memorandum

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T10/08-201r2

To	From	Subject	Date
INCITS T10 Committee	Curtis Ballard, HP	Cleaning error codes usage	13 March, 2009

Revision History
Revision 0 – Initial document
Revision 1 – Added model clause describing cleaning and auto-clean
Revised usage of suggested exception codes table (table y)

Related Documents

smc3r11 – SCSI Media Changer Commands - 3 revision 04

spc3r23 – SCSI Primary Commands -3 revision 23

Background

The working group has requested that I prepare a proposal for a standardized usage of the CLEANING REQUESTED and CLEANING FAILURE error codes in action item 07-003. This proposal fulfills that action item.

In the proposed changes that follow, new text appears in blue or purple, deleted text appears in ~~red strikeout~~, and editorial comments appear in green.

Proposed Changes to SMC-3

New Model Clause section 5.6

5.6 Data Transfer Device Cleaning

5.6.1 Data Transfer Device Cleaning Introduction

A data transfer device may support being cleaned by loading a volume containing cleaning medium (see table 26). When a data transfer device that supports cleaning detects that a volume containing cleaning medium has been loaded it may automatically start the cleaning process and perform the cleaning process then unthread the volume. While a data transfer device is executing a cleaning process, access by the medium transport element may be prohibited.

5.6.2 Reporting Data Transfer Device Cleaning Requests

A medium changer may report a data transfer device cleaning request by terminating a command that successfully moves or transfers a the volume from the data transport element to the data transfer device that requires cleaning with CHECK CONDITION status. The sense key shall be set to RECOVERED ERROR and the additional sense code shall be set to CLEANING REQUESTED.

Editors note – when the new element status reporting commands are defined a clause needs added here to set a cleaning require status in the appropriate descriptors.

5.6.3 Cleaning Data Transfer Devices

An application client may clean a data transfer device by moving a volume containing a cleaning medium (see table 26) to the element containing the data transfer device. When a volume containing a cleaning medium is moved to an element containing a data transfer device, then the device server shall report status upon detection of a successful move or transfer of the volume from the data transport element to the data transfer device. The method for detecting a successful load operation is not specified by this standard.

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While a data transfer device is executing a cleaning process, a command that requires access to the volume in the data transfer device may be rejected with CHECK CONDITION status. The sense key shall be set to NOT READY and the additional sense code shall be set to CLEANING CARTRIDGE INSTALLED.

Comment: CLEANING CARTRIDGE INSTALLED is an existing additional sense code but does not have the 'M' bit set

Note: After moving a volume containing a cleaning medium to a data transfer device an application client may use the CLEANING CARTRIDGE INSTALLED additional sense data returned in response to a command that requires access to the volume in the data transfer device to monitor for cleaning completion.

When the device server detects that a cleaning operation is complete, then the device server shall process a command that attempts to move a volume from the data transfer device to the data transport element without additional application client interaction (e.g., issue an unload command to the data transfer device). The method by which the device server detects that a cleaning operation is complete is not specified by this standard.

When the device server successfully process a SCSI command that moves a volume containing a cleaning medium from a data transfer device to the data transport element, and the data transfer device reports a cleaning error, then the command should return CHECK CONDITION status with the sense key set to RECOVERED ERROR, and the additional sense code set to

1) CLEANING FAILURE if the data transfer device reports a cleaning failure; or
2) CLEANING VOLUME EXPIRED if the data transfer device does not report a cleaning failure and the data transfer device reports an expired cleaning volume.

Comment: CLEANING VOLUME EXPIRED is a new additional sense code

5.6.4 Auto-Cleaning

A media changer that reports an auto clean enabled (ACE) bit set to one in the device capabilities mode page (see 7.3.2) shall detect when a data transfer device requires cleaning and perform an auto-clean operation by automatically moving a cleaning volume from a data storage element to the data transfer device and back to the source storage element when the data transfer device has completed the cleaning process. A medium changer that supports auto-cleaning shall not report cleaning requests (see 5.6.2).

When processing a command that requires access to data transfer device while a device server is executing an auto-clean operation, the device server shall

a) complete the auto-clean operation before processing the command; or
b) terminate the command with CHECK CONDITION status with the sense key set to NOT READY, and the additional sense code shall be set to CLEANING CARTRIDGE INSTALLED.