To: INCITS T10 Committee
From: Noud Snelder, BDT
Date 04 March 2006
Document: T10/06-023r1
Subject: SMC-3 Editorial changes overview.

1 Revison History
- Revision 0: initial version, posted on T10 website on 15 December 2005
- Revision 1: incorporated comments from January T10 SMC-3 WG and added one more reference to element reservation

2 General
The 05-317r3 (remove attached Media Changer model) proposal caused some editorial questions. This proposal addresses these questions and recommends changes in SMC-3. It also contains some other editorial changes not related to attached media changer model.

3 Changes to SMC-3

3.1 Delete the text in Clause 1, Scope**:**

> *b) To permit an application client to access the media changer functions in a logical unit that sets the MCHNGR bit to one in the INQUIRY command response data.*

3.2 Delete the text in Clause 3, Definitions**:**

3.1.15 independent media changer: *A media changer addressed as a separate SCSI device or logical unit.*

3.3 Modify the reference to element reservation in Clause 4, Overview:

A media changer logical unit maintains an inventory of volumes and the element addresses at which they may be found. The media changer logical unit reports this inventory when requested and identifies the element addresses assigned to different types of elements. Different levels of sophistication may be implemented in how this inventory is managed, reported, detected and maintained. ~~The elements in a media changer may be reserved to different SCSI initiator ports. For example, one data transfer element may be reserved for exclusive use by one SCSI initiator port. The data transfer device, located at that data transfer element, may then be attached to various systems for their use.~~

In some cases, the data transfer device associated with a data transfer element may not be a SCSI device.

3.3.1 Remove paragraph in chapter 5.3.1 containing reference to element reservation:

~~In order to ensure exclusive access to a volume, the element where the volume is located (the element address) may be reserved by a SCSI initiator port. Exclusive access shall be released if the volume is moved to an unreserved element. Exclusive access shall be retained if a volume is moved between two reserved elements. Reservation of the medium transport element used is not required to preserve exclusive access. Elements may be reserved by the PERSISTENT RESERVE OUT (see SPC-2) command.~~

3.4 Modify reference to mount/dismount in chapter 4:

The split between load and unload control of the medium and read and write control by a data transfer device is a key feature of this device class. The mechanism for coordinating this kind of sophisticated activity is not specified in this standard. The media changer device class provides the means for load and unload control of the medium ~~mount/dismount management~~ only.

3.4.1 Modify reference to mount in chapter 5.4.2:

Element status descriptors, as optionally reported by the READ ELEMENT STATUS command, permit defining a primary volume tag and an alternate volume tag. Alternate volume tag information provides a means for a system to use different volume tag information for each side of a volume. Primary volume tag information refers to the logical medium accessible via a MOVE MEDIUM or EXCHANGE MEDIUM command with the INVERT bit set to zero. Alternate volume tag information refers to the other side of the media (i.e., the side that would be accessed via a MOVE MEDIUM or EXCHANGE MEDIUM command with the INVERT bit set to one). Some volumes may be recorded on both sides. The INVERT bit setting permits an application client to select the side to use when a volume is ~~mounted~~loaded.

3.4.2 Modify reference to mount in chapter 7.3.3:

A pre-~~mount~~ load eject required (~~PMERQ~~PLERQ) bit set to one indicates that the media changer requires the application client to send an explicit command to the data transfer element to extend the drive mechanism before the media changer is able to move the medium to the data transfer element. (e.g. a CD-ROM changer that requires the tray to be presented before the MOVE MEDIUM operation starts). A ~~PMERQ~~ PLERQ bit set to zero indicates that the application client does not need to send an explicit command to the data transfer element before the media changer is able to move the medium to the data transfer element.

3.4.3 Modify reference to mount in chapter 7.3.3:

A pre-~~dismount~~ unload eject required (~~PDERQ~~PUERQ) bit set to one indicates that the media changer requires the application client to send an explicit command to the data transfer element to eject (see SSC-3) the medium before the media changer is able to move the medium from the data transfer element. A ~~PDERQ~~ PUERQ bit set to zero indicates that the application client does not need to send an explicit command to the data transfer element to eject the medium before the media changer is able to move the medium from a data transfer element.

3.5 Change the following text in chapter 4:

The ~~independent~~ media changer *~~model applies to implementations where the media changer~~* is addressed as a separate logical unit. The logical unit for the media changer may be accessed via the same SCSI target port as the data transfer device, or via a different SCSI target port. *~~This type of~~*A media changer may support more than one data transfer element.

3.6 Since there is only one model, remove the s in the titel clause 5.

5 Media Changer model~~s~~

5.1 *~~Media changer~~*Introduction

A~~n independent~~ media changer is a device server that returns 8h in the PERIPHERAL DEVICE TYPE field (see SPC-2) of INQUIRY command response data.

~~Independent m~~Media changers respond to a LUN different from those used by a data transfer device. *[SMC-3 WG requested modifing previous sentence]* Communication with a data transfer device may use the same service delivery subsystem as the media changer device, or a different SCSI service delivery subsystem. Data transfer devices that are not SCSI devices are also permitted. Multiple data transfer devices may be attached to a~~n independent~~ media changer.

If a data transfer device served by the media changer is a SCSI device, the data transfer device may be addressed on a SCSI service delivery subsystem though the same SCSI target port as the media changer but with a different LUN. The data transfer device may also be addressed through independent SCSI target ports and any LUN on the same or a different service delivery subsystem.

The READ ELEMENT STATUS command response data page for each data transfer element may provide the identity of the data transfer device serviced by a media changer device. This support is optional since a data transfer device is not required to be a SCSI device.

3.7 References to medium changer
In SMC-3r01 are 7 references to medium changer and 285 references to media changer. Propose to change the 7 references of medium changer to media changer.

Text in Foreword:

The SCSI Media Changer Commands - 3 (SMC-3) standard specifies the commands and external behavioral characteristics of a device server that declares itself a ~~medium~~ media changer in the PERIPHERAL DEVICE TYPE field of the INQUIRY command response data.

Text in clause 1, Scope:

The objectives of the SCSI-3 Media Changer Commands - 3 standard are:

a) To permit an application client to communicate with a logical unit that declares itself to be a ~~medium~~ media changer device in the PERIPHERAL DEVICE TYPE field of the INQUIRY command response data; and

b) To define commands and parameter data to manage the operation of SCSI media changer devices.

Text in 5.4.3 Volume tag information format:

Table 2 — Volume Identifier Qualifier

Code	Description
0h	This value shall be returned when the volume identifier has been determined or the ~~medium~~ media changer does not contain a volume tag reader (see device capabilities mode page description).
1h	The volume identifier is currently inaccessible (e.g. medium is loaded in a data transfer element such that a barcode label can not be accessed and there is no prior knowledge of the label).
2h	The volume identifier is unreadable or there is a problem with the volume tag reader.
3h – FFh	Reserved

Text in 6.6 INITIALIZE ELEMENT STATUS WITH RANGE

NOTE 4 — Prior to standardization, many ~~medium~~ media changers implemented this command using a vendor specific OPERATION CODE of E7h.

Text in 6.11.4 Medium transport element descriptor:

The MEDIUM TYPE field provides the type of medium currently present in the element as determined by the ~~medium~~ media changer. Table 19 describes the values for the Medium Type field.

Table 19 — Medium Type codes

Code	Description
0h	Unspecified. The ~~medium~~ media changer does not support this field, cannot determine the medium type, or the element is empty
1h	Data medium
2h	Cleaning medium
3h – 7h	Reserved

Text in 7.3.2 Device capabilities mode page

The Volume Tag Reader Present (VTRP) bit shall be set to one by the device server to indicate that a volume tag reader is installed in the ~~medium~~ media changer (e.g. optical bar code reader). The VTRP bit shall be set to zero to indicate that a volume tag reader is not present or is not functional.

3.8 Reference to data transport element
Figure 2 references to data transport element, change to data transfer element