XEVO 3

Software Manual

April 2025

ANNOUNCEMENT

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Official
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TABLE OF CONTENTS

Official
Document
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FIGURES

Official
Document QSAN

TABLES

Official
Document
QSAN

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PREFACE

About This Manual

This manual provides technical guidance for QSAN block storage management, and it is intended for use by system administrators, designers, storage consultants, or anyone who has purchased these products and is familiar with servers and computer networks, network administration, storage system installation and configuration, storage area network management, and relevant protocols.

Related Documents

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

- QIG (Quick Installation Guide)
- Hardware Manual
- Compatibility Matrix
- White Papers
- Application Notes

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- Via the Web: https://www.qsan.com/technical_support
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Information, Tip, and Caution

This manual uses the following symbols to draw attention to important safety and operational information.

INFORMATION

INFORMATION provides useful knowledge, definition, or terminology for reference.

TIP

TIP provides helpful suggestions for performing tasks more effectively.

CAUTION

CAUTION indicates that failure to take a specified action could result in damage to the system.

Conventions

The following table describes the typographic conventions used in this manual.

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CONVENTIONS	DESCRIPTION
Bold	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click the **OK** button.
<Italic>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: copy *<source-file> <target-file>*.
[ ] square brackets	Indicates optional values. Example: [a | b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a | b } indicates that you must choose either a or b.
| vertical bar	Indicates that you have a choice between two or more options or arguments.
/ Slash	Indicates all options or arguments.
underline	Indicates the default value. Example: [a | b]

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1. GETTING STARTED

XEVO is a block storage management system designed by QSAN. XEVO's core technology provides the excellence, flexibility, and intelligence needed to simplify all content for a hybrid storage system. Its features set the foundation for the next generation of block storage from enterprise data services for all workloads to proven its availability and optimization. This chapter explains how to discover the storage system and how to sign into XEVO.

1.1. Discover the Storage System

The default setting for the management IP address is DHCP. For users who are going to install at the first time, we provide the XFinder Java utility to search for QSAN products on the network and aid quick access to the login page of the XEVO web interface. Here's a Quick Installation Guide for the steps to discover a storage system and a video on discovering a storage system for the first time.

1.2. Initial Setup

The initial configuration wizard will guide the first-time user to initialize and set up the system quickly. Follow the instructions in the wizard to complete the process.

TIP

The system will not operate normally if none of the first four disk slots in the storage system are populated. Please check that at least one disk is installed in these slots to ensure proper operation. If disks are installed after the system is powered on, a reboot is required for the system to establish the necessary configurations to ensure all functions operate correctly.

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2.   USER INTERFACE

This chapter illustrates the graphical user interface of and provides a brief introduction to the desktop function menus.

2.1.   Web UI Overview

To access the management web user interface, open a supported web browser and enter the management IP address or Hostname of the system. When the password has been verified, the dashboard is displayed.
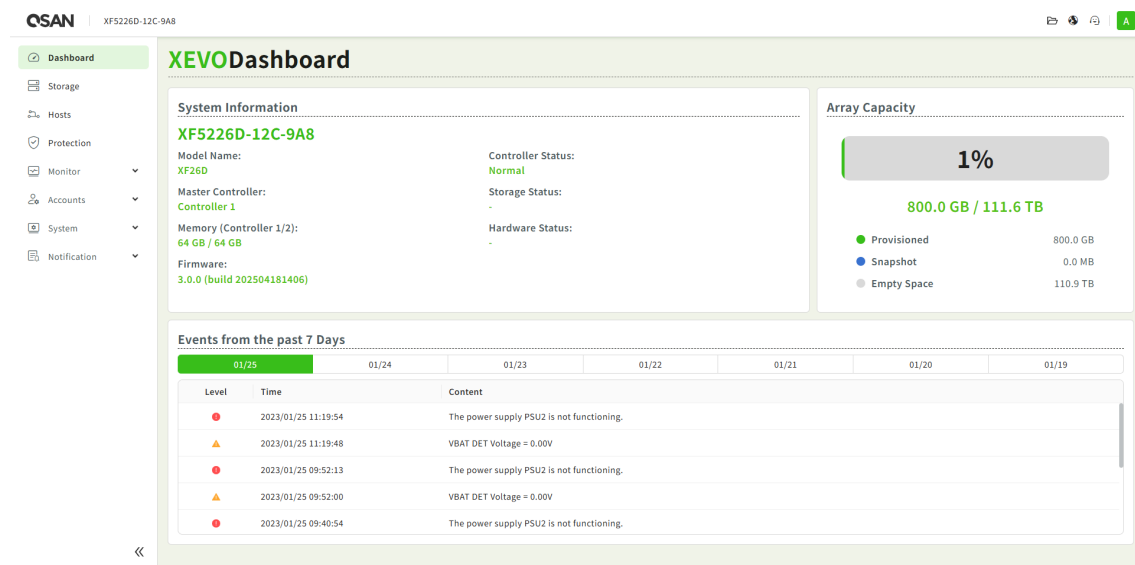

Figure 2-1   Dashboard View

The Web UI contains the following menus:

Dashboard

The **Dashboard** function menu represents a graphical overview of the array, including system information, array capacity, and events. For more information, see Section 3.1, Dashboard Overview.

User Interface
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Storage

Select the **Storage** function menu to display the storage pools on the array, including disk groups and volumes. View and operate the storage pools and volumes. For more information, see Chapter 4, Storage Menu.

Hosts

Select the **Hosts** function menu to display the host objects on the array, including host groups, host profile, and connected volumes. View and operate the host objects and the connections between them. For more information, see Chapter 5, Hosts Menu.

Protection

Select the **Protection** function menu to display the protection functions on the array. View and operate the protection functions such as snapshots and replications. For more information, see Chapter 6, Protection Menu.

Monitor

Select the **Monitor** function menu to display the system health and array-wide information, including system modules and disks. For more information, see Chapter 7, Monitor Menu.

Accounts

Select the **Accounts** function menu to display the user account information. View and manage the users and groups. For more information, see Chapter 8, Accounts Menu.

System

Select the **System** function menu to display the system information. View and manage the system general settings, network settings, disks, and maintenance functions. For more information, see Chapter 9, System Menu.

Notification

Select the **Notification** function menu to display the log events, and setup the notification methods. For more information, see Chapter 10, Notification Menu.

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2.2. Accessing the Management USB LCM

Optionally, we provide a portable USB LCM (LCD Control Module) for simple management. To access the management USB LCM, plug it into the USB port of the right ear in the front panel.

Figure 2-2   Portable USB LCM

After plugging the USB LCM into the system, the LCD screen shows the management port IP address and the system model name.
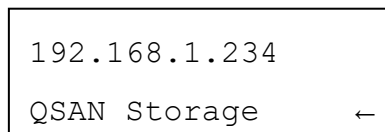


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192.168.1.234

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Figure 2-3   USB LCM Screen

To access the LCM options, use the **ENT** (Enter) button, **ESC** (Escape) button, ▲ (up) and ▼ (down) to scroll through the functions. **MUTE** button to mute the buzzer when the system alarms. If there are event logs occurred, events will be displayed on the first line of the LCM.

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3.   DASHBOARD MENU

The **Dashboard** menu displays the system information, storage capacity, and events. It helps the user to quickly view the basic information and system health.
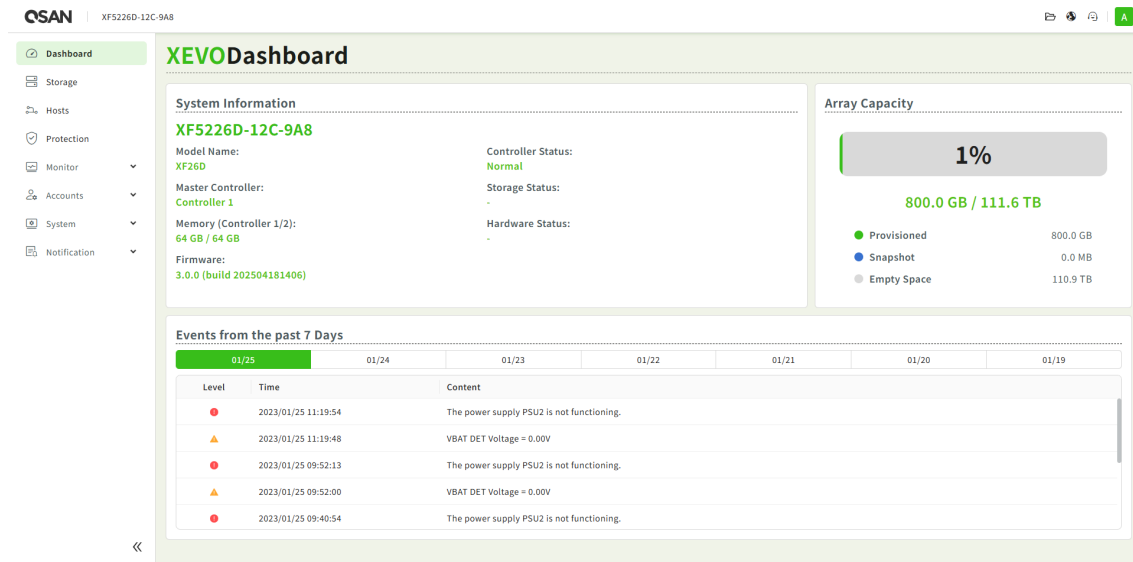
Figure 3-1   Dashboard View

3.1.   Dashboard Overview

Select the **Dashboard** menu to show a summary of the overall system. It's divided into three blocks in the details pane. There are system information, array capacity, and events from the past 7 days.

3.1.1.   System Information

The **System Information** pane displays the basic information of the system. To drill down and analyze the array details, click **System** -> **General**.

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3.1.2. Array Capacity

The **Array Capacity** pane contains a summary of the capacity usage including the amount of storage occupied by provisioned volumes and snapshots.

The pane includes the following items:

- **Percentage (%):** Percentage of the system's storage space occupied by provisioned volumes and snapshots.

- **Provisioned:** Total provisioned capacity of all volumes.

- **Snapshots:** Physical space occupied by data unique to one or more snapshots.

- **Empty Space:** Unused space available for allocation.

3.1.3. Events

The **Events** pane contains events from the past 7 days. Click a date to view that day's events. To drill down and analyze the array details, click **Notification** -> **Event Log**.

3.1.4. Introduce the Upper Right Corner Icons

At the top right corner, there are three icons. The options are available in the icons.

Language

Click the 🌐 icon at the upper right corner to list the drop-down options to change the language in the web UI.

Help

Click the 🙂 icon at the upper right corner to popup the help information. Click the **Export** button to export the diagnosis report file. Comes with problems and test environment for analysis.

Login Account

Click the username at the upper right corner to list the drop-down options to execute the system functions.

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4.   STORAGE MENU

The **Storage** menu manages the storage pools. It displays the storage pool status and configures the storage pool. This chapter describes the details of storage management operations.
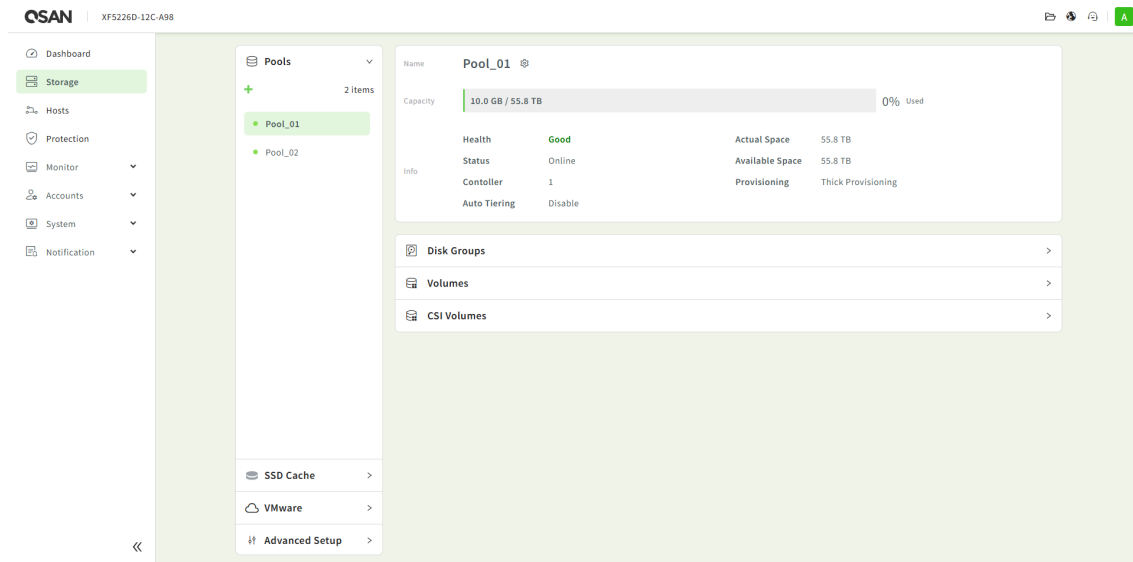

Figure 4-1   Storage View

4.1.   Storage Pools

Select the **Storage** menu and **Pools** item to manage the storage pools. In this menu, you can create, modify, delete, or view the status of all pools.

4.1.1.   Create a Pool

1. Click the **+** icon and select the **Pool** or **Dedup & Compression Pool** option to open a wizard to create a pool. Follow the instructions in the wizard to complete the process.
2. Select a **Pool Provisioning** as Thick or Thin Provisioning. Enable **Pool Encryption** when applying SED disks. Enable **Auto Tiering** when installing different type of disks.
3. Click the **Select Disks** to make up the storage pool. Depending on the number of disks selected, certain RAID types are available.

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4. Select **Block** to create block volumes.

5. Select **Normal** to create general RAID usage volumes, or select **Replication** to create volumes the target volume of local clone or remote replication.

6. Then allocate the volume capacity.

7. Click the **Apply** button to confirm the settings. The system will automatically run the storage creation in the background.

INFORMATION

Deduplication and compression pool requirements:

- 16 GB memory per controller
- License required
- All SSDs required
- Thin provisioning pool

For more information about deduplication and compression pool, see the Dedup and Compression Pool.

4.1.2. List and Configure Pools

All pools are listed in the **Pools** pane. Click one of them to display the details. Click the ⚙ icon beside the pool name to list the drop-down options. The following options are available.

Rename

1. Click the **Rename** option to rename the pool.
2. Enter a new **Pool Name**. The maximum length of the pool name is 15 characters. Valid characters are [A~Z | a~z | 0~9 | -_<>].
3. Click the **Apply** button to rename.

Edit

1. Click the **Edit** option to change disk properties of the pool.
2. Click the radio button to Enable or Disable.

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- **Disk Write Cache**: Enabling the disk write cache will improve write I/O performance but have a risk of losing data when power failure.
- **Disk Read-ahead**: When enabling the disk read-ahead, the system will preload data to disk buffer based on previously retrieved data. This feature will efficiently improve the performance of sequential data retrieved.
- **Disk Command Queuing**: When enabling the disk command queuing, the system will send multiple commands to a disk at once to improve performance.
- **Disk Standby** *(Only visible for hybrid storage models)*: Check to enable the auto spin down function of disks. The disks will be spun down for power saving when they are idle for the period specified.

3. After changing the disk properties, click the **Apply** button to take effect.

Change Preferred Controller

1. Click the **Change Preferred Controller** option to change the pool ownership to the other controller.
2. Click the **Apply** button to take effect.

Scrub

1. Click the **Scrub** option to regenerate parity for the pool.
2. Click the **Apply** button to proceed.

INFORMATION

It supports RAID level 5, 6, 50, 60 and RAID EE level 5EE, 6EE, 50EE, 60EE.

Activate / Deactivate

1. Click the **Deactivate** option to deactivate the pool. Afterwards, the disks can be moved to another system for disk roaming.
2. Click the **Activate** option to activate the pool.

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Set Thin Provisioning Policy

1. Select a percentage for **Write Upper Limits** when the pool reaches the specified percentage of usage, the volume will become read-only
2. Click the **Apply** button to take effect.

Delete

1. Click the **Delete** option, and then pop up a confirm dialog box.
2. Click the **Confirm** button to confirm and delete.

4.1.3. List and Configure Disk Groups

Click the **Disk Groups** pane to list all disk groups in the pool. This is a tutorial example, see Expanding Pool and Volume Capacity. The following options are available.

Create a Disk Group

1. Click the **+ Create Diskgroup** button to create a disk group. Follow the instructions in the wizard to complete the process.
2. Click the **Select Disks** to make up the storage pool. Depending on the number of disks selected, certain RAID types are available.
3. Click the **Apply** button to confirm the settings.

Delete Disk Groups

1. Check the disk group checkboxes which you want to delete.
2. Click the 🗑 button, and then pop up a confirm dialog box.
3. Click the **Apply** button to confirm and delete.

⚠️ **CAUTION**

If the pool contains only one disk group, it cannot be deleted. If the disk group is being used and not empty, it also cannot be deleted.

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Click the ⚙ icon to list the drop-down options. The following options are available.

Disk Information

1. Click the **Disk Info** option to display the disk information in the disk group.
2. Click the **Close** button to close the window.

Edit

1. Click the **Edit** option to change the property of the disk group.
2. Click the radio button to Enable or Disable.

   - **High Latency Disk Warning**: Enable the high latency disk warning to predict which disks are at risk.

3. Click the **Apply** button to take effect.

4.1.4. List and Configure Volumes

Click the **Volumes** pane to list all volumes in the pool. The following options are available.

Create Volumes

1. Click the **+ Create Volume** button to create block volumes. Follow the instructions in the wizard to complete the process.
2. Select **Block** to create block volumes.
3. Select **Normal** to create general RAID usage volumes, or select **Replication** to create volumes the target volume of local clone or remote replication.
4. Then allocate the volume capacity.
5. Click the **Apply** button to confirm the settings.

Delete Volumes

1. Check the volume checkboxes which you want to delete.
2. Click the 🗑 button, and then pop up a confirm dialog box.
3. If the volumes are already existed in the **Hosts**, or **Protection**, it will display the dialog asking you how to handle the items you would like to delete.
4. Click the **Confirm** button to confirm and delete.

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Click the ⚙ icon at the end of the volume to list the drop-down options. The following options are available.

Edit

1. Click the **Edit** option to change the volume properties.
2. Volume advanced settings can be configured optionally.

   - **Background I/O Priority**: The options are **High**, **Medium**, and **Low**. It will influence volume initialization, rebuild, and migration.
   - **Cache Mode**: The options are **Write Through** and **Write Back**. Write back optimizes the system speed but comes with the risk where the data may be inconsistent between cache and disks in one short time interval.
   - **Video Editing Mode**: Click the radio button to **Enable** or **Disable** the video editing mode. It is optimized for video editing usage to get a more stable performance figure without high and low peaks but slower in average.
   - **Read Ahead**: Click the radio button to **Enable** or **Disable** the read ahead of the volume. The system will discern what data will be needed next based on what was just retrieved from disk and then preload this data into the disk's buffer. This feature will improve performance when the data being retrieved is sequential.
   - **Use For** (only for block volume): The options are **Raid** and **Replication**. Raid is for general RAID usage, and replication is for the target volume of local clone or remote replication.

3. After changing the volume properties, click the **Apply** button to take effect.

Extend Volume

1. Click the **Extend Volume** option to extend the volume capacity.
2. Enter a new **Capacity** to be extended.
3. Click the **Apply** button to extend.

4.1.5. List and Configure CSI Volumes

Click the **CSI Volumes** pane to list all CSI volumes in the pool. The following options are available. For more information, see the [CSI Driver and Kubernetes Integration Application Note](#) from QSAN website.

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Delete Volumes

1. Check the volume checkboxes which you want to delete.

2. Click the 🗑 button, and then pop up a confirm dialog box.

3. Click the **Confirm** button to confirm and delete.

4.2. Dedup and Compression Pool

Data reduction is a technique used to decrease the amount of data stored and transmitted by eliminating redundancy information. This process aims to enhance storage efficiency, reduce costs, and improve performance in data handling and analysis. Regardless of the approach, data reduction is a complex process in which engineers and scientists must make tradeoffs between space savings, processing savings, and data fidelity. For more information, see the Dedup and Compression White Paper from QSAN website.

The total capacity of the pool will be limited depending on the system memory size. The following are the deduplication and compression pool parameters.

Table 4-1   Dedup and Compression Pool Parameters

ITEM	VALUE
The maximum pool capacity per system	System memory x 1,024
The maximum number of pools per system	2
The maximum number of volumes per system	System memory / 4

The following is the mapping table between deduplication and compression pool memory, capacity, and volume number.

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Table 4-2   Dedup and Compression Pool Mapping Table

SYSTEM MEMORY PER CONTROLLER	MAXIMUM DECUP & COMPRESSION POOL CAPACITY PER SYSTEM	MAXIMUM NUMBER OF VOLUMES PER SYSTEM
8 GB	8 TB	2
16 GB	16 TB	4
32 GB	32 TB	8
64 GB	64 TB	16
128 GB	128 TB	32
256 GB	256 TB	64
512 GB	512 TB	128
1,024 GB	1,024 TB	256

4.3.   Hot Spares

The system can set free disks as global spares. If one disk drive of the pool fails or has been removed from any singly redundant RAID, the pool status will change to degraded mode. Now, the system will search the spare disk to execute pool / volume / data rebuild into a healthy RAID drive automatically. For more information, see the Configure Disk Settings.

4.4.   SSD Cache

SSD cache allows an SSD to function as read cache or write buffer for an HDD volume. In SSD read cache, it is a secondary cache that improves performance by keeping frequently accessed data on SSDs where they are read far more quickly than from the HDD volume. When reads or writes are performed, the data from the HDDs are copied into the SSD cache. Although the data is duplicated to SSD cache pool, it does not matter if the read cache pool is corrupted.

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In SSD write cache, SSDs are a write buffering storage that improves performance by storing the write data in SSDs temporary where they are write far more quickly than to the HDD volume. And then the write data will be flushed to the HDD volume at the appropriate time. It may take risk of losing data during the period that the write data is stored in SSD cache if the SSD cache pool is corrupted. The write data has not yet written back to the HDD volume. So, the read-write cache pool needs data protection to protect the write data.

The available capacity of the SSD cache is proportional to the size of the controller's system memory. The following is a mapping table of SSD cache pool memory and capacity.

Table 4-3   SSD Cache Pool Mapping Table

SYSTEM MEMORY PER CONTROLLER	MAXIMUM SSD CACHE POOL CAPACITY PER SYSTEM
8 GB	2 TB
16 GB	4 TB
32 GB	8 TB
64 GB	16 TB
128 GB	32 TB
256 GB	64 TB
512 GB	128 TB
1,024 GB	256 TB

⚠️ **CAUTION**

Using SSD read-write cache may take risk of losing data if the SSD cache pool is corrupted. User has to monitor the health of the SSD cache pool carefully.

For more information, see the SSD Cache White Paper from QSAN website.

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Select the **Storage** menu and **SSD Cache** item to manage the SSD cache pools. In this menu, you can create, modify, delete, or view the status of all SSD cache pools.

4.4.1. Create an SSD Cache Pool

1. Click the **+** icon open a wizard to create an SSD cache pool. Follow the instructions in the wizard to complete the process.
2. Click the **Select Disks** to make up the storage pool.
3. Select to **Cache Mode** for read cache or read / write cache, then specify a volume to enable SSD cache.
4. Click the **Apply** button to confirm the settings.

INFORMATION

SSD cache pool requirements:

- 8 GB memory per controller
- All SSDs required
- Read / write cache mode requires 3 SSDs or more

4.4.2. List and Configure SSD Cache Pools

All SSD cache pools are listed in the **SSD Cache** pane. Click one of them to display the details. Click the ⚙ icon beside the pool name to list the drop-down options. The following options are available.

Rename

1. Click the **Rename** option to rename the pool.
2. Enter a new **Pool Name**. The maximum length of the pool name is 15 characters. Valid characters are [A~Z | a~z | 0~9 | -_<>].

Click the **Apply** button to rename.

16

Storage Menu
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Delete

1. Click the **Delete** option, and then pop up a confirm dialog box.
2. Click the **Apply** button to confirm and delete.

4.4.3.   List and Configure SSD Groups

Click the **SSD** pane to list all disk groups in the SSD cache pool. The following options are available.

Edit SSD Groups

1. Click the **Edit SSD** button to edit SSD group. Follow the instructions in the wizard to complete the process.
2. Click the **Select Disks** to make up the storage pool.
3. Click the **Apply** button to confirm the settings.

4.4.4.   List and Configure Bound Volumes

Click the **Volumes** pane to list all bound volumes in the SSD cache pool. The following options are available.

Add Volumes

1. Click the **+ Add Volume** button to add volumes in the SSD cache pool. Follow the instructions in the wizard to complete the process.
2. Check the volume checkboxes which you want to bond.
3. Click the **Apply** button to confirm the settings.

Unbond Volumes

1. Check the volume checkboxes which you want to unbond.
2. Click the button, and then pop up a confirm dialog box.
3. Click the **Apply** button to unbond.

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4.5.   VMware Datastores

VMware Datastore serves as a fundamental component in VMware's virtualization infrastructure, specifically within vSphere environments. It acts as a logical container for storing various types of files related to virtual machines (VMs), including virtual disks, templates, and ISO images. For more information, see the VMware Setup Guide Application Note from QSAN website.

Select the **Storage** menu and **VMware** item to manage the VMware datastores. In this menu, you can create, modify, delete, or view the status of all VMware datastores.

4.5.1.   Create a Datastore

1. Click the **+** icon to open a wizard to create a datastore. Follow the instructions in the wizard to complete the process.
2. Select a **Service Plan** based on your application. Enable **Datastore Encryption** when applying SED disks. Enable **Auto Tiering** when installing different type of disks.
3. Click the **Select Disks** to make up the storage pool. Depending on the number of disks selected, certain RAID types are available.
4. Click the **Apply** button to confirm the settings. The system will automatically run the storage creation in the background.

4.5.2.   List and Configure Datastores

All pools are listed in the **VMware** pane. Click one of them to display the details. Click the ⚙ icon beside the pool name to list the drop-down options. The following options are available.

Delete

1. Click the **Delete** option, and then pop up a confirm dialog box.
2. Click the **Confirm** button to confirm and delete.

4.5.3.   List and Configure Disk Groups

Click the **Disk Groups** pane to list all disk groups in the datastore.

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4.5.4.   List and Configure Protocol Endpoints

Click the **Protocol Endpoint** pane to list all protocol endpoints in the datastore. Click the ⬜ icon to copy the **Target Host** into the clipboard.

4.5.5.   List and Configure Virtual Volumes

Click the **Protocol Endpoint** pane to list all virtual volumes in the datastore. The following options are available.

Delete Virtual Volumes

1.   Check the virtual volume checkboxes which you want to delete.
2.   Click the 🗑 button, and then pop up a confirm dialog box.
3.   Click the **Apply** button to confirm and delete.

4.6.   Auto Tiering

Auto tiering is the automated progression or demotion of data across different tiers (types) of storage devices and media. The movement of data takes place in an automated way with the help of software and is assigned to the ideal storage media according to performance and capacity requirements. It also includes the ability to define rules and policies that dictate when data can be moved between the tiers, and in many cases provides the ability to pin data to tiers permanently or for specific periods of time. For more information, see the Auto Tiering White Paper from QSAN website.

Select the **Storage** menu, **Advanced Setup** item, and **Auto Tiering** subitem to operate the advanced setup for auto tiering pool. The following options are available.

Relocate Pool

1.   Check the pool checkboxes which you want to relocate.
2.   Click the **Relocate Start** button, and then pop up a confirm dialog box.
3.   Click the radio button for **Relocate Rate**.
4.   Click the **Apply** button to proceed.

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4.7. VASA Provider

Select the **Storage** menu, **Advanced Setup** item, and **VASA Provider** subitem to operate the advanced setup for VASA provider. For more information, see the [VMware Setup Guide Application Note](#) from QSAN website.

4.8. QoS

Select the **Storage** menu, **Advanced Setup** item, and **QoS** subitem to operate the advanced setup for QoS (Quality of Service) settings. For more information, see the [QoS White Paper](#) from QSAN website.

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5. HOSTS MENU

The **Hosts** menu manages the host groups. It displays the host group status, configures the host profile, and connected volumes. This chapter describes the details of host group management operations.
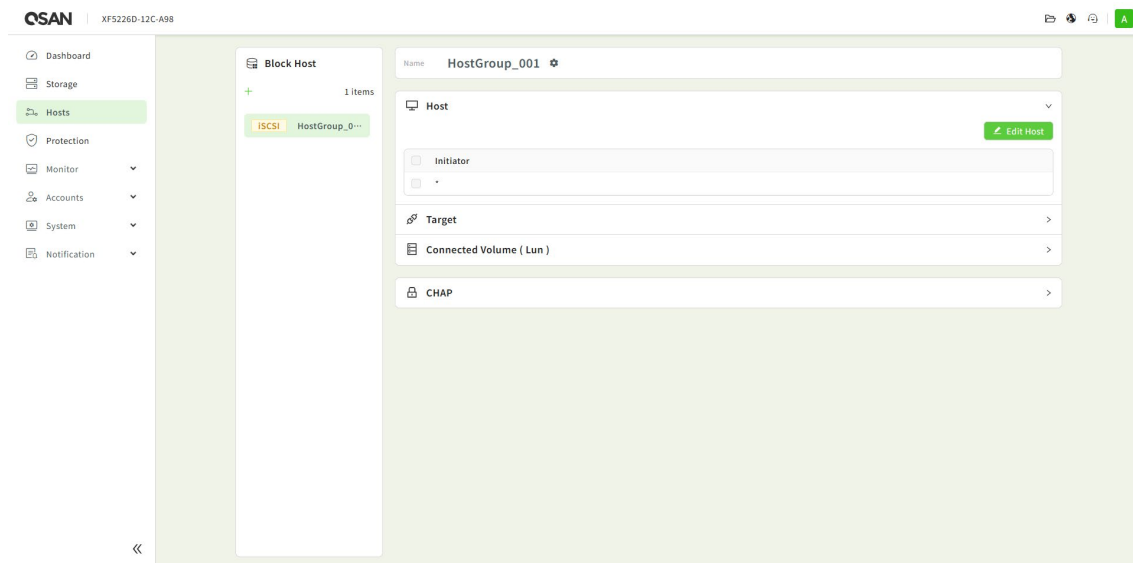
Figure 5-1   Hosts View

5.1. Block Hosts

Select the **Hosts** menu and **Block Host** item to manage the block host groups. In this menu, you can create, modify, delete, or view the status of all host groups. This is a tutorial example, see Fibre Channel Configuration and Mounting on Windows.

5.1.1. Create a Block Host Group

1. Click the **+** icon to create a block host. Follow the instructions in the wizard to complete the process.
2. Select a connection protocol, then enter a name, select ports, and connected volumes.
3. Click the **Apply** button to confirm the settings.

5.1.2. List and Configure Block Host Groups

All host groups are listed in the **Block Host** pane. Click one of them to display the details. Click the ⚙ icon beside the host group name to list the drop-down options. The following options are available.

Rename

1. Click the **Rename** option to rename the host group.
2. Enter a new **Group Name**. The maximum length of the group name is 32 characters. Valid characters are [A~Z | a~z | 0~9 | -_<>].
3. Click the **Apply** button to rename.

Delete

1. Click the **Delete** option, and then pop up a confirm dialog box.
2. Click the **Apply** button to confirm and delete.

5.1.3. List and Configure Hosts

Click the **Host** pane to list all host profiles in the host group. The following options are available.

Edit Host

1. Click the **Edit Host** button to edit the hosts.
2. Click the radio button to select host as **All (*)** or **Custom**.
3. If select the **Custom** option, click the **+** button to add a host IQN, click the 🗑 icon to delete it from the list.
4. Select the host IQN to enable, or uncheck it to disable.
5. Click the **Apply** button to take effect.

⚠️ **CAUTION**

Any changes may cause the connection to be lost or the data in transit lost.

5.1.4.   List and Configure Targets

Click the **Target** pane to list targets in the host group. The following options are available.

Edit Interface

1.   Click the Edit Interface button to edit the interfaces.
2.   Select the interface to allow access, or uncheck it to deny access.
3.   Click the **Apply** button to take effect.

5.1.5.   List and Configure Connected Volumes

Click the **Connected Volume (LUN)** pane to list all volumes in the host group. The following options are available.

Connect Volumes

1.   Click the Mapping LUN button to connect volumes.
2.   Select the volume name to allow access, or uncheck it to deny access.
3.   Click the **Apply** button to take effect.

5.1.6.   List and Configure CHAPs

Click the **CHAP** pane to list all CHAPs in the host group. The following options are available.

Edit CHAP

1.   Click the Edit CHAP button to edit the CHAP accounts.
2.   Click the **+** button to add a CHAP account, click the 🗑 icon to delete the CHAP account from the list.
3.   Select the CHAP account to enable, or uncheck it to disable.
4.   Click the radio button to **Enable** or **Disable** the Mutual CHAP.
5.   Click the **Apply** button to take effect.

6. PROTECTION MENU

The **Protection** menu manages the protection functions. It displays the snapshot status, configures the replication, rsync, cloud backup, and Microsoft 365 backup functions. This chapter describes the details of protection operations.
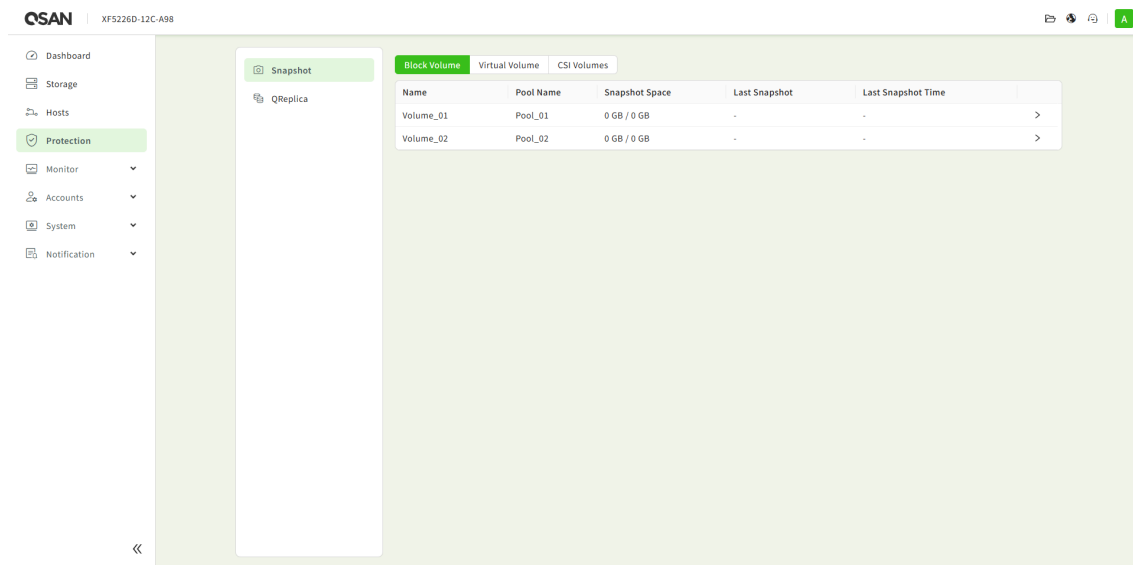

Figure 6-1   Protection View

6.1. Snapshot

Select the **Protection** menu and the **Snapshot** item to manage the snapshot volumes. Click the **Block Volume**, **Virtual Volume**, or **CSI Volumes** tab to list all volumes. Click the **>** icon at the end of the volume name to display the details.

6.1.1. Configure Snapshot Settings

The following options are available.

Snapshot Space

1. Click the **Extend Snapshot Space** button to configure the snapshot space. Or click the Reset button to clear all snapshots.
2. Enter a number for snapshot space.
3. Click the **Apply** button to take effect.

TIP

Volumes in the thin provisioning pool will automatically reserve 10% of the capacity for the snapshot space. However, volumes in the thick provisioning pool are not preserved. You should enable the snapshot space manually.

Snapshot Retention

1. Click the **Edit** button to setup the snapshot retention.
2. Enter a number for maximum snapshot limit.
3. Click the radio button for **Snapshot Rotation Policy**.
4. Click the **Apply** button to take effect.

Schedule

5. Click the **Edit** button to setup the snapshot schedule.
6. Click the radio button for **Schedule Type**.
7. Click the **Apply** button to take effect.

6.1.2. Take and Rollback Snapshot

There are two tabs below the snapshot settings. One is the **Snapshots** tab to display all volume snapshots; the other is the **Deleted Snapshots** tab of the snapshot recycle bin. The following options are available.

Take a Snapshot

1. Click the [📷] button to take a snapshot.

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2. The recommended **Snapshot Name** is provided. Enter a new **Snapshot Name** if necessary. The maximum length of the snapshot name is 31 characters. Valid characters are [A~Z | a~z | 0~9 | -_<>].

3. Click the **Apply** button to take a snapshot.

Delete Snapshot

1. Click the 🗑 icon, and then pop up a confirm dialog box.
2. Click the **Apply** button to confirm and delete.

Rollback Snapshot

1. Click the ↻ icon, and then pop up a confirm dialog box.
2. Click the **Apply** button to confirm to roll back the snapshot to the volume.

CAUTION

Before executing rollback, it is better that the disk is unmounted on the host computer for flushing data from cache. When a snapshot has been rolled-back, the related snapshots which are earlier than it will also be removed. But the rest snapshots will be kept after rollback.

6.1.3. List Deleted Snapshots

Click the **Deleted Snapshots** tab. It's a recycle bin of the deleted snapshots. The following options are available.

Rescue Snapshot

1. Click the ⇅ icon, and then pop a confirm dialog box.
2. Click the **Apply** button to rescue the deleted snapshot and it will be back to the snapshot volumes.

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Destroy Snapshot

1. Click the 🗑 icon, and then pop a confirm dialog box.
2. Click the **Apply** button to confirm and delete.

⚠️ **CAUTION**

If a snapshot has been deleted, the other snapshots which are earlier than it will also be deleted. The space occupied by these snapshots will be released after deleting.

Click the **<- Back** icon to return to the snapshot list.

6.2. Replication

Select the **Protection** menu and the **QReplica** item to manage the replication tasks. The following are tutorial examples, see [Asynchronous Replication](#) and [Synchronous Replication](#).

6.2.1. Traffic Shaping

The traffic shaping function can help reserve the necessary bandwidth for non-replication I/O operations. Eight shaping groups can be set. In each shaping group, peak and off-peak time slots are provided for different bandwidths.

3. Click the **Traffic Shaping** button to edit the traffic shaping settings. Follow the instructions in the wizard to complete the process.
4. Select a **Profile** to edit.
5. Enter a speed number for the traffic limit. If desired, enable **Peak Traffic Limit**, then set the peak period and another speed number.

6.2.2. Create a Replication Task

1. Click the **Add** button to create a replication task. Follow the instructions in the wizard to complete the process.

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2. Select **Local** to copy data to local or **Remote** to copy data to another QSAN product, then click the **Next** button.
3. Select **Async** or **Sync** type, then click the **Next** button.
4. Enter a task name, then click the **Next** button.
5. Select the source pool and volume, then click the **Next** button.
6. Click the radio button for **Schedule Type**, then click the **Next** button.
7. Select a **Traffic Shaping**, then click the **Next** button.
8. Click the **Apply** button to confirm and create a task.

6.2.3. List and Configure Tasks

Click the ⚙ icon beside the task name to list the drop-down options. The following options are available.

Rename

1. Click the **Rename** option to rename the pool.
2. Enter a new **Name**. The maximum length of the pool name is 32 characters. Valid characters are [A~Z | a~z | 0~9 | -_<>].
3. Click the **Apply** button to rename.

Re-replicate

1. Click the **Re-replicate** option to re-replicate all data from the source to the target.
2. Click the **Confirm** button to proceed.

Delete

1. Click the **Delete** option, and then pop a confirm dialog box.
2. Click the **Confirm** button to confirm and delete.

Schedule

1. Click the ✎ button to setup the snapshot schedule.
2. Click the radio button for **Schedule Type**.
3. Click the **Apply** button to take effect.

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Replicate Now

1. Click the **Replicate Now** button to perform the replication immediately.

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7. MONITOR MENU

The **Monitor** menu displays array health status, system performance and usage. This chapter describes the details of monitor operations.
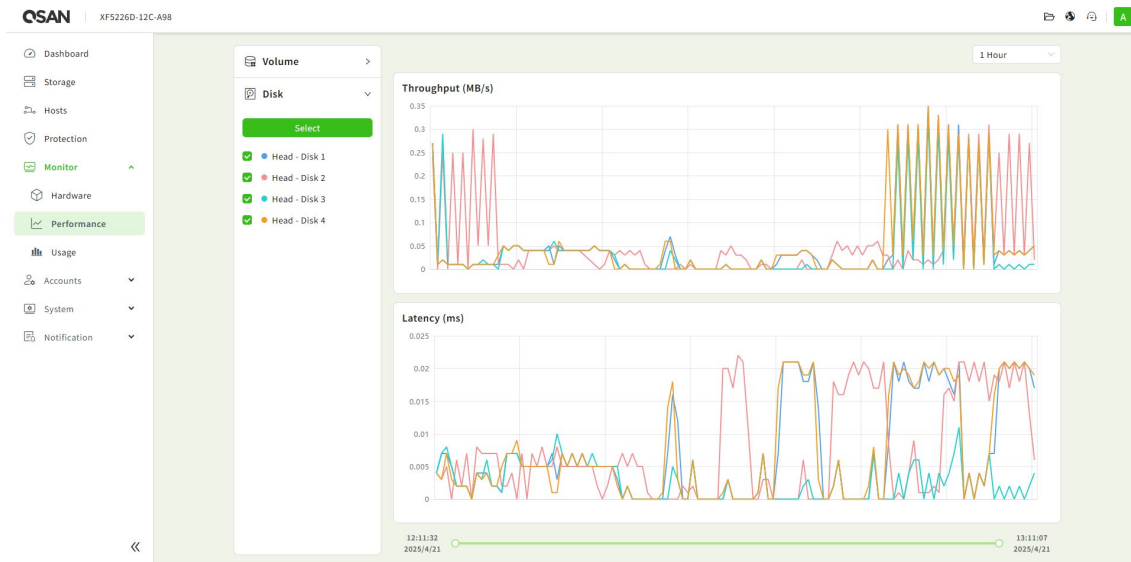

Figure 7-1   Monitor View

7.1.   Hardware Submenu

Select the **Monitor** menu and the **Hardware** submenu to display the array information.

7.1.1. List Arrays

All arrays including head and expansion units are listed in the **Arrays** item. Click one of them to display the details. In the **Head** unit, there are front and rear pictures in the right pane. You can move your mouse over the name in **Modules** or **Disks** icons to watch the location of the component. This table shows the component descriptions.

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NAME	DESCRIPTION
Component Health	The status of the component: ▪ Green Color / Normal: The component is good. ▪ Orange Color / Abnormal: The component is abnormal. ▪ Red Color / Warning: The component has failed.

7.2.   Performance Submenu

Select the **Monitor** menu and the **Performance** submenu to display the volume and disk performance.

INFORMATION

XEVO maintains a rolling one-year history of data. The granularity of the historical data increases with age. Older data points are spaced further apart in time than the nearest data points

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7.2.1.   Volume Performance

Select the **Volume** submenu to view the volume performance.

1. Click the **Select** button and select volumes. All volumes are listed in the **Volume** pane. Check the volume checkboxes which you want to display the performance.
2. Switch the All, Read, or Write tab to view all performance, only read, or only write performance numbers.

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3. Change the **Range** in the upper right corner or slide the time bar at the bottom to view different time range.

7.2.2. Disk Performance

Select the **Disk** submenu to view the disk performance.

1. Click the **Select** button and select disks. All disks are listed in the **Disk** pane. Check the disk checkboxes which you want to display the performance.
2. Change the **Range** in the upper right corner or slide the time bar at the bottom to view different time range.

7.3. Usage Submenu

Select the **Monitor** menu and the **Usage** submenu to display resource usage. Click the **CPU** or **Memory** item to view it.

8. ACCOUNTS MENU

The **Accounts** menu manages the account settings. It displays the user and group status, configures their properties and permissions. This chapter describes the details of account management operations.
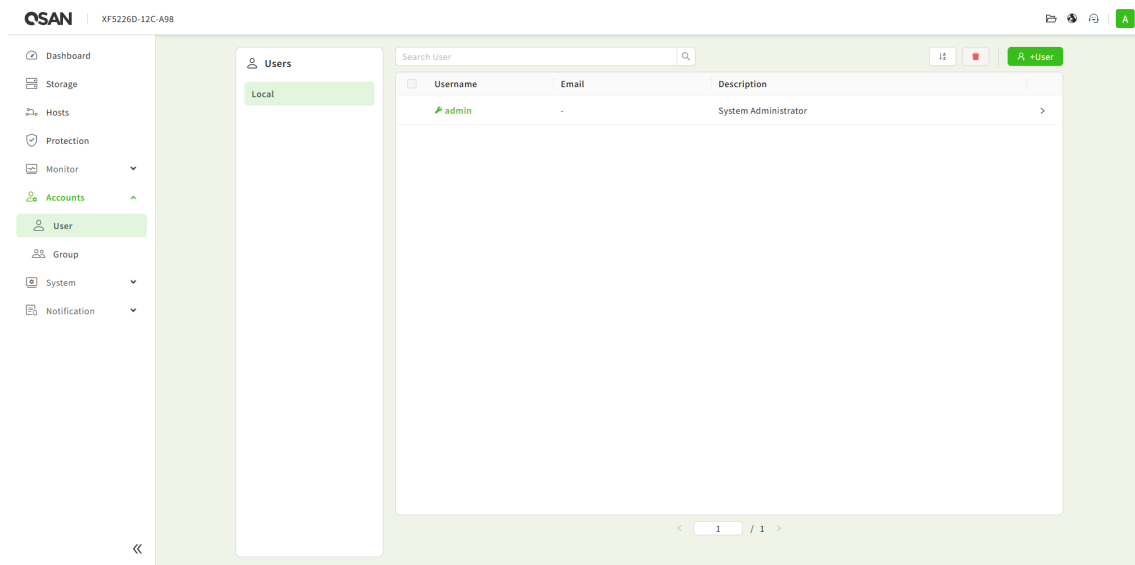

Figure 8-1   Account View

8.1.   User Submenu

Select the **Accounts** menu and the **User** submenu to configure user settings.

8.1.1.   List and Configure Local Users

All users are listed in the pane. The following options are available.

Add a User

Click the **+User** button to add a user. Follow the instructions in the wizard to complete the process.

Sort by Users

Click the [⇅] button to sort by username.

Delete Users

1. Check the user checkboxes which you want to delete.
2. Click the [🗑] button, and then pop up a confirm dialog box.
3. Click the **Apply** button to confirm and delete.

⚠ **CAUTION**

The default user cannot be deleted.

Click one username to display the details. The following options are available.

Edit

1. Click the [✎] icon to edit the email and description.
2. Click the [✓] icon to apply.
3. Click the switch to turn 🟢 ON (Enable) or ⚪ OFF (Disable).

    ▪ **Assign as Admin**: Enable to assign the user as an administrator.
    ▪ **Enable this user**: Enable or disable the user.

4. Click the [✎] button to change password.
5. Click the [🗑] button to delete the user.

Click the **Group** tab to list the join groups. The following options are available.

Join Groups

Click the **Join Groups** button to join groups. Follow the instructions in the wizard to complete the process.

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Click the **Share Permission** tab to list the share permissions. The following options are available.

Setting

Click the ⚙ button to set the share permission.

Click the **<- Back** icon to return to the user list.

8.2. Group Submenu

Select the **Accounts** menu and the **Group** submenu to configure group settings.

8.2.1. List and Configure Local Groups

All groups are listed in the pane. The following options are available.

Add a Group

Click the **+Group** button to add a group. Follow the instructions in the wizard to complete the process.

Sort by Groups

Click the ⬇ button to sort by group name.

Delete Groups

1. Check the group checkboxes which you want to delete.
2. Click the 🗑 button, and then pop up a confirm dialog box.
3. Click the **Apply** button to confirm and delete.

⚠️ **CAUTION**

The default groups cannot be deleted.

Accounts Menu
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Click one group name to display the details. The following options are available.

Edit

1. Click the ✎ icon to edit the description.
2. Click the ✓ icon to apply.
3. Click the 🗑 button to delete the group.

Click the **Users** tab to list the join users. The following options are available.

Add Users

Click the **Add Users** button to add users. Follow the instructions in the wizard to complete the process.

Click the **Share Permission** tab to list the share permissions. The following options are available.

Setting

Click the ⚙ button to set the share permission.

Click the **<- Back** icon to return to the group list.

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9. SYSTEM MENU

The **System** menu manages the system settings. It configures general system settings, network ports, data service, disks, maintains system firmware. This chapter describes the details of system operations.
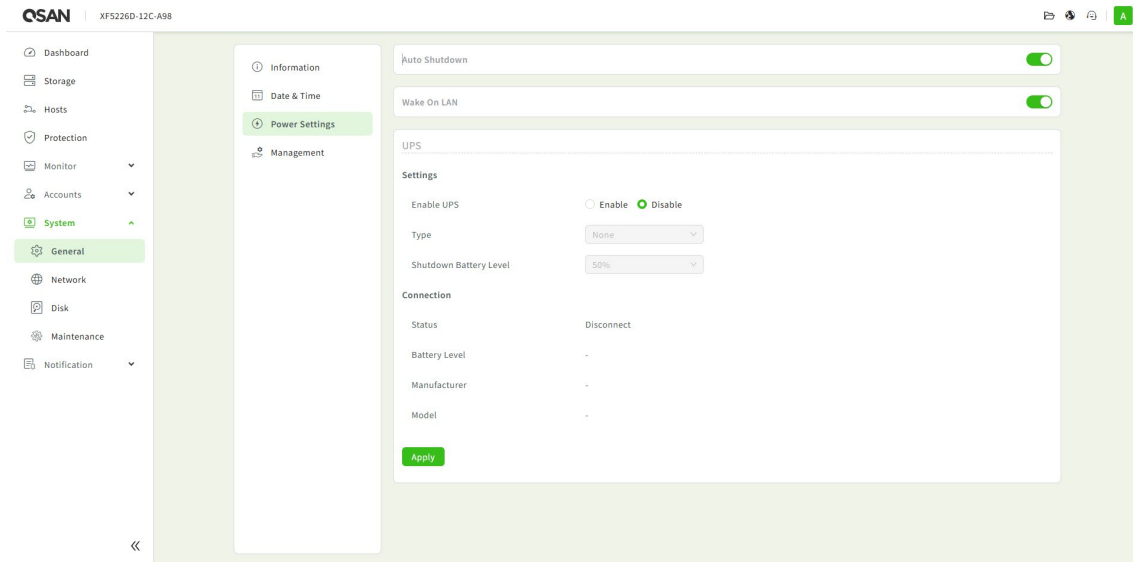

Figure 9-1   System View

9.1. Configure General Settings

Select the **System** menu and the **General** submenu to configure system settings.

9.1.1. System Information

Click the **Information** item to display system, controllers, and backplane information.

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9.1.2. Date & Time Settings

Click the **Date & Time** item to change the current time. Date and time can be set by manually or synchronized from a NTP (Network Time Protocol) server. When finished, click the **Apply** button to take effect.

9.1.3. Power Settings

Click the **Power Settings** item to configure the boot options. Click the switch to turn 🟢 ON (Enable) or ⚪ OFF (Disable).

- **Auto Shutdown**: Check to enable the auto shutdown feature. If it is enabled, the system will shut down automatically when the voltage and temperature exceed a critical level.

TIP

For better protection and to avoid a single short period of abnormal voltage or temperature, enabling the setting could trigger an automatic shutdown. This is done using several sensors placed on key systems that the system checks every 30 seconds for present voltages or temperatures.

- **Wake-on-LAN**: Check to enable the wake-on-LAN feature. If it is enabled, the system will accept a magic packet from the management port to power on the system.

TIP

To execute wake-on-LAN function, MAC address of management port is needed.

9.1.4. Management Settings

Click the **Management** item to configure the login options and service ports.

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Login Option

- **Auto Logout:** When the auto logout option is enabled, you will be logged out of the admin interface after the time specified.

Management Port

- Uncheck to disable the service ports of **HTTP** and **HTTPS**. If the default port numbers of the service ports are not allowed on your network environment, they can be changed here.

When finished, click the **Apply** button to take effect.

9.2.   Configure Network Settings

Select the **System** menu and the **Network** submenu to configure network ports.

9.2.1. Ethernet Settings

Click the **Ethernet** item to configure cluster IP and private IP information. The following options are available.

DNS Setting

1. Click the **DNS Setting** button to configure DNS server addresses.
2. Click the **Apply** button to take effect.

Configure Private IP

1. Click the **Private** tab to list LAN port IPs.
2. Click the **Link Aggregation** button to configure link aggregation settings.
3. Click the ⚙ icon to list the drop-down options. Click the **Edit** option to change the settings, click the **Set Default Gateway** option to set the LAN port as default gateway, click the **Add VLAN** option to change the VLAN setting.

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9.2.2. Fibre Channel Settings

Click the **Fibre Channel** item to display fibre channel information. The following options are available.

Edit Setting

1. Click the ⚙ icon to list the drop-down options. Change the **Speed** or **Topology** settings.
2. Click the **Apply** button to take effect.

9.3. Configure Disk Settings

Select the **System** menu and the **Disk** submenu to configure disk drives.

9.3.1. List Arrays

All arrays including head and expansion units are listed in the **Arrays** item. Click one of them to display the details. The following options are available.

Clear Read Error

1. Check the disk checkboxes which you want to clean the read error of the disk drive and reset the failed status.
2. Click the **Clear Read Error** button, and then pop up a confirm dialog box.
3. Click the **Apply** button to confirm and clear.

Instant Erase

1. Check the disk checkboxes which you want to erase the disks instantly.
2. Click the **Instance Erase** button, and then pop up a confirm dialog box.
3. Click the **Apply** button to confirm and erase.

Click the ⚙ icon at the end of the disk to list the drop-down options. The following options are available.

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S.M.A.R.T.

S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) is a diagnostic tool for disk drives to deliver warning of drive failures in advance. It provides users a chance to take actions before a possible drive failure. Click the **S.M.A.R.T.** option to display S.M.A.R.T. information.

Click the **Close** button to close the window.

Set Hot Spare

1. The **Hot Spare** option appears if the disk drive is free. Click the **Hot Spare** option to set it as a global or local spare disk.
2. Click the **Apply** button to take effect.

Set Free Disk

1. The **Free Disk** option appears if the disk drive is not free. Click the **Free Disk** option to set it as a free disk.
2. Click the **Apply** button to take effect.

Turn on disk location light

1. Click to turn on the disk location light, click again to turn off.

9.4. Maintenance

Select the **System** menu and the **Maintenance** submenu to provide Firmware Update, Configuration Backup, and Reset functions.

9.4.1. Firmware Update

Click the **Firmware Update** item to be used to update controller firmware, expansion unit firmware.

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TIP

Before upgrading, we recommend you to export your system configurations first in the **Configuration Backup** function menu.

Head Unit Firmware Update

Please prepare new controller firmware file named "xxxx.bin" in local hard drive, click the 📎 icon to select the firmware file. Then click the **Update** button, it will pop up a warning message, click the **Confirm** button to start upgrading the firmware.

When upgrading, there is a progress bar running. After finished upgrading, the system must reboot manually to make the new firmware take effect.

Synchronization

If the firmware versions between two controllers are different, it will display a warning message. Click the **Synchronize** button to synchronize and force a reboot.

Expansion Unit Firmware Update

To upgrade expansion unit firmware, first select an expansion unit. Then other steps are the same as the head unit firmware update. After finished upgrading, the expansion unit must reboot manually to make the new firmware take effect.

9.4.2. Configuration Backup

Click the **Configuration Backup** item to be used to either save system configuration (export) or apply a saved configuration (import).

Export Configuration

1. Select the **Configuration Type** to export system or volume configuration.
2. Click the **Export** button to save a file.

Import Configuration

1. Select the **Configuration Type** to import system or volume configuration.
2. Click the 📎 icon to select the configuration file.
3. Click the **Import** button.

⚠️ **CAUTION**

The Import option will import system or volume configurations. The current configurations will be replaced.

9.4.3. Reset

Click the **Reset** item to reset the system configurations back to the factory default settings, clean all configurations of the expansion enclosure ID.

Reset Expansion ID

Click the **Reset** button to clean all configurations of expansion enclosure ID. A clean will cause the system shutdown, and then you must start manually.

Reset to Factory Defaults

Click the **Reset** button to progress reset to defaults and force a reboot. The default settings are:

- Reset **LAN 1 Port** IP address to DHCP, and then fix IP address: 169.254.1.234/16.
- Reset admin's **Password** to 1234.

Restore Volume

1. Select a volume name.
2. Click the **Restore** button, it will pop up a filter dialog.
3. Click the **Confirm** button to proceed.

CAUTION

The volume restoration can restore your previous volume configurations when pool corruption or mistaken deletion occurs. Before restoration, please make sure all member disks are installed in the exact same slots as before. The volume restoration does not guarantee that all lost data will be recovered.

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10. NOTIFICATION MENU

The **Notification** menu displays event logs and configures the notification settings. This chapter describes the details of notification operations.
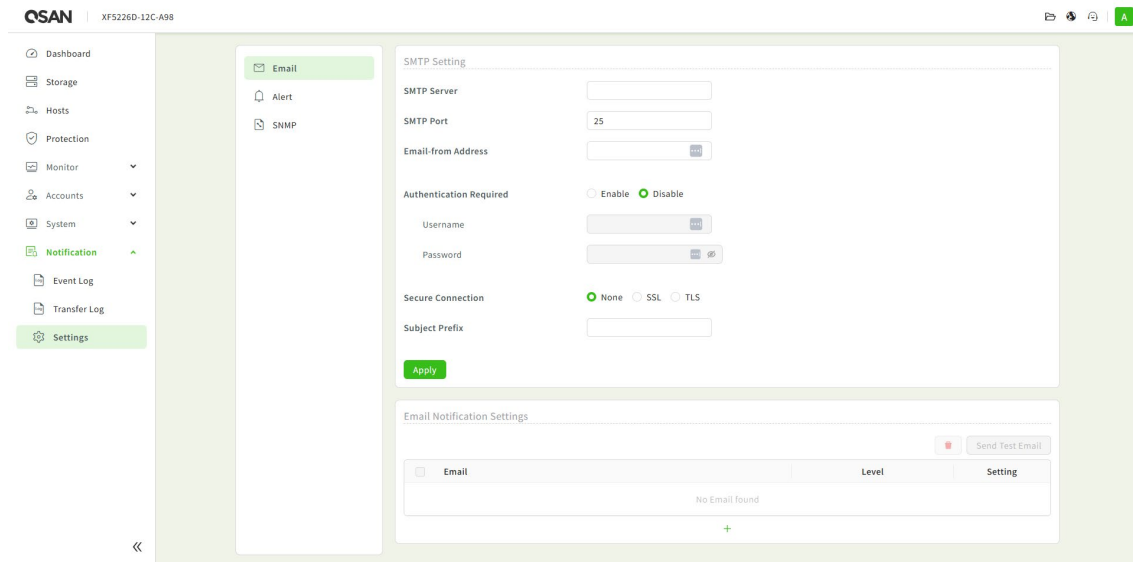

Figure 10-1   Notification View

10.1. Event Log

Select the **Notification** menu and the **Event Log** submenu to show event messages. Click **All**, or ⓘ **Information**, ⚠ **Warning**, ❗ **Error** tab to filter the event levels.

The event logs are displayed in reverse order which means the latest event log is on the first / top page. They are saved in the first four disk drives of the head unit; each disk drive has one copy of event log. For one system, there are four copies of event logs to make sure users can check event log any time when there are failed disks. If there are no disk drives in the first four slots, the event logs will keep in memory temporary and will disappear after system reboots.

The event logs record all system events. Each event has time frame that identifies the type of event that occurred, and has one of the following severities:

- ▪ 🔴 **Error:** A failure occurred that may affect data integrity or system stability. Correct the problem as soon as possible.

- ▪ ⚠️ **Warning:** A problem occurred that may affect system stability, but not data integrity. Evaluate the problem and correct it if necessary.

- ▪ ℹ️ **Information:** An operation recorded that may help to debug.

The following options are available.

Download Event Logs

1. Click the ⬇️ icon to save the event log as a file. It will pop up a filter dialog.
2. Select the option and then click the **Download** button to download event logs.

Mute Buzzer

1. Click the 🔕 icon to stop alarm if the system alerts.
2. Click the **Mute** button to take effect.

Clear Event Logs

1. Click the 🗑️ icon to clear all event logs.
2. Select the option and then click the **Clear** button to clear event logs.

10.2. Configure Notification Settings

Select the **Notification** menu the **Settings** submenu to configure the notification settings via **Email**, **Alert**, and **SNMP**.

10.2.1. Email Settings

Click the **Email** item to be used to setup alerts on the front display. The device buzzer is also managed here.

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SMTP Settings

▪ **SMTP Server:** Enter the IP address or FQDN (Fully Qualified Domain Name) of SMTP server to deliver the notification mails.

▪ **SMTP Port:** Default is port 25. You can change the SMTP port here.

▪ **Email-from Address:** Enter the sender email address.

▪ **Authentication Required:** Some email servers require authentication for SMTP relay. Check to enable authentication and enter the **Username** and **Password**.

▪ **Secure Connection:** Using SSL (Secure Sockets Layer) or TLS (Transport Layer Security) for secure connection.

▪ **Subject Prefix:** The input string will be appended to the front of the email subject.

When finished, click the **Apply** button to take effect.

Email Notification Settings

1. Click the **+** icon to add new email address. Enter the email address for receiving the event notifications. You can also select which levels of event logs which you would like to receive.
2. Click the **Apply** button to add.

TIP

Please make sure the IP address of DNS server is well-setup in **Network**. So, the event notification emails can be sent successfully.

---

3. Click the **Send Test Email** button to send a test email to check if it works properly.

10.2.2. Alert Settings

Click the **Alert** item to be used to setup alerts on the front display. The device buzzer is also managed here.

Device Buzzer

Click the switch to turn ON (Enable) or OFF (Disable) the device buzzer.

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INFORMATION

The device buzzer features are listed below:

- The buzzer alarms 1 second when system boots up successfully.

- The buzzer alarms continuously when there is error occurred. The alarm will be stopped after error resolved or be muted.

- The alarm will be muted automatically when the error is resolved. For example, when a RAID 5 pool is degraded and alarm rings immediately, user replaces one disk drive for rebuild. When the rebuild process is done, the alarm will be muted automatically.

10.2.3. SNMP Settings

Click the **SNMP** item to be used to setup SNMP (Simple Network Management Protocol) traps for alerting with event logs and setup SNMP server settings for client monitoring.

Download MIB Files

- **SNMP MIB File:** Click the **Download** button to save the SNMP MIB file which can be imported to the SNMP client tool to get system information. You can view fan, voltage, and system status via SNMP MIB.

SNMP Server and Trap

- **Enable SNMP Service:** Click the radio button to Enable or Disable. Enable SNMP service to send system event logs to SNMP trap agent and SNMP server. Then fill in the necessary information below.

- **SNMP Trap:** The default SNMP trap port is 162. You can check or uncheck the alert levels which you would like to receive. And then fill in up to three SNMP trap addresses for receiving the event notifications.

- **SNMP Version:** Select SNMP supported versions: v1/v2, or v3. Then fill in the necessary information below.

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When finished, click the **Apply** button to take effect.

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11. SUPPORT AND OTHER RESOURCES
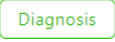
11.1. Getting Technical Support

After installing your device, locate the serial number on the sticker located on the side of the chassis or from the **XEVO** -> **System** -> **General** -> **Information** and use it to register your product at https://www.qsan.com/business_partnership. We recommend registering your product in QSAN partner website for firmware updates, document download, and latest news in eDM. To contact QSAN Support, please use the following information.

- Via the Web: https://www.qsan.com/technical_support

- Via Telephone: +886-2-77206355

- (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

Information to Collect

- Product name, model or version, and serial number

- Operating system name and version

- Firmware version

- Error messages or capture screenshots

- Product-specific reports and logs

- Add-on products or components installed

- Third-party products or components installed

Information for Technical Support

If the technical support requests you to download the Service Package, please navigate in the **XEVO** -> **Help**, and then click the [Diagnosis] button to download the diagnosis report file. Then

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the system will automatically generate a zip file the default download location of your web browser.

11.2. Documentation Feedback

QSAN is committed to providing documentation that meets and exceeds your expectations. To help us improve the documentation, email any errors, suggestions, or comments to docsfeedback@qsan.com.

When submitting your feedback, include the document title, part number, revision, and publication date located on the front cover of the document.

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APPENDIX

End-User License Agreement (EULA)

Please read this document carefully before you use our product or open the package containing our product.

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