



Avaya Solution & Interoperability Test Lab

Application Notes for TONE Software's ReliaTel with Avaya IP Office – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the TONE Software Corporation's ReliaTel Monitoring and Management platform to interoperate with Avaya IP Office. 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 SNMP interface from Avaya IP Office to provide alarm monitoring.

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 the TONE Software Corporation's ReliaTel Monitoring and Management platform to interoperate with Avaya IP Office. 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 SNMP interface from Avaya IP Office to provide alarm monitoring.

Upon detection of a failure, Avaya IP Office raises an alarm and sends a SNMP trap to ReliaTel. ReliaTel collects and stores the alarm information from the Avaya IP Office SNMP trap, and presents the alarm on the monitoring screen. The integration uses SNMP version 2c.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following with ReliaTel: generation of SNMP traps on Avaya IP Office, display of received SNMP traps on the ReliaTel web-based alarm monitoring screen, and comparison of the displayed SNMP trap with a protocol analyzer.

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

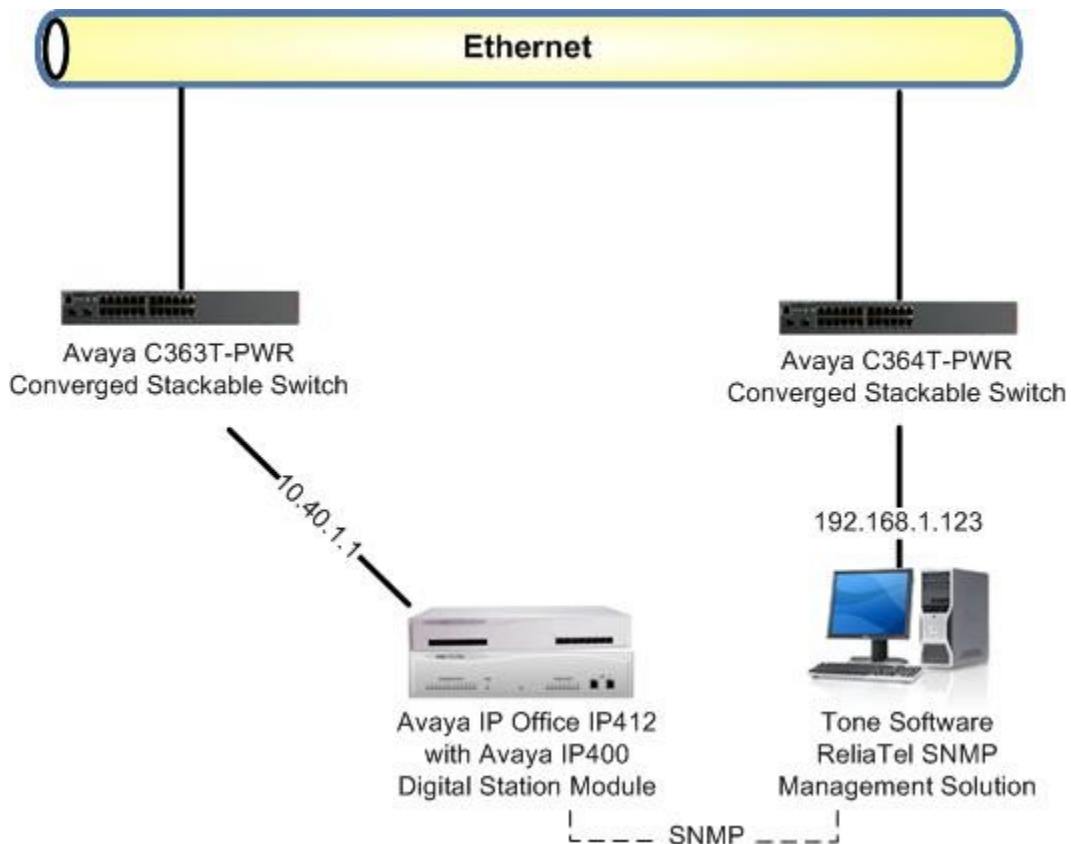
1.2. Support

Technical support on ReliaTel can be obtained through the following:

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

2. Reference Configuration

The test configuration used for the compliance testing is shown below.



3. Equipment and Software Validated

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

Equipment	Software
Avaya IP Office IP412	4.2 (11)
Avaya IP400 Digital Station Module	NA
TONE Software Corporation's ReliaTel	2.5.2

4. Configure Avaya IP Office

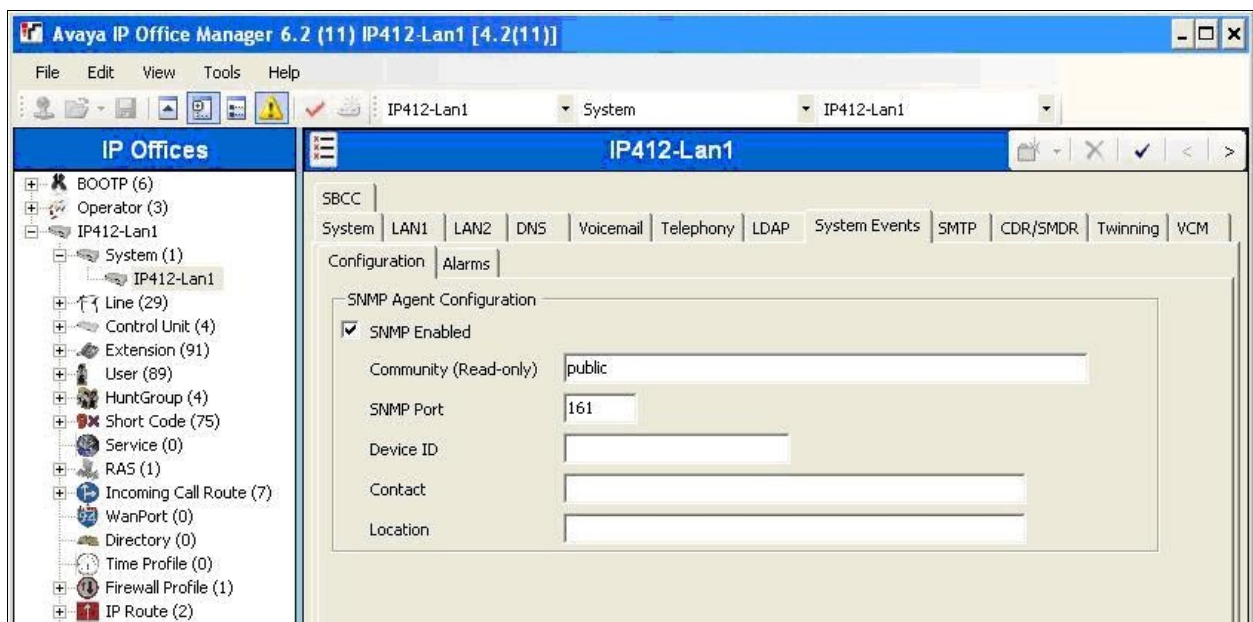
This section provides the procedures for configuring the Avaya IP Office. The procedures include the following areas:

- Administer SNMP
- Administer alarms

4.1. Administer SNMP

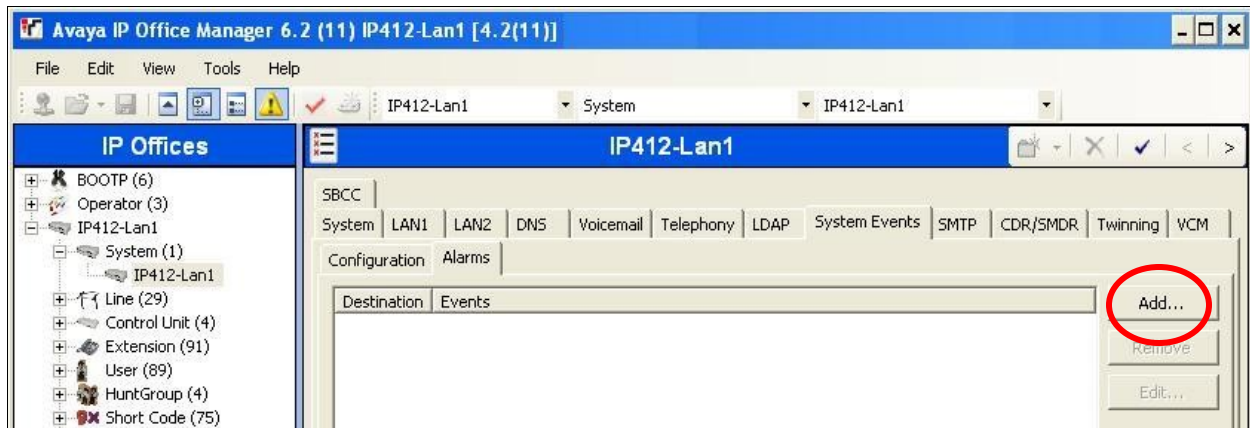
From a PC running the Avaya IP Office Manager application, select **Start > Programs > IP Office > Manager** to launch the Manager application. Select the proper IP Office system, and log in with the appropriate credentials.

The **Avaya IP Office Manager** screen is displayed. From the configuration tree in the left pane, select **System > IP412-Lan1** to display the **IP412-Lan1** screen in the right pane. Select the **System Events** tab, followed by the **Configuration** sub-tab. Check the **SNMP Enabled** field, and retain the default values in the remaining fields.

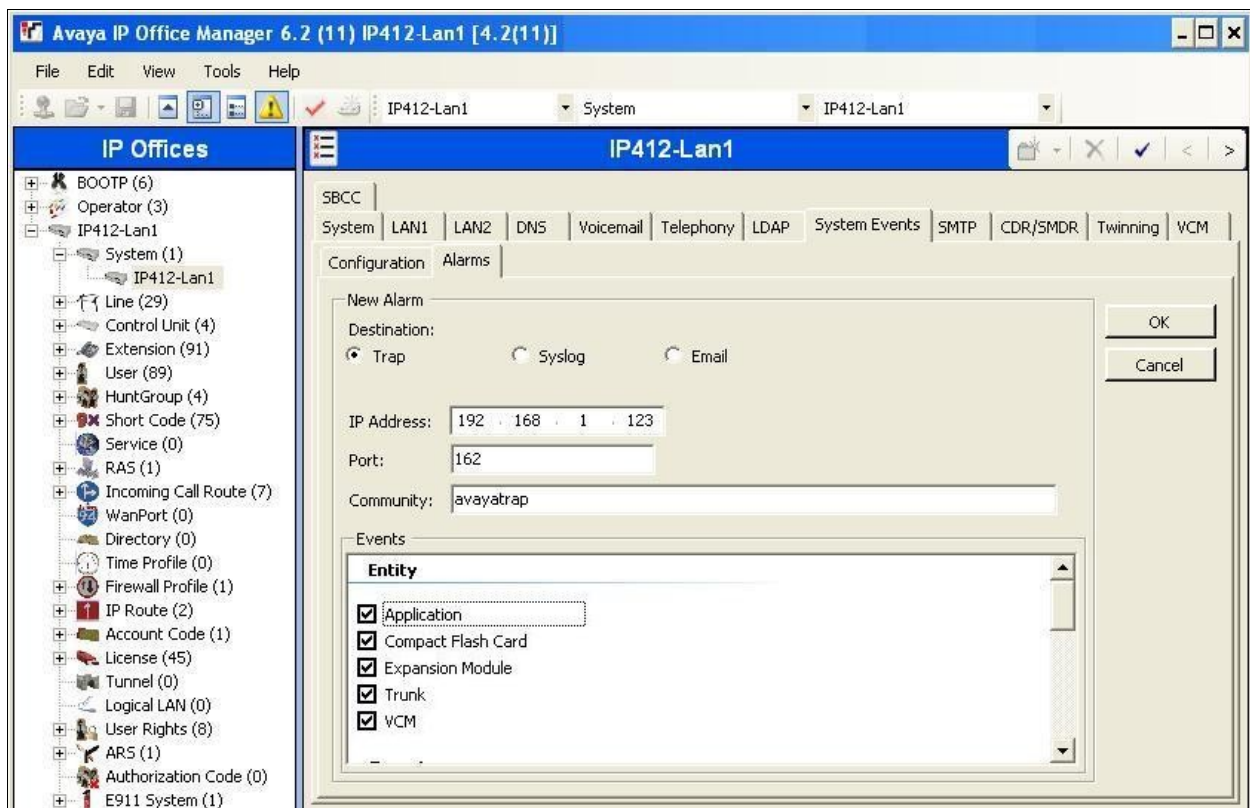


4.2. Administer Alarms

Select the **Alarms** sub-tab, and click **Add**.



The screen is updated with new parameters, as shown below. Select the radio button for **Trap**, and enter the IP address of the ReliaTel server in the **IP Address** field. Retain the default **Port** value, and enter a desired string for **Community**. Note that the community string is not used by ReliaTel, but still needs to be configured on Avaya IP Office. In the **Events** section, scroll down the pane as necessary to check all desired events to be collected and sent.



5. Configure TONE Software Corporation's ReliaTel Solution

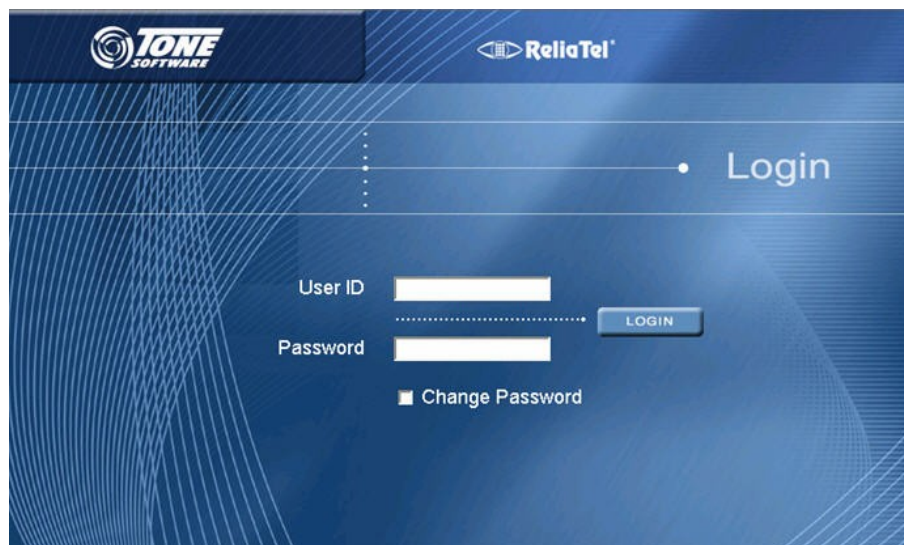
This section provides the procedures for configuring TONE Software Corporation's ReliaTel solution. The procedures include the following areas:

- Launch web interface
- Administer centers
- Administer entities
- Administer IP address

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

5.1. 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 with the appropriate credentials.

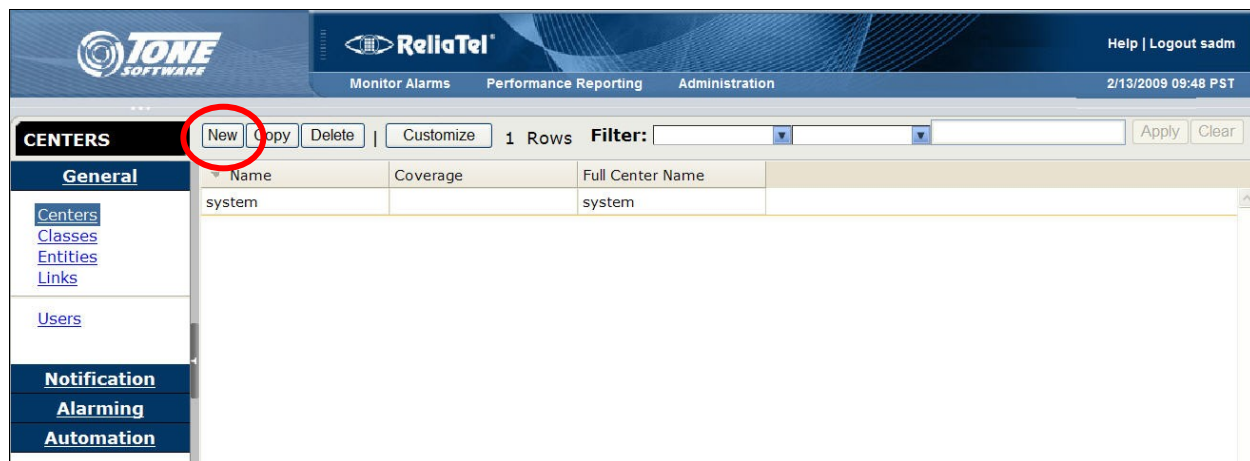


In the subsequent screen, select **Administration** from the top menu, as shown below.



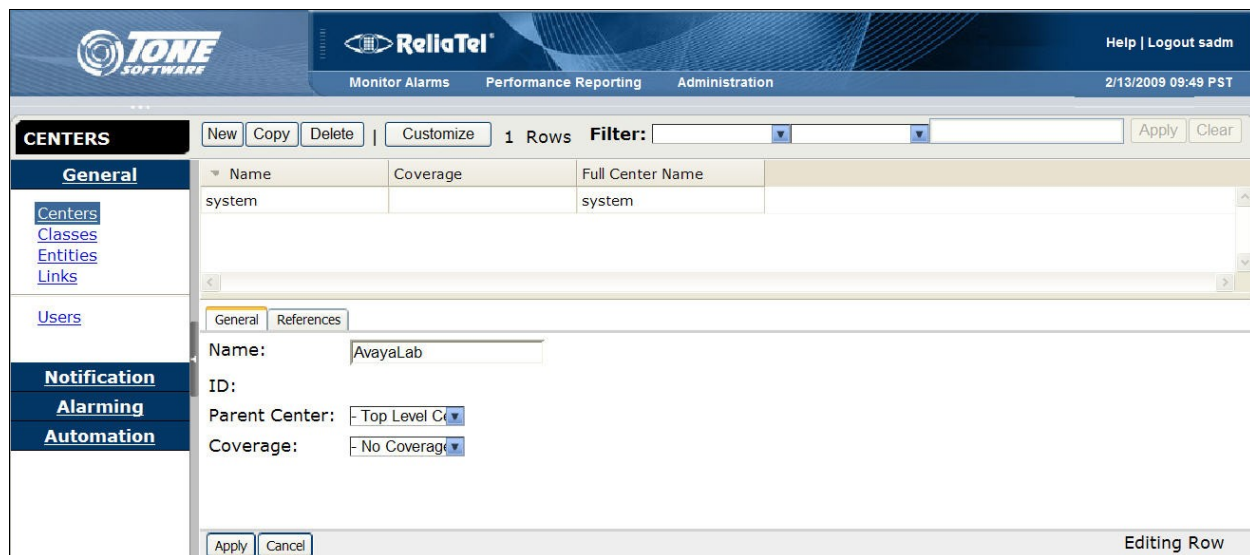
5.2. Administer Centers

From the ReliaTel screen, select **General > Centers** in the left pane to display a list of centers in the right pane. Click **New** to create a new center.



The screenshot shows the ReliaTel Administration interface. The top navigation bar includes the TONE SOFTWARE logo, ReliaTel logo, and links for Monitor Alarms, Performance Reporting, and Administration. The left sidebar contains a tree view with 'General' selected, and sub-items like 'Centers', 'Classes', 'Entities', 'Links', 'Users', 'Notification', 'Alarming', and 'Automation'. The main area displays a table of centers with columns: Name, Coverage, and Full Center Name. A 'New' button is circled in red in the top toolbar. The table shows one row with 'system' in the Name and Full Center Name columns.

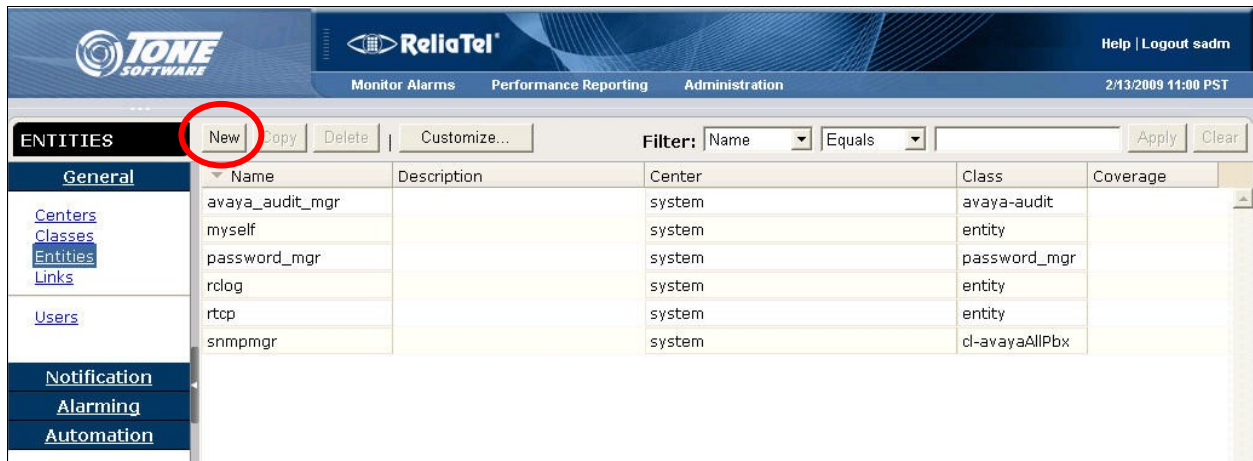
In the lower portion of the screen, select the **General** tab. Enter a descriptive **Name** for the center. Retain the default values in the remaining fields, and click **Apply**.



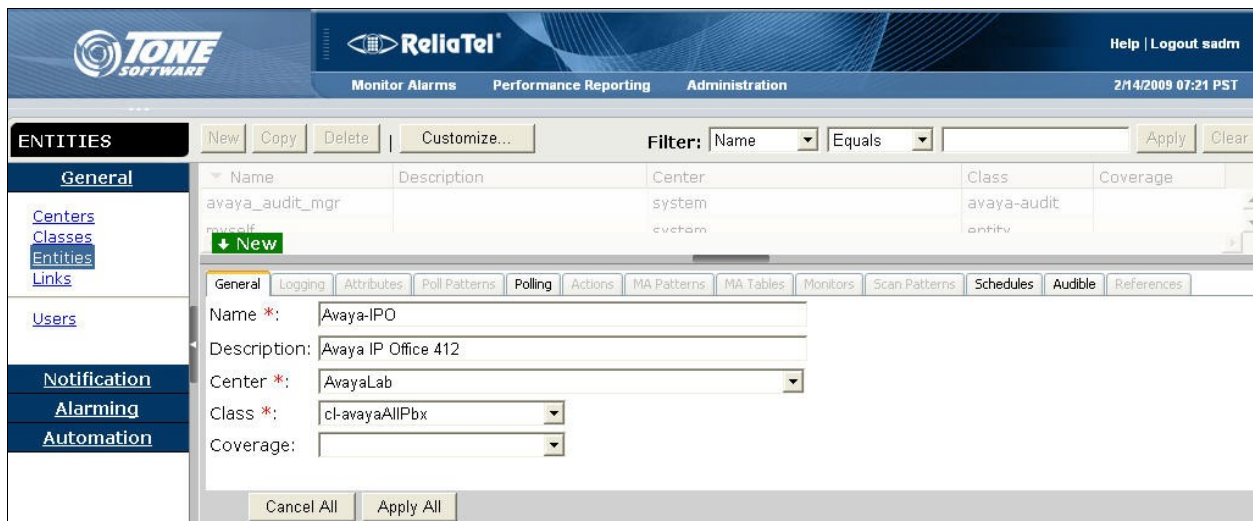
The screenshot shows the ReliaTel Administration interface with the 'General' tab selected for a new center. The 'Name' field is populated with 'AvayaLab'. The 'ID' field is empty. The 'Parent Center' dropdown is set to '- Top Level C'. The 'Coverage' dropdown is set to '- No Coverage'. The 'Apply' and 'Cancel' buttons are visible at the bottom. The 'Editing Row' status is shown in the bottom right corner.

5.3. Administer Entities

From the ReliaTel screen, select **General > Entities** in the left pane to display a list of entities in the right pane. Click **New** to create a new entity.



In the lower portion of the screen, select the **General** tab. Enter a descriptive **Name** and **Description**. For **Center**, select the center name from **Section 5.2**, in this case “AvayaLab”. For **Class**, select “cl-avayaAllPbx” from the drop-down list, as shown below. Click **Apply All**.



The ReliaTel screen is refreshed and shows the newly added entity. Double click on the new entity, in this case “Avaya-IPO”.

The screenshot shows the ReliaTel Administration interface. The top navigation bar includes 'Monitor Alarms', 'Performance Reporting', and 'Administration'. The left sidebar has tabs for 'General', 'Centers', 'Classes', 'Entities', 'Links', 'Users', 'Notification', 'Alarming', and 'Automation'. The main area displays a table of entities with columns: Name, Description, Center, Class, and Coverage. The 'Avaya-IPO' entity is highlighted in blue.

Name	Description	Center	Class	Coverage
Avaya-IPO	Avaya IP Office 412	AvayaLab	cl-avayaAllPbx	
avaya_audit_mgr		system	avaya-audit	
myself		system	entity	
password_mgr		system	password_mgr	
rclog		system	entity	
rtcp		system	entity	
snmpmgr		system	cl-avayaAllPbx	

In the lower portion of the screen, select the **Logging** tab. Check the **Log State** field to enable logging. Enter a descriptive name for **Channel**. Retain the default values in the remaining fields, and click **Apply All**.

The screenshot shows the ReliaTel Administration interface with the 'Logging' tab selected for the 'Avaya-IPO' entity. The 'Log State' checkbox is checked. The 'Channel' field is set to 'c-10.40.1.1'. The 'Log Pattern' is set to 'l-avayaAllPbx'. The 'Log Age (days)*' is set to 30, and the 'Message Timeout (seconds)*' is set to 60. The 'Apply All' button is visible at the bottom.

General	Logging	Attributes	Poll Patterns	Polling	Actions	MA Patterns	MA Tables	Monitors	Scan Patterns	Schedules	Audible	References
<p>Log State: <input checked="" type="checkbox"/></p> <p>Channel: <input type="text" value="c-10.40.1.1"/></p> <p>Log Pattern: <input type="text" value="l-avayaAllPbx"/></p> <p>Log Age (days)*: <input type="text" value="30"/></p> <p>Message Timeout (seconds)*: <input type="text" value="60"/></p> <p>Cancel All Apply All</p>												

5.4. Administer IP Address

Log in to the Linux shell of the ReliaTel server with administrative rights. Navigate to the “conf” directory to edit the “cdata.conf” file, as shown below.

```
[ReliaTel ~]# cd /export/home/ems/etc/conf  
[ReliaTel conf]# vi cdata.conf
```

Scroll to the end of the file, and add three new lines to associate the IP address of the Avaya IP Office server with the channel name from **Section 5.3**, as shown below. Save the file.

```
[c-snmprmgr]  
chanType = SNMPMGR  
account  =  
port     = 1162  
  
[c-10.40.1.1]  
chanType = SNMPMGR  
account  = 10.40.1.1
```

In the Linux prompt, issue the “pkill” command to restart all necessary components.

```
[ReliaTel conf]# pkill -HUP dapmgr
```

6. General Test Approach and Test Results

The feature test cases were performed manually. Different SNMP traps were generated on Avaya IP Office and verified on the ReliaTel web-based alarm monitoring screen. The verification also included the use of a protocol analyzer to view the SNMP traps sent from Avaya IP Office. The different SNMP traps included Avaya IP Office reboot, disconnect/reconnect of expansion modules, and move users to different ports on the expansion module.

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

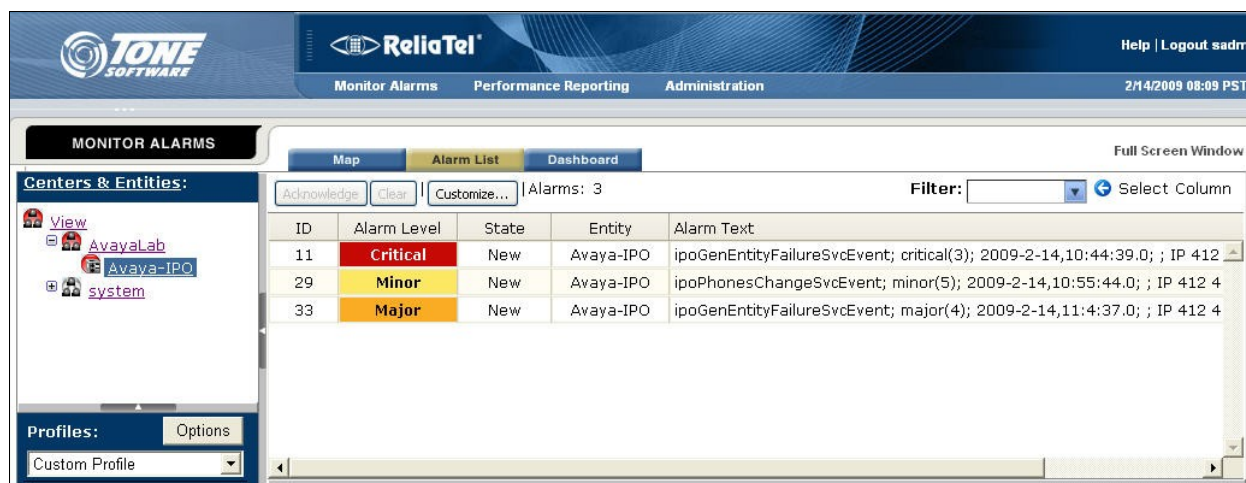
All test cases were executed and passed.

7. Verification Steps

This section provides the test that can be performed to verify proper configuration of Avaya IP Office and ReliaTel.

Generate an alarm event on the Avaya IP Office, such as reboot the Avaya IP Office server, disconnect/reconnect an expansion module, or move a user to a different port on an expansion module. With a protocol analyzer, verify that SNMP traps are sent to the ReliaTel server.

In the ReliaTel screen, select **Monitor Alarms** from the top menu. Select **View > AvayaLab > Avaya-IPO** in the left pane, where “AvayaLab” is the name of the center from **Section 5.2**, and “Avaya-IPO” is the name of the entity from **Section 5.3**. Verify that the new alarms are displayed in the right pane, as shown below.



The screenshot displays the ReliaTel web interface for monitoring alarms. The top navigation bar includes the TONE SOFTWARE logo, the ReliaTel logo, and links for Help, Logout, and adm. The main menu has tabs for Monitor Alarms, Performance Reporting, and Administration. The left sidebar shows a tree view under 'Centers & Entities' with 'AvayaLab' selected, and 'Avaya-IPO' and 'system' listed below it. The main area is titled 'MONITOR ALARMS' and contains a table of alarms. The table has columns for ID, Alarm Level, State, Entity, and Alarm Text. Three alarms are listed: ID 11 (Critical), ID 29 (Minor), and ID 33 (Major), all with a state of 'New' and entity 'Avaya-IPO'. The alarm text for ID 11 is 'ipoGenEntityFailureSvcEvent; critical(3); 2009-2-14,10:44:39.0; ; IP 412'. The alarm text for ID 29 is 'ipoPhonesChangeSvcEvent; minor(5); 2009-2-14,10:55:44.0; ; IP 412 4'. The alarm text for ID 33 is 'ipoGenEntityFailureSvcEvent; major(4); 2009-2-14,11:4:37.0; ; IP 412 4'. The interface also includes buttons for Acknowledge, Clear, and Customize, and a 'Full Screen Window' button.

ID	Alarm Level	State	Entity	Alarm Text
11	Critical	New	Avaya-IPO	ipoGenEntityFailureSvcEvent; critical(3); 2009-2-14,10:44:39.0; ; IP 412
29	Minor	New	Avaya-IPO	ipoPhonesChangeSvcEvent; minor(5); 2009-2-14,10:55:44.0; ; IP 412 4
33	Major	New	Avaya-IPO	ipoGenEntityFailureSvcEvent; major(4); 2009-2-14,11:4:37.0; ; IP 412 4

8. Conclusion

These Application Notes describe the configuration steps required for ReliaTel to successfully interoperate with Avaya IP Office. All feature and serviceability test cases were completed.

9. Additional References

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

1. *IP Office 4.2 Documentation CD*, August 2008, available at <http://support.avaya.com>.
2. *ReliaTel Monitoring and Management Solution Installation and Configuration Guide*, Version 2 Release 5 Modification 0, contact ReliaTel support at info@tonesoft.com.
3. *ReliaTel Monitoring and Management Solution User's Guide*, Version 2 Release 5 Modification 2, contact ReliaTel support at info@tonesoft.com.

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