StorageTek Automated Cartridge System Library Software Quick Reference





StorageTek Automated Cartridge System Library Software Quick Reference, Release 8.5

E96383-02

Copyright © 2018, 2020, Oracle and/or its affiliates.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software" or "commercial computer software documentation" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Contents

Preface

Documentation Accessibility	iv
Quick Reference	
Start and Stop Commands	1-1
Command Identifiers	1-2
Auditing the Library	1-4
Configuration	1-4
Configuration - Dynamic	1-4
Displaying Status	1-5
Maintaining the Database	1-7
Managing CAPS	1-7
Managing Redundant Electronics	1-7
Managing Locks	1-8
Managing Logical Libraries	1-8
Managing Pools	1-10
Managing Volumes	1-11
Query Status	1-12
Varying Library Components	1-13



Preface

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

This publication is intended for the individual responsible for administering StorageTek ACSLS. 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

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info Or Visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.



1

Quick Reference

Throughout this quick reference, underlines show valid command and keyword abbreviations. For example, aud is an abbreviation of the audit command. Brackets [] enclose optional parameters. A vertical bar (|) separates parameter choices.

Topics include:

- Start and Stop Commands
- Command Identifiers
- Auditing the Library
- Configuration
- Displaying Status
- Maintaining the Database
- Managing CAPS
- Managing Redundant Electronics
- Managing Locks
- Managing Logical Libraries
- Managing Pools
- Managing Volumes
- Query Status
- Varying Library Components

Start and Stop Commands

Use the acss command to start, stop, and monitor the status of the various services associated with ACSLS.

- acsss enable
 - This is the default method to bring up ACSLS. It checks for dependencies and activates, in the proper order, the five ACSLS services and the ACSLS GUI. When this method is used, the services are configured to restart automatically after a system reboot.
- acsss temp-enable
 Similar to acsss enable, though services are not restarted after a system reboot.
- acsss maint-enable
 - Intended for general maintenance operations not involving the ACSLS database. This option enables the GUI infrastructure allowing GUI users to remain logged in while ACSLS is disabled. This method is used in contexts of minor software patch installations. Neither the acsls nor the smce service is enabled.

acsss disable

This is the default method used to halt ACSLS operation. It is not a complete shutdown and allows for the database and any GUI login sessions to remain active for maintenance operations after the acsls and smce services have been disabled. The resulting state is identical to that of acss maint-enable. This is the safest method to bring down the server as both ACSLS and the library are placed in an idle state before the services are disabled.

acsss force-disable

Similar to acss disable, though the operation does not wait for an idle state before disabling acsls and smce.

acsss shutdown

This renders a complete shutdown of all ACSLS services. It is intended for contexts of software installation and de-installation, and other maintenance contexts that require the database (acsdb) or the GUI infrastructure (rmi-registry and surrogate) to be shut down.

acsss db

This is the preferred control mode to use for database maintenance operations including db_export, db_import, and acsss_config. It enables the ACSLS database engine and disables all other ACSLS services including the ACSLS GUI.

acsss status

Provides a guick status report of the various ACSLS services.

acsss a-status

Returns the operational status of the acsdb service.

acsss d-status

Returns the operational status of the acsls service.

acsss g-status

This option displays the status of the ACSLS GUI.

acsss l-status

Provides a verbose status summary of the various ACSLS services and includes pointers to log data for further analysis in troubleshooting contexts. The logs to which it points are helpful in contexts where the service failed to start up or shut down.

acsss p-status

Similar to acsss status, this report includes a listing of the various process IDs that are monitored by each respective service contract.

acsss w-status

Shows the status of the weblogic service.

acsss timeout

Updates the SMF start-up timeout for acsls.

acsss legal

This option displays the ACSLS Legal Notice in English or French.

Command Identifiers

Each identifier argument with cmd_proc corresponds to a type and consists of one or more components separated by commas.



- acs_idacs(0-31)
- cap_id acs(0-31),lsm(0-99),cap(0-11)

An asterisk (*) in a cap_id does the following:

- acs,lsm,* causes ACSLS to select the highest priority available CAP in the LSM.
- acs,* causes ACSLS to select the highest priority available CAP in the ACS
- * for an enter request causes ACSLS to select the CAP in the ACS with the most free cells.
- * for an eject request causes ACSLS to select the highest priority CAP in each ACS with a volume designated for ejection.
- cell_id acs(0-31),lsm(0-99),panel(0-50),row(0-41),column(0-23)
- drive_id acs(0-31),lsm(0-99),panel(0-50),drive(0-31)
- drive_type
 Up to 10 characters drive type identifier; can be any combination of numbers (0-9) or letters (A-Z).
- lock_id decimal number (0-32767)
- lsm_id
 acs(0-31),lsm(0-99)
- media_type
 Up to 10 characters media type identifier; can be any combination of numbers
 (0-9) or letters (A-Z). Spaces are not allowed. A common media type is the STK1R.
- owner_id
 volume owner
- panel_id acs(0-31),lsm(0-99),panel(0-50)
- pool_id
 decimal number (0-65535) Specifying an asterisk (*) for the pool_id reassigns a
 volume to its current pool_id
- port_id acs(0-31),port(0-15)
- request_id unique decimal number (0-65535) assigned by the ACSLS.
- subpanel_id acs(0-31),lsm(0-99),panel(0-50),startrow(0-41),startcolumn(0-23),endrow(0-41),endcolumn(0-23)
- vol_id
 Six-character identifier consisting of any combination of numbers (0-9), letters
 (A-Z, a-z, or mixed case (except for use in volrpt)), dollar sign (\$), pound sign
 (#), and leading and/or trailing spaces (). Use single or double quotes to enclose



vol_ids with leading or trailing spaces. Do not specify *vol_ids* with embedded spaces.

volrange

Specifies an ascending range of volumes separated by a dash.

For volranges in query, enter, and eject commands:

If it is a numeric range, specify only the right most numeric portions of the *vol_ids* as the range. All preceding characters must be identical. The display commands support full alphanumeric volranges and allow wildcards '*' and '_'.

Auditing the Library

Helpful cmd_proc operations include:

- audit cap_id server
 Audits the entire library; updates library configuration.
- audit cap_id acs acs_id Audits an ACS.
- audit cap_id lsm lsm_id Audits an LSM.
- audit cap_id panel panel_id Audits an LSM panel.
- audit cap_id subpanel subpanel_id Audits an LSM subpanel.

Configuration

Helpful Unix operations include:

- acsss_config
 Runs the configuration script.
- dv_print
 Displays values of dynamic options.
- dv_config -p <variable_namme> -u
 To prompt for and update a single variable.
- dv_config -d
 Displays values of dynamic and static options.

Configuration - Dynamic

Helpful Unix operations include:

ACS

- config acs new Adds a new ACS.
- config acs acs_id
 Reconfigures an existing ACS.



Drives

config drive(s) panel_id
 Reconfigures all drives on an existing drive panel. This includes adding drives, updating drive types and serial numbers for existing drives, and deleting drives that were removed from the database.

LSMs

config lsm lsm_id
 Reconfigures an existing LSM and all its components, which include CAPs and
 panels.



Use config acs to add or delete an LSM in an ACS.

Ports

config port(s) acs_id
 Reconfigures port connections to an ACS.

Displaying Status

Helpful cmd_proc operations include:

Display CAP information

```
display cap cap_id ...
[ -availability cap_availability ...]
[ -status cap_status ... ]
[-priority cap_priority ... ]
[ -state cap_state ... ]
[ -manual | -automatic ]
[ -condition cap_condition ... ]
[ [ -c ] | [ -f field ... ] [ -s sort_field ... ] [ -n n ] ]
```

Display cell information

```
display cell cell_loc ...
[ -status cell_status ... ]
[ [ -c ] | [ -f field ... ] [ -s sort_field ... ] [ -n n ] ]
```

Display drive information

```
display drive drive_id ...
[ -status drive_status ... ]
[-state drive_state ... ]
[ -type drive_type ... ]
[ -volume vol_id ... ]
[ -lock lock_id... ]
[ -serial drive_serial_num ... ]
```



```
[ -condition drive_condition ...]
[ [ -c ] | [ -f field ... ] [ -s sort_field ... ] [ -n n ] ]
Display lock information
display lock lock_id ...
[ -user user id ... ]
[ [ -c ] | [ -f field ... ] [ -s sort_field ... ] [ -n n ] ]
Display LSM information
display lsm lsm_id ...
[ -status lsm_status ... ]
[-state lsm_state ... ]
[ -free_cells cell_count ... ]
[ -type lsm type ... ]
[ -serial lsm_serial_num ... ]
[ -condition lsm_condition ]
[ -door_open | -door_closed ]
[ [ -c ] | [ -f field ... ] [ -s sort_field ... ] [ -n n ] ]
Display panel information
display panel panel_id ...
[ -type panel_type ... ]
[ [ -c ] | [ -f field ... ] [ -s sort_field ... ] [ -n n ] ]
Display pool information
display pool pool_id ...
[ -low_water low_water_mark ... | -high_water high_water_mark... ]
[-overflow | -no_overflow ]
[ [ -c ] | [ -f field ... ][ -s sort_field ... ] [ -n n ] ]
Display port information
display port port_id ...
[ -online | -offline ]
[ -name port_name ... ]
[ [ -c ] | [ -f field ... ] [-s sort_field ... ] [ -n n ] ]
Display volume information
display volume vol_id ...
[ -home acs, lsm, panel, row, column...]
[ -drive drive_loc ... ]
[-data | -scratch | -clean ]
[ -media media_type ... ]
[ -pool pool_id... ]
[ -standard | -virtual ]
[ -status vol_status ... ]
[ -entry entry_date ... ]
[ -access access_date ... ]
[ -lock lock_id ... ]
```



```
[ [ -c ] |[ -f field ... ] [ -s sort_field ... ] [ -n n ] ]
[ -max_use max_use]
[ -lock_time lock_time]
```

Maintaining the Database

Helpful commands include:

- db_export.sh -f [db_file | tape_device]
 Exports database table data and ACSLS control database files to tape or a file.
 Use when reinstalling ACSLS or upgrading to a new ACSLS version using the same database.
- db_import.sh -f [db_file | tape_device]
 Imports database table data and ACSLS control database files from the export tape or file. Use when reinstalling ACSLS or upgrading to a new ACSLS version using the same database.
- bdb.acsss -f [backup_file | tape_device]
 Backs up the database. The command, bdb.acsss, with no argument places the backup file in the default backup location (typically /export/backup/).
- acsss db
 Brings up the database.
- rdb.acsss
 Recovers the database after a database failure.

Managing CAPS

Helpful cmd_proc operations include:

- query cap cap_id ... | all or display cap cap_id ... |*
 Displays CAP status.
- set cap mode manual | automatic cap_id
 Sets CAP's entry mode (manual or automatic)
- set cap priority cap_priority cap_id
 Sets CAP's automatic selection priority.
- enter cap_id
 Makes manual mode CAP ready to enter labelled carts.
- enter lsm_id
 Makes multiple CAPs in an LSM ready.

Managing Redundant Electronics

Helpful commands include:

 query lmu acs_id ... | all Displays all connections to a library, or libraries, for either a single ACS or the ACSLS server.



switch lmu acs_id
 Manually switches ACS management from the SL8500s active HBCR card to the
 standby HBCR card.

Managing Locks

Helpful cmd_proc operations:

- set lock lock_id
 Sets your lock ID.
- show lock | user
 Displays your current lock ID or user ID.
- lock drive | volume identifier
 Locks a volume or drive (to your current lock ID).
- unlock drive | volume identifier ... | all Removes active locks (to your current lock ID) on specified drives or volumes or all active locks.
- clear lock drive | volume identifier
 Removes all active and pending locks on specified drives or volumes.

Managing Logical Libraries

The lib_cmd command-line utility is an alternative to the ACSLS GUI for managing and monitoring resources in ACSLS logical libraries.

- lib_cmd assign drive drive_id lib_id Adds the specified drive to the logical library.
- lib_cmd unassign drive lib_id logical_drive_id Removes the specified logical drive from the logical library configuration.
- lib_cmd assign volume [vol_id | vol-range] lib_id Assigns a volume for exclusive use within a logical library.
- lib_cmd unassign volume [vol_id | vol-range] lib_id Removes a volume from the logical library inventory.
- lib_cmd create library lib_name backing_acs cell_capacity drive_capacity
 Creates a new logical library.
- lib_cmd create mapping initiator_id target_id library_id Establishes an initiator-target (client-server) relationship for the specified library.
- lib_cmd edit library lib_id [-n name][-c capacity][-d drive_slots][-f volume_label_format [6|8p|8s|all][-x imp/exp_cell_count]

Alters the configuration of an existing logical library. Options are:

- -n library alias name
- -c logical storage cell capacity
- -d number of logical drive slots



- f volume label format
- -x number of logical import/export (CAP) cells

Volume label format may be expressed with any of the following:

- 6 six character legacy volume labels
- 8p eight character prefixed with media type code
- 8s eight character suffixed with media type code
- all accept all label formats
- lib_cmd refresh initiator Retrieves all initiators currently known to ACSLS.
- lib_cmd refresh target
 Retrieves all targets currently known to ACSLS.
- lib_cmd delete initiator initiator_id (y/n)
 Removes the specified initiator from the configuration. Confirmation (y) is required in order to commit the specified deletion.
- lib_cmd delete library lib_id (y/n)
 Removes the specified logical library from the ACSLS configuration. This creates a cascading delete, disassociating any assigned volumes and drives from the library.
- lib_cmd delete mapping lib_id (y/n)
 Removes all initiator-target mappings from the specified logical library. The operation disables any current client connections.
- lib_cmd delete target target_id (y/n)
 Removes the specified target from the configuration. Confirmation (y) is required in order to commit the specified deletion.
- lib_cmd display drive [drive_id][-p acs_id | all][-l lib_id | all][-t drive_type][-u acs_id]
 Generates a summary of the specified drive or all drives in the specified library.
 - If display drive all is submitted without options, the utility generates a listing of all volumes contained in each physical ACS.
 - If the -t option is passed, only drives of the specified drive type are displayed.
 - The -p option limits the display to drives in the specified physical ACS.
 - If the -1 option is included, then only the drives assigned to the specified logical library are displayed. If all is specified following the -1 option, then a display is generated showing all of the drives associated with each of the configured logical libraries.
 - The -u option displays only unassigned drives in the associated ACS. This
 option must be followed with an argument specifying the desired ACS.
- lib_cmd display initiator
 Generates a list of all initiators identified by ACSLS. Each initiator is listed by its world-wide name and the alias name.
- lib_cmd display library [-p acs_id | all] [-l lib_id | all]
 - Displays the attributes of the requested library ID.
 - 1 logical libraries



- p physical libraries
- lib_cmd display mapping [lib_id | all]
 Generates a list of initiator-target mappings for each library ID (or all libraries).
- lib_cmd display target
 Generates a list of all targets identified by ACSLS.
- lib_cmd display volume [vol_id | vol-range] [-p acs_id | all][-l lib_id | all][-u acs_id]
 Generates summary information for the specified volume or volume set.
- lib_cmd vary library lib_id [online|offline|diagnostic]
 Changes the desired state of the logical library to the specified (online, offline, diagnostic) state.
- lib_cmd vary library lib_id drive_id [online|offline| diagnostic]
 Changes the desired state of the logical drive to the specified (online, offline, diagnostic) state.
- lib_cmd [exit | quit | log]

Managing Pools

Helpful cmd_proc operations include:

- define pool low_water_mark high_water_mark pool_id ... [overflow]
 Creates or modifies scratch pools.
- query pool pool_id ... | all
 Displays scratch pool attributes
- query scratch pool_id ... | all
 Displays the status of scratch volumes in a pool.
- set scratch pool_id vol_id | volrange
 Sets volume's scratch attribute and assign the volume to a scratch pool.
- set scratch off pool_id vol_id | volrange
 Changes volume from scratch to data.
- delete pool pool_id ... | all Deletes an empty scratch pool.
- mount * drive_id pool_id
 Mounts a scratch volume from a specified pool (single media libraries).
- mount * drive_id
 Mount a scratch volume from the common pool (single media libraries).
- mount * drive_id pool_id media media_type
 Mounts a scratch volume from a specified pool with specific media type.
- mount * drive_id pool_id media *
 Mounts a scratch volume from a specific pool, media type based on scratch preferences defined.
- mount * drive_id media *



Mounts a scratch volume from common pool, media type based on defined scratch preferences.

- mount * drive_id media media_type
 Mounts a scratch volume from common pool with specified media type.
- display pool pool_id ... | *
 Displays scratch pool information for a specific pool or for all pools.
- query mount * pool_id ... [media media_type | media *]
 Displays status of media-compatible drives for a specified scratch pool (or volume media type within the pool).

Helpful Unix operations include:

watch_vols [start|stop]
 Reviews pre-defined policies for volumes that are: newly entered, discovered by audit or cartridge recovery, or re-activated by audit/cartridge recovery/an enter.

Managing Volumes

Helpful cmd_proc operations include:

- mount vol_id drive_id [bypass] [readonly]
 Mounts a data volume or cleaning cartridge.
- dismount vol_id drive_id [force]
 Dismounts a data volume or cleaning cartridge.
- display volume vol_id | vol_range | *-clean
 Displays volume information for cleaning cartridges.
- display volume * [-media media type] -f media end_of_life warranty_life -s end_of_life
 Displays volume end of warranty and end of life percentages, sorted by end of life.
- eject cap_id vol_id | volrange ...Ejects volumes from the library.
- move vol_id lsm_id
 Moves volumes to a specified LSM.
- set clean max_usage | vol_id | volrange
 Sets cleaning cartridge attributes.
- set clean off vol_id | volrange
 Sets cleaning attributes back to data cartridges.
- volrpt [-s vol | loc | use] [-d] [-f filename][-z] [-a | -l | -v identifier_list]
 Creates a volume report.

Helpful Unix operations include:

- del_vol [-n] [-d] [-f] [-q] vol_id
 Deletes a volume in an offline LSM.
- ejecting.sh [-dmox] -c <CAPlist> -v <volumelistfile> Facilitates mass eject vaulting operations.
- lib_cmd eject cap <cap_id> [-verbose] volume<vol_id...vol_id> | file <path_to_volume_list>



Supports eject operations, including the ability to specify long (greater than 42) volume lists.

moving.sh -f vol_list_file -t lsm_id...
 Moves multiple cartridges to one or more LSMs.

Query Status

Helpful commands include:

- query server
 Queries ACSLS and library status.
- query acs acs_id ... | all Queries ACS status.
- query lsm lsm_id ... | all Queries LSM status.
- query cap cap_id ... | all Queries CAP status.
- query drive drive_id ... | all Queries drive status.
- query lmu acs_id ... | all
 Queries LMU and port status for both single-LMU and dual-LMU ACS configurations.
- query mount vol_id
 Queries media-compatible drives for a specified data volume.
- query mount * pool_id ... [media media_type | media *]
 Queries media-compatible drives for a specified scratch pool (or volume media type within the pool).
- query port port_id | all Queries port status.
- query volume vol_id ... | all Queries location of a volume.
- query clean vol_id ... | all Queries cleaning cartridge status.
- query scratch pool_id ... | all Queries scratch volumes in a pool.
- query pool pool_id ... | all Queries scratch pool attributes.
- query request request_id ... | all Queries request status.
- query lock drive | volume identifier ... | all
 Queries the lock status of a drive or volume.
- query clean vol_id... | all Queries cleaning cartridge attributes.



Varying Library Components

Helpful commands include:

- vary acs acs_id ... online | offline | diagnostic [force]
 Changes the desired state and the state of an ACS.
- vary lsm lsm_id ... online | offline | diagnostic [force]
 Changes the state of an LSM.
- vary cap cap_id ... online | offline | diagnostic [force]
 Changes the state of a CAP.
- vary drive drive_id ... online | offline | diagnostic [force] Changes the state of a drive.
- vary port _port_id ... online | offline
 Changes the desired state and the state of a port.

