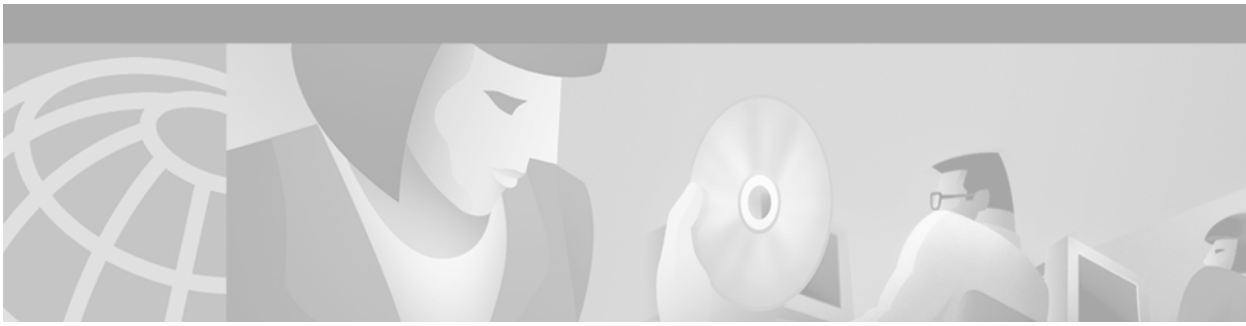

RMON Commands

This chapter describes commands used to monitor the router and network Remote Monitoring (RMON).

For system management configuration tasks and examples, refer to the "Configuring RMON Support" chapter in the Release 12.2 *Cisco IOS Configuration Fundamentals Configuration Guide*.

rmon

To enable Remote Monitoring (RMON) on an Ethernet interface, use the **rmon** interface configuration command. To disable RMON on the interface, use the **no** form of this command.

rmon {**native** | **promiscuous**}

no rmon

Syntax Description

native	Enables RMON on the Ethernet interface. In native mode, the router processes only packets destined for this interface.
promiscuous	Enables RMON on the Ethernet interface. In promiscuous mode, the router examines every packet.

Defaults

RMON is disabled on the interface.

Command Modes

Interface configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

This command enables RMON on Ethernet interfaces. A generic RMON console application is recommended in order to use the RMON network management capabilities. SNMP must also be configured. RMON provides visibility of individual nodal activity and allows you to monitor all nodes and their interaction on a LAN segment. When the **rmon** command is issued, the router automatically installs an Ethernet statistics study for the associated interface.

Note RMON can be very data and processor intensive. Users should measure usage effects to ensure that router performance is not degraded and to minimize excessive management traffic overhead. Native mode is less intensive than promiscuous mode.

All Cisco IOS software feature sets support RMON alarm and event groups. Additional RMON groups are supported in certain feature sets. Refer to the Release Notes for feature set descriptions. As a security precaution, support for the packet capture group allows capture of packet header information only; data payloads are not captured.

The RMON MIB is described in RFC 1757.

Examples

The following example enables RMON on Ethernet interface 0 and allows the router to examine only packets destined for the interface:

```
interface ethernet 0
 rmon native
```

Related Commands

Command	Description
rmon alarm	Sets an alarm on any MIB object.
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
rmon queuesize	Changes the size of the queue that holds packets for analysis by the RMON process.
show rmon	Displays the current RMON agent status on the router.

rmon alarm

To set an alarm on any MIB object, use the **rmon alarm** global configuration command. To disable the alarm, use the **no** form of this command.

rmon alarm *number variable interval* {**delta** | **absolute**} **rising-threshold** *value* [*event-number*] **falling-threshold** *value* [*event-number*] [**owner** *string*]

no rmon alarm *number*

Syntax Description

number	Alarm number, which is identical to the alarmIndex in the alarmTable in the Remote Monitoring (RMON) MIB.
variable	MIB object to monitor, which translates into the alarmVariable used in the alarmTable of the RMON MIB.
interval	Time in seconds the alarm monitors the MIB variable, which is identical to the alarmInterval used in the alarmTable of the RMON MIB.
delta	Tests the change between MIB variables, which affects the alarmSampleType in the alarmTable of the RMON MIB.
absolute	Tests each MIB variable directly, which affects the alarmSampleType in the alarmTable of the RMON MIB.
rising-threshold *value*	Value at which the alarm is triggered.
event-number	(Optional) Event number to trigger when the rising or falling threshold exceeds its limit. This value is identical to the alarmRisingEventIndex or the alarmFallingEventIndex in the alarmTable of the RMON MIB.
falling-threshold *value*	Value at which the alarm is reset.
owner *string*	(Optional) Specifies an owner for the alarm, which is identical to the alarmOwner in the alarmTable of the RMON MIB.

Defaults

No alarms configured

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

The MIB object must be specified as a dotted decimal value after the entry sequence (for example, ifEntry.10.1). You cannot specify the variable name and the instance (for example, ifInOctets.1) or the entire dotted decimal notation. The variable must be of the form entry.integer.instance.

To disable the RMON alarms, you must use the **no** form of the command on each configured alarm. For example, enter **no rmon alarm 1**, where the 1 identifies which alarm is to be removed.

See RFC 1757 for more information about the RMON alarm group.

Examples

The following example configures an RMON alarm using the **rmon alarm** command:

```
rmon alarm 10 ifEntry.20.1 20 delta rising-threshold 15 1 falling-threshold 0
     owner jjohnson
```

This example configures RMON alarm number 10. 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 include a log entry or a SNMP trap. If the *ifEntry.20.1* value changes by 0 (falling-threshold 0), the alarm is reset and can be triggered again.

Related Commands

Command	Description
rmon	Enables Remote Network Monitoring (RMON) on an Ethernet interface
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
show rmon	Displays the current RMON agent status on the router.

rmon capture-userdata

To disable the packet zeroing feature that initializes the user payload portion of each Remote Monitoring (RMON) MIB packet, use the **rmon capture-userdata** global configuration command. To enable packet zeroing, use the **no** form of this command.

rmon capture-userdata

no rmon capture-userdata

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.

Usage Guidelines

Use the **show rmon matrix** command to display RMON statistics.

Examples

The following command disables the packet zeroing feature:

```
rmon capture-userdata
```

Related Commands

Command	Description
rmon collection matrix	Enables a RMON MIB matrix group of statistics on an interface.

rmon collection history

To enable Remote Monitoring (RMON) MIB history group of statistics on an interface, use the **rmon collection history** interface configuration command. To remove a specified RMON history group of statistics, use the **no** form of this command.

rmon collection history {**controlEntry** *integer*} [**owner** *ownername*] [**buckets** *bucket-number*] [**interval** *seconds*]

no rmon collection history {**controlEntry** *integer*} [**owner** *ownername*] [**buckets** *bucket-number*] [**interval** *seconds*]

Syntax Description

controlEntry	Specifies the RMON group of statistics using a value.
integer	A value from 1 to 65535 that identifies the RMON group of statistics and matches the index value returned for Simple Network Management Protocol (SNMP) requests.
owner	(Optional) Specifies the name of the owner of the RMON group of statistics.
ownername	(Optional) Records the name of the owner of the RMON group of statistics.
buckets	(Optional) Specifies the maximum number of buckets desired for the RMON collection history group of statistics.
bucket-number	(Optional) A value associated with the number of buckets specified for the RMON collection history group of statistics.
interval	(Optional) Specifies the number of seconds in each polling cycle.
seconds	(Optional) The number of seconds in each polling cycle.

Defaults

No default behavior or values.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.

Usage Guidelines

Use the **show rmon capture** and **show rmon matrix** commands to display RMON statistics.

Examples

The following command enables an RMON MIB collection history group of statistics with an ID number of 20 and an owner of john:

```
rmon collection history controlEntry 20 owner john
```

Related Commands

Command	Description
show rmon capture	Displays the contents of the RMON capture table of the router.
show rmon matrix	Displays the RMON MIB matrix table.

rmon collection host

To enable a Remote Monitoring (RMON) MIB host collection group of statistics on the interface, use the **rmon collection host** interface configuration command. To remove the specified RMON host collection, use the **no** form of the command.

rmon collection host {**controlEntry** *integer*} [**owner** *ownername*]

no rmon collection host {**controlEntry** *integer*} [**owner** *ownername*]

Syntax Description

controlEntry	Specifies the RMON group of statistics using a value.
integer	A value from 1 to 65535 that identifies the RMON group of statistics and matches the index value returned for Simple Network Management Protocol (SNMP) requests.
owner	(Optional) Specifies the name of the owner of the RMON group of statistics.
ownername	(Optional) Records the name of the owner of the RMON group of statistics

Defaults

No default behavior or values.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.

Usage Guidelines

Use the **show rmon hosts** and **show rmon matrix** commands to display RMON statistics.

Examples

The following command enables an RMON collection host group of statistics with an ID number of 20 and an owner of john:

```
rmon collection host controlEntry 20 owner john
```

Related Commands

Command	Description
show rmon hosts	Displays the RMON MIB hosts table.
show rmon matrix	Displays the RMON MIB matrix table.

rmon collection matrix

To enable a Remote Monitoring (RMON) MIB matrix group of statistics on an interface, use the **rmon collection matrix** interface configuration command. To remove a specified RMON matrix group of statistics, use the **no** form of the command.

rmon collection matrix {**controlEntry** *integer*} [**owner** *ownername*]

no rmon collection matrix {**controlEntry** *integer*} [**owner** *ownername*]

Syntax Description

controlEntry	Specifies the RMON group of statistics using a value.
integer	A value between 1 and 65535 that identifies the RMON group of statistics and matches the index value returned for Simple Network Management Protocol (SNMP) requests.
owner	(Optional) Specifies the name of the owner of the RMON group of statistics.
ownername	(Optional) Records the name of the owner of the RMON group of statistics.

Defaults

No default behavior or values.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.

Usage Guidelines

Use the **show rmon matrix** command to display RMON statistics.

Examples

The following command enables the RMON collection matrix group of statistics with an ID number of 20 and an owner of john:

```
rmon collection matrix controlEntry 20 owner john
```

Related Commands

Command	Description
show rmon matrix	Displays the RMON MIB matrix table.

rmon collection rmon1

To enable all possible autoconfigurable Remote Monitoring (RMON) MIB statistic collections on the interface, use the **rmon collection rmon1** command in interface configuration mode. To disable these statistic collections on the interface, use the **no** form of the command.

rmon collection rmon1 {**controlEntry** *integer*} [**owner** *ownername*]

no rmon collection rmon1 {**controlEntry** *integer*} [**owner** *ownername*]

Syntax Description

controlEntry	Specifies the RMON group of statistics using a value.
integer	A value from 1 to 65535 that identifies the RMON group of statistics and matches the index value returned for Simple Network Management Protocol (SNMP) requests.
owner	(Optional) Specifies the name of the owner of the RMON group of statistics.
ownername	(Optional) Records the name of the owner of the RMON group of statistics.

Defaults

No default behavior or values.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.

Usage Guidelines

Use the **show rmon matrix** command to display RMON statistics.

Examples

The following command enables the RMON collection rmon1 group of statistics with an ID of 20 and an owner of john:

```
rmon collection rmon1 controlEntry 20 owner john
```

Related Commands

Command	Description
show rmon matrix	Displays the RMON MIB matrix table.

rmon event

To add or remove an event in the RMON event table that is associated with an RMON event number, use the **rmon event** global configuration command. To disable RMON on the interface, use the **no** form of this command.

rmon event *number* [**log**] [**trap** *community*] [**description** *string*] [**owner** *string*]

no rmon event *number*

Syntax Description

number	Assigned event number, which is identical to the eventIndex in the eventTable in the RMON MIB.
log	(Optional) Generates an RMON log entry when the event is triggered and sets the eventType in the RMON MIB to log or log-and-trap.
trap *community*	(Optional) SNMP community string used for this trap. Configures the setting of the eventType in the RMON MIB for this row as either snmp-trap or log-and-trap. This value is identical to the eventCommunityValue in the eventTable in the RMON MIB.
description *string*	(Optional) Specifies a description of the event, which is identical to the event description in the eventTable of the RMON MIB.
owner *string*	(Optional) Owner of this event, which is identical to the eventOwner in the eventTable of the RMON MIB.

Defaults

No events configured

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

This command applies only to the Cisco 2500 series and Cisco AS5200 series.

See RFC 1757 for more information about the RMON MIB.

Examples

The following example enables the **rmon event** command:

```
rmon event 1 log trap eventtrap description "High ifOutErrors" owner sdurham
```

This example configuration creates RMON event number 1, which is defined as High ifOutErrors, and generates a log entry when the event is triggered by an alarm. The user sdurham owns the row that is created in the event table by this command. This configuration also generates a Simple Network Management Protocol (SNMP) trap when the event is triggered.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
show rmon	Displays the current RMON agent status on the router.

rmon queuesize

To change the size of the queue that holds packets for analysis by the Remote Monitoring (RMON) process, use the **rmon queuesize** global configuration command. To restore the default value, use the **no** form of this command.

rmon queuesize *size*

no rmon queuesize

Syntax Description

size	Number of packets allowed in the queue awaiting RMON analysis. Default queue size is 64 packets.

Defaults

64 packets

Command Modes

Global configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

This command applies to the RMON function, which is available on Ethernet interfaces of Cisco 2500 series and Cisco AS5200 series routers only.

You might want to increase the queue size if the RMON function indicates it is dropping packets. You can determine this from the output of the **show rmon** command or from the etherStatsDropEvents object in the etherStats table. A feasible maximum queue size depends on the amount of memory available in the router and the configuration of the buffer pool.

Examples

The following example configures the RMON queue size to be 128 packets:

```
rmon queuesize 128
```

Related Commands

Command	Description
show rmon	Displays the current RMON agent status on the router.

show rmon

To display the current RMON agent status on the router, use the **show rmon** EXEC command.

show rmon [**alarms** | **capture** | **events** | **filter** | **history** | **hosts** | **matrix** | **statistics** | **task** | **topn**]

Syntax Description

alarms	(Optional) Displays the RMON alarm table.
capture	(Optional) Displays the RMON buffer capture table. Available on Cisco 2500 series and Cisco AS5200 series only.
events	(Optional) Displays the RMON event table.
filter	(Optional) Displays the RMON filter table. Available on Cisco 2500 series and Cisco AS5200 series only.
history	(Optional) Displays the RMON history table. Available on Cisco 2500 series and Cisco AS5200 series only.
hosts	(Optional) Displays the RMON hosts table. Available on Cisco 2500 series and Cisco AS5200 series only.
matrix	(Optional) Displays the RMON matrix table. Available on Cisco 2500 series and Cisco AS5200 series only.
statistics	(Optional) Displays the RMON statistics table. Available on Cisco 2500 series and Cisco AS5200 series only.
task	(Optional) Displays general RMON statistics. This is the default.
topn	(Optional) Displays the RMON top-n hosts table. Available on Cisco 2500 series and Cisco AS5200 series only.

Defaults

If no option is specified, the **task** option is displayed.

Command Modes

EXEC

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

Refer to the specific **show rmon** command for an example and description of the fields.

For additional information, refer to the RMON MIB described in RFC 1757.

Examples

The following is sample output from the **show rmon** command. All counters are from the time the router was initialized.

```
Router# show rmon

145678 packets input (34562 promiscuous), 0 drops
145678 packets processed, 0 on queue, queue utilization 15/64
```

Table 118 describes the fields shown in the display.

Table 118 show rmon Field Descriptions

Field	Description
x packets input	Number of packets received on RMON-enabled interfaces.
x promiscuous	Number of input packets that were seen by the router only because RMON placed the interface in promiscuous mode.
x drops	Number of input packets that could not be processed because the RMON queue overflowed.
x packets processed	Number of input packets actually processed by the RMON task.
x on queue	Number of input packets that are sitting on the RMON queue, waiting to be processed.
queue utilization *x*/*y*	*y* is the maximum size of the RMON queue; *x* is the largest number of packets that were ever on the queue at a particular time.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon alarm	Sets an alarm on any MIB object.
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
rmon queuesize	Changes the size of the queue that holds packets for analysis by the RMON process.
show rmon alarms	Displays the contents of the router's RMON alarm table.
show rmon capture	Displays the contents of the router's RMON capture table.
show rmon events	Displays the contents of the router's RMON event table.
show rmon filter	Displays the contents of the router's RMON filter table.
show rmon history	Displays the contents of the router's RMON history table.
show rmon hosts	Displays the contents of the router's RMON hosts table.
show rmon matrix	Displays the contents of the router's RMON matrix table.
show rmon statistics	Displays the contents of the router's RMON statistics table.
show rmon topn	Displays the contents of the router's RMON p-N host table.

show rmon alarms

To display the contents of the RMON alarm table of the router, use the **show rmon alarms** EXEC command.

show rmon alarms

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

For additional information, refer to the RMON MIB described in RFC 1757.

You must have first enabled RMON on the interface, and configured RMON alarms to display alarm information with the **show rmon alarms** command.

Examples

The following is sample output from the **show rmon alarms** command:

```
Router# show rmon alarms

Alarm 2 is active, owned by manager1
 Monitors ifEntry.1.1 every 30 seconds
 Taking delta samples, last value was 0
 Rising threshold is 15, assigned to event 12
 Falling threshold is 0, assigned to event 0
 On startup enable rising or falling alarm
```

Table 119 describes the fields shown in the display.

Table 119 show rmon alarms Field Descriptions

Field	Description
Alarm 2 is active, owned by manager1	Unique index into the alarmTable, showing the alarm status is active, and the owner of this row, as defined in the alarmTable of RMON.
Monitors ifEntry.1.1	Object identifier of the particular variable to be sampled. Equivalent to alarmVariable in RMON.
every 30 seconds	Interval in seconds over which the data is sampled and compared with the rising and falling thresholds. Equivalent to alarmInterval in RMON.
Taking delta samples	Method of sampling the selected variable and calculating the value to be compared against the thresholds. Equivalent to alarmSampleType in RMON.

Table 119 show rmon alarms Field Descriptions (continued)

Field	Description
last value was	Value of the statistic during the last sampling period. Equivalent to alarmValue in RMON.
Rising threshold is	Threshold for the sampled statistic. Equivalent to alarmRisingThreshold in RMON.
assigned to event	Index of the eventEntry that is used when a rising threshold is crossed. Equivalent to alarmRisingEventIndex in RMON.
Falling threshold is	Threshold for the sampled statistic. Equivalent to alarmFallingThreshold in RMON.
assigned to event	Index of the eventEntry that is used when a falling threshold is crossed. Equivalent to alarmFallingEventIndex in RMON.
On startup enable rising or falling alarm	Alarm that may be sent when this entry is first set to valid. Equivalent to alarmStartupAlarm in RMON.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon alarm	Sets an alarm on any MIB object.
show rmon	Displays the current RMON agent status on the router.

show rmon capture

To display the contents of the router's RMON capture table, use the **show rmon capture** EXEC command.

show rmon capture

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

For additional information, refer to the RMON MIB described in RFC 1757.

You must have first enabled RMON on the interface, and configured RMON alarms and events to display alarm information with the **show rmon capture** command.

This command is available on the Cisco 2500 series and Cisco AS5200 series only.

Examples

The following is sample output from the **show rmon capture** command:

```
Router# show rmon capture

Buffer 4096 is active, owned by manager1
 Captured data is from channel 4096
 Slice size is 128, download size is 128
 Download offset is 0
 Full Status is spaceAvailable, full action is lockWhenFull
 Granted 65536 octets out of 65536 requested
 Buffer has been on since 00:01:16, and has captured 1 packets
  Current capture buffer entries:
   Packet 1 was captured 416 ms since buffer was turned on
   Its length is 326 octets and has a status type of 0
   Packet ID is 634, and contains the following data:
00 00 0c 03 12 ce 00 00 0c 08 9d 4e 08 00 45 00
01 34 01 42 00 00 1d 11 e3 01 ab 45 30 15 ac 15
31 06 05 98 00 a1 01 20 9f a8 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00
```

Table 120 describes the fields shown in the display.

Table 120 show rmon capture Field Descriptions

Field	Description
Buffer 4096 is active	Equates to bufferControlIndex in the bufferControlTable of RMON. Uniquely identifies a valid (active) row in this table.
owned by manager1	Denotes the owner of this row. Equates to bufferControlOwner in the bufferControlTable of RMON.
Captured data is from channel	Equates to the bufferControlChannelIndex and identifies which RMON channel is the source of these packets.
Slice size is	Identifies the maximum number of octets of each packet that will be saved in this capture buffer. Equates to bufferControlCaptureSliceSize of RMON.
download size is	Identifies the maximum number of octets of each packet in this capture buffer that will be returned in an SNMP retrieval of that packet. Equates to bufferControlDownloadSliceSize in RMON.
Download offset is	Offset of the first octet of each packet in this capture buffer that will be returned in an SNMP retrieval of that packet. Equates to bufferControlDownloadOffset in RMON.
Full Status is spaceAvailable	Shows whether the buffer is full or has room to accept new packets. Equates to bufferControlFullStatus in RMON.
full action is lockWhenFull	Controls the action of the buffer when it reaches full status. Equates to bufferControlFullAction in RMON.
Granted 65536 octets	Actual maximum number of octets that can be saved in this capture buffer. Equates to bufferControlMaxOctetsGranted in RMON.
out of 65536 requested	Requested maximum number of octets to be saved in this capture buffer. Equates to bufferControlMaxOctetsRequested in RMON.
Buffer has been on since	Indicates how long the buffer has been available.
and has captured 1 packets	Number of packets captured since buffer was turned on. Equates to bufferControlCapturedPackets in RMON.
Current capture buffer entries:	Lists each packet captured.
Packet 1 was captured 416 ms since buffer was turned on Its length is 326 octets and has a status type of 0	Zero indicates the error status of this packet. Equates to captureBufferPacketStatus in RMON, where its value options are documented.
Packet ID is	Index that describes the order of packets received on a particular interface. Equates to captureBufferPacketID in RMON.
and contains the following data:	Data inside the packet, starting at the beginning of the packet.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon alarm	Sets an alarm on any MIB object.
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
show rmon	Displays the current RMON agent status on the router.

show rmon events

To display the contents of the router's RMON event table, use the **show rmon events** EXEC command.

show rmon events

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

For additional information, refer to the RMON MIB described in RFC 1757.

You must have first enabled RMON on the interface, and configured RMON events to display alarm information with the **show rmon events** command.

Examples

The following is sample output from the **show rmon events** command:

```
Router# show rmon events

Event 12 is active, owned by manager1
 Description is interface-errors
 Event firing causes log and trap to community rmonTrap, last fired 00:00:00
```

Table 121 describes the fields shown in the display.

Table 121 show rmon events Field Descriptions

Field	Description
Event 12 is active, owned by manager1	Unique index into the eventTable, showing the event status is active, and the owner of this row, as defined in the eventTable of RMON.
Description is interface-errors	Type of event, in this case an interface error.
Event firing causes log and trap	Type of notification that the router will make about this event. Equivalent to eventType in RMON.
community rmonTrap	If an SNMP trap is to be sent, it will be sent to the SNMP community specified by this octet string. Equivalent to eventCommunity in RMON.
last fired	Last time the event was generated.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
show rmon	Displays the current RMON agent status on the router.

show rmon filter

To display the contents of the router's RMON filter table, use the **show rmon filter** EXEC command.

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

For additional information, refer to the RMON MIB described in RFC 1757.

You must have first enabled RMON on the interface, and configured RMON alarms and events to display alarm information with the **show rmon filter** command.

This command is available on the Cisco 2500 series and Cisco AS5200 series only.

Examples

The following is sample output from the **show rmon filter** command:

```
Router# show rmon filter

Filter 4096 is active, and owned by manager1
 Data offset is 12, with
 Data of  08 00 00 00 00 00 00 00 00 00 00 00 00 ab 45 30 15 ac 15 31 06
 Data Mask is ff ff 00 00 00 00 00 00 00 00 00 00 00 ff ff ff ff ff ff ff ff
 Data Not Mask is 0
 Pkt status is 0, status mask is 0, not mask is 0
 Associated channel 4096 is active, and owned by manager1
 Type of channel is acceptFailed, data control is off
 Generate event index 0
 Event status is eventFired, # of matches is 1482
 Turn on event index is 0, turn off event index is 0
 Description:
```

Table 122 describes the fields shown in the display.

Table 122 show rmon filter Field Descriptions

Field	Description
Filter *x* is active, and owned by *y*	Unique index of the filter, its current state, and the owner, as defined in the filterTable of RMON.
Data offset is	Offset from the beginning of each packet where a match of packet data will be attempted. Equivalent to filterPktDataOffset in RMON.
Data of	Data that is to be matched with the input packet. Equivalent to filterPktData in RMON.

Table 122 show rmon filter Field Descriptions (continued)

Field	Description
Data Mask is	Mask that is applied to the match process. Equivalent to filterPktDataMask in RMON.
Data Not Mask is	Inversion mask that is applied to the match process. Equivalent to filterPktDataNotMask in RMON.
Pkt status is	Status that is to be matched with the input packet. Equivalent to filterPktStatus in RMON.
status mask is	Mask that is applied to the status match process. Equivalent to filterPktStatusMask in RMON.
not mask is	Inversion mask that is applied to the status match process. Equivalent to filterPktStatusNotMask in RMON.
Associated channel *x* is active, and owned by *y*	Unique index of the channel, its current state, and the owner, as defined in the channelTable of RMON.
Type of channel is {acceptMatched | acceptFailed}	This object controls the action of the filters associated with this channel. Equivalent to channelAcceptType of RMON.
data control is {off | on }	This object controls the flow of data through this channel. Equivalent to channelDataControl in RMON.
Generate event index 0	Value of this object identifies the event that is configured to be generated when the associated channelDataControl is on and a packet is matched. Equivalent to channelEventIndex in RMON.
Event status is eventFired	When the channel is configured to generate events when packets are matched, this message indicates the means of controlling the flow of those events. Equivalent to channelEventStatus in RMON.
# of matches is	Number of times this channel has matched a packet. Equivalent to channelMatches in RMON.
Turn on event index is	Value of this object identifies the event that is configured to turn the associated channelDataControl from off to on when the event is generated. Equivalent to channelTurnOnEventIndex in RMON.
Turn off event index is	Value of this object identifies the event that is configured to turn the associated channelDataControl from on to off when the event is generated. Equivalent to channelTurnOffEventIndex in RMON.
Description:	Comment describing this channel.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon alarm	Sets an alarm on any MIB object.
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
show rmon	Displays the current RMON agent status on the router.

show rmon history

To display the contents of the router's RMON history table, use the **show rmon history** EXEC command.

show rmon history

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

For additional information, refer to the RMON MIB described in RFC 1757.

You must have first enabled RMON on the interface, and configured RMON alarms and events to display alarm information with the **show rmon history** command.

This command is available on the Cisco 2500 series and Cisco AS5200 series only.

Examples

The following is sample output from the **show rmon history** command:

```
Router# show rmon history

Entry 1 is active, and owned by manager1
 Monitors ifEntry.1.1 every 30 seconds
 Requested # of time intervals, ie buckets, is 5
 Granted # of time intervals, ie buckets, is 5
  Sample # 14 began measuring at 00:11:00
   Received 38346 octets, 216 packets,
   0 broadcast and 80 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 0
   Network utilization is estimated at 10
```

Table 123 describes the fields shown in the display.

Table 123 show rmon history Field Descriptions

Field	Description
Entry 1 is active, and owned by manager1	Unique index of the history entry, its current state, and the owner as defined in the historyControlTable of RMON.
Monitors ifEntry.1.1	This object identifies the source of the data for which historical data was collected and placed in a media-specific table. Equivalent to historyControlDataSource in RMON.

Table 123 show rmon history Field Descriptions (continued)

Field	Description
every 30 seconds	Interval in seconds over which the data is sampled for each bucket in the part of the media-specific table associated with this historyControlEntry. Equivalent to historyControlInterval in RMON.
Requested # of time intervals, ie buckets, is	Requested number of discrete time intervals over which data is to be saved in the part of the media-specific table associated with this historyControlEntry. Equivalent to historyControlBucketsRequested in RMON.
Granted # of time intervals, ie buckets, is	Actual number of discrete time intervals over which data is to be saved in the part of the media-specific table associated with this historyControlEntry. Equivalent to historyControlBucketsGranted in RMON.
Sample # 14 began measuring at	Time at the start of the interval over which this sample was measured.
Received 38346 octets	Total number of octets of data (including those in bad packets) received on the network (excluding framing bits but including FCS octets). Equivalent to etherHistoryOctets in RMON.
x packets	Number of packets (including bad packets) received during this sampling interval. Equivalent to etherHistoryPkts in RMON.
x broadcast	Number of good packets received during this sampling interval that were directed to the broadcast address. Equivalent to etherHistoryBroadcastPkts in RMON.
x multicast packets	Number of good packets received during this sampling interval that were directed to a multicast address. Equivalent to etherHistoryMulticastPkts in RMON.
x undersized	Number of packets received during this sampling interval that were fewer than 64 octets long (excluding framing bits but including FCS octets) and were otherwise well formed. Equivalent to etherHistoryUndersizedPkts in RMON.
x oversized packets	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. Equivalent to etherHistoryOversizePkts in RMON.
x fragments	Total number of packets received during this sampling interval that were fewer 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 nonintegral number of octets (Alignment Error). Equivalent to etherHistoryFragments in RMON.

Table 123 show rmon history Field Descriptions (continued)

Field	Description
x 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 nonintegral number of octets (Alignment Error). Note that this definition of jabber is different than the definition in IEEE-802.3 section 8.2.1.5 (10BASE5) and section 10.3.1.4 (10BASE2). Equivalent to etherHistoryJabbers in RMON.
x CRC alignment errors	Number of packets received during this sampling interval that had a length (excluding framing bits but including FCS octets) from 64 to 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 nonintegral number of octets (Alignment Error). Equivalent to etherHistoryCRCAlignErrors in RMON.
x collisions	Best estimate of the total number of collisions on this Ethernet segment during this sampling interval. Equivalent to etherHistoryCollisions in RMON.
# of dropped packet events is	Total number of events in which packets were dropped by the operation because of resources during this sampling interval. Note that this number is not necessarily the number of packets dropped, it is just the number of times this condition has been detected. Equivalent to etherHistoryDropEvents in RMON.
Network utilization is estimated at	Best estimate of the mean physical-layer network usage on this interface during this sampling interval, in hundredths of a percent. Equivalent to etherHistoryUtilization in RMON.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon alarm	Sets an alarm on any MIB object.
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
show rmon	Displays the current RMON agent status on the router.

show rmon hosts

To display the contents of the router's RMON hosts table, use the **show rmon hosts** EXEC command.

show rmon hosts

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

You must have first enabled RMON on the interface, and configured RMON alarms and events to display alarm information with the **show rmon hosts** command.

This command is available on the Cisco 2500 series and Cisco AS5200 series only.

For additional information, refer to the RMON MIB described in RFC 1757.

Examples

The following is sample output from the **show rmon hosts** command:

```
Router# show rmon hosts

Host Control Entry 1 is active, and owned by manager1
 Monitors host ifEntry.1.1
 Table size is 51, last time an entry was deleted was 00:00:00
  Creation Order number is 1
   Physical address is 0000.0c02.5808
   Packets: rcvd 6963, transmitted 7041
   Octets: rcvd 784062, transmitted 858530
   # of packets transmitted: broadcast 28, multicast 48
   # of bad packets transmitted is 0
```

Table 124 describes the fields shown in the display.

Table 124 show rmon hosts Field Descriptions

Field	Description
Host Control Entry 1 is active, and owned by manager1	Unique index of the host entry, its current state, and the owner as defined in the hostControlTable of RMON.
Monitors host ifEntry.1.1	This object identifies the source of the data for this instance of the host function. Equivalent to hostControlDataSource in RMON.
Table size is	Number of hostEntries in the hostTable and the hostTimeTable associated with this hostControlEntry. Equivalent to hostControlTableSize in RMON.

Table 124 show rmon hosts Field Descriptions (continued)

Field	Description
last time an entry was deleted was	Time when the last entry was deleted from the hostTable.
Creation Order number is	Index that defines the relative ordering of the creation time of hosts captured for a particular hostControlEntry. Equivalent to hostCreationOrder in RMON.
Physical address is	Physical address of this host. Equivalent to hostAddress in RMON.
Packets: rcvd	Number of good packets transmitted to this address. Equivalent to hostInPkts in RMON.
transmitted	Number of packets, including bad packets transmitted by this address. Equivalent to hostOutPkts in RMON.
Octets: rcvd	Number of octets transmitted to this address since it was added to the hostTable (excluding framing bits but including FCS octets), except for those octets in bad packets. Equivalent to hostInOctets in RMON.
transmitted	Number of octets transmitted by this address since it was added to the hostTable (excluding framing bits but including FCS octets), including those octets in bad packets. Equivalent to hostOutOctets in RMON.
# of packets transmitted:	Number of good packets transmitted by this address that were broadcast or multicast.
# of bad packets transmitted is	Number of bad packets transmitted by this address.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon alarm	Sets an alarm on any MIB object.
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
show rmon	Displays the current RMON agent status on the router.

show rmon matrix

To display the contents of the router's RMON matrix table, use the **show rmon matrix** EXEC command.

show rmon matrix

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

You must have first enabled RMON on the interface, and configured RMON alarms and events to display alarm information with the **show rmon matrix** command.

This command is available on the Cisco 2500 series and Cisco AS5200 series only.

For additional information, refer to the RMON MIB described in RFC 1757.

Examples

The following is sample output from the **show rmon matrix** command:

```
Router# show rmon matrix

Matrix 1 is active, and owned by manager1
 Monitors ifEntry.1.1
 Table size is 451, last time an entry was deleted was at 00:00:00
```

Table 125 describes the fields shown in the display.

Table 125 show rmon matrix Field Descriptions

Field	Description
Matrix 1 is active, and owned by manager1	Unique index of the matrix entry, its current state, and the owner as defined in the matrixControlTable of RMON.
Monitors ifEntry.1.1	This object identifies the source of the data for this instance of the matrix function. Equivalent to matrixControlDataSource in RMON.
Table size is 451, last time an entry was deleted was at	Size of the matrix table and the time that the last entry was deleted.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon alarm	Sets an alarm on any MIB object.

Command	Description
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
show rmon	Displays the current RMON agent status on the router.

show rmon statistics

To display the contents of the router's RMON statistics table, use the **show rmon statistics** EXEC command.

show rmon statistics

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

For additional information, refer to the RMON MIB described in RFC 1757.

You must have first enabled RMON on the interface, and configured RMON alarms and events to display alarm information with the **show rmon statistics** command.

This command is available on the Cisco 2500 series and Cisco AS5200 series only.

Examples

The following is sample output from the **show rmon statistics** command:

```
Router# show rmon statistics

Interface 1 is active, and owned by config
 Monitors ifEntry.1.1 which has
 Received 60739740 octets, 201157 packets,
 1721 broadcast and 9185 multicast packets,
 0 undersized and 0 oversized packets,
 0 fragments and 0 jabbers,
 0 CRC alignment errors and 32 collisions.
 # of dropped packet events (due to lack of resources): 511
 # of packets received of length (in octets):
  64: 92955, 65-127: 14204, 128-255: 1116,
  256-511: 4479, 512-1023: 85856, 1024-1518:2547
```

Table 126 describes the fields shown in the display.

Table 126 show rmon statistics Field Descriptions

Field	Description
Interface 1 is active, and owned by config	Unique index of the statistics entry, its current state, and the owner as defined in the etherStatsTable of RMON.
Monitors ifEntry.1.1	This object identifies the source of the data that this etherStats entry is configured to analyze. Equivalent to etherStatsDataSource in RMON.

Table 126 show rmon statistics Field Descriptions (continued)

Field	Description
Received 60739740 octets	Total number of octets of data (including those in bad packets) received on the network (excluding framing bits but including FCS octets). Equivalent to etherStatsOctets in RMON.
x packets	Number of packets (including bad packets) received. Equivalent to etherStatsPkts in RMON.
x broadcast	Number of good packets received that were directed to the broadcast address. Equivalent to etherStatsBroadcastPkts in RMON.
x multicast packets	Number of good packets received that were directed to a multicast address. Equivalent to etherStatsMulticastPkts in RMON.
x undersized	Number of packets received that were fewer than 64 octets long (excluding framing bits but including FCS octets) and were otherwise well formed. Equivalent to etherStatsUndersizedPkts in RMON.
x oversized packets	Number of packets received that were longer than 1518 octets (excluding framing bits but including FCS octets) but were otherwise well formed. Equivalent to etherStatsOversizePkts in RMON.
x fragments	Total number of packets received that were fewer 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 nonintegral number of octets (Alignment Error). Equivalent to etherStatsFragments in RMON.
x jabbers	Number of packets received 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 nonintegral number of octets (Alignment Error). Note that this definition of jabber is different than the definition in IEEE-802.3 section 8.2.1.5 (10BASE5) and section 10.3.1.4 (10BASE2). Equivalent to etherStatsJabbers in RMON.
x CRC alignment errors	Number of packets received that had a length (excluding framing bits but including FCS octets) from 64 to 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 nonintegral number of octets (Alignment Error). Equivalent to etherStatsCRCAlignErrors in RMON.
x collisions	Best estimate of the total number of collisions on this Ethernet segment. Equivalent to etherHistoryCollisions in RMON.

Table 126 show rmon statistics Field Descriptions (continued)

Field	Description
# of dropped packet events (due to lack of resources):	Total number of events in which packets were dropped by the operation because of a lack of resources. Note that this number is not necessarily the number of packets dropped, it is just the number of times this condition has been detected. Equivalent to etherStatsDropEvents in RMON.
# of packets received of length (in octets):	Separates the received packets (good and bad) by packet size in the given ranges (64, 65 to 127,128 to 255, 256 to 511, 512 to 1023, 1024 to 1516).

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon alarm	Sets an alarm on any MIB object.
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
show rmon	Displays the current RMON agent status on the router.

show rmon topn

To display the contents of the router's RMON Top-N host table, use the **show rmon topn** EXEC command.

show rmon topn

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

For additional information, refer to the RMON MIB described in RFC 1757.

You must have first enabled RMON on the interface, and configured RMON events to display alarm information with the **show rmon events** command.

This command is available on the Cisco 2500 series and Cisco AS5200 series only.

Examples

The following is sample output from the **show rmon topn** command:

```
Router# show rmon topn

Host Entry 1 of report 1 is active, owned by manager1
 The rate of change is based on hostTopNInPkts
 This report was last started at 00:00:00
 Time remaining in this report is 0 out of 0
 Hosts physical address is 00ad.beef.002b
 Requested # of hosts: 10, # of hosts granted: 10
Report # 1 of Top N hosts entry 1 is recording
Host 0000.0c02.5808 at a rate of 12
```

Table 127 describes the fields shown in the display.

Table 127 show rmon topn Field Descriptions

Field	Description
Host Entry 1 of report 1 is active, owned by manager1	Unique index of the hostTopN entry, its current state, and the owner as defined in the hostTopNControlTable of RMON.
The rate of change is based on hostTopNInPkts	Variable for each host that the hostTopNRate variable is based on.
This report was last started at	Time the report was started.

Table 127 show rmon topn Field Descriptions (continued)

Field	Description
Time remaining in this report is	Number of seconds left in the report currently being collected. Equivalent to hostTopNTimeRemaining in RMON.
out of	Number of seconds that this report has collected during the last sampling interval, or if this report is currently being collected, the number of seconds that this report is being collected during this sampling interval. Equivalent to hostTopNDuration in RMON.
Hosts physical address is	Host address.
Requested # of hosts:	Maximum number of hosts requested for the Top-N table. Equivalent to hostTopNRequestedSize in RMON.
# of hosts granted:	Maximum number of hosts granted for the Top-N table.Eqivalent to hostTopNGrantedSiz in RMON.
Report # 1 of Top N hosts entry 1 is recording	Report number and entry.
Host 0000.0c02.5808 at a rate of	Physical address of the host, and the amount of change in the selected variable during this sampling interval. Equivalent to hostTopNAddress and hostTopNRate in RMON.

Related Commands

Command	Description
rmon	Enables RMON on an Ethernet interface.
rmon alarm	Sets an alarm on any MIB object.
rmon event	Adds or removes an event in the RMON event table that is associated with an RMON event number.
show rmon	Displays the current RMON agent status on the router.