



RMON Full

Remote Network Monitoring (RMON) is a standard monitoring specification that enables various network monitors and console systems to exchange network-monitoring data.

This module describes the features of the RMON Alarm group, the RMON Events group, the RMON History group, and the RMON Statistics group, and it explains how to configure the various RMON notifications.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

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

Prerequisites for RMON Full

You must be running a version of SNMP on the server that contains the Remote Network Monitoring (RMON) MIB.

Information About RMON Full

RMON Alarms and Events Notifications

For Remote Network Monitoring (RMON) full support of alarms and events notification, see [Information About RMON Events and Alarms](#).

RMON History Group Notifications

The Remote Network Monitoring (RMON) history group defines sampling functions for one or more interfaces of the monitor. RFC 1757 defines two tables: `historyControlTable` and `etherHistoryTable`.

The history commands create rows in the `historyControlTable`. The `historyControlTable` specifies the interface and the details of the sampling function used to construct the history. The objects in the `historyControlTable` are described in the following table:

Table 1: `historyControlTable` Objects

Objects	Description
<code>historyControlBucketsRequested</code>	Requested number of discrete sampling intervals over which the data is saved.
<code>historyControlDataSource</code>	Identifies the interface and hence the subnetwork that is the source for data in this row.
<code>historyControlInterval</code>	Interval, in seconds, over which data is sampled for each bucket. The range is from 1 to 3600 seconds.
<code>historyControlOwner</code>	String that represents the entity that configured this entry and is therefore the owner of this entry.
<code>historyControlStatus</code>	Current status of this entry and the values: 1—valid 2—createRequest 3—underCreation 4—invalid

The default value of `historyControlBucketsRequested` requested depends on the sampling period. The following table displays the sampling period and the corresponding buckets:

Table 2: Sampling Period and Corresponding Buckets

Sampling Period	Total Number of Buckets
1 minute	60
15 minutes	32
60 minutes	24
24 hours	7

**Note**

The maximum number of rows in the table equals the “number_of_ports x number_of_sampling_periods”. For example, for an E100 module, there are 24 x 4 rows, and for an E1000 module, there are 14 x 4 rows.

The etherHistoryTable is a historical sample of Ethernet statistics on a particular Ethernet interface. This sample is associated with the historyControlEntry, which sets up the parameters for a regular collection of these samples. The etherHistoryTable is implemented in RMON MIB as per the standards set in RFC 1757.

RMON Statistics Group Notifications

The Statistics group contains the basic statistics for each monitored subnetwork in a single table called etherStatsTable. The etherStatsTable contains statistics for Ethernet interfaces. Each row pertains to one interface. The objects in this table are described in the following table:

Table 3: etherStatsTable Objects

Objects	Description
etherStatsDataSource	Identifies the Ethernet subnetwork that is the source of the data in this row.
etherStatsOwner	String that represents the entity that configured this entry and is therefore the owner of this entry.
etherStatsStatus	Current status of this entry and the values: 1—valid 2—createRequest 3—underCreation 4—invalid

**Note**

The maximum number of rows in the etherStatsTable equals the number of ports. For example, there are 24 ports in an E100 module and there are 14 ports in an E1000 module.

How to Configure RMON Full

Configuring RMON Event and Alarm Notifications

For steps to configure RMON Full Alarms and Events, see [How to Configure RMON Events and Alarms](#).

Configuring RMON History Group

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *interface-id*
4. **rmon collection history** *collection_control_index* [**buckets** *bucket_interval*] [**interval** *interval*] [**owner** *word*]
5. **end**
6. **show rmon history**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. • Enter the password if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	interface <i>interface-id</i> Example: Device(config)# interface GigabitEthernet0/1	Configures the Gigabit Ethernet interface for slot 0 and port 1 and enters interface configuration mode.
Step 4	rmon collection history <i>collection_control_index</i> [buckets <i>bucket_interval</i>] [interval <i>interval</i>] [owner <i>word</i>] Example: Device(config-if)# rmon collection history 230 buckets 100 interval 60 owner ownerA	Configures the Ethernet history group on any Remote Network Monitoring (RMON) MIB.

	Command or Action	Purpose
Step 5	end Example: Device(config-if)# end	Exits interface configuration mode and returns to privileged EXEC mode.
Step 6	show rmon history Example: Device# show rmon history	Displays the RMON Ethernet history group table.

Configuring RMON Statistics Group

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *interface-id*
4. **rmon collection statistics** *collection_control_index* [**owner word**]
5. **end**
6. **show rmon statistics**
7. **show rmon statistics history**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter the password if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	interface <i>interface-id</i> Example: Device(config)# interface GigabitEthernet0/1	Configures the Gigabit Ethernet interface for slot 0 and port 1 and enters interface configuration mode.

	Command or Action	Purpose
Step 4	rmon collection statistics <i>collection_control_index</i> [owner word] Example: Device(config-if)# rmon collection statistics 230 owner ownerA	Enables Ethernet statistics collection for the interface.
Step 5	end Example: Device(config-if)# end	Exits interface configuration mode and returns to privileged EXEC mode.
Step 6	show rmon statistics Example: Device# show rmon statistics	Displays the RMON Ethernet statistics collection.
Step 7	show rmon statistics history Example: Device# show rmon statistics history	Displays the history of RMON Ethernet statistics collection.

Configuration Examples for RMON Full

Example: Configuring RMON Event and Alarm Notifications

For examples to configure Remote Network Monitoring (RMON) events and alarms, see [Configuration Examples for RMON Events and Alarms](#).

Example: Configuring RMON History Notifications

The following example shows how to create the Remote Network Monitoring (RMON) etherHistoryTable by using the **rmon collection history** interface configuration mode:

```
Device> enable
Device# configure terminal
Device(config)# interface GigabitEthernet0/1
Device(config-if)# rmon collection history 234 buckets 100 interval 120 owner ownerA
```

The following example shows how to display the RMON history table entries. The user ownerA owns the row that is created in the history table by the **show rmon history** command:

```
Device# show rmon history
```

```
Event 234 is active, owned by ownerA
Monitors ifIndex.10101 every 120 second(s)
Requested # of time intervals, ie buckets, is 100,
Sample # 1 began measuring at 18:30:00
  Received 156770403980 octets, 3271310513 packets,
    0 broadcast and 0 multicast packets,
    0 undersized and 0 oversized packets,
    0 fragments and 0 jabbers,
    0 CRC alignment errors and 0 collisions,
  # of dropped packet events is 1
  Network utilization is estimated at 40
Sample # 2 began measuring at 18:31:30
.
.
.
```

Example: Configuring RMON Statistics Notifications

The following example shows how to create the RMON etherStatsTable by using the **rmon collection stats** interface configuration mode:

```
Device> enable
Device# configure terminal
Device(config)# interface GigabitEthernet0/1
Device(config-if)# rmon collection stats 243 owner ownerA
```

The user ownerA owns the row that is created in the statistics table from the **show rmon statistics** command. The following example displays the RMON statistics table entries:

```
Device# show rmon statistics

Collection 243 on GigabitEthernet0/1 is active, and owned by ownerA,
Monitors ifIndex.10101 which has
  Received 147440403980 octets, 2171310513 packets,
    0 broadcast and 2119132787 multicast packets,
    0 undersized and 0 oversized packets,
    0 fragments and 0 jabbers,
    1 CRC alignment errors and 0 collisions.
  # of dropped packet events (due to lack of resources): 0
  # of packets received of length (in octets):
    64: 0, 65-127: 52177118, 128-255: 0,
    256-511: 0, 512-1023: 0, 1024-1518:0
```

Additional References for RMON Full

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Command List, All Releases
RMON Full commands	Cisco IOS RMON Support Command Reference

Standards and RFCs

Standard/RFC	Title
RFC 1757	<i>Remote Network Monitoring Management Information Base</i>
RFC 3434	<i>Remote Monitoring MIB Extensions for High Capacity Alarms</i>

MIBs

MIB	MIBs Link
<ul style="list-style-type: none"> • RMON-MIB • HC-ALARM-MIB 	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Configuring RMON Full

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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

Table 4: Feature Information for Configuring RMON Full

Feature Name	Releases	Feature Information
RMON Full	15.4(1)S	<p>The RMON Full feature provides support for the RMON Alarm group, the RMON Events group, the RMON History group, and the RMON Statistics group.</p> <p>This feature was introduced on Cisco ASR 1000 Series Routers.</p> <p>The following commands are introduced or modified by this feature: interface, rmon collection history, show rmon history, rmon collection statistics, show rmon statistics, show rmon statistics history.</p>

