



StorHouse®

System Operator's Guide

StorHouse Release 5.4

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FileTek



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Welcome

StorHouse® is FileTek's enterprise-wide software solution for managing the capture, storage, movement, and access of gigabytes to petabytes of relational and non-relational detail data. StorHouse technology combines industry-leading, scalable storage devices and Open Systems processors with FileTek's specialized storage management and relational database management system (RDBMS) software components.

StorHouse/SM, FileTek's storage management component, controls a hierarchy of storage devices containing cache, RAID disks, erasable and write-once-read-many (WORM) optical disk jukeboxes, and automated tape libraries. StorHouse/SM is also responsible for automating critical system management tasks like data migration, backup, and recovery.

StorHouse/RM, FileTek's RDBMS component, works in conjunction with StorHouse/SM to specifically administer the storage, access, and movement of relational data. For more information on the StorHouse/RM product, refer to the StorHouse/RM User Document Set.

Note Specifications presented in this document are subject to change without notice. For more information, check with your FileTek sales representative.

Purpose of This Document

The *System Operator's Guide* describes step-by-step operating instructions for the StorHouse hardware and software. It explains such tasks as power-cycling the system, responding to operator request messages, monitoring system activity, and using and maintaining StorHouse devices and media. It is designed to help you provide StorHouse users with responsive, efficient, and economical service.

Intended Audience

The manual is intended for you, the StorHouse system operator. It may also be of interest to the StorHouse system administrator who oversees and sets policy for daily StorHouse operations.

At some sites, the same person performs the functions of the system operator and system administrator. At other sites, these functions are distributed among many people. In the text that follows, the system operator is referred to as *you*. The system administrator is specifically referred to as *system administrator*.

Contents

The *System Operator's Guide* contains six chapters and two appendices.

- Chapter 1, "Introduction," outlines system operator responsibilities, describes StorHouse tools that are available for system operation, and introduces the StorHouse operating system environment.
- Chapter 2, "StorHouse Hardware Components," describes the components of the StorHouse hardware.
- Chapter 3, "Understanding the Storage Hierarchy," defines the StorHouse storage hierarchy and introduces basic StorHouse concepts.
- Chapter 4, "StorHouse Operating Procedures," explains such tasks as StorHouse power-up and power-down, start-up and shutdown, taking the system offline, and system recovery.
- Chapter 5, "Working with Devices," explains how to control device activity and requests.
- Chapter 6, "Working with Volumes and Volume Sets," explains how to manage volumes and volume sets.
- Chapter 7, "Working with the System," explains how to control and monitor system activity.
- Chapter 8, "Working with Operator Messages," explains how to enable console message queuing at user terminals, receive and reply to operator request messages, and clear the operator message queue.
- Appendix A, "Operator Messages," lists operator messages in alphabetical order by status code.

- Appendix B, “Library Devices and Media,” discusses optical disk library devices, tape library devices, how to load and unload cartridges into library devices, and how to care for and clean optical and tape media.

Related Documentation

The StorHouse User Document Set includes other related documents:

- *StorHouse Glossary*, publication number 900027, defines technical terminology used in all FileTek® publications.
- *StorHouse Concepts and Facilities Manual*, publication number 900026, is a reference manual that defines basic StorHouse concepts, structures, and functions.
- *Command Language Reference Manual*, publication number 900005, defines all available StorHouse Command Language commands and explains related StorHouse concepts.
- *System Administrator's Guide*, publication number 900007, describes guidelines for StorHouse system administration. It is designed to help the administrator provide StorHouse users with responsive and efficient service.
- *Messages and Codes Manual*, publication number 900032, contains the messages and return codes generated by the StorHouse system and host software. It gives the meaning of each message and indicates any actions to take.

Notational Conventions

For examples and procedures that involve StorHouse Command Language, this manual assumes that your standard access method is the StorHouse Interactive Interface. This book uses the following conventions for illustrating command formats, presenting examples, and identifying special terms:

Convention	Meaning
Angle brackets (< >)	Enclose optional entries
Braces ({ })	Enclose descriptive terms or a choice of entries
Courier font	Code
<i>Italics</i>	New terms and emphasized text
lower case Helvetica font	User entries

Welcome

Quick Reference

Convention	Meaning
UPPER CASE	System responses and StorHouse terms
▼	Procedures

Quick Reference

This guide contains comprehensive descriptions of all system operator tasks and the StorHouse Command Language commands you need to accomplish those tasks. Refer to the quick reference card that accompanies this guide for frequently used procedures and the syntax of selected StorHouse Command Language commands.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class “A” digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Introduction

StorHouse is a central storage repository that provides efficient and responsive file storage services to end-users. Although it is a highly automated system, it requires assistance for some operations. After the system administrator configures the system, you help monitor and manage StorHouse to best satisfy the needs of your end-user departments.

This chapter discusses:

- Your responsibilities as system operator
- StorHouse support tools available to you
- The StorHouse operating system environment.

Role of the StorHouse Operator

You perform daily StorHouse operations and are responsible for the following tasks:

- Powering up StorHouse and starting up the operating system. The operating system starts automatically upon power-up.
- Starting up the StorHouse software. The StorHouse software starts automatically upon start-up of the operating system. On occasion, you may need to shut down the StorHouse software and start it up again manually.
- Shutting down the StorHouse software. When you enter the Command Language SHUTDOWN command, the StorHouse software notifies users that the system is shutting down, completes all current activity, and shuts down.
- Shutting down the StorHouse operating system. When you enter the halt command, the operating system sends a shutdown message to the system console, terminates all current activity, and shuts down.
- Powering down StorHouse.

- Notifying the system administrator when system recovery is necessary.
- Responding to console messages and error conditions. You may have to perform tasks as a result of messages that appear on the console and error conditions that may develop.
- Monitoring system operation. When StorHouse software startup is complete, users can sign on to StorHouse. You can also sign on to StorHouse and enter Command Language commands as directed by the system administrator. While StorHouse is processing user transactions, you can monitor the system.
- Controlling system devices and volumes. You can enter commands to control StorHouse devices and display information about volumes.
- Loading cartridges into and unloading them from library devices. You respond to StorHouse requests to load and unload cartridges.
- Ensuring that optical cartridges contain an external label and tape cartridges contain an external bar code label. If necessary, you may need to replace a missing label.

StorHouse Support Tools

StorHouse provides a set of tools to support system operation. These tools are:

- StorHouse account system
- StorHouse Command Language
- StorHouse system parameters.

StorHouse Account System

StorHouse controls user access through an *account system*. Each user account has an identification code, a password, a set of privileges, and other administrative information. End-users can gain access to StorHouse and enter commands by starting a StorHouse session. A *session* begins when a user signs on to StorHouse and ends when that user signs off. The system limits the actions of a user based on information in the user's account.

In your role as system operator, you use the StorHouse OPERATOR account to log into the StorHouse software. The default password for the StorHouse account is OPERATOR. You should change this password after signing on to StorHouse for the first time to prevent unauthorized use of the account.

StorHouse Command Language

The *StorHouse Command Language* is the standard command interface between StorHouse and its host computers. System administrators and operators monitor and control StorHouse through the StorHouse Command Language. With the proper privileges, any user can execute any Command Language command through the StorHouse Interactive Interface. The system administrator sets account privileges to control which commands a user may execute.

This section introduces you to the command statement format and its components, as well as frequently used commands for system operation. The *Command Language Reference Manual* describes all StorHouse commands in detail.

Command Statement Format

Once you sign on to StorHouse, you see the StorHouse question mark (?) prompt. You enter StorHouse Command Language commands after the StorHouse prompt. See “Signing On and Off the StorHouse Software” on page 4-9 for an E10000 platform and on page 4-19 for E4500, E5500, and E6500 platforms.

The format for a Command Language command is:

```
? command </modifier<=data>...> <parameter> </modifier<=data>...>
```

where <parameter> </modifier<=data>...> can be repeated.

The command line includes a command verb that indicates the action you want StorHouse to perform. The command line may also include optional or required parameters and modifiers (with or without data fields).

Parameters. *Parameters* define the object or objects affected by the command activity. Parameters are optional on some statements but are required on others. Refer to the description of the specific command to determine whether it requires a parameter.

In system operation, the most likely parameters are volume identifiers and device identifiers, which are described in Chapter 3, “Understanding the Storage Hierarchy.”

Modifiers. Modifiers limit or enhance the scope of a command or a parameter or provide additional data to be used in the command. There are two kinds of modifiers:

- *Command* modifiers – limit or focus the scope of commands
- *Parameter* modifiers – limit or focus the scope of parameters.

A Command Language statement may contain one or more command and/or parameter modifiers. You must precede each modifier with a slash (/).

A command modifier can appear anywhere in the statement, as long as it follows the command verb. The function of a parameter modifier depends on its placement in the command line. To modify a particular parameter, place the modifier after that parameter but before the next parameter in the command line. To modify *all* parameters in a command line, place the modifier after the command but before the first parameter.

Some modifiers can be negated or turned off by inserting the letters NO between the slash and the modifier. Generally, the NO option is used to nullify a modifier that is present in a command by default.

Frequently Used Commands

The StorHouse commands that you will use most frequently do the following:

- Control and display information about StorHouse devices
- Display information about volumes
- Move individual volumes or entire volume sets between storage levels or between library devices
- Monitor and control system activities
- Read and reply to operator messages.

Table 1-1 lists frequently used commands:

Table 1-1: Frequently Used StorHouse Commands

Command	Description
CONSOLE	Requests or sends a reply to a StorHouse operator console message.
DOWN DEVICE	Completes current activity on a device and makes it unavailable for use by StorHouse.
MESSAGE	Sends a message to the StorHouse operator console or to a user.
MONITOR	Displays current system activity and performance information.
MOVE VOLUME	Moves a volume to a specified location.
MOVE VSET	Moves all volumes in a volume set to a specified location.
RESERVE SYSTEM	Controls access to StorHouse by other accounts.
RUN	Runs the procedures that have been installed on a StorHouse system, usually by FileTek Customer Support.
SET DEVICE	Changes the device mode for a magnetic disk drive or a library device drive.
SET VOLUME	Changes the status of a volume.
SHOW DEVICE	Displays the device status and, if applicable, mode and supported media of a StorHouse device.
SHOW VOLUME	Displays information about a volume.

Table 1-1: Frequently Used StorHouse Commands (continued)

Command	Description
SHUTDOWN	Initiates a shutdown of the StorHouse software.
UP DEVICE	Initializes a device and makes it available for use by the StorHouse system.

System Parameters

System parameters are named data fields that StorHouse uses to manage resources and provide default information for system operations. They define things like:

- Default values for file attributes or characteristics
- Limits, constants, and values that control file migration
- Limits that control system activity.

Your system administrator chooses values for many system parameters during system installation. Each parameter has an assigned default. The system administrator can give a system parameter a different value from the default.

During system operation, StorHouse uses the value of some system parameters as the default value for command modifiers that you omit.

Appendix A of the *Command Language Reference Manual* defines all available StorHouse system parameters and lists their default values.

The StorHouse Operating System Environment

StorHouse runs on Sun Microsystems® Ultra™ Enterprise and Sun Fire Solaris servers, and on selected Hewlett-Packard® HP-UX servers. You can log in to the StorHouse server operating system (UNIX®) and use operating system features even when the StorHouse software is down. However, the StorHouse server operating system software must be up and running before you can sign on to StorHouse. The procedures for logging in and out of the StorHouse server operating system and signing on and off the StorHouse software are presented in Chapter 4, “StorHouse Operating Procedures.”

You and the system administrator should log in to the StorHouse server operating system with the UNIX operator account. The default password for this account is operator. Your system administrator should change this password after system installation to prevent unauthorized use of the system.

1

Introduction

The StorHouse Operating System Environment

StorHouse Hardware Components

FileTek's StorHouse systems are engineered for large organizations with demanding storage and retrieval needs. These systems run on Sun® and Hewlett-Packard® (HP®) processors.

StorHouse models vary according to their hardware components, which typically include the following items:

- Processor cabinet
- Console terminal
- Optional expansion cabinet(s) for the magnetic disk units and/or RAID drives
- One or more library devices.

Figure 2-1 illustrates a typical StorHouse hardware configuration. It illustrates a StorHouse configuration with a Sun E6500 processor cabinet, console terminal, RAID units stacked inside an expansion cabinet, a 5.25-inch optical disk library, and an automated magnetic tape library.

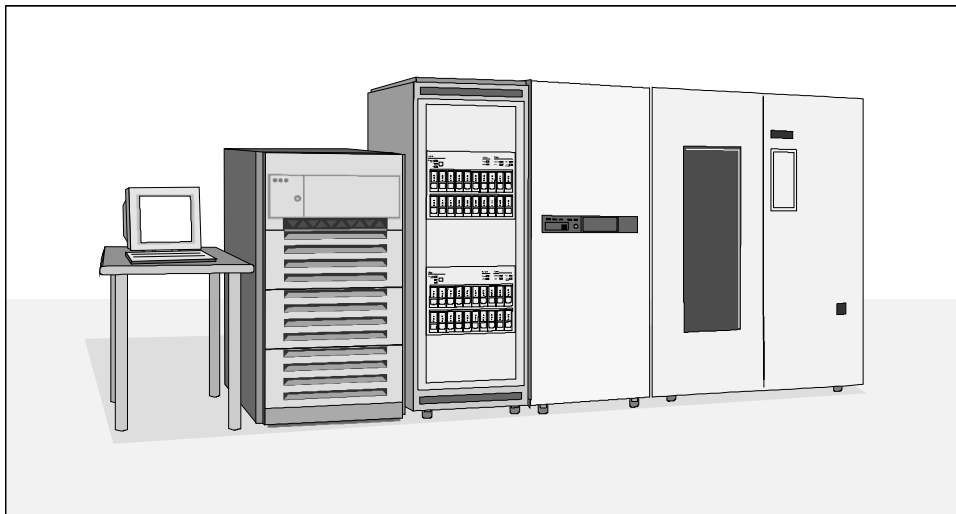


Figure 2-1: Typical Hardware Components for a StorHouse System

StorHouse Processor Cabinets

The StorHouse processor cabinets contain a high-performance, Sun UltraSPARC™ or Sun Fire computer, or an HP computer. Symmetric multiprocessing (SMP) allows scalable performance through the use of multiple CPUs. Flexible I/O connectivity features allow FileTek to configure very large data storage systems. On an HP platform, the HP server must have a Peripheral Component Interconnect (PCI) I/O bus architecture to support StorHouse.

The contents of the processor cabinets can vary depending on the system model. In addition to the CPUs, a processor cabinet typically contains two power switches (one for the unit and one for the entire cabinet), magnetic disk units, and a modem. Typically, a switch on the front of the processor (it may be inside a front door) powers the unit on (I) and off (O) and a switch on the back of the processor powers the entire cabinet on and off (MAIN POWER). Main power switches are normally reserved for use by service personnel. The following figures show sample Sun and HP processors. For more detailed information on a particular processor, please refer to the manufacturer's documentation.

Figure 2-2 illustrates the front view of a Sun E4500 processor cabinet interior with the door open.

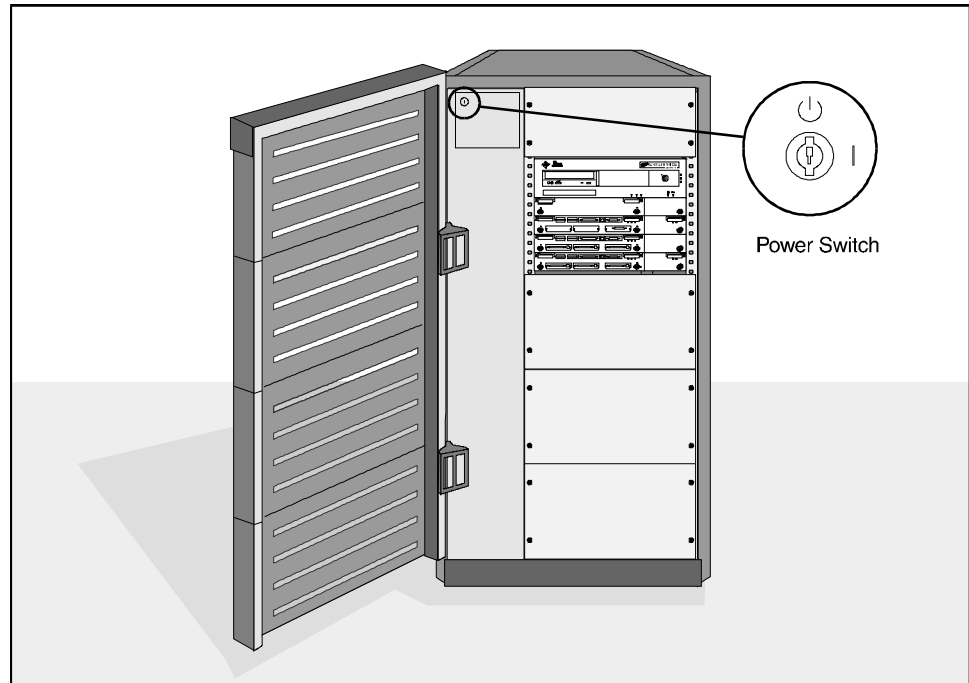


Figure 2-2: StorHouse E4500 Processor Cabinet Interior (Front View)

Figure 2-3 illustrates the front view of the Sun E10000 processor cabinet interior with the doors open. (There are other power switches inside the back of the cabinet, which is not shown.) Typically, power for the E10000 is controlled using commands on a console terminal (not shown).

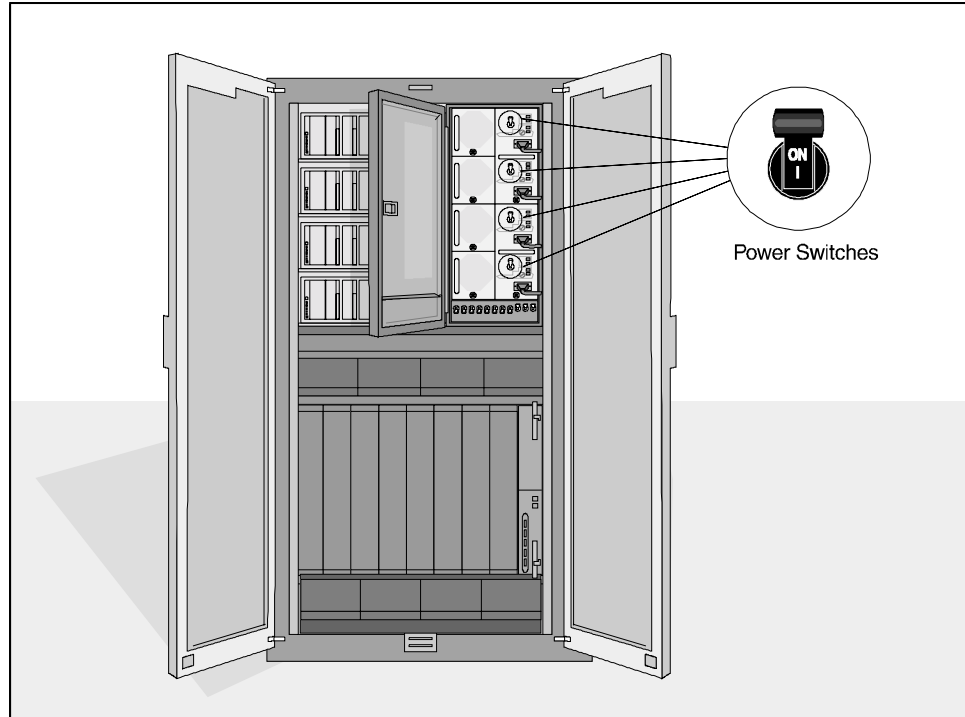


Figure 2-3: StorHouse E10000 Processor Cabinet Interior (Front View)

Figure 2-4 shows a sample HP processor.

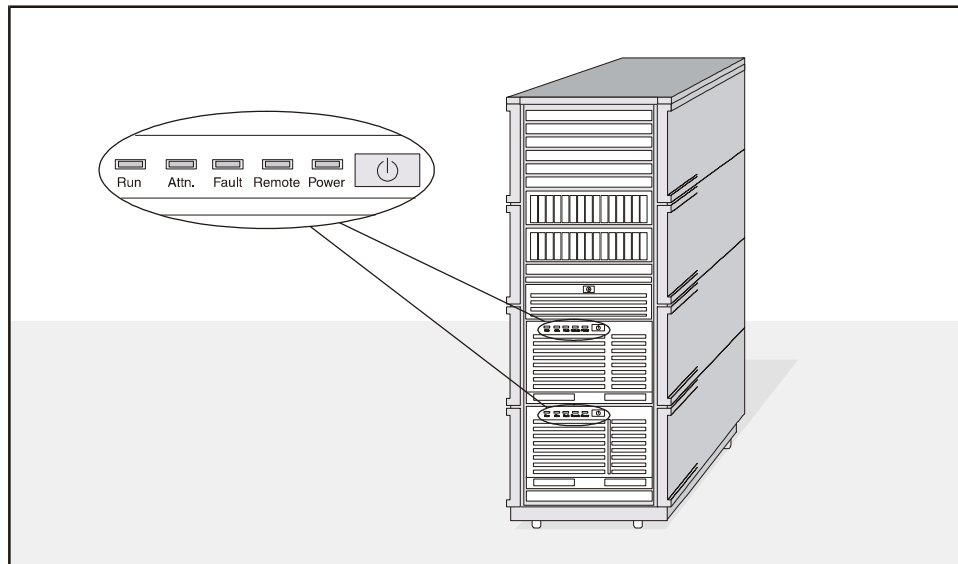


Figure 2-4: StorHouse HP Processor Cabinet

Magnetic Disk Units

The magnetic disk units (MDUs) are located inside the processor cabinet. Magnetic disks store StorHouse system and directory files, and optionally user files (in level F file sets). They also buffer data from the host at fast speeds and act as a staging area for high-speed data downloading. Magnetic disk drives read and write data on magnetic disk volumes (including RAID).

If your system contains RAID units, they are typically located in an expansion cabinet separate from the processor. Although the RAID volumes are physically removable, StorHouse considers RAID units to be fixed devices.

Modem

The modem is typically located on top of or next to the processor cabinet. It is connected by a cable to an RS-232 port on the StorHouse server. Normally, the modem is powered ON so that, if necessary, a FileTek customer support representative can perform remote diagnostics on your StorHouse system.

Console Terminal

For all StorHouse systems, the console terminal sits on or next to the processor cabinet and is attached by cable to the StorHouse server. You use the console terminal to communicate with StorHouse devices, start up and shut down the StorHouse system, and enter Command Language commands. Some console terminals allow you to run system monitor applications, which display performance statistics and other control information.

Expansion Cabinet

The expansion cabinet can contain additional MDUs or RAID units if required for your site. FileTek can add one or more expansion cabinets to any StorHouse system, as needed.

Optical Disk Library Devices

This section contains general information about optical disk library devices and optical media supported by StorHouse. Appendix B, "Library Devices and Media" contains specific data and illustrations for the various library device models and optical media types that are sold with StorHouse.

An optical library device contains the following components:

- Optical disk *drives*
- Multiple *slots* for storing optical disk cartridges
- A transport mechanism, or *robotic arm*, that moves volumes between storage slots, drives, and the exchange station. The part of the robotic arm that holds a volume is called an *accessor*.
- An *exchange station* where you can load or unload cartridges from the library device
- A microprocessor-based *controller* that controls the operation of the transport mechanism. The controller also receives high-level commands from the StorHouse server. This enables the library device to perform functions in coordination with the rest of the StorHouse system.

Optical Disk Drives

Optical disk drives use lasers to read and write data on optical disk volumes.

StorHouse optical drives are enclosed in the library device. When the library device power comes on, the drives power up. You cannot perform any manual functions with the optical disk drives.

The StorHouse software and the library device automatically perform all necessary operations for the drives and removable optical disk volumes (except for inserting a volume into or removing a volume from the library device).

StorHouse supports optical disk drives in libraries that use:

- 12-inch, non-erasable optical media
- 5.25-inch, erasable and non-erasable optical media.

Removable Optical Disk Volumes

Optical disk drives store data on removable disk volumes (also called optical disk *cartridges*). Each cartridge contains an optically sensitive metallic layer located between two glass or plastic disks. The metallic layer and disks are entirely enclosed by a protective plastic shell. StorHouse uses write-once-read-many (WORM) and erasable optical media.

If you load an optical volume into a library device or if StorHouse requests you to take an optical volume out of a library device, it is your responsibility to make sure that the volume contains an external label. The label must indicate both the volume

identifier and the name of the volume set to which the volume belongs. You should replace missing, illegible, or incorrect labels immediately. See Appendix B, “Library Devices and Media” for the correct placement of optical volume labels.

Magnetic Tape Library Devices

FileTek offers several high-performance magnetic tape library devices. This section contains general information about these library devices and the tape media supported by StorHouse. Appendix B, “Library Devices and Media,” contains specific data and illustrations for the tape library device and tape media types that are sold with StorHouse.

A magnetic tape library device contains the following components:

- Tape *drives*
- Multiple *slots* for storing tape cartridges
- A transport mechanism, or *robotic arm*, that moves volumes between storage slots, drives, and the exchange station. The part of the transport mechanism that holds a volume is called an *accessor*. The robotic arm has one or two accessors.
- An *exchange station* where you can load or unload tape cartridges from the library device.
- A *bar code reader*, which can automatically read bar code labels on tape cartridges to identify cartridges without having to load them into a drive and perform a read operation.

Tape Drives

The magnetic tape drives read and write data on removable magnetic tape volumes. These drives can access blocks of data sequentially on tape. However, the StorHouse software can randomly locate and extract individual blocks of data.

Magnetic tape drives are dedicated devices. A *dedicated* device can support only one file read or write at a time. However, the StorHouse software provides priority processing for tape drives, which allows high-priority reads to be queued and processed before lower priority operations.

StorHouse tape drives are enclosed in the tape library device. When the library device power comes on, the drives power up. You cannot perform any manual functions with the tape drives. The StorHouse software and the library device automatically perform all necessary operations for the drives and removable tape cartridges (except for inserting a cartridge into or removing a cartridge from the library device).

The read/write heads in a magnetic tape drive require occasional cleaning to prevent errors due to dirty heads and to prevent damage to the drives. StorHouse supports the use of special head-cleaning tape cartridges for this purpose. Typically, cleaning tapes are permanently stored in the tape slots. The system monitors drive condition and automatically inserts a cleaning cartridge in a drive when needed. A cleaning cartridge can be used a specific number of times before it must be replaced. The system monitors cleaning cartridge usage and automatically directs you to unload an old cleaning cartridge and load a new one after a cartridge's last use.

Removable Tape Volumes

Tape drives store data on removable tape volumes (also called cartridges). Each cartridge contains a magnetic tape entirely enclosed by a protective plastic shell.

Note FileTek recommends that you keep current backup and/or archive copies of all data stored only on magnetic tape.

If StorHouse requests you to take a tape cartridge out of a library device, it is your responsibility to make sure that the cartridge contains a bar code label. You should replace missing, illegible, or incorrect labels immediately. See Appendix B, "Library Devices and Media" for the correct placement of tape labels.

Understanding the Storage Hierarchy

This chapter defines the StorHouse storage hierarchy and introduces basic concepts that appear in subsequent chapters. As you read this manual, you may want to refer back to this chapter from time to time.

In addition to the storage hierarchy, this chapter discusses:

- The differences between physical and logical volumes, and between blank and empty volumes
- Volume sets for user files
- Level L free pool volume sets.

About the Storage Hierarchy

StorHouse uses a seamless hierarchy of storage devices and media to satisfy different end-user requirements for response time, cost of storage, data retention, and space allocation. The components of this hierarchy are:

- RAM (which the system uses for data caching)
- RAID
- Magnetic disks
- Erasable and write-once-read-many (WORM) optical disk jukeboxes
- Automated tape libraries
- Shelf storage.

StorHouse software automatically manages the devices and media in the storage hierarchy and moves data to the appropriate location based on system- and user-controllable parameters.

Understanding Storage Levels

StorHouse divides the storage hierarchy into three distinct levels as depicted in the following table:

Table 3-1: Levels in the Storage Hierarchy

Level	Storage Devices	Characteristics
Fixed (level F)	Two separate layers: <ul style="list-style-type: none"> • RAID • Magnetic disk 	Fixed storage of nonremovable volumes. Level F is typically used as a <i>performance buffer</i> to write data from the client at faster speeds and as a staging area for higher frequency data retrievals. StorHouse automatically migrates, or removes, files from the performance buffer.
Library (level L)	Three separate layers: <ul style="list-style-type: none"> • Erasable optical disk • WORM optical disk • Automated tape 	Library storage of removable volumes. Robotic accessors in the libraries transfer cartridges between slots and drives automatically as users request information. The erasable and WORM optical layers may reside in the same jukebox.
Shelf (level S)	Separate shelf storage units for each jukebox and automated tape library in level L.	Storage of removable volumes unloaded from level L libraries. StorHouse requests you to load shelf volumes into a library device based on end-user requests for files. StorHouse still automatically manages all volumes on level S.

The following drawing illustrates the levels and layers in the storage hierarchy.

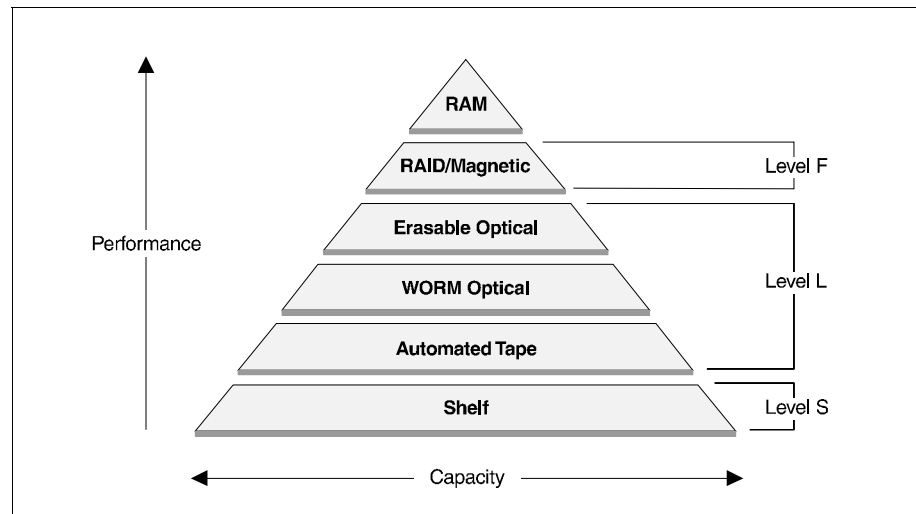


Figure 3-1: StorHouse Storage Hierarchy

Device Identifiers

Each hardware device in the storage hierarchy has a unique device identifier, also known as a *device identification code* (did). You must understand the components of a did because you will specify these codes in StorHouse Command Language commands.

The did consists of one or more of the following components:

Table 3-2: Device Identification Code Components

Component	Identifies	Valid Values
Level	Type of device or storage level	F (fixed) L (library) N (network) S (shelf)
Unit_number	Physically separate device	Hexadecimal values A-F, 0-9
Subunit_type	Type of device within a level L unit	A (accessor) D (drives) E (exchange station) S (slot)
Subunit_number	Specific device or location within a unit. This component is optional.	Hexadecimal values A-F, 0-9

You can specify a did for an entire unit or for a subunit (a component within a unit). The format of a unit did is:

{level}{unit_number}

For example, the did of library device 01 is L01:

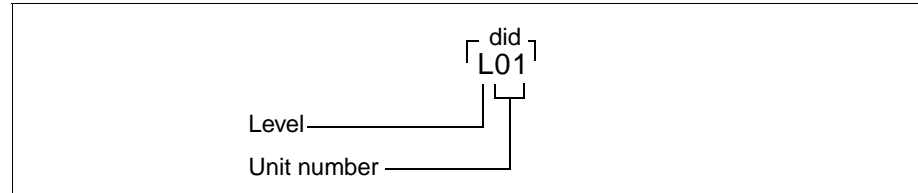


Figure 3-2: Sample Device Identification Code for a Unit

The format of a subunit did is:

{level}{unit_number}{subunit_type}{subunit_number}

For example, the did of drive 00 in library device 01 is L01D00:

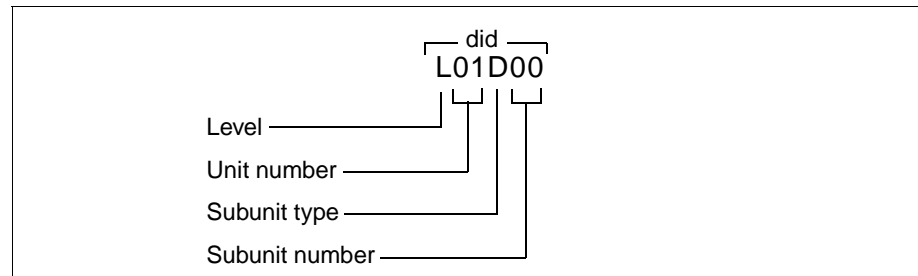


Figure 3-3: Sample Device Identification Code for a Subunit

On some commands, you can use the StorHouse wild card character (*) to replace all or part of the did. Refer to the description of the specific command to determine whether you can use a wild card.

Understanding Volumes

A *volume* (or *physical volume*) is a unit of media where data can be recorded and read. RAID, magnetic disk, erasable and WORM optical disks, and tape cartridges are all examples of StorHouse volumes, or media. The *residence* of a StorHouse volume is the location of the volume in one of the three storage levels.

The portion of a physical volume that can be accessed when mounted in a drive is called a *logical* volume. A logical volume consists of one or more physical volume sides, or surfaces. For example, some optical drives can access both sides of a two-sided optical volume simultaneously. In this case, each two-sided optical volume has

only one logical side (side A). Tape volumes also have one logical side (side A). Other optical drives can access only one side of a double-sided optical disk at a time. In this case, the two-sided optical volume has two logical sides, side A and side B.

From time to time, StorHouse will ask you to load one or more blank volumes into a specific library device. A *blank* volume is any volume that has not been initialized by the StorHouse software. When StorHouse initializes a volume, it writes an internal volume label on the media. Once a volume has been initialized, it becomes an *empty* volume. An empty volume contains an internal volume label, but no data or file labels. A collection of empty volumes of the same media and recording type in a library device is called a *free pool*.

Volume Identifiers

StorHouse identifies each volume by a unique volume identifier, also called a *volume identification code* (vid). You must understand the components of a vid because you will specify these codes in StorHouse Command Language commands.

For a *physical* volume, the vid contains three concatenated subfields, as follows:

```
{media_type}{recording_type}{volume_label}
```

The media type field identifies the type of drive where a volume can be formatted and processed. The recording type field identifies the recording mode used to format the volume and/or the volume's fixed mode. The volume label is a StorHouse-generated identifier or a predetermined bar-code label.

OEA27529BC5 is an example of a valid vid for a physical volume:

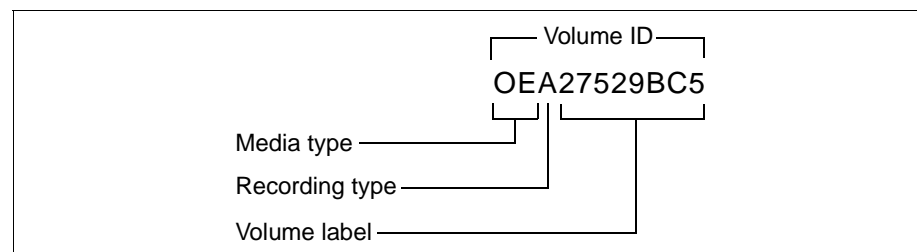


Figure 3-4: Sample Volume Identification Code for a Physical Volume

For tape, the vid format is the same as optical, except for the volume label component, which contains 1 to 6 characters instead of 1 to 8.

A *logical* volume is one side or surface of a physical volume. The vid of a logical volume consists of its physical volume vid plus a colon and a side indicator, as follows:

```
{media_type}{recording_type}{volume_label}:{side}
```

OEA27529BC5:B specifies side B of the same volume:

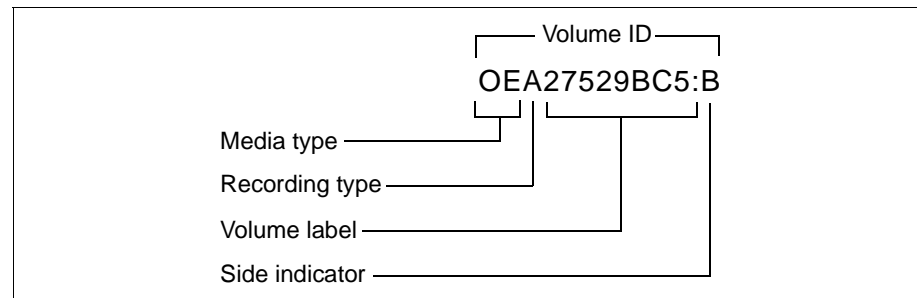


Figure 3-5: Sample Volume Identification Code for a Logical Volume

Some StorHouse operations, such as moving volumes between devices, require you to specify a physical volume vid. Others operate on specific sides and require you to specify a logical volume vid. The individual StorHouse commands in the *Command Language Reference Manual* will indicate which vid type to specify.

On some commands, you can use the StorHouse wild card character (*) to replace all or part of the vid. Refer to the description of the specific command to determine whether you can use a wild card.

Understanding Volume Sets

The system administrator creates sets of volumes on a StorHouse system. A *volume set* is a collection of one or more physical volumes that StorHouse treats as a unit. Every removable volume (level L and level S) in StorHouse must be a member of a volume set. All level F magnetic disks are configured as one volume set.

All volume sets have a *residence*, or location, that indicates where member volumes reside. Volume sets consisting of removable media can reside on different storage levels and/or in different level L libraries. For example, a three-volume set may initially reside in library 1. One member volume may subsequently be moved out of the library to shelf storage (level S). In this case, the volume set resides on level L and level S.

The system administrator or users with the proper authority can create a volume set on a specific library device or on the system default library device. The value of the DEFAULT_LD system parameter determines the name of the default library device. The system administrator can also determine limits for volume set growth.

Here is a sample volume set:

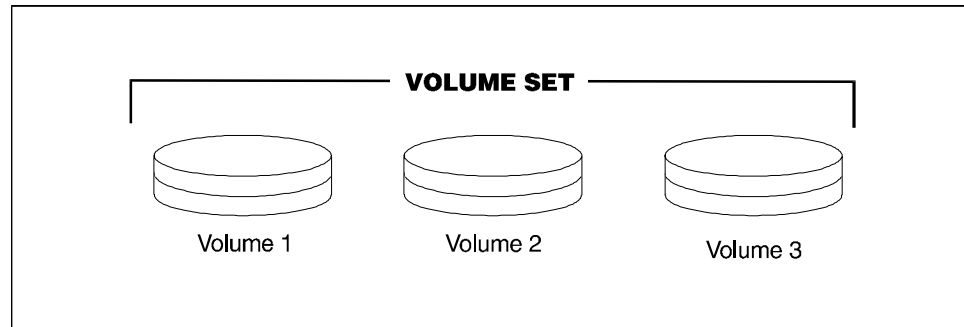


Figure 3-6: Sample Volume Set

Standard Volume Set Names

Each volume set has a unique *volume set name*. You may need to specify volume set names on Command Language commands. A volume set name can contain one to eight of the following ASCII characters: A-Z (uppercase), 0-9, _ (underscore), and \$ (dollar sign). For example, a valid volume set name is OPERVSET.

Free Pool Volume Set

StorHouse manages two types of level L volume sets: volume sets for user files and *free pool volume sets*. Free pool volume sets contain the empty volumes in a library device. Every free pool has a free pool volume set, whether or not there are any volumes in that volume set. When a volume set requires more storage space for files, StorHouse takes a volume from the specified device's free pool and allocates it to the volume set.

A free pool volume set uses special naming conventions. The format of a free pool volume set name is .Lxxmmr. For example, the tape (TBB) free pool volume set in library device 00 is .L00TBB:

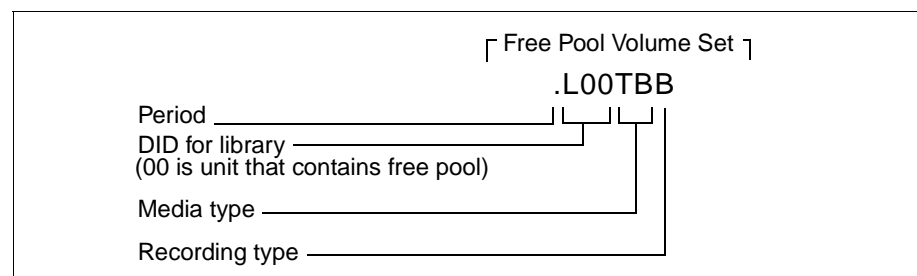


Figure 3-7: Sample Free Pool Volume Set Name

3**Understanding the Storage Hierarchy**

Understanding Volume Sets

You cannot use a free pool volume set name as a volume set name in most StorHouse Command Language commands. The leading period used as the first character in a free pool volume set name is an invalid character for standard volume set names.

Each library device in level L contains one free pool volume set for each media and recording type combination that the library supports. For example, if a library supports 5.25-inch erasable and WORM optical, then that library has two separate free pools: one for the erasable media and a second free pool for WORM. StorHouse automatically allocates empty volumes from the appropriate library device free pool to specific volume sets as necessary to meet user storage requirements.

Every library device has a corresponding `FREE_POOL_didmmr` system parameter. Each system parameter determines the minimum number of empty volumes in the free pool volume set for the specified library device (did), the media type (mm), and the recording type (r). If the number of volumes in any free pool volume set falls below its minimum value, StorHouse automatically asks you to load one or more blank (new) volumes of the appropriate media into the exchange station of the respective library device. StorHouse initializes each blank volume and adds it to the free pool volume set.

StorHouse Operating Procedures

This chapter explains the following StorHouse operating procedures for the Sun E10000 platform, and for HP and all other Sun platforms.

- Power-up
- Automatic start-up of the StorHouse software
- Login and logout procedures for the StorHouse server operating system
- Manual start-up of the StorHouse software
- Signon to StorHouse
- Changing the StorHouse system from online to offline
- Shutdown of the StorHouse software
- Shutdown of the StorHouse server operating system
- Power-down.

In addition, this chapter also discusses recovery procedures for all StorHouse systems.

The major sections in this chapter are self-contained and grouped by server model. Within each server category, the chapter groups procedures by host type, where required. You need to read only those sections that pertain to your StorHouse server and host type. For easy navigation through this chapter, Table 4-1 on page 4-2 lists all procedures by server model and page number.

When this document instructs you to turn off library devices, it assumes that you are not using ACSLS or LibraryStation software to share library storage with other non-StorHouse applications. If you are using ACSLS or LibraryStation with StorHouse, you need to evaluate whether to turn off all or selected library devices on a case-by-case basis.

Table 4-1: StorHouse Operating Procedures

This procedure	Is on page
E10000 Platform	
Powering up an entire E10000 platform	4-3
Powering up one or more E10000 domains	4-6
Starting the StorHouse server operating system and StorHouse software	4-7
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Signing off the StorHouse software	4-10
Shutting down the StorHouse software	4-10
Shutting down the StorHouse server operating system	4-10
Powering down the entire E10000 platform for installations with direct connect IBM (or compatible) hosts	4-11
Powering down one or more E10000 domains for installations with direct connect IBM (or compatible) hosts	4-13
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Powering down one or more E10000 domains for all other hosts	4-15
HP and All Other Sun (Ultra Enterprise E3500, E4500, E6500, and Sun Fire) Platforms	
Powering up the system	4-16
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Signing off the StorHouse software	4-20
Shutting down the StorHouse software	4-20
Shutting down the StorHouse server operating system	4-21
Powering down systems with direct connect IBM (or compatible) hosts	4-21
Powering down systems for all other hosts	4-23

E10000 Platform

The E10000 *platform* consists of a set of processors, memory, I/O interfaces on system boards, and a System Service Processor (SSP) interconnected by buses and networks. The *SSP* is a workstation that you use to control the E10000 platform and its subsystems. The SSP runs its own copy of the operating system. A platform subsystem, or *domain*, is a logical group of platform hardware that also runs its own copy of the operating system. A StorHouse system runs in its own domain.

Note The following procedures for the E10000 platform are high-level. FileTek assumes that you have received the appropriate hardware and software training from Sun and other applicable vendors. For specific questions on these procedures, see the appropriate Sun documentation.

In this section, the term “StorHouse console” means the SSP console window running the netcon session to the domain that executes the StorHouse software. To start a StorHouse session, you can also open a new SSP window and use the operating system operator account to telnet or rlogin to the StorHouse domain.

For the E10000 procedures in this section, `hostname` is always the `domain_name`.

Powering Up the E10000

This section provides two procedures to power up the E10000. The first procedure describes how to power up the entire E10000 platform. The second procedure explains how to power up one or more E10000 domains. It assumes that the SSP is running and a console window exists for the domain you want to power up. In both procedures, command variables that you must enter display in *italics*.

▼ To power up the entire E10000 platform

1. Power up all library devices by turning on each device's power switch. Refer to Appendix B, “Library Devices and Media” for information about the location of this switch for each model library device.
2. Press the SSP power switch on. (See the Sun hardware documentation for the location of this power switch.)
3. Turn on the circuit breakers for the platform. (See the appropriate Sun documentation for the power-up order of the platform hardware components.)
4. Log in to the SSP by entering the login, password, and platform name at the following prompts at the SSP console:

```
ssp console login: ssp
Password:<password does not display>
<Last login and operating system information display.>

Please enter SUNW_HOSTNAME: platform_name

<OpenWindows™ should start automatically. If it does not, enter
"openwin" at the UNIX prompt.>

ssp_hostname:platform_name%
```

Figure 4-1: Sample Login Screen for SSP

5. Position the cursor in the SSP console window. (When OpenWindows starts, the SSP console window automatically opens and contains the *ssp_hostname:platform_name* prompt.)

6. Power up the entire platform (in other words, the centerplane and all system boards) by entering:

```
% power -on -all
```

The system should automatically open a console window for each domain. If this happens, skip Step 7 and proceed to Step 8.

7. If the system did not automatically open a console window for each domain, reposition the cursor in the SSP console window. Then, enter the following command for each domain to create a color-coded window with a title:

```
% cmdtool -title domain_name -bg black -fg domain_color &
```

Use the following colors for domain windows to match Hostview (the graphical user interface, or GUI, that runs on the SSP to manage domains):

- Domain 1 – White
- Domain 2 – Orange
- Domain 3 – Yellow
- Domain 4 – Pink
- Domain 5 – Red

8. Select each domain by following these steps:
 - a. Position the cursor in the window of the domain you want to use. Each domain is identified by title at the top of its own window.
 - b. Select the domain by entering:

`% domain_switch domain_name`

Note that the prompt now includes the domain name, as follows:

`ssp_hostname:domain_name%`

9. Bring up and boot the domains you want to use by entering the following command in each domain's color-coded window:

`% bringup -A on`

Note: You can only bring up one domain at a time for the platform.

10. For the first domain you bring up, the system will ask you to confirm the following statement:

This bringup will configure the Centerplane. Please confirm (y/n)?

Respond "y" and press .

11. Start a console session for each domain by entering the following command at the UNIX prompt in each domain's color-coded window:

`% netcon`

Note: You can end your netcon session at any time by entering a tilde (~) followed by a period (.).

12. Optionally, you can open another window on the SSP console to start a user session for a domain. To log in to a domain using this method, enter either the telnet or rlogin command using the operating system operator account:

`% telnet domain_name`

or

`% rlogin -l operator domain_name`

Note The following step is only applicable to installations with IBM (or IBM-compatible) hosts and ESCON connectivity.

13. After StorHouse is powered up, enter the following MVS system command at each host IBM (or compatible) mainframe to vary the MVS I/O paths to StorHouse online:

V PATH(yyy-zzz,chpid),ONLINE

In this command, yyy-zzz is a range of device numbers (yyy=first device number and zzz=last device number) and chpid=channel path identification.

▼ **To power up one or more domains on the E10000 platform**

1. Power up all library devices attached to the domain by turning on each device's power switch. Refer to Appendix B, "Library Devices and Media" for information about the location of this switch for each model library device.

2. Position the cursor in the console window of the domain you want to use.

Note: Be sure the command prompt includes the name of the domain. If it does not, select the domain by entering:

% domain_switch *domain_name*

3. Power on system boards in the domain by entering the following command in the domain's window:

% power -on

4. Bring up and boot the domain you want to use by entering the following command in the domain's window:

% bringup -A on

5. If this is the first domain you bring up, the system will ask you to confirm the following statement:

This bringup will configure the Centerplane. Please confirm (y/n)?

Respond "y" and press .

6. To start a console session for the domain, enter the following command at the UNIX prompt in the domain's color-coded window:

% netcon

Note: You can end your netcon session at any time by entering a tilde (~) followed by a period (.).

7. Optionally, you can open another window on the SSP console to start a user session for a domain. To log in to a domain using this method, enter either the telnet or rlogin command using the operating system operator account:

% telnet *domain_name*

or

% rlogin -l operator *domain_name*

Starting the StorHouse Server Operating System and StorHouse Software

Once the StorHouse hardware is powered on and you boot the domain running StorHouse, the StorHouse server operating system starts automatically. During start-up, the StorHouse server executes system start-up procedures and any site-specific system start-up commands. Then it initializes operating system log files and the date and time, and starts the network software. Finally, the StorHouse software starts automatically.

A successful StorHouse server and software start-up displays the hostname login prompt and the following message on the console terminal:


StorHouse start-up complete.

If the StorHouse operating system software does not start automatically, contact your FileTek customer support representative. If the StorHouse operating system software comes up but the StorHouse software does not start automatically, follow the manual start-up procedure below.

Manually Starting the StorHouse Software

Normally the StorHouse software starts up automatically on power-up. However, on occasion you may need to start the StorHouse software manually.

▼ To start the StorHouse software manually

1. Log in to the StorHouse server.
2. At the hostname.1> StorHouse system prompt on the StorHouse console, type the following command and press **Enter** :

```
startsm
```

StorHouse generates a series of console messages during start-up. The last message notifies you that start-up is complete:

StorHouse start-up complete.

Logging In to and Out of the StorHouse Server Operating System

Once the StorHouse server is up and running, you can log in to it from the console terminal using the server operating system operator account.

▼ To log in to the StorHouse server operating system

1. If necessary, press **Enter** to re-establish the login prompt on the console terminal screen. The system responds with:

hostname login:

2. Type operator and press **Enter**.

The system then requests the account password.

Password:

3. Type the operator account password and press **Enter**. The system administrator is responsible for determining operating system account passwords. The password does not display on the screen.

If your login is successful, you receive the StorHouse server operating system prompt in the format:


hostname.command_number>

The pound sign (#) indicates that the login account is defined as a super-user. For normal users, the greater than symbol (>) replaces the pound sign in the system prompt. (The operator account is a normal user account.) In this section, the hostname used in sample system prompts is hostname, and the command_number is 1 (hostname.1>). Once you receive the system prompt, you can enter StorHouse server operating system commands. A sample login is shown in Figure 4-2.

```
hostname login: operator
Password:<password does not display>
<Last login, operating system, a welcome message, and
disclaimers display.>
Thu Apr  8 08:47:19 EST 1999
hostname.1>
```

Figure 4-2: Sample Login Screen for StorHouse Servers (E10000)

▼ **To log out of the StorHouse server operating system**


At the hostname.1> StorHouse system prompt on the StorHouse console, type the following command and press **Enter** :

logout

Signing On and Off the StorHouse Software

Once the StorHouse software is operational and you are logged in to the StorHouse server operating system or a host, you can sign on to StorHouse. Refer to the *Command Language Reference Manual* for information about how to sign on to StorHouse from different types of hosts.

▼ **To sign on to StorHouse from the StorHouse server operating system**

1. At the hostname.1> StorHouse system prompt on the StorHouse console, type the following command and press **Enter** :

sm

The interface prompts you to type an account identification code (aid).

2. At the Account? prompt, type an account identification code and press **Enter**.

The interface prompts you for a password:

3. At the Password? prompt, type your password and press **Enter**.

The interface does not display the password when you type it. This password may differ from the password that you entered when you logged in to the StorHouse server.

The system verifies the account and password and then gives you the StorHouse prompt (?). You can now enter StorHouse Command Language commands.

▼ **To sign off StorHouse**

At the ? prompt, type the following command and press **Enter**:

signoff

The hostname.1> prompt appears.

Shutting Down the StorHouse Software

To shut down the StorHouse system, you must first shut down the StorHouse software and then shut down the StorHouse server operating system.

▼ **To shut down the StorHouse software**

At the hostname.1> StorHouse system prompt on the StorHouse console, type the following command and press **Enter**:

stopsm

You will not receive the system prompt again until this shutdown process completes, which takes a few minutes.

Shutting Down the StorHouse Server Operating System

To shut down the StorHouse server operating system, follow the instructions in the appropriate vendor documentation.

This process takes a few minutes to complete.

Powering Down the E10000

This section provides four system power-down procedures. The first two procedures apply to installations with direct connect IBM (or compatible) hosts. The last two procedures are for installations that do not have direct connect IBM (or compatible) hosts.

Powering Down the E10000 for Installations with Direct Connect IBM (or Compatible) Hosts

To power down the system at installations with direct connect IBM (or compatible) hosts, you must first perform a series of steps at each host mainframe and then perform a series of steps at the StorHouse console. This section presents two procedures: one for an entire E10000 platform and one for a single domain on the platform.

▼ **To power down an entire E10000 platform with direct connect (or compatible) IBM hosts**

1. Perform the following steps at each host mainframe that communicates with the StorHouse system you want to power down:
 - a. Shut down the StorHouse host subsystem using either the MVS STOP command or the StorHouse host subsystem operator command, SHUTDOWN. The STOP and SHUTDOWN commands are described in the *Host Software Installation and Operations Guide*.

Enter the MVS STOP command as follows, where xxx is the SM subsystem name:

P xxx

You may need to repeat this command several times. Wait one minute between tries.

When the StorHouse host subsystem is down, the system displays the following message:

xxx ENDED

- b. If step 1.a. fails to shut down the StorHouse host subsystem, enter the MVS CANCEL command as follows:

C xxx

- c. Enter the MVS DISPLAY ACTIVE command to verify that the StorHouse host subsystem is down, as follows:

D A,xxx

If the StorHouse host subsystem is down, the system displays the following message:

xxx NOT FOUND

- d. Enter the following pair of MVS system commands to vary devices and paths offline for each channel path (chpid) connected to the StorHouse system:

```
V yyy-zzz,OFFLINE  
V PATH(yyy-zzz,chpid),OFFLINE
```

In this command, yyy-zzz is a range of device numbers (yyy=first device number and zzz=last device number) and chpid=channel path identification.

2. Perform the following steps at the StorHouse console:
 - a. Shut down the StorHouse software using the StorHouse Command Language SHUTDOWN command as described on page 7-5 or the stopsm command as described on page 4-10. If you enter SHUTDOWN, you must be at the command prompt (?). If you enter stopsm, you must be at the system prompt (hostname.1>).
 - b. Shut down the StorHouse server operating system as described on page 4-10.

Note: If you are powering down more than one E10000 domains running StorHouse software, repeat steps 2a and b for each domain you want to power down.

3. Power off the centerplane and all system boards in the platform by entering the following command in the SSP console window:

```
% power -off -all
```

4. Shut down UNIX at the SSP console window.
5. Turn off processor cabinet and SSP circuit breakers.
6. Turn off all library device POWER switches. Refer to Appendix B, "Library Devices and Media" for the location of this switch on each library device.

▼ **To power down one or more domains on the E10000 platform with direct connect IBM hosts**

1. Perform the following steps at each host mainframe that communicates with a StorHouse system you want to power down:
 - a. Shut down the StorHouse host subsystem using either the MVS STOP command or the StorHouse host subsystem operator command, SHUTDOWN. The STOP and SHUTDOWN commands are described in the *Host Software Installation and Operations Guide*.

Enter the MVS STOP command as follows, where xxx is the SM subsystem name:

P xxx

You may need to repeat this command several times. Wait one minute between tries.

When the StorHouse host subsystem is down, the system displays the following message:

xxx ENDED

- b. If step 1.a. fails to shut down the StorHouse host subsystem, enter the MVS CANCEL command as follows:

C xxx

- c. Enter the MVS DISPLAY ACTIVE command to verify that the StorHouse host subsystem is down, as follows:

D A,xxx

If the StorHouse host subsystem is down, the system displays the following message:

xxx NOT FOUND

- d. Enter the following pair of MVS system commands to vary devices and paths offline for each channel path (chpid) connected to the StorHouse system:

V yyy-zzz,OFFLINE
V PATH(yyy-zzz,chpid),OFFLINE

In this command, yyy-zzz is a range of device numbers (yyy=first device number and zzz=last device number) and chpid=channel path identification.

2. Perform the following steps at the StorHouse console:
 - a. Shut down the StorHouse software using the StorHouse Command Language SHUTDOWN command as described on page 7-5 or the stopsm command as described on page 4-10. If you enter SHUTDOWN, you must be at the command prompt (?). If you enter stopsm, you must be at the system prompt (hostname.1>).
 - b. Shut down the StorHouse server operating system as described on page 4-10.

Note: If you are powering down more than one E10000 domain running StorHouse software, repeat steps 2a and b for each domain you want to power down.

3. Position the cursor in the domain console window on the SSP.
4. If netcon is still running, enter a tilde (~) followed by a period (.) to terminate the netcon console session to the domain. If netcon is not running, proceed to Step 5.
5. Verify that the command prompt contains the name of the domain you want to power down. If it does not, verify that your cursor is positioned in the correct window, or enter the following command to switch to the desired domain:

`% domain_switch domain_name`

6. Power off the system boards in the domain by entering:

`% power -off`
7. Turn off all library device POWER switches for libraries attached to the domain. Refer to Appendix B, "Library Devices and Media" for the location of this switch on each library device.

Powering Down the E10000 for Non-IBM Hosts

This section explains how to power down the E10000 platform at installations that do not have direct connect IBM hosts. This section presents two procedures: one for an entire E10000 platform and one for a single domain on the platform.

▼ To power down an entire E10000 platform that does not have a direct connect IBM host

1. At the StorHouse console:
 - a. Shut down the StorHouse software using the Command Language SHUTDOWN command as described on page 7-5 or the stopsm command as described on page 4-10. If you enter SHUTDOWN, you must be at the

command prompt (?). If you enter stopsm, you must be at the system prompt (hostname.1>).

- b. Shut down the StorHouse server operating system as described on page 4-10.

Note: If you are powering down more than one E10000 domains running StorHouse software, repeat steps 1a and b for each domain you want to power down.

2. Power off the centerplane and all system boards in the platform by entering the following command in the SSP console window:

```
% power -off -all
```

3. Shut down UNIX at the SSP console window.
4. Turn off processor cabinet and SSP circuit breakers.
5. Turn off all library device POWER switches. Refer to Appendix B, "Library Devices and Media" for the location of this switch on each library device.

▼ **To power down one or more domains on an E10000 that does not have a direct connect IBM host**

1. At the StorHouse console:
 - a. Shut down the StorHouse software using the Command Language SHUTDOWN command as described on page 7-5 or the stopsm command as described on page 4-10. If you enter SHUTDOWN, you must be at the command prompt (?). If you enter stopsm, you must be at the system prompt (hostname.1>).
 - b. Shut down the StorHouse server operating system as described on page 4-10.

Note: If you are powering down more than one E10000 domain running StorHouse software, repeat steps 1a and b for each domain you want to power down.

2. Position the cursor in the domain console window on the SSP.
3. If netcon is still running, enter a tilde (~) followed by a period (.) to terminate the netcon console session to the domain. If netcon is not running, proceed to Step 4.
4. Verify that the command prompt contains the name of the domain you want to power down. If it does not, verify that your cursor is positioned in the correct window, or enter the following command to switch to the desired domain:

```
% domain_switch domain_name
```

5. Power off the system boards in the domain by entering:

 % power -off
6. Turn off all library device POWER switches for libraries attached to the domain. Refer to Appendix B, “Library Devices and Media” for the location of this switch on each library device.

HP and All Other Sun Platforms

The HP and other Sun platforms consist of processors, memory, and I/O interfaces on system boards. Each platform runs one copy of the operating system and one StorHouse system. Unlike the E10000, each HP or other Sun (E3500, E4500, E6500) platform is a single StorHouse system.

Powering Up the HP and Other Sun Platforms

This section provides the procedure to power up an HP or other Sun platform.

▼ **To power up an HP or other Sun platform**

1. Power up all library devices by turning on each device's power switch. Refer to Appendix B, “Library Devices and Media” for information about the location of this switch for each model library device.
2. Turn on any expansion cabinets.
3. Turn the processor cabinet on (| switch) to power up the StorHouse server and the peripheral units in the cabinet. This switch also starts the StorHouse software.

See Figures 2-2 through 2-6 for the locations of the power switches for each StorHouse processor model.

Note The following step is only applicable to Sun StorHouse server installations with IBM (or IBM-compatible) hosts and ESCON connectivity.

4. After StorHouse is powered up, enter the following MVS system command at each host IBM (or compatible) mainframe to vary the MVS I/O paths to StorHouse online:

```
V PATH(yyy-zzz,chpid),ONLINE
```

In this command, yyy-zzz is a range of device numbers (yyy=first device number and zzz=last device number) and chpid=channel path identification.

Starting the StorHouse Server Operating System and StorHouse Software

Once the StorHouse hardware is powered on, the StorHouse server operating system starts automatically. During start-up, the StorHouse server executes system start-up procedures and any site-specific system start-up commands. Then it initializes operating system log files and the date and time, and starts the network software. Finally, the StorHouse software starts automatically.

A successful StorHouse server and software start-up displays the hostname login prompt (for Sun) or Console Login (for HP) and the following message on the console terminal:


StorHouse start-up complete.

If the StorHouse operating system software does not start automatically, contact your FileTek customer support representative. If the StorHouse operating system software comes up but the StorHouse software does not start automatically, follow the manual start-up procedure below.

Manually Starting the StorHouse Software

Normally the StorHouse software starts up automatically on power-up. However, on occasion you may need to start the StorHouse software manually.

▼ To start the StorHouse software manually

1. Log in to the StorHouse server.
2. At the hostname.1> StorHouse system prompt on the StorHouse console, type the following command and press **Enter** :

```
startsm
```

StorHouse generates a series of console messages during start-up. The last message notifies you that start-up is complete:

StorHouse start-up complete.

Logging In to and Out of the StorHouse Server Operating System

Once the StorHouse server is up and running, you can log in to it from the console terminal using the server operating system operator account.

▼ To log in to the StorHouse server operating system

1. If necessary, press **Enter** to re-establish the login prompt on the console terminal screen. The system responds with:

```
hostname login: (for Sun)
or
Console Login: (for HP)
```

2. Type operator and press **Enter**.

The system then requests the account password.

Password:

3. Type the operator account password and press **Enter**. The system administrator is responsible for determining operating system account passwords. The password does not display on the screen.

If your login is successful, you receive the StorHouse server operating system prompt in the format:

```
hostname.command_number>
```

The greater than symbol (>) in the system prompt represents a normal user account. (The operator account is a normal user account.) In this section, the hostname used in sample system prompts is hostname, and the command_number is 1 (hostname.1>). Once you receive the system prompt, you can enter StorHouse server operating system commands. Sample logins are shown in Figure 4-3 and Figure 4-4.


```
hostname login: operator
Password: <password does not display>
<The last login date and time, operating system, welcome
message, and disclaimers display>.
Thu Apr  8 12:32:50 EST 1999
hostname.1>
```


Figure 4-3: Sample Sun Login Screen for StorHouse E3500, E4500, and E6500 Servers

Figure 4-4 shows a sample HP login.

```
Console Login: operator
Password: <password does not display>
<The operating system, welcome message, and disclaimers
display>.
Thu Apr  8 12:32:50 EST 1999
hostname.1>
```

Figure 4-4: Sample HP Login Screen for StorHouse HP Servers

▼ **To log out of the StorHouse server operating system**


At the hostname.1> StorHouse system prompt on the StorHouse console, type the following command and press **Enter** :

logout

Signing On and Off the StorHouse Software


Once the StorHouse software is operational and you are logged in to the StorHouse server operating system or a host, you can sign on to StorHouse. Refer to the *Command Language Reference Manual* for information about how to sign on to StorHouse from different types of hosts.

▼ **To sign on to StorHouse from the StorHouse server operating system**


1. At the hostname.1> StorHouse system prompt on the StorHouse console, type the following command and press **Enter** :

sm

The interface prompts you to type an account identification code (aid).

2. At the Account? prompt, type an account identification code and press **Enter** .


The interface prompts you for a password:

3. At the Password? prompt, type your password and press **Enter** .

The interface does not display the password when you type it. This password may differ from the password that you entered when you logged in to the StorHouse server.

The system verifies the account and password and then gives you the StorHouse prompt (?). You can now enter StorHouse Command Language commands.

▼ **To sign off StorHouse**

At the ? prompt, type the following command and press **Enter** .


signoff

The hostname.1> prompt appears.

Shutting Down the StorHouse Software

To shut down the StorHouse system, you must first shut down the StorHouse software and then shut down the StorHouse server operating system.

▼ **To shut down the StorHouse software**

At the hostname.1> StorHouse system prompt on the StorHouse console, type the following command and press **Enter** .

stopsm

You will not receive the system prompt again until this shutdown process completes, which takes a few minutes.

Shutting Down the StorHouse Server Operating System

To shut down the StorHouse server operating system, follow the instructions in the appropriate vendor documentation.

This process takes a few minutes to complete.

Powering Down the HP and Other Sun Platforms

This section provides two system power-down procedures. The first procedure is applicable to installations with direct connect IBM (or compatible) hosts. The second procedure is for installations with other types of hosts.

Powering Down Other Sun Platform for Installations with Direct Connect IBM (or Compatible) Hosts

To power down the systems at Sun StorHouse server installations with direct connect IBM (or compatible) hosts, you must first perform a series of steps at each host mainframe and then perform a series of steps at the StorHouse console.

▼ **To power down Sun StorHouse systems with direct connect IBM (or compatible) hosts**

1. Perform the following steps at each host mainframe that communicates with a StorHouse system you want to power down:
 - a. Shut down the StorHouse host subsystem using either the MVS STOP command or the StorHouse host subsystem operator command, SHUTDOWN. The STOP and SHUTDOWN commands are described in the *Host Software Installation and Operations Guide*.

Enter the MVS STOP command as follows, where xxx is the SM subsystem name:

P xxx

You may need to repeat this command several times. Wait one minute between tries.

When the StorHouse host subsystem is down, the system displays the following message:

xxx ENDED

- b. If step 1.a. fails to shut down the StorHouse host subsystem, enter the MVS CANCEL command as follows:

C xxx

- c. Enter the MVS DISPLAY ACTIVE command to verify that the StorHouse host subsystem is down, as follows:

D A,xxx

If the StorHouse host subsystem is down, the system displays the following message:

xxx NOT FOUND

- d. Enter the following pair of MVS system commands to vary devices and paths offline for each channel path (chpid) connected to the StorHouse system:

V yyy-zzz,OFFLINE
V PATH(yyy-zzz,chpid),OFFLINE

In this command, yyy-zzz is a range of device numbers (yyy=first device number and zzz=last device number) and chpid=channel path identification.

2. Perform the following steps at the StorHouse console:
 - a. Shut down the StorHouse software using the StorHouse Command Language SHUTDOWN command as described on page 7-5 or the stopsm command as described on page 4-20. If you enter SHUTDOWN, you must be at the command prompt (?). If you enter stopsm, you must be at the system prompt (hostname.1>).
 - b. Shut down the StorHouse server operating system as described on page 4-21.
3. Perform the following steps to complete the power down:
 - a. Turn the processor cabinet off (0 or ⏻ switch).
 - b. Turn off all library device POWER switches. Refer to Appendix B, "Library Devices and Media" for the location of this switch on each library device.

Powering Down the HP or Other Sun Platform for All Other Installations

This procedure explains how to power down the systems at installations that do not have direct connect IBM hosts.

▼ To power down systems that do not have direct connect IBM hosts

1. At the StorHouse console:
 - a. Shut down the StorHouse software using the Command Language SHUTDOWN command as described on page 7-5 or the stopsm command as described on page 4-20. If you enter SHUTDOWN, you must be at the command prompt (?). If you enter stopsm, you must be at the system prompt (hostname.1>).
 - b. Shut down the StorHouse server operating system as described on page 4-21.
2. Perform the following steps to complete the power down:
 - a. Turn the processor cabinet off (0 or ⏻ switch).
 - b. Turn off all library device POWER switches. Refer to Appendix B, “Library Devices and Media” for the location of this switch on each type of library device.

StorHouse Recovery

After a hardware or a software failure, you may need to perform recovery procedures for StorHouse. StorHouse sends you a console informational message whenever a recovery (other than normal recovery) is necessary.

Normal Recovery

A *normal recovery* occurs when the StorHouse system goes down in an uncontrolled manner but no directory information is lost. In such a case, StorHouse will automatically restart and recover on its own.

If the software experiences a failure while a system file is being updated, StorHouse attempts to log an error message and display it at the system console before shutting down. You must restart the StorHouse system to initiate recovery. If the corrupted system file has a shadow copy, StorHouse uses the shadow copy to recover during the next startup. If there is no shadow copy or StorHouse is unable to recover, it attempts to log an error message and display it at the system console again before shutting down. Should this occur, ask your system administrator to call your FileTek customer

support representative for assistance. If you have the Call Home error reporting facility enabled, StorHouse will automatically attempt to activate Call Home.

Directory Recovery from Physical Volumes

Directory recovery from physical volumes (a type of extended recovery) may be necessary if both the primary and shadowed copies of a required system file become corrupted, and the file cannot be recovered during normal recovery. Ask your system administrator to contact your FileTek customer support representative, who will perform the recovery. During directory recovery from physical volumes, all user accounts, directory information, and user files may be deleted from magnetic disk.

StorHouse displays the following message on the StorHouse console notifying the FileTek customer support representative that directory recovery may be necessary:

```
XROINFO, Lxx, LIBRARY RECOVERY REQUIRED FOR n VOLUME(S)
```

Working with Devices

StorHouse provides four Command Language commands that help you control device activity and requests:

- DOWN DEVICE
- SET DEVICE
- SHOW DEVICE
- UP DEVICE.

Taking Down a StorHouse Device

DOWN DEVICE completes the current activity on a device and makes it unavailable for any additional activity. The system will not use the device until you bring it up again with the UP DEVICE command. StorHouse notifies you of the change in device status with an operator message.

The following rules apply when executing DOWN DEVICE:


- You cannot use wild cards in the device specification.
- You must include the level and unit_number in the device identifier.
- To down a subunit, specify the device, unit_number, subunit_type, and subunit_number.
- If you down a unit with subunits, such as a library device with an accessor and drives, all component subunits will effectively be down.
- To prevent volumes from being moved into or out of a library device, down the exchange station.

- To prevent volume read/write/verify/label operations, down all drives.
- If you down all of level L, the system will reject all user requests to level L.

You can use two modifiers with the DOWN DEVICE command: /CONFIRM and /REPORT. /CONFIRM controls whether StorHouse asks you to confirm the command. /REPORT controls the generation of special text responses for the completion of significant actions.

You must have OPERATOR privilege to use DOWN DEVICE.

▼ To take down a StorHouse device

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press :

DOWN DEVICE did

where did is the device identification code of the device you want to take down. Some examples follow:

- To take down library device L00 and effectively all its subunits after StorHouse completes current processing on library L00, enter:

? DOWN DEVICE L00

- To take down drive 00 in library device L00, enter:

? DOWN DEVICE L00D00

If a volume is in the drive, the system will complete the operation for the volume in the drive, dismount the volume, and store the volume in a library slot or move it to another drive.

Changing the Device Mode for a Drive

SET DEVICE changes the device mode for a magnetic disk drive or a library device drive. There is only one mode for library device drives: read-only. You can set the specified drive to read-only mode or clear the read-only mode for the drive. You must have OPERATOR privilege to use the SET DEVICE command.

The following table defines the modifiers you can use with SET DEVICE:

Modifier	Description
/CONFIRM	Controls whether StorHouse asks you to confirm the command.
/READ_ONLY	Changes the mode of a drive. /READ_ONLY instructs StorHouse to set the drive to read_only. /NOREAD_ONLY instructs StorHouse to clear the read_only mode for the specified drive.
/REPORT	Controls the generation of special text responses for the completion of significant actions.

▼ To change the mode for a StorHouse magnetic disk or library device drive

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press **Enter** (↵):

SET DEVICE did

where did is the device identification code of the device you want to set. Some examples follow:

- To set drive L00D01 to read-only mode, enter:
? SET DEVICE L00D01 /READ_ONLY
- To clear the read-only mode for drive L00D01, enter:
? SET DEVICE L00D01 /NOREAD_ONLY
- To set drive F00 to read-only mode, enter:
? SET DEVICE F00 /READ_ONLY

Displaying the Status of a StorHouse Device

SHOW DEVICE displays the device status and, if applicable, mode and supported media of a StorHouse device.

Table 5-1: Device Statuses and Modes

Item	Description
A device status can be:	
UP	Available for use.
DOWN	Not available for use.
GOING_DOWN	Device is completing the current work, but StorHouse will assign no additional work to it. The status changes to DOWN when the current work completes.
COMING_UP	StorHouse is preparing the device for operation. The status changes to UP when the device is available for use.
A device mode can be:	
ALLOCATED	Device is allocated. (This mode is reserved for use by FileTek.)
READ_ONLY	Device is accessible for reading only.
INITIALIZING	Device is being initialized (using the INITIALIZE DEVICE command).
INITIALIZED	Device initialization is complete.
MAINTENANCE	FileTek has taken the device down for maintenance.

If none of the modes apply to the specified device, the command does not display mode information. If one or more modes apply to a device, the command displays the information as follows:

MODES=(mode, ...)

If the device supports specific kinds of media, the command displays the supported media as follows:

MEDIA=(mmr:rw, mmr:rw,...)


where each mmr indicates a supported media type (mm) and recording type (r), and rw can be:

- R if the device can only read the medium;
- W if the device can only write to the medium;
- RW if the device can read and write to the medium.

If a library device is DOWN, all of its subunits are considered to be DOWN.

You must have SHOW or OPERATOR privilege to use SHOW DEVICE.

▼ **To display the status for a StorHouse device**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press :

SHOW DEVICE did

where did is the device identification code of the device you want to display. Some examples follow.

- To display the status of library device L00, enter:

? SHOW DEVICE L00

The system displays a response like the following:

DEVICE=L00 STATUS=UP

- To display the status and supported media of drive 00 in library device L00, enter:

? SHOW DEVICE L00D00

The system displays a response like the following:

DEVICE=L00D00 STATUS=UP MEDIA=(OEA:R,OEB:RW)

Bringing Up a StorHouse Device

UP DEVICE initializes a device for use by the system. StorHouse notifies you of the change in device status with an operator message.


The following rules apply when executing UP DEVICE:

- You cannot use wild cards in the device specification.
- You must include the level and unit_number in the specification.
- To bring up a subunit, specify the device, unit_number, subunit_type, and subunit_number.
- If you bring up a unit with subunits, such as a library device with an accessor and two drives, the component subunits become accessible when the unit becomes accessible. However, if you take the subunits down independently from the entire device, you must bring them up separately.

You can use two modifiers with the UP DEVICE command: /CONFIRM and /REPORT. /CONFIRM controls whether StorHouse asks you to confirm the command. /REPORT controls the generation of special text responses for the completion of significant actions.

You must have OPERATOR privilege to use UP DEVICE.

▼ **To bring up a StorHouse device**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press :

UP DEVICE did

where did is the device identification code of the device you want to bring up. Some examples follow:

- To bring up library device L00 and all its subunits (assuming the subunits were not brought down individually), enter:

? UP DEVICE L00

- To bring up drive 00 in library device L00, enter:

? UP DEVICE L00D00

Working with Volumes and Volume Sets

As an operator, you can submit the following Command Language commands to manage volumes and volume sets:

- MOVE VOLUME
- MOVE VSET
- SET VOLUME
- SHOW VOLUME.

Moving Volumes

MOVE VOLUME lets you move volumes between library devices or between library devices and shelf storage. Each library device has a corresponding shelf storage. For example, the shelf storage for library device L00 is S00. The shelf storage for L01 is S01. If you do not specify a unit number for the destination device in the command when moving volumes or volume sets between library devices and shelf devices, StorHouse matches the unit number of the volume's current device to the unit number of the destination device.

The MOVE VOLUME command requires that you specify a volume identification code (vid) for the volume being moved and a device identification code (did) for the destination device. (You can specify wild cards in the vid parameter.)

Optionally, you can add or update a memo for a volume. The information you specify on the /MEMO parameter modifier is written to the StorHouse system files, but is not written to the optical or tape volume. The memo text also displays in selected operator messages.

The following table defines the modifiers you can use with MOVE VOLUME:

Modifier	Description
/CONFIRM	Controls whether StorHouse asks you to confirm the command.
/DIRECTORY=...	Specifies the directory from which volumes are to be selected.
/DUPLEXED	Selects a volume if every file extent on the volume has a duplex copy and the duplex copy is on a volume that does not have a disabled side.
/FIRST_ALLOCATION=...	Specifies the time period from which volumes are to be selected, based on their first allocation dates. For two-sided volumes, the first allocation dates for both sides must be within the time period.
/LAST_ALLOCATION=...	Specifies the time period from which volumes are to be selected, based on their last allocation dates. For two-sided volumes, the last allocation dates for both sides must be within the time period.
/LOCATION=...	Specifies the location (that is, the source device) from which volumes are to be selected.
/MEMO=...	Specifies up to 32 characters of descriptive text to be added to the StorHouse system files for each volume being moved.
/NEEDS_CLEANING	Selects volumes that need cleaning.
/REPORT	Controls the generation of special text responses for the completion of significant actions.
/UNUSED=...	Selects volumes that have no more than a specified percentage or amount of their writable space remaining. For two-sided volumes, the unused space for each side must be within the percentage or amount.
/VSET=...	Specifies the volume set from which volumes are to be selected.
/WRITELOCK	Indicates that the command will writelock each volume selected to be moved.

/DIRECTORY and /VSET are mutually exclusive modifiers.

You must have OPERATOR privilege to use this command. FileTek recommends that you use the SCHEDULE command with MOVE VOLUME. Commands that generate operator messages like MOVE VOLUME tie up your user session until the operator responds to volume load and unload requests. In contrast, when you schedule these commands, the SCHEDULE command starts a separate user session for command execution and operator response. This way, your terminal remains open so that you can continue working. See the *Command Language Reference Manual* for more information on the SCHEDULE command.

▼ **To move a StorHouse volume from one location to another**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command to move a StorHouse volume and press **Enter** (↵):

MOVE VOLUME vid did modifiers

where vid is the unique volume identifier, did is the device identification code for the destination device, and modifiers are other command and parameter modifiers you use to assign values other than the defaults. Some examples follow.

- To move volume OAD27529BC5 from library device L00 to shelf storage, enter:

? MOVE VOLUME OAD27529BC5 S
- To move all volumes that need cleaning to shelf storage, enter:

? MOVE VOLUME * S /LOCATION=L /NEEDS_CLEANING
- To add the memo “Rack 3 Slot 10” (or change the existing memo to this memo) to designate the location for volume OAD12C68147 while moving it to level S, type:

? MOVE VOLUME OAD12C68147 S /MEMO=“Rack 3 Slot 10”

Moving Volume Sets

MOVE VSET lets you move a StorHouse volume set between library devices or between a library device and shelf storage. This command moves all the volumes in a volume set to a location you specify within the StorHouse system and updates the last access time for the volumes that you move.

StorHouse moves volumes individually when you move a volume set between library devices. The operator receives two messages for each volume: first, to unload the volume from the source library, and then to load the volume into the destination library. If any volumes are already located in the destination library, StorHouse responds as if it has moved them successfully. (If you move a volume set to shelf, the operator receives only the first message to unload the volumes. If the volume is on shelf and you move it to a library, the operator receives only the second message.)


When you move a StorHouse volume set, you must specify the name of the volume set and a device identification code (did) for the destination device. Optionally, you can add or update a memo for the volume set.

The following table defines the modifiers you can use with MOVE VSET:

Modifier	Description
/CONFIRM	Controls whether StorHouse asks you to confirm the command.
/MEMO=...	Specifies up to 32 characters of descriptive text to be added to the StorHouse system files for each volume in the volume set.
/REPORT	Controls the generation of special text responses for the completion of significant actions.

You must have OPERATOR privilege to use this command. FileTek recommends that you use the SCHEDULE command with MOVE VSET. See the *Command Language Reference Manual* for more information on the SCHEDULE command.

▼ **To move a StorHouse volume set from one location to another**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press :

MOVE VSET vset_name did modifiers

where vset_name is the volume set name, did is the device identification code for the destination device, and modifiers are other command and parameter modifiers you use to assign values other than the defaults. Below are some examples.

Note: The following MOVE VSET command examples assume that the specified volume set resides in library device L00.

- To move all volumes in the volume set ACCTS00 from their current location(s) to library device L01, enter:

? MOVE VSET ACCTS00 L01
- To move all volumes in the volume set ACCTS00 to level S (device S00) and attach the memo “Rack 4” to designate the volume set’s new location, enter:

? MOVE VSET ACCTS00 S /MEMO=“Rack 4”

Modifying Volume Attributes

You can use the SET VOLUME command to change the attributes or other values for a StorHouse volume. Attributes include the following:

- CYCLE, DEACTIVATE, and EXPIRE – Setting for a volume's cycle, deactivate, and expire timers
- HOLD – Value of the HOLD attribute for the volume.

You can also use SET VOLUME to:

- Specify that a volume side(s) has been cleaned
- Change the memo for a volume
- Disable or enable a volume
- Writelock or unwritelock a volume.

You can also specify a directory or volume set from which volumes are selected. All changes take effect immediately.

The following table defines the modifiers you can use with SET VOLUME:

Modifier	Description
/CLEANED	Specifies that an optical volume side has been cleaned.
/CONFIRM	Controls whether StorHouse asks you to confirm the command.
/CYCLE=...	Specifies a number of days after the last allocation of file space on the first side of a volume that the system will deactivate that side and activate the second side of the volume.
/DEACTIVATE=...	Specifies a number of days after the first allocation of file space on a volume side that the system will deactivate the side; that is, the system will no longer allocate space for files on that side.
/DIRECTORY=...	Indicates that the command will consider for selection only volumes in the specified directory.
/DISABLE	Sets the status of the specified volume side to DISABLED, which prevents the system from selecting it for normal read and write operations.
/ENABLE	Removes the DISABLED status for the specified volume side, which allows the system to select it for normal read and write operations.
/EXPIRE=...	Specifies the number of days after the last allocation of file space on a volume side that the system will mark the side as deactivated and expired.
/HOLD	Specifies the volume's HOLD attribute value. /HOLD sets the value to HOLD; /NOHOLD sets the value to NOHOLD.
/MEMO=...	Specifies up to 32 characters of descriptive text to replace the current memo text, if any.

Modifier	Description
/REPORT	Controls the generation of special text responses for the completion of significant actions.
/UNWRITELOCK	Removes the WRITELOCKED status for the specified volume side, which allows the system to select it for write operations.
/VSET=...	Indicates that the command will select only volumes in the specified volume set.
/WRITELOCK	Sets the status of the specified volume side to WRITELOCKED, which prevents the system from writing additional files to the volume.

The vid parameter is required. You do not need any privileges to use the SET VOLUME command; however, you need privileges to use the following command modifiers:

- OPERATOR privilege for /CLEANED, /DISABLE, /ENABLE, /UNWRITELOCK, and /WRITELOCK
- ALLOCATION privilege for /CYCLE, /DEACTIVATE, /EXPIRE, and /HOLD.

You can schedule the SET VOLUME command.

▼ **To change or set attributes or other values for a StorHouse volume**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press **Enter** (↵):

SET VOLUME vid modifiers

where vid is the name of the volume to be changed and modifiers are other command and parameter modifiers you use to assign values other than the defaults. Some examples follow:

- To change the CYCLE attribute of volume OAD2345C123 to 10 days, at which time StorHouse will deactivate side A and activate side B, enter:

```
? SET VOLUME OAD2345C123:A /CYCLE=10
```

If volume OAD2345C123 has already cycled, this command reactivates side A and makes side B unavailable for use until 10 days (the new cycle time) have elapsed.

- To change the CYCLE attribute of volume OAD2345C123 to 0, which means that StorHouse does not deactivate the second side when a volume is added to a volume set, enter:

```
? SET VOLUME OAD2345C123:A /CYCLE=0
```

- To change the HOLD attribute of volume OAD2345C123 to NOHOLD, enter:

```
? SET VOLUME OAD2345C123:A /NOHOLD
```

- To add the memo “Rack 3 Slot 10” (or change the existing memo to this memo) to designate the location for optical volume OAD2345C123, enter:

```
? SET VOLUME OAD2345C123:A /MEMO=“Rack 3 Slot 10”
```

Disabling Volumes

A *disabled* volume is a volume that you or the system administrator marked as disabled using the SET VOLUME /DISABLE command, or that StorHouse automatically disabled due to media errors. You might manually disable a volume because it is broken, unreadable, or misplaced. Should you find a misplaced volume that you disabled, you can enable it again using the SET VOLUME /ENABLE command.

StorHouse disables one side of a volume at a time. To disable a two-sided volume, enter an asterisk (*) for the volume side in the vid in the SET VOLUME /DISABLE command. If you specify a wild card for the entire vid parameter, you must also specify /DIRECTORY or /VSET. However, if you specify a wild card for the volume side portion of the vid parameter only, you do not need to specify /DIRECTORY or /VSET. Or, you can issue the command twice (once for each volume side).

▼ To disable a StorHouse volume

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press Enter ↵:

```
SET VOLUME vid /DISABLE
```

where vid is the volume identification code of the volume(s) to be disabled. Some examples follow:

- To disable the one-sided tape volume TBB1234A1, type:

```
? SET VOLUME TBB1234A1:A /DISABLE
```

- To disable both sides of the two-sided optical volume OAD2345C123, type:
`? SET VOLUME OAD2345C123:* /DISABLE`
- To disable side B of the two-sided optical volume OAD2345C123, type:
`? SET VOLUME OAD2345C123:B /DISABLE`
- To disable all volumes in volume set MAR00, type:
`? SET VOLUME * /DISABLE /VSET=MAR00`

Enabling Volumes

Every StorHouse volume is enabled unless you or the system administrator mark it as *disabled* using the Command Language SET VOLUME /DISABLE command, or StorHouse automatically disables it due to media errors. You can enable a disabled volume using the SET VOLUME /ENABLE command.

▼ To enable a disabled volume

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press Enter ↵:

```
SET VOLUME vid /ENABLE
```

where *vid* is the volume identification code of the volume to be enabled. An example follows:

- To enable all volumes in volume set MAR00, type:
`? SET VOLUME * /ENABLE /VSET=MAR00`

Writelocking Volumes

You can use the SET VOLUME /WRITELOCK command to manually writelock one or more volume sides. *Writelocking* prevents any more files from being written to the volume side. StorHouse can still read files on a writelocked volume. For example, you can writelock volumes if you want to move partially full volumes offsite and you do not want StorHouse to attempt to write any more information to those volumes.

StorHouse automatically writelocks volume sides that contain excessive media errors. StorHouse also writelocks tape volumes when it encounters the end of a magnetic tape before it was expected. A premature end-of-tape may be caused by an unusually short tape, excessive media errors, or an extremely large number of very small files.

You must have OPERATOR privilege to use SET VOLUME /WRITELOCK. The vid parameter is also required.

▼ **To writelock one or more StorHouse volume sides**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press

```
SET VOLUME vid /WRITELOCK
```

where vid is the unique volume name. Below is an example:

- To writelock tape TBB1234A1:A, enter:

```
? SET VOLUME TBB1234A1:A /WRITELOCK
```

Unwritelocking Volumes

You can use the SET VOLUME /UNWRITELOCK command to unwritelock one or more writelocked volume sides. Once a volume side is unwritelocked, StorHouse can write files to the volume side (if unused space remains).

You must have OPERATOR privilege to use SET VOLUME /UNWRITELOCK. The vid parameter is also required.

▼ **To unwritelock one or more StorHouse volume sides**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press

```
SET VOLUME vid /UNWRITELOCK
```

where vid is the unique volume name. Below is an example:

- To unwritelock tape TBB1234A1:A, enter:

```
? SET VOLUME TBB1234A1:A /UNWRITELOCK
```

Displaying Information on a StorHouse Volume

You can use the SHOW VOLUME command to display information about a StorHouse volume. Using different modifiers, you can display information in several ways:


- A brief display using no modifiers or using the /BRIEF modifier lists the following information:
 - Volume identifier
 - Name of the volume set that contains the volume
 - Number of file extents on the volume side
 - Amount of writable space on the volume side, in 1000-byte units.
- A full display using the /FULL modifier lists all available information for a volume, which includes the information for the brief display plus the following:
 - Directory where the volume resides
 - Library or shelf location for the volume
 - State of the volume side
 - Date and time the state of the volume side was last changed
 - System identifier for the volume
 - Site identifier for the volume
 - Date and time the volume was initialized
 - Date and time the volume was last dismounted
 - Date and time the volume was added to the volume set
 - Date and time the volume was last modified
 - Date and time of the first space allocation on the volume side
 - Date and time of the last space allocation on the volume side
 - Value of the CYCLE attribute for the volume
 - Value of the DEACTIVATE attribute for the volume
 - Value of the EXPIRE attribute for the volume
 - Number of mount/dismount cycles for the volume side
 - Percentage of writable space available on a volume side
 - Number of bytes available for allocation to file sets
 - Number of bytes allocated to file sets for general usage
 - User-specified comment (memo) about the volume
 - Value of the HOLD attribute for the volume.
- A selected display using one or more modifiers (except /BRIEF or /FULL), which displays specific information about the volume.

SHOW VOLUME modifiers determine items of information to be displayed. The following table defines the modifiers you can use with SHOW VOLUME:

Modifier	Selects and/or Displays
/ACTIVE	Volume sides in the ACTIVE state. The volume has active (in-process or queued) requests.
/BRIEF	Volume identifier, name of the volume set that contains the volume, number of file extents on the volume side, and available space on the volume.
/DATE	Dates and times the volume side was initialized and last dismounted.
/DEACTIVATED	Volume sides that are marked deactivated.
/DIRECTORY=...	Volumes in the specified directory.
/DISABLED	Volume sides that are marked disabled.
/ENABLED	Volume sides that are not marked disabled.
/EXPIRED	Volume sides that are marked expired.
/EXTENTS	Number of file extents on the volume side.
/FREE_POOL=...	Volumes in the specified free pool of empty volumes in a library device.
/FULL	All available information for a volume.
/LOCATION=...	Volumes in the specified location.
/MEMO=...	Comment that a user added to the StorHouse system files (with the MOVE VOLUME, SET VOLUME, MOVE VSET, or SET VSET command) or all volumes with a specific comment.
/MOUNTS	Number of mount-dismount cycles for a volume side.
/NEEDS_CLEANING	Volume sides in the NEEDS_CLEANING state.
/PERM_LOCKED	Volume sides in the PERM_LOCKED state.
/PHYSICAL	Physical volumes rather than logical volumes (volume sides).
/RETIRE	Volume sides that should be retired, either because they are in the RETIRE state (media is degraded) or the volume mount count is exceeded.
/SITE_ID	Site identifier recorded in the volume label record on the volume.
/SPACE	Amount of writable space on a volume side.
/STATE	State of the volume side and the date the volume's state was last changed.
/SYSTEM_ID	System identifier recorded in the volume label record on the volume.
/VSET=...	Volumes that make up the specified volume set.
/WRITELOCKED	Volume sides with the writelocked attribute.

You must have SHOW, ALLOCATION, or SYSTEM privilege to use SHOW VOLUME. The vid parameter is required.

▼ **To display information on a StorHouse volume**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press :

SHOW VOLUME vid modifiers

where vid is the name of the volume(s) and modifiers are other parameter modifiers you use to assign values other than the defaults. Below are some examples:

- To display basic information for side A of volume OAD242F38AD, enter:

? SHOW VOLUME OAD242F38AD:A

The system displays the following information:

OAD"242F38AD":A VSET=ACCTS00 EXTENTS=3
WRITABLE_SPACE=10224KB

- To display information for volumes in the free pool in library device 0 for media and recording type OAD, enter:

? SHOW VOLUME */FREE_POOL=L00OAD

The system displays the following information:

OAD"244A351B":A VSET=.L00OAD EXTENTS=0 WRITABLE_SPACE=3504900KB
OAD"244A351B":B VSET=.L00OAD EXTENTS=0 WRITABLE_SPACE=3504900KB

OAD"25684712":A VSET=.L00OAD EXTENTS=0 WRITABLE_SPACE=3504900KB
OAD"25684712":B VSET=.L00OAD EXTENTS=0 WRITABLE_SPACE=3504900KB

OAD"2E3268C1":A VSET=.L00OAD EXTENTS=0 WRITABLE_SPACE=3504900KB
OAD"2E3268C1":B VSET=.L00OAD EXTENTS=0 WRITABLE_SPACE=3504900KB

Total volume sides displayed=6

- To display the number of mount-dismount cycles for side A of volume OAD242F38AD, enter:

? SHOW VOLUME OAD242F38AD:A /NOBRIEF /MOUNTS

The system displays the following information:

OAD"242F38AD":A MOUNTS=0

- To display the memo for the volume OAD242F38AD, enter:

? SHOW VOLUME OAD242F38AD:A /MEMO

The system displays the memo for this volume:

OAD"242F38AD":A VSET=MAR00 EXTENTS=0
WRITABLE_SPACE=10229KB MEMO="Rack 3 Slot 11"

- To list all volumes that have the words "Rack 3" in the memo, enter:

? SHOW VOLUME * /MEMO="*Rack 3"

The system displays the list of volumes:

OAD"2DC11832":A VSET=MAR00 EXTENTS=2559
WRITABLE_SPACE=14302KB MEMO="Rack 3 Slot 11"
OAD"2DC11832":B VSET=MAR00 EXTENTS=1811
WRITABLE_SPACE=37097KB MEMO="Rack 3 Slot 11"

OAD"2DE4D5C5":A VSET=MAR00 EXTENTS=1154
WRITABLE_SPACE=34319KB MEMO="Room 2 Rack 3 Slot 14"
OAD"2DE4D5C5":B VSET=MAR00 EXTENTS=1126
WRITABLE_SPACE=34063KB MEMO="Room 2 Rack 3 Slot 14"

Total volume sides displayed=4

- To display all available information for the volumes in volume set ACCTS00, enter:

? SHOW VOLUME * /VSET=ACCTS00 /FULL

The system displays the following information:

OAD"242F38AD":A VSET=ACCTS00 LOCATION=L00
STATE=(INITIALIZED) STATE_CHANGED=28-JAN-2000:08:04:29
SYSTEM_ID=123456 SITE_ID=FILETEK INITIALIZED=01-JAN-
2000:07:48:19 LAST_DISMOUNT=31-JAN-2000:00:00:00
CREATED=01-JAN-2000:07:54:07 MODIFIED=29-JAN-2000:19:07:14
FIRST=01-JAN-2000:07:54:27 LAST=29-JAN-2000:19:03:26 CYCLE=0
DEACTIVATE=0 EXPIRE=0 EXTENTS=3 MOUNTS=2
WRITABLE_SPACE=10224KB GENERAL_FREE=8375KB
GENERAL_ALLOCATED=1854KB MEMO="Rack 3 Slot 11"
HOLD=NOHOLD

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Working with Volumes and Volume Sets

Displaying Information on a StorHouse Volume

```
OAD"242F38AD":B VSET=ACCTS00 LOCATION=L00
STATE=(INITIALIZED) STATE_CHANGED=28-JAN-2000:07:48:23
SYSTEM_ID=123456 SITE_ID=FILETEK INITIALIZED=01-JAN-
2000:07:48:23 LAST_DISMOUNT=28-JAN-2000:08:04:29
CREATED=01-JAN-2000:07:54:08 MODIFIED=28-JAN-2000:07:54:08
FIRST=01-JAN-2000:00:00:00 LAST=31-JAN-2000:00:00:00 CYCLE=0
DEACTIVATE=0 EXPIRE=0 EXTENTS=0 MOUNTS=1
WRITABLE_SPACE=10229KB GENERAL_FREE=10229KB
GENERAL_ALLOCATED=0KB MEMO="Rack 3 Slot 11"
HOLD=NOHOLD
```

Total volume sides displayed=2

- To display all volumes that need to be loaded from shelf to satisfy pending requests, enter:

```
? SHOW VOLUME * /PHYSICAL /NOBRIEF /ACTIVE /LOCATION=S
```

The system displays:

```
OAB"C0000002"
OAB"C0000006"
```

Total physical volumes displayed=2

Working with the System

StorHouse provides the following Command Language commands to help you control and monitor system activity:

- MESSAGE
- MONITOR
- RESERVE SYSTEM
- RUN
- SHUTDOWN.

Sending User Messages


MESSAGE sends a message to a user, the operator at the StorHouse console, or the administration log. In addition, it adds or removes text from the system welcome message.

The following table defines the modifiers you can use with MESSAGE:

Modifier	Description
/BELL	Indicates that the bell on the receiving terminal will ring when the terminal receives the message.
/CANCEL	Instructs the system to remove text from the StorHouse welcome message that was previously added using /SYSTEM.
/LOG	Instructs the system to record the text in the StorHouse administration log.
/OPERATOR	Instructs the system to display the text on the StorHouse operator's console and in the message queue of all console-enabled terminals. /OPERATOR is the default if you do not use another modifier to specify a destination.
/SYSTEM	Instructs the system to replace the text in the StorHouse welcome message.
/UID=...	Specifies the user identification code(s) of the user(s) who will receive the message.

You must have MESSAGE privilege to use the MESSAGE command.

▼ **To send a message to the StorHouse operator console, the administration log, or to another user, or to change the system welcome message**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press :

MESSAGE "text" modifiers

where text is the contents of the message and modifiers are other command modifiers you use to assign values other than the defaults. Some examples follow:

- To replace the system welcome message with the text "StorHouse will be down this weekend," enter:

? MESSAGE /SYSTEM "StorHouse will be down this weekend"

- To delete the text from the welcome message, enter:

? MESSAGE /CANCEL

- To send the message "Shut down the system at 4 pm" to the message queues of all console-enabled terminals and to the user with a uid of 3, sound the bell at terminals receiving the message, and enter the message in the administration log, enter:

? MESSAGE /UID=3 /OPERATOR /LOG /BELL "Shut down the system at 4 pm"

- To send the message "The system will be shut down for 15 minutes at 5 pm today" to all interactive users currently signed on, enter:

? MESSAGE /UID=* "The system will be shut down for 15 minutes at 5 pm today"

Monitoring System Performance

MONITOR lets you monitor system performance. With MONITOR, you can display current system command, drive, library, network, performance, storage, usage, and volume statistics. Times are given in seconds and sizes in 1000-byte units, unless otherwise specified. If you do not specify any modifier on the MONITOR command, performance statistics display by default.

The following table defines the modifiers you can use with the MONITOR command:

Modifier	Description	Default
/ALL	Displays all current statistics.	-
/COMMAND	Displays statistics for commands that have been entered in addition to any other selected statistics. Also displays whether a BACKUP or MIGRATE operation is in progress.	-
/CONTINUOUS=...	Displays continuous updates of statistics.	-
/DRIVE	Displays statistics for each library device drive, in addition to any other selected statistics.	-
/INTERVAL=...	Displays each selected set of statistics for the number of seconds specified by the /INTERVAL modifier.	Displays each set of statistics for 10 seconds
/LIBRARY	Displays statistics for each library device, in addition to any other selected statistics.	-
/NETWORK	Displays network statistics for each active StorHouse network connection, in addition to any other selected statistics.	-
/PERFORMANCE	Displays performance statistics for major commands, such as the GET and PUT commands, in addition to any other selected statistics.	Displays if no other selection modifiers are specified.
/RESET	Initializes the statistics data bases.	-
/STORAGE	Displays storage statistics for levels of storage in addition to any other selected statistics.	-
/USAGE	Displays system usage statistics including CPU usage, library and drive usage, volume usage, and directory usage, in addition to any other selected statistics.	-
/VOLUME	Displays volume-related statistics, in addition to any other selected statistics.	-

You must have SHOW privilege to use the MONITOR command and SYSTEM privilege to use the /RESET modifier.

▼ To display current StorHouse statistics

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press :

MONITOR modifiers

where modifiers are other command modifiers you use to assign values other than the defaults. Some examples follow.

- To display sets of all current StorHouse command, drive, library, network, performance, storage, system usage, and volume statistics, type:

? MONITOR /ALL /INTERVAL=0

- To display system usage statistics, type:

? MONITOR /USAGE

- To display storage statistics for all levels of storage, type:

? MONITOR /STORAGE

Reserving the System for Maintenance

RESERVE SYSTEM reserves the StorHouse system for use by one account, typically for maintenance. StorHouse does not terminate the sessions of users who are already signed on when you execute the command. You can enter an optional text message to send to users who attempt to sign on with another account when the system is reserved.

You can cancel the reservation of the system and allow users of other accounts to sign on using the /CANCEL modifier. As with the RESERVE SYSTEM command, the RESERVE SYSTEM /CANCEL command does not affect the sessions of users who are already signed on.

You must have OPERATOR or SYSTEM privilege to use RESERVE SYSTEM.

▼ To reserve the StorHouse system for your account

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press Enter ↵:


RESERVE SYSTEM <"text">

where text is optional message text. An example follows.

- To reserve the StorHouse system for your account and enter the text message "StorHouse is reserved for maintenance," enter:

? RESERVE SYSTEM "StorHouse is reserved for maintenance"

▼ **To cancel the reservation of the StorHouse system for your account**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press :

RESERVE SYSTEM /CANCEL

Executing StorHouse Procedures

RUN executes procedures that have been installed on StorHouse, usually by FileTek Customer Support. Typical procedures include those that generate and retrieve StorHouse reports or run StorHouse utilities. You can schedule RUN using the SCHEDULE command. You must have SYSTEM or OPERATOR or SERVICE privilege to use the RUN command.

The following table defines the modifiers you can use with the RUN command:

Modifier	Description
procedure	Specifies the name of the procedure you want to run.
parameter	Specifies the parameter(s) for the procedure you want to run.

Contact your FileTek customer support representative for examples on running procedures.

Shutting Down the System

SHUTDOWN shuts down the StorHouse software. As it initiates the shutdown, the command notifies users that the system is shutting down and stops the StorHouse software in a controlled manner.

In a controlled shutdown, StorHouse allows all existing user commands and scheduled events to complete before the shutdown begins. It allows background functions, such as backup and migration functions, to complete their current file transfer or similar activity, but it does not allow them to initiate new activities. It allows users to sign off, but does not allow users (other than the initiator of the SHUTDOWN command) to enter new commands. After all commands and events have completed, the system software performs housekeeping tasks and then stops.

The following table defines the modifiers you can use with SHUTDOWN:

Modifier	Description	Default
/CANCEL	Terminates a delayed shutdown (if you specified /DELAY with a time) that was previously initiated.	-
/CONFIRM	Controls whether StorHouse asks you to confirm the command.	/CONFIRM
/DELAY=...	Specifies the amount of time (in minutes) that the system will wait before starting the shutdown procedure.	/DELAY=0
/NOW	Terminates all activity immediately.	-
/TIMEOUT=...	Specifies the maximum number of minutes the system will wait, after any /DELAY has expired, for all user activity to complete before aborting any remaining transactions.	/TIMEOUT=1440

Note The SHUTDOWN /CANCEL command does not terminate the shutdown if you issued SHUTDOWN without a /DELAY period, or if the delay period has expired.

You must have OPERATOR privilege to use the SHUTDOWN command.

▼ To shut down the StorHouse software

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press Enter ↵:

SHUTDOWN <"message"> modifiers

where message is an optional message to notify users of the shutdown and modifiers are other command modifiers you use to assign values other than the defaults. Examples follow:

- To shut down StorHouse immediately, enter:

? SHUTDOWN /NOW

- To notify all users that StorHouse will shut down, delay the shutdown 10 minutes, and enter a timeout period of 30 minutes, enter:

? SHUTDOWN "StorHouse is shutting down" /DELAY=10 /TIMEOUT=30

- To cancel the StorHouse SHUTDOWN at any time during the delay period, enter:

? SHUTDOWN /CANCEL

Working with Operator Messages

StorHouse sends operator messages to inform you about system operation. For example, operator messages may report on an event (a successful checkpoint) or notify you to take a specific action (load a blank cartridge). You must know how to read and respond to operator messages as part of your primary job responsibility.

This chapter introduces operator message concepts and explains how to read and reply to operator messages.

About Operator Messages

StorHouse generates three types of operator messages:

- *Informational* messages report on the status of an event (for example, a successful library rebuild).
- *Operator request* messages ask you to take a specific action like move a volume from a library device to shelf storage or load a blank cartridge.
- *Error* messages inform you that an error occurred during system operation.

Status and Severity Codes

Each operator message has a status code and a severity code. Status codes identify operator messages, and severity codes classify them. Appendix A, “Operator Messages,” lists all operator messages alphabetically by status code and defines the variables that can appear in the message text. Operator message severity codes are listed in the following table.

Table 8-1: Operator Message Severity Codes

Code	Definition	Description
A	Action	You must take action, such as load a blank cartridge into the library device.
E	Error	The event ended with an error, but the system may continue processing.
F	Fatal error	The system cannot continue processing.
I	Information	The system returns information to you.
S	Success	The event completed successfully.
W	Warning	The event did not complete successfully, although it may have partially completed.

Message Formats

Informational and error messages have the following format:

status_code (severity_code) message_text

For example, in the following informational message, the components are listed below:

XSORSAT (I) REQUEST SATISFIED

Message Component	Definition
XSORSAT	StorHouse status code
I	StorHouse severity code
REQUEST SATISFIED	StorHouse message text

Request messages have two additional fields, message_reply_number and reply_text:

message_reply_number (severity_code) status_code message_text reply_text

In the following request message, the components are listed below:

0001 (A) XROLDB LOAD-BLANK L00E00, LABEL VOLUME AS
OAD"253EFD2D", REPLY 'C'-CONTINUE 'E'-ERROR

Message Component	Definition
0001	StorHouse message reply number
A	StorHouse severity code
XROLDB	StorHouse status code
LOAD-BLANK L00E00, LABEL VOLUME AS OAD"253EFD2D"	StorHouse message text
REPLY 'C' - CONTINUE 'E' - ERROR	StorHouse reply text

Message Queuing

StorHouse displays operator messages automatically on the StorHouse console and the IBM host console. For ease of operation, you can view messages directly on those console screens. In addition, StorHouse activates a message queue for user sessions that are console-enabled and begins accumulating operator messages there. Once your user session is console-enabled, you can read operator messages in your queue when you are signed on to StorHouse from a user terminal or the StorHouse console.


StorHouse does not create message queues for users who are signed on to StorHouse from the IBM host console. See “Replying to StorHouse Operator Messages from an MVS Host Console” on page 8-7 for information about accessing StorHouse operator messages from that location.

Enabling Message Queuing

To console-enable your user session, you must submit the StorHouse Command Language SET USER /CONSOLE command during that session. You must have CONSOLE privilege to use this command. For a full description of the SET USER command, see the *Command Language Reference Manual*.

Once you execute SET USER /CONSOLE, you can access your message queue to read operator messages. You do not need to be console-enabled to reply to operator messages.

▼ To enable a user session for operator message queuing


1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press **Enter** :

SET USER /CONSOLE

Disabling Message Queuing

When you disable operator message queuing, StorHouse no longer maintains a message queue for your user session. This means that you can no longer read operator messages from a user terminal. You disable operator message queuing with the SET USER /NOCONSOLE command.

▼ To disable a user session for operator message queuing

While signed on to StorHouse, type the following command at the StorHouse command prompt (?) and press :

```
SET USER /NOCONSOLE
```

Using the CONSOLE Command

The CONSOLE command lets you read and reply to StorHouse operator messages when you are signed on to StorHouse from the StorHouse console or a user terminal. You do not use the CONSOLE command to read and reply to messages from the IBM host console. See “Replying to StorHouse Operator Messages from an MVS Host Console” on page 8-7 for information about accessing messages from the IBM host console.

The following table defines the modifiers you can use with CONSOLE:

Modifier	Description
/ALL	Displays all queued operator messages. Any messages that were previously displayed but still require a response are displayed again. If no messages are queued, the command returns the ? prompt.
/READ=...	<p>Displays the next queued operator message and specifies an optional timeout value if no messages are queued. The default timeout value is 0.</p> <p>When /READ is used with a timeout value, the command waits the specified number of seconds (the timeout) if there are no queued messages. If StorHouse queues a message during the timeout period, the command immediately displays the message and returns a successful response (the ? prompt). If no message is queued during the timeout, the command returns the ? prompt at the end of the timeout period.</p>

Modifier	Description
/REPLY=...	Sends a response to a StorHouse operator request message. You must specify the reply text and the identification number of the request with /REPLY.
text	<p>Provides text for use with the /REPLY modifier. Depending on the message, valid reply text can be:</p> <ul style="list-style-type: none"> • C (for CONTINUE) • E (for ERROR) • L (for LIST) • N (for NO MORE) • W (for WIPED) <p>Appendix A, "Operator Messages," defines the valid replies for each operator message.</p>

If you omit modifiers with `CONSOLE`, then StorHouse displays the next queued message (if any) for you to read.

You must have `CONSOLE` privilege to use the `CONSOLE` command, and `OPERATOR` privilege to use the `/REPLY` modifier.

Reading Operator Messages in Your Message Queue

You use the `CONSOLE` command to read queued operator messages from a user terminal and to periodically clear your message queue when you are signed onto StorHouse from the StorHouse console. Use the `CONSOLE /READ` command to read the next queued message and the `CONSOLE /ALL` command to read all queued messages. Remember that you must be console-enabled to read messages in your message queue.

▼ To read the next queued operator message

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press `[Enter ↵]`:

```
CONSOLE
or
CONSOLE /READ
or
CONSOLE /READ=number_of_seconds
```

where `number_of_seconds` can include any integer from 0 to 2147483647, inclusive. Examples follow.

- To display the next queued message, enter:
 ? CONSOLE
 or
 ? CONSOLE /READ
- To specify a timeout value of 90 seconds for /READ, enter:
 ? CONSOLE /READ=90

The CONSOLE /ALL command reads all queued messages, which include new messages as well as messages that have outstanding requests.

▼ **To read all queued messages**

At the StorHouse command prompt (?), type the following command and press

Enter ↵:

CONSOLE /ALL

Clearing Your Message Queue

StorHouse accumulates messages in the message queues of all console-enabled users. Some messages require a reply; others do not. When you read a non-reply message, StorHouse automatically deletes it from your message queue. When you read a reply message, StorHouse retains that message in all message queues until you or another console-enabled user responds to it. Then it deletes the satisfied message from the message queues of all console-enabled users.

For example, if 10 users are console-enabled and StorHouse requests the loading of a blank volume, the XROLDB LOAD-BLANK message appears in 10 message queues. When one user replies to the XROLDB request, StorHouse removes that message from the responder's message queue. It also removes the XROLDB request from the message queues of the other nine console-enabled users and replaces it with the following message:

0002 XSORSAT REQUEST SATISFIED

The number 0002 is the reply number of the satisfied XROLDB message. The XSORSAT status code indicates that a user responded to message number 2.

Special Considerations for the StorHouse Console

Message queues clear automatically when console-enabled users sign off StorHouse. However, as system operator, you are typically signed on to StorHouse from the StorHouse console 24 hours a day, seven days a week. In addition, because you normally view messages on the console screen rather than read them from your message queue, non-reply messages can accumulate in your queue indefinitely.

To keep the size of your message queue manageable, FileTek recommends that you periodically execute `CONSOLE /ALL` at the StorHouse console to read and subsequently remove all non-reply messages from your queue.

▼ To clear the operator message queue at the StorHouse console of all non-reply messages

At the StorHouse command prompt (?), type the following command and press

`CONSOLE /ALL`

Replying to Operator Messages

You use different procedures to reply to operator request messages depending on your location. The following sections explain how to reply to messages from the IBM host console, the StorHouse console, and a console-enabled user session at a user terminal.

Replying to StorHouse Operator Messages from an MVS Host Console

The MVS host console can be automatically signed on to StorHouse through the message monitoring subtask in the MVS subsystem. StorHouse messages appear and scroll automatically on the MVS host console screen. Operator messages that require a reply cannot be deleted. That is, they “stick” to the screen in highlighted text until the MVS operator or another user replies to the request.

At the MVS host console, you can reply to StorHouse operator request messages by using the standard IBM `REPLY` command as documented in the IBM manual *Operator's Library: OS/VS2 MVS System Commands*. The MVS host console operator does not use the StorHouse Command Language `CONSOLE` command.

Message Example

This example illustrates how a StorHouse operator request message is typically displayed on an MVS host console screen and describes the procedure for replying to this message. Note that the third and fourth message fields are site-specific and may not all appear at your installation.

Assume that the following message appears on the MVS host console. It asks you to label a blank volume as OAD253EFD2D and load it into exchange station 00 of library device 00:

```
*11.30.22 STC 9147 *06 XIO170I LSMS DEFLT 0001 (A) XROLDB LOAD-BLANK
*L00E00, LABEL VOLUME AS OAD"253EFD2D", REPLY 'C'-CONTINUE 'E'-
*ERROR
```

The message components are listed below, with values shown for the previous example.

Site-specific
fields

Message Component	Description
11.30.22	Time of request
STC 9147	Started task number of the StorHouse subsystem
06	Identification number that you use in the MVS REPLY command to reply to this message request
XIO170I	StorHouse status code indicating that the text that follows is a StorHouse operator request message. This status code is always XIO170I.
LSMS	StorHouse subsystem name
DEFLT	StorHouse identification from configuration SM_NAME parameter. (See the <i>Host Software Installation and Operations Guide</i> .)
0001	StorHouse message reply number. You do not use this number when replying to an operator request message from an MVS host console.
A	StorHouse message severity code
XROLDB	StorHouse status code
LOAD-BLANK L00E00, LABEL VOLUME AS OAD "253EFD2D"	StorHouse operator request message text
REPLY 'C'-CONTINUE 'E'-ERROR	StorHouse reply text


▼ **To reply to this operator message**

Enter the MVS REPLY command using 6 as the message identification number, followed by a reply text of C or E.

Replying to StorHouse Operator Messages from the StorHouse Console or a User Terminal

You can reply to operator messages with the `CONSOLE/REPLY` command or with a shorthand notation that contains just the message number and the text.

▼ **To reply to an operator message at the StorHouse console or a user terminal**

1. Sign on to StorHouse.
2. At the StorHouse command prompt (?), type the following command and press :

```
CONSOLE /REPLY=identification_number text
or
identification_number text
```

where `identification_number` is the number shown at the beginning of the request message and `text` is the text you specify.

The following section contains examples.

Message Examples

Assume the following message appears on the StorHouse console:

```
0001 (A) XROLDB LOAD-BLANK L00E00, LABEL VOLUME AS
OAD"253EFD2D", REPLY 'C'-CONTINUE 'E'-ERROR
```

This message asks you to label a non-prelabeled, blank volume as OAD253EFD2D and load it into exchange station 00 of library device 00.

The message components are listed below, with values shown for this example:

Message Component	Definition
0001	StorHouse message reply number. Use this number in the <code>CONSOLE</code> command as the reply identification number. (When you reply to this message, you can omit the leading zeros.)
A	StorHouse message severity code
XROLDB	StorHouse status code

Message Component	Definition
LOAD-BLANK L00E00, LABEL VOLUME AS OAD"253EFD2D"	StorHouse operator request message text
REPLY 'C' - CONTINUE 'E' - ERROR	StorHouse reply text

▼ **To reply to this operator message**

1. Look up the StorHouse status code in Appendix A or in the *Messages and Codes Manual* and read the message description if you need more information.
2. For XROLDB, select a blank volume that is compatible with library device L00 and the specified media/recording type (in this case, OAD).
3. Write the volume identifier OAD253EFD2D on the cartridge label.
4. Insert the volume into exchange station L00E00.
5. Enter the following command:

```
CONSOLE /REPLY=1 C
or
1 C
```

Note that 1 is the StorHouse message reply number, and C is the reply text.

Invalid Message Reply Numbers

If you reply to a request and use an invalid message reply number in your response, the following message appears on your screen:

```
%SC-W-XSONOREQ, No request matches last operator reply; reply discarded.
Invalid Reply Number.
```

To re-display the outstanding request messages and their message reply numbers, submit `CONSOLE /ALL` to read all messages in your queue.

Pending Requests

Once you have fulfilled the initial unload request for a volume, you may receive additional requests for that volume. StorHouse considers these additional requests as *pending* requests.

For example, the system administrator may execute a MOVE VOLUME command to move a cartridge from library device L00 to library device L01 to keep a volume handy. This command generates two operator request messages. First you receive a request to unload the cartridge from L00 to level S. Once you have unloaded the volume from library device L00, you receive a second message to load that volume into library device L01. This second message is the pending request.

Here are examples of the two messages you'll receive (note that you also receive an XROESL message for each volume you move):

```
(A) XROESL UNLOAD-SHELF L00E00, 1, TDA"010118", BB01P, PENDING  
0003 (A) XROULS UNLOAD-SHELF L00E00, VOLUMES=1, REPLY 'C'-  
CONTINUE 'L'-LIST
```

```
(A) XROESL LOAD-SHELF L01E00, TDA"010118", BB01P  
0004 (A) XROLDL LOAD-SHELF L01E00, VOLUMES=1, REPLY 'C'-CONTINUE  
'E'-ERROR 'L'-LIST
```

Retrying Load and Unload Operations

StorHouse can detect a load (input) or unload (output) error while moving a cartridge between a library device and an exchange station. Input/output errors can occur after a load request or before an unload request.

When StorHouse detects an input/output error, it sends you an error message. If possible, the message describes the error condition and recommends operator action. In addition, the message directs you either to retry the failing operation or abort the retry request. For input errors, StorHouse does not repeat the original load request. For output errors, StorHouse does not issue the unload request until you correct the error.

If the retry is unsuccessful, StorHouse generates another error message. StorHouse repeats the error message/retry cycle until the retry is successful or until you abort the retry request. Appendix B, "Library Devices and Media," contains specific instructions for loading cartridges into and unloading them from specific model library devices.

For example, the following error message could appear after you attempted to load a blank volume:

```
0002 (A) XROERR L00E00, EXCHANGE STATION IS OPEN; CLOSE, THEN  
REPLY 'C'-CONTINUE 'E'-ERROR
```

The components of this message are listed below:

Message Component	Definition
0002	StorHouse message reply number
A	StorHouse message severity code
XROERR	StorHouse status code (XROERR always identifies an error message)
L00E00	StorHouse device
EXCHANGE STATION DOOR IS OPEN; CLOSE, THEN	StorHouse error text to identify the specific nature of the error
REPLY 'C' - CONTINUE 'E' - ERROR	StorHouse reply text

▼ **To reply to this error message**

1. Look up the StorHouse status code in Appendix A or in the *Messages and Codes Manual* if you need more information.
2. Follow the directions given for the error text. In this example, it is EXCHANGE STATION IS OPEN; CLOSE, which indicates that the exchange station door is open.
3. Close the exchange station door, and enter the following:

```
CONSOLE /REPLY=2 C
or
2 C
```

Note that 2 is the StorHouse message reply number and C is the reply text.

If StorHouse still detects an error (for example, the exchange station door will not stay closed), it responds to your reply of C with another error message. You can read the new message from your message queue (if you're at a user terminal, CONSOLE /READ or CONSOLE /ALL) and enter a reply (either CONSOLE /REPLY or the message reply number and the reply text). To abort the original request to load a blank volume, reply to the second error message reply number with an "E."

Operator Messages

This appendix defines the operator message variables and then lists the StorHouse operator request messages in alphabetical order by status code.

Operator Message Variables

The most common variables displayed in operator message explanations are defined as follows:

- Fxx – Device identifier for the magnetic disk drive
- Lxx – Device identifier for the library device
- LxxAyy – Device identifier for the library device accessor

Lxx = Device identifier for the library device
Ayy = Device identifier for the accessor

- LxxDyy – Device identifier for the library device drive

Lxx = Device identifier for the library device
Dyy = Device identifier for the drive

- LxxEyy – Device identifier for the library device exchange station

Lxx = Device identifier for the library device
Eyy = Device identifier for the exchange station

- Lxxmmr – Free pool identifier for the library/media

Lxx = Device identifier for the library device
mmr = Media type and recording type for the media

A**Operator Messages**

Operator Messages (By Status Code)

- LxxSyyyy – Device identifier for the library device slot

Lxx = Device identifier for the library device
Syyyy = Device identifier for the slot
- mmr – Media type and recording type of the media
- n – Number of the specified item
- slot – Specific slot in a multivolume library exchange station. If your multivolume library exchange station slots are not numbered, this variable does not display in the message. In that case, be sure to load the exchange station from the top slot down. The multivolume station need not be full to complete an operation.
- Sxx – Shelf storage level identifier
- vid – Volume identification code assigned to the volume by StorHouse.
- vset_name – Volume set name assigned to the volume set.

StorHouse supplies values for xx, yy, mmr, yyyy, vid, and vset_name.

All request messages are preceded by an operator request number. These operator request numbers have been omitted in the following section.

Operator Messages (By Status Code)

This section explains each StorHouse operator message. For ease of reference, messages are organized in alphabetical order by status code. Brackets [] indicate that the enclosed text may or may not be displayed in the message. Message severity codes are not documented in this chapter.

XROESL messages refer to multivolume library exchange stations. When you are using multivolume stations, XROESL messages may precede XROLDs, XROULD, XROULE, XROULR, and XROULS messages. See each message type for more information. Also, responding to the XROLDs, XROULD, XROULE, XROULR, or XROULS message with “L” generates the list of XROESL messages and repeats the request.

Many of the following messages ask you to load, unload, or move a volume or to respond to an input/output error. All StorHouse messages are documented in the *Messages and Codes Manual* in the StorHouse User Document Set.

XDDISBADFID	<p>XDDISBADFID, FILE CREATIONS DISABLED BECAUSE NEXT FILE ID (FID) LESS THAN EXISTING FID</p> <p>The system has disabled creation of new StorHouse files because the current FID (that is, the FID that should have been assigned to the last file created) is less than the FID of an existing file. This can occur after certain StorHouse recovery or maintenance procedures if the value of the last FID assigned is not restored properly. Ask your system administrator to refer this problem to your FileTek customer support representative.</p>
XDDISISRTFID	<p>XDDISISRTFID, FILE CREATIONS DISABLED BECAUSE INSERTED FILE ID (FID) GREATER THAN EXISTING FID</p> <p>The system has disabled creation of new StorHouse files because the current FID (that is, the FID that should have been assigned to the last file created) is less than the FID of a file that was just inserted into the directory (by way of a CATALOG command, for example). This can occur after certain StorHouse recovery or maintenance procedures if the value of the current FID is not restored properly. Ask your system administrator to refer this problem to your FileTek customer support representative.</p>
XDFILECRENBL	<p>XDFILECRENBL, FILE CREATIONS ENABLED</p> <p>The system has enabled StorHouse file creations. The system disables file creations if it detects an invalid current StorHouse file identifier (FID). The system enables file creations when the FID is corrected. Files can now be created.</p>
XDRDECCRDIS	<p>XDRDECCRDIS, FILE CREATION(S) REJECTED BECAUSE FILE CREATIONS ARE DISABLED</p> <p>The system has rejected one or more StorHouse file creations because file creations are disabled. This can occur after certain StorHouse recovery or maintenance procedures if the value of the current file identifier (FID) is not restored properly. Ask your system administrator to refer this problem to your FileTek customer support representative.</p>
XQCHFAILED	<p>XQCHFAILED, CALL HOME FAILED. PLEASE CONTACT YOUR CUSTOMER SUPPORT REPRESENTATIVE.</p> <p>The Call Home facility failed. Ask your system administrator to refer this problem to your customer support representative.</p>
XQCHI	<p>XQCHI, CUSTOMER SUPPORT NOTIFICATION INITIATED THROUGH CALL HOME</p> <p>The StorHouse software has detected a potential or actual problem and is attempting to notify FileTek customer support through the Call Home facility. No operator action is necessary.</p>

A**Operator Messages**

Operator Messages (By Status Code)

XRBADVLPARAM XRBADVLPARAM, BAD VOLUME LABEL SYSTEM PARAMETER. <text>

StorHouse was unable to use a LABEL_MASK_media or LABEL_media system parameter to generate the next volume label. The LABEL_MASK_media parameter may contain an invalid label-formatting mask for the algorithm identified by the LABEL_ALG system parameter. The text provides a more specific reason for the failure or one of the system parameter names involved in the failure. StorHouse will be unable to generate volume labels for the media until the system administrator corrects the parameters.

XROERR XROERR LxxEyy, <error text>, THEN REPLY 'C'-CONTINUE 'E'-ERROR

StorHouse generates this error message when it detects an input/output error while moving a volume between a device and its exchange station.

Possible values for the error text parameter are:

Error Text	Action
EXCHANGE STATION IS BUSY; CHECK	Check to see why the exchange station is busy and clear the condition.
EXCHANGE STATION IS EMPTY; LOAD	For a single- or multivolume exchange station, check to see whether the volume was loaded into the correct exchange station. For a multivolume exchange station, check to see whether all volumes are in the correct slots (for example loaded from the top down).
EXCHANGE STATION IS FULL; EMPTY	For a single-volume exchange station, remove the volume. For a multivolume exchange station, remove the volume(s) from all slots.
EXCHANGE STATION IS OPEN; CLOSE	Close the exchange station door.
VOLUME INCORRECTLY LOADED; RELOAD	For a single-volume exchange station, reload the volume. (Volume may be loaded backwards.) For a multivolume exchange station, reload as many volumes as necessary to find the ones that were loaded incorrectly. (Volume or volumes may be loaded backwards or upside down.)

▼ **To reply to this message, follow these steps:**

1. Take the necessary action based on the <error text>.
2. Respond with the appropriate reply:

- If the error has been corrected, respond with C to continue/retry.

If you reply with C and StorHouse still detects an error, it generates another error message. This cycle continues until you have either corrected the error and replied with C successfully or until you have replied with E to abort the request.

- If you cannot correct the error, reply with E to abort the request.

If an error persists or is severe, ask your system administrator to contact your FileTek customer support representative.

XROESL XROESL action LxxEyy[, slot], vid, vset_name[, memo][, PENDING]
[, NEEDS_CLEANING]

XROESL messages identify each volume that StorHouse is handling through the specified slot in a multivolume library device exchange station. One or more XROESL messages precede each XROLD, XROULD, XROULE, XROULR, and XROULS message. (There is one XROESL message for each volume.) See these messages for any required operator action.

Note that if your multivolume library exchange station slots are not numbered, slot does not display.

XROINFO XROINFO, ABORTED EXTENT, VOLUME=vid GROUP=groupname
FILE=filename EXTENT=extent

This message appears during recovery to indicate that StorHouse aborted or lost power while the specified extent was being written. Inform the system administrator that the user must rewrite the extent.

XROINFO XROINFO, BLANK VOLUME LOADS ENDED WITH n VOLUMES LEFT IN FREE
POOL Lxxmmr

When directed to load a blank volume, you replied to either the XROLD or XROLDP operator message with an E, terminating blank volume loads for free pool Lxxmmr. There are n volumes left in the free pool. If necessary, your system administrator can submit a MIGRATE /BLANKS command to restart blank volume loads.

XROINFO XROINFO, BLANK VOLUME LOADS SUSPENDED WITH n VOLUMES LEFT IN
FREE POOL Lxxmmr

Blank volume loads for free pool Lxxmmr have been suspended due to the library device or one or more of its components going offline. Blank volume loads will resume when the appropriate devices are brought back online.

A**Operator Messages**

Operator Messages (By Status Code)

XROINFO XROINFO, BLANK VOLUME LOADS TERMINATED WITH n VOLUMES LEFT IN FREE POOL Lxxmmr

Blank volume loads for free pool Lxxmmr have been terminated due to an error. Ask your system administrator to contact your FileTek customer support representative.

XROINFO XROINFO, CLEANING CARTRIDGE EXPIRED, VOLUME=vid

The cleaning cartridge has expired and cannot be used to clean any more tape drives. No operator action is necessary. You will receive a message to unload and discard the cartridge when it is retired, which is site-dependent.

XROINFO XROINFO, device, DEVICE IS state[, mode]

where:

- device = Fxx, Lxx, LxxAyy, LxxDyy, LxxEyy, LxxSyyyy
- state = UP, COMING_UP, DOWN, GOING_DOWN
- mode = READ_ONLY, INITIALIZING, INITIALIZED, MAINTENANCE

This message indicates that the device is in the indicated state and, if applicable, the indicated mode.

If a library device (Lxx) is down due to an error, StorHouse automatically attempts to activate the Call Home error reporting facility. If any device is down, ask your system administrator to contact your FileTek customer support representative.

XROINFO XROINFO, EXCESSIVE MEDIA ERRORS--VOLUME HAS BEEN DISABLED, VOLUME=vid

The system has disabled the volume due to media errors and attempted to initiate Call Home error notification. Move the volume out of the library and inspect it for damage. If the volume is damaged, ask your system administrator to contact your FileTek customer support representative. If the volume is not damaged, clean the volume (follow the instructions in Appendix B, "Library Devices and Media.").

After you have cleaned the volume, enable the volume using the SET VOLUME vid /ENABLE command and, if desired, move it back into the library. If the system disables the volume again, ask your system administrator to contact your FileTek customer support representative.

XROINFO XROINFO, EXCESSIVE MEDIA ERRORS--VOLUME HAS BEEN PERMANENTLY WRITELOCKED, VOLUME=vid

Due to excessive media errors, StorHouse permanently writelocked the volume (it is in the PERM_LOCKED state). No operator action is necessary.

XROINFO XROINFO, EXCESSIVE MEDIA ERRORS--VOLUME HAS BEEN WRITELOCKED, VOLUME=vid

Due to excessive media errors, StorHouse writelocked the volume (it is in the WRITELOCKED state). Ask your system administrator to call your FileTek customer support representative.

XROINFO XROINFO, EXCESSIVE MEDIA ERRORS--VOLUME NEEDS CLEANING, VOLUME=vid

For each optical media type, StorHouse defines the maximum number of times that StorHouse can skip defective areas on an optical disk surface. A portion of a volume surface may be defective because of dirt or media flaws. When an optical disk surface exceeds the designated number of defective areas, the system writelocks that surface and generates this message.

When you see this message, you should remove the specified volume (vid) from the library device and clean *both* volume sides, regardless of the side displayed in the operator message. Then (for Release 5.1 and all previous releases), execute SET VOLUME /CLEANED *once*, specifying the volume side indicated in the message. SET VOLUME /CLEANED unwritelocks a volume surface and resets the skip counter to 0.

The following response procedure has been streamlined for Releases 5.2 and above. However, these releases can still optionally use the previous response procedure, if desired.

▼ **To respond to this message (Release 5.1 and all previous releases), follow these steps:**

1. Execute the MOVE VOLUME command to move the indicated optical volume out of the library device to shelf storage. Your system administrator can use the StorHouse Command Language SCHEDULE command to execute MOVE VOLUME from the StorHouse console. SCHEDULE prevents conflicts with load and unload operator request messages.

For example, if the vid in the XROINFO message is OEA"21C68147":A, execute the command:

```
? SCHEDULE !MOVE VOLUME OEA21C68147 S00
```

This command example assumes that volume OEA21C68147 resides in library device L00.

2. Clean *both* sides of the optical disk volume as described in Appendix B, "Library Devices and Media."

A**Operator Messages**

Operator Messages (By Status Code)

3. Execute SET VOLUME /CLEANED once to unwritelock the surface of the volume indicated in the message.

For example, after cleaning both sides of volume OEA21C68147, execute the following SET VOLUME command for side A:

```
? SET VOLUME OEA21C68147:A /CLEANED
```

This command automatically requests the operator to move the volume back into the library device.

4. FileTek recommends that you keep a log of volumes that have been cleaned.

Note: To ensure optimum performance, always clean both sides of the optical disk, regardless of the side specified in the operator message. Then execute the SET VOLUME /CLEANED command once for the side specified in the message.

▼ **To respond to this message (Release 5.2 and above), follow these steps:**

1. Execute the MOVE VOLUME command to move the indicated optical volume out of the library device to shelf storage. Your system administrator can use the StorHouse Command Language SCHEDULE command to execute MOVE VOLUME from the StorHouse console. SCHEDULE prevents conflicts with load and unload operator request messages.

For example, if the vid in the XROINFO message is OEA"21C68147":A, execute the command:

```
? SCHEDULE !MOVE VOLUME OEA21C68147 S00
```

This command example assumes that volume OEA21C68147 resides in library device L00.

2. StorHouse displays an XROULS UNLOAD-SHELF message, which instructs you to unload the volume to shelf. You have the option to clean the volume now after you move it out of the library device or later when you move it back into a library device.
3. Clean *both* sides of the optical disk volume as described in Appendix B, "Library Devices and Media."
4. FileTek recommends that you keep a log of volumes that have been cleaned.

Note: To ensure optimum performance, always clean both sides of the optical disk, regardless of the side specified in the operator message.

XROINFO	<p>XROINFO, EXCESSIVE MEDIA ERRORS--VOLUME SHOULD BE RETIRED, VOLUME=vid</p> <p>Excessive media errors were detected on the indicated volume. The volume has been permanently writelocked and should be retired (your system administrator can use the RETIRE VOLUME command).</p>
XROINFO	<p>XROINFO, EXTENT WRITE-BACK DISABLED, GROUP=groupname FILE=filename EXTENT=extent FID=fid</p> <p>This message appears when an error or an abort occurs while the system is trying to write-back an extent from the performance buffer to level L media. The system has used some of the space reserved on level L for the extent and needs to allocate more.</p> <p>Report the error to your system administrator. The system administrator should execute the StorHouse Command Language ENABLE command so that more space can be allocated on level L for the specified file extent. Refer to the <i>Command Language Reference Manual</i> for a detailed explanation of the ENABLE command.</p> <p>Note: Extents that are write-back disabled can still be read.</p>
XROINFO	<p>XROINFO, FREE POOL VOLUMES (n) BELOW MINIMUM (n) FOR FREE POOL Lxxmmr</p> <p>The number of blank volumes in free pool Lxxmmr is less than the minimum number allowed by the FREE_POOL_didmmr system parameter. Your system administrator might want to add blank volumes to the library device free pool until you reach or exceed the minimum number.</p>
XROINFO	<p>XROINFO, Fxx, FATAL DEVICE ERROR</p> <p>There is an unrecoverable error on magnetic disk drive Fxx. StorHouse shuts down the magnetic disk drive and generates the informational message: XROINFO, Fxx, DEVICE IS DOWN. Ask your system administrator to contact your FileTek customer support representative.</p>
XROINFO	<p>XROINFO, Lxx, FATAL DEVICE ERROR</p> <p>This message appears when there is an unrecoverable error on library device Lxx. The system shuts down the library device and generates the informational message: XROINFO, Lxx, DEVICE IS DOWN. Ask your system administrator to contact your FileTek customer support representative.</p>
XROINFO	<p>XROINFO, Lxx, IMPORT OPERATIONS SUSPENDED FOR VSET vset_name</p> <p>Import operations for the indicated volume set have been suspended due to library device Lxx or one or more of its components going offline. Import operations will resume when the appropriate devices are brought back online.</p>

A**Operator Messages**

Operator Messages (By Status Code)

- XROINFO** **XROINFO, Lxx, INVALID BAR CODES DETECTED ON n VOLUME(S)**
- This condition is detected when the library device is brought online (either at startup or with an UP DEVICE command). StorHouse automatically issues a Call Home notification to FileTek. Your FileTek customer support representative will resolve the problem; you do not need to take any action.
- XROINFO** **XROINFO, Lxx, LIBRARY DEVICE OPERATION TOOK LONGER THAN EXPECTED**
- An operation(s) on library device Lxx took longer than expected. The library device continues to operate. Ask your system administrator to contact your FileTek customer support representative.
- XROINFO** **XROINFO, Lxx, LIBRARY REBUILD CAN'T START--NO ONLINE DRIVES**
- During library initialization, StorHouse determined that library device Lxx requires a library rebuild. However, there are no online drives in the library.
- At least one drive in the library must be brought online before attempting library initialization again.
- XROINFO** **XROINFO, Lxx, LIBRARY REBUILD COMPLETED**
- During library initialization, StorHouse determined that library device Lxx requires a library rebuild. This message informs you that this process has completed successfully.
- XROINFO** **XROINFO, Lxx, LIBRARY REBUILD FAILED**
- During a library rebuild, StorHouse encountered errors that prevented the library rebuild from completing on library Lxx. The system shuts down the library device, generates the informational message XROINFO, Lxx, DEVICE IS DOWN and automatically attempts to activate the Call Home error reporting facility.
- XROINFO** **XROINFO, Lxx, LIBRARY REBUILD REQUIRED FOR n VOLUME(S)**
- During library initialization, StorHouse determined that library device Lxx requires a library rebuild. The system shuts down the library device and generates the informational message: XROINFO, Lxx, DEVICE IS DOWN.
- Report this problem to your system administrator, who should ask a FileTek customer support representative to perform a library rebuild.
- XROINFO** **XROINFO, Lxx, LIBRARY RECOVERY REQUIRED FOR n VOLUME(S)**
- During library initialization, StorHouse determined that library device Lxx requires directory recovery. The system brings the library to an UP state, but it cannot access one or more volumes. This message is normal during extended directory recovery. During normal operation, this message indicates a serious problem.

Report this problem to your system administrator, who should ask a FileTek customer support representative to perform a library recovery.

XROINFO XROINFO, Lxx, NO CLEANING CARTRIDGES ARE AVAILABLE

There are no cleaning cartridges available in library device Lxx. Your system administrator can migrate one or more blank cleaning cartridges into the library device using the MIGRATE /BLANKS command.

XROINFO XROINFO, Lxx, OPERATOR REFUSED RESET REQUEST

This message indicates that you refused a library reset request (in other words, you replied 'E' to the XRORST message). The system shuts down the library device and generates the informational message: XROINFO, Lxx, DEVICE IS DOWN.

XROINFO XROINFO, Lxx, SEVERE DEVICE ERROR

StorHouse determined that a library device error occurred.

- If this message appears during system initialization, the system shuts down the library device and generates the informational message: XROINFO, Lxx, DEVICE IS DOWN. For all libraries except tape libraries, press the **RESET** button on the library device control panel to manually reset the library device. For tape libraries, press the **IPL** button on the library device control panel to manually reset the library device. If the device has no **RESET** or **IPL** button, then power-cycle the device.
- If this message appears while the system is up, the system waits until all library device drives are inactive and issues a RESET LIBRARY request (see the XRORST message on page A-18). This may take several minutes.

Note: Do not reset the library until StorHouse issues the RESET LIBRARY request.

XROINFO XROINFO, Lxx, STARTING LIBRARY REBUILD FOR n VOLUMES

During library initialization, StorHouse determined that library device Lxx requires a library rebuild. This message informs you that this process has started.

XROINFO XROINFO, Lxx, UNRECOVERED DEVICE ERROR

An operation(s) failed on library device Lxx. The device continues to operate. Ask your system administrator to contact your FileTek customer support representative.

XROINFO XROINFO, Lxx, VOLUME vid HAS BEEN MOVED TO THE FREE POOL

The system was instructed to export the specified volume. However, because the volume is an empty volume, the system moved it to the free pool in library device Lxx.

A**Operator Messages**

Operator Messages (By Status Code)

XROINFO XROINFO, LxxAyy, EXCESSIVE DEVICE ERRORS

After many tries, there is an unrecoverable error with accessor LxxAyy. The system stops using the accessor and generates the message XROINFO, LxxAyy, DEVICE IS DOWN. Ask your system administrator to contact your FileTek customer support representative.

XROINFO XROINFO, LxxDyy, DRIVE COULD NOT BE CLEANED, VOLUME=none

StorHouse was unable to clean tape drive LxxDyy and has taken the drive offline. Before the drive is brought back online, check that there are cleaning cartridges available in the library device. When the drive is brought back online, StorHouse will try to clean it again.

XROINFO XROINFO, LxxDyy, EARLIER DEVICE ERROR(S) CAUSED BY MEDIA, VOLUME=vid

The device error reported in a preceding message was caused by a problem with the media rather than a problem with the drive. The system restores drive LxxDyy to its original state. This message will likely be followed by other messages, depending on the subsequent actions performed by the system.

XROINFO XROINFO, LxxDyy, EXCESSIVE DEVICE ERRORS, VOLUME=vid

After many tries, there is an unrecoverable error on drive LxxDyy. The system shuts down the drive and generates the message XROINFO, LxxDyy, DEVICE IS DOWN. Ask your system administrator to contact your FileTek customer support representative.

XROINFO XROINFO, LxxDyy, EXCESSIVE WRITE ERRORS, VOLUME=vid

Excessive write errors were detected on the indicated volume. The problem is caused by drive LxxDyy. The volume is unaffected. The data transfer may or may not have completed. StorHouse automatically attempts to notify the Call Home error reporting facility.

After reporting the error, the system sets the drive to the read-only state and displays the XROINFO, LxxDyy, DEVICE IS UP, READ_ONLY operator message.

XROINFO XROINFO, LxxDyy, FATAL DEVICE ERROR, VOLUME=vid

This message appears when there is an unrecoverable error on drive LxxDyy caused by the drive or volume vid. The system shuts down the drive and generates the informational message: XROINFO, LxxDyy, DEVICE IS DOWN. Ask your system administrator to contact your FileTek customer support representative.

XROINFO	XROINFO, LxxDyy, INACCESSIBLE VOLUME--VOLUME HAS BEEN DISABLED, VOLUME=vid This message appears when a volume in the indicated drive is inaccessible due to a hardware problem. The system disabled the volume (both sides of a two-sided volume). Ask your system administrator to contact your FileTek customer support representative.
XROINFO	XROINFO, LxxEyy, EXCESSIVE DEVICE ERRORS After many tries, there is an unrecoverable error with exchange station LxxEyy. The system stops using the exchange station and generates the message XROINFO, LxxEyy, DEVICE IS DOWN. Ask your system administrator to contact your FileTek customer support representative.
XROINFO	XROINFO, LxxSyyyy, EXCESSIVE DEVICE ERRORS After many tries, there is an unrecoverable error with slot LxxSyyyy. The system stops using the slot. Ask your system administrator to contact your FileTek customer support representative.
XROINFO	XROINFO, LxxSyyyy, SLOT IS DOWN AND CONTAINS UNKNOWN VOLUME The indicated slot, LxxSyyyy, is down and contains an unknown volume. Ask your system administrator to contact your FileTek customer support representative.
XROINFO	XROINFO, LxxSyyyy, SLOT IS DOWN AND CONTAINS VOLUME vid The indicated slot, LxxSyyyy, is down and contains the volume vid. Ask your system administrator to contact your FileTek customer support representative.
XROINFO	XROINFO, MIGRATION UNABLE TO FREE SPACE FOR QUEUED TRANSFERS File transfers to the performance buffer are queued because a migration operation was unable to free space. StorHouse automatically attempts to activate the Call Home error reporting facility. Ask your system administrator to call your FileTek customer support representative.
XROINFO	XROINFO, VOLUME IS WRITE-PROTECTED--VOLUME HAS BEEN WRITELOCKED, VOLUME=vid StorHouse writelocked the volume to prevent any additional extents from being allocated to the volume. If the volume was accidentally write-protected, you can unwrite-protect the volume (by adjusting the tab on the cartridge) and then unwritelock it using the SET VOLUME /UNWRITELOCK command.

A**Operator Messages**

Operator Messages (By Status Code)

XROINFO XROINFO, VOLUME RECOVERY FAILED--VOLUME HAS BEEN WRITELOCKED, VOLUME=vid

Volume recovery failed. The system prevents additional data from being written to the volume. Ask your system administrator to contact your FileTek customer support representative. If the problem occurs with several volumes in the same drive, the drive may need to be repaired or replaced. After the problem is resolved, you or your FileTek customer support representative can unwritelock the volume.

XROINFO XROINFO, VOLUME STRUCTURE ERROR--VOLUME HAS BEEN DISABLED, VOLUME=vid

StorHouse accessed a tape or optical disk whose volume structure is corrupted. StorHouse disables the volume and automatically issues a Call Home notification to FileTek. Your FileTek customer support representative will resolve the problem; you do not need to take any action.

XROINVRESP XROINVRESP device, INVALID RESPONSE; TO RETRY, REPLY 'C'-CONTINUE

StorHouse displays this message if you provide an invalid response to an operator request. The device from the original operator request displays to help identify the original request. When you reply with 'C', the original operator request displays in its entirety.

XROLDB XROLDB LOAD-BLANK LxxEyy, LABEL VOLUME AS vid, REPLY 'C'-CONTINUE 'E'-ERROR

Label a blank volume that is not prelabeled (in other words, an optical volume) and load it into a specific library device exchange station.

▼ **To reply to this message, follow these steps:**

1. Select a blank volume of the media/recording type specified in the vid.
2. Write the volume identifier vid on the optical cartridge label. No volume set name is given at this point. You will assign it later.
3. Ensure that the volume is not write-protected. (Check the write-protect tab on the cartridge. Two-sided media may have two tabs.)
4. Insert the volume into exchange station LxxEyy.
5. If the preceding steps were successful, reply with C to continue.

If an error occurs after you reply with C, StorHouse generates an error message. If possible, correct the error, and then reply with C to continue/retry the operation or with E to abort the request.

6. If the preceding steps were unsuccessful, reply with E to abort the request.

A reply of E (for example, no blank volume is available), aborts the request.

XROLDI XROLDI LOAD-IMPORT LxxEyy, vset_name, REPLY 'C'-CONTINUE 'N'-NO MORE 'E'- ERROR

or

XROLDI XROLDI LOAD-IMPORT LxxEyy, VOLUMES=n, vset_name, REPLY 'C'-CONTINUE 'N'-NO MORE 'E'- ERROR

This message appears during an IMPORT operation. It prompts you to load the next volume (or as many of *n* volumes as there are slots available, if the library device has a multivolume exchange station) of an IMPORT volume set into a specific library device exchange station.

▼ **To reply to this message, follow these steps:**

1. Find the next volume(s) of the volume set *vset_name*. The volume must be compatible with library device *Lxx*.
2. Insert the volume(s) into library device exchange station *LxxEyy*.
3. If the preceding steps were successful, reply with C to continue.
4. If an error occurs after you reply with C, StorHouse displays an error message on the console. If possible, correct the error, and then reply with either C to continue/retry or with E to abort the retry request.
5. If you do not need to load any more volumes from the volume set, reply with the letter N for NO MORE.
6. If the preceding steps failed (for example, a required volume is missing), reply with E to abort the load request.

When loading volumes into a multivolume exchange station, you can load up to *n* volumes and reply C. Reply N if you do not want to load any more volumes. Reply E if there is a problem and you cannot load any volumes (for example, a volume's protective case is cracked). If you loaded fewer than *n* volumes, you will be asked to load more volumes again (unless an error occurs). You can load volumes in any order, but you must load the volumes from the top slot downward.

A**Operator Messages**

Operator Messages (By Status Code)

XROLDP XROLDP LOAD-BLANK LxxEyy, MEDIA TYPE=mmr, REPLY 'C'-CONTINUE 'E'-ERROR

or

XROLDP XROLDP LOAD-BLANK LxxEyy, VOLUMES=n, MEDIA TYPE=mmr, REPLY 'C'-CONTINUE 'E'-ERROR

Load a blank prelabeled (bar-coded) volume (or volumes, if the library device has a multivolume exchange station) of a specific media type into a specified exchange station.

▼ **To reply to this message, follow these steps:**

1. Select a blank volume(s) of the specified media type.
2. Ensure that there is a bar code label on the cartridge(s).
3. Insert the volume(s) into exchange station LxxEyy.
4. If the preceding steps were successful, reply with C to continue.

If an error occurs after you reply with C, StorHouse generates an error message. If possible, correct the error, and then reply with C to continue/retry the operation or with E to abort the request.

5. If the preceding steps were unsuccessful, reply with E to abort the request.

A reply of E (for example, no blank volume is available), aborts the request.

For loading volumes into a multivolume exchange station, you can load up to n volumes and reply C, or just reply E if you do not want to load any blank volumes. If you loaded fewer than n volumes, you will be asked to load more volumes later (unless an error occurs). You can load volumes in any order, but you must load the volumes from the top slot downward.

XROLDS XROLDS LOAD-SHELF LxxEyy, vid, vset_name, [memo,][NEEDS_CLEANING,] REPLY 'C'-CONTINUE 'E'-ERROR 'W'-WIPED

or

XROESL LOAD-SHELF LxxEyy, vid, vset_name[, memo][, NEEDS_CLEANING]

XROLDS LOAD-SHELF LxxEyy, VOLUMES=n, REPLY 'C'-CONTINUE 'E'-ERROR 'L'-LIST 'W'-WIPED

The XROESL message(s) identifies each volume that StorHouse is moving from shelf storage to the specified library device exchange station slot. The XROLDS message asks you to load a level S volume or volumes into a specific library device exchange station. To repeat the list of volumes, reply to XROLDS with 'L'.

▼ To reply to the XROLS message, follow these steps:

1. Find volume(s) vid of volume set(s) vset_name on level S storage.
2. If StorHouse notifies you to clean the volume(s) and you want to do so now, clean the volume(s). If StorHouse notifies you to clean the volume(s) but you want to clean them later, or if StorHouse does not notify you to clean the volume(s), proceed to step 3.
3. Insert the volume(s) into exchange station LxxEyy.
4. Reply with one of the following:
 - W after you complete the cleaning process.
 - C to continue if you want to clean the volume(s) later or if StorHouse did not notify you to clean the volume(s).
5. If an error occurs after you reply with C or W, StorHouse generates an error message. If possible, follow the directions in the error message, and then reply with either C to continue/retry or with E to abort the retry request.
6. If the preceding steps were unsuccessful (for example, you could not locate the level S volume), reply with E to abort the load request.

For loading volumes into a multivolume exchange station, you can load up to n volumes and reply C or W, or just reply E if there is a problem (for example, you cannot find the volumes). If you loaded fewer than n volumes, you will be asked to load more volumes later (unless an error occurs). You can load volumes in any order, but you must load the volumes from the top slot downward.

XROMVD XROMVD MOVE-DISCARD Sxx, vid, vset_name, [memo], REPLY 'C'-CONTINUE 'E'-ERROR

Move the used cleaning cartridge indicated in the message off shelf storage and discard it.

▼ To reply to this message, follow these steps:

1. Find volume vid of volume set vset_name on level S.
2. Discard the volume.
3. If the preceding steps were successful, reply with C to continue.
4. If the preceding steps were unsuccessful (for example, you could not find volume vid), reply with E to abort the request.

A**Operator Messages**

Operator Messages (By Status Code)

XROMVE XROMVE MOVE-EXPORT Sxx, vid, vset_name, [memo], REPLY 'C'-CONTINUE 'E'-ERROR

During an EXPORT operation, this message asks you to move a level S volume to an EXPORT volume set. The exported volume set is then stored in a location determined by the system administrator.

▼ To reply to this message, follow these steps:

1. Find volume vid of volume set vset_name on level S.
2. Include the volume in the EXPORT volume set.
3. If the preceding steps were successful, reply with C to continue.
4. If the preceding steps were unsuccessful (for example, you could not find volume vid), reply with E to abort the request.

XROPULL XROPULL PULL-VOLUME Lxx, vid, vset_name, [memo]

This message directs you to pull a cartridge from level S for subsequent loading into library device Lxx. Then, you will be ready to load the cartridge when the system issues the XROLDs LOAD-SHELF request for the volume.

XRORST XRORST RESET-LIBRARY Lxx, REPLY 'C'-CONTINUE 'E'-ERROR

This message asks you to reset library device Lxx. For all libraries except tape libraries, press the **RESET** button on the library device control panel to manually reset the library device. For tape libraries, press the **IPL** button on the library device control panel to manually reset the library device. If the device has no **RESET** or **IPL** button, power-cycle the device. Then, reply with C to continue library actions.

If you choose not to reset the library device, reply with E to abort the request. This causes the system to shut down the library device and to generate the informational messages: XROINFO, OPERATOR REFUSED RESET REQUEST and XROINFO, Lxx, DEVICE IS DOWN.

XROULD XROULD UNLOAD-DISCARD LxxEyy, vid, vset_name, [memo], REPLY 'C'-CONTINUE

or

XROESL UNLOAD-DISCARD LxxEyy, slot, vid, vset_name, [memo]

XROULD UNLOAD-DISCARD LxxEyy, VOLUMES=n, REPLY 'C'-CONTINUE 'L'-LIST

The XROESL message(s) identifies each volume that StorHouse is discarding from the specified library device exchange station slot. The XROULD message asks you to unload the indicated volume(s) from the exchange station of the indicated library device and discard it (them). To repeat the list of volumes, reply to XROULD with 'L'.

▼ **To reply to the XROULD message, follow these steps:**

1. Remove the volume(s) from library device exchange station LxxEyy.
2. Discard the volume(s).
3. If the preceding steps were successful, reply with C to continue.

If StorHouse detects an error while outputting a volume, you will receive an error message before you receive the actual unload request. Look up the specific error message code for more information.

4. If the preceding steps failed (for example, you could not open the exchange station door), ask your system administrator to contact your FileTek customer support representative.

XROULE XROULE UNLOAD-EXPORT LxxEyy, vid, vset_name, [memo], REPLY 'C'-CONTINUE

or

XROESL UNLOAD-EXPORT LxxEyy, slot, vid, vset_name, [memo]

XROULE UNLOAD-EXPORT LxxEyy, VOLUMES=n, REPLY 'C'-CONTINUE 'L'-LIST

The XROESL message identifies each volume that StorHouse is exporting from the specified library device exchange station slot. The XROULE message asks you to unload the indicated volume(s) from the library device exchange station and include it (them) with a specific EXPORT volume set. The exported volume set is stored in a location determined by the system administrator. To repeat the list of volumes, reply to XROULE with 'L'.

▼ **To reply to the XROULE message, follow these steps:**

1. Remove the volume(s) from library device exchange station LxxEyy.
2. For optical media, check the external label on the cartridge. The volume identifier should be the value of the vid parameter. The volume set name should be the value of the vset_name parameter. You should replace the label immediately if it is missing, illegible, or incorrect.

For tape media, be sure that the bar code label remains on the cartridge. (Do not write on the bar code label or cover it with any other label.)

3. Include the volume(s) in the EXPORT volume set named vset_name.
4. If the preceding steps were successful, reply with C to continue.

A**Operator Messages**

Operator Messages (By Status Code)

If StorHouse detects an error while outputting a volume, you will receive an error message before you receive the actual unload request. Look up the specific error message code for more information.

5. If the preceding steps failed (for example, you could not open the exchange station door), ask your system administrator to contact your FileTek customer support representative.

XROULM XROULM UNLOAD-MISC LxxEyy

This message asks you to unload a miscellaneous volume from a specific library device exchange station. It may appear during initialization of the library device. StorHouse cannot identify the volume in the library device exchange station. You must unload the volume; determine whether it belongs with the pool of blank volumes, on level S, in exported volume storage, or in removed volume storage; and store the volume appropriately.

▼ **To reply to this message, follow these steps:**

1. Unload the volume(s) from library device exchange station LxxEyy.
2. Determine where the volume(s) belongs, and store it (them) appropriately.

XROULR XROULR UNLOAD-REMOVE LxxEyy, <error text>, vid, vset_name, [memo],
REPLY 'C'-CONTINUE

or

XROESL UNLOAD-REMOVE LxxEyy, slot, <error text>, vid, vset_name, [memo]
XROULR UNLOAD-REMOVE LxxEyy, VOLUMES=n, REPLY 'C'-CONTINUE
'L'-LIST

The XROESL message identifies each volume(s) that StorHouse is removing from the specified library device exchange station slot. The XROULR message asks you to unload the indicated volume(s) from the library device exchange station and move it (them) to the appropriate storage location. To repeat the list of volumes, reply to XROULR with 'L'.

For example, this message appears when a non-blank volume is loaded for MIGRATE /BLANKS. For IMPORT, the message appears when a volume from the wrong volume set is loaded.

Possible values for the error text parameter are:

Error Text	Action
BAR CODE NOT IN RANGE	Unload this volume and reload the expected one. The system displays the volume identification code (vid) or bar code of the volume actually loaded.
BLANK VOLUME	Unload this blank volume and load the correct volume.

Error Text	Action
CLEANING CARTRIDGE	Unload this cleaning cartridge and load the correct volume.
DAMAGED OR INCOMPATIBLE MEDIA	Check the volume for damage and ensure that you are loading it into a compatible library device. Check that you loaded the correct volume into the correct library device. Check that you did not load a 2.6-GB volume into a 7.0-GB drive. If you loaded the correct volume, try cleaning the volume. If you are loading blank volumes, try to load another volume(s).
DUPLICATE BAR CODE	Unload this volume and load a cartridge containing a different bar code.
EMPTY VOLUME	Unload this volume and load the correct volume.
ERROR INITIALIZING VOLUME	Unload this volume and load another blank volume. (Inspect the problem volume before using it again as a blank volume.)
INVALID BAR CODE	Unload this volume and load a cartridge containing a different bar code or fix the bar code and reload. (The bar code on the cartridge is missing, unreadable or upside down.)
NON-BLANK VOLUME	Unload this non-blank volume and load a blank volume.
UNPROCESSED BLANK VOLUME	Unload the unprocessed blank volume(s). An error occurred that prevented this volume(s) from being processed. Because the system did not format the volume(s), it is (they are) still blank. When the error is resolved, the system may ask you to reload it (them).
UNPROCESSED IMPORT VOLUME	Unload the unprocessed imported volumes. An error occurred that prevented these volumes from being processed. When the error is resolved, the system may ask you to reload them.
UNREADABLE VOLUME	Unload this volume and load the correct volume.
UNREQUESTED VOLUME	Unload the volume. You loaded more volumes for the input request than the system needed.
VOLUME ALREADY KNOWN	Unload this volume and load the correct volume. This volume is already known to the system, either because it has never been exported or because it has already been imported.
WRITE-PROTECTED VOLUME	Unload this volume and either write-enable and reload the volume, or load another blank volume.
WRONG MEDIA/RECORDING TYPE	Unload this volume and load a volume of the correct media/recording type.
WRONG VOLUME	Unload this volume and reload the expected one. The system displays the volume identification code (vid) or bar code of the volume actually loaded.
WRONG VSET	Unload this volume and load the correct volume.

▼ To reply to the XROULR message, follow these steps:

1. Unload the volume(s) from library device exchange station LxxEyy.
2. For optical media, check the external label on the cartridge. The volume identifier should be the value of the vid parameter. The volume set name should be the value of the vset_name parameter. You should replace the label immediately if it is missing, illegible, or incorrect.

For tape media, be sure that the bar code label remains on the cartridge. (Do not write on the bar code label or cover it with any other label.)

3. Store the volume(s) in the proper location.
4. If the preceding steps were successful, reply with C to continue.

If StorHouse detects an error while outputting a volume(s), you will receive an error message before you receive the actual unload request. Look up the specific error message code for more information.

5. If the preceding steps failed (for example, you could not open the exchange station door), ask your system administrator to contact your FileTek customer support representative.

XROULS XROULS UNLOAD-SHELF LxxEyy, vid, vset_name, [memo,]
[PENDING,][NEEDS_CLEANING,]REPLY 'C'-CONTINUE 'W'-WIPE

or

XROESL UNLOAD-SHELF LxxEyy, slot, vid, vset_name[, memo][, PENDING]
[, NEEDS_CLEANING]

XROULS UNLOAD-SHELF LxxEyy, VOLUMES=n, REPLY 'C'-CONTINUE
'L'-LIST 'W'-WIPE

The XROESL message identifies each volume that StorHouse is moving from the specified library device exchange station slot to shelf storage. The XROULS message asks you to unload the indicated volume(s) from the library device exchange station and move it (them) to level S. To repeat the list of volumes, reply to XROULS with 'L'.

The brackets [] indicate that the word PENDING may or may not display in this message. If PENDING displays, the message also indicates that there are subsequent pending requests for the specified volume. PENDING displays when a MOVE VOLUME or a MOVE VSET command requires a volume to be moved to another library device. The volume is unloaded temporarily until you receive a message to load the volume into another library device.

▼ To reply to the XROULS message, follow these steps:

1. Remove the volume(s) from library device exchange station LxxEyy.
2. For optical media, check the external label on the cartridge. The volume identifier should be the value of the vid parameter. The volume set name should be the value of the vset_name parameter. You should replace the label immediately if it is missing, illegible, or incorrect.

Note: If the volume set name in the message is in the form .Lxxmmr, the volume is a member of the library device's free pool volume set. In this case, do not write the volume set name on the label. Whenever someone allocates the volume to another volume set, write the name of the new volume set on the label.

For tape media, be sure that the bar code label remains on the cartridge. (Do not write on the bar code label or cover it with any other label.)

3. If the word PENDING does *not* appear in the message, move the volume to level S (assuming you're not going to clean it now). If the word PENDING *does* appear, then other requests are pending for that volume. Store the volume nearby as you will need convenient access to it in order to fulfill the pending requests.
4. If the preceding steps were successful and StorHouse notifies you to clean the volume(s), either clean the volume(s) now and reply with W after you complete the cleaning process, or reply with C to continue if you want to clean the volume(s) later.

If StorHouse does not notify you to clean the volume(s), reply with C to continue.

5. If StorHouse detects an error while outputting a volume, you will receive an error message before you receive the actual unload request. Look up the specific error message code for more information.
6. If the preceding steps failed (for example, you could not open the exchange station door), ask your system administrator to contact your FileTek customer support representative.

XRVLOVRFLW XRVLOVRFLW, VOLUME LABEL RANGE OVERFLOW

StorHouse generated the volume label to assign to the next blank volume and exceeded the maximum label value. This caused the system to assign to the LABEL_media system parameter the lowest value allowed by the LABEL_MASK_media system parameter. The system administrator must change the LABEL_media and/or LABEL_MASK_media system parameter values to designate a new range of unused volume labels. Otherwise, the system will continue to generate new labels based on the new value of the LABEL_media system parameter.

A**Operator Messages**

Operator Messages (By Status Code)

XSCPLDIS	<p>XSCPLDIS, CHECKPOINT LOGGING DISABLED</p> <p>An error occurred when the system attempted to write the checkpoint log file. Correct the problem and ask your system administrator to take a new checkpoint. Until then, if a checkpoint recovery is required, some user transactions may not be recoverable.</p>
XSCPSUC	<p>XSCPSUC, SUCCESSFUL CHECKPOINT yyyymmddhhmmss IS LOCATED ON VOLUME(S):</p> <p>The indicated checkpoint was taken successfully. A list of the physical volumes containing the checkpoint data for this checkpoint follows in subsequent messages. You should record the checkpoint ID and volume IDs in the event that recovery from this checkpoint is required.</p>
XSCPVOLS	<p>XSCPVOLS, vid vid vid vid</p> <p>This message lists the physical volumes that contain checkpoint data for the checkpoint that just completed. You should record the volume IDs in the event that recovery from this checkpoint is required. A maximum of four volume IDs are listed per message. If more than four volumes were required for the checkpoint, there will be multiple XSCPVOLS messages.</p>
XSDISKLO	<p>XSDISKLO, CRITICAL DISK SPACE SHORTAGE, SYSTEM COULD FAIL</p> <p>Magnetic disk space is critically low. Ask your system administrator to call your FileTek customer support representative.</p>
XSORSAT	<p>XSORSAT REQUEST SATISFIED</p> <p>This message appears in a user's message queue if an operator request message was satisfied by another user.</p>
XSWFDSBL	<p>XSWFDSBL, CHECKPOINT WORK FILE DISABLED</p> <p>The work file for the SCHKP process could not be read or written. StorHouse continues to write to the checkpoint log file. A possible cause of the problem is insufficient disk space. Ask your system administrator to contact your FileTek customer support representative.</p>
XWPABORT	<p>XWPABORT, PROCESS ABORTED</p> <p>The process aborted. Contact your system administrator.</p>

Library Devices and Media

This appendix is divided into sections for the different library devices and media types that StorHouse supports. Each section describes specific library devices and explains how to load and unload the appropriate media. Your StorHouse system may contain one or more library devices. Consult the appropriate sections for the library device or devices used in your system. For the current list of supported libraries and devices, contact your FileTek Customer Support representative.

For more detailed information on library devices or media, see the manufacturer's hardcopy documentation or check the manufacturer's web site. The final authority for information on any hardware mentioned in this chapter always rests with the manufacturer. The information presented in this chapter serves only as a guide.

Note Only use media qualified by FileTek in your StorHouse systems. FileTek is not responsible for problems caused by using non-standard, non-certified, or non-compatible media. Maintenance, repair, or alteration services for damages resulting from such problems shall be your responsibility and at your cost. Contact your FileTek customer service representative for a list of all FileTek-certified media.

12-inch Optical Library Devices and Media

There are two types of library devices for 12-inch optical cartridges: variable-capacity and fixed capacity. These devices are described in the following sections. Note that the load and unload procedures are the same for both library device types.

Variable-Capacity Library Device

There are two models of the variable-capacity library device that use 12-inch optical media:

- 7-GB model – contains single-head drives that read and write 7-GB media.
- 12-GB model – contains dual-head drives that read and write 12-GB media.

B**Library Devices and Media**

12-inch Optical Library Devices and Media

The physical characteristics of the library are presented first, followed by descriptions of the two models. The library device is pictured in Figure B-1:

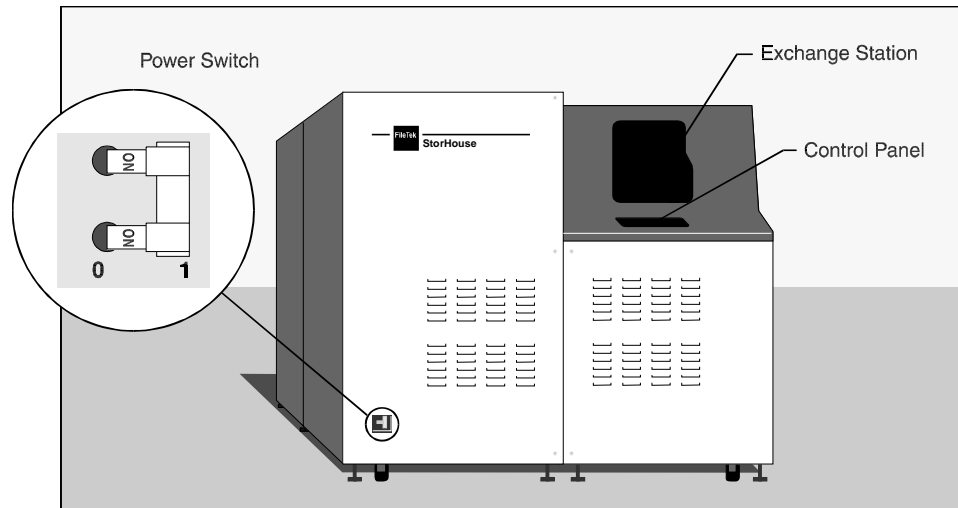


Figure B-1: Variable-Capacity Library Device for 12-Inch Optical Disks

Power Switch

A toggle switch power-cycles the library device and optical drives. This switch is located at the bottom front left corner of the library device. Figure B-1 shows this switch in the ON position.

Control Panel

The control panel contains four indicator lights and one switch. Figure B-2 illustrates this panel.

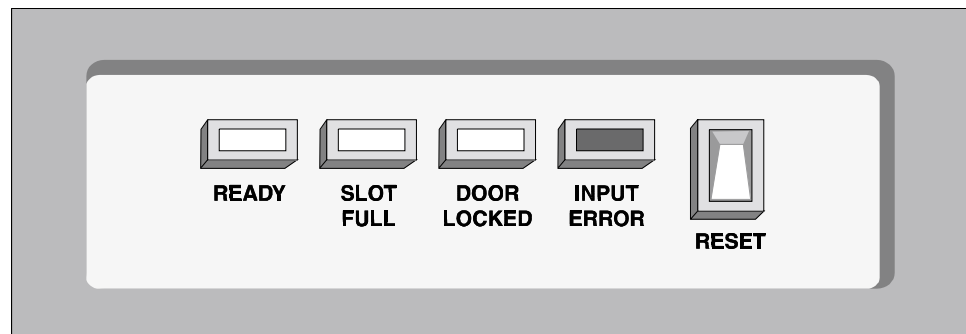


Figure B-2: Variable-Capacity Library Device Control Panel

The indicator lights and switch are:

- **READY light** – Indicates that the library device is turned ON and ready to receive commands from the StorHouse processor.
- **SLOT FULL light** – Indicates that the library device has accepted a cartridge for entry or a cartridge is ready to be removed from the exchange station.
- **DOOR LOCKED light** – Indicates that the exchange station door is locked. At times during library device operation, the exchange station door is locked to prevent interference with normal functions.
- **INPUT ERROR light** – Indicates that a cartridge has been installed incorrectly in the exchange station. The cartridge has not been accepted into the library device.
- **RESET switch** – Resets the library device to a known state.

The two models of this library device are described in the following sections.

7-GB Variable-Capacity Library Device

The 7-GB model of the variable-capacity library device contains 96, 115, or 125 storage slots for 7-GB optical cartridges and is configured with 6, 4, or 2 second-generation optical drives, respectively. The single-head drives can read and write one side (3.5-GB) of a 12-inch, double-density, write-once-read-many (WORM) optical cartridge at a time. These drives can also read single-density (2.6 GB) cartridges. The robotic arm in the library device must flip a cartridge to access the other side. The storage capacity of the library device varies depending on the number of slots configured:

Number of slots	Number of drives	Storage capacity
96	6	672 GB
115	4	805 GB
125	2	875 GB

12-GB Variable-Capacity Library Device

The 12-GB model of the variable-capacity library device contains 107, 123, or 144 storage slots for 12-GB optical cartridges and is configured with 6, 4, or 2 optical drives, respectively. The dual-head drives read and write both sides of a 12-inch, 12-GB, WORM optical cartridge simultaneously. Consequently, cartridges are not flipped inside this library device. Although this media is physically double-sided, StorHouse considers it to be logically single-sided because all 12 GB of data can be

B**Library Devices and Media**

12-inch Optical Library Devices and Media

accessed at one time. The storage capacity of the library device varies depending on the number of drives and slots configured:

Number of slots	Number of drives	Storage capacity
107	6	1.2 TB
123	4	1.4 TB
144	2	1.7 TB

Fixed-Capacity Library Device

The fixed-capacity library device contains 288 storage slots for 7-GB optical cartridges and is configured with either two or four second-generation optical drives. The single-head drives can read and write one side (3.5-GB) of a 12-inch, double-density, WORM optical cartridge at a time. The storage capacity of the library device is 2 TB. This library device type is shown in Figure B-3.

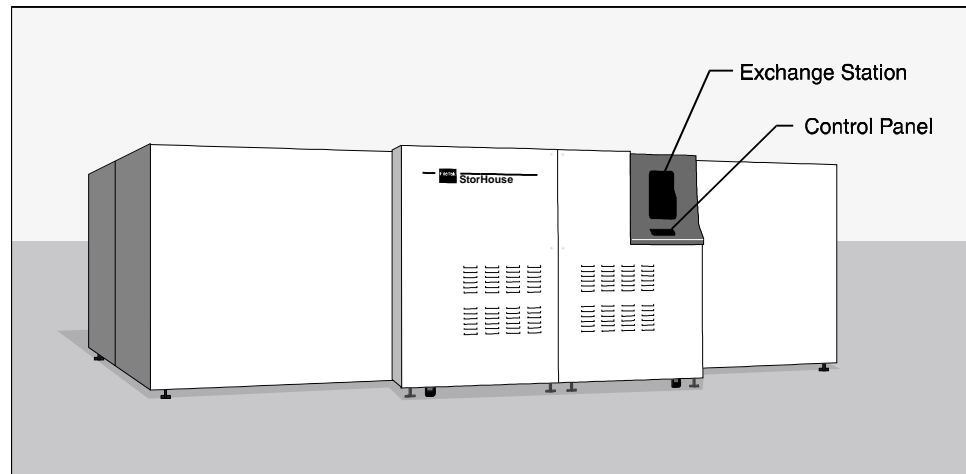


Figure B-3: Fixed-Capacity Library Device for 12-Inch Optical Disks

Control Panel

The control panel contains four indicator lights and two switches. Figure B-4 illustrates this panel.

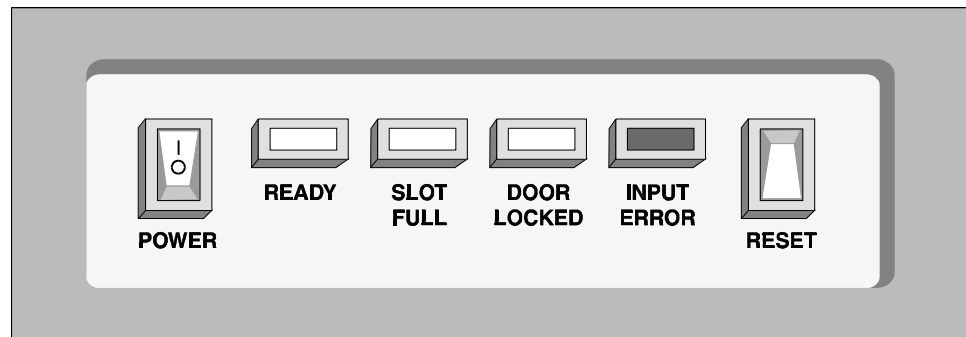


Figure B-4: Fixed-Capacity Library Device Control Panel

The indicator lights and switches are described as follows:

- **POWER switch** – Power-cycles the library device and optical drives. Figure B-4 shows this switch in the ON position.
- **READY light** – Indicates that the library device is turned ON and ready to receive commands from the StorHouse processor.
- **SLOT FULL light** – Indicates that the library device has accepted a cartridge for entry or a cartridge is ready to be removed from the exchange station.
- **DOOR LOCKED light** – Indicates that the exchange station door is locked. At times during library device operation, the exchange station door is locked to prevent interference with normal functions.
- **INPUT ERROR light** – Indicates that a cartridge has been installed incorrectly in the exchange station. The cartridge has not been accepted into the library device.
- **RESET switch** – Resets the library device to a known state.

Using 12-inch Optical Disk Cartridges

This section explains how to load and unload 12-inch optical disk cartridges from the library devices described in “12-inch Optical Library Devices and Media.”

Loading a Cartridge

Before loading an optical disk cartridge, make sure that the READY light is ON, and that the DOOR LOCKED and SLOT FULL lights are OFF. Figure B-5 illustrates a 7-GB cartridge being placed into the cartridge exchange station. Figure B-6 shows a 12-GB cartridge being placed into the cartridge exchange station.

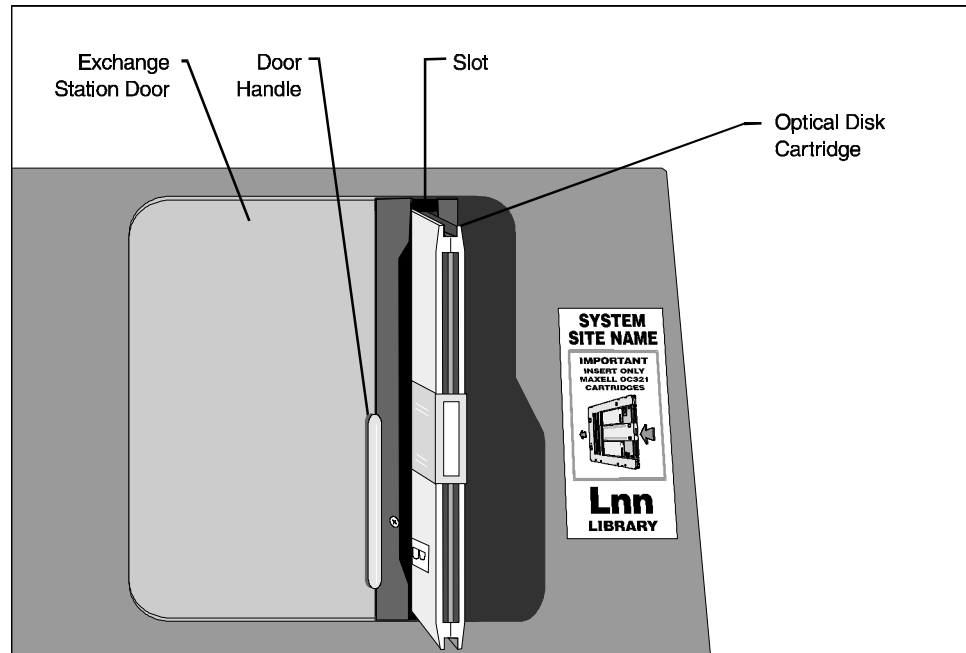


Figure B-5: Inserting a 7-GB, 12-Inch Optical Disk Cartridge

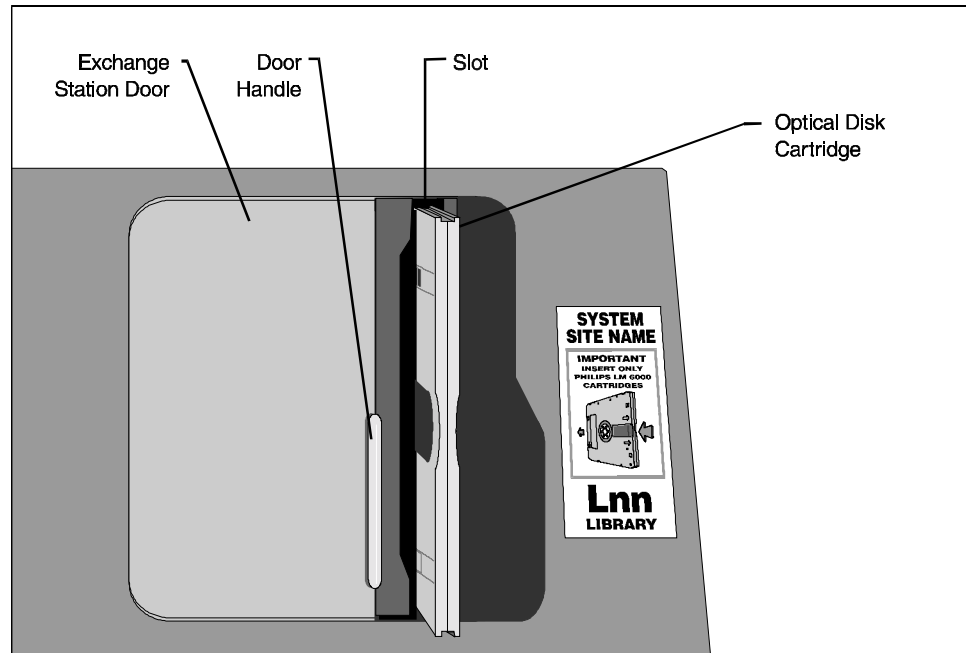


Figure B-6: Inserting a 12-GB, 12-Inch Optical Disk Cartridge

▼ **To load an optical disk cartridge**

1. Gently slide open the exchange station door.
2. Position the cartridge into the slot as follows:

For 7-GB media: Place the cartridge into the slot so that side A is on the right and the cartridge access door is facing you.

For 12-GB media: Place the cartridge in the slot so that the arrows point *toward* you. Figure B-8 shows the location of the arrows. The side placement does not matter because StorHouse considers these volumes to be logically single-sided.

3. Gently push the cartridge into the exchange station. As you push it, the SLOT FULL and INPUT ERROR lights illuminate. When the cartridge reaches the stop position, the INPUT ERROR light turns off.
4. Close the exchange station door. The READY and SLOT FULL lights illuminate.

Unloading a Cartridge

To remove a disk from the exchange station slot, make sure that the READY and SLOT FULL lights are ON and that the DOOR LOCKED light is OFF. Gently slide the station door open and pull out the cartridge (refer to Figure B-5 or Figure B-6). Then close the station door.

Maintaining 12-inch Optical Media

Figure B-7 shows two views of a 7-GB, 12-inch optical disk cartridge. Figure B-8 shows two views of a 12-GB, 12-inch optical disk cartridge. The following sections explain how to handle, store, and clean 12-inch optical media.

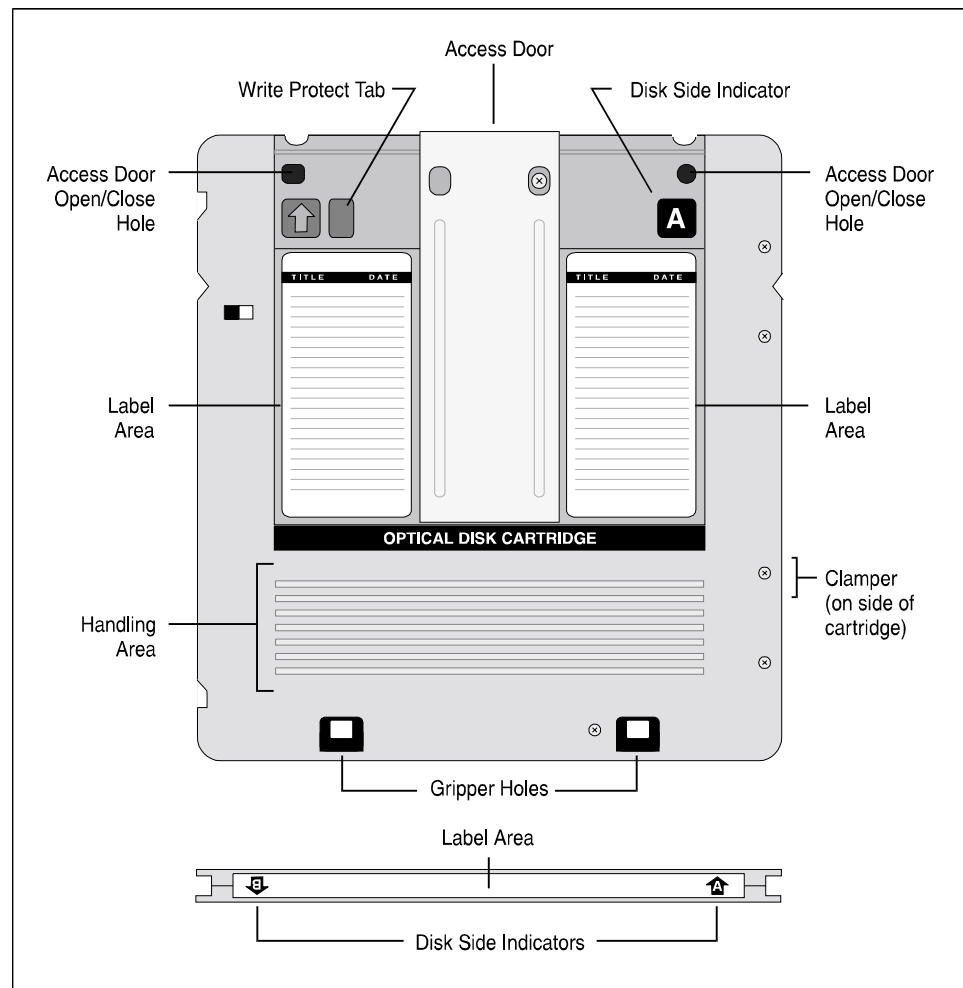


Figure B-7: 7-GB, 12-Inch Optical Media

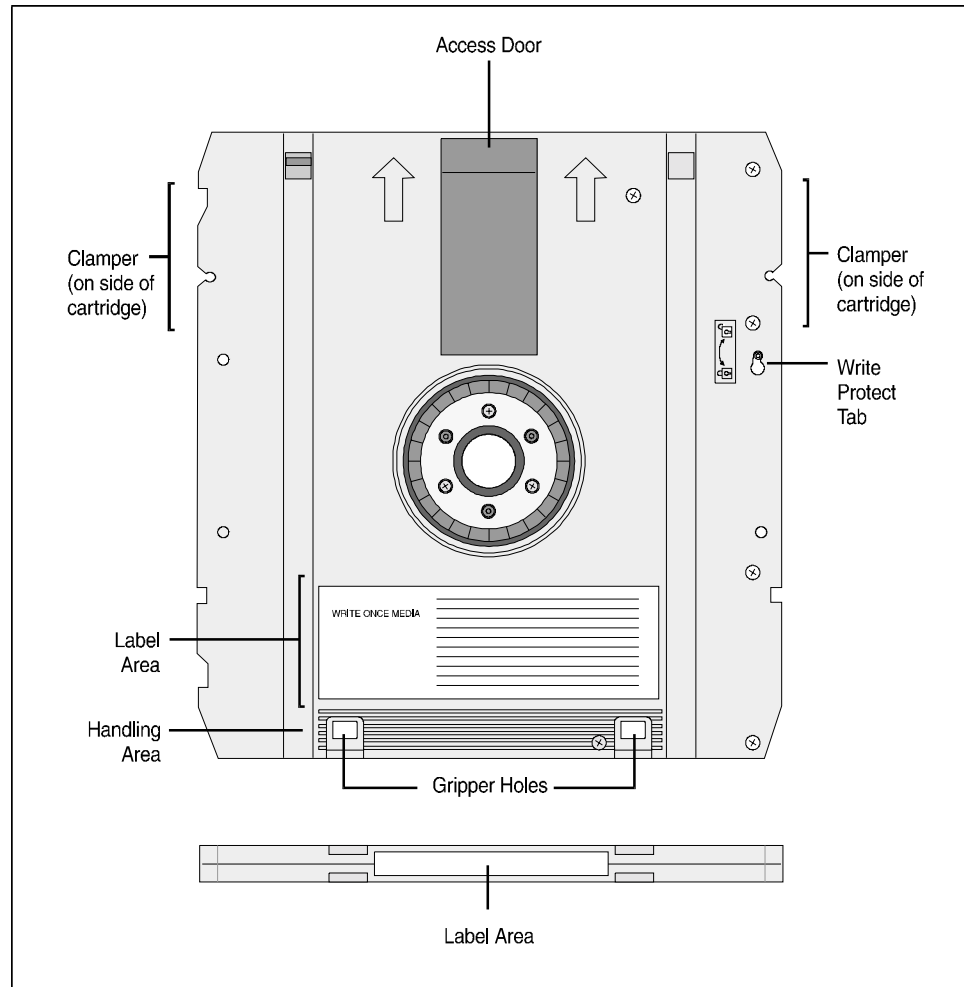


Figure B-8: 12-GB, 12-Inch Optical Media

Handling and Storing the Cartridges

Optical disks are sensitive to heat, pressure, moisture, and contaminants. Follow these precautions when handling and storing optical disk cartridges:

- Do not drop cartridges.
- Store cartridges upright (vertical) in their original protective cases. If the cases were not retained, store cartridges in plastic bags.
- Allow new cases of cartridges to adjust to room temperature before unpacking. Any condensation that might build up after sudden temperature changes must evaporate before you insert the cartridges into library devices.

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12-inch Optical Library Devices and Media

- Store cartridges in a clean, dust-free location.
- Do not expose cartridges to excessive heat. Never place them in direct sunlight or near heating systems.
- Do not expose cartridges to extreme magnetic fields.
- Keep cartridges dry. Do not expose them to excessive moisture. Never place cartridges near a ventilator or blower.
- Do not open the access doors on cartridges or touch the media inside. Fingerprints, dust, or other contaminants on the media may make the data unreadable.
- Do not insert cartridges with loosely attached labels into the library device. Also, remove old labels before applying new ones.
- Never place objects on cartridges.

Cleaning the Cartridges

Occasionally, an optical disk cartridge becomes dirty. There are two cleaning methods for 12-inch optical disk cartridges: wet and dry. The wet method is recommended for best results. See your FileTek customer support representative about Maxell® Optical Disk Cleaning Kit OC-CK3 for 7-GB media and Philips® Optical Cleaning Kit Model 97662550 (Optical Cleaner Refills Kit Model 97662548) for 12-GB media and follow the instructions as written.

If you do not have a wet cleaning kit, use the dry cleaning method as directed in Figure B-9 and Figure B-10. Start with side A, then turn the cartridge over and repeat the procedure for side B.

Note FileTek recommends that you wear plastic gloves when cleaning disk cartridges to protect the disks from contact with your skin. Also, be sure not to allow any lubricants from the disk hubs onto the disk surfaces.

The text of the XROINFO, EXCESSIVE MEDIA ERRORS--VOLUME NEEDS CLEANING, VOLUME=vid message on page A-7 documents all the steps to reply to this message.

Caution: To avoid the possibility of media data errors, never touch the disk surface with your fingers.

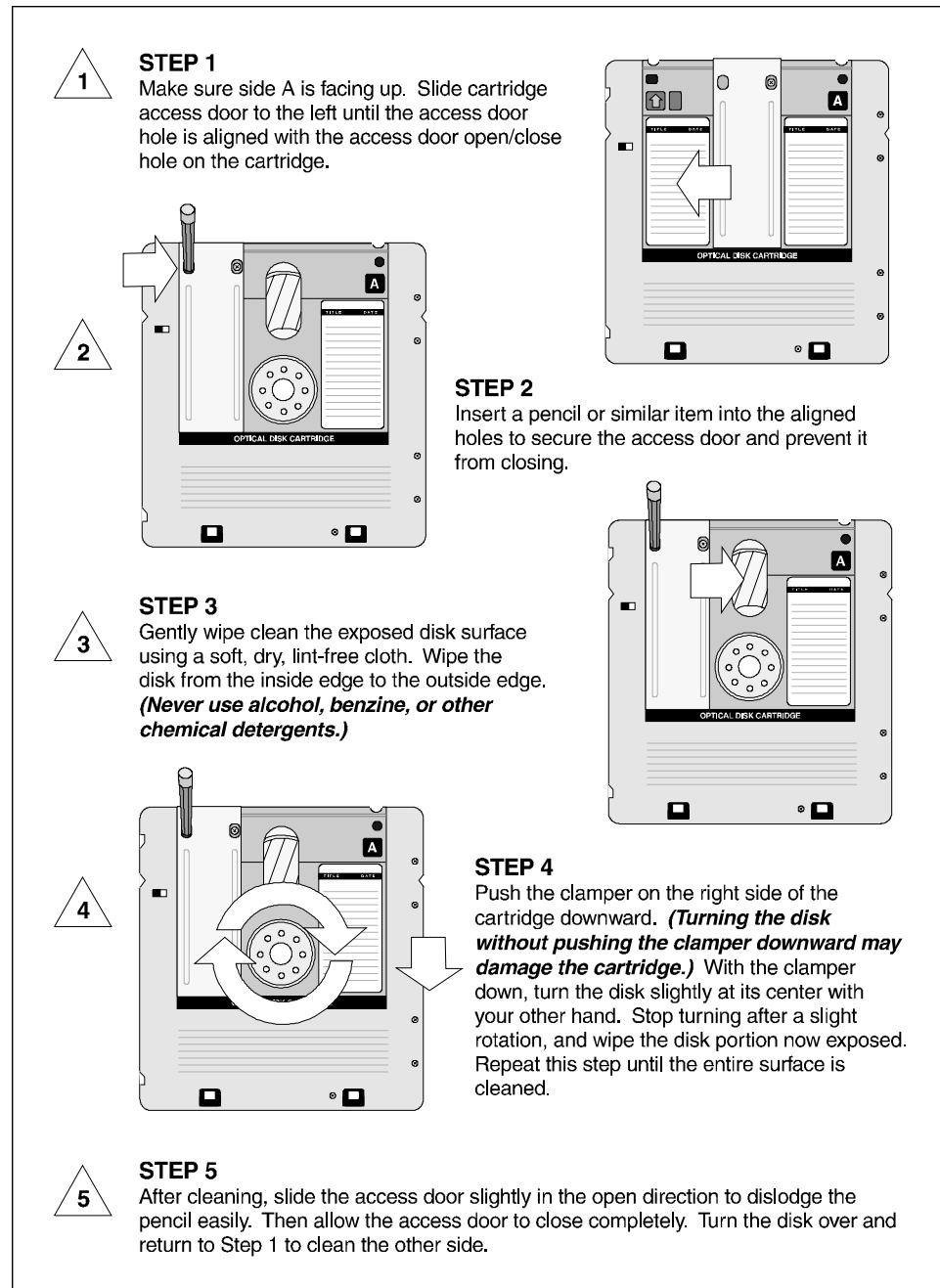
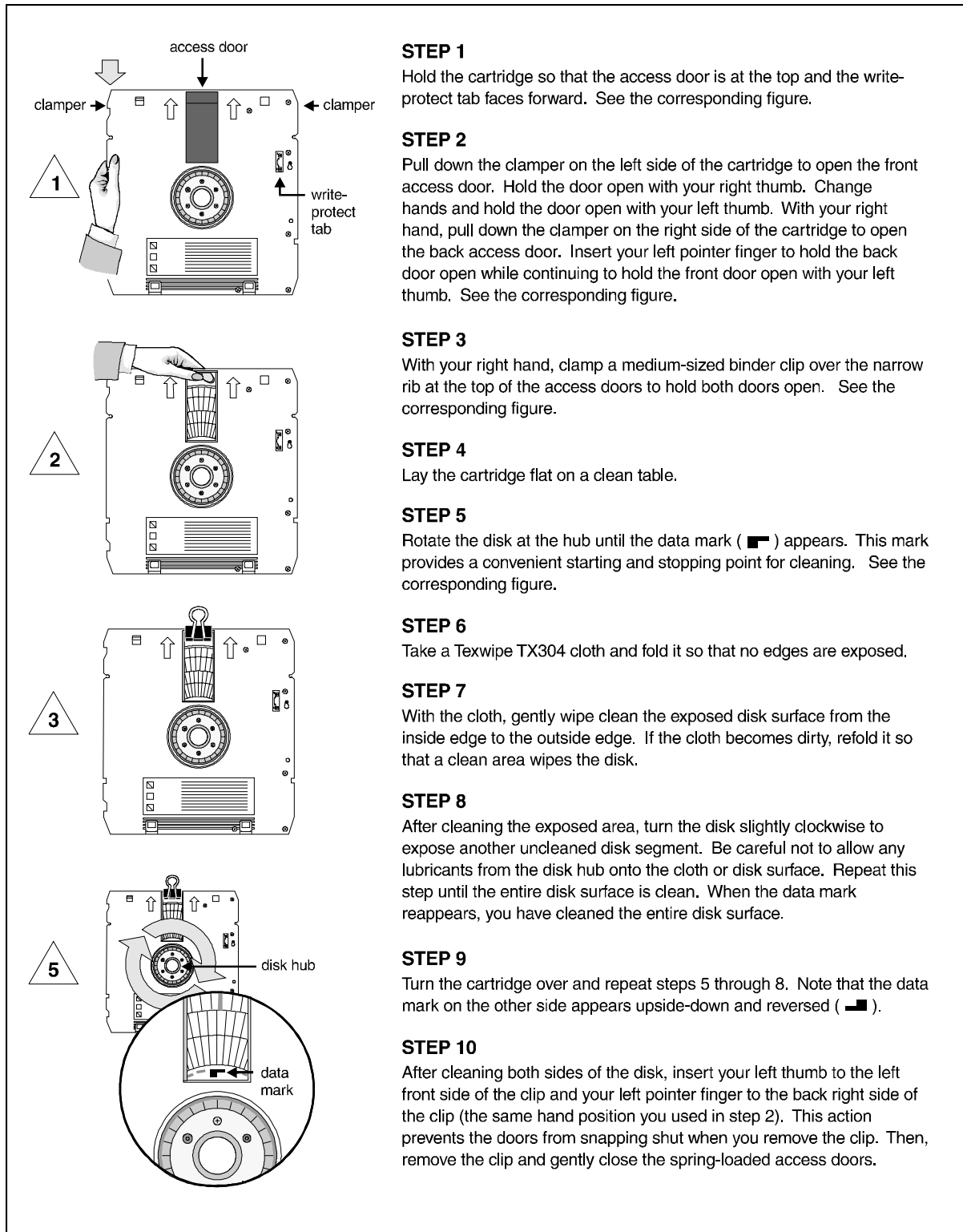


Figure B-9: Cleaning 7-GB, 12-Inch Optical Cartridges (Dry Method)

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12-inch Optical Library Devices and Media

**Figure B-10: Cleaning 12-GB, 12-Inch Optical Cartridges (Dry Method)**

5.25-inch Optical Library Devices and Media

This section describes library devices for 5.25-inch optical media, and loading and handling procedures for 5.25-inch optical cartridges.

500-Slot Library

The 500-slot library device for 5.25-inch optical disks is configured with six optical drives that read and write 5.25-inch, erasable and WORM optical media. The drives can read and write 8X (5.2 GB) or 4X (2.6 GB) media, or read 3X (2.0 GB) media. The maximum storage capacity of the library (with 8X media) is 2.6TB. This library device has one accessor (robotic arm) with two grippers.

The 500-slot library device type is shown in Figure B-11.

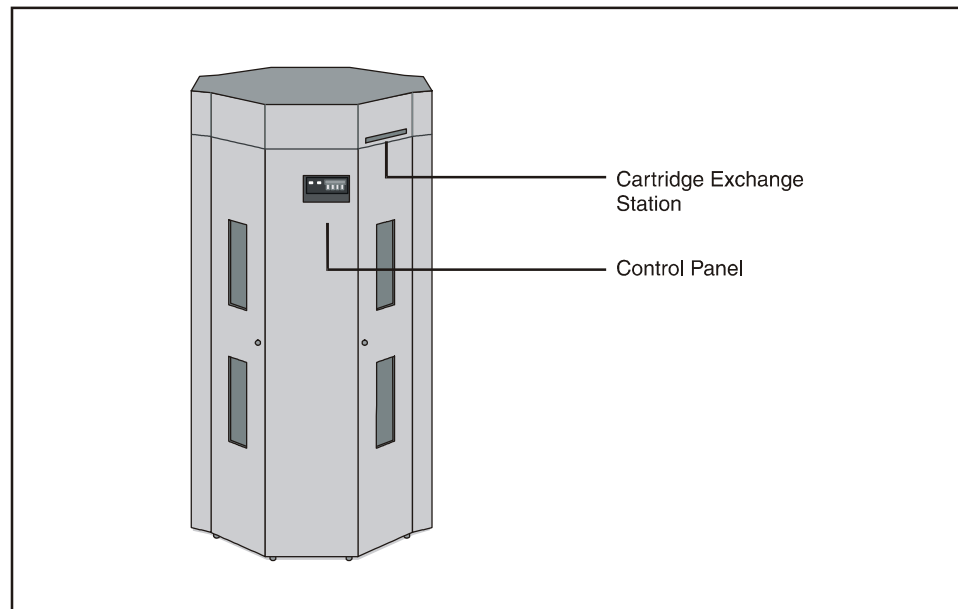


Figure B-11: 500-Slot Library Device for 5.25-Inch Optical Disks

Control Panel

As shown in Figure B-12, the control panel has two indicator lights, an alphanumeric display (LCD), and four buttons.

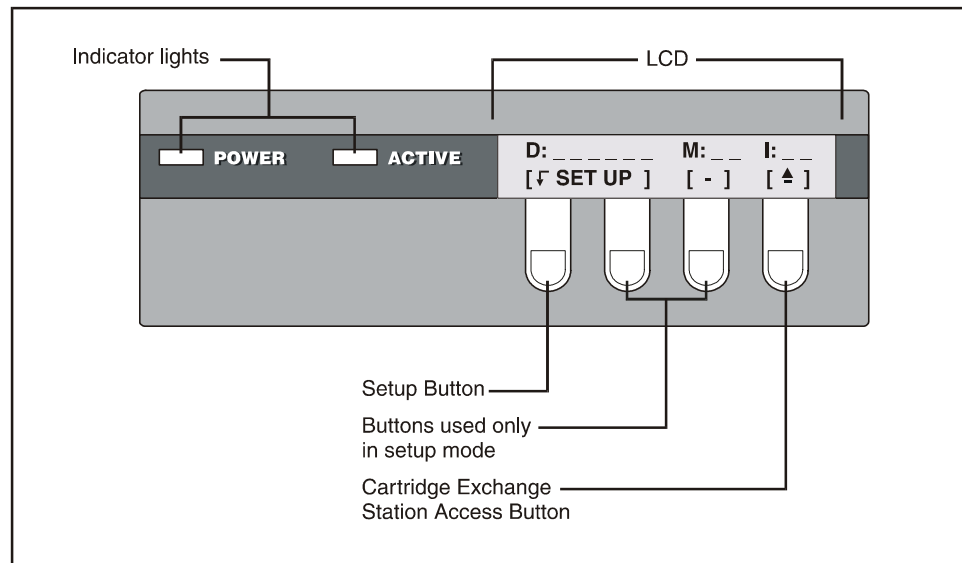


Figure B-12: 500-Slot Library Device Control Panel

These items are described as follows:

- **POWER light** – Indicates that the library device is turned ON.
- **ACTIVE light** – Indicates that the library device is receiving commands from the StorHouse processor.
- **LCD** – Shows diagnostic codes when the device is powered up or error codes if the library device detects errors. When the system is operating normally, no numbers display.
- **Buttons** – The leftmost button activates the setup mode. The middle two buttons are used when you are in the setup mode. The rightmost button is used to open and close the cartridge exchange station, although you do not have to use it to load and unload cartridges in StorHouse.

180-Slot Library

The 180-slot library device for 5.25-inch optical disks is configured with four optical drives that read and write 5.25-inch, erasable and WORM optical media. The maximum storage capacity of the library depends on the type of media in the device. This library device has a single accessor, which means that it can access one cartridge at a time. There are three configurations for the 180-slot, 5.25-inch library device:

- 360-GB capacity library – contains drives that can read and write 3X (2 GB) media. Maximum storage capacity is 360 GB.
- 468-GB capacity library – contains drives that can read and write 4X (2.6 GB) and 3X media. Maximum storage capacity is 468 GB (with 4X media).
- 936 GB capacity library – contains drives that can read and write 8X (5.2 GB) and 4X media, and read 3X media. Maximum storage capacity is 936 GB (with 8X media).

The 180-slot library device type is shown in Figure B-13.

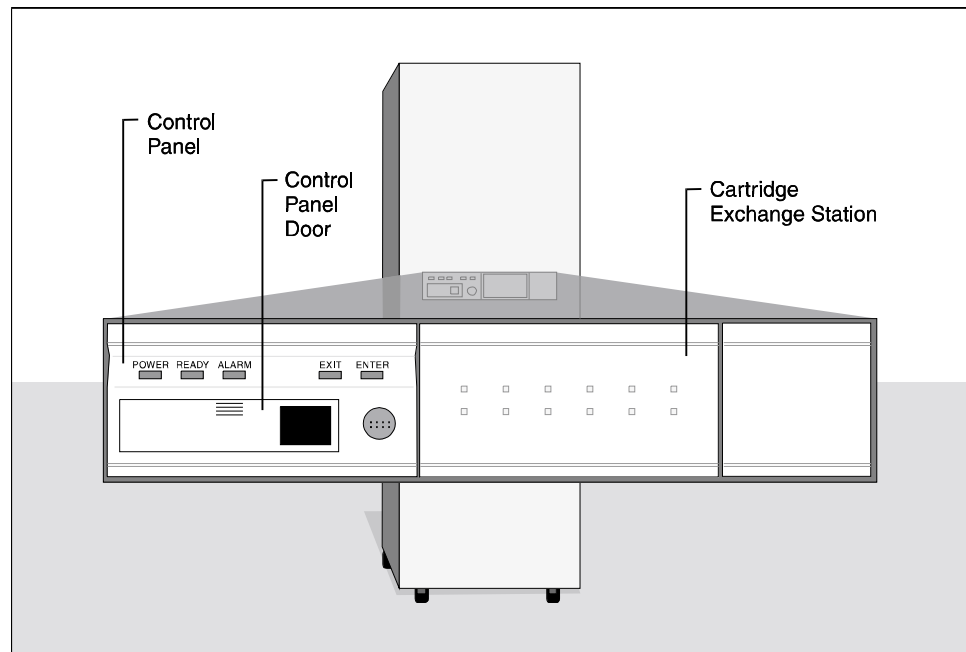


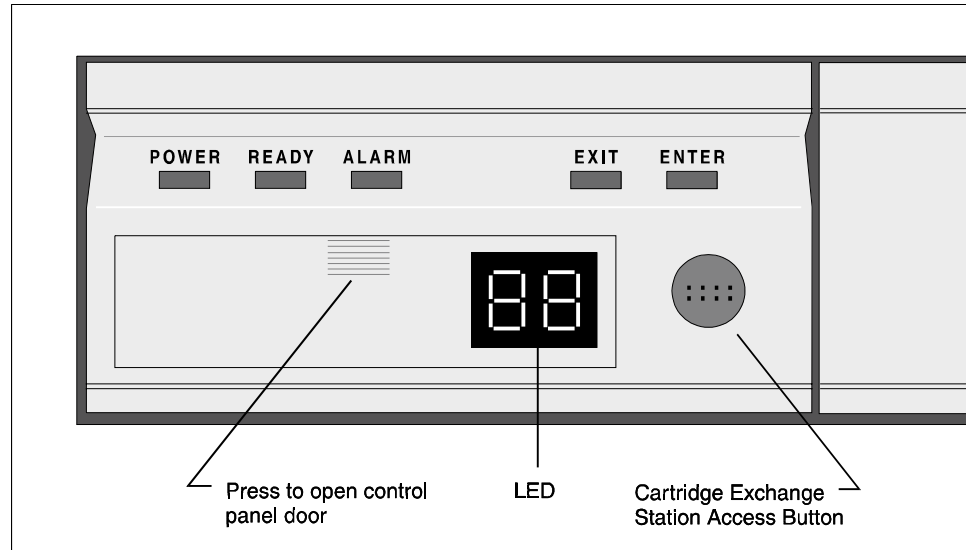
Figure B-13: 180-Slot Library Device for 5.25-Inch Optical Disks

Control Panel

With the control panel door closed as shown in Figure B-14, you see five indicator lights, the control panel door, a two-character alphanumeric display (LED), and an access button for the cartridge exchange station.

B**Library Devices and Media**

5.25-inch Optical Library Devices and Media

**Figure B-14: 180-Slot Library Device Control Panel With Door Closed**

These items are described as follows:

- **POWER light** – Indicates that the library device is turned ON.
- **READY light** – Indicates that the library device is ready to receive commands from the StorHouse processor.
- **ALARM light** – Indicates a hardware error in the library device.
- **EXIT light** – Illuminates when you open the exchange station door to remove a cartridge.
- **ENTER light** – Blinks when you shut the exchange station door after loading a cartridge.
- **LED (two-character alphanumeric display)** – Shows diagnostic codes when the device is powered up or error codes if the library device detects errors. When the system is operating normally, no numbers display.
- **Access Button** – Lets you open the cartridge exchange station door.

To open the control panel door, press it at the point indicated in Figure B-14. Figure B-15 shows the panel with the door open.

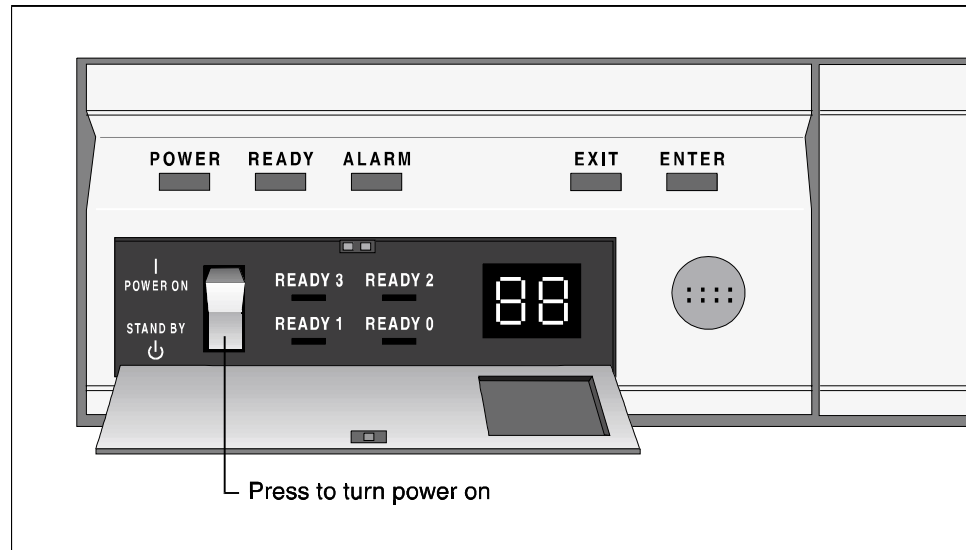


Figure B-15: 180-Slot Library Device Control Panel With Door Open

The switch and indicator lights located inside the door are described as follows:

- **POWER ON/STAND BY toggle switch** – A transition from STAND BY to POWER ON turns on the library device and optical drives. A transition from POWER ON to STAND BY turns off the library device and optical drives. Use the STAND BY switch to reset the library device, if necessary.

Warning:

Never turn this switch to STAND BY during disk and library operations. Any operations that are interrupted when you press STAND BY will not complete.

- **READY lights 0 through 3** – Indicate that a cartridge is loaded in optical drive 0 through 3, respectively.

Using 5.25-inch Optical Disk Cartridges

This section explains how to load and unload 5.25-inch optical disk cartridges from the library devices described in “5.25-inch Optical Library Devices and Media.”

Loading a Cartridge into the 500-Slot Optical Library

When a cartridge is ready to be loaded, the cartridge exchange station door opens automatically.

B

Library Devices and Media

5.25-inch Optical Library Devices and Media

▼ **To load a 5.25-inch cartridge into a 500-slot optical library**

1. Hold the cartridge so that the cartridge label faces toward you, with the Side A indicator on top.
2. Gently place the cartridge into the exchange station until it clicks in place, as shown in Figure B-16.

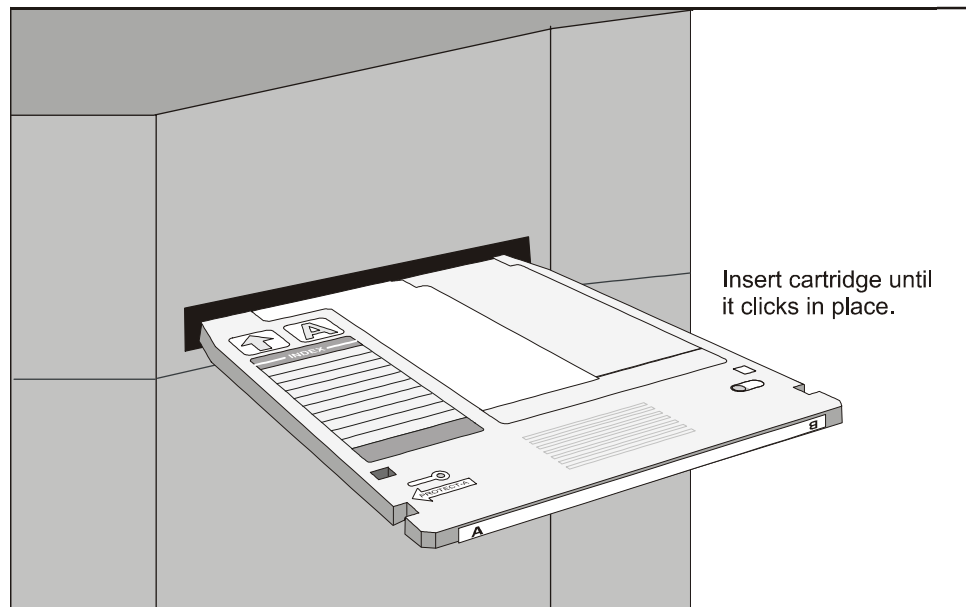


Figure B-16: Loading a Cartridge into the Exchange Station (500-Slot)

Unloading a Cartridge from a 500-Slot Optical Library

When a cartridge is ready to be removed, the cartridge exchange station door opens automatically.

▼ **To unload a cartridge from a 500-slot optical library**

When the door opens, gently pull out the cartridge. The cartridge exchange station door closes automatically.

Loading a Cartridge into the 180-Slot Optical Library

Figure B-17, Figure B-18, and Figure B-19 illustrate how to load a 5.25-inch optical disk cartridge into the 180-slot library device.

▼ **To load a 5.25-inch cartridge into a 180-slot optical library**

1. Press the button shown in Figure B-17 to access the cartridge exchange station door. The door partially opens automatically and the ENTER light illuminates (see Figure B-18).
2. Gently pull open the exchange station door toward you until it opens completely.
3. Hold the cartridge so that the cartridge label faces *away* from you and the access door faces *toward* you, with the Side A indicator on top.
4. Gently lower the cartridge into the exchange station until it clicks into place inside the cartridge guides (see Figure B-19).
5. Gently close the exchange station door. The ENTER light blinks until the library device takes the cartridge out of the exchange station.

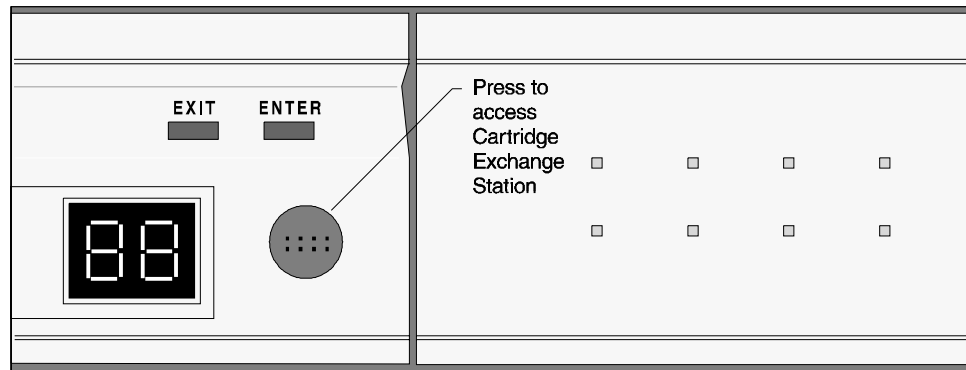


Figure B-17: Opening the Cartridge Exchange Station (180-Slot)



Figure B-18: Opening the Cartridge Exchange Station Door (180-Slot)

B**Library Devices and Media**

5.25-inch Optical Library Devices and Media

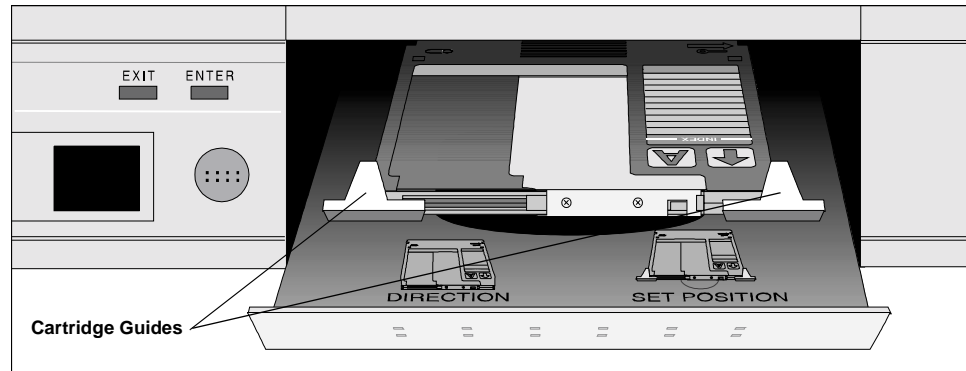


Figure B-19: Loading a Cartridge into the Exchange Station (180-Slot)

Unloading a Cartridge from a 180-Slot Optical Library

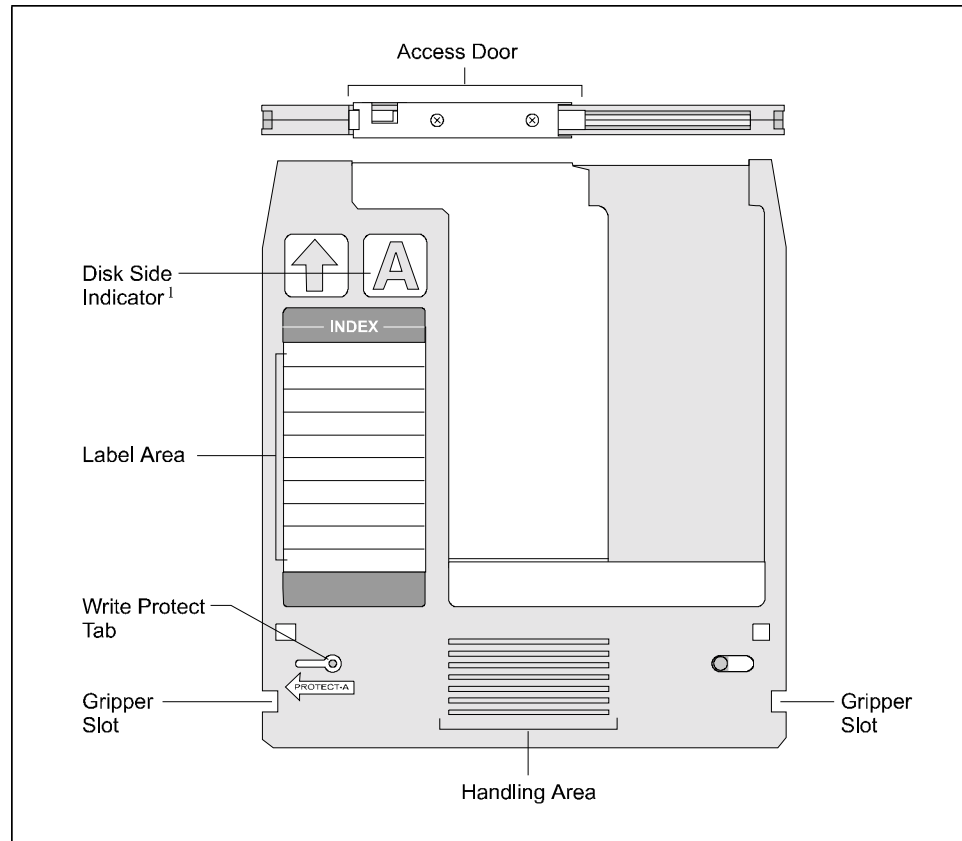
When a cartridge is ready to be removed, the EXIT light blinks and the cartridge exchange station door opens automatically.

▼ **To unload a cartridge from a 180-slot optical library**

1. Gently pull the door toward you, until it opens completely, and pull out the cartridge (refer to Figure B-19).
2. Close the exchange station door.

Maintaining 5.25-inch Optical Media

Figure B-20 shows two views of a 5.25-inch optical disk cartridge. These cartridges store 1 GB (for 3X media), 1.3 GB (for 4X media), or 2.6 GB (for 8X media) of data per side. The following sections explain how to handle, store, and clean 5.25-inch optical media.

**Figure B-20: 5.25-Inch Optical Media**

1. The placement of the side indicator may vary on the cartridge.

Handling and Storing the Cartridges

Optical disks are sensitive to heat, pressure, moisture, and contaminants. Follow these precautions when handling and storing optical disk cartridges.

Do:

- Store cartridges upright (vertical) in their original protective cases. If the cases were not retained, store cartridges in plastic bags.
- Allow new cases of cartridges to adjust to room temperature before unpacking. Any condensation that might build up after sudden temperature changes must evaporate before you insert the cartridges into library devices.
- Use and store cartridges in a clean, dust-free location.

- Keep cartridges dry. Do not expose them to excessive moisture. Never place cartridges near a ventilator or blower.
- Remove old labels before applying new ones.

Do not:

- Expose cartridges to excessive heat. Never place them in direct sunlight or near heating systems.
- Expose cartridges to extreme magnetic fields.
- Open the access doors on cartridges or touch the media inside. Dust, fingerprints, or other contaminants on the media may make the data unreadable.
- Insert cartridges with loosely attached labels into the library device.
- Place objects on cartridges.
- Drop cartridges.

Cleaning the Cartridges

Occasionally, an optical disk cartridge becomes dirty. There are two cleaning methods for 5.25-inch optical disk cartridges: wet and dry. The wet method is recommended for best results. See your FileTek customer support representative about Maxell Optical Disk Cleaning Kit OC-CK11 and follow the instructions as written.

If you do not have a wet cleaning kit, use the dry cleaning method as directed in Figure B-21. Start with side A, then turn the cartridge over and repeat the procedure for side B.

Note FileTek recommends that you wear plastic gloves when cleaning disk cartridges to protect the disks from contact with your skin. Also, be sure not to allow any lubricants from the disk hubs onto the disk surfaces.

A disk is considered clean if there are no oils, films, fingerprints, particles, or cleaning cloth fibers on the disk.

The text of the XROINFO, EXCESSIVE MEDIA ERRORS--VOLUME NEEDS CLEANING, VOLUME=vid message on page A-7 documents all the steps to reply to this message.

Caution: To avoid the possibility of media data errors, never touch the disk surface with anything other than the media cleaning cloth.

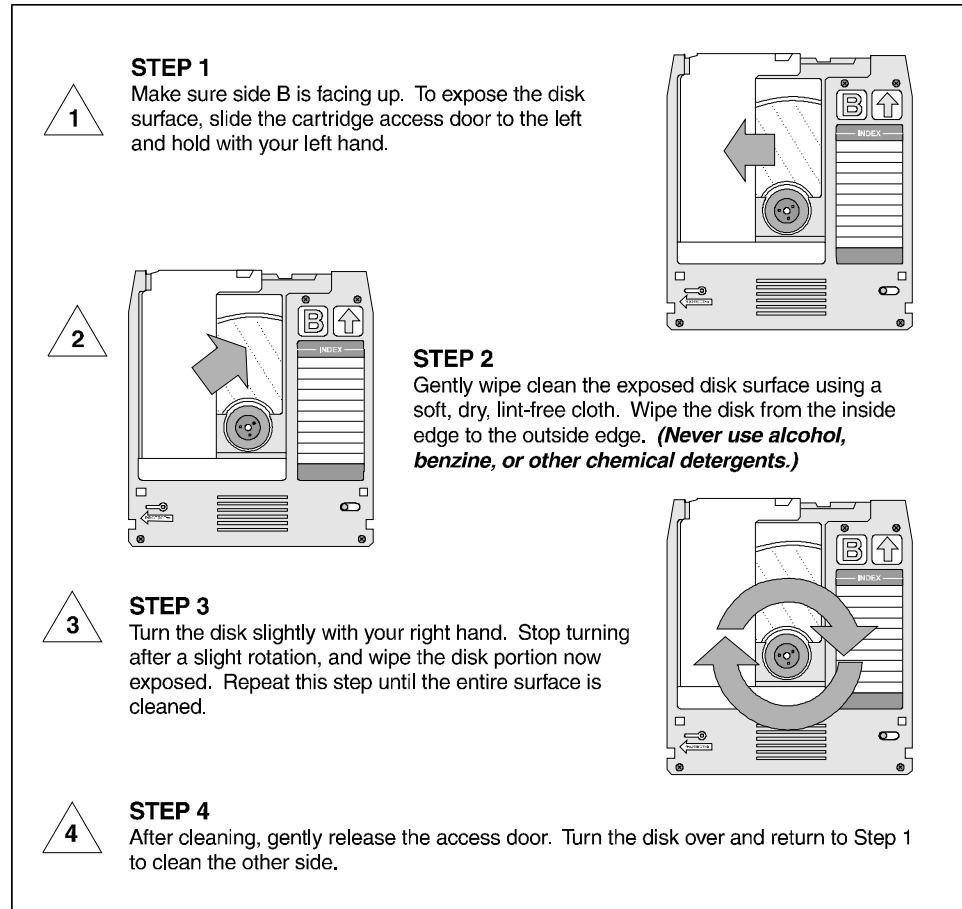


Figure B-21: Cleaning 5.25-Inch Optical Cartridges (Dry Method)

Magnetic Tape Library Devices and Media

This section describes magnetic tape library devices containing the following slot configurations, and includes tape loading and handling procedures:

- 216-, 384-, or 678-slot
- 221- or 389-slot
- 323-slot.

216-, 384-, or 678-Slot Library Device

This library device contains 216, 384, or 678 storage slots for tape data cartridges, plus 12 additional slots in each configuration for tape cleaning cartridges and system cartridges. The 678-slot option requires an expansion frame. These drives read and write high-performance 9840 tape, T9940 tape, or digital linear tape (DLT) media. The specifications, figures, and procedures in this section are for high-performance 9840 tape media.

The device is configured with a maximum of twelve 9840 tape drives and has a total storage capacity of 40.8 TB (with 3:1 compression). Each 9840 tape data cartridge can store up to 20 GB of data (without compression). This library device is shown in Figure B-22.

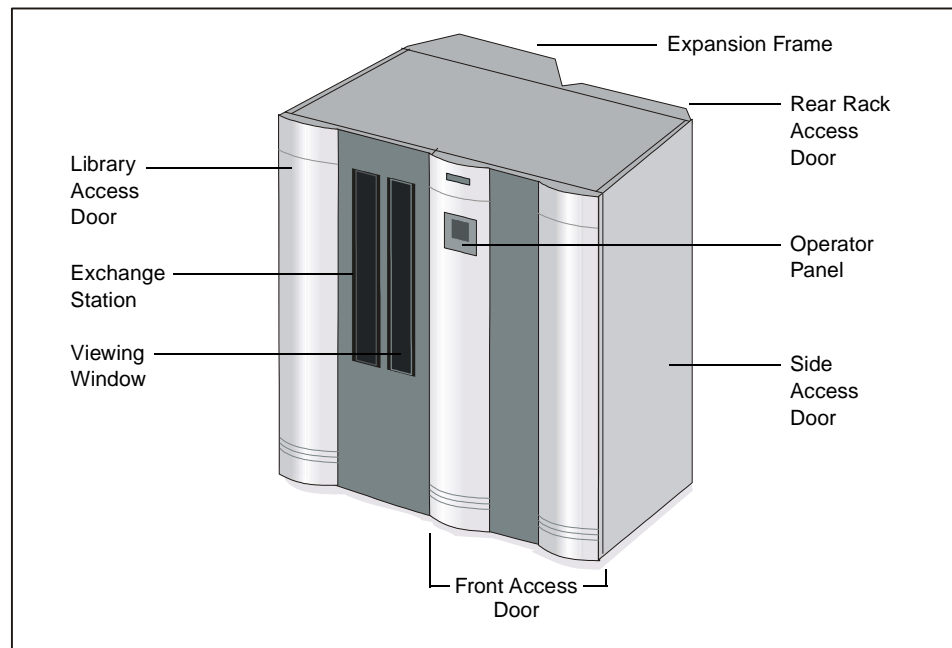


Figure B-22: 216-, 384- or 678-Slot Library Device for Magnetic Tape

Note If you use T9940 tape drives in this library, the total storage capacity is 180 GB (with 3:1 compression.) Each T9940 tape data cartridge can store up to 60 GB of data (without compression).

Exchange Station

The *exchange station* allows you to load or unload one or more cartridges into or from the library without interrupting normal library operations. StorHouse supports multivolume library exchange stations (also known as cartridge access ports). See Figure B-22 for the location of the exchange station.

Control Panel

The library *control panel* contains a display screen, four indicator lights, and seven buttons. The lights and the buttons are described as follows:

Table B-1: Library Control Panel Components

Component	Description
Library Active indicator	Flashes green when the library is operational
Service Required indicator	Illuminates red when human intervention is required
Open indicators	Illuminate amber when the appropriate exchange station is open
CAP A button	Press to access exchange station A
CAP B button	(Not supported)
MENU button	Press to access the Main Menu or another selected screen
SELECT button	Press to select an item on the menu
Arrow Up button	Press to move the cursor up the display
Arrow Down button	Press to move the cursor down the display
RESET button	Press to start an IPL. You must open the front access door to operate the RESET button (not shown in Figure B-23).

Figure B-23 illustrates this panel.

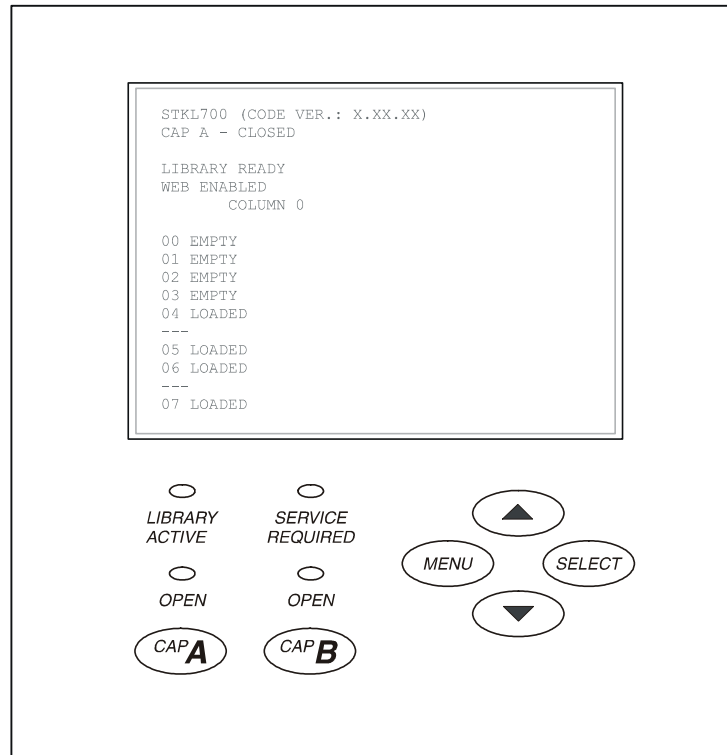


Figure B-23: 216-, 384-, or 678-Slot Library Control Panel

Power Switch

The power switch(es) for the 216-, 384-, or 678-slot library device is located inside the front access door, which is labeled in Figure B-22.

221- or 389-Slot Library Device

This library device contains 221 or 389 storage slots for tape data cartridges (plus three additional slots in each configuration for two tape cleaning cartridges and one system cartridge). An upgrade option is available, which expands the number of storage slots to 557. The device is configured with a maximum of 10 tape drives and has a total storage capacity of 31.1 TB (with 4:1 compression) or 44.6 TB with the upgrade option. These drives read and write high-performance tape or digital linear tape (DLT) media. (The specifications, figures, and procedures in this section are for

high-performance tape media.) Each tape data cartridge can store up to 20 GB of data (without compression). This library device is shown in Figure B-24.

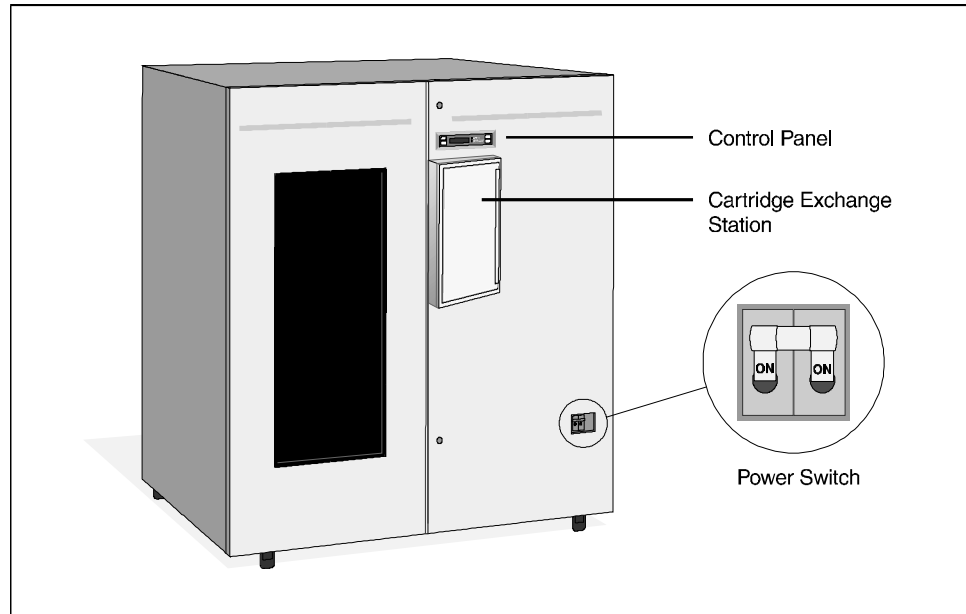


Figure B-24: 221- or 389-Slot Library Device for Magnetic Tape

Exchange Station

The *exchange station* allows you to load or unload one or more cartridges into or from the library without interrupting normal library operations. StorHouse Releases 5.1 and above support multivolume library exchange stations. See Figure B-24 for the location of the exchange station.

Control Panel

The *control panel* contains four buttons, three lights, and a liquid crystal display (LCD). Figure B-25 illustrates this panel.

Caution Do not press the IPL, RESET, or MENU buttons unless instructed. Press the EXECUTE button only when the LCD displays the message, “ONLINE - PRESS EXE TO UNLK CAP.” *Do not* press EXECUTE at any other time.

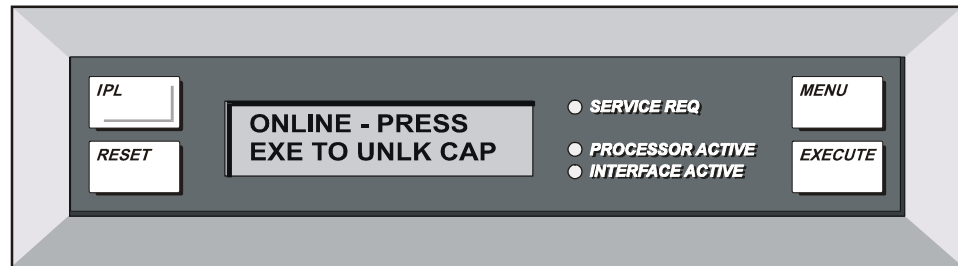


Figure B-25: 221- or 389-Slot Library Device Control Panel

Power Switch

The power switch for the 221- or 389-slot library device is located on the front of the unit, as shown in Figure B-24.

323-Slot Tape Library Device

The 323-slot tape library device contains 323 storage slots for tape data cartridges (plus three additional slots: two for tape cleaning cartridges and one for a system cartridge). An upgrade option is available, which expands the number of storage slots to 491 (plus the three additional slots). The device is configured with a maximum of 10 tape drives and has a total storage capacity of 6.46 TB (without compression) or 9.82 TB with the upgrade option. These drives read and write high-performance, magnetic tape media. Each tape data cartridge can store up to 20 GB of data (without compression). This library device is shown in Figure B-26.

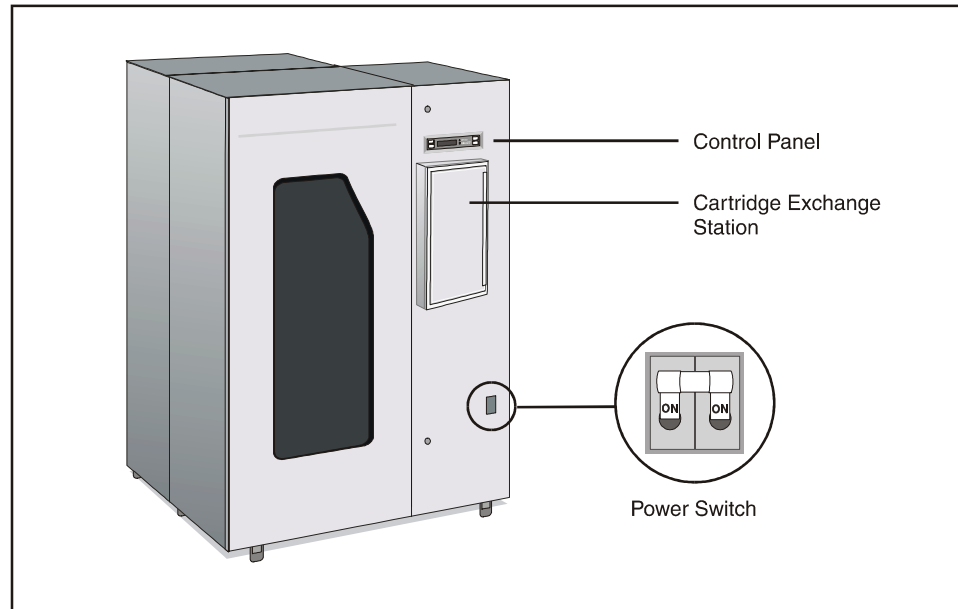


Figure B-26: 323-Slot Library Device for Magnetic Tape

Exchange Station

The *exchange station* allows you to load or unload one or more cartridges into or from the library without interrupting normal library operations. See Figure B-26 for the location of the exchange station.

Control Panel

The *control panel* contains four buttons, three lights, and a liquid crystal display (LCD). Figure B-27 illustrates this panel.

Caution Do not press the IPL, RESET, or MENU buttons unless instructed. Press the EXECUTE button only when the LCD displays the message, "ONLINE - PRESS EXE TO UNLK CAP." Do *not* press EXECUTE at any other time.

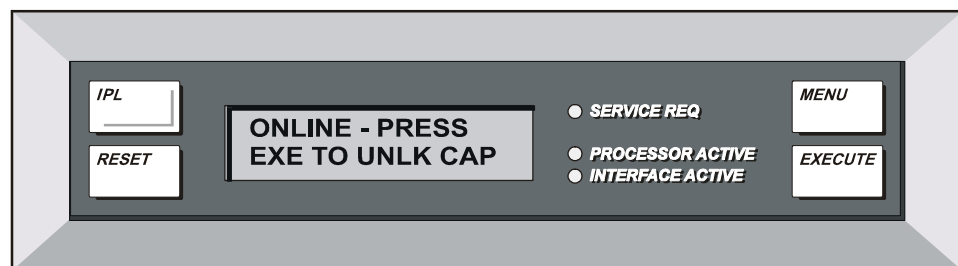


Figure B-27: 323-Slot Library Device Control Panel

Power Switch

The power switch for the 323-slot tape library device is located on the front of the unit, as shown in Figure B-26.

Using Tape Cartridges

This section explains how to load tape cartridges into and unload them from different tape libraries. You can load and unload cartridges only through the library device exchange station.

There are three types of tape cartridges: data, cleaning, and system (diagnostic). All cartridge types reside in a single tape library device. You will use only data and cleaning cartridges. Service personnel exclusively manage the system cartridges. StorHouse instructs you to load or unload a data or cleaning cartridge. The loading, unloading, handling, and storing procedures are the same for data and cleaning cartridges.

Note FileTek recommends that you keep current backup and/or archive copies of all data stored only on magnetic tape.

Loading One or More Cartridges into the 216-, 384-, or 678-Slot Library

The StorHouse console displays a message instructing you to load one or more tape cartridges into the 216-, 384-, or 678-slot library device. After you see this message, follow the steps below.

- ▼ **To load one or more tape cartridges into the 216-, 384-, or 678-slot library**
 1. When the message “CAP A CLOSED” displays on the library control panel (be sure the word LOCKED in parentheses does not display after the word CLOSED), press the CAP button to unlock the exchange station. The message will indicate CAP A. (CAP, which stands for *cartridge access port*, is another term for exchange station.)

The message “CAP A OPEN” displays on the library control panel and the exchange station door opens automatically. Each exchange station contains four bins of five cartridges.
 2. Gently pull up on the handle at the top of the highest bin and pull the bin out and down. See Figure B-28.

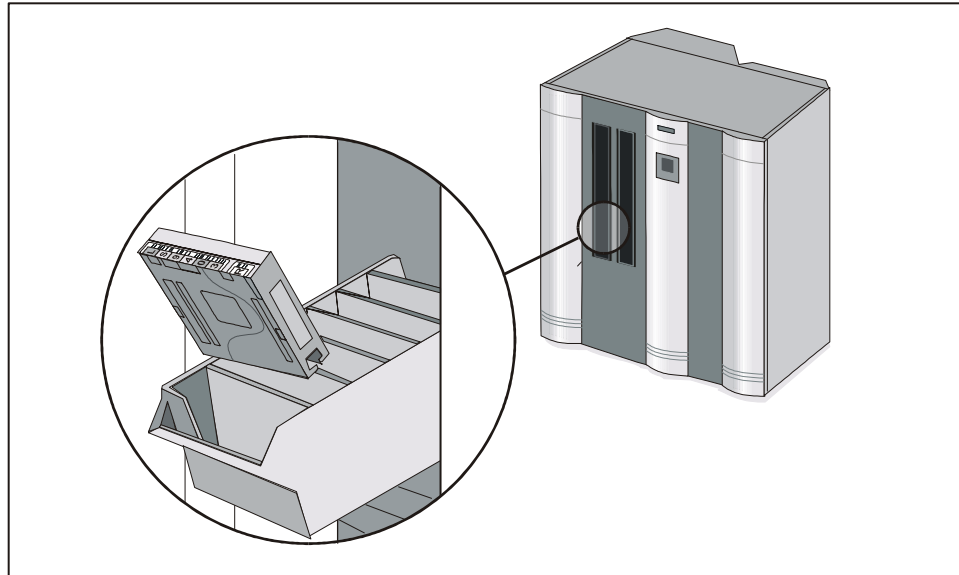


Figure B-28: Opening the Exchange Station and Loading One or More Cartridges into the 216-, 384-, or 678-Slot Library

3. Place the first or only cartridge into the slot closest to you so that the bar code is on top and the volume serial number is closest to you. See the enlarged view in Figure B-28. For more than one cartridge, continue loading inward from the first slot.
4. When you are finished loading cartridges, close all the bins. Using the bin handle, push each bin up, in, and down.
5. Press the CAP A button again. The exchange station door closes automatically and the message "CAP A CLOSED" displays on the library control panel.
6. Reply to the load cartridge(s) message on the StorHouse console.

Unloading One or More Cartridges from the 216-, 384-, or 678-Slot Library

The StorHouse console displays a message instructing you to unload one or more tape cartridges from the 216-, 384-, or 678-slot library device. After you see this message, follow these steps.

- ▼ **To unload one or more tape cartridges from the 216-, 384-, or 678-slot library**
1. When the message "CAP A CLOSED" displays on the library control panel (be sure the word LOCKED in parentheses does not display after the word CLOSED), press the CAP button to unlock the exchange station. The message will indicate CAP A.

The message “CAP A OPEN” displays on the library control panel and the exchange station door opens automatically. Each exchange station contains four bins of five cartridges.

2. Gently pull up on the handle at the top of each bin and pull the bin out and down. See Figure B-28.
3. Pull out the tape cartridge(s) you need to unload.
4. When you are finished unloading cartridges, close all the bins. Using the bin handle, push each bin up, in, and down.
5. Press the CAP A button again. The exchange station door closes automatically and the message “CAP A CLOSED” displays on the library control panel.
6. Reply to the unload cartridge(s) message on the StorHouse console.

Loading One or More Cartridges into the 221- or 389-Slot Library

The StorHouse console displays a message instructing you to load one or more tape cartridges into the 221- or 389-slot library device library. After you see this message, follow the steps below.

▼ To load one or more tape cartridges into the 221- or 389-slot library

1. When the message “ONLINE - PRESS EXE TO UNLK CAP” displays on the library control panel, press the EXECUTE button to unlock the exchange station. (CAP, which stands for *cartridge access port*, is another term for exchange station.)

The message “ONLINE CAP UNLK PENDING” displays, and the exchange station unlocks and partially opens. Then, the “ONLINE CAP UNLOCKED” message displays. Be sure to wait for this message to appear before opening the exchange station.

2. Gently pull the left edge of the exchange station door toward you until it opens completely. See Figure B-29.

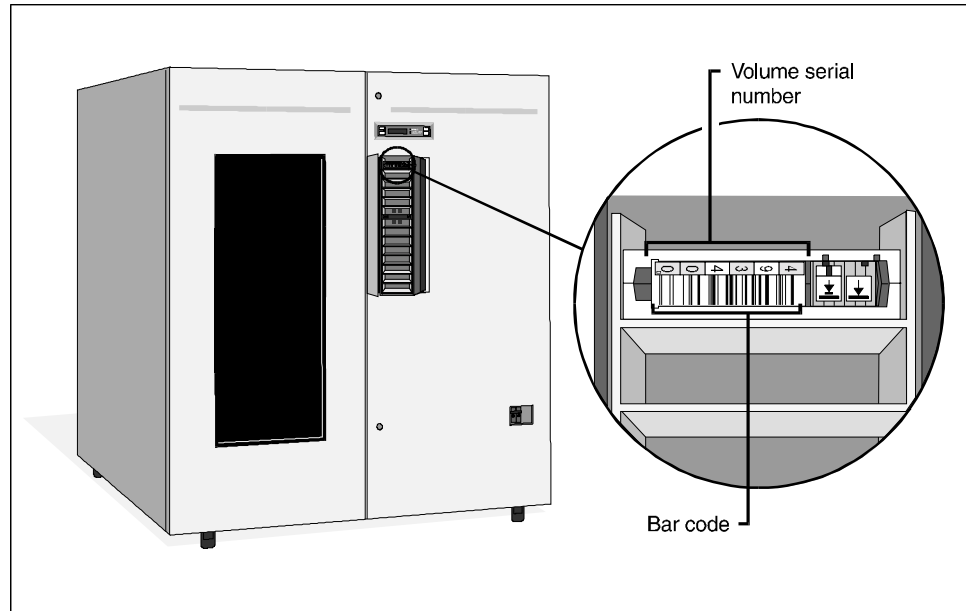


Figure B-29: Opening the Exchange Station and Loading One or More Cartridges into the 221- or 389-Slot Library

3. Place the first or only cartridge into the top slot so that the bar code is facing you and the volume serial number is on top of the bar code. See the enlarged view in Figure B-29. For more than one cartridge, continue loading downward from the top slot.

Note: Be sure to load the cartridge(s) right-side up with the correct volume identification codes (vids) into the exchange station. Otherwise, the library rejects the cartridge(s) and you will receive an error message.

4. Close the exchange station door by pushing it gently but firmly until it latches.
5. Reply to the load cartridge(s) message on the StorHouse console.

Unloading One or More Cartridges from the 221- or 389-Slot Library

The StorHouse console displays a message instructing you to unload one or more tape cartridges from the 221- or 389-slot library device. After you see this message, follow these steps.

▼ To unload one or more tape cartridges from the 221- or 389-slot library

1. When the message "ONLINE - PRESS EXE TO UNLK CAP" displays on the library control panel, press the EXECUTE button to unlock the exchange station.

B**Library Devices and Media**Magnetic Tape Library Devices and Media

The message “ONLINE CAP UNLK PENDING” displays, and the exchange station unlocks and partially opens. Then, the “ONLINE CAP UNLOCKED” message displays. Be sure to wait for this message to appear before opening the exchange station.

2. Gently pull the left edge of the exchange station door toward you until it opens completely. (Refer to Figure B-29).
3. Gently pull out the tape cartridge(s).
4. Close the exchange station door by pushing it gently but firmly until it latches.
5. Reply to the unload cartridge(s) message on the StorHouse console.

Loading One or More Cartridges into the 323-Slot Library

The StorHouse console displays a message instructing you to load one or more tape cartridges into the 323-slot tape library. After you see this message, follow the steps below.

▼ To load one or more tape cartridges into the 323-slot library

1. When the message “ONLINE - PRESS EXE TO UNLK CAP” displays on the library control panel, press the EXECUTE button to unlock the exchange station. (CAP, which stands for *cartridge access port*, is another term for exchange station.)

The message “ONLINE CAP UNLK PENDING” displays, and the exchange station unlocks and partially opens. Then, the “ONLINE CAP UNLOCKED” message displays. Be sure to wait for this message to appear before opening the exchange station.

2. Gently pull the left edge of the exchange station door toward you until it opens completely. See Figure B-30.

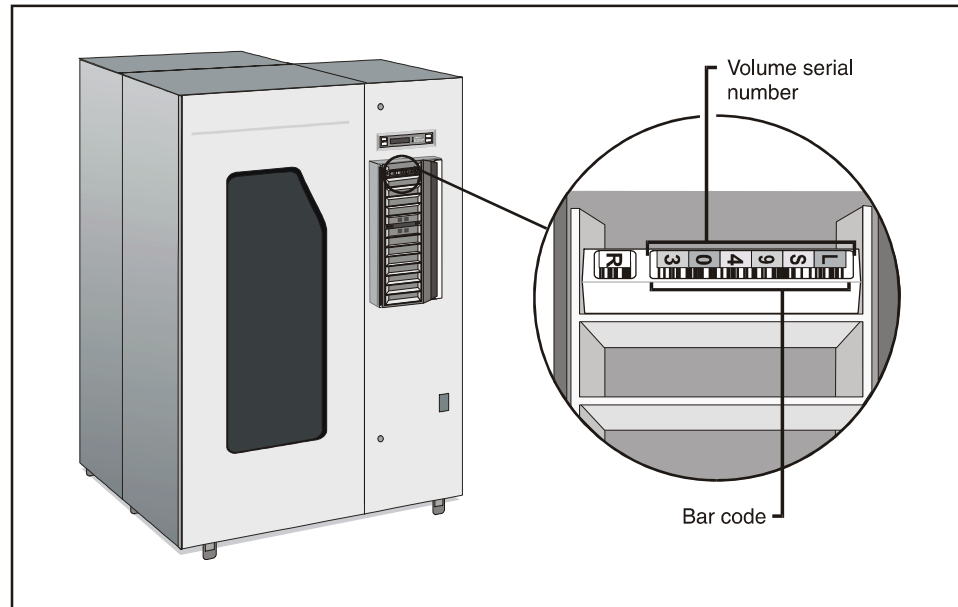


Figure B-30: Opening the Exchange Station and Loading One or More Cartridges into the 323-Slot Library

3. Place the first or only cartridge into the top slot so that the bar code is facing you and the volume serial number is on top of the bar code. See the enlarged view in Figure B-30. For more than one cartridge, continue loading downward from the top slot.

Note: Be sure to load the cartridge(s) right-side up with the correct vid(s) into the exchange station. Otherwise, the library rejects the cartridge(s) and you will receive an error message.

4. Close the exchange station door by pushing it gently but firmly until it latches.
5. Reply to the load cartridge(s) message on the StorHouse console.

Unloading One or More Cartridges from the 323-Slot Library

The StorHouse console displays a message instructing you to unload one or more tape cartridges from the 323-slot tape library. After you see this message, follow these steps.

▼ **To unload one or more tape cartridges from the 323-slot library**

1. When the message “ONLINE - PRESS EXE TO UNLK CAP” displays on the library control panel, press the EXECUTE button to unlock the exchange station.

The message “ONLINE CAP UNLK PENDING” displays, and the exchange station unlocks and partially opens. Then, the “ONLINE CAP UNLOCKED” message displays. Be sure to wait for this message to appear before opening the exchange station.

2. Gently pull the left edge of the exchange station door toward you until it opens completely. (Refer to Figure B-30).
3. Gently pull out the tape cartridge(s).
4. Close the exchange station door by pushing it gently but firmly until it latches.
5. Reply to the unload cartridge(s) message on the StorHouse console.

Maintaining Tape Media

The following figures show different tape media:

- Figure B-31 shows a high-performance cartridge
- Figure B-32 shows a DLT cartridge
- Figure B-33 shows an HP tape.

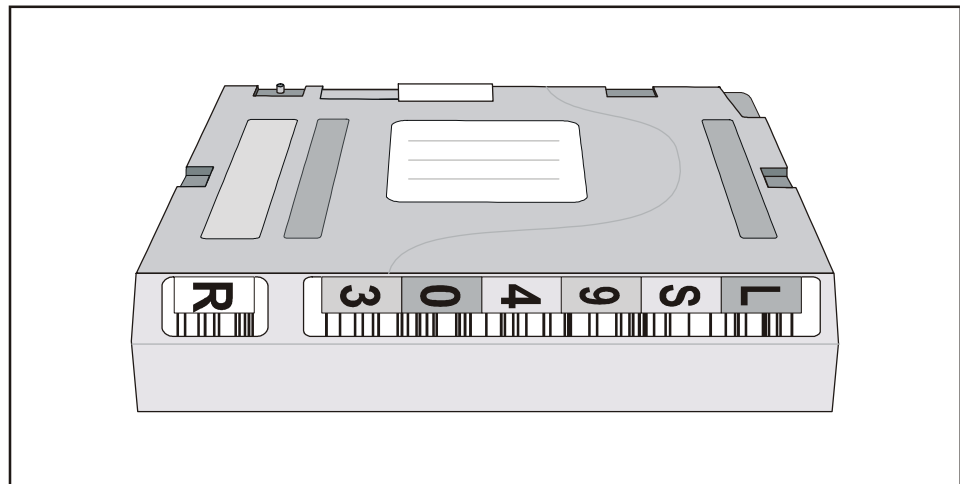
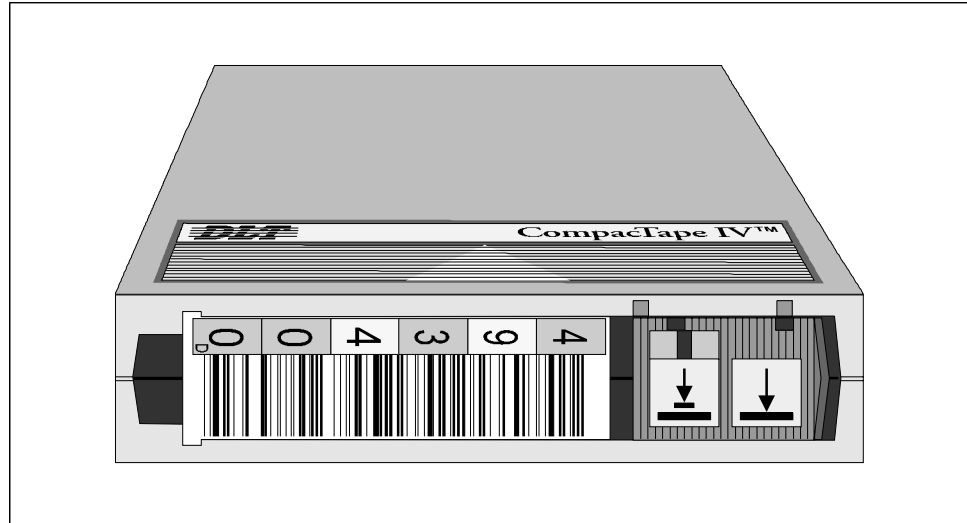
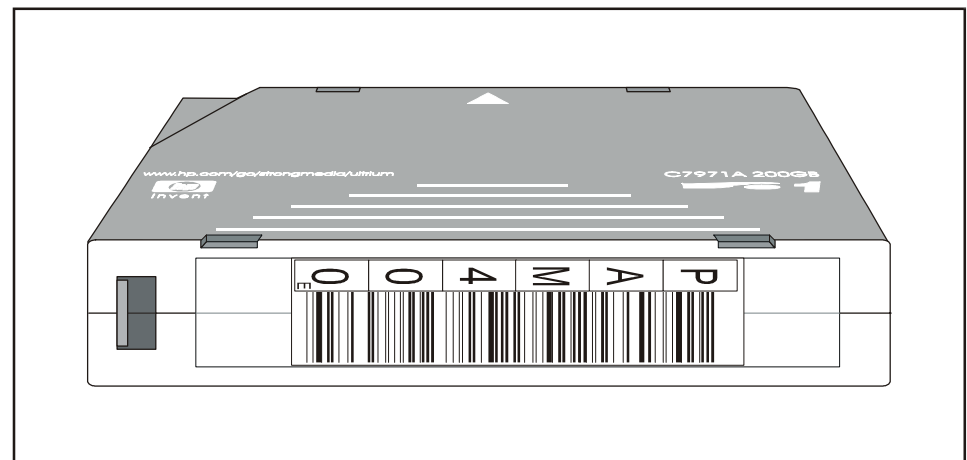


Figure B-31: High-Performance Tape Cartridge

**Figure B-32: DLT Tape Cartridge****Figure B-33: HP Tape Cartridge**

The following sections explain how to handle and store tape data and cleaning cartridges.

Handling and Storing the Cartridges

Magnetic tapes are sensitive to heat, pressure, moisture, and contaminants. Follow these precautions when handling and storing magnetic tape cartridges.

Do:

- Inspect a cartridge before each use. Never put a damaged cartridge into a drive or library.
- Use and store cartridges in a clean, dust-free location.
- Use and store cartridges in an environment that maintains a stable temperature and humidity.

For short-term storage, the recommended temperature range is 61° to 90°F (16° to 32°C). The recommended humidity range is 20% to 80%.

For long-term storage (one year or more), the recommended temperature range is 64° to 79°F (18° to 26°C). The recommended humidity range is 40% to 60%.

- Keep cartridges dry. Do not expose them to excessive moisture. Never place cartridges near a ventilator or blower.
- Follow the tape manufacturer's instructions for refreshing tapes that are used for long-term storage.

Do not:

- Open the access doors on cartridges or touch the media inside. Fingerprints, dust, or other contaminants on the media may make the data unreadable.
- Handle tape that is outside the cartridge; the tape edge might be damaged.
- Expose a recorded cartridge to magnetic fields.
- Expose cartridges to excessive heat. Never place them in direct sunlight or near heating systems.
- Place objects on cartridges.
- Drop cartridges.

Cleaning Cartridges for Tape Drives

The read/write heads in a tape drive require occasional cleaning to prevent errors due to dirty heads and to prevent damage to the drives. (The cleaning interval, which is determined by the drives, is completely dependent on usage and will vary.) StorHouse supports the use of special head-cleaning tape cartridges for this purpose. These cartridges display the letters CLN in the volume serial number on the bar code label. Typically, cleaning cartridges are stored in the tape slots. The system monitors drive condition and automatically inserts a cleaning cartridge in a drive when needed. A cleaning cartridge can be used a specific number of times before it must be replaced. The system tracks cleaning cartridge usage and automatically directs you to unload an old cleaning cartridge and load a new one after a cartridge's last use.

If your system has ACSLS or LibraryStation software, the software automatically handles drive cleaning for shared libraries.

Caution *Never* re-use a cleaning cartridge that StorHouse has retired. (StorHouse automatically retires cleaning cartridges when they reach their lifecycle limit if you have scheduled the RETIRE VOLUME command.)

B

Library Devices and Media

Magnetic Tape Library Devices and Media

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NOTE: This index lists all special characters, such as !, /, and numeric characters, before alphabetic characters.

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