Configure Remote Network Monitoring (RMON) History Control Settings 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 enables a Simple Network Management Protocol (SNMP) agent in the device to proactively monitor traffic statistics over a given period and send traps to an SNMP manager. The local SNMP agent compares actual, real-time counters against predefined thresholds and generates alarms, without the need for polling by a central SNMP management platform. This is an effective mechanism for proactive management, provided that you have set the correct thresholds relative to the base line of your network.

Note: To know how to configure SNMP trap settings through the web-based utility of your switch, click here. For Command Line Interface (CLI)-based instructions, click here.

You can create an RMON history entry for an interface to gather information about network traffic within that interface. This will allow you to store periodic statistical samples for later retrieval and analysis which can be helpful in managing the performance of the switch and specific interfaces.

This article provides instructions on how to configure RMON history control settings on your switch through the CLI.

Note: To learn how to configure the RMON history control settings 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

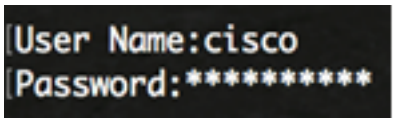
- 2.2.8.4 — Sx350, SG350X, Sx550X

Configure RMON History on the Switch through the CLI

Configure RMON Collection Stats

The RMON feature enables monitoring statistics per interface. RMON history defines the sampling frequency, amount of samples to store, and the port from which to gather the data. Follow the steps below to configure RMON history entries on your switch through the CLI.

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 SG350X switch is accessed through Telnet.

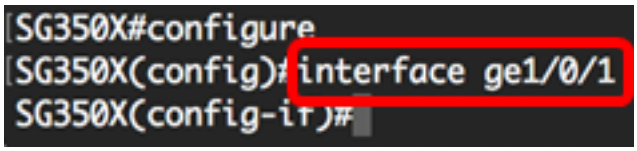
Step 2. In the Privileged EXEC mode of the switch, enter the Global Configuration context by entering the following:

```
SG350X#configure
```

Step 3. Enter the Interface Mode by entering the interface that you want to configure.

```
SG350X(config)#interface [interface-id]
```

Note: In this example, the interface used is ge1/0/1.



Step 4. To enable RMON Management Information Base (MIB) collecting history statistics in groups on an interface, enter the following:

```
SG350X(config-if)#rmon collection stats [index] [owner owner-name]
[buckets bucket-number] [interval seconds]
```

The options are:

- index — Specifies the event index. The range is from 1 up to 65535.
- owner name — (Optional) Specifies the name of the person who configured the RMON group of statistics. If not specified, the owner name defaults to an empty string.
- buckets bucket-number — (Optional) A value associated with the number of buckets specified for the RMON collection history group of statistics. If unspecified, the buckets default to 50. The range is from 1 to 50.
- interval seconds — Specifies the interval in seconds in each polling cycle. The range is

from 1 to 3600. If not specified, the interval defaults to 1800 seconds.



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 5. (Optional) To remove an alarm on a specific interface, enter the following:

```
SG350X(config-if)#no rmon collection stats [index]
```

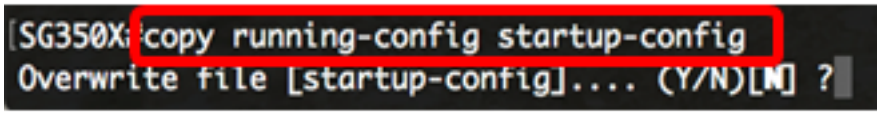
Step 6. Enter the **end** command to go back to the Privileged EXEC mode of the switch.

```
SG350X(config-if)#end
```

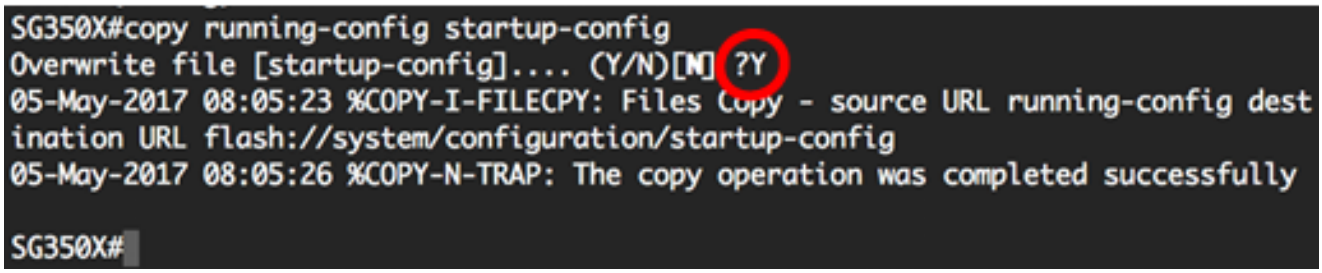


Step 7. (Optional) In the Privileged EXEC mode of the switch, save the configured settings to the startup configuration file, by entering the following:

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



Step 8. (Optional) Press **Y** for Yes or **N** for No on your keyboard once the Overwrite file [startup-config]… prompt appears.



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

Configure RMON Table Size

Step 1. In the Privileged EXEC mode of the switch, enter the Global Configuration context by

entering the following:

```
SG350X#configure
```

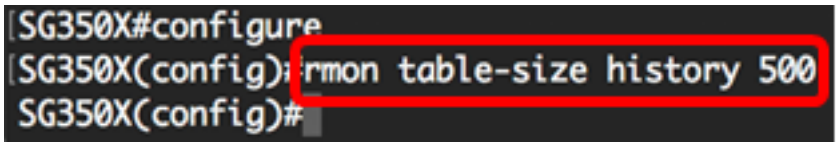
Step 2. To configure the maximum size of RMON history tables, enter the following:

```
SG350X(config)#rmon table-size [history entries | log entries]
```

The options are:

- history entries — Specifies the maximum number of history table entries. The range is from 20 up to 32767.
- log entries — Specifies the maximum number of log table entries. The range is from 20 up to 32767.

Note: In this example, the history table size is set to 500 entries.

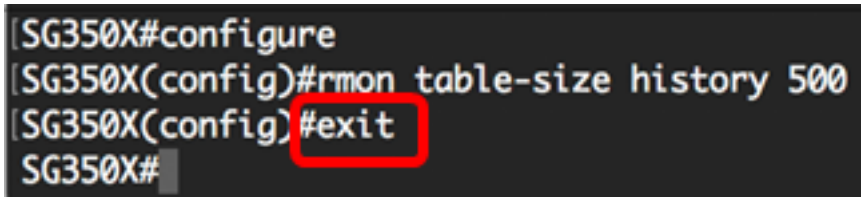


Step 3. (Optional) To return the table size to the default size, enter the following:

```
SG350X(config)#no rmon table-size [history | log]
```

Step 4. Enter the **exit** command to go back to the Privileged EXEC mode of the switch.

```
SG350X(config)#exit
```



Note: The configured RMON table size settings will take effect after the switch is rebooted. To learn how to manually reload or reset your switch through the CLI, click here.

You should now have successfully configured the RMON table size on your switch through the CLI.

View RMON History

After the data is sampled and stored, it appears in the RMON collection stats table.

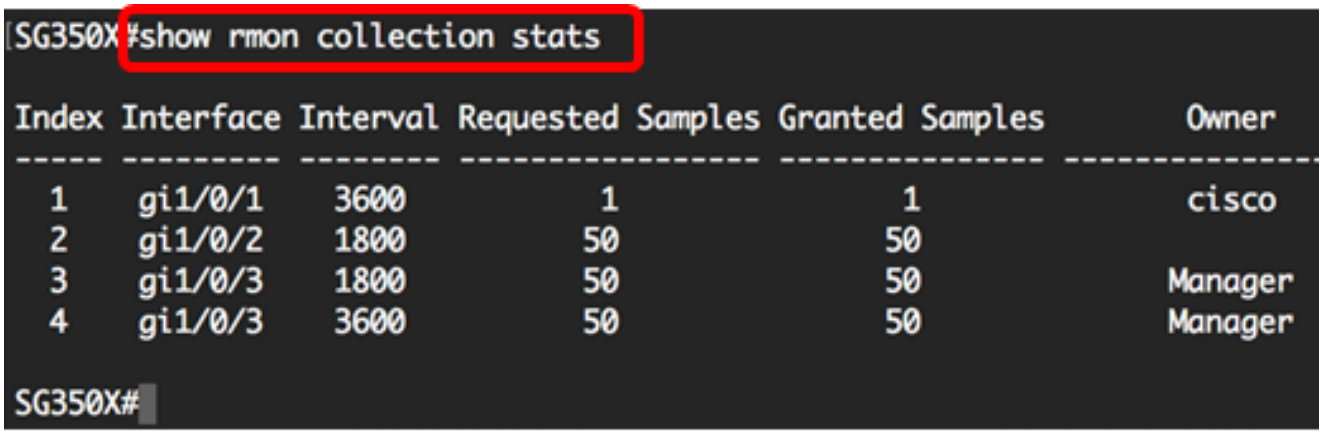
Step 1. In the Privileged EXEC mode of the switch, enter the following to display the requested RMON history group statistics on your switch:

```
SG350X#show rmon collection stats
```

The RMON collection stats table displays the following information:

- Index — The 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 the entry.

Note: In this example, the RMON collection stats table displays four history indexes which are configured in three interfaces.



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

```
SG350X#show rmon history [index-number] [throughput | errors | other]
[period seconds]
```

The options are:

- index — Specifies the set of samples to display. The range is from 1 up to 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. The range is from 1 up to 2147483647 seconds.

Note: In this example, the throughput for history index 1 is used over the period of 3200 seconds.

```
SG350X#show rmon history 1 throughput period 3200
Sample Set: 1                 Owner: cisco
Interface:  gi1/0/1              interval: 3600
Requested samples: 1          Granted samples: 1

Maximum table size: 300 (500 after reset)


        Time           Octets      Packets    Broadcast   Multicast   Util
-------------------- ---------- ---------- ---------- ---------- ------
09-May-2017 03:07:21   5153359      11558        150        2119      0.0

SG350X#
```

The RMON history table displays the following information for the chosen RMON history entry:

Throughput:

Note: In this example, history index 2 throughput is displayed.

```
SG350X#show rmon history 2 throughput
Sample Set: 2                 Owner:
Interface:  gi1/0/2              interval: 1800
Requested samples: 50         Granted samples: 50

Maximum table size: 300 (500 after reset)


        Time           Octets      Packets    Broadcast   Multicast   Util
-------------------- ---------- ---------- ---------- ---------- ------
09-May-2017 02:44:41        0           0          0          0      0.0
09-May-2017 03:14:41    12234          66          0         66      0.0
09-May-2017 03:44:41    16200          90          0         90      0.0
09-May-2017 04:14:41    16200          90          0         90      0.0
09-May-2017 04:44:41    16200          90          0         90      0.0

SG350X#
```

- 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.

Errors:

Note: In this example, data for history index 3 errors is displayed.

```
SG350X#show rmon history 3 errors
Sample Set: 3               Owner: Manager
Interface:  gi1/0/3            interval: 1800
Requested samples: 50       Granted samples: 50

Maximum table size: 300 (500 after reset)

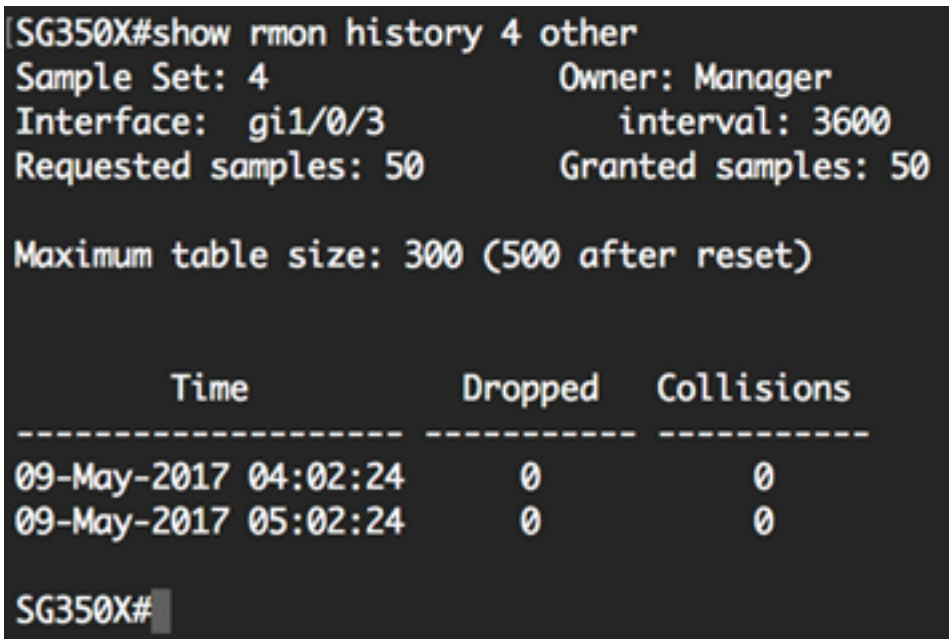

        Time          CRC Align   Undersize   Oversize    Fragments   Jabbers
-------------------- ---------- ---------- ---------- ---------- ---------
09-May-2017 02:45:09      0          0          0          0          0
09-May-2017 03:15:09      0          0          0          0          0
09-May-2017 03:45:09      0          0          0          0          0
09-May-2017 04:15:09      0          0          0          0          0
09-May-2017 04:45:09      0          0          0          0          0

SG350X#
```

- Time — Date and time the entry is recorded.
- 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.
- 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).

Other:

Note: In this example, other data for history index 4 is displayed.



- Time — Date and time the entry is recorded.
- 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.

You should now have viewed the configured RMON history control settings on your switch through the CLI.