RMON Configuration Guide, Cisco IOS XE Fuji 16.7.x

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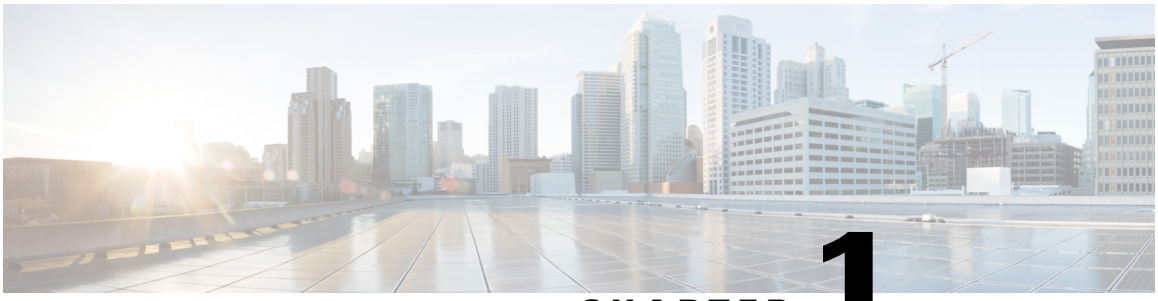


CHAPTER 1

Read Me First

Important Information about Cisco IOS XE 16

Effective Cisco IOS XE Release 3.7.0E (for Catalyst Switching) and Cisco IOS XE Release 3.17S (for Access and Edge Routing) the two releases evolve (merge) into a single version of converged release—the Cisco IOS XE 16—providing one release covering the extensive range of access and edge products in the Switching and Routing portfolio.

Feature Information

Use Cisco Feature Navigator to find information about feature support, platform support, and Cisco software image support. An account on Cisco.com is not required.

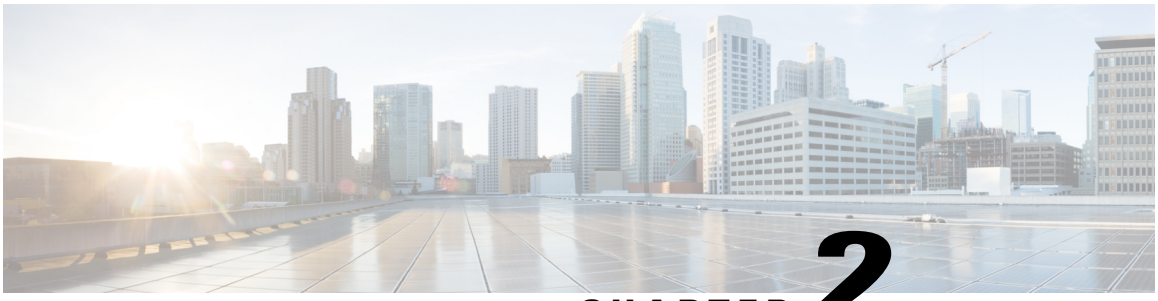
Related References

- Cisco IOS Command References, All Releases

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation.

To receive new and revised Cisco technical content directly to your desktop, you can subscribe to the What's New in Cisco Product Documentation RSS feed. RSS feeds are a free service.



CHAPTER 2

Configuring RMON Support

The Remote Monitoring (RMON) MIB agent specification can be used in conjunction with Simple Network Management Protocol (SNMP) to monitor traffic using alarms and events.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Information About Configuring RMON Support

The RMON option identifies activity on individual nodes and allows you to monitor all nodes and their interaction on a LAN segment. Used in conjunction with the SNMP agent in a device, Combining RMON alarms and events (classes of messages that indicate traffic violations and various unusual occurrences over a network) with existing MIBs allows you to choose where proactive monitoring will occur.

Note RMON requires that SNMP be configured (you must be running a version of SNMP on the server that contains the RMON MIB). A generic RMON console application is recommended in order to take advantage of the RMON network management capabilities.

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

All Cisco IOS XE software images ordered without the explicit RMON option include limited RMON support (RMON alarms and event groups only). Images ordered with the RMON option include support for all nine management groups (statistics, history, alarms, hosts, hostTopN, matrix, filter, capture, and event). As a security precaution, support for the capture group allows capture of packet header information only; data payloads are not captured.

RMON MIB features include the following:

- usrHistory group. This MIB group is similar to the RMON etherHistory group except that the group enables the user to specify the MIB objects that are collected at each interval.
- partial probeConfig group. This MIB group is a subset of the probeConfig group implemented in read-only mode. These objects implement the simple scalars from this group. The table below details new partial probeConfig group objects.

Table 1: partial probeConfig Group Objects

Object	Description
probeCapabilities	The RMON software groups implemented.
probeSoftwareRev	The current version of Cisco IOS XE running on the device.
probeHardwareRev	The current version of the Cisco device.
probeDateTime	The current date and time.
probeResetControl	Initiates a reset.
probeDownloadFile	The source of the image running on the device.
probeDownloadTFTPServer	The address of the server that contains the Trivial File Transfer Protocol (TFTP) file that is used by the device to download new versions of Cisco IOS XE software.
probeDownloadAction	Specifies the action of the commands that cause the device to reboot.
probeDownloadStatus	The state of a reboot.

Object	Description
netDefaultGateway	The router mapped to another Cisco device as the default gateway.
hcRMONCapabilities	Specifies the features mapped to this version of RMON.

How to Configure RMON Support

Setting an RMON alarm or event

Perform the following steps to set an RMON alarm or event:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **rmon alarm** *number variable interval* {**absolute** | **delta** } **rising-threshold** *value* [*event-number*] **falling-threshold** *value* [*event-number*] [**owner** *string*]
4. **rmon event** *number* [**log**] [**trap** *community*] [**description** *string*] [**owner** *string*]
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**rmon alarm** *number variable interval* {**absolute** | **delta** } **rising-threshold** *value* [*event-number*] **falling-threshold** *value* [*event-number*] [**owner** *string*]	Sets an alarm on a MIB object.

	Command or Action	Purpose
	Example: `Device(config)# rmon alarm 10 ifEntry.20.1 20 delta rising-threshold 15 1 falling-threshold 0 owner owner2`	
Step 4	**rmon event** *number* [**log**] [**trap** *community*] [**description** *string*] [**owner** *string*] **Example:** `Device(config)# rmon event 1 log trap eventtrap description "High ifOutErrors" owner owner2`	Adds or removes an event in the RMON event table.
Step 5	**end** **Example:** `Device(config)# end`	Returns to privileged EXEC mode.

Troubleshooting Tips

You can set an alarm on any MIB object in the access server. To disable an alarm, you must enable the **no** form of this command on each alarm you configure. You cannot disable all the alarms you configure at once.

The RMON MIB defines two traps, the risingAlarm and fallingAlarm traps generated when an RMON alarmEntry risingThreshold or fallingThreshold event occurs. Thresholds allow you to minimize the number of notifications sent on the network. Alarms are triggered when a problem exceeds a set rising threshold value. No more alarm notifications are sent until the agent recovers, as defined by the falling threshold value. This means that notifications are not sent each time a minor failure or recovery occurs.

Monitoring and Verifying an RMON Configuration

To display the current RMON status, use one or more of the following commands in EXEC mode:

SUMMARY STEPS

1. **enable**
2. **show rmon**
3. **show rmon alarms**
4. **show rmon events**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**show rmon** **Example:** `Device# show rmon`	Displays general RMON statistics.
Step 3	**show rmon alarms** **Example:** `Device#` **show rmon alarms**	Displays the RMON alarm table.
Step 4	**show rmon events** **Example:** `Device#` **show rmon events**	Displays the RMON event table.

Configuration Examples for RMON

Example: Configuring Alarms and Events

The following example shows how to add an event (in the RMON event table) that is associated with an RMON event number, using the **rmon event**global configuration command:

```
Device(config)# rmon event 1 log trap eventtrap description "High ifOutErrors" owner owner_a
```

This example 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 "owner_a" owns the row that is created in the event table by this command. This example also generates an SNMP trap when the event is triggered.

The following example shows how to configure an RMON alarm using the rmon alarm global configuration command:

```
Device(config)# rmon alarm 10 ifEntry.20.1 20 delta rising-threshold 15 1 falling-threshold
 0 owner owner_a
```

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 rise or fall of the variable. 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 an SNMP trap. If the ifEntry.20.1 value changes by 0, the alarm is reset and can be triggered again.

Additional References

The following sections provide references related to the Configuring RMON Support feature.

MIBs

MIB	MIBs Link
Remote Monitoring (RMON) MIB	To locate and download MIBs for selected platforms, Cisco IOS XE releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/techsupport

Feature Information for Configuring RMON Support

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 2: Feature Information for Configuring RMON Support

Feature Name	Releases	Feature Information
RMON Events and Alarms		The Remote Monitoring (RMON) MIB agent specification can be used in conjunction with Simple Network Management Protocol (SNMP) to monitor traffic using alarms and events.