C H A P T E R **34**

Configuring RMON

Finding Feature Information

Your software release may not support all the features documented in this chapter. For the latest feature information and caveats, see the release notes for your platform and software release.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

Prerequisites for RMON

- You must configure SNMP on the switch to access RMON MIB objects.
- We recommend that you use a generic RMON console application on the network management station (NMS) to take advantage of the RMON network management capabilities.

Restrictions for RMON

- 64-bit counters are not supported for RMON alarms.

Information About RMON

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 feature with the Simple Network Management Protocol (SNMP) agent in the switch to monitor all the traffic flowing among switches on all connected LAN segments as shown in Figure 34-1.

Figure 34-1   Remote Monitoring Example
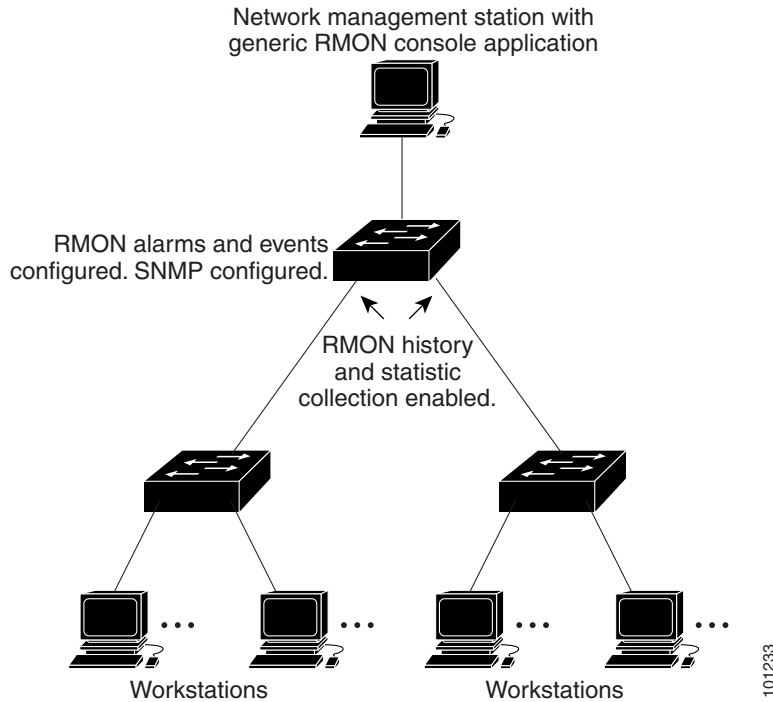
The switch supports these RMON groups (defined in RFC 1757):

- Statistics (RMON group 1)—Collects Ethernet statistics (including Fast Ethernet and Gigabit Ethernet statistics, depending on the switch type and supported interfaces) on an interface.

- History (RMON group 2)—Collects a history group of statistics on Ethernet ports (including Fast Ethernet and Gigabit Ethernet statistics, depending on the switch type and supported interfaces) for a specified polling interval.

- Alarm (RMON group 3)—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 (RMON group 9)—Specifies the action to take when an event is triggered by an alarm. The action can be to generate a log entry or an SNMP trap.

Because switches supported by this software release use hardware counters for RMON data processing, the monitoring is more efficient, and little processing power is required.

Note 64-bit counters are not supported for RMON alarms.

RMON is disabled by default; no alarms or events are configured.

How to Configure RMON

Configuring RMON Alarms and Events

You can configure your switch for RMON by using the command-line interface (CLI) or an SNMP-compatible network management station.

	Command	Purpose
Step 1	**configure terminal**	Enters global configuration mode.
Step 2	**rmon alarm** *number variable interval* {**absolute**	**delta**} **rising-threshold** *value* [*event-number*] **falling-threshold** *value* [*event-number*] [**owner** *string*]	Sets an alarm on a MIB object. • *number*—Specifies the alarm number. The range is 1 to 65535. • *variable*—Specifies the MIB object to monitor. • *interval*—Specifies the time in seconds the alarm monitors the MIB variable. The range is 1 to 4294967295 seconds. • Specifies the **absolute** keyword to test each MIB variable directly. Specifies the **delta** keyword to test the change between samples of a MIB variable. • *value*—Specifies a number at which the alarm is triggered and one for when the alarm is reset. The range for the rising threshold and falling threshold values is -2147483648 to 2147483647. • (Optional) *event-number*—Specifies the event number to trigger when the rising or falling threshold exceeds its limit. • (Optional) **owner** *string*—Specifies the owner of the alarm.
Step 3	**rmon event** *number* [**description** *string*] [**log**] [**owner** *string*] [**trap** *community*]	Adds an event in the RMON event table that is associated with an RMON event number. • *number*—Assigns an event number. The range is 1 to 65535. • (Optional) **description** *string*—Specifies a description of the event. • (Optional) **log**—Generates an RMON log entry when the event is triggered. • (Optional) **owner** *string*—Specifies the owner of this event. • (Optional) **trap** *community*—Enters the SNMP community string used for this trap.
Step 4	**end**	Returns to privileged EXEC mode.

Collecting Group History Statistics on an Interface

You must first configure RMON alarms and events to display collection information.

	Command	Purpose
Step 1	**configure terminal**	Enters global configuration mode.
Step 2	**interface** *interface-id*	Specifies the interface on which to collect history, and enters interface configuration mode.
Step 3	**rmon collection history** *index* [**buckets** *bucket-number*] [**interval** *seconds*] [**owner** *ownername*]	Enables history collection for the specified number of buckets and time period. • *index*—Identifies the RMON group of statistics. The range is 1 to 65535. • (Optional) **buckets** *bucket-number*—Specifies the maximum number of buckets desired for the RMON collection history group of statistics. The range is 1 to 65535. The default is 50 buckets. • (Optional) **interval** *seconds*—Specifies the number of seconds in each polling cycle. The range is 1 to 3600. The default is 1800 seconds. • (Optional) **owner** *ownername*—Enters the name of the owner of the RMON group of statistics.
Step 4	**end**	Returns to privileged EXEC mode.

Collecting Group Ethernet Statistics on an Interface

	Command	Purpose
Step 1	**configure terminal**	Enters global configuration mode.
Step 2	**interface** *interface-id*	Specifies the interface on which to collect statistics, and enters interface configuration mode.
Step 3	**rmon collection stats** *index* [**owner** *ownername*]	Enables RMON statistic collection on the interface. • *index*—Specifies the RMON group of statistics. The range is from 1 to 65535. • (Optional) **owner** *ownername*—Enters the name of the owner of the RMON group of statistics.
Step 4	**end**	Returns to privileged EXEC mode.

Monitoring and Maintaining RMON

Table 34-1   *Commands for Displaying RMON Status*

Command	Purpose
show rmon	Displays general RMON statistics.
show rmon alarms	Displays the RMON alarm table.
show rmon events	Displays the RMON event table.
show rmon history	Displays the RMON history table.
show rmon statistics	Displays the RMON statistics table.

Configuration Examples for RMON

Configuring an RMON Alarm Number: Example

The following example shows how to configure an RMON alarm number:

```
Switch(config)# rmon alarm 10 ifEntry.20.1 20 delta rising-threshold 15 1
falling-threshold 0 owner jjohnson
```

The alarm monitors the MIB variable *ifEntry.20.1* once every 20 seconds until the alarm is disabled and checks the change in the variable's rise or fall. If the *ifEntry.20.1* value shows a MIB counter increase of 15 or more, such as from 100000 to 100015, the alarm is triggered. 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 *ifEntry.20.1* value changes by 0, the alarm is reset and can be triggered again.

Creating an RMON Event Number: Example

The following example creates RMON event number 1:

```
Switch(config)# rmon event 1 log trap eventtrap description "High ifOutErrors" owner
jjones
```

The event is defined as *High ifOutErrors* and generates a log entry when the event is triggered by the alarm. The user *jjones* 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.

Configuring RMON Statistics: Example

This example shows how to collect RMON statistics for the owner *root*:

```
Switch(config)# interface gigabitethernet1/1
Switch(config-if)# rmon collection stats 2 owner root
```

Additional References

The following sections provide references related to switch administration:

Related Documents

Related Topic	Document Title
Cisco IE 2000 commands	*Cisco IE 2000 Switch Command Reference*, Release 15.0(1)EY
Cisco IOS basic commands Cisco IOS system management commands	*Cisco IOS Configuration Fundamentals Command Reference*
SNMP configuration	Chapter 36, "Configuring SNMP"
Alarm and event interaction	RFC 1757

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIBs	MIBs Link
—	To locate and download MIBs using Cisco IOS XR software, use the Cisco MIB Locator found at the following URL and choose a platform under the Cisco Access Products menu: http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/techsupport