DELL

To: T10 Technical Committee
From: Veronica Hernandez and Kevin Marks - Dell, Inc.
Date: July 11, 2006
Subject: T10/06-293r1 - SSC-3: Modification of the REPEAT bit behavior in the Tape Diagnostic
            Data log page

Revision History

Revision 0 (06/21/06) – Initial proposal
Revision 1 (7/11/06)
- Modified REPEAT bit text to include actual field names.

Related Documents

SCSI Stream Commands - 3 (T10/1611-D - SSC-3r03)

New text to be added to SSC-3
~~Text to be deleted from SSC-3~~
Editorial Text

Overview

In implementing the Tape Diagnostic page, it was noticed that the REPEAT bit did not include the
MEDIUM ID NUMBER field as part of the basis for the REPEAT bit being set to one. This reduced the ability
to differential between bad media and the drive itself, in that if two pieces of bad media were used
back to back, the log page could only have one entry with the REPEAT bit set. This proposal adds the
MEDIUM ID NUMBER field as part of the fields that must be the same for the REPEAT bit to be set to one.

Suggested Changes to SSC-3:

8.2.5 Tape Diagnostic Data log page

The Tape Diagnostic Data log page (see table 62) provides for a number of error-event records using
the list parameter format. Each error-event record contains diagnostic information for a single error
type encountered by the device including data counters associated with the error event, sense data,
operation code/service action and medium type with associated media motion hours, etc. The Tape
Diagnostic Data log page may be used to aid in field analysis and repair.

The Tape Diagnostic Data log page shall only include parameter entries for commands that
terminated with a CHECK CONDITION status having the sense key set to MEDIUM ERROR,
HARDWARE ERROR or ABORTED COMMAND.

The parameter code value associated with an error-event indicates the relative time at which a
command terminated with a CHECK CONDITION status. A lower parameter code indicates that the
command terminated with a CHECK CONDITION status at a more recent time. The parameter code
values returned shall be numbered consecutively from 0000h (i.e., the most recent) up to n, where *n*
is the number of current parameter entries. The number of supported parameter entries, *n,* is vendor-
specific.

~~In each parameter entry (see table y+1) if the REPEAT bit is set to zero, then the parameter entry
represents only one occurrence of the sense key and additional sense code indicated in the
parameter entry. If the REPEAT bit is set to one, then the parameter entry represents multiple
consecutive occurrences of sense key and additional sense code indicated in the parameter entry. If~~

the REPEAT bit is set to one in the parameter entry, then other fields in the parameter entry shall be set to the values when the first of the consecutive occurrences of the sense key and additional sense code occurred.

In each parameter (see table 65) if the REPEAT bit is set to zero, then the parameter represents only one event. If the REPEAT bit is set to one, then the parameter represents more than one consecutive events that had the identical values for the MEDIUM ID NUMBER field, SENSE KEY field, ADDITIONAL SENSE CODE field and ADDITIONAL SENSE CODE QUALIFIER field in the parameter. If the REPEAT bit is set to one in the parameter, then other fields in the parameter shall be set to the values when the first of the consecutive events that had the identical values for the MEDIUM ID NUMBER field, SENSE KEY field, ADDITIONAL SENSE CODE field and ADDITIONAL SENSE CODE QUALIFIER field occurred.

All parameter codes shall be persistent across I_T nexus losses, logical unit resets, and power-on. The parameter entries shall not be set to zero or changed with the use of a LOG SELECT command.

Table 64 - Tape Diagnostic Data log page

<<Insert Table 64>>

See SPC-4 for descriptions of the DU bit, TSD bit, ETC bit, TMC field and FORMAT AND LINKING field. These fields shall be set to the values specified in table 63.

The PARAMETER LENGTH field indicates the number of bytes in the Tape Diagnostic Data log parameter data that follows.

The DENSITY CODE field contains the density code of the medium loaded at the time the command terminated with the CHECK CONDITION status. The DENSITY CODE field is the same value as returned in the general mode parameter block descriptor (see SPC-4). If no medium was loaded at the time the command terminated with the CHECK CONDITION status, then the DENSITY CODE field shall be set to 00h.

The MEDIUM TYPE field contains the type of medium loaded at the time the command terminated with the CHECK CONDITION status. The MEDIUM TYPE field is the same value as returned in the mode parameter header (see SPC-4). If no medium was loaded at the time the command terminated with the CHECK CONDITION status, then the MEDIUM TYPE field shall be set to 00h.

The LIFETIME MEDIA MOTION HOURS field contains the number of media motion (head) hours at the time the command terminated with the CHECK CONDITION status. The LIFETIME MEDIA MOTION HOURS field is equivalent to the value contained in the Device Statistics log page with a parameter code value of 0003h at the time the command terminated with the CHECK CONDITION status.

The REPEAT bit if set to one indicates that the sense key and additional sense code were reported two or more times consecutively and only one parameter entry was created for the multiple consecutive error-events. The REPEAT bit if set to zero indicates that the sense key and additional sense code at the time the CHECK CONDITION status was reported was different from the previously reported CHECK CONDITION status.

The REPEAT bit set to one indicates this parameter represents more than one consecutive events that had identical values for the MEDIUM ID NUMBER field, SENSE KEY field, ADDITIONAL SENSE CODE field, and ADDITIONAL SENSE CODE QUALIFIER field. The REPEAT bit set to zero indicates this parameter represents a single event.

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