



Avaya Solution & Interoperability Test Lab

Application Notes for TONE Software's ReliaTel with Avaya Modular Messaging – 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 Modular Messaging. 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 interfaces from Avaya Modular Messaging 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 Modular Messaging. 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 interfaces from the Avaya Modular Messaging system, consisting of the Avaya Messaging Storage Server (MSS) and one Avaya Messaging Application Server (MAS), to provide alarm monitoring.

Upon detection of a failure, the Avaya MSS or MAS can raise alarms and send SNMP traps to ReliaTel. ReliaTel collects and stores the alarm information from the Avaya Modular Messaging SNMP traps, and presents the alarms 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 MSS, generation of SNMP traps on Avaya MAS, 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.

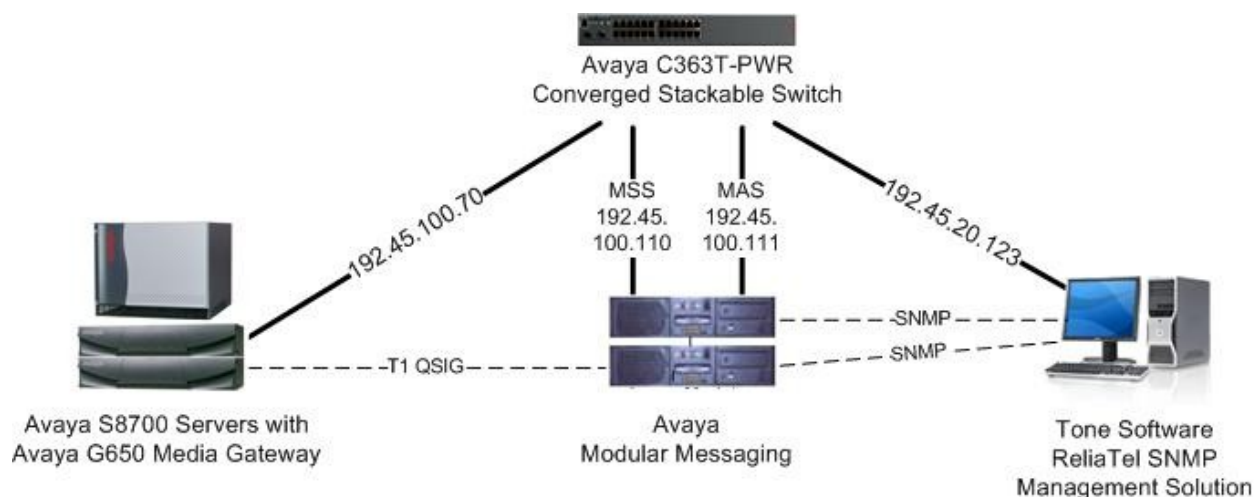
1.2. Support

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.



The detailed administration of basic connectivity between Avaya Modular Messaging and Avaya Communication Manager is assumed to be in place and will not be described in these Application Notes.

3. Equipment and Software Validated

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

Equipment	Software
Avaya S8700 Servers with Avaya G650 Media Gateway	Avaya Communication Manager 5.1, R015x.01.1.415.1
Avaya Modular Messaging <ul style="list-style-type: none">• Messaging Storage Server• Messaging Application Server	4.0 4.0
TONE Software Corporation's ReliaTel	2.5.2

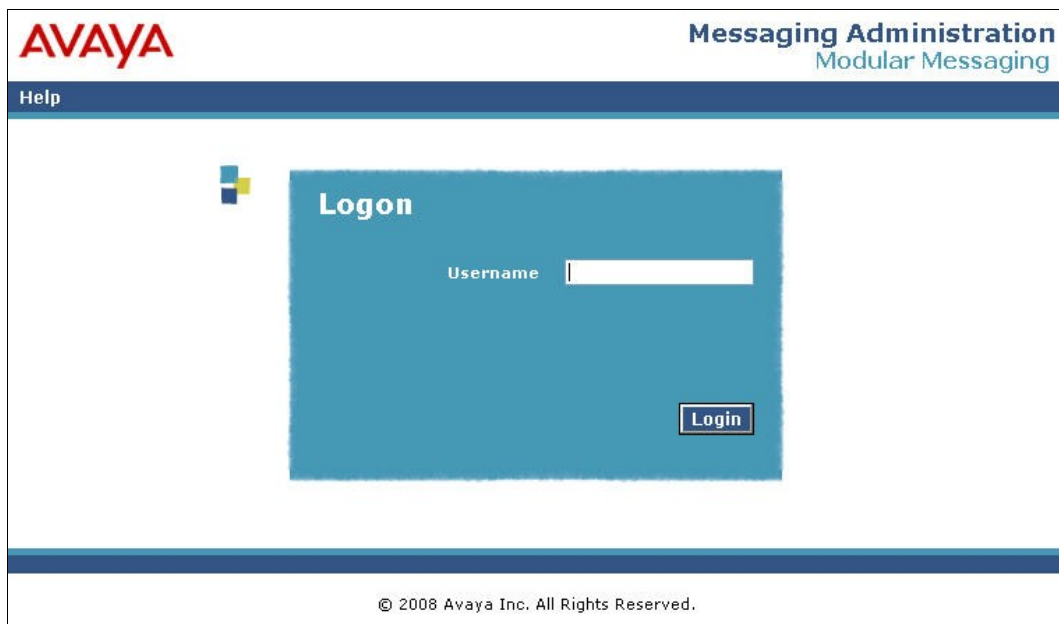
4. Configure Avaya Modular Messaging Storage Server

This section provides the procedures for configuring the Avaya Modular Messaging MSS component. The procedures include the following areas:

- Launch web interface
- Administer alarm configuration
- Administer trap destination

4.1. Launch Web Interface

Access the MSS web interface by using the URL “http://ip-address” in an Internet browser window, where “ip-address” is the IP address of the MSS server. The **Logon** screen is displayed. Log in with the appropriate credentials.



The **Messaging Administration** screen appears, as shown below.



4.2. Administer Alarm Configuration

Select **Alarming > Alarming Configuration** from the left pane, to display the **Configure Alarms** screen. For **Alarm Origination**, select “SNMP” from the drop-down list. For **Alarm Level**, select the desired level of alarms to be sent to ReliaTel. Retain the default values in the remaining fields.

The screenshot shows the Avaya Modular Messaging Messaging Administration web interface. The left navigation pane is expanded to 'Alarming' > 'Alarming Configuration'. The main content area is titled 'Configure Alarms'. It contains several configuration fields:

- Product ID**: 2000000000
- Alarm Origination**: SNMP (selected from a dropdown)
- Alarm Level**: ALL (selected from a dropdown)
- Alarm Suppression**: INACTIVE (selected from a dropdown)
- Clear Alarm Notification**: ACTIVE (selected from a dropdown)
- Modem Dialout Destination**: (empty text field)
- Modem To Be Configured**: COM2 (/dev/ttyS1) (selected from a dropdown)

At the bottom of the form are 'Save' and 'Help' buttons. The top right of the interface indicates 'This server: 192.45.100.110'.

4.3. Administer Trap Destination

Select **Alarming > SNMP Trap Destinations** from the left pane, to display the **Administer SNMP Trap Destinations** screen. Click **Add** to add a new trap destination.

The screenshot shows the Avaya Modular Messaging Messaging Administration web interface. The left navigation pane is expanded to 'Alarming' > 'SNMP Trap Destinations'. The main content area is titled 'Administer SNMP Trap Destinations'. It displays the following information:

- Alarm Level**: MINOR
- Alarm Suppression**: INACTIVE

Below this is a table with the following headers: IP Address or Host Name, Community, NMS Type, Port Number, Destination Status. The table is currently empty, with the message 'No Trap Destinations Administered Yet!' displayed below the header row. At the bottom of the interface are 'Add', 'Change', 'Delete', and 'Help' buttons. The top right of the interface indicates 'This server: 192.45.100.110'.

The **Add New SNMP Trap Destination** screen is displayed. Enter the IP address of the ReliaTel server in the **IP Address or Host Name** field, and retain the default values in the remaining fields.

The screenshot shows the Avaya Modular Messaging Administration web interface. The top header includes the Avaya logo, the title 'Modular Messaging Messaging Administration', and the server IP 'This server: 192.45.100.110'. A left-hand navigation menu lists various system management tasks, with 'Security' and 'Alarming' sections expanded. The main content area is titled 'Add New SNMP Trap Destination' and contains the following fields:

- IP Address or Host Name:** A text input field containing '192.45.100.123'.
- Community:** A dropdown menu with 'public' selected.
- NMS Type:** A dropdown menu with 'INADS' selected.
- Port Number:** A text input field containing '162'.

At the bottom of the form are three buttons: 'Back', 'Save', and 'Help'.

5. Configure Avaya Modular Messaging Application Server

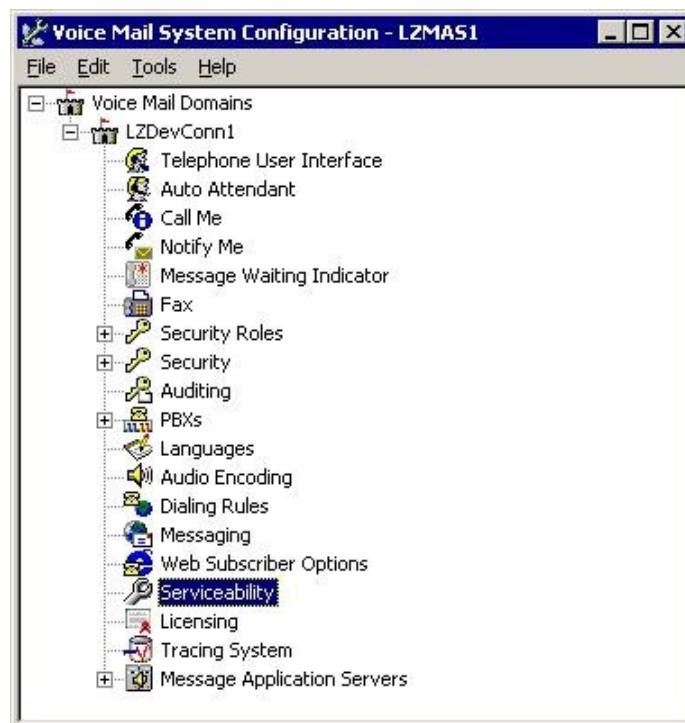
This section provides the procedures for configuring the Avaya Modular Messaging MAS component. The procedures include the following areas:

- Launch Voice Mail System Configuration
- Administer community
- Administer SNMP alarm

The Avaya Modular Messaging system can support multiple MAS servers. In the compliance testing, only one MAS server was used. For Avaya Modular Messaging systems with multiple MAS servers, this section can be repeated for each MAS server desired to be monitored by ReliaTel.

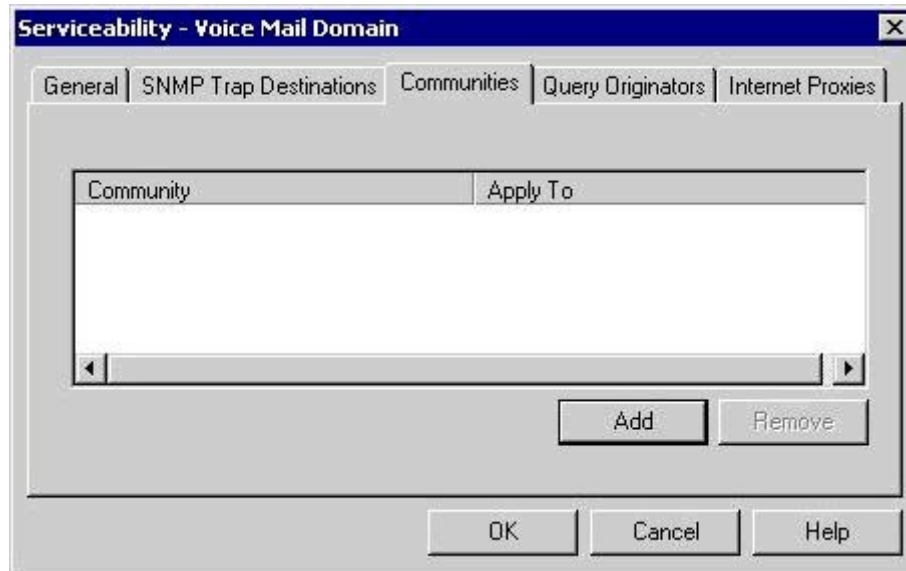
5.1. Launch Voice Mail System Configuration

On the MAS server, launch the Voice Mail System Configuration application by selecting **Start > Programs > Avaya Modular Messaging > Voice Mail System Configuration**. The **Voice Mail System Configuration** screen is displayed. Select **Voice Mail Domains > LZDevConn1 > Serviceability** as shown below, where **LZDevConn1** is the local voice mail domain.



5.2. Administer Community

The **Serviceability – Voice Mail Domain** screen is displayed. Select the **Communities** tab, and click **Add** to add a new community.



The screen is updated with a new entry line, as shown below. Click on the **Community** field in the entry line, and enter a desired community string, in this case “avayatrap”. Click on the **Apply To** field in the entry line, and select “Traps”. Click **OK**.



5.3. Administer SNMP Alarm

Select the **General** tab. For **Alarm Origination**, select “SNMP” from the drop-down list. Retain the default values in the remaining fields.

The screenshot shows a Windows-style dialog box titled "Serviceability - Voice Mail Domain". It has five tabs: "General", "SNMP Trap Destinations", "Communities", "Query Originators", and "Internet Proxies". The "General" tab is selected. Inside the dialog, the "Alarm Origination" dropdown menu is set to "SNMP". Below this, there are two checkboxes: "Suppress alarm notifications" (unchecked) and "Clear Alarm Notification" (checked). The "Send alarm at this level or higher:" dropdown menu is set to "Minor". Under the heading "When stopping the MAS service:", there are four radio button options: "Wait for ports to become idle" (selected), "Wait indefinitely", "Wait for (minutes)" (with a value of 10 entered in the adjacent text box), and "Stop Immediately". At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

6. Configure TONE Software Corporation's ReliaTel Solution

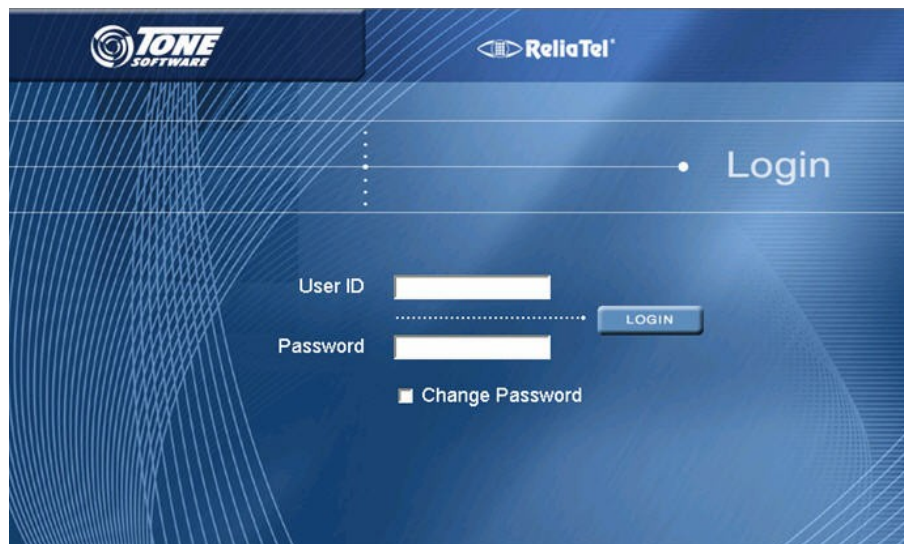
This section provides the procedures for configuring TONE Software Corporation's ReliaTel solution. The procedures include the following areas:

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

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.

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 with the appropriate credentials.



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



6.2. 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 'TONE SOFTWARE' and 'ReliaTel' logos, along with 'Monitor Alarms', 'Performance Reporting', and 'Administration' tabs. The user is logged in as 'sadm' on 2/13/2009 at 09:48 PST. The left sidebar shows a tree view with 'CENTERS' selected, and sub-items 'General', 'Classes', 'Entities', 'Links', and 'Users'. The 'General' tab is active. The main area displays a table with columns 'Name', 'Coverage', and 'Full Center Name'. A single row is visible with the value 'system' in the 'Name' column. Above the table, there are buttons for 'New', 'Copy', 'Delete', and 'Customize'. The 'New' button is circled in red.

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**.

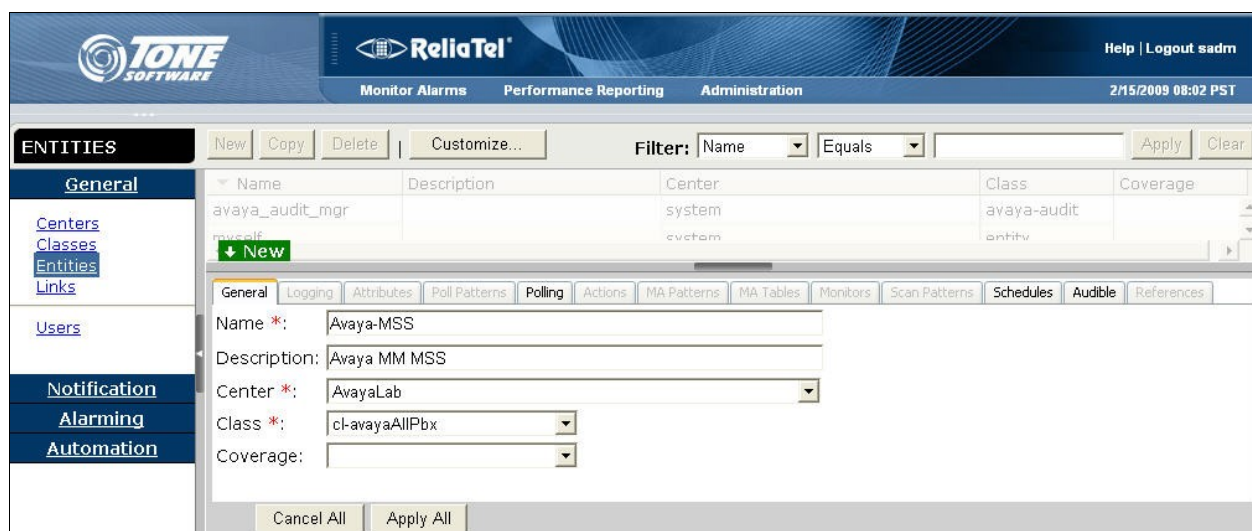
The screenshot shows the 'New Center' form in the ReliaTel Administration interface. The 'General' tab is selected. The form fields are: 'Name' (with the value 'AvayaLab'), 'ID' (empty), 'Parent Center' (set to '- Top Level C'), and 'Coverage' (set to '- No Coverage'). There are 'Apply' and 'Cancel' buttons at the bottom. The status 'Editing Row' is shown in the bottom right corner.

6.3. 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 the Avaya MSS. For **Center**, select the center name from **Section 6.2**, 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-MSS”.

The screenshot shows the ReliaTel Administration interface. The top navigation bar includes 'Monitor Alarms', 'Performance Reporting', and 'Administration'. The left sidebar has links for '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-MSS' entity is selected and highlighted in blue.

Name	Description	Center	Class	Coverage
Avaya-MSS	Avaya MM MSS	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-MSS' entity. The 'Log State' checkbox is checked. The 'Channel' field is set to 'c-192.45.100.110'. The 'Log Pattern' dropdown 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.

Name	Description	Center	Class	Coverage
Avaya-MSS	Avaya MM MSS	AvayaLab	cl-avayaAllPbx	
avaya_audit_mgr		system	avaya-audit	

General | **Logging** | Attributes | Poll Patterns | Polling | Actions | MA Patterns | MA Tables | Monitors | Scan Patterns | Schedules | Audible | References

Log State: ☒

Channel: c-192.45.100.110

Log Pattern: l-avayaAllPbx

Log Age (days)*: 30

Message Timeout (seconds)*: 60

Cancel All Apply All

Repeat the procedures in this section to create an entity for each Avaya MAS server desired to be monitored. In the compliance testing, one Avaya MAS entity was configured with “Avaya-MAS” as the name and “c-192.45.100.111” as the channel, as shown below.

The screenshot displays 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 date and time are shown as 2/15/2009 08:04 PST. The main section is titled ENTITIES and contains a table of existing entities. Below the table, the configuration for the selected entity 'Avaya-MAS' is shown in the 'General' tab. The configuration includes fields for Log State, Channel, Log Pattern, Log Age (days), and Message Timeout (seconds).

Name	Description	Center	Class	Coverage
Avaya-MAS	Avaya MM MAS	AvayaLab	cl-avayaAllPbx	
Avaya-MSS	Avaya MM MSS	AvayaLab	cl-avayaAllPbx	

Configuration for Avaya-MAS:

- Log State: ☒
- Channel: c-192.45.100.111
- Log Pattern: cl-avayaAllPbx
- Log Age (days) *: 30
- Message Timeout (seconds) *: 60

Buttons: Cancel All, Apply All

6.4. Administer IP Addresses

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 new lines to associate the IP address of the Avaya MSS and each Avaya MAS server with the channel names from **Section 6.3**, as shown below. Save the file.

```
[c-snmprmgr]  
chanType = SNMPMGR  
account  =  
port     = 1162  
  
[c-192.45.100.110]  
chanType = SNMPMGR  
account  = 192.45.100.110  
  
[c-192.45.100.111]  
chanType = SNMPMGR  
account  = 192.45.100.111
```

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

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


7. General Test Approach and Test Results

The feature test cases were performed manually. Different SNMP traps were generated on Avaya MSS and Avaya MAS 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 Modular Messaging. The different SNMP traps included Avaya MSS reboot, Avaya MSS messaging restart, Avaya MAS reboot, and disconnect/reconnect the Avaya MAS T1 connection.

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

All test cases were executed and passed.

8. Verification Steps

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

Generate alarm events on the Avaya MSS and Avaya MAS, such as reboot the Avaya MSS, restart the messaging on Avaya MSS, reboot the Avaya MAS, or disconnect/reconnect the Avaya MAS T1 connection. 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** in the left pane, where “AvayaLab” is the name of the center from **Section 6.2**. Verify that the new alarms are displayed in the right pane, as shown below.

The screenshot displays the ReliaTel web interface. The top navigation bar includes the TONE SOFTWARE logo, the ReliaTel logo, and links for Help, Logout, and user 'sadm'. Below this is a secondary menu with 'Monitor Alarms', 'Performance Reporting', and 'Administration'. The main content area is titled 'MONITOR ALARMS' and features a 'Map' tab, an 'Alarm List' tab, and a 'Dashboard' tab. On the left, a 'Centers & Entities' pane shows a tree structure with 'AvayaLab' selected. The main table displays 16 alarms with columns for ID, Alarm Level, State, Entity, and Alarm Text. The alarms are filtered by 'AvayaLab' and show various levels of severity (Major, FYI) and states (New). The bottom of the interface includes a 'Profiles' section with a 'Custom Profile' button.

ID	Alarm Level	State	Entity	Alarm Text
184	Major	New	Avaya-MSS	msgTrapAlarms; Ap:IM Res:IMAPD AlmCd:0 Dt/Tim:03/04/09 13:08; Event ID:IMAPI
185	FYI	New	Avaya-MSS	coldStart
186	Major	New	Avaya-MAS	msgTrapAlarms; Ap:VS Res:GENERIC Almcd:1 AlmLvl:NON Dt/Tm:03/04/09 13:12; E
187	FYI	New	Avaya-MAS	linkUp; 1; 192.168.1.250; avayatrap
189	FYI	New	Avaya-MAS	linkUp; 65539; 192.168.1.250; avayatrap
191	FYI	New	Avaya-MAS	linkUp; 65540; 192.168.1.250; avayatrap
192	Major	New	Avaya-MAS	inadssnmpAlarm; SEVERE error from SPIRIT application 192.168.1.250 is not a sup
193	Major	New	Avaya-MSS	msgTrapAlarms; Ap:MT Res:BACKUP AlmCd:1 AlmLvl:WRN Almcd:02/26/09 03:05 Rsl
194	Major	New	Avaya-MSS	msgTrapAlarms; Ap:VM Res:SOFTWARE AlmCd:602 Dt/Tim:03/04/09 13:12; Event I
196	Major	New	Avaya-MSS	msgTrapAlarms; Ap:VP Res:MTC AlmCd:17 Dt/Tim:03/04/09 13:12; Event ID:MTC0:
197	FYI	New	Avaya-MSS	linkUp; 1; up(1); up(1)
198	FYI	New	Avaya-MSS	linkUp; 2; up(1); up(1)
199	FYI	New	Avaya-MSS	linkUp; 3; up(1); up(1)
200	Major	New	Avaya-MSS	linkDown; 4; down(2); down(2)
201	Major	New	Avaya-MSS	msgTrapAlarms; Ap:IM Res:IMAPD AlmCd:0 Dt/Tim:03/04/09 13:14; Event ID:IMAPI
202	Major	New	Avaya-MSS	inadssnmpAlarm; 2000000000 04/13:17,ACT 03/04/09,13:12,VP,CGEN,,4,MAJ; ; 40

9. Conclusion

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

10. Additional References

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

1. *Modular Messaging Release 4.0 with the Avaya MSS Messaging Application Server (MAS) Administration Guide*, April 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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