To: INCITS Technical Committee T10

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Subject: SPC-4: Log Parameter Subpages

1. Revisions

2. Introduction

Some of our products make extensive use of Log Pages. Currently there are only 15 Vendor-Reserved log pages available. We are already using 13 of those and have plans to use more in the future. We would like to extend Log Pages to use subpage codes like already exists in Mode pages. While these pages are vendor-specific, the log page format is not necessarily vendor-specific, and we believe that these modifications are better done by modifying the standard.

Additionally, we would like to extend Log Select to have a page code and subpage code fields in the CDB to allow for resetting all counters in that one page/subpage combination.

This revision of the proposal is to see if the group would be amenable to this idea and make sure that I am starting out in the correct direction.

3. Proposal

6.5 LOG SELECT command

The LOG SELECT command (see table 89) provides a means for an application client to manage statistical information maintained by the device about the device or its logical units. Device servers that implement the LOG SELECT command shall also implement the LOG SENSE command. Structures in the form of log parameters within log pages are defined as a way to manage the log data. The LOG SELECT command provides for sending zero or more log pages via the Data-Out Buffer. This standard defines the format of the log pages, but does not define the exact conditions and events that are logged.

TABLE 89. LOG SELECT command

Bit Byte	7	6	5	4	3	2	1	0
0	OPERATION CODE (4Ch)							
1	Reserved						PCR	SP
2	PCR		PAGE CODE					

TABLE 89. LOG SELECT command

Bit Byte	7	6	5	4	3	2	1	0
3	SUBPAGE CODE							
4	Reserved							
5	Reserved							
6	Reserved							
7	PARAMETER LIST LENGTH							
8								
9	CONTROL							

A parameter code reset (PCR) bit set to one and a parameter list length of zero shall cause all implemented parameters in the log parameters indicated by the PAGE CODE and SUBPAGE CODE fields to be set to the vendor specific default values (e.g., zero). A parameter code reset (PCR) bit set to one and a parameter list length of zero and the PAGE CODE and SUBPAGE CODE fields set to zero shall cause all implemented parameters to be set to the vendor specific default values (e.g., zero). If the PCR bit is set to one and the parameter list length is greater than zero, the command shall be terminated with CHECK CONDITION status, with the sense key set to ILLEGAL REQUEST, and the additional sense code set to INVALID FIELD IN CDB.

A PCR bit set to zero specifies that the log parameters shall not be reset.

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The PAGE CODE and SUBPAGE CODE fields identify which log page of data is being sent (see 7.2). If the log page code is reserved or not implemented, the command shall be terminated with CHECK CONDITION status, with the sense key set to ILLEGAL REQUEST, and the additional sense code set to INVALID FIELD IN CDB.

The PAGE CODE and SUBPAGE CODE fields set to zero indicate that <legacy behavior>.

6.6 LOG SENSE command

The LOG SENSE command (see table 91) provides a means for the application client to retrieve statistical or other operational information maintained by the device about the device or its logical units. It is a complementary command to the LOG SELECT command.

TABLE 91. LOG SENSE command

Bit Byte	7	6	5	4	3	2	1	0
0	OPERATION CODE (4Dh)							
1	Reserved						PPC	SP
2	PC		PAGE CODE					

TABLE 91. LOG SENSE command

Bit / Byte	7	6	5	4	3	2	1	0
3	SUBPAGE CODE							
4	Reserved							
5	PARAMETER POINTER							
6								
7	ALLOCATION LENGTH							
8								
9	CONTROL							

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The PAGE CODE and SUBPAGE CODE fields identify which log page of data is being requested (see 7.2). If the log page code is reserved or not implemented, the command shall be terminated with CHECK CONDITION status, with the sense key set to ILLEGAL REQUEST, and the additional sense code set to INVALID FIELD IN CDB.

The application client should send log pages in ascending order by page code value if the Data-Out Buffer contains multiple log pages. If the Data-Out Buffer contains multiple subpage codes within a log page, then they should be sent in ascending order by subpage code value. If the Data-Out Buffer contains multiple log parameters within a log page, then they should be sent in ascending order by parameter code value. If the application client sends log pages out of order or parameter codes out of order, the command shall be terminated with CHECK CONDITION status, with the sense key set to ILLEGAL REQUEST, and the additional sense code set to INVALID FIELD IN PARAMETER LIST.

7.2 Log parameters

7.2.1 Log page structure and page codes for all device types

This subclause describes the log page structure and the log pages that are applicable to all SCSI devices. Log pages specific to each device type are described in the command standard (see 3.1.18) that applies to that device type. The LOG SELECT command (see 6.5) supports the ability to send zero or more log pages. The LOG SENSE command (see 6.6) returns a single log page specified in the PAGE CODE and SUBPAGE CODE field combination of the CDB. Subpages are identical to log pages except that they include a SUBPAGE CODE field that further differentiates the mode page contents.

Each log page begins with a four-byte page header followed by zero or more variable-length log parameters defined for that log page. The log page format is defined in table 191.

TABLE 191. Log Page format

Bit Byte	7	6	5	4	3	2	1	0
0	PAGE CODE							
1	SUBPAGE CODE							
2	PAGE LENGTH (n-3)							
3								
Log parameter(s)								
4	Log parameter (First)							
x+3	(Length x)							
	:							
n-y+1	Log parameter (Last)							
n	(Length y)							

The PAGE CODE and SUBPAGE CODE fields identify which log page is to being transferred. Some page codes are defined as applying to all device types and other page codes are defined for the specific device type. The page codes that apply to a specific device type are defined in the command standard (see 3.1.18) for that device type. The applicability of each subpage code matches that of the page code with which it is associated.