

Configuring RMON

This chapter describes how to configure RMON on the Catalyst 5000, 4000, 2948G, 2926G, and 2926 series switches.

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

This chapter consists of these sections:

- Understanding How RMON Works
- Enabling RMON on page 30-2
- Viewing RMON Data on page 30-2
- Supported RMON and RMON2 MIB Objects on page 30-3

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 30-3 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 3KB 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 1.3KB of supervisor engine module RAM)
 - Event (RMON group 9; each event configured uses 1.3KB of supervisor engine module RAM)
- The RMON groups defined in RFC 1513: Token Ring Statistics and History (RMON groups 1, 2, and 10)
- The following RMON2 group defined in RFC 2021: 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 series Network Analysis Module (see Chapter 33, “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.	set snmp rmon enable
Step 2 Verify that RMON is enabled.	show snmp

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 Trap-Rec-Community
-----
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 29-5). You cannot access RMON data through the switch CLI; however, CLI **show** commands provide similar information (refer to the *Command Reference* for your switch).

Supported RMON and RMON2 MIB Objects

The following table lists the RMON and RMON2 MIB objects supported by the supervisor engine module software and the Network Analysis Module software.

Table 30-1 Supervisor Engine Module and Network Analysis Module RMON and RMON2 Support

Module	Object Identifier (OID) and Description	Source
Supervisor Engine	...mib-2(1).rmon(16).statistics(1).etherStatsTable(1)	RFC 1757 (RMON-MIB)
	...mib-2(1).rmon(16).statistics(1).tokenRingMLStatsTable(2)	RFC 1513 (TOKEN-RING-RMON MIB)
	...mib-2(1).rmon(16).statistics(1).tokenRingPStatsTable(3)	RFC 1513 (TOKEN-RING-RMON MIB)
	Counters for packets, octets, broadcasts, errors, etc.	
Supervisor Engine	...mib-2(1).rmon(16).history(2).historyControlTable(1)	RFC 1757 (RMON-MIB)
	...mib-2(1).rmon(16).history(2).etherHistoryTable(2)	RFC 1757 (RMON-MIB)
	...mib-2(1).rmon(16).history(2).tokenRingMLHistoryTable(3)	RFC 1513 (TOKEN-RING-RMON MIB)
	...mib-2(1).rmon(16).history(2).tokenRingPHistoryTable(4)	RFC 1513 (TOKEN-RING-RMON MIB)
	Periodically samples and saves statistics group counters for later retrieval.	
Supervisor Engine	...mib-2(1).rmon(16).alarm(3)	RFC 1757 (RMON-MIB)
	A threshold that can be set on critical RMON variables for network management.	
Network Analysis	...mib-2(1).rmon(16).hosts(4)	RFC 1757 (RMON-MIB)
	Maintains statistics on each host device on the segment or port.	
Network Analysis	...mib-2(1).rmon(16).hostTopN(5)	RFC 1757 (RMON-MIB)
	A user-defined subset report of the Hosts group, sorted by a statistical counter.	
Network Analysis	...mib-2(1).rmon(16).matrix(6)	RFC 1757 (RMON-MIB)
	Maintains conversation statistics between hosts on network.	
Network Analysis	...mib-2(1).rmon(16).filter(7)	RFC 1757 (RMON-MIB)
	A filter engine that generates a packet stream from frames that match a specified pattern.	
Network Analysis	...mib-2(1).rmon(16).capture(8)	RFC 1757 (RMON-MIB)
	Manages buffers for packets captured by the Filter group for uploading to the management console.	
Supervisor Engine	...mib-2(1).rmon(16).event(9)	RFC 1757 (RMON-MIB)
	Generates SNMP traps when an Alarms group threshold is exceeded and logs the events.	
Supervisor Engine	...mib-2(1).rmon(16).tokenRing(10).ringStationControlTable(1)	RFC 1513 (TOKEN-RING-RMON MIB)
	...mib-2(1).rmon(16).tokenRing(10).ringStationTable(2)	RFC 1513 (TOKEN-RING-RMON MIB)
	...mib-2(1).rmon(16).tokenRing(10).ringStationOrderTable(3)	RFC 1513 (TOKEN-RING-RMON MIB)
	...mib-2(1).rmon(16).tokenRing(10).ringStationConfigControlTable(4)	RFC 1513 (TOKEN-RING-RMON MIB)
	...mib-2(1).rmon(16).tokenRing(10).ringStationConfigTable(5)	RFC 1513 (TOKEN-RING-RMON MIB)
	...mib-2(1).rmon(16).tokenRing(10).sourceRoutingStatsTable(6)	RFC 1513 (TOKEN-RING-RMON MIB)
	Aggregates detailed Token-Ring statistics.	
Network Analysis	...mib-2(1).rmon(16).protocolDir(11)	RFC 2021 (RMON2-MIB)
	A table of protocols for which the Network Analysis Module monitors and maintains statistics.	
Network Analysis	...mib-2(1).rmon(16).protocolDist(12)	RFC 2021 (RMON2-MIB)
	A table of statistics for each protocol in protocolDir(11).	
Network Analysis	...mib-2(1).rmon(16).addressMap(13)	RFC 2021 (RMON2-MIB)
	List of MAC-to-network-layer address bindings.	

Supported RMON and RMON2 MIB Objects

Table 30-1 Supervisor Engine Module and Network Analysis Module RMON and RMON2 Support (continued)

Module	Object Identifier (OID) and Description	Source
Network Analysis	...mib-2(1).rmon(16).nlHost(14) Statistics for each network layer address.	RFC 2021 (RMON2-MIB)
Network Analysis	...mib-2(1).rmon(16).nlMatrix(15) Traffic statistics for pairs of network layer addresses.	RFC 2021 (RMON2-MIB)
Network Analysis	...mib-2(1).rmon(16).alHost(16) Statistics by application layer protocol for each network address.	RFC 2021 (RMON2-MIB)
Network Analysis	...mib-2(1).rmon(16).alMatrix(17) Traffic statistics by application layer protocol for pairs of network layer addresses.	RFC 2021 (RMON2-MIB)
Network Analysis	...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 (RMON2-MIB)
Supervisor Engine	...mib-2(1).rmon(16).probeConfig(19) Displays a list of agent capabilities and configurations.	RFC 2021 (RMON2-MIB)