

Approved Minutes

T11.3 FC-FS Ad Hoc Workgroup Meeting

November 6, 2001 – Seaside, CA

9 AM – 6 PM

An ad hoc workgroup meeting for project FC-FS of NCITS Technical Committee T11 Task Group T11.3 was held at Seaside, California on November 6, 2001, in conjunction with the T10 Plenary Week meetings. Attendance at this meeting is tabulated at the end of this document.

1. Opening remarks and introductions: **John Scheible**

Facilitator John Scheible opened the meeting at 9:14 AM Tuesday, November 6, 2001. He thanked our host company, Adaptec, and led a round of introductions.

2. Call for changes to minutes

2.1 **AL-2/FS report to T11.3 - 10/10/01** **01-543v0** **John Scheible**

Approved as written.

2.2 **AL-2/FS minutes – 10/10/01** **01-565v0** **Bob Nixon**

Bob Nixon requested corrections to document references in the carryover action item list: In action item 8.1.4 (Martin) change 01-287v1 to 01-540v0. In action item 8.1.5 (Trustedt) change 01-287v1 to 01-343v2.

These changes were approved. Publication of final version will be delayed pending review at a more popular meeting.

3. Approval of this agenda: **01-589v0** **John Scheible**

Presentation of 01-250v3 was removed because the changes reflected in it had already been approved at the prior meeting.

Presentation of 01-575v0 was removed because the presenter was unable to attend this meeting.

A presentation of "Vendor-specific code for REC" by Bob Nixon was added.

A presentation of 01-498v0, "Login Extensions" by Dave Peterson was added.

The agenda was approved with the above modifications.

4. Review of old action items: **01-589v0** **John Scheible**

4.1 **AL/2 Action Items**

4.1.1 Bill Martin to consult ANSI on acceptability of change bars.
(OPENED 10/10/01)(CLOSED during meeting 10/10/01)

4.1.2 Bill Martin to investigate how to represent initialization of Acquired ALPA

(OPENED 10/10/01)(CLOSED during meeting 10/10/01)

- 4.1.3 Bill Martin to provide wording for a warning about change of access to loop devices on change of FL_Port.

(OPENED 10/10/01)(CLOSED during meeting 10/10/01)

- 4.1.4 Bill Martin to publish the comment resolutions for 01-540v0 agreed at the meeting 10/10/01

(OPENED 10/10/01) (CLOSED by 01-540v0)

- 4.1.5 Horst Truestedt to update 01-343v2 to include comment resolutions agreed at the FC-FS ad hoc meeting 10/10/01 and publish it.

(OPENED 10/10/01)

4.2 FS Action Items

- 4.2.1 Bob Snively to rewrite 15.5.25-27 to eliminate inappropriate examples using "IU"

(OPENED 5/9/01) (CARRYOVER)

- 4.2.2 Bob Snively to propose structure for Intermix to the reflector.

(OPENED 5/9/01) (CARRYOVER)

- 4.2.3 Bill Martin to provide a proposal for the login requirement for every ELS.

(OPENED 5/10/01) (CLOSED by Jim Nelson 01-574v1)

- 4.2.4 Jim Nelson will post the proposed fix to Brocade 18.

(OPENED 7/17/01) (CLOSED by email 10/15/01)

- 4.2.5 Jim Nelson will post the proposed correction to Agilent 005.

(OPENED 7/17/01) (CLOSED by email 10/15/01)

- 4.2.6 Bob Snively will post the required correction to 12.2.2.2.2, item a.

(OPENED 7/17/01) (CARRYOVER)

- 4.2.7 Bob Nixon to contact Venkat Rangan to request his proposed text for Rhapsody-003.

(OPENED 9/11/01) (email 9/24/01, needs followup)

- 4.2.8 Jim Coomes to propose text for when a port becomes unidentified as part of a general topic of login

(OPENED 9/11/01) (CARRYOVER)

- 4.2.9 Bob Nixon to contact Gary Stephens to request his assistance in resolving class 4 related issues in Qlogic-035, Tivoli-600, Tivoli-604, Tivoli-611, Qlogic-092, Qlogic-120, Boeing-064, and Qlogic-141.

(OPENED 9/11/01) (CLOSED by response to editor)

- 4.2.10 Bob Nixon to contact Gary Stephens (class 4) and Mike Foster (class 6) to request their assistance in resolving issues in areas of their expertise in Qlogic-085 and Qlogic-088.

(OPENED 9/11/01) (CLOSED by response to editor)

- 4.2.11 Dave Peterson will provide wording for forbidding PLOGI on the reflector for further discussion.
(OPENED 10/10/01)(CLOSED by email 11/6/01)
- 4.2.12 George Penokie to update 01-250v2 to incorporate clarification to login requirement.
(OPENED 10/10/01) (CLOSED by 01-250v3)
- 4.2.13 Greg Koehlner to update 01-353v1 to incorporate changes discussed at the FC-FS ad hoc meeting 10/10/01.
(OPENED 10/10/01) (CLOSED by 01-353v2)
- 4.2.14 Craig Carlson to update 01-483v0 to incorporate modifications to clarify the usage of the bit when the address has not changed, and to allow the editor to assign the bit.
(OPENED 10/10/01) (CARRYOVER)
- 4.2.15 John Scheible to write the revised tables and text for R_CTL and publish them as a document for concurrent review and incorporation into FC-FS.
(OPENED 10/10/01) (CLOSED by 01-568v0)
- 4.2.16 Bob Kembel to update 01-525v0 to include the recommendations made at the FC-FS ad hoc meeting 10/10/01 and publish it.
(OPENED 10/10/01) (CLOSED by 01-525v1)
- 4.2.17 Mike Foster to clarify text in FS re preemption. Secretary missed the details.
(OPENED 10/10/01) (CLOSED by 01-575v0)

5. Scheduled New Business FS

5.1 **AI16 - Idle requirement BB_Scr/SC 01-525v1 Bob Kembel**

Presented by John Scheible in Bob Kembel's absence.

A question arose as to whether the requirement to assure two interframe idles at the receiver was that they be consecutive with the following SOF or could be separated by other primitives from the SOF and/or each other. Although no one came up with written confirmation, it was thought that the original designers expected the idles and the following SOF all to be consecutive. This led to a discussion whether the higher priority for FS is to permit the best performance possible with current technology or assure old devices work. Neither this nor the original question were resolved, pending a larger discussion group.

Another question concerned switch transmitters: They are not required to provide six interframe primitives in either the original FC-PH text or the proposal discussed here. It was suggested they should be required to transmit six unless they are retransmitting a stream of frames paced by some "upstream" transmitter. This appeared to be possible only when the switch port is involved in a class one connection.

It was questioned that the rules in this proposal are stated with respect to Nx_Ports but the proposal also defers L_Port rules to AL-2.

ACTION: Bob Nixon to rewrite the statement on interframe primitives to incorporate the concept of allowing idle deletion only in synchronous paths.

This rewrite should incorporate the rules for L_Ports as well as all kinds of not-L_Ports. Basically, take the rules from AL-2, which may obsolete some old devices

ACTION: Jim Coomes to set up a teleconference to review the statement on interframe primitives as revised by Bob Nixon.

5.2 EUI-64 to WWN mapping 01-531v2 Craig Stuber

Craig presented his proposal which was revised to reflect discussion at the last meeting. It maps EUI-64 into WWN by omitting the I/G and U/L bits of the OUI component of the EUI, then using the 60-bit WWN value plus the middle two bits of the NAA values "1xy1"b to represent the remaining 62 bits of the EUI-64.

It was agreed to use NAA values "11xy" b instead for ease of documentation. This takes advantage of (or ignores) that two of these values were once assigned (though never used).

It was agreed that this proposal should be included in the FS section on Name_Identifiers. Craig was asked to prepare the necessary change text.

It was agreed to validate and if valid, use, a simpler mapping that required only shifting and merging bits into the first byte.

ACTION: Craig Stuber will rewrite 01-531v2 with changes approved at the meeting 11/6/01 as changes to FC-FS.

5.3 AI15 - R_CTL rewrite 01-568v0 John Scheible

John presented a rewrite of the documentation of the R_CTL field of the FC frame. It is intended to incorporate a "vendor-specific" code requested by Claudio DeSanti at the last meeting, and fix a lot of inconsistencies in the old documentation which defines the Information Categories for various Routing Control values.

It was agreed that the word "Ignored" should be changed to "Reserved" in reference to the Parameter field usage for some Link Control Information formats. John explained the use of "Ignored" as retaining the prior semantics of a statement that a field is "Not Applicable". The group felt "Reserved" was more specific, and protected the possibility of some future use. It was recognized that it could possibly invalidate an old implementation that used or left garbage in that field.

It was agreed to change the header of the second column of table 59 to "LS_Command code", a term for the first byte of the ELS payload that was introduced earlier in the containing section. The current header is ambiguous.

It was agreed to add some text to clarify the intent of the term "Uncategorized Information" for Information Category 0 of some of the Routing Control values. As now used, it was thought to be misleading or meaningless. Reference back to the glossary of FC-PH for clarification confirmed this. The new text is expected to include a better definition of how Routing Control and Information Category are related.

It was agreed that the clarification of the term "Uncategorized Information" should indicate it did not include "vendor specific" uses.

With these changes, the document was approved for incorporation into FC-FS.

ACTION: John Scheible to update 01-568v0 to reflect discussion at the meeting of 11/6/01 and provide to the editor for incorporation into FC-FS.

5.4 AI3/8 - ELS and Login **01-574v1** **Jim Nelson**

Jim Nelson prepared this table to coalesce all the rules concerning the login requirements for use of ELS commands. He has already updated it to reflect initial review on the reflector.

New issues:

The table refers to a state of being logged in. This was defined to include both implicit and explicit login. Of note, a device that doesn't think it is logged in may receive a "login required" ELS, since the originator may think it is logged in.

In a few cases (e.g., FDISC) the login in question is a fabric login, not a port login. The implications on the responses are not yet clear.

The remaining issues with this document were covered in the next agenda topic.

5.5 New issues raised via email reflector **01-590v1** **Jim Nelson**

Jim has published 01-590v1 which captures email threads in review of 01-574v1 as well as other issues. Following is the group resolution of these issues.

- It was agreed that the table in 01-574v1 will be adjusted to show LOGO as the only response specific to absence of a required login. For most ELSs, FC_TAPE compliance requires that the only response when not logged in is LOGO. In fact, the other possible responses tabulated in 01-574v1 are mostly unrelated to lack of login (e.g., unsupported ELS).
- It was agreed to reject a recommendation that well-known ports not be required to have distinct Name_Identifiers.
- It was agreed to reject a recommendation to obsolete the frame FC-4 type codes assigned to FC-SB (SBCCS).
- The group did not feel qualified to resolve an issue of whether login was required for ABTS without the principals of the discussion (Kembel / Martin).
- It was agreed to make the existing tabulation of LS_RJT reason code explanations as complete as practical but document that it is not comprehensive or normative. The tabulation of LS_RJT reason code explanations is incomplete with respect to all the new ELSs. There is not even any documented relationship between reason codes and reason code explanations. One attitude expressed was that although the information provided by reason code explanations is useful, it is not necessary to standardize exactly when they are permitted. This reflects the understanding that many or the codes are intended to assist analysis of design errors, not to correct abnormal operating environment.
- It was agreed to remove all ELS specific class restrictions then add a blanket restriction against Class 6 for all ELSs. There are in fact very few documented class restrictions on ELSs. Some documented restrictions are unnecessary, and some necessary restrictions are undocumented. Class 6 makes no sense for most ELSs, but there is no written restriction.
- The effect of a class F frame arriving at an F_Port? or for that matter, at an N_Port, is uncertain, including the possibly critical effect on Buffer-to-Buffer Flow control. Defer until Kembel and Carlson are present.
- The new rule that communication shall not be accepted until Fabric Login is complete conflicts with established rules for of behavior of a port in the "unidentified" state. Other issues were raised in discussion: What if there is no fabric? When is FLOGI complete? The established rules seem to assume the class of service is 1 or 2. Discussion will be deferred until Kembel is present.

5.6 Corrections to 8B10B tables **01-579v0** **John Scheible**

John summarized the results of his analysis of reported discrepancies in the tabulations of 8b10b encodings:

- The tabulations in the electronic version of FC-PH is massively wrong and all references to it should be disregarded.
- There are about 10 errors in the tabulations in both FC-PHx (paper) and FC-FS that need to be corrected.
- The tabulations are irrelevant to existing implementations, since implementations are based on a functional method derived from the relevant patent, not on a tabulation.

It was agreed to incorporate his proposed corrections into FS.

5.7 AI11 - Vote forbid PLOGI after authent. Reflector Dave Peterson

Dave Peterson presented text that he had placed on the reflector this morning. It was judged still somewhat less than satisfactory. There was a prolonged discussion mixing questions of whether a prohibition is appropriate and if so, how should it be stated so as not to exclude "legitimate" use. Dave generated a revised statement that resolved many of the concerns raised.

It was agreed to incorporate the revised statement into FS, but to also publish it on the reflector to stimulate additional review.

ACTION: Dave Peterson to write the revised version of rules for PLOGI to the reflector.

5.8 AI1 - IU re-write 01-___v_ Bob Snively

Deferred.

5.9 AI2 – Intermix 01-___v_ Bob Snively

Deferred.

5.10 AI5 - Acknowledged classes 01-___v_ Group

Deferred.

5.11 AI6 - No end-to-end credit ABTS 01-___v_ Bob Snively

Deferred.

5.12 AI7 – Camp-On None Bob Nixon

This action item related to resolving letter ballot issue Rhapsody-003, which requested a glossary definition for the term "Camp-On".

It was noted there was a relevant major section in FC-FS that included an adequate definition. A glossary definition could be extracted from the relevant section or reference it. However, see 5.19.2.

5.13 AI14 - Clean Address bit update 01-483v? Craig Carlson

Deferred.

5.14 Common Controlling Entity def 01-___v_ ?

ACTION: Jim Nelson to suggest definition of "Common Controlling Entity" in the next revision of FC-FS

5.15 Domain Controller definition **01-___v_ ?**

ACTION: Jim Nelson to suggest definition of “Domain Controller” in the next revision of FC-FS

5.16 Time value in FC-FS 11.3.3.1 **01-___v_ ?**

Deferred.

5.17 FC_Port definition **01-590v1 Jim Nelson**

- The definition of FC_Port is now an exhaustive list of defined port types. During discussion it was broadened to include more defined types.
- NL_Port must be understood to include both public and private loop end ports. That is, an end port on a loop qualifies as an NL_Port even if it is not in communication with an FL_Port. This does not appear to lose any useful port grouping.
- Jim’s proposal in 01-590v1 to more carefully specify port types was changed to reference Nx_Port instead of N_Port in its rules 1 and 4.

5.18 Login Extensions **01-498v0 Dave Peterson**

Dave presented revisions to his proposal in response to review at the last meeting.

An issue: Legacy equipment may not have the ability to recognize the presence of a vendor extension, and may thereby accept a login with a vendor extension while being unable to process it. Possible answers:

- This may be an acceptable login indicating the vendor specific capability cannot be exercised.
- If the vendor-specific capability is required, a confirmation may be required in a vendor-specific extension of the reply.
- The environment may be controlled so the problem doesn’t come up.

Another issue: What about legacy equipment and the payload being larger than 256? Suppose the recipient rejects it as over 256 bytes? This may be acceptable. Suppose the recipient blows up because it is over 256 bytes? This could be resolved only by environment control.

There was strong opinion that vendor-specific capabilities should be negotiated by a followon ELS rather than an extension to PLOGI. Dave believed this would not work for his application.

Many were surprised to learn that some ELSs can exceed 256 bytes. The actual limitation is to a 256-byte frame, but there may be multiple frames. Some felt that this was unacceptable and should be backed out. (There is no issue yet with login: up to now, the login ELSs are limited to 256 bytes.)

Even more surprising: there is a rule in FC-FS 12.1.1 that says frame sizes are limited to 128 when not logged in. This means even extended logins are probably illegal.

ACTION: Jim Coomes to promote a discussion of ELS frame size limitation issues in the community

ACTION: John Scheible to include an agenda item for ELS frame size limitations at the December meeting.

ACTION: Dave Peterson to revise 01-498v0 to reflect discussion at the meeting 11/6/01.

5.19 FC-FS comment compilation **01-138v9 Jim Nelson**

5.19.1 Boeing-026

Accepted. Resolved in FC-FS version 1.4

5.19.2 Rhapsody-003

Rejected. The concept was felt to be isolated to one major section of FC-FS and well-defined there. The TBD glossary entry now in FC-FS will be removed.

5.19.3 Brocade-170

Accepted, Resolved by response to Brocade 162. Bob Snively to review.

5.19.4 Brocade-172

Accepted, Resolved by response to Brocade 162. Bob Snively to review.

5.19.5 Tivoli-267, Gadzoox-094, Gadzoox-099, Tivoli-590

Accepted, resolved by [01-574v1](#)

5.19.6 Tivoli-621

Remains open pending presence of larger group / proper expertise.

5.19.7 Tivoli-644

Rejected, could not find where the cross reference was missing.

5.19.8 Agilent-005, Agilent-006, Agilent-007

Charles Binford identified at least one more hole in the -006 proposal, though he thought it was solvable.

Rejected, no author found to write the necessary documentation.

5.19.9 JNI-003

Accepted. In the suggested resolution, change the word "performed" to "completed".

5.19.10 JNI-002

The issue was accepted but not the originally proposed resolution. The resolution proposed by Bob Nixon email 7-30-01 was accepted by the commenter.

5.19.11 Brocade-018

Reflector message by Bob Kembel (date?) contests the resolution.

ACTION: Kembel and Snively to discuss resolution to Brocade-018 further.

6. Unscheduled new FS business –

6.1 Vendor-specific code for REC

Doc TBD

Bob Nixon

Deferred.

7. Review of AL-2/FS action items

Deferred to listing in the minutes

7.1 AL/2 Action Items

- 7.1.1 Horst Truedstedt to update 01-343v2 to include comment resolutions agreed at the FC-FS ad hoc meeting 10/10/01 and publish it.
(OPENED 10/10/01)

7.2 FS Action Items

- 7.2.1 Bob Snively to rewrite 15.5.25-27 to eliminate inappropriate examples using "IU"
(OPENED 5/9/01) (CARRYOVER)
- 7.2.2 Bob Snively to propose structure for Intermix to the reflector.
(OPENED 5/9/01) (CARRYOVER)
- 7.2.3 Bob Snively will post the required correction to 12.2.2.2.2, item a.
(OPENED 7/17/01) (CARRYOVER)
- 7.2.4 Bob Nixon to contact Venkat Rangan to request his proposed text for Rhapsody-003.
(OPENED 9/11/01) (CLOSED by meeting action 11/6/01)
- 7.2.5 Jim Coomes to propose text for when a port becomes unidentified as part of a general topic of login
(OPENED 9/11/01) (CARRYOVER)
- 7.2.6 Craig Carlson to update 01-483v0 to incorporate modifications to clarify the usage of the bit when the address has not changed, and to allow the editor to assign the bit.
(OPENED 10/10/01) (CARRYOVER)
- 7.2.7 Bob Nixon to rewrite the statement on interframe primitives to incorporate the concept of allowing idle deletion only in synchronous paths.
(OPENED 11/6/01)
- 7.2.8 Jim Coomes to set up a teleconference to review the statement on interframe primitives as revised by Bob Nixon.
(OPENED 11/6/01)
- 7.2.9 Craig Stuber to update 01-531v2 with changes approved at the meeting 11/6/01 as changes to FC-FS.
(OPENED 11/6/01)
- 7.2.10 John Scheible to update 01-568v0 to reflect discussion at the meeting of 11/6/01 and provide to the editor for incorporation into FC-FS.
(OPENED 11/6/01)
- 7.2.11 Dave Peterson to write the revised version of rules for PLOGI to the reflector.
(OPENED 11/6/01)

- 7.2.12 Jim Nelson to suggest definition of "Common Controlling Entity" in the next revision of FC-FS
(OPENED 11/6/01)
- 7.2.13 Jim Nelson to suggest definition of "Domain Controller" in the next revision of FC-FS
(OPENED 11/6/01)
- 7.2.14 Jim Coomes to promote a discussion of ELS frame size limitation issues in the community.
(OPENED 11/6/01)
- 7.2.15 John Scheible to include an agenda item for ELS frame size limitations at the December meeting.
(OPENED 11/6/01)
- 7.2.16 Dave Peterson to revise 01-498v0 to reflect discussion at the meeting 11/6/01.
(OPENED 11/6/01)
- 7.2.17 Bob Kembel and Bob Snively to discuss resolution to Brocade-018 further
(OPENED 11/6/01)

8. Future meeting plans

Not discussed. Last meeting requested 4 hours at the next T11 plenary week in December 2001.

9. Adjournment (FS WG)

The meeting was adjourned at 6:15 PM Tuesday, November 6, 2001.

10. Summary of approved changes

10.1 Changes to FC-AL-2 - None

10.2 Changes to FC-FS

- 10.2.1 EUI-64 to WWN mapping as documented in 01-531v3 (01-531v2 with changes approved at the meeting 11/6/01).
- 10.2.2 R_CTL field as documented in 01-568v1 (01-568v0 with changes approved at the meeting of 11/6/01)
- 10.2.3 Make the existing tabulation of LS_RJT reason code explanations as complete as practical but document that it is not comprehensive or normative
- 10.2.4 Remove all ELS specific class restrictions then add a blanket restriction against Class 6 for all ELSs
- 10.2.5 Corrections to 8B10B tables as documented in 01-579v0

- 10.2.6 Revised statement forbidding certain uses of PLOGI to be posted by Dave Peterson subsequent to this meeting.
- 10.2.7 Definition of "Common Controlling Entity" to be suggested by editor
- 10.2.8 Definition of "Domain Controller" to be suggested by editor
- 10.2.9 Clarifications to references to ports as suggested in 01-590v2 (01-590v1 with changes approved at the meeting of 11/6/01)
- 10.2.10 Resolution to JNI-003 as proposed by commenter with changes approved at the meeting 11/6/01
- 10.2.11 Resolution to JNI-003 as proposed by Bob Nixon email 7-30-01

11. Attendance

Company Represented	Last Name	First Name	Email
Andiamo Systems	DeSanti	Claudio	cds@andiamo.com
Ario Data Network	Nguyen	Michael	mnguyen@ariodata.com
Brocade	Snively	Robert	rsnively@brocade.com
Brocade	Teow	Kha Sin	khasin@brocade.com
Cisco Systems	Peterson	David	dap@cisco.com
Emulex	Nixon	Bob	bob.nixon@emulex.com
ENDL	Allan	Dal	endlcom@acm.org
IBM	Scheible	John	jpscheible@aol.com
JNI	Stuber	Craig	cstuber@jni.com
Nishan	Monia	Charles	cmonia@nishansystems.com
Pirus	Binford	Charles	charles.binford@pirus.com
Seagate	Coomes	James	jim_coomes@seagate.com
Vixel	Nelson	James	jnelson@vixel.com