# Preface

This guide describes the Cisco ASR 903 Series Aggregation Services Routers implementation of the Simple Network Management Protocol (SNMP). SNMP provides a set of commands for setting and retrieving the values of operating parameters on the Cisco ASR 903 Series Router. 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 provide information about the status of the components.

This preface provides the following sections:



# Revision History

The following Revision History table records 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.

**Note** This guide contains MIB information for Ciso IOS XE releases 3.8 and earlier. For releases later than Cisco IOS XE Release 3.8, use the Cisco MIB Locater tool.

| Cisco IOS XE Release | Part Number | Publication Date |
|---|---|---|
| IOS XE 3.8 | OL-15161-04 | November 2012 |

### Description of Changes

- Added new MIBs:
  - CISCO-DOT3-OAM-MIB
  - CISCO-IETF-MPLS-ID-STD-03-MIB
  - CISCO-IETF-MPLS-TE-EXT-STD-03-MIB

  - CISCO-MPLS-LSR-EXT-STD-MIB
  - CISCO-MPLS-TC-EXT-STD-MIB

| Cisco IOS XE Release | Part Number | Publication Date |
|---|---|---|
| IOS XE 3.7 | OL-15161-03 | July 2012 |

### Description of Changes

- Added a new MIB CISCO-STP-EXTENSIONS-MIB.

| Cisco IOS XE Release | Part Number | Publication Date |
|---|---|---|
| IOS XE 3.6 | OL-15161-02 | March 2012 |

### Description of Changes

- Added new MIBs:
  - CISCO-CBP-TARGET-MIB
  - CISCO-CLASS-BASED-QOS-MIB
  - CISCO-SONET-MIB
  - IP-FORWARD-MIB (RFC 4292)
  - SONET-MIB (RFC 2558)
- Updated the MIBs:
  - ENTITY-MIB (RFC 4133)
  - IF-MIB (RFC 2863)
  - IP-MIB (RFC 4293)

| Cisco IOS XE Release | Part Number | Publication Date |
|---|---|---|
| IOS XE 3.5 | OL-15161-01 | November 28, 2011 |

# Audience

This guide is intended for system and network administrators who are responsible for configuring and operating the Cisco ASR 903 Series Router and for monitoring its performance on the network.

This guide may also be useful for application developers who are developing management applications for the Cisco ASR 903 Series Router.

# Organization

This guide contains the following chapters:

| Chapter | Description |
|---|---|
| Chapter 1, "Cisco ASR 903 Series Aggregation Services Routers Overview." | Provides background information about SNMP and its implementation on the Cisco ASR 903 Series Router. |
| Chapter 2, "Configuring MIB Support." | Provides instructions for configuring SNMP management support on the Cisco ASR 903 Series Router. |
| Chapter 3, "Cisco ASR 903 Series Router MIB Specifications." | Describes each MIB included on the Cisco ASR 903 Series Router. In addition, constraints for each MIB are listed to indicate how a MIB is implemented on the router. |
| Chapter 4, "Monitoring Notifications." | Describes SNMP notifications, traps, and informs supported by the Cisco ASR 903 Series Router. It provides the description of each notification, probable cause, and recommended action. |
| Appendix A "Using MIBs." | Provides information about how to use SNMP to perform system functions such as bulk-file retrieval. |

# 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 that 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 either traps or informs, the keyword **traps** refers to traps, informs, or both. Use the **snmp-server host** and **snmp-server enable** <*notification*> command to specify whether to send SNMP notifications as traps or informs.

- 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 Exchange (PABX), proprietary systems, or an application.
- Inform—Reliable SNMP notifications that are stored in memory until the SNMP manager issues a response. Informs use more system resources than traps. The SNMP Inform mechanism can be used when a reliable fault reporting system is required.
- Lawful Intercept (LI)—The term used to describe the process by which law enforcement agencies conduct electronic surveillance as authorized by judicial or administrative order. Legislation and regulations are increasingly being adopted that require service providers (SPs) to design and implement their networks to explicitly support authorized electronic surveillance.

- Management Information Base (MIB)—The objects that are 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).
- Remote Network Monitoring (RMON) MIB—SNMP MIB for remote management of networks. While other MIBs are usually created to support a network device whose primary function is other than management, RMON was created to provide management of a network. RMON is one of the many SNMP-based MIBs that are IETF Standards.
- 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.
- Synchronous Optical Network (SONET)—A physical layer interface standard for fiber-optic transmission.
- 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.

# Obtaining Documentation and Submitting a Service Request

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