

StorageTek

Modular Libraries SNMP Reference Guide

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Preface

This document contains Simple Network Management Protocol (SNMP) reference information for Oracle's StorageTek SL150, SL3000, and SL8500 libraries.

Listed MIB objects correspond to MIB version 2.18.

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SNMP Overview and Requirements

Simple Network Management Protocol (SNMP) is an application layer protocol that performs network management operations over Ethernet using the User Datagram Protocol/Internet Protocol (UDP/IP). With SNMP, administrators can query the library for information (configuration, operation, statistical) and the library can inform administrators of potential problems. The library can also send information to a StorageTek Tape Analytics (STA) server (for more information, see the STA documentation on OTN).

- [Supported SNMP Versions](#)
- [SNMP Ports](#)
- [SNMP Configuration Requirements](#)
- [SNMP Configuration Methods](#)

Supported SNMP Versions

- SNMP v3 — Both read and write support. Transmitted information is secure.
- SNMP v2c — Read-only support primarily for machine status queries. Transmitted information is not secure.

Note: Configuring `public` or `private` as valid community strings is a major security risk.

Either SNMP v2c or SNMP v3 can retrieve object IDs in the MIB file and send traps to the trap recipient list. However, because SNMP v3 provides encryption capabilities and stronger user identification, you can change library properties only with SNMP v3.

SNMP Ports

Configure firewalls to allow communications over these ports:

- 161 — For transmittal of SNMP requests to read the MIB.
- 162 — For reception of SNMP traps (notifications of device problems, errors, or significant events).

SNMP Configuration Requirements

- Library firmware:

- SL8500 version FRS_3.12 or higher
- SL3000 version FRS_1.7 or higher
- SL150 version 1.0 or higher

Note: STA has separate firmware requirements. See the STA documentation for more information.

- SLC version FRS_4.0 or higher.
- SNMP must be enabled on the library.

SNMP Configuration Methods

You can configure SNMP through the following methods:

- SL3000 and SL8500 — CLI (see [Chapter 4, "Configuring SNMP with the CLI"](#)).
- SL150 — Browser user interface with user role of either administrator or service (see the *SL150 User's Guide*).

MIB Objects

The management information base (MIB) is an ASCII text file containing the object identifiers (OIDs) that define the characteristics of a managed device (such as an Oracle StorageTek tape library). These characteristics are the functional elements for that device and can be monitored using SNMP software. When a manager requests information, or a managed device generates a trap, the MIB translates the numeric strings into readable text that identifies each data object within the message.

- [MIB Location and Object Name](#)
- [Downloading the MIB with SLC](#)
- [Type Definitions](#)
- [Object Definitions](#)

MIB Location and Object Name

The MIB is included with the library firmware and stored on the library processor card. The object name is:

```
STREAMLINE-TAPE-LIBRARY-MIB:streamlineTapeLibrary ==  
1.3.6.1.4.1.1211.1.15
```

Where:

- 1 = iso
- 3 = identified-organization
- 6 = dod
- 1 = internet
- 4 = private
- 1 = enterprise
- 1211 = storagetek
- 1 = products
- 15 = slseriesTapeLibrary

Downloading the MIB with SLC

1. Log into the library.
2. Select **Tools > Diagnostics**.

3. Select Library in the device tree.
4. Click the **TransferFile** tab.
5. Select **SNMP MIB**, and then click **Transfer File**.
6. Save the file with a .txt suffix.

Type Definitions

Type Definition	Description
SILibraryId	Library identifier (n of Max) within a complex
SILibraryIdMax	Maximum library identifier within a complex
SIComplexId	Library complex identifier
SISnmpPort	SNMP ports allowed
SISnmpTrapPort	SNMP trap ports allowed
SICmdClear	The SNMP trap ports allowed (1=no action, 2=clear)
SIDeviceStatus	Device status (ok=0, error=1, warning=2, info=3, trace=4)
SILibraryCondition	Condition of library (normal=0, degraded=1, not operative=2)
SIMediaEventType	Type of media error (load=1, unload=2, error=3, load retry=4, drive error=5, media end of life=6, drive end of life=7, decryption error=8, unknown=9)
SIHaState	State of RE controller (simplex=0, duplex=1, nonRE=2)
SIHaId	Identifier of RE controller (active=0, standby=1, nonRE=2)
SIHaSlot	Slot of RE controller (side A =0, side B =1, nonRE =3)
SIDriveFibreLoopId	Fibre loop ID of drive
SIDriveFibreSpeed	Drive Fibre and SAS port speed (unknown=1, FC one Gbit=2, FC two Gbit=3, FC four Gbit=4, FC eight Gbit=5, FC 10 Gbit=6, SAS 1.5 Gbit=8, SAS three Gbit =9, SAS six Gbit=10, FC 16 Gbit=13)
SIDriveFibreAddressing	Drive fibre addressing (hard=1, soft=2)
SIDriveStatus	Status of drive (unknown=0, initializing=1, empty=2, cartridge present=3, loading=4, loaded=5, cleaning=6, rewinding=7, unloading=8, inoperative=9, not loadable=10, not unloadable=11)
SIPartitionType	Type of partition (hli=1, scsi=2, other=3)
SICellHostTypeTC	Cell host type (invalid /unknown cell =0, storage slot =1, tape drive =2, CAP or mailslot =3, playground /system cell =4, intransit /reserved cell =5, PTP =6, hand /robotic cell =7)
SISeverityTC	Severity level that a trap can have (ok=0, heartbeat/verification=1, telemetry/metrics=2, configuration=3, trace/debugging=4, information/nominal behavior=5, warning/degraded behavior=6, error/non-operational=7, critical/system fault=8, fatal/system unusable=9, other=10)
SIDiagEntityTC	The entity that diagnosed the fault (fault manager/dedicated on-board fault detection software=1, library app other than fault manager=2, operating system=3, primitive/driver or other low-level firmware=4, other=5)

Type Definition	Description
SIFaultTypeTC	Fault type based on servicing importance (heartbeat/i'm alive or test event=0, automatically recovered=1, suspicious/transient or contributing factor=2, routine/well known=3, escalated/requires more scrutiny=4, critical/overall system behavior affected=5, alert/imminent customer impact=6, dire/customer impacted=7, emergency/immediate service required=8)
SICountTC	Amount of items counted
SIFruStatusTC	Status of an FRU (other=1, suspected=2, faulted=3, repaired=4, replaced=5, acquitted=6)

Object Definitions

Note: Some listed MIB objects may not be implemented at time of publication.

MIB Category	Object Prefixes Used
"Cartridge Access Port (CAP) Objects"	slCap
"Cell Objects"	slCell
"Controller Objects"	slController
"Drive Objects"	slDrive
"Elevator Objects"	slElevator
"Embedded Agent Data Objects"	slAgent
"Fan Objects"	slFan
"Host Interface Objects"	slHostInterface
"Library — Configuration Objects"	slLibLSMConfig
"Library — Cleaning Objects"	slLibClean
"Library — Date Objects"	slLibDate
"Library — Global Elements Objects"	slLib slLibrary
"Library — Identification Objects"	slLib slLibLibrary
"Library — Location Objects"	slLibLocat
"Library — Media Event Objects"	slLibMediaEvent
"Library — Network Objects"	slLibNetwork
"Library — State Objects"	slLibLSM slLibLSMState slLibLSMStatus
"Library — Statistics Objects"	slLibStats
"Library — Version Objects"	slLibVersion
"Media Validation Objects"	slMV
"Pass-Thru Port (PTP) Objects"	slPtp
"Power Supply Objects"	slPowerSupply

MIB Category	Object Prefixes Used
"Redundant Electronics Objects"	slAgentHA slAgentHa
"Robot Objects"	slRobot
"Safety Door Objects"	slSafetyDoor
"Tape Cartridge Objects"	slTape
"Temperature Sensor Objects"	slTempSensor
"Test Trap Generation Objects"	slAgentTrapTest
"Trap — Automatic Service Request (ASR) Objects"	slTrapAsrSuspect
"Trap — Configuration Objects"	slTrapConfig
"Trap — Device Objects"	slTrap slTrapDevice
"Trap — Service Event Objects"	slTrapSvc
"Trap — Test and Heartbeat Objects"	slTrap slTrapLib slTrapHa
"Turntable Objects"	slTurntable slTurntables

Cartridge Access Port (CAP) Objects

CAP OID	Description
slCapCount	Amount of CAPs in the CAP table
slCapTable	Table of cartridge access ports (CAPs)
slCapEntry	A cartridge access port (CAP)
slCapIndex	Integer index into the CAP table
slCapPhysicalAddressStr	String for CAP's physical address
slCapAccessibility	Accessibility of a CAP (for example, open allow/prevent)
slCapAccessStateEnum	Access state of the CAP, presented as an enumeration
slCapState	Physical state of the CAP
slCapStatusEnum	Operational status of the CAP presented as an enumeration
slCapName	Name of CAP
slCapRotations	Rotation count of CAP
slCapRotationRetries	Number of rotation retries performed by the CAP
slCapRotationFails	Number of rotation failures performed by the CAP
slCapIPLs	Number of IPLs performed by the CAP
slCapSerialNumber	Serial number of the CAP
slCapCodeVer	Code version of the CAP
slCapVersion	Version of the CAP
slCapFirmwareVer	Firmware version of the CAP
slCapReserved	The reserved state of the CAP

CAP OID	Description
slCapSize	The size of the CAP
slCapAddressRange	The CAP address range (not applicable to the SL150 library)
slCapUsageStr	The CAP usage string (not applicable to the SL150 library)
slCapModeStr	The CAP mode string (not applicable to the SL150 library)
slCapMagazineBits	The number of magazines (not applicable to the SL150 library)
slCapEnabled	The enabled state of the CAP (not applicable to the SL150 library)

Cell Objects

Cell OID	Description
slCellCount	Amount of storage elements in the cell table
slCellStorageFreeCells	Amount of available (empty) storage cells in the library
slCellStorageRestrictedFreeCells	Amount of available restricted (empty) storage cells in the library
slCellTable	Table of storage elements in the library
slCellEntry	Storage element
slCellIndex	Integer index into the storage cell table
slCellElementID	Element ID or translated logical HLI address of the storage cell
slCellHostAccessible	Indication of host accessible status
slCellContentStatus	Status of the cell (unknown, empty, readable, not_readable, cap_magazine_not_present, drive_not_present, drive_not_available)
slCellContentLabel	Label of the cartridge in the cell (zero length string if empty, '?????' if unreadable)
slCellContentType	Type of the cartridge in the cell (zero length string if empty) which is a text string based on enumerated domain and type values derived from the VOLSER label
slCellGetRetryCount	Amount of get retries performed from this cell
slCellPutRetryCount	Amount of put retries performed to this cell
slCellHostType	The type of cell (0=invalid/unknown cell, 1=storage slot, 2=tape drive, 3=customer access port or mail slot, 4=playground/system cell, 5=intransit/reserved or recovery cell, 6=pass thru port, 7=robotic cell)
slCellPhysicalAddressStr	Physical address string of storage cell
slCellLogicalAddressStr	Logical address string of storage cell
slCellPartition	Partition ID of storage cell
slCellPartitionType	Partition type of storage cell
slCellCapacityEnabled	Whether the storage cell is enabled (1) or disabled (0)
slCellCapacityAllowed	The number of cells licensed for use.
slCellCapacityUsed	The number of cells being used.

Controller Objects

Controller OID	Description
slControllerCount	Count of the controllers in the controller table
slControllerTable	Table of controllers
slControllerEntry	Controller entry (HBC, RLC, HBT, and so forth)
slControllerIndex	Index of controller card
slControllerPhysicalAddressStr	String for physical address of controller
slControllerSerialNum	Serial number of controller card
slControllerTopLevelCondition	Top-level condition of controller (normal, degraded, not operative)
slControllerFaultLED	Fault LED state of controller
slControllerSafeToRemoveLED	Safe to remove LED state of controller
slControllerStatusEnum	Operational of controller status in enumerated form
slControllerCodeVer	Code version of controller
slControllerVersion	Version of controller
slControllerFirmwareVer	Firmware version of controller
slControllerHAState	High Availability Status of controller (active=0 and Standby=1)
slControllerHaId	RE controller identifier (active=0, standby=1)
slControllerHaSlot	RE controller slot (sideA=0, sideB=1)
slControllerHaAlternateIp	IP address of alternate RE controller
slControllerFru	Field Replaceable Unit (FRU)-based serial number of controller

Drive Objects

Drive OID	Description
slDriveCount	Amount of the drives in the drive table
slDriveTable	Table of drives
slDriveEntry	Tape drive
slDriveIndex	Integer index into the drive table
slDriveHashedPhysAddr	Physical address of the drive
slDriveType	Type of drive (for example, STK10000) derived from manufacturer and make of drive
slDriveVendor	Vendor of drive (for example, STK, HP and IBM)
slDriveSerialNum	Electronic serial number of drive
slDriveInterfaceType	Physical data transport type of drive (1=unknown, 2=scsi, 3=fibre, 4=sas, 5=other, 6=escon, 7=fcoe, 8=ficon)
slDriveID	SCSI ID or Fibre port assignment of drive
slDriveState	State of drive (for example, empty, loaded, needs cleaning)
slDriveLED	State of drive tray LED (0 =off, 1 =on)
slDriveStatusEnum	Operational status of drive in enumerated form

Drive OID	Description
slDriveCodeVer	Code version (software or firmware) of drive
slDriveVersion	Hardware version of drive
slDriveGetRetries	Amount of mount retries performed to the drive
slDrivePutRetries	Amount of dismount retries performed to the drive
slDriveCommandClean	Signal to start or cancel cleaning of the drive
slDriveCellStatusEnum	Status of drive cell presented as an enumeration
slDriveCellStatusText	Status of drive cell
slDriveCellContentLabel	Label of the cartridge in the drive (a zero length string =empty, ?????? =unreadable)
slDriveCellContentType	Type of cartridge in the drive (a zero length string =empty)
slDriveIdleSeconds	Amount of seconds the drive has been idle (unmounted)
slDriveNumMounts	Amount of mounts to the drive
slDriveFibreNodeName	Fibre node name (node WWN) of drive
slDriveFibrePortCount	Amount of active ports in the drive
slDriveFibrePortAwwn	World Wide Name (WWN) of port A
slDriveFibrePortAAddressingMode	Addressing mode of port A
slDriveFibrePortAPortEnabled	Port A enabled (2) or disabled (1)
slDriveFibrePortALoopId	Loop ID of port A
slDriveFibrePortAPortSpeed	Port speed of port A
slDriveFibrePortBwwn	World Wide Name (WWN) of port B
slDriveFibrePortBAddressingMode	Addressing mode of port B
slDriveFibrePortBPortEnabled	Port B enabled (2) or disabled (1)
slDriveFibrePortBLoopId	Loop ID of port B
slDriveFibrePortBPortSpeed	Port speed of port B
slDriveWWNEnabled	World Wide Name (WWN) option for the drive is enabled (can only be set using the command line interface)
slDrivePhysicalAddressStr	Physical address string of drive
slDriveTraySerialNumber	Serial number of drive tray

Elevator Objects

Elevator OID	Description
slElevatorCount	Amount of elevators in elevator table
slElevatorTable	Table of elevators
slElevatorEntry	Elevator
slElevatorIndex	Elevator index
slElevatorPhysicalAddressStr	Physical address string for elevator
slElevatorPositionOn	Physical position of elevator (not implemented, but defined for backward compatibility for non-SL libraries)

Elevator OID	Description
slElevatorHandCartStatus	Elevator hand state (cartridge =1, no cartridge =0)
slElevatorSerialNum	Serial number of elevator
slElevatorState	State of elevator (such as idled, moving, inoperative)
slElevatorFaultLED	Fault LED state of elevator
slElevatorStatusEnum	Operational status of elevator in enumerated form
slElevatorCodeVer	Code version of elevator
slElevatorVersion	Version of elevator
slElevatorFirmwareVer	Firmware version of elevator
slElevatorGetRetries	Number of mount retries performed to the elevator
slElevatorPutRetries	Number of dismount retries performed to the elevator
slElevatorGetFails	Number of mount fails for the elevator
slElevatorPutFails	Number of dismount fails for the elevator
slElevatorGetTotals	Sum of all mount operations of the elevator
slElevatorPutTotals	Sum of all dismount operations of the elevator

Embedded Agent Data Objects

Embedded Agent Data OID	Description
slAgentRevision	Firmware version of the embedded agent
slAgentLibStatusAtStartup	Condition of the library at agent start (normal, degraded, not-operational)
slAgentBootDate	Date and time when the agent initialized
slAgentURL	URL for Web based management
slAgentTrapPort	UDP port number where the agent will send traps
slAgentPort	UDP port number where the agent is listening
slAgentCommunity	The agent default community

Fan Objects

Fan OID	Description
slFanCount	Amount of monitored fans in the library
slFanTable	Table of the library's fans
slFanEntry	Fan
slFanIndex	Integer index into the fan table
slFanName	Name of the fan
slFanOperational	Operational state of the fan

Host Interface Objects

Host Interface OID	Description
slHostInterfaceCount	Count of interface cards
slHostInterfaceTable	Table of host interfaces
slHostInterfaceEntry	Host interface entry (such as Fiber or SCSI)
slHostInterfaceIndex	Integer index into the table of host interface cards
slHostInterfaceFibreCount	Amount of active fibres in this host interface card
slHostInterfaceAWWN	Fibre A World Wide Name (WWN)
slHostInterfaceA1AddressingMode	Addressing mode for Port A1
slHostInterfaceA1PortEnabled	Port enabled for Port A1
slHostInterfaceA1LoopId	Loop ID for Port A1
slHostInterfaceA1PortSpeed	Port speed for Port A1
slHostInterfaceA2AddressingMode	Addressing mode for Port A2
slHostInterfaceA2PortEnabled	Port enabled for Port A2
slHostInterfaceA2LoopId	Loop ID for Port A2
slHostInterfaceA2PortSpeed	Port speed for Port A2
slHostInterfaceBWWN	Fibre B World Wide Name
slHostInterfaceB1AddressingMode	Addressing mode for Port B1
slHostInterfaceB1PortEnabled	Port enabled for Port B1
slHostInterfaceB1LoopId	Loop ID for Port B1
slHostInterfaceB1PortSpeed	Port speed for Port B1
slHostInterfaceB2AddressingMode	Addressing mode for Port B2
slHostInterfaceB2PortEnabled	Port enabled for Port B2
slHostInterfaceB2LoopId	Loop ID for Port B2
slHostInterfaceB2PortSpeed	Port speed for Port B2
slHostInterfaceElementID	Element ID /address of the controller
slHostInterfaceSerialNum	Serial number for controller card
slHostInterfaceStatus	State of controller (OK, error, warning)
slHostInterfaceFaultLED	Fault LED state for controller
slHostInterfaceSafeToRemoveLED	Safe to remove LED state for controller
slHostInterfaceStatusEnum	Operational status for controller in enumerated form
slHostInterfaceCodeVer	Code version for controller
slHostInterfaceVersion	Hardware version for controller
slHostInterfaceFirmwareVer	Firmware version for controller

Library — Configuration Objects

Library — Configuration OID	Description
sLibLSMConfigCount	Amount of LSMs installed
sLibLSMConfigTable	A table of LSM configurations
sLibLSMConfigEntry	LSM configuration entry
sLibLSMConfigIndex	LSM configuration index
sLibLSMConfigNumPanels	Amount of physical panels
sLibLSMConfigNumHandCells	Amount of physical hands
sLibLSMConfigMinHandAddr	Minimum Element ID or address of physical hands
sLibLSMConfigMaxHandAddr	Maximum Element ID or address of physical hands
sLibLSMConfigNumSystemCells	Amount of system and reserved cells
sLibLSMConfigNumRestrictedCells	Amount of customer restricted cells
sLibLSMConfigMinSystemAddr	Minimum Element ID or address of system cells
sLibLSMConfigMaxSystemAddr	Maximum Element ID or address of system cells
sLibLSMConfigNumCaps	Amount of cartridge access ports (CAPs)
sLibLSMConfigNumCapColumns	Amount of columns within CAPs
sLibLSMConfigNumCapCells	Amount of CAP cells
sLibLSMConfigMinCapAddr	Minimum Element ID or address of CAP cells
sLibLSMConfigMaxCapAddr	Maximum Element ID or address of CAP cells
sLibLSMConfigNumDriveColumns	Amount of drive columns
sLibLSMConfigNumDrives	Amount of tape drives
sLibLSMConfigMinDriveAddr	Minimum Element ID or address of tape drives
sLibLSMConfigMaxDriveAddr	Maximum Element ID or address of tape drives
sLibLSMConfigNumStorageCells	Amount of storage cells
sLibLSMConfigMinStorageAddr	Minimum Element ID or address of storage cells
sLibLSMConfigMaxStorageAddr	Maximum Element ID or address of storage cells
sLibLSMConfigNumPtps	Amount of pass-thru ports (PTPs)
sLibLSMConfigNumPtpColumns	Amount of columns within the PTPs
sLibLSMConfigNumPtpCells	Amount of PTP cells
sLibLSMConfigMinPtpAddr	Minimum Element ID or address of PTP cells
sLibLSMConfigMaxPtpAddr	Maximum Element ID or address of PTP cells

Library — Cleaning Objects

Library — Cleaning OID	Description
sLibCleanEnabled	Auto clean feature configuration (not supported on all libraries)
sLibCleanNumCartTypes	Number of unique cartridge types supported
sLibCleanWarnTable	Table of clean count warning thresholds

Library — Cleaning OID	Description
sLibCleanWarnEntry	Table entry for clean count warning threshold
sLibCleanWarnIndex	Index into clean warning threshold table
sLibCleanWarnCartType	Cleaning cartridge type (for example, SDLT, 9840, LTO and T10000)
sLibCleanWarnCount	Configured warning count threshold
sLibCleanNumCarts	Count of the clean cartridges in the library
sLibCleanCartTable	Table of cleaning cartridges in the library
sLibCleanCartEntry	Cleaning cartridge
sLibCleanCartIndex	Integer index into the cleaning cartridge table
sLibCleanCartLabel	Clean cartridge label
sLibCleanCartType	Cleaning cartridge type
sLibCleanCartLocationElementID	Clean cartridge location: SCSI Element ID or translated HLI Address
sLibCleanCartHostAccessible	Indication of host accessible status
sLibCleanCartUsageCount	Number of times that the cartridge has been used to clean a tape drive

Library — Date Objects

Library — Date OID	Description
sLibDateString	Library date and time, in the following format: YYYY:MM:DD HH:MM:SS

Library — Global Elements Objects

Library — Global Elements OID	Description
sLibStkBaseModel	StorageTek Library model name (see vendor specific model data)
sLibSerialNumber	Serial number of library frame
sLibWWNNumber	Library World Wide Number (WWN) (a 64-digit hexadecimal number)
sLibraryTopLevelCondition	Library overall condition (normal, degraded, not-operational)
sLibraryState	The status of the library (online, offline)

Library — Identification Objects

Library — Identification OID	Description
sLibLibraryId	Library identifier (n of Max) within a library complex
sLibLibraryIdMax	Maximum library identifier within a library complex
sLibComplexId	Identifier of library complex
sLibMibVer	Version of the MIB supported by the library

Library — Location Objects

Library — Location OID	Description
sLibLocatContact	Primary contact for administration of the library
sLibLocatStreet	Street address of location site
sLibLocatState	State /province of location site
sLibLocatZip	ZIP code or other data of location site
sLibLocatCountry	Country of location site
sLibLocatDescr	Description or other data of location site
sLibLocatCity	City of location site

Library — Media Event Objects

Library — Media Event OID	Description
sLibMediaEventCount	Amount of media statistics in the table
sLibMediaEventTable	Table of media statistics
sLibMediaEventEntry	Statistic about media error
sLibMediaEventIndex	Index into the media error statistic table
sLibMediaEventVolid	Volume ID of the optical barcode
sLibMediaEventMediaDomain	The domain field of the optical barcode detected from the VOLSER label
sLibMediaEventMediaType	The type of the optical barcode detected from the VOLSER label (1=load, 2=unload, 3=error, 4=loadRetry, 5=driveError, 6=mediaEndOfLife, 7=driveEndOfLife, 8=decryption error, 9=unknown)
sLibMediaEventDriveSerialNum	Electronic serial number of the drive
sLibMediaEventDriveType	Type of tape drive
sLibMediaEventDateTime	Log entry date and time in this format: MM:DD:YYYY HH:MM:SS
sLibMediaEventEnum	Type of media error, reported as an enumeration
sLibMediaEventOccurrenceCount	Occurrence count for media statistic

Library — Network Objects

Library — Network OID	Description
sLibNetworkCount	Count of all the Ethernet ports
sLibNetworkTable	Table of network interfaces
sLibNetworkEntry	Network interface entry
sLibNetworkIndex	Index into the table
sLibNetworkInterfaceName	Interface name used by the library software
sLibNetworkIpAddr	IP address of library
sLibNetworkGateway	Internet gateway of library network
sLibNetworkEthAddr	Physical 48 bit Ethernet address of library

Library — Network OID	Description
sLibNetworkName	Host name of library network
sLibNetworkNetmask	Internet address netmask of library network
sLibNetworkDhcpEnabled	DHCP IP address /name client lookup service status (NA)
sLibNetworkDomainName	Network domain name of library network
sLibNetworkPrimaryDNS	Primary DNS server of library network
sLibNetworkSecondaryDNS	Secondary DNS server of library network
sLibNetworkRXPkets	Amount of packets received
sLibNetworkTXPkets	Amount of packets transmitted
sLibNetworkErrors	Amount of errors on this interface
sLibNetworkDropped	Amount of dropped packets on this interface
sLibNetworkOverruns	Amount of overrun packets on this interface
sLibNetworkFrame	Amount of frame packets on this interface
sLibNetworkCollisions	Amount of collisions on this interface

Library — State Objects

Library — State OID	Description
sLibLSMCount	LSM count
sLibLSMStateTable	A table LSM states
sLibLSMStateEntry	Entry of an LSM state
sLibLSMStateIndex	Index of LSM state
sLibLSMStatus	LSM operational state reported as a string (for example, offline, online, or offline pending) — a hardware-based state and derived from robot state
sLibLSMStatusEnum	LSM operational state, reported as an enumeration (online =0, offline =1, offlinePending =2)

Library — Statistics Objects

Library — Statistics OID	Description
sLibStatsNumBoots	Amount of library initializations
sLibStatsNumDoorOpens	Amount of occurrences when the service door has been opened
sLibStatsNumGetRetries	Total of get retries
sLibStatsNumGetFails	Total of get failures
sLibStatsNumPutRetries	Total of put retries
sLibStatsNumPutFails	Total of put failures
sLibStatsNumLabelRetries	Total of label read retries
sLibStatsNumLabelFails	Total of label read failures
sLibStatsNumTargetRetries	Total of target read retries
sLibStatsNumTargetFails	Total of target read failures

Library — Statistics OID	Description
sLibStatsNumMoves	Total of cartridge moves
sLibStatsNumMounts	Total of mounts
sLibStatsNumTargetReads	Total of target reads
sLibStatsNumEmptyReads	Total of empty cell reads
sLibStatsNumLabelReads	Total of label reads
sLibStatsGetTotals	Sum of all Get operations of individual robots
sLibStatsPutTotals	Sum of all Put operations of individual robots
sLibStatsCumMachUptime	Cumulative machine up time in seconds
sLibStatsUpTimeSinceLastBoot	In seconds

Library — Version Objects

Library — Version OID	Description
sLibVersionFirmRev	Embedded firmware revision of library, per engineering change (EC) field releases
sLibVersionFirmDate	Embedded firmware build date of library
sLibVersionBootRev	Boot software/OS version of library
sLibVersionHardware	Controller hardware version of library

Media Validation Objects

Media Validation OID	Description
sMVDDriveCount	Amount of drives currently assigned to the media validation pool
sMVDDriveTable	A table of media validation drives
sMVDDriveEntry	A media validation tape drive
sMVIndex	Integer index into the media validation drive table
sMVDDrivePhysicalAddressStr	Physical address of drive assigned to media validation pool
sMVDDriveType	Make and manufacturer of drive assigned to media validation pool
sMVDDriveSerialNum	Electronic serial number of drive assigned to media validation pool
sMVDDriveState	State of drive assigned to media validation pool (includes empty, loaded, needs cleaning)
sMVDDriveCodeVer	Firmware or software of drive assigned to media validation pool
sMVDDriveCellStatusStr	Status of the cell of the drive assigned to media validation pool
sMVDDriveCellContentLabel	Label of the cartridge in the drive assigned to media validation pool (0 if empty, ?????? if unreadable)
sMVRReservationId	0 indicates the drive assigned to media validation pool is available for use
sMVTapeVolserLabelStr	Physical address of drive assigned to media validation pool
sMVTypeEnum	Type of validation applied to cartridge (0 = no validation, 1 = basic verify, 2 = complete verify from beginning of tape, 3 = complete verify resume, 4 = complete verify divbot, 5 = complete verify divresume, 6 = standard verify, 7 = rebuild MIR, 8 = stop)

Media Validation OID	Description
slMVOriginatorStr	Test initiator of media validation
slMVStatusStr	Status of media validation test
slMVCompletionStatusStr	Percentage that media validation is completed or that validation has been stopped
slMVErrorCodeStr	Error code for media validation

Pass-Thru Port (PTP) Objects

PTP OID	Description
slPtpCount	Amount of pass-through ports in the library
slPtpTable	Table of pass-thru ports
slPtpEntry	Pass-thru port
slPtpIndex	Integer index into the PTP table
slPtpPhysicalAddressStr	PTP device address
slPtpSerialNum	Serial number of PTP
slPtpState	State of the PTP (online, offline)
slPtpFaultLED	Fault LED state of PTP
slPtpStatusEnum	PTP operational state reported as an enumeration
slPtpCodeVer	Code version of PTP
slPtpVersion	Hardware version of PTP
slPtpFirmwareVer	Firmware version of PTP
slPtpMoveRetries	Amount of move retries performed by PTP
slPtpMoveFails	Number of move Fails performed by the Pass-thru Port
slPtpMoveTotals	Number total moves performed by the Pass-thru Port

Power Supply Objects

Power Supply OID	Description
slPowerSupplyCount	Amount of power supplies installed in the library
slPowerSupplyTable	Table of the library power supplies
slPowerSupplyEntry	Power supply
slPowerSupplyIndex	Integer index into the power supply table
slPowerSupplyName	Name of the power supply
slPowerSupplyInstalled	Indicates if the supply is installed (2) or not (1)
slPowerSupplyOperational	Indicates if the supply is OK (2) (meaningless if power supply not installed)

Redundant Electronics Objects

Redundant Electronics OID	Description
slAgentHAState	State of RE controller (simplex =0, duplex/switchable =1)
slAgentHAId	Identifier of RE controller (active =0, standby =1)
slAgentHaSlot	Slot of RE controller (sideA =0, sideB =1)
slAgentHaAlternateIp	IP address of alternate RE controller

Robot Objects

Robot OID	Description
slRobotCount	Amount of robot mechanisms
slRobotTable	A table of robots
slRobotEntry	Robot
slRobotIndex	Robot index
slRobotPhysicalAddressStr	Physical address string of robot
slRobotPosition	Physical position of the robot (continued to be defined for backward compatibility with robot table)
slRobotHandCartStatus	State of the robot hand regarding a cartridge (cartridge =1, no cartridge =0)
slRobotSerialNum	Card serial number of robot
slRobotState	State of the robot (such as empty, loaded, moving)
slRobotFaultLED	Fault LED stats of robot (off =0, on =1)
slRobotStatusEnum	Operational status of robot in enumerated form
slRobotCodeVer	Code version of robot
slRobotVersion	Hardware version of robot
slRobotFirmwareVer	Firmware version of robot
slRobotGetRetries	Number of mount retries performed by robot
slRobotPutRetries	Number of dismount retries performed by robot
slRobotGetFails	Amount of Get fails for robot
slRobotPutFails	Amount of Put fails for robot
slRobotGetTotals	Sum of all Get operations from robots
slRobotPutTotals	Sum of all Put operations from robots

Safety Door Objects

Safety Door OID	Description
slSafetyDoorCenterCount	The number of times the safety door has returned to the center (home) position
slSafetyDoorRetries	Amount of total safety door retries
slSafetyDoorIPLs	Amount of IPLs performed by the safety door

Tape Cartridge Objects

Tape Cartridge OID	Description
slTapeCount	Amount of the cartridges in the inventory table
slTapeTable	Table of data cartridges (tapes) in the library
slTapeEntry	Cartridge
slTapeIndex	Integer index into the inventory table
slTapeLabel	Cartridge label
slTapeType	Cartridge type (text string based on the enumerated domain and type values that are derived from the volser label)
slTapeLocationElementID	Element ID or translated logical HLI address of the tape cartridge
slTapeHostAccessible	Indication of host accessible status
slTapePhysicalAddressStr	Physical address string of cartridge
slTapeLogicalAddressStr	Logical address of cartridge
slTapePartition	Partition ID of cartridge
slTapePartitionType	Partition type of cartridge

Temperature Sensor Objects

Temperature Sensor OID	Description
slTempSensorCount	Amount of temperature sensors in the library
slTempSensorTable	Table of the library's temperature sensors
slTempSensorEntry	Temperature sensor
slTempSensorIndex	Integer index into the temperature sensor table
slTempSensorName	Name of the temperature sensor
slTempSensorCurrentTemp	Current / present temperature reading
slTempSensorHighTemp	Storage area peak temp since last machine boot
slTempSensorWarnThreshold	Temperature threshold for automated warning
slTempSensorFailThreshold	Temperature threshold for automated library shutdown

Test Trap Generation Objects

Test Trap Generation OID	Description
slAgentTrapTestLevel	Set to a trap level to generate a trap test for that level. When this is read, the last written value is returned. If a trap level is not implemented, an error will be returned when writing.
slAgentTrapTestCount	Amount of times slAgentTrapTestLevel has been written to.

Trap — Automatic Service Request (ASR) Objects

Trap — ASR OID	Description
slTrapAsrSuspectCount	Number of FRU call-outs to follow in this trap (max 5)

Trap — ASR OID	Description
slTrapAsrSuspectTable	Table of diagnosed fault suspects
slTrapAsrSuspectEntry	Suspect table entry
slTrapAsrSuspectIndex	Sequence number for suspect FRUs
slTrapAsrSuspectFaultCertainty	Percentage of likelihood that the component is the source of the problem (object has a value of 0 if the system does not support this information)
slTrapAsrSuspectDevice Address	Location of the suspect FRU (either a 5-tuple or 4-tuple physical address)
slTrapAsrSuspectFruName	Name of the suspect FRU
slTrapAsrSuspectFruChassisId	Text string containing serial number of chassis (unambiguous identification of system when combined with slTrapProductName)
slTrapAsrSuspectFruManufacturer	Name of manufacturer of this FRU /CRU
slTrapAsrSuspectFruPn	Replacement part number used to order this FRU /CRU
slTrapAsrSuspectFruSn	Serial (entitlement) number for this FRU /CRU
slTrapAsrSuspectFruRevision	Revision level of this FRU /CRU
slTrapAsrSuspectFruReserved	Placeholder for future content
slTrapAsrSuspectFruStatus	Status of FRU /CRU

Trap — Configuration Objects

Trap — Configuration OID	Description
slTrapConfigLibrarySerialNumber	Frame serial number of the library
slTrapConfigDeviceId	Device's FRUI ID, needed for high availability
slTrapConfigDeviceTime	Device's date and time in UTC standard format
slTrapConfigDeviceAddress	Device address of the component associated with the log entry.
slTrapConfigDeviceUserName	User name on the device that identifies the access level that originated the activity
slTrapConfigDeviceInterfaceName	Name representing the interface on the device that was used to request the activity
slTrapConfigDeviceActivity	Short text name representing the device activity being performed
slTrapConfigDeviceRequestId	Device request ID associated with the activity with this trap
slTrapConfigDeviceSeverity	Device log severity
slTrapConfigDeviceResultCode	Device result code
slTrapConfigPropertyName	Device property name that is being configured
slTrapConfigNewPropertyValue	New value that has been changed (only success is reported)
slTrapConfigNewPropertyEffective	Condition when the new property value will be effective

Trap — Device Objects

Trap — Device OID	Description
slTrapLibrarySerialNumber	Frame serial number of the library
slTrapDeviceId	FRU ID of device (generally component model +serial number)

Trap — Device OID	Description
slTrapDeviceTime	Device's date and time in UTC standard format
slTrapDeviceAddress	Device address of the component associated with the log entry.
slTrapDeviceUserName	User name on the device that identifies the access level that originated the activity
slTrapDeviceInterfaceName	Name representing the interface on the device that was used to request the activity
slTrapDeviceActivity	Short text name representing the device activity being performed
slTrapDeviceRequestId	Device request ID associated with the activity with this trap
slTrapDeviceSeverity	Device log severity
slTrapDeviceResultCode	Device result code
slTrapDeviceFreeFormText	Freeform text area, usually from subsystems that led to log entry

Trap — Service Event Objects

Trap — Service Event OID	Description
slTrapSvcEventTime	Time stamp of when the service event occurred
slTrapSvcLibProductManufacturer	Product manufacturer of library
slTrapSvcLibProductName	Product name of library
slTrapSvcLibProductSn	Product serial (entitlement) number of library
slTrapSvcLibStatus	Condition of the overall system at the time of the event (normal, degraded, not-operational)
slTrapSvcLibEntity	Software component (diagnostic entity) that generated this fault event
slTrapSvcEventId	Underlying local library event ID that was the catalyst behind this service event
slTrapSvcFaultEventUUID	Universal unique identifier that was assigned to this fault (will have a value of NULL if the system does not support this information)
slTrapSvcFaultEventType	Fault event type based on servicing importance
slTrapSvcFaultEventCount	Amount of equivalent fault events since last boot
slTrapSvcFaultEventDescription	Textual description of the fault event
slTrapSvcDeviceEventSeverity	Fault severity of device or system
slTrapSvcDeviceEventActivity	Short text name representing what activity the device was last commanded to perform
slTrapSvcDeviceEventOpCode	Device operational code, indicating state of FRU/CRU
slTrapSvcDeviceEventResultCode	The device result code based upon last command completed
slTrapSvcServiceData	Descriptive text string of this particular service event
slTrapSvcLocalization	Localization string for current service event

Trap — Test and Heartbeat Objects

Trap — Test and Heartbeat OID	Description
slTrapCount	Amount of traps generated since last boot

Trap — Test and Heartbeat OID	Description
slTrapLibBootDate	Date & time when the agent initialized
slTrapLibDateString	Date and time of library in format: YYYY:MM:DDTHH:MM:SS
slTrapLibSerialNumber	Serial number of library frame
slTrapLibTopLevelCondition	Overall condition of the library (normal, degraded, not-operational)
slTrapHaState	State of RE controller (simplex=0, duplex/switchable=1)
slTrapHaId	Identifier of RE controller (active=0, standby=1)
slTrapHaSlot	Slot of RE controller (sideA=0, sideB=1)
slTrapHaAlternateIp	IP address of alternate RE controller

Turntable Objects

Turntable OID	Description
slTurntableCount	Count of the turntables in the turntable table
slTurntableTable	A table of turntables
slTurntableEntry	A turntable entry
slTurntableIndex	A turntable index
slTurntablePhysicalAddressStr	Physical address string of a turntable
slTurntablePosition	Physical LSM position of the turntable (0=left, 1=right)
slTurntableHandCartStatus	The turntable's hand state (cartridge=1, no cartridge=0)
slTurntableSerialNum	Serial number of the turntable
slTurntableState	State of the turntable (idled, moving, in-op, and so forth)
slTurntableFaultLED	Fault LED state
slTurntableStatusEnum	Operational status of the turntable, in enumerated form
slTurntableCodeVer	Code version of the turntable
slTurntableVersion	Hardware version of the turntable
slTurntableFirmwareVer	Firmware version of the turntable
slTurntablesRotations	Rotation count of the turntable
slTurntablesRotationRetries	Number of rotation retries performed by the turntable
slTurntablesRotationFails	Number of rotation failures performed by the turntable
slTurntablesIPLs	Number of IPLs performed by the turntable

SNMP Traps

An SNMP trap is assigned a number that corresponds to its type. An embedded SNMP agent can distinguish and filter trap recipients based on the trap numbers for which they are registered.

Generic traps (1-10) are generated from log entries. Event-based traps (11 and higher) are generated from library events and contain object IDs (OIDs).

- [Generic Traps from Log Entries \(1-10\)](#)
- [Event-Based Traps \(11-102\)](#)

Generic Traps from Log Entries (1-10)

Generic traps contain:

- Severity codes, for indications such as an error or a warning
- Result codes, such as *0000 =success*, or *5010 =robotic position error*
- Activity string, such as HLI move or CLI version print
- A descriptive text string
- Date and time
- Other information, such as:
 - Device address associated with the event
 - User name associated with the activity
 - Interface-specific request identifier

Generic Trap	Sent When	SL150	SL3000	SL8500
<code>slTrapError (1)</code>	Errors are posted in the log	x	x	x
<code>slTrapWarning (2)</code>	Warnings are posted in the log	x	x	x
<code>slTrapInformation (3)</code>	Information is posted in the log	x	x	x
<code>slTrapConfiguration (4)</code>	Changes are made in a system property, such as network IP or Fibre mode	x		

`slTrapError (1)`

Reports a device condition critical to library operation.

MIB Objects:

- sITrapLibrarySerialNumber
- sITrapDeviceId
- sITrapDeviceTime
- sITrapDeviceAddress
- sITrapDeviceUserName
- sITrapDeviceInterfaceName
- sITrapDeviceActivity
- sITrapDeviceRequestId
- sITrapDeviceSeverity
- sITrapDeviceResultCode
- sITrapDeviceFreeFormText

sITrapWarning (2)

Reports a device condition which may need attention, such as a recoverable device failure that places the system in a degraded mode.

MIB Objects:

- sITrapLibrarySerialNumber
- sITrapDeviceId
- sITrapDeviceTime
- sITrapDeviceAddress
- sITrapDeviceUserName
- sITrapDeviceInterfaceName
- sITrapDeviceActivity
- sITrapDeviceRequestId
- sITrapDeviceSeverity
- sITrapDeviceResultCode
- sITrapDeviceFreeFormText

sITrapInformation (3)

Reports information for normal activity monitoring.

MIB Objects:

- sITrapLibrarySerialNumber
- sITrapDeviceId
- sITrapDeviceTime
- sITrapDeviceAddress
- sITrapDeviceUserName
- sITrapDeviceInterfaceName
- sITrapDeviceActivity

- sITrapDeviceRequestId
- sITrapDeviceSeverity
- sITrapDeviceResultCode
- sITrapDeviceFreeFormText

sITrapConfiguration (4)

Reports changes made to a system property or configuration, such as an IP address.

MIB Objects:

- sITrapLibrarySerialNumber
- sITrapDeviceId
- sITrapDeviceTime
- sITrapDeviceAddress
- sITrapDeviceUserName
- sITrapDeviceInterfaceName
- sITrapDeviceActivity
- sITrapDeviceRequestId
- sITrapDeviceSeverity
- sITrapDeviceResultCode
- sITrapConfigPropertyName,
- sITrapConfigNewPropertyValue
- sITrapConfigNewPropertyEffective

Event-Based Traps (11-102)

Messages for traps 11-102 contain information specific to the agent, device, or media. Consult each trap within the library's MIB for the specific data objects returned.

Event-based traps are divided into the following groups:

- Agent-specific: 11-20
- Device-specific: 21-100
 - Library status: 21-27
 - Drive status: 41-45
 - Cartridge access port (CAP) status: 61-65
 - Pass-thru port (PTP) status: 81-85
- Media-specific: 101 and above

Trap	Sent When	SL150	SL3000	SL8500
sITrapAgentStart (11)	An SNMP agent has started.	x	x	x
sITrapAgentTest (13)	sIAgentTrapTestLevel OID is written with a 13.	x	x	x

Trap	Sent When	SL150	SL3000	SL8500
slTrapAgentHeartbeatA (14)	Heartbeat is at frequency A (quick rate).	x	x	x
slTrapAgentHeartbeatB (15)	Heartbeat is at frequency B (slow rate).	x	x	x
slTrapLibStatusGood (21)	Library has changed to normal mode.	x	x	x
slTrapLibStatusCheck (25)	Library has changed from normal mode.	x	x	x
slTrapEnvHdwCheck (27)	A device in the library has had an environmental check.	x	x	x
slTrapDrvStatusGood (41)	Drive has changed to a normal mode.	x	x	x
slTrapDrvStatusCheck (45)	Drive has changed from normal mode.	x	x	x
slTrapCapStatusGood (61)	CAP has changed to a normal mode.	x	x	x
slTrapCapStatusOpen (63)	CAP state has changed to open.	x	x	x
slTrapCapStatusCheck (65)	CAP status has changed from normal mode.	x	x	x
slTrapPtpStatusGood (81)	PTP status has changed to good (normal mode)			x
slTrapPtpStatusCheck (85)	PTP status has changed from a normal mode.			x
slTrapTbiEvent (100)	Proprietary			
slTrapSvcEvent (101)	Proprietary			
slTrapAsrEvent (102)	Proprietary			

slTrapAgentStart (11)

Sent when the agent starts.

MIB Objects:

- slAgentBootDate
- slAgentLibStatusAtStartup
- slAgentHaState
- slAgentHaId
- slAgentHASlot
- slAgentHaAlternateIp
- slControllerFru
- slLibSerialNumber

slTrapAgentTest (13)

Sent when slAgentTrapTestLevel OID is written with a 13.

MIB Objects:

- sITrapCount
- sITrapLibBootDate
- sITrapLibDateString
- sITrapLibSerialNumber
- sITrapLibTopLevelCondition
- sITrapHaState
- sITrapHaId
- sITrapHaSlot
- sITrapHaAlternateIp

sITrapAgentHeartbeatA (14)

Sent at heartbeat frequency A (quick rate).

MIB Objects:

- sITrapCount
- sITrapLibBootDate
- sITrapLibDateString
- sITrapLibSerialNumber
- sITrapLibTopLevelCondition
- sITrapHaState
- sITrapHaId
- sITrapHaSlot
- sITrapHaAlternateIp

sITrapAgentHeartbeatB (15)

Sent at heartbeat frequency B (slow rate).

MIB Objects:

- sITrapCount
- sITrapLibBootDate
- sITrapLibDateString
- sITrapLibSerialNumber
- sITrapLibTopLevelCondition
- sITrapHaState
- sITrapHaId
- sITrapHaSlot
- sITrapHaAlternateIp

sITrapLibStatusGood (21)

Sent when the library status changes to good (normal mode).

MIB Objects:

- sLibraryTopLevelCondition
- sLibStkBaseModel
- sLibSerialNumber

sITrapLibStatusCheck (25)

Sent when the library condition changes from a normal mode, such as degraded or not-operative.

MIB Objects:

- sLibraryTopLevelCondition
- sLibStkBaseModel
- sLibSerialNumber

sITrapEnvHdwCheck (27)

Sent when the library environment or hardware condition changes.

MIB Objects:

- sITrapLibrarySerialNumber
- sITrapDeviceId
- sITrapDeviceTime
- sITrapDeviceAddress
- sITrapDeviceUserName
- sITrapDeviceInterfaceName
- sITrapDeviceActivity
- sITrapDeviceRequestId
- sITrapDeviceSeverity
- sITrapDeviceResultCode
- sITrapDeviceFreeFormText

sITrapDrvStatusGood (41)

Sent when a drive status changes to good (normal mode).

MIB Objects:

- sLibSerialNumber
- sIDriveState
- sIDrivePhysicalAddressStr
- sIDriveType
- sIDriveVendor
- sIDriveSerialNum

sITrapDrvStatusCheck (45)

Sent when a drive status changes from a normal mode to a check condition, such as error, warning, or unknown.

MIB Objects:

- sLibSerialNumber
- sIDriveState
- sIDrivePhysicalAddressStr
- sIDriveType
- sIDriveVendor
- sIDriveSerialNum

sITrapCapStatusGood (61)

Sent when a CAP status changes to a normal mode.

MIB Objects:

- sLibSerialNumber
- sICapState
- sICapPhysicalAddressStr

sITrapCapStatusOpen (63)

Sent when a CAP status changes to Open.

MIB Objects:

- sLibSerialNumber
- sICapState
- sICapAddress

sITrapCapStatusCheck (65)

Sent when a CAP status changes from a normal mode, such as error, warning, or unknown.

MIB Objects:

- sLibSerialNumber
- sICapState
- sICapPhysicalAddressStr

sITrapPtpStatusGood (81)

Sent when a PTP status changes to good (normal mode).

MIB Objects:

- sLibSerialNumber
- sIPtpState
- sIPtpPhysicalAddressStr

sITrapPtpStatusCheck (85)

Sent when a PTP status changes from a normal mode, such as an error, warning, or unknown.

MIB Objects:

- sLibSerialNumber
- sIPtpState
- sIPtpPhysicalAddressStr

Configuring SNMP with the CLI

You use the CLI to configure SNMP on SL3000 and SL8500 libraries. To configure SNMP on the SL150 library, see the *SL150 User's Guide*. To configure SNMP for STA, see the *STA Installation and Configuration Guide*.

- [Configuration Process](#)
- [Variable Definitions](#)
- [Managing Ports](#)
- [Managing SNMP Users](#)
- [Managing Trap Recipients](#)
- [Configuring Service Information](#)

Configuration Process

Use the following process for general library SNMP configuration.

1. Obtain the IP address of the host that will receive traps.
2. Enable library ports to use SNMP (see "Managing Ports").
3. Obtain or create an SNMP user name (see "Managing SNMP Users").
4. Configure trap recipients (see "Managing Trap Recipients").
5. Configure service information (see "Configuring Service Information").

Variable Definitions

Listed CLI commands use the following variables. Enclose some variables in single quotes, as indicated in the command syntax and examples.

Variable	Definition
<i>trapLevelString</i>	Specified trap levels. Can be single digit or several digits separated by commas.
<i>hostAddr</i>	IP address of the host. Cannot be the DNS name.
<i>userName</i> <i>trapUserName</i>	Name assigned to the SNMP user. All libraries monitored by a single server must have the same v3 user name. Oracle recommends that you create a new, unique user for this purpose.
<i>auth_protocol</i>	MD5 (Message Digest 5) or SHA (Secure Hash Algorithm) authentication protocol for users and hosts receiving traps.
<i>authPassPhrase</i>	Authorization password. Must be at least eight characters in length and cannot contain commas, semicolons, or equal signs.

Variable	Definition
<i>privacy_protocol</i>	DES or AES. Privacy protocol type, Data Encryption Standard (DES) or Advanced Encryption Standard (AES).
<i>privPassPhrase</i>	Encryption password that is the private key for encryption. Must be at least eight characters in length, and cannot contain commas, semicolons, or equal signs.
<i>engineIdString</i>	A string of hexadecimal characters (31 maximum), preceded with 0x. The authoritative engine ID is from the SNMP agent that sends the traps (such as the library). Required on SNMPv3 traps.
<i>communityString</i>	Agent community string. Can contain a maximum of 31 alphanumeric characters (a-z, A-Z, 0-9). Special characters are not allowed. For SNMPv3 there are no community strings. Use of the names <code>public</code> or <code>private</code> for the <i>communityString</i> is strongly discouraged for security reasons. These names are commonly used and easily guessed by a potential attacker.
<i>index</i>	Index number of either the SNMP user name or trap recipient, depending on the command.
<i>portID</i>	port2A or port2B . These are the public interface ports.
<i>contactString</i>	Name of contact for service
<i>streetAddrString</i>	Street address
<i>cityString</i>	City
<i>stateString</i>	State
<i>countryString</i>	Country
<i>zipString</i>	ZIP
<i>descriptionString</i>	Any description you want to enter
<i>phoneString</i>	Phone number for service

Managing Ports

By default, the SNMP agent is disabled. You enable or disable SNMP for a specified library port (2B = standard, public port and 2A = optional, redundant port).

CLI Commands to Manage Ports	Description
<code>snmp ports print</code>	Shows the SNMP port status.
<code>snmp enable portID</code>	Enables SNMP on a port. Example: > snmp enable port2B
<code>snmp disable portID</code>	Disables SNMP on a port. Example: > snmp disable port2A

Managing SNMP Users

You can specify a maximum of 20 SNMP users.

Note: You should not remove an existing SNMP v2c public user without consulting Oracle support. In some cases, an SNMP v2c public user is required for Oracle Service Delivery Platform (SDP).

CLI Commands to Manage SNMP Users	Description
<code>snmp listUsers</code>	Lists SNMP users.
<code>snmp addUser version v3 name 'userName' auth auth_protocol authPass 'authPassPhrase' priv privacy_protocol privPass 'privPassPhrase'</code>	For SNMP v3. Adds an SNMP user. Example: > snmp addUser version v3 name 'TESTsnmp' auth SHA authPass 'authpwd1' priv DES privPass 'privpwd1'
<code>snmp addUser version v2c community communityString</code>	For SNMP v2c. Adds an SNMP user. Example: > snmp addUser version v2c community public Use of the names public or private for the <i>communityString</i> is strongly discouraged for security reasons. These names are commonly used and easily guessed by a potential attacker.
<code>snmp deleteUser id index</code>	Deletes a user by index number. Use <code>snmp listUsers</code> to obtain the index number. Example: > snmp deleteUser id 4
<code>snmp deleteUser version v3 name 'userName'</code>	For SNMP v3. Deletes a user by user name. Example: > snmp deleteUser version v3 name 'TESTsnmp'
<code>snmp deleteUser version v2c community communityString</code>	For SNMP v2c. Deletes a user by community name.

Managing Trap Recipients

You can specify up to 20 trap recipients with no duplicate entries. Specified recipients will receive trap notifications from the library.

CLI Commands to Manage Trap Recipients	Description
<code>snmp engineId print</code>	Shows the library engine ID.
<code>snmp listTrapRecipients</code>	Lists trap recipients.
<code>snmp addTrapRecipient trapLevel trapLevelString host hostAddr version v3 name 'trapUserName' auth auth_protocol authPass 'authPassPhrase' priv privacy_protocol privPass 'privPassPhrase' engineId engineIdString</code>	For SNMP v3. Adds a trap recipient. Example: > snmp addTrapRecipient trapLevel 1,2,3,4,11,13,14,21,25,27,41,45,61,63,65,81,85,100 host 192.0.2.20 version v3 name 'TESTsnmp' auth SHA authPass 'authpwd1' priv DES privPass 'privpwd1' engineId 0x80001f88043000000000000000000000
<code>snmp addTrapRecipient trapLevel trapLevelString host hostAddr version v2c community communityString</code>	For SNMP v2c. Adds a trap recipient. Example: > snmp addTrapRecipient trapLevel 1,2,3,4,11,13,14,21,25,27,41,45,61,63,65,81,85,100 host 192.0.2.20 version v2c community public Use of the names public or private for the <i>communityString</i> is strongly discouraged for security reasons. These names are commonly used and easily guessed by a potential attacker.
<code>snmp deleteTrapRecipient id index</code>	Deletes a trap recipient by index number. Use <code>snmp listTrapRecipients</code> to obtain the index number. Example: > snmp deleteTrapRecipient id 3

CLI Commands to Manage Trap Recipients	Description
snmp deleteTrapRecipient <i>host hostAddr</i> version v3 name 'trapUserName'	For SNMP v3. Deletes a trap recipient by host. Example: > snmp deleteTrapRecipient host 192.0.2.20 version v3 name 'TESTsnmp'
snmp deleteTrapRecipient <i>host hostAddr</i> version v2c community communityString	For SNMP v2c. Deletes a trap recipient by host.

Configuring Service Information

Enter up to 80 characters for any or all of the variables. Enclose all variables in single quotes, as indicated in the command syntax and examples.

CLI Commands to Configure Service Information	Description
config serviceInfo print	View service information.
config serviceInfo set contact 'contactString' streetAddr 'streetAddrString' city 'cityString' state 'stateString' country 'countryString' zip 'zipString' description 'descriptionString' phone 'phoneString'	Modify service information. Example: > config serviceInfo set contact 'Justin Case' streetAddr '1600 Pennsylvania Ave' city 'Washington' state 'DC' country 'USA' zip '20500' description 'None' phone '(123) 456-7890'