XCubeSAN Series Application Note

Implement iSCSI in macOS

QSAN Technology, Inc.
www.QSAN.com

QSAN

January 2018

This edition applies to QSAN XCubeSAN series. QSAN believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

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

Information contained in document has been reviewed for accuracy. But it could include typographical errors or technical inaccuracies. Changes are made to the document periodically. These changes will be incorporated in new editions of the publication. QSAN may make improvements or changes in the products. All features, functionality, and product specifications are subject to change without prior notice or obligation. All statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

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.

All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

Table of Contents

Implement iSCSI in macOS

Executive Summary

This application note provides technical guidance for setup iSCSI initiator with QSAN XCubeSAN series product.

Audience

This document is applicable for QSAN customers and partners who are interested in learning iSCSI implementation in Mac host. 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.

Prerequisites

Please check the macOS version and prepare the iSCSI initiator software. We will take **KernSafe iSCSI Initiator X** as an example.

iSCSI Initiator Software

KernSafe iSCSI Initiator X is an iSCSI initiator software for Apple Mac OS X (Free license available). Please refer to the following links for product overview and software download.

- Product Overview
  https://www.kernsafe.com/product/macos-iscsi-initiator.aspx
- Software Download
  https://www.kernsafe.com/download/macos-iscsi-initiator.aspx

Environment

- Host

- Model: Mac Pro (macOS Sierra)

Figure 1 macOS Overview

- Storage
  - Model: XCubeSAN XS5224D
    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
  - HDD Pool: RAID 5 Pool with 12 x NL-SAS HDDs in Controller 1
  - HDD Volume: 100GB in Pool

Topology

The connection between the Mac host and the XS5224D is as simple as requiring only one GbE link to one GbE switch and two GbE connections to each controller's onboard 10GbE LAN port.

Configuration

Storage Part

1. First, configure iSCSI network setting in the **HOST CONNECTIVITY** -> **iSCSI Ports**. Please refer to below illustration for details.

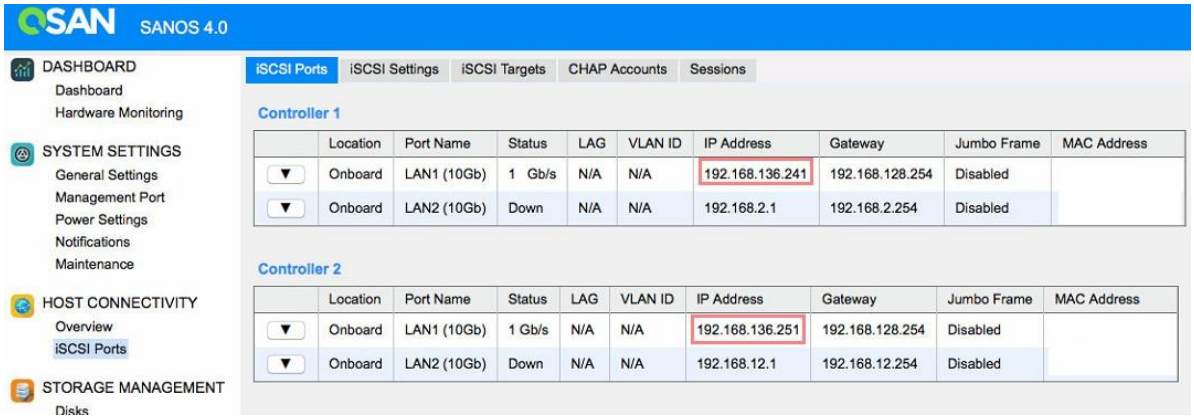

Figure 2 iSCSI Port Settings

2. Create a RAID pool and a volume with capacity 100GB, and then map a LUN ID to it.

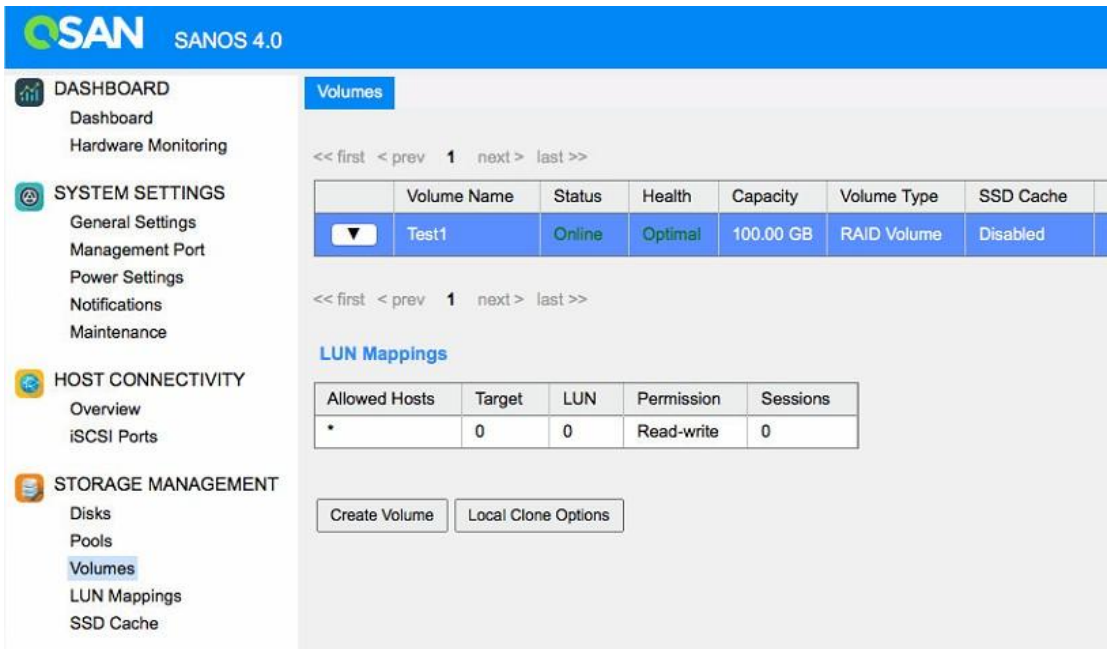

Figure 3 Volume Information

Mac Host Part

1. Make sure both IP addresses of iSCSI port on storage side can be pinged from the connected host.

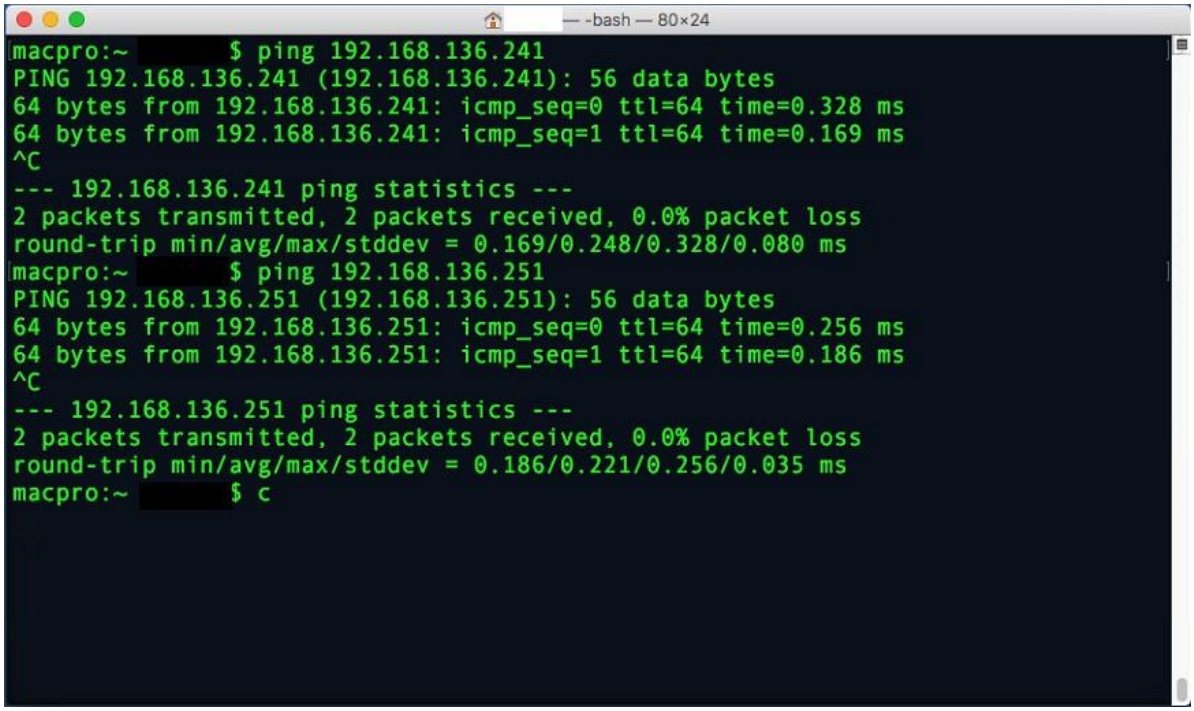

Figure 4 Ping Storage iSCSI Ports

2. Establish an iSCSI initiator on Mac host, here we use **KernSafe iSCSI Initiator X** as an example.

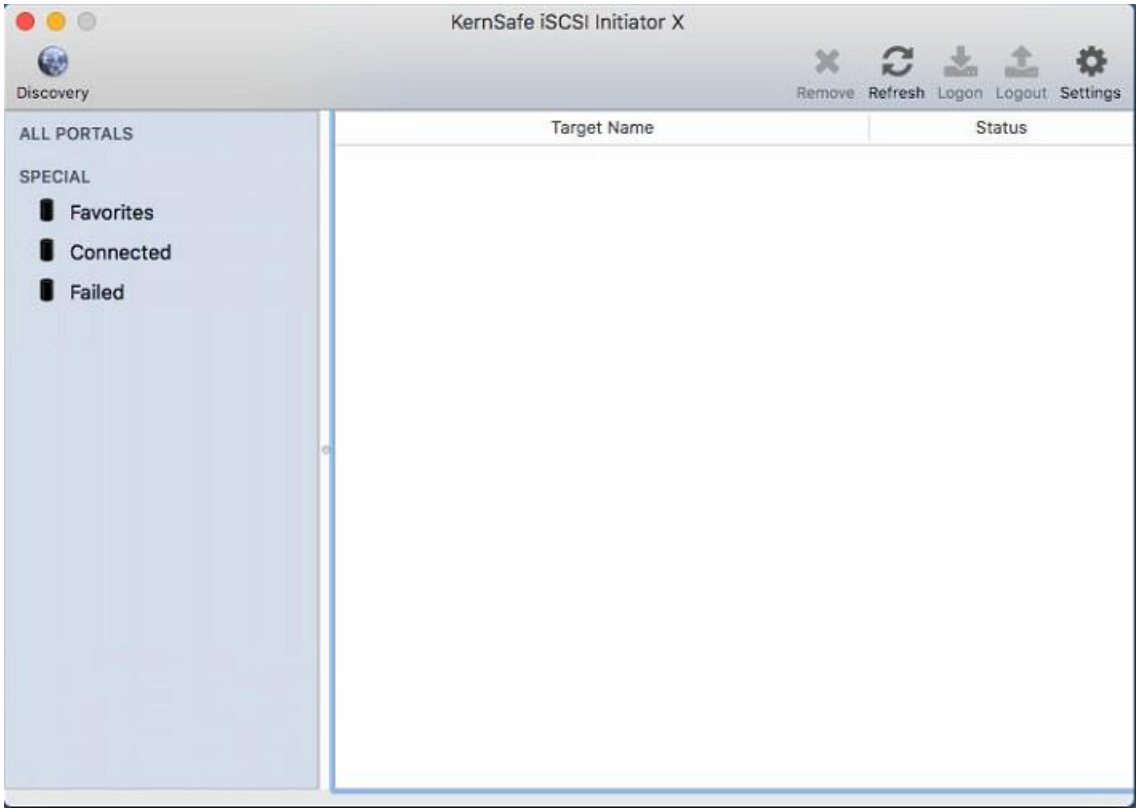

Figure 5 KernSafe iSCSI Initiator X

3. Click the **Discovery** button to discover iSCSI IP addresses.

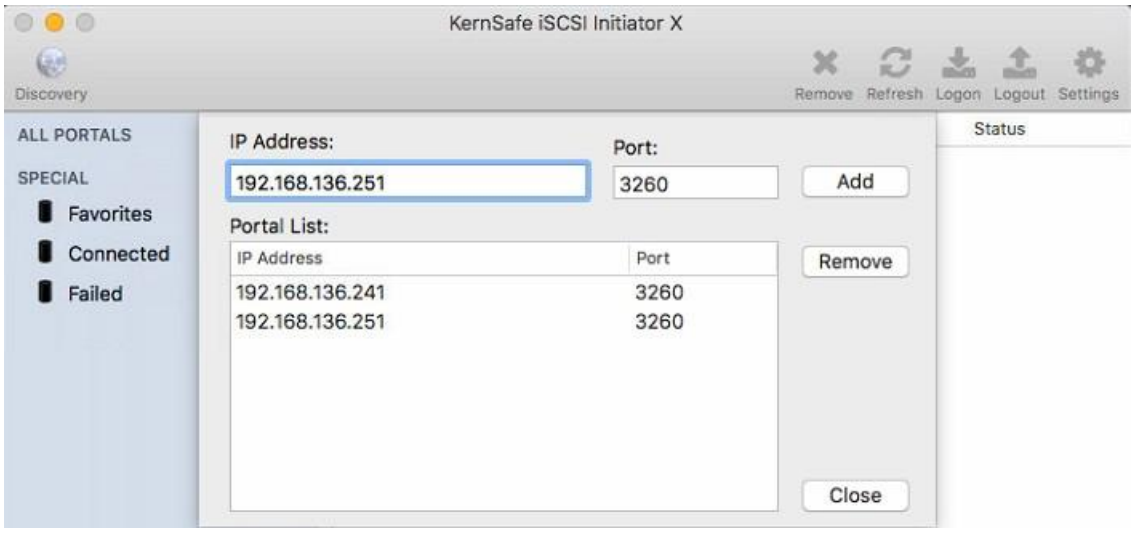

Figure 6 Discovery the iSCSI IP Addresses

4. Click the **Close** button and the available target(s) will be shown in the list as below.

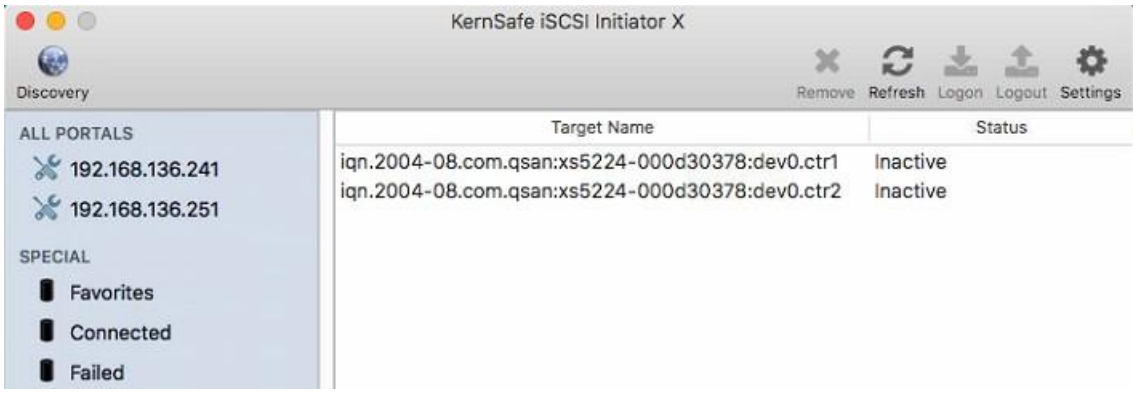

Figure 7 Available iSCSI Targets

INFORMATION:
We used a dual controller system in this example, so two iSCSI targets are currently displayed.

5. Select an iSCSI target and click the **Logon** button to logon to iSCSI target device.

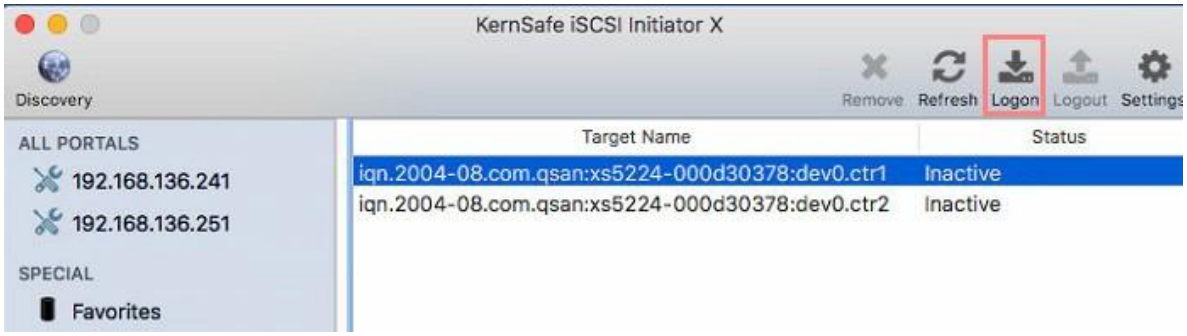

Figure 8 Logon iSCSI Target Device

6. A logon setting window is pop up. If necessary, check the **CHAP** check box and input the CHAP **User Name** and **Secret** (password). Click the **Logon** button when ready.

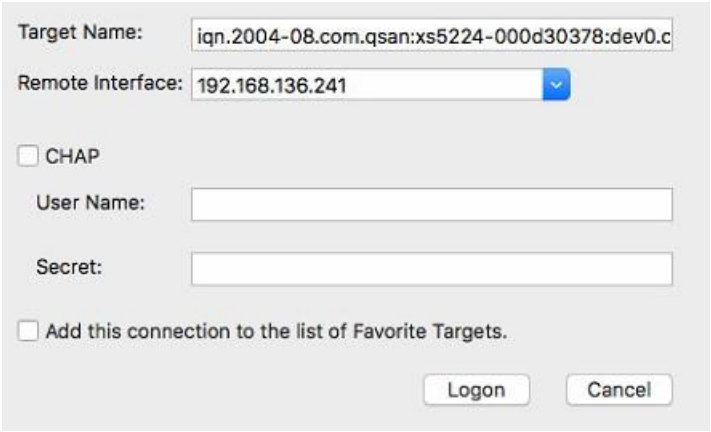

Figure 9 Logon Settings

7. If the logon settings are correct, the status changes to **Logged On**.

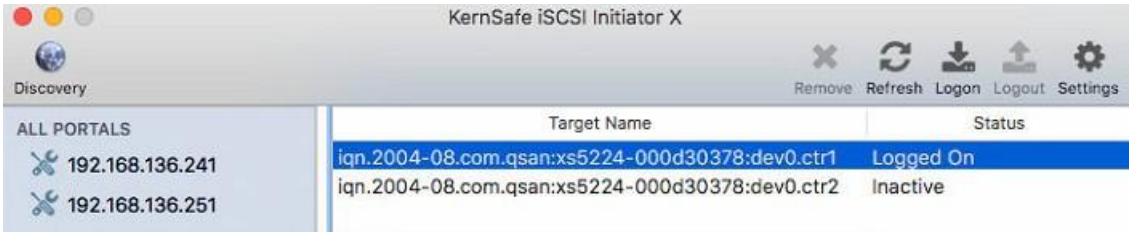

Figure 10 Logon Successfully

8. Done. There is an external disk displayed by the **Disk Utility**.

Figure 11 Disk Utility Displays an External Disk

9. If you wish to connect this iSCSI target with multipath (more than one iSCSI sessions for path redundancy), please select the second iSCSI target device to logon.

Figure 12 Select the Second iSCSI Target Device for MPIO

TIP:
In the free license of **KernSafe iSCSI Initiator X**, the number of iSCSI targets can be connected is 1. You may purchase the software license if you have to connect the iSCSI target with multipath.

Conclusion

Using the **KernSafe iSCSI Initiator X** software, user can quickly mount an external storage to Mac machine from remote iSCSI SAN server. Although there are many additional iSCSI initiator products available on Mac, the additional steps you take on your Mac host may vary, and you have to find the best way to work in a variety of environments.

Apply To

- XCubeSAN XS5200 / XS3200 / XS1200 FW 1.2.2 and later

Reference

KernSafe iSCSI Initiator X

- https://www.kernsafe.com/product/macos-iscsi-initiator.aspx

XCubeSAN SANOS 4.0 User's Manual

- XCubeSAN SANOS 4.0 User's Manual

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

