

*WebNMS SNMP API is a Java-based comprehensive development environment for building SNMP-based management applications that are reliable, scalable, and OS independent.*

## WebNMS SNMP API Overview

WebNMS SNMP API enables rapid building and deployment of SNMP based integrated network management solutions. A proven product with over 150 implementations, it simplifies application design and development. WebNMS SNMP API comes with an integrated set of easy-to-use tools and features useful for the complete development lifecycle of network device management.

The WebNMS SNMP stack comprises of a set of powerful Java SNMP library to build SNMP-based cross-platform, real-time applications for monitoring and managing network devices. SNMP network management developers can leverage the SNMP library to build standalone, web-based, and distributed (EJB, CORBA, and RMI) applications. It supports SNMPv1, SNMPv2c and SNMPv3.

The Java SNMP library provides off-the-rack components for trap and table handling and the basic SNMP operations: SNMP GET, SNMP GETNEXT, SNMP GETBULK, and SNMP SET. These components enable simpler and faster development and deployment of SNMPv1, SNMPv2c, and SNMPv3 management applications that can be integrated into any network management solution.

WebNMS SNMP API can be used to build either a two-tier or a three-tier management application. In the two-tier architecture, the management application directly communicates with the agents. In the three-tier architecture, the management application communicates with the agents through a manager-server. For building highly scalable management applications, three-tier architecture is the best option.

## Features and Benefits

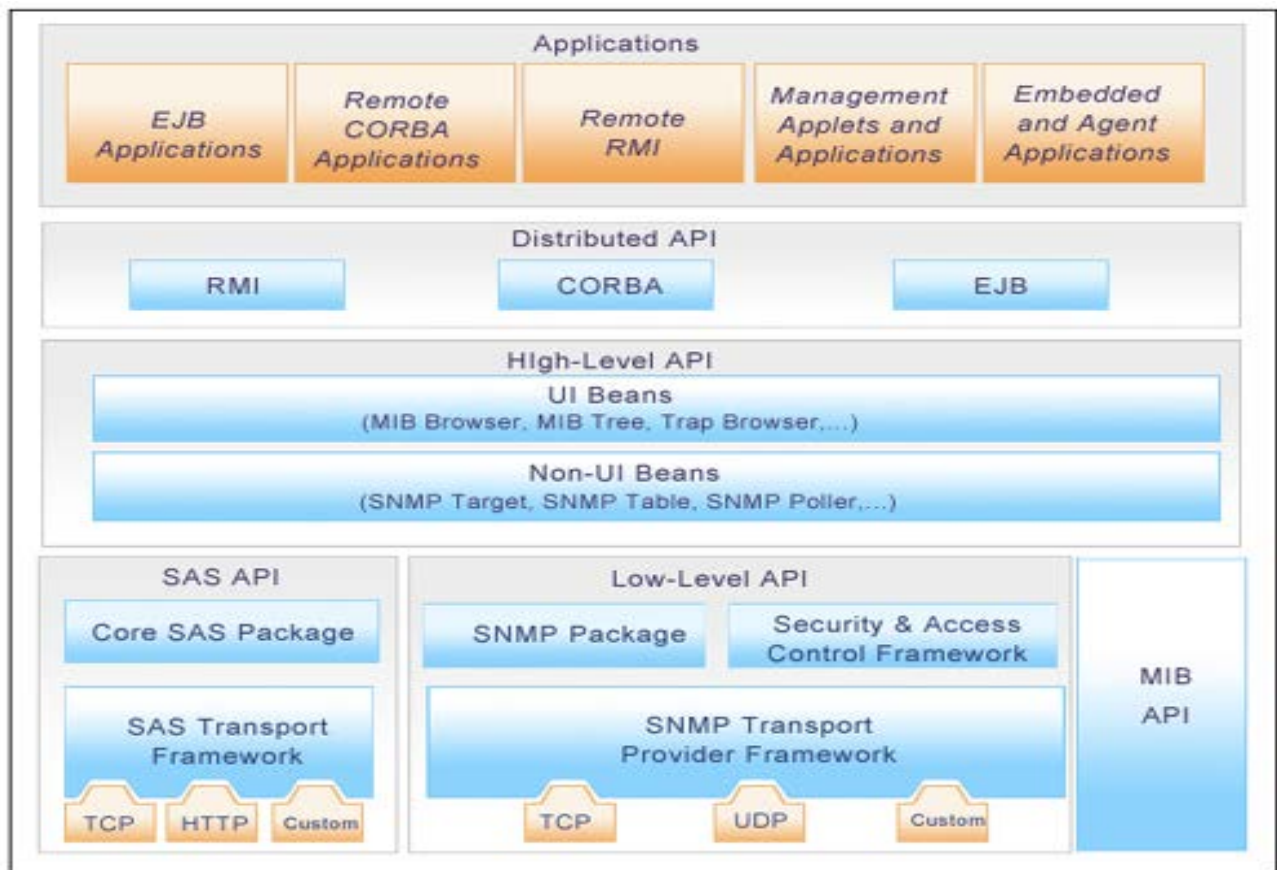
| Features  | Benefits   |
|---|--|
| Open Standards and cross-platform                   | Built on Internet standard technologies, such as Java, it ensures greater productivity and interoperability.   |
| Multilingual support                                | SNMPv1, SNMPv2c, and SNMPv3 based communication.   |
| SNMPv3 security                                     | Supports HMAC-SHA-96, HMAC-MD5-96, CBC-DES, CBC-3DES and 128,192,256 bit AES encryption algorithms.  |
| Robust MIB Parser: Supports SMIv1 and SMIv2 formats | Seamlessly parses the MIB definitions from any OEM vendor. Offers various flavors of parsing based on the MIB definitions  |
| MIB Loading   | Option to load MIB definitions from a pre-compiled file, a Serialized file, or from Database to boost performance.   |
| SNMP Beans  | High-level bean components for easy application development.   |
| IPv6 Support  | Provides connectivity to IPv6 based SNMP devices in addition to IPv4 devices.  |
| Database Support                                    | Offers scalability by storing MIB definitions and SNMPv3 configuration data in any relational database such as, MySQL and Oracle.  |
| SNMP MIB Browser                                    | Test, Monitor, and Manage multiple SNMP devices on a network. It allows network and system engineers to load both standard and vendor proprietary MIBs and retrieve data about the software and hardware configurations. |

## WebNMS SNMP API Architecture

WebNMS SNMP API consists of a hierarchy of Java packages that enables rapid development of element and network management applications for a wide variety of domains.

The architecture contains many layers of APIs that provide the users (developers) different levels of access for their application development. I.e. a new developer who is unaware of the SNMP concepts can directly use the high-level APIs for their application development. While the SNMP experts can directly use the low-level APIs for their development.

The low-level SNMP API, MIB API, and SAS API can be used either directly or via the beans provided in the high-level API. In either case the user application can talk to the SNMP APIs through the Distributed APIs, over which the user applications can sit



**Low-Level SNMP API:** The low-level API implements the core SNMP functions. It includes classes that facilitate communication with peer SNMP entities and offer message security and privacy to applications and applets. It also includes classes that can be used in management applets running in a browser. It supports multilingual communication with devices. The low-level API provides the reference implementation of USM and VACM for SNMPv3 entities. It also offers protocol-independent communication framework for SAS communication, in which you can plug in your transport protocol for SAS communication.

**MIB API:** The MIB API conveys the information about the data available on an SNMP agent. This API allows Java programs to take full advantage of the information contained in MIB module files. It also facilitates loading and unloading of MIBs in applications and applets, in addition to supporting a host of functions that provide the properties of the managed object. The components are built using the primitive SNMP datatypes available in the low-level SNMP API.

**SAS API:** The SAS API provides support for the Java applets to get around the security restrictions of the browsers. SAS allows the applet to send and receive SNMP packets to any managed device from the applet host. The SAS server needs to be run with the Web server in which the applet resides.

**High-Level SNMP API:** It consists of UI and non-UI beans that are built using the SNMP functions provided by the low-level API and MIBs API. These bean components can be used in any Java Bean Builder or directly in the Java code.

**Distributed API:** The RMI API enables the development of distributed computing applications and server-side applications in Java, to perform SNMP operations. The advantage of the RMI API is that it allows a server to perform the SNMP functions, while the clients only make the RMI calls to the server. The components are built on the non-UI beans of the high-level API.

## WebNMS SNMP API Editions

WebNMS SNMP API is offered in two editions: Free and Professional. The following table highlights the features in each:

| Functionality   | AdventNet SNMP API Free Edition | AdventNet SNMP API Professional Edition |
|---|---------------------------------|---|
| <b>Standard Functions</b>   |                                 |   |
| SNMP communication for SNMPv1, SNMPv2c, and SNMPv3  | ✓                               | ✓                                       |
| SNMPv3 Security   | ✓                               |   |
| MIB support for SMIv1 and SMIv2 formats   | ✓                               |   |
| Command line tools to perform SNMP operations on remote agents.   | ✓                               | ✓                                       |
| Applet support  | ✓                               | ✓                                       |
| SNMP Applet Server (SAS) to facilitate communication between applets and managed devices / across firewalls | ✗                               | ✓                                       |
| EJB support for developing scalable multi-tier network management applications                              | ✗                               | ✓                                       |
| RMI and CORBA access for distributed computing support.   | ✗                               | ✓                                       |
| MIB Browser tool  | ✗                               | ✓                                       |
| Database support for storing compiled MIBs and SNMPv3 configuration.  | ✗                               | ✓                                       |

## System Requirements

|                       |  |
|-----------------------|--|
| Operating Environment | <ul style="list-style-type: none"> <li>Windows, Solaris and Linux platforms</li> </ul>   |
| Hardware Requirements | <ul style="list-style-type: none"> <li>CPU: Minimum 500 MHz Pentium Processor</li> <li>Memory: Minimum 128 MB RAM</li> <li>Disk Space: Minimum 150 MB</li> </ul>   |
| Software Requirements | <ul style="list-style-type: none"> <li>Open JDK/Oracle JDK 1.2 and later.</li> <li>Java-enabled web browser (Netscape 4.x/IE 4.x) with Sun Java plug-in.</li> <li>Any database and the corresponding JDBC driver for the database support</li> </ul> |



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