Quantum

Basic SNMP Reference Guide

Quantum Scalar *i*40 and Scalar *i*80

6-66773-04 Rev A

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Contents

Preface

This guide is for library customers, partners, third party management software developers, and other parties interested in integrating the Scalar® i40 and Scalar i80 with commercial management frameworks. It assumes that you have a working knowledge of Simple Network Management Protocol (SNMP), that you can compile a Management Information Base (MIB) on your framework application, that you can perform SNMP GET operations, and that you know how to collect SNMP traps and filter them for information.

This guide describes information that you can obtain from the Scalar i40 and Scalar i80 library SNMP. Using SNMP, you can monitor the library from a network management application rather than — or in addition to — the library's diagnostic ticket system. For information about the Scalar i40 and Scalar i80 libraries, refer to the *Scalar i40 and Scalar i80 User's Guide*.

The Scalar i40 and Scalar i80 libraries support SNMP by publishing a MIB that can be queried to obtain the status of the library and many of its individual components. You can obtain status information automatically by configuring the library to send alerts using SNMP traps, or you can obtain it on an ad-hoc basis by sending SNMP queries from your network management application.

Although the library's MIB contains additional objects that can be monitored via SNMP, this document provides details only about the objects that are most likely to be requested from the MIB. It also identifies the SNMP traps that can provide library status information to you automatically.

For more information about the library MIBs, contact Quantum Support. For information on integrating MIBs with an SNMP management application, contact your network management application vendor.

Explanation of Symbols and Notes

The following symbols appear throughout this document to highlight important information.

Note: Note emphasizes important information related to the main topic.

Caution: Caution indicates potential hazards to equipment or data.

WARNING: Warning indicates potential hazards to personal safety.

Other Documents You Might Need

The following document is also available for this product. This document can be found on the product documentation CD or at www.quantum.com/support.

- *Scalar i40 and Scalar i80 User's Guide (6-66545-xx)*

Quantum company contacts are listed below.

Quantum Corporate Headquarters

To order documentation on the Scalar i40 and Scalar i80 or other products contact:

Quantum Corporation *(Corporate Headquarters)*
1650 Technology Drive, Suite 700
San Jose, CA 95110-1382

Technical Publications

To comment on existing documentation send e-mail to:

doc-comments@quantum.com

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Chapter 1
Description

Simple Network Management Protocol (SNMP) is a light-weight protocol designed for remote management and monitoring of infrastructure devices. The Scalar® i40 and Scalar i80 libraries provide SNMP support so you can use a framework application to monitor the status of the library. Using SNMP, you can be alerted of numerous library events.

The Scalar i40 and Scalar i80 libraries also provide detailed status reports from their own reporting system, called the diagnostic ticket system. Diagnostic tickets enable library administrators to diagnose specific library events.

SNMP Functionality Available to Remote Applications

Both the Scalar i40 and Scalar i80 libraries support standard SNMP functionality, including GET queries and unicast traps (which can be sent only to registered recipients), that enable you to monitor library status from a remote application. SET commands are currently not enabled on the Scalar i40 and Scalar i80.

All Scalar i40 and Scalar i80 MIB variables are supported by Quantum for remote management of the library.

Specific Scalar i40 and Scalar i80 SNMP characteristics include:

- Supports SNMP v1, v2c, and v3
- Supports SNMP v1 and v2 traps as defined by RFC 1157. You can set the library to report SNMP traps using either v1 or v2 (v1 is the default). The timeout for all SNMP requests to the library must be at 10 seconds or greater (command line parameter-t).
- SMIv2 compliance only
- Usage of port 161 for GET queries
- Default community read/trap strings: *publicCmtyStr* (see SNMP Community Strings on page 8)
- Trap registration interface in the library's Web client, which enables you to configure application IP addresses, transport protocols, and user-configurable UDP port numbers to receive traps

Accessing SNMP Information

SNMP information can be obtained from the Scalar i40 and Scalar i80 using traps and GET queries. Using the information contained in this guide, library administrators can configure their framework application to generate alerts to receive Scalar i40 and Scalar i80 SNMP information.

By default, most SNMP information is returned as an integer value (library partition names, however, are returned as string values). For instance, the return value of physicalLibraryState might be 2, which indicates that the robotics is not ready.

You can, however, configure the framework application to return status information as a string value, which provides a description of the status. For example, the return value of physicalLibraryState might be notReady(2).

SNMPv3

Although the Scalar i40 and Scalar i80 support SNMP version 1 and version 2c for MIB information retrieval, we strongly recommend that you access the library using SNMP version 3 (SNMPv3). SNMPv3 is the most secure of the three versions, as it supports message digest 5, or MD5, as its authentication protocol.

To access the library for SNMP support, use the following values as needed in the remote management application:

User name: Admin

Context name: (None. Leave this field blank.)

Authentication protocol: MD5

Privacy protocol: (None. Leave this field blank.)

Password: Your Admin password

For secure access to the library using SNMP, disable SNMPv1 and SNMPv2c access from the Web client and the operator panel. For more information, see either the *Scalar i40 and Scalar i80 User's Guide* or the relevant Scalar i40 and Scalar i80 Web client online help topics.

SNMP Traps

Traps enable alerts to be sent automatically to registered hosts when specific events occur. Only one application per UDP port can listen for traps.

The Scalar i40 and Scalar i80 supports SNMP v1 and v2 traps as defined by RFC 1157.

You can set the library to report SNMP traps using either v1 or v2 (v1 is the default). The timeout for all SNMP requests to the library must be at 10 seconds or greater (command line parameter-t).

To receive traps, you must perform two steps:

1. Configure your framework application to collect traps from the Scalar i40 and Scalar i80.
2. Using the library's **SNMP Trap Registrations** feature, register the host's IP address, transport protocol, and UDP port number.

   Registration informs the Scalar i40 and Scalar i80 to send traps to the host.

For additional details about registering a host with the Scalar i40 and Scalar i80, refer to the *Scalar i40 and Scalar i80 User's Guide*.

SNMP Queries

SNMP queries, or GET queries, can be initiated on a periodic basis by the framework application. By querying the MIB, hosts can gather status information about specific components of the library. Frequent MIB queries are not required, however, since the SNMP agent is event-driven.

Caution: As with any SNMP device, excessive MIB queries can result in performance degradation for the SNMP daemon, as well as for the network.

GETs must also include an instance ID. The instance identifies a specific device from which you can retrieve status information. For example, to determine if the second partition on a Scalar i40 and Scalar i80 is online, access the MIB variable for logical library online status and select the instance for partition 2.

SNMP Community Strings

An SNMP community string is a text string that acts as a password to authenticate messages sent between the SNMP remote management application and the device (the SNMP agent). SNMP **Get** and **Get-next** requests are valid only if the community string in the request matches the community string at the device. If the community strings do not match, either modify the community string at the device so that it is the string that the management station expects, or modify the management station so that it uses the device's community strings.

The community string is included in every SNMPv1 and SNMPv2C packet transmitted between the SNMP manager and the SNMP agent. This string is case sensitive, cannot be empty, and cannot exceed 32 characters.

Use this procedure to configure the read-only SNMP community string.

1. Log in to the Web client.
2. Select **Setup > Network Management > SNMP**.
3. Change the community string value.
4. Click **Apply**.

SNMP Authentication Traps

SNMP authentication traps occur in a number of conditions. In particular, they can occur when the SNMP agent:

- Receives a request that does not contain the correct community name.
- Receives a request not sent from a member of the acceptable host list.
- Receives a request from a bad user name or password when using SNMP Version 3.
- Sends an authentication trap message to one or more trap destinations (management systems), indicating authentication failure.

By default, authentication traps are disabled on the library. Use this procedure to configure SNMP authentication traps.

1. Log in to the Web client.
2. Select **Setup > Network Management > SNMP**.
3. Do one of the following:
   - Click the **Authentication traps** check box to enable authentication traps.
   - Remove the check from the **Authentication traps** check box to disable authentication traps.
4. Click **Apply**.

Chapter 2
SNMP Traps

This section describes the basic set of Simple Network Management Protocol (SNMP) system status traps issued by the library. Traps pertain to the entire library, not specific partitions.

Note: The Scalar i40 and Scalar i80 support SNMP v1 and v2 traps as defined by RFC 1157.

Traps defined in the Tape Library Management Information Base (MIB) are issued with enterprise OID “Quantum Tape Library MIB”, which resolves to 1.3.6.1.4.1.3764.1.10.10.

Table 1 Status Traps

Trap ID	Trap	Description
1	tapeLibNotifyStart	Starting Indicates that the tape library agent has started running.
2	shutdownSequenceInitiated	Shutdown Sequence Initiated Notification that the library has started its shutdown sequence.
3	tapeLibNotifyRestart	Restarting Notification that the tape library agent has been restarted. This indication does not imply any configuration change (unlike the standard coldStart or warmStart traps).
101	startupSequenceCompleted	Startup Sequence Completed Indicates that the library has completed its boot sequence.
103	phLibraryStateChange	Change in Online State Notification that the online state of the physical library changed.
104	moduleDoorStatusChange	Module Door Status Change Indicates that a library access door has been opened, closed, locked, or unlocked, interrupting or enabling power to the robot.
105	ieDoorStatusChange	I/E Door Status Change Indicates that an I/E station has been opened or closed.

a. The library issues a trap whenever the aggregate state of one of the Reliability, Availability, and Serviceability (RAS) status groups changes. Listening for these traps (rather than querying for them) is the preferred method of monitoring the health of the library.

Trap ID	Trap	Description
106	roboticsReady	Robotics Ready Indicates that the library's robotics system has transitioned from a "not ready" to "ready" state. Traps 106 and 107 may occur as part of a startup or shutdown procedure.
107	roboticsNotReady	Robotics Not Ready Indicates that the library's robotics system has transitioned from a "ready" to "not ready" state. Traps 106 and 107 may occur as part of a startup or shutdown procedure.
108	logicalLibraryStateChange	Logical Library State Change Indicates that a logical library, also known as a partition, has been taken online or offline.
109	connectivityStatusChange	RAS Status Change: Connectivity[a] Indicates that the status of the connectivity subsystem (which includes the I/O management unit and other components) has changed. This may indicate a change to "good" status, so refer to the return value to determine what action you should take. If the return value indicates that a problem exists, use the operator panel or remote web client to determine how to resolve the issue.
110	controlStatusChange	RAS Status Change: Control[a] Indicates that a library control problem has been detected. Indicates that the status of the control subsystem (which includes system firmware, the operator panel, and the sytem control board) has changed. If the return value indicates that a problem exists, use the operator panel or Web client to determine how to resolve the issue.

a. The library issues a trap whenever the aggregate state of one of the Reliability, Availability, and Serviceability (RAS) status groups changes. Listening for these traps (rather than querying for them) is the preferred method of monitoring the health of the library.

Trap ID	Trap	Description
111	coolingStatusChange	RAS Status Change: Cooling[a] Indicates that the status of the cooling subsystem has changed. If the return value indicates that a problem exists, use the operator panel or remote web client to determine how to resolve the issue.
112	drivesStatusChange	RAS Status Change: Drives[a] Indicates that the status of the drives and/or media has changed. If the return value indicates that a problem exists, use the operator panel or remote web client to determine how to resolve the issue.
113	mediaStatusChange	RAS Status Change: Media[a] Indicates that the status of the media has changed. If the return value indicates that a problem exists, use the operator panel or remote web client to determine how to resolve the issue.
114	powerStatusChange	RAS Status Change: Power[a] Indicates that the status of the power subsystem has changed. If the return value indicates that a problem exists, use the operator panel or remote web client to determine how to resolve the issue.
115	roboticsStatusChange	RAS Status Change: Robotics[a] Indicates that the status of the robotics subsystem has changed. If the return value indicates that a problem exists, use the operator panel or remote web client to determine how to resolve the issue.
116	operatorInterventionRequired	RAS Status Change: Operator Intervention Required[a] Indicates that an error has occurred and that operator intervention is required in order to resolve the issue.

a. The library issues a trap whenever the aggregate state of one of the Reliability, Availability, and Serviceability (RAS) status groups changes. Listening for these traps (rather than querying for them) is the preferred method of monitoring the health of the library.

Trap ID	Trap	Description
117	driveOnlineStateChange	Drive Online State Change Indicates that a tape drive has been taken online or offline.

a. The library issues a trap whenever the aggregate state of one of the Reliability, Availability, and Serviceability (RAS) status groups changes. Listening for these traps (rather than querying for them) is the preferred method of monitoring the health of the library.

Appendix A

MIBs Implemented

The library requires five Management Information Bases (MIBs): the Quantum Tape Library MIB and four standard SNMP MIBs.

Quantum Tape Library MIB

The Quantum Tape Library MIB provides the following information:

- System identification (library model and serial number)
- Notifications for a changed configuration (added and removed components)
- Library startup and shutdown traps
- Library online and offline status
- Library composition
  - Drives
  - Robotics
- Library partitioning
- Advanced status information: Reliability, Availability and Serviceability (RAS) functionality

Reference MIBs

The library MIBs reference the following SNMP standard MIBs:

- IPV6-MIB of MIB II
- IP-MIB of MIB II
- RFC 1155-SMI
- RFC 1212
- RFC 1213-MIB
- RFC 1215

These MIBs must be included with your framework application. They are required for accurate compilation of the library MIBs.

Downloading the SNMP MIB from the Library

Administrative users can download the SNMP MIB from the library. The MIB can then be installed on an SNMP external management application.

To download the SNMP MIB:

1. From the library Web client, select **Tools > Download SNMP MIB**.
2. Save the file to a known location.

Quantum Library MIB Content

```
-- ************************************************
-- QUANTUM-SMALL-TAPE-LIBRARY-MIB.mib: Small Tape Library Platform Specific MIB
--
-- $Date: 2011-04-26 0:00:01 (Tue, 26 Apr 2011) $
--
-- Copyright (c) 2011 by Quantum Corporation
-- All rights reserved.
--
-- ************************************************

-- Glossary of terms
--
-- FC  : Fiber Channel
-- MIB : Management Information Base
-- RAS : Reliability, Accessibility  and Serviceability
-- SAS : Serial Attached SCSI
-- SCSI: Small Computer System Interface
-- WWNN: World Wide Node name
-- WWPN: World Wide Port name
--
--

QUANTUM-SMALL-TAPE-LIBRARY-MIB DEFINITIONS ::= BEGIN
```

```
 IMPORTS
   NOTIFICATION-TYPE, MODULE-IDENTITY, enterprises,
   Integer32, OBJECT-TYPE FROM SNMPv2-SMI
   TEXTUAL-CONVENTION, DisplayString, TruthValue FROM SNMPv2-TC
   NOTIFICATION-GROUP, MODULE-COMPLIANCE,
   OBJECT-GROUP FROM SNMPv2-CONF;

 smallTapeLibraryMIB MODULE-IDENTITY
   LAST-UPDATED "201104260000Z"
   ORGANIZATION "Quantum Corporation"
   CONTACT-INFO " Quantum Corporation
                  Postal: 141 Innovation Drive
                        Irvine, CA 92617, USA
                        Tel: +1 800 284-5101


                  E-mail: support@quantum.com"
   DESCRIPTION  "This MIB provides product information for Quantum's
small tape library product."
   REVISION     "201104260000Z"
   DESCRIPTION  "Small tape library MIB as of April 2011"
     ::= { library 10 }

 quantum OBJECT IDENTIFIER ::= { enterprises 3697 }
 storage OBJECT IDENTIFIER ::= { quantum 1 }
 library OBJECT IDENTIFIER ::= { storage 10 }
 smallTapeLibrarySystem OBJECT IDENTIFIER ::= { smallTapeLibraryMIB 1
}


--
-- The following two OBJECT IDENTIFIERS are used
```

```
-- to define SNMPv2 Notifications that are
-- backward compatible with SNMPv1 Traps.
--
  smallTapeLibraryMIBNotificationPrefix OBJECT IDENTIFIER ::= {
smallTapeLibraryMIB 3 }
  smallTapeLibraryMIBNotifications OBJECT IDENTIFIER ::= {
smallTapeLibraryMIBNotificationPrefix 0 }


--
-- Textual conventions
--
  Boolean ::=   INTEGER { false( 0 ), true( 1 ) }
  OnOff   ::=   INTEGER { off( 0 ), on( 1 ) }
  NoYes   ::=   INTEGER { no( 0 ), yes( 1 ) }

  OnlineState ::= TEXTUAL-CONVENTION
   STATUS      current
   DESCRIPTION "Device Online status."
   SYNTAX INTEGER {
       online( 1 ),
       onlinePending( 2 ),
       offline( 3 ),
       offlinePending( 4 ),
       shutdownPending( 5 )
  }

  LibraryReadyState ::= TEXTUAL-CONVENTION
   STATUS      current
   DESCRIPTION "Robotics Ready Status."
   SYNTAX INTEGER {
```

```
        ready( 1 ),
        notReady( 2 ),
        becomingReady( 3 )
}

DriveReadyState ::= TEXTUAL-CONVENTION
 STATUS      current
 DESCRIPTION "Drive Ready status."
 SYNTAX INTEGER {
        ready( 1 ),
        notReady( 2 ),
        notInstalled( 3 )
}

InterfaceMethod ::= TEXTUAL-CONVENTION
 STATUS      current
 DESCRIPTION "Library control path interface method."
 SYNTAX INTEGER {
      viaControlPathDrive( 1 ),
      viaConnectionBlade( 2 ),
            viaDriveAndBlade( 3 )
}

InterfaceType ::= TEXTUAL-CONVENTION
 STATUS      current
 DESCRIPTION "Device interface type."
 SYNTAX INTEGER {
      scsi( 1 ),
      fibreChannel( 2 ),
```

```
    sas (3),
    iscsi(4)
}

LibraryDoorStatus ::= TEXTUAL-CONVENTION
 STATUS      current
 DESCRIPTION "Library access door status."
 SYNTAX INTEGER {
     open( 1 ),
     closed( 2 ),
     unknown( 3 )
}

IEDoorStatus ::= TEXTUAL-CONVENTION
 STATUS      current
 DESCRIPTION "Import Export Station Door Status."
 SYNTAX INTEGER {
    open( 1 ),
    closedAndLocked( 2 ),
    closedAndUnLocked( 3 )
}

RASSubSystemStatus ::= TEXTUAL-CONVENTION
 STATUS      current
 DESCRIPTION "Device health status."
 SYNTAX INTEGER {
    good( 1 ),
    failed( 2 ),
    degraded( 3 ),
```

```
        warning( 4 ),
        informational( 5 ),
        unknown( 6 ),
        invalid( 7 )
    }

    CleaningStatus ::= TEXTUAL-CONVENTION
     STATUS      current
     DESCRIPTION "Device cleaning status."
     SYNTAX INTEGER {
         recommended( 1 ),
         notNeeded( 2 ),
         required( 3 )
    }

--
-- Overall Tape Library parameters
--
    libraryIpAddress OBJECT-TYPE
     SYNTAX              DisplayString
     MAX-ACCESS          read-only
     STATUS              current
     DESCRIPTION         "The IP address of this SNMP agent.  If the
                                 library has only an IPV4 address, or both
an
                                 IPV4 and an IPV6 address, then the IP
address is
                                 displayed in IPV4 format
(xxx.xxx.xxx.xxx).  If
```

```
                                        the library only has an IPV6 address,
then it
                                        will report an IPV6 address."
    ::= { smallTapeLibrarySystem 1 }

  librarySNMPAgentDescription OBJECT-TYPE
   SYNTAX          DisplayString
   MAX-ACCESS        read-only
   STATUS          current
   DESCRIPTION       "Description of the library SNMP agent."
    ::= { smallTapeLibrarySystem 2 }

  libraryName OBJECT-TYPE
   SYNTAX          DisplayString
   MAX-ACCESS        read-only
   STATUS          current
   DESCRIPTION       "Host name for the system hosting the SNMP
agent."
    ::= { smallTapeLibrarySystem 3 }

  libraryVendor OBJECT-TYPE
   SYNTAX          DisplayString
   MAX-ACCESS        read-only
   STATUS          current
   DESCRIPTION       "Library vendor identification."
    ::= { smallTapeLibrarySystem 4 }

  librarySerialNumber OBJECT-TYPE
   SYNTAX          DisplayString
   MAX-ACCESS        read-only
```

```
    STATUS          current
    DESCRIPTION     "Library serial number."
    ::= { smallTapeLibrarySystem 5 }

  libraryDescription OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Description of the library."
    ::= { smallTapeLibrarySystem 6 }

  libraryModel OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Library model information."
    ::= { smallTapeLibrarySystem 7 }

  libraryGlobalStatus OBJECT-TYPE
    SYNTAX          RASSubSystemStatus
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Current status of the entire library system
(including
                    all attached drives)."
    ::= { smallTapeLibrarySystem 8 }

  libraryURL OBJECT-TYPE
    SYNTAX          DisplayString
```

```
    MAX-ACCESS        read-only
    STATUS            current
    DESCRIPTION       "URL of the library's management application."
    ::= { smallTapeLibrarySystem 9 }

  libraryProductName OBJECT-TYPE
    SYNTAX            DisplayString
    MAX-ACCESS        read-only
    STATUS            current
    DESCRIPTION       "Product name of the library."
    ::= { smallTapeLibrarySystem 10 }

  libraryFirmwareVersion OBJECT-TYPE
    SYNTAX            DisplayString
    MAX-ACCESS        read-only
    STATUS            current
    DESCRIPTION       "Library firmware version."
    ::= { smallTapeLibrarySystem 11 }

--
-- Physical Library Information
--
    physicalLibrary OBJECT IDENTIFIER ::= { smallTapeLibrarySystem 15 }

    physicalLibraryState OBJECT-TYPE
        SYNTAX            LibraryReadyState
        MAX-ACCESS        read-only
        STATUS            current
```

```
        DESCRIPTION         "Physical library's overall robotics readiness
status."
        ::= { physicalLibrary 1 }

    aggregatedMainDoorStatus OBJECT-TYPE
        SYNTAX              LibraryDoorStatus
        MAX-ACCESS          read-only
        STATUS              current
        DESCRIPTION         "Physical library's overall main access door open
status."
        ::= { physicalLibrary 2 }

    aggregatedIEDoorStatus OBJECT-TYPE
        SYNTAX              IEDoorStatus
        MAX-ACCESS          read-only
        STATUS              current
        DESCRIPTION         "Physical library's overall insert/eject area closure
status."
        ::= { physicalLibrary 3 }

--
-- Library Interface Information
--
    libraryInterfaces OBJECT IDENTIFIER ::= { physicalLibrary 4 }

    libraryControl OBJECT-TYPE
        SYNTAX              InterfaceMethod
        MAX-ACCESS          read-only
        STATUS              current
```

```
        DESCRIPTION         "Library's communication control path
connection."
        ::= { libraryInterfaces 1  }


--
-- Library Cartridge Slot Information
--
    libraryCartridgeSlots OBJECT IDENTIFIER ::= { physicalLibrary 5 }


    numStorageSlots OBJECT-TYPE
        SYNTAX              Integer32
        MAX-ACCESS          read-only
        STATUS              current
        DESCRIPTION         "Number of overall library storage slots."
        ::= { libraryCartridgeSlots 1 }


    numCleanSlots OBJECT-TYPE
        SYNTAX              Integer32
        MAX-ACCESS          read-only
        STATUS              current
       DESCRIPTION          "Number of storage slots configured as cleaning
slots."
        ::= { libraryCartridgeSlots 2 }


    numIESlots OBJECT-TYPE
        SYNTAX              Integer32
        MAX-ACCESS          read-only
        STATUS              current
        DESCRIPTION         "Number of configured library insert/eject slots."
        ::= { libraryCartridgeSlots 3 }
```

```
--
-- Drive Information
--
   physicalDrive OBJECT IDENTIFIER ::= { physicalLibrary 6 }

   numPhDrives OBJECT-TYPE
      SYNTAX            Integer32
      MAX-ACCESS        read-only
      STATUS            current
      DESCRIPTION       "Number of installed tape drives."
      ::= { physicalDrive 1 }

   overallPhDriveOnlineStatus OBJECT-TYPE
      SYNTAX            OnlineState
      MAX-ACCESS        read-only
      STATUS            current
      DESCRIPTION       "Overall tape drive online status."
      ::= { physicalDrive 2 }

   overallPhDriveReadinessStatus OBJECT-TYPE
      SYNTAX            DriveReadyState
      MAX-ACCESS        read-only
      STATUS            current
      DESCRIPTION       "Overall tape drive readiness status."
      ::= { physicalDrive 3 }

   physicalDriveTable OBJECT-TYPE
      SYNTAX            SEQUENCE OF PhysicalDriveEntry
```

```
    MAX-ACCESS          not-accessible
    STATUS              current
    DESCRIPTION         "A table of all tape drive devices in the domain
                        of this SNMP agent."
    ::= { physicalDrive 4 }

physicalDriveEntry OBJECT-TYPE
    SYNTAX              PhysicalDriveEntry
    MAX-ACCESS          not-accessible
    STATUS              current
    DESCRIPTION         "Tape drive information."
    INDEX               { phDriveIndex }
    ::= { physicalDriveTable 1 }

PhysicalDriveEntry ::= SEQUENCE {
    phDriveIndex
        Integer32,
    phDriveLocation
        DisplayString,
    phDriveDeviceId
        DisplayString,
    phDriveVendor
        DisplayString,
    phDriveType
        DisplayString,
    phDriveInterfaceType
        InterfaceType,
    phDriveAddress
        DisplayString,
```

```
    phDrivePhysicalSerialNumber
        DisplayString,
    phDriveLogicalSerialNumber
        DisplayString,
    phDriveFirmwareVersion
        DisplayString,
    phDriveOnlineState
        OnlineState,
    phDriveReadinessState
        DriveReadyState,
    phDriveRasStatus
        RASSubSystemStatus,
    phDriveLoads
        Integer32,
    phDriveCleaningStatus
        CleaningStatus,
    phDriveLogicalLibraryName
        DisplayString,
    phDriveControlPathDrive
        Boolean
}

phDriveIndex OBJECT-TYPE
    SYNTAX          Integer32 (1..1000)
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION     "Tape drive table entry index."
    ::= { physicalDriveEntry 1 }
```

```
phDriveLocation OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive location within the library."
    ::= { physicalDriveEntry 2 }

phDriveDeviceId OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive device identifier."
    ::= { physicalDriveEntry 3 }

phDriveVendor OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive vendor identification."
    ::= { physicalDriveEntry 4 }

phDriveType OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive type/generation."
    ::= { physicalDriveEntry 5 }

phDriveInterfaceType OBJECT-TYPE
```

```
    SYNTAX          InterfaceType
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive interface type."
    ::= { physicalDriveEntry 6 }

phDriveAddress  OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive FC WWNN, SAS Address, or SCSI ID."
    ::= { physicalDriveEntry 7 }

phDrivePhysicalSerialNumber OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Physical tape drive serial number."
    ::= { physicalDriveEntry 8 }

phDriveLogicalSerialNumber OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "SCSI host reported tape drive serial number."
    ::= { physicalDriveEntry 9 }

phDriveFirmwareVersion OBJECT-TYPE
    SYNTAX          DisplayString
```

```
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive firmware version."
    ::= { physicalDriveEntry 10 }

phDriveOnlineState OBJECT-TYPE
    SYNTAX          OnlineState
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive online status."
    ::= { physicalDriveEntry 11 }

phDriveReadinessState OBJECT-TYPE
    SYNTAX          DriveReadyState
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive ready status."
    ::= { physicalDriveEntry 12 }

phDriveRasStatus OBJECT-TYPE
    SYNTAX          RASSubSystemStatus
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Tape drive health status."
    ::= { physicalDriveEntry 13 }

phDriveLoads OBJECT-TYPE
    SYNTAX          Integer32
    MAX-ACCESS      read-only
```

```
        STATUS          current
        DESCRIPTION     "Tape drive's total cartridge load count."
        ::= { physicalDriveEntry 14 }

    phDriveCleaningStatus OBJECT-TYPE
        SYNTAX          CleaningStatus
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "Tape drive's cleaning status."
        ::= { physicalDriveEntry 15 }

    phDriveLogicalLibraryName OBJECT-TYPE
        SYNTAX          DisplayString
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "Name of the logical library (partition)
                                                    to which this
physical drive is associated.
                                                    If the drive is
not associated with a logical
                                                    library, this field
will be blank."
        ::= { physicalDriveEntry 16 }

    phDriveControlPathDriveOBJECT-TYPE
        SYNTAX          Boolean
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "Indication whether the tape drive is hosting a
library control path."
```

```
        ::= { physicalDriveEntry 17 }


--
-- Library RAS Status
--
    rasSubSystem OBJECT IDENTIFIER ::= { physicalLibrary 10 }


    powerStatus OBJECT-TYPE
        SYNTAX              RASSubSystemStatus
        MAX-ACCESS          read-only
        STATUS              current
        DESCRIPTION         "Indicates overall library power supply status."
        ::= { rasSubSystem 1 }


    coolingStatus OBJECT-TYPE
        SYNTAX              RASSubSystemStatus
        MAX-ACCESS          read-only
        STATUS              current
        DESCRIPTION         "Indicates overall library cooling fan status."
        ::= { rasSubSystem 2 }


    controlStatus OBJECT-TYPE
        SYNTAX              RASSubSystemStatus
        MAX-ACCESS          read-only
        STATUS              current
        DESCRIPTION         "Indicates overall library control subsystem
status."
        ::= { rasSubSystem 3 }
```

```
connectivityStatus OBJECT-TYPE
    SYNTAX          RASSubSystemStatus
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Indicates overall library connectivity status."
    ::= { rasSubSystem 4 }

roboticsStatus OBJECT-TYPE
    SYNTAX          RASSubSystemStatus
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Indicates overall library robotics status."
    ::= { rasSubSystem 5 }

mediaStatus OBJECT-TYPE
    SYNTAX          RASSubSystemStatus
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Indicates overall library media status."
    ::= { rasSubSystem 6 }

driveStatus OBJECT-TYPE
    SYNTAX          RASSubSystemStatus
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Indicates overall library drive status."
    ::= { rasSubSystem 7 }

operatorActionRequest OBJECT-TYPE
```

```
        SYNTAX          NoYes
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "Indicates if operator intervention is required."
        ::= { rasSubSystem 8 }

--
-- Logical Library Information
--
    logicalLibrary OBJECT IDENTIFIER ::= { smallTapeLibrarySystem 16 }

    numLogicalLibraries OBJECT-TYPE
        SYNTAX          Integer32
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "Number of configured logical libraries
(partitions)."
        ::= { logicalLibrary 1 }

    logicalLibraryTable OBJECT-TYPE
        SYNTAX          SEQUENCE OF LogicalLibraryEntry
        MAX-ACCESS      not-accessible
        STATUS          current
        DESCRIPTION     "Logical library information table."
        ::= { logicalLibrary 2 }

    logicalLibraryEntry OBJECT-TYPE
        SYNTAX          LogicalLibraryEntry
        MAX-ACCESS      not-accessible
```

```
    STATUS          current
    DESCRIPTION     "Partition information."
    INDEX           { logicalLibraryIndex }
    ::= { logicalLibraryTable 1 }

LogicalLibraryEntry ::= SEQUENCE {
    logicalLibraryIndex
        Integer32,
    logicalLibraryName
        DisplayString,
    logicalLibrarySerialNumber
        DisplayString,
    logicalLibraryModel
        DisplayString,
    logicalLibraryInterface
        InterfaceMethod,
    logicalLibraryMediaDomain
        DisplayString,
    logicalLibrarySupportedMediaTypes
        DisplayString,
    logicalLibraryOnlineState
        OnlineState,
    logicalLibraryReadyState
        LibraryReadyState,
            logicalLibraryAutoClean
        OnOff,
    logicalLibraryNumSlots
        Integer32,
    logicalLibraryNumIE
```

```
        Integer32,
    logicalLibraryNumTapeDrives
        Integer32,
    logicalLibraryStorageElemAddr
        Integer32,
    logicalLibraryIEElemAddr
        Integer32,
    logicalLibraryTapeDriveElemAddr
        Integer32,
    logicalLibraryChangerDeviceAddr
        Integer32
}

logicalLibraryIndex OBJECT-TYPE
    SYNTAX          Integer32 (1..18)
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION     "Table entry index value where each unique
partition
                    has a unique partition index."
    ::= { logicalLibraryEntry 1 }

logicalLibraryName OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Logical library (partition) name."
    ::= { logicalLibraryEntry 2 }
```

```
logicalLibrarySerialNumber OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Logical library serial number."
    ::= { logicalLibraryEntry 3 }

logicalLibraryModel OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Logical library product identification."
    ::= { logicalLibraryEntry 4 }

logicalLibraryInterface OBJECT-TYPE
    SYNTAX          InterfaceMethod
    MAX-ACCESS      read-only
    STATUS          current
   DESCRIPTION      "Interface method by which the logocal library is
controlled."
    ::= { logicalLibraryEntry 5 }

logicalLibraryMediaDomain OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Supported Media Domains."
    ::= { logicalLibraryEntry 6 }
```

```
logicalLibrarySupportedMediaTypes OBJECT-TYPE
    SYNTAX          DisplayString
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Supported Media Types."
    ::= { logicalLibraryEntry 7 }

logicalLibraryOnlineState OBJECT-TYPE
    SYNTAX          OnlineState
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Logical library online status."
    ::= { logicalLibraryEntry 8 }

logicalLibraryReadyState OBJECT-TYPE
    SYNTAX          LibraryReadyState
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Logical library ready status."
    ::= { logicalLibraryEntry 9 }

logicalLibraryAutoClean OBJECT-TYPE
    SYNTAX          OnOff
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION     "Logical library's automatic drive cleaning
support configuration."
    ::= { logicalLibraryEntry 10 }
```

```
    logicalLibraryNumSlots OBJECT-TYPE
        SYNTAX          Integer32
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "Number of configured logical library storage
elements."
        ::= { logicalLibraryEntry 11 }

    logicalLibraryNumIE OBJECT-TYPE
        SYNTAX          Integer32
        MAX-ACCESS      read-only
        STATUS          current
       DESCRIPTION      "Number of configured logical library Insert/Eject
elements."
        ::= { logicalLibraryEntry 12 }

    logicalLibraryNumTapeDrives OBJECT-TYPE
        SYNTAX          Integer32
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "Number of configured logical library tape
drives."
        ::= { logicalLibraryEntry 13 }

    logicalLibraryStorageElemAddr OBJECT-TYPE
        SYNTAX          Integer32
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "First logical library storage element address."
        ::= { logicalLibraryEntry 14 }
```

```
    logicalLibraryIEElemAddr OBJECT-TYPE
        SYNTAX          Integer32
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "First logical library Insert/Eject element address."
        ::= { logicalLibraryEntry 15 }

    logicalLibraryTapeDriveElemAddr OBJECT-TYPE
        SYNTAX          Integer32
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "First logical library data transfer element
address."
        ::= { logicalLibraryEntry 16 }

    logicalLibraryChangerDeviceAddr OBJECT-TYPE
        SYNTAX          Integer32
        MAX-ACCESS      read-only
        STATUS          current
        DESCRIPTION     "Logical library medium transport element
address."
        ::= { logicalLibraryEntry 17 }


--
--  Notifications relating to the basic operation of the agent
--  These are generated by the net-snmp code, so we mirror them here
so that it
--  has an equivalent for our enterprise OID.
--
```

```
tapeLibNotifyStart        NOTIFICATION-TYPE
STATUScurrent
DESCRIPTION
        "An indication that the tape library agent has started running."
::= { smallTapeLibraryMIBNotifications 1 }

tapeLibNotifyRestart      NOTIFICATION-TYPE
STATUScurrent
DESCRIPTION"Notification that the tape library agent has been
restarted.
                                        This indication does not imply
any configuration change
                                        (unlike the standard coldStart
or warmStart traps)."
::= { smallTapeLibraryMIBNotifications 3 }

startupSequenceCompleted NOTIFICATION-TYPE
    OBJECTS          {
       librarySerialNumber,
       libraryGlobalStatus
    }
    STATUS           current
    DESCRIPTION      "Notification that the library has completed its
boot sequence."

                     --#TYPE "Startup Sequence Completed"
                    --#SUMMARY "The library %s has completed its bootup
sequence. Status = %d."
                     --#ARGUMENTS {0,1}
                     --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 101 }
```

```
shutdownSequenceInitiated NOTIFICATION-TYPE
    OBJECTS         {
        librarySerialNumber,
        libraryGlobalStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the library has started its
shutdown sequence."
                    --#TYPE "Shutdown Sequence Initiated"
                    --#SUMMARY "The library %s has initiated a shutdown
sequence. Status = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 2 }


phLibrayStateChange NOTIFICATION-TYPE
    OBJECTS         {
        librarySerialNumber,
        physicalLibraryState
    }
    STATUS          current
    DESCRIPTION     "Notification that the online state of the physical
library changed."
                    --#TYPE "Change in Online state of the Physical Library"
                    --#SUMMARY "The library %s has changed its online
state. State = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 103 }
```

```
moduleDoorStatusChange NOTIFICATION-TYPE
    OBJECTS         {
        librarySerialNumber,
        aggregatedMainDoorStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the status of a main access
door changed."
                    --#TYPE "Change in main Chassis door status"
                    --#SUMMARY "A main access door of library %s has
changed. Status = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 104 }

ieDoorStatusChange NOTIFICATION-TYPE
    OBJECTS         {
        librarySerialNumber,
        aggregatedIEDoorStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the status of an Insert/Eject
area changed."
                    --#TYPE "Change in IE door status"
                    --#SUMMARY "An I/E area of library %s has changed
status. Status = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 105 }
```

```
    roboticsReady NOTIFICATION-TYPE
        OBJECTS         {
            librarySerialNumber
        }
        STATUS          current
        DESCRIPTION     "Notification that the robot is ready."
                        --#TYPE "Robotics changed state to ready"
                        --#SUMMARY "The robot of library %s has changed
state to Ready."
                        --#ARGUMENTS {0}
                        --#SEVERITY INFORMATIONAL
        ::= { smallTapeLibraryMIBNotifications 106 }

    roboticsNotReady NOTIFICATION-TYPE
        OBJECTS         {
            librarySerialNumber
        }
        STATUS          current
        DESCRIPTION     "Notification that the robot is no longer ready."
                        --#TYPE "Robotics changed state to not ready"
                        --#SUMMARY "The robot of library %s has changed
state to Not Ready."
                        --#ARGUMENTS {0}
                        --#SEVERITY INFORMATIONAL
        ::= { smallTapeLibraryMIBNotifications 107 }

    logicalLibraryStateChange NOTIFICATION-TYPE
        OBJECTS         {
            logicalLibraryName,
```

```
        librarySerialNumber,
        logicalLibraryState
    }
    STATUS          current
    DESCRIPTION     "Notification that the logical library online state
changed."
                    --#TYPE "Partition changed online state"
                    --#SUMMARY "Partition %s of library %s has changed
the online state. State = %d."
                    --#ARGUMENTS {0,1,2}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 108 }

  connectivityStatusChange NOTIFICATION-TYPE
    OBJECTS         {
        librarySerialNumber,
        connectivityStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the connectivity subsystem
health status changed."
                    --#TYPE "RAS status of the Connectivy SubSystem
Changed"
                  --#SUMMARY "The connectivity subsystem of library %s
has changed the RAS status. Status = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 109 }

  controlStatusChange NOTIFICATION-TYPE
    OBJECTS         {
```

```
        librarySerialNumber,
        controlStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the control subsystem health
status changed."
                --#TYPE "RAS status of the Control SubSystem Changed"
                 --#SUMMARY "The control subsystem of library %s has
changed the RAS status. Status = %d."
                  --#ARGUMENTS {0,1}
                  --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 110 }

  coolingStatusChange NOTIFICATION-TYPE
    OBJECTS         {
        librarySerialNumber,
        coolingStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the cooling subsystem health
status changed."
                --#TYPE "RAS status of the Cooling SubSystem
Changed"
                --#SUMMARY "The cooling sbsystem of library %s has
changed the RAS status. Status = %d."
                --#ARGUMENTS {0,1}
                --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 111 }

  driveStatusChange NOTIFICATION-TYPE
    OBJECTS         {
```

```
        librarySerialNumber,
        driveStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the drive subsystem health
status changed."
                    --#TYPE "RAS status of the Drive SubSystem Changed"
                    --#SUMMARY "The drive subsystem of library %s has
changed the RAS status. Status = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 112 }

  mediaStatusChange NOTIFICATION-TYPE
    OBJECTS         {
        librarySerialNumber,
        mediaStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the media subsystem health
status changed."
                   --#TYPE "RAS status of the Media SubSystem Changed"
                    --#SUMMARY "The media subsystem of library %s has
changed the RAS status. Status = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 113 }

  powerStatusChange NOTIFICATION-TYPE
    OBJECTS         {
```

```
        librarySerialNumber,
        powerStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the power subsystem health
status changed."
                    --#TYPE "RAS status of the Power SubSystem Changed"
                    --#SUMMARY "The power subsystem of library %s has
changed the RAS status. Status = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 114 }

  roboticsStatusChange NOTIFICATION-TYPE
    OBJECTS         {
        librarySerialNumber,
        roboticsStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that the robotics subsystem health
status changed."
                    --#TYPE "RAS status of the Robotics SubSystem
Changed"
                    --#SUMMARY "The robotics subsystem of library %s has
changed the RAS status. Status = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY INFORMATIONAL
    ::= { smallTapeLibraryMIBNotifications 115 }

  operatorInterventionRequired NOTIFICATION-TYPE
    OBJECTS         {
```

```
        librarySerialNumber,
        libraryGlobalStatus
    }
    STATUS          current
    DESCRIPTION     "Notification that operator intervention is
required."
                    --#TYPE "Operator intervention is required"
                    --#SUMMARY "Library %s requires operator
intervention. Global RAS status = %d."
                    --#ARGUMENTS {0,1}
                    --#SEVERITY CRITICAL
    ::= { smallTapeLibraryMIBNotifications 116 }


  driveOnlineStateChange NOTIFICATION-TYPE
    OBJECTS     {
                    phDriveVendor,
                phDriveDeciceId,
                    phDriveSerialNumber,
                    phDriveLocation,
                librarySerialNumber,
                    phDriveOnlineState,
            phDriveReadinessState
    }
    STATUS          current
    DESCRIPTION     "Notification that the drive online or readiness
state changed."
                    --#TYPE "Drive status changed"
                    --#SUMMARY "Tape drive %s %s %s in location %s of
library %s has changed state. Online state = %d, Ready state = %d."
                    --#ARGUMENTS {0,1,2,3,4,5,6}
```

```
                --#SEVERITY INFORMATIONAL
        ::= { smallTapeLibraryMIBNotifications 117 }


--
-- Conformance information
--
smallTapeLibraryMIBConformance OBJECT IDENTIFIER ::= {
smallTapeLibraryMIB 4 }
smallTapeLibraryMIBCompliances OBJECT IDENTIFIER ::= {
smallTapeLibraryMIBConformance 1 }
smallTapeLibraryMIBGroups      OBJECT IDENTIFIER ::= {
smallTapeLibraryMIBConformance 2 }



--
-- Compliance statements
--
smallTapeLibraryMIBCompliance MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
                "The compliance statement for entities that implement the
Small Tape Library MIB"
        MODULE  -- this module
                MANDATORY-GROUPS { smallTapeLibraryMIBGroup,
                                   smallTapeLibraryMIBNotifGroup }
        ::= { smallTapeLibraryMIBCompliances 1 }


--
-- Units of conformance
```

```
--
smallTapeLibraryMIBGroup OBJECT-GROUP
OBJECTS {
        libraryIpAddress,
        librarySNMPAgentDescription,
        libraryName,
        libraryVendor,
        librarySerialNumber,
        libraryDescription,
        libraryModel,
        libraryGlobalStatus,
    libraryURL,
    libraryProductName,
    libraryFirmwareVersion,

        physicalLibraryState,
        aggregatedMainDoorStatus,
        aggregatedIEDoorStatus,

        libraryControl,

        numStorageSlots,
        numCleanSlots,
        numIESlots,

        numPhDrives,
        overallPhDriveOnlineStatus,
        overallPhDriveReadinessStatus,
```

phDriveLocation,
phDriveDeviceId,
phDriveVendor,
phDriveType,
phDriveInterfaceType,
phDriveAddress,
phDrivePhysicalSerialNumber,
phDriveLogicalSerialNumber,
phDriveFirmwareVersion,
phDriveOnlineState,
phDriveReadinessState,
phDriveRasStatus,
phDriveLoads,
phDriveCleaningStatus,
phDriveLogicalLibraryName,
phDriveControlPathDrive,

powerStatus,
coolingStatus,
controlStatus,
connectivityStatus,
roboticsStatus,
mediaStatus,
driveStatus,
operatorActionRequest,

numLogicalLibraries,

logicalLibraryName,

```
            logicalLibrarySerialNumber,
            logicalLibraryModel,
            logicalLibraryInterface,
            logicalLibraryMediaDomain,
            logicalLibrarySupportedMediaTypes,
            logicalLibraryOnlineState,
            logicalLibraryReadyState,
            logicalLibraryNumSlots,
            logicalLibraryNumIE,
            logicalLibraryNumTapeDrives,
            logicalLibraryStorageElemAddr,
            logicalLibraryIEElemAddr,
            logicalLibraryTapeDriveElemAddr,
            logicalLibraryChangerDeviceAddr
}
            STATUS  current
            DESCRIPTION
                        "A collection of objects providing Small Tape Library
Management information."
      ::= { smallTapeLibraryMIBGroups 1 }

smallTapeLibraryMIBNotifGroup NOTIFICATION-GROUP
NOTIFICATIONS {
    tapeLibNotifyStart,
    ,
        tapeLibNotifyRestart,
    startupSequenceCompleted,
    shutdownSequenceInitiated,
    phLibrayStateChange,
```

```
        moduleDoorStatusChange,
        ieDoorStatusChange,
        roboticsReady,
        roboticsNotReady,
        logicalLibraryStateChange,
        connectivityStatusChange,
        controlStatusChange,
        coolingStatusChange,
        driveStatusChange,
        mediaStatusChange,
        powerStatusChange,
        roboticsStatusChange,
        operatorInterventionRequired,
            driveOnlineStateChange
}
            STATUS  current
            DESCRIPTION
                    "A collection of objects providing Small Tape Library
Notification capabilities."
        ::= { smallTapeLibraryMIBGroups 2 }


END


--
-- END OF QUANTUM-SMALL-TAPE-LIBRARY-MIB
--
```

Index