QSM 4

Software Manual

November 2023

ANNOUNCEMENT

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PREFACE

About This Manual

This manual provides technical guidance for QSAN unified 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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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

QSM is a unified storage management system designed by QSAN. QSM'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 unified 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 QSM.

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 QSM 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. Please refer to the QSAN Storage System Unpacking.

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.

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2. QSM 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.
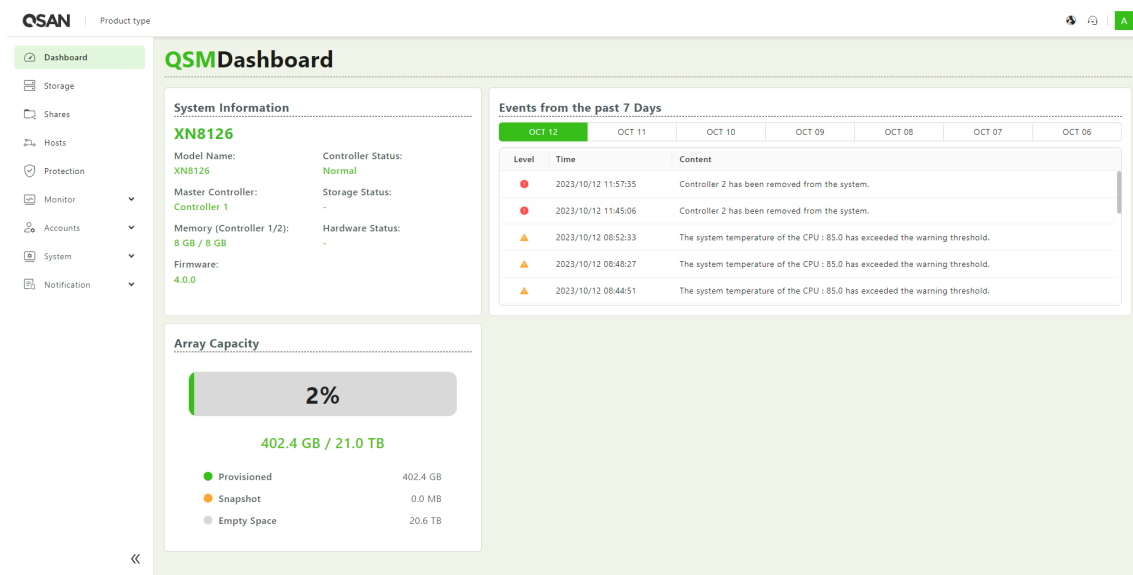

Figure 2-1   QSM Dashboard

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, please refer to Section 3.1, Dashboard Overview.

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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, please refer to Chapter 4, Storage Menu.

Shares

Select the **Shares** function menu to display the file shares on the array. View and operate the file shares and their access control. For more information, please refer to Chapter 5, Shares 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, please refer to Chapter 6, 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, please refer to Chapter 7, 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, please refer to Chapter 8, Monitor Menu.

Accounts

Select the **Accounts** function menu to display the user account information. View and manage the users and groups. For more information, please refer to Chapter 9, 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, please refer to Chapter 10, System Menu.

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Notification

Select the **Notification** function menu to display the log events, and setup the notification methods. For more information, please refer to Chapter 11, <u>Notification Menu</u>.

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.
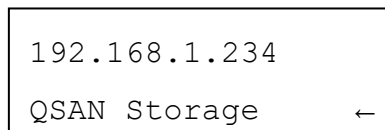
```
192.168.1.234
QSAN Storage        ←
```

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.

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.

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, storage capacity, and events from the past 7 days.
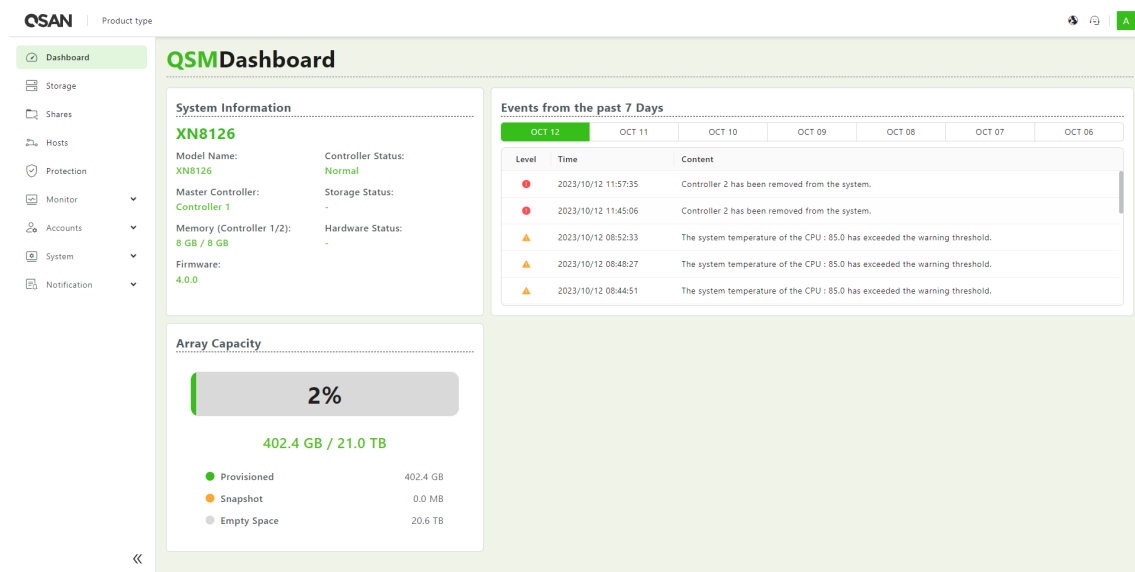

Figure 3-1   QSM Dashboard

3.1.1. System Information

The **System Information** pane displays the basic information of the system. To drill down and analyze the array details, please select **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. To drill down and analyze the array details, please select **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 in the upper right corner to list the drop-down options to change the language in the web UI.

Help

Click the 🙂 icon in the upper right corner to popup the help information. Click the Diagnosis button to download the diagnosis report file. Comes with problems and test environment for analysis.

Login Account

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

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.

4.1. Configure 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

Click the ✚ icon to create a pool and volumes. Follow the instructions in the wizard to complete the process.

4.1.2. List and Configure Pools

All pools are listed in the **Pools** pane. You can 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.

    ▪ **Disk Write Cache**: Enabling the disk write cache will improve write I/O performance but have a risk of losing data when power failure.

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- ▪ **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 confirm and proceed.

INFORMATION

It supports RAID level 3, 5, 6, 30, 50, 60 and RAID EE level 5EE, 6EE, 50EE, 60EE.

Delete

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

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TIP

The pool cannot be deleted when there are volumes in the pool.

4.1.3. List and Configure Disk Groups

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

Create a Disk Group

Click the [+] button to create a disk group. Follow the instructions in the wizard to complete the process.

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.

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.

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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. After changing the property, 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

Click the [+] button to create block or file volumes. Follow the instructions in the wizard to
complete the process.

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 **Shares**, **Hosts**, or **Protection**, it will display the
    dialog asking you how to handle the items you would like to delete.
4. Click the **Apply** button to confirm and delete.

Click the ⚙ icon 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 Cache and Write-back Cache. 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**: Check to enable video editing mode function. It is optimized for video editing usage. Please enable it when your application is in video editing environment. This option provides a more stable performance figure without high and low peaks but slower in average.
- **Read Ahead**: Check to enable the read ahead function of 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.

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** number which you want to extend. The **Capacity** field is followed by a scalable minimum and maximum capacity number.
3. Click the **Apply** button to extend.

4.2. 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.

4.3. 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.

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.

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, please refer to the SSD Cache White Paper from QSAN website.

4.4. 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, please refer to the Auto Tiering White Paper from QSAN website.

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5. SHARES MENU

The **Shares** menu manages the file shares. It displays the share status, configures the permission, and connected hosts. This chapter describes the details of share management operations.

5.1. Configure Shares

Select the **Shares** menu and **Shares** item to manage the file shares. In this menu, you can create, modify, delete, or view the status of all shares.

5.1.1. Create a Share

Click the ✚ icon to create a share. Follow the instructions in the wizard to complete the process.

5.1.2. List and Configure Shares

All Shares are listed in the **Shares** pane. You can click one of them to display the details. Click the ⚙ icon beside the share name to list the drop-down options. The following options are available.

Remove

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

Edit

1. Click the ✎ icon to edit the description.
2. Click the ✓ icon to apply.

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5.1.3. List and Configure Permission

Click the **Permission** pane to list groups and users' permissions in the share. The following options are available.

Edit

1. Click the Edit button to edit the share's permission.
2. Click the **Group** or **User** tab, and then check the groups' or users' names to allow access, or uncheck them to deny it.
3. Click the **Apply** button to take effect.

Permission

1. Click the drop-down options in the **Permission** to change the permission.

Delete

1. Click the 🗑 icon to delete the group or user's permission.
2. Click the ✔ icon to delete.

5.1.4. List Connected Hosts

1. Click the **Connected Hosts** pane to list all connected hosts in the shares.

5.2. Configure Advanced Settings

Select the **Shares** menu and **Advance** item to configure the advanced settings.

5.2.1. Configure ACL

1. Click the **ACL** subitem to configure the access control option.
2. Click the switch to turn 🟢 ON (Enable) or ⚪ OFF (Disable).

   - **Enable Windows ACL**: Check to enable Windows ACL.

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6.   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.

6.1.   Configure Block Host

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.

6.1.1.   Create a Block Host Group

Click the ✚ icon to create a block host. Follow the instructions in the wizard to complete the process.

6.1.2.   List and Configure Block Host Groups

All host groups are listed in the **Block Host** pane. You can 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.

6.1.3. List and Configure Host

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

Add a Host

Click the [+] button to add hosts. Follow the instructions in the wizard to complete the process.

Delete Hosts

1. Check the host 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

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

6.1.4. List Targets

Click the **Target** pane to list targets in the host group.

6.1.5. List and Configure Connected Volumes

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

Connect Volumes

Click the [+] button to connect volumes. Follow the instructions in the wizard to complete the process.

Delete Connected 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 **Apply** button to confirm and delete.

6.2.   Configure Share Host

Select the **Hosts** menu and **Share Host** item to manage the share host groups. In this menu, you can create, modify, delete, or view the status of all host groups.

6.2.1.   Create a Share Host Group

Click the ✚ icon to create a block host. Follow the instructions in the wizard to complete the process.

6.2.2.   List and Configure Share Host Groups

All host groups are listed in the **Share Host** pane. You can click one of them to display the details. Click the ⚙ icon beside the host group name to list the drop-down options. The operations are the same as section 6.1.2, List and Configure Block Host Groups.

6.2.3.   List and Configure Host

Click the **Host** pane to list all hosts in the host group. The operations are the same as section 6.1.3, List and Configure Host.

6.2.4.   List Services

Click the **Service** pane to list services in the host group.

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6.2.5. List and Configure Shares

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

Connect Shares

Click the [+] button to connect shares. Follow the instructions in the wizard to complete the process.

Delete Connected Shares

1. Check the share 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.

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7.   PROTECTION MENU

The **Protection** menu manages the protection functions. It displays the snapshot status, configures the protection volumes, and configures rsync functions. This chapter describes the details of protection operations.

7.1.   Configure Snapshot

Select the **Protection** menu and the **Snapshot** item to manage the snapshot volumes.

7.1.1.   About Snapshot

In addition to the basic function of snapshot, there are new designs and are described below.

Snapshot Space

A volume snapshot is based on copy-on-write technology. Snapshots require more space to hold differential data.

Recycle Snapshots

Snapshot recycle bin can restore or permanently destroy the snapshots. It offers additional protection for backup from accidentally or deliberately deleting of a snapshot.

7.1.2.   List and Take Snapshot

Click the **Block Volume** or **File Volume** tab to list all volumes. You can click one of them to display the details. The following options are available.

Snapshot Space

1.   Click the [Edit] button to configure the snapshot space.
2.   Enter a number which you want to extend. The field is followed by a scalable minimum and maximum capacity number.

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

TIP

The recommended minimum capacity is set to 10% of the volume. 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 must enable the snapshot space manually.

There are two tabs. 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 [camera icon] button to take a snapshot.
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.

TIP

If it failed to take a snapshot, you must **Enable Snapshot Space** first.

Delete Snapshot

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

Rollback Snapshot

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

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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.

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.

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.

7.2.   Configure Rsync

Select the **Protection** menu and the **Rsync** item to manage the rsync function.

7.2.1. About Rsync

Rsync is a software application that can synchronize the files and directories of two computers and make appropriate use of differential encoding to reduce the amount of data transmission. An important feature in rsync is that each target image only needs to be transferred once. Rsync can copy / display directory contents, copy files, and optionally compress and recursively copy.

7.2.2. Rsync Server

Click the **Server** tab to confiture the rsync server settings. The following options are available.

Settings

1. Change the **Port**, **Maximum Upload Rate**, **Maximum Download Rate** if necessary.
2. Click the **Apply** button to take effect.

Add Rsync User

Click the **Add** button to add a rsync user. Follow the instructions in the wizard to complete the process.
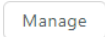
Delete Rsync User

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

7.2.3. Rsync Client

Click the **Client** tab to confiture the rsync client settings. The following options are available.

Manage Clients

1. Click the **Manage** button to add rsync clients. Follow the instructions in the wizard to complete the process.
2. Click the **Confirm** button to take effect.

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Create a Task

Click the [Add] button to create a task. Follow the instructions in the wizard to complete the process.

Delete Task

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

8. MONITOR MENU

The **Monitor** menu displays array health status. This chapter describes the details of monitor operations.

8.1. Hardware Submenu

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

8.1.1. List Arrays

All arrays including head and expansion units are listed in the **Arrays** item. You can 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.

Table 8-1   Hardware Component Descriptions

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.

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9. 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.

9.1. User Submenu

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

9.1.1. List and Configure Local Users

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

Add a User

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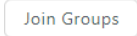
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Click one username to display the details. The following options are available.

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.

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.

9.2. Group Submenu

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

9.2.1. List and Configure Local Groups

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

Add a Group

Click the ![+] button to add a group. Follow the instructions in the wizard to complete the process.

Sort by Groups

Click the ![sort] button to sort by group name.

Delete Groups

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

![warning icon] **CAUTION**

The default groups cannot be deleted.

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

Edit

1. Click the ![edit] icon to edit the description.
2. Click the ![check] icon to apply.
3. Click the ![delete] button to delete the group.

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

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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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10. 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.

10.1. Configure General Settings

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

10.1.1. System Information

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

10.1.2. 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.

10.1.3. 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.

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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.

10.1.4. Management Settings

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

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.

10.2. Configure Network Settings

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

10.2.1. 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 Cluster IP

1. Click the **Cluster** tab to list cluster IPs.
2. Click the [+] button to add a cluster IP.
3. Click the ⚙ icon to list the drop-down options. Click the **Settings** option to change the settings, click the **Remove** option to delete the cluster IP.

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.

10.2.2. Data Service Settings

Click the **Data Service** item to configure CIFS and NFS settings. The following options are available.

CIFS Setting

1. Change the settings.

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

NFS Setting

1. Change the settings.
2. Click the **Apply** button to take effect.

10.3. Configure Disk Settings

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

10.3.1. List Arrays

All arrays including head and expansion units are listed in the **Arrays** item. You can 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.

10.4. Maintenance

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

10.4.1. Firmware Update

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

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.

10.4.2. 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.

10.4.3. 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.

11. NOTIFICATION MENU

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

11.1. 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.

- ⓘ **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.

11.2. Configure Notification Settings

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

11.2.1. 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.

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.

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11.2.2. 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.

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

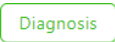# 12. SUPPORT AND OTHER RESOURCES

12.1. Getting Technical Support

After installing your device, locate the serial number on the sticker located on the side of the chassis or from the **QSM** -> **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 **QSM** -> **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.

12.2. 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

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