

Accredited Standards Committee*
InterNational Committee for Information Technology Standards (INCITS)

Doc. No.: T10/07-212r0

Date: May 10, 2007

Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber and John Lohmeyer
Subject: SCSI Commands, Architecture, & Protocol Working Group Meeting -- May 9-10, 2007
Bellevue, WA

Agenda

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 - 4.2 SAM-4: Task Tag Length and FCP (07-139) [Peterson]
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 - 5.3.1 SES-2 Enclosure element Power Cycle request (07-118) [Elliott]
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7. Security
 - 7.1 SPC-4: Establishing a Security Association using IKEv2 (06-449) [Ball & Black]
 - 7.2 Capability based Command Security (07-069) [Penokie]
 - 7.3 Command Security via SAs (07-149r0) [Weber]

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- 7.4 ESP-SCSI for Parameter Data (07-169r0) [Weber]
- 7.5 The SA Creation protocol in 06-449r5 (07-226) [Weber]
- 7.6 SPC-4: Device Server Password Security (06-070) [Stevens]
- 8. Old Business
- 9. New Business
- 10. Review of Working Drafts
- 11. Review of Recommendations to the Plenary
- 12. Meeting Schedule
- 13. Adjournment

Results of Meeting

1. Opening Remarks

John Lohmeyer called the meeting to order at 9:00 a.m. Wednesday, May 9, 2007. He thanked Bob Griswold of the Microsoft for hosting the meeting. As usual, the people present introduced themselves.

2. Approval of Agenda

The draft agenda was approved with no additions or changes.

The following items were added/revised during the course of the meeting:

- 7.6 SPC-4: Device Server Password Security (06-070) [Stevens]

3. Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for T10 membership. Working group meetings are open to any person or organization directly and materially affected by T10's scope of work. The following people attended the meeting:

CAP Working Group Attendance Report - May 2007

Name	S	Organization
Mr. Chris Fore	P	Adaptec, Inc.
Mr. Noud Snelder	V	BDT
Mr. David Peterson	P	Brocade
Mr. Robert Snively	A	Brocade
Mr. William McFerrin	V	DataPlay
Mr. Gideon Avida	P	Decru
Mr. Kevin Marks	P	Dell, Inc.
Mr. David Black	A	EMC Corp.
Mr. Gary S. Robinson	P	EMC Corp.
Mr. William Martin	P	Emulex
Mr. Robert H. Nixon	A	Emulex
Mr. Ralph O. Weber	P	ENDL Texas
Mr. Nathan Hastad	P	General Dynamics
Mr. Rob Elliott	P	Hewlett Packard Co.
Mr. Steven Fairchild	V	Hewlett Packard Co.
Mr. Dan Colegrove	P	Hitachi Global Storage Tech.
Mr. Glen Jaquette	V	IBM
Mr. Kevin Butt	A	IBM Corp.
Mr. George O. Penokie	P	IBM Corp.
Mr. Sivan Tal	V	IBM Corp.
Mr. Robert Sheffield	P	Intel Corp.
Mr. Robert Payne	P	Iomega Corp.
Mr. Joel Silverman	P	Kawasaki Microelectronics Am
Mr. Dennis Moore	P	KnowledgeTek, Inc.
Mr. John Geldman	P	Lexar Media, Inc.
Mr. Walt Hubis	V	LSI Corp.
Mr. John Lohmeyer	P	LSI Corp.
Mr. David Geddes	P	Marvell Semiconductor, Inc.
Mr. Mark Benedikt	P	Microsoft Corp.
Mr. Robert Griswold	A	Microsoft Corp.
Mr. Landon Noll	A	NeoScale Systems Inc.
Mr. Frederick Knight	A	Network Appliance
Mr. Geoffrey Barton	V	Overland Storage
Mr. Takaharu Ai	A	Panasonic AVC Networks Co.
Mr. Tim Symons	P	PMC-Sierra
Mr. Matthew Ball	V	Quantum Corp.
Mr. Paul Entzel	P	Quantum Corp.
Dr. Paul Suhler	A	Quantum Corp.
Mr. Joseph Chen	P	Samsung
Mr. Michael Rogers	A	Samsung
Mr. Avraham Shimor	P	SanDisk Corporation
Mr. Gerald Houlder	P	Seagate Technology
Mr. Stephen Finch	P	STMicroelectronics, Inc.
Mr. Erich Oetting	P	Sun Microsystems, Inc.

Mr. Roger Cummings	P	Symantec
Mr. Anders Liverud	AV	Tandberg Storage
Mr. Jim Scott	P	Vitesse Semiconductor
Mr. Mark Evans	P	Western Digital
Mr. Curtis Stevens	A	Western Digital

49 People Present

Status Key: P - Principal
 A,A# - Alternate
 AV - Advisory Member
 E - Emeritus
 L - Liaison
 V - Visitor

4. SCSI Architecture Model Topics

4.1 SAM-4 Response Fence for protocol services (06-341) [Elliott]

Rob Elliott requested that discussion of his proposal to reflect transport layer ordering of commands and task management functions in SAM-4 (06-341r1) be deferred to the next meeting.

4.2 SAM-4: Task Tag Length and FCP (07-139) [Peterson]

Dave Peterson asked that discussion of the proposal to remove the task tag size statements in SAM-4 (07-139) be deferred to the next meeting.

4.3 SAM-4: Changes requested from 03/2007 editing session (07-157) [Penokie]

George Penokie presented a collection of UML changes that arose from discussions during the March SAM editing session (07-157r1). The group requested several changes, such as including text that clarifies the function of the Application Buffer Manager, modifications to the operations associated with the Application Client class, and restructuring the Nexus UML.

George agreed to prepare a new revision for presentation to the next meeting.

4.4 SAM-4 SPC-4 TASK ABORTED status clarifications (06-026) [Elliott]

Rob Elliott presented a proposal to clarify the instances where TASK ABORTED status is returned (06-026r0). The group requested the addition of more information about when TASK ABORTED status might be returned and Rob agreed to prepare a new revision for consideration at the next meeting.

4.5 SAM-4 Peripheral device and logical unit addressing errors (07-223) [Elliott]

Rob Elliott presented a proposal modify the SAM-4 description of error handling for unsupported logical units (07-223r0).

Because the change might affect disk drive behavior, Rob Elliott agreed to defer approval of the proposal to the next meeting.

4.6 SAM-4 Include deferred errors in QUERY UNIT ATTENTION (07-224) [Elliott]

Rob Elliott presented a proposal to add deferred error reporting to the QUERY UNIT ATTENTION task management function (07-224r0). The group requested wording changes to clarify the table that listed coded values reflecting how many unit attention conditions are queued. Rob agreed to prepare a new revision.

Rob Elliott moved that 07-224r1 (r0 as revised) be recommended for inclusion in SAM-4. Bob Griswold second the motion. In the absence of any objections, the motion passed unanimously.

5. Command Set Topics

5.1 SCSI Primary Commands Proposals

5.1.1 SPC-4: ASC/ASCQ Reservations for ATA REQUEST SENSE (07-081) [Overby]

In the absence of Mark Overby, discussion of the proposal to define a range of additional sense codes for use by T13 (07-081) was deferred to the next meeting.

5.1.2 SPC-4 Error History proposal (06-362) [Houlder]

Gerry Houlder and Rob Elliott presented a proposal to define a method for retrieving error history information (06-362r5). The group requested the addition of 'header' information indicating whether the history information has been read before. Kevin Butt provided several other comments and requested more changes to which Gerry and Rob assented. Rob agreed to prepare a new revision of the proposal for consideration at the next meeting.

5.1.3 SPC-4: Extended SCSI Commands (07-029) [Weber]

Ralph Weber presented a proposal to define a mechanism for adding extensions to SCSI CDBs in another CDB (07-029r2). The group requested that a length field be added and that the effects of reserved extension types be described more clearly. The group also agreed to the removal of the proposed informative annex.

Ralph agreed to prepare a new revision for consideration at the next meeting.

5.1.4 SPC-4 Add QTSS and QUAS bits to REPORT SUPPORTED TMF (07-159) [Elliott]

Rob Elliott presented a proposal to add two task management functions to the REPORT SUPPORTED TASK MANAGEMENT FUNCTIONS command (07-159r1).

Rob Elliott moved that 07-159r1 be recommended for inclusion in SPC-4. Bill Martin seconded the motion. In the absence of any objections, the motion passed unanimously.

5.1.5 SPC-4 Target Port Group membership clarification (07-172) [Knight]

Fred Knight presented a proposal to remove a sentence stating that target ports are only in one target port group (07-172r0). The group asked that the sentence not be removed and that logical unit groups be added as a qualification and Fred agreed to prepare a new revision of the proposal.

Fred Knight moved that 07-172r1 (r0 as revised) be recommended for inclusion in SPC-4. Kevin Marks seconded the motion. In the absence of any objections, the motion passed unanimously.

5.1.6 SPC-4 request for security protocol (07-184) [Ballard]

In the absence of Curtis Ballard, Ralph Weber presented a proposal to assign a security protocol code to a Data Encryption Configuration function (07-184r0).

Ralph Weber moved that 07-184r0 be recommended for inclusion in SPC-4. Roger Cummings seconded the motion. The motion passed 16:0:9.

5.1.7 LOG SELECT CDB page/subpage field usage in SPC-4 (07-196) [Weber]

Ralph Weber presented a proposal to eliminate duplicate definitions for the 00h/00h log page/subpage code definition (07-196r0).

Ralph Weber moved that 07-196r0 be recommended for inclusion in SPC-4. Erich Oetting seconded the motion. In the absence of any objections, the motion passed unanimously.

5.1.8 SPC-4 NAA Locally Assigned designator format (07-216) [Elliott]

Rob Elliott presented a proposal add the locally assigned NAA format to the Device Identification VPD page (07-216r0). Bob Snively described the meaning of the locally assigned NAA format. Rob and Bob discussed the effects of the SAS/SATA hashing algorithm for which the new NAA format would be used.

The group requested minor changes in the usage definition and Rob agreed to prepare a new revision of the proposal.

Rob Elliott moved that 07-216r1 (r0 as revised) be recommended for inclusion in SPC-4. Bob Nixon seconded the motion. In the absence of any objections, the motion passed unanimously.

5.2 SCSI Block Commands Proposals

5.2.1 SBC-3 Rename field in READ CAPACITY(16) parameter data (07-208) [Houlder]

Gerry Houlder presented a proposal to rename the Logical Blocks Per Physical Block field in the READ CAPACITY(16) command to something that reflects the exponent nature of the field's contents (07-208r0).

Gerry Houlder moved that 07-208r0 be recommended for inclusion in SBC-3. Rob Elliott seconded the motion. George Penokie noted that the acronym may be removed when the proposal is incorporated. In the absence of any objections, the motion passed unanimously.

5.2.2 SBC-3 SPC-4 Block Device Characteristics VPD page and medium rotation rate field (07-203) [Elliott]

Rob Elliott presented a proposal to define a VPD page in which the medium rotation rate can be reported (07-203r0).

Rob Elliott moved that 07-203r0 be recommended for inclusion in SBC-3 and SPC-4. Gerry Houlder seconded the motion.

Ralph Weber moved that the motion be amended to instruct the editor to increase the page size to 64 bytes. Bill Martin second the motion to amend.

Rob Elliott cited several cases where VPD page size increases had resulted in problems. Ralph cited the historical precedents of the committee's actions when defining new VPD pages. Several other issues were discussed.

The motion to amend passed 15:4:7.

The motion to recommend 07-203r0 (as amended) passed 24:0:1.

5.3 SCSI Enclosure Services Proposals

5.3.1 SES-2 Enclosure element Power Cycle request (07-118) [Elliott]

Rob Elliott asked that discussion of the proposal to define a mechanism by which an enclosure could be instructed to power off at a specified time in the future, wait for a specified interval, and power on (07-118) be deferred to the next meeting.

5.3.2 SES-2: New element status code (07-163) [Penokie]

George Penokie presented a proposal to add a new element status code for inaccessible elements for nondescript reasons (e.g., zoning) (07-163r0).

George Penokie moved that 07-163r0 be recommended for inclusion in SES-2. Rob Elliott seconded the motion. In the absence of objections, the motion passed unanimously.

5.3.3 SES-2: Indication if element may be hot swapped (07-202) [Penokie]

George Penokie presented a proposal to add an indication of when an element is able to be hot swapped (07-202r0). He noted that the SES representations for disks and RAID controllers do not have bits available for definition to this purpose. This left three element types suitable for addition of the feature, power supplies, fans, and enclosure control electronics.

The group requested changes in the enclosure wording of the definitions and George agreed to prepare a new revision of the proposal.

George Penokie moved that 07-202r1 (r0 as revised) be recommended for inclusion in SES-2. Rob Elliott seconded the motion. In the absence of objections, the motion passed unanimously.

5.4 Other Proposals

No other proposals were presented to the group.

6. SCSI Protocol Topics

No SCSI Protocol topics were presented to the group.

7. Security

7.1 SPC-4: Establishing a Security Association using IKEv2 (06-449) [Ball & Black]

Ralph Weber began presenting the latest revision of the IKEv2-SCSI SA creation proposal (06-449r5). He noted that r5 is a conversion from Word to FrameMaker of r4, with numerous structural and normative changes to better align the protocol with SCSI. He also noted that the conversion is incomplete and several sections contain no text in r5. He promised to remedy this in r6.

An e-mail request from Joe Foster to consider making IKE_AUTH_NONE the only mandatory authentication algorithm caused the group to spend the entirety of the allotted discussion time on choosing the optimal authentication algorithm for which SPC-4 will require support.

IKE_AUTH_NONE was characterized as a blatant security hole and all security experts present promised to fight its being made the only mandatory algorithm.

A lengthy debate attempted to choose between the Shared Key algorithm and the Certificates-based algorithm, but produced no clear preference.

It was tentatively agreed that the mandatory authentication algorithm choice should be tied to the SA Usage Type and suitable changes for accomplishing this in r6 were discussed.

Ralph agreed to complete the conversion work and incorporate the ideas agreed upon by the group in 06-449r6 which would be available for consideration at the next meeting.

7.2 Capability based Command Security (07-069) [Penokie]

George Penokie, Sivan Tal, David Black, and Ralph Weber led the group in a wide-ranging discussion of the two command security mechanisms (see also agenda item 7.3) proposed for SPC-4. Threat models, cryptographic algorithms, and security holes were discussed along with a broad array of implementation possibilities and issues such as command processing performance.

No firm conclusions were reached, with the possible exception of some initial threat model ideas which included pushing man-in-the-middle attacks out of scope because securing against them produced unacceptable performance penalties on every command.

7.3 Command Security via SAs (07-149r0) [Weber]

This topic was discussed in conjunction with agenda item 7.2.

7.4 ESP-SCSI for Parameter Data (07-169r0) [Weber]

Ralph Weber asked that discussion of this topic be deferred to the next meeting.

7.5 The SA Creation protocol in 06-449r5 (07-226) [Weber]

Ralph Weber presented an overview of the IKEv2-SCSI SA Creation protocol command structure (07-226r1) and led the group in a discussion of how best to represent the protocol in SPC-4. Several ideas were noted for inclusion in 07-449r6. See also agenda item 7.1.

7.6 SPC-4: Device Server Password Security (06-070) [Stevens]

Because this item was added to the agenda after the time allocated for discussing security topics had passed, discussion was deferred to the next meeting.

8. Old Business

There was no old business.

9. New Business

Bob Griswold reported the variations in the description of physical block alignments in ATA and SBC-3 are causing problems in the industry.

10. Review of Working Drafts

No requests were made to review working drafts at this meeting.

11. Review of Recommendations to the Plenary

Ralph Weber noted that the following recommendations have been made to the T10 plenary:

For inclusion in SAM-4:

07-224r1 (Include deferred errors in QUERY UNIT ATTENTION) [Elliott]

For inclusion in SPC-4:

07-216r1 (NAA Locally Assigned designator format) [Elliott]

07-196r0 (LOG SELECT CDB page/subpage field usage) [Weber]

07-184r0 (Request for security protocol) [Ballard]

07-172r1 (Target Port Group membership clarification) [Knight]

07-159r1 (Add QTSS and QUAS bits to REPORT SUPPORTED TMF) [Elliott]

For inclusion in SBC-3:

07-208r0 (Rename field in READ CAPACITY(16) parameter data) [Houlder]

For inclusion in SPC-4 and SBC-3:

07-203r0 (Block Device Characteristics VPD page and medium rotation rate field) [Elliott]

For inclusion in SES-2:

07-163r0 (New element status code) [Penokie]

07-202r1 (Indication if element may be hot swapped) [Penokie]

12. Meeting Schedule

The next meeting of the SCSI Commands, Architecture, and Protocols Working Group will be Wednesday, July 11, 2007 from 9 a.m. until 7 p.m. and resuming Thursday, July 12, 2007 from 9 a.m. until noon. The meeting will be in Colorado Springs, CO at the Antlers Hilton Hotel (Reservations: http://www.hilton.com/en/hi/groups/personalized/coscshf_lsi07/index.jhtml) hosted by LSI Corp.

13. Adjournment

The meeting was adjourned at 12:05 p.m. on Thursday May 10, 2007.