



## Configuring RMON

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This chapter describes how to configure RMON on the Catalyst enterprise LAN switches.



**Note**

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For complete syntax and usage information for the commands used in this chapter, refer to the *Command Reference* publication for your switch.

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This chapter consists of these sections:

- Understanding How RMON Works, page 26-1
- Enabling RMON, page 26-2
- Viewing RMON Data, page 26-2
- Supported RMON and RMON2 MIB Objects, page 26-3

## Understanding How RMON Works

RMON is an Internet Engineering Task Force (IETF) standard monitoring specification that allows various network agents and console systems to exchange network monitoring data. The supervisor engine software provides embedded support for these components of the RMON specification (see the “Supported RMON and RMON2 MIB Objects” section on page 26-3 for details):

- The following RMON groups defined in RFC 1757:
  - Statistics (RMON group 1) for Ethernet, Fast Ethernet, Fast EtherChannel, and Gigabit Ethernet switch ports (uses 140 bytes of supervisor engine module RAM per port)
  - History (RMON group 2) for Ethernet, Fast Ethernet, Fast EtherChannel, and Gigabit Ethernet switch ports (uses 3 KB of supervisor engine module RAM for the first 50 buckets; each additional bucket uses another 56 bytes)
  - Alarm (RMON group 3; each alarm configured uses 1.3 KB of supervisor engine RAM)
  - Event (RMON group 9; each event configured uses 1.3 KB of supervisor engine RAM)
- The RMON groups defined in RFC 1513: Token Ring Statistics and History (RMON groups 1, 2, and 10)
- The following RMON2 groups defined in RFC 2021:
  - UsrHistory (RMON2 group 18)
  - ProbeConfig (RMON2 group 19)

The embedded RMON agent allows the switch to monitor network traffic from all ports simultaneously at the data-link layer of the OSI model without requiring a dedicated monitoring probe or network analyzer.



Note

More RMON capabilities are provided through either a Catalyst 5000 family Network Analysis Module (see Chapter 28, “Configuring the Network Analysis Module”) or a Cisco SwitchProbe device (see the SwitchProbe documentation).

## Enabling RMON



Note

RMON is disabled by default.

To enable RMON, perform this task in privileged mode:

	Task	Command
Step 1	Enable RMON on the switch.	<b>set snmp rmon enable</b>
Step 2	Verify that RMON is enabled.	<b>show snmp</b>

This example shows how to enable RMON on the switch and how to verify that RMON is enabled:

```

Console> (enable) set snmp rmon enable
SNMP RMON support enabled.
Console> (enable) show snmp
RMON:                               Enabled
Extended RMON:                       Extended RMON module is not present
Traps Enabled:
Port,Module,Chassis,Bridge,Repeater,Vtp,Auth,ippermit,Vmps,config,entity,stpx
Port Traps Enabled: 1/1-2,4/1-48,5/1
Community-Access      Community-String
-----
read-only              Everyone
read-write             Administrators
read-write-all        Root
Trap-Rec-Address
-----
172.16.10.10           read-write
172.16.10.20           read-write-all
Console> (enable)

```

## Viewing RMON Data

Access to RMON data is available only on an NMS that supports RFC 1757 and RFC 1513 (see the “Using CiscoWorks2000” section on page 25-5). You cannot access RMON data through the switch CLI; however, CLI **show** commands provide similar information (refer to the *Command Reference* publication for your switch).

## Supported RMON and RMON2 MIB Objects

Table 26-1 lists the RMON and RMON2 MIB objects supported by the supervisor engine software and the Network Analysis Module software.

**Table 26-1 Supervisor Engine and Network Analysis Module RMON and RMON2 Support**

Module	Object Identifier (OID)	Definition	Source
Supervisor Engine	...mib-2(1).rmon(16).statistics(1).etherStatsTable(1) ...mib-2(1).rmon(16).statistics(1).tokenRingMLStatsTable(2) ...mib-2(1).rmon(16).statistics(1).tokenRingPStatsTable(3)	Counters for packets, octets, broadcasts, errors, etc.	RFC 1757 RFC 1513 RFC 1513
Supervisor Engine	...mib-2(1).rmon(16).history(2).historyControlTable(1) ...mib-2(1).rmon(16).history(2).etherHistoryTable(2) ...mib-2(1).rmon(16).history(2).tokenRingMLHistoryTable(3) ...mib-2(1).rmon(16).history(2).tokenRingPHistoryTable(4)	Periodically samples and saves statistics group counters for later retrieval.	RFC 1757 RFC 1757 RFC 1513 RFC 1513
Supervisor Engine	...mib-2(1).rmon(16).alarm(3)	A threshold that can be set on critical RMON variables for network management.	RFC 1757
Network Analysis	...mib-2(1).rmon(16).hosts(4)	Maintains statistics on each host device on the segment or port.	RFC 1757
Network Analysis	...mib-2(1).rmon(16).hostTopN(5)	A user-defined subset report of the Hosts group, sorted by a statistical counter.	RFC 1757
Network Analysis	...mib-2(1).rmon(16).matrix(6)	Maintains conversation statistics between hosts on network.	RFC 1757
Network Analysis	...mib-2(1).rmon(16).filter(7)	A filter engine that generates a packet stream from frames that match a specified pattern.	RFC 1757
Network Analysis	...mib-2(1).rmon(16).capture(8)	Manages buffers for packets captured by the Filter group for uploading to the management console.	RFC 1757
Supervisor Engine	...mib-2(1).rmon(16).event(9)	Generates SNMP traps when an Alarms group threshold is exceeded and logs the events.	RFC 1757
Supervisor Engine	...mib-2(1).rmon(16).tokenRing(10).ringStationControlTable(1) ...mib-2(1).rmon(16).tokenRing(10).ringStationTable(2) ...mib-2(1).rmon(16).tokenRing(10).ringStationOrderTable(3) ...mib-2(1).rmon(16).tokenRing(10).ringStationConfigControlTable(4) ...mib-2(1).rmon(16).tokenRing(10).ringStationConfigTable(5) ...mib-2(1).rmon(16).tokenRing(10).sourceRoutingStatsTable(6)	Aggregates detailed Token-Ring statistics.	RFC 1513 RFC 1513 RFC 1513 RFC 1513 RFC 1513

Table 26-1 Supervisor Engine and Network Analysis Module RMON and RMON2 Support (continued)

Module	Object Identifier (OID)	Definition	Source
Network Analysis	...mib-2(1).rmon(16).protocolDir(11)	A table of protocols for which the Network Analysis Module monitors and maintains statistics.	RFC 2021
Network Analysis	...mib-2(1).rmon(16).protocolDist(12)	A table of statistics for each protocol in protocolDir(11).	RFC 2021
Network Analysis	...mib-2(1).rmon(16).addressMap(13)	List of MAC-to-network-layer address bindings.	RFC 2021
Network Analysis	...mib-2(1).rmon(16).nlHost(14)	Statistics for each network layer address.	RFC 2021
Network Analysis	...mib-2(1).rmon(16).nlMatrix(15)	Traffic statistics for pairs of network layer addresses.	RFC 2021
Network Analysis	...mib-2(1).rmon(16).alHost(16)	Statistics by application layer protocol for each network address.	RFC 2021
Network Analysis	...mib-2(1).rmon(16).alMatrix(17)	Traffic statistics by application layer protocol for pairs of network layer addresses.	RFC 2021
Supervisor Engine	...mib-2(1).rmon(16).usrHistory(18)	Extends history beyond RMON1 link-layer statistics to include any RMON, RMON2, MIB-I, or MIB-II statistic.	RFC 2021
Supervisor Engine	...mib-2(1).rmon(16).probeConfig(19)	Displays a list of agent capabilities and configurations.	RFC 2021