To: INCITS T10 Committee
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Subject: Host Initiated Unload reporting

1   Revision History

Revision 2: Green text
Terminology changes.
Clearer definition of when HIU bit was to be set to 0.

Revision 1: Red Text
Define HIU to be set in conjunction with a terminal unload state and that it clears when it transitions to any other state.
Make it clear that the Unload command is to the RMC device server.
Add a model section to describe how this would be used.

Revision 0: Blue Text
Initial proposal

2   Discussion

Some libraries and autoloaders support a mode of operation referred to as "sequential". In this mode, the library does not appear as a SCSI device. When the primary host issues a SCSI LOAD UNLOAD command to the tape drive to unload the currently mounted tape, the library intervenes and removes the tape from the drive and moves the next sequential tape to the drive. Currently the detection of when the replacement of the tape needs to take place is done in various vendor unique ways and typically includes making assumptions based on the state of the tape drive. This document proposes a standard method for the drive to report that the host is ready for the next tape.

This proposal applies to ADC Revision 4.

2.1   ADC Changes

2.1.1 Automation drive interface model

Add following section:
4.2.x Sequential mode operation

Some automation devices support a mode of operation referred to as "sequential mode". When an automation device is configured in this mode, there is no SMC device server accessible in the SCSI domain. In this mode the automation device implicitly replaces a medium in the DTD with the next sequential medium in the automation device. A typical sequence of operations would be as follows:

1) When the application client detects that a medium is full, it issues an unload command to the DTD.
2) The automation device detects that an unload of the medium has occurred.
3) The automation device removes the current medium from the DTD and returns the medium to its storage element.
4) The automation device moves the next medium from a storage element to the DTD.
5) The application client determines that the DTD is ready for access and the backup can proceed.

The automation device may use the host initiated unload bit in the VHF data (add reference) to aid in the detection of an unloaded medium in step 2 above.

2.1.2 Parameters for automation drive interface devices

6.1.2 Very High Frequency log page

Table 11 VHF Data

Bit Byte	7	6	5	4	3	2	1	0
8	Rsvd	HIU	MAcc	Cmpr	WrtP	CRqst	CRqrd	DInit
9	InXtn	Rsvd	RAA	MPrsnt	Rsvd	MStd	MThrd	Dacc
10	Tape Motion Status							
11	Rsvd					RRqst	IntfC	Tafs

The host initiated unload (HIU) bit shall be set to one when the drive reaches any one of the unload states e – h (add reference) due to the RMC device server receiving a SCSI LOAD UNLOAD command with the load bit set to zero. The HIU bit shall be to zero when the drive transitions to any state in table 1 or table 3 other than unload states e –h in table 3. The HIU bit may be set to zero upon a logical unit reset of the RMC or ADC device servers.

Note: The HIU bit may facilitate sequential mode operation as described in section 4.2.x.