Draft Minutes
Automation/Drive Interface (ADI) Working Group
Ad Hoc Teleconference
T10/03-276r1
18 August 2003
8:00 AM – 10:00 AM PDT

Conference Call Information:

Hosted by: IBM
Toll Free: (888) 206-4960
International: (719) 457-3545
Pass code: 168674

1. Introductions: Group

   Paul Suhler called the meeting to order at 8:03 AM PDT. He thanked IBM for hosting the meeting. A table of the attendees appears at the end of these minutes.

2. Approval of the agenda: 03-269r0 Paul Suhler

   Paul Suhler discussed the order of the discussion items. Nothing was heard.

   Paul Suhler made a motion for acceptance of the modified agenda. Paul Entzel seconded the motion. In the absence of objections, the group passed the motion unanimously.

3. Approval of previous meeting minutes: Paul Suhler

7-8 July 2003 meeting	03-236r0
21 July 2003 teleconference	03-262r0
4 August 2003 teleconference	03-270r0

   Paul Suhler requested comments for the minutes of the 7-8 July 2003 meeting, the 21 July 2003 teleconference, and the 4 August 2003 teleconference: 03-236r0, 03-262r0, and 03-270r0 respectively. No one provided comments.

4. Review of action items: Paul Suhler
   a. Bob Griswold to follow up with SNIA Interoperability Conformance Test Program (ICTP) Subcommittee regarding test/emulation tool. *Carryover*
   b. Paul Entzel will write an appendix to ADT to describe an example login. *Carryover*, expect completion by the Sept. meeting.
   c. Michael Banther will revise 03-239r1 per discussion item (a) of 03-270r0. *Carryover*
   d. Rod Wideman will incorporate 03-239r1 as revised into ADC. *Carryover*
   e. Susan Gray will revise 03-263r1 per discussion item (b) of 03-270r0. *Closed*
   f. Rod Wideman will incorporate 03-263r1 as revised into ADC. *Carryover*
   g. Everyone will consider the MLUD field problem identified in discussion item (C) of 03-270r0 and comment on it by e-mail by 18 August. *Closed*

h. Paul Suhler will request a schedule change from John Lohmeyer regarding the ADI working group schedule per discussion item (e) of 03-270r0. *Closed*

i. Paul Suhler will notify John Lohmeyer that ADC will not be ready for letter ballot until 29 August 2003. *Closed*

j. Everyone to read Rod Wideman's response to Kevin Butt's e-mail and comment on it by the 18 August 2003 teleconference. *Closed*

5. Discussion items:

a. ADC Mode parameter operation per SPC. Group

Discussion of Mode Sense/Mode Select for tables 28, 33, and 39

Rod Wideman reviewed the proposal from his e-mail. Lee Jesionowski pointed out that we could just change 01b for Mode Sense to be an invalid value, like 10b and 11b currently are. This would effectively make the MNN (and similar fields) write only, and the corresponding data field (WWNN in this case) always return the current value. Question came up as to how the manufacturer's values could then be obtained. Paul Entzel pointed out that requesting the default values would accomplish this.

The group proposed a change to value 01b for Mode Sense to be an invalid value. The group also proposed a change to value 00b for Mode sense to state that the "field shall be set to zero" and that the corresponding data field "shall contain the currently assigned value." These changes allow the read-modify-write sequence to behave as desired.

Rod Wideman made a motion to update tables 28, 33, and 39 as discussed. Paul Suhler seconded the motion. The group passed the motion by acclamation.

b. Schedule for completion of ADT draft standards Paul Suhler

Paul Entzel reported that he has almost completed a proposal for clause 8 of ADT.

c. ADC Resolution of Technical Comments from Kevin Butt's e-mail Rod Wideman

The group worked their way through each of Kevin Butt's e-mail comments. For reference these minutes include the e-mail traffic prior to this discussion in Arial font, indented, and sometimes with color to differentiate the person commenting.

> **4.2.4 Error reporting**
> I can see presenting UA to Automation Application Client (AAC) for certain cases (i.e. Reset). However, do we need to present UA when mode parameters specific to media operations (i.e. Block Size) occurs? What will the AAC do with the UA condition?

The group discussed which device server this comment referenced. By consensus the group agreed that it is still the ADC device server. In general, we don't want Unit Attentions from the RMC device server. However Paul Entzel raised a question about MAM Accessible Unit Attentions. We decided that we did want them, or at least did not want to specifically exclude them.

Rod Wideman agreed to add a note that the Mode Parameters changed is for ADC mode parameters (change to "ADC Mode parameters") and to clarify that this sub-clause applies to the ADC device server (both changes editorial).

A question arose about the Logical Unit Reset. If it's to the RMC device server, does the ADC device server want a Unit Attention? The group agreed that the reset would be reflected by a Not Ready to Ready Unit Attention by the ADC device server.

4.2.5 Sense data masking

For Sense Data Masking, I would prefer to have some sort of handshaking between the AAC and the ADC Device Server (ADS). For example: load completes and is reflected as such by the Load Sequence State in VHF; the AAC receives the VHF acknowledging the Load has completed and sends back some form of "Okay to Present NRR UA" indication. One solution is for the AAC send a Notify Data Transfer Device with the LdFail bit set to zero after it has ACKed receipt of VHF indicating load has completed.

Sense data masking is a good concept, but without the closed loop operation, I am concerned there might be some potential timing issues.

The group discussed whether we wanted to close the loop on the completed state. One thought was that since the drive reported to automation whether the load completed, automation would only be reflecting what the drive knew. The scenario problem might be when the drive already reported Not Ready to Ready Unit Attention but then receives a LdFail notification via Notify DTD. This is the race condition to resolve.

The problem is that the LdFail field really indicates that automation is giving up on load attempt (no more retries). "LdFail" may be misleading. Numerous renaming suggestions focused around retires exhausted, inserts, etc. Attention then switched to when this bit would actually be set, e.g. if only when InXtn is set to zero. The group considered tying it to the Recovery Requested field.

Out of the chaos, consensus was reached to modify the LdFail field description to read "…field is set to one if the automation device has detected that the Requested Recovery field (ref) is set to one while the DTD is attempting to load a medium, and the automation device will not attempt any additional recovery."

Kevin Butt made a motion to accept the new text. Paul Suhler seconded the motion. The group passed the motion by acclamation.

4.2.8 Enabling and disabling DTD primary ports

When the DTD primary port is disabled while a cartridge is loaded, the AAC should be responsible for unloading (and removing) the cartridge prior to re-enabling the DTD primary port. This should be done to prevent potential DI problems.

Also, when re-enabled, should the drive present UA Resetting Event (6 2800)? Make sense to me. Further, all mode data should be reset to default to avoid potential data integrity problems.

[kdbutt] We specified this as an I_T_Nexus Loss. This will already drive a UA. However, shouldn't we have the Automation Application Client unload the cartridge?

The group focused on the question of whether the automation should unload the cartridge. The group decided to leave the text as is, and that port disabling/enabling did not require description of media handling (or restrictions).

6.1.2.2 Very High Frequency Polling Delay log parameter

Is there a default for the Polling Delay (say 1 second)?

After a brief discussion, the group decided to not specify a default since it would vary by vendor.

Is there a method for the ADC device server to indicate an error if the VHF Data is requested in shorter delay time?

The group agreed that throttling was already taken care of by the mechanisms in place.

4.2.3 Load and Unload nominal states

load state (i): DTD is in SCSI READY. Is this true? What about clean/FMR?

[kdbutt] ** This one may require a little work ** I think drives do not report Ready when an FMR or Cleaner are inserted. However, what do we report for these? As an example, we insert a Cleaner cartridge and it threads (state g?) and begins to process its scrubbing etc. (state h?) but then it completes and unthreads (going through state f to end in state e or unloaded?) When do we transition to the Unload states from the Load state?

Related to this is the VHF log page status bits. How do we tell if these bits relate to a Load or an Unload? For operations where there is an error and that causes an unload we may not need to know, however, for operations like Clean and FMR Update, there is (may be) normally both a Load and Unload as an atomic operation.

The discussion focused on wanting to keep state (i) even for cleaning and microcode image media for consistency. We decided to change the reference in (h) to "completing load", to prefix "DTD ready" with "e.g." and to add text to make cleaning and microcode update allowable in state (i). No technical changes, just editorial as a result. These changes apply to tables 1 and 2 and associative text, as well as to the field description for DACC.

Select Write Density is not defined.

[rw] It is described somewhat indirectly in the denisty override paragraph. Should we add more?

[kdbutt] Yes.

The group decided to modify the lead-in sentence to include Select Write Density (and resolve associated references) as an editorial change.

Clause 4.2.2.1.1:

Throughout the document the question arises, when is SMC device server enabled?

The group decided to describe this device server as being enabled when the enable bit is set in the descriptor. Rod Wideman will add this statement and a reference to the corresponding section.

Clause 4.2.2.1.3 second paragraph:

What is an example of this and why do we do this?

[rw] I think the answer lies with the end of 4.2.2.1.2, where we say what actions the local SMC device server performs, as well as with 4.2.2.1.4 (caching). Basically, it is handling scenarios involving multiple initiators, which

includes Unit Attentions. With the caching operation, the local SMC device server can pick up the Unit Attentions itself, so the bridging manager can toss them. An example would be any type of normal SMC Unit Attention (e.g., 2800, 2801, etc.). Maybe add a sentence that says "since the local SMC device server manages unit attentions conditions generated for multiple initiators"?

[kdbutt] ** This one may require a little work ** This is the question I received internally.

4.2.2.1.3 Bridging manager operation
(paragraph two)

If the bridging manager receives any device service responses with a status of CHECK CONDITION and sense key of UNIT ATTENTION, it shall discard the response and reissue the command. All other responses with a status of CHECK CONDITION, including those with a sense key of NOT READY, shall be returned to the local SMC device server for subsequent return via the DTD primary port. This shall have no effect on the cached ready status, as described in 4.2.2.1.4.

Under what conditions would a Unit Attention be received? I see there is a method to Broadcast Unit Attentions (via the Notify Data Transfer Device command BUA bit) has been provided.

If there are conditions not covered by the BUA, should that Unit Attention be discarded? What if it is an 6 2800 NRR UA following a door close and change in inventory? The application would miss such events and may encounter other errors downstream - including potential data integrity (e.g. unexpected cartridge is loaded into drives).

The group agreed that the Unit Attentions can be thrown away because they would be redundant with the Broadcast Unit Attention (BUA). No race condition exists. The group agreed to add a note pointing out the reference to BUA. IBM will develop a proposal and present as letter ballot comment. No change to ADC at this point.

Clause 4.2.9.1:

The ADT i/f shall allow access to two LUNS (s/b three because of SMC device server)

What about SMC reservation issues?

[rw] I don't think ADT allows access to the local SMC device server from an automation perspective, i.e., automation does not have an SMC application client. And since the local SMC device server is not really serving the same physical device as the RMC and ADC device servers, I don't think it applies to this clause.

[kdbutt] I am still chewing on this one. I admit I have difficulty understanding the delineation between ADC and SMC.

After much discussion, the decision was to just strike the first sentence that references ADT and two LUNs being supported. This will be done as editorial.

Clause 6.1.4 Table 16:

Shouldn't there be a Recovery procedure that is Pull DTD drive dump (error log) as one of the actions? This would be listed first and perhaps be the only thing. This would help in being able to track down intermittent errors.

[rw] Since we haven't standardized on how a drive dump/log would be pulled, this recovery would be challenging to define now. I would think we would need that first.

[kdbutt] I think this would add great benefit. I think we all have field problems where we can't get the necessary error capture because the user resets the drive before the logs can be pulled. I would think that it would be straight forward to define how to pull a drive dump/log. Today drives use either a SendDiag with accompanying ReceiveDiagResults or ReadBuffer.

Am I the only one that thinks this would be worth adding in ADC-1 and not ADC-2? I could create a proposal if we want to add it to ADC-1 and not wait until ADC-2.

The group discussed the desire for having a standard method of obtaining logs from a drive. Everyone agreed this would be a good thing to have, but that coming up with a sufficient proposal would take some time. Consensus was to proceed with a proposal, then decide whether to tackle it as a letter ballot comment or in ADC-2. No change will occur in ADC at this time.

Clause 6.2.2.2.1 Table 27:

Should we add SAS and iSCSI?

[rw] I see no harm in doing this, if the appropriate protocol identifiers have been defined in SPC first. I don't want to get ahead of something that is still too fluid. What are the values?

[kdbutt] Per SPC-3 clause 7.5.1, Table 239 - iSCSI = 5h; SAS = 6h

Paul Entzel pointed out that we probably need the corresponding port descriptors before adding to table. The group agreed to wait until a complete proposal could be developed that included these descriptors before adding these protocols.

6. Unscheduled business:

   The group discussed whether Rev 6 of ADC would be the letter ballot candidate. Paul Suhler made a motion to make Rev 6 the letter ballot candidate. Lee Jesionowski seconded the motion. The group passed the motion by acclamation.

7. Next meeting requirements: Paul Suhler

   The group will hold a meeting 8-9 September 2003 during T10 plenary week in Seattle, WA. The meeting will begin on the 8th immediately after the T10 SMC-2 Working Group meeting finishes. The meeting time on the 9th will occupy the entire day, concluding at 6:00 PM MDT.

8. Review new action items: Paul Suhler

   a. Rod Wideman to modify Tables 28, 33, and 39 of ADC per discussion.

   b. Rod Wideman to modify clause 4.2.4 of ADC per discussion.

c. Rod Wideman to modify clause 5.2 of ADC per discussion.

d. Rod Wideman to modify Table 1 rows h & i, Table 2, and the DAcc description of ADC per discussion.

e. Rod Wideman to modify the paragraph of ADC describing DENOVR to mention Select Write Density in the lead-in per discussion.

f. Rod Wideman to modify clause 4.2.2.1.1 of ADC to mention the ENABLED bit in the SMC Logical Unit descriptor per discussion.

g. IBM to propose changes to clause 4.2.2.1.3 of ADC.

h. Rod Wideman to delete last sentence of 4.2.9 in ADC.

9. Adjournment: Group

Paul Suhler made a motion for adjournment. Lee Jesionowski seconded the motion. The group passed the motion unanimously. Paul Suhler adjourned the group at 10:12 AM PDT.

Attendees:

Name	Organization	E-mail
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