Preface

This guide describes the implementation of the Simple Network Management Protocol (SNMP) and Management Information Base (MIB) for Cisco ASR 9000 Series Aggregation Services Routers. SNMP provides a set of commands for setting and retrieving the values of operating parameters on the Cisco ASR 9000 Series router. The router information is stored in a virtual storage area called a Management Information Base (MIB), which contains many MIB objects that describe router components and provides information about the status of the components.

This preface provides an overview of this guide with the following sections:

Revision History

The following Revision History tables record technical changes, additions, and corrections to this document. The table shows the release number and document revision number for the change, the date of the change, and a summary of the change.

Cisco IOS Release	Part Number	Publication Date
4.3.1	OL-29006-02	June 2013

Description of Changes

- Updated the following MIBs:
  - CISCO-FLASH-MIB

Audience

This guide is intended for system and network administrators who must configure the Cisco ASR 9000 Series router for operation and monitor its performance in the network.

This guide may also be useful for application developers who are developing management applications for the Cisco ASR 9000 Series router.

Organization

This guide contains the following chapters:

Chapter	Description
Chapter 1, "Cisco ASR 9000 Series Routers MIB Overview"	Provides background information about SNMP and its implementation on the Cisco ASR 9000 Series router.
Chapter 2, "Configuring MIB Support"	Provides instructions for configuring SNMP management support on the Cisco ASR 9000 Series router.
Chapter 3, "Cisco ASR 9000 Series Routers MIB Specifications"	Describes each MIB included on the Cisco ASR 9000 Series router. Each description lists any constraints as to how the MIB is implemented on the router.
Chapter 4, "Monitoring Notifications"	Describes the SNMP notifications supported by the Cisco ASR 9000 Series router, provides a description of each notification, a probable cause, and recommended action to take.
Appendix 5, "Using MIBs"	Provides information about how to use SNMP to perform system functions such as bulk-file retrieval and Quality of Service (QoS).
Appendix 6, "QoS MIB Implementation"	Provides information about how to implement Quality of Service (QoS) in addition to a matrix that defines which objects support QoS policy actions.

Terminology and Definitions

This section discusses conventions and terminology used in this guide.

- Alarm—In SNMP, the word *alarm* is commonly misused to mean the same as a trap (see the Trap definition below). *Alarm* represents a condition which causes an SNMP trap to be generated.

Note Many commands use the word **traps** in the command syntax. Unless there is an option in the command to select traps. Use the **snmp-server host** and **snmp-server** *notification* command to specify whether to send SNMP notifications as traps.

- Element Management System (EMS)—An EMS manages a specific portion of the network. For example, the SunNet Manager, an SNMP management application, is used to manage SNMP-manageable elements. Element Managers may manage asynchronous lines, multiplexers, Private Automatic Branch Extension (PABX), proprietary systems, or an application.

- Management Information Base (MIB)—The management objects available in an SNMP managed device. The information is represented in Abstract Syntax Notation 1 (ASN.1). This is a way of logically grouping data so that it is easily understood by all.
- MIB-II—The successor to MIB-I, which was the original standard SNMP MIB.
- Multiprotocol Label Switching (MPLS)—MPLS is the standardized version of the Cisco original tag-switching proposal. It uses a label-forwarding paradigm (forward packets based on labels).
- Simple Network Management Protocol (SNMP)—An application layer protocol that allows you to remotely manage networked devices. The *simple* in SNMP is only in contrast to protocols that are thought to be even more complex than SNMP. SNMP consists of the following components: a management protocol, a definition of management information and events, a core set of management information and events, and a mechanism and approach used to manage the use of the protocol including security and access control.
- Trap—A device-initiated SNMP notification message. The contents of the message might be simply informational, but it is mostly used to report real-time trap information. Traps can be used in conjunction with other SNMP mechanisms, as in trap-directed polling.
- User Datagram Protocol (UDP)—A connectionless, non-reliable IP-based transport protocol.

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