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T10/04-335r1

Date

20 October, 2004

To INCITS T10 Committee

From Michael Banther, HP Subject
WORM Tamper Read Enable

Revision History

Revision 0 – Initial proposal.

Revision 1 – Corrected a cut and paste error in the ASC and ASCQ Assignment tables. Revision 0 inadvertently included WORM MEDIUM – CANNOT ERASE which doesn't exist and used the wrong ASCQ value for WORM MEDIUM – OVERWRITE ATTEMPTED.

Background

HP and other tape drive vendors wish to include a Write Once Read Multiple (WORM) capability in SSC-3. Previous and ongoing proposals seek to add the necessary specifications: <u>04-211r1</u> and 04-312r0.

Support for WORM operation raises the question, what does a streaming device server do if it detects tampering in a previously written WORM cartridge? This proposal adds a WORM Tamper Read Enable bit that allows the application client to specify the behavior of the device server in this situation.

Proposed changes to SSC-3

2.3 References under development

At the time of publication, the following referenced standards were still under development. For information on the current status of the document, or regarding availability, contact the relevant standards body or other organization as indicated.

ISO/IEC 14776-313, SCSI Primary Commands – 3 standard

ISO/IEC 14776-412, SCSI Architecture Model – 2 standard

ISO/IEC 14776-352, SCSI Media Changer Commands - 2 standard

T10/1729-D, SCSI Primary Commands - 4

8.3.3 Device Configuration mode page

The Device Configuration mode page (see table 62) is used to specify the appropriate sequential-access device configuration.

Table 62 - Device Configuration mode page

Tuble 02 - Device Collingui unou puge													
Bit Byte	7	6	5	4	3	2	1	0					
0	PS	Rsvd PAGE CODE (10h)											
1		PAGE LENGTH (OEh)											
2	Rsvd	Obsolete CAF ACTIVE FORMAT											
3	ACTIVE PARTITION												
4	WRITE OBJECT BUFFER FULL RATIO												
5	READ OBJECT BUFFER EMPTY RATIO												
6	(MSB)	ASB)											
7		- WRITE DELAY TIME (LSB)											
8	OBR	LOIS	RSMK	AVC	SC)CF	ROBO	REW					
9		GAP SIZE											
10		EOD DEFINED		EEG	SEW	SWP	BAML	BAM					
11	(MSB)												
12	OBJECT BUFFER SIZE AT EARLY WARNING												
13	(LSB)												
14	SELECT DATA COMPRESSION ALGORITHM												
15	Reserved	WTRE	OIR	ASOCWP	PERSWP	PRMWP							





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A WORM Tamper Read Enable (WTRE) bit set to zero specifies that the device server shall return CHECK CONDITION status in response to a locate, read, read reverse, space, or verify operation if the device detects compromised integrity of data stored on the WORM medium. The device server shall set the sense key to MEDIUM ERROR and the additional sense code to WORM MEDIUM – INTEGRITY CHECK. A WTRE bit set to zero shall have no effect on the completion of an otherwise valid locate, read, read reverse, space, or verify operation when the device contains a non-WORM medium.

A WTRE bit set to one specifies that the device server shall complete with GOOD status an otherwise valid locate, read, read reverse, space, or verify operation regardless of the device server detecting compromised integrity of data stored on the WORM medium. A WTRE bit set to one shall have no effect on the completion of an otherwise valid locate, read, read reverse, space, or verify operation when the device contains a non-WORM medium.

NOTE: An application client should set the WTRE bit to one only for the recovery of data from a WORM medium where the integrity of the stored data has been compromised.

[Editor's Note: IBM will provide a proposal to define WORM, 04-312r0]

Proposed changes to SPC-4

4.5.6 Sense key and sense code definitions

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The additional sense codes and additional sense code qualifiers are defined in table 28.

Table 28 — ASC and ASCQ assignments (part 14 of 15)

ICE (SMC-2) DEVICE (SCC-2)				
ERVICES DEVICE (SES)				
CRW)				
CKVV) C)				
-)				
TEMPTED				
CK				





D.2 Additional Sense Codes

Table D.1 is a numerical order listing of the additional sense codes and the additional sense code qualifiers.

					lab	le D	<u>.1 -</u>	<u>– А</u>	SC a	ınd	<u>AS</u>	CQ	ass	ignı	mei	nts (part 7 of 15)			
		D	DIF	RECT	ГАС	CESS	S BLC	OCK I	DEVIC	CE (S	BC-2	2)				Device Column key			
			Τ	T SEQUENTIAL ACCESS DEVICE (SSC-2)							(SSC	C-2)		blank = code not used					
				L	L PRINTER DEVICE (SSC)											not blank = code used			
				P PROCESSOR DEVICE (SPC-2)							SPC-	2)							
						W WRITE ONCE BLOCK DEVICE (SBC)													
							R CD/DVD DEVICE (MMC-2)												
								0	OP.	TICA	L ME	. MEMORY BLOCK DEVICE (SBC)							
									Μ	ME	DIA	CHA	HANGER DEVICE (SMC-2)						
										Α	ST	ORA	GE /	4RR.∕	RAY DEVICE (SCC-2)				
											Ε	ΕN	ICLC	SUR	E SE	ERVICES DEVICE (SES)			
												В	SI۸	ΛPLIF	FIED DIRECT-ACCESS DEVICE (RBC)				
													Κ	OP	TICA	AL CARD READER/WRITER DEVICE (OCRW)			
														٧	Αl	JTOMATION/DRIVE INTERFACE (ADC)			
															F	OBJECT-BASED STORAGE (OSD)			
																, ,			
ASC A	ASCQ	D	Τ	L	Р	W	R	0	M	Α	Ε	В	Κ	٧	F	Description			
																·			
30h 0	OCh		Τ													WORM MEDIUM – OVERWRITE ATTEMPTED			
30h 0	DDh		Т													WORM MEDIUM – INTEGRITY CHECK			
30h 1	l Oh						R									MEDIUM NOT FORMATTED			