

SCSI Stream Commands - 3: Working Group Minutes – Draft (T10/06-066r0)

Date: January 10, 2006

Time: 10:00 am - 5:00 pm

Location: Scottsdale, AZ

## Agenda

1. Opening remarks and introductions [Peterson]
2. Approval of agenda (06-056r0) [Peterson]
3. Approval of meeting minutes (05-434r0) [Peterson]
4. Review of old action items [Butt]
  - 4.1 Dave Peterson: Bring in a White Paper on the value added with Explicit Command Set.
  - 4.2 Dave Peterson: Review initiator vs I\_T nexus throughout document.
  - 4.3 Michael Banther: Bring in proposal to improve handling of cleaning and firmware upgrade cartridges.
  - 4.4 Michael Banther: Bring in proposal for Requested Recovery log page from ADC.
  - 4.5 Michael Banther: proposal against the “Cleaning Required” parameter of Sequential Access Device log page to make it consistent with TapeAlert and ADC eventually
  - 4.6 Michael Banther: revise and post 05-140r0
  - 4.7 Kevin Butt: Bring proposal following direction related to clean behavior.
  - 4.8 Kevin Butt: add cleaning bits from 05-213 to his proposal and find log page for them.
  - 4.9 Roger Cummings: produce a proposal to describe the events that shall activate and deactivate the cleaning related tape alert flags and to add a second flag for predictive failure of the medium.
  - 4.10 Banther: Revise and post SSC-3 Add WORM VERSION field to Sequential Access Device Capabilities VPD page (05-391r0)
  - 4.11 Paul Entzel: Feedback comments on ADI ADC-2 Target Device Serial Number (05-155r2) to Rod Wideman.
  - 4.12 Kevin Butt: Review TapeAlert flags for which mean media vs. hardware vs. firmware from 05-424r0
  - 4.13 Kevin Marks: revise and post 05-262r2 - ASC/ASCQ for Medium Thread Failure
  - 4.14 Dave Peterson: Incorporate 05-262r3 - ASC/ASCQ for Medium Thread Failure
  - 4.15 Kevin Butt: Provide associated text, inside the cleaning proposal for 2.1.1 of 05-351r2.
  - 4.16 Kevin Butt: revise and post Configurable EW (05-423r0)
5. Old business
  - 5.1 SSC-3: Physical device model (05-049r2) [Suhler]

**5.2 SSC-3: Device Statistics log page for SSC-3 and Tape Diagnostic Data log page (05-213r3) [Marks, Lestage, and Walczak]**

**5.3 SSC-3: TapeAlert Enhancements (05-154r3) [Banther]**

**5.4 SSC-3: Vendor Feedback (05-351r2) [Group]**

## **6. New Business**

**6.1 SSC-3: Add WORM VERSION field to Sequential Access Device Capabilities VPD page (05-391r0) [Banther]**

**6.2 SMC-3, SPC-4, SBC-3, and SSC-3: Remove Attached Media Changer model (05-317r3) [Entzel]**

**6.3 SSC-3: Target Device Serial Number subpage (05-155r2) [Entzel]**

**6.4 SSC-3: Configurable EW (05-423r0) [Butt]**

**6.5 SSC-3: Add commands to control data encryption (05-446r1) [Entzel]**

**6.6 SSC-3: Pass key by Reference Model (06-050r0) [Edling]**

**6.7 The Requirement for More than One Decryption Key (06-051r0) [Edling]**

## **7. Next meeting requirements (Hilton Head, NC)**

## **8. Review of new action items**

## **9. Adjournment**

### **Attendance**

SSC-3 Working Group Attendance Report - January 2006

Name	S	Organization
Mr. Ron Roberts	A	Broadcom Corp.
Mr. Gideon Avida	V	Decru
Mr. Kevin Marks	P	Dell, Inc.
Mr. David Black	A	EMC Corp.
Mr. Kenneth Hirata	A	Emulex
Mr. Robert H. Nixon	P	Emulex
Mr. Curtis Ballard	V	Hewlett Packard
Mr. Michael Banther	V	Hewlett Packard Co.
Mr. Kevin Butt	A	IBM Corp.
Mr. David Peterson	AV	McDATA
Mr. Paul Entzel	P	Quantum Corp.
Dr. Paul Suhler	A	Quantum Corp.
Mr. Gerald Houlder	P	Seagate Technology
Mr. Roger Cummings	P	Symantec
Mr. Anders Liverud	V	Tandberg Storage

15 People Present

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

## Results of Meeting

### 1. Opening remarks and introductions [Peterson]

### 2. Approval of agenda (05-429r0) [Peterson]

Michael Banther made motion to approve agenda as modified. Paul Suhler seconded. Voting was unanimous.

### 3. Approval of meeting minutes (05-434r0) [Peterson]

Dave Peterson made a motion to approve the minutes. Kevin Butt seconded. Voting was unanimous.

### 4. Review of old action items [Butt]

#### 4.1 Dave Peterson: Bring in a White Paper on the value added with Explicit Command Set.

Carryover

#### 4.2 Dave Peterson: Review initiator vs I\_T nexus throughout document.

Carryover

#### 4.3 Michael Banther: Bring in proposal to improve handling of cleaning and firmware upgrade cartridges.

Carryover

#### 4.4 Michael Banther: Bring in proposal for Requested Recovery log page from ADC.

Carryover

#### 4.5 Michael Banther: proposal against the "Cleaning Required" parameter of Sequential Access Device log page to make it consistent with TapeAlert and ADC eventually

Carryover

#### 4.6 Michael Banther: revise and post 05-140r0

Carryover

#### 4.7 Kevin Butt: Bring proposal following direction related to clean behavior.

Carryover

#### 4.8 Kevin Butt: add cleaning bits from 05-213 to his proposal and find log page for them.

Carryover

**4.9 Roger Cummings: produce a proposal to describe the events that shall activate and deactivate the cleaning related tape alert flags and to add a second flag for predictive failure of the medium.**

Carryover

**4.10 Banther: Revise and post SSC-3 Add WORM VERSION field to Sequential Access Device Capabilities VPD page (05-391r0)**

Carryover

**4.11 Paul Entzel: Feedback comments on ADI ADC-2 Target Device Serial Number (05-155r2) to Rod Wideman.**

Carryover

**4.12 Kevin Butt: Review TapeAlert flags for which mean media vs. hardware vs. firmware from 05-424r0. Add TA severity**

Carryover

**4.13 Kevin Marks: revise and post 05-262r2 - ASC/ASCQ for Medium Thread Failure**

Done

**4.14 Dave Peterson: Incorporate 05-262r3 - ASC/ASCQ for Medium Thread Failure**

Carryover

**4.15 Kevin Butt: Provide associated text, inside the cleaning proposal for 2.1.1 of 05-351r2.**

Carryover

**4.16 Kevin Butt: revise and post Configurable EW (05-423r0)**

Carryover

## **5. Old business**

**5.1 SSC-3: Physical device model (05-049r2) [Suhler]**

Defer

**5.2 SSC-3: Device Statistics log page for SSC-3 and Tape Diagnostic Data log page (05-213r3) [Marks, Lestage, and Walczak]**

The desire is truly to have when the error is reported NOT when it occurred.

The repeat is desire to only have one instance of a specific type of error reported.

Arguments ensued over how to describe what the repeat bit is intended to do. The intent is to log all consecutive entries that are the same ASC/ASCQ/etc. as one entry in the log with the repeat bit set.

AI: Kevin Marks: Revise SSC-3: Device Statistics log page for SSC-3 and Tape Diagnostic Data log page (05-213r3) and post

**5.3 SSC-3: TapeAlert Enhancements (05-154r3) [Banther]**

This was contingent on CAP approving a threshold usage model. This was approved by CAP in Nov.

Walked through Editor's notes.

Modified definitions of severity of TA but have not yet gone through each TA and correct severities. AI update Kevin Butt will add the TA severity effort to his effort on F/W vs. H/W vs. Media

Effort done to change when to if, but some when's remain. Went over with group which should be changed and which should remain.

July meeting agreed to add additional activation conditions. AI: Micheal Banther to create a proposal to add additional activation conditions to TapeAlert.

Agreed to change "shall clear by I\_I Nexus" to "should clear by I\_I Nexus" de-activate per Log Select command has may per vendor-specific behavior.

Interval Timer field restriction was removed.

TEST bit restriction has been overcome by the auto-resetting to all cases.

Removed redundant info that is covered in SPC-4.

Kevin Butt moved that 05-154r3 as modified be recommended for approval. Paul Entzel seconded the motion. Motion passed unanimously.

**5.4 SSC-3: Vendor Feedback (05-351r2) [Group]**

AI: Dave Peterson: Create a proposed document for feedback to the ISV's.

**5.5 SSC-3: Add WORM VERSION field to Sequential Access Device Capabilities VPD page (05-391r0) [Banther]**

defer.

**5.6 SSC-3: Target Device Serial Number subpage (05-155r2) [Entzel]**

defer.

**5.7 SSC-3: Configurable EW (05-423r0) [Butt]**

defer.

**6. New Business****6.1 SSC-3: Add commands to control data encryption (05-446r1) [Entzel]**

Side discussion: Question about TCG group and if they were going to get info into this effort. There is question about if this can happen in time. They may present what is actually contained in the Trusted In Trusted Out commands an an overview level that could be used for our effort. The level of confidence that they may have something useful is not very high.

Data Security In/Out vs. Trusted In/Out (05-157r8). Which do we want to do?

There is a problem with a GOOD status does not indicate the data has been processed. Can we link this to protocol specific behavior? discussion about if we can use an immediate bit with deferred errors instead. There was argument against this.

Paul Entzel does not want to use Trusted In/Out. Kevin Butt does not want to either. Straw Poll:

Do we continue down path to use Data Security IN/OUT instead of Trusted IN/OUT? Y:N:A  
5:6:1

Paul Entzel will see what happens with Trusted IN/OUT in CAP tomorrow.

Went through the proposal taking comments in a page by page method.

It came to the attention of several attendees that there is a different key associated with each SCOPE. Therefore, there could be 4 active keys at the same time. several attendees wished to review that with their companies. Scope of LOCAL could actually have a different key per I\_T nexus and have one copy per I\_T Nexus. So this could be max number of supported I\_T Nexus.

Gerry Houlder presented a suggested change to Trusted In/Out.

AI: Paul Entzel: Revise and post SSC-3: Add commands to control data encryption (05-446r1)

## **6.2 SSC-3: Pass key by Reference Model (06-050r0) [Edling]**

Text of 06-050r0 => comments in << >>

Pass Key by Reference Model.

<< Edling: Trying to define method to stay FIPS compliant with what we already do. If the Key management server is totally independent of the client doing the backup then the key can be requested out of band by the reference that is passed in band in the clear. If key doesn't exist related to the reference then Check Condition with specific ASCQ. >>

If a device server processes a Set Data Encryption page with the ENCRYPT and DECRYPT bits both set to one and the KBR\_C is set in the Data Encryption algorithm descriptor page. Then the data encryption keys may be passed by reference. In this configuration the client may be provided the key references from an independent key management server or may generate a list of key references that shall be matched in the device server to key values provided out of band.

<< One of the ways to get a Key is to use an out of band key manager.>>

The key references that are passed to the device server shall be passed in the key field(s) of the Set Data Encryption page with the Key Format field set to 01h.

A key reference shall be a vendor specific reference label that is uniquely associated to each key.

<< Discussion about reference being opaque or not. Comments about needing a T10 vendor ID or not. Do we need to ensure no collisions will happen? Some want to limit reading to the drive that wrote it, while others want to read it anywhere in the enterprise. Put a vendor ID into the vendor-specific reference. (Roger) When Transfer reference you send a vendor ID along with it as associated to the reference to ensure no collision. Do we want to read what key references that are in the drive and vendor ID of key references in drive. Do not want to be able to read key references. May be useful if you are in an environment with multiple vendor's devices in the system. Key

invalidation as a side effect is problematic and invalidating by vendor list of references is a bad thing. Reporting list of supported vendor ID's but not what is currently installed. Add Vendor ID to Set Data Encryption command.

We need to get something quick to remove the vendor-unique solutions from arriving.

Desire to put in wrapping the key with encryption resulted in long emphatic discussion about speed to get this proposal out then layer on it. >>

AI: Dwayne Edling: rev and post.

### **6.3 The Requirement for More than One Decryption Key (06-051r0) [Edling]**

Roger Cummings and Michael Banther: ISV back up data with files and databases interleaved and the model is not as simple as encrypting one database with key 1 and different with key 2. It is interleaved in today's world. So a backup job will be multiple files interleaved. Perhaps each backup job is restricted between departments. There will be one job header and then a backup job.

This will likely cause performance issues with key changes.

Let drive have multiple keys and allow a key switch that is triggered by something that the drive can detect.

Discussion revolved around why this is needed and how this could be made to work. It can only work on read commands and not write commands. Can we easily modify the proposal to fit in?

This needs to be worked on more - minimum number of keys 30 or 31.

Discussion revolved around how to get this proposal moving forward and should it modify 05-446 or should it be different?

Dwayne would like to write a proposal against 05-446 gets accepted. Michael Banther opposes this because he wants 05-446 to be approved in March.

## **7. Next Meeting Requirements.**

HP has requested teleconferences for at least every other week between now and the next meeting cycle to work on Encryption.

12:00 PST to last 2 hours. Jan 25, Feb 8, Feb 22 for telconferences.

Same amount of time in Hilton Head, SC. 11:00 to 5:00

## **8. Review of new action items**

**8.1 Micheal Banther: Create a proposal to add additional activation conditions to TapeAlert. See note in 05-154r3.**

**8.2 Dave Peterson: Create a proposed document for feedback to the ISV's.**

**8.3 Dwayne Edling: revise and post SSC-3: Pass key by Reference Model (06-050r0)**

**8.4 Kevin Marks: Revise SSC-3: Device Statistics log page for SSC-3 and Tape Diagnostic Data log page (05-213r3) and post**

**8.5 Paul Entzel: Revise and post SSC-3: Add commands to control data encryption (05-**

**446r1)**

**9. Adjournment**

Dave Peterson made a motion for adjournment at 6:00 pm. Seconded by Kevin Butt.