CHAPTER 42

Configuring RMON

RMON is an Internet Engineering Task Force (IETF) standard monitoring specification that allows various network agents and console systems to exchange network monitoring data. You can use the RMON alarms and events to monitor Cisco MDS 9000 Family switches running the Cisco SAN-OS Release 2.0(1b) or later software.

This chapter includes the following sections:

About RMON

All switches in the Cisco MDS 9000 Family support the following RMON functions (defined in RFC 2819):

- Alarm—Monitors a specific management information base (MIB) object for a specified interval, triggers an alarm at a specified value (rising threshold), and resets the alarm at another value (falling threshold). Alarms can be used with events; the alarm triggers an event, which can generate a log entry or an SNMP trap.
- Event—Determines the action to take when an event is triggered by an alarm. The action can be to generate a log entry, an SNMP trap, or both.

Refer to the *Cisco MDS 9000 Family MIB Quick Reference* for agent and management information.

Refer to the *Cisco MDS 9000 Family Fabric Manager Configuration Guide* for information on an SNMP-compatible network management station.

See the "SNMP Security" section on page 27-2 for SNMP security-related CLI configurations.

Configuring RMON

RMON is disabled by default and no events or alarms are configured in the switch. You can configure your RMON alarms and events by using the CLI or an SNMP-compatible network management station.

Tip We recommend an additional, generic RMON console application on the network management station (NMS) to take advantage of RMON's network management capabilities. Refer to the *Cisco MDS 9000 Family Fabric Manager Configuration Guide*.

Note You must also configure SNMP on the switch to access RMON MIB objects.

RMON Alarm Configuration

You can set an alarm on any MIB object. The specified MIB must be an existing SNMP MIB object in standard dot notation (1.3.6.1.2.1.2.2.1.14.16777216 for ifInOctets.16777216).

Use one of the following options to specify the interval to monitor the MIB variable (ranges from 1 to 4294967295 seconds):

- Use the **delta** option to test the change between samples of a MIB variable.
- Use the **absolute** option to test each MIB variable directly.
- Use the **delta** option to test any MIB objects that are counters.

The range for the **rising threshold** and **falling threshold** values is -2147483647 to 2147483647.

Caution The **falling threshold** must be less than the **rising threshold**.

You can optionally specify the following parameters:

- The event-number to trigger if the rising or falling threshold exceeds the specified limit.
- The owner of the alarm.

To enable RMON alarms, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# rmon alarm 20 1.3.6.1.2.1.2.2.1.14.16777216 2900 delta rising-threshold 15 1 falling-threshold 0 owner test`	Configures RMON alarm number 20 to monitor the 1.3.6.1.2.1.2.2.1.14.16777216 once every 900 seconds until the alarm is disabled and checks the change in the variable's rise or fall. If the value shows a MIB counter increase of 15 or more, the software triggers an alarm. The alarm in turn triggers event number 1, which is configured with the RMON event command. Possible events can include a log entry or an SNMP trap. If the MIB value changes by 0, the alarm is reset and can be triggered again.
	`switch(config)# no rmon alarm 2`	Deletes the specified entry from the alarm table

RMON Event Configuration

To enable RMON events, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# rmon event 2 log trap eventtrap description CriticalErrors owner Test2`	Creates RMON event number 2 to define CriticalErrors and generates a log entry when the event is triggered by the alarm. The user Test2 owns the row that is created in the event table by this command. This example also generates an SNMP trap when the event is triggered.
	`switch(config)# no rmon event 5`	Deletes an entry from the RMON event table.

RMON Verification

Use the **show rmon** and **show snmp** commands to display configured RMON and SNMP information (see Example 42-1 and 42-2).

Example 42-1 Displays Configured RMON Alarms

```
switch# show rmon alarms
Alarm 1 is active, owned by admin
 Monitors 1.3.6.1.2.1.2.2.1.16.16777216 every 1 second(s)
 Taking delta samples, last value was 0
 Rising threshold is 1, assigned to event 0
 Falling threshold is 0, assigned to event 0
 On startup enable rising or falling alarm
```

Example 42-2 Displays Configured RMON Events

```
switch# show rmon events
Event 2 is active, owned by Test2
 Description is CriticalErrors
 Event firing causes log and trap to community eventtrap, last fired 0
Event 500 is active, owned by admin
 Description is
 Event firing causes log, last fired 138807208
```

Default Settings

Table 42-1 lists the default settings for all RMON features in any switch.

Table 42-1 Default RMON Settings

Parameters	Default
RMON alarms	Disabled.
RMON events	Disabled.