Configure Remote Network Monitoring (RMON) Alarms on a Switch through the Command Line Interface (CLI)

Objective

Remote Network Monitoring (RMON) was developed by the Internet Engineering Task Force (IETF) to support monitoring and protocol analysis of Local Area Networks (LANs). It is a standard monitoring specification which enables different network monitors and console systems to exchange their network-monitoring data with each other. RMON allows you to choose among the network-monitoring probes and consoles with features that meet your particular networking needs. RMON specifically defines the information that any network monitoring system should be able to provide. Statistics, events, history, alarms, hosts, hosts top N, matrix, filter, capture, and token ring are the ten groups in RMON.

RMON alarms provide a mechanism for setting thresholds and sampling intervals to generate exception events on counters or any other Simple Network Management Protocol (SNMP) object counter maintained by the agent. Both the rising and falling thresholds must be configured in the alarm. After a rising threshold is crossed, no rising events are generated until the companion falling threshold is crossed. After a falling alarm is issued, the next alarm is issued when a rising threshold is crossed.

Note: To know how to configure SNMP trap settings on your switch, click here for instructions. For Command Line Interface (CLI)-based instructions, click here.

This article provides instructions on how to configure RMON alarms on your switch.

Note: To learn how to configure the RMON alarms through the web-based utility of your switch, click here.

Applicable Devices

- Sx300 Series
- Sx350 Series
- SG350X Series
- Sx500 Series
- Sx550X Series

Software Version

- 1.4.7.05 — Sx300, Sx500
- 2.2.8.4 — Sx350, SG350X, Sx550X

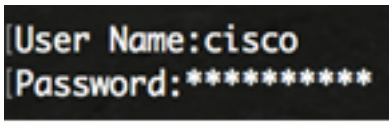
Configure RMON Alarms on the Switch through the CLI

Configure RMON Alarms

One or more alarms are bound to an event, which indicates the action to be taken when the alarm occurs. Before you configure the RMON alarms on your switch, make sure the RMON event control settings have been configured. To learn how, click here. For Command Line Interface (CLI)-based instructions, click here.

Follow these steps to configure RMON alarms on your switch.

Step 1. Log in to the switch console. The default username and password is cisco/cisco. If you have configured a new username or password, enter the credentials instead.



Note: In this example, the switch is accessed through Telnet.

Step 2. In the Privileged EXEC mode of the switch, enter the Global Configuration context by entering the following:

```
SG350X#configure
```

Step 3. Enter the rmon alarm command to configure a new event by entering the following:

```
SG350X#rmon alarm [index] [mib-object-id] [interval] [rising-threshold] [rising-event] [falling-event] [type {absolute | delta}] [startup {rising | rising-falling | falling}] [owner name]
```

The options are:

- index — Specifies the event index. The range is from 1 up to 65535.
- mib-object-id — Specifies the object identifier of the variable to be sampled. A valid Management Information Base (MIB) Object Identifier (OID) must be entered.
- interval — Specifies the interval in seconds during which the data is sampled and compared with rising and falling thresholds. The range is from 1to 2147483647.
- rising-threshold — Specifies the rising threshold value. The range is from 0 to 0 to 2147483647.
- falling-threshold — Specifies the falling threshold value. The range is from 0 to 0 to 2147483647.
- rising-event — Specifies the index of the event triggered when a rising threshold is crossed. The range is from 0 to 65535.
- falling-event — Specifies the index of the event triggered when a falling threshold is crossed. The range is from 0 to 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. This is the default method type.

  - 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. This is the default startup direction.

  - 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 event. If not specified, the owner name defaults to an empty string.

Note: In this example, the alarm index is 1 with a D-Link MIB object ID. The sampling interval is 60000 hours with 1000 rising threshold value, 100000 falling threshold value, rising threshold event index is 10, and the falling threshold event index is 20. The method type is absolute with rising-falling alarm, which are the default settings.

Step 4. (Optional) To remove an alarm, enter the following:

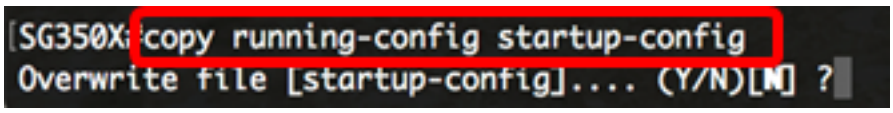
```
SG350X#no rmon alarm [index]
```

Step 5. Enter the **exit** command to go back to the Privileged EXEC mode of the switch.

```
SG350X#exit
```

Step 6. (Optional) In the Privileged EXEC mode of the switch, save the configured settings to the startup configuration file, by entering the following:

```
SG350X#copy running-config startup-config
```



Step 7. (Optional) Press **Y** for Yes or **N** for No on your keyboard once the Overwrite file [startup-config]… prompt appears.

```
SG350X#configure
SG350X(config)#rmon alarm 1 1.3.6.1.2.1.2.2.1.10.1 60000 10000 100000 10 20
SG350X(config)#exit
SG350X#copy running-config startup-config
Overwrite file [startup-config].... (Y/N)[N] ?Y
05-May-2017 08:05:23 %COPY-I-FILECPY: Files Copy - source URL running-config dest
ination URL flash://system/configuration/startup-config
05-May-2017 08:05:26 %COPY-N-TRAP: The copy operation was completed successfully

SG350X#
```

Note: In this example, Y is pressed.

You should now have successfully configured the RMON alarm settings on your switch through the CLI.

View RMON Alarms

Step 1. In the Privileged EXEC mode of the switch, enter the following to display the configured rmon alarm table on your switch:

```
SG350X#show rmon alarm-table
```

- Index — Unique index that identifies this event.
- OID — Monitored variable OID.
- Owner — The entity that configured this event.

```
SG350X#show rmon alarm-table

Index                   OID                                Owner
----- ---------------------------------- ----------------------
  1           1.3.6.1.2.1.2.2.1.10.1
  2           1.3.6.1.2.1.2.2.1.10.2                       cisco
  3           1.3.6.1.2.1.2.2.1.10.3                       cisco

SG350X#
```

Step 2. To display the RMON alarm configuration on a specific index on your switch, enter the following:

```
SG350X#show rmon alarm [index]
```

- index — Specifies the event index. The range is from 1 up to 65535.

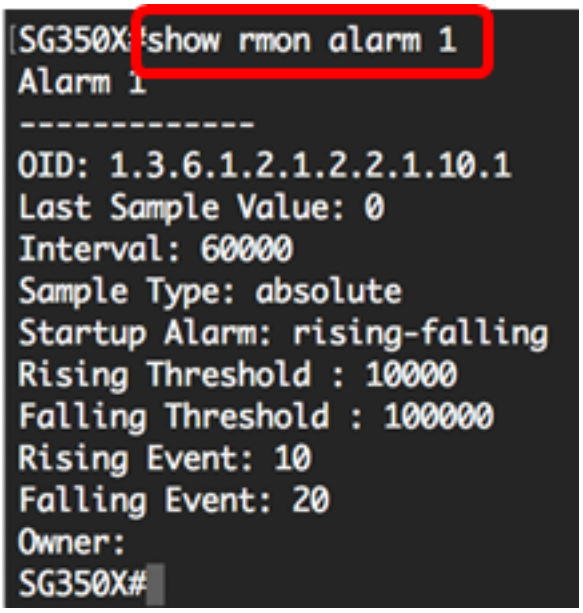
This table displays the following fields:

- Alarm — The specific alarm index.
- OID — Monitored variable OID.
- Last Sample Value — Value of the statistics 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.
- 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.

Note: In this example, RMON alarm 1 is used.



You should now have viewed the configured RMON alarms on your switch through the CLI.