

RMON commands

This chapter contains the following sections:

- rmon alarm, on page 2
- show rmon alarm-table, on page 4
- show rmon alarm, on page 5
- rmon event, on page 7
- show rmon events, on page 8
- show rmon log, on page 9
- rmon table-size, on page 10
- show rmon statistics, on page 11
- rmon collection stats , on page 13
- show rmon collection stats, on page 14
- show rmon history, on page 15

rmon alarm

To configure alarm conditions, use the **rmon alarm** Global Configuration modecommand. To remove an alarm, use the **no** form of this command.

Syntax

rmon alarm *index mib-object-id interval rising-threshold falling-threshold rising-event falling-event [***type** *{***absolute** | **delta***}] [***startup** *{***rising** | **rising-falling** | **falling***}] [***owner** *name]*

no rmon alarm *index*

Parameters

- **index**—Specifies the alarm index. (Range: 1–65535)
- **mib-object-id**—Specifies the object identifier of the variable to be sampled. (Valid OID)
- **interval**—Specifies the interval in seconds during which the data is sampled and compared with rising and falling thresholds. (Range: 1–2147483647)
- **rising-threshold**—Specifies the rising threshold value. (Range: 0–2147483647)
- **falling-threshold**—Specifies the falling threshold value. (Range: 0–2147483647)
- **rising-event**—Specifies the index of the event triggered when a rising threshold is crossed. (Range: 0–65535)
- **falling-event**—Specifies the index of the event triggered when a falling threshold is crossed. (Range: 0–65535)
- **type** {**absolute** | **delta**}—(Optional) Specifies the method used for sampling the selected variable and calculating the value to be compared against the thresholds. The possible values are:

  absolute—Specifies that the selected variable value is compared directly with the thresholds at the end of the sampling interval.

  delta—Specifies that the selected variable value of the last sample is subtracted from the current value, and the difference is compared with the thresholds.
- **startup** {**rising** | **rising-falling** | **falling**}—(Optional) Specifies the alarm that may be sent when this entry becomes valid. The possible values are:

  rising—Specifies that if the first sample (after this entry becomes valid) is greater than or equal to **rising-threshold**, a single rising alarm is generated.

  rising-falling—Specifies that if the first sample (after this entry becomes valid) is greater than or equal to ***rising-threshold***, a single rising alarm is generated. If the first sample (after this entry becomes valid) is less than or equal to **falling-threshold**, a single falling alarm is generated.

  falling —Specifies that if the first sample (after this entry becomes valid) is less than or equal to **falling-threshold**, a single falling alarm is generated.
- **owner** *name*—(Optional) Specifies the name of the person who configured this alarm. (Valid string)

Default Configuration

The default method type is **absolute**.

The default **startup** direction is **rising-falling**.

If the owner **name** is not specified, it defaults to an empty string.

Command Mode

Global Configuration mode

Example

The following example configures an alarm with index 1000, MIB object ID D-Link, sampling interval 360000 seconds (100 hours), rising threshold value 1000000, falling threshold value 1000000, rising threshold event index 10, falling threshold event index 10, absolute method type and rising-falling alarm.

```
switchxxxxxx(config#  rmon alarm 1000 1.3.6.1.2.1.2.2.1.10.1 360000 1000000 1000000 10 20
```

show rmon alarm-table

To display a summary of the alarms table, use the **show rmon alarm-table** Privileged EXEC mode command.

Syntax

show rmon alarm-table

Parameters

This command has no arguments or keywords.

Command Mode

Privileged EXEC mode

Example

The following example displays the alarms table.

```
switchxxxxxx#  show rmon alarm-table

Index       OID                       Owner
-----       ----------------------    -------
1           1.3.6.1.2.1.2.2.1.10.1    CLI
2           1.3.6.1.2.1.2.2.1.10.1    Manager
3           1.3.6.1.2.1.2.2.1.10.9    CLI
```

The following table describes the significant fields shown in the display:

Field	Description
Index	An index that uniquely identifies the entry.
OID	Monitored variable OID.
Owner	The entity that configured this entry.

show rmon alarm

To display alarm configuration, use the **show rmon alarm** Privileged EXEC mode command.

Syntax

show rmon alarm *number*

Parameters

alarm *number*—Specifies the alarm index. (Range: 1–65535)

Command Mode

Privileged EXEC mode

Example

The following example displays RMON 1 alarms.

```
switchxxxxxx#  show rmon alarm 1
Alarm 1
-------
OID: 1.3.6.1.2.1.2.2.1.10.1
Last sample Value: 878128
Interval: 30
Sample Type: delta
Startup Alarm: rising
Rising Threshold: 8700000
Falling Threshold: 78
Rising Event: 1
Falling Event: 1
Owner: CLI
```

The following table describes the significant fields shown in the display:

Field	Description
Alarm	Alarm index.
OID	Monitored variable OID.
Last Sample Value	Value of the statistic during the last sampling period. For example, if the sample type is **delta**, this value is the difference between the samples at the beginning and end of the period. If the sample type is **absolute**, this value is the sampled value at the end of the period.
Interval	Interval in seconds over which the data is sampled and compared with the rising and falling thresholds.
Sample Type	Method of sampling the variable and calculating the value compared against the thresholds. If the value is **absolute**, the variable value is compared directly with the thresholds at the end of the sampling interval. If the value is **delta**, the variable value at the last sample is subtracted from the current value, and the difference is compared with the thresholds.

Field	Description
Startup Alarm	Alarm that is sent when this entry is first set. If the first sample is greater than or equal to the rising threshold, and startup alarm is equal to rising or rising-falling, then a single rising alarm is generated. If the first sample is less than or equal to the falling threshold, and startup alarm is equal falling or rising-falling, then a single falling alarm is generated.
Rising Threshold	Sampled statistic rising threshold. When the current sampled value is greater than or equal to this threshold, and the value at the last sampling interval is less than this threshold, a single event is generated.
Falling Threshold	Sampled statistic falling threshold. When the current sampled value is less than or equal to this threshold, and the value at the last sampling interval is greater than this threshold, a single event is generated.
Rising Event	Event index used when a rising threshold is crossed.
Falling Event	Event index used when a falling threshold is crossed.
Owner	Entity that configured this entry.

rmon event

To configure an event, use the **rmon event** Global Configuration modecommand. To remove an event, use the **no** form of this command.

Syntax

rmon event *index {***none** | **log** | **trap** | **log-trap***} [***community** *text] [***description** *text] [***owner** *name]*

no rmon event *index*

Parameters

- **index**—Specifies the event index. (Range: 1–65535)
- **none**— Specifies that no notification is generated by the device for this event.
- **log**—Specifies that a notification entry is generated in the log table by the device for this event.
- **trap**—Specifies that an SNMP trap is sent to one or more management stations by the device for this event.
- **log-trap**—Specifies that an entry is generated in the log table and an SNMP trap is sent to one or more management stations by the device for this event.
- **community text**—(Optional) Specifies the SNMP community (password) used when an SNMP trap is sent. (Octet string; length: 0–127 characters). Note this must be a community used in the definition of an SNMP host using the “snmp-server host” command.
- **description text**—(Optional) Specifies a comment describing this event. (Length: 0–127 characters)
- **owner name**—(Optional) Specifies the name of the person who configured this event. (Valid string)

Default Configuration

If the owner name is not specified, it defaults to an empty string.

Command Mode

Global Configuration mode

Example

The following example configures an event identified as index 10, for which the device generates a notification in the log table.

```
switchxxxxxx(config)#  rmon event 10 log
```

show rmon events

To display the RMON event table, use the **show rmon events** Privileged EXEC mode command.

Syntax

show rmon events

Parameters

This command has no arguments or keywords.

Command Mode

Privileged EXEC mode

Example

The following example displays the RMON event table.

```
switchxxxxxx#  show rmon events

Index   Description    Type      Community   Owner     Last time sent
-----1  ----------Errors ------Log ---------  ------    ------------------
2       High Broadcast Log       router      CLI       Jan 18 2006 23:58:17
                       Trap                  Manager   Jan 18 2006 23:59:48
```

The following table describes significant fields shown in the display:

Field	Description
Index	Unique index that identifies this event.
Description	Comment describing this event.
Type	Type of notification that the device generates about this event. Can have the following values: **none**, **log**, **trap**, **log-trap**. In the case of log, an entry is made in the log table for each event. In the case of trap, an SNMP trap is sent to one or more management stations.
Community	If an SNMP trap is to be sent, it is sent with the SNMP community string specified by this octet string.
Owner	The entity that configured this event.
Last time sent	The time this entry last generated an event. If this entry has not generated any events, this value is zero.

show rmon log

To display the RMON log table, use the **show rmon log** Privileged EXEC mode command.

Syntax

show rmon log [*event*]

Parameters

event—(Optional) Specifies the event index. (Range: 0–65535)

Command Mode

Privileged EXEC mode

Example

The following example displays event 1 in the RMON log table.

```
switchxxxxxx#  show rmon log 1
Maximum table size: 500 (800 after reset)

Event          Description                 Time
-----          --------------              -------------------
1              MIB Var.:                   Jan 18 2006 23:48:19
               1.3.6.1.2.1.2.2.1.10.53,
               Delta, Rising, Actual Val:
                800, Thres.Set: 100,
               Interval (sec):1
```

rmon table-size

To configure the maximum size of RMON tables, use the **rmon table-size** Global Configuration modecommand. To return to the default size, use the no form of this command.

Syntax

rmon table-size *{***history** *entries* | **log** *entries*}

no rmon table-size *{***history** | **log***}*

Parameters

- **history** *entries*—Specifies the maximum number of history table entries. (Range: 20–32767)
- **log** *entries*—Specifies the maximum number of log table entries. (Range: 20–32767)

Default Configuration

The default history table size is 270 entries.

The default log table size is 200 entries.

Command Mode

Global Configuration mode

User Guidelines

The configured table size takes effect after the device is rebooted.

Example

The following example configures the maximum size of RMON history tables to 100 entries.

```
switchxxxxxx(config)#  rmon table-size history 100
```

show rmon statistics

To display RMON Ethernet statistics, use the **show rmon statistics** Privileged EXEC mode command.

Syntax

show rmon statistics *{interface-id}*

Parameters

interface-id—Specifies an interface ID. The interface ID can be one of the following types: Ethernet port or Port-channel.

Command Mode

Privileged EXEC mode

Example

The following example displays RMON Ethernet statistics for port gi1/0/1.

```
switchxxxxxx#  show rmon statistics gi1/0/1
Port gi1/0/1
Dropped: 0
Octets: 0                       Packets: 0
Broadcast: 0                    Multicast: 0
CRC Align Errors: 0             Collisions: 0
Undersize Pkts: 0               Oversize Pkts: 0
Fragments: 0                    Jabbers: 0
64 Octets: 0                    65 to 127 Octets: 1
128 to 255 Octets: 1            256 to 511 Octets: 1
512 to 1023 Octets: 0           1024 to max Octets: 0
```

The following table describes the significant fields displayed.

Field	Description
Dropped	Total number of events in which packets were dropped by the probe due to lack of resources. Note that this number is not necessarily the number of packets dropped. It is the number of times this condition was detected.
Octets	Total number of octets of data (including those in bad packets) received on the network (excluding framing bits but including FCS octets).
Packets	Total number of packets (including bad packets, broadcast packets, and multicast packets) received.
Broadcast	Total number of good packets received and directed to the broadcast address. This does not include multicast packets.
Multicast	Total number of good packets received and directed to a multicast address. This number does not include packets directed to the broadcast address.

Field	Description
CRC Align Errors	Total number of packets received with a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets, inclusive, but with either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).
Collisions	Best estimate of the total number of collisions on this Ethernet segment.
Undersize Pkts	Total number of packets received, less than 64 octets long (excluding framing bits, but including FCS octets) and otherwise well formed.
Oversize Pkts	Total number of packets received, longer than 1518 octets (excluding framing bits, but including FCS octets) and otherwise well formed.
Fragments	Total number of packets received, less than 64 octets in length (excluding framing bits but including FCS octets) and either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).
Jabbers	Total number of packets received, longer than 1518 octets (excluding framing bits, but including FCS octets), and either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).
64 Octets	Total number of packets (including bad packets) received that are 64 octets in length (excluding framing bits but including FCS octets).
65 to 127 Octets	Total number of packets (including bad packets) received that are between 65 and 127 octets in length inclusive (excluding framing bits but including FCS octets).
128 to 255 Octets	Total number of packets (including bad packets) received that are between 128 and 255 octets in length inclusive (excluding framing bits but including FCS octets).
256 to 511 Octets	Total number of packets (including bad packets) received that are between 256 and 511 octets in length inclusive (excluding framing bits but including FCS octets).
512 to 1023 Octets	Total number of packets (including bad packets) received that were between 512 and 1023 octets in length inclusive (excluding framing bits but including FCS octets).
1024 to max	Total number of packets (including bad packets) received that were between 1024 octets and the maximum frame size in length inclusive (excluding framing bits but including FCS octets).

rmon collection stats

To enable RMON MIB collecting history statistics (in groups) on an interface, use the **rmon collection stats** Interface Configuration mode command. To remove a specified RMON history group of statistics, use the **no** form of this command.

Syntax

rmon collection stats index *[***owner** *ownername] [***buckets** *bucket-number] [***interval** *seconds]*

no rmon collection stats *index*

Parameters

- **index**—The requested group of statistics index.(Range: 1–65535)
- **owner** *ownername*—(Optional) Records the name of the owner of the RMON group of statistics. If unspecified, the name is an empty string. (Range: Valid string)
- **buckets** *bucket-number*—(Optional) A value associated with the number of buckets specified for the RMON collection history group of statistics. If unspecified, defaults to 50.(Range: 1–50)
- **interval** *seconds*—(Optional) The number of seconds in each polling cycle. If unspecified, defaults to 1800 (Range: 1–3600).

Command Mode

Interface Configuration mode.

show rmon collection stats

To display the requested RMON history group statistics, use the **show rmon collection stats** Privileged EXEC mode command.

Syntax

show rmon collection stats *[interface-id]*

Parameters

interface-id—(Optional) Specifies an interface ID. The interface ID can be one of the following types: Ethernet port or Port-channel.

Command Mode

Privileged EXEC mode

Example

The following example displays all RMON history group statistics.

```
switchxxxxxx#  show rmon collection stats

Index   Interface   Interval   Requested   Granted   Owner
                               Samples     Samples
-----   ---------   --------   ---------   -------   -------
1       gi1/0/1     30         50          50        CLI
2       gi1/0/1     1800       50          50        Manager
```

The following table describes the significant fields shown in the display.

Field	Description
Index	An index that uniquely identifies the entry.
Interface	The sampled Ethernet interface.
Interval	The interval in seconds between samples.
Requested Samples	The requested number of samples to be saved.
Granted Samples	The granted number of samples to be saved.
Owner	The entity that configured this entry.

show rmon history

To display RMON Ethernet history statistics, use the **show rmon history** Privileged EXEC mode command.

Syntax

show rmon history *index {***throughput** | **errors** | **other***} [***period** *seconds*]

Parameters

- **index**—Specifies the set of samples to display. (Range: 1–65535)
- **throughput**—Displays throughput counters.
- **errors**—Displays error counters.
- **other**—Displays drop and collision counters.
- **period** *seconds*—(Optional) Specifies the period of time in seconds to display. (Range: 1–2147483647)

Command Mode

Privileged EXEC mode

Example

The following examples display RMON Ethernet history statistics for index 1:

```
switchxxxxxx#  show rmon history 1 throughput

Sample Set: 1                          Owner: CLI
Interface: gi1/0/1                     Interval: 1800
Requested samples: 50                  Granted samples: 50

Maximum table size: 500

Time                 Octets     Packets   Broadcast   Multicast   Util
-------------------- --------   -------   ---------   ---------   ----
Jan 18 2005 21:57:00 303595962  357568    3289        7287        19%
Jan 18 2005 21:57:30 287696304  275686    2789        5878        20%

switchxxxxxx#  show rmon history 1 errors

Sample Set: 1                          Owner: Me
Interface:gi1/0/1                      Interval: 1800
Requested samples: 50                  Granted samples: 50

Maximum table size: 500 (800 after reset)

Time                 CRC Align  Under      Oversize   Fragments   Jabbers
-------------------- -------    size       --------   ---------   ----
Jan 18 2005 21:57:00 1          -----      0          49          0
Jan 18 2005 21:57:30 1          1          0          27          0
                                1
```

```
switchxxxxxx#  show rmon history 1 other
```

```
Sample Set: 1                          Owner: Me
Interface: gi1/0/1                     Interval: 1800
Requested samples: 50                  Granted samples: 50
```

```
Maximum table size: 500
```

```
Time                    Dropped    Collisions
--------------------    ------     ----------
Jan 18 2005 21:57:00    3          0
Jan 18 2005 21:57:30    3          0
```

The following table describes significant fields shown in the display:

Field	Description
Time	Date and Time the entry is recorded.
Octets	Total number of octets of data (including those in bad packets and excluding framing bits but including FCS octets) received on the network.
Packets	Number of packets (including bad packets) received during this sampling interval.
Broadcast	Number of good packets received during this sampling interval that were directed to the broadcast address.
Multicast	Number of good packets received during this sampling interval that were directed to a multicast address. This number does not include packets addressed to the broadcast address.
Utilization	Best estimate of the mean physical layer network utilization on this interface during this sampling interval, in hundredths of a percent.
CRC Align	Number of packets received during this sampling interval that had a length (excluding framing bits but including FCS octets) between 64 and 1518 octets, inclusive, but had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).
Undersize	Number of packets received during this sampling interval that were less than 64 octets long (excluding framing bits but including FCS octets) and were otherwise well formed.
Oversize	Number of packets received during this sampling interval that were longer than 1518 octets (excluding framing bits but including FCS octets) but were otherwise well formed.
Fragments	Total number of packets received during this sampling interval that were less than 64 octets in length (excluding framing bits but including FCS octets) and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error), or a bad FCS with a non-integral number of octets (Alignment Error). It is normal for etherHistoryFragments to increment because it counts both runts (which are normal occurrences due to collisions) and noise hits.

Field	Description
Jabbers	Number of packets received during this sampling interval that were longer than 1518 octets (excluding framing bits but including FCS octets), and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).
Dropped	Total number of events in which packets were dropped by the probe due to lack of resources during this sampling interval. This number is not necessarily the number of packets dropped, it is the number of times this condition has been detected.
Collisions	Best estimate of the total number of collisions on this Ethernet segment during this sampling interval.