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S T A N D A R D S

Network Operations Subcommittee

AMERICAN NATIONAL STANDARD

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**Hybrid Fiber/Coax Outside Plant Status Monitoring
SCTE-HMS-DOWNLOAD-MIB
Management Information Base (MIB) Definition**

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1. Scope

This document is identical to SCTE 38-8 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 contains the definitions used to maintain one or more loadable firmware images on an HMS transponder.

2. Copyright

The MIB definition found in this document may be incorporated directly in products without further permission from the copyright owner, SCTE.

3. Normative Reference

IETF RFC 1155
SCTE 37

4. Informative Reference

None

5. Terms and Definitions

This document defines the following terms:

Management Information Base (MIB) - the specification of information in a manner that allows standard access through a network management protocol.

6. Requirements

This section defines the mandatory syntax of the SCTE-HMS-DOWNLOAD-MIB. It follows the IETF Simple Network Management Protocol (SNMP) for defining the managed objects.

The syntax is given below.

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```
-- *****
-- *
-- * Module Name: HMS063R6.MIB (SCTE 38-8)
-- *
-- * SCTE Status: ADOPTED JANUARY 11, 2002
-- *
-- * Introduction:
-- * =====
-- * The Download MIB is used to maintain one or more loadable
-- * firmware images on an HMS transponder. The MIB also has
-- * support for downloading to sub-components managed by an
-- * HMS transponder.
-- *
-- * The firmware image for one vendor's transponder is not expected
-- * to be interchangeable with another vendor's transponder. Care
-- * must be used not to download the wrong image. The DEVICE-KEY
-- * and dlDownloadKey are used to ensure that only the intended
-- * transponders are modified.
-- *
-- * The firmware may be transferred using broadcast, multicast,
-- * or unicast addressing. When using broadcast or multicast
-- * addressing, then suitable delays must be placed between
-- * each transaction to allow the transponder time to process
-- * the request. The value for these delays may be read from
-- * the download distribution file.
-- *
-- * Download Devices:
-- * =====
-- * The MIB is designed to support download to sub-components
-- * attached to the transponder. These additional devices may
-- * be located on the Transponder Interface Bus (TIB) or on a
-- * vendor specific bus. The Transponder Interface Bus is defined
-- * by SCTE 25-3 (formerly HMS022. )
-- *
-- * Within this MIB, device number 1 specifies the transponder.
-- * Device numbers 2 to 256 are reserved for TIB devices. The
-- * download device numbers 2 to 256 correspond to TIB addresses
-- * 1 to 255 respectively. Download device numbers greater than
-- * 256 may be used for vendor specific non-TIB devices managed
-- * by the transponder.
-- *
-- * Not all transponders support TIB based devices.
-- *
-- * The initial version of SCTE 25-3 (formerly HMS022) does not support firmware
-- * download.
-- *
-- * Distribution File Format:
-- * =====
-- * The firmware update for a transponder is to be distributed in
-- * a single file. The file has a header which describes information
-- * used to configure a download. The header information consists
-- * of a set of keywords with parameters, defined within comment lines.
-- *
-- * Comment lines begin with a pair of back to back '-' characters.
-- *
-- * The standard distribution file format for all vendors uses S-Records
-- * to define the transponder firmware. Using a common file format
-- * permits standard download tools to be developed.
-- *
-- * Each S-Record line may contains up to 255 bytes of data, which is
-- * the maximum value for the S-Record length field.
-- *
-- * Additional details on the S-Record format usage can be found
-- * in the description of dlDownloadLine.
-- *
-- * Distribution File Header:
-- * =====
-- * The distribution file header will have the following keywords
-- * located within successive comment lines:
```

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```
-- *
-- *  VERS:<ASCII version, same as dlImageVersion>
-- *  DESC:<ASCII description, same as dlImageDescription>
-- *  T0:<decimal number>
-- *  T1:<decimal number>
-- *  T2:<decimal number>
-- *  T3:<decimal number>
-- *  DEVICE-KEY:<value for dlDownloadKey>
-- *  DEVICE:<1..n or PROMPT>
-- *  IMAGE:<1..n or PROMPT>
-- *
-- * All keywords begin one blank character after a comment introducer,
-- * which simplifies parsing by the loader application. Comment lines
-- * which do not have one of the keywords are ignored and can be used
-- * to provide additional information.
-- *
-- * The keywords must all be present before the first S-Record line.
-- *
-- * Each parameter is expected to begin immediately following the ':'
-- * character of each keyword.
-- *
-- * All header keywords must be present. The list is not meant to
-- * establish a specific order.
-- *
-- * The VERS parameter reports the version of the firmware to the
-- * loader. This string matches the value to be reported by the firmware
-- * for dlImageVersion and dlActiveImageVersion. The version string
-- * may be used as part of the dlDownloadKey. See dlDownloadKey for
-- * additional information.
-- *
-- * The DESC parameter reports the description of the firmware to the
-- * loader. This string matches the value to be reported by the firmware
-- * for dlImageDescription and dlActiveImageDescription.
-- *
-- * The VERS and DESC keywords must match that which is to be reported
-- * by the device. The corresponding strings are expected to be embedded
-- * in the device by some means. The strings may be embedded in the
-- * firmware image or possibly part of the S0 record which is then
-- * stored. The S0 record format is vendor specific.
-- *
-- * The T0, T1, T2, and T3 parameters specify the time delays described in
-- * the download example for multiple transponders. The delays are specified
-- * in units of milliseconds. These delays represent minimum values.
-- *
-- * The DEVICE-KEY value is used to set dlDownloadKey. This value must
-- * match dlDeviceKey of the active firmware image for the device specified
-- * by dlDownloadDevice (and therefore the DEVICE keyword). Unless the
-- * correct string is written to dlDownloadKey, the transponder will not
-- * permit a download sequence to commence.
-- *
-- * The DEVICE-KEY minimum string definition starts with the first 3
-- * octets of physical address (the vendor's OUI) as a hexadecimal ASCII
-- * string. This ensures no units will accidentally accept firmware from
-- * the wrong vendor. Additional octets may be specified after this 6 byte
-- * prefix field by each vendor. This string must match that which is
-- * embedded in the device, and can be confirmed via dlDeviceKey.
-- * It is expected that all firmware images for one device will have
-- * the same dlDeviceKey. See the description of dlDownloadKey for
-- * additional details.
-- *
-- * The IMAGE value is used to specify the value of dlDownloadImage.
-- * The parameter value range is 1 to 'N', where 'N' is vendor specific.
-- * Rather than specifying a decimal number, the PROMPT string specifies
-- * that the user must be prompted for the value.
-- *
-- * The DEVICE value is used to specify the value of dlDownloadDevice.
-- * The parameter value range is 1 to 'N', where 'N' is vendor specific.
-- * Rather than specifying a decimal number, the PROMPT string specifies
-- * that the user must be prompted for the value.
-- *
-- *
```