



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for TONE Software ReliaTel with Avaya Aura® Communication Manager Using RTCP – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for TONE Software ReliaTel to interoperate with Avaya Aura® Communication Manager using Real-Time Transport Control Protocol (RTCP). ReliaTel is a monitoring and management solution that can monitor and maintain groups of telephone switches, PBX systems, and other devices from a single control point. In the compliance testing, ReliaTel used the RTCP interface from Communication Manager to provide reporting on voice quality of service.

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 TONE Software ReliaTel to interoperate with Avaya Aura® Communication Manager using RTCP. ReliaTel is a monitoring and management solution that can monitor and maintain groups of telephone switches, PBX systems, and other devices from a single control point.

In the compliance testing, ReliaTel used the RTCP interface from Communication Manager and from the Avaya IP Telephones to obtain voice quality data. The obtained data was used to provide voice quality of service reporting via the ReliaTel web interface.

## 2. General Test Approach and Test Results

The feature test cases were performed manually. Calls were placed to/from various endpoints to enable RTCP data to be sent to ReliaTel. A Packet Storm impairment tool was used to inject VoIP impairments into the network. The voice quality of service data reported by ReliaTel was compared to the injected impairments by Packet Storm, and to the raw RTCP data sent from Communication Manager and Avaya IP Telephones.

The serviceability test cases were performed manually by disconnecting/reconnecting the Ethernet cable to the ReliaTel server.

### 2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the proper collection, analysis, and reporting of RTCP data by ReliaTel from the Avaya IP Media Processor circuit pack, Avaya 1600 Series IP Telephone (H.323), Avaya 9600 Series IP Telephone (SIP), and Avaya one-X® Communicator (H.323) and for call scenarios involving inbound, outbound, internal, external, ACD, non-ACD, G.711, G.729, G.726, conference, and transfer.

The serviceability testing focused on verifying the ability of ReliaTel to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable to ReliaTel.

### 2.2. Test Results

All test cases were executed and passed.

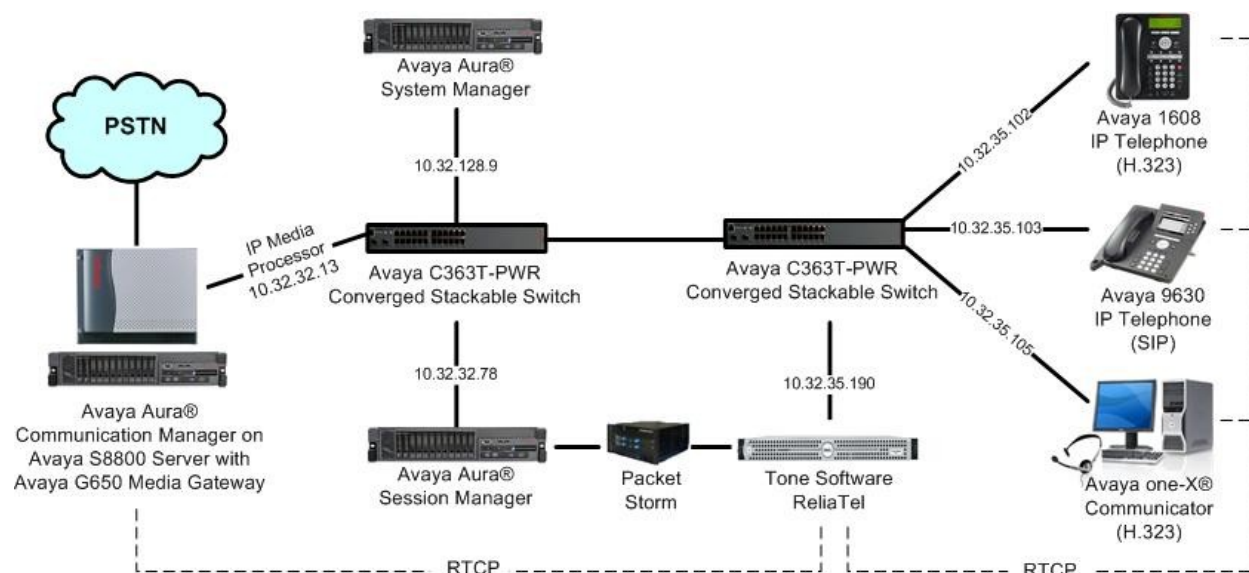
### 2.3. Support

Technical support on ReliaTel can be obtained through the following:

- **Phone:** (800) 833-8663
- **Email:** [info@tonesoft.com](mailto:info@tonesoft.com)
- **Web:** <http://www.tonesoft.com/support/portal2.html>

### 3. Reference Configuration

The configuration used for the compliance testing is shown below. The Avaya Aura® Session Manager was used in the configuration to support the Avaya SIP endpoints. The Packet Storm was used as a tool to inject VoIP impairments, such as packet delay, jitter, and loss, into the network.



### 4. Equipment and Software Validated

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

Equipment	Software
Avaya Aura® Communication Manager on Avaya S8800 Server	6.0 (R016x.00.0.345.0-18246)
Avaya G650 Media Gateway <ul style="list-style-type: none"> <li>TN799DP C-LAN Circuit Pack</li> <li>TN2302AP IP Media Processor</li> </ul>	HW01 FW038 HW20 FW121
Avaya Aura® System Manager	6.0 (6.0.0.0.556-3.0.6.1)
Avaya Aura® Session Manager	6.0.1 (6.0.1.0.601016)
Avaya 1600 Series IP Telephones (H.323)	1.3
Avaya 9630 IP Telephone (SIP)	2.6.2
Avaya one-X® Communicator (H.323)	6.0.1.16
Packet Storm	10.5v1
TONE Software ReliaTel	3.1.0

## 5. Configure Avaya Aura® Communication Manager

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

- Administer system parameters IP options
- Administer IP network region

### 5.1. Administer System Parameters IP Options

From the SAT interface of Communication Manager, enter the command “change system-parameters ip-options”.

In the **RTCP MONITOR SERVER** sub-section, enter the IP address of the ReliaTel server for **Server IPV4 Address**, and enter a desired port for **IPV4 Server Port**, as shown below. Retain the default values in the remaining fields.

```
change system-parameters ip-options                                     Page 1 of 3
                               IP-OPTIONS SYSTEM PARAMETERS

IP MEDIA PACKET PERFORMANCE THRESHOLDS
  Roundtrip Propagation Delay (ms)      High: 800      Low: 400
      Packet Loss (%)                   High: 40        Low: 15
      Ping Test Interval (sec): 20
  Number of Pings Per Measurement Interval: 10
      Enable Voice/Network Stats? n
RTCP MONITOR SERVER
  Server IPV4 Address: 10.32.35.190      RTCP Report Period(secs): 5
      IPV4 Server Port: 5005
  Server IPV6 Address:
      IPV6 Server Port: 6005
```

### 5.2. Administer IP Network Region

Use the “change ip-network-region n” command, where “n” is an existing network region number used by the Avaya IP Telephones. Navigate to **Page 2**, and enable **RTCP Reporting Enabled**, as shown below.

Repeat this section to enable RTCP reporting on all IP network regions used by the Avaya IP Telephones.

```
change ip-network-region 1                                           Page 2 of 20
                               IP NETWORK REGION

RTCP Reporting Enabled? y

RTCP MONITOR SERVER PARAMETERS
  Use Default Server Parameters? Y
```

## 6. Configure TONE Software ReliaTel

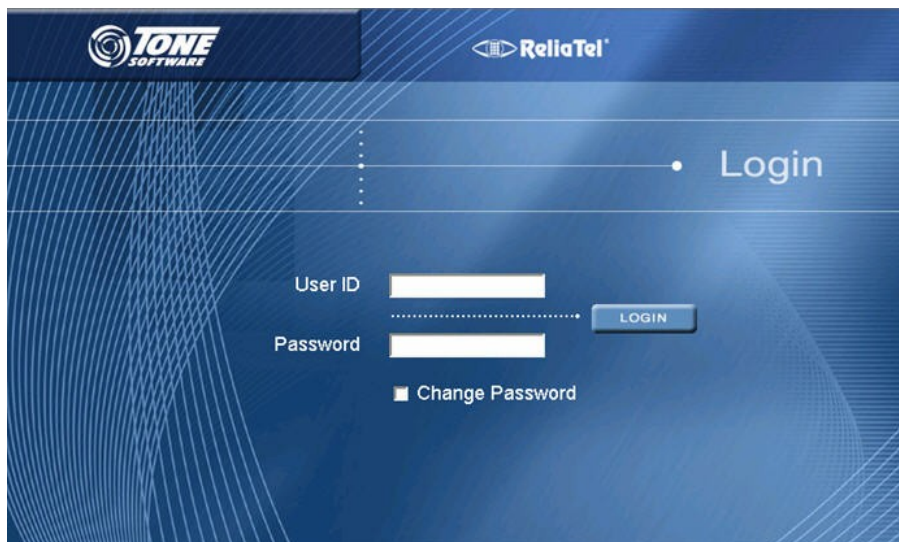
This section provides the procedures for configuring TONE Software ReliaTel. The procedures include the following areas:

- Launch web interface
- Administer centers
- Administer RTCP collectors

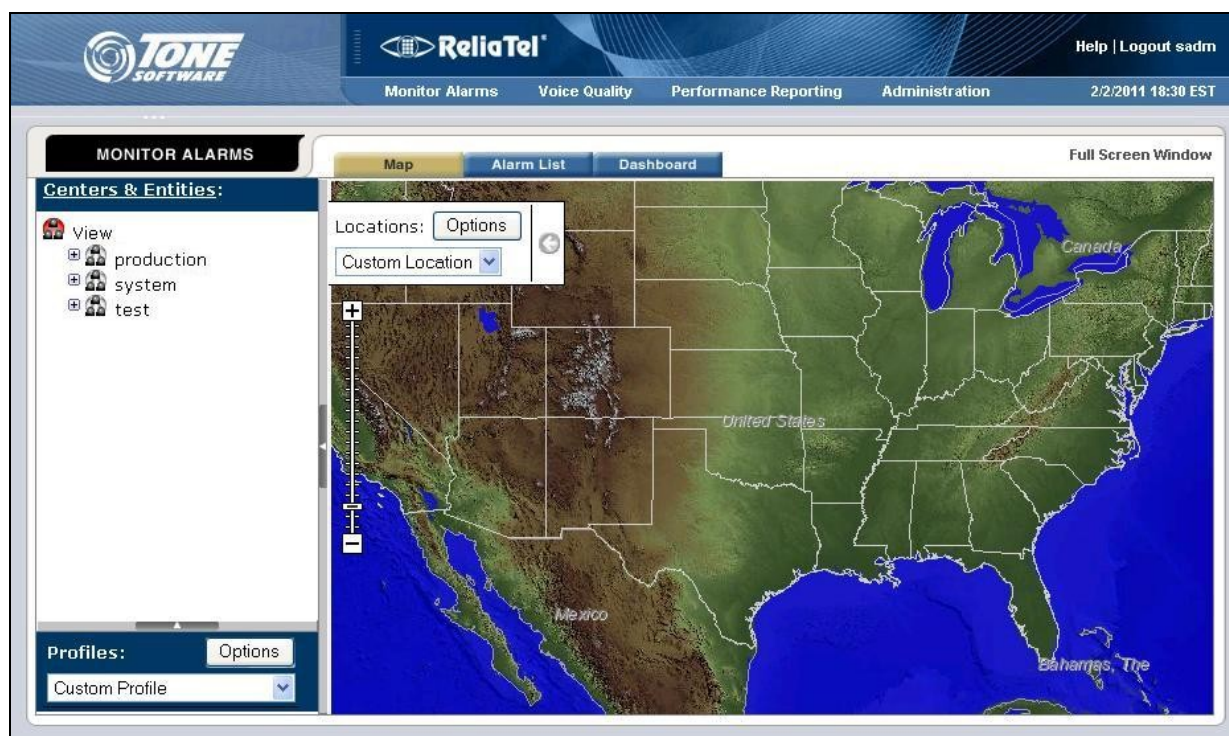
The configuration of ReliaTel is typically performed by TONE Software technicians. The procedural steps are presented in these Application Notes for informational purposes.

### 6.1. Launch Web Interface

Access the ReliaTel web interface by using the URL “http://ip-address:8080/ems/app” in an Internet browser window, where “ip-address” is the IP address of the ReliaTel server. Log in using the appropriate credentials.



The **ReliaTel** screen is displayed. Select **Administration > General Administration** from the top menu.



## 6.2. Administer Centers

The **ReliaTel** screen is updated as shown below. Select **General > Centers** in the left pane to display a list of centers in the right pane. Click **New** to add a new center.





In the lower portion of the screen, select the **General** tab. Enter a descriptive **Name**, and retain the default values in the remaining fields.

The screenshot shows the ReliaTel administration interface. The left navigation pane is expanded to 'Centers' under the 'General' category. The main content area displays a table of existing centers:

Name	Coverage	Full Center Name	Parent Center
production		production	
system		system	
test		test	

Below the table is a 'New Center' form. The 'General' tab is selected, showing the following fields:

- Name: Avaya-DevConnect
- ID: (empty)
- Parent Center: -Top Level Center-
- Coverage: (empty)

### 6.3. Administer RTCP Collectors

Select **General > RTCP Collectors** in the left pane. Select **New** to add a new collector.

The screenshot shows the ReliaTel administration interface. The left navigation pane is expanded to 'RTCP Collectors' under the 'General' category. The main content area displays a table of existing RTCP collectors:

Name	DAP-Agent	Center	Class
DAP-Agent			

Below the table is a 'New RTCP Collector' form. The 'General' tab is selected, showing the following fields:

- Name: (empty)
- Description: (empty)
- Center: (empty)
- Class: (empty)
- Coverage: (empty)
- Agent: (empty)
- IP Address: (empty)
- RTCP Parser: (empty)
- Default Codec: (empty)
- RTCP Listening Port(s): (empty)
- Log State: ☒

In the lower portion of the screen, select the **General** tab. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Name:** A descriptive name.
- **Center:** Select the center from **Section 6.2**.
- **Agent:** Select the appropriate pre-configured agent.
- **RTCP Parser:** “Avaya RTCP”
- **Default Codec:** Select the desired codec to use for reporting of non-recognized codec.
- **RTCP Listening:** The RTCP port from **Section 5.1**.
- **Class:** “RtcpCollector”
- **IP Address:** IP address of the ReliaTel server.

The screenshot displays the ReliaTel administration console. The left sidebar shows a navigation tree with categories: RTCP Collectors (General, Centers, Classes, DAPs, Entities), RTCP Collectors (Links, Users), Notification (Coverages, Coverage Rules, Action Templates, Email Templates, Pager Templates, SMS Templates, Weekly Schedules), and Alarming (Alarm Types, MA Tables, MA Table Rules, Monitors). The main content area is titled 'RTCP Collectors' and shows a table with one entry: 'DAP-Agent' under the 'Name' column, with 'Center' and 'Class' columns also visible. Below the table, there are navigation buttons (New, Delete, Copy) and a '0 Filters' indicator. The 'New RTCP Collector' form is open, showing the 'General' tab. The form fields are as follows:

Name:	Avaya-RTCP		
Description:			
Center:	Avaya-DevConnect	Class:	RtcpCollector
Agent:	basilisk.tonesoft.com	IP Address:	10.32.35.190
RTCP Parser:	Avaya RTCP		
Default Codec:	G.726 16k		
RTCP Listening Port(s):	5005		
Log State:	<input checked="" type="checkbox"/>		

At the bottom of the form, there are buttons for 'Edit', 'Cancel', and 'Apply'.

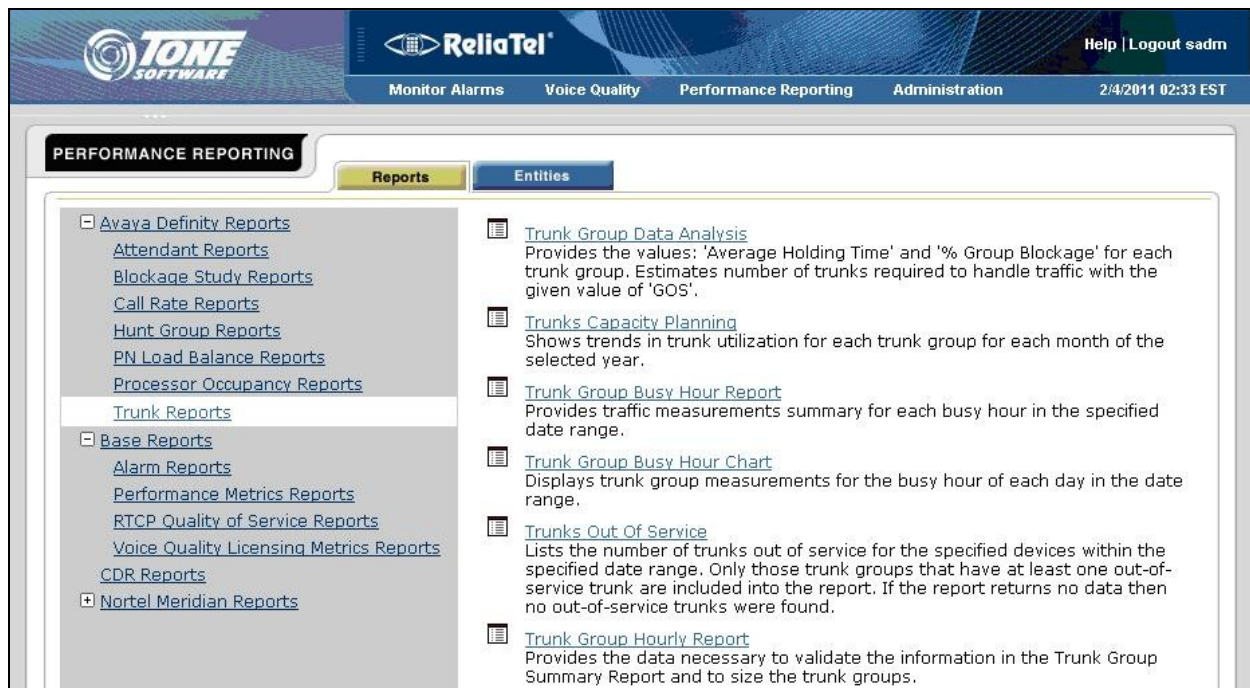


## 7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Aura® Communication Manager and TONE Software ReliaTel.

Prior to verification, place and complete a call involving an Avaya IP Telephone.

From the **ReliaTel** screen, select **Performance Reporting** from the top menu. Select **Base Reports > RTCP Quality of Service Reports** in the left pane.



In the left pane of the subsequent screen, select “All Calls Voice Quality” for **Standard Report List**, and select the **RTCP collector** name from **Section 6.3** for **RTCP Collector**. Click **Run Report**.

The screenshot shows the 'All Calls Voice Quality' report configuration page. On the left, under 'RTCP Report Parameters', the 'Standard Report List' is set to 'All Calls Voice Quality' and the 'RTCP Collector' is set to 'Avaya-RTCP'. The 'Date Range' is set to 'Today' with a start date of 02/04/2011 and an end date of 02/04/2011. The 'Run Report' button is circled in red. The main table is empty, and the status at the bottom indicates 'No data to display'.

Verify the screen is updated with entries, and that the reported values for the entries are appropriate for the last call.

The screenshot shows the same report configuration page, but now with two data entries in the table. The 'Run Report' button is no longer circled. The status at the bottom indicates 'Displaying 1 - 20 of 71'.

Date/Time	RTCP Collector	Endpoint1	Endpoint2	Duration	Codec	Avg MOS1
2/4/2011 17:13:15	Avaya-RTCP	gwp@10.32.32.13		00:00:48	G.711u	
2/4/2011 17:13:12	Avaya-RTCP	gwp@10.32.32.13	ext65001@10.32.35.113:38648	00:00:49	G.711u	4.41

## 8. Conclusion

These Application Notes describe the configuration steps required TONE Software ReliaTel to successfully interoperate with Avaya Aura® Communication Manager using RTCP. All feature and serviceability test cases were completed.

## 9. Additional References

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

1. *Administering Avaya Aura™ Communication Manager*, Document 03-300509, Issue 6.0, Release 6.0, June 2010, available at <http://support.avaya.com>.
2. *ReliaTel Monitoring and Management Solution Installation and Configuration Guide*, Version 3 Release 1 Modification 0, contact ReliaTel support at [info@tonesoft.com](mailto:info@tonesoft.com).
3. *ReliaTel Monitoring and Management Solution User's Guide*, Version 3 Release 1 Modification 0, contact ReliaTel support at [info@tonesoft.com](mailto:info@tonesoft.com).
4. *ReliaTel Voice Quality of Service Reporting Operator Guide*, Version 1.1, contact ReliaTel support at [info@tonesoft.com](mailto:info@tonesoft.com).

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