StorageTek Tape Analytics

Data Reference Guide

Version 2.2.0

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StorageTek Tape Analytics Data Reference Guide, Version 2.2.0

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Preface

This document provides information about using and interpreting the data displayed by Oracle's StorageTek Tape Analytics (STA). It provides definitions for all library, drive, and media data fields displayed by STA. It also provides reference information for all STA toolbars and data input fields.

Audience

This document is intended for new and experienced users of STA.

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.

Related Documents

The STA documentation set consists of the following documents.

For users of the STA application

- *STA Quick Start Guide*—Use this guide to introduce yourself to the STA application and some features of the user interface.

- *STA User's Guide*—Use this guide for instructions on using all STA application features, including the Dashboard, templates, filters, alerts, Executive Reports, logical groups, and STA media validation. This guide also provides instructions for administering and managing STA usernames, email addresses, service logs, and SNMP connections with the monitored libraries.

- *STA Screen Basics Guide*—Use this guide for full details about the STA user interface. It describes the screen navigation and layout, and the use of graphs and tables.

- *STA Data Reference Guide*—Use this guide to look up definitions for all STA tape library system screens and data attributes.

For installers and administrators of the STA server and application

- *STA Release Notes*—Read this document before installing and using STA. It contains important release information, including known issues. This document is included in the STA media pack download.

- *STA Requirements Guide*—Use this guide to learn about minimum and recommended requirements for using STA. This guide includes the following requirements: library, drive, server, user interface, STA media validation, and IBM RACF access control.

- *STA Installation and Configuration Guide*—Use this guide to plan for installation of STA, install the Linux operating system, install the STA application, and then configure STA to begin monitoring the libraries. This guide also provides instructions for upgrading to a new version of STA.

- *STA Administration Guide*—Use this guide for information about STA server administration tasks, such as STA services configuration, database backup and restore, and password administration for database accounts.

- *STA Security Guide*—Read this document for important STA security information, including requirements, recommendations, and general security principles.

- *STA Licensing Information User Manual*—Read this document for information about use of third-party technology distributed with the STA product.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

What's New

This section summarizes new and enhanced features for StorageTek Tape Analytics 2.2.0.

STA 2.2.0 February 2016

Oracle recommends upgrading to STA 2.2.0 or higher to take advantage of the new features described below.

- Maintenance fixes

- Performance improvements

- Updated recommended library and drive requirements to support STA 2.2.0 and higher. See the *STA Requirements Guide* for details.

- New response file build utility for the silent installer and deinstaller. The utility prompts you for the necessary information and saves the response file and an encryption key file to the directory of your choice. It writes passwords to the file in encrypted form. See the *STA Installation and Configuration Guide* for details.

x

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Attribute Cross-Reference

Table 1–1 lists all STA attributes, in alphabetical order, and identifies the screens where each one is displayed. To view the definition of an attribute, click the link in the table cell.

The screens are abbreviated as follows:

- Cmpx – "Complexes Overview Screen" on page 3-1
- Library – "Libraries Overview Screen" on page 4-1
- Drive – "Drives Overview and Analysis Screens" on page 5-1
- Media – "Media Overview and Analysis Screens" on page 6-1
- Lib Comp – any of the following screens on the Library Components tab:
  - "Robots Overview Screen" on page 7-1
  - "CAPs Overview Screen" on page 8-1
  - "PTPs Overview Screen" on page 9-1
  - "Elevators Overview Screen" on page 10-1
- Alerts – "Alerts Screens" on page 11-1
- Exch – "Exchanges Overview Screen" on page 12-1
- Clean – "Drive Cleanings Overview Screen" on page 13-1
- Media Valid – "Media Validation Overview Screen" on page 14-1
- Msgs – "Messages Screens" on page 15-1

Table 1–1   STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
% Drive Utilization	X	X	X							
Agent Boot Date/Time										X
Alert Event Type						X				
Alert Policy Name						X				
Alert Policy Type						X				
Alert Reason						X				
Alert Severity						X				
Alert State						X				
Alert: Cleaning Media							X			

Table 1–1   (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
Alert: Drive Automated Interface							X			
Alert: Drive Clean Now							X			
Alert: Drive Clean Periodic Requested							X			
Alert: Drive Cooling Fan							X			
Alert: Drive Diagnostics Required			X				X			
Alert: Drive Dual-Port Interface							X			
Alert: Drive Dump Available							X			
Alert: Drive Event Log Near Full							X			
Alert: Drive Failure Predicted							X			
Alert: Drive FW Download							X			
Alert: Drive FW Failure							X			
Alert: Drive Hard Error							X			
Alert: Drive Hardware A							X			
Alert: Drive Hardware B							X			
Alert: Drive Interface Fault							X			
Alert: Drive Load Limit			X				X			
Alert: Drive Model Incompatible							X			
Alert: Drive Temperature							X			
Alert: Drive Voltage							X			
Alert: Forced Eject Attempted							X			
Alert: Invalid Cleaning							X			
Alert: Media Cart Memory Failure				X			X			
Alert: Media Clean Expired							X	X		
Alert: Media Diminished Capacity							X			
Alert: Media Directory Corrupt				X			X			
Alert: Media Directory Invalid							X			
Alert: Media Eject Failed							X			
Alert: Media End of Warranty							X			
Alert: Media Error							X			
Alert: Media Life Exceeded							X			
Alert: Media Load Failure							X			
Alert: Media Load Limit				X			X			
Alert: Media Lost Statistics							X			
Alert: Media Maintenance							X			
Alert: Media Nearing End of Life				X			X			

Table 1–1   (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
Alert: Media No Start of Data							X			
Alert: Media Not Data Grade							X			
Alert: Media Recoverable Mechanical							X			
Alert: Media RFID Warning							X			
Alert: Media System Read Failure							X			
Alert: Media System Write Failure							X			
Alert: Media Unrecoverable Mechanical							X			
Alert: Media Unrecoverable Snapped							X			
Alert: MIR Invalid							X			
Alert: Permanent Error							X			
Alert: Read Failure							X			
Alert: Read Only							X			
Alert: Read Warning							X			
Alert: Unload Prevented							X			
Alert: Unrecoverable Unload							X			
Alert: Unsupported Format							X			
Alert: WORM Integrity Failure							X			
Alert: WORM Overwrite Attempted							X			
Alert: Write Failure							X			
Alert: Write Protect							X			
Alert: Write Warning							X			
Annotation History	X	X	X	X	X	X	X	X		X
Avg Mount R/W MB			X							
Avg Mount R/W MB/sec			X	X						
Avg Mount Read MB			X							
Avg Mount Read MB/sec			X	X						
Avg Mount Write MB			X							
Avg Mount Write MB/sec			X	X						
Base Model	X									
CAP					X					
CAP Accessibility					X					
CAP Alert Count					X					
CAP Count	X	X								
CAP Ejects	X	X			X					
CAP Enters	X	X			X					
CAP Identifier					X					
CAP Physical Address					X					

Table 1–1   (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
CAP SNMP Traps					X					
CAP State					X					
Clean Volume Serial Number								X		
Cleaning Media			X	X			X			
Cleans			X							
Complex Physical Library Count	X									
Component ID						X				
Cumulative Library Uptime		X								
Current Cleaning Uses							X	X		
Data Compression Ratio			X	X			X			
Date Created/Updated						X				
Device Activity										X
Device Address										X
Device ID										X
Device Serial Number										X
Device State										X
Device Time										X
Dismounts	X	X								
Dismounts With Errors			X	X						
Drive			X							
Drive Alert Count			X							
Drive Bays Installed	X	X								
Drive Bays Occupied	X	X								
Drive Bays Unoccupied	X	X								
Drive Cleans	X	X								
Drive Dismounts			X							
Drive Exchange Status			X				X	X		
Drive Firmware Version			X				X			
Drive Health			X	X			X	X		
Drive Health Trend			X				X			
Drive HLI Address			X				X			
Drive Interface			X							
Drive Library Name			X				X			
Drive Library Number			X				X			
Drive Library Serial Number			X				X			
Drive Lifetime Cleans			X				X	X		
Drive Lifetime Hours in Motion			X				X			
Drive Lifetime Loads			X				X	X		
Drive Lifetime Meters			X				X	X		
Drive Lifetime Meters of Head Contact							X			

Table 1–1   (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
Drive Lifetime Meters Positioning							X			
Drive Lifetime Power Hours			X				X			
Drive Manufacturer			X							
Drive Model			X				X		X	
Drive Physical Address			X				X			
Drive Properties Updated			X							
Drive Rail Number			X				X			
Drive SCSI Element ID			X				X			
Drive Serial Number			X	X	X		X	X	X	X
Drive SNMP Trap Count			X							
Drive Start Tracking							X	X		
Drive Stop Tracking							X	X		
Drive Suspicion Level			X				X			
Drive Tray Serial Number			X				X			
Drive Type			X	X			X	X		X
Drive Vendor										X
Drive WWNN			X	X			X	X		
Drive WWPN (Port A)			X					X		
Drive WWPN (Port B)			X					X		
Duplicate Detected				X			X			
Elevator					X					
Elevator Alert Count					X					
Elevator Count	X	X								
Elevator Identifier					X					
Elevator Physical Address					X					
Elevator Power LED State					X					
Elevator SNMP Traps					X					
Elevator State					X					
Encryption Capable			X							
Exchange Drive Cleaning Required			X	X			X	X		
Exchange DSC			X	X			X		X	
Exchange Elapsed Time			X	X			X	X		
Exchange Encryption Used			X	X			X			
Exchange End							X	X		
Exchange FSC			X	X			X	X	X	
Exchange Library Name				X						
Exchange Mount Time			X	X			X	X		
Exchange Read Margin			X	X						
Exchange Read Marginal			X	X			X			
Exchange Recording Technique			X	X			X		X	

Table 1–1   (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
Exchange Start			X				X	X	X	
Exchange Tape Alerts – Info			X	X			X			
Exchange Tape Alerts – Severe			X	X			X			
Exchange Tape Alerts – Warning			X	X			X			
Exchange Write Efficiency			X	X						
Exchange Write Inefficient			X	X			X			
Formatted Density Code							X			
Host DB Sync Errors	X	X								
Host Request Timeouts	X	X								
HP Device Status			X				X			
HP Media Status				X			X			
IBM Drive Efficiency			X				X			
IBM Media Efficiency			X	X			X			
Interface Name										X
Last CAP Message					X					
Last Drive Message			X							
Last Elevator Message					X					
Last Exchange Start				X						
Last Library Message		X								X
Last PTP Message					X					
Last Robot Message					X					
Library		X								
Library Alert Count		X								
Library Complex	X									
Library Complex Alert Count	X									
Library Complex Name	X	X	X	X	X	X	X	X	X	X
Library Complex Number	X									X
Library Firmware Updated		X								
Library Firmware Version		X								
Library IP address #1		X								
Library IP address #2		X								
Library Last Booted		X								
Library Model		X	X	X	X		X	X	X	X
Library Name		X			X	X		X		X
Library Number		X								
Library Scan Completed		X								
Library Serial Number		X			X	X		X		X
Library SNMP Traps		X								
Library WWNN		X						X		
Lifetime Hours Incompatible							X			

Table 1–1   (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
Logical Group(s)			X	X						
MB R/W	X	X	X	X						
MB Read	X	X	X	X						
MB Received	X	X	X	X						
MB Sent	X	X	X	X						
MB Write	X	X	X	X						
Media				X						
Media Alert Count				X						
Media Auxiliary Memory Capacity				X			X			
Media Blank				X			X			
Media Capacity Utilization				X						
Media Destination HLI Address							X			
Media Destination Library Number							X			
Media Destination Physical Address							X			
Media Destination Rail Number							X			
Media Destination SCSI Element ID							X			
Media Dismounts				X						
Media Ejected from Library				X						
Media Entered Library				X						
Media EOL Percentage				X						
Media Exchange Status				X			X	X		
Media Health			X	X			X	X		
Media Health Trend				X			X			
Media HLI Address				X						
Media Length in Meters				X			X			
Media Library Name				X					X	
Media Library Number				X						
Media Library Serial Number				X					X	
Media Life Indicator				X						
Media Long Type				X						
Media Manufacturer Date				X			X			
Media Manufacturer Serial Number			X	X			X			
Media MB Avail Post				X			X			
Media MB Avail Pre				X			X			
Media MB Capacity				X			X			
Media Physical Address				X						
Media Rail Number				X						

Table 1–1 (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
Media Slot SCSI Element ID				X						
Media Slots Activated	X	X								
Media Slots Installed	X	X								
Media Slots Occupied	X	X								
Media Slots Unoccupied	X	X								
Media Source HLI Address							X			
Media Source Library Number							X			
Media Source Physical Address							X			
Media Source Rail Number							X			
Media Source SCSI Element ID							X			
Media Start Tracking							X			
Media Stop Tracking							X			
Media Suspicion Level				X			X			
Media Type				X			X		X	
Media Write Efficiency				X			X			
Meters Between 2 Most Recent Cleans			X					X		
Meters since Last Clean			X							
Monitored since	X	X	X	X	X					
Mount R/W MB							X			
Mount R/W MB/sec			X	X			X			
Mount Read MB							X			
Mount Read MB/sec							X			
Mount Received MB							X			
Mount Sent MB							X			
Mount Write MB							X			
Mount Write MB/sec							X			
MV Calibration Attempts			X							
MV Calibration Current State				X						
MV Calibration Drive SN				X						
MV Calibration Drive Type				X						
MV Calibration Information			X							
MV Calibration Initial DQI				X						
MV Calibration Initial Suspicion				X						
MV Calibration Last DQI				X						
MV Calibration Library Complex				X						
MV Calibration Library Model				X						
MV Calibration Library SN				X						

Table 1–1 (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
MV Calibration Number of Wraps				X						
MV Calibration Request									X	
MV Calibration Starting Suspicion			X							
MV Calibration State			X							
MV Calibration Status Information				X						
MV Count				X						
MV Days Since Last Validation				X						
MV DQI				X					X	
MV Drive Allocated			X							
MV Drive Available			X							X
MV Drive Capable			X							
MV Drive In Use			X							X
MV Drive Last Calibrated			X							
MV Drive Reserved			X							
MV Estimated Time Remaining									X	
MV Incomplete									X	
MV Initiator									X	
MV Interrupted									X	
MV Last Activity			X	X						
MV Last Calibration Date				X						
MV Last Calibration DQI			X							
MV Last Qualification Start			X							
MV Last Recommendation			X	X						
MV Last Recording Technique				X						
MV Last State Update									X	
MV Last Test Type				X						
MV Library Error									X	
MV MB Tape Used				X						
MV Policy Name									X	
MV Pool End Date				X						
MV Pool Start Date				X						
MV Primary Calibration Media				X						
MV Primary Qualification Start			X							
MV Priority Order									X	
MV Recommendation									X	
MV Request Start									X	
MV Request State									X	

Table 1–1 (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
MV Result									X	
MV Secondary Qualification Start			X							
MV Status Information									X	
MV Test Percentage							X		X	
MV Test Type							X		X	
MV Time Spent Validating									X	
New Property Effective										X
New Property Value										X
Partition Name			X	X			X			
Partition Number			X	X			X			
Partition Type			X	X			X			
Partitions	X	X								
Perm Read Errors							X			
Perm Write Errors							X			
Permanent Error				X			X		X	
Port Speed (Port A)			X							
Port Speed (Port B)			X							
Property Name										X
PTP					X					
PTP Alert Count					X					
PTP Count	X	X								
PTP Ejects	X	X								
PTP Enters	X	X								
PTP Identifier					X					
PTP Physical Address					X					
PTP Power LED State					X					
PTP SNMP Traps					X					
PTP State					X					
R/W MB/sec			X	X			X			
R/W Mount Ratio			X	X			X			
Read Margin							X			
Read MB/sec			X	X			X			
Read Mount Ratio			X	X			X			
Received on										X
Recorded on							X	X		
Repositioning Cycles							X			
Repositioning Cycles Non ERP							X			
Request ID										X
Result Code										X
Robot					X					

Table 1–1   (Cont.) STA Attribute Cross-Reference

Attribute	Cmpx	Lib	Drive	Media	Lib Comp	Alerts	Exch	Clean	Media Valid	Msgs
Robot Alert Count					X					
Robot Count	X	X								
Robot Get Retries					X					
Robot Get Totals					X					
Robot Health					X					
Robot Identifier					X					
Robot Physical Address					X					
Robot Power LED State					X					
Robot Put Retries					X					
Robot Put Totals					X					
Robot SNMP Traps					X					
Robot State					X					
RQI							X			
Severity										X
Servo Perm Errors							X			
SNMP Trap										X
STA Start Tracking			X	X						
STA Stop Tracking			X	X						
STA Supported				X						
Text										X
Theoretical Maximum Usage Count								X		
Time Spent Loaded							X			
Time Spent R/W			X	X			X			
Time Spent Reading			X	X			X			
Time Spent Writing			X	X			X			
Total Host Requests	X	X								
Trap Type										X
Unload Errors							X			
Usage Perm Errors							X			
Username										X
Volume Serial Number			X	X		X	X		X	
WORM/VolSafe Media			X	X						
Write Efficiency							X			
Write MB/sec			X	X			X			
Write Mount Ratio			X	X			X			

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Attribute Definitions

Click a link below to go directly to the section.

Symbols

% Drive Utilization
Percentage of time all drives in the library were occupied. Does not include time drives are not available because of application reservation or library positioning.

A

Agent Boot Date/Time
Date and time the SNMP agent was started, in the library's local time.

Alert Event Type
Type of event or activity that was in process when the alert was triggered.

Options are as follows:

- AppMonitor – The alert was triggered during a restart of the STA application. This event type is not a selectable link.

- Exchange – The alert was triggered during an exchange. Click the link to navigate to the Exchanges Overview screen displaying detail about the exchange.

- MIB Walk – The alert was triggered during a Get Latest Data performed from the Configuration – SNMP Connections screen. This event type is not a selectable link.

- Robot Analytic – The alert was triggered by a change in robot health. This event type is not a selectable link.

- Trap – The alert was triggered by an SNMP trap from the library. Click the link to navigate to the All Messages – Overview screen displaying detail about the trap.

- blank – Either the alert was triggered by an internal STA calculation, or the triggering event is unknown. In either case, there is no detail to display.

Alert Policy Name
User-defined name assigned to the alert policy.

Alert Policy Type
Type of alert policy. Examples are: STA, Complex, MDV, Media, Move, Robot.

Alert Reason
Criteria of the alert policy that generated this alert.

Alert Severity
Severity level of the alert policy that generated this alert. Options are: Severe, Warning, Informative. The severity level of a policy determines how often alerts are triggered.

Alert State
Current state of the alert. Options are: New, Acknowledged, In-progress, Dismissed, Unknown. "New" and "Unknown" states are assigned by STA. All other states are user-assigned according to the optional alerts workflow implemented at your site.

Alert: Cleaning Media
LTO only

Cleaning media has been loaded in the drive.

Alert: Drive Automated Interface
LTO only

The drive has experienced an Automation Interface fault.

Alert: Drive Clean Now
Both enterprise and LTO

A media error has caused a cleaning request.

Alert: Drive Clean Periodic Requested
Both enterprise and LTO

A clean threshold has been exceeded. Set when a StorageTek enterprise or IBM LTO drive detects that it needs routine cleaning.

Alert: Drive Cooling Fan
LTO only

The drive has detected that a cooling fan is not operating within manufacturer-specified limits.

Alert: Drive Diagnostics Required
LTO only

A failure requiring diagnostics has occurred. Triggered by a tape alert 39. This alert is reset after diagnostics are run.

Alert: Drive Dual-Port Interface
LTO only

A redundant interface port on the drive has failed.

Alert: Drive Dump Available
Enterprise only

A drive dump created earlier is available. This alert is reset after the dump is downloaded.

If you see this alert, Oracle recommends you collect a drive dump and drive logs as soon as possible. This will assist Oracle Support with drive fault analysis.

Alert: Drive Event Log Near Full
Enterprise only

The drive event log is 75 percent or more full. This is an expected state, as the log is circular. Events may be overwritten unless they are collected. If Oracle Service Delivery Platform (SDP) is installed, the logs are cleared.

Alert: Drive Failure Predicted
Both enterprise and LTO

The drive firmware has predicted a drive hardware failure.

Alert: Drive FW Download
LTO only

A drive firmware download has failed because an invalid firmware file was used for this drive type.

Alert: Drive FW Failure
Both enterprise and LTO

The drive has detected a firmware fault and has reset itself. This alert remains active until all dumps are retrieved from the drive.

Retrieve the drive dumps.

Alert: Drive Hard Error
LTO only

Indicates an unrecoverable read, write, or positioning error. This alert is cleared internally when the media is ejected.

Check the following alerts for additional detail: Media Error, Read Failure, Write Failure.

Alert: Drive Hardware A
LTO only

The drive has experienced a hardware fault from which it can recover through a reset.

Alert: Drive Hardware B
LTO only

The drive has experienced a hardware fault from which it can recover through a power cycle. This alert is set if the tape drive fails its internal power-on self-tests and is cleared internally when the drive is powered off.

Alert: Drive Interface Fault
LTO only

The drive has experienced a problem with the host interface. Check cables and connections and restart the operation.

Alert: Drive Load Limit
Both enterprise and LTO

Indicates whether the drive exceeded its lifetime limit of media loads at the time of the exchange.

Alert: Drive Model Incompatible
Enterprise only

The drive is down-level for the media attempting to be loaded.

Alert: Drive Temperature
Both enterprise and LTO

The drive has experienced a cooling problem. This could impact media integrity.

Alert: Drive Voltage
LTO only

Drive voltage limit has been exceeded

Alert: Forced Eject Attempted
LTO only

A manual or forced eject occurred while the drive was reading or writing.

Alert: Invalid Cleaning
LTO only

The cleaning media is incompatible with the drive.

Alert: Media Cart Memory Failure
Indicates the cartridge memory failed during the exchange. This results in reduced performance.

Alert: Media Clean Expired
Both Enterprise and LTO

The drive firmware has determined that the cleaning media has already been used the maximum number of times and cannot be used for this cleaning exchange.

Alert: Media Diminished Capacity
LTO only

The volume state has been set not to allow partition 0 to use the full native capacity of the volume. For example, the volume is partitioned, or the available medium for use has been reduced by a SET CAPACITY command.

Alert: Media Directory Corrupt
Both Enterprise and LTO

The media directory on the tape media is corrupted, leading to degraded file search performance until the directory is rebuilt. This has occurred because the drive was powered down with media loaded, or a permanent error prevented the media directory from being updated.

Alert: Media Directory Invalid
Both Enterprise and LTO

The media directory has been corrupted. No data was lost, but media performance could be impacted.

The media directory can be rebuilt by reading all the data.

Alert: Media Eject Failed
LTO only

The eject operation has failed.

Eject the media, reload, and restart the operation.

Alert: Media End of Warranty
Enterprise only

The media has reached the end of its warranty period, and further use is not covered by warranty.

Alert: Media Error
Both enterprise and LTO

Media performance is severely degraded, or the media can no longer be read or written. This alert is set for any unrecoverable read, write, or positioning error caused by faulty media and is cleared internally when the media is ejected.

Alert: Media Life Exceeded
Both enterprise and LTO

The media has exceeded its expected useful life. Available for IBM LTO4 and above drives only.

> **Note:** HP drives report the Nearing Media Life Alert attribute instead.

Alert: Media Load Failure
Both

The drive was unable to load the media and thread the tape.

Alert: Media Load Limit
Both

The media has exceeded the recommended number of drive loads.

Alert: Media Lost Statistics
Both

Some previously existing media statistics have been lost due to a drive or library being powered down with media loaded.

Alert: Media Maintenance
Enterprise only

Media in the drive requires physical maintenance, which must be corrected before the media can be loaded successfully. For example, the leader may be pulled into the cartridge.

Alert: Media Nearing End of Life
The media is approaching the end of its expected useful life. Available for HP drives only.

Alert: Media No Start of Data
Both

Start of customer data could not be found

Alert: Media Not Data Grade
LTO only

The drive has not been able to read the media recognition system stripes, indicating the media is not data-grade. Any data you write to the media is at risk.

Alert: Media Recoverable Mechanical
LTO only

The tape has snapped or suffered a mechanical failure in the drive, but the media can still be ejected.

Alert: Media RFID Warning
Enterprise only

The media RFID was found to be open at load time, indicating the drive was powered off before the media was unloaded on the previous mount. Results in degraded media performance. Writing is not allowed until End of Data is found.

Alert: Media System Read Failure
Both

The system area on the media could not be read from at load time. No data was lost, but media performance could be impacted.

Alert: Media System Write Failure
Both

The system area on the media could not be written to at unload. No data was lost, but media performance could be impacted.

Monitor the drive and media. If this error persists across multiple media, service the drive.

Alert: Media Unrecoverable Mechanical
LTO only

The tape has snapped or suffered a mechanical failure in the drive and cannot be extracted. Do not attempt to eject the media.

Alert: Media Unrecoverable Snapped
Enterprise only

The tape has snapped in the drive and cannot be extracted. Do not attempt to eject the media.

Alert: MIR Invalid
Enterprise only

The media information record (MIR) was not updated sometime in the past, resulting in degraded file search performance.

The MIR can be rebuilt by reading all the data.

Alert: Permanent Error
Enterprise only

A permanent media error occurred while the media was mounted. Check the exchange FSC or DSC for more information.

Alert: Read Failure
LTO only

Read has failed. The media is damaged or the drive is faulty.

Alert: Read Only
LTO only

Media of this type is read-only in this drive. The media appears as write-protected.

Alert: Read Warning
Both

The drive has experienced severe trouble reading from the media.

The media or drive require attention.

Alert: Unload Prevented
LTO only

The media cannot be ejected because the drive is in use.

Wait until the operation has completed before ejecting the media.

Alert: Unrecoverable Unload
LTO only

The drive reached the maximum number of unload retries and was unable to unload the media.

Alert: Unsupported Format
LTO only

Media of this type is not supported in this drive.

Alert: WORM Integrity Failure
LTO only

The drive has detected an inconsistency during the WORM volume integrity checks. The media may have been tampered with.

Alert: WORM Overwrite Attempted
LTO only

An attempt was made to overwrite user data on a WORM volume.

Alert: Write Failure
LTO only

The drive was unable to write data to the media. This alert is set for any unrecoverable write/positioning error, due to either faulty media or faulty drive hardware. The alert is cleared internally when the tape is ejected.

Alert: Write Protect
LTO only

A write command was attempted to write-protected media.

Alert: Write Warning
Both

The drive has experienced severe trouble writing to the media.

The media or drive require attention.

Annotation History
User-defined annotation assigned to the library resource or activity. List View shows the most recent annotation. Detail View shows full annotation history, in reverse chronological order.

Avg Mount R/W MB
Average megabytes read and written by the drive per exchange. Calculated as:

```
total MB (read +written) /total completed exchanges
```

Avg Mount R/W MB/sec
Average throughput rate for the drive, in megabytes per second. Calculated as:

```
total MB (read +written) /total seconds mount time
```

> **Note:** This value may be affected by a variety of factors external to the drive, such as robot speed or application behavior—for example, some applications do not dismount media immediately upon completion of read/write operations, causing the drive to be idle for much of the mount. As a result, this value is not likely to represent the drive's maximum potential throughput rate.

Avg Mount Read MB
Average megabytes read by the drive per exchange. Calculated as:

```
total MB read /total completed exchanges
```

Avg Mount Read MB/sec
Average read rate for the drive, in megabytes per second. Calculated as:

```
total MB read /total seconds mount time
```

> **Note:** This value may be affected by a variety of factors external to the drive, such as robot speed or application behavior—for example, some applications do not dismount media immediately upon completion of read/write operations, causing the drive to be idle for much of the mount. As a result, this value is not likely to represent the drive's maximum potential read rate.

Avg Mount Write MB
Average megabytes written by the drive per exchange. Calculated as:

```
total MB written /total completed exchanges
```

Avg Mount Write MB/sec
Average write rate for the drive, in megabytes per second. Calculated as:

```
total MB written /total seconds mount time
```

> **Note:** This value may be affected by a variety of factors external to the drive, such as robot speed or application behavior. For example, some applications do not dismount media immediately upon completion of read/write operations, causing the drive to be idle for much of the mount. As a result, this value is not likely to represent the drive's maximum potential write rate.

B

Base Model
Library model.

C

CAP
Serial number of the CAP

CAP Accessibility
Current CAP accessibility state, as reported by the library. Options are: ALLOW, CLOSED ALLOW, PREVENT, CLOSED PREVENT.

CAP Alert Count
Total alerts generated for this CAP, AEM, or mailslot, based on defined STA alert policies

> **Note:** This field links to the Alerts Overview screen, list view, which lists alerts for this CAP. See "Alerts Screens" on page 11-1.

CAP Count
Total CAPs, AEMs (SL3000 only), and mailslots (SL150 only)

CAP Ejects
For Complexes Overview and Libraries Overview: Total media ejected from the library or complex through all CAPs, AEMs (SL3000 only), and mailslots (SL150 only).

For CAPs Overview: Total media ejected through the CAP

CAP Enters
For Complexes Overview and Libraries Overview: Total media entered into the complex through all CAPs, AEMs (SL3000 only), and mailslots (SL150 only)

For CAPs Overview: Total media entered through the CAP

CAP Identifier
Unique identifier for the CAP

CAP Physical Address
Library internal address.

For SL150 libraries, the format is m,s,w,c (for example, 1,Left,1,2), where:

- m =module number; 1–10, from top (base module) to bottom

- s =side; Left or Right

- ■ w =row number; 1–3, from top to bottom

- ■ c =column number; 1–5, from front to back

For SL500 libraries, the format is l,m,r,c (for example, 0,2,2,3), where:

- ■ l =for nonpartitioned libraries, this is the library ID (always 0); for partitioned libraries, this is the partition ID (1–8).

- ■ m =module number; 1–5, from top to bottom of the rack

- ■ r =drive row number; 1–2 (Base Module) or 1–4 (Drive Expansion Module), from top to bottom of the module

- ■ c =column number; always 9 for drives

For SL3000 and SL8500 libraries, the format is l,r,c,s,w (for example, 1,1,2,2,3), where:

- ■ l =library number. For nonpartitioned libraries, this is the library ID; for partitioned libraries, this is the partition ID (1–8).

- ■ r =rail number. For SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

- ■ c =column number.

- ■ s =side number.

- ■ w =row number.

CAP SNMP Traps
Total CAP messages received from the library. A sudden increase in this number indicates a condition that should be investigated.

CAP State
Current CAP state, as reported by the library. STA updates this value hourly. Additionally for SL3000 and SL8500 libraries, the value is updated as SNMP traps for the CAP are received from the library.

Options are:

- ■ OPEN—CAP is open.

- ■ CLOSED—CAP is closed.

- ■ AUDITING—CAP is undergoing an audit by the robot.

Clean Volume Serial Number
Volume serial number (VSN or volser) assigned to the media by its external label. If the library does not supply the volser, STA provides one composed of Library Serial Number:Physical Address.

Note: Not all cleaning media have a volser starting with "CLN".

Note: This field links to the Media – Overview screen, detail view, which displays all available detail for this media. See "Media Overview and Analysis Screens" on page 6-1.

Cleaning Media
For Drives Overview: Indicates whether cleaning media has been loaded in the drive.

For Media Overview and Exchanges Overview: Indicates whether this is a cleaning media, as determined by the media domain and type. Possible values: True or False.

> **Note:** Not all cleaning media have a volser starting with "CLN".

Cleans
Total successful cleaning operations performed. This count does not include cleaning exchanges in which the mount failed or the cleaning media was expired.

> **Note:** This field links to the Drives – Cleaning Activities screen, list view, which lists this drive's cleaning exchanges. The Cleaning Activities screen reports both successful and unsuccessful cleaning exchanges. See "Drive Cleanings Overview Screen" on page 13-1.

Complex Physical Library Count
Total libraries in the complex (always "1" for non-SL8500 libraries).

> **Note:** This field links to the Libraries – Overview screen, list view, which lists all libraries in this complex. See "Libraries Overview Screen" on page 4-1.

Component ID
Unique identifier for the resource involved in the alert. The type of ID depends on the alert. For example, a volume serial number (for media), drive serial number (for drives), library serial number (for libraries).

Cumulative Library Uptime
Total time the library has been running since the last reboot. Displayed as hh:mm:ss.

Current Cleaning Uses
Total times the cleaning media has been mounted in a drive. Some media types track this count, in which case, this value is as reported by the media itself. Other media types do not track this count, in which case, this value is as recorded by STA. Since the cleaning media may have been used prior to the start of STA monitoring, STA may not have exchange records for all drive cleanings done with the media.

D

Data Compression Ratio
Compression ratio for the exchange. Displayed as ratio, calculated as:

```
(Total uncompressed data sent or received by the drive / Total compressed data
read or written to the media) :1
```

Date Created/Updated
Date and time when the alert was triggered.

Device Activity
Internal library functionality that is producing the message. For example, "AuditDaemon" indicates logging information from the library audit function.

Values come directly from the library and vary by library model, firmware level, and hardware configuration. The values may reflect significant library events or configuration changes, such as "reboot" or "setPartition." To troubleshoot library issues, it may be useful to sort or filter the All Messages – Overview screen by this attribute.

Device Address
Library internal address of the device associated with the SNMP trap.

For SL150 libraries, the format is m,s,w,c (for example, 1,Left,1,2), where:

- m =module number; 1–10, from top (base module) to bottom
- s =side; Left or Right
- w =row number; 1–3, from top to bottom
- c =column number; 1–5, from front to back

For SL500 libraries, the format is l,m,r,c (for example, 0,2,2,3), where:

- l =for nonpartitioned libraries, this is the library ID (always 0); for partitioned libraries, this is the partition ID (1–8).
- m =module number; 1–5, from top to bottom of the rack
- r =drive row number; 1–2 (Base Module) or 1–4 (Drive Expansion Module), from top to bottom of the module
- c =column number; always 9 for drives

For SL3000 and SL8500 libraries, the format is l,r,c,s,w (for example, 1,1,2,2,3), where:

- l =library number. For nonpartitioned libraries, this is the library ID; for partitioned libraries, this is the partition ID (1–8).
- r =rail number. For SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.
- c =column number.
- s =side number.
- w =row number.

Device ID
FRU ID of the device associated with the event.

Device Serial Number
Serial number or other unique identifier of the device associated with the event.

Device State
State of the device at the time the trap was sent. Varies by device type, as in the following examples:

- Drives – EMPTY, LOADED, NEEDS_CLEANING
- CAPs – OPEN, CLOSE, UNKNOWN
- Pass-thru ports (PTPs) – OK, ERROR, WARNING, INFO, TRACE

Device Time
Date and time of the event, in UTC standard format.

Dismounts
Total dismounts for all drives.

> **Note:** This field links to the Exchanges Overview screen, which lists exchanges for this library. See "Exchanges Overview Screen" on page 12-1.

Dismounts With Errors

Total dismounts for this drive or media in which an error occurred during the exchange. The error could be due to issues with the drive, the media, or both.

> **Note:** This field links to the Exchanges Overview screen, which lists the exchanges with errors. See "Exchanges Overview Screen" on page 12-1.

Drive

Electronic serial number of the drive. *NO-SERIAL* indicates it is not known.

> **Note:** This field links to the Drives – Overview screen, detail view, which displays all available details for this drive. See "Drives Overview and Analysis Screens".

Drive Alert Count

Total alerts generated for this drive, based on defined STA alert policies

> **Note:** This field links to the Alerts Overview screen, list view, which lists alerts for this drive. See "Alerts Screens" on page 11-1.

Drive Bays Installed

Total drive slots installed but not necessarily activated for use. Calculated as:

```
Drive Slots Occupied + Drives Slots Unoccupied.
```

Drive Bays Occupied

Total drive slots with drives installed.

> **Note:** This field links to the Drives – Overview screen, list view, which lists all drives for this complex. See "Drives Overview and Analysis Screens" on page 5-1.

Drive Bays Unoccupied

Total drive slots with no drives installed.

Drive Cleans

Total successful drive cleans performed. This count does not include cleaning exchanges in which the mount failed or the cleaning media was expired.

> **Note:** This field links to the Drives – Cleaning Activities screen, list view, which lists cleaning exchanges for this library. The Cleaning Activities screen reports both successful and unsuccessful cleaning exchanges. See "Drive Cleanings Overview Screen" on page 13-1.

Drive Dismounts

Total times media have been unloaded from this drive.

> **Note:** This field links to the Exchanges Overview screen, list view, which lists this drive's exchanges. See "Exchanges Overview Screen" on page 12-1.

Drive Exchange Status

Status of the drive upon completion of the exchange, as derived from a variety of factors, including drive errors, write efficiency, and read margin. Possible values:

- CART_MEM_FAILURE – An error has occurred with the cartridge memory; this results in reduced performance.

- CLEAN_REQ – The drive is due for cleaning.

- DRIVE_ERROR – The drive has experienced a hardware or microcode error.

- ENCRYPT_ERROR – An error has occurred with the encryption key management system. This is neither a drive nor media problem, so there is no effect on the suspicion of the drive or media.

  Possible causes for this status include the following: compromised network connectivity to the encryption key server; the encryption key server is down; the drive key enrollment has expired and the drive must be re-enrolled; either the drive or the media is not encryption-capable. It may be possible for the drive to read unencrypted media until the encryption issue is resolved.

- EXPIRED_CLEAN_TAPE – The cleaning media has expired.

- FAILED_MOUNT

- FATAL_ERROR – The media cannot be mounted or is stuck. Possible reasons include a problem with the drive hardware or the media cartridge.

- FW_DOWN_LEVEL – The drive firmware is downlevel.

- GOOD – The exchange completed with no issues.

- INCOMPLETE_UNLOAD – The application requested that the media be unloaded. The drive has detected data still in its buffer and has asked for confirmation from the application.

- INVALID_OPERATION – The host has requested a an invalid operation, such as any of the following: mounting media in an incompatible drive; reading from media that is blank; writing on media that is write-protected; attempting to locate a position beyond the beginning or end of the tape.

- LOAD_ERROR – An issue with the media prevented it from being loaded. Possible causes include: a problem with the drive hardware or microcode; a problem with the cartridge leader.

- LTO_NON_ADI_MODE –ADI mode has not been enabled on either the library, the drive, or both.

- MEDIA_ERROR – The media cannot be read or written. Possible causes include a problem with the tape medium or the MIR.

- NON_DRV_ERROR – This is neither a drive nor media problem, so there is no effect on the suspicion of the drive or media. For additional information, check the following: for Enterprise drives, check the exchange fault symptom code (FSC); for LTO drives, check recent tape alerts.

Possible causes for this status are as follows:

* A Media Write Protect Tape Alert must be set. The host application is attempting to write to media that has been write protected.

* FSC has been set to 3627, 3629, 362A, or 362B. These FSC codes are set during a "normal operation," which checks that a piece of media is truly blank before labeling it. The host application will perform the following sequence: 1) mount new tape; 2) attempt to check for no label; 3) label the new tape.

- OTHER_DRV_ERROR

- OTHER_ERROR

- PERM_ERROR – A permanent error occurred on the exchange. This may be the result of a media format error, possibly from a previous exchange.

- READ_ERROR – The media could not be read. Possible causes include: a problem with the drive hardware or microcode; a problem with the media MIR; the media may have been corrupted during a previous mount; the drive and media may be incompatible

- UNKNOWN – STA has not received enough exchange data from the library to calculate drive health. It may be that the drive is not supported (LTO 2, for example) or the library firmware is downlevel.

- UNLOAD_ERROR – An error occurred during the unload operation. Possible causes include: a problem writing to the media RFID or MIR; the drive and media may be incompatible.

- WRITE_ERROR – An error occurred during the write operation. Possible causes include: a problem with the drive hardware or microcode; the media may have been corrupted during a previous exchange; the drive and media may be incompatible.

Drive Firmware Version
Drive firmware and host interface level. See the *STA Requirements Guide* for details on whether this firmware version supports rich data for STA.

Drive Health
Drive health as computed by STA analytics. This is a point-in-time value based on data gathered from the drive during current and past exchanges. It reflects a variety of factors, such as the drive's error history, read margin, and write efficiency.

This value includes all data up to and including the last completed exchange. It is updated immediately after each completed exchange involving the drive.

Possible values, in order of degrading health:

- USE – The drive has had no failures or degradation in the last ten exchanges

- MONITOR – The drive has had multiple errors; there is a less than 80 percent chance that it needs service.

- EVALUATE – The drive has had multiple errors; there is a greater than 80 percent chance that it needs service.

- ACTION – The drive has had an error that requires attention. The drive may require service. You should investigate and determine a proper course of action.

- UNKNOWN – STA has not received enough data to compute health for the drive. This may be due to a variety of factors, including an unsupported drive model, downlevel drive firmware, or ADI mode not enabled for an LTO drive.

> **Note:** STA only receives information about errors detected by a drive while performing read/write activity to a media. STA does not receive information about errors that may occur in the data path or the host application.

> **Note:** Cleaning exchanges have a neutral impact on drive health.

> **Note:** This attribute is not to be confused with the drive status reported by the library; see "Last Drive Message" on page 2-24 for comparison.

Drive Health Trend
Trend of drive health between the last two exchanges, as computed by STA analytics. Options are: BETTER, UNCHANGED, WORSE.

Drive HLI Address
Host Library Interface (HLI) address of the location. Applies only to drives or media slots in HLI partitions or libraries. This address is assigned by the ACSLS or ELS host software.

> **Note:** Available only for SL8500 libraries with firmware FRS_7.80 or higher or SL3000 libraries with firmware FRS_4.0 or higher. For all others, the value is left blank.

For media slots, format is l,p,w,c, where:

- l =logical storage manager (LSM) number. Possible values are 0, 1, 2, or 3.
- p =panel number.
- r =row number.
- c =column number.

For drives, format is l,p,t, where:

- l =logical storage manager (LSM) number. Possible values are 0, 1, 2, or 3.
- p =panel number
- t =transport number

Drive Interface
Host interface type for the drive. Possible values:

- SAS – Serial Attached SCSI
- SCSI – Small Computer System Interface
- FIBRE – Fibre channel
- UNKNOWN – The library did not report the interface type.

Drive Library Name
User-assigned name for the library. Assigned in the Settings – SNMP Connections screen.

Drive Library Number
Unique ID assigned to the library.

Drive Library Serial Number
Library frame serial number.

> **Note:** This field links to the Libraries – Overview screen, detail view, which displays all available details for this library. See "Libraries Overview Screen" on page 4-1.

Drive Lifetime Cleans
Total cleans performed on the drive over its life.

> **Note:** The drive life may be longer than the time it has been monitored by STA.

Drive Lifetime Hours in Motion
Total hours the drive heads have been in motion over the life of the drive.

> **Note:** The drive life may be longer than the time it has been monitored by STA.

Drive Lifetime Loads
Total media loads for the drive over its life. Available for all drive types but LTO3.

> **Note:** The drive life may be longer than the amount of time it has been monitored by STA.

Drive Lifetime Meters
Total meters of tape that have passed through the drive heads over the drive's life. Available for all drive types but LTO3.

> **Note:** The drive life may be longer than the amount of time it has been monitored by STA.

Drive Lifetime Meters of Head Contact
Total meters of media passed through the drive heads over the life of the drive.

Drive Lifetime Meters Positioning
Total positioning meters of media passed at high speed through the drive heads over the life of the drive. Positioning meters occur during locate, rewind, and spacing operations.

Drive Lifetime Power Hours
Total hours the drive has been powered on over its life.

> **Note:** The drive life may be longer than the amount of time it has been monitored by STA.

Drive Manufacturer

Drive manufacturer.

For example, STK, IBM, QUANTUM, and so on.

Drive Model

Drive model short description. For example, T10000C, LTO4, and so on. UNKNOWN indicates a broken drive or a drive for which STA cannot determine the type.

> **Note:** Type is UNKNOWN for all DLT and SDLT drives, for which STA does not compute health.

Drive Physical Address

Library internal address for the drive.

For SL150 libraries, the format is m,p (for example, Module 1,Bottom Drive), where:

- m =module number; 1–10, from top (base module) to bottom

- p =position; Top Drive or Bottom Drive

For SL500 libraries, the format is l,m,r,c (for example, 0,2,2,3), where:

- l =for nonpartitioned libraries, this is the library ID (always 0); for partitioned libraries, this is the partition ID (1–8).

- m =module number; 1–5, from top to bottom of the rack

- r =drive row number; 1–2 (Base Module) or 1–4 (Drive Expansion Module), from top to bottom of the module

- c =column number; always 9 for drives

For SL3000 and SL8500 libraries, the format is l,r,c,s,w, where:

- l =library number. For nonpartitioned libraries, this is the library ID; for partitioned libraries, this is the partition ID (1–8).

- r =rail number. For SL3000 libraries, this is always "1". For SL8500 libraries, this is the rail number (1–4).

- c =column number.

- s =side number.

- w =row number.

Drive Properties Updated

Date and time when the drive properties were last updated. Initially set to the date and time when STA first recognized the drive, and updated whenever subsequent updates occur, such as updating the drive firmware.

Drive Rail Number

Rail number. For SL150, SL500, and SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

Drives used: Drives Overview, Exchanges Overview

Drive SCSI Element ID

SCSI element ID of the drive location. Applies only to drives in SCSI partitions or libraries. See the applicable library *User's Guide* for details on how SCSI IDs are assigned.

A value of "-1" indicates the drive is not in a SCSI slot. For example, it may be in a SL8500 library, an HLI partition in a SL3000 library, or a slot not allocated to a partition in a partitioned library.

Drive Serial Number
Electronic serial number of the drive. *NO-SERIAL* indicates it is not known.

> **Note:** This field links to the Drives – Overview screen, detail view, which displays all available details for this drive. See "Drives Overview and Analysis Screens" on page 5-1.

Drive SNMP Trap Count
Total drive messages received from the library over the last 30 days. A sudden increase in this number indicates a condition that should be investigated.

> **Note:** This field links to the Drives – Messages screen, list view, which lists SNMP traps for this drive. See "Messages Screens" on page 15-1.

Drive Start Tracking
Date and time when STA first began tracking this drive serial number.

Drive Stop Tracking
Date and time when STA stopped tracking this drive serial number. This is when STA determined the drive serial number no longer exists in any of the monitored libraries and updated the drive status from "missing" to "removed".

Drive Suspicion Level
Calculated suspicion level for the drive. Possible values: 0–100. Lower numbers are desirable. The higher the number, the higher the probability the drive needs attention.

Drive Tray Serial Number
Serial number of the drive tray, which must be entered manually by an Oracle support representative. Valid entries include alphanumeric characters only; no special characters are allowed. If the entry has not yet been entered, the value is "unknown."

This entry is referenced when a Service Request is submitted.

Drive Type
Drive type long description sent by the library. For example, T10000c-Enc, HpUltrium4, and so on. UNKNOWN indicates a broken drive or a drive for which STA cannot determine the type.

> **Note:** Type is UNKNOWN for all DLT and SDLT drives, for which STA does not compute health.

Drive Vendor
Drive manufacturer

Drive WWNN
World Wide Node Name for the drive slot.

Drive WWPN (Port A)
World Wide Port Name for drive port A. This is automatically generated by the library controller during library initialization.

Drive WWPN (Port B)
World Wide Port Name for drive port B. This is automatically generated by the library controller during library initialization.

Duplicate Detected
STA has detected that the volume serial number (VSN or volser) of the media used in the exchange is a duplicate. This alert appears only on the exchange in which the duplicate is detected.

Duplicate volsers occur when two pieces of media with the same media type have the same volser and two different manufacturer serial numbers. If this alert appears multiple times for the same volser, it is likely there is more than one physical media with the same media type and volser label in the tape environment. If it only appears once for the volser, it may be that the volser label from a retired media has been re-used on a new media.

E

Elevator
Serial number of the elevator

Elevator Alert Count
Total alerts generated for this elevator, based on defined STA alert policies

> **Note:** This field links to the Alerts Overview screen, list view, which lists alerts for this elevator. See "Alerts Screens" on page 11-1.

Elevator Count
Total elevators. Applies to SL8500 libraries only.

Elevator Identifier
Unique identifier for the elevator

Elevator Physical Address
Library internal address.

For SL150 libraries, the format is m,s,w,c (for example, 1,Left,1,2), where:

- m =module number; 1–10, from top (base module) to bottom

- s =side; Left or Right

- w =row number; 1–3, from top to bottom

- c =column number; 1–5, from front to back

For SL500 libraries, the format is l,m,r,c (for example, 0,2,2,3), where:

- l =for nonpartitioned libraries, this is the library ID (always 0); for partitioned libraries, this is the partition ID (1–8).

- m =module number; 1–5, from top to bottom of the rack

- r =drive row number; 1–2 (Base Module) or 1–4 (Drive Expansion Module), from top to bottom of the module

E

- `c` =column number; always 9 for drives

For SL3000 and SL8500 libraries, the format is l,r,c,s,w (for example, 1,1,2,2,3), where:

- `l` =library number. For nonpartitioned libraries, this is the library ID; for partitioned libraries, this is the partition ID (1–8).

- `r` =rail number. For SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

- `c` =column number.

- `s` =side number.

- `w` =row number.

Elevator Power LED State
Current state of the elevator power LED. Normal condition is ON. Options are: ON, OFF, or UNKNOWN.

Elevator SNMP Traps
Total elevator messages received from the library. A sudden increase in this number indicates a condition that should be investigated.

Elevator State
Current elevator state, as reported by the library. Examples are: READY. STA updates this value hourly and as SNMP traps for the elevator are received from the library.

Encryption Capable
Indicates whether the drive is capable of supporting encryption, but does not necessarily indicate that encryption has been enabled. Possible values are Yes or No.

> **Note:** Additional hardware or software components may be necessary to actually enable encryption on the drive. For example HP LTO-4 drives require a Deoni card and IBM LTO-4 drives require a Belisarius card.

Exchange Drive Cleaning Required
Indicates whether the drive needed cleaning at the time of the exchange. Possible values: Yes or No.

> **Note:** Additional detail may be available through the Clean Periodic Alert and Clean Now Alert attributes.

Exchange DSC
Data status code for the exchange. Available only for drives whose firmware supports TTI 5.40.

Exchange Elapsed Time
Total time the media is involved in the exchange, including transit time immediately before and after the mount. Starts at the beginning of the move to retrieve the media from a media slot and ends when the media is placed in the first available location after removal from the drive. For SL8500 libraries, the first available location after removal from the drive could be an elevator, but for all other libraries, it is always a media slot. Displayed in hh:mm:ss format.

Exchange Encryption Used
Encryption method used by the drive for the exchange. Available for StorageTek enterprise drives only. Possible values:

- Encrypted_ANSI_10 – ANSI encryption.

- Encrypted Sun KMS – Oracle Key Manager (OKM) encryption.

- Not Encrypted – Not encrypted.

- Unknown – The drive did not report encryption information.

- Blank (no value displayed) – STA did not receive any encryption information; the value is always blank for ADI/LTO exchanges.

Exchange End
Date and time when the exchange completed

Exchange FSC
Four-byte hexadecimal fault symptom code (FSC). For example, FD55, S053, and so on. Reported only if an error occurred during the exchange.

Exchange Library Name
User-assigned name for the library where the most recent exchange occurred. If the media has been ejected, you can use this value to determine the library from which the media was ejected. Enables reporting of library information if the media has been ejected.

Exchange Mount Time
Total time the media is mounted in the drive. Includes the total time between the start of the mount and the start of the dismount. Does not include transit time before and after the mount. Displayed in hh:mm:ss format.

If this attribute is blank, then it is likely that STA did not receive all the exchange data from the library.

Exchange Read Margin
Amount of error correction code (ECC) read margin remaining on the media, as reported by the drive during the last mount. Reported as a percentage. A high value is desirable. Available only for StorageTek T10000C and T10000D drives.

If STA determines that this value has gone below a threshold for this drive type, the Exchange Read Marginal attribute is set to True.

The Exchange Read Margin graph on the Drives – Overview and Media – Overview screens shows a system average over time for all drives. Because not all drive types report read margin, the system average may vary significantly over time, depending on which drives had exchange activity during the reported period. If there are no exchanges for T10000C and T10000D drives on a given date, the value is set to zero for that day.

Exchange Read Marginal
Indicates whether the drive met the read margin standard for the drive type. Possible values: True or False. Available only for StorageTek T10000C and T10000D drives.

Exchange Recording Technique
Recording format used by the drive during the exchange or media validation. For Exchanges Overview, options include: T10000D, LTO5, and 9840B.

For Media Validation Overview, options are: T10000A, T10000B, T10000C, and T10000D only. T10000A and T10000B drives can write to T10000T1 media; T10000C and T10000D drives can write to T10000T2 media.

Exchange Start
Date and time when the drive was reserved for the exchange, cleaning activity, or media validation activity.

> **Note:** This field links to the Exchanges Overview screen, detail view, which displays all available detail for this exchange. See "Exchanges Overview Screen" on page 12-1.

Exchange Tape Alerts – Info
Number of Informational tape alerts received in the exchange.

Exchange Tape Alerts – Severe
Number of Severe tape alerts received in the exchange.

Exchange Tape Alerts – Warning
Number of Warning tape alerts received in the exchange.

Exchange Write Efficiency
Write efficiency for the exchange, based on capacity over distance. Reported as a percentage. A high value is desirable. Available only for StorageTek T10000C and T10000D drives.

If STA determines that this value has gone below a threshold for this drive type, the Exchange Write Inefficient attribute is set to True.

The Exchange Write Efficiency graph on the Drives – Overview and Media – Overview screens shows a system average over time for all drives. Because not all drive types report write efficiency, the system average may vary significantly over time, depending on which drives had exchange activity during the reported period. If there are no exchanges for T10000C and T10000D drives on a given date, the value is set to zero for that day.

Exchange Write Inefficient
Indicates whether the drive failed to meet the write efficiency standard for the drive type. Possible values: True or False. Available only for StorageTek T10000C and T10000D drives.

F

Formatted Density Code
Supported density for the drive, as reported by the SCSI Report Density Support command.

H

Host DB Sync Errors
Total host database synchronization errors.

Host Request Timeouts
Total host requests that ended in timeouts.

HP Device Status
Four-byte hexadecimal code indicating the status of the drive. Available for HP drives only.

HP Media Status
Four-byte hexadecimal code indicating the status of the media. Available for HP media only.

I

IBM Drive Efficiency
Three-byte hexadecimal code indicating the drive's efficiency over its life. Possible values are 01h (best) to FFh (worst); 00h indicates the efficiency is unknown. Available for IBM LTO4 and above drives only.

IBM Media Efficiency
Three-byte hexadecimal code indicating the media's efficiency over its life. Possible values are 01h (best) to FFh (worst); 00h indicates the efficiency is unknown. Available for IBM LTO4 and above drives only.

Interface Name
Interface type of the device associated with the event.

L

Last CAP Message
Current condition of the CAP as reported directly by the library. Options are: DEGRADED, NORMAL, NOTOPERATIVE, UNKNOWN.

Last Drive Message
Current condition of the drive as reported directly by the library. Updated whenever messages for the drive are received by STA from the library. Possible values:

- DEGRADED – The drive has experienced an error.

- NORMAL – The drive is functioning normally.

- NOTOPERATIVE – The library has lost communication with the drive, or the drive has experienced an error or mechanical failure.

- UNKNOWN – STA has not received any messages for the drive. This is the default value until the first message is received for the drive.

> **Note:** This attribute is not to be confused with the drive health calculated by STA; see "Drive Health" on page 2-15 for comparison.

Last Elevator Message
Current condition of the elevator as reported directly by the library. Options are: DEGRADED, NORMAL, NOTOPERATIVE, UNKNOWN.

Last Exchange Start
Date and time when the drive was reserved for the most recent exchange.

> **Note:** This field links to the Exchanges Overview screen, detail view, which displays all available details for this exchange. See "Exchanges Overview Screen" on page 12-1.

Last Library Message
Current condition of the library as reported directly by the library. Updated whenever messages for the library top-level state are received by STA from the library. Possible values:

- DEGRADED –The library has experienced an error.

- NORMAL – The library is functioning normally.

- NOTOPERATIVE – The library is not operating.

- Null (no value displayed) – STA has not received any messages from the library. This is the default value until the first message is received for the library.

Last PTP Message
Current condition of the pass-through port (PTP) as reported directly by the library. Applies to SL8500 libraries only. Options are: DEGRADED, NORMAL, NOTOPERATIVE, UNKNOWN.

Last Robot Message
Current health of the robot as reported by the library. Options are: DEGRADED, NORMAL, NOTOPERATIVE, UNKNOWN.

> **Note:** This attribute is not to be confused with the robot health computed by STA; see "Robot Health" on page 2-48 for comparison.

> **Note:** This attribute is updated only on completion of a library data collection. Regular data collections are done automatically, or you may initiate a manual data collection at any time. See the *STA User's Guide* for details.

Library
Library frame serial number.

> **Note:** This field links to the Libraries – Overview screen, detail view, which displays all available details for this library. See "Libraries Overview Screen" on page 4-1.

Library Alert Count
Total alerts generated for this library, based on defined STA alert policies

> **Note:** This field links to the Alerts Overview screen, list view, which lists alerts for this library. See "Alerts Screens" on page 11-1.

Library Complex
Name assigned to the complex by STA.

- For SL150, SL500, and SL3000 libraries, this value is formatted as library_model_ library_serial_number. Examples: SL150_262960B+1234BA0018, SL500_522000001839, SL3000_571000020075

- For SL8500 libraries, this value is formatted as library_model_complex_ID. Examples: SL8500_1, SL8500_4

This field links to the Libraries – Complexes Overview screen, detail view, which displays all available details about this complex. See "Library Complexes Screen".

Library Complex Alert Count
Total alerts generated for this library complex, based on defined STA alert policies

> **Note:** This field links to the Alerts Overview screen, list view, which lists alerts for this complex. See "Alerts Screens" on page 11-1.

Library Complex Name
Name assigned to the complex by STA.

- For SL150, SL500, and SL3000 libraries, this value is formatted as *library_model_ library_serial_number.* Examples: SL150_262960B+1234BA0018, SL500_522000001839, SL3000_571000020075

  For these library models, because the attribute value includes the library serial number and there can be only one library per complex, the Library Complex Name for each library is always unique and does not change.

- For SL8500 libraries, this value is formatted as *library_model_complex_ID.* Examples: SL8500_1, SL8500_4

  For SL8500 libraries, the attribute value is unique for each complex, but because a complex can include multiple libraries, multiple libraries can share the same Library Complex Name. The value assigned to a library changes if the library is moved from one complex to another.

> **Note:** This field links to the Libraries – Complexes Overview screen, detail view, which displays all available details about this complex. See "Complexes Overview Screen" on page 3-1.

Library Complex Number
Library complex ID, as configured on the library. For SL150, SL500, and SL3000 libraries, the value is always "1". For SL8500 libraries, the value is set by your Oracle support representative and must be unique for each complex.

Library Firmware Updated
Date and time of last library firmware update.

Library Firmware Version
Current library firmware version.

Library IP address #1
IP address of the public port on the library. The attribute value is specified by the user or administrator when the library connection is configured. For SL150 libraries, it is the Network Port 1 port; for SL500 libraries, it is the 1B port; for SL3000 and SL8500 libraries, it is the 2B port.

> **Note:** For SL3000 and SL8500 libraries using the Redundant Electronics feature, this should be the 2B port on the active controller card.

Library IP address #2

The attribute value is specified by the user or administrator when the library connection is configured. For and SL150 and SL500 libraries, this attribute is always blank.

For SL3000 and SL8500 libraries, this entry enables STA to maintain uninterrupted SNMP communications with the library if either a Redundant Electronics switch or a Dual TCP/IP failover occurs, and it may be any of the following:

- For libraries with the Redundant Electronics feature, it is the IP address of the 2B port on the alternate (standby) controller card.

- For libraries with the Dual TCP/IP feature, it is the IP address of the 2A port on the active controller card.

- For libraries with both features, it may be either of the above, depending on what the user or administrator has specified. See the *STA Installation and Configuration Guide* for detailed instructions on configuring the libraries for STA.

- For libraries with neither of these features, this attribute is blank.

Library Last Booted

Date and time the library was last rebooted. Provided only for SL150 and SL500 libraries.

Library Model

Library model number. Possible values: SL150, SL500, SL3000, or SL8500.

Library Name

User-assigned name for the library. Assigned in the Settings – SNMP Connections screen.

Library Number

Unique ID assigned to the library.

Library Scan Completed

Date and time when the most recent successful library configuration data collection was completed.

Library Serial Number

Library frame serial number.

> **Note:** This field links to the Libraries – Overview screen, detail view, which displays all available details for this library. See ""Libraries Overview Screen" on page 4-1".

Library SNMP Traps

Total SNMP traps received by STA from the library. Includes traps for any of the following: library, drive, CAP or mailslot, and pass-thru port (PTP) status, library environment checks, library logs, library connection tests, and library configuration data collections.

> **Note:** This field links to the Libraries – Messages screen, list view, which lists SNMP traps for this library. See "Messages Screens" on page 15-1.

Library WWNN
Library World Wide Node Name.

Lifetime Hours Incompatible
Total head-motion hours during which incompatible media was loaded over the life of the drive.

Logical Group(s)
Logical groups to which the drive or media is assigned

M

MB R/W
For Complexes Overview and Libraries Overview: Total megabytes read and written by all drives in the library or complex.

For Drives Overview: Total megabytes read and written by the drive.

For Media Overview: Total megabytes read from and written to the media

MB Read
For Complexes Overview and Libraries Overview: Total megabytes read by all drives in the library or complex.

For Drives Overview: Total megabytes read by the drive.

For Media Overview: Total megabytes read from the media

MB Received
For Complexes Overview and Libraries Overview: Total megabytes uncompressed data received from hosts by all drives in the library or complex.

For Drives Overview: Total megabytes received by the drive from hosts during write operations. This could be compressed or uncompressed megabytes, depending on the host application.

For Media Overview: Total megabytes written to the media from hosts. The data could be compressed or uncompressed megabytes, depending on the host application.

MB Sent
For Complexes Overview or Libraries Overview: Total megabytes uncompressed data sent to hosts by all drives in the library or complex.

For Drives Overview: Total megabytes sent by the drive to hosts during read operations. This could be compressed or uncompressed megabytes, depending on whether compression has been enabled on the drive.

For Media Overview: Total megabytes sent from the media to hosts. This could be compressed or uncompressed megabytes, depending on whether compression has been enabled on the drive.

MB Write
For Complexes Overview or Libraries Overview: Total megabytes written by all drives in the library or complex.

For Drives Overview: Total megabytes written by the drive.

For Media Overview: Total megabytes written to the media

Media
Volume serial number (VSN or volser) assigned to the media by its external label. If the library does not supply the volser, STA provides one composed of Library Serial Number:Physical Address.

> **Note:** This field links to the Media – Overview screen, detail view, which displays all available detail for this media. See "Media Overview and Analysis Screens" on page 6-1.

Media Alert Count
Total alerts generated for this media, based on defined STA alert policies

> **Note:** This field links to the Alerts Overview screen, list view, which lists alerts for this media. See "Alerts Screens" on page 11-1.

Media Auxiliary Memory Capacity
Media's total auxiliary memory at the time of manufacture, in bytes

Media Blank
Indicates the media has never had data written to it.

Media Capacity Utilization
Percentage of the total media capacity that has been used by data. Calculated as:

```
Media MB Avail Pre / Media MB Capacity
```

Media Destination HLI Address
Host Library Interface (HLI) address of the location. Applies only to drives or media slots in HLI partitions or libraries. This address is assigned by the ACSLS or ELS host software.

> **Note:** Available only for SL8500 libraries with firmware FRS_7.80 or higher or SL3000 libraries with firmware FRS_4.0 or higher. For all others, the value is left blank.

For media slots, format is l,p,w,c, where:

- l =logical storage manager (LSM) number. Possible values are 0, 1, 2, or 3.
- p =panel number.
- r =row number.
- c =column number.

For drives, format is l,p,t, where:

- l =logical storage manager (LSM) number. Possible values are 0, 1, 2, or 3.
- p =panel number
- t =transport number

Media Destination Library Number
Unique ID assigned to the library.

Media Destination Physical Address
Library internal address.

For SL150 libraries, the format is m,s,w,c (for example, 1,Left,1,2), where:

- m =module number; 1–10, from top (base module) to bottom

- s =side; Left or Right

- w =row number; 1–3, from top to bottom

- c =column number; 1–5, from front to back

For SL500 libraries, the format is l,m,r,c (for example, 0,2,2,3), where:

- l =for nonpartitioned libraries, this is the library ID (always 0); for partitioned libraries, this is the partition ID (1–8).

- m =module number; 1–5, from top to bottom of the rack

- r =drive row number; 1–2 (Base Module) or 1–4 (Drive Expansion Module), from top to bottom of the module

- c =column number; always 9 for drives

For SL3000 and SL8500 libraries, the format is l,r,c,s,w (for example, 1,1,2,2,3), where:

- l =library number. For nonpartitioned libraries, this is the library ID; for partitioned libraries, this is the partition ID (1–8).

- r =rail number. For SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

- c =column number.

- s =side number.

- w =row number.

Media Destination Rail Number
Rail number. For SL150, SL500, and SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

Media Destination SCSI Element ID
SCSI element ID of the destination location. Applies only to drives and media slots in SCSI partitions or libraries. See the applicable library *User's Guide* for details on how SCSI IDs are assigned.

A value of "-1" indicates the location is not a SCSI slot. For example, it may be in a SL8500 library, an HLI partition in a SL3000 library, or a slot not allocated to a partition in a partitioned library.

Media Dismounts
Total dismounts for this media

Note: This field links to the Exchanges Overview screen, which lists this media's exchanges. See "Exchanges Overview Screen" on page 12-1.

Media Ejected from Library
Date and time when the media was last ejected from the library through a CAP

Media Entered Library
Date and time when the media was last entered into the library through a CAP

Media EOL Percentage
Percentage of the media's expected useful life that has elapsed

Media Exchange Status
Status of the media upon completion of the exchange, as derived from a variety of factors, including media errors, write efficiency, and read margin. Possible values:

- CART_MEM_FAILURE – An error has occurred with the cartridge memory; this results in reduced performance.

- CLEAN_REQ – The drive is due for cleaning.

- DRIVE_ERROR – The drive has experienced a hardware or microcode error.

- ENCRYPT_ERROR – An error has occurred with the encryption key management system. This is neither a drive nor media problem, so there is no effect on the suspicion of the drive or media.

   Possible causes for this status include the following: compromised network connectivity to the encryption key server; the encryption key server is down; the drive key enrollment has expired and the drive must be re-enrolled; either the drive or the media is not encryption-capable. It may be possible for the drive to read unencrypted media until the encryption issue is resolved.

- EXPIRED_CLEAN_TAPE – The cleaning media has expired.

- FAILED_MOUNT

- FATAL_ERROR – The media cannot be mounted or is stuck. Possible reasons include a problem with the drive hardware or the media cartridge.

- FW_DOWN_LEVEL – The drive firmware is downlevel.

- GOOD – The exchange completed with no issues.

- INCOMPLETE_UNLOAD – The application requested that the media be unloaded. The drive has detected data still in its buffer and has asked for confirmation from the application.

- INVALID_OPERATION – The host has requested a an invalid operation, such as any of the following: mounting media in an incompatible drive; reading from media that is blank; writing on media that is write-protected; attempting to locate a position beyond the beginning or end of the tape.

- LOAD_ERROR – An issue with the media prevented it from being loaded. Possible causes include: a problem with the drive hardware or microcode; a problem with the cartridge leader.

- LTO_NON_ADI_MODE –ADI mode has not been enabled on either the library, the drive, or both.

- MEDIA_ERROR – The media cannot be read or written. Possible causes include a problem with the tape medium or the MIR.

- NON_DRV_ERROR – This is neither a drive nor media problem, so there is no effect on the suspicion of the drive or media. For additional information, check the following: for Enterprise drives, check the exchange fault symptom code (FSC); for LTO drives, check recent tape alerts.

Possible causes for this status are as follows:

* A Media Write Protect Tape Alert must be set. The host application is attempting to write to media that has been write protected.

* FSC has been set to 3627, 3629, 362A, or 362B. These FSC codes are set during a "normal operation," which checks that a piece of media is truly blank before labeling it. The host application will perform the following sequence: 1) mount new tape; 2) attempt to check for no label; 3) label the new tape.

- OTHER_DRV_ERROR

- OTHER_ERROR

- PERM_ERROR – A permanent error occurred on the exchange. This may be the result of a media format error, possibly from a previous exchange.

- READ_ERROR – The media could not be read. Possible causes include: a problem with the drive hardware or microcode; a problem with the media MIR; the media may have been corrupted during a previous mount; the drive and media may be incompatible

- UNKNOWN – STA has not received enough exchange data from the library to calculate drive health. It may be that the drive is not supported (LTO 2, for example) or the library firmware is downlevel.

- UNLOAD_ERROR – An error occurred during the unload operation. Possible causes include: a problem writing to the media RFID or MIR; the drive and media may be incompatible.

- WRITE_ERROR – An error occurred during the write operation. Possible causes include: a problem with the drive hardware or microcode; the media may have been corrupted during a previous exchange; the drive and media may be incompatible.

Media Health

Media health as computed by STA analytics. This value reflects a variety of factors, such as the media's error history, read margin, and write efficiency. It includes all data up to and including the last completed exchange and is updated immediately upon completion of the exchange.

Possible values, in order of degrading health:

- USE – The media has had no failures or degradation in the last ten exchanges.

- MONITOR – The media has had multiple errors; there is a less than 80 percent chance that it needs service.

- EVALUATE – The media has had multiple errors; there is a greater than 80 percent chance that it needs service.

- ACTION – The media has had an error that requires service.

- UNKNOWN – STA has not received enough data to compute health for the media. This may be due to a variety of factors, including exchanges on unsupported drive models, drives with downlevel firmware, or LTO drives with ADI mode not enabled.

> **Note:** STA only receives information about errors detected by a drive while performing read/write activity to the media. STA does not receive information about errors that may occur in the data path or host applications.

Media Health Trend
Trend of media health between the last two exchanges, as computed by STA analytics.
Options are: BETTER, UNCHANGED, WORSE.

Media HLI Address
Host Library Interface (HLI) address of the location. Applies only to drives or media
slots in HLI partitions or libraries. This address is assigned by the ACSLS or ELS host
software.

> **Note:** Available only for SL8500 libraries with firmware FRS_7.80 or
> higher or SL3000 libraries with firmware FRS_4.0 or higher. For all
> others, the value is left blank.

For media slots, format is l,p,w,c, where:

- l =logical storage manager (LSM) number. Possible values are 0, 1, 2, or 3.
- p =panel number.
- r =row number.
- c =column number.

For drives, format is l,p,t, where:

- l =logical storage manager (LSM) number. Possible values are 0, 1, 2, or 3.
- p =panel number
- t =transport number

Media Length in Meters
Length of the media, in meters

Media Library Name
User-assigned name for the library. Assigned in the Settings – SNMP Connections
screen.

Media Library Number
Unique ID assigned to the library.

Media Library Serial Number
Library frame serial number

> **Note:** This field links to the Libraries – Overview screen, detail view,
> which displays all available details for this library. See "Libraries
> Overview Screen" on page 4-1.

Media Life Indicator
Indicates whether the media has reached the end of its expected useful life. Possible
values: EOL, GOOD, UNKNOWN.

Media Long Type
Detailed media type as reported by the library. Examples include LtoGen5_1500GB,
LtoGen6_2.5TB, T10000, T10000T2_Sport, and T10kUniv_Cleaning. UNKNOWN
indicates media with a missing or unreadable external volume serial number (VSN or
volser) label.

Media Manufacturer Date

Date when the media was manufactured, in yyyymmdd format.

> **Note:** This date is converted from UTC time to the time zone specified in the user's Preferences settings.

Media Manufacturer Serial Number

Media serial number assigned by the manufacturer.

> **Note:** STA does not have this information until the media has been mounted in a drive.

Media MB Avail Post

Unused media capacity, in megabytes; this value is provided after the exchange completes. Available for StorageTek enterprise drives only.

> **Note:** Reported value varies by drive vendor and other factors.

Media MB Avail Pre

Unused media capacity, in megabytes; this value is provided before the beginning of the exchange. Available for LTO drives only.

> **Note:** Reported value varies by drive vendor and other factors.

Media MB Capacity

Maximum media capacity, in megabytes.

> **Note:** Reported value varies by drive vendor and other factors.

Media Physical Address

Library internal address.

For SL150 libraries, the format is m,s,w,c (for example, 1,Left,1,2), where:

- m =module number; 1–10, from top (base module) to bottom

- s =side; Left or Right

- w =row number; 1–3, from top to bottom

- c =column number; 1–5, from front to back

For SL500 libraries, the format is l,m,r,c (for example, 0,2,2,3), where:

- l =for nonpartitioned libraries, this is the library ID (always 0); for partitioned libraries, this is the partition ID (1–8).

- m =module number; 1–5, from top to bottom of the rack

- r =drive row number; 1–2 (Base Module) or 1–4 (Drive Expansion Module), from top to bottom of the module

- c =column number; always 9 for drives

For SL3000 and SL8500 libraries, the format is l,r,c,s,w (for example, 1,1,2,2,3), where:

- l =library number. For nonpartitioned libraries, this is the library ID; for partitioned libraries, this is the partition ID (1–8).

- r =rail number. For SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

- c =column number.

- s =side number.

- w =row number.

Media Rail Number

Rail number. For SL150, SL500, and SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

Media Slot SCSI Element ID

SCSI element ID of the slot where the media is located. Applies only to media slots in SCSI partitions or libraries. See the applicable library *User's Guide* for details on how SCSI IDs are assigned.

A value of "-1" indicates the media is not in a SCSI slot. For example, it may be in a SL8500 library, an HLI partition in a SL3000 library, or a slot not allocated to a partition in a partitioned library.

Media Slots Activated

Total media slots activated through hardware activation.

Media Slots Installed

Total media slots installed but not necessarily activated for use.

Media Slots Occupied

Total occupied media slots. This count includes both activated storage slots and system slots.

Although system slots are not intended for long-term storage of data media, they may temporarily contain data media in certain situations. Following are examples of situations in which media monitored by STA may reside in system slots. See your library *User's Guide* for complete details on the use of system slots.

- Data media may be moved to system slots during a library diagnostic self-test.

- Data media in transit at the time of a Redundant Electronics failover may be moved to system slots.

- Cleaning media may be stored in system slots if a library is using automatic cleaning,

> **Note:** This attribute is updated only on completion of a library data collection. For example, if you enter media through a CAP, you may need to perform a manual data collection or wait for a scheduled collection to complete before this attribute reflects the new media count. See the *STA User's Guide* for details.

> **Note:** This field links to the Media – Overview screen, list view, which lists all media for this library. See "Media Overview and Analysis Screens" on page 6-1.

Media Slots Unoccupied
Total media slots with no media. This count includes both activated storage slots and system slots.

Media Source HLI Address
Host Library Interface (HLI) address of the location. Applies only to drives or media slots in HLI partitions or libraries. This address is assigned by the ACSLS or ELS host software.

> **Note:** Available only for SL8500 libraries with firmware FRS_7.80 or higher or SL3000 libraries with firmware FRS_4.0 or higher. For all others, the value is left blank.

For media slots, format is l,p,w,c, where:

- l =logical storage manager (LSM) number. Possible values are 0, 1, 2, or 3.
- p =panel number.
- r =row number.
- c =column number.

For drives, format is l,p,t, where:

- l =logical storage manager (LSM) number. Possible values are 0, 1, 2, or 3.
- p =panel number
- t =transport number

Media Source Library Number
Unique ID assigned to the library.

Media Source Physical Address
Library internal address.

For SL150 libraries, the format is m,s,w,c (for example, 1,Left,1,2), where:

- m =module number; 1–10, from top (base module) to bottom
- s =side; Left or Right
- w =row number; 1–3, from top to bottom
- c =column number; 1–5, from front to back

For SL500 libraries, the format is l,m,r,c (for example, 0,2,2,3), where:

- l =for nonpartitioned libraries, this is the library ID (always 0); for partitioned libraries, this is the partition ID (1–8).
- m =module number; 1–5, from top to bottom of the rack
- r =drive row number; 1–2 (Base Module) or 1–4 (Drive Expansion Module), from top to bottom of the module
- c =column number; always 9 for drives

For SL3000 and SL8500 libraries, the format is l,r,c,s,w (for example, 1,1,2,2,3), where:

- l =library number. For nonpartitioned libraries, this is the library ID; for partitioned libraries, this is the partition ID (1–8).

- r =rail number. For SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

- c =column number.

- s =side number.

- w =row number.

Media Source Rail Number
Rail number. For SL150, SL500, and SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

Media Source SCSI Element ID
SCSI element ID of the source location. Applies only to drives and media slots in SCSI partitions or libraries. See the applicable library *User's Guide* for details on how SCSI IDs are assigned.

A value of "-1" indicates the location is not a SCSI slot. For example, it may be in a SL8500 library, an HLI partition in a SL3000 library, or a slot not allocated to a partition in a partitioned library.

Media Start Tracking
Date and time when STA first began tracking this volume serial number (VSN or volser). If the volser is used on more than one media, this field reflects the earliest start date available.

Media Stop Tracking
Date and time when STA stopped tracking this volume serial number (VSN or volser). This is when STA determined the volser no longer exists in any of the monitored libraries and updated the volser status from "missing" to "removed".

Media Suspicion Level
Calculated suspicion level for the media. Possible values: 0–100. Lower numbers are desirable. The higher the number, the higher the probability the media needs attention.

The Media Suspicion Level graph on the Media – Overview screen shows the daily system average media suspicion level, which is calculated daily at midnight, STA server time.

Media Type
Media type short description. Examples include LTO4, LTO_CLNU, T10000T1, and T10000T2_CLN. UNKNOWN indicates media with a missing or unreadable external volume serial number (VSN or volser) label.

> **Note:** Type is UNKNOWN for all DLT and SDLT media, for which STA does not compute health.

Media Write Efficiency
Write efficiency for all the data on the media, based on capacity over distance. Expressed as a percentage. Computed by comparing how many blocks it took to write the data compared to what it should take.

Available only if the drive firmware supports TTI 5.4.

This attribute is useful in selecting media to be used for drive calibration and qualification.

Meters Between 2 Most Recent Cleans
Total megabytes read and written by the drive between the two most recent cleanings.

Meters since Last Clean
Total megabytes read and written by the drive since its last cleaning.

Monitored since
Date and time when STA started tracking this resource (library, complex, drive, or media).

Mount R/W MB
Total megabytes read or written by the drive during the mount

Mount R/W MB/sec
Average throughput rate for the drive, in megabytes per second. Calculated as:

```
total MB (read +written) /total seconds mount time
```

> **Note:** This value may be affected by a variety of factors external to the drive, such as robot speed or application behavior—for example, some applications do not dismount media immediately upon completion of read/write operations, causing the drive to be idle for much of the mount. As a result, this value is not likely to represent the drive's maximum potential throughput rate.

Mount Read MB
Total megabytes read by the drive during the mount.

> **Note:** Some media transactions involve a very small amount of I/O. All values greater than 0.0 and less than 0.1 are displayed as 0.01. A value of 0.0 indicates no I/O.

Mount Read MB/sec
Average read rate for the drive, in megabytes per second. Calculated as:

```
total MB read /total seconds mount time
```

> **Note:** This value may be affected by a variety of factors external to the drive, such as robot speed or application behavior—for example, some applications do not dismount media immediately upon completion of read/write operations, causing the drive to be idle for much of the mount. As a result, this value is not likely to represent the drive's maximum potential read rate.

Mount Received MB
Total uncompressed megabytes received by the application from the drive during the mount.

Mount Sent MB
Total uncompressed megabytes sent from the application to the drive during the mount.

Mount Write MB
Total megabytes written by the drive during the mount

Mount Write MB/sec
Average write rate for the drive, in megabytes per second. Calculated as:

```
total MB written /total seconds mount time
```

> **Note:** This value may be affected by a variety of factors external to the drive, such as robot speed or application behavior—for example, some applications do not dismount media immediately upon completion of read/write operations, causing the drive to be idle for much of the mount. As a result, this value is not likely to represent the drive's maximum potential write rate.

MV

MV Calibration Attempts
Number of calibrations attempted on the drive during the most recent calibration or qualification cycle. A minimum of two attempts are required for a successful calibration or qualification. Possible values: 0, 1, 2, 3.

MV Calibration Current State
Current state of the media relating to drive calibration and qualification.

Applies only if the media is assigned to a validation drive as the primary or secondary calibration media. Options include: Assigned, Available, Calibrated, Not Suitable, Media in Calibration, Media in Qualification.

MV Calibration Drive SN
Serial number of the validation drive that was most recently calibrated or qualified with this media.

MV Calibration Drive Type
Drive type of the validation drive that was most recently calibrated or qualified with this media.

MV Calibration Information
Information about the most recent calibration or qualification of the drive. Options include: Calibration in progress, Completed.

MV Calibration Initial DQI
Data Quality Index (DQI) calculated during most recent drive calibration in which this media was used. DQI is a measure of the amount of error correction left on the media. A higher value is desirable.

Provided only for T10000T2 media assigned to the calibration media logical group and the validation drive firmware supports TTI 5.4.

MV Calibration Initial Suspicion
Media Suspicion Level of the most recent drive calibration in which this media was used. Possible values: 0–100. Lower numbers are desirable. The higher the number, the higher the probability the media needs attention.

Provided only if the media has been assigned as the primary or secondary calibration media for a validation drive.

MV Calibration Last DQI

Data Quality Index (DQI) calculated during the most recent drive qualification in which this media was used. DQI is a measure of the amount of error correction left on the media. A higher value is desirable.

Provided only for T10000T2 media that has been assigned as the primary or secondary calibration media for a validation drive and the drive firmware supports TTI 5.4.

MV Calibration Library Complex

Name of the library complex in which the most recent drive calibration or qualification was performed using this media.

MV Calibration Library Model

Model of the library in which the most recent drive calibration or qualification was performed using this media.

MV Calibration Library SN

Serial number of the library complex in which the most recent drive calibration or qualification was performed using this media.

MV Calibration Number of Wraps

Total wraps of data present on the media. Calculated based on the Media Type and the MV Calibration MB Used.

Used to determine whether the media has enough data to be used for drive calibration and qualification.

MV Calibration Request

Indicates the exchange was initiated by STA to fulfill one of the following processes:

- A drive calibration

- A drive qualification

- A Basic Verify performed on calibration media that has no STA history

MV Calibration Starting Suspicion

Drive suspicion level reported at the start of the most recent calibration of the drive. Possible values: 0–100. Lower numbers are desirable. The higher the number, the higher the probability the drive needs attention.

MV Calibration State

State of the most recent drive calibration or qualification performed on the drive. Options are:

- For both drives and media – Calibrated, Not calibrated, Not Suitable, Offline, Drive Calibration Needs Media, Media Make History.

- For drives only – Drive In Calibration 1, Drive In Calibration 2, Drive In Qualification 1, Drive In Qualification 2.

- For media only – Media In Calibration, Media In Qualification.

MV Calibration Status Information

Information about the current validation status of the media. Available only if the media has been assigned to the calibration media logical group.

MV Count

Total validations performed on the media.

MV Days Since Last Validation
Number of days since the media was last validated based on the last validation time. Null if the media has not yet been validated.

MV DQI
Data Quality Index (DQI) computed by STA analytics based on the results of the media validation. DQI is a measure of the amount of error correction left on the media. This value is specific to the media and, by factoring out the drive's contribution, provides a more targeted measure of media quality than Read Quality Index (RQI).

Provided only for validations involving T10000T2 media and validation drives with firmware supporting TTI 5.4.

DQI is reported as a percentage, and a higher value is desirable. It is not computed in the following situations:

- The validation is a Basic Verify.

- The Media Type of the validated media is T10000T1.

- The validation results in an media validation Perm Status of True.

- The validation results in an Invalid MIR error.

MV Drive Allocated
Indicates the drive has been assigned to the media validation drive pool through SL Console.

MV Drive Available
Indicates the drive is currently available to perform media validation exchanges, as determined by STA analytics. If this attribute is blank, the drive does not meet minimum requirements for STA media validation.

MV Drive Capable
Indicates STA can use this drive for validation activities. The drive has been assigned to a media validation drive pool through SL Console and has a Drive Type and Drive Firmware Version that support STA media validation.

MV Drive In Use
Indicates the validation drive is currently in use by STA, another application, or diagnostics operations.

MV Drive Last Calibrated
Date and time when the drive was most recently calibrated.

MV Drive Reserved
Indicates the validation drive is reserved by STA for use in a media validation.

MV Estimated Time Remaining
Estimated time remaining on the media validation as reported by the drive. The value is updated periodically. Available only for in-progress validations.

MV Incomplete
Indicates the validation has not completed. The validation may be pending or in-process. Options are True or False.

MV Initiator
Software application or device used to initiate the media validation activity. Options are: DRIVE, HOST, LIBRARY, SLC, STA.

MV Interrupted

The media validation operation could not begin or has been interrupted. See the "MV Status Information" and "MV Recommendation" attributes for additional information.

Options are True or False. A True status may occur in the following situations:

- The validation was interrupted by a host request for the media or manually canceled while in process.

- The validation could not begin. Possible reasons include: the drive and media types do not match; the media is encrypted, but the validation drive is not encryption capable; the drive has timed out because of a network or other system error.

You may need to restart or resume the media validation request depending on the situation.

MV Last Activity

Start date and time of the most recent media validation. For Drives – Overview, this is the most recent validation performed by the drive. For Media – Overview, this is the most recent validation performed on the media.

MV Last Calibration Date

Date and time when the media was last used for drive calibration.

Available only if the media has been assigned to the calibration media logical group.

MV Last Calibration DQI

Data Quality Index reported upon completion of the most recent drive calibration. DQI is a measure of the amount of error correction left on the media. A higher value is desirable.

Provided only for validations involving T10000T2 media and validation drives with firmware supporting TTI 5.4.

MV Last Qualification Start

Start date and time of the most recent qualification of the drive.

MV Last Recommendation

Recommended user action for the most recently completed media validation. Determined by STA analytics, based on the results of the validation. Examples include: "Media OK: Continue using"; "Corrupted MIR: Rebuild MIR and Re-run Media Validation"; "Migrate the data and scratch the tape".

MV Last Recording Technique

Exchange Recording Technique used by the drive during the most recent calibration or qualification performed with this media.

MV Last State Update

Date and time when the status of this media validation was last updated.Updated whenever there is a change to the MV Request State.

MV Last Test Type

Type of verification test performed during the most recent validation on this media.

MV Library Error

Library event code for a library error that occurred during the media validation. A value indicates an operational issue with the media validation that prevented the test from completing; it does not imply there are issues with the media itself.

You can display the library event codes through the SL Console; see the *SL8500 User's Guide* for details.

MV MB Tape Used
Total amount of data that has been written to the media as determined by the drive during drive calibration.

Used with the Media Type to calculate the MV Calibration Number of Wraps for the media.

MV Policy Name
User-defined name assigned to the media validation policy.

MV Pool End Date
Date the media was no longer eligible for use in calibration. Possible reasons are as follows; see the *STA User's Guide* for additional details about calibration media qualifications.

- The media was removed from the calibration media logical group.

- The media has been disqualified from calibration.

- New data has been written to the media, invalidating any prior calibration information.

- The media was removed from the tape library system.

MV Pool Start Date
Date the media was added to the calibration media logical group.

MV Primary Calibration Media
Indicates this media is assigned to a validation drive as the primary calibration media. Possible values: True or False (blank).

- For primary calibration media, this attribute is True and the MV Calibration Drive SN attribute indicates the drive it is assigned to.

- For secondary calibration media, this attribute is False and the MV Calibration Drive SN attribute indicates the drive it is assigned to.

- For media not used for drive calibration, this attribute is False and there is no MV Calibration Drive SN entry.

MV Primary Qualification Start
Start date and time of the most recent qualification of the drive using the primary calibration media.

MV Priority Order
Order in which media validation requests are processed in the queue. Applies only to pending and in-process requests. This value is blank for completed validations.

MV Recommendation
Recommended user action determined by STA analytics based on the results of the media validation. Provided only for completed validations. Examples include: "Media OK: Continue using"; "Corrupted MIR: Rebuild MIR and Re-run Media Validation"; "Migrate the data and scratch the tape".

MV Request Start
Date and time when the media validation request was placed in the MV queue. Depending on the source of the request, this is either the time the MV request was initiated by STA, or the time STA recognized the request initiated by another

application.

MV Request State

Status of the media validation request. Examples are: Completed, Error, In-Progress - Stop Requested, Interrupted, Pending, Starting, Unknown.

See "MV Interrupted", "MV Recommendation", "MV Status Information" for additional information about validations with issues.

MV Result

Final result of the media validation as determined by STA analytics upon successful completion of the verification test. This attribute applies to the quality of the data on the media.

Options are: DEGRADED, FAILED, USE, UNKNOWN. The value is UNKNOWN if the validation was interrupted or did not complete successfully.

MV Secondary Qualification Start

Start date and time of the most recent qualification of the drive using the secondary calibration media.

MV Status Information

Provides information about issues with the media validation request. The information may explain the problem or suggest corrective action to take. This attribute is usually blank. Examples include: "Waiting for drive; all drives in use." and "Incompatible tape format for drive."

A value of "Drive Timeout; MDV manager cancel" indicates STA requested the library to return the media to a media slot because the validation took more than nine hours to complete. This is usually the result of a library operational error. If the Read Percentage attribute for the validation exchange is less than 100 percent, then the validation did not complete. If this status recurs for the media, there is probably an issue with the media; if it recurs for the drive, there is probably an issue with the drive.

MV Test Percentage

Percentage of the verification test that has been completed during this media validation. The value is updated periodically for in-progress validations.

A value of 100 indicates the test completed successfully. If the test was interrupted, the value remains less than 100.

MV Test Type

Indicates the type of verification test performed during the media validation. Examples are: Basic Verify, Cancel Validation, Complete Verify Plus, Standard Verify, Verify and Rebuild MIR.

MV Time Spent Validating

Total time the media validation has taken, as reported by the drive. The time starts when the validation test begins on the drive and ends when the test is complete. For in-progress validations, the value is updated periodically. For pending validation requests, the value is null.

N

New Property Effective

Date and time when the new property value is effective.

New Property Value
New value assigned to the property.

P

Partition Name
Unique name assigned to the partition by STA. Includes the library-assigned partition number. Formatted as: Library Complex Name:Partition Type:Partition Number

Partition Number
Unique partition ID assigned on the library. For nonpartitioned libraries, the value is always "0". For partitioned libraries, possible values are 1–8.

Partition Type
Type of host-partition connection. Possible values:

- HLI – HLI (Host Library Interface) protocol

- OTHER – System cells, used for storage of diagnostic media.

- SCSI – SCSI protocol

Partitions
Total number of user-defined partitions in the complex or library. The maximum number of partitions per library is eight, and per complex, it is 16.

This count does *not* include the following:

- System partitions—for storage of cleaning and diagnostic media.

- Empty partitions—partitions with no storage slots, drive bays, or CAPs. SL Console allows you to create empty partitions to reserve the partition number for later use.

Partitions for SL8500 complexes can extend across libraries. In such cases, the libraries in the same complex must all have the same partition count. For example, complex SL8500_1 includes 10 libraries and 4 partitions. On the Complexes Overview screen, the Partitions value for complex SL8500_1 is "4," and on the Libraries Overview screen, the Partition count for each of the 10 libraries in the complex is also "4."

Perm Read Errors
Number of permanent read errors

Perm Write Errors
Number of permanent write errors

Permanent Error
Indicates the exchange resulted in a permanent error. Available only if the drive firmware supports TTI 5.4. Options are True or False.

This status could be the result of an operational error, a bad drive, or bad media. For media validation exchanges, in most cases when this value is True, the MV Result is Unknown.

Port Speed (Port A)
Connection speed of Drive Port A as reported by the library. Possible values are as follows:

- A specific value (for example, FC-8Gb or SAS-3Gb)—Indicates the port has been initialized and the speed has been assigned.

- Auto—Indicates the speed is auto-negotiated between the drive and the switch.

- Unknown—Indicates the library does not have enough information, possibly because the port is not configured or does not exist.

- Null—Indicates the port does not exist. For example, if the drive has only one port, the value for Port B is null.

Port Speed (Port B)
Connection speed of Drive Port B as reported by the library. Possible values are as follows:

- A specific value (for example, FC-8Gb or SAS-3Gb)—Indicates the port has been initialized and the speed has been assigned.

- Auto—Indicates the speed is auto-negotiated between the drive and the switch.

- Unknown—Indicates the library does not have enough information, possibly because the port is not configured or does not exist.

- Null—Indicates the port does not exist. For example, if the drive has only one port, the value for Port B is null.

Property Name
Device property being changed.

PTP
Unique identifier of the pass-through port (PTP). Applies to SL8500 libraries only.

PTP Alert Count
Total alerts generated for this PTP, based on defined STA alert policies

> **Note:** This field links to the Alerts Overview screen, list view, which lists alerts for this PTP. See "Alerts Screens" on page 11-1.

PTP Count
Total pass-through ports (PTPs). Applies to SL8500 libraries only.

PTP Ejects
Total media ejected through all pass-through ports (PTPs) over the last 30 days. Applies to SL8500 libraries only; all other libraries show 0.

PTP Enters
Total media entered through all pass-through ports (PTPs) over the last 30 days. Applies to SL8500 libraries only; all other libraries show 0.

PTP Identifier
Unique identifier for the pass-through port (PTP)

PTP Physical Address
Library internal address of the pass-through port (PTP). Applies to SL8500 libraries only.The format is l,r,c,s,w (for example, 1,1,-6,1,0), where:

- l =library number. For nonpartitioned libraries, this is the library ID; for partitioned libraries, this is the partition ID (1–8).

- r =rail number. For SL8500 libraries, possible values are 1, 2, 3, or 4.

- c =column number. For PTPs, this value is always -6.

- `s` =side number. For PTPs, this value is always 1.

- `w` =row number. For PTPs, this value is always 0.

PTP Power LED State
Current state of the pass-through port (PTP) power LED. Normal condition is ON. Options are: ON, OFF, or UNKNOWN.

PTP SNMP Traps
Total pass-through port (PTP) messages received from the library. A sudden increase in this number indicates a condition that should be investigated.

PTP State
Current pass-through port (PTP) state, as reported by the library. Applies to SL8500 libraries only. Examples are: READY. STA updates this value hourly and as SNMP traps for the PTP are received from the library.

R

R/W MB/sec
Throughput rate for the time spent actively reading and writing; idle time is excluded. Expressed in megabytes per second. Available for StorageTek enterprise drives only.

Calculated as:

```
(compressed MB read +compressed MB written) /(read time +write time)
```

R/W Mount Ratio
Ratio of read and write time to total mount time. Displayed as a percentage. A value close to 1.0 indicates the drive is active over the entire mount. Available for StorageTek enterprise drives only.

Calculated as:

```
(read time +write time) /total mount time
```

Read Margin
Amount of error correction code (ECC) read margin remaining on the media, as reported by the drive during the last mount. Reported as a percentage. A high value is desirable. Available only for StorageTek T10000C and T10000D drives.

If STA determines that this value has gone below a threshold for this drive type, the Exchange Read Marginal attribute is set to True.

Read MB/sec
Read rate for the time spent actively reading; idle time is excluded. Expressed in megabytes per second. Available for StorageTek enterprise drives only.

Calculated as:

```
compressed MB read /total read time
```

Read Mount Ratio
Ratio of read time to total mount time. Calculated as:

```
read time /total mount time
```

Received on
Date and time when the STA server received the SNMP trap from the library.

Recorded on
Date and time when the exchange started.

Repositioning Cycles
Total times the media was repositioned for any reason

Repositioning Cycles Non ERP
Total times the media was repositioned due to non-ERP (error recovery process) reasons, such as data overrun or underrun.

Request ID
Unique ID for the SNMP request.

Result Code
Device result code for the event.

Robot
Serial number of the robot

Robot Alert Count
Total alerts generated for this robot, based on defined STA alert policies

> **Note:** This field links to the Alerts Overview screen, list view, which lists alerts for this robot. See "Alerts Screens" on page 11-1.

Robot Count
Total number of robots

Robot Get Retries
Total robot *get* retries

Robot Get Totals
Total robot media *get* actions

Robot Health
Current health of the robot as calculated by STA. Options are: ACTION, ERROR, EVALUATE, MONITOR, USE, UNKNOWN.

> **Note:** This attribute is not to be confused with the robot status reported by the library; see "Last Robot Message" on page 2-25 for comparison.

> **Note:** This attribute is updated only on completion of a library data collection. Regular data collections are done automatically, or you may initiate a manual data collection at any time. See the *STA User's Guide* for details.

Robot Identifier
Unique identifier for the robot

Robot Physical Address
Library internal address.

For SL150 libraries, the format is m,s,w,c (for example, 1,Left,1,2), where:

- m =module number; 1–10, from top (base module) to bottom

- s =side; Left or Right

- w =row number; 1–3, from top to bottom

- c =column number; 1–5, from front to back

For SL500 libraries, the format is l,m,r,c (for example, 0,2,2,3), where:

- l =for nonpartitioned libraries, this is the library ID (always 0); for partitioned libraries, this is the partition ID (1–8).

- m =module number; 1–5, from top to bottom of the rack

- r =drive row number; 1–2 (Base Module) or 1–4 (Drive Expansion Module), from top to bottom of the module

- c =column number; always 9 for drives

For SL3000 and SL8500 libraries, the format is l,r,c,s,w (for example, 1,1,2,2,3), where:

- l =library number. For nonpartitioned libraries, this is the library ID; for partitioned libraries, this is the partition ID (1–8).

- r =rail number. For SL3000 libraries, this value is always 1. For SL8500 libraries, possible values are 1, 2, 3, or 4.

- c =column number.

- s =side number.

- w =row number.

Robot Power LED State
Current state of the robot power LED. Normal condition is ON. Options are: ON, OFF, or UNKNOWN.

Robot Put Retries
Total robot media *put* retries

Robot Put Totals
Total robot media *put* actions

Robot SNMP Traps
Total robot messages received from the library. A sudden increase in this number indicates a condition that should be investigated.

Robot State
Current robot state, as reported by the library. Options are: EMPTY, ERROR, INOPERATIVE, NOT POWERED, or READY. STA updates this value hourly. Additionally for SL3000 and SL8500 libraries, the value is updated as SNMP traps for the robot are received from the library.

RQI
Measure of how much error correction is left on the media, as calculated from the last exchange or media validation. This value is specific to the exchange, with contributions from both the drive and the media. In comparison, the Data Quality Index (DQI) is a more targeted measure of media quality because STA factors out the

drive's contribution.

RQI is reported as a percentage. A high value is desirable.

S

Severity
Severity of the event.

Servo Perm Errors
Number of permanent servo errors

SNMP Trap
Type of SNMP trap. Options are:

- CAP

- Drive

- Heartbeat

- Library Environment Check

- Library Log

- Library Status

- PTP

- SNMP Agent Start

STA Start Tracking
For Drives Overview: Date and time when STA first began tracking this drive serial number.

For Media Overview: Date and time when STA first began tracking this volume serial number (VSN or volser). If the volser is used on more than one media, this field reflects the earliest start date available.

STA Stop Tracking
For Drives Overview: Date and time when STA stopped tracking this drive serial number. This is when STA determined the drive serial number no longer exists in any of the monitored libraries and updated the drive status from "missing" to "removed".

For Media Overview: Date and time when STA stopped tracking this volume serial number (VSN or volser). This is when STA determined the volser no longer exists in any of the monitored libraries and updated the volser status from "missing" to "removed".

STA Supported
Indicates the media meets the minimum requirements for STA analytics. Possible values: True or False. The following media types usually have a value of True.

- StorageTek T10000T1 and higher

- StorageTek 9840

- LTO-3 and higher

STA tracks media for which this value is False, but it is not able to perform full analytics on them because it receives only minimal data about them.

See the *STA Requirements Guide* for details about supported media.

T

Text
Additional text regarding the event, sent by the subsystem.

Theoretical Maximum Usage Count
Manufacturer's recommended usage limit for the cleaning media.

> **Note:** Not available for all media and drive types. This value may show as "0" or blank, which should be interpreted as not available or unknown.

Time Spent Loaded
Total time during this exchange that the drive has tension on the media. Does not include the time required to thread the media.

Time Spent R/W
Total time the drive spent reading and writing data during the exchange

Time Spent Reading
Total time the drive spent reading data during the exchange

Time Spent Writing
Total time the drive spent writing data during the exchange

Total Host Requests
Total host requests received by this library or complex.

Trap Type
Entity type to which the trap pertains. One of the following:

- CAP – CAP, AEM, or mailslot status

- Drive – Drive status

- Heartbeat

- Library Environment Check

- Library Log

- Library Status

U

Unload Errors
Number of permanent unload errors

Usage Perm Errors
Number of unknown usage errors

Username
STA username associated with the event.

Volume Serial Number

Volume serial number (VSN or volser) assigned to the media by its external label. If the library does not supply the volser, STA provides one composed of Library Serial Number:Physical Address.

> **Note:** This field links to the Media – Overview screen, detail view, which displays all available detail for this media. See "Media Overview and Analysis Screens" on page 6-1.

W

WORM/VolSafe Media

Indicates whether the media uses StorageTek VolSafe technology. STA does not know the status until the media has been mounted. Possible values: Yes or No. Blank indicates unknown.

Write Efficiency

Write efficiency for the exchange, based on capacity over distance. Reported as a percentage. A high value is desirable. Available only for StorageTek T10000C and T10000D drives.

If STA determines that this value has gone below a threshold for this drive type, the Exchange Write Inefficient attribute is set to True.

The Exchange Write Efficiency graph on the Drives – Overview and Media – Overview screens shows a system average over time for all drives. Because not all drive types report write efficiency, the system average may vary significantly over time, depending on which drives had exchange activity during the reported period. If there are no exchanges for T10000C and T10000D drives on a given date, the value is set to zero for that day.

Write MB/sec

Write rate for the time spent actively writing; idle time is excluded. Expressed in megabytes per second. Calculated as:

```
compressed MB written /total write time
```

Write Mount Ratio

Ratio of write time to total mount time. Calculated as:

```
write time /total mount time
```

3

Complexes Overview Screen

The Libraries – Complexes Overview screen shows attributes related to one or more selected library complexes.

The attributes are organized into the following sections.

- "Title" on page 3-2
- "Library Complex" on page 3-2
- "Library Complex Activity Counts (Last 30 days)" on page 3-2
- "Library Complex Auxiliary Counts" on page 3-2
- "User-Provided Information" on page 3-3

Complexes Overview Detail View

Title

Values for these attributes are assigned when STA first starts tracking the library complex.

- Library Complex
- Monitored since

Library Complex

Details about the library complex. These attributes are rolled up for all libraries that share the same complex ID. These attributes come directly from the libraries and are updated with each library configuration data collection.

- Library Complex Name
- Base Model
- Library Complex Number
- Complex Physical Library Count

Library Complex Activity Counts (Last 30 days)

Activity totals for all libraries in the complex over the last 30 days. These are updated with each completed exchange.

- Dismounts
- CAP Enters
- CAP Ejects
- PTP Enters
- PTP Ejects
- Drive Cleans
- MB Read
- MB Write
- MB R/W
- MB Sent
- MB Received
- % Drive Utilization
- Library Complex Alert Count
- Host DB Sync Errors
- Total Host Requests
- Host Request Timeouts

Library Complex Auxiliary Counts

Total resource counts for all libraries in the complex. The summary fields are updated with each completed exchange. The asset fields are updated with each library data collection.

- Partitions
- Drive Bays Occupied
- Drive Bays Unoccupied
- Drive Bays Installed
- Media Slots Occupied
- Media Slots Unoccupied
- Media Slots Installed
- Media Slots Activated
- Robot Count
- CAP Count
- PTP Count
- Elevator Count

User-Provided Information

- Annotation History

4

Libraries Overview Screen

The Libraries – Overview screen shows attributes related to one or more selected libraries.

The library attributes are organized into the following sections.

- "Title" on page 4-2
- "Library" on page 4-2
- "Library Activity Counts (Last 30 days)" on page 4-3
- "Library Auxiliary Counts" on page 4-3
- "User-Provided Information" on page 4-4

Libraries Overview Detail View

Title

Values for these attributes are assigned when STA first starts tracking the library.

- Library

- Monitored since

Library

Details about the library. These attributes come directly from the library and are updated with each library configuration data collection.

- Library Complex Name

- Library Name
- Library Number
- Library Model
- Library Serial Number
- Library WWNN
- Last Library Message
- Library Last Booted
- Library Firmware Updated
- Library Firmware Version
- Library IP address #1
- Library IP address #2
- Library Scan Completed
- Cumulative Library Uptime

Library Activity Counts (Last 30 days)

Activity totals for the library over the last 30 days. These are updated with each completed exchange.

- Library SNMP Traps
- Library Alert Count
- Dismounts
- CAP Enters
- CAP Ejects
- PTP Enters
- PTP Ejects
- Drive Cleans
- MB Read
- MB Write
- MB R/W
- MB Sent
- MB Received
- % Drive Utilization
- Host DB Sync Errors
- Total Host Requests
- Host Request Timeouts

Library Auxiliary Counts

Library resource counts. The summary fields are updated with each completed exchange. The asset fields are updated with each library data collection.

- Partitions
- Drive Bays Occupied
- Drive Bays Unoccupied
- Drive Bays Installed
- Media Slots Occupied
- Media Slots Unoccupied
- Media Slots Installed
- Media Slots Activated
- Robot Count
- CAP Count
- PTP Count
- Elevator Count

User-Provided Information

- Annotation History

5

Drives Overview and Analysis Screens

The Drives – Overview and Drives – Analysis screens show attributes related to drives. There is one set of attributes for StorageTek enterprise drives and a slightly different set for LTO drives.

The drive attributes are organized into the following sections.

Drives Overview Detail Views

Detail for Enterprise Drives (part 1)

Drives - Overview

?   Templates: STA-Default ▾

?   Format: ☰   ☷ | 🖶 |

Details for Drive 57600⁴   **Monitored since 2013-04-24 12:28:51**

Drive

Drive Serial Number:	**57600⁴**
Drive Tray Serial Number:	**UNKNOWN**
Drive WWNN:	**50:01:04:F0:00:B0:BE:D3**
Drive Type:	**T10000c-Enc**
Drive Health:	**USE**
Drive Health Trend:	**UNCHANGED**
Last Drive Message:	**UNKNOWN**
Drive WWPN (Port A):	**50:01:04:F0:**
Port Speed (Port A):	**FC-1Gb**
Drive WWPN (Port B):	
Port Speed (Port B):	
Drive Model:	**T10000C**
Drive Manufacturer:	**STK**
Encryption Capable:	**Yes**
Drive Interface:	**FIBRE**
Drive Properties Updated:	**2014-03-20 14:29:32**
Drive Firmware Version:	**1.53.316-5.30**
STA Start Tracking:	**2013-04-24 12:28:51**
STA Stop Tracking:	

Drive Activity Counts (Last 30 Days)

% Drive Utilization:	**60.01%**
Drive Dismounts:	**255**
Drive SNMP Trap Count:	**0**
Drive Alert Count:	**0**
Dismounts with Errors:	**0**
Cleans:	**0**
MB Read:	**605.65**
MB Write:	**15,656,743.89**
MB R/W:	**15,657,349.54**
MB Sent:	**2,803.65**

Media

Volume Serial Number:	**SG022**
Media Manufacturer Serial Number:	**8121860!**
Media Health:	**USE**
WORM/VolSafe Media:	**No**
Cleaning Media:	**No**

Most Recent Exchange

Exchange Start:	**2014-03-26 11:28:22**
Exchange Elapsed Time:	**1:17:05**
Exchange Mount Time:	**1:16:46**
Mount R/W MB/sec:	**13.01**
Exchange Recording Technique:	**T10000C**
Drive Exchange Status:	**GOOD**
Exchange Tape Alerts - Severe:	**0**
Exchange Tape Alerts - Warning:	**0**
Exchange Tape Alerts - Info:	**0**
Data Compression Ratio:	**1.01 : 1**
Alert: Drive Load Limit:	**No**
Drive Suspicion Level:	**0.00%**
Exchange Drive Cleaning Required:	**No**
Meters Between 2 Most Recent Cleans:	
Meters since Last Clean:	
Drive Lifetime Cleans:	**0**
Drive Lifetime Loads:	**608**
Drive Lifetime Meters:	**2,702,979**
Drive Lifetime Power Hours:	**11,415**

Detail for Enterprise Drives (part 2)

Drives - Overview

Templates: STA-Default

Format:

MB Received:	21,287,776.95
Avg Mount Read MB/sec:	0.00
Avg Mount Write MB/sec:	9.75
Avg Mount R/W MB/sec:	9.75
Avg Mount Read MB:	2.38
Avg Mount Write MB:	61,399.00
Avg Mount R/W MB:	61,401.40

Drive Location

Drive Library Name:	sl3000-175
Drive Library Serial Number:	57100
Drive Library Number:	1
Drive Rail Number:	1
Drive Physical Address:	1,1,4,1,2
Drive HLI Address:	
Drive SCSI Element ID:	-1

Library Complex

Library Complex Name:	SL3000_57100
Library Model:	SL3000
Partition Type:	HLI
Partition Name:	SL3000_57100:HLI:0
Partition Number:	0

Additional Exchange Information for Enterprise Drives

Exchange FSC:	
Exchange DSC:	
Exchange Write Inefficient:	No
Exchange Read Marginal:	No
Exchange Write Efficiency:	100.00%
Exchange Read Margin:	93.74%
Time Spent Reading:	0:00:01
Time Spent Writing:	0:04:49
Time Spent R/W:	0:04:50
Read MB/sec:	0.00
Write MB/sec:	207.41
R/W MB/sec:	206.70
Read Mount Ratio:	0.02%
Write Mount Ratio:	6.27%
R/W Mount Ratio:	6.30%
Exchange Encryption Used:	Encrypted Sun KMS

Media Validation Information for Enterprise Drives

MV Calibration Attempts:	
MV Calibration State:	
MV Calibration Information:	
MV Last Calibration DQI:	
MV Calibration Starting Suspicion:	
MV Drive Last Calibrated:	
MV Last Activity:	2014-12-18 13:30:04
MV Last Recommendation:	
MV Drive Allocated:	Yes
MV Drive Capable:	Yes
MV Drive Available:	Yes
MV Drive In Use:	No
MV Drive Reserved:	No
MV Last Qualification Start:	
MV Primary Qualification Start:	
MV Secondary Qualification Start:	

User-Provided Information

Logical Group(s):	EDC Other
Annotation History:	None

Detail for LTO Drives (part 1)

Drives - Overview   Templates: STA-Default

Format:

Details for Drive 10680   **Monitored since 2014-03-25 14:46:48**

Drive

Drive Serial Number:	**10680**
Drive Tray Serial Number:	**unknown**
Drive WWNN:	**50:01:04:F0:00:A0:E4:A2**
Drive Type:	**IbmUltrium5**
Drive Health:	**USE**
Drive Health Trend:	**UNCHANGED**
Last Drive Message:	**DEGRADED**
Drive WWPN (Port A):	**50:01:04:F0:00:A0:E4:A3**
Port Speed (Port A):	**FC-8Gb**
Drive WWPN (Port B):	**50:01:04:F0:00:A0:E4:A4**
Port Speed (Port B):	**Auto**
Drive Model:	**LTO5**
Drive Manufacturer:	**IBM**
Encryption Capable:	**Yes**
Drive Interface:	**FIBRE**
Drive Properties Updated:	**2014-03-26 10:08:01**
Drive Firmware Version:	**D2AC**
STA Start Tracking:	**2014-03-25 14:46:48**
STA Stop Tracking:	

Drive Activity Counts (Last 30 Days)

% Drive Utilization:	**2.45%**
Drive Dismounts:	**9**
Drive SNMP Trap Count:	**30**
Drive Alert Count:	**3**
Dismounts with Errors:	**1**
Cleans:	**0**
MB Read:	**28,635.79**
MB Write:	**9,545.26**
MB R/W:	**38,181.05**
MB Sent:	**28,608.75**
MB Received:	**9,536.25**
Avg Mount Read MB/sec:	**0.44**

Media

Volume Serial Number:	**LT5048**
Media Manufacturer Serial Number:	**AA6ME2**
Media Health:	**USE**
WORM/VolSafe Media:	**No**
Cleaning Media:	**No**

Most Recent Exchange

Exchange Start:	**2014-03-26 10:08:05**
Exchange Elapsed Time:	**0:15:17**
Exchange Mount Time:	**0:14:41**
Mount R/W MB/sec:	**10.83**
Exchange Recording Technique:	**LTO5**
Drive Exchange Status:	**GOOD**
Exchange Tape Alerts - Severe:	**0**
Exchange Tape Alerts - Warning:	**0**
Exchange Tape Alerts - Info:	**0**
Data Compression Ratio:	**1 : 1**
Alert: Drive Load Limit:	**No**
Drive Suspicion Level:	**0.00%**
Exchange Drive Cleaning Required:	**No**
Meters Between 2 Most Recent Cleans:	
Meters since Last Clean:	
Drive Lifetime Cleans:	**0**
Drive Lifetime Loads:	**7,234**
Drive Lifetime Meters:	**274,976**
Drive Lifetime Power Hours:	**7,935**

Additional Exchange Information for LTO Drives

Alert: Drive Diagnostics Required:	**No**
Drive Lifetime Hours in Motion:	**21**
IBM Drive Efficiency:	**0x22**
IBM Media Efficiency:	**0x06**
HP Device Status:	

Detail for LTO Drives (part 2)

Title

Values for these attributes are assigned when STA first starts tracking the drive.

- Drive
- Monitored since

Drive

Information about the drive properties.

- Drive Serial Number
- Drive Tray Serial Number
- Drive WWNN
- Drive Type
- Drive Health
- Drive Health Trend
- Last Drive Message
- Drive WWPN (Port A)
- Port Speed (Port A)
- Drive WWPN (Port B)

- Port Speed (Port B)

- Drive Model

- Drive Manufacturer

- Encryption Capable

- Drive Interface

- Drive Properties Updated

- Drive Firmware Version

- STA Start Tracking

- STA Stop Tracking

Media

Details about the media used in the drive's most recent exchange that occurred during or before this aggregation period.

- Volume Serial Number

- Media Manufacturer Serial Number

- Media Health

- WORM/VolSafe Media

- Cleaning Media

Most Recent Exchange

Details about the drive's most recent exchange that occurred during or before this aggregation period.

- Exchange Start

- Exchange Elapsed Time

- Exchange Mount Time

- Mount R/W MB/sec

- Exchange Recording Technique

- Drive Exchange Status

- Exchange Tape Alerts – Severe

- Exchange Tape Alerts – Warning

- Exchange Tape Alerts – Info

- Data Compression Ratio

- Alert: Drive Load Limit

- Drive Suspicion Level

- Exchange Drive Cleaning Required

- Meters Between 2 Most Recent Cleans

- Meters since Last Clean

- Drive Lifetime Cleans

- Drive Lifetime Loads

- Drive Lifetime Meters

- Drive Lifetime Power Hours

Drive Activity Counts (Last 30 Days)

Total activity counts for the drive over the last 30 days. These values are updated with each completed exchange involving the drive.

- % Drive Utilization

- Drive Dismounts

- Drive SNMP Trap Count

- Drive Alert Count

- Dismounts With Errors

- Cleans

- MB Read

- MB Write

- MB R/W

- MB Sent

- MB Received

- Avg Mount Read MB/sec

- Avg Mount Write MB/sec

- Avg Mount R/W MB/sec

- Avg Mount Read MB

- Avg Mount Write MB

- Avg Mount R/W MB

Additional Exchange Information for Enterprise Drives

Additional details about the drive's most recent exchange. This section appears only for StorageTek enterprise drives, such as 9840D or T10000C.

- Exchange FSC

- Exchange DSC

- Exchange Write Inefficient

- Exchange Read Marginal

- Exchange Write Efficiency

- Exchange Read Margin

- Time Spent Reading

- Time Spent Writing

- Time Spent R/W

- Read MB/sec

- Write MB/sec

- R/W MB/sec

- Read Mount Ratio

- Write Mount Ratio

- R/W Mount Ratio

- Exchange Encryption Used

Additional Exchange Information for LTO Drives

Additional details about the drive's most recent exchange. This section appears only for LTO drives.

- Alert: Drive Diagnostics Required

- Drive Lifetime Hours in Motion

- IBM Media Efficiency

- IBM Drive Efficiency

- HP Device Status

Drive Location

Details about the location of the drive within the library. These attributes are updated whenever a library data collection is performed.

- Drive Library Name

- Drive Library Serial Number

- Drive Library Number

- Drive Rail Number

- Drive Physical Address

- Drive HLI Address

- Drive SCSI Element ID

Library Complex

Information about the library complex where the drive is located, as of the last completed library data collection.

- Library Complex Name

- Library Model

- Partition Type

- Partition Name

- Partition Number

Media Validation Information for Enterprise Drives

Information about media validation and drive calibration and qualification operations for this drive. This section appears only for drives that have been assigned to the media validation drive pool through SL Console.

- MV Calibration Attempts
- MV Calibration State
- MV Calibration Information
- MV Last Calibration DQI
- MV Calibration Starting Suspicion
- MV Drive Last Calibrated
- MV Last Activity
- MV Last Recommendation
- MV Drive Allocated
- MV Drive Capable
- MV Drive Available
- MV Drive In Use
- MV Drive Reserved
- MV Last Qualification Start
- MV Primary Qualification Start
- MV Secondary Qualification Start

User-Provided Information

- Logical Group(s)
- Annotation History

User-Provided Information

6

Media Overview and Analysis Screens

The Media – Overview and Media – Analysis screens show attributes related to media. There is one set of attributes for StorageTek enterprise media and a slightly different set for LTO media.

The media attributes are organized into the following sections.

Media Overview Detail Views

Detail for Enterprise Media (part 1)

Media - Overview   Templates: STA-Default

Format: |

Details for Media SG0088   Monitored since 2013-04-24 12:28:55

Media Details

Volume Serial Number:	SG0703
Media Type:	T10000T2
Media Long Type:	T10000T2
STA Supported:	Yes
Media Health:	USE
Media Health Trend:	UNCHANGED
WORM/VolSafe Media:	No
Media Manufacturer Serial Number:	81218605022
STA Start Tracking:	2013-04-24 12:28:55
STA Stop Tracking:	
Media Entered Library:	
Media Ejected from Library:	

Media DATA Activity Counts (Last 30 Days)

Media Dismounts:	12
Dismounts with Errors:	0
MV Count:	0
Media Alert Count:	0
MB Read:	881,962.21
MB Write:	111.65
MB R/W:	882,073.86
MB Sent:	261.33
MB Received:	729,043.69
Avg Mount Read MB/sec:	0.01
Avg Mount Write MB/sec:	18.03
Avg Mount R/W MB/sec:	18.04

Current Home Media Location

Media Library Name:	elib19
Media Library Serial Number:	516000100633
Media Library Number:	1
Media Rail Number:	1
Media Physical Address:	1,1,4,1,2
Media HLI Address:	
Media Slot SCSI Element ID:	-1

Drive

Drive Serial Number:	57600400
Drive WWNN:	50:01:04:F0:00:
Drive Type:	T10000c-Enc
Drive Health:	USE

Most Recent Exchange

Last Exchange Start:	2014-03-26 11:28:22
Exchange Elapsed Time:	1:17:05
Exchange Mount Time:	1:16:46
Exchange Library Name:	elib19
Exchange Recording Technique:	T10000C
Media Exchange Status:	GOOD
Exchange Tape Alerts - Severe:	0
Exchange Tape Alerts - Warning:	0
Exchange Tape Alerts - Info:	0
Media Suspicion Level:	0.00%
Exchange Drive Cleaning Required:	No
Media Life Indicator:	GOOD
Media EOL Percentage:	1
Mount R/W MB/sec:	13.01
Data Compression Ratio:	1.01 : 1
Duplicate Detected:	No
Alert: Media Cart Memory Failure:	No
Alert: Media Load Limit:	No

Additional Exchange Information for Enterprise Media

Media MB Capacity:	5,242,880.00
Media MB Avail Post:	3,823,620.94
Media Capacity Utilization:	27.07%
Exchange Encryption Used:	Encrypted Sun KMS
Exchange FSC:	
Exchange DSC:	
Permanent Error:	
Media Blank:	
Exchange Write Inefficient:	No
Exchange Read Marginal:	No
Exchange Write Efficiency:	100.00%
Exchange Read Margin:	93.74%
Time Spent Reading:	0:00:01
Time Spent Writing:	0:04:49
Time Spent R/W:	0:04:50
Read MB/sec:	0.00
Write MB/sec:	207.41
R/W MB/sec:	206.34

Detail for Enterprise Media (part 2)

Detail for LTO Media (part 1)

Media - Overview

Format:

Details for Media LT5048   **Monitored since 2014-03-25 14:46:59**

Media Details

Volume Serial Number:	LT5048
Media Type:	LTO5
Media Long Type:	LtoGen5_1500GB
STA Supported:	Yes
Media Health:	USE
Media Health Trend:	UNCHANGED
WORM/VolSafe Media:	No
Media Manufacturer Serial Number:	AA6ME23RMF
STA Start Tracking:	2014-03-25 14:46:59
STA Stop Tracking:	
Media Entered Library:	
Media Ejected from Library:	

Media DATA Activity Counts (Last 30 Days)

Media Dismounts:	5
Dismounts with Errors:	0
MV Count:	0
Media Alert Count:	0
MB Read:	9,545.26
MB Write:	28,635.79
MB R/W:	38,181.05
MB Sent:	28,608.75
MB Received:	9,536.25
Avg Mount Read MB/sec:	0.00
Avg Mount Write MB/sec:	0.00
Avg Mount R/W MB/sec:	0.00

Current Home Media Location

Media Library Name:	SL8500-169
Media Library Serial Number:	516000200164
Media Library Number:	1
Media Rail Number:	4
Media Physical Address:	1,4,2,1,4

Most Recent Exchange

Last Exchange Start:	2014-03-26 10:08:05
Exchange Elapsed Time:	0:15:17
Exchange Mount Time:	0:14:41
Exchange Library Name:	SL8500-169
Exchange Recording Technique:	LTO5
Media Exchange Status:	GOOD
Exchange Tape Alerts - Severe:	0
Exchange Tape Alerts - Warning:	0
Exchange Tape Alerts - Info:	0
Media Suspicion Level:	0.00%
Exchange Drive Cleaning Required:	No
Media Life Indicator:	GOOD
Media EOL Percentage:	
Mount R/W MB/sec:	10.83
Data Compression Ratio:	1 : 1
Duplicate Detected:	No
Alert: Media Cart Memory Failure:	No
Alert: Media Load Limit:	No

Additional Exchange Information for LTO Media

Media MB Capacity:	1,449,585.00
Media MB Avail Pre:	1,440,038.00
Media Capacity Utilization:	0.66%
IBM Media Efficiency:	0x06
HP Media Status:	
Media Length in Meters:	846
Media Manufacturer Date:	2010-07-19
Media Auxiliary Memory Capacity:	8,192
Alert: Media Directory Corrupt:	No
Alert: Media Nearing End of Life:	No

Cleaning Usage

Cleaning Media:	No

Detail for LTO Media (part 2)

Title

Values for these attributes are assigned when STA first starts tracking the media.

- Media
- Monitored since

Media Details

Details about a data or cleaning media.

- Volume Serial Number
- Media Type
- Media Long Type
- STA Supported
- Media Health
- Media Health Trend
- WORM/VolSafe Media
- Media Manufacturer Serial Number
- STA Start Tracking
- STA Stop Tracking
- Media Entered Library
- Media Ejected from Library

Most Recent Exchange

Details about the most recent exchange for the media.

- Last Exchange Start

- Exchange Elapsed Time

- Exchange Mount Time

- Exchange Library Name

- Exchange Recording Technique

- Media Exchange Status

- Exchange Tape Alerts – Severe

- Exchange Tape Alerts – Warning

- Exchange Tape Alerts – Info

- Media Suspicion Level

- Exchange Drive Cleaning Required

- Media Life Indicator

- Media EOL Percentage

- Mount R/W MB/sec

- Data Compression Ratio

- Duplicate Detected

- Alert: Media Cart Memory Failure

- Alert: Media Load Limit

Media Data Activity Counts (Last 30 Days)

Total activity counts for the media over the last 30 days. This section appears only for data media.

- Media Dismounts

- Dismounts With Errors

- MV Count

- Media Alert Count

- MB Read

- MB Write

- MB R/W

- MB Sent

- MB Received

- Avg Mount Read MB/sec

- Avg Mount Write MB

- Avg Mount R/W MB/sec

Current Home Media Location

Details about the media's current location, as of the last completed exchange.

- Media Library Name

- Media Library Serial Number

- Media Library Number

- Media Rail Number

- Media Physical Address

- Media HLI Address

- Media Slot SCSI Element ID

Drive

Details about the drive involved in the latest exchange.

- Drive Serial Number

- Drive WWNN

- Drive Type

- Drive Health

Additional Exchange Information for Enterprise Media

Appears for StorageTek enterprise media only.

- Media MB Capacity

- Media MB Avail Post

- Media Capacity Utilization

- Exchange Encryption Used

- Exchange FSC

- Exchange DSC

- Permanent Error

- Media Blank

- Exchange Write Inefficient

- Exchange Read Marginal

- Exchange Write Efficiency

- Exchange Read Margin

- Time Spent Reading

- Time Spent Writing

- Time Spent R/W

- Read MB/sec

- Write MB/sec

- R/W MB/sec

- Read Mount Ratio

- Write Mount Ratio

- R/W Mount Ratio

Additional Exchange Information for LTO Media

Appears for LTO media only.

- Media MB Capacity
- Media MB Avail Pre
- Media Capacity Utilization
- IBM Media Efficiency
- HP Media Status
- Media Length in Meters
- Media Manufacturer Date
- Media Auxiliary Memory Capacity
- Alert: Media Directory Corrupt
- Alert: Media Nearing End of Life

Library Complex

Details about the library complex where the media is located.

- Library Complex Name
- Library Model
- Partition Type
- Partition Name
- Partition Number

Cleaning Usage

- Cleaning Media

User-Provided Information

- Logical Group(s)
- Annotation History

Media Validation Information for Enterprise Media

Details about the most recent media validation for the media. Appears for StorageTek enterprise media only.

- Media Write Efficiency
- MV DQI
- MV Days Since Last Validation
- MV Last Activity
- MV Last Test Type
- MV Last Recommendation

Calibration Information for Enterprise Media

- MV Calibration Library Complex
- MV Calibration Library SN
- MV Calibration Library Model
- MV Calibration Drive Type
- MV Calibration Drive SN
- MV Pool Start Date
- MV Pool End Date
- MV Last Calibration Date
- MV Calibration Initial DQI
- MV Calibration Initial Suspicion
- MV Calibration Last DQI
- MV Last Recording Technique
- MV MB Tape Used
- MV Calibration Number of Wraps
- MV Primary Calibration Media
- MV Calibration Current State
- MV Calibration Status Information

7

Robots Overview Screen

The Robots Overview screen shows attributes related to one or more library robots.

The elevator attributes are organized into the following sections:

- "Title" on page 7-1
- "Robot" on page 7-2
- "Robot Activity Counts (Last 30 Days)" on page 7-2
- "User-Provided Information" on page 7-2
- "Library Complex" on page 7-2

Robots Overview Detail View

Title

Values for these attributes are assigned when the SNMP trap is received from the library.

- Robot
- Monitored since

Robot

Details about the robot. With the exception of Robot STA Health, these attributes come directly from the library and are updated with each library configuration data collection. Robot STA Health is an analytic calculated by STA.

- Robot Identifier
- Robot Physical Address
- Robot Health
- Last Robot Message
- Robot State
- Robot Power LED State

Robot Activity Counts (Last 30 Days)

Activity totals for the robot over the last 30 days. These are updated as each associated activity is completed.

- Robot Get Totals
- Robot Get Retries
- Robot Put Totals
- Robot Put Retries
- Robot Alert Count
- Robot SNMP Traps

User-Provided Information

- Annotation History

Library Complex

Information about the library complex where the robot is located, as of the last completed library data collection.

- Library Complex Name
- Library Name
- Library Serial Number
- Library Model

8

CAPs Overview Screen

The CAPs Overview screen shows attributes related to one or more library CAPs, Access Expansion Modules (AEMs – SL3000 libraries only), or mailslots (SL150 libraries only).

The CAP attributes are organized into the following sections:

- "Title" on page 8-1
- "CAP" on page 8-2
- "CAP Activity Counts (Last 30 Days)" on page 8-2
- "User-Provided Information" on page 8-2
- "Library Complex" on page 8-2

CAPs Overview Detail View

Title

Values for these attributes are assigned when the SNMP trap is received from the library.

- CAP
- Monitored since

CAP

Details about the CAP. These attributes come directly from the library and are updated with each library configuration data collection.

- CAP Identifier
- CAP Physical Address
- Last CAP Message
- CAP State
- CAP Accessibility

CAP Activity Counts (Last 30 Days)

Activity totals for the CAP over the last 30 days. These are updated as each associated activity is completed.

- CAP Ejects
- CAP Enters
- CAP SNMP Traps
- CAP Alert Count

User-Provided Information

- Annotation History

Library Complex

Information about the library complex where the CAP is located, as of the last completed library data collection.

- Library Complex Name
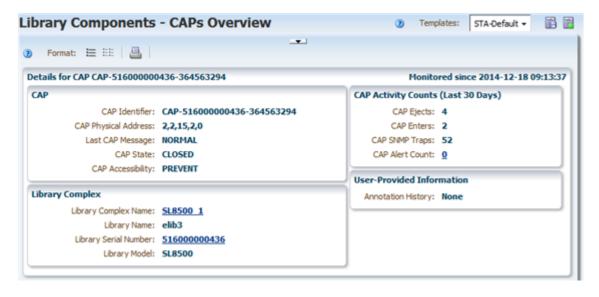- Library Name
- Library Serial Number
- Library Model

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PTPs Overview Screen

The PTPs Overview screen shows attributes related to one or more library pass-through ports (PTPs). It is applicable to SL8500 libraries only.

The elevator attributes are organized into the following sections:

- "Title" on page 9-1
- "PTP" on page 9-2
- "PTP Activity Counts (Last 30 Days)" on page 9-2
- "User-Provided Information" on page 9-2
- "Library Complex" on page 9-2

PTPs Overview Detail View

Title

Values for these attributes are assigned when the SNMP trap is received from the library.

- PTP
- Monitored since

PTP

Details about the PTP. These attributes come directly from the library and are updated with each library configuration data collection.

- PTP Identifier
- PTP Physical Address
- Last PTP Message
- PTP State
- PTP Power LED State

PTP Activity Counts (Last 30 Days)

Activity totals for the PTP over the last 30 days. These are updated as alerts are generated and SNMP messages are received from the library.

- PTP Alert Count
- PTP SNMP Traps

User-Provided Information

- Annotation History

Library Complex

Information about the library complex where the PTP is located, as of the last completed library data collection.

- Library Complex Name
- Library Name
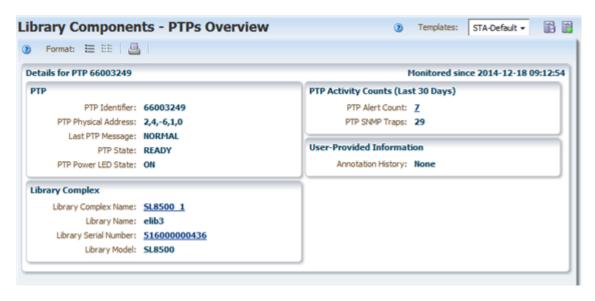- Library Serial Number
- Library Model

Elevators Overview Screen

The Elevators Overview screen shows attributes related to one or more library elevators. It is applicable to SL8500 libraries only.

The elevator attributes are organized into the following sections:

- "Title" on page 10-1
- "Elevator" on page 10-2
- "Elevator Activity Counts (Last 30 Days)" on page 10-2
- "User-Provided Information" on page 10-2
- "Library Complex" on page 10-2

Elevators Overview Detail View

Title

Values for these attributes are assigned when the SNMP trap is received from the library.

- Elevator
- Monitored since

Elevator

Details about the elevator. These attributes come directly from the library and are updated with each library configuration data collection.

- Elevator Identifier
- Elevator Physical Address
- Last Elevator Message
- Elevator State
- Elevator Power LED State

Elevator Activity Counts (Last 30 Days)

Activity totals for the elevator over the last 30 days. These are updated as alerts are generated and SNMP messages are received from the library.

- Elevator Alert Count
- Elevator SNMP Traps

User-Provided Information

- Annotation History

Library Complex

Information about the library complex where the elevator is located, as of the last completed library data collection.

- Library Complex Name
- Library Name
- Library Serial Number
- Library Model

Alerts Screens

The Alerts Overview screen shows attributes related to one or more alerts.

The alert attributes are organized into the following sections:

- "Alert Details" on page 11-1
- "Other Details" on page 11-1
- "Alert Location Information" on page 11-2
- "User-Provided Information" on page 11-2

Alerts Overview Detail View

Alert Details

Details about an alert that was triggered.

- Date Created/Updated
- Alert Policy Name
- Alert Severity

Other Details

- Alert Policy Type

- [Component ID](#)
- [Alert State](#)
- [Alert Event Type](#)
- [Alert Reason](#)
- [Drive Serial Number](#) (for drive or media alerts only)
- [Volume Serial Number](#) (for drive or media alerts only)

Alert Location Information

- [Library Serial Number](#)
- [Library Name](#)
- [Library Complex Name](#)

User-Provided Information

- [Annotation History](#)

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Exchanges Overview Screen
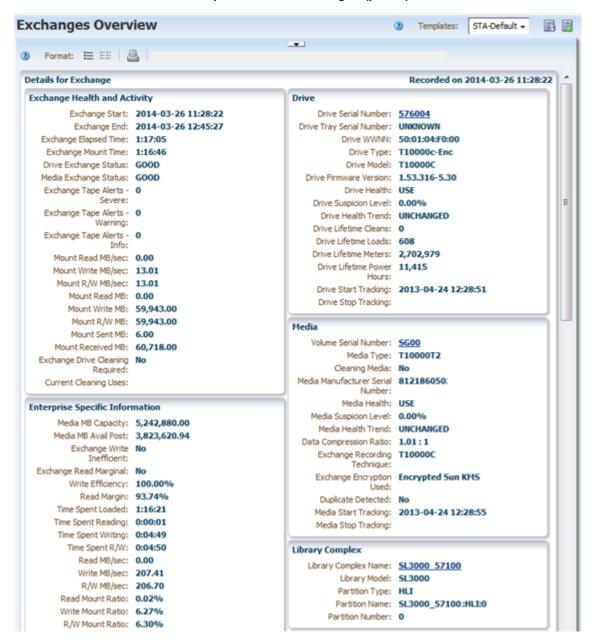
The Exchanges Overview screen shows attributes related to one or more exchanges. There is one view for exchanges involving StorageTek enterprise media and a slightly different view for LTO media.

The exchange attributes are organized into the following sections.

Exchanges Overview Detail Views

Detail for Enterprise Media Exchanges (part 1)

Detail for Enterprise Media Exchanges (part 2)

Exchanges Overview

Templates: STA-Default

Format:

Repositioning Cycles: 40
Repositioning Cycles Non 10
ERP:

Additional Enterprise Exchange Information

Exchange FSC:
Exchange DSC:
Media Blank: **No**
Media Write Efficiency:
RQI:
Permanent Error: **No**
MV Test Type:
MV Test Percentage:
Perm Read Errors: **0**
Perm Write Errors: **0**
Servo Perm Errors: **0**
Unload Errors: **0**
Usage Perm Errors: **0**
Drive Lifetime Meters **496,769**
Positioning:
Drive Lifetime Meters of **2,702,979**
Head Contact:

Enterprise Exchange Alerts - Severe

Alert: Drive Clean Now: **No**
Alert: Drive Failure **No**
Predicted:
Alert: Drive Temperature: **No**
Alert: Media Clean **No**
Expired:
Alert: Media Error: **No**
Alert: Media Loading **No**
Failure:
Alert: Media **No**
Maintenance:
Alert: Media No Start of **No**
Data:
Alert: Media System Read **No**
Failure:
Alert: Media System Write **No**
Failure:
Alert: Media **No**
Unrecoverable Snapped:
Alert: Permanent Error: **No**

Enterprise Exchange Alerts - Warning

Drive Bay Location

Drive Library Name: **sl3000-175**
Drive Library Serial **57100**
Number:
Drive Library Number: **1**
Drive Rail Number: **1**
Drive Physical Address: **1,1,4,1,2**
Drive HLI Address:
Drive SCSI Element ID: **-1**

Media Source Location

Media Source Library **1**
Number:
Media Source Rail **1**
Number:
Media Source Physical **1,1,7,2,6**
Address:
Media Source HLI
Address:
Media Source SCSI **-1**
Element ID:

Media Destination Location

Media Destination Library **1**
Number:
Media Destination Rail **1**
Number:
Media Destination **1,1,7,2,6**
Physical Address:
Media Destination HLI
Address:
Media Destination SCSI **-1**
Element ID:

Enterprise Exchange Alerts - Informational

Alert: Drive Dump **No**
Available:
Alert: Drive Event Log **No**
Near Full:
Alert: Drive Load Limit: **No**
Alert: Drive Model **No**
Incompatible:
Alert: Media End of **No**
Warranty:
Alert: Media Life **No**
Exceeded:
Alert: Media Load Limit: **No**

Detail for Enterprise Media Exchanges (part 3)

Detail for LTO Media Exchanges (part 1)

Exchanges Overview

Templates: STA-Default ▾

Format:

Details for Exchange   **Recorded on 2015-01-07 16:45:17**

Exchange Health and Activity

Exchange Start:	**2015-01-07 16:45:17**
Exchange End:	**2015-01-07 16:46:58**
Exchange Elapsed Time:	**0:01:41**
Exchange Mount Time:	**0:00:31**
Drive Exchange Status:	**GOOD**
Media Exchange Status:	**GOOD**
Exchange Tape Alerts - Severe:	**0**
Exchange Tape Alerts - Warning:	**0**
Exchange Tape Alerts - Info:	**0**
Mount Read MB/sec:	**0.00**
Mount Write MB/sec:	**0.00**
Mount R/W MB/sec:	**0.00**
Mount Read MB:	**0.00**
Mount Write MB:	**0.00**
Mount R/W MB:	**0.00**
Mount Sent MB:	**0.00**
Mount Received MB:	**0.00**
Exchange Drive Cleaning Required:	**No**
Current Cleaning Uses:	

LTO Specific Information

Media MB Capacity:	**2,384,185.00**
Media MB Avail Pre:	**2,227,464.00**
Media Length in Meters:	**846**
Media Manufacturer Date:	**2014-02-28 17:00:00**
Media Auxiliary Memory Capacity:	**16,384**
Formatted Density Code:	**90**
Lifetime Hours Incompatible:	**0**
Drive Lifetime Hours in Motion:	**61**
IBM Drive Efficiency:	**0x0A**
IBM Media Efficiency:	**0x01**
HP Device Status:	
HP Media Status:	

Drive

Drive Serial Number:	**1068000545**
Drive Tray Serial Number:	**Unknown**
Drive WWNN:	**50:01:04:F0:00:A0:E5:29**
Drive Type:	**IbmUltrium6**
Drive Model:	**LTO6**
Drive Firmware Version:	**E6R6**
Drive Health:	**USE**
Drive Suspicion Level:	**0.00%**
Drive Health Trend:	**UNCHANGED**
Drive Lifetime Cleans:	**0**
Drive Lifetime Loads:	**18,914**
Drive Lifetime Meters:	**988,720**
Drive Lifetime Power Hours:	**1,834**
Drive Start Tracking:	**2014-12-18 09:15:44**
Drive Stop Tracking:	

Media

Volume Serial Number:	**S60361**
Media Type:	**LTO6**
Cleaning Media:	**No**
Media Manufacturer Serial Number:	**X140301457**
Media Health:	**USE**
Media Suspicion Level:	**0.00%**
Media Health Trend:	**UNCHANGED**
Data Compression Ratio:	
Exchange Recording Technique:	**LTO6**
Duplicate Detected:	**No**
Media Start Tracking:	**2014-12-18 09:15:47**
Media Stop Tracking:	

Library Complex

Library Complex Name:	**SL8500_51**
Library Model:	**SL8500**
Partition Type:	**HLI**
Partition Name:	**SL8500_51:HLI:0**
Partition Number:	**0**

Drive Bay Location

Detail for LTO Media Exchanges (part 2)

Exchanges Overview
Templates: STA-Default ▾

Format: ☰ ☷ | 🖨 |

HP Media Status:

LTO Exchange Alerts - Severe

Alert: Drive Automated Interface:	No
Alert: Drive Clean Now:	No
Alert: Drive Cooling Fan:	No
Alert: Drive Failure Predicted:	No
Alert: Drive Hardware A:	No
Alert: Drive Hardware B:	No
Alert: Drive Interface Fault:	No
Alert: Drive Temperature:	No
Alert: Media Clean Expired:	No
Alert: Media Eject Failed:	No
Alert: Media Error:	No
Alert: Media Loading Failure:	No
Alert: Media No Start of Data:	No
Alert: Media Recoverable Mechanical:	No
Alert: Media System Read Failure:	No
Alert: Media System Write Failure:	No
Alert: Media Unrecoverable Mechanical:	No
Alert: Read Failure:	No
Alert: Unrecoverable Unload:	No
Alert: Write Failure:	No

Drive Bay Location

Drive Library Name:	sl8500-99
Drive Library Serial Number:	516000200164
Drive Library Number:	1
Drive Rail Number:	2
Drive Physical Address:	1,2,1,1,1
Drive HLI Address:	1,1,8
Drive SCSI Element ID:	-1

Media Source Location

Media Source Library Number:	1
Media Source Rail Number:	2
Media Source Physical Address:	1,2,-3,1,2
Media Source HLI Address:	1,2,1,0
Media Source SCSI Element ID:	-1

Media Destination Location

Media Destination Library Number:	1
Media Destination Rail Number:	2
Media Destination Physical Address:	1,2,-3,1,2
Media Destination HLI Address:	1,2,1,0
Media Destination SCSI Element ID:	-1

LTO Exchange Alerts - Informational

Detail for LTO Media Exchanges (part 3)

Title

Values for these attributes are assigned at the start of the exchange.

- Recorded on

Exchange Health and Activity

Details about the media and drive health during the exchange

- Exchange Start
- Exchange End
- Exchange Elapsed Time
- Exchange Mount Time
- Drive Exchange Status
- Media Exchange Status
- Exchange Tape Alerts – Severe
- Exchange Tape Alerts – Warning
- Exchange Tape Alerts – Info
- Mount Read MB/sec

- Mount Write MB/sec

- Mount R/W MB/sec

- Mount Read MB

- Mount Write MB

- Mount R/W MB

- Mount Sent MB

- Mount Received MB

- Exchange Drive Cleaning Required

- Current Cleaning Uses

Drive

Details about the drive involved in the exchange.

- Drive Serial Number

- Drive Tray Serial Number

- Drive WWNN

- Drive Type

- Drive Model

- Drive Firmware Version

- Drive Health

- Drive Suspicion Level

- Drive Health Trend

- Drive Lifetime Cleans

- Drive Lifetime Loads

- Drive Lifetime Meters

- Drive Lifetime Power Hours

- Drive Start Tracking

- Drive Stop Tracking

Media

Details about the media involved in the exchange.

- Volume Serial Number

- Media Type

- Cleaning Media

- Media Manufacturer Serial Number

- Media Health

- Media Suspicion Level

- Media Health Trend

- Data Compression Ratio

- Exchange Recording Technique

- Exchange Encryption Used (e0nterprise exchanges only)

- Duplicate Detected

- Media Start Tracking

- Media Stop Tracking

Library Complex

Information about the library complex where the exchange occurred. The information is current as of the last completed library data collection.

- Library Complex Name

- Library Model

- Partition Type

- Partition Name

- Partition Number

Enterprise Specific Information

Information specific to the StorageTek enterprise drive involved in the exchange. Appears only if the exchange involved an enterprise drive.

- Media MB Capacity

- Media MB Avail Post

- Exchange Write Inefficient

- Exchange Read Marginal

- Write Efficiency

- Read Margin

- Time Spent Loaded

- Time Spent Reading

- Time Spent Writing

- Time Spent R/W

- Read MB/sec

- Write MB/sec

- R/W MB/sec

- Read Mount Ratio

- Write Mount Ratio

- R/W Mount Ratio

- Repositioning Cycles

- Repositioning Cycles Non ERP

Additional Enterprise Exchange Information

Information about errors that occurred during the exchange. Appears only if the exchange involved a StorageTek enterprise drive.

- Exchange FSC
- Exchange DSC
- Media Blank
- Media Write Efficiency
- RQI
- Permanent Error
- MV Test Type
- MV Test Percentage
- Perm Read Errors
- Perm Write Errors
- Servo Perm Errors
- Unload Errors
- Usage Perm Errors
- Drive Lifetime Meters Positioning
- Drive Lifetime Meters of Head Contact

LTO Specific Information

Information specific to the LTO drive involved in the exchange. Appears only if the exchange involved an LTO drive.

- Media MB Capacity
- Media MB Avail Pre
- Media Length in Meters
- Media Manufacturer Date
- Media Auxiliary Memory Capacity
- Formatted Density Code
- Lifetime Hours Incompatible
- Drive Lifetime Hours in Motion
- IBM Drive Efficiency
- IBM Media Efficiency
- HP Device Status
- HP Media Status

Drive Bay Location

Location of the drive involved in the exchange.

- Drive Library Name

- Drive Library Serial Number

- Drive Library Number

- Drive Rail Number

- Drive Physical Address

- Drive HLI Address

- Drive SCSI Element ID

Media Source Location

Location of the media at the start of the exchange; the location immediately before the mount. Can be a media slot or drive.

- Media Source Library Number

- Media Source Rail Number

- Media Source Physical Address

- Media Source HLI Address

- Media Source SCSI Element ID

Media Destination Location

Location of the media at the completion of the exchange. This is the first location immediately after the dismount from the drive, therefore it is always in the same library where the exchange occurred. The location can be a media slot or drive.

- Media Destination Library Number

- Media Destination Rail Number

- Media Destination Physical Address

- Media Destination HLI Address

- Media Destination SCSI Element ID

Enterprise Exchange Alerts – Severe

Information about severe errors that occurred during the exchange. This section appears for enterprise drives only.

- Alert: Drive Clean Now

- Alert: Drive Failure Predicted

- Alert: Drive Temperature

- Alert: Media Clean Expired

- Alert: Media Error

- Alert: Media Load Failure

- Alert: Media Maintenance

- Alert: Media No Start of Data

- Alert: Media System Read Failure

- Alert: Media System Write Failure

- Alert: Media Unrecoverable Snapped

- Alert: Permanent Error

Enterprise Exchange Alerts – Warning

Information about warning errors that occurred during the exchange. This section appears for enterprise drives only.

- Alert: Drive Clean Periodic Requested

- Alert: Drive FW Failure

- Alert: Drive Hard Error

- Alert: Media Load Failure

- Alert: Media Cart Memory Failure

- Alert: Media Directory Invalid

- Alert: Media Lost Statistics

- Alert: MIR Invalid

- Alert: Media RFID Warning

- Alert: Read Warning

- Alert: Write Warning

Enterprise Exchange Alerts – Informational

Information about informational errors that occurred during the exchange. This section appears for enterprise drives only.

- Alert: Drive Dump Available

- Alert: Drive Event Log Near Full

- Alert: Drive Load Limit

- Alert: Drive Model Incompatible

- Alert: Media End of Warranty

- Alert: Media Life Exceeded

- Alert: Media Load Limit

LTO Exchange Alerts – Severe

Information about severe errors that occurred during the exchange. This section appears for LTO drives only.

- Alert: Drive Automated Interface

- Alert: Drive Clean Now

- Alert: Drive Cooling Fan

- Alert: Drive Failure Predicted

- Alert: Drive Hardware A

- Alert: Drive Hardware B

- Alert: Drive Interface Fault
- Alert: Drive Temperature
- Alert: Media Clean Expired
- Alert: Media Eject Failed
- Alert: Media Error
- Alert: Media Load Failure
- Alert: Media No Start of Data
- Alert: Media Recoverable Mechanical
- Alert: Media System Read Failure
- Alert: Media System Write Failure
- Alert: Media Unrecoverable Mechanical
- Alert: Read Failure
- Alert: Unrecoverable Unload
- Alert: Write Failure

LTO Exchange Alerts – Warning

Information about informational errors that occurred during the exchange. This section appears for LTO drives only.

- Alert: Drive Clean Periodic Requested
- Alert: Drive Diagnostics Required
- Alert: Drive Dual-Port Interface
- Alert: Drive FW Failure
- Alert: Drive Voltage
- Alert: Drive Hard Error
- Alert: Media Cart Memory Failure
- Alert: Media Directory Corrupt
- Alert: Media Directory Invalid
- Alert: Media Lost Statistics
- Alert: Media Not Data Grade
- Alert: Read Warning
- Alert: WORM Integrity Failure
- Alert: WORM Overwrite Attempted
- Alert: Write Warning

LTO Exchange Alerts – Informational

Information about informational errors that occurred during the exchange. This section appears for LTO drives only.

- Alert: Cleaning Media

- Alert: Drive FW Download

- Alert: Drive Load Limit

- Alert: Forced Eject Attempted

- Alert: Invalid Cleaning

- Alert: Media Diminished Capacity

- Alert: Media Life Exceeded

- Alert: Media Load Limit

- Alert: Media Nearing End of Life

- Alert: Read Only

- Alert: Unload Prevented

- Alert: Unsupported Format

- Alert: Write Protect

User-Provided Information

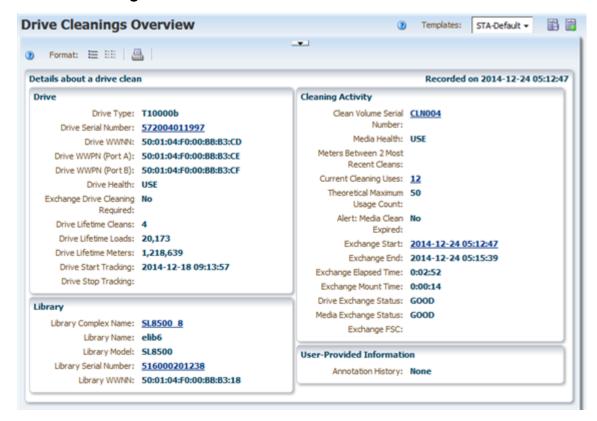- Annotation History

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Drive Cleanings Overview Screen

The Drive Cleanings Overview screen shows attributes related to drive cleaning exchanges. This screen reports all cleaning activity, including successful and unsuccessful cleaning exchanges.

> **Note:** Cleaning media are not required to have a volser starting with "CLN".

The attributes are organized into the following sections.

- "Title" on page 13-2
- "Drive" on page 13-2
- "Cleaning Activity" on page 13-3
- "Library" on page 13-3
- "User-Provided Information" on page 13-3

Drive Cleanings Overview Detail View

Title

Values for these attributes are assigned when the cleaning action starts.

- Recorded on

Drive

Details about the drive involved in the cleaning action.

- Drive Type
- Drive Serial Number
- Drive WWNN
- Drive WWPN (Port A)
- Drive WWPN (Port B)
- Drive Health
- Exchange Drive Cleaning Required
- Drive Lifetime Cleans
- Drive Lifetime Loads
- Drive Lifetime Meters
- Drive Start Tracking
- Drive Stop Tracking

Cleaning Activity

Details about the drive clean exchange.

- Clean Volume Serial Number
- Media Health
- Meters Between 2 Most Recent Cleans
- Current Cleaning Uses
- Theoretical Maximum Usage Count
- Alert: Media Clean Expired
- Exchange Start
- Exchange End
- Exchange Elapsed Time
- Exchange Mount Time
- Drive Exchange Status
- Media Exchange Status
- Exchange FSC

Library

Details about the library where the drive clean took place.

- Library Complex Name
- Library Name
- Library Model
- Library Serial Number
- Library WWNN

User-Provided Information

- Annotation History

Media Validation Overview Screen

The Media Validation Overview screen shows details about media validation activity. This screen does not have a detail view.

Media Validation Overview List View

Media Validation Attribute Definitions

Attributes are listed in the order they appear in the STA-MediaValidation-All template.

- MV Priority Order
- Volume Serial Number
- MV Time Spent Validating
- MV Estimated Time Remaining
- Exchange Start
- MV Test Type
- MV Request State
- MV Result
- MV Interrupted
- MV Incomplete

- MV Status Information
- MV Recommendation
- MV DQI
- Permanent Error
- MV Initiator
- MV Policy Name
- Drive Serial Number
- Media Type
- Exchange Recording Technique
- MV Request Start
- MV Test Percentage
- MV Last State Update
- Exchange FSC
- Exchange DSC
- MV Library Error
- Drive Model
- MV Calibration Request
- Library Complex Name
- Media Library Name
- Library Model
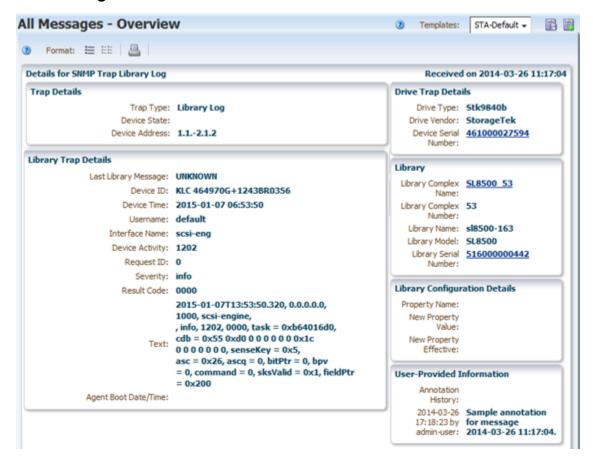- Media Library Serial Number

15

Messages Screens

The Messages screens show attributes relating to SNMP traps received by STA from the libraries. The following screens show different views of these attributes:

- Libraries – Messages
- Drives – Messages
- Media – Messages
- All Messages – Overview
- All Messages – Analysis

The attributes on the All Messages – Overview detail view are organized into the following sections.

- "Title" on page 15-2
- "Trap Details" on page 15-2
- "Drive Trap Details" on page 15-2
- "Library Trap Details" on page 15-3
- "Library" on page 15-3
- "Library Configuration Details" on page 15-3
- "User-Provided Information" on page 15-3

All Messages Overview Detail View

Title

Values for these attributes are assigned when the SNMP trap is received from the library.

- SNMP Trap
- Received on

Trap Details

Provides information about the type of SNMP trap and the device involved.

- Trap Type
- Device State
- Device Address

Drive Trap Details

Provides detailed information from the drive trap.

- Drive Type
- Drive Vendor
- Device Serial Number

Library Trap Details

Provides detailed information from the library trap.

- Last Library Message
- Device ID
- Device Time
- Username
- Interface Name
- Device Activity
- Request ID
- Severity
- Result Code
- Text
- Agent Boot Date/Time

Library

Provides information about the library that sent the SNMP trap.

- Library Complex Name
- Library Complex Number
- Library Name
- Library Model
- Library Serial Number

Library Configuration Details

Provides detailed information about library hardware configuration update traps.

- Property Name
- New Property Value
- New Property Effective

User-Provided Information

- Annotation History