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Subject: Comments on X3T9.2/91-72 (Medium Changer Devices)

Dear John:

I will be unable to attend the next meeting of X3T9.2 and would like to respond to document number X3T9.2/91-72 from Mr. David Therrien of Epoch Systems. In his letter, Mr. Therrien suggests three changes to the SCSI-2 specification for Chapter 16 (medium changer devices). I would like to address each of these in turn.

1. Medium Import Models

It is stated that there are two import models available with medium changers today; command driven insertion and status driven insertion. Epoch's proposal is to define a bit in the MODE SENSE Device Capabilities page (1F) to indicate the type of import model supported by the Medium Changer Device.

This would be ambiguous for certain models of Cygnet jukeboxes which are fully capable of supporting either method. Cygnet also allows the import/export element to be used with the EXCHANGE MEDIUM command.

For Cygnet jukeboxes, the method selected by the host system only depends upon how the MOVE MEDIUM command is used. An initiator may move the import/export element to the user accessible position and leave it there. Later there will be a Unit Attention condition (medium changed) reported to the host (status driven method). The second method is to wait for the medium to be inserted or removed before giving ending status to the MOVE MEDIUM command (command driven method).

2. Medium Ejection from Data Transfer Elements

I believe that the problem trying to be solved is to somehow let the initiator know whether it should eject the medium from the data transfer element or if the medium changer device is capable of doing this.

At the risk of being stoned, another suggestion would be that this information should be supplied in the MODE SENSE command of the data transfer element in question (eg. optical drive, tape drive, etc.). Is the data transfer element capable of having its medium ejected remotely (by a medium changer device)?

Another thought is that an initiator might want to perform an eject which may save time in the medium changer device even though the medium changer device is capable of ejecting the medium.

The subject of how might this be affected by the PREVENT/ALLOW MEDIUM REMOVAL command is not addressed.

3. Export / Import Element Type

Medium changers may allow different methods of access to media within the medium changer device. A "mailbox" method which allows controlled access to one or more units of media or a door which may allow a user access to the entire contents of the medium changer. The access to just one (or a few) units of media or to all media make a drastic difference to the initiator. The Epoch proposal is to distinguish between the two modes by defining another ASCQ. Unfortunately, the ones chosen (28/00 and 28/01) are already used.

ASC/ASCQ 28/00 is -   "Not ready to ready transition (medium may have changed)"

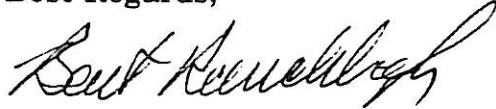ASC/ASCQ 28/01 is -   "Import or Export element accessed"

Maybe a new one could be:
ASC/ASCQ 28/02 - All medium may have been changed.

The Cygnet view of this is that if the door is opened (thus allowing access to all medium) this is not only disastrous to the host, but also to the jukebox. The Cygnet response after the door is closed is to perform an internal reset on the jukebox and to issue a ASC/ASCQ 29/00 - Power on, Reset, or bus device reset occurred.

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I agree with Mr. Therrien that there could be clarifications made in the areas be addressed. I suggest, however, that no action be taken on the above items at the present time without further discussion. I am willing to participate in fax, phone or email discussions on the above problems.

Best Regards,

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