

TO: T10 Membership
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DATE: 19 August 2004
SUBJECT: T10/04-239r1, ADT - Suggested Resolution of LB Comment Seagate-23

Revision 1:

- Final version, approach B chosen.

Revision 0:

- Initial version

1. Background from the Comment

Comment:

After sending a Logout, then the port will still be in P2:Logged In, pending receipt of the ACK for the Login. If EFS is set to one immediately, then IUs received before the Logout ACK may enter error recovery.

Suggested Resolutions:

Two approaches:

- A) Change 4.3.2.4.2 to perform transition P2:P0 after sending the Logout IU, which means that received IUs will be discarded by the port; or
- B) Split list item 1) in 4.5.3 into three parts as follows: "1) It shall be set to one after sending or receiving a Port Login IU with the AOE bit set to one; 2) It shall be set to one after receiving a Port Logout IU; 3) It shall be set to one after receiving an ACK IU for a Port Logout IU;" The result of 3) will be to pass received IUs to the upper layer for discarding.

2. Resolution Chosen

Approach A will not work as stated. If the port enters P0:Initial, then any IUs received (before the ACK for the Logout) will cause the port to send NAK IUs with status values of REJECTED, PORT IS LOGGED OUT. They are not discarded as stated in the letter ballot comment.

By the time the other port receives the NAK IUs, it will have entered P3:Logged-Out state and the NAK IUs will be discarded.

However, this may require a new state, a complication the group does not desire.

Approach B will look similar on the wire, except that ACK IUs are sent. However, this entails passing the received IUs to the upper layer for discarding, which is more complicated than Approach A, where they die in the port. This has the advantage of being implementation specific and not complicating ADT.

The chosen resolution is B.

3. Suggested Change

4.5.3 Expected Frame Number counter

- 1) It shall be set to one after sending or receiving a Port Login IU with the AOE bit set to one ~~or a Port Logout IU;~~
- 2) it shall be set to one after receiving a Port Logout IU;
- 3) it shall be set to one after receiving an ACK IU for a Port Logout IU;

- 2 4) it shall not be adjusted when receiving an acknowledgement IU, a Port Login IU with the AOE bit set to zero, a Pause IU, a NOP IU, an Initiate Recovery IU, or a frame with a receiver detected error (see 4.6.1.3);
- 3 5) it shall not be adjusted when the port is operating in R2:Recovering state; and
- 4 6) if the port is operating in P2:Logged-In state, the port shall compare the FRAME NUMBER field in each received frame with the Expected Frame Number counter, and:
 - a) If they do not match, the port shall send a NAK IU in response to the frame with a status code of UNEXPECTED FRAME NUMBER and the Expected Frame Number counter shall not be adjusted; or
 - b) If they do match, the Expected Frame Number counter shall be incremented by one. If this value is greater than seven, it shall be set to one.