

Quantum[®]

User's Guide

Scalar LTFS Appliance

(Linear Tape File System)



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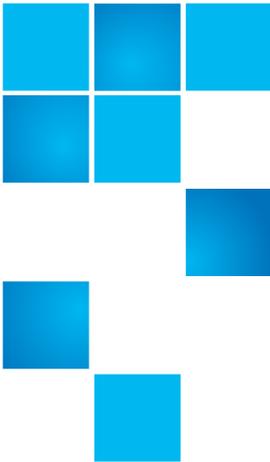
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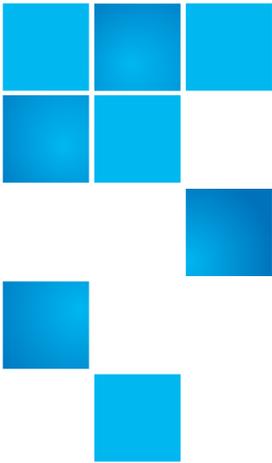
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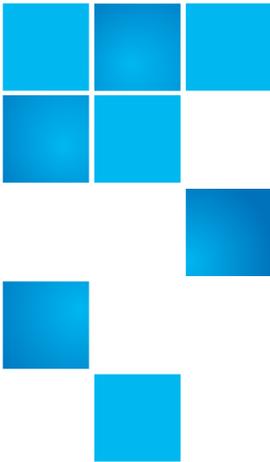
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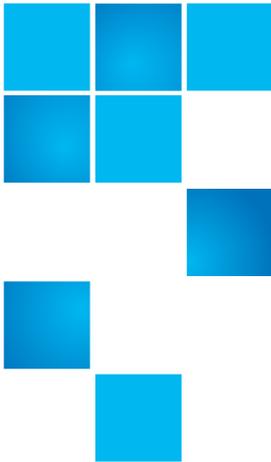
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Preface

This guide contains information and instructions necessary for the normal operation and management of the Scalar LTFS Appliance. This guide is intended for system administrators, operators, or anyone interested in learning about or using the Scalar LTFS Appliance after its initial installation and configuration.

Audience

This manual is written for Scalar LTFS Appliance operators and system administrators.

Note: It is useful for the audience to have a basic understanding of UNIX and backup/recovery systems.

Document Organization

Following is a brief description of chapter contents.

- [Chapter 1, Introduction](#) provides the product overview, lists system requirements, and describes the system's features and benefits.
- [Chapter 2, Best Practices](#) describes best practices for installing the system, operating the system, and configuring the system.
- [Chapter 3, Logging On and Navigation](#) provides instructions for logging on, depicts the navigational flow of GUI, and provides a picture of the Home screen.

- [Chapter 4, Configuring the Appliance](#) provides instructions for configuring the appliance.
- [Chapter 5, System Media Operations](#) describes how to manage files and media using the Scalar LTFS Appliance.
- [Chapter 6, Maintaining the System](#) provides procedures for tasks available under the GUI Tools menu, including requesting a system configuration record, backing up and restoring your system configuration, capturing a system snapshot, updating firmware, and reviewing and resolving diagnostic tickets. Finally, this chapter discusses reports and logs available to help maintain system integrity.
- [Chapter 7, Reports](#) provides details on all the reports available for viewing and for sending.
- [Chapter 8, Troubleshooting](#) provides a list of frequently asked questions, identifies known issues by category—server hardware, library tape drive, and software, and provides a list of system alerts.
- [Appendix A, User Roles](#) provides a listing of functions available based on the assigned user role.
- [Glossary](#) provides a list of terms used throughout this document and their definitions.

The following formats indicate important information:

Note: Note emphasizes important information related to the main topic.

Caution: Caution indicates potential hazards to equipment or data.

WARNING: Warning indicates potential hazards to personal safety.

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Related Documents

The following Quantum documents are also available for the Scalar LTFS Appliance:

| Document No. | Document Title |
|--------------|---|
| 6-67516-xx | <i>Scalar LTFS Appliance Site Planning and Installation Guide</i> |

Release Notes are also provided for this product. The Release Notes provide a list of any known issues and work-arounds, and compatibility information.

For the most up to date information on the Scalar LTFS Appliance, see:

<http://www.quantum.com/ServiceandSupport/Index.aspx>

Supported Operating Systems and Internet Browsers

The Internet browser software is not supplied with the Scalar LTFS Appliance; you must obtain and install it independently. For a list of supported Internet browsers and operating systems, see [System Requirements](#) on page 3.

Contacts

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Training Available

To make the best use of your Scalar LTFS Appliance, online training is available at www.quantum.com/ServiceandSupport/StorageCareLearning/Index.aspx



Chapter 1 Introduction

This chapter introduces Scalar LTFS Appliance, including:

- [Product Overview](#) on page 1
- [Available Hardware Configurations](#) on page 2
- [System Requirements](#) on page 3
- [Graphical User Interface \(GUI\) Description](#) on page 4
- [Features and Benefits](#) on page 4
- [License Key Implementation](#) on page 5

Note: Make sure to take the online training for the Scalar LTFS to make the best use of your product. The online training is available at www.quantum.com/ServiceandSupport/StorageCareLearning/Index.aspx

Product Overview

The Scalar LTFS Appliance is a file system that presents a Quantum tape library as an NAS share. This appliance makes files viewable as if they

resided on your local disk and allows users to drag and drop files directly to and from a tape cartridge.

This appliance provides large file portability so that you can quickly and easily retrieve large files, whether they are active or archived, from your library, exchange files with other organizations (inside and outside of your company) for collaborative and sequential work-flow applications, and drag and drop files to and from tape.

Available Hardware Configurations

The Scalar LTFS Appliance can be ordered in the following configurations (see table below). For configuration guidelines, refer to [Chapter 4, Configuring the Appliance](#).

Table 1 Scalar LTFS Configurations

| Scalar LTFS Appliance Configuration | Rack Space Required |
|--|---------------------|
| Scalar LTFS 1 GbE SAS Appliance 5 x 1 GbE Ethernet ports 2 x 6 Gbps SAS ports | 2u |
| Scalar LTFS 1 GbE FC Appliance 5 x 1 GbE Ethernet ports 2 x 8 Gbps Fibre Channel ports | 2u |
| Scalar LTFS 10 GbE SAS Appliance 2 x 10 GbE Ethernet ports 1 x 1 GbE Ethernet port 2 x 6 Gbps SAS ports | 2u |
| Scalar LTFS 10 GbE FC Appliance 2 x 10 GbE Ethernet ports 1 x 1 GbE Ethernet port 4 x 8 Gbps Fibre Channel ports | 2u |

System Requirements

This section lists the system requirements and a description of each requirement.

| Requirement | Description |
|----------------------|---|
| Use with library | Scalar i40, Scalar i80, Scalar i500, Scalar i6000, Dell ML6000 |
| Drives | HP LTO-5 and LTO-6 IBM LTO-5, LTO-6 and LTO-7 |
| Library Connectivity | Fibre channel SAS |
| Network Connectivity | Recommended minimum 1GbE |
| Media | LTO-5 or later |
| Operating System | Tested operating systems CIFS <ul style="list-style-type: none"> • Windows Server 2003 • Windows Server 2008 • Windows Server 2012 • Windows 7 • Mac OS X 10.7 NFS v4 <ul style="list-style-type: none"> • Linux RHEL 5.6 • Linux Ubuntu 10.4 |
| Internet Browsers | Tested Internet Browsers: <ul style="list-style-type: none"> • Firefox 18.0.2, 19.0, 26.0, 40.0.3 • Chrome 18.0, 25.0.x, 32.0.x, 45.0.x • Internet Explorer 8.0.x, 9.x • Safari 5.0.6 |
| Adobe Flash Player | <ul style="list-style-type: none"> • 10 or higher |

Supported Libraries and Drives

The Scalar LTF5 Appliance supports the following Scalar Libraries and drives:

| Library | Drive |
|----------------|---|
| Scalar i40/i80 | HP LTO-5 and LTO-6 (FC and SAS) |
| Scalar i500 | HP LTO-5 and LTO-6 (FC and SAS) IBM LTO-5 and LTO-6 (FC) |
| Scalar i6000 | HP LTO-5 and LTO-6 (FC) IBM LTO-5, LTO-6 and LTO-7 (FC) |
| Dell ML6000 | IBM LTO-5 and LTO-6 (FC and SAS) |

Graphical User Interface (GUI) Description

You configure and manage the appliance using the GUI. To learn more about accessing and using the GUI, refer to [Chapter 3, Logging On and Navigation](#).

Features and Benefits

| Product Features | Customer Benefits |
|-----------------------------|---|
| NAS bridge to tape library | Enables broad market access to tape technology without the use of a backup or archive application |
| Can span multiple libraries | Saves investment for multiple library environments |

| Product Features | Customer Benefits |
|---|--|
| Presents cartridge level addressability | Easy project level container management |
| Intuitive web-based interface | User friendly operation reduces IT support burden |
| Library partition support | Can differentiate departmental files |
| Mirrored disk storage of index | Maintains high availability in the event of hard drive failure |
| Index backup function | Enables quick recovery of index in the event of unit failure or replacement |
| Appliance based | Simplifies set up and use; reduces IT support cost; Assures expected performance |
| Supports HP & IBM drives | Protects user legacy investment and maintains choices for future |
| Scalable model | Performance and tape drive license upgrades keeps initial investment manageable while offering needed growth over time |
| Stackable | Multiple appliance will naturally appear in NAS presentation of file system |
| Volume Groups | Allows management of multiple media/volumes under one folder providing easily scalable storage capacity. |
| File Spanning | Spanning of files across multiple media/volumes making storage management easier. |

License Key Implementation

All Scalar LTFS Appliances use drive licenses to enable access to a number of tape drives. A Scalar LTFS Appliance can only access the number of tape drives matching the number of drive licenses that are installed on the appliance. Users accessing the Scalar LTFS Appliance should be less than or equal to the number of drives licensed on the partition to ensure optimal performance. If there are too many users performance can be degraded, leading to errors and possible system time outs.

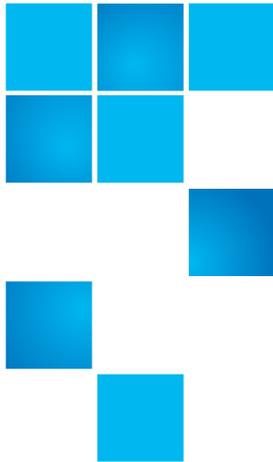
Each appliance ships with a two (2) drive license installed on the appliance.

Additional drive licenses can be added to a maximum of eight (8) tape drive licenses per appliance. Any additional drive licenses ordered with the appliance must be installed separately.

The table below provides examples of how your licenses are used with your library.

| If you purchased: | And your library has: | Then |
|--------------------------|--------------------------------|--|
| 2 tape drive licenses | 2 LTO-5 or higher tape drives | All tape drives can be accessed via the appliance. |
| 2 tape drive licenses | 4 LTO-5 or higher tape drives | 2 tape drives can be accessed via the appliance. |
| 4 tape drive licenses | 10 LTO-5 or higher tape drives | 4 tape drives can be accessed via the appliance |

Note: Any drives that are installed but not licensed can be used as fail over drives in case of a drive malfunction.



Chapter 2

Best Practices

This chapter defines the term *best practice* and lists the known best practices for installing, configuring, and operating the Scalar LTFS Appliance.

[What is a Best Practice?](#) on page 7

[Client Side File System Configuration](#) on page 8

[Installation](#) on page 18

[Software Configuration](#) on page 18

[Operations](#) on page 18

[Library](#) on page 24

What is a Best Practice?

A best practice is a method or technique that has consistently shown results superior to those achieved with other means and is used as a benchmark. In addition, a best practice can evolve to become better as improvements are discovered. Best practice is a refined method of operation that multiple organizations can use.

Client Side File System Configuration

NFS Mount Options

It is recommended to use NFS on Linux to prevent data corruption. The following details the proper command and timeout (timeo) settings for the fstab:

```
###:/ScalarLTFS /ScalarLTFS nfs4  
timeo=12000,mountproto=tcp,users,rw,hard,intr,bg,rsi  
ze=1048576,wsiz=1048576 0 0
```

For command line, use the following command and timeout settings:

```
mount -o rsize=1048576,wsiz=1048576,timeo=12000  
172.16.10.10:/ScalarLTFS /<dir>
```

For optimum performance, modify the `/etc/fstab` file on your host server (not the Scalar LTFS Appliance) by changing the IP or DNS name of the Scalar LTFS Appliance to `10.20.226.107`.

Some LTO-5 tape operations (space, locate, read) can take 20 minutes to complete successfully. The timeo value, expressed in deciseconds, equates to 20 minutes.

- Operations that complete more quickly are unaffected (in particular, they are in no way delayed by this timeout value)
- This specification will prevent NFS from retrying commands that cause long-running tape operations prematurely, and may avert stale file handle errors.

Note: NFS mount options are unsupported on Mac OS.

NFS Hard Mounts

Hard mounts are the preferred option when communicating with NFS servers because they will preserve data transfers in the event of a server failure. If the host 'hangs' during a hard mount, the user should restart the Scalar LTFS Appliance. Any I/O requests sent during the reboot will complete after the Scalar LTFS Appliance restarts.

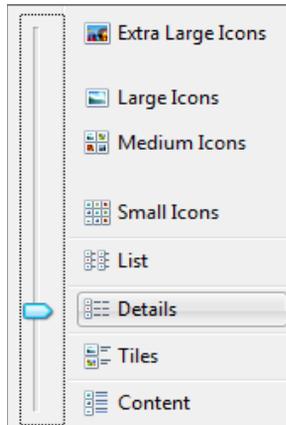
Directory Visibility - Windows 7

File directories should always be set to details or list mode to make file transfers as easy as possible.

To view Scalar LTFS directories in Windows 7:

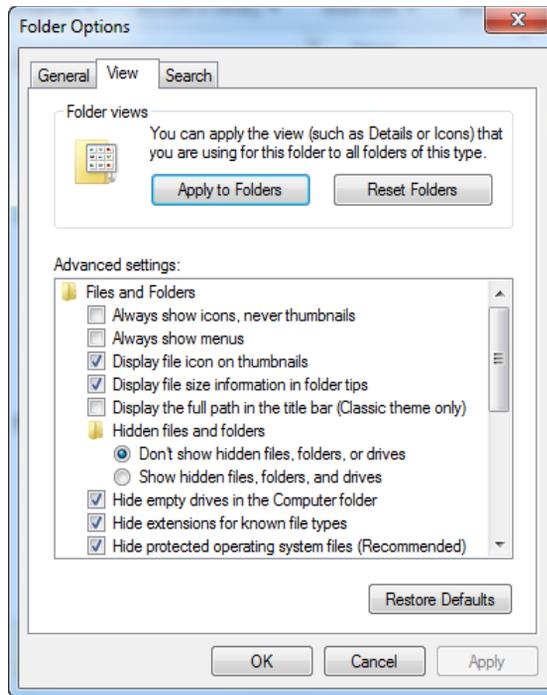
- 1 Set the current directory to **Details** or **List** mode.

Figure 1 Folder display options



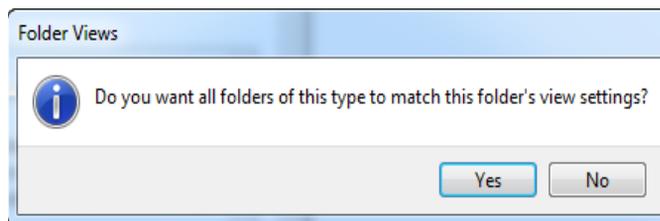
- 2 Go into **Organize > Folder and Search Options** and select the **View** tab.

Figure 2 Folder Options window



- 3 Click the **Apply to Folders** button.
- 4 A confirmation box displays asking if you want to apply the view options to all the sub-folders. Click **Yes**.

Figure 3 Folder Views confirmation dialog box



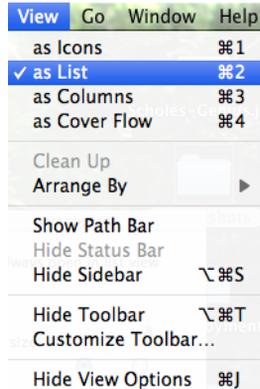
Directory Visibility - Mac OS

To view Scalar LTFS directories in Mac OS:

- 1 Select the LTFS directory.

2 Select **View > as List**.

Figure 4 Selecting as List from the View menu



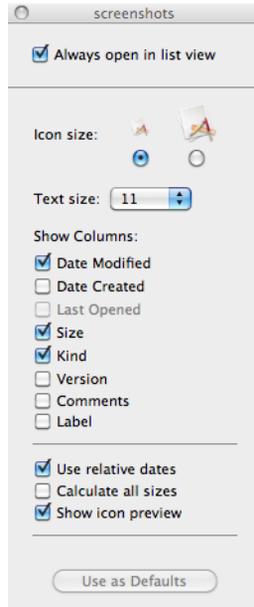
3 Select **View > Show View Options**.

Figure 5 Selecting Show View Options from the View menu



4 From the **View Options** window, select the **Always open in list view** check box.

Figure 6 View Options window



5 Close the window to apply changes.

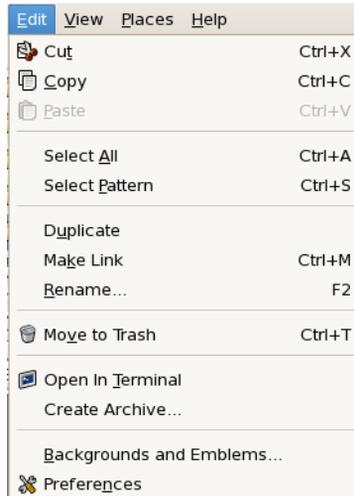
Note: Mac users will have to apply these settings to each directory. Subdirectories will not inherit properties of their parent directory.

Directory Visibility - Linux

To view Scalar LTFS directories in Linux using a file browser:

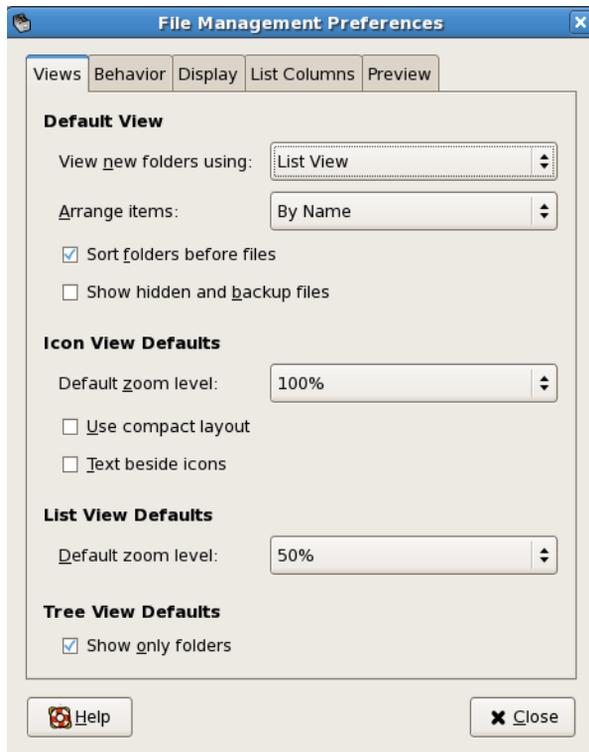
- 1 Select the LTFS directory.
- 2 Select **Edit > Preferences**.

Figure 7 Edit menu options



- 3 From the **View** tab of the **File Management Preferences** window, select **List View** from the **View new folders using:** drop-down menu.

Figure 8 File Management Preferences window



4 Click Close.

WORM

Write Once Read Many (WORM) media is not compatible with the LTFS format. WORM media cartridges have only a single partition, while LTFS requires cartridges to be formatted with two partitions.

Concurrent Volume Group Access Limitations with NFS and CIFS

Avoid creating more mounted volume groups than available drives. When the number of accessed volume groups exceeds the number of drives, the drives are said to be **oversubscribed**.

If a file access request is received on a volume in a partition that has no available drives, the following occurs:

- If the file transfer protocol is CIFS, a file system error (EAGAIN) is returned indicating that the resource is temporarily unavailable.

The user can retry the operation in hopes that a drive has become available.

- If the file transfer protocol is NFS, the operation is automatically retried. However, the order of file operations may not be preserved if several operations are accessing volume groups in that partition.

NFS File Fragmentation

NFS uses file caching and multiple simultaneous data transfer threads to increase performance when writing data to disk. NFS does not keep file data in order, because this is not important for disk storage devices.

Since NFS is not designed to write files to tape, writing file sectors out of sequence to a tape device causes lower transfer rate when the file is read due to the fragmentation of the file on the tape. Because of this, Quantum recommends transferring data to the Scalar LTFS file system using direct I/O, which will bypass the NFS caching layer and write the data directly to the tape device.

Quantum also recommends the following options:

- When using vendor-supplied or off-the-shelf applications, specify direct I/O access when the application supports it
- When using in-house applications to write data to Scalar LTFS, amend open system calls to specify direct I/O
- Send application output to STDOUT and direct it through the Linux standard 'dd' command. Specify the option "bs=512k oflags=direct" to block data for LTFS and send it using direct I/O
- If none of the previous options are available, write files to a local disk and use the 'dd' command to copy the files to LTFS

Note: Writing files using direct I/O takes more time than using NFS, but greatly increases the read performance when the file is needed in the future.

Note: The Scalar LTFS Appliance does not support the use of NFS with Mac or Windows OS.

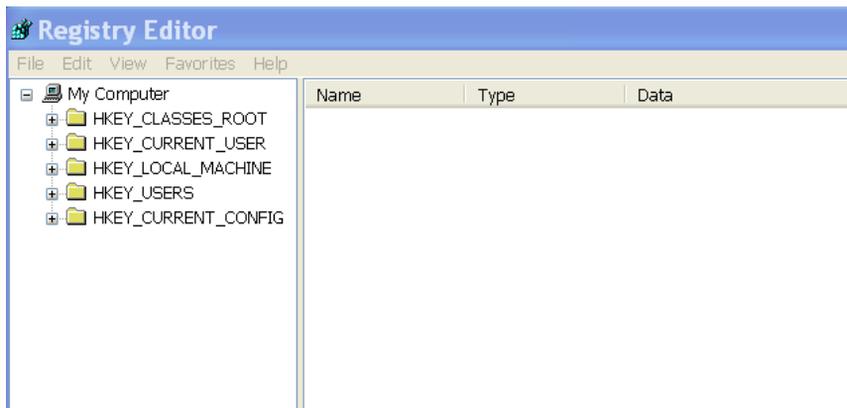
Maximize CIFS Performance

For CIFS, a Windows Registry setting can be modified to help prevent network time-outs when moving files over CIFS. This prevents errors occurring on the initial mount of the media. The **SessTimeout** value defaults to 45 seconds. Quantum recommends you increase the value to 3600 seconds.

Caution: It is recommended that before attempting to modify a Windows Registry, that users backup the existing registry in case the modifications cause issues with their host.

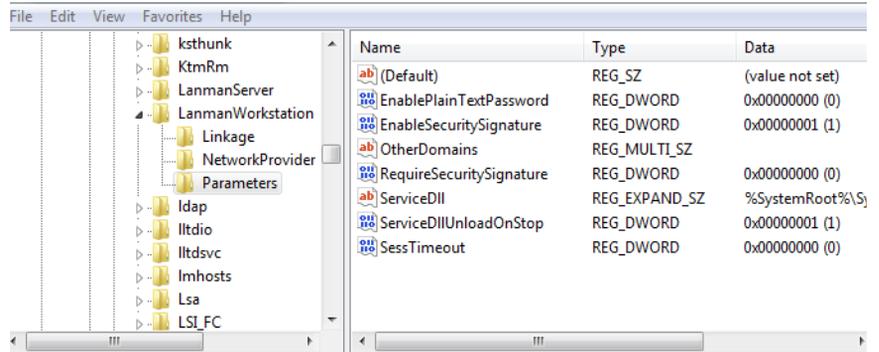
- 1 From the Windows Start menu, click **Run**. The **Run** window displays.
- 2 Type **REGEDIT**, and click **OK**. The **Registry Editor** window displays.

Figure 9 Registry Editor window



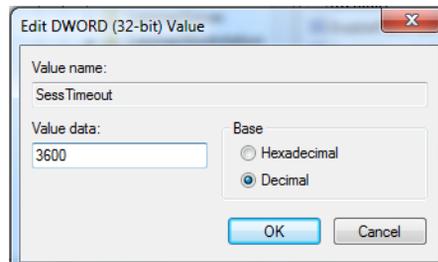
- 3 Locate the following registry key:
HKEY_LOCAL_MACHINE/System/CurrentControlSet/
Services/LanmanWorkstation/Parameters

Figure 10 SessTimeout value



- 4 Set the value of **SessTimeout** to 3600.
- 5 If **SessTimeout** value does not exist, create it as a new REG_DWORD value.
 - a Right click in the Registry Editor window. Select **New > DWORD value**.
 - b Name the new value **SessTimeout**.
 - c Right click **SessTimeout > Modify**. The **DWORD Value** window displays.

Figure 11 DWORD Value window



- d In the **Value Data** field, type 3600.
- e Click **OK**.

Note: After editing the **SessTimeout** value, the host should be restarted to update to the new settings.

Network Busy Error - CIFS

For CIFS, if all tape drives are mounted the next request for an unmounted volume will fail, producing an **EAGAIN** error code and display a **Network Busy** error. To avoid this error, users need to allow a tape drive to become available before attempting to access an unmounted volume.

Installation

Known Good Tape

Before library resources are added to the Scalar LTFS Appliance, it is recommended that a known good tape be created with non-critical customer data. This tape will provide data that is easily verifiable by the customer to help isolate media and drive issues if any occur after the initial installation of Scalar LTFS.

Software Configuration

Quantum recommends the following:

- After attaching media, ensure you save your configuration. Refer to the configuration matrix in your release notes.
- Media is set to discovered media with the state of auto-attachable by default.

Operations

Quantum recommends the following:

- If you want to use file spanning, SLTFS should only have a single partition configured for a single appliance.

- If you want to configure more than one partition:
 - you must only have a single volume per volume group
 - you must deselect the Scratch Enabled check box on the Volume Group window
- Partitions should be configured to pair drive types with their specific media (i.e. LTO-5 drives with LTO-5 media) and avoid mixing.
- Each partition should have a minimum of two (2) drives and ideally one more drive than the number of active volume groups contained in the partition. The additional drive allows for higher system performance as a result of less wait time for an available drive.
- File editors or utilities that overwrite parts of a file should not be used. Only write full files to a volume group.
- If 'Scratch Enabled' is selected for a volume group ensure the scratch pool is kept populated by available media.
- If a volume group becomes temporarily unavailable as a result of a power outages or other job failures, run a **Volume Group Repair**.
- Any failed **Replication** or **Merge** of a volume group will need a **Volume Group Repair** job run to restore the volume group to it's state prior to the replication or merge job.

Note: Volume Group Repair jobs can take a considerable amount of time to complete. It is recommended that repair jobs be done when the appliance is idle.

- It is highly recommended to run a Volume Group Replication job on any volume group that has a Reclamation Rating or Fragmentation Rating above 7.
- Any aborted media export jobs should have a **Volume Group Repair** job run to get the media state back to **Attached** and **Available**.
- For best performance, **volumes** should be limited to a maximum of 1 million files and the **system** should be limited to 1 billion files.
- When troubleshooting system operations, your first step should be to check the diagnostic tickets and follow the resolutions listed. If following the resolution steps doesn't solve the problem, check the hardware manufacturers' web sites for available firmware updates.

This is especially important for attached tape drives. Work with a service representative to install new drive code if available.

- At any given time for each attached partition, the number of active users writing or reading files to/from LTFS volumes should be less than or equal to the number of drives on the partition. If there are too many users, performance can be degraded to where users experience delays and possibly time-outs due to contention when several users try to access the same drive.

Note: Windows and Mac clients accessing LTFS volumes will receive an error, and will need to reissue the I/O.

Note: If clients are accessing Scalar LTFS using NFS, if there are no available resources, NFS will automatically retry the file system operation. However, there is no way to control the access order if multiple users are attempting to access resources.

- Create a work-flow that minimizes contention among users for access to the same volume groups. When multiple concurrent users try to access the same volume group, performance degrades as the drive rethreads the media searching for data in various tape locations.
- Each volume group should be confined to a single user since multi-user access can lead to performance issues, fragmented media, reduced drive availability and tape shoe-shining.
- Avoid editing files that reside on tape. Move files to local storage, edit them, and copy them back to tape at regular intervals.

Caution: On Windows 7, users may see a **Properties Lost** dialog while copying files. Disregard this dialog since there is no impact to the data transfer.

Caution: When working with video files on Windows 7, ensure that the **Duration** column is not visible when selecting the file. This could cause a full file reload, delaying the opening of the file.

Caution: When a tape reaches capacity a user will be unable to delete individual files from the tape. To create space to add files, the tape will need to be reformatted after all required data has been copied to a different tape.

- Viewing individual volume groups through the file system will not display the amount of free space available. Users must view the media through the GUI to see the amount of free space available.
- Creating folders or directories on a volume group can take longer than expected after I/O is completed because the tape must be positioned to a different location to write the necessary folder or directory information.
- The nature of LTFS is such that deleted files are not erased from the volume group, but are merely removed from the index of files on the tape. This maintains the pointers between files to permit better access to data on the tape. However, it means that deleting files does not recover storage space on tape.
- Ensure that the appliance displays the accurate time. Use NTP for settings on the **Date and Time** window.
- Use personalized account user IDs to track who made system changes. Require any users who have access to generic IDs to use the sudo command to access the generic ID.
- Format only blank media or media that contains data that can be recovered from another source.

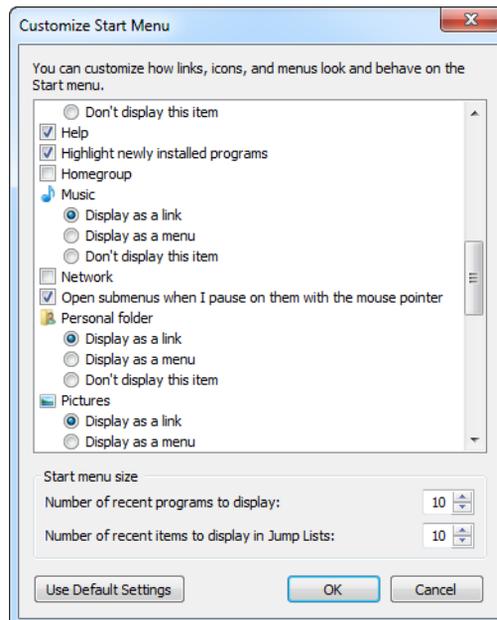
Caution: Formatting media irrevocably destroys all data existing on the tape.

- Avoid introducing non-LTFS volume groups into a partition that is managed by Scalar LTFS. This prevents human error by which an operator may mistakenly request a format operation through Scalar LTFS of a volume group that contains non-LTFS data.
- If resource files are being used on a MacOS it is recommended that the Finder not be used because it will automatically access these resource files, causing slower system performance and higher tape usage.
- It is known that with some native file browsers and applications will attempt to perform hidden file reads to gather file information for

user presentation. This can cause unexpected tape mounts and severe performance issues if the user attempts to read or write data to this tape at the same time.

To avoid these behaviors when using native file browsers (i.e. Finder on MacOS and Explorer on Window OS):

- Use Quantum’s version of muCommander on Mac and Windows systems (for information on installing muCommander, see the Scalar LTFs Release Notes)
- Use the command line interface for Linux systems
- It is recommended that users on a Windows platform disable the **Mouse Over Open Folder** option:
 - a Right-click on the Start button.
 - b Select **Properties**.
 - c Click **Customize**.
 - d Uncheck the **Open sub-menus when I pause on them with the mouse pointer** option.
 - e Click **OK**.
 - f Click **OK**.



Special Characters

Avoid the following special characters in file and directory names:

- / : " * ? > < | \

Attaching/Formatting Large Number of Media

It is recommended that any volumes that need to be accessed quickly should be attached/formatted in a small group so these volume will not be randomly queued in the system.

Recovering Storage Space

To recover storage space after deleting files from a tape:

- 1 Copy the entire volume group, including its directory structure and files, to local storage.
- 2 Reformat the tape.
- 3 Copy the files back from local storage back to the tape.

Alternatively, the volume group can be replicated using a volume group replication job. The volume group replication also precludes the need for local disk storage for the replication.

Reassign Control of a Partition to a Different Scalar LTFS Appliance

- 1 Stop all I/O to the SLTFS appliance.
- 2 Login to Scalar LTFS.
- 3 Wait until all media are unmounted from all drives in the partition which is being reassigned.
- 4 Select **Configuration > Partitions**.
- 5 Take the partition offline and detach it.
- 6 Make any necessary cabling or library configuration changes in order for the second Scalar LTFS appliance to access the partition.
- 7 Login to the second Scalar LTFS appliance.
- 8 From the Configuration screen, select Partitions.
- 9 Attach and bring the partition online, as well as at least one drive.

Library

Quantum recommends the following:

Library Service Tickets

- Monitor your Scalar tape library for any new tickets. These tickets may indicate early issues and tape alerts related to Scalar LTFs media and drives.

Caution: These alerts cannot be ignored or data loss is a possibility.

Tape library tickets are coded as follows:

- **Blue:** Severity 3 Diagnostic Tickets. Action: Issue should be noted. Resolve tickets according to resolution
- **Yellow:** Severity 2 Diagnostic Tickets. Action: Resolve tickets according to resolution. System impact is likely
- **Red:** Severity 1 Diagnostic Tickets. Immediate attention is required. Action: Resolve ticket according to Diagnostic Resolution

Adding/Removing Libraries/Drives

It may become necessary for a user to add a drive or a new partition. If this is the case, during this operation users will want to avoid any action that conflicts with a drive's I/O functions. To add a drive or library, complete the following steps:

- 1 Cable the drive/library to the Scalar LTFs appliance.
- 2 Using the Scalar LTFs GUI, unmount all drives by selecting **Configuration > Partitions**.

- 5 Once all the drives are unmounted, go to **Operations > Partitions**. The new drive/library will appear.

Note: It may take up to two minutes from the time the last drive was unmounted for the new drive/library to appear in the **Partitions** window.

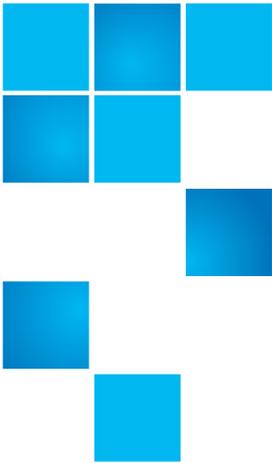
Note: Scalar LTFS does not support attaching new hardware while the appliance is active ('hot plugging'). The Scalar LTFS Appliance must be rebooted to guarantee that the new library or drive will display properly.

To remove a library/drive:

- 1 Stop all I/O on host devices.
- 2 Wait for all tape drives to dismount which is dependent on the **Idle Volume Timeout** setting (**Configuration > System**).
- 3 Once all media is unloaded, take the partition offline and detach it.
- 4 Remove the cable from the partition to the appliance. The partition will disappear from the GUI within 10 minutes.

Barcode Display

For Scalar LTFS to detect incompatible media types in the system, it is important that your library is setup to show the entire or extended barcode, specifically the L5 or L6 at the end of the barcode. Review your library's documentation for instructions on how to set this option properly.



Chapter 3

Logging On and Navigation

This chapter includes the following information:

- [Logging On to Scalar LTFS Appliance](#) on page 27
- [Navigating in the Graphical User Interface \(GUI\)](#) on page 29
- [Menu Tree](#) on page 36
- [Navigational Tools](#) on page 38
- [Logging Off](#) on page 38

Note: The information you see in your Web browser window depends on your user role. You can only view and work with information and devices accessible by your assigned role.

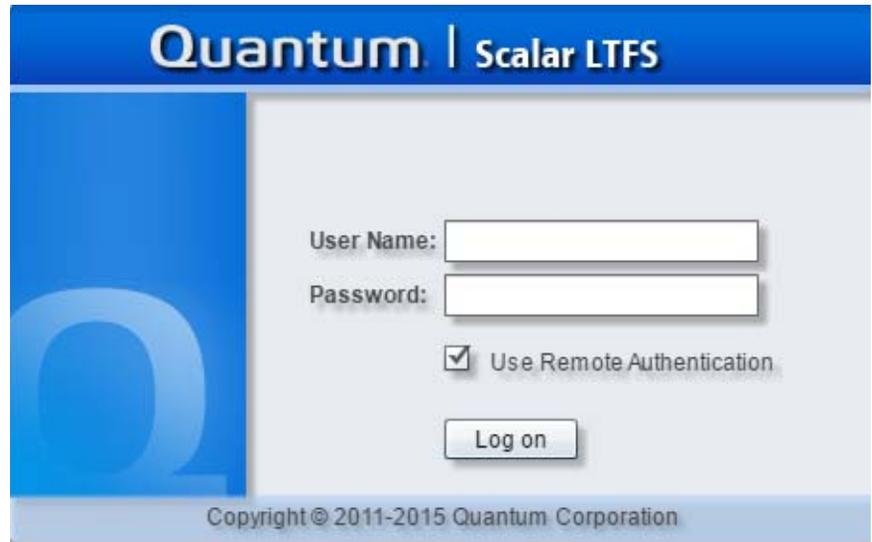
Logging On to Scalar LTFS Appliance

Follow the steps below to log on to Scalar LTFS Appliance:

- 1 Launch a supported Web browser on a workstation that has network access to the server. See [System Requirements](#) on page 3 for a list of supported browsers.

- 2 In the Web browser address box, type the IP address or host name of the Scalar LTFs Appliance server, and then press **Enter**. The **Login** window displays.

Figure 14 Login Window



Note: Since the Scalar LTFs Appliance uses HTTPS, users may get a warning displayed alerting them to this. Users should proceed and disregard the warning.

Note: If the Login window does not display, verify that the IP address is correct. Also verify that you are using a supported Web browser with Adobe Flash 10 or higher installed. Then try again. If you are still unable to access the **Login** window, contact your system administrator.

- 3 Type the **Username** and **Password**.

Note: The default username is `admin` and the default password is `password`.

- 4 If you are using LDAP for authentication, make sure the **Use Remote Authentication** check box is selected. This will only be displayed if Remote Login is enabled.

- Click **Log on**. After a successful login, the **Home** window displays (see [Figure 15](#) below).

If you are unable to log on, verify that your username and password are correct, then try again.

Navigating in the Graphical User Interface (GUI)

The GUI runs in a Web browser window using the Flash Player Plugin. [Figure 15](#) depicts the Scalar LTFs Appliance Home screen. After logging on to appliance, the **Home** screen displays.

Figure 15 Home Page

The screenshot shows the Quantum Scalar LTFs Appliance Home page. The header includes the Quantum logo, product name 'Scalar LTFs CC95FX1', the date and time '09:54 am Thu Jul 02 2015', and the location 'America/Los_Angeles'. There are also system icons and a 'Log Off' button.

The main content area is titled '13 volumes' and contains a table with the following columns: Barcode, Volume Group, Mounted, State, Physical State, VG State, Reason, Partition, Comment, Files, Used, and Free.

| Barcode | Volume Group | Mounted | State | Physical State | VG State | Reason | Partition | Comment | Files | Used | Free |
|---------|-----------------------|---------|-----------------|----------------|----------------|-------------------|-----------|---------|---------|----------|---------|
| 001540 | 000997 | | attached | available | ready | volume reappeared | LTO6 | | 2 | 23 MB | 2.30 TB |
| 001656 | 001656 | | attached | available | ready | volume reappeared | LTO6 | | 6 | 228 MB | 2.30 TB |
| 001552 | 001552 | | attached | available | ready | volume reappeared | LTO6 | | 1,170 | 130.5 GB | 2.19 TB |
| 000582 | 000582 | | attached | available | ready | volume reappeared | LTO6 | | 407 | 247.5 GB | 1.09 TB |
| 000670 | -4%'\0_+[] | | attached | available | ready | volume reappeared | LTO6 | | 11 | 10.8 GB | 1.30 TB |
| 000337 | 000132 - 500.000 file | | attached | available | pending export | volume reappeared | LTO5 | | 11 | 10.7 GB | 1.29 TB |
| 000336 | 000336r | | attached | available | ready | volume reappeared | LTO5 | | 1,342 | 1.30 TB | 0 MB |
| 000566 | 000336 | | attached | available | ready | volume reappeared | LTO6 | | 499,949 | 62.9 GB | 1.25 TB |
| 001558 | 001558 | | attached | available | ready | volume reappeared | LTO6 | | 2,264 | 2.31 TB | 0 MB |
| 000997 | 000997 | | attached | available | ready | volume reappeared | LTO6 | | 7 | 129.9 GB | 3.6 GB |
| 000236 | [discovered media] | | auto-attachable | available | | none | LTO5 | | 0 | - | - |
| 000095 | [discovered media] | | auto-attachable | available | | none | LTO5 | | 0 | - | - |
| 000132 | [discovered media] | | auto-attachable | available | | none | LTO6 | | 0 | - | - |

At the bottom of the volume table, there are radio buttons for 'Show Vaulted Media', 'Show Attached Media', and 'Show All Media'.

The bottom section of the page is divided into two panels:

- Open Diagnostic Tickets:** A table with columns: Ticket, Severity, Component, Opened, Summary. It shows two tickets related to 'Physical Media Changer'.
- Job Queue:** A table with columns: Job ID, Source, Event, State, Destination, Started. It shows several completed jobs.

The left sidebar contains a 'Main Menu' with options: Configuration, Operations, Export, Job Queue, Logoff, Media, Volume Group Assignment, and Volume Group Utilities. At the bottom of the sidebar are 'Tools', 'Reports', 'Help', and a 'Refresh' button.

The tables below describes the Home screen components.

Table 2 Home Page: Media List

| Column | Description |
|----------------|--|
| Barcode | The ASCII (characters and numbers) that identifies the unique piece of media. This code is displayed on the media as a printed array of varied rectangular bars and spaces that can be scanned and read for object identification. |
| Volume Group | A collection of one or more media into a single volume. |
| Mounted | Indicates media is loaded in a drive. |
| State | <p>The current state of the media:</p> <p>Auto-attachable - indicates the media is available for auto-attaching to a volume group</p> <p>Attached - indicates the media is attached to a VG</p> <p>Sequestered - indicates the media is unavailable</p> <p>Vaulted - indicates the media is unavailable and is not physically in the library</p> <p>Pending attach - indicates the media is in the process of being attached</p> <p>Pending format - indicates the media is in the process of being formatted</p> <p>Preparing for export - indicates the media is being prepared for export</p> <p>Ready for export - indicates the media is ready for export</p> <p>Pending export - indicates the media is in the process of being exported</p> <p>Repair in progress - indicates the media is in the process of being repaired</p> <p>Merging volume groups - indicates the media is in the process of being merged</p> <p>Verifying - indicates the media is in the process of being verified</p> <p>Busy reclaiming - indicates the media is in the process of being reclaimed</p> <p>Busy repairing - indicates the media is in the process of being repaired</p> <p>Operation in progress - indicates the media is in the process of being replicated</p> |
| Physical State | <p>The location and availability of media through the tape library. Options include:</p> <ul style="list-style-type: none"> • Available - media is in an accessible partition • Offline - media is in an unaccessible partition • Vaulted - media has been removed from a partition |

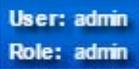
| Column | Description |
|-------------------------------------|--|
| VG State | <p>Empty - indicates the volume group is empty</p> <p>Ready - indicates the volume group is available and ready to be accessed</p> <p>Unavailable - indicates the volume group is not ready to be accessed</p> <p>Pending Export - indicates that the volume group is in the process of being exported and is unavailable</p> <p>Pending Replication - indicates that the volume group is in the process of being copied and is unavailable</p> <p>Pending Repair - indicates that the volume group is in the process of being repaired and is unavailable</p> <p>Pending Merge - indicates that the volume group is in the process of being merged with another volume group and is unavailable</p> <p>Vaulted - indicates that the volume group has been removed from the system</p> |
| Reason | Indicates what caused a state transition. |
| Partition | The serial number for the partition or partition name. |
| Comment | Allows users to add any additional information about what is on the tape cartridge. |
| Files | The number of files contained on the physical tape cartridge. |
| Used | Amount of physical space used on the tape cartridge. |
| Free | Amount of physical space available on the tape cartridge. |
| Open Diagnostic Tickets Area | |
| Ticket | Unique ticket number generated by Scalar LTFS. |
| Severity | <p>Green: Operating system has no warnings or diagnostic tickets</p> <p>Blue: Severity 3. Action: Issue should be noted. Resolve tickets according to resolution</p> <p>Yellow: Severity 2. Action: Resolve tickets according to resolution. System Impact is likely</p> <p>Red: Severity 1. Immediate attention is required. Action: Resolve ticket according to Diagnostic Resolution</p> |
| Component | The component that failed. |
| Opened | Indicates the date and time the ticket was opened. |

| Column | Description |
|-----------------------|--|
| Summary | Ticket ID and description. |
| Job Queue Area | |
| Job ID | A unique identifier generated by SLTFS. |
| | A visual representation of the current state of a job. |
| Source | Dependent on the Job Event and can be a barcode or volume group. |
| Event | What is being done to the specific media. Values include: attach, assign, sequester, import, export, format, prepare for export, replicate, repair, merge, publish, subscribe, verify and safe repair. |
| State | <p>The job states include:</p> <p>New - indicates the job has not been launched</p> <p>Complete - indicates the job has completed</p> <p>Completed with an exception - indicates the job has completed with an exception</p> <p>Failed - indicates the job has completed with a failure condition - see job GUI page for additional details</p> <p>Job failed to start - indicates the job could not start due to a failure condition - see job GUI page for additional details</p> <p>Mounting media - indicates the job is in the process of mounting a media</p> <p>Unmounting media - indicates the job is in the process of unmounting a media</p> <p>Importing - indicates the job is in the process of importing a media</p> <p>Exporting - indicates the job is in the process of exporting a media</p> <p>Formatting - indicates the job is in the process of formatting a media</p> <p>Copying - indicates the job is in the process of copying files</p> <p>Moving - indicates the job is in the process of moving files</p> <p>Mapping - indicates the job is in the process of mapping a media</p> <p>Checking - indicates the job is in the process of checking a media of data coherency</p> <p>Publishing - indicates the job is in the process of publishing files as part of replication</p> <p>Subscribing - indicates the job is in the process of subscribing to replication files</p> <p>Paused; file system busy - indicates the job could not start due to a busy file system</p> |

| Column | Description |
|--------------|--|
| State (cont) | <p>Paused; IE slot unavailable - indicates the job could not find an I/E slot to use and will retry shortly - while paused, a job cancellation is accepted</p> <p>Paused; drive unavailable - indicates the job could not find a drive to use and will retry shortly - while paused, a job cancellation is accepted</p> <p>Paused; scratch pool empty - indicates the scratch pool is currently empty and will retry shortly - while paused, a job cancellation is accepted</p> <p>Verifying - indicates the job is in the process of verifying a replica volume as part of replication</p> <p>Canceled - indicates the job has been canceled by the user or by an unexpected restart</p> |
| Destination | Used for job events where media is being moved to a different volume group: assign, merge, replication and safe repair. |
| Started | The date and time the job was initiated. |

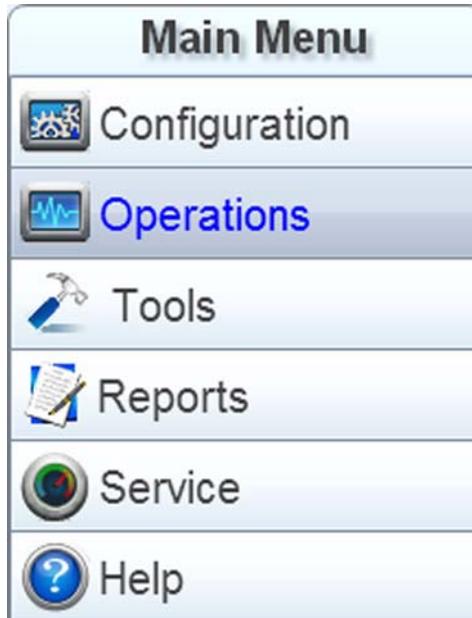
Table 3 Window Navigation Components

| Window Component | Description |
|------------------|---|
| Header bar | The header bar at the top of the window shows the title of the GUI (Quantum Scalar LTFS), the appliance's serial number, the date, time and time zone, the status of the system, the user that is logged in, and the Home, Help and Logout buttons. The Date/Time display is the date and time from the server, updated every minute to indicate the GUI is still communicating with the server. |

| Window Component | Description |
|---|--|
| Status  | The Status icon uses color to communicate the health of the system: Green = Operating system has no warnings or diagnostic tickets Blue = Low Priority. Action: Issue should be noted. Resolve tickets according to resolution Yellow = Medium Priority. Action: Resolve tickets according to resolution. System Impact is likely Red = High Priority. Immediate attention is required. Action: Resolve ticket according to Diagnostic Resolution Clicking the Status icon displays the Diagnostic Tickets screen. |
| Home  | Returns you to the home screen. |
| Messages  | Opens the System Message screen. The number in the lower right indicates how many unread messages are waiting to be addressed. |
| Help  | Opens the help system. |
| Log Off  | Ends the session and returns the browser Login window. |
| Who's Logged In  | Indicates the current user's user name and role. An (R) preceding 'User' indicates the current user has remote logged in via LDAP. |

[Figure 16](#) on page 35 depicts the Main Navigation Panel that is used to navigate through the Graphical User Interface (GUI). It is anchored on the left side of the page and functions as an accordion style menu with the top options consisting of, Configuration, Operations, Tools, Reports, Service, and Help. The currently selected menu item is expanded to display sub-options.

Figure 16 Main Navigation Panel



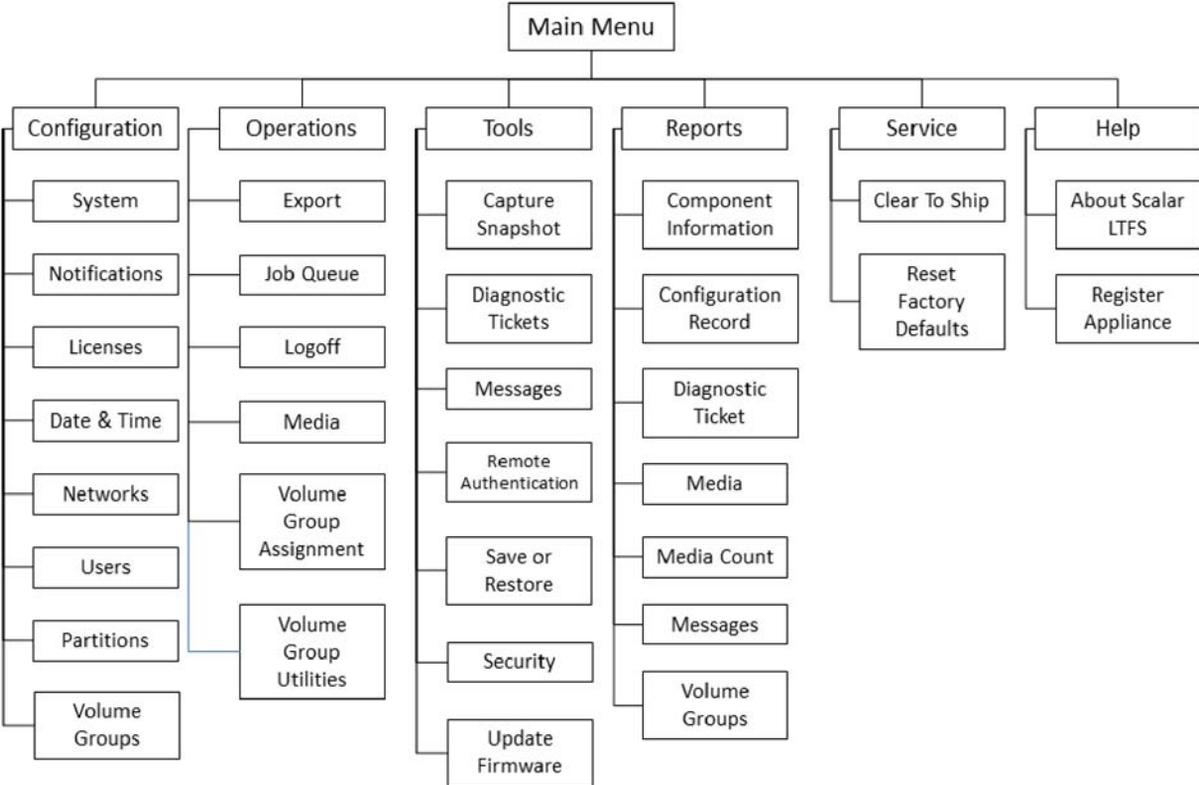
| Main Navigation Panel | Description |
|-----------------------|--|
| Configuration | This area contains all the user settings for the system, including system configuration, notifications, licenses, date and time, network configuration, users, partitions, and volume groups. |
| Operations | Expanded by default, this area contains options for operations on the system, including exporting, job queue, volume groups, utilities and media options such as attaching, formatting and sequestering. |
| Tools | This area contains links for e-mailing and downloading the configuration record, saving and restoring system configuration, capturing a snapshot, updating firmware, updating security, enabling remote authentication and working with diagnostic tickets and messages. |
| Reports | This option provides the Component Information, Configuration Record, Diagnostic Ticket, Media, Media Count, Messages and Volume Group Reports. |

| Main Navigation Panel | Description |
|-----------------------|---|
| Service | This area is visible on the navigation menu <i>only</i> if the user is logged on with the service user ID. |
| Help | This area contains a link to the Help About Scalar LTFS window, including version numbers as well as the appliance's serial number and how to register the appliance. |
| Refresh | Located at the bottom of the Navigation Panel, clicking this button updates the current screen you are viewing. |

Menu Tree

The following pictorial depicts the options available for each menu selection.

Figure 17 Main Menu Selections



Navigational Tools

The Scalar LTFS Appliance provides a rich interface for working with information. Keep the following concepts in mind while working in Scalar LTFS Appliance:

[Tooltips](#)

[Tables](#)

[Quantum Device Names](#)

Tooltips

Tooltips (small pop-up windows)  appear next to many fields throughout the Scalar LTFS Appliance GUI to provide helpful information. Hovering over these displays details about the field. Clicking tooltips opens a window that stays open while you work and gives you access to other tooltips.

Tables

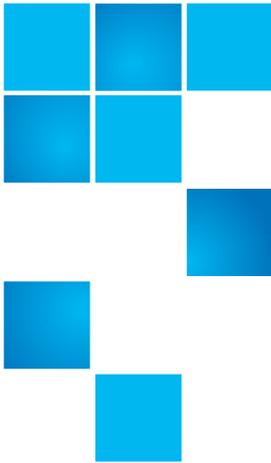
You can sort tabular data based on any of the available column headings. For example, on the **Home Page**, click the **State** column heading to sort all storage devices according to its state. Or click the **Type** column heading to sort all drives according to their type.

Quantum Device Names

Scalar LTFS Appliance refers to Quantum libraries by their product ID or family name, including Scalar i40, Scalar i80, Scalar i500, and Scalar i6000 libraries

Logging Off

When you are done working with the Scalar LTFS Appliance, click **Log Off** on the upper right of the window to end your session. Users can also select the **Operations > Logoff** menu to display the **Logoff** page.



Chapter 4

Configuring the Appliance

This chapter provides instructions for configuring the appliance using the GUI.

[System Configuration](#) on page 40

[Adding Notifications](#) on page 43

[Entering Licenses](#) on page 45

[Configuring Date and Time](#) on page 46

[Configuring the Network](#) on page 48

[Configuring Users](#) on page 51

[Configuring Partitions](#) on page 55

[Configuring Volume Groups](#) on page 59

The first time you log into the Scalar LTFS Appliance, a setup wizard prompts you to configure the appliance and assists you with the initial configuration. Refer to the *Quantum Scalar LTFS Site Planning and Installation Guide* for information about initial system setup.

Note: If you chose to cancel out of the Setup Wizard, you can configure the appliance at any time using the GUI. However, you will not be able to access the Setup Wizard again.

To view the GUI menu tree options, see [Main Menu Selections](#) on page 37.

System Configuration

Configure your system settings to set session time-outs, set permissions for the Quantum service user, set up e-mail accounts for system mail, and enter contact information.

- 1 From the navigation panel, click **Configuration > System**. The **System Configuration** screen displays.

Figure 18 System Configuration Window

The screenshot displays the 'System Configuration' window, which is divided into four main sections:

- Settings**:
 - User Sessions**:
 - Session Inactivity Timeout: 2 hours (dropdown menu)
 - Lock Out Service User: (checkbox)
 - System**:
 - Idle Volume Timeout: 30 minutes (dropdown menu)
 - Metadata Retention Timeout: No Expiration (dropdown menu)
 - Maximum Files per Volume: 500,000 (text input)
- E-mail Information**:
 - SMTP Server: 10.20.174.253 (text input)
 - Sender's E-mail Address: sltfs28@quantum.com (text input)
 - Enter an Account Name and Password if required. (help icon)
 - Login Account Name: (text input)
 - Password: (text input)
 - Confirm Password: (text input)
- Contact Information**:
 - First Name: (text input)
 - Last Name: (text input)
 - Company Name: (text input)
 - Phone Number: (text input)
 - E-mail Address: (text input)
 - System Description: (text input)

Configure User Sessions

You can set your desired session inactivity time-out from 5 minutes to 8 hours. The default session timeout is 2 hours. Once set, the currently logged in session automatically logs out after that period of inactivity.

In addition, use this window to allow or prohibit the Quantum service user to access the GUI in case of issues. The default setting is to allow Quantum service to access the GUI.

- 1 In the **Session Inactivity Time-out** field, select a value from the drop-down menu.
- 2 Set the Quantum service user access.
 - To allow the Quantum service user to access the GUI in case of issues, leave the check box blank in the **Lock Out Service User** field.
 - To prohibit access, click the **Lock Out Service User** check box. The box displays the check mark and the label states **Enabled**. The Quantum service user is locked out.
- 3 Use the **Tab** key to move to the [Configure System Settings](#) section of the window.

Configure System Settings

There is an **Idle Volume Timeout** setting that will automatically dismount media that has been inactive for a specified time. The default timeout is 30 minutes and the settings can range from 30 minutes to 8 hours.

Note: The Idle Volume Timeout setting indicates when SLTFS will timeout during I/O operations. It does not apply to maintenance operations, such as formatting tapes.

Use the **Metadata Retention Timeout** drop-down box to select the length of time metadata will be retained by the system for exported volumes. The settings range from off to no expiration. The default setting is no expiration.

Finally, the **Maximum Files per Volume** drop-down box allows you to set the maximum number of files for a specific volume group. 1 million files is the default but the setting can range from 100,000 to 15 million files.

When finished, use the **Tab** key to move to the [Configuring E-Mail](#) section of the window.

Configuring E-Mail

Once an e-mail account is configured, recipients may receive e-mail generated by the appliance, including snapshots, diagnostic ticket notifications and reports.

To receive these notifications from the Scalar LTFs Appliance, indicate the desired server and the sender's email address using the **System Configuration** screen. The system uses this server to send e-mail.

- 1 Type the following information:

| | |
|--------------------------------------|---|
| SMTP Server | Type the name of the SMTP server where e-mail messages should be sent. |
| Senders E-mail Address | Type the e-mail address of the sender of system notifications, for example, <i>myal tfs@companyname.com</i> . |
| Login Account Name (optional) | Type the name. |
| Password (optional) | Type the password. |
| Confirm Password | Confirm the password. |

Note: The login account name and password are optional. If configured, e-mails generated by the appliance will be sent with authorization. Authorization may be required by the SMTP server to send notifications outside of the company's domain.

- 2 Use the **Tab** key to move to the [Contact Information](#) section of the screen.

Contact Information

The contact information must be completed to register the appliance.

- 1 Type the contact information for the appliance, including **First Name, Last Name, Company Name, Phone Number (optional), E-Mail Address, and System Description**.
- 2 Click **Apply**.

Adding Notifications

Using the **Notifications** window, you can set up e-mail addresses for recipients who should receive system notifications for diagnostic tickets generated by the system, and specify the type of tickets received based on severity level.

- 1 Click **Configuration > Notifications**. The **Notifications** screen displays.

Figure 19 Notifications Window

Add, Modify and Delete Diagnostic Receivers

Create or modify the receiver information and press Apply

Select a receiver to modify or delete

Name:
 Phone:
 E-mail Address:

Enable Notifications:
 System Messages:
 Diagnostic Tickets:
 Ticket Level:

| Messages | Tickets | Name | Phone | E-mail | Level |
|----------|---------|-------------|-------|---------------------|------------|
| | ✓ | Scalar LTFS | | techsup@quantum.com | Severity 1 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Clear to Add Delete

Apply Cancel

Adding a Receiver

- 1 Complete the **Name**, **Phone** and **E-mail Address** fields.

Note: In the **Name** field, type the text that will appear in the e-mail subject line, for example *Scalar LTFS*.

- 2 For the receiver you are about to add, in the **Enable Notifications** area, select the check boxes for the type of notifications you want to enable.

A check mark displays in the **Messages** and/or **Tickets** column in the table. Once enabled, this e-mail address will receive appropriate system and diagnostic ticket notifications as they are generated.

Note: Only email addresses created manually can receive system message notifications.

- 3 From the **Ticket Level** drop down menu, choose the urgency of the notification:

| If you choose: | You receive: |
|-----------------------|---|
| Severity 1 | High priority tickets |
| Severity 2 | High and medium priority tickets |
| Severity 3 | All priority tickets—high, medium, and low. |

The **Level** column will display the type of tickets sent to the receiver.

- 4 Click **Apply**. The receiver's information appears in the table on the right.
- 5 To add another receiver, return to step 1.

Modifying a Receiver

- 1 On the table listing the current receivers (on the right), highlight the row to be changed.
- 2 Use the fields on the left to change receiver information as desired.
- 3 Click **Apply**. The receiver's updated information appears in the table on the right.

Deleting a Receiver

- 1 On the table listing the current receivers, highlight the row to be deleted.
- 2 Click **Delete**. The message **Are you sure you wish to delete the receiver from the system?** is displayed.
- 3 Click **Yes**. The receiver record is deleted.

Entering Licenses

License Keys are purchased along with the system and additional license keys may be purchased at any time. You can purchase licenses for 1, 2, 4, or 8 tape drives. For additional information about license key implementation, refer to [License Key Implementation](#) on page 5.

- 1 Copy and paste this number for reference and save to a safe location on your computer.
- 2 From the navigation panel, click **Configuration > Licenses**. The **Licenses** screen displays.

Figure 20 Licenses Window



The screenshot shows a window titled "Licenses". Inside, there is a section titled "Currently Installed Licenses" containing a table with three columns: "Licensed Feature", "Licensed Date", and "Licensed Q...". The first row of the table shows "Tape Library Drives", "2012-08-07", and "8". Below the table is a text input field labeled "Enter New License Key:". At the bottom of the window are two buttons: "Apply" and "Cancel".

| Licensed Feature | Licensed Date | Licensed Q... |
|---------------------|---------------|---------------|
| Tape Library Drives | 2012-08-07 | 8 |
| | | |
| | | |

- 3 In the **Enter New License Key** field, type the license key.
- 4 Click **Apply**.

Configuring Date and Time

The Scalar LTFS Appliance supports user-defined and NTP date and time settings. Use this window to set or update the date and time settings and set the time zone settings.

- 1 From the navigation panel, click **Configuration > Date and Time**. The **Date and Time** screen displays.

Note: The default setting is NTP.

Figure 21 Date and Time Window

Date and Time

Date and Time Settings

Select Date: < March 2012 >

| S | M | T | W | T | F | S |
|----|----|----|----|----|----|----|
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

Enter Time: 12 hours 2 minutes

NTP Settings

Use NTP: Enabled

NTP Servers:

- 192.43.244.18
- 208.66.174.71
- 66.187.233.4
- 75.13.24.211
- 127.127.1.0

Time Zone Settings

Current Time Zone: US/Mountain

New Time Zone: US/Mountain

Time Format

12 hr Format: 12:02:32 PM

24 hr Format: 12:02:3

Apply Cancel

NTP Settings

- 1 If not already checked, click the **Use NTP** box to select.

The Use NTP box displays a check mark and the label changes to **Enabled**. Five NTP address fields are enabled and the date and time settings (on the left) are grayed out.

Note: To enter date and time manually, refer to [Manually Entering Date and Time Settings](#) on page 48.

- 2 Type a least one valid NTP address. The system checks for a valid server from the top entry down until one is found.
- 3 In the **Time Zone Settings** section, review selection to ensure correct. As needed, select correct time zone from drop down menu.
- 4 In the **Time Format** section, select the time display format—**12 hr Format** or **24 hr Format**.
- 5 Click **Apply**.

Manually Entering Date and Time Settings

- 1 From the **Select Date** calendar, select today's date.
- 2 In the **Enter Time** field, type the time in 24 hour notation, for example 3:00 p.m. is 15:00.
- 3 In the **Time Zone Settings** section, review selection to ensure correct. As needed, select correct time zone from drop down menu.
- 4 In the **Time Format** section, select the time display format—**12 hr Format** or **24 hr Format**.
- 5 Click **Apply**.

Configuring the Network

Your network administrator should provide you with the IP address information. Prior to configuring your network, review the [Ethernet Configuration Tips](#) below.

Caution: Make sure you enter the correct IP address information and that you write this information down. If you enter the incorrect IP address information and reboot, you will not be able to access the system except via the service port.

Ethernet Configuration Tips

- You need only one ETH connection to configure the network.
 - The IP address must be unique for each Ethernet port while the subnet should be unique. The subnet and gateway address entered for the first Ethernet port is copied over to subsequent Ethernet port fields. Change as appropriate.
- 1 From the navigation panel, click **Configuration > Networks**. The **Networks** screen displays.

Figure 22 Networks Window

The screenshot shows a web-based configuration interface for a network appliance. The main title is "Networks". There are two main sections: "Host Name and Default Information" and "IPv4 Information".

Host Name and Default Information

| | |
|--------------------------|---|
| Host Name: | <input type="text" value="sltfs2"/> |
| DNS Address: | <input type="text" value="10.20.169.9"/> |
| Default Gateway Address: | <input type="text" value="10.20.168.1"/> |
| Domain Name: | <input type="text" value="hw.quantum.com"/> |

IPv4 Information

There are three tabs: "Eth1 - 1Gb", "Eth2 - 10Gb", and "Eth3 - 10Gb". The "Eth2 - 10Gb" tab is selected.

| | | |
|------------------|--|--|
| IP Address: | <input type="text" value="10.20.169.35"/> |  |
| Subnet Mask: | <input type="text" value="255.255.248.0"/> | |
| Gateway Address: | <input type="text" value="10.20.168.1"/> | |

At the bottom of the window are two buttons: "Apply" and "Cancel".

- 2 In the **Host Name and Default Information** portion of window, type the following information:
 - a Type the **Host Name** used to identify the Scalar LTFS system.
 - b Type the **DNS Address** and the **Default Gateway Address** you want to use to join the Scalar LTFS to your network.

Caution: If you selected NTP that contains host names, you must specify a DNS Address. See [Configuring Date and Time](#) on page 46.

- 3 In the **IPv4 Information** portion of screen in the **Eth1 - 1Gb** through **Eth3 - 10Gb** fields, type your static IP address information for Eth1 through Eth3 as cabled.

Note: Depending on the SLTFS model, there will be either 3 or 5 Ethernet settings available for configuration.

Note: Ethernet ports will only display if a cable is attached to the corresponding port on the Scalar LTFS Appliance.

Caution: The Ethernet IP Address must be unique and the Subnet Mask should be unique for each ETH port to enhance performance.

Note: The **Trash** icon clears all network data for the active Eth tab. Each time network data is cleared, the Scalar LTFS Appliance network is restarted.

- 4 Click **Apply**. The message **Are you sure you wish to change the systems network settings?** displays.
- 5 Click **Yes** to confirm.

Configuring Users

Out of the box, the Scalar LTFS Appliance comes configured with the following user accounts:

- One **Service** user for use by Quantum service only. You can disable this user account if you desire.
- One default **Administrator** account. You cannot disable this user account, but you can change the password.

Based on the role — administrator or user — you have certain permission levels in the GUI appliance. Refer to [Appendix A, User Roles](#) for a detailed list of permissions.

Note: For administrators, the user configuration page allows them to add, modify and delete users. For users, the user configuration page allows them to only change their password.

To configure a user account:

- 1 From the navigation panel, click **Configuration > Users**. The **Users** screen displays.

Figure 23 Users Window

Users

Add, Edit and Delete Users

Create or modify the user information and press Apply

Name:

Role:

Password:

Confirm Password:

Enter your Current Password:

Select a user to modify or delete

| Name | Role | Last Logged On |
|---------|---------|---------------------|
| admin | admin | 2014-04-15 17:56:09 |
| Eric | admin | 2014-04-03 18:40:16 |
| service | service | |

- 2 Based on desired task, go to:

[Adding a User](#) on page 53

[Modifying an Existing User](#) on page 53

[Deleting a User](#) on page 54

[Changing a Password](#) on page 54

Adding a User

- 1 In the **User Information** fields, type the following:

| | |
|-------------------------|---|
| Name | Type the user's name. Note: Only a single administrator with the admin name is allowed but multiple users can be created that have the administrator role. |
| Role | From the drop down menu, select the desired role of admin or user . Best Practice: Use personalized account user IDs if you want to track <i>who</i> made system changes. |
| Password | Type the password. Passwords must be at least 6 characters in length and cannot contain the following characters: • _ @ . - * \ Note: The Name and Password cannot be same. |
| Confirm Password | Retype the password. |

- 2 Click **Apply**. The added user is displayed in the **Current Users** table.

Modifying an Existing User

- 1 In the **Existing User** table on the right side of the screen, highlight the user row you want to modify.
- 2 Make the changes to the role, as defined above in the [Adding a User](#) section.
- 3 Click **Apply**.

Deleting a User

Note: You cannot delete the **admin** or **service** user.

- 1 In the **Existing User** table on the right side of the screen, highlight the user row you want to delete.
- 2 Click **Delete**, and then click **Yes** to confirm.

Changing a Password

A user may only change their own password. In the event a user has forgotten their password, an administrator must recreate the user's account by deleting the user and adding them back into the system.

Administrator password:

- 1 In the **Existing Users** table on the right side of the screen, select your user name.
- 2 Enter the new password in the **Password** field. Passwords must be at least 6 characters in length and cannot contain the following characters:
 - `_ @ . - * \`
- 3 Reenter the new password in the **Confirm Password** field.
- 4 Enter in the current password in the **Enter your Current Password** field.
- 5 Click **Apply**. A dialog box displays confirming that you want to change the password.
- 6 Click **Yes** to confirm.

User password:



Change your password

Change your password and press apply

Name: joe

Password:

Confirm Password:

Enter your Current Password: 

- 1 Enter the new password in the **Password** field.
- 2 Retype the new password in the **Confirm Password** field.
- 3 Type in your current password in the **Enter your Current Password** field.
- 4 Click **Apply**. A dialog box displays confirming that you want to change your password.
- 5 Click **Yes** to confirm.
- 6

Configuring Partitions

Before you work with partitions on the Scalar LTFS Appliance, ensure you have configured library partitions, generated a list of partition names and serial numbers from your Scalar library and using this list, identified the partitions that you want to attach to the appliance.

- 1 From the navigation panel, click **Configuration > Partitions**. The **Partitions** screen displays.

Figure 24 Partitions Window

| Partitions | | | | | | | | |
|-------------------------------------|------------|-------------------------------------|-----------------------|----------------|--------|-------|-------|-----|
| Attached | Name | Online | Serial Number | Product ID | Drives | Media | Slots | I/E |
| <input checked="" type="checkbox"/> | lib_a_lto6 | <input checked="" type="checkbox"/> | QUANTUMD1H0309809_LLA | Scalar i40-i80 | 2 | 8 | 15 | 5 |
| <input checked="" type="checkbox"/> | lib_b_lto5 | <input type="checkbox"/> | QUANTUMD1H0309809_LLB | Scalar i40-i80 | 1 | 4 | 25 | 5 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| Partition "lib_a_lto6" Drives | | | | |
|-------------------------------|-------------------------------------|-----------|----------------|--------|
| Serial Number | Online | Vendor ID | Product ID | Media |
| C388C24004 | <input checked="" type="checkbox"/> | HP | Ultrium 6-SCSI | |
| C388C24000 | <input checked="" type="checkbox"/> | HP | Ultrium 6-SCSI | 000132 |
| | | | | |

The **Partitions** table, as shown in [Figure 24](#) displays all partitions that have been physically attached via Fibre Channel, I/O blade, or SAS and exposed to the host.

[Table 4](#) on page 56 and [Table 5](#) on page 57 describe the data on the on the **Partitions** window.

Note: Columns marked with the  icon are editable.

Table 4 Partitions Table Descriptions

| Partitions Table Column | Description |
|-------------------------|---|
| Attached | Check box to attach the partition. Uncheck the box to detach the partition. |
| Name | Type the name of the partition. Note: Quantum recommends that you name the partition with the same name as identified in the library. |

| Partitions Table Column | Description |
|-------------------------|---|
| Online | Check box to bring partition online. If unchecked, partition is offline. If offline, you cannot access files on this media. |
| Serial Number | The tape library identifier from the from library medium changer. This logical serial number is a combination of the library serial number and a Logical Library letter (for example, LLA, LLB, LLC). |
| Product ID | The product name of your library. |
| Drives | The number of drives within the partition. |
| Media | The number of media within the partition. |
| Slots | The number of storage slots in the partition. |
| I/E | The number of I/E slots in the partition. |

Table 5 Partitions Drives Table Descriptions

| Partition Drives Table Column | Description |
|-------------------------------|--|
| Serial Number | Drive serial number. |
| Online | Check the box to bring a drive online. Uncheck the box to take a drive offline. If the take offline, you cannot drag files to this media. |
| Vendor ID | ID of the drive vendor. |
| Product ID | Product name of the tape drive. |
| Media | If loaded, identifies the media. |

- 2 Attach each partition by row by clicking the **Attached** check box. A check mark displays.

- 3 Rename the partition using the same name as the library partition. In the **Name** column, click the current name to highlight it and type the new partition name.



- 4 Place the partition in an **Online** or **Offline** status.
 - To place the partition online, click the check box. The partition is accessible by the appliance.

Note: The Scalar LTFS Appliance automatically sets the partition to **Online** when it is first attached.

- To keep the partition offline, ensure check box is unchecked. The partition is not accessible by the appliance.

If the drive has media loaded, you would see the barcode in the **Partition Drives** area at the bottom of screen.

Importing/Exporting Media from an LTFS Partition

Imported media have three different designations:

- **Discovered** - this is new media, unformatted and added to the library. Discovered media will appear in a **Sequestered** state upon import into SLTFS
 - **Scratch** - this is formatted media with no data
 - **Volume Group Assigned** - this is media that has been previously assigned to a volume group
- 1 Import or export media as required, using the library GUI, front panel of the library or other hardware facilities available on the library.

Note: Media put into the library's I/E station will automatically be moved to an empty slot in the library. Any media not previously in SLTFS will be added to the discovered pool. Media previously in SLTFS will be returned to its home slot if possible.

- 2 Put the partition online at the Scalar LTFS GUI. Scalar LTFS will reserve the media changer for that partition again (or will leave the partition offline if it cannot). Attached volumes in the now-online partition will reappear.

However, adding a Scalar LTFS library to an existing partition is more complex. If the drive or appliance does not gracefully support partitions, you may have to recycle the appliance to make the new library visible.

Configuring Volume Groups

A volume group is a collection of one or more media that is presented to end users and applications as a directory in the file system. Before using the Scalar LTFS Appliance, at least one volume group of media must be configured. Each volume group can be configured in one of two ways:

- One piece of media in the volume group; each piece of media is presented as a directory in the file system. Limiting volume groups to single volumes makes it easy to understand the files contained on each piece of media.
- Multiple pieces of media in the volume group; all media in the volume group are presented as one directory. The capacity of the directory is only limited by the number of media in the volume group. If the volume group is configured to use scratch media, the volume group will pull additional media as needed thereby increasing the capacity of the volume group. When a volume group is configured with multiple pieces of media, the appliance will span files across tapes as needed.

Note: Single media and multi-media volume groups can both be configured within the same appliance.

There are a number of considerations when deciding how to configure volume groups (using single or multiple pieces of media per volume group). Each configuration can both simplify and complicate certain aspects of using the appliance.

- **Managing directory capacity:** Volume groups with one piece of media require end users to manage the capacity of each directory as

each directory/media has a limited capacity. Configuring volume groups with multiple media can simplify use of the system for end users or enable applications to use the system because directory capacities are not limited by the capacity of one piece of media.

- **File location:** With single media volume groups the location of files on tapes is known and it may make it easier on the system administrator to manage media.
 - **Media operations:** Most media operations are conducted on the entire volume group. For example, exporting a volume group means all media in the volume group must be exported. These operational considerations should be taken into account when defining volume groups with multiple pieces of media.
- 1 From the navigation panel, click **Configuration > Volume Group**. The **Volume Group** screen displays.

Figure 25 Volume Group Window

| Action | Volume Group | State | Online | Media | Reason | Comment | Scratch Enabled | Free Thres... | Files | Used | Free |
|--------|--------------------------|-------------|-------------------------------------|-------|------------------------|---------|-------------------------------------|---------------|---------|---------|---------|
| Create | <i>enter new VG name</i> | | | | | | | 80 | | | |
| | ~!\$%^()_+{} | ready | <input checked="" type="checkbox"/> | 1 | volume group has no mo | | <input checked="" type="checkbox"/> | 80 | 2,754 | 10.8 GE | 1.30 TE |
| Remove | 000095 | unavailabl | <input checked="" type="checkbox"/> | 0 | volume group has no mo | | <input checked="" type="checkbox"/> | 80 | | 0 ME | 0 M |
| Remove | 000132 | unavailabl | <input checked="" type="checkbox"/> | 0 | volume group has no mo | | <input checked="" type="checkbox"/> | 80 | | 0 ME | 0 M |
| | '000132 - 500.000 files | pending es> | <input checked="" type="checkbox"/> | 1 | volume group has no mo | | <input checked="" type="checkbox"/> | 80 | 11 | 10.7 GE | 1.29 TE |
| Remove | 000236 | empty | <input checked="" type="checkbox"/> | 0 | | | <input checked="" type="checkbox"/> | 80 | | 0 ME | 0 M |
| Remove | l000236 | empty | <input checked="" type="checkbox"/> | 0 | | | <input checked="" type="checkbox"/> | 80 | | 0 ME | 0 M |
| | 000336 | ready | <input checked="" type="checkbox"/> | 1 | | | <input type="checkbox"/> | 80 | 499,941 | 62.9 GE | 1.25 TE |
| | 000336r | ready | <input checked="" type="checkbox"/> | 2 | volume group has no mo | | <input checked="" type="checkbox"/> | 80 | 501,292 | 1.35 TB | 1.27 TE |
| Remove | 000566 | empty | <input checked="" type="checkbox"/> | 0 | | | <input type="checkbox"/> | 80 | | 0 ME | 0 M |
| Remove | 000566 rep | empty | <input checked="" type="checkbox"/> | 0 | | | <input checked="" type="checkbox"/> | 80 | | 0 ME | 0 M |

Table 6 on page 61 describes the data on the **Volume Group** window.

Table 6 Volume Group Configuration

| Volume Group Table Column | Description |
|---------------------------|--|
| Action | Displays a button to either create or remove a volume group. The Create button only appears in the first row and the Remove button only appears in volume groups that have no media assigned. |
| Volume Group | Displays the name of the volume group. |
| State | <p>The current state of the media:</p> <p>Auto-attachable - indicates the media is available for auto-attaching to a volume group</p> <p>Attached - indicates the media is attached to a VG</p> <p>Sequestered - indicates the media is unavailable</p> <p>Vaulted - indicates the media is unavailable and is not physically in the library</p> <p>Pending attach - indicates the media is in the process of being attached</p> <p>Pending format - indicates the media is in the process of being formatted</p> <p>Preparing for export - indicates the media is being prepared for export</p> <p>Ready for export - indicates the media is ready for export</p> <p>Pending export - indicates the media is in the process of being exported</p> <p>Repair in progress - indicates the media is in the process of being repaired</p> <p>Merging volume groups - indicates the media is in the process of being merged</p> <p>Verifying - indicates the media is in the process of being verified</p> <p>Busy reclaiming - indicates the media is in the process of being reclaimed</p> <p>Busy repairing - indicates the media is in the process of being repaired</p> <p>Operation in progress - indicates the media is in the process of being replicated</p> |
| Online | An editable field that indicates whether the volume group is online. |
| Media | Indicates the number of media assigned to the volume group. |
| Reason | Describes the state the volume group is in. |
| Comment | An editable field allowing administrators to add comments about the volume group. |

| Volume Group Table Column | Description |
|---------------------------|---|
| Scratch Enabled | An editable field allowing administrators to set the volume group to automatically get blank media when necessary. |
| Free Threshold | An editable field allowing administrators to set a threshold percentage for volume groups. An alert is generated when a volume group exceeds this threshold. Scratch media needs to be available when this threshold is exceeded. |
| Files | Indicates the number of files in a volume group. |
| Used | Indicates the amount of physical space used in the volume group. |
| Free | Indicates the amount of physical space available in the volume group. |

Create a Volume Group

Volume groups can be created manually or when your Scalar LTFS firmware is upgraded or initially installed (see *Scalar LTFS Installation and Planning Guide*). Any volume groups created during installation or upgrade will use the media barcode as the name. Changes to a volume group name can only be done through a file system interface, such as Explorer or muCommander - Quantum Edition.

- 2 At the top row of the table, click in the box in the **Volume Group** column next to the **Create** button in the **Action** column.
- 3 Type the name of the new volume group.
- 4 Click **Create**. The button changes to an **Add** button.
- 5 Click **Add**. A dialog displays indicating that your new volume group has been created.

Once a volume group has been created, you must assign media or merge it with another volume group(s) to use it. See [Assign Media to a Volume Group](#) on page 79.

Modify a Volume Group

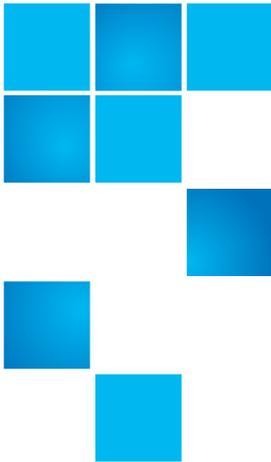
You can change some settings for a volume group. You can take a volume group offline, make it scratch tape enabled, add a comment or change its free threshold. See [Table 6](#) on page 61 for definitions.

- 1 From the navigation panel, click **Configuration > Volume Group**. The **Volume Group** screen displays.
- 2 Select the volume group you want to modify by clicking anywhere in its row.
- 3 Modify the necessary fields.
- 4 Click **Modify**. A dialog box displays indicating the modification was successful.

Remove a Volume Group

Note: Volume groups can only be removed if there are no media assigned.

- 1 From the navigation panel, click **Configuration > Volume Group**. The **Volume Group** screen displays.
- 2 Select the volume group you want to remove by clicking anywhere in its row.
- 3 Click the **Remove** button. A dialog displays to confirm you want to remove the volume group.
- 4 Click **Yes**. The volume group is removed from the list.



Chapter 5

System Media Operations

This chapter describes how to manage media using the Scalar LTFS Appliance.

[Export Volume Groups](#) on page 66

[Use the Job Queue](#) on page 67

[Shut Down /Log Off System](#) on page 69

[Managing Media](#) on page 71

[Assign Media to a Volume Group](#) on page 79

[Use Volume Group Utilities](#) on page 84

[Registering the Appliance](#) on page 89

Note: To ensure the most up-to-date system information, the **Refresh** button on the **Main Screen** should be used periodically.

Export Volume Groups

Note: Once an export is in progress, there is no way to cancel the job. It must finish and then the exported volumes must be physically removed from the I/E station and the door closed. Then the media can be put back into the I/E station. SLTFS will automatically import the media back into the partition.

- 1 From the navigation panel, click **Operations > Export**. The **Export** screen displays.

Figure 26 Export Window

| Export | | | | | | | | | | | | |
|------------------------------------|--------------|-------|---------|----------|-------|----------|---------|--|--|--|--|--|
| Volume Groups Available for Export | | | | | | | | | | | | |
| Prepare | Volume Group | State | Comment | location | Files | Used | Free | | | | | |
| <input type="checkbox"/> | ~\$%^()_+{} | ready | | | 2,754 | 10.8 GB | 1.30 TB | | | | | |
| <input type="checkbox"/> | 001552 | ready | | | 1,170 | 130.5 GB | 2.19 TB | | | | | |
| <input type="checkbox"/> | 001558 | ready | | | 2,264 | 2.31 TB | 0 MB | | | | | |
| <input type="checkbox"/> | 001558 rep | ready | | | 2,264 | 24.1 GB | 1.28 TB | | | | | |
| <input type="checkbox"/> | ddd | ready | | | 1,609 | 294 MB | 1.30 TB | | | | | |

| Media Available for Export | | | | | | | | | | | | |
|----------------------------|---------|--------------|---------|------------------|-----------|-------------|-------------|-----------|---------|---------|---------|---------|
| Export | Barcode | Volume Group | Mounted | State | Physic... | VG State | Reason | Partition | Comment | Files | Used | Free |
| <input type="checkbox"/> | 000566 | 000336 | | ready for export | available | unavailable | urb request | LTO6 | | 499,949 | 62.9 GB | 1.25 TB |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

► IE Slots

- 2 From the **Volume Groups Available for Export** area, select the volume group(s) you want to export media from.

Note: Optional information can be entered in the **Location** column. Place the cursor in the Location field and type. When finished, click **Apply**.

- 3 Click **Apply**. In the **Media Available for Export** area, you will see a list of media from the volume group(s) you selected.

Note: If tapes from the Volume Group are mounted, the export may take some time to complete. Check the **Job Queue** for status on the export.

- 4 Select the media you want to export to the I/E station.
- 5 Click **Apply**. The selected media is set to **Pending Export** in the Job Queue. See [Use the Job Queue](#) on page 67 for more information.

Note: Once a single piece of media is in **Pending Export**, the remaining media in that volume group must be exported as well before the volume group can be available again.

- 6 To complete the volume group export, you must physically remove the tapes from the library's I/E station. If the tapes are not removed, the media will stay in the **Pending Export** state until they are. This means that the volume group will not appear in your file system browser and be unavailable until the media are removed.

Use the Job Queue

| Job Queue Table Column | Description |
|------------------------|--|
| Cancel Job | Indicates which job(s) to be canceled. The check box is enabled when a job is able to be canceled. |
| Job ID | A unique identifier created when a function is initiated by the system. |
| | A visual representation of the state of a job. |
| Source | Indicates the volume group or media the job is being performed on. |
| Event | Indicates what the job is performing. |

- 2 If you want to see a different range of jobs displayed, select a different value from the Include jobs completed within: drop-down box. The possible options include:
 - 24 hours
 - 2 days
 - 3 days
 - 1 week
 - 2 weeks
 - 1 month
 - 2 months
 - 3 months (all)

Note: All jobs are automatically deleted from the system after 90 days.

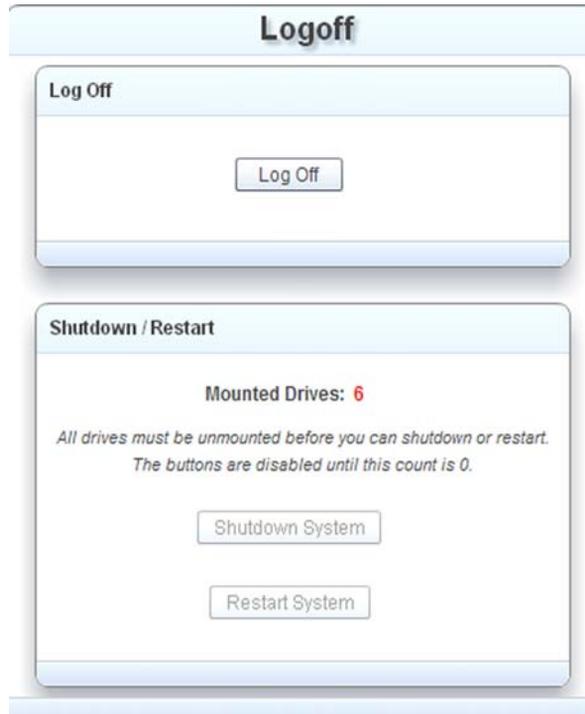
Cancel a Job

- 1 From the navigation panel, click **Operations > Job Queue**. The **Job Queue** screen displays a complete list of all jobs initiated in the last 24 hours.
- 2 Select the check box in the **Cancel Job** column for the job you want to cancel. Job can only be canceled when they are in the following states:
 - paused; IE slot unavailable
 - paused; drive unavailable
 - paused; scratch pool empty
- 3 Click **Apply**.

Shut Down /Log Off System

Use the **Log Off** screen to shut down system, restart the system, or log off and leave the system running.

- 1 From the navigation panel, click **Operations > LogOff / Shutdown**. The **LogOff** screen displays.



- 2 Based on desired task, go to:
[Logging Off System](#) on page 70
[Shutting Down System](#) on page 70
[Restarting System](#) on page 71

Logging Off System

To log off the current user:

- 1 In the **Log Off** section, click **Log Off**. The current user is logged out and the Login window displays.

Shutting Down System

To shutdown the system:

- 1 In the **Shutdown/Restart** section, click **Shutdown System**. The system is shut down on the Linux system and ready to be powered off.

Restarting System

To restart the system:

- 1 In the **Shutdown/Restart** section, click **Restart System**. The system is restarted automatically.

Managing Media

Before you can work with media, you must first add a partition. Refer to [Configuring Partitions](#) on page 55.

- 1 Ensure the partition has been configured.
- 2 From the navigation panel, click **Operations > Media**. The **Media** screen displays.

Figure 28 Media Window

The screenshot shows the 'Media' window with a table of 49 volumes. The table columns are: Select, Barcode, Volume Group, Mounted, State, Physical State, VG State, Reason, Partition, Comment, Files, Used, and Free. The 'Capacity Percentages' chart shows a bar graph with a legend for <80%, >80%, and >90%.

| Select | Barcode | Volume Group | Mounted | State | Physical State | VG State | Reason | Partition | Comment | Files | Used | Free |
|--------------------------|---------|--------------------|---------|-----------------|----------------|----------|-------------|-----------|---------|-------|------|----------|
| <input type="checkbox"/> | 000277 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 133.4 GB |
| <input type="checkbox"/> | 000332 | [scratch media] | | sequestered | available | | urb request | HP_LTO5 | | 0 | - | - |
| <input type="checkbox"/> | 000644 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 1.31 TB |
| <input type="checkbox"/> | 000932 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 1.31 TB |
| <input type="checkbox"/> | 001842 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 1.31 TB |
| <input type="checkbox"/> | 000221 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 1.31 TB |
| <input type="checkbox"/> | 001853 | [discovered media] | | auto-attachable | available | | none | HP_LTO5 | | 0 | - | - |
| <input type="checkbox"/> | 000549 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 1.31 TB |
| <input type="checkbox"/> | 000592 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 133.4 GB |
| <input type="checkbox"/> | 001859 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 133.4 GB |
| <input type="checkbox"/> | 000657 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 1.31 TB |
| <input type="checkbox"/> | 001061 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 1.31 TB |
| <input type="checkbox"/> | 000694 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 1.31 TB |
| <input type="checkbox"/> | 001483 | [discovered media] | | auto-attachable | available | | none | HP_LTO5 | | 0 | - | - |
| <input type="checkbox"/> | 001075 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | - | - |
| <input type="checkbox"/> | 000655 | [discovered media] | | auto-attachable | available | | none | HP_LTO5 | | 0 | - | - |
| <input type="checkbox"/> | 000646 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 133.4 GB |
| <input type="checkbox"/> | 000660 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 133.4 GB |
| <input type="checkbox"/> | 000722 | [scratch media] | | auto-attachable | available | | urb request | HP_LTO5 | | 0 | 0 MB | 133.4 GB |

This window displays the status and information known about each piece of media or cartridge in the system. The table below describes each column in the **Media** table.

Note: The amount of free space on an individual volume can only be determined through the Scalar LTFs GUI. You can not see any volume details through the file system.

Table 7 Operations Media
Description

| Column | Description |
|--------------|--|
| Select | Select any/all media you want to attach, format, or sequester by clicking check box and clicking appropriate button. |
| Barcode | The barcode associated with the physical media. The last two digits of the barcode that indicate the tape generation number, for example L5, are not displayed. |
| Volume Group | A collection of one or more media into a single volume. |
| Mounted | A check mark is displayed in this column if the media is mounted in a drive. |
| State | <p>The current state of the media:</p> <p>Auto-attachable - indicates the media is available for auto-attaching to a volume group</p> <p>Attached - indicates the media is attached to a VG</p> <p>Sequestered - indicates the media is unavailable</p> <p>Vaulted - indicates the media is unavailable and is not physically in the library</p> <p>Pending attach - indicates the media is in the process of being attached</p> <p>Pending format - indicates the media is in the process of being formatted</p> <p>Preparing for export - indicates the media is being prepared for export</p> <p>Ready for export - indicates the media is ready for export</p> <p>Pending export - indicates the media is in the process of being exported</p> <p>Repair in progress - indicates the media is in the process of being repaired</p> <p>Merging volume groups - indicates the media is in the process of being merged</p> <p>Verifying - indicates the media is in the process of being verified</p> <p>Busy reclaiming - indicates the media is in the process of being reclaimed</p> <p>Busy repairing - indicates the media is in the process of being repaired</p> <p>Operation in progress - indicates the media is in the process of being replicated</p> |

| Column | Description |
|----------------|--|
| Physical State | The location and availability of media through the tape library. Options include: <ul style="list-style-type: none"> • Available - media is in an accessible partition • Offline - media is in an unaccessible partition • Vaulted - media has been removed from a partition |
| VG State | <p>Empty - indicates the volume group is empty</p> <p>Ready - indicates the volume group is available and ready to be accessed</p> <p>Unavailable - indicates the volume group is not ready to be accessed</p> <p>Pending Export - indicates that the volume group is in the process of being exported and is unavailable</p> <p>Pending Replication - indicates that the volume group is in the process of being copied and is unavailable</p> <p>Pending Repair - indicates that the volume group is in the process of being repaired and is unavailable</p> <p>Pending Merge - indicates that the volume group is in the process of being merged with another volume group and is unavailable</p> <p>Vaulted - indicates that the volume group has been removed from the system</p> |
| Reason | The Scalar LTFs Appliance handles this field. It is the reason for the last state transition, such as user requested or auto-attach policy . |
| Partition | The partition to which the media belongs. If unknown, the serial number displays. |
| Comment | An editable column that allows users to save information about the media. |
| Files | The number of readable files contained on the physical tape cartridge. |
| Used | Amount of space used on the tape cartridge. |
| Free | Amount of space available on the tape cartridge. |

Media Details

When media is highlighted in the **Media** table, the details for that media display in the following fields.

| | |
|----------|---|
| Imported | Date and time the media was imported into system. |
| Attached | Date and time the media was attached. |

| Column | Description |
|------------------------|--|
| Exported | Date and time the media was exported from the system. |
| Location | Indicates the location of the volume group. |
| Metadata Expiration | Date and time a vaulted media will be deleted from the system. |
| Reason | The Scalar LTF5 Appliance handles this field. It is the reason for the last state transition, such as user requested or auto-attach policy . |
| Type | Media type, LTO-5, LTO-6 or LTO-7. |
| Used % | Percentage of space used on the tape cartridge. |
| Free % | Percentage of space available on the tape cartridge. |
| Used Blocks | The amount of space used on the tape cartridge in raw data format. |
| Free Blocks | The amount of space available on the tape cartridge in raw data format. |
| Total Blocks | Sum total of Used, Free and System blocks. Note: This number can change based on compression and tape errors. |
| Block Size | The actual size of the block used on the tape cartridge. |
| Reclamation Rating | Indicates, on a scale from 1 to 10, number of overhead blocks on the media. The higher the rating is, the more overhead blocks are on the media. |
| Fragmentation Rating | Indicates, on a scale from 1 to 10, how fragmented files are on a media. The higher the rating is, the more fragmented the data. |
| General Options | |
| Capacity Percentages | Graph showing the used and free space on the media. |
| Apply Filter | Drop down list of filters that may be applied to the list of volumes. |
| Edit Filter | Allows for the creation or modification of media filters. |
| Media Display | Options include: <ul style="list-style-type: none"> • Show Vaulted Media • Show Attached Media • Show All Media |

Use the Media screen to do the following:

[Attach Media to Scalar LTFS Manually](#) on page 76

[Format Media Manually in Scalar LTFS](#) on page 77

[Detach Media from Scalar LTFS](#) on page 77

[Edit Files on Tape Cartridges](#) on page 77

[Edit Files on Tape Cartridges](#) on page 77

[Writing Request and No Space Condition](#) on page 78

Attach Media to Scalar LTFS Manually

Media may be attached manually when they are in either the sequester or auto-attachable state. When attached, they will be attached to the volume group with which they were previously associated. Media in the discovered media pool, that have not previously been associated with a volume group, will be attached to a new volume group. The new volume group will use the barcode as its name.

- 1 In the **Select** column, check the box next to the media to be attached.

- 2 Click **Attach**. The **State** field displays the change.

The message **Are you sure you wish to change the media settings?** displays.

- 3 Click **Yes**. The data on this tape is now available for downloading and manipulation.

Auto-attach Media to Scalar LTFS

Auto-attaching media is a means to extend the space availability (e.g. capacity) of an existing volume group without user intervention. Media will be auto-attached by SLTFS when scratch-enabled is set on a volume group (see [Assign Media to a Volume Group](#) on page 79). As data is written and media reaches capacity, SLTFS will attach additional media, as needed, from the scratch pool as long as media are available. Users are responsible for maintaining an adequate number of media in the scratch pool.

Adding Media to the Scratch Pool

Formatting media moves them to the scratch pool and allows them to be used for volume group operations. New media added to the system, in the discovered media pool, may be formatted. Media already attached may be sequestered and formatted.

Format Media Manually in Scalar LTFS

Media can only be formatted if they are in the Sequestered state or the Auto-Attachable state. Sequestered media that belong to a VG will lose its allegiance to that volume group after formatting. After a format completes, the media will enter the Auto-attachable state and become a member of the Scratch Pool.

WARNING: Formatting media containing data erases all data!

- 1 In the Select column, check the box next to the media to be attached.
- 2 Click **Format**. A dialog box displays confirming you want to format the selected media.
- 3 Click **Yes**. The tape is formatted for use with the Scalar LTFS.
- 4 A dialog box displays indicating the media settings were changed.
- 5 Click **OK**.

Detach Media from Scalar LTFS

- 1 To detach media from Scalar LTFS, export the media from your library. See [Importing/Exporting Media from an LTFS Partition](#) on page 58.

The media is detached and vaulted automatically from Scalar LTFS.

Edit Files on Tape Cartridges

Before making changes to files contained on the tape cartridge, we recommend that you copy the files to your hard drive. When you are finished, you can copy the files back to tape.

- 1 Using Windows Explorer, go to the IP address location for **ScalarLTFS**. The tape cartridges that are part of the partition are listed by barcode.
- 2 Copy the files you want to change to your hard drive.

3 As desired, copy and paste files onto the tape.

Note: No feedback is provided in Windows Explorer on an initial read or write of a file until the tape containing the file has been loaded and positioned. This can take several minutes depending on the tape library and other activity in the system.

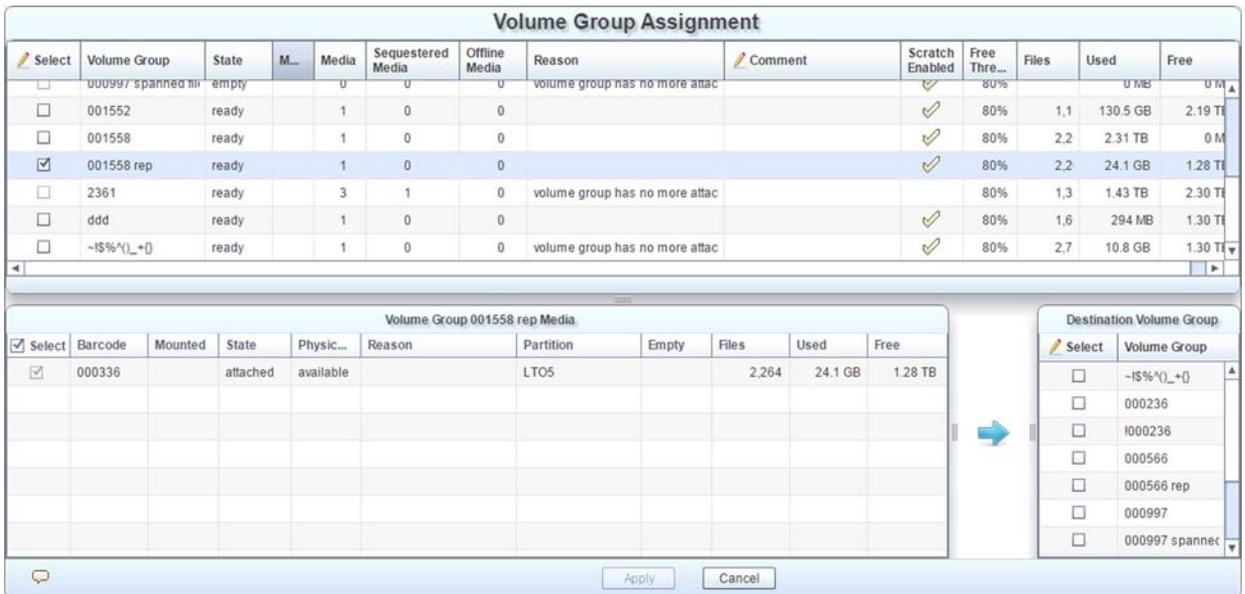
Writing Request and No Space Condition

When writing to a specific medium, users may encounter a 'no space' condition that indicates the medium is running out of space. However, unlike other file systems, this does not mean that there is no space left anywhere in the file system. It just indicates that there is no space left on the specific medium.

Assign Media to a Volume Group

- 1 From the navigation panel, click **Operations > Volume Group Assignment**. The **Volume Group Assignment** screen displays.

Figure 29 Volume Group Assignment screen



| Column | Description |
|--------------|---|
| Select | Select a source volume group to list the media available to assign or merge. The check boxes will be enabled when the volume group and its media are in the appropriate states. |
| Volume Group | The volume group name that is going to have media assigned from or merged with another volume group. |

| Column | Description |
|-------------------|--|
| State | <p>The current state of the media:</p> <p>Auto-attachable - indicates the media is available for auto-attaching to a volume group</p> <p>Attached - indicates the media is attached to a VG</p> <p>Sequestered - indicates the media is unavailable</p> <p>Vaulted - indicates the media is unavailable and is not physically in the library</p> <p>Pending attach - indicates the media is in the process of being attached</p> <p>Pending format - indicates the media is in the process of being formatted</p> <p>Preparing for export - indicates the media is being prepared for export</p> <p>Ready for export - indicates the media is ready for export</p> <p>Pending export - indicates the media is in the process of being exported</p> <p>Repair in progress - indicates the media is in the process of being repaired</p> <p>Merging volume groups - indicates the media is in the process of being merged</p> <p>Verifying - indicates the media is in the process of being verified</p> <p>Busy reclaiming - indicates the media is in the process of being reclaimed</p> <p>Busy repairing - indicates the media is in the process of being repaired</p> <p>Operation in progress - indicates the media is in the process of being replicated</p> |
| Mounted | A check mark is displayed in this column if the media is mounted in a drive. |
| Media | Indicates the number of media contained in the volume group. |
| Sequestered Media | Indicates the number of media sequestered in the volume group. |
| Offline Media | Indicates the number of media offline in the volume group. |
| Reason | The Scalar LTFS Appliance handles this field. It is the reason for the last state transition, such as user requested or auto-attach policy . |
| Comment | An editable column that allows users to save information about the media. |
| Scratch Enabled | Indicates if the volume group is configured to automatically acquire a blank tape when necessary. |
| Files | The number of readable files contained on the physical tape cartridge. |
| Used | Amount of space used on the tape cartridge. |

| Column | Description |
|-------------------|--|
| State | <p>The current state of the media:</p> <p>Auto-attachable - indicates the media is available for auto-attaching to a volume group</p> <p>Attached - indicates the media is attached to a VG</p> <p>Sequestered - indicates the media is unavailable</p> <p>Vaulted - indicates the media is unavailable and is not physically in the library</p> <p>Pending attach - indicates the media is in the process of being attached</p> <p>Pending format - indicates the media is in the process of being formatted</p> <p>Preparing for export - indicates the media is being prepared for export</p> <p>Ready for export - indicates the media is ready for export</p> <p>Pending export - indicates the media is in the process of being exported</p> <p>Repair in progress - indicates the media is in the process of being repaired</p> <p>Merging volume groups - indicates the media is in the process of being merged</p> <p>Verifying - indicates the media is in the process of being verified</p> <p>Busy reclaiming - indicates the media is in the process of being reclaimed</p> <p>Busy repairing - indicates the media is in the process of being repaired</p> <p>Operation in progress - indicates the media is in the process of being replicated</p> |
| Mounted | A check mark is displayed in this column if the media is mounted in a drive. |
| Media | Indicates the number of media contained in the volume group. |
| Sequestered Media | Indicates the number of media sequestered in the volume group. |
| Offline Media | Indicates the number of media offline in the volume group. |
| Reason | The Scalar LTFS Appliance handles this field. It is the reason for the last state transition, such as user requested or auto-attach policy . |
| Comment | An editable column that allows users to save information about the media. |
| Scratch Enabled | Indicates if the volume group is configured to automatically acquire a blank tape when necessary. |
| Files | The number of readable files contained on the physical tape cartridge. |
| Used | Amount of space used on the tape cartridge. |

| Column | Description |
|---|--|
| Free | Amount of space available on the tape cartridge. |
| <p>Media Area Displays the media currently assigned to a volume group or available for assignment to a volume group.</p> | |
| Select | Indicates which media are available for assignment or merge. If a non-scratch, non-discoverable volume group is selected in the Volume Group area, all media in that volume group are pre-selected in the Media area and available for assignment. All media with data must be selected to complete a merge. Optionally, you may deselect the empty media and any blank media will remain in the source volume group. |
| Barcode | Indicates the barcode of the media being assigned or merged. |
| Mounted | A check mark is displayed in this column if the media is mounted in a drive. |
| State | <p>The current state of the media:</p> <p>Auto-attachable - indicates the media is available for auto-attaching to a volume group</p> <p>Attached - indicates the media is attached to a VG</p> <p>Sequestered - indicates the media is unavailable</p> <p>Vaulted - indicates the media is unavailable and is not physically in the library</p> <p>Pending attach - indicates the media is in the process of being attached</p> <p>Pending format - indicates the media is in the process of being formatted</p> <p>Preparing for export - indicates the media is being prepared for export</p> <p>Ready for export - indicates the media is ready for export</p> <p>Pending export - indicates the media is in the process of being exported</p> <p>Repair in progress - indicates the media is in the process of being repaired</p> <p>Merging volume groups - indicates the media is in the process of being merged</p> <p>Verifying - indicates the media is in the process of being verified</p> <p>Busy reclaiming - indicates the media is in the process of being reclaimed</p> <p>Busy repairing - indicates the media is in the process of being repaired</p> <p>Operation in progress - indicates the media is in the process of being replicated</p> |

| Column | Description |
|--------------------------------------|--|
| Physical State | The location and availability of media through the tape library. Options include: <ul style="list-style-type: none"> • Available - media is in an accessible partition • Offline - media is in an unaccessible partition • Vaulted - media has been removed from a partition |
| Reason | The Scalar LTFS Appliance handles this field. It is the reason for the last state transition, such as user requested or auto-attach policy . |
| Partition | Indicates the partition the media is assigned to. |
| Empty | A check mark is displayed in this column if the media is empty. Note: After upgrading Scalar LTFS, the system will not know if media is empty until it has been mounted. |
| Files | Indicates the number of files on the media. |
| Used | Amount of space used on the tape cartridge. |
| Free | Amount of space available on the tape cartridge. |
| Destination Volume Group Area | |
| Select | Check the box for where you want the media assigned or the volume group you want to merge with. |
| Volume Group | Indicates the volume group the media or volume group will be assigned to. |

- 2 In the **Select** column, click the check box for **Scratch Media**. In the **Media** area, a list of available media will be listed.
- 3 Click the check box next to each piece of media you want to add to the volume group.
- 4 In the **Destination Volume Group** area, click the check box for the volume group you want to assign the media to.
- 5 Click **Apply**. A confirmation dialog will appear confirming that the media is in process of being assigned to the volume group.
- 6 If you want to check the status of the media assignment, see [Use the Job Queue](#) on page 67.

Use Volume Group Utilities

- 1 From the navigation panel, click **Operations > Volume Group Utilities**. The **Volume Group Utilities** screen displays.

Figure 30 Volume Group Utilities Window

Volume Group Utilities

| Select | Volume Group | State | Mounted | Media | Empty Media | Sequestered Media | Offline Media | Reason | Comment | Scratch Enabled | Free Thres... | Files | Used | Free |
|-------------------------------------|--------------|-----------|---------|-------|-------------|-------------------|---------------|--------------------------------|---------|-----------------|---------------|-------|----------|---------|
| <input type="checkbox"/> | ~15%^(_+[] | ready | | 1 | 0 | 0 | 0 | volume group has no more attac | | | 80% | 2.7 | 10.8 GB | 1.30 TB |
| <input type="checkbox"/> | 000336 | unavailab | | 1 | 0 | 0 | 0 | volume group has no more attac | | | 80% | 499.9 | 62.9 GB | 1.25 TB |
| <input type="checkbox"/> | 000336r | unavailab | | 1 | 0 | 1 | 0 | volume group has no more attac | | | 80% | 499.9 | 47.3 GB | 1.27 TB |
| <input checked="" type="checkbox"/> | 0005821 | unavailab | | 1 | 0 | 1 | 0 | | | | 80% | 4 | 247.5 GB | 1.07 TB |
| <input type="checkbox"/> | 001552 | ready | | 1 | 0 | 0 | 0 | | | | 80% | 1,1 | 130.5 GB | 2.19 TB |
| <input type="checkbox"/> | 001558 | ready | | 1 | 0 | 0 | 0 | | | | 80% | 2.2 | 2.31 TB | 0 MB |

Safe Repair Replication New Volume Group:

 Repair

Volume Group 0005821 Media

| Barcode | Mounted | State | Physical State | Reason | Partition | Empty | Reclama... | Fragmen... | Files | Used | Free |
|---------|---------|-----------|----------------|--------|-----------|-------|------------|------------|-------|----------|---------|
| 000582 | | sequester | available | | LTO6 | | 0 | 6 | 407 | 247.5 GB | 1.07 TB |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Column | Description |
|--------------|--|
| Select | Select the volume group you want to replicate or repair by clicking check box. |
| Volume Group | The volume group name that is going to be replicated or repaired. |

| Column | Description |
|-------------------|--|
| State | <p>The current state of the media:</p> <p>Auto-attachable - indicates the media is available for auto-attaching to a volume group</p> <p>Attached - indicates the media is attached to a VG</p> <p>Sequestered - indicates the media is unavailable</p> <p>Vaulted - indicates the media is unavailable and is not physically in the library</p> <p>Pending attach - indicates the media is in the process of being attached</p> <p>Pending format - indicates the media is in the process of being formatted</p> <p>Preparing for export - indicates the media is being prepared for export</p> <p>Ready for export - indicates the media is ready for export</p> <p>Pending export - indicates the media is in the process of being exported</p> <p>Repair in progress - indicates the media is in the process of being repaired</p> <p>Merging volume groups - indicates the media is in the process of being merged</p> <p>Verifying - indicates the media is in the process of being verified</p> <p>Busy reclaiming - indicates the media is in the process of being reclaimed</p> <p>Busy repairing - indicates the media is in the process of being repaired</p> <p>Operation in progress - indicates the media is in the process of being replicated</p> |
| Mounted | A check mark is displayed in this column if the media is mounted in a drive. |
| Media | Indicates the number of media contained in the volume group. |
| Empty Media | Indicates the number of blank media contained in the volume group. |
| Sequestered Media | Indicates the number of media sequestered in the volume group. |
| Offline Media | Indicates the number of media offline in the volume group. |
| Reason | The Scalar LTFS Appliance handles this field. It is the reason for the last state transition, such as user requested or auto-attach policy . |
| Comment | Displays any additional comments about the volume group. |
| Scratch Enabled | Indicates if the volume group is configured to automatically acquire a blank tape when necessary. |

| Column | Description |
|--|--|
| Free Threshold | Indicates the percentage of capacity that the system will notify the user that the volume group is filling up. |
| Files | The number of readable files contained on the physical tape cartridge. |
| Used | Amount of space used on the tape cartridge. |
| Free | Amount of space available on the tape cartridge. |
| Media Area | |
| Displays the media currently assigned to a volume group or available for assignment to a volume group. | |
| Barcode | Indicates the barcode of the media being assigned or merged. |
| Mounted | A check mark is displayed in this column if the media is mounted in a drive. |
| State | <p>The current state of the media:</p> <p>Auto-attachable - indicates the media is available for auto-attaching to a volume group</p> <p>Attached - indicates the media is attached to a VG</p> <p>Sequestered - indicates the media is unavailable</p> <p>Vaulted - indicates the media is unavailable and is not physically in the library</p> <p>Pending attach - indicates the media is in the process of being attached</p> <p>Pending format - indicates the media is in the process of being formatted</p> <p>Preparing for export - indicates the media is being prepared for export</p> <p>Ready for export - indicates the media is ready for export</p> <p>Pending export - indicates the media is in the process of being exported</p> <p>Repair in progress - indicates the media is in the process of being repaired</p> <p>Merging volume groups - indicates the media is in the process of being merged</p> <p>Verifying - indicates the media is in the process of being verified</p> <p>Busy reclaiming - indicates the media is in the process of being reclaimed</p> <p>Busy repairing - indicates the media is in the process of being repaired</p> <p>Operation in progress - indicates the media is in the process of being replicated</p> |

| Column | Description |
|----------------------|--|
| Physical State | The location and availability of media through the tape library. Options include: <ul style="list-style-type: none"> • Available - media is in an accessible partition • Offline - media is in an unaccessible partition • Vaulted - media has been removed from a partition |
| Reason | The Scalar LTFS Appliance handles this field. It is the reason for the last state transition, such as user requested or auto-attach policy . |
| Partition | Indicates the partition the media is assigned to. |
| Empty | Indicates the volume group is empty. |
| Reclamation Rating | The Reclamation Rating is an indicator, on a scale from 1 to 10. The higher the rating is, the more overhead blocks are on the media. |
| Fragmentation Rating | The Fragmentation Rating is an indicator, on a scale from 1 to 10, of how fragmented files are on a media. The higher the rating is, the more fragmented the data. |
| Files | Indicates the number of files on the media. |
| Used | Amount of space used on the tape cartridge. |
| Free | Amount of space available on the tape cartridge. |
| Utilities | |
| Safe-Repair | The selected volume group must contain at least one sequestered volume. |
| Repair | The selected volume group must have scratch enabled, be in the unavailable state and all constituent volumes must be online. |
| Replicate | The selected volume group must be in the ready state and all constituent volumes must be online. |

Note: When a volume group is selected, the radio buttons for the available utilities are enabled. If a radio button is not enable, mouse-over the radio button to see why.

Note: Safe repair or replication cannot be performed on empty volume groups.

Replicate a Volume Group

Volume groups can be copied using the SLTFS interface. However, be aware that to copy a volume group, you will need two available drives and, depending on the size of the volume group, a considerable amount of time to complete the copy.

- 1 Select the volume group you want to copy by clicking the check box in the **Select** column.
- 2 Select the **Replication** radio button.
- 3 Type a name for the new volume group in **New Volume Group** field.
- 4 You can select the **Verify Option** check box if you want SLTFS to verify that the volume group has been copied.
- 5 Click **Apply**. The volume group has been initiated. This is a long running process and progress may be monitored from in the job queue. To view your new volume group, see [Configuring Volume Groups](#) on page 59.

Note: Replication cannot occur if the volume group contains empty media. The **Replication** radio button will be unavailable in this instance.

Repair a Volume Group

Note: To repair a volume group, it must have at least one media in **Sequestered** state.

- 1 Select the volume group you want to repair by clicking the check box in the **Select** column.
- 2 Select the **Repair** radio button.
- 3 Click **Apply**. The repair has been initiated. Once the media has been repaired, the volume group will try to attach the repaired media.

Safe Repair a Volume Group

Note: To repair a volume group, it must have at least one media in **Sequestered** state or it failed a job request (ex. merge, replication) or is needed to restore a volume group that is in **Ready for Export** state.

- 1 Select the volume group you want to safe repair by clicking the check box in the **Select** column.
- 2 Select the **Safe Repair** radio button.
- 3 Type a name for the new volume group in **New Volume Group** field.
- 4 Click **Apply**. The safe repair has been initiated. If successful, the media that was repaired will now reside in the new volume group. If you want to return the media to its original volume group, you will have to assign manually. A repair or attach can be attempted on the volumes in the new volume group in order to resolve issues with the sequestered volumes.

Registering the Appliance

To register the appliance:

- 1 From the navigation panel, click **Help > Register Appliance**. The **Register Appliance** screen displays.

Register Appliance

Are you sure you wish to register the Scalar LTF8 system (7Y6T6S1) with the following information?

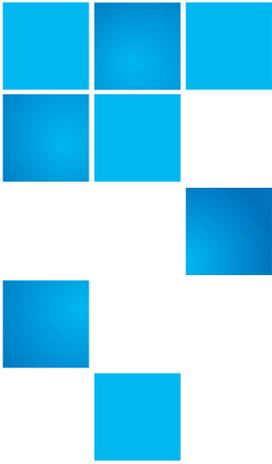
First Name: Bill
Last Name: Gray
Phone: 111-1111-1111
E-Mail: b@b.com
Company: Quantum
Description:

Yes No

The information displayed in this window is the same as information you entered on the **System Configuration** screen.

- 2 Review the information displayed.
 - To change information displayed, click **No**.

- Select the **Configuration > System** menu. Refer to [System Configuration - Contact Information](#) on page 42.
- To accept the information displayed, click **Yes**. The appliance is registered.



Chapter 6

Maintaining the System

This chapter provides procedures for tasks available under the GUI Tools menu, including:

[Capture Snapshot Data](#) on page 91

[Review and Resolve Diagnostic Tickets](#) on page 93

[System Messages](#) on page 95

[Configure Remote Authentication](#) on page 98

[Save and Restore an LTFS Configuration](#) on page 101

[Security](#) on page 103

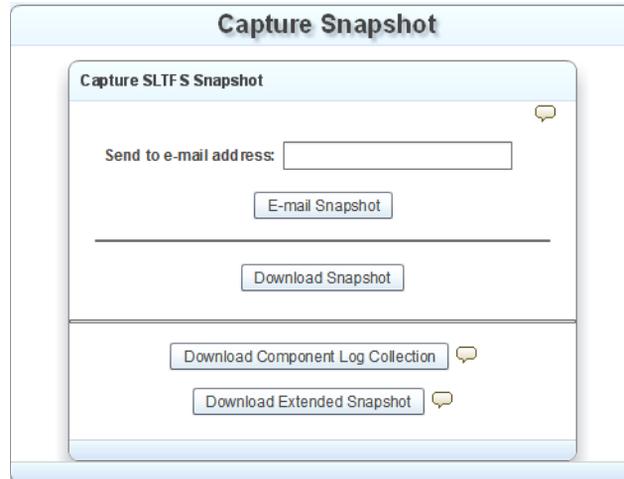
[Update Firmware](#) on page 105

Capture Snapshot Data

Snapshot files can be used as a troubleshooting tools. They depict the current system configuration, any log files, and existing diagnostic tickets.

- 1 From the navigation panel, click **Tools > Capture Snapshot**. The **Capture Snapshot** screen displays.

Figure 31 Capture Snapshot Window



Capture a Snapshot

- 1 Click **Capture Snapshot**.
- 2 Select a location to save the file, type the desired name, and click **Save**.

Download Component Log Collection

Note: This request may take several minutes to complete.

- 1 Click **Download Component Log Collection**.
- 2 Select a location to save the file, type the desired name, and click **Save**.

Download an Extended Snapshot

An Extended Snapshot contains information on any log generated by the Scalar LTF S Appliance. This log is available only for download since the log file size can exceed 2 Gb. Only retrieve an extended snapshot under the direction of your service support representative.

- 1 Click **Download Extended Snapshot**.
- 2 The file will download via your browser.
- 3 When complete, select where you want to save the file.

Review and Resolve Diagnostic Tickets

If the system encounters an issue, a diagnostic ticket is generated. The issue could be informational or require resolution. You have the option of resolving and closing tickets or closing without resolution.

For a complete list of active diagnostic tickets, see the *Scalar LTFS Maintenance Guide*.

- 1 From the navigation panel, click **Tools > RAS Tickets**. The **Diagnostic Tickets** screen displays the open diagnostic tickets.

Figure 32 Tools Diagnostic Tickets

The screenshot shows the 'Diagnostic Tickets' interface. At the top, there is a title 'Diagnostic Tickets'. Below it is a table with the following data:

| Ticket | Closed | Severity | Opened At | Summary |
|--------|--------|----------|---------------------|---|
| 30 | | | 2013-12-03 09:26:50 | DT063 - Invalid Barcode Detected cartridge with barcode NBW0020 |

Below the table is a section titled 'Diagnostic Tickets Details'. Under 'Details', it says: 'Cartridge: NBW0020 was unable to read a valid barcode. Tape Library Partition: QUANTUMD0H0130727_LLA, Element address 4096'. Below this is another table:

| Reporter Component | Component | Component Instance | Closed By | Closed At |
|--------------------|------------------------|--------------------|-----------|-----------|
| SLTFS Software | cartridge with barcode | NBW0020 | | |

At the bottom of the interface, there is a 'Comment' section with a pencil icon. Below that are two buttons: 'Resolution' and 'Close'. At the very bottom, there is a checkbox labeled 'Include closed tickets' and a 'Close All' button.

The following information is displayed for each diagnostic ticket:

| Heading | Description |
|----------------------------------|--|
| Ticket | Unique ticket number generated by LTFS. |
| Closed | If closed, a check mark appears in the column. |
| Severity | <ul style="list-style-type: none"> • Blue: Low Priority. Action: Issue should be noted. Resolve tickets according to resolution • Yellow: Medium Priority. Action: Resolve tickets according to resolution. System Impact is likely • Red: High Priority. Immediate attention is required. Action: Resolve ticket according to Diagnostic Resolution |
| Opened At | Date and time ticket was opened |
| Summary | Ticket ID and description |
| Diagnostic Ticket Details | |
| Details | Additional information about the ticket |
| Reporter Component | The component that generated the ticket |
| Component | hardware or software |
| Component Instance | Unique ID for instance |
| Closed By | User that closed the ticket |
| Closed At | Date and time ticket was closed |
| Comment | User comment |

- 2 To include closed tickets in the display, click the box **Include Closed Tickets in Display.**
- 3 Identify the diagnostic ticket you want to resolve.
- 4 Resolve the diagnostic ticket:

- a Click the **Resolution** button to read resolution steps. An HTML document opens containing resolution steps.
 - b If the situation cannot be resolved, you are instructed to contact technical support.
- 5 Once a resolution is determined, take one of the following actions:
- To close the ticket now, click **Close**. The **Diagnostic Tickets** window displays, with the ticket no longer in the list.
 - To leave the ticket open for future troubleshooting, click **Exit**. The ticket remains on the list.
 - You can also close all tickets at once by clicking the **Close All Tickets** button.

Caution: Be careful when pressing the **Close All** button. This closes all diagnostic tickets even if they are not resolved. It is recommended that each diagnostic ticket be individually viewed, analyzed, and closed.

Note: Tickets that were automatically closed are designated as **Canceled**.

System Messages

| Heading | Description |
|------------|---|
| Select | Select any/all media you want to close and click the Close button. |
| Opened At | Date and time message was opened |
| Created By | Indicates whether the message was system generated (ALTFS) or custom. |

| Heading | Description |
|-----------------|--|
| Message | Displays the following system messages: <ul style="list-style-type: none">• A500 - Admin message• M100 - Volume exceeded recommended number of files• M101 - Vaulted file not available for read• M102 - Vaulted file not available for write• M103 - Volume group low capacity threshold reached• M104 - Scratch pool low capacity threshold reached• M105 - No drives available• M106 - Write failed due to no space remaining• M107 - Rename failed• M108 - File/Directory collision |
| Duplicates | How many times this message has been generated for this open message ID with the same reference. |
| Last Occurrence | The date and time a duplicate message was previously generated. |
| Closed By | User that closed the message. |
| Closed At | Date and time message was closed. |

Create a Custom System Message

- 1 From the navigation panel, click **Tools > Messages**. The **System Messages** screen displays.

Figure 33 System Messages Window

| System Messages | | | | | | | |
|---------------------------------|------------------|--------------|--|------------|----------------|-----------|-----------|
| <input type="checkbox"/> Select | Opened At | Created By | Message | Duplicates | Last Occur... | Closed By | Closed At |
| <input type="checkbox"/> | 2015-07-08 08:34 | ALTFS | M102: Attempted access on vaulted Volume Group 'ddd' Location: " | 0 | | | |
| <input type="checkbox"/> | 2015-07-08 08:34 | ALTFS | M102: Attempted access on vaulted Volume Group 'ddd' Location: " | 0 | | | |
| <input type="checkbox"/> | 2015-07-08 07:44 | ALTFS | M102: Attempted access on vaulted Volume Group '000997' Location: " | 0 | | | |
| <input type="checkbox"/> | 2015-07-07 05:16 | ALTFS | M105: Volume 000095 cannot be loaded due to no drives available in Partition QU | 0 | | | |
| <input type="checkbox"/> | 2015-07-06 06:49 | ALTFS | M101: Attempt to Read Access '/remain2.txt' on Volume: '001656' in Volume Group | 1 | 2015-07-06 03: | | |
| <input type="checkbox"/> | 2015-07-06 06:49 | ALTFS | M102: Attempt to create '/log (2).txt' on Volume '001656' in Volume Group '001656 | 3 | 2015-07-06 03: | | |
| <input type="checkbox"/> | 2015-07-06 06:48 | ALTFS | M102: Attempted access on vaulted Volume Group '001656' Location: " | 33 | 2015-07-06 06: | | |
| <input type="checkbox"/> | 2015-07-06 06:48 | ALTFS | M102: Attempt to create '/File1.txt' on Volume '001656' in Volume Group '001656' l | 9 | 2015-07-06 06: | | |
| <input type="checkbox"/> | 2015-07-06 06:48 | ALTFS | M101: Attempt to Read Access '/2.txt' on Volume: '001656' in Volume Group '0016: | 0 | | | |
| <input type="checkbox"/> | 2015-07-06 04:19 | ALTFS | M104: Scratch pool is disabled for 236 | 9 | 2015-07-06 03: | | |
| <input type="checkbox"/> | 2015-07-06 04:09 | ALTFS | M102: Attempted access on vaulted Volume Group '000336' Location: " | 2 | 2015-07-06 03: | | |
| <input type="checkbox"/> | 2015-07-06 03:10 | ALTFS | M104: Scratch pool is disabled for 000336 | 12 | 2015-07-06 03: | | |
| <input type="checkbox"/> | 2015-07-01 01:32 | ALTFS | M106: Operation failed on (-15%^(l_+!)) No space available. Could not acquire scr: | 371 | 2015-07-01 01: | | |
| <input type="checkbox"/> | 2015-07-01 00:52 | ALTFS | M106: Operation failed on (000336) No space available. Could not acquire scratch | 0 | | | |
| <input type="checkbox"/> | 2015-06-30 10:36 | Olga Ivanova | A500: 12345 | 0 | | | |
| <input type="checkbox"/> | 2015-06-30 08:35 | ALTFS | M106: Write failed on volume group (000997) No space available on volume: 0009: | 10 | 2015-06-30 08: | | |
| <input type="checkbox"/> | 2015-06-30 08:35 | ALTFS | M104: Scratch pool is disabled for 000997 | 13 | 2015-06-30 08: | | |

▼ Compose Message

Enter message...

Include closed messages

- 2 In the **Compose Message** area, enter the message in the field provided.
- 3 Click **Submit Message**. Your message is added to the System Message list.

Close a System Message

Note: Closed messages are automatically deleted from the system after 90 days.

- 1 From the navigation panel, click **Tools > Messages**. The **System Messages** screen displays.
- 2 Click the check box in the Select column for the message(s) you wish to close.
- 3 Click **Close**. The messages are removed from the System Message list.

Configure Remote Authentication

Remote Authentication provides the ability to connect to an LDAP or Active Directory server in order to obtain credentials for logging in and/or for enabling ACLs. In order to enable ACLs, the LDAP or Active Directory service must be provided by a server which is a domain controller (e.g., a Windows server running Active Directory).

Note: Prior to configuring SLTFS for remote authentication, the network settings should be complete. For more details, see [Configuring the Network](#) on page 48.

- 1 From the navigation panel, click **Tools > Remote Authentication**. The **Remote Authentication** screen displays.

Figure 34 Remote Authentication Window

The screenshot shows the 'Remote Authentication' configuration window. At the top, there are two checked checkboxes: 'Enable User Login' and 'Enable Filesystem ACLs'. The window is divided into four main panels:

- Connection Settings:** Contains fields for 'Primary Server' (filled with 'Perry2012.quantumsltfs.com'), 'Alternate Server', 'Port' (filled with '389'), a 'Use StartTLS' checkbox (unchecked), 'Principal' (filled with 'cn=Administrator,cn=users,dc=quantumsltfs,dc=com'), 'Password', and 'Confirm Password'.
- Search Settings:** Contains fields for 'User DN', 'Group DN', 'User Group', and 'Admin Group', all filled with 'cn=users,dc=quantumsltfs,dc=com', 'cn=users,dc=quantumsltfs,dc=com', 'sltfsuser', and 'sltfsadmin' respectively.
- Security Certificates:** Includes a 'TLS CA Certificate:' field with an 'Upload Certificate' button. Below is a table titled 'Installed Certificates' with one entry 'cacert.pem'. A 'Delete Certificate' button is at the bottom right.
- Test:** Includes 'User Name:' and 'Password:' fields, and 'Test Configuration' and 'Test User' buttons.

At the bottom of the window are 'Apply' and 'Cancel' buttons.

- 2 In the **Connection Settings** area, enter the LDAP/Active Directory domain server in the **Primary Server** field.
- 3 Complete the **Alternate Server** and **Port** fields as needed. The default port is 389.
- 4 Enter the domain name of the principal user in the **Principal** field. The principal user is any user who is authorized to add a system to the LDAP or Active Directory domain. This user may be a network administrator and may not necessarily be an actual user of the SLTFS file system.
- 5 In the **Search Settings** area, complete the following fields:
 - **User DN:** When ACLs are enabled, this field specifies the container where domain users are located in the LDAP hierarchy.
 - **Group DN:** When ACLs are enabled, this field specifies the container where security groups are located in the LDAP hierarchy.
 - **User Group:** When ACLs are enabled, this field specifies the security group which domain users must be a member of in order to have user access rights to the Scalar LTFS file system. User access rights grant users the right to access volumes, folders, and files, contingent upon the contents of the ACLs associated with the file system object. Membership is indicated by a "memberOf" attribute for the user which contains the DN of the security group.
 - **Admin Group:** When ACLs are enabled, this field specifies the security group which domain users must be a member of in order to have administrator access rights to the Scalar LTFS file system. Administrators can always modify volumes, folders, and files, as well as their security settings, regardless of the content of the ACLs associated with the file system object. Membership is indicated by a "memberOf" attribute for the user which contains the DN of the security group.
- 6 Click **Apply**. The remote authentication settings are saved.

Test Configuration Settings

- 1 In the **Test** area, you can test the configuration as well as users.
 - To test the configuration:

- a Simply click the **Test Configuration** button. A confirmation dialog will appear confirming either a success or failure.
- To test user access:
 - a Enter a user name and password. You must use the LDAP canonical name (display name; not the login name). The password is the user's regular password.
 - b Click the **Test User** button. A confirmation dialog will appear confirming either a success or failure.

Enable/Disable Access Control List (ACL)

ACLs are lists of permissions attached to file system objects, which can be used to grant or restrict access to Scalar LTFs volumes, directories, or files. When ACLs are enabled, Scalar LTFs joins a domain and grants or restricts access to domain users according to their membership in domain security groups. Administration of ACLs associated with file system objects is done with standard tools (e.g., the **Security** tab on Windows Explorer).

To enable or disable ACLs:

- 1 From the navigation panel, click **Tools > Remote Authentication**. The **Remote Authentication** screen displays.
- 2 At the top of screen, select/deselect the **Enable File system ACLs** check box.
- 3 Click **Apply**. A confirmation dialog will appear confirming either a success or failure.

On apply, the samba configuration is changed. If **Enable File system ACLs** is checked, this may fail if an IP address is supplied rather than a hostname. However, the hostname cannot be obtained from reverse DNS lookup or if the network settings or principal credentials are not correct. In case of failure to enable ACLs, an error is reported, any other changes to the page will be saved, but ACLs will not be enabled.

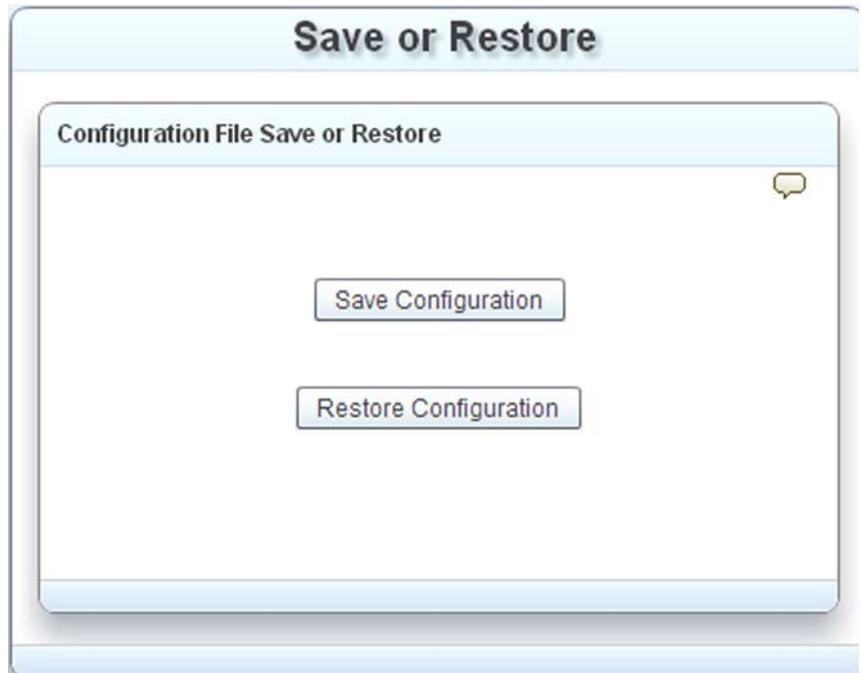
Save and Restore an LTFS Configuration

You can save your current configuration and restore it as needed at a later date. The configuration you save includes a current image of the system.

Save the Current Configuration

- 1 From the navigation panel, click **Tools > Save or Restore**. The **Save or Restore** screen displays.

Figure 35 System Save or Restore Window



- 2 Click **Save Configuration**. The **Processing....Please Wait** message and the **Select Location for Download** window displays.

Note: The saved system configuration filename contains a .qtm suffix.

- 3 Save the current configuration to your desired network location.

Restore a Saved Configuration

Restore Guidelines

You can restore a saved configuration to your appliance as long as the current firmware and serial number on the appliance is the same version that was used to save the configuration. Refer to examples below for further clarification.

Note: The saved image will not be allowed to install if the Quantum serial number on the appliance does not match the Quantum serial number in save/restore image.

Examples

- If you saved a configuration at firmware version 1, and then upgraded the firmware version to 2, the Restore attempt will fail. In this case, we ask that customers contact a Quantum service representative to have their appliance firmware downgraded to the appropriate version. The customer can then proceed with restoring the saved configuration.
- If you saved a configuration at firmware version 1, and your firmware version is still version 1, the restore will proceed normally.

Restore Procedure

A saved configuration remembers exactly what was in SLTFS at the time it was saved. After the save, files are added to or removed from media and partitions may have changed. So after performing a restore, the Scalar LTFS Appliance needs to discover the changes to media files and/or partitions.

- 1 From the navigation panel, click **Tools > Save or Restore**. The **Save or Restore** screen displays.
- 2 Navigate to the location of the saved configuration.
- 3 Click **Restore Configuration**. The configuration is restored to that saved version.
- 4 The Scalar LTFS Appliance then restarts. This should take approximately 30 minutes.

- 5 All media should be sequestered and then attached in each partition. This ensures that each piece of media is read and the SLTFS internal database can be made current with what files/partitions exist now.

Caution: If the system restart takes longer than 30 minutes, the user should review the diagnostic ticket because there could be a problem with the Scalar LTFS Appliance.

Security

Manage IP Addresses

The **Tools > Security** menu option provides a way for you to manage the IP addresses you want to interface with the Scalar LTFS server. If you do not specify an IP address (which means the IP address list is empty,) all IP address have access to the /ScalarLTFS/ directories. If you populate the IP address list by specifying one or more IP address, only the IPs entered are allowed access to the /ScalarLTFS/ directories. (There is no limit to the number of IP addresses in the list.)

Use the **Tools > Security** menu option to add new IP addresses, delete IP addresses you no longer need, or export the list of addresses to the Scalar LTFS server.

Figure 36 Security window



Note: Since you cannot modify an IP address you have already entered, if there is a change to an existing IP address you must first delete the original IP address and then add the new IP address.

Add an IP Address

To add a new IP address:

- 1 Choose **Security** from the **Tools** menu.
- 2 At the **IP** field, enter the IP address you want to add.
- 3 Click **Add**. The IP address will be added to the list on the right side of the window.

Delete an IP Address

To delete an IP address:

- 1 If you have not already done so, choose **Security** from the **Tools** menu.

- 2 Select from the list on the right side of the window the IP address you want to delete.
- 3 Click **Delete**. The IP address will be removed from the list on the right side of the window.

Export the IP Address List

Whenever you add or delete IP addresses you should also export the revised list to the Scalar LTFS server. (You will receive a warning message if you make changes on this screen and then attempt to exit without exporting the revised IP address list.)

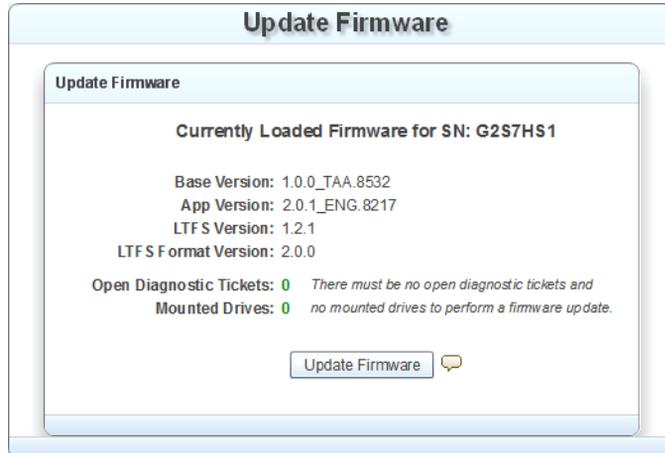
To export the IP address list:

- 1 If you have not already done so, choose **Security** from the **Tools** menu.
- 2 Click **Export**. The list of IP addresses is exported to the Scalar LTFS server. Only the IP addresses in the list have access to the Scalar LTFS directories.

Update Firmware

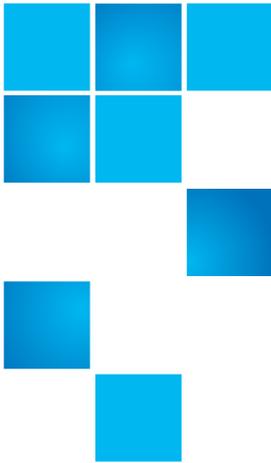
- 1 Download the latest firmware from the Quantum Support Web site, and save it to your desired location.
- 2 Extract the .FW file from the zip file and save it to a location.
- 3 From the navigation panel, click **Tools > Update Firmware**. The **Update Firmware** screen displays,

Figure 37 Tools Update
Firmware Window



Caution: Before firmware can be updated, Open Diagnostic Tickets must be **0**. Loaded Drives must be **0**—this check ensures that no data is being moved between the library and the appliance.

- 4 Click **Browse** to locate the .FW file, and click **Update Firmware**. A progress window displays and the firmware is updated.



Chapter 7 Reports

Scalar LTFS allows you to email or download seven different reports. They include:

- [Component Information Report](#) on page 107
- [Configuration Record Report](#) on page 110
- [Diagnostic Ticket Report](#) on page 112
- [Media Report](#) on page 115
- [Media Count Report](#) on page 119
- [Message Summary Report](#) on page 120
- [Volume Group Capacity Report](#) on page 121

Component Information Report

A component is defined as hardware or software that is part of the Scalar LTFS system. The **Component Information** screen displays a summary of the appliance's hardware and software status. There are four tabs available:

- Cluster Raid
- Mother Board

- Fabric Hardware (only available on fibre channel appliances)
- Network

Use this information to view the status of Ethernet ports, and to read any diagnostic messages indicating that a component has failed.

- 1 From the navigation panel, click **Reports > Component Information**. The **Component Information** screen displays.

Figure 38 Component Information Report

Component Information

| | |
|--|---|
| Appliance Information Name: Node 1 Serial Number: 57B8WW1 Enabled: true Unit: 1 Value: Primary Status: Normal Severity: Normal | Hardware Status Raid Format Version: 6 Raid Array Count: 1 Raid Status: Normal Raid Severity: Normal Mother Board Status: Normal Mother Board Severity: Normal Network Status: Normal Network Severity: Normal |
|--|---|

Cluster Raid | Mother Board | Fabric Hardware | Network

| Drives | Name | Enabled | Location | Va... | Tray | Slot | Capacity | Status | Severity |
|---------------|---------------------|---------|---------------------------|-------|------|------|-------------|--------|----------|
| | Physical Disk 0:1:0 | true | PERC H310 Mini (Embedded) | | 0 | 0 | 1,862.50 GB | Online | Normal |
| | Physical Disk 0:1:1 | true | PERC H310 Mini (Embedded) | | 0 | 0 | 1,862.50 GB | Online | Normal |

| Volumes | Name | Enabled | Location | Value | Capacity | Status | Severity |
|----------------|------|---------|---------------------------|-------|-------------|--------|----------|
| | | true | PERC H310 Mini (Embedded) | | 1,862.50 GB | Ready | Normal |

| Trays | Name | Enabled | Tray ID | Controller St... | Drive Slots | Status | Severity |
|--------------|-----------|---------|---------|------------------|-------------|--------|----------|
| | Backplane | true | 0 | 0 | 0 | Normal | Normal |

| Controllers | Name | Enabled | Location | Value | Volume ... | Status | Severity |
|--------------------|----------------|---------|---------------------------|-------|------------|--------|----------|
| | PERC H310 Mini | true | PERC H310 Mini (Embedded) | | 1 | Ready | Normal |

| Alerts | Name | Enabled | Location | Value | Tray | Slot | Status | Severity |
|---------------|------|---------|----------|-------|------|------|--------|----------|
| | | | | | | | | |

File Format: text xml
 Send
Save

- 2 To send the component information report via e-mail, first select either the **text** or **xml** radio button.
- 3 Click **Send**. A dialog box displays.
- 4 Type the e-mail address and click **E-Mail Report**.
- 5 To download the report, click **Save**. A **Save As** dialog box displays.

- 6 Navigate to where you want the report saved and click **Save**.

Configuration Record Report

The Configuration Record depicts the current configuration of your Scalar LTFS Appliance. You can review configuration information from the following seven (7) tabs:

- Partitions/Drives (default)
- Volumes
- Volume Groups
- Licenses
- Users
- Network
- Notifications

- 1 From the navigation panel, click **Reports > Configuration Record**. The **Configuration Record** screen displays.

Figure 39 Configuration Record Window

Configuration Record

Host Information

Product Model: Scalar LTF5 - 10GbE FC
Base OS Version: 2.4.0_GAA-12639
Serial Number: CC95FX1
Host Name: sltfs28
Gateway Address: 10.20.168.1
Domain Name: gritest.quantum.com
DNS Address: 10.40.167.41

Contact Information

First Name: 12345678901234567890123456789012
Last Name: 12345678901234567890123456789012
Phone Number: 1234567890123456
E-mail Address: Helena.Kuvychka@quantum.com
Company Name: 123456789012345678901234567890123456
System Description: 123456789012345678901234567890123456

Email Configuration

SMTP Server: 10.20.174.253
Sender's E-mail: sltfs28@quantum.com
Login Account Name:

Remote Authentication
Login Enabled: True
ACLs Enabled: False

Partitions/Drives | Volumes | Volume Groups | Licenses | Users | Network | Notifications

Partition QUANTUMD1H0309809_LLA

| Name | Vendor | Product ID | Firmware Revision | Hash State | Ready State | Connection State | Current State | Import Slots | Storage Slots | Drive Count |
|------------|---------|----------------|-------------------|------------|-------------|------------------|---------------|--------------|---------------|-------------|
| lib_a_ilo6 | QUANTUM | Scalar i40-i80 | 153G | 0 | online | online | attached | 5 | 15 | 2 |

Drives

| Product ID | Vendor | Product SN | Barcode | Current State | ASC | ASCQ |
|----------------|--------|------------|---------|---------------|-----|------|
| Ultrium 6-SCSI | HP | C388C24004 | | attached | 0 | 0 |
| Ultrium 6-SCSI | HP | C388C24000 | 000132 | attached | 0 | 0 |

Partition QUANTUMD1H0309809_LLB

| Name | Vendor | Product ID | Firmware Revision | Hash State | Ready State | Connection State | Current State | Import Slots | Storage Slots | Drive Count |
|------------|---------|----------------|-------------------|------------|-------------|------------------|---------------|--------------|---------------|-------------|
| lib_b_ilo5 | QUANTUM | Scalar i40-i80 | 153G | 0 | offline | online | attached | 5 | 25 | 1 |

Drives

| Product ID | Vendor | Product SN | Barcode | Current State | ASC | ASCQ |
|----------------|--------|------------|---------|---------------|-----|------|
| Ultrium 5-SCSI | HP | C388C24008 | | sequestered | 0 | 0 |

File Format: text xml

2 To send the configuration record report via e-mail, select a **File Format**:

- **Text** - sends a .txt file to the specified e-mail address
- **XML** - sends a .xml file to the specified e-mail address

3 Click **Send**. A dialog box displays.

4 Type the e-mail address and click **E-Mail Report**.

5 To download the report, select a **File Format**:

- **Text** - sends a .txt file to the specified e-mail address
- **XML** - sends a .xml file to the specified e-mail address

6 Click **Save**. A **Save As** dialog box displays.

7 Navigate to where you want the report saved and click **Save**.

Diagnostic Ticket Report

Whenever the Scalar LTFs Appliance is not performing as designed, diagnostic tickets are generated to help you identify what is not working correctly with the system. The **Diagnostic Ticket Report** screen displays all the tickets generated by the Scalar LTFs system. You can set up filters to show more specific types of tickets and you can email or download the report as well.

A customized report may be created by reordering the columns by selecting the column and dragging it to the desired position. Columns may be hidden by clicking the X in the column header. The report is generated as the data is displayed on the screen.

From the navigation panel, click **Reports > Diagnostic Ticket**. The **Diagnostic Ticket Report** screen displays.

Figure 40 Diagnostic Ticket Report screen

| × Ticket | × State | × Opened | × Closed | × Severity | × Summary | × Reporter Component |
|----------|---------|---------------------|---------------------|------------|--|----------------------|
| 1 | closed | 2013-11-12 07:46:02 | 2013-11-12 08:58:42 | Severity 2 | DT057 - Tape Library Partition Offline P | SLTFS Software |
| 2 | closed | 2013-11-12 07:46:43 | 2013-11-12 08:58:43 | Severity 3 | DT063 - Invalid Barcode Detected cartr | SLTFS Software |
| 3 | closed | 2013-11-12 07:51:34 | 2013-11-12 08:58:43 | Severity 2 | DT058 - Tape Drive Offline tape drive F | SLTFS Software |
| 4 | closed | 2013-11-12 08:53:32 | 2013-11-12 08:58:44 | Severity 2 | DT052 - Cartridge Sequestered cartrid; | SLTFS Software |
| 5 | closed | 2013-11-12 09:00:09 | 2013-11-12 09:06:19 | Severity 2 | DT058 - Tape Drive Offline tape drive F | SLTFS Software |
| 6 | closed | 2013-11-12 09:09:18 | 2013-11-12 09:14:19 | Severity 2 | DT052 - Cartridge Sequestered cartrid; | SLTFS Software |
| 7 | closed | 2013-11-12 09:12:51 | 2013-11-12 09:14:20 | Severity 2 | DT058 - Tape Drive Offline tape drive F | SLTFS Software |
| 8 | closed | 2013-11-12 09:14:12 | 2013-11-12 09:14:38 | Severity 3 | DT063 - Invalid Barcode Detected cartr | SLTFS Software |
| 9 | closed | 2013-11-12 09:15:01 | 2013-11-12 09:19:55 | Severity 2 | DT052 - Cartridge Sequestered cartrid; | SLTFS Software |
| 10 | closed | 2013-11-12 09:18:26 | 2013-11-12 09:19:04 | Severity 2 | DT057 - Tape Library Partition Offline P | SLTFS Software |
| 11 | closed | 2013-11-12 09:19:09 | 2013-11-12 09:19:57 | Severity 3 | DT063 - Invalid Barcode Detected cartr | SLTFS Software |
| 12 | closed | 2013-11-12 09:19:14 | 2013-11-12 09:19:58 | Severity 2 | DT058 - Tape Drive Offline tape drive F | SLTFS Software |
| 13 | closed | 2013-11-12 09:19:14 | 2013-11-12 09:20:00 | Severity 2 | DT057 - Tape Library Partition Offline P | SLTFS Software |
| 14 | closed | 2013-11-12 09:21:39 | 2013-11-12 09:22:03 | Severity 3 | DT063 - Invalid Barcode Detected cartr | SLTFS Software |
| 15 | closed | 2013-11-12 09:23:40 | 2013-11-12 09:23:00 | Severity 2 | DT058 - Tape Drive Offline tape drive F | SLTFS Software |

Apply Filter:

- 8 Select a filter from the **Apply Filter** drop-down list. A list of diagnostic tickets displays.

Create a Filter

- 1 From the **Diagnostic Ticket Report** screen, click **Edit Filter**. The **Diagnostic Ticket Filters** dialog box displays.

Figure 41

| Filter | Owner |
|--------|-------|
| test | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

- 2 From the **Filter Type** drop-down, select the type of filter you want to create. You can select:
 - Media
 - Diagnostic Tickets
- 3 Select **Diagnostic Tickets**.
- 4 Type a name for your filter in the **Filter Name** box. Filter names can be up to 24 characters in length and may include dashes, underscores and alphanumeric characters.

- 5 If you want to make your filter available to other users, select the **Public** checkbox.

Note: All filters created by you, as well as any public filters, will display in the table. All filters owned by you will not show an owner, while all public filters will display the owner.

- 6 In the **Search Criteria** section, set up your filter conditionals.
 - a From the **Select a Column** drop-down, select the column you want to run your filter on.
 - b Once a column has been selected, the **Select Condition** drop-down displays.
 - c Select a condition. Depending on the type of condition selected, the last box will either be for text or a date and time.
 - d Enter your final criteria details in the last box.
 - e If you are done, go to the **Sort Results By** section. If you want to add more criteria, click the blue plus sign at the end of the criteria row.

Note: If you want to get the opposite results of what you set up for your criteria, select the **Negate search criteria** checkbox.

- 7 In the **Sort Result By:** section, select the column you want to use to sort your results from the **Select a Column** drop-down.
- 8 From the next drop-down, select how you want the results sorted: **Ascending** or **Descending**.
- 9 If you are creating a new filter, click **Add** when finished. If you are editing a filter, click **Update**.
- 10 If you need to start over with your filter, click **Clear** and all search criteria are removed.

Send a Diagnostic Ticket Report

- 1 To send the diagnostic ticket report via e-mail, click **Send**. A dialog box displays.
- 2 Type the e-mail address and click **E-Mail Report**. A dialog displays informing you that the report has been sent.

Save a Diagnostic Ticket Report

- 1 To save the diagnostic ticket report, click **Save**. The **Save As** dialog box displays
- 2 Navigate to where you want to save the diagnostic ticket report.
- 3 Click **Save**. A dialog displays informing you that the report has been saved.

Media Report

The Media Report displays all available media on your Scalar LTFS appliance. To view a smaller subset of media, you can create filters. If a filter is applied, any report sent or saved will contain only the filtered information.

A customized report may be created by reordering the columns by selecting the column and dragging it to the desired position. Columns may be hidden by clicking the **X** in the column header. The report is generated as the data is displayed on the screen.

- 1 From the navigation panel, click **Reports > Media**. The **Media Report** screen displays.

Figure 42 Media Report screen

| Media Report | | | | | | | | | Unhide Columns |
|----------------|------------|------------------|------------------|----------|---------------------|-------|----------|-----------|----------------|
| Library | Library SN | Imported | Attached | Exported | Metadata Expiration | Files | Used | Free | |
| Scalar i40-i80 | D1H0060826 | 2014-04-23 09:58 | 2014-04-23 10:06 | | | 165 | 250.0 GB | 1.07 TB | |
| Scalar i40-i80 | D1H0060826 | 2014-04-23 09:58 | 2014-04-23 10:25 | | | 190 | 289.3 GB | 1.03 TB | |
| Scalar i40-i80 | D1H0060826 | 2014-04-23 09:58 | 2014-04-23 10:24 | | | 165 | 250.0 GB | 1.07 TB | |
| Scalar i40-i80 | D0H0130727 | 2014-04-23 09:16 | 2014-04-23 10:18 | | | 225 | 341.1 GB | 1003.8 GB | |
| Scalar i40-i80 | D1H0060826 | 2014-04-22 16:52 | 2014-04-23 10:19 | | | 210 | 318.2 GB | 1.00 TB | |
| Scalar i40-i80 | D1H0060826 | 2014-04-22 16:52 | 2014-04-23 10:13 | | | 205 | 297.7 GB | 1.92 TB | |
| Scalar i40-i80 | D1H0060826 | 2014-04-22 16:52 | 2014-04-23 10:06 | | | 175 | 254.0 GB | 1.96 TB | |
| Scalar i40-i80 | D1H0060826 | 2014-04-22 16:52 | 2014-04-23 10:13 | | | 155 | 232.3 GB | 1.98 TB | |
| Scalar i40-i80 | D0H0130727 | 2014-04-22 16:51 | 2014-04-23 10:06 | | | 185 | 280.3 GB | 1.04 TB | |
| Scalar i40-i80 | D0H0130727 | 2014-04-22 16:51 | 2014-04-23 10:05 | | | 195 | 282.0 GB | 1.93 TB | |
| Scalar i40-i80 | D0H0130727 | 2014-04-22 16:51 | 2014-04-23 10:12 | | | 220 | 318.2 GB | 1.90 TB | |
| Scalar i40-i80 | D0H0130727 | 2014-04-22 16:51 | 2014-04-23 10:12 | | | 140 | 212.2 GB | 1.11 TB | |
| Scalar i40-i80 | D0H0130727 | 2014-04-22 16:51 | 2014-04-23 10:19 | | | 170 | 246.3 GB | 1.97 TB | |

Apply Filter: Edit Filter Send Save

- 2 Select a filter from the **Apply Filter** drop-down list. A list of media displays.

Create a Filter

- 1 From the **Media Report** screen, click **Edit Filter**. The **Media Filters** dialog box displays.

Figure 43 Media Filters screen

The screenshot shows the 'Media Filters' interface. At the top, there's a title bar with 'Media Filters' and a close button. Below it, the 'Filter Type' is set to 'Media'. The 'Filter Name' field is empty, and the 'Public' checkbox is unchecked. The 'Search Criteria' section has a 'Negate search criteria' checkbox (unchecked) and a search rule configuration area with a dropdown for 'Select a Column', an empty input field, another dropdown, and a plus sign. The 'Sort Results By' section has a dropdown for 'Select a Column' and a dropdown for 'Ascending', also with a plus sign. On the right, there's a table with two columns: 'Filter' and 'Owner'. The table is currently empty. At the bottom, there are four buttons: 'Add', 'Update', 'Delete', and 'Clear'.

- 2 From the **Filter Type** drop-down, select the type of filter you want to create. You can select:
 - Media
 - Diagnostic Tickets
- 3 Select **Media**.
- 4 Type a name for your filter in the **Filter Name** box. Filter names can be up to 24 characters in length and may include dashes, underscores and alphanumeric characters.
- 5 If you want to make your filter available to other users, select the **Public** checkbox.

Note: All filters created by you, as well as any public filters, will display in the table. All filters owned by you will not show an owner, while all public filters will display the owner.

- 6 In the **Search Criteria** section, set up your filter conditionals.

- a From the **Select a Column** drop-down, select the column you want to run your filter on.
- b Once a column has been selected, the **Select Condition** drop-down displays.
- c Select a condition. Depending on the type of condition selected, the last box will either be for text or a date and time.
- d Enter your final criteria details in the last box.
- e If you are done, go to the **Sort Results By** section. If you want to add more criteria, click the blue plus sign at the end of the criteria row.

Note: If you want to get the opposite results of what you set up for your criteria, select the **Negate search criteria** checkbox.

- 7 In the **Sort Result By:** section, select the column you want to use to sort your results from the **Select a Column** drop-down.
- 8 From the next drop-down, select how you want the results sorted: **Ascending** or **Descending**.
- 9 If you are creating a new filter, click **Add** when finished. If you are editing a filter, click **Update**.
- 10 If you need to start over with your filter, click **Clear** and the page returns to its initial state with one empty search and one empty sort row unless the page is currently displaying a filter owned by another user.

Note: If another user's filter has been selected from the table, the clear button will only clear the filter-name & filter-owner and re-enables everything on the page. This allows the user to modify the filter and add it as one of his own. A second click on the clear button clears the entire page.

Copy a Public Filter

Scalar LTFS allows you to open a filter made public by another user and copy it for your own purposes. Once copied, the filter is owned by you and can be modified. To copy a public filter:

- 1 From the **Media Report** screen, click **Edit Filter**. The **Media Filters** dialog box displays.
- 2 From the filter list on the right of the **Media Filters** dialog box, select a public filter not your own. You'll notice that all fields and drop-downs are greyed out.
- 3 Click **Clear**. The **Filter Name** field is cleared and all the options are now available for editing.
- 4 Type a new name for the filter.
- 5 Make any further changes to the filter.
- 6 Click **Update**. The filter is added to the filter list.

Note: Clicking the **Clear** button twice will clear all fields for the filter.

Send a Media Report

- 1 To send the configuration record via e-mail, click **Send**. A dialog box displays.
- 2 Type the e-mail address and click **E-Mail Report**. A dialog displays informing you that the report has been sent.

Save a Media Report

- 1 To save the configuration record, click **Save**. The **Save As** dialog box displays
- 2 Navigate to where you want to save the diagnostic ticket report.
- 3 Click **Save**. A dialog displays informing you that the report has been saved.

Media Count Report

- 1 From the navigation panel, click **Tools > Media Count**. The **Media Count Report** screen displays.

Figure 44 Media Count Report Window

| Media Count Report | | | | |
|--------------------|---------------|-------------------|---------------|-----------------|
| × Volume State | × Total Media | × Media with Data | × Empty Media | × Unknown Media |
| Attached | 8 | 6 | 0 | 2 |
| Auto Attachable | 0 | 0 | 0 | 0 |
| Sequestered | 3 | 3 | 0 | 0 |
| Vaulted | 1 | 1 | 0 | 0 |
| | | | | |
| | | | | |

The **Media Count Report** indicates the number of media in the available volume states. The report explains the total number of media in each state as well as the media containing data, how many are empty and the number of media that are unknown.

Send a Media Count Report

- 1 To send the report via e-mail, click **Send**. A dialog box displays.
- 2 Type the e-mail address and click **E-Mail Report**. A dialog displays informing you that the report has been sent.

Save a Media Count Report

- 1 To save the report, click **Save**. The **Save As** dialog box displays
- 2 Navigate to where you want to save the media count report.
- 3 Click **Save**. A dialog displays informing you that the report has been saved.

Message Summary Report

- 1 From the navigation panel, click **Tools > Messages**. The **Message Summary Report** screen displays.

Figure 45 Message Summary Report Window

| Message Summary Report | | | |
|------------------------|---|-------|------------------|
| Message Type | Message Description | Count | Last Occurrence |
| A500 | Admin message | 1 | 2015-06-30 10:36 |
| M101 | Vaulted file not available for read | 92857 | 2015-07-06 06:48 |
| M102 | Vaulted file not available for write | 54 | 2015-07-08 08:34 |
| M103 | Volume group low capacity threshold reached | 4 | 2015-06-30 08:28 |
| M104 | Scratch pool low capacity threshold reached | 37 | 2015-07-06 03:10 |
| M105 | No drives available | 8 | 2015-07-07 05:16 |
| M106 | Write failed due to no space remaining | 389 | 2015-07-01 01:34 |

The **Message Summary Report** indicates the number of specific system messages that have been generated. The report explains the type of message, it's description, the number of times it was generated and the last date it was generated.

Send a Message Summary Report

- 1 To send the report via e-mail, click **Send**. A dialog box displays.
- 2 Type the e-mail address and click **E-Mail Report**. A dialog displays informing you that the report has been sent.

Save a Message Summary Report

- 1 To save the report, click **Save**. The **Save As** dialog box displays
- 2 Navigate to where you want to save the message summary report.
- 3 Click **Save**. A dialog displays informing you that the report has been saved.

Volume Group Capacity Report

- 1 From the navigation panel, click **Reports > Volume Groups**. The **Volume Group Capacity** screen displays.

Figure 46 Volume Group Capacity Window

| Volume Group | Media | Total Capacity (MB) | Used (Mb) | Available (Mb) |
|------------------------|-------|---------------------|-----------|----------------|
| ~!\$%^()_+{} | 1 | 1378154 | 11089 | 1367065 |
| 000095 | 0 | | | |
| 000132 | 0 | | | |
| *00132 - 500,000 files | 1 | 1367865 | 10939 | 1356926 |
| 000236 | 0 | | | |
| !000236 | 0 | | | |
| 000336 | 1 | 1378154 | 64393 | 1313761 |
| 000336r | 1 | 1378154 | 48454 | 1329700 |
| 000566 | 0 | | | |
| 000566 rep | 0 | | | |
| 0005821 | 1 | 1378154 | 253475 | 1124679 |
| 000670 | 0 | | | |
| 000997 | 0 | | | |
| 000997 spanned file | 0 | | | |
| 001540 | 0 | | | |
| 001552 | 1 | 2425551 | 133683 | 2291868 |
| 001558 | 1 | 2425551 | 2425551 | 0 |
| 001558 rep | 1 | 1367865 | 24702 | 1343163 |
| 001656 | 1 | 2407176 | 228 | 2406948 |
| 2361 | 3 | 3911660 | 1500865 | 2410795 |
| ddd | 1 | 1367865 | 294 | 1367571 |
| [discovered media] | 0 | | | |
| [scratch media] | 0 | | | |

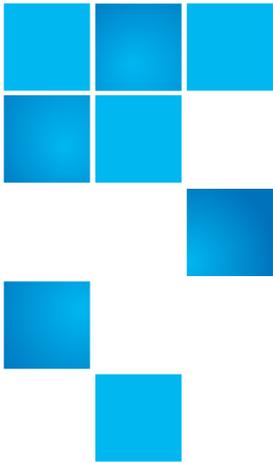
The **Volume Group Capacity Report** indicates the number of media per volume group as well as total capacity of the volume group and the amount of space used and available in Mbs.

Send a Volume Group Capacity Report

- 1 To send the report via e-mail, click **Send**. A dialog box displays.
- 2 Type the e-mail address and click **E-Mail Report**. A dialog displays informing you that the report has been sent.

Save a Volume Group Capacity Report

- 1 To save the report, click **Save**. The **Save As** dialog box displays
- 2 Navigate to where you want to save the message summary report.
- 3 Click **Save**. A dialog displays informing you that the report has been saved.



Chapter 8

Troubleshooting

To assist you in troubleshooting a system issue, this chapter provides a list of frequently asked questions by category:

[Detecting Problems](#) on page 123

[Library Tape Drive Issues](#) on page 129

Note: The first step in troubleshooting any issues with the Scalar LTF5 Appliance or its libraries is to check for any diagnostic tickets and follow the steps listed. Only after this has been done should users consult the issues detailed in this chapter or contact a Quantum Service Representative.

Detecting Problems

How can I detect a problem within the appliance?

When the appliance detects an issue, it generates a diagnostic ticket, and the status button in the top bar of the GUI displays the color yellow to indicate a degraded status or red to indicate an "error" status (as explained in [Table 3](#) on page 33). Details about the diagnostic ticket are located in the GUI under **Tools > Diagnostic**

Tickets. For error detail, refer to [Review and Resolve Diagnostic Tickets](#) on page 93.

Accessing Media

I cannot access my media through the Scalar LTFS file system.

There are a number of ways to troubleshoot, including:

- Check for any opened diagnostic tickets. If a ticket has been generated, follow the steps to resolve the issue.
- If you're using security, verify that the host IP has been added and exported. **Tools > Security > Access List.**

If there is not an open ticket:

- On the library, ensure that your media is either LTO-5 or higher generation, the library partition is online and media has the correct six character barcode.
- Using the appliance, check to ensure that the partition is attached and online. Select **Configuration > Partitions.**
- Ensure that at least one drive is Online. **Configuration > Partitions.**
- Verify that Scalar LTFS has a license installed. **Configuration > Licenses.**
- Check the media, if it is not attached, it could be a formatting problem, the wrong generation, or not labeled. **Operations > Media**

Viewing Partitions

Why do I still see a partition I removed or modified?

If a Scalar LTFS Appliance was originally configured for multiple partitions and then modified to have less partitions, a 'ghost partition' may still appear in the library. To remove this 'ghost partition' from displaying in the library:

- 1 From the Scalar LTFS Appliance GUI, take the partitions that were removed/modified offline.
- 2 Detach the removed partition in the Scalar LTFS Appliance GUI.
- 3 Go to the Scalar LTFS Appliance tape library and remove/modify the partition.

- 4 From the Scalar LTFS Appliance GUI, bring the active partition online, leaving the removed/modified partition offline and unattached.

After a few minutes, the unattached partition will disappear from the Scalar LTFS Appliance GUI and the active partition will have the correct media and drives available.

Reservation Conflicts

There are two situations where a user may see a **Reservation Conflict** message.

- The Scalar LTFS Appliance shuts down with media still in drives
- A user attempts an export from the library without taking a partition offline from the Scalar LTFS GUI

To remove a reservation conflict:

- 1 From the Scalar LTFS Appliance GUI, select the **Configuration > Partitions** menu.
- 2 From the **Partitions** screen, uncheck the **Online** box for the partition that has the reservation conflict.
- 3 Click **Apply**.
- 4 Wait the time set in the **Idle Volume Timeout** drop-down menu and check the **Online** box for the partition that was just taken offline.
- 5 Click **Apply**. The user should see that the media is now unmounted.

Note: Users can also select the **Operations > Media** menu to check that the partition drives are online and no longer contain media.

- 6 The reservation should be removed.

Note: If the reservation is not removed, take the partition offline again and from the Scalar LTFS Appliance GUI, unload or move media from the drive.

Caution: In the event of a system crash, it is possible for reservations to be left on a drive. Taking a partition offline and then back online will not allow users to remove media. To remove media from a drive with queued reservations, users must power cycle the Scalar LTFS Appliance.

Volume Synchronization Issues

In some cases, volumes get out of sync with the disk index and media index. If this happens, the media will be sequestered and the user will receive ticket stating “volume reformatted or different volume.”

Scalar LTFS monitors the contents of media that it represents in the file system namespace. If at any point it detects that a medium has changed outside of its control, it sequesters that medium. This can occur for several reasons, some examples include:

- An out-of-date save-restore image has been installed
- A vaulted medium has been modified

Under these (and other similar) circumstances the medium will be sequestered as “volume reformatted or different volume.”

Drive License Issues

I'm having issues with drive licenses. What can I do?

Drive licenses are used whenever a tape is loaded into a drive by Scalar LTFS. Drive licenses are freed when the tape is subsequently unloaded. In certain error conditions, drives licenses may not be released, affecting the system drive usage by reducing or even eliminating the number of usable drives.

If an LTFS volume appears to be stuck in a drive, perform the following steps, stopping when the GUI indicates that the volume has successfully been unloaded. Wait 10 minutes between each step, in order to allow the system time to unload the volume.

- 1 Check that the host interface (FC or SAS) cables are connected to the affected drive as well as the control path drive in the affected partition.
- 2 If necessary, bring the partition and drive online.

- 3 If the volume is loaded in a drive, but sequestered, try attaching the volume via the GUI.
- 4 Try bringing the partition and drive offline and then back online again.
- 5 If none of the above steps work, restart the Scalar LTFS appliance.
 - a Stop all IO to the system. This may need to be scheduled in advance to let all users know that the system will not be available while the drive/library maintenance is performed.
 - b Wait for all tapes to dismount from the drives.
 - c Using the SLTFS GUI, restart the appliance.
 - d Select **Operations > Logoff** and click the **Restart System** button.
 - e When the system has restarted, all drive licenses should now be available.

GUI Performance

Why is my GUI running so slow?

Slow GUI performance may be caused by a disconnect of a previously used DNS address if a system restart has not been performed recently. To resolve this issue, either restart Scalar LTFS or attach it to the network to allow a DNS resolution.

Firmware Updates

Why am I getting an IO error during a firmware update?

It is possible a corrupted or invalid firmware file is detected which causes the firmware update to fail. In this case, a user should download the firmware file to another location or server and reattempt the firmware update.

Drive/Library Maintenance

I need to perform library/drive maintenance. What can I do?

To perform drive/library maintenance and get the drive(s) working properly, complete the following steps:

- 1 Stop all IO to the system. This may need to be scheduled in advance to let all users know that the system will not be available while the drive/library maintenance is performed.
- 2 Wait for all tapes to unload or dismount from the drives.
- 3 Take the affected partition offline.
- 4 Perform the required drive or partition maintenance.
- 5 Put the affected partition back online.

Interacting with a Remote File Server on MacOS

How do I prevent .DS_Store file creation over a network connection?

Note: The following steps do not prevent the Finder from creating .DS_Store files on the local volume, and these steps do not prevent previously existing .DS_Store files from being copied to the remote file server.

Note: Disabling the creation of .DS_Store files on remote file servers can cause unexpected behavior in the Finder.

The Mac OS Finder file browser will at times generate a .DS_Store file in folders to store Finder specific information. On initial access of these folders, the Finder will automatically attempt to read this file causing an unexpected tape mount. To disable .DS_Store creation, complete the following steps:

- 1 Open a terminal session by navigating to **Applications > Utilities**.
- 2 Click the **Terminal** icon.
- 3 Execute the following command:

```
defaults write com.apple.desktopservices  
DSDontWriteNetworkStores true
```
- 4 You can either restart the computer or log out and back in to the same user account.

If you want to prevent .DS_Store file creation for other users on the same computer, log in to each user account and perform the steps above-or distribute a copy of the newly modified `com.apple.desktopservices.plist` file to the `~/Library/Preferences` folder of other user accounts.

Library Tape Drive Issues

Use the following tools to run diagnostic test on a tape drive:

- IBM tape drive - Run the ITDT diagnostic tool. Instructions for downloading and using the tool are included on the CS Web site.
- HP tape drive - Run the LTT un the ITDT diagnostic tool. Instructions for downloading and using the tool are included on the CS Web site.

Sequestered Tape Fault

In the event of a sequestered tape fault, use the following steps to determine if it is a drive or media issue:

- 1 Check for a diagnostic ticket DT052 - Sequestered Cartridge. There should also be a corresponding diagnostic ticket DT058 - Drive Offline.

Note: A DT052 diagnostic ticket should not happen without a DT058 but a DT058 can happen without a DT052.

- 2 Leave the drive identified in the DT058 diagnostic ticket offline.
- 3 Using a different drive, attempt to reattach the sequestered cartridge.
- 4 If the tape successfully attaches, then it is likely a drive issue.
- 5 To verify if it is a drive issue, put the drive back online and take all the other drives offline.
- 6 Using a known good tape, attempt to access data via the file system and see if it is successful.
- 7 If the data cannot be retrieved from the known good tape, it is likely a drive issue.

Note: If the tape cannot be attached, it is likely a problem with the media. In this case, there is the potential for data loss on the tape and users should contact their customer service representative.

Sequestered Volume Corruption

What do I do if my media will not attach?

Note: Before running the SLTFSCK utility, try a media to media copy.

In the event of a media attach failure, run the SLTFSCK utility and complete the following steps:

Note: Ensure media is not set to write-protected and assigned to partition.

- 1 If the issue is not resolved, from service port, login as:
 - User: **sltfs**
 - Password: **5ltf5c73**
- 2 Enter number: **1** (mount media - must have empty drive).
- 3 Enter **volser** (000011). Drive information is scanned and displayed.
- 4 Enter number: **0** (recover volume).

Note: Use option 0 to recover as much data as possible on the tape.

- 5 Type: **volser** (000011) and press **Enter**. The volume scan begins.

The following information displays:

- Scan drive=256 (HP /Ultrium 5-SCSI /Serial Number) 000011

- 6 The scan completes and returns the following information:

- 1st run

```
Generation Date Time Zone SelfPtr > BackPTR
```

```
201: 2012-07-16 19:41:57.840684348 MDT (1, 74288)->(1, 73806)
      (2012-07-17 01:41:57.840684348 UTC)
```

```
202: 2012-07-16 19:45:23.654327825 MDT (1, 74292)->(1, 74288)
      (2012-07-17 01:45:23.654327825 UTC)
```

```
203: 2012-07-23 08:37:13.243013376 MDT (0, 5)->(1, 74296)
      (2012-07-23 14:37:13.243013376 UTC)
```

```
203: 2012-07-23 08:37:13.243013376 MDT (1, 74296)->(1, 74292)
      (2012-07-23 14:37:13.243013376 UTC)
```

First run gets available indexes, second run performs recovery

- 7 Once finished, the screen returns with the Main Menu > Complete.
- 8 Enter number: 2 (dismount volume).
- 9 Enter volser (000011): Scan drive information displayed.
- 10 Enter number: 99 (Quit).
- 11 Attach volume in the partition.

Appendix A

User Roles

Based on your login credentials as a user or administrator, you can perform the following functions by role:

Table 8 Administrator Role Matrix

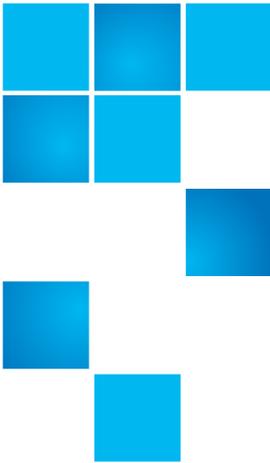
| Administrator Permission Level | User Permission Level | Function by Window |
|--------------------------------|-------------------------|-------------------------------|
| Add, change | View | Configuration > System |
| Add, change | View | Configuration > Notifications |
| Add | View | Configuration > Licenses |
| Add, change | View | Configuration > Date and Time |
| Add, change | View | Configuration > Networks |
| Add, change, delete | View, change password | Configuration > Users |
| Add, change | View | Configuration > Partitions |
| Change | View, attach, sequester | Operations > Media |
| Execute | Execute | Operations > Logoff |
| Execute | View | Operations > Media Copy |

| Administrator Permission Level | User Permission Level | Function by Window |
|---------------------------------------|------------------------------|---------------------------------|
| Execute | None | Tools > Capture Snapshot |
| Execute | None | Tools > Save or Restore |
| Execute | None | Tools > Security |
| Execute | None | Tools > Update Firmware |
| Execute | View | Tools > Diagnostic Tickets |
| Send, save | Send, save | Reports > Component Information |
| Send, save | None | Reports > Configuration Record |
| Send, save | Send, save | Reports > Diagnostic Ticket |
| Send, save | Send, save | Reports > Media |
| View | View | Help > About Scalar LTFS |
| Execute | None | Help > Register Appliance |

Table 9 Service Role Matrix

Service roles have some of the permissions listed in [Table 8](#) on page 133 plus the permissions listed below.

| Service Permission Level | Admin Permission Level | Function by Window |
|---------------------------------|-------------------------------|----------------------------------|
| Execute | None | Service > Clear to Ship |
| Execute | None | Service > Reset Factory Defaults |



Glossary

A

Auto Slot Allows the user to configure the SLTFS appliance to automatically attach newly found media in the library. If this is disabled the user has to manually attach new media.

D

DNS A hierarchal identification system that translate domain names into IP addresses.

Discovered Pool Volumes imported into SLTFS via the Library. These volumes can be assigned to a volume group or they can be formatted into scratch media for expanding a volume group's capacity. The discovered pool is displayed on the GUI as the [discovered media] volume group.

F

Fibre Channel A high-speed data transfer technology. Using optical fibre to connect devices, Fibre Channel primarily transports SCSI traffic between computers and I/O.

File Collision Situation where there are already existing filenames in a volume group and there is an attempt to either merge a volume(s) into the volume group or to attach a sequestered volume that is in the volume group that has the same pathname.

File Spanning Spanning of files across multiple media/volumes.

L

LTFS An acronym for Linear Tape File System, a file system that provides access to files on the latest generations of LTO tape technology as if the files were on the user's local disk.

P

Partition (A logical subset of an underlying physical library that may present a different personality, capacity, or both to the host. It is a representation of real physical elements, combined to create a grouping that is different from the physical library. Also a logical portion of the physical library that is viewed by the host as if it is a complete library. Partitions present the appearance of multiple, separate libraries for purposes of file management, access by multiple users, or dedication to one or more host applications.

R

Diagnostic Ticket A ticket that alerts the user of an issue with the appliance. Diagnostic tickets identify which appliance components are causing an issue. When possible, the diagnostic ticket provides instructions for resolving the issue.

S

SAS (Serial Attached SCSI) A SCSI interface standard that provides for attaching HBAs and RAID controllers to both SAS and SATA disk and tape drives, as well as other SAS devices.

Scalar LTFS Scalar LTFS (Linear Tape File System) is a Quantum-proprietary software stack that implements a file system that complies with the Linear Tape File System (LTFS) Format Specification, using automated tape libraries to allow users to see and use files contained within multiple, independent LTFS volumes as a single collection, as if the files were on the user's local disk.

Scratch Pool Volumes formatted and then available to be auto-attached by SLTFS for expanding a volume group's capacity. The scratch media pool is displayed on the GUI as the [scratch media] volume group.

Setup Wizard A tool for initially configuring the appliance. It appears the first time the user configures the appliance via the service port connection.

Sequester A media state that removes all metadata from the system, such that the tape, and its data, will no longer be seen in the file system. At this point a user can either physically remove it from the system, reformat it or reattach it.

Software Stack A collection of software that serves a single purpose.

U

URB (User Request Broker) A component that services UTI requests as well as internal ALTFSD requests. Requests are generally job requests.

V

Vaulted Media A media state indicating that volumes have been exported from the system but the system still retains their metadata.

Volume Group A volume group is a collection of one or more media that is presented to end users and applications as a directory in the file system.

