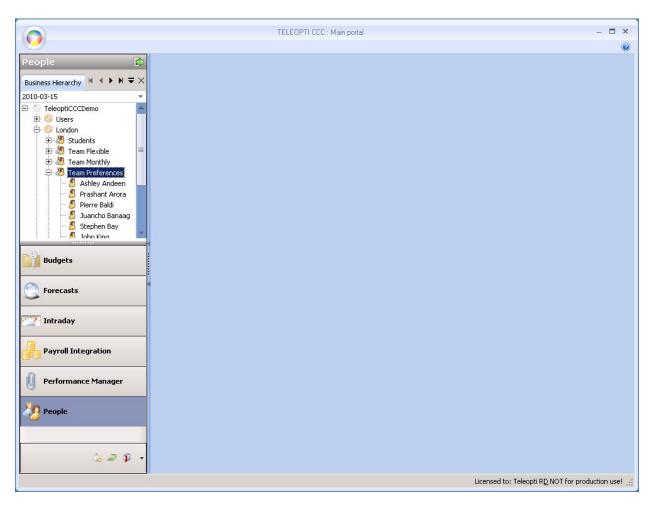


In the **Edit Setting** window, set the fields as shown below, and then click **Finish**.

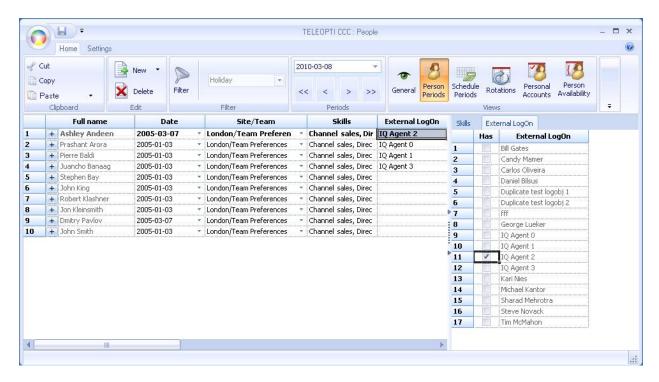


6.2 Administer People

This section covers the administration of People or Agents. Launch the **Teleopti CCC** application. The **Main Portal** window is displayed as shown below. To view the **People** in the call center database and their mapping to an Agent ID configured on Communication Manager, select **People** in the left pane and then double-click on **Team Preferences**. The **People** window will be displayed.

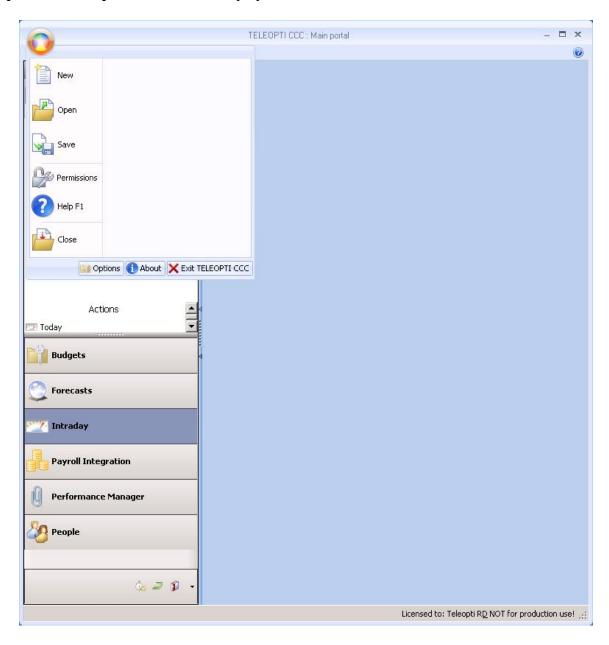


The **People** window displays the list of agents in the database. Refer to [5] for instructions on adding an agent entry. In the following window, "Ashley Andeen" is mapped to "IQ Agent 2", an Agent ID configured on Communication Manager. This configuration is typically done by Teleopti so detailed instructions are not provided in these Application Notes.

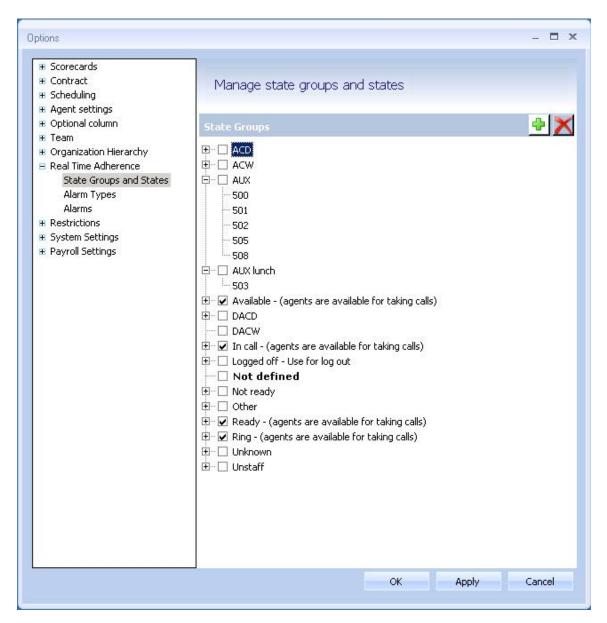


6.3 Administer Agent States

This section covers how **agent states** are defined for use with Real Time Adherence. From the **Main Portal** window, right-mouse-click on the icon in the upper left-hand corner and select **Options**. The **Options** window is displayed.



From the **Options** window, navigate to **Real Time Adherence** State Groups and States. As RTA data is received by Teleopti CCC in real-time, the numeric value of each agent state is stored in the database automatically and can then be viewed in the **Manage state groups and states** window shown below. These agent states can then be grouped from this window. For example, the **AUX** state group includes states 500, 501, 502, 505, and 508 in the example below. For additional information on managing state groups and states, refer to [5].



7 General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying that Teleopti CCC can:

- establish a connection to Avaya IQ for the RTA interface
- capture real-time agent adherence data
- parse and display agent data received from Avaya IQ

The feature test cases were performed manually. Incoming calls were made to the monitored Queues and Routing Points to trigger agent state changes and transmit real-time agent data to Teleopti CCC.

The serviceability testing focused on verifying the ability of Teleopti CCC to recover from adverse conditions, such as restarting the RTA interface and re-establishing LAN connectivity.

All test cases passed. Teleopti CCC was successfully compliance tested with Avaya IQ using the RTA interface.

8 Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Communication Manager, Avaya IQ, and Teleopti CCC.

8.1 Verify Avaya AuraTM Communication Manager

Verify the status of the processor interface channel by using the "status processor-channels n" command, where "n" is the processor channel number from **Section 4.5**. Verify that the **Session Layer Status** is "In Service", and that the **Socket Status** is "TCP connected", as shown below.

```
status processor-channels 1
PROCESSOR-CHANNEL STATUS

Channel Number: 1
Session Layer Status: In Service
Socket Status: TCP connected
Link Number: 1
Link Type: ethernet
Message Buffer Number: 0

Last Failure: Far end sent disconnect messag
At: 01/25/10 15:26
```

Verify the status of the TCP/IP link number by using the "status link n" command, where "n" is the TCP/IP link number assigned to the C-LAN used to connect to the Avaya IQ server from **Section 4.4**. Verify that the **Link Status** is "connected", and that the **Service State** is "in-service/active", as shown below.

```
Status link 1

Link Number: 1

Link Status: connected

Link Type: ethernet

Service Port Location: 01A0417

Service State: in-service/active

Node Name: clancrm
Source IP Address: 10.32.24.20/24

Broadcast Address: 10.32.24.255
Physical Address: 00:04:0d:4a:ef:9c

Enabled? yes

Maintenance Busy? no
Active Channels: 2
```

8.2 Verify Avaya IQ

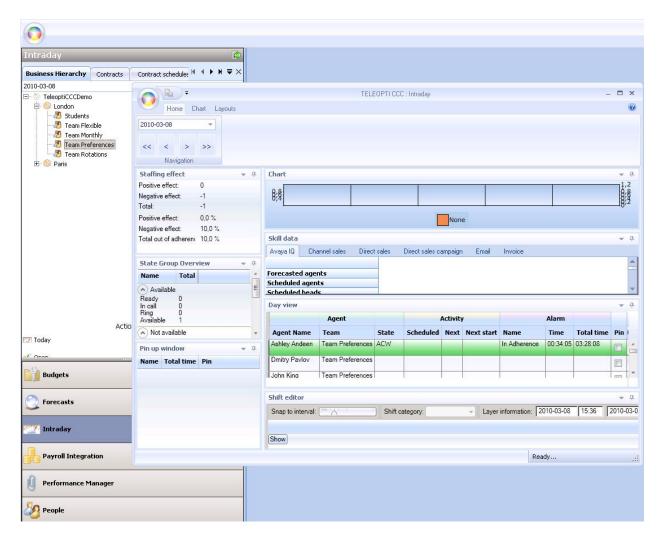
From an Internet browser, access the Avaya IQ OAM Interface by entering https://<IP Addr>:28443/CS-OAM as the URL. Log in with the proper credentials. From the OAM interface, select the **Enterprise** tab in the left pane and navigate to **Sites→Default**Admin Site→<site name> to display the status of all the Avaya IQ processes. Ensure that all the processes have been started as indicated by a green LED besides each process as shown in the figure below.



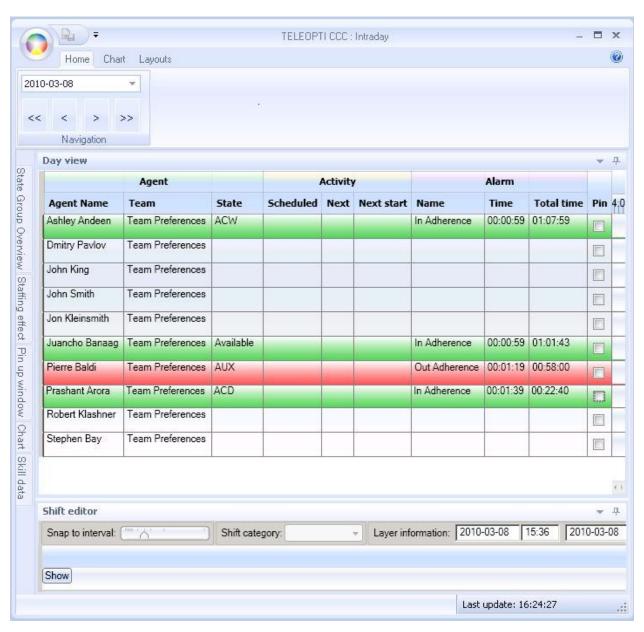
To verify that the session between Avaya IQ and Teleopti CCC is in the "connected" state, access the **Generic-RTA Real-Time Interface Menu** and choose option '3', as shown in **Section 5.2**.

8.3 Verify Teleopti CCC

This section verifies that real-time agent adherence data is received and displayed properly on Teleopti CCC. From the **Teleopti CCC Main Portal** window, choose **Team Preferences** in the left pane and then click **Today** under **Actions** to display the **Intraday** window with agent data.



The following window displays real-time agent data for the agents used during the compliance testing. The report displays the agent, state, whether in-adherence or not, and the duration in the current state. Note that the bottom right-hand corner will display the time for the last received update.



9 Conclusion

These Application Notes describe the configuration steps required to integrate Teleopti CCC with Avaya IQ using the RTA interface to capture agent data from Avaya AuraTM Communication Manager. All feature and serviceability test cases were completed successfully.

10 References

This section references the product documentation relevant to these Application Notes.

- [1] Administering Avaya AuraTM Communication Manager, Document 03-300509, Issue 5.0, Release 5.2, May 2009, available at http://support.avaya.com.
- [2] Avaya IQ Overview, Release 5.0, September 2009, available at http://support.avaya.com.
- [3] *Implementing Avaya IQ*, Release 5.0, September 2009, available at http://support.avaya.com.
- [4] *Administering Avaya IQ*, Release 5.0, September 2009, available at http://support.avaya.com.
- [5] Teleopti CCC User Manual, Version 7, available from Teleopti.

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