



StorageTek™ ACSL

AUTOMATED CARTRIDGE SYSTEM LIBRARY SOFTWARE

INSTALLATION GUIDE

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Version: 7.3

Automated Cartridge System Library Software

Installation Guide

Version: 7.3

316120701

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Summary of Changes

EC released document table.

EC	Date	Edition	Revision	Description
EC000249	March 2008	First	A	ACSLS 7.3 provides support for the SL3000.

Summary of Changes

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Preface

■ About this Book

Automated Cartridge System Library Software (ACSL) is Sun StorageTek's UNIX server software that controls a Sun StorageTek Automated Cartridge System (ACS). The Sun StorageTek ACS family of products consists of fully automated, tape cartridge-based data storage and retrieval systems. ACSL supports network access to different client systems that can range from workstations to mainframes to supercomputers running on a variety of operating systems.

Audience

This Installation Guide is for the individual responsible for installing ACSL. It is expected that you already have a working knowledge of the following:

- UNIX file and directory structure
- How to use UNIX commands and utilities for your platform
- UNIX system files
- How to do typical UNIX system administrator tasks, such as logging on as root and setting up user accesses to a UNIX application

About the Software

This guide supports ACSL 7.3.

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 command names, filenames, and literal output by the computer.
- Letter Gothic Bold is used to indicate literal input to the computer.
- *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 system name must be entered.

Logon *username | systemname*

- Brackets [] are used to indicate that a command parameter is optional.
- Ellipses (...) are used to indicate that a command may be repeated multiple times.
- This guide shows all ACSLS commands in lowercase. You can, however, enter these commands in all lowercase, all uppercase, or any combination of uppercase and lowercase. Single underlines show minimum command abbreviations. For example, aud and au are valid forms of the audit command.

Keys

Single keystrokes are represented by double brackets [[]] surrounding the key name. For example, press [[ESC]] indicates that you should press only the escape key.

Combined keystrokes use double brackets and the plus sign (+). The double brackets surround the key name and the plus sign is used to add the second keystroke. For example, press [[ALT]]+C indicates that you should press the alternate key and the C key simultaneously.

Enter Command

The instruction to “press the <Enter> key” is omitted from most examples, definitions, and explanations in this book.

For example, if the instructions asked you to “enter” Logon pat, you would type in Logon pat *and* press <Enter>.

However, if the instructions asked you to “type” Logon pat, you would type in Logon pat and you would *not* press <Enter>.

Symbols

The following symbols are used to highlight text in this book.

WARNING: Information necessary to keep you from damaging your hardware or software.

CAUTION: Information necessary to keep you from corrupting your data.

Hint: Information that can be used to shorten or simplify your task or they may simply be used as a reminder.

Note: Information that may be of special interest to you. Notes are also used to point out exceptions to rules or procedures.

Related Documentation

ACSLs Documentation

The *ACSLs Documentation CD-ROM*, is automatically shipped with the product package and is provided in PDF format. These documents are:

- *ACSLs 7.3 Product Information*
- *ACSLs 7.3 Administrator's Guide*
- *ACSLs 7.3 Messages*
- *ACSLs 7.3 Installation Guide*

ACSLs Information on the Sun Website

In addition to the PDF collections on the *ACSLs Information CD-ROM*, the Sun website provides PDF collections for ACSLS. The URL is:

<http://docs.sun.com>

Customer Contacts

■ Customer Support

Customer support is available 24 hours a day, seven days a week, to customers with Sun or StorageTek maintenance contracts and to Sun employees.

■ Customer-initiated Maintenance

Customer-initiated maintenance begins with a telephone call from you to Sun StorageTek Support. You receive immediate attention from qualified Sun personnel, who record problem information and respond with the appropriate level of support.

To contact Sun StorageTek Support about a problem:

1. Call:

1-800-872-4786

(1-800-USA-4SUN)

2. Describe the problem to the call taker. The call taker will ask several questions and will either route your call to or dispatch a support representative.

If you have the following information when you place a service call, the process will be easier:

Account name	_____
Site location number/Sun contract number	_____
Contact name	_____
Telephone number	_____
Version of ACSLS	_____
OS platform	_____
Libraries	_____

Problem description

■ Sun's Worldwide Offices

You may contact any of Sun's worldwide offices to discuss complete storage, service, and support solutions for your organization. You can find address and telephone number information on Sun's external Web site at:

<http://www.sun.com/worldwide/>

Overview

1

Automated Cartridge System Library Software (ACSL) is Sun StorageTek's server software that controls a Sun StorageTek tape library. An Automated Cartridge System (ACS) is a group of tape libraries connected through pass-thru-ports (PTPs). ACSL accesses and manages information stored in one or more ACSs through command processing across a network. The software includes a system administration component and interfaces to client system applications, and library management facilities.

Installing ACSLS on Solaris

2

Solaris 10 Update 4 is the supported OS level for SPARC and X86 platforms. The latest Solaris patch cluster is recommended. The patch update is *required* if you are using Solaris zones.

This chapter describes procedures for installing ACSLS.

Note: ACSLS supports **ONLY** the Common Desktop Environment (CDE).

To apply any maintenance, refer to the installation instructions in the associated PUT, SPE or PTF document included with the CD, or the document associated with the maintenance tar file on the Sun website.

This chapter discusses:

- [“Exporting the Database” on page 5](#)
- [“Installing ACSLS 7.3” on page 4](#)
 - [“Installing Solaris” on page 5](#)
 - [“Preparing for ACSLS Installation” on page 5](#)
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- [“Connecting to a library” on page 16](#)
- [“Uninstalling the STKchanger and any SCSI Media Changer Drivers” on page 17](#)

■ Installing ACSLS 7.3

The following table provides a summary of the steps you perform for installing ACSLS:

Table 1. Installation Tasks

Task	Page
1. Have all your license key information ready	Refer to the License Key chapter in the <i>ACSLs 7.3 Administrator's Guide</i> .
2. Export the database if you are upgrading from a previous version of ACSLS This lets you migrate the database and control files to the new version of ACSLS.	5
3. Install the Solaris operating system. The latest Solaris patch cluster is recommended. The patch update is <i>required</i> if you are using Solaris zones.	5
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■ Exporting the Database

If you are upgrading from a prior release, you need to export the database and control files. If you have customized your dynamic or static variables, you need to also export them.

For more information and procedures, refer to Exporting the Database in the “Database Administration” chapter of the *ACSLs 7.3 Administrator’s Guide*

■ Installing Solaris

For installation procedures, please refer to the Solaris Installation instructions.

Note: ACSLS requires that there be a minimum memory requirement of 512MB as well as following be created:

- swap - 1GB (minimum)
- /export/home - 2 GB (minimum)
- /export/backup - 3 GB (minimum)

If you are using:

- UNIX File System (UFS), this is usually slices 5 and 6
- ZFS - two zfs files must be mounted: /export/home and /export/backup

Preparing for ACSLS Installation

Before you install ACSLS, complete the following steps:

1. Verify that the server system hardware is properly configured, connected, powered on, and ready.
2. Connect the LMU to a valid serial or TCP/IP port.

Most contemporary libraries are TCP/IP or SCSI-attached. Legacy Sun StorageTek libraries, such as Cimmaron, Powerhorn, and the L5500 can be Serial-Attached.

If more than one serial port is available on your server, configure two ports to the LMU. An alternate LMU connection provides higher throughput and greater robustness.

3. Multiple serial port connects are necessary if you are configuring the server to a Dual Serial-Attached LMU installation. You can provide redundant connections to each LMU using a multi-port adapter.

4. If your installation includes a SL8500 library or a 9310 library and TCP/IP LMU(s), connect the TCP/IP LMU(s) to the network used for LMU communication.
5. For SCSI-connected libraries, you should use a differential connection where possible. If a single-ended SCSI controller is used, you should limit the cable distance to three meters between the server and the library. With low-voltage differential (LVD), the cable should be no more than 10 meters. High-voltage differential (HVD) SCSI cables can extend up to 20 meters.
6. Make sure that each attached LMU and LSM is fully configured, powered on, and ready.
Note: The configuration utility, `acsss_config`, will fail unless all LMUs and LSMs are fully configured, powered on, and ready.
7. If you have any communication problems refer to “Troubleshooting” chapter in the *ACSLs Administrator’s Guide*.
8. If you intend to use removable media for database backup, have a blank cartridge available for your backup tape device to complete the configuration process.
9. ACSLS requires specific user IDs. If these user IDs are not defined before ACSLS installation, ACSLS creates them. When ACSLS installation creates the user IDs, the system assigns the user ID numbers and group ID numbers. To assign specific user ID and group ID numbers, you must define the following groups and users before installing ACSLS:

User	Group
acsss	staff
acssa	staff
acsdb	acsdb

When these user IDs are defined before ACSLS installation, they can either be defined locally (on the ACSLS server) or via remote authentication methods (e.g., NIS or Kerberos). These user IDs must be defined with the following properties:

- The default shell for `acsss` and `acssa` is “ksh”. The default shell for `acsdb` is “sh”.
- The home directories for the `acsss`, `acssa`, and `acsdb` user IDs must reside under the ACSLS installation directory. The default installation directory for `acsss` is `/export/home/ACSSS` (referred to as `$ACS_Home`). The home directories for the ACSLS user IDs are:

acsss	/export/home/ACSSS
acssa	/export/home/ACSSA
acsdb	/export/home/acsdb

If the home directories for the ACSLS user IDs do not match their required locations, please either modify the home directories for these users or delete the user IDs so they are added correctly during the ACSLS installation process.

The following command creates the `acsss` user on Solaris. (You must be logged in as `root`.)

```
useradd -d /export/home/ACSSS -g staff -s /bin/ksh -c "ACSLs Control Login" acsss
```

The account information is:

```
acsss  -d /export/home/ACSSS-g staff-c "ACSLs Control Login"-s /bin/ksh
acssa  -d /export/home/ACSSA-g staff-c "ACSLs SA Login"-s /bin/ksh
acsdb  -d /export/home/acsdb-g acsdb-c "ACSLs Database Owner" -s /sbin/sh
```

The following commands modify the `acsss`, `acssa`, and `acsdb` users' home directories. (You must be logged in as `root`.)

```
usermod -d /export/home/ACSSS acsss
usermod -d /export/home/ACSSA acssa
usermod -d /export/home/acsdb acsdb
```

Removing any previous version

1. Have your license key available.
2. Is this a new installation?

YES Go to [“Using pkgadd” on page 9](#).

NO Make sure you exported the database by using the `db_export.sh` utility command.

3. Shut down ACSLS:

You need to be logged in as `acsss` to do this.

- a. Enter the following:

`idle` (from a `cmd_proc`)

`kill.acsss` (from a command prompt)

- b. Enter the following:

- If you are upgrading from ACSLS 6.0 and later:

`db_command stop`

4. Login as `root` and remove ACSLS, backup and other files:

ACSLS Version	Procedure
<p>ACSLS 6.0 or 6.0.1</p> <p>If the server_to_server directory exists</p>	<ul style="list-style-type: none"> • cd /export/home • rm -rf ACSSS informix • cd /export/backup • rm -rf informix misc • rm -rf informix misc server_to_server • cd / • rm -rf INFORMIXTMP nsr
<p>ACSLS 6.1 to 7.1</p>	<ul style="list-style-type: none"> • cd /export/home • pkgrm STKacsls • cd /export/backup • rm -rf informix misc server_to_server • cd / • rm -rf INFORMIXTMP • rm -rf /nsr • cd /var/tmp • rm -rf acsls
<p>ACSLS 7.2 or higher</p>	<ul style="list-style-type: none"> • cd /export/home • pkgrm STKacsls • rm -rf ACSSS ACSSA acsdb • cd /export/backup • rm -rf * (this removes all contents of the backup directory)

5. Remove files under second disk (if installed).

```
cd /second_disk
```

If you installed the second disk in another directory other than /second_disk, cd to that directory.

```
rm -rf data
cd /second_disk/backup
```

If you installed the second disk in another directory other than /second_disk/backup, cd to that directory.

For ACSLS 6.0 and later enter:

```
rm -rf informix misc
```

6. Verify that no database processes are running before you begin the install. If in doubt, reboot.

■ Using pkgadd

1. Log in as root.
2. Insert the ACSLS 7.3 CD.
3. In a terminal window or at the command prompt, enter
`cd /cdrom/cdrom0`
4. Install using pkgadd:
`pkgadd -d .`
Note: Make sure you enter a space and a period after `-d`
 pkgadd asks what package you want installed.
5. When prompted to select a package, select STKacsls and press `[[Return]]`.
6. Enter `y` or `n` at the prompt to install ACSLS in the default directory
`/export/home/`
 Use the default directory `/export/home` or enter the directory where you
 want ACSLS installed.
7. Type `y` to at the prompt to install setuid/setgid files.
8. Select to continue at the super-user permission prompt.
9. Type `y` to at the prompt to install STKacsls.
 User and group IDs are created (unless they already exist). Files being
 installed are displayed.
 If the `acsss`, `acssa`, or `acsdb` user IDs are not defined with their home
 directories matching the ACSLS installation directory, the installation script
 displays a warning, for example:

```
***WARNING*** User acsss already exists, but its home
directory does not match the ACSLS installation
directory. Please change the acsss home directory to
/export/home/ACSSS after the installation.
```

 If the `acsss`, `acssa`, or `acsdb` user IDs are created during installation, a
 default password is not created. You need to go into the `admintool` to
 create a password. These passwords must be maintained or set to never
 expire.
10. Eject the CD.
`eject`

Note: If you want to manage Sun StorageTek SCSI libraries within Solaris Zones you must also install the STKchanger driver

package in the global zone. See “Running ACSLS within Solaris Zones” on page 15.

Installing ACSLS Software via install.sh

1. Change directories:

```
cd /export/home/ACSSS/install
```

2. To initiate the installation shell script, enter

```
./install.sh
```

If shared memory settings have **not** been defined, you are prompted to allow the script to set shared memory and reboot the server:

```
This server is not set with shared memory required for
ACSLs and the Database.
```

```
Set shared memory and reboot the server to take effect
at kernel level? (y or n):
```

Respond **y** to the prompt.

The server reboots.

When the server comes back, log in as **root**, **cd** to **/export/home/ACSSS/install** (if you are not already in it), and restart **install.sh**.

3. Enter the database backup directory.

By default, this is **/export/backup**.

4. Respond **y** to the prompt for automatic startup on reboot.

Note: By selecting "yes" to allow ACSLS to automatically start at system boot time, you also allow ACSLS to automatically shutdown prior to a system shutdown or reboot. This is recommended and will prevent database errors from being written to the **acsss_event.log** when the system is rebooted.

Option: If you have a SCSI or fibre-attached library continue with step 5.

5. Respond (**y** or **n**) to the prompt for installing a SCSI device driver for SCSI libraries.

```
Do you want to install the scsi device driver for SCSI
libraries? (y or n):
```

YES Refer to the following example for the prompts you need to answer.

Note:

Sun StorageTek libraries attached behind supported Fibre host-bus adapters (HBAs) can be auto-sensed by ACSLS using the capabilities included in supported HBA software. Supported HBAs currently include all contemporary Emulex, Qlogic, and Sun-branded HBAs. The ACSLS SCSI driver installation utility, *install_scsi_sol.sh* can configure multiple mchanger devices easily without the need for explicit user interaction. Libraries behind non-supported HBAs continue to function in the traditional manner where you declare the target and LUN address for each attached library. The installation utility then displays each library for which an mchanger instance has been created.

Example

```
Installing 64-bit mchanger
Probing for fibre-attached libraries...

One library found:
  STK L180 V-0310   Target 0 LUN 0

Are there additional libraries attached? (y or n): y

Enter the target:LUN pair corresponding to each library.
Separate target:LUN pairs with a space.
example: 4:0 5:0 5:1 5:2

==> 1:0 1:1

Use target 1 LUN 0
Use target 1 LUN 1

Is this correct? (y or n): y

Instances of 'mchanger' in /dev will be
built sequentially starting with mchanger 0.

Building an mchanger instance for each library...
Successfully built the following...
  /dev/mchanger0: STK L180 174-cells 4-drives
  /dev/mchanger1: STK L700 384-cells 8-drives
  /dev/mchanger2: STK SL500 65-cells 2-drives
```

Library driver installation is complete. You are now ready to set passwords for each user ID.

Setting the ACSLS User Password

These passwords must be maintained or set to never expire. You need to set the following password to prevent a security exposure: `acsss`, `acssa`, and `acsdb`.

You must set the passwords the first time you login to these IDs. To set the passwords:

1. Login to each of the user IDs.
2. Enter the password at the prompt.

If the `acsss`, `acssa`, or `acsdb` user IDs were not defined with their home directories matching the ACSLS installation directory, and the installation script displayed a warning, modify these user IDs so that their home directories are under the ACSLS base directory.

The following commands modify the above users' home directories. (You must be logged in as `root`.)

```
usermod -d /export/home/ACSSS acsss
usermod -d /export/home/ACSSA acssa
usermod -d /export/home/ascdb ascdb
```

Installing and Configuring your Library Hardware

CAUTION: If you imported data from a previous ACSLS release, you must start ACSLS and ensure all LSMs are online before configuring any new library hardware. This initializes the LSM types and protects your imported database information.

Note: You do not need to run `acsss_config` if you are importing your previous hardware configuration and are not changing your library hardware.

You must run `acsss_config` to configure your libraries if:

- this is a new installation,
- you are adding library hardware “

Refer to the “Installing and Configuring Your Library Hardware” chapter in the *ACSLs Administrator’s Guide*.

Importing the Database

If you have exported the database and control files, you now need to import them.

If you are migrating to ACSLS 7.3 from a previous release and have customized your dynamic or static variables, you need to import them. For information on doing this, refer to Importing the Database in the “Database Administration” chapter of the *ACSLs 7.3 Administrator’s Guide*.

Entering your License Key Information

You must enter a license key to activate ACSLS. To avoid unnecessary delays obtain your license key before you begin the ACSLS installation.

Refer to the chapter “ACSLS License Key” in the *ACSLS 7.3 Administrator’s Guide* for procedures.

Verifying ACSLS Installation

Use the following procedure to verify ACSLS. You should be logged in as `acsss`. This procedure mounts or dismounts a cartridge.

1. Query the server from the `cmd_proc` by entering

```
query server
```

If messages are displayed indicating that the server is in mode, wait for a message indicating that the server is running.

2. Verify that the following are online. You must have at least one of each online. If not, bring them online with the `vary` command.

```
query port all
```

```
query acs all
```

```
query lsm all
```

```
query drive all
```

3. Do you have at least one cartridge in an LSM?

YES Continue with the procedure.

NO Enter a cartridge into an LSM.

4. Mount a volume by entering:

```
mount vol_id drive_id
```

Hint: Use the `query drive` command to get the ID of an available drive and the `query volume` command to get the ID of a library cartridge. Refer to the “Installing and Configuring Your Library Hardware” chapter in the *ACSLS Administrator’s Guide*.

5. Did you see a message indicating a successful mount?

A successful mount message is:

```
Mount: vol_id mounted on drive_id
```

YES Procedure is complete.

NO If an error message appears, run this verification procedure again, ensuring that you specified a valid, available drive and a library cartridge. If the mount/dismount still fails, call Sun StorageTek for assistance.

6. Dismount the cartridge by entering:

```
dismount vol_id drive_id force
```

where *vol_id* is the volume and *drive_id* is the drive you specified in Step 4.

Auditing the Library

The last step of your installation is auditing your libraries. You also need to audit your libraries:

- If this is a new installation.
- If you are adding new libraries to an existing configuration.

■ Uninstalling ACSLS 7.3

To uninstall ACSLS:

1. Log in as acsss.
2. Shut down ACSLS.

```
kill.acsss
```
3. Shut down the ascdb database:

```
db_command stop
```
4. Remove pkgadd:
 - Log in as root.
 - Enter `pkgrm STKacsls`
5. Perform a file cleanup for the disk:

```
cd /export/home
```

If you installed ACSLS in another directory other than `/export/home`, `cd` to that directory.

- `rm -rf ACSSS ACSSA acsdb`
- `cd /export/backup`
- `rm -rf *` (this removes all contents of the backup directory)

6. Reboot.

■ Running ACSLS within Solaris Zones

Management of Sun StorageTek SCSI libraries within Solaris zones is supported by ACSLS when you install the STKchanger driver package in the global zone.

Zone technology is ideal for environments that consolidate a number of applications on a single server, thus allowing you to create multiple virtual environments on a single system so applications can safely run without endangering each other. Zone partitioning allows you to isolate these software applications and services by setting up boundaries between zones so that you can dynamically control application and resource priorities.

There are two types of zones:

- Global zone

A global zone is the default zone for the system and is used for system-wide administrative control. It is from this zone, that non-global zones can be configured.

Do **not** install ACSLS in the global zone.

The STKchanger resides in the global zone.

- Non-global zone (container)

Non-global zones partitioning allows you to create multiple private execution environments and to dynamically control applications and resources. This isolation prevents processes that are running in one zone from monitoring or affecting processes that are running in other zones. Even a process running with superuser credentials cannot view or affect activity in other zones.

The ACSLS server resides in the non-global zone(s).

Note: One instance of ACSLS is supported for each non-global zone. ACSLS **must be** the only application running in that particular container.

Refer to the *Sun System Administration Guide: Solaris Containers-Resource Management and Solaris Zones* for information on configuring and managing Solaris zones (containers).

To support a container environment, the STK SCSI Media Changer drivers and utilities now reside in a standalone package. This is due to the fact that devices for any container environment are installed and controlled at the global zone level. Prior to Solaris 10, the mchanger device drivers were included within the ACSLS application only. Since Solaris 10 includes the ability to create several different server instances on one hardware platform, and in order to make mchanger devices available on non-global containers, the mchanger devices must first be created within the global zone and then

made available to the container. Since only the mchanger package is required within the global zone, a new package, STKchanger, has been created. This allows mchanger to be installed in the global zone without having to install ACSLS.

To do this you need to:

- Install STKchanger in the global zone.
- Make it available to the proper container.
- Install ACSLS within the non-global container.
- Use the mchanger device that is available within the non-global zone.

Installing the STKchanger

STKchanger is installed using the pkgadd commands and requires that it be installed as the user root.

1. Log in as root to the Global Zone.
2. Insert the ACSLS CD
3. In a terminal window or at the system prompt, enter

```
cd /cdrom/cdrom0
```

4. Install using pkgadd:

```
pkgadd -d .
```

Note: A space and a period must be entered after the command.

5. When prompted to select a package, select STKchanger and press [[Return]].

The STKchanger package is then installed in /opt/STKchanger.

6. Close and reopen the window.
7. Eject the CD.

Connecting to a library

1. Log in as root to the Global Zone.
2. Change to the STKchanger installation directory

```
cd /opt/STKchanger/bin
```

3. Run install.sh

```
./install.sh
```

Example:

```

Installing 64-bit mchanger
Probing for fibre-attached libraries...

One library found:
  STK L180 V-0310   Target 0 LUN 0

Are there additional libraries attached? (y or n): y

Enter the target:LUN pair corresponding to each library.
Separate target:LUN pairs with a space.
example: 4:0 5:0 5:1 5:2

==> 1:0 1:1

Use target 1 LUN 0
Use target 1 LUN 1

Is this correct? (y or n): y

Instances of 'mchanger' in /dev will be
built sequentially starting with mchanger 0.

Building an mchanger instance for each library...
Successfully built the following...
  /dev/mchanger0: STK L180 174-cells 4-drives
  /dev/mchanger1: STK L700 384-cells 8-drives
  /dev/mchanger2: STK SL500 65-cells 2-drives

```

In this example, you have three available mchanger devices. You can now assign them to specific non-global zones (containers) using the `zonecfg` command.

Refer to the *Sun System Administration Guide: Solaris Containers-Resource Management and Solaris Zones* for information on the `zonecfg` command.

The following utilities included within the STKchanger package are:

- `showDevs.sh`
- `probeFibre.sh`

Refer to the “Utility” chapter in the *ACSLs Administrator’s Guide* for more information about these utilities.

Uninstalling the STKchanger and any SCSI Media Changer Drivers

1. Login as root.
2. Remove the SCSI Media Changer (mchanger) drivers.

```
#rem_drv mchanger
```

3. Remove `mchanger.conf`.

```
#rm /usr/kernel/drv/mchanger.conf
```

4. Remove any mchanger device links.

```
#rm /dev/mchanger*
```

5. Remove the STKchanger package.

```
#pkgrm STKchanger
```

6. Remove package directories.

```
#rm -rf /opt/STKchanger
```

Installing ACSLS on AIX

3

This chapter describes the procedures for installing ACSLS on the AIX 5.3 Technology Level (TL6) operating system. ACSLS provides Dynamic Logical Partitioning (LPAR). ACSLS must be the only application running in any LPAR.

To apply any ACSLS maintenance, refer to the installation instructions in the associated PUT or SPE or PTF document included with the CD, or the document associated with the maintenance tar file on the Sun website.

This chapter discusses the steps for installing ACSLS 7.3 and AIX 5.3 TL6, as well as removing them:

- [“Exporting the Database” on page 20](#)
- [“Installing AIX” on page 20](#)
 - [“Installing AIX” on page 20](#)
 - [“Removing any previous version” on page 22](#)
- [“Installing ACSLS and PostgreSQL Packages” on page 24](#)
 - [“Installing PostgreSQL 8.1.4 via SMIT” on page 24](#)
 - [“Installing ACSLS 7.3 via SMIT” on page 25](#)
 - [“Installing ACSLS Software via install.sh” on page 25](#)
 - [“Setting the ACSLS User Password” on page 26](#)
 - [“Installing and Configuring your Library Hardware” on page 27](#)
 - [“Importing the Database” on page 27](#)
 - [“Entering your License Key Information” on page 27](#)
 - [“Verifying Your ACSLS Installation” on page 28](#)
 - [“Auditing the Library” on page 29](#)
- [“Uninstalling ACSLS 7.3 and PostgreSQL 8.1.4” on page 29](#)
 - [“Uninstalling ACSLS 7.3” on page 29](#)
 - [“Uninstalling PostgreSQL 8.1.4” on page 30](#)

■ Exporting the Database

If you are upgrading from a prior release, you need to export the database and control files. If you have customized your dynamic or static variables, you need to also export them.

For more information and procedures, refer to Exporting the Database in the “Database Administration” chapter of the *ACSLs 7.3 Administrator’s Guide*.

■ Installing AIX

For installation procedures, please refer to the AIX Installation instructions.

Note: ACSLS requires that there be a minimum memory requirement of 512MB as well as following be created:

- swap - 1GB (minimum)
- /export/home - 2 GB (minimum)
- /export/backup - 3 GB (minimum)

Preparing for ACSLS Installation

Before you install ACSLS, complete the following steps:

1. Verify that the server system hardware is properly configured, connected, powered on, and ready.
2. Connect the LMU to a valid port.

Most contemporary libraries are TCP/IP or SCSI/Fibre library-attached. Legacy Sun StorageTek libraries, such as Cimmaron, Powerhorn, and the L5500 can be Serial-Attached.

If more than one serial port is available on your server, configure two ports to the LMU. An alternate LMU connection provides higher throughput and greater robustness.

3. Multiple serial port connects are necessary if you are configuring the server to a Dual Serial-Attached LMU installation. You can provide redundant connections to each LMU using a multi-port adapter.
4. If your installation includes a SL8500 library or a 9310 library and TCP/IP LMU(s), connect the TCP/IP LMU(s) to the network used for LMU communication.
5. For SCSI-connected libraries, you should use a differential connection where possible. If a single-ended SCSI controller is used, you should limit the cable distance to three meters between the server and the library. With low-voltage differential (LVD), the cable should be no more than 10

meters. High-voltage differential (HVD) SCSI cables can extend up to 20 meters.

6. Make sure that each attached LMU and LSM is fully configured, powered on, and ready.

Note: The configuration utility, `acsss_config`, will fail unless all LMUs and LSMs are fully configured, powered on, and ready.

7. If you have any communication problems refer to the Troubleshooting chapter in the *ACSLs Administrator's Guide*.
8. If you intend to use removable media for your ACSLS database backup, have a blank cartridge available for your backup tape device to complete the configuration process.
9. ACSLS requires specific user IDs. If these user IDs are not defined before ACSLS installation, ACSLS creates them. When ACSLS installation creates the user IDs, the system assigns the user ID numbers and group ID numbers. To assign specific user ID and group ID numbers, you must define the following groups and users before installing ACSLS:

User	Group
acsss	staff
acssa	staff
acsdb	acsdb

When these user IDs are defined before ACSLS installation, they can either be defined locally (on the ACSLS server) or via remote authentication methods (e.g., NIS or Kerberos). These user IDs must be defined with the following properties:

- The default shell for `acsss` and `acssa` is “ksh”. The default shell for `acsdb` is “sh”.
- The home directories for the `acsss`, `acssa`, and `acsdb` user IDs must be under the ACSLS installation directory. The default installation directory for `acsss` is `/export/home/ACSSS` (referred to as `$ACS_Home`). The home directories for the ACSLS user IDs are:

```
acsss    /export/home/ACSSS
acssa    /export/home/ACSSA
acsdb    /export/home/acsdb
```

If the home directories for the ACSLS user IDs do not match their required locations, please either modify the home directories for these users or delete the user IDs so they are added correctly during the ACSLS installation process.

The following command creates the `acsss` user on AIX. (You must be logged in as `root`.)

```
useradd -d /export/home/ACSSS -g staff -s /bin/ksh -c "ACSLs Control Login" acsss
```

The account information is:

```
acsss -d /export/home/ACSSS-g staff-c "ACSL Control Login"-s /bin/ksh
acssa -d /export/home/ACSSA-g staff-c "ACSL SA Login"-s /bin/ksh
acsdb -d /export/home/acsdb-g acsdb-c "ACSL Database Owner"-s /sbin/sh
```

The following commands modify the acsss, acssa, and acsdb users' home directories. (You must be logged in as root.)

```
usermod -d /export/home/ACSSS acsss
usermod -d /export/home/ACSSA acssa
usermod -d /export/home/acsdb acsdb
```

Removing any previous version

1. Have your license key available.
2. Is this a new installation?

YES Go to ["Installing ACSLS and PostgreSQL Packages"](#) on page 24.

NO Make sure you exported the database by using the `db_export.sh` utility command.

3. Shut down ACSLS:

You need to be logged in as `acsss` to do this.

- a. Enter the following:

`idle` (from a `cmd_proc`)

`kill.acsss` (from a command prompt)

- b. Enter the following:

- If you are upgrading from ACSLS 6.0 and later:

`db_command stop`

`crontab -r` (removes crontab entries)

4. Login as `root` and remove ACSLS, PostgreSQL (if appropriate) backup and other files.
 - If your previous installation of ACSLS is release 6.1 through 7.1, remove the ACSLS package using `SMIT`.
 - If your previous installation of ACSLS is release 7.2 or greater, remove the ACSLS and PostgreSQL packages using `SMIT`.

ACSLs Version	Procedure
ACSLS 6.0 or 6.0.1 If the server_to_server directory exists	<ul style="list-style-type: none"> • cd /export/home • rm -rf ACSSS informix • cd /export/backup • rm -rf informix misc • rm -rf informix misc server_to_server • cd / • rm -rf INFORMIXTMP nsr • Remove acsls.rte using SMIT
ACSLS 6.1 to 7.1	<ul style="list-style-type: none"> • cd /export/home • rm -rf ACSSS ACSSA informix • cd /export/backup • rm -rf informix misc server_to_server • cd / • rm -rf INFORMIXTMP • rm -rf /nsr • cd /var/tmp • rm -rf acsls • Remove acsls.rte using SMIT
ACSLS 7.2 or higher	<ul style="list-style-type: none"> • cd /export/home • rm -rf ACSSS ACSSA acsdb • cd /export/backup • rm -rf * (this removes all contents of the backup directory) • Remove acsls.rte using SMIT • Remove PostgreSQL using SMIT

5. Remove files under second disk (if installed).

```
cd /second_disk
```

If you installed the second disk in another directory other than /second_disk, cd to that directory.

```
rm -rf data
cd /second_disk/backup
```

If you installed the second disk in another directory other than /second_disk/backup, cd to that directory.

For ACSLS 6.0 to 7.1 enter:

```
rm -rf informix misc
```

6. Verify that no database processes are running before you begin the install. If in doubt, reboot.

■ Installing ACSLS and PostgreSQL Packages

ACSLs 7.3 and PostgreSQL 8.1.4 must be installed separately. You must install PostgreSQL 8.1.4 before you install ACSLS 7.3. If you are running a prior version, you must uninstall the prior version of PostgreSQL and install PostgreSQL 8.1.4 before you can install ACSLS. PostgreSQL 8.1.4 is included with the ACSLS 7.3 CD.

Installing PostgreSQL 8.1.4 via SMIT

1. Log in as `root`.
2. Insert the ACSLS CD into the CDROM drive.

```
mount -v cdrfs -o ro /dev/cd0 /cdrom
```
3. Install the PostgreSQL 8.1.4 using SMIT:
 - a. At the prompt, enter:

```
smitty
```

This brings up the System Management menu.
 - b. **Select** Software Installation and Maintenance -> Install and Update Software -> Install Software.

The “Install Software” screen displays.
 - c. In the “INPUT device directory for software” field, enter

```
/cdrom
```
 - d. Press Enter

The screen refreshes, asking for “SOFTWARE to Install.” Press `[[F4]]`.
 - e. Arrow down to the “Software to Install” field and enter

```
postgresql.rte
```

 and press `[[F7]]`.
 - f. Press `<Enter>` three times.
 - g. Wait for the OK prompt at the top of the screen, then press `[[F10]]` to exit.

You receive a successful installation message. You are now ready to install ACSLS 7.3.

Installing ACSLS 7.3 via SMIT

1. At the prompt, enter:

```
smitty
```

This brings up the System Management menu.

2. Select Software Installation and Maintenance -> Install and Update Software -> Install Software.

The “Install Software” screen displays.

3. In the “INPUT device directory for software” field, enter

```
/cdrom
```

4. Press Enter

The screen refreshes, asking for “SOFTWARE to Install.” Press [[F4]].

5. Arrow down to the “Software to Install” field and enter `acsls.rte` and press [[F7]].

6. Arrow down to the “AUTOMATICALLY install requisite software” field and select **no**.

7. Press <Enter> three times.

8. Wait for the OK prompt at the top of the screen, then press [[F10]] to exit.

You receive a successful installation message.

Installing ACSLS Software via `install.sh`

1. Change directories:

```
cd /export/home/ACSSS/install
```

2. To initiate the installation shell script, enter

```
./install.sh
```

If shared memory settings have **not** been defined, you are prompted to allow the script to set shared memory and reboot the server:

```
This server is not set with shared memory required for
ACSLs and the Database.
```

```
Set shared memory and reboot the server to take effect
at kernel level? (y or n):
```

Respond **y** to the prompt.

The server reboots.

When the server comes back, log in as root, cd to /export/home/ACSSS/install (if you are not already in it), and restart install.sh.

3. Enter the database backup directory.

By default, this is /export/backup.

4. Respond y to the prompt for automatic startup on reboot.

Note: By selecting "yes" to allow ACSLS to automatically start at system boot time, you also allow ACSLS to automatically shutdown prior to a system shutdown or reboot. This is recommended and will prevent database errors from being written to the acsss_event.log when the system is rebooted.

Option: If you have a SCSI or fibre-attached library continue with step 5.

5. Respond (y or n) to the prompt for installing a SCSI device driver for SCSI libraries.

```
Do you want to install the scsi device driver for SCSI
libraries? (y or n):
```

If you select y, continue answering the prompts.

Note:

Sun StorageTek libraries attached behind supported Fibre host-bus adapters (HBAs) can be auto-sensed by ACSLS using the capabilities included in supported HBA software. Supported HBAs currently include all contemporary Emulex and IBM-branded HBAs. The ACSLS SCSI driver installation utility, *install_scsi_aix.sh* can configure multiple mchanger devices easily without the need for explicit user interaction. Libraries behind non-supported HBAs continue to function in the traditional manner where you declare the target and LUN address for each attached library. The installation utility then displays each library for which an mchanger instance has been created.

Installation is complete.

Exit out. You are now ready to set passwords for each user ID.

Setting the ACSLS User Password

These passwords must be maintained or set to never expire. You need to set the following password to prevent a security exposure: acsss, acssa, and acsdb.

You must set the passwords the first time you login to these IDs. To set the passwords:

1. Login to each of the user IDs.
2. Enter the password at the prompt.

If the `acsss`, `acssa`, or `acsdb` user IDs were not defined with their home directories matching the ACSLS installation directory, and the installation script displayed a warning, modify these user IDs so that their home directories are under the ACSLS base directory.

The following commands modify the above users' home directories. (You must be logged in as `root`.)

```
usermod -d /export/home/ACSSS acsss
usermod -d /export/home/ACSSA acssa
usermod -d /export/home/acsdb acsdb
```

Installing and Configuring your Library Hardware

CAUTION: If you imported data from a previous ACSLS release, you must start ACSLS and ensure all LSMs are online before configuring any new library hardware. This initializes the LSM types and protects your imported database information.

Note: You do not need to run `acsss_config` if you are importing your previous hardware configuration and are not changing your library hardware.

You must run `acsss_config` to configure your libraries if:

- this is a new installation,
- you are adding library hardware

Refer to “Installing and Configuring Your Library Hardware” chapter in the *ACSLs Administrator’s Guide*.

Importing the Database

In the following cases, you need to import the data from a previous ACSLS release. They are:

- If you are migrating from a previous release.
- If you are re-installing ACSLS.

If you are migrating to ACSLS 7.3 from a previous release and have customized your dynamic or static variables, you need to import them.

Entering your License Key Information

You must enter a license key to activate ACSLS. To avoid unnecessary delays obtain your license key before you begin the ACSLS installation.

Refer to the “ACSLs License Key” chapter in the *ACSLs Administrator’s Guide* for procedures.

Verifying Your ACSLS Installation

Use the following procedure to verify ACSLS. You should be logged in as `acsss`. This procedure mounts or dismounts a cartridge.

1. Query the server from the `cmd_proc` by entering

```
query server
```

If messages are displayed indicating that the server is in recovery mode, wait for a message indicating that the server is running.

2. Verify that the following are online. You must have at least one of each online. If not, bring them online with the `vary` command.

```
query port all
```

```
query acs all
```

```
query lsm all
```

```
query drive all
```

3. Do you have at least one cartridge in an LSM?

YES Continue with the procedure.

NO Enter a cartridge into an LSM.

4. Mount a volume by entering:

```
mount vol_id drive_id
```

Hint: Use the `query drive` command to get the ID of an available drive and the `query volume` command to get the ID of a library cartridge. Refer to the “Command References” chapter in the *ACSLs Administrator’s Guide*.

5. Did you see a message indicating a successful mount?

A successful mount message is:

```
Mount: vol_id mounted on drive_id
```

YES Procedure is complete.

NO If an error message appears, run this verification procedure again, ensuring that you specified a valid, available drive and a library cartridge. If the mount/dismount still fails, call Sun StorageTek for assistance.

6. Dismount the cartridge by entering:

```
dismount vol_id drive_id force
```

where *vol_id* is the volume and *drive_id* is the drive you specified in Step 4.

Auditing the Library

The last step of your installation is auditing your libraries. You also need to audit your libraries:

- If this is a new installation.
- If you are adding new libraries to an existing configuration.

■ Uninstalling ACSLS 7.3 and PostgreSQL 8.1.4

When you remove ACSLS 7.3, you must also remove PostgreSQL 8.1.4.

Uninstalling ACSLS 7.3

To remove ACSLS 7.3:

1. Log in as `acsss`.
2. Shut down ACSLS.
`kill.acsss`
3. Shut down the `acbdb` database:
`db_command stop`
4. Remove ACSLS 7.3 using the Package Manager:

- Log in as `root`.
- Enter the System Management Interface Tool (SMIT):
`smitty`

This brings up the System Management menu.

- Select Software Installation and Maintenance->Software Maintenance and Utilities->Remove Installed Software.
- Enter the SOFTWARE name:
`acsls.rte`
- Press <Enter>.
- Press <Enter> again to confirm.

A series of messages showing the progress of the removal of ACSLS appear.

5. Perform a file cleanup for the primary disk:

```
cd /export/home
```

If you installed ACSLS in another directory other than /export/home, cd to that directory.

- `rm -rf ACSSS ACSSA acsdb`
- `cd /export/backup`
- `rm -rf *` (this removes all contents of the backup directory)

Uninstalling PostgreSQL 8.1.4

To remove PostgreSQL:

1. Log in as root.
2. Enter the System Management Interface Tool (SMIT):

```
smitty
```

This brings up the System Management menu.

3. Select Software Installation and Maintenance->Software Maintenance and Utilities->Remove Installed Software.
4. Enter the SOFTWARE name:

```
postgresql.rte
```

5. Press <Enter>.
6. Press <Enter> again to confirm.

A series of messages showing the progress of the removal of PostgreSQL 8.1.4 appear.

7. Perform a file cleanup for the primary disk:

```
cd /export/home
```

If you installed ACSLS in another directory other than /export/home, cd to that directory.

- `rm -rf ACSSS ACSSA acsdb`
- `cd /export/backup`
- `rm -rf *` (this removes all contents of the backup directory)

8. Exit and reboot.

Glossary

A

absent cartridge A cartridge that is in the database, but that couldn't be found when all recorded locations for the cartridge 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 data or cleaning 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 data or cleaning 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.

B

BOT See Beginning of Tape.

C

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 data or cleaning cartridges.

cartridge drive (CD) A device containing two or four cartridge drives 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 drives 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 ACSLS. 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 Sun 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.

D

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 Sun StorageTek Control Unit.

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

dynamic configuration allows you to implement configuration changes to ACSLS libraries (and components) while ACSLS remains online and running.

E

ejected cartridge A cartridge that has been ejected from the library. If a nonzero retention period is set, the cartridge 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.

F

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

H

HLI Host/LMU Interface. One way that the StreamLine Library Manager communicates with a library.

HLI-attached Libraries that are connected to the StreamLine Library Manager through the HLI. These libraries can be connected through a serial interface (serial-attached) or through a TCP/IP interface (TCP/IP-attached).

home location The cell associated with a given cartridge.

I

ID Identifier or identification.

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.

J

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

L

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 data aid cleaning 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.

M

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

N

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.

O

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.

P

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.

R

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.

S

SCAP See standard CAP.

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

SCSI Small computer serial interface.

Serial-attached See HLI-attached.

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.

StreamLine Library Console the operator panel software application used for the StreamLine libraries.

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

system unit The Library Control Platform.

T

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

TCP Transmission Control Protocol.

TLMS See tape library management system.

TOD Time of day.

U

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.

V

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

venter Virtual enter. Entering an unlabeled cartridge with a virtual label.

virtual label A logical volume ID (volser) that can be assigned to a cartridge when its physical label is missing or unreadable.

volser Volume Serial Number.

volume A data or cleaning cartridge.

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

volume identifier A six-character string that uniquely identifies a data or cleaning cartridge to the database.

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

W

WTM write tape mark.

X

XDR External data representation.

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

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