Automated Cartridge System Library Software

Product Information

Version 6.1.1

313496102

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This edition applies to Version 6.1.1 of Automated Cartridge System Library Software. Information contained in this publication is subject to change. Comments concerning the contents of this manual should be directed to:

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About this Book

ACSLS Product Information provides information about ACSLS 6.1.1 for both Solaris and AIX platforms.

Audience

This information is provided for system programmers, system administrators, and operators who need general requirements, enhancements for ACSLS 6.1.1, and other information.

Reader's Comments

We'd like to know what you think about this book. If you'd like, you can e-mail your comments to Software Information Development directly. Our Internet address is:

sid@stortek.com

About the Software

This book supports ACSLS 6.1.1.

What's New in This Guide

This guide contains the following new information for ACSLS 6.1.1:

- Description of ACSLS 6.1.1 features and enhancements in "ACSLS 6.1.1 Features and Enhancements" on page 3.

Conventions for Reader Usability

Conventions are used to shorten and clarify explanations and examples within this book.

Typographic

The following typographical conventions are used in this book:

- **Bold** is used to introduce new or unfamiliar terminology, or it's used in steps to indicate either an action or a decision the user has to make.
- `Letter Gothic` is used to indicate filenames, command names, and literal output by the computer.
- **`Letter Gothic Bold`** is used to indicate literal input to the computer by you.
- *`Letter Gothic Italic`* is used to indicate that you must substitute the actual value for a command parameter. In the following example, you would substitute your name for the "username" parameter.

  `Logon` *`username`*

- A bar (|) is used to separate alternative parameter values. In the example shown below either username or systemname must be entered.

  `Logon` *`username`* | *`systemname`*

- Brackets [ ] are used to indicate that a command parameter is optional.

Related Documentation

ACSLS 6.1.1 Documentation

The following publications provide more information about ACSLS 6.1.1:

- The *ACSLS* 6.1.1 *Information CD–ROM*, part number 313495503, which is automatically shipped with the ACSLS 6.1.1 program package and provides PDF format of all the ACSLS 6.1.1 publications.
- *ACSLS Installation, Configuration, and Administration Guide*, part number 313495803, which is automatically shipped with the 6.1.1 program package.
- *ACSLS Quick Reference*, part number 313496002, which is automatically shipped with the 6.1.1 program package.
- *ACSLS Messages*, part number 313495902, which is automatically shipped with the 6.1.1 program package.

ACSLS Information on the StorageTek CRC

In addition to the PDF collection on the *ACSLS 6.1.1 Information CD–ROM*, the StorageTek CRC provides a PDF collection for ACSLS 6.1.1. Use the following procedure to access this collection on the StorageTek CRC.

To access ACSLS PDF collections on the StorageTek CRC:

1. **Using an Internet browser such as Netscape or Internet Explorer, go to the StorageTek CRC. The URL is:**

   `http://www.support.storagetek.com/`

2. **Click the** `login` **link.**

   If this is the first time you have used the CRC, click `Request a CRC Password` and fill in the requested information. You should receive your account information within two business days.

3. **From the upper left bar, click** `Product Information` **and** `Current Products` **from the dropdown links.**

4. **Select** `Software` **from the Product Family dropdown menu and click** `Next`**.**

5. **Click the** `ACSLS` **link from the Product Categories and navigate to the documents you want to view.**

Note: The Customer Resource Center also lets you download ACSLS PTFs and software support for product enhancements such as new drive or library types.

Technical Support

Refer to the *Requesting Help from Software Support* guide (included in hard copy only with the ACSLS program package) for information about contacting StorageTek for technical support.

Document Effectivity

EC Number	Date	Doc Kit Number	Edition Type	Effectivity
123237	May 2001	———	Ninth Edition	This document applies to Automated Cartridge System Library Software (ACSLS), Version 6.0
123359	August 2001	———	Tenth Edition	This document applies to Automated Cartridge System Library Software (ACSLS), Version 6.0.1
128533	June 2002	———	Eleventh Edition	This document applies to Automated Cartridge System Library Software (ACSLS), Version 6.1
128637	December 2002	———	12th Edition	This document applies to Automated Cartridge System Library Software (ACSLS), Version 6.1.1

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ACSLS 6.1.1 Product Information

What is ACSLS?

Automated Cartridge System Library Software (ACSLS) is StorageTek's server software that controls a StorageTek Automated Cartridge System (ACS). ACSLS accesses and manages information stored in an ACS through command processing across a network. The software includes a system administration component and interfaces to client system applications, and library management facilities.

Figure 1 shows how ACSLS connects the client system with the library. The client system consists of a Client System Component (CSC), an interface between client applications and ACSLS that is written using the CSC developer's toolkit. Independent software vendors commonly write CSCs for their applications.

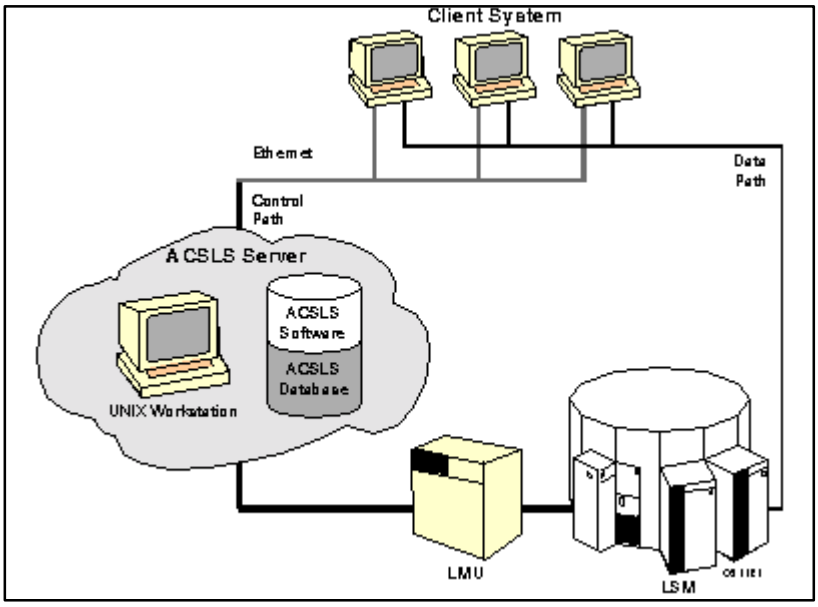

Figure 1. Library with ACSLS Server

ACSLS Features and Enhancements

ACSLS 6.1.1 ACSLS 6.1.1 supports the following features and enhancements:

- Support for Solaris 8 and Solaris 9.
- Support for AIX 4.3.3 and AIX 5.1.
- Simplified product installation using pkgadd for Solaris and installp for AIX.
- Support for the following new drives:
  - SDLT 320
  - T9940B
- Support for Universal Cleaning Cartridge media for the LTO drives.
- Support for the following new LSMs:
  - L700e – support for paired L700e LSMs with pass-thru-ports.
  - L5500 – with support for LTO drives. Note that LTO drives do not support mount read-only.
- Absent and ejected cartridge support – If the absent volume retention period is non-zero, cartridges that cannot be found in the library are marked absent instead of being deleted. Ejected cartridges are also retained in the database. If these cartridges are later found in the library or are re-entered, they are changed to active status instead of being re-added to the database. When absent cartridges are reactivated, settings such as pool, volume access control ownership, and locks are preserved.
- Enhanced the Manual Volume Delete (`del_vol`) utility to retain volumes as absent, with the –d option to delete the volume. The volume can be deleted without waiting for the expiration of an absent or ejected status.

- Improved volume recovery – ACSLS recovers volumes that are not found in their expected locations in the library by searching all of the volume's recorded locations instead of automatically deleting the volume.
- New display command – Allows you to specify and display information for ACSLS objects (cap, port, volume, lsm, panel, drive, cell, pool, and lock) using wildcards, ranges, and selection lists.
- Access control (acsss_config, option 6) enhancement – Enables dynamic updates of hosts in the Access Control tables while ACSLS is running. ACSLS no longer has to be restarted.
- Dynamic drive upgrade – Enables dynamic updates to drive configurations when drives are added to or removed from a drive panel. The `acsss_config` utility no longer has to be re-executed.
- New event notification feature – support for client requests to register and unregister for event notification and to check for registration status. Clients can register to be notified of volume and/or library resource events.
- Removal of the 165-drive limitation for query commands. Query Mount and Query Mount Scratch can now return more than 165 drives. Note that you must have ACSAPI Version 4 or higher to receive more than 165 drives in a transaction.
- Query scratch optimization:
    - Query scratch returns volumes sorted by ascending access date
    - Query scratch returns only volumes that are permitted through Access Control

  Note the following restrictions:
    - Absent, ejected, and missing volumes are not included.

  - Query scratch no longer returns information about empty pools.
  - For scratch volumes to be returned grouped by pool, you must perform query scratch multiple times.
  - Query scratch may be used for other purposes than immediately selecting scratch volumes for use.

- Improved IPC communication – The result is a considerable improvement in preventing ACSLS system hangs and slowdowns.
- Support for consolidated messages – The new greplog tool allows you to search multi-line event log messages and display the results with the complete 3–line message.
- Implementation of license keys – Encrypted license keys permit authorized use of ACSLS and in the future will enable optional features.
- Support for media domains in the mixed_media tables.
- Improved access control security – User IDs not in the access control internet addresses table are replaced with a NULL string before being tested against allow/disallow access permission tables. This ensures that such users adhere to the system access/noaccess defaults and prevents unauthorized access to other users' files.

ACSLS Database Backup Differences

ACSLS 6.0 and higher releases, unlike previous releases, do *not* automatically delete transaction log files when a backup is done. In ACSLS 6.0 and higher releases, transaction log files are retained along with database backups for the retention period that you specify in the configuration program. Retention of transaction log files usually means that the database backup partition requires more space than in previous ACSLS releases. To adjust to new space requirements, you should set your retention period accordingly and determine what size of primary and secondary disks you need:

- For information about setting backup retention periods, see the information about Option 5 of the configuration utility in Chapter 5 of *ACSLS Installation, Configuration, and Administration Guide.*
- For information about determining disk requirements for your primary and secondary disks, see the next section, “Determining Disk Size Requirements”.

Determining Disk Size Requirements

Use the following table to determine primary and secondary disk sizes required for your ACSLS server.

	For this Library size...	and a retention period of...	You need 2 disks of this size each...
Basic Library	1 LSM or fewer than 5500 volumes	up to 30 days	2.1 GB (primary disk) 1 GB (secondary disk)
Small Library	3 9310s (or 16,500 volumes)	up to 30 days	2.1 GB
	5 9310s (or 27,500 volumes)	no more than 8 days	2.1 GB
Mid-Size Library	10 9310s (or 55,000 volumes)	up to 30 days	9.0 GB
	27 9310s (or 148,000 volumes)	no more than 8 days	9.0 GB
Large Library	More than 10 9310s (more than 55,000 volumes)	up to 30 days	27.0 GB

For required sizes of `/export/home`, `/export/backup`, `/second_disk`, and `/second_disk/backup` partitions, see the appropriate installation chapters for your platform in *ACSLS Installation, Configuration, and Administration Guide*. Note that you must configure the second disk and install second disk support.

LSM, Transport, and Media Compatibility

4410 LSMs

4410 LSMs support mixing the following transport types:

- 4480
- 4490
- 9490 (Timberline)
- SD-3 (Redwood)

9310 LSMs

9310 LSMs support mixing the following transport types:

- 4480
- 4490
- 9490 (Timberline) and 9490EE
- SD-3 (Redwood)
- 9840
- T9840B
- T9940A
- T9940B

9360 LSMs

9360 LSMs support mixing the following transport types:

- 4480
- 4490
- 9490 (Timberline) and 9490EE
- SD-3 (Redwood)
- 9840
- T9840B

- T9940A

9740 SCSI-Attached LSMs

9740 LSMs support mixing any of the following transport types:

- SD3 and 9490

  or

- 9490 and 9490EE transports

  or

- 9840 and T9840B and DLT 4000, 7000, and 8000

Because of panel limitatons, you cannot mix 9840, T9840B, or DLT transports with SD3, 9490, or 9490EE transports. You cannot mix 9840, T9840B, T9940A, or DLT transports with SD3, 9490, or 9490EE transports in the drive panel of a single 9740 LSM.

9740 Serial-Attached LSMs

9740 serial-attached LSMs (which support multi-LSM configurations with PTP connections), support the SD3, the 9490 and 9490EE, the DLT 4000 and 7000, the 9840 and T9840B, and the T9940A over a multi-LSM configuration. However, in the drive panel of a single 9740 LSM, due to differences in drive frame sizes, you can mix these transports only as follows:

- SD3 and 9490

  or

- 9490 and 9490EE

  or

- 9840, T9840B, T9940A, T9940B, and DLT 4000, 7000, and 8000

Because of panel limitatons, you cannot mix 9840, T9840B, or DLT transports with SD3, 9490, or 9490EE transports. You cannot mix 9840, T9840B, T9940A, or DLT transports with SD3, 9490, or 9490EE transports in the drive panel of a single 9740 LSM.

9710 LSMs

9710 LSMs support mixing the following transport types:

- 9840
- DLT 4000
- DLT 7000
- DLT 8000
- SDLT

9714 LSMs

9714 LSMs support mixing the following transport types:

- DLT 4000
- DLT 7000
- DLT 8000

9730 LSMs

9730 LSMs support mixing the following transport types:

- DLT 4000
- DLT 7000
- DLT 8000

9738 LSMs

9738 LSMs support only the following transport type:

- 9840

L180 LSMs

L180 LSMs support mixing the following transport types:

- 9840
- T9840B
- DLT 7000
- DLT 8000
- SDLT
- SDLT 320
- HP-LTO
- IBM-LTO
- SGT-LTO
- HP-LTO–2
- IBM-LTO–2
- SGT-LTO–2

Note: The LTO drives do not support mount read-only.

L700 LSM and L700e PTP

L700 LSM and L700e Pass Thru Port (PTP) support mixing the following transport types:

- 9840
- T9840B
- T9940A
- T9940B
- DLT 7000

- DLT 8000
- SDLT
- SDLT 320
- HP-LTO
- IBM-LTO
- SGT-LTO
- HP-LTO–2
- IBM-LTO–2
- SGT-LTO–2

Note: The LTO drives do not support mount read–only.

L5500 LSM

L5500 LSM supports mixing the following transport types:

- 9840
- T9840B
- T9940A
- T9940B
- HP-LTO
- IBM-LTO
- SGT-LTO
- HP-LTO–2
- IBM-LTO–2
- SGT-LTO–2

Note: The LTO drives do not support mount read-only.

Transport and Media Compatibility

Table 1. lists the compatible media for each transport type. Use these values as input to the media *media_type* and drive *drive_type* parameters on ACSLS commands.

Table 1. Media and Transport Compatibility

	Compatible Media (*media_type*)	
Transport Type (*drive_type*)	**Data**	**Cleaning**
4480	3480	3480
4490	3480, 3490E	3480
9490	3480, 3490E	3480
9490EE	3480 (read only), 3490E, EECART	3480
SD3	DD3A, DD3B, DD3C	DD3D
9840	STK1R	STK1U
T9840B	STK1R	STK1U
T9940A	STK2P	STK2W
T9940B	STK2P	STK2W
DLT 4000	DLTIII, DLTIIIXT, DLTIV	DLTIII
DLT 7000	DLTIII, DLTIIIXT, DLTIV	DLTIII
DLT 8000	DLTIII, DLTIIIXT, DLTIV	DLTIII
SDLT	SDLT	SDLT
SDLT 320	SDLT	SDLT
HP-LTO	LTO-100G, LTO-50GB, LTO-35GB, LTO-10GB	LTO-CLN1, LTO-CLNU
IBM-LTO	LTO-100G, LTO-50GB, LTO-35GB, LTO-10GB	LTO-CLN2, LTO-CLNU
SGT-LTO	LTO-100G, LTO-50GB, LTO-35GB, LTO-10GB	LTO-CLN3, LTO-CLNU

Table 1. Media and Transport Compatibility

	Compatible Media (*media_type*)	
Transport Type (*drive_type*)	**Data**	**Cleaning**
HP-LTO-2	LTO-200G, LTO-100G, LTO-50GB, LTO-35GB, LTO-10GB	LTO-CLN1, LTO-CLNU
IBM-LTO-2	LTO-200G, LTO-100G, LTO-50GB, LTO-35GB, LTO-10GB	LTO-CLN2, LTO-CLNU
SGT-LTO-2	LTO-200G, LTO-100G, LTO-50GB, LTO-35GB, LTO-10GB	LTO-CLN3, LTO-CLNU

Note: For information about transport media, go to: http://www.storagetek.com/products/tape/services

Co-hosting on the ACSLS Server

If ACSLS is to be one of several applications running on a server, then the system configuration guidelines presented in the installation guides may require adjustments in order to accommodate conflicting applications. STK recommends that co-hosted installations are undertaken by a qualified system administrator who is knowledgeable of the system resource requirements for each application.

Disk allocation requirements for ACSLS have been defined to assure sufficient disk resources for the ACSLS application. The amount of required swap space may need to increase depending on the requirements of co-resident applications. The sizes defined for all disk partitions have been optimized exclusively for ACSLS. Remaining disk space has been allocated to `/export/backup`, which is the filesystem where ACSLS backups normally reside.

StorageTek does not specifically test or certify any non-StorageTek products on the ACSLS server. REELaccess is the only product that StorageTek has specifically tested and certified to be installed and run on the ACSLS server.

Solaris Requirements

Table 2. describes the hardware and software requirements for the Solaris platform.

Table 2. Solaris Requirements

Requirement	Description
Solaris operating system version	Solaris 8 or Solaris 9 (menu interface only) Comes with the Common Desktop Environment.
Server hardware	**Memory Requirements:** 128 MB **Disk Requirements:** Two disks, a primary (2 GB minimum) and a secondary disk (1 GB minimum), are required for ACSLS 6.1. Medium and large configurations may require higher memory and disk size allocations. For information about determining which disk size you need, see “Determining Disk Size Requirements” on page 7.
ACSAPI Clients must support ACSAPI packet version 3 or higher	ACSLS suppports these ACSAPI packet versions: Packet version 3 (minimum) Packet version 4 (recommended) The CSC Developer’s Toolkit is used to create ACAPI clients. **Notes:** The CSC Developer’s Toolkit and ACSLS have supported packet version 3 since 1993. Support for versions 1 and 2 ended May 1, 2002.

Table 2. Solaris Requirements

Requirement	Description
Repartitioning server disk	1) Add a partition for `/export/home`. This partition will contain the contents of the installation media. 2) Add a partition for database backups, `/export/backup`. For information about the required sizes of these partitions, see the Solaris installation chapter in *ACSLS Installation, Configuration, and Administration Guide*.
Swap space	Minimum of 300 MB for a dedicated ACSLS server.
Cabling for serial 9330, 9315, and 4430 LMUs	Standard RS–423 DTE–to–DCE (straight–through) cable Serial cables can be ordered from StorageTek. Please contact your StorageTek Sales Representative for the correct part numbers.
Connections for TCP/IP LMUs	The physical network connection to the 9330 or 5530 uses IEEE 802.3 Ethernet 10baseT with a RJ45 jack.

Table 2. Solaris Requirements

Requirement	Description
Cabling for SCSI LSMs	You need either of the following: • A differential connection. Requires a SCSI host adapter card. SCSI host adapter cards and cables can be ordered from StorageTek. Please contact your StorageTek Sales Representative for the correct part numbers. • A single-ended SCSI connection. Requires no special adapter. Connects directly to the system SCSI bus on the ACSLS server workstation. External cable should not exceed 2 meters.
Drives	The following drive is required: • A CD–ROM drive The following drive is recommended: • A 4 mm SCSI–attached tape drive or equivalent backup device

AIX Requirements

Table 3. describes the hardware and software requirements for the AIX platform.

Table 3. AIX Requirements

Requirement	Description
AIX operating system version	Only AIX 4.3.3 with Maintenance level 9 applied or AIX 5.1. Comes with the Common Desktop environment, which is automatically installed when you install AIX 4.3.3 or AIX 5.1 from a graphics terminal.
Server hardware	**Memory Requirements**: 128 MB **Disk Requirements**: Two disks, a primary (2 GB minimum) and a secondary disk (1 GB minimum), are required for ACSLS 6.1. For information about determining which disk size you need, see “Determining Disk Size Requirements” on page 7.
ACSAPI Clients must support ACSAPI packet version 3 or higher	ACSLS suppports these ACSAPI packet versions: Packet version 3 (minimum) Packet version 4 (recommended) The CSC Developer’s Toolkit is used to create ACAPI clients. **Notes:** The CSC Developer’s Toolkit and ACSLS have supported packet version 3 since 1993. Support for versions 1 and 2 ended May 1, 2002.

Table 3. AIX Requirements

Requirement	Description
Repartitioning server disk	1) Add a partition for `/export/home`. This partition will contain the contents of the installation media. 2) Add a partition for database backups, `/export/backup`.For information about the required sizes of these partitions, see the AIX installation chapter in *ACSLS Installation, Configuration, and Administration Guide*.
Paging Size	For dedicated ACSLS machines running high library activity (more than 100 mounts per hour), a minimum of 192 MB paging size. For dedicated ACSLS machines running low library activity (fewer than 100 mounts per hour), a minimum of 100 MB paging size.
Cabling for serial LMUs	Standard RS-232 cable (max length 50 feet)
Connections for TCP/IP LMUs	The physical network connection to the 9330 or 5530 uses IEEE 802.3 Ethernet 10baseT with a RJ45 jack.

Table 3. AIX Requirements

Requirement	Description
Cabling for SCSI LSMs	You need either of the following: • A differential connection. Requires a SCSI host adapter card SCSI host adapter cards and cables can be ordered from StorageTek. Please contact your StorageTek Sales Representative forthe correct part numbers. • A single-ended SCSI connection. Requires no special adapter. Connects directly to the system SCSI bus on the ACSLS server workstation. External cable should not exceed 2 meters.
Drives	• CD-ROM drive. • A tape backup device such as a 4 mm SCSI–attached tape drive or equivalent backup device is recommended.

See Also

- CSCI Requirements
- Upgrading to ACSLS 6.1.1

Microcode Requirements

For current microcode levels, your StorageTek field representative should access the following microcode download web sites:

- For Host/LMU Interface (serial or TCP/IP connections) libraries:

  http://svs.stortek.com (Click Tech Assist)

- For SCSI libraries:

  http://mpss.stortek.com

Upgrading to ACSLS 6.1.1

You can upgrade directly to ACSLS 6.1.1 from ACSLS 6.1, 6.0.1, 6.0, 5.4, and 5.3.2. See the ACSLS installation and administration guide for upgrade installation procedures.

Glossary

absent cartridge—A volume that is in the database, but that couldn't be found when all recorded locations for the volume were catalogued. If a nonzero retention period is set, the volume status is changed to STATUS_VOLUME_ABSENT.

ACS—*See* Automated Cartridge System**.**

ACSEL—*See* ACS Event Logger.

ACS Event Logger (ACSEL)—The software component that receives messages from other ACSLS components and writes them to an Event Log.

ACS ID—A unique identifier for an ACS.

ACSLH—*See* ACS Library Handler.

ACS library—A library is composed of one or more ACSs, attached tape drives, and cartridges residing in the ACSs.

ACS Library Handler (ACSLH)—The part of the ACSLM that communicates directly with the LMU.

ACSLM—*See* ACS Library Manager.

ACS Library Manager (ACSLM)—The software component that validates and routes library requests and responses.

ACSLS—*See* ACS Library Software.

ACSLS database—ACSLS database containing information about the location and status of the tape cartridges. The information includes cell location, scratch status, etc.)

ACSLS platform—The server hardware and software that provide the proper environment for ACSLS.

ACS Library Software (ACSLS)— Manages ACS library contents and controls ACS library hardware to mount and dismount cartridges on ACS cartridge drives.

ACSLS database—A database used by ACSLS to track the library configuration and the locations and IDs of all tape cartridges in the library.

ACSSA— *See* ACS System Administrator.

ACS System Administrator (ACSSA)—The interface between the Command Processor and the rest of the system.

ADI—Application Data Interchange.

audit—A physical inventory of the contents of all or part of a library.

Automated Cartridge System (ACS)—The library subsystem consisting of a single or dual LMU, and 1 to 24 LSMs connected to that LMU.

automated library—*See* library.

beginning of tape (BOT)—The location on a tape where written data begins.

BOT— *See* Beginning of Tape.

CAP—*See* Cartridge Access Port.

CAP ID—A unique identifier for the location of a CAP. A CAP ID consists of the ACS ID, the LSM number, and the CAP number.

cartridge—A plastic housing containing a length of data recording tape. The tape is threaded automatically when loaded in a transport. A plastic leader block is attached to the tape for automatic threading. The spine of the cartridge can contain an OCR/Bar Code label listing the volume ID.

Cartridge Access Port (CAP)—A bidirectional port built into the door panel of an LSM, which provides for the manual entry or automatic ejection of tape cartridges.

cartridge drive (CD)—A device containing two or four cartridge transports and their associated power and pneumatic supplies.

cartridge tape I/O driver—Operating system software which issues commands (e.g., read, write, and rewind) to cartridge subsystems.

cartridge transport—An electromechanical device that moves tape from a cartridge over a head that writes and reads data from the tape. A transport is distinct from the power and pneumatic sources that supply the electricity and air it needs to function. *See* cartridge drive.

CCI—*See* client computing system.

CD—*See* cartridge drive.

cell—A receptacle in the LSM in which a cartridge is stored.

channel—A device that connects the host and main storage with the input and output control units.

client applications—Software applications that manage tape cartridge contents. They access tape cartridges by interacting with ACSLS. Any number of client applications can be resident on a client system.

client computing system—A computer and an executable image of the operating system.

client software— This software manages tape cartridge contents, generates requests for cartridges, and transfers data to and from cartridges. The client software is *not* part of ACSLS.

Client System Component—Software which provides an interface between the client computing system's operating system and ACSLS.

Client System Interface (CSI)— The software component that translates and routes messages between the ACS Library Manager and the Client System Component.

command access control—Limits access to commands.

command area—The bottom area of the cmd_proc interface where you enter requests and receive responses.

command processor (cmd_proc)— The screen interface of the ACSSA. cmd_proc lets you enter the commands described in Chapter 7.

control path adapter—A hardware device which converts a Client Computing System's control protocol to the control protocol of the StorageTek Library Control System.

control unit (CU)—A microprocessor-based unit logically situated between a channel and up to sixteen cartridge transports. The CU translates channel commands into transport commands and sends transport status to the channel.

CSE—Customer Services Engineer.

CSC—Client System Component.

CSI—*See* Client System Interface.

CSI variables—Used to define various options to fine–tune communications between a CSC and the CSI. You change these variables in the `acsss_config` program.

CU—*See* control unit.

cycle error messages—Messages that indicate a library or ACSLS failure.

database—A collection of interrelated data records. *See also* ACSLS Database.

data path—The network path that allows client applications read/write access to tape cartridges.

data path adapter—A hardware device which translates a Client Computing System's data protocol to the data protocol of the StorageTek Control Unit.

display area—The top area of the cmd_proc interface that collects messages regarding the status of the library.

ejected cartridge—A volume that has been ejected from the library. If a nonzero retention period is set, the volume status is changed to STATUS_VOLUME_EJECTED.

end of tape (EOT)— The location on a tape where written data ends.

EOT— *See* end of tape.

EPO—Emergency Power Off.

EPROM—*See* erasable programmable read only memory.

erasable programmable read-only memory (EPROM)—A special memory chip that can be erased and reprogrammed.

Event Log—A file, maintained by the ACSEL, that contains messages describing library and ACSLS events.

Event Logger—*See* ACS Event Logger.

external label identifiers— A six–character alphanumeric label on the outside edge of a cartridge used to identify a physical tape volume. It may consist of uppercase letters A through Z, numerals 0 through 9, $, #, and blanks.

full installation—A complete software installation required for new customer sites or for existing sites where a new library has been installed.

home location—The cell associated with a given cartridge.

ID—Identifier or identification.

Informix—The relational database used by ACSLS.

Initial Program Load (IPL)—A process that activates a machine reset, initiates wake up diagnostics (from EPROMs) and loads functional code.

inline diagnostics— Routines that test components of a subsystem while operating on a time-sharing basis with the functional microcode in the subsystem component.

in–transit cartridges—Cartridges between their source and destination locations. Cartridges are considered in–transit if they are in pass–thru ports, robot hands, or playground.

I/O—Input/Output.

IPC—Interprocess Communication.

IPL—*See* Initial Program Load.

journal—A sequential log of changes made to the database since the last checkpoint.

LAD— Lock Access Door.

LAN—*See* local area network.

large CAP (LCAP)—A 40–cartridge CAP with the storage cells arranged in four removable magazines of ten cells each. The magazines appear as a single column of 40 cells to the host software.

LCAP—*See* large CAP.

LCU—*See* Library Control Unit.

LED—*See* Light Emitting Diode.

library—A library is composed of one or more ACSs, attached tape drives, volumes in the ACSs, and the ACSLS software that controls and manages the ACSs.

library configuration options—Allows the customer to specify the number of ACSs in the library and the connections between each ACS and the server system.

library control component—Software which controls the mounting and dismounting of cartridges in the ACS.

library control processor—Properly configured computer hardware that, with the addition of appropriate software, supports the operation of the Library Control Software.

library control system—The library control platform loaded with library control software (ACSLS).

library control software—The software components of ACSLS including the library control component, the Client System Interface and Library Utilities.

Library Control Unit—The portion of the LSM that controls the picking, mounting, dismounting, and replacing of tape cartridges.

library drive—A cartridge transport attached to an LSM that is connected to, and controlled by, a client system. Library drives interact with the LCU during automated tape cartridge mount and dismount operations. Library drives interact with a client application during tape data transfer operations. Library drives are individually addressable by the ACSLM and are individually accessible by client applications. *See* Cartridge Transport.

library errors—Errors that occur because the library is offline, has suffered hardware failure, is unavailable, etc.

Library Management Unit (LMU)—The portion of an ACS that manages LSM's, allocates their resources, and communicates with ACSLS.

Library Storage Module (LSM)—An ACS structure that provides the storage area for cartridges, cartridge drives, CAPs, and the robot necessary for moving them.

light emitting diode (LED)—A light emitting device that uses little energy and is used mainly to indicate on/off conditions.

LMU—*See* Library Management Unit.

local area network (LAN)—A computer network in which any component in the network can access any other component. This is the type of interface between an LMU and attached LSM's.

LSM—*See* Library Storage Module.

LSM ID—A unique identifier for an LSM. The LSM ID consists of the ACS ID and the LSM number.

missing cartridge—A volume that is in the database, but couldn't be found. If a recorded possible location for the volume could not be examined due to an offline LSM or a drive not communicating, the volume is marked MISSING instead of ABSENT. The volume status is changed to STATUS_VOLUME_MISSING.

network adapter—Equipment that provides an electrical and logical interface between a network and specific attached equipment.

Network Interface (NI)—An interface between the server system and the client systems that maintains network connections and controls the exchange of messages. The NI is resident on the server system and each client system.

NI—*See* Network Interface.

OCR—Optical character recognition.

ONC—Open network computing.

Open Systems Interconnection (OSI)—A software architecture model of the International Organization for Standardization. The OSI model provides standards for the interconnection of data processing systems.

OSI— *See* Open Systems Interconnection.

OSLAN—Open Systems Local Area Network.

Pass–Thru Port (PTP)—Mechanism that allows a cartridge to be passed from one LSM to another in a multiple LSM ACS.

PCAP—*See* priority CAP.

playground—A reserved area of special cells (within an LSM) used for storing diagnostic cartridges and cartridges found in–transit upon power–on and before initialization of the LSM is completed.

pool—A collection of tape cartridges having one or more similar features or attributes, such as a pool of scratch tapes.

POST—Power–on self–test.

priority CAP (PCAP)—A single–cartridge CAP used for priority entry and ejection of cartridges.

processing errors—Errors that result from processing or network communication failures.

PROM—Programmable read-only memory.

PTP—*See* Pass–Thru Port.

RDBMS—Relational database management system.

redo log files—Backup files used to restore the ACSLS database.

relational database—A database that is organized and accessed according to relationships between the data items; relationships are represented by tables.

ROM—Read–only memory.

RPC—Remote Procedure Call.

SCAP—*See* standard CAP.

scratch—An attribute of a tape cartridge, indicating that it is blank or contains no useful data.

SCSI—Small computer serial interface.

second disk journaling—Allows for the database's journal records to be written to a second disk device, instead of writing records to the primary disk. This improves the chances of recovery from a disk failure.

server system—The part of the library that is the residence for ACSLS, now referred to as the Library Control System. The Library Control System acts as an interface between a library and client systems.

server system user—A person who invokes ACSLS commands, utilities, or procedures on the server system. Server system users are generally site and maintenance personnel (for example, library operators, tape librarians, system administrators, CSEs, and systems personnel).

servo—A system that uses feedback to control a process.

silo—A commonly used term for an LSM. *See* Library Storage Module.

SIMM—Single inline memory module.

SQL—*See* structured query language.

SRN. *See* service request number.

SSI—*See* Storage Server Interface.

SSR—Software Support Representative.

Standard CAP (SCAP)—A 21–cartridge CAP with the storage cells arranged in three rows of seven fixed cells.

Storage Server Interface (SSI)—A software component, resident on a client system, that translates and routes messages between client applications and the CSI.

structured query language (SQL)—A language used to define, access, and update data in a database.

system resource variable—Used to control the amount of system resources used by ACSLS.

system unit—The Library Control Platform.

tape library management system (TLMS)— A type of client application.

TCP—Transmission Control Protocol.

TLMS—*See* tape library management system.

TOD—Time of day.

UDP—User Datagram Protocol.

UNIX—An operating system originally developed by Bell Laboratories (now UNIX Systems Laboratories, Inc.) and used by a variety of computer systems.

unsolicited messages—Messages that indicate an error or notify you when a particular routine action can be taken.

UOC—Usable on codes.

upgrade installation—Performed when installing a new version of ACSLS at an existing customer site.

user–selectable features and options variables—Used to define various user–selectable features and options.

validation errors—Errors that result from format and syntax validation performed by cmd_proc.

virtual label—A logical label that can be assigned to a cartridge when its physical label is missing or unreadable.

volser—Volume Serial Number.

volume—A tape cartridge.

volume access control—Limits access to volumes, usually by the client.

volume identifier—A six-character string that uniquely identifies a tape cartridge to the database.

volume serial number (volser)—A synonym for external label identifier.

WTM—write tape mark.

XDR— External data representation.

XML—Extensible Markup Language. A universal format for structured documents and/or data on the Web.