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SCOPE
This document is identical to SCTE 154-5 2009 except for informative components which may have
been updated such as the title page, NOTICE text, headers and footers. No normative changes have
been made to this document.

This document provides the branch object identifiers for each of the MIBs within the SCTE HMS
DIGITAL VIDEO MIB’s (DVM) in the heDigital branch of the SCTE mibs. The SCTE HMS
HEADENDIDENT-TC mib provides standard common mib text syntax for all HMS devices.

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NORMATIVE REFERENCE
IETF RFC 2578 SNMPv2-SMI
IETF RFC 2579 SNMPv2-TC
IETF RFC 2580 SNMPv2-CONF

INFORMATIVE REFERENCE
None

TERMS AND DEFINITIONS

TEXTUAL CONVENTIONS - Textual Conventions are a guide to standard structures used in SCTE
HMS mib files. Text formats and uniform definitions are found in this file.
Management Information Base (MIB) – the specification of information in a manner that allows
standard access through a network management protocol, specifically SNMP.
Network Timing Protocol(NTP) – NTP is a protocol designed to synchronize the clocks of computers
over a network. NTP version 3 is an internet draft standard, formalized in RFC 1305. NTP version 4 is
a significant revision of the NTP standard, and is the current development version, but has not been
formalized in an RFC. Simple NTP (SNTP) version 4 is described in RFC 2030.
Packet Identifier (PID) – Packet identifier; a unique 13-bit value used to identify the type of data
stored in the packet payload (see ITU-T H.222.0 / ISO/IEC 13818-1).
Quadrature Amplitude Modulation (QAM) – The modulation scheme which conveys data by
changing (modulating) the amplitude of two carrier waves. These two waves are out of phase
with each other by 90 degrees and are thus called quadrature carriers.

REQUIREMENTS
This section defines the mandatory syntax of the SCTE-HMS-HEADENDIDENT-TC-MIB. It follows
the IETF Simple Network Management Protocol (SNMP) for defining managed objects. This mib falls
under the SCTE-HMS-ROOTS mib defined by the SCTE Standards HMS Subcommittee.
To avoid issues related to device security and possible user contention, this MIB is only read-only. Device manufacturers are expected to provide device provisioning and control as a separate “out of band” service via protocols of their choice.

The syntax is given below.
SCTE-HMS-HEADENDIDENT-TC-MIB DEFINITIONS ::= BEGIN

IMPORTS
    MODULE-IDENTITY, enterprises, Integer32, Unsigned32
    FROM SNMPv2-SMI
    TEXTUAL-CONVENTION
    FROM SNMPv2-TC;

hmsTextualConventionMIB MODULE-IDENTITY
    LAST-UPDATED "200807231300Z"
    ORGANIZATION "SCTE HMS Working Group"
    CONTACT-INFO "SCTE HMS Subcommittee, Chairman
        mail to: standards@scte.org"

    DESCRIPTION
        "The MIB module is for representing general information
        about HeadEnd Digital equipment present(or indoor)
        and is supported by an SNMP agent."

    REVISION "200807231300Z"
    DESCRIPTION "Changed enumeration for QAMChannelInterleaveMode."

    REVISION "200807121300Z"
    DESCRIPTION
        "Modifications due to Comment Resolution Phase 2
        1. Un-Commented out HeAlarmControl, HeTrapRegenerate to add Alarm
           Processing back into the HMS-154 mib files.
        2. Added support for Alarm Processing.
        3. Removed enumerations that were not used under the heDigital tree
           (heLaserType).
        5. Removed Display String from IMPORTS
        6. Removed HeLaserType
        7. Added enumeration QAMChannelInterleaveMode"

    REVISION "200801161300Z"
    DESCRIPTION
        "Modifications due to voting comments
        1. Changed syntax errors for capitalized words."
2. Changed mib to have the -MIB extension

::= { enterprises scteRoot(5591) scteHmsTree (1) insidePlantIdent (11)
     heDigital (5) 1 }

VideoInputFrameRateType ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"This value defines the types of MPEG Video Input Frame Rate that is
supported by QAM devices."
SYNTAX INTEGER {
    other (1),
    autoSelect (2),
    f24Hz (3),
    f25Hz (4),
    f29Hz97 (5),
    f30Hz (6),
    f29or30Hz (7),
    f48Hz (8),
    f50Hz (9),
    f59Hz94 (10),
    f60Hz (11),
    f59or60Hz (12) }

QAMChannelModulationFormat ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"This value defines the types of QAM Channel Modulation that is
supported by QAM devices."
SYNTAX INTEGER {
    unknown(1),
    other(2),
    qam64(3),
    qam256(4),
    qam128(5),
    qam512 (6),
    qam1024 (7) }

QAMChannelInterleaveMode ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"This value defines the types of QAM Interleave Mode
which follows the value of docsIfDownChannelInterleave. This
value is supported by HMS QAM devices."
SYNTAX INTEGER {
    unknown(1),
    other(2),
    fecI8J16(3),
    fecI16J8(4),
    fecI32J4(5),
    fecI64J2(6),
    fecI128J1(7),
    fecI12J17(8)
    fecI128J2(9),
    fecI128J3(10),
    fecI128J4(11),
fecI128J5(12),
fecI128J6(13),
fecI128J7(14),
fecI128J8(15)
}

ProgDataType ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION "This value defines the types of data that can be contained in Programs and program streams."
SYNTAX INTEGER {
  video (1),
  audio (2),
  data (3),
  other(4)
}

DeviceEnableDisableValues ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION "This data type represents whether the object is disabled(1) or enabled(2), or the object is not supported (3) by the current configuration or this device's hardware."
SYNTAX INTEGER {
  disabled (1),
  enabled (2),
  notSupported(3)
}

MpegErrorStatus ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION "This data type represents whether the object is good(1) or has errors(2), or the object is not supported (3) by the current configuration or this device's hardware."
SYNTAX INTEGER {
  good (1),
  errors (2),
  notSupported(3)
}

HePIDValue ::= TEXTUAL-CONVENTION
DISPLAY-HINT "d"
STATUS current
DESCRIPTION "This data type represents a packet identifier (PID) value which ranges from 0 to (2^13 - 1). The value of 65535 indicates that either the PID is invalid or does not exist."
SYNTAX Unsigned32 (0..8191 | 65535)

HeClockSource ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"An enumerated value that provides the location where the value for the clock on the module is coming from. 
internal - this value is being derived internally from the local module timing source.
external - an source that is external to the module, such as a controller card is providing a signal to calculate the real time clock.
ntp - this module is running the ntp protocol and can sync up to a master ntp clock source.
other - the real time clock source does not fit into the existing values."

SYNTAX INTEGER {
  unknown(1),
  other(2),
  internal(3),
  external(4),
  ntp(5),
  none(6)
}

HeResetValue ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"Configured reset value for a specific device.
reset - the value of reset is SET at the device and the device will reset.
running - the normal value of the device is running when an SNMP GET of the reset value is sent.
resetting - The value resetting shall be returned if an SNMP GET of the device is performed after a reset SET command is sent and before the device can actually perform the reset. A second reset SET command should not interrupt the reset sequence. If a second SET is sent, it will be ignored."

SYNTAX INTEGER {
  reset(1),
  running(2),
  resetting(3)
}

HeTenthVolt ::= TEXTUAL-CONVENTION
DISPLAY-HINT "d-1"
STATUS current
DESCRIPTION
"This data type represents voltage levels that are normally expressed in volts. Units are in tenths of a volt; for example, -48.1 volts will be represented as -481."

SYNTAX Integer32

HeTenthdBm ::= TEXTUAL-CONVENTION
DISPLAY-HINT "d-1"
STATUS current
DESCRIPTION
"This data type represents power levels that are normally expressed in dBm. Units are in tenths of a dBm; for example, -5.1 dBm will be represented as -51."
SYNTAX       Integer32

HeTenthdBmV ::= TEXTUAL-CONVENTION
DISPLAY-HINT "d-1"
STATUS       current
DESCRIPTION  
"This data type represents power levels that are normally expressed in dBmV. Units are in tenths of a dBmV; for example, -5.1 dBmV will be represented as -51."
SYNTAX       Integer32

HeTenthCentigrade ::= TEXTUAL-CONVENTION
DISPLAY-HINT "d-1"
STATUS       current
DESCRIPTION  
"This data type represents temperature values that are normally expressed in Centigrade. Units are in tenths of a Centigrade; for example, -5.1 Centigrade will be represented as -51."
SYNTAX       Integer32

HeHundredthNanoMeter ::= TEXTUAL-CONVENTION
DISPLAY-HINT "d-2"
STATUS       current
DESCRIPTION  
"This data type represents wavelength values that are normally expressed in nano meters. Units are in hundredths of a NanoMeter; for example, 1550.56 nm will be represented as 155056."
SYNTAX       Unsigned32

HeTenthdB ::= TEXTUAL-CONVENTION
DISPLAY-HINT "d-1"
STATUS       current
DESCRIPTION  
"This data type represents power levels that are normally expressed in dB. Units are in tenths of a dB; for example, -5.1 dB will be represented as -51."
SYNTAX       Integer32

HeOnOffControl ::= TEXTUAL-CONVENTION
STATUS       current
DESCRIPTION  
"An enumerated value that provides a control of a particular hardware or software parameter that usually represent some sort of switch.

A SET request with a value off(1) will cause the switch to be shut off.

A SET request with a value on(2) will cause the switch to be turned on.

A value meaningless(3) will be implemented by the variables that represent a switch with write-only access."
A GET request for the value of the write-only variable shall return a value meaningless(3).

A SET request with a value meaningless(3) for the variable with write access shall have no effect and no exception is generated.

A value may be used by the variables with both read-write and write-only access.

The variables with read-only access shall be defined with the textual convention HeOnOffStatus."

SYNTAX  INTEGER {
    off(1),
    on(2),
    meaningless(3)
}

HeOnOffStatus ::= TEXTUAL-CONVENTION
STATUS  current
DESCRIPTION  "An enumerated value that provides a status of a particular hardware or software parameter that usually represent some sort of switch.

A value off(1) indicates the switch is off.

A value on(2) indicates the switch is on."

SYNTAX  INTEGER {
    off(1),
    on(2)
}

--
-- Values to support Alarmable parameters
--

HeAlarmControl ::= TEXTUAL-CONVENTION
STATUS  current
DESCRIPTION  "Alarm Control value for a specific device. This object is used to control sending traps related to this headend entity or enabling disabling of raising an alarm condition for a specific entity."

SYNTAX  INTEGER {
    alarmEnabled(1),
    alarmDisabled(2)
}

HeTrapRegenerate ::= TEXTUAL-CONVENTION
STATUS  current
DESCRIPTION  " This value tells the SNMP Agent to send the Trap Regenerate Trap for
all values of Current alarms for this entity. The device can provide for a means to send ALL current alarms, not just one specific entity."

SYNTAX INTEGER {
    trapRegenerate(1),
    trapNormal(2)
}

HeDigitalAlarmSeverity ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION "The alarm severity that is determined by the device and sent over in the trap message."
SYNTAX INTEGER {
    critical(1),
    major(2),
    minor(3),
    warning(4),
    status(5),
    clear(6),
    information(7)
}

HeDigitalAlarmType ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION "The alarm type that describes the Event that caused the alarm."
SYNTAX INTEGER {
    communication(1),
    process(2),
    session(3),
    capacity(4),
    maintenance(5),
    provisioning(6),
    programMgmt(7),
    redundancy(8),
    other(9)
}

HeFaultStatus ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION "An enumerated value that provides a fault status of a particular hardware or software parameter that usually represent some sort of condition.

A value normal(1) indicates the normal condition.

A value fault(2) indicates the fault condition."
SYNTAX INTEGER {
    normal(1),
    fault(2)
}

HeMilliAmp ::= TEXTUAL-CONVENTION
DISPLAY-HINT "d-3"
STATUS       current
DESCRIPTION
"This data type represents current levels that are normally expressed in amperes. Units are in milliamperes; for example, 2.1 Amperes would be expressed as 2100."
SYNTAX       Unsigned32

HeHundredthWatts ::= TEXTUAL-CONVENTION DISPLAY-HINT "d-2"
STATUS       current
DESCRIPTION
"This data type represents power values that are normally expressed in watts. Units are in hundredths of a watt; for example, 420 watts will be represented as 42000."
SYNTAX       Unsigned32

--
-- Redundancy Status was removed from heDigitalCommon and is Commented out per comment
-- resolution meeting until such time as heDigitalCommon redundancy values are implemented.
--
-- HeDigitalRedundancyStatus ::= TEXTUAL-CONVENTION
-- STATUS        current
-- DESCRIPTION
"This value will indicate the supported level of redundancy for this entity.
notAvailable, this interface does not support any type of redundancy,
no Mib objects are supported.
--
-- off - some type of redundancy is available and is defined in configuration,
but redundancy for this entity is turned off.
--
-- automatic - there is redundancy and the function is not defined in configuration, the redundant switch is automatic and always on.
-- LoadBalanced, this interface is paired with a specific interface and shares the load. Any redundant switch will send as many streams to the other interface as possible. In this condition there isn't a 100% backup unless both links are only operating at 50% of the maximum capacity.
-- hotStandby - redundancy is a one to one relationship with one entity configured to take over in the event of failure with minimal to no disruption in service.
--
-- backup - would be for any interface that isn't one to one. You could have 1 backup to 2 active, 1 to 3, 1 to 4 or any combination of backup scenarios.
The exact combinations would be part of Redundancy configuration, not this configured status parameter. The backup redundant configuration could cause minimal disruption of service.

other - this would cover any type of redundancy that is not described by the other definitions. This would mean that the entity does support redundancy of some type."

```
SYNTAX INTEGER {
    notAvailable(1),
    off(2),
    automatic(3),
    loadBalanced(4),
    hotStandby(5),
    backup(6),
    other(7)
}
```

END