XCubeSAN Series Application Note

Monitor Hardware Status
with MIB File

Notices

This XCubeSAN series white paper is applicable to the following XCubeSAN models:

XCubeSAN Storage System 4U 19" Rack Mount Models

Model Name	Controller Type	Form Factor, Bay Count, and Rack Unit
XS5224D	Dual Controller	LFF 24-disk 4U Chassis
XS3224D	Dual Controller	LFF 24-disk 4U Chassis
XS3224S	Single Controller	LFF 24-disk 4U Chassis
XS1224D	Dual Controller	LFF 24-disk 4U Chassis
XS1224S	Single Controller	LFF 24-disk 4U Chassis

XCubeSAN Storage System 3U 19" Rack Mount Models

Model Name	Controller Type	Form Factor, Bay Count, and Rack Unit
XS5216D	Dual Controller	LFF 16-disk 3U Chassis
XS3216D	Dual Controller	LFF 16-disk 3U Chassis
XS3216S	Single Controller	LFF 16-disk 3U Chassis
XS1216D	Dual Controller	LFF 16-disk 3U Chassis
XS1216S	Single Controller	LFF 16-disk 3U Chassis

XCubeSAN Storage System 2U 19" Rack Mount Models

Model Name	Controller Type	Form Factor, Bay Count, and Rack Unit
XS5212D	Dual Controller	LFF 12-disk 2U Chassis
XS5212S	Single Controller	LFF 12-disk 2U Chassis
XS3212D	Dual Controller	LFF 12-disk 2U Chassis
XS3212S	Single Controller	LFF 12-disk 2U Chassis
XS1212D	Dual Controller	LFF 12-disk 2U Chassis
XS1212S	Single Controller	LFF 12-disk 2U Chassis
XS5226D	Dual Controller	SFF 26-disk 2U Chassis
XS5226S	Single Controller	SFF 26-disk 2U Chassis
XS3226D	Dual Controller	SFF 26-disk 2U Chassis
XS3226S	Single Controller	SFF 26-disk 2U Chassis
XS1226D	Dual Controller	SFF 26-disk 2U Chassis

| XS1226S | Single Controller | SFF 26-disk 2U Chassis |

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Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products.

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Monitor Hardware Status with MIB File

Executive Summary

This application note provides technical guidance for implementation of monitoring the XCubeSAN storage system with **MIB Browser** software via loading **MIB file** downloaded from QSAN XCubeSAN system, and it is intended for use by system administrators, SAN designers, storage consultants, or anyone who has purchased this product and is familiar with servers and computer networks, network administration, storage system installation and configuration, network attached storage management and relevant protocols.

Audience

This document is applicable for QSAN customers and partners who are interested in learning about SNMP with MIB file for monitoring system hardware. It assumes the reader is familiar with QSAN products and has general IT experience, including knowledge as a system or network administrator. If there is any question, please refer to the user manuals of products, or contact QSAN support for further assistance.

Overview

SNMP (Simple Network Management Protocol) is an Internet-standard protocol for collecting and organizing information about managed devices on IP networks and for modifying that information to change device behavior. Devices that typically support SNMP include cable modems, routers, switches, servers, workstations, printers, and more.

SNMP is widely used in network management for network monitoring. SNMP exposes management data in the form of variables on the managed systems organized in a MIB (Management Information Base) which describes the system status and configuration. These variables can then be remotely queried by managing applications. Three significant versions of SNMP have been developed and deployed. SNMPv1 is the original version of the protocol. More recent versions, SNMPv2c and SNMPv3, feature improvements in performance, flexibility and security.

> **INFORMATION:**
> The overview description above is quoted from Wikipedia, for more information, please refer to:
> https://en.wikipedia.org/wiki/Simple_Network_Management_Protocol

Prerequisites

Before proceeding the instructions, it is assumed that you have fully read and understood the detail of QSAN product related document before proceeding to implementation.

- XCubeSAN QIG (Quick Installation Guide)
- XCubeSAN Hardware Owner's Manual
- XCubeSAN SANOS 4.0 User's Manual

MIB Browser Software

The **iReasoning MIB Broswer** Personal Edition is a free **MIB browser** for users to manage a network device with SNMP enabled. Just simply download the installer from the URL as below. Run the installer and follow the step by step processes to install it on the host.

> **INFORMATION:**
> Visit iReasoning software for more information, please refer to:
> http://www.ireasoning.com/

Environment

- Server

  - Model: ASUS RS700 X7/PS4 (CPU: Intel Xeon E5-2600 v2 / RAM: 8GB)
    iSCSI HBA: Intel 82574L Gigabit Network Connection
    OS: Windows Server 2012 R2
    MIB Browser: iReasoning MIB Broswer Personal Edition

- Storage

  - Model: XCubeSAN XS3212D
    Memory: 8GB (2 x 4GB in bank 1 & 3) per controller

Firmware 1.2.2

HDD: 12 x Seagate Constellation ES, ST500NM0001, 500GB, SAS 6Gb/s

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> **TIP:**
> Please make sure that the server is capable of reaching the IP of management port of XCubeSAN system. And also make sure the firewall settings are turned off in order to have MIB browser working properly for getting system information.

Configuration

1. Download the MIB file from the SAN system. Select the **SNMP** function tab in the **Notification** function submenu, and then click the **Download** button of Download SNMP MIB File.
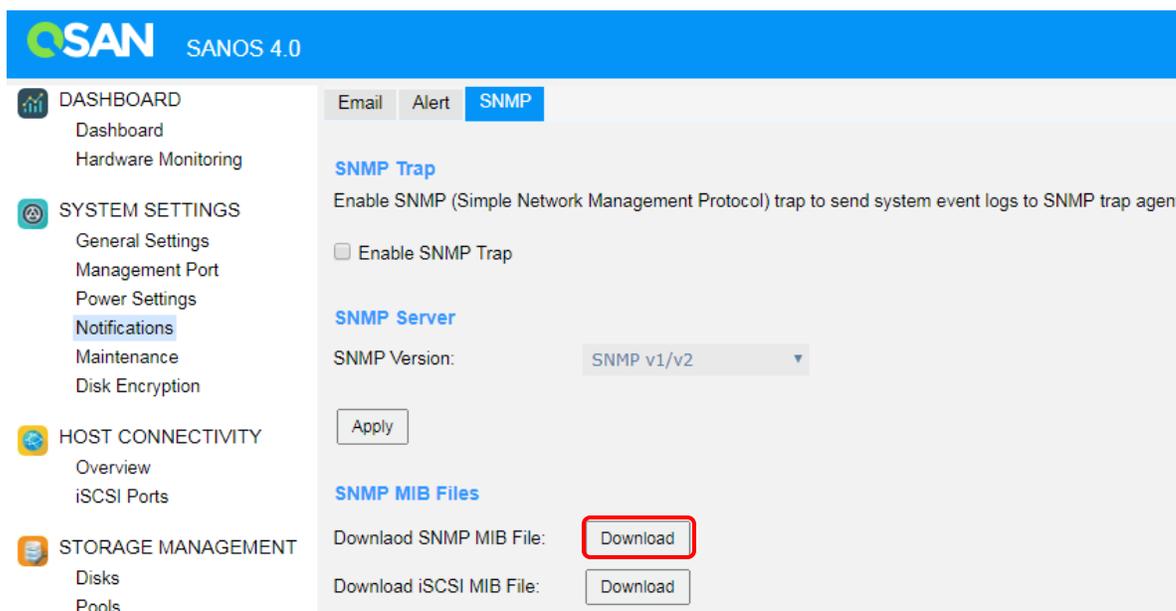
Figure 1   Download SNMP MIB File

2. The MIB file can be downloaded directly. Save it onto the host for monitoring via MIB Browser.
3. Execute iReasoning MIB Browser and then load the MIB file. Click the **Load MIBs** function and then select the MIB file.
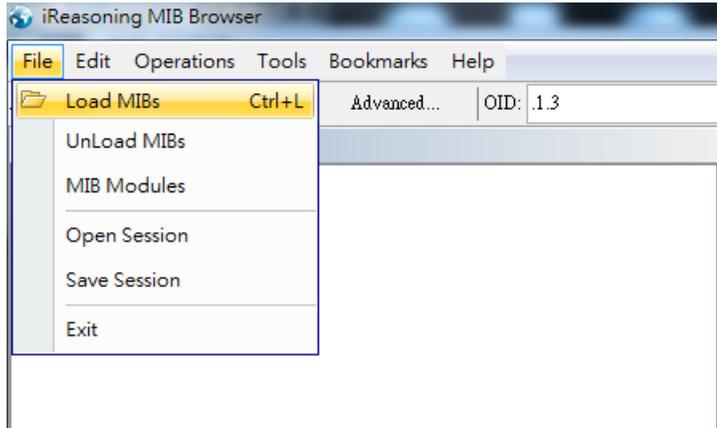
Figure 2   Load the SNMP MIB File into iReasoning MIB Browser

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TIP:
This step is operated in iReasoning MIB Browser; please have the iReasoning MIB Browser installed.

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4. Exam the MIB tree. After the MIB file is loaded, the objects in the MIB file are listed as a tree structure in the SNMP MIBs window.
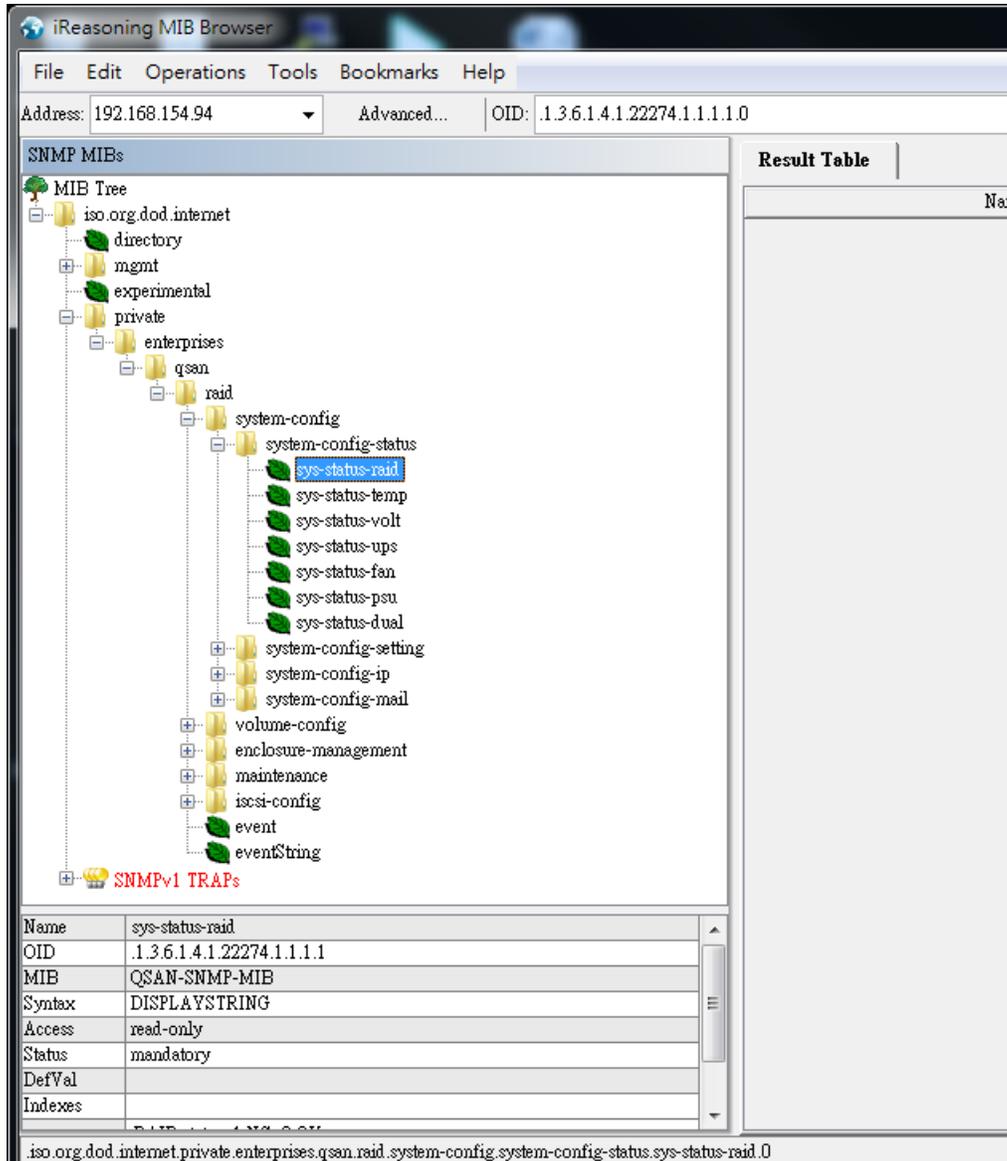
Figure 3   Exam MIB Tree

5. Enter the **Management Port** IP address of XCubeSAN in **Address** column.
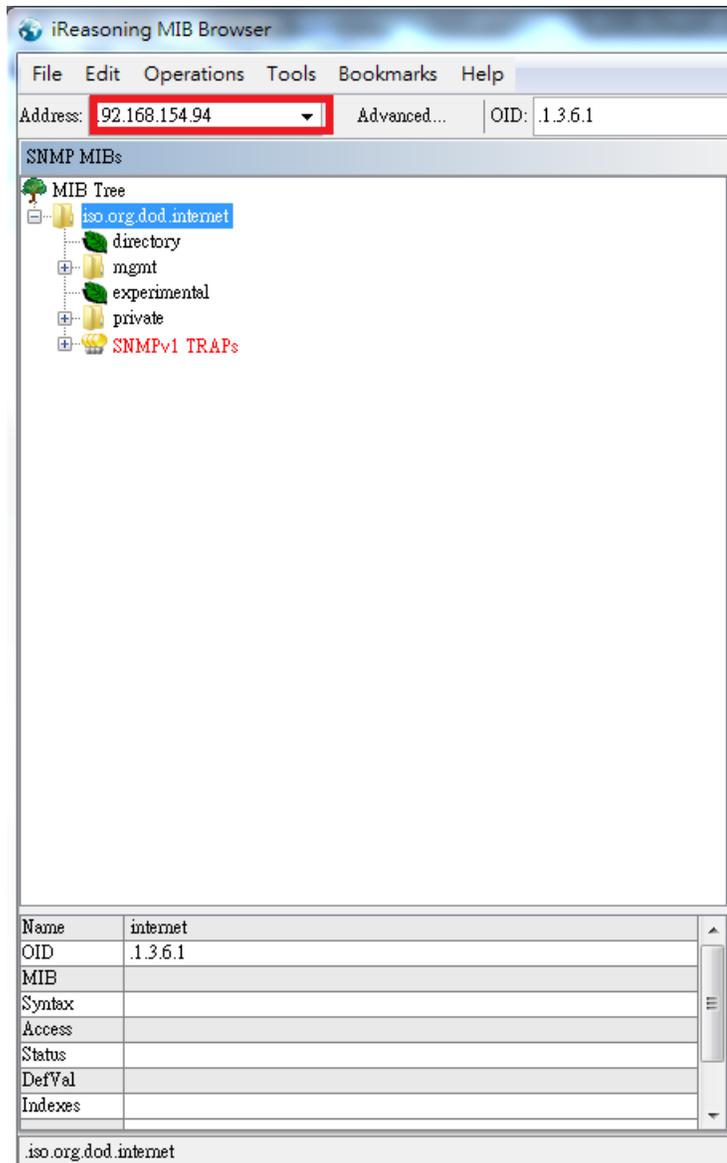
Figure 4   Enter the Management Port IP Address of XCubeSAN

6. Select an object and click the **Get Subtree** function by the right mouse button to retrieve the object which has multiple values on the XCubeSAN system, such as pd-size (the size of physical drive), vd-name (the name of virtual disk) and so on.
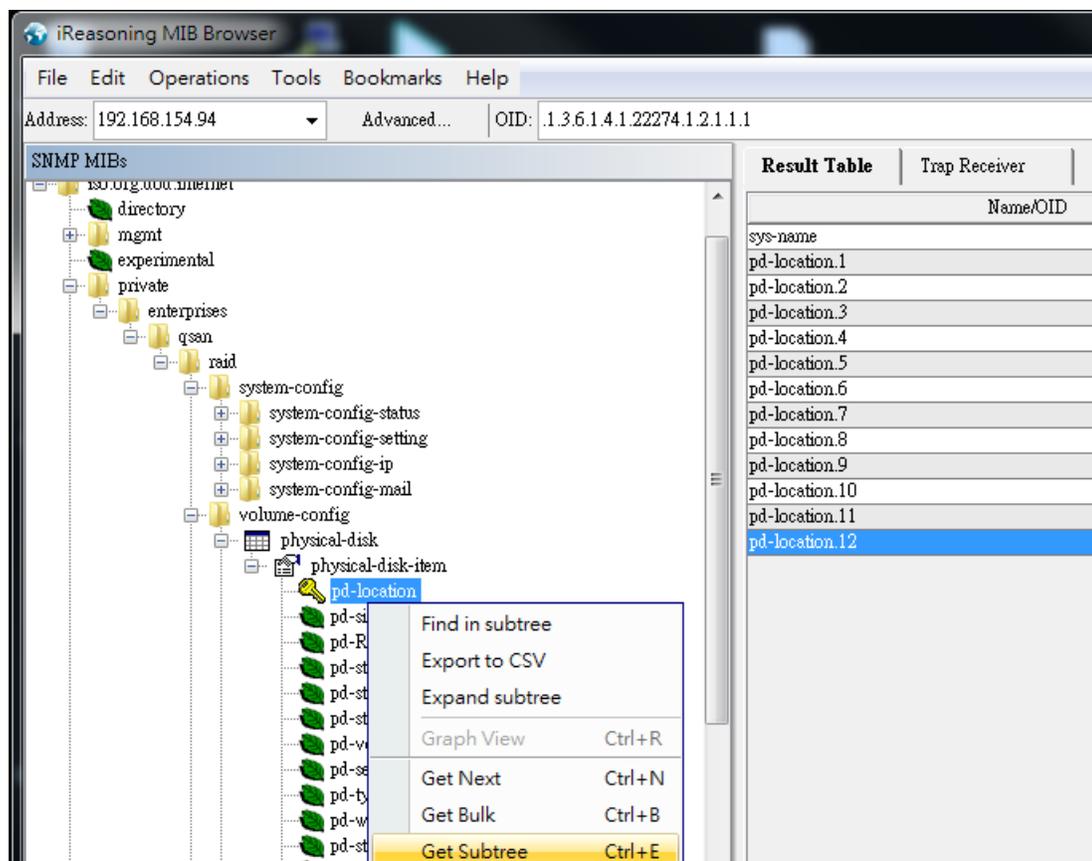
Figure 5   Get Subtree for Result Value of Query

7. The results are displayed at the right windows.

Conclusion

All XCubeSAN products are SNMP enabled and can be monitored by SNMP tools with the downloaded MIB file. This document is an example of using MIB file. With MIB file, users can query the status of hardware components of XCubeSAN through the **MIB Browser**.

Apply To

- XCubeSAN XS5200 / XS3200 / XS1200 FW 1.2.2 and later

Reference

XCubeSAN SANOS 4.0 User's Manual

- XCubeSAN SANOS 4.0 User's Manual

iReasoning MIB browser

- http://www.ireasoning.com/

SNMP Wikipedia

- https://en.wikipedia.org/wiki/Simple_Network_Management_Protocol

Appendix

Related Documents

There are related documents which can be downloaded from the website.

- [All XCubeSAN Documents](#)
- [XCubeSAN QIG (Quick Installation Guide)](#)
- [XCubeSAN Hardware Owner's Manual](#)
- [XCubeSAN Configuration Worksheet](#)
- [XCubeSAN SANOS 4.0 User's Manual](#)
- [Compatibility Matrix](#)
- [White Papers](#)
- [Application Notes](#)

Technical Support

Do you have any questions or need help trouble-shooting a problem? Please contact QSAN Support, we will reply to you as soon as possible.

- Via the Web: https://qsan.com/support
- Via Telephone: +886-2-7720-2118 extension 136
  (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Skype ID: qsan.support
  (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 09:30 - 01:00)
- Via Email: support@qsan.com