DELL

To: T10 Technical Committee
From: Gary Lestage, Kyle Walczak and Kevin Marks - Dell, Inc.
Date: September 12, 2006
Subject: T10/06-182r3 - SMC-3: statistics log page for SMC

Revision History

Revision 0 (5/07/06) – Initial proposal
Revision 1 (7/5/2006) – changes based on June 5 SMC-3 Conference Call
- Fixed several editorial errors
- Modified wording in the Per Element Media Changer Device Statistics log parameter, so that if the element being described by the PARAMETER CODE field is a medium transport element, then the TOTAL NUMBER OF SCANS field and TOTAL NUMBER OF SCAN RETRIES field are set to zero.
- Modified wording in the Per Element Media Changer Device Statistics log parameter, so that if the element being described by the PARAMETER CODE field is a medium transport element, then the TOTAL PICK/PLACE/RETRIES fields indicate those operations by the medium transport element.
- Add that if the Volume Identifier is unknown it should be set to all ASCII spaces.
- Updated SOURCE ADDRESS field in the Media Changer Diagnostic Data log page parameter.

Revision 2 (8/30/06)
- Removed Per Element and Diagnostic page from proposal and move to separate proposals.
- Reworded Scan counter statistics
- Changed soft to recovered and hard to unrecovered in statistics counters
- Made parameters reset-able with LOG SELECT

Revision 3 (9/12/06) – Final version
- Changed back to SPC-3 log page/parameter format.
- Added several more counters

Related Documents

SCSI Media Changer Commands - 3 (T10/1730-D - SMC-3r02)

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

Overview

As part of the ISV feedback resolution and that Dell sees a need to standardize log pages that will allow for the collection of information required during field analysis and troubleshooting of media changer devices. This proposal is beneficial to those applications that report diagnostic information back via diagnostic software. Special code will no longer need to be written specific to the media changer device being used. This proposal defines a Media Changer Statistics log page that contains a collection of counters that can be used to aid field analysis and troubleshooting.

Suggested Changes to SMC-3:

<< Add new row to Table 30 - Log page codes >>

Table 30 — Log page codes

Page Code	Description	Reference

....	....	....
XXh	Media Changer Statistics log page	7.2.x
....	....	....

<< Where XXh is the assigned log pages. >>

7.2.x Media Changer Statistics log page

The Media Changer Statistics log page (see table x) defines data counters associated with the utilization of the media changer device. A device server that implements the Media Changer Statistics log page shall implement one or more of the defined parameters. Support for individual parameters in the Media Changer Statistics log page is optional. All supported parameters shall be persistent across I_T nexus loss, logical unit reset and power-on.

Table x – Media Changer Statistics log page

Byte\Bit	7	6	5	4	3	2	1	0
0	Reserved			PAGE CODE (XXh)				
1	Reserved							
2	(MSB)		PAGE LENGTH (n-3)					
3								(LSB)
	Media changer statistics log parameters							
4	First media changer statistics log parameter (see table x+1)							
	. . .							
n	Last media changer statistics log parameter (see table x+1)							

See SPC-3 for a description of the PAGE CODE field and PAGE LENGTH field.

The media changer statistics log parameter format is shown in table x+1.

Table x+1 – Media changer statistics log parameter format

Byte\Bit	7	6	5	4	3	2	1	0
0	(MSB)		PARAMETER CODE					
1								(LSB)
2	DU	DS	TSD (0b)	ETC	TMC		LBIN(0b)	LP(0b)
3	PARAMETER LENGTH (n-3)							
4	(MSB)		DEVICE STATISTICS DATA COUNTER					
n								(LSB)

See SPC-3 for a description of the PARAMETER CODE field. The PARAMETER CODE field shall contain the values defined in Table x+2.

Table x+2 –Media changer statistics log parameter codes

Parameter Code	Description
0000h	Number Of Moves
0001h	Number of Picks
0002h	Number of Pick Retries
0003h	Number of Places
0004h	Number of Place Retries
0005h	Number of Volume Tags read by the Volume Tag Reader
0006h	Number of invalid Volume Tags returned by the Volume Tag Reader
0007h	Number of Library Door Opens
0008h	Number of Import/Export Door Opens
0009h	Number of Physical Inventory Scans
000Ah	Medium Transport Unrecovered Errors
000Bh	Medium Transport Recovered Errors
000Ch	Medium Transport X Axis Translation Unrecovered Error
000Eh	Medium Transport X Axis Translation Recovered Error
000Fh	Medium Transport Y Axis Translation Unrecovered Error
0010h	Medium Transport Y Axis Translation Recovered Error
0011h	Medium Transport Z Axis Translation Unrecovered Error
0012h	Medium Transport Z Axis Translation Recovered Error
0013h	Medium Transport Rotational Translation Unrecovered Error
0014h	Medium Transport Rotational Translation Recovered Error
0015h	Medium Transport Inversion Translation Unrecovered Error
0016h	Medium Transport Inversion Translation Recovered Error
0017h	Medium Transport Auxiliary Axis Translation Unrecovered Error
0018h	Medium Transport Auxiliary Axis Translation Recovered Error
0019h-7FFFh	Reserved
8000h – FFFFh	Vendor specific
NOTE xx - The exact definition of the data counters is not part of this standard. These counters should not be used to compare products because the products may define the meaning of these counters differently.	

See SPC-3 for descriptions of the DU bit, DS bit TSD bit, ETC bit, TMC field, LBIN bit and LP bit. The TSD bit, LBIN bit and LP bit shall be set to the values shown in table x+1.

The PARAMETER LENGTH field indicates the number of bytes in the DEVICE STATISTICS DATA COUNTER field that follows.

The DEVICE STATISTICS DATA COUNTER field contains the value of the requested data counter.