

# **BrightStor® ARCserve® Backup for Windows**

**Enterprise Option for StorageTek ACSLS Guide**

**r11.5**



Computer Associates®

D01185-1E

This documentation and related computer software program (hereinafter referred to as the "Documentation") is for the end user's informational purposes only and is subject to change or withdrawal by Computer Associates International, Inc. ("CA") at any time.

This documentation may not be copied, transferred, reproduced, disclosed or duplicated, in whole or in part, without the prior written consent of CA. This documentation is proprietary information of CA and protected by the copyright laws of the United States and international treaties.

Notwithstanding the foregoing, licensed users may print a reasonable number of copies of this documentation for their own internal use, provided that all CA copyright notices and legends are affixed to each reproduced copy. Only authorized employees, consultants, or agents of the user who are bound by the confidentiality provisions of the license for the software are permitted to have access to such copies.

This right to print copies is limited to the period during which the license for the product remains in full force and effect. Should the license terminate for any reason, it shall be the user's responsibility to return to CA the reproduced copies or to certify to CA that same have been destroyed.

To the extent permitted by applicable law, CA provides this documentation "as is" without warranty of any kind, including without limitation, any implied warranties of merchantability, fitness for a particular purpose or noninfringement. In no event will CA be liable to the end user or any third party for any loss or damage, direct or indirect, from the use of this documentation, including without limitation, lost profits, business interruption, goodwill, or lost data, even if CA is expressly advised of such loss or damage.

The use of any product referenced in this documentation and this documentation is governed by the end user's applicable license agreement.

The manufacturer of this documentation is Computer Associates International, Inc.

Provided with "Restricted Rights" as set forth in 48 C.F.R. Section 12.212, 48 C.F.R. Sections 52.227-19(c)(1) and (2) or DFARS Section 252.227-7013(c)(1)(ii) or applicable successor provisions.

© 2005 Computer Associates International, Inc.

All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

# Contents

---

<b>Chapter 1: Introducing the Option</b>	<b>5</b>
Library Control Software .....	6
Communication Interfaces.....	6
StorageTek ACSLS Components.....	7
Control Path .....	7
Data Path.....	7
Option Architecture .....	8
Mutually Exclusive Tape Volumes .....	8
Shared Tape Volumes in a SAN.....	11
Library Request Flow.....	16
 <b>Chapter 2: Installing the Option</b>	 <b>17</b>
System Requirements.....	17
Library Configuration .....	17
Manual Library Configuration.....	18
Tape Drive Parameters .....	18
Automatic Library Configuration.....	19
Installation Prerequisites .....	19
StorageTek ACSLS Components.....	20
Option Installation and Library Configuration.....	21
Install the Option.....	21
Library Configuration Tasks.....	24
Post-Installation Procedures .....	27
Library Configuration Update .....	28
Update Your Device Configuration .....	28
Update Your Volume Configuration.....	29
 <b>Chapter 3: Using the Option</b>	 <b>31</b>
Backup and Restore Operations.....	31
Recognize Tape Volume Changes.....	32
StorageTek ACSLS Tape Library Queries.....	32
Query the Status of Tape Drives .....	32
Query the Status of the Tape Volumes.....	33

---

**Appendix A: Frequently Asked Questions**

**35**

**Index**

**37**

# Chapter 1: Introducing the Option

---

BrightStor® ARCserve® Backup is a comprehensive distributed storage solution for applications, databases, distributed servers, and file systems. It provides backup and restore capabilities for databases, business-critical applications, and network clients.

Among the options BrightStor ARCserve Backup offers is the BrightStor® ARCserve® Backup Enterprise Option for StorageTek ACSLS. This option allows you to use the full capabilities of BrightStor ARCserve Backup with tape libraries controlled by StorageTek Automated Cartridge System Library Software (ACSLS) Manager software.

With this option, the BrightStor ARCserve Backup server can interface with the StorageTek ACSLS libraries to manage backup and restore operations, tape volume movement, and tape volume organization.

**Note:** This guide refers to StorageTek Automated Cartridge System Library Software (ACSLS) software as StorageTek ACSLS. This guide refers to tape libraries managed by StorageTek Automated Cartridge System Library Software (ACSLS) Manager software as StorageTek ACSLS tape libraries.

The BrightStor ARCserve Backup Enterprise Option for StorageTek ACSLS lets several BrightStor ARCserve Backup servers share a network-connected StorageTek ACSLS tape library. StorageTek ACSLS functions as a central service provider for StorageTek ACSLS library operations in heterogeneous environments. This configuration lets you manage different application-dedicated libraries using one centralized library or string of libraries.

You can use the BrightStor ARCserve Backup Enterprise Option for StorageTek ACSLS to divide large, complex backup requirements into manageable subsets and maximize backup and restore efficiency. Backup and restore jobs run simultaneously on all BrightStor ARCserve Backup servers with complete storage data integrity.

Using this option, the BrightStor ARCserve Backup server can assign tape volumes in the StorageTek ACSLS tape library to the logical library on the BrightStor ARCserve Backup server. This virtual library configuration lets you use the features of BrightStor ARCserve Backup to control the remote StorageTek ACSLS tape library as if it were connected locally.

**Note:** Each BrightStor ARCserve Backup server can manage one logical library configuration for the StorageTek ACSLS tape library. Each BrightStor ARCserve Backup server can physically connect to multiple tape drives of the same type.

This option also provides services that let BrightStor ARCserve Backup perform backup, restore, and device management operations on the StorageTek ACSLS tape volumes. Each BrightStor ARCserve Backup server performs these operations as if it were controlling its own separate library. In addition, the BrightStor ARCserve Backup server interprets the assigned tape volumes on the StorageTek ACSLS tape library as local tape volumes; however, the StorageTek ACSLS manages the physical movement of tape volumes.

**Note:** The tape volumes in the StorageTek ACSLS tape library must have bar codes to use the BrightStor ARCserve Backup Enterprise Option for StorageTek ACSLS.

## Library Control Software

The StorageTek ACSLS tape library control software consists of the ACSLS Manager and the ACSLS Client applications.

**Note:** In addition to supporting communication interfaces with StorageTek ACSLS tape libraries managed by the StorageTek ACSLS tape library control software, the Enterprise Option for StorageTek ACSLS also supports communication with StorageTek tape libraries managed by StorageTek Library Station control software.

## Communication Interfaces

The StorageTek ACSLS communication interfaces between the StorageTek ACSLS server and the BrightStor ARCserve Backup server, where the StorageTek ACSLS Library Attach software is installed, include the StorageTek ACSLS components, the Ethernet LAN control path, and the data path. The StorageTek ACSLS components that support communication between the StorageTek ACSLS server and the StorageTek ACSLS client are comprised of the following components:

- Client System Interface
- StorageTek ACSLS Storage Server Interface
- StorageTek ACSLS Network Interface

## StorageTek ACSLS Components

Before installing the Enterprise Option for StorageTek ACSLS, verify that the following pre-installation tasks related to the StorageTek ACSLS components are complete:

- Version 1.3 of the StorageTek Library Attach software is installed and configured on the computer where you will install the Enterprise Option for StorageTek ACSLS.
- The StorageTek ACSLS tape library and the StorageTek ACSLS server are correctly configured.
- Communication between the BrightStor ARCserve Backup server and the StorageTek ACSLS server is established and configured.
- The StorageTek ACSLS tape drives that are connected to the computer running BrightStor ARCserve Backup server (or the SAN) are empty.
- You developed a tape volume configuration plan to identify which tape volumes on the StorageTek ACSLS will be assigned to the BrightStor ARCserve Backup server.

**Note:** For mutually exclusive volume configurations, you must ensure mutually exclusive tape volume assignments for each BrightStor ARCserve Backup server. For shared volume configurations in a SAN, you must define the tape volume configuration for the primary SAN server; this tape volume configuration will be shared among all backup servers in the SAN.

## Control Path

The StorageTek ACSLS Library Attach software on the BrightStor ARCserve Backup server is connected to the StorageTek ACSLS library through an Ethernet LAN control path. The StorageTek Library Attach software sends library requests over the Ethernet LAN control path directly to the ACSLS Manager software on the StorageTek ACSLS server.

## Data Path

Each BrightStor ARCserve Backup server is independently connected to one or more tape drives in the StorageTek ACSLS tape library through SCSI or fibre channel data paths. The BrightStor ARCserve Backup server reads and writes data on tape volumes in the tape library managed by StorageTek ACSLS by interacting directly with tape drives through the SCSI or fibre channel data path. In SAN configurations, the BrightStor ARCserve Backup servers are connected to the SAN that is connected to the StorageTek ACSLS tape drives.

Fibre attached tape drives are supported in the following configurations:

- The fibre attached tape drive is directly connected to the BrightStor ARCserve Backup server
- The StorageTek ACSLS tape library is not shared by other BrightStor ARCserve Backup servers
- In a SAN, where the BrightStor ARCserve Backup SAN Option is installed on the primary SAN server

Each backup server communicates directly and independently with the StorageTek ACSLS. Although multiple backup servers may exist on the same network, BrightStor ARCserve Backup servers do not communicate with other backup servers unless they are in a SAN. For more information about using BrightStor ARCserve Backup in a SAN, see the *Storage Area Network (SAN) Option Guide*.

## Option Architecture

The Enterprise Option for StorageTek ACSLS is a separate software component installed on a Windows server running BrightStor ARCserve Backup.

Several BrightStor ARCserve Backup servers can share one StorageTek ACSLS tape library. The BrightStor ARCserve Backup server virtual library essentially partitions a large StorageTek ACSLS tape library into independent user-defined logical libraries.

The virtual library is configured and defined by tape volume assignments for the BrightStor ARCserve Backup server. The virtual library configuration is defined with mutually exclusive sets of tape volumes or with a shared set of tape volumes, depending on whether the BrightStor ARCserve Backup server is in a SAN.

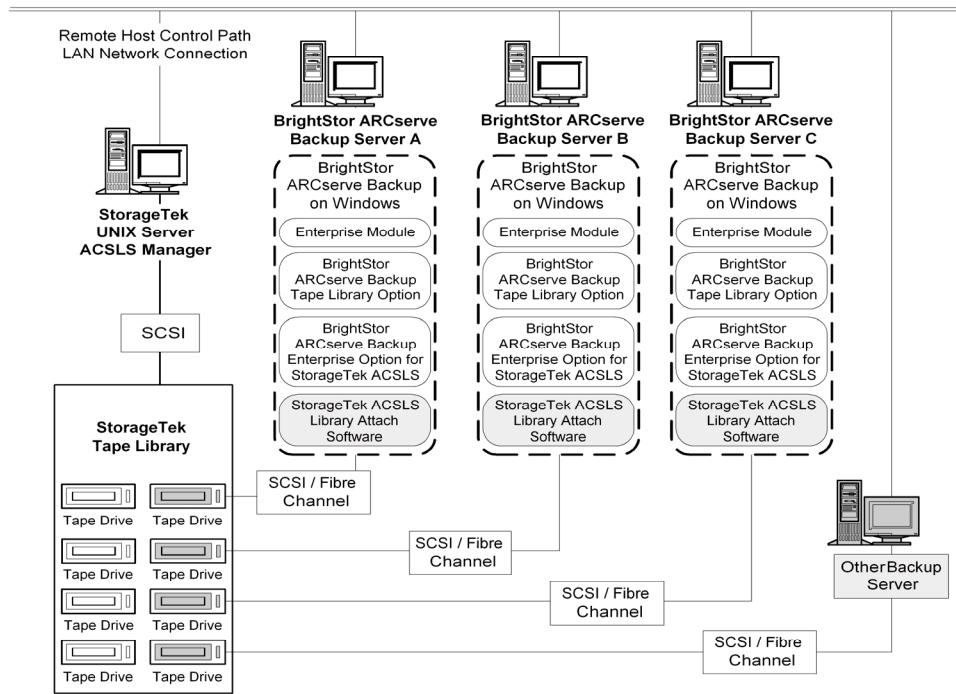
## Mutually Exclusive Tape Volumes

In configurations where the BrightStor ARCserve Backup server is not in a SAN, each BrightStor ARCserve Backup server is directly connected to at least one tape drive in the StorageTek ACSLS tape library using independent SCSI data paths.

In configurations with multiple BrightStor ARCserve Backup servers, each backup server is configured to control a mutually exclusive set of tape volumes in the StorageTek ACSLS tape library. Mutually exclusive tape volumes cannot be used or accessed by other backup servers attached to the network. As a result, each BrightStor ARCserve Backup server manages a user-defined subset of tape volumes on the StorageTek ACSLS tape library that are unique to that BrightStor ARCserve Backup server.

## Mutually Exclusive Tape Volume Architecture

The following illustration shows the architecture of the Enterprise Option for StorageTek ACSLS and the communication interfaces to the StorageTek ACSLS tape library:



Since multiple backup servers share the StorageTek ACSLS tape library, you must ensure that each tape volume is assigned to only one backup server. The tape volumes assigned to each backup server must be mutually exclusive.

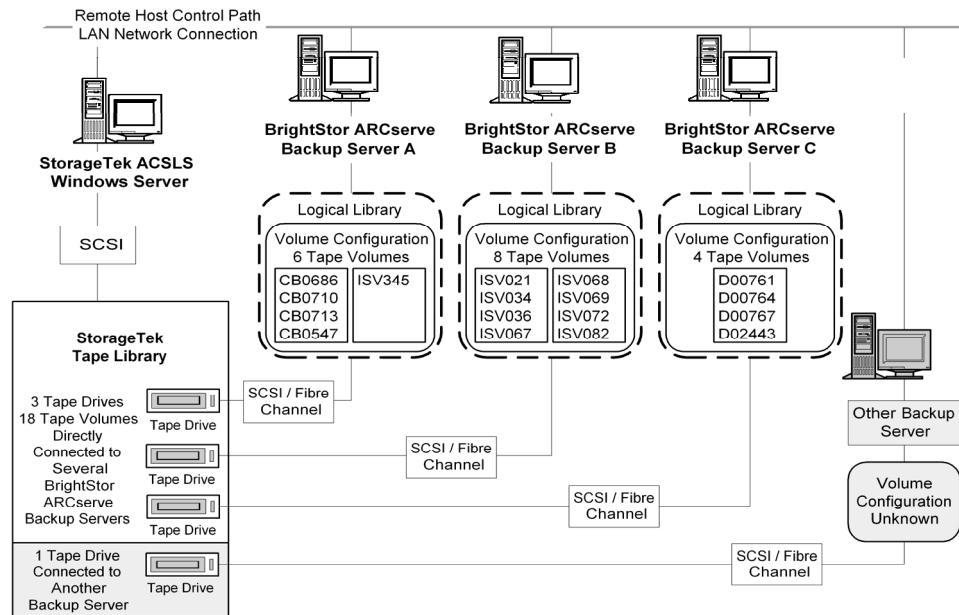
**Important!** If your BrightStor ARCserve Backup servers are not in a SAN, tape volumes must be mutually exclusive to each backup server or you could lose important backup data.

Assigning mutually exclusive tape volumes requires careful planning. To assist you in your planning effort, you should document the tape volume assignment for each backup server that will share the StorageTek ACSLS tape library.

**Note:** Screen shots of the Volume Configuration dialog provide a convenient visual record of the tape volume assignments for each BrightStor ARCserve Backup server.

## Mutually Exclusive Tape Volume Configuration

The tape volume assignments determine the volume configuration for the user-defined logical library on each BrightStor ARCserve Backup server. In the following illustration, a unique set of tape volumes defines the logical library for each BrightStor ARCserve Backup server:



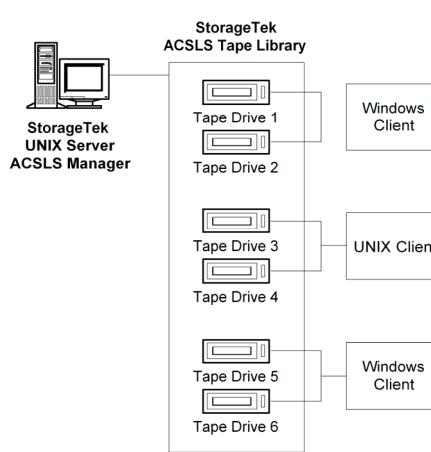
The example shows that the StorageTek ACSLS tape library has four tape drives directly attached to several backup servers on the network. The unique tape volume assignments for each BrightStor ARCserve Backup server are:

- Server A has six assigned tape volumes: CB0686, CB0710, CB0713, CB0547, SV345, and ISV349
- Server B has eight assigned tape volumes: ISV021, ISV034, ISV036, ISV067, ISV068, ISV069, ISV072, and ISV082
- Server C has four assigned tape volumes: D00761, D00764, D00767, and D02443

Another backup server on the network that is not running BrightStor ARCserve Backup may have a different configuration.

## Multiple Server Connections to Tape Drive Configuration

The tape drives on the StorageTek ACSLS library can be distributed among several BrightStor ARCserve Backup servers to maximize backup and restore efficiency, as shown in the following illustration:



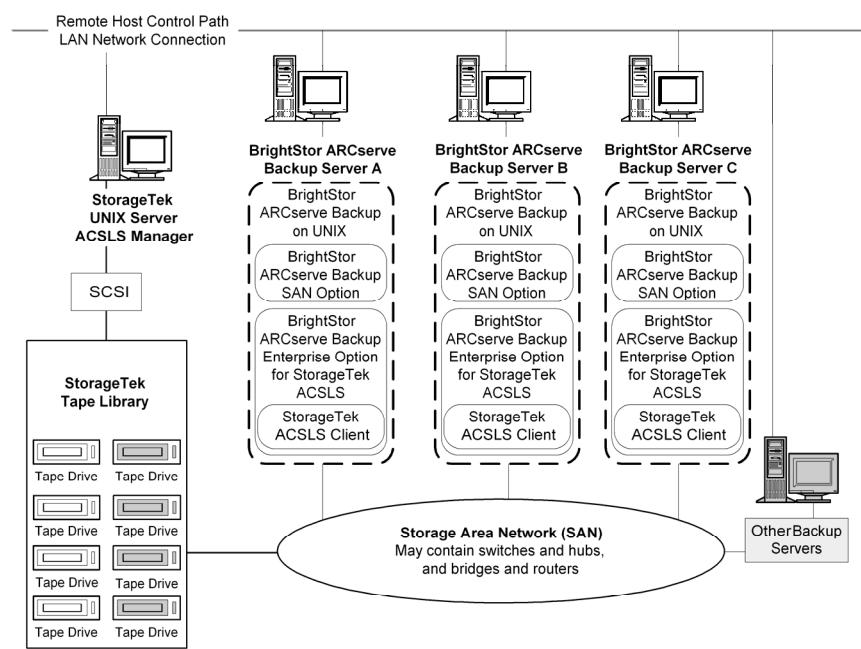
**Note:** In configurations where more than one tape drive is connected to a BrightStor ARCserve Backup server, both tape drives must use media of the same type.

## Shared Tape Volumes in a SAN

In a SAN, each BrightStor ARCserve Backup server connects directly to a SAN, which, in turn, connects to at least one tape drive in the StorageTek ACSLS tape library. In configurations with multiple BrightStor ARCserve Backup servers in a SAN, each backup server is configured to control and share the same set of tape drives and tape volumes in the StorageTek ACSLS tape library. As a result, each BrightStor ARCserve Backup server in the SAN shares the same user-defined subset of tape volumes on the StorageTek ACSLS tape library.

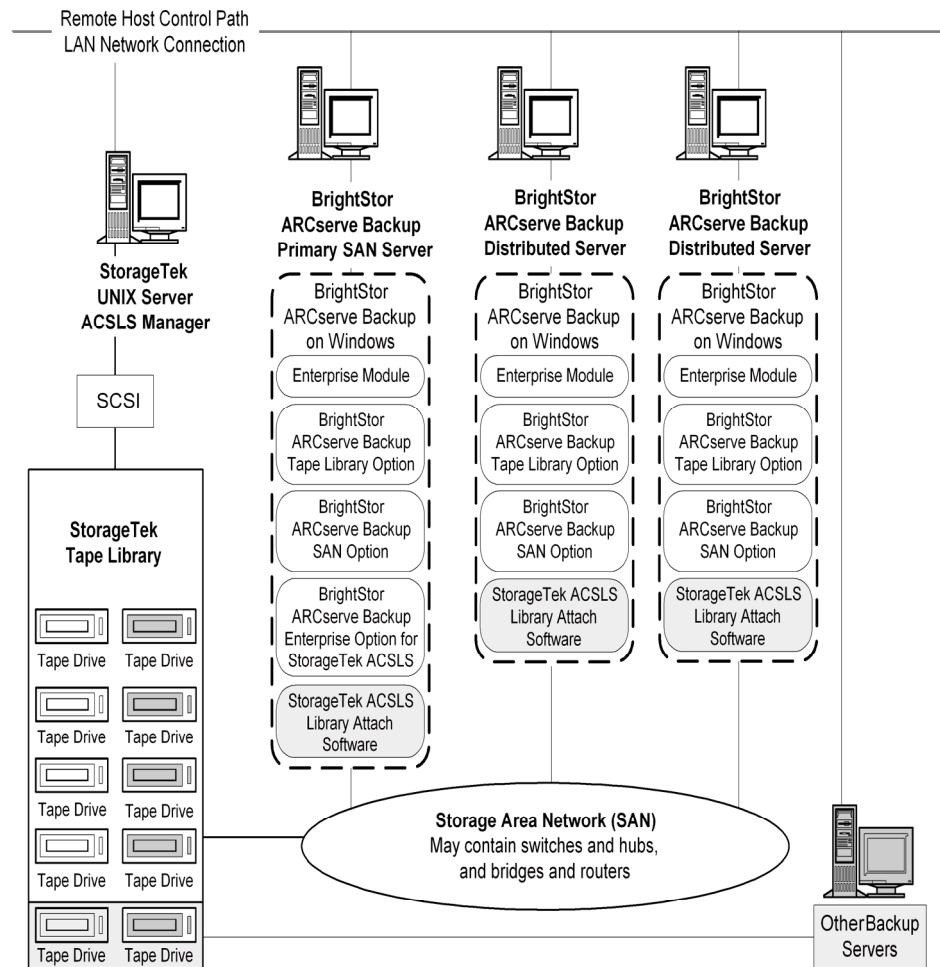
In a SAN, the BrightStor ARCserve Backup servers have the same virtual library configuration, the same tape volume configuration, and the same tape drive configuration.

The Enterprise Option for StorageTek ACSLS must reside on each BrightStor ARCserve Backup server in the SAN. The following illustration shows the option architecture in a SAN and the SAN communication interface to the StorageTek ACSLS tape library:



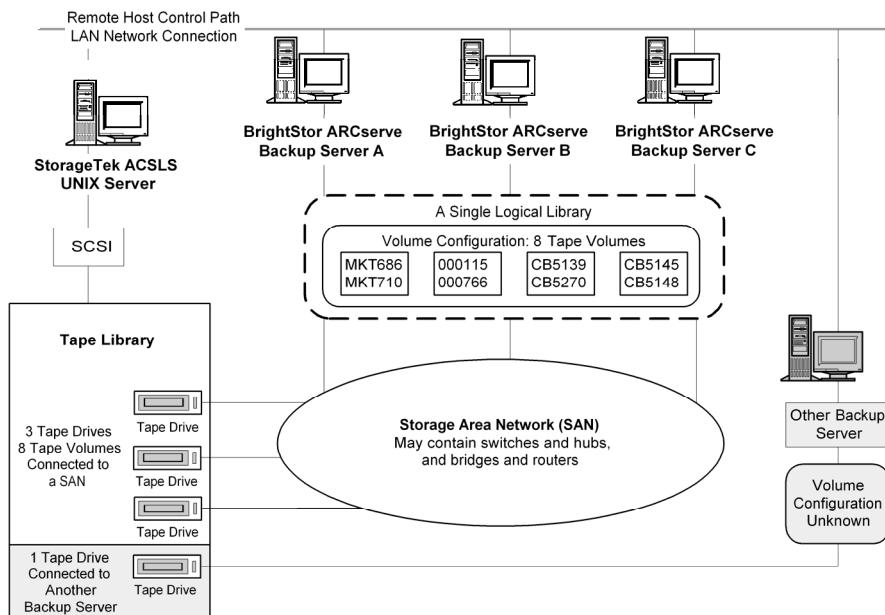
## Shared Tape Volume Architecture

The following illustration shows the architecture of BrightStor ARCserve Backup servers in a SAN and the SAN communication interface to the StorageTek ACSLS tape library:



## Shared Tape Volume Configuration in a SAN

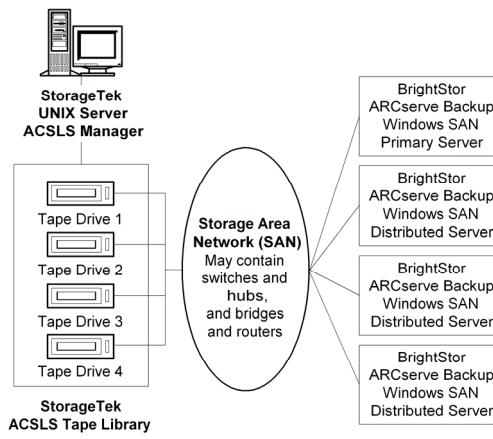
The tape volume assignments determine the user-defined logical library shared by all BrightStor ARCserve Backup servers in the SAN. In the following illustration, a single set of tape volumes defines the logical library for the SAN:



The illustration shows that the StorageTek ACSLS tape library has three tape drives directly attached to a SAN. The tape volume assignments are the same for each BrightStor ARCserve Backup server in the SAN. Another backup server on the network that is not running BrightStor ARCserve Backup may have a different configuration.

## SAN Server Connection to Tape Drive Configuration

The tape drives on the StorageTek ACSLS library can be connected to a SAN, which in turn is connected to several BrightStor ARCserve Backup servers, as shown in the following illustration:

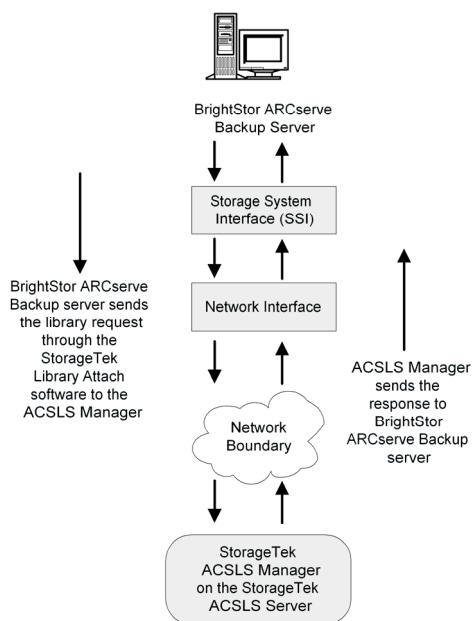


**Note:** In configurations where more than one tape drive is connected to a BrightStor ARCserve Backup server, both tape drives must use media of the same type.

## Library Request Flow

The BrightStor ARCserve Backup server initiates requests for library operations, which are then transmitted by the StorageTek Library Attached software on the BrightStor ARCserve Backup server to the ACSLS Manager on the StorageTek ACSLS server. When the ACSLS Manager receives and interprets a library request, the requested operation is performed on the StorageTek ACSLS library. The ACSLS Manager forms and returns a response to the BrightStor ARCserve Backup server.

The StorageTek ACSLS library request flow is shown in the following illustration:



# Chapter 2: Installing the Option

---

This chapter provides the information you need to install and configure the Enterprise Option for StorageTek ACSLS. The information in this chapter assumes you are familiar with:

- The characteristics and requirements of UNIX operating systems in general
- Administrator responsibilities with UNIX operating systems in particular
- The text-based vi editor
- StorageTek ACSLS

## System Requirements

This section describes software installation requirements specific to the Enterprise Option for StorageTek ACSLS. For a list of supported platforms, machine requirements, and required applications for this option, see the readme file. Check the Computer Associates web site located at [ca.com](http://ca.com) for any updates to the requirements.

For the Enterprise Option for StorageTek ACSLS to function properly, you need to verify that the option and the following applications are installed on the same computer:

- BrightStor ARCserve Backup
- Tape Library Option
- Enterprise Module
- StorageTek ACSLS Library Attach software

**Important!** *You must establish communication between the StorageTek ACSLS server and the BrightStor ARCserve Backup server before installing the option.*

## Library Configuration

Configuring your library is an important step in the Enterprise Option for StorageTek ACSLS installation. The Tape Library Option is required to perform the library configuration. You can install the Tape Library Option installation before or during installation of the Enterprise Option for StorageTek ACSLS.

The Tape Library Option installation process detects the tape drives that are attached to the BrightStor ARCserve Backup server. The Tape Library Option assigns these tape drives to the BrightStor ARCserve Backup server.

The library configuration process reads and initializes all the tape volumes in the StorageTek ACSLS library. Before you configure your library, you must remove all tape volumes from the tape drives in the StorageTek ACSLS library.

After you assign the tape drives to the server and remove the tape volumes from the tape drives, configure the library by choosing one of the following library configuration methods:

- Manual
- Automatic

## Manual Library Configuration

The manual library configuration method lets you manually enter tape drive parameters. Use the manual library configuration method if the tape drives in the StorageTek ACSLS library use a mixture of different types of tape volumes or if the StorageTek ACSLS library is shared with other backup servers.

The process of entering tape drive parameters assigns the tape drive to the logical library on the BrightStor ARCserve Backup server. A green tick mark next to the tape drive in the Manual Configuration dialog indicates that you have entered the tape drive parameters.

## Tape Drive Parameters

You can obtain the tape drive parameters by querying the status of the tape drives on the StorageTek ACSLS library. For more information about querying the status of the tape drives, see StorageTek ACSLS Tape Library Queries in the chapter “Using the Option.”

Enter the following parameters for each tape drive:

- Automated Cartridge System (ACS)
- Logical Silo Module (LSM)
- Panel number (Panel)
- Drive ID number (ID)

## Automatic Library Configuration

The automatic library configuration determines which tape drives in the StorageTek ACSLS library are connected to the BrightStor ARCserve Backup server. Use this library configuration method if all tape drives in the StorageTek ACSLS library are the same type.

The BrightStor ARCserve Backup server performs the following device detection and verification tasks during automatic library configuration:

- Unloads all the tape drives in the StorageTek ACSLS library
- Loads the first tape drive
- Verifies the loaded tape drive
- Receives tape drive connection verification
- Unloads the first tape drive
- Repeats this verification process for each tape drive
- Reports the tape drive information on the Drive Configuration dialog

**Note:** The automatic library configuration method does not support a mixture of different types of tape volumes.

## Installation Prerequisites

Installation prerequisites are grouped into these categories:

- StorageTek ACSLS Components
- Install Privileges
- Data Path and Control Path Interfaces

Before installing the Enterprise Option for StorageTek ACSLS, verify that:

- You have installed and configured Version 1.3 of the StorageTek Library Attach software on the BrightStor ARCserve Backup server.
- You have communication between the StorageTek ACSLS server and the StorageTek Library Attach software.
- The StorageTek ACSLS tape library and StorageTek ACSLS server are correctly configured.
- Your system meets the minimum requirements needed to install the Enterprise Option for StorageTek ACSLS. For a list of system requirements, see the readme file.
- You have administrator privileges or the proper authority to install software on the computer where you are installing the option.
- You have planned your tape volume configuration.
- You have selected your library configuration method and gathered the required information to configure your library using the selected method.

**Note:** Contact your BrightStor ARCserve Backup administrator to obtain the proper privileges if you do not have them.

## StorageTek ACSLS Components

The following StorageTek ACSLS communication interface software components are installed on the same computer as the Enterprise Option for StorageTek ACSLS:

- The Library Attach software translates and routes messages between the ACSLS Manager and the BrightStor ARCserve Backup server.
- The Storage Server Interface (SSI) requests the movement of the tape volumes by sending the requests to the Network Interface. The SSI service translates the library requests from the BrightStor ARCserve Backup server into a format that can be interpreted by the ACSLS Manager software on the StorageTek ACSLS server.
- The Network Interface handles the task of creating message packets for transfer across the network. The message packets consist of an address header, the actual data, and parity information. The parity information in the packet can be used for error correction.

The communication interfaces between the StorageTek tape library and the BrightStor ARCserve Backup server consist of an Ethernet LAN control path and a (SCSI) Small Computer System Interface or fibre channel data path. The control path and the data path are two different paths.

## Option Installation and Library Configuration

Make sure you have confirmed the installation prerequisites and performed the required pre-installation tasks. When you have completed these tasks and gathered all of the required information, you are ready to start the installation process.

**Note:** You can install the BrightStor ARCserve Backup base product, the Enterprise Module, and the Tape Library Option before or during the option installation.

The highlights of the Enterprise Option for StorageTek ACSLS installation include:

- Perform the pre-installation tasks
- Install the option
- Configure the library during installation by:
  - Choosing a library configuration setup method (Manual or Automatic)
  - Confirming the library configuration parameters
  - Assigning the tape volumes
  - Confirming the library configuration
- Use the Device Manager to perform a Quick Inventory.

**Note:** For information about using the Device Manager, see the *Getting Started*.

### Install the Option

You can install the Enterprise Option for StorageTek ACSLS during or after the installation of the required BrightStor ARCserve Backup products:

- BrightStor ARCserve Backup base product
- Tape Library Option
- Enterprise Module

The order of the installation dialogs presented during the installation process is customized based on the agents, options, and other components that you are installing during this installation session. As a result, the sequence of installation dialogs varies.

For detailed information about installing BrightStor ARCserve Backup, see the *Getting Started*. For detailed information about installing and configuring Tape Library Option, see the *Tape Library Option Guide*.

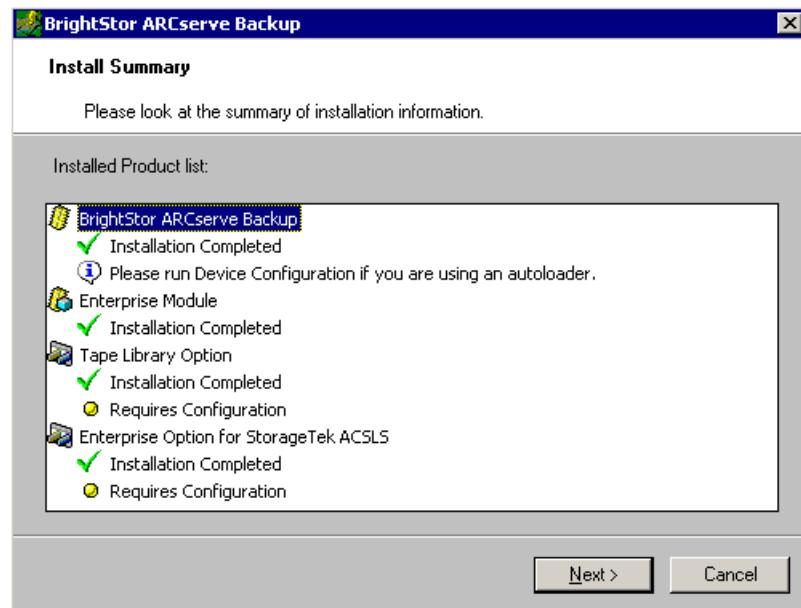
**Important!** *The tape drive configuration occurs during the Tape Library Option installation. You must install the Tape Library Option before you install the option, or during the same installation session.*

To install the Enterprise Option for StorageTek ACSLS, follow these steps:

1. Log on with administrator privileges to the BrightStor ARCserve Backup server.
2. In the Select Products dialog, select Enterprise Option for StorageTek ACSLS.

**Important!** *Select the other required products if you have not already installed them.*

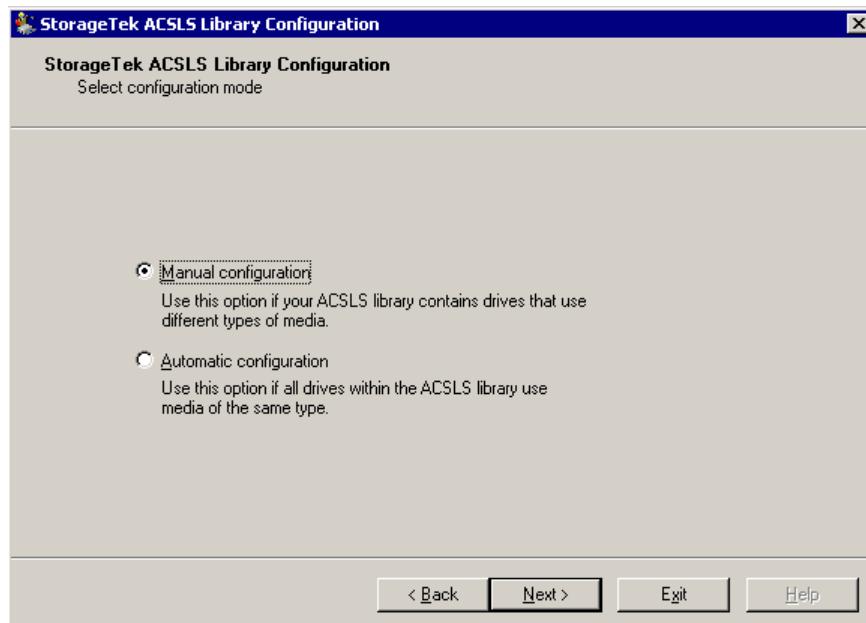
3. Click Next to install the option. The Installation Summary dialog appears.



4. Review the installation summary on the Install Summary dialog and click Next.
5. If you are also installing other BrightStor ARCserve Backup products, respond to all dialogs and prompts as appropriate for your system configuration.

**Note:** The Tape Library Option installation performs the required tape drive configuration.

6. When prompted, remove all tape volumes from the StorageTek ACSLS tape drives and click Yes to configure the StorageTek ACSLS tape library. The StorageTek ACSLS Library Configuration dialog opens.



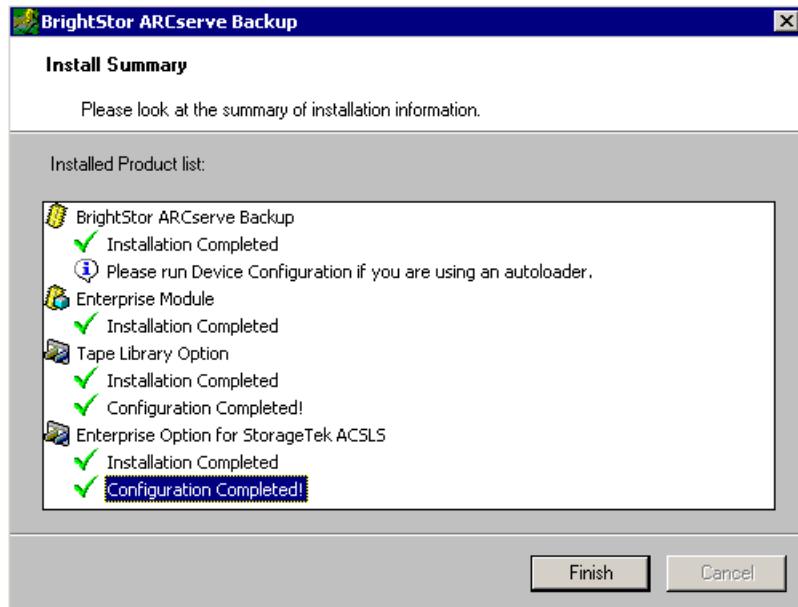
7. Select your library configuration method.

**Note:** For detailed information on library configuration methods, see Library Configuration in this chapter.

8. Click Next to configure your library.

**Note:** For detailed information about configuring your library, see How Library Configurations Work in this chapter.

9. After you configure your library, review the installation summary. The Enterprise Option for StorageTek ACSLS status shows Installation Completed and Configuration Completed.



10. Click Finish to complete the installation.

## Library Configuration Tasks

Configuring the logical library is an integral and important part of the option installation process. Configure the library for the Enterprise Option for StorageTek ACSLS by completing the following library configuration tasks:

- Configuring the tape drives, manually or automatically
- Assigning tape volumes to the BrightStor ARCserve Backup server to configure the logical library
- Performing a Quick Inventory using the Device Manager

### Configure your Library Tape Drives Manually

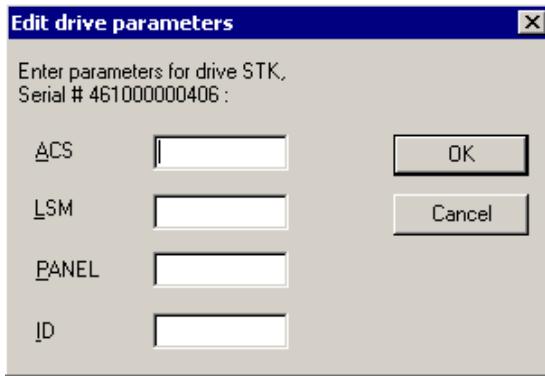
To use the manual library configuration method, follow these steps:

1. Select the manual library configuration method.
2. Click Next. The Manual Configuration dialog displays a list of the tape drives that are attached to the BrightStor ARCserve Backup server.

**Note:** For detailed information about the manual library configuration method, see [Manual Library Configuration](#) in this chapter.

3. Select a tape drive to be configured.

4. Click Configure to enter the parameters of the selected tape drive. The Edit drive parameters dialog opens.



5. Enter the ACS, LSM, Panel, and ID of the tape drive in the Edit drive parameters dialog.
6. Click OK to close the Edit drive parameters dialog. A green tick mark appears for each configured tape drive.
7. Repeat the manual configuration for each tape drive.
8. Click Next to verify the configuration information and to initialize the tape drives. The Volume Configuration dialog opens showing a list of unassigned tape volumes.

## Configure your Library Tape Drives Automatically

To use the automatic library configuration method, follow these steps:

1. Select the library automatic configuration method.
2. Click Next to initiate the automatic library configuration process to determine which tape drives in the StorageTek ACSLS library are connected to the BrightStor ARCserve Backup server.

**Note:** For detailed information about the automatic library configuration method, see Automatic Library Configuration in this chapter.

3. Click Next to confirm the tape drive configuration. The Volume Configuration dialog opens showing a list of unassigned tape volumes.

## Configure your Library Tape Volumes

The process of configuring your tape volumes consists of assigning tape volumes to create the logical library on the BrightStor ARCserve Backup server. Review your tape volume assignment plan before you assign the tape volumes.

**Note:** For details about the option architecture and planning your tape volume configuration, see Option Architecture in the chapter "Introducing the Option."

After you configure the tape drives, all tape volumes in the StorageTek ACSLS library are shown in the Volume Configuration dialog. Initially, the tape volumes are not assigned to the BrightStor ARCserve Backup server. The unassigned status is indicated by a red slash through the tape volume icon.

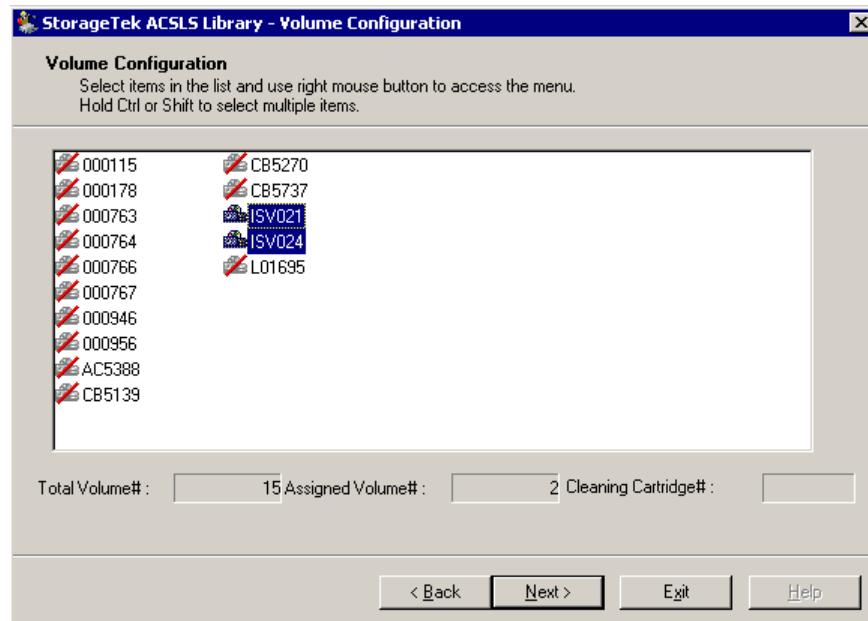
## Configure the Logical Library

To configure your logical library by assigning tape volumes to the BrightStor ARCserve Backup server, follow these steps:

1. Select one or more tape volumes.

**Note:** Press and hold the Ctrl key to select multiple tape volumes.

2. Right-click the selected tape volumes, and then select Assign. The selected tape volumes are assigned to the BrightStor ARCserve Backup server, as indicated by the tape volume icon (no red slash):



3. Click Next. A message dialog reminds you to do a Quick Inventory on the StorageTek ACSLS library.
4. Click OK to close the message dialog. A summary dialog opens to show the library tape drive configuration.
5. Click Finish to complete your library configuration. A device configuration completed dialog opens to confirm your successful library configuration.
6. Click Exit. The Install Summary dialog opens.

## Configure the Cleaning Volume

To configure your cleaning tape volume, follow these steps:

1. Select one or more tape volumes.
2. Right-click the tape volumes, and then select Mark/Unmark Cleaning Cartridge. The selected tape volume is marked as the cleaning cartridge.

## Perform a Quick Inventory

To enable BrightStor ARCserve Backup to recognize changes in tape volume assignments, perform a quick inventory for slots in the StorageTek ACSLS affected by tape volume assignment changes.

To perform a quick inventory, follow these steps:

1. Logon to BrightStor ARCserve Backup on the computer running the Enterprise Option for StorageTek ACSLS.
2. Start BrightStor ARCserve Backup.
3. From the BrightStor ARCserve Backup home page, select Device.
4. Select the logical StorageTek ACSLS library.  
**Note:** The name of the logical StorageTek ACSLS library is usually CA NLO-ACSLs.
5. Right-click the selected logical StorageTek ACSLS library, and then select Inventory/Offline Slots. The Inventory/Offline Slots dialog opens to show the tape volumes in the StorageTek ACSLS tape library.
6. Click to select the slots in the StorageTek ACSLS affected by tape volume assignment changes.
7. Click Quick Inventory.
8. Click OK. The inventory complete message dialog opens.
9. Click OK.

# Post-Installation Procedures

Post-installation tasks consist of verifying the pre-installation tasks you performed before installing the Enterprise Option for StorageTek ACSLS and making changes to the library configuration. For more information about the pre-installation tasks, see Installation Prerequisites in this chapter.

## Library Configuration Update

The StorageTek ACSLS library configuration consists of tape drive configuration and tape volume assignments. Any time you add or remove tape drives or change your tape volume assignments on the StorageTek ACSLS tape library, you must update the library configuration with these changes.

**Important!** *You must stop the tape engine service to update the library configuration with tape drive and tape volume changes.*

### Update Your Device Configuration

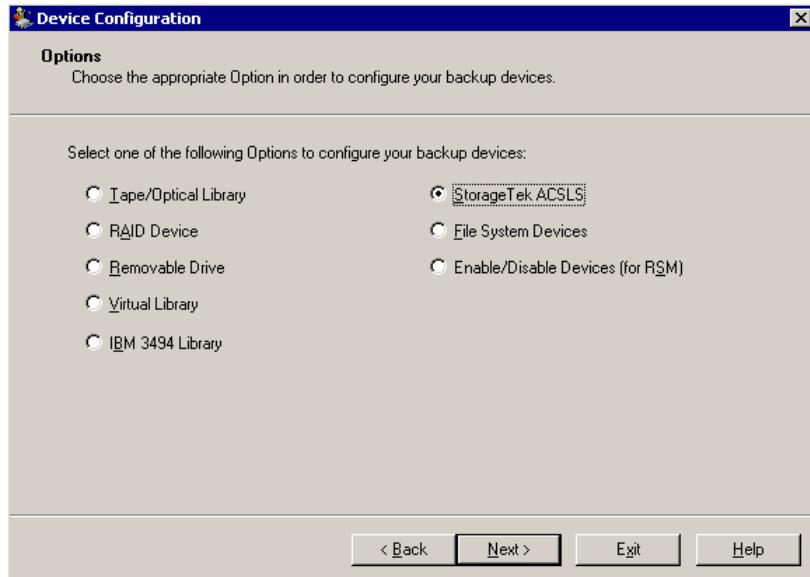
You can update the library configuration with changes to tape drives by using the Device Configuration Wizard on the BrightStor ARCserve Backup server. The device configuration process reads and initializes all the tape volumes in the StorageTek ACSLS library. Before you reconfigure your library, you must remove all tape volumes from the tape drives in the StorageTek ACSLS library.

To update the library configuration with StorageTek ACSLS tape drive changes, follow these steps:

1. Log on with administrator privileges to BrightStor ARCserve Backup on the computer running the Enterprise Option for StorageTek ACSLS.
2. From the Configuration menu, choose Device Configuration. The Device Configuration wizard starts.
3. Select Windows Server (local machine only).



4. Click Next. The Options dialog opens.



5. Select StorageTek ACSLS.

6. Click Next. A message dialog opens warning the tape engine service will be stopped.

7. Click Yes to continue. A message dialog opens reminding you to remove all tape volumes from the StorageTek ACSLS tape library.

8. If you have not done so already, remove all tape volumes from the StorageTek ACSLS tape library.

9. Click Yes to continue.

10. Select the manual or automatic library configuration method and configure your library.

**Note:** For details on configuring your library, see Library Configuration Tasks in this chapter.

## Update Your Volume Configuration

You can update your volume configuration with changes to tape volumes on the StorageTek ACSLS library. After any changes to the tape volumes on the StorageTek ACSLS library, use the StorageTek ACSLS Volume Configuration program to change your tape volume configuration, and then use BrightStor ARCserve Backup to perform a quick inventory.

**Note:** The import and export of tape volumes using the Enterprise Option for StorageTek ACSLS is not supported. For more details on recognizing tape volume configuration changes in the StorageTek ACSLS library, see Recognize Tape Volume Changes in the chapter "Using the Option."

To change your tape volume configuration, follow these steps:

1. Log on with administrator privileges to BrightStor ARCserve Backup on the computer running the Enterprise Option for StorageTek ACSLS.
2. Start the StorageTek ACSLS Volume Configuration program by choosing the following sequence from the Start menu:
  - Programs
  - Computer Associates
  - BrightStor
  - ARCserve Backup
  - StorageTek ACSLS Volume Configuration
3. When the Volume Configuration welcome dialog opens, click Next.  
**Note:** The Tape Engine will be stopped before you can continue.
4. Click Next to continue the volume configuration. The Volume Configuration dialog opens to show the current tape volume configuration and lets you make changes to the tape volume configuration.
5. Select any tape volumes you want to change.
6. Right-click and select the appropriate choice to change the tape volume assignment.
7. Click Next. A message dialog opens to remind you to perform a quick inventory for slots in the StorageTek ACSLS affected by tape volume assignment changes.
8. Click OK to close the message dialog. The Volume Configuration Completed dialog opens.
9. Click Exit to exit the StorageTek ACSLS Volume Configuration program.
10. Click Yes to confirm the exit.  
**Note:** For details about configuring tape volumes, see Configure your Library Tape Volumes in this chapter.
11. Start the Tape Engine manually.
12. Use BrightStor ARCserve Backup to perform a quick inventory.  
**Note:** For details about performing a quick inventory, see Perform a Quick Inventory in this chapter.

# Chapter 3: Using the Option

---

This chapter contains information about using the Enterprise Option for StorageTek ACSLS. After you install and configure the Enterprise Option for StorageTek ACSLS on the BrightStor ARCserve Backup server, you can use BrightStor ARCserve Backup to perform the following tasks:

- Manage backup and restore operations on the StorageTek ACSLS
- Import and export tape volumes from the StorageTek ACSLS tape library
- Update the configuration of the virtual library on the BrightStor ARCserve Backup server with device or tape volume changes on the StorageTek ACSLS tape library

This chapter also contains information about using the StorageTek ACSLS cmd\_proc utility to query the status of the tape drives and tape volumes in the StorageTek ACSLS tape library.

## Backup and Restore Operations

With the Enterprise Option for StorageTek ACSLS, you manage backup and restore operations as if you are controlling a local library. Use the Backup Manager and the Restore Manager to perform backup and restore operations on the BrightStor ARCserve Backup server.

Use the Backup Manager to perform backup operations and the Restore Manager to perform restore operations. For complete details on managing backup and restore operations, see the *Getting Started*.

**Note:** The tape volumes on the StorageTek ACSLS tape library appear as local tape volumes during backup and restore operations.

## Recognize Tape Volume Changes

After the initial library configuration, you can add or remove tape volumes. Before you can use tape volumes in the StorageTek ACSLS tape library for a virtual library on the BrightStor ARCserve Backup server, you must perform the following three tasks:

- Use the StorageTek ACSLS to add tape volumes to, and remove tape volumes from, the StorageTek ACSLS tape library.
- Update your tape volume configuration.  
**Note:** For detailed instructions on updating your tape volume configuration, see *Update Your Volume Configuration* in the chapter "Installing the Option."
- Notify the BrightStor ARCserve Backup server of the changes to the tape volume configurations by performing a Quick Inventory.  
**Note:** For detailed instructions on performing a Quick Inventory, see *Perform a Quick Inventory* in the chapter "Installing the Option."

Import and export of tape volumes from BrightStor ARCserve Backup is not supported with the Enterprise Option for StorageTek ACSLS. All physical import and export of tape volumes must be made using the StorageTek ACSLS.

## StorageTek ACSLS Tape Library Queries

The StorageTek ACSLS query commands provide an alternate method for determining the status of the tape drives and the tape volumes in the StorageTek ACSLS tape library. Use the cmd\_proc utility on the StorageTek ACSLS server to query the status of the tape drives and the tape volumes in the StorageTek ACSLS tape library.

### Query the Status of Tape Drives

The command, query drive all, provides information about the tape volumes, the tape drives, their state, their status, and their type.

To query the status of the tape drives in the StorageTek ACSLS tape library, follow these steps:

1. Start the cmd\_proc utility.
2. Enter

```
query drive all
```

The command displays the following information:

2004-03-18 12:51:31	Drive Status			
Identifier	State	Status	Volume	Type
0, 0, 0, 0	online	available		SGT-LTO
0, 0, 0, 1	online	available		SGT-LTO
0, 0, 0, 2	online	available		SGT-LTO
0, 0, 0, 3	online	available		SGT-LTO

The identifier consists of four digits, which represent the following:

- Automated Cartridge System (ACS)
- Logical Silo Module (LSM)
- Panel number (Panel)
- Drive ID number (ID)

In the preceding example, "0, 0, 0, 0" on the first line translates to ACS = 0, LSM = 0, Panel = 0, ID = 0 while "0, 0, 0, 3" on the fourth line translates to ACS = 0, LSM = 0, Panel = 0, Drive ID = 3.

## Query the Status of the Tape Volumes

The command, query volume all, provides information about the tape volumes, their status, their current location, and their type.

To query the status of the tape volumes in the StorageTek ACSLS tape library, follow these steps:

1. Start the cmd\_proc utility.
2. Enter

```
query volume all
```

The command displays the following information:

2004-03-18 13:05:04	Volume Status		
Identifier	Status	Current Location	Type
000091	home	0, 0, 4, 0, 0	LTO-100G
000092	home	0, 0, 2, 3, 0	LTO-100G
000093	home	0, 0, 2, 1, 0	LTO-100G
000094	home	0, 0, 3, 0, 0	LTO-100G
000095	in drive	0, 0, 0, 0, 0	LTO-100G
000096	ejected	0,-1, 0, 0, 0	LTO-100G
000097	ejected	0,-1, 0, 0, 0	LTO-100G



# Appendix A: Frequently Asked Questions

---

This appendix includes frequently asked questions to help you resolve issues that may arise when using the Enterprise Option for StorageTek ACSLS.

## **What is mixed media?**

The term mixed media refers to a mixture of tape drives and tape volumes in the StorageTek ACSLS tape library. In configurations where more than one tape drive is connected to a BrightStor ARCserve Backup server, both tape drives must use media of the same type.

## **What Library configuration method should I use to configure the logical library when StorageTek ACSLS tape library has mixed media?**

Use the manual library configuration method.

## **How do I verify network connectivity between the BrightStor ARCserve Backup server and the StorageTek ACSLS tape library?**

Verify network connectivity by using the StorageTek Library Attach software on the BrightStor ARCserve Backup server.

## **How do I change my library tape drive configuration?**

To update the library configuration with StorageTek ACSLS tape drive changes, make the tape drives changes on the StorageTek ACSLS tape library, and then use the Device Configuration wizard to change your library configuration.

## **How do I change the tape volume configuration?**

You can update your volume configuration with changes to tape volumes on the StorageTek ACSLS library. After you add tape volumes to, or remove tape volumes from, the StorageTek ACSLS library, use the StorageTek ACSLS Volume Configuration program to change your tape volume configuration, and then use BrightStor ARCserve Backup to perform a quick inventory.

## **How do I start the StorageTek ACSLS Volume Configuration program?**

Start the StorageTek ACSLS Volume Configuration program from the Start menu by choosing: Programs, then Computer Associates, then BrightStor, then ARCserve Backup, and then StorageTek ACSLS Volume Configuration.

## **When are tape volume assignments the same for more than one BrightStor ARCserve Backup server?**

The tape volumes are shared between each BrightStor ARCserve Backup server in a SAN. The tape volume configuration for the primary server in the SAN is shared among the other backup servers in the SAN.

**Is the cleaning tape volume shared between backup servers?**

Yes, the cleaning tape volume is shared between backup servers when the backup servers are in a SAN, just as they share the same volume configuration for non-cleaning tape volumes. If the backup servers are not in a SAN, then each backup server has an assigned cleaning volume.

**Can I use the Enterprise Option for StorageTek ACSLS to run a disaster recovery?**

Yes, disaster recovery is supported using the Enterprise Option for StorageTek ACSLS. For more information on Disaster Recovery, see the *Disaster Recovery Guide*.

# Index

---

## A

ACS, automated cartridge system • 18  
adding tape volumes • 32  
architecture • 8  
    about • 8  
    example of mutually exclusive tape volumes • 9  
    exclusive tape volume communication interfaces • 9  
    library • 8  
    mutually exclusive tape volumes • 8  
    SAN communication interface • 13  
    SAN example • 13  
    assigning tape volumes • 9  
        about • 9  
        procedure • 26  
Automated Cartridge System, ACS • 18  
automatic library configuration • 19

## B

BrightStor ARCserve Backup  
    on Start menu • 29  
    StorageTek ACSLS Volume Configuration • 29

## C

cmd\_proc • 32  
communication interfaces • 6  
    control path • 20  
    data path • 20  
    StorageTek ACSLS components • 20  
configuring  
    logical library • 24  
configuring the library • 24  
    about • 24  
    automatically • 25  
    manually enter tape drive parameters • 24  
    tape volume assignments • 26  
    updating with changes • 28  
control path • 7, 20

## D

data path • 7, 20  
Device Configuration Wizard • 28  
Drive ID number tape drive parameter • 18

## E

Enterprise Module • 17  
Ethernet LAN control path • 7

## F

fibre channel data path • 7

## I

installation  
    highlights • 21  
    library configuration • 24  
    procedure • 21  
installing the option  
    procedure • 21  
inventory, slot changes • 27

## L

Library Attach software • 20  
library configuration methods • 17  
    about automatic • 19  
    about manual • 18  
Logical Silo Module, LSM • 18  
LSM, Logical Silo Module • 18

## M

message packets, ACSLS • 20

## N

network interface, ACSLS • 20

## P

packets • 20  
Panel tape drive parameter • 18  
post-installation procedures • 27

## Q

querying the ACSLS • 32  
    tape drives • 32  
    tape volumes • 33  
Quick Inventory of tape volume changes • 27

## R

recognizing tape volume changes • 32

---

removing tape volumes • 32

requirements • 17

    software applications • 17

    system • 17

## S

SAN • 13

    architecture • 13

    data path • 7

    fibre attached tape drives • 7

    logical library configuration example • 14

SCSI data path • 7

slots, quick inventory of changes • 27

software installation requirements • 17

SSI, Storage Server Interface on ACSLS • 20

Storage Server Interface (SSI) on ACSLS • 20

StorageTek ACSLS • 7

    Volume Configuration program in BrightStor

    En • 29

## T

tape drives • 7

    changes • 28

    configuring automatically • 25

    configuring manually • 24

    entering parameters for manual

        configuration • 18

    parameters • 18

    physical connections • 7

    querying the status • 32

Tape Library Option • 17

tape volumes

    assigning • 25, 26

    configuration example • 10, 14

    movement • 20

    mutually exclusive set • 8

    planning • 9

    querying the status • 33

    recognizing assignment changes • 27

## U

updating • 28

    device configuration • 28

    library configuration • 28

    volume configuration • 29

## W

wizard, Device Configuration • 28