T10/07-046r0

To	From	Subject	Date
INCITS T10 Committee	Michael Banther, HP	SSC-3 Requested Recovery log page	17 January 2007

Revision History

Revision 0 – Initial document with Requested Recovery log page copied from ADC-2 plus limited edits.

Reference documents

Automation/Drive Interface Commands - 2 (ADC - 2), Project 1741-D, Revision 07a, 31 October 2006.

SCSI Stream Commands – 3 (SSC-3), Project 1611-D, Revision 03b, 30 October 2006.

Background

Presently SSC-3 includes the DTD Status log page by reference (SSC-3, 8.2.1 Log pages overview). Although the DTD Status log page includes the very high frequency data log parameter and this parameter contains the recovery requested (RRQST) bit, SSC-3 does not include the Requested Recovery log page. The omission of the Requested Recovery log page unnecessarily prohibits an application client operating with a tape drive in a stand-alone environment from making use of the requested recovery feature.

This proposal brings the Requested Recovery log page into SSC-3. In order to allow SSC-3 to specify requested recovery sequences that make sense for a sequential access device operating in both automation and stand-alone environments, this proposal specifies the page anew rather than including it by reference.

In this document, new proposed text appears in blue and proposed deleted text appears in red strikeout. Since most of the new text comes from ADC-2, I've indicated portions of new text that do not match the corresponding text in ADC-2 by using blue underline. Finally notes that do not form part of the proposed text appear in pink.

Changes to the SSC-3 draft standard

8.2.1 Log parameters overview

Table 57 — Log page codes

Page Code	Description	Support	Reference
12h	TapeAlert Response log page	O	ADC-2
13h	~~Reserved~~ Requested Recovery log page	-O	8.2.X
14h	Device Statistics log page	O	8.2.4
a)	Mandatory only if READ REVERSE command is supported.		

Editor's Note: Table 57 contains other rows of information not shown above.

8.2.X Requested Recovery log page

8.2.X.1 Requested Recovery log page overview

Table Y describes the Requested Recovery log page. When the physical device is unable to complete an action (e.g., a medium load or unload) the device server may set the RRQST bit to one in the very high frequency data log parameter (see ADC-2) to request that the application client perform a recovery action. The application client is able to obtain a list of alternative requested recovery actions by reading the Requested Recovery log page.

Table Y — Requested Recovery log page

Byte \ Bit	7	6	5	4	3	2	1	0
0	Reserved		PAGE CODE (13h)					
1	Reserved							
2	(MSB)		PAGE LENGTH (n – 3)					
3								(LSB)
4	Requested recovery log parameters							
n								

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

Table Y+1 defines the Requested Recovery log page parameter codes.

Table Y+1 — Requested Recovery log page parameter codes

Parameter code	Description	Reference
0000h	Recovery procedures	8.2.X.2
0001h -7FFFh	Reserved	
8000h - FFFFh	Vendor-specific	

8.2.X.2 Recovery procedures log parameter

The recovery procedures log parameter format is shown in table Y+2.

Table Y+2 — Requested recovery log parameter format

Bit Byte	7	6	5	4	3	2	1	0
0	(MSB)			PARAMETER CODE (0000h)				
1								(LSB)
2	DU (1b)	Obsolete	TSD (1b)	ETC (0b)	TMC (00b)		FORMAT AND LINKING (11b)	
3	PARAMETER LENGTH (n – 3)							
	Recovery procedures list							
4	First recovery procedure							
	.							
	.							
	.							
n	Last recovery procedure							

See SPC-3 for descriptions of the DU bit, TSD bit, ETC bit, TMC field, and FORMAT AND LINKING field. These bits and fields shall be set to the values shown in table Y+2.

The PARAMETER LENGTH field indicates the number of recovery procedure bytes that follow.

The PARAMETER CODE field shall be set to 0000h to indicate the recovery procedures log parameter.

The recovery procedures list contains recovery procedures (see table Y+3) listed in order from the most preferred to the least preferred procedure. When multiple recovery procedures are available, the most preferred procedure shall be the first in the list (i.e., in byte 4), and the other procedures listed in decreasing order of preference. The application client may select any recovery procedure, regardless of position in the list.

Each recovery procedure consists of one or more actions to be performed. When the INTXN bit of the VHF DATA DESCRIPTOR field (see ADC-2) is set to one, the parameter shall report only code 00h (i.e., Recovery not requested). If a failure occurs in performing one of the actions in a procedure, an appropriate list of requested recovery procedures may be reported.

Recovery procedures do not persist across a power cycle.

Table Y+3 — Recovery procedures

Recovery Procedure	Description
00h	Recovery not requested
01h	Recovery requested, no recovery procedure defined
02h	Instruct operator to push medium.
03h	Instruct operator to remove and re-insert medium.
04h	Issue UNLOAD command. Instruct operator to remove and re-insert medium.
05h	Instruct operator to cycle power to target device.
06h	Issue LOAD command.
07h	Issue UNLOAD command.
08h	Issue LOGICAL UNIT RESET task management function.
09h	No recovery procedure defined. Contact service organization.
0Ah	Issue UNLOAD command. Instruct operator to remove and quarantine medium.
0Bh	Instruct operator to not insert a volume. Contact service organization.
0Ch	Issue UNLOAD command. Instruct operator to remove medium. Contact service organization
0Dh	Request creation of a target device error log.
0Eh	Retrieve a target device error log.
0Fh	Modify configuration to allow microcode update and instruct operator to re-insert medium.
10h – 7Fh	Reserved
80h – FFh	Vendor-specific procedures

If the Requested Recovery log page is requested when the RRQST bit (see ADC-2) is set to zero, then a recovery procedure of 00h (i.e., Recovery not requested) shall be reported.

If the requested recovery procedure causes the physical device to eject the medium, the application client shall ensure there is not a conflict between the motion of a medium transport element and the medium before initiating that recovery action.

If the requested recovery procedure is 09h (i.e., Contact service organization), then the application client shall not issue a load or unload command or attempt to manipulate the medium physically.

If the requested recovery procedure is 0Ah (i.e., Issue UNLOAD command, remove, and quarantine medium), then the medium should not be loaded in a removable medium device.

If the requested recovery procedure is 0Bh (i.e., Do not insert medium), a non-recoverable error has occurred and insertion of a medium may cause damage. If the 0Bh recovery procedure is requested, then the RAA bit (see ADC-2) shall be set to zero, and no other recovery procedures shall be reported.

If the requested recovery procedure is 0Ch (i.e., Issue UNLOAD command, remove medium, and contact service organization), a non-recoverable error has occurred and insertion of a new medium may cause damage. When recovery procedure 0Ch is requested and the medium has been removed, then the RAA bit (see ADC-2) shall be set to zero, and no other recovery procedures shall be reported.