

FC-NVMe - Proposal for elimination of Clearing Effects tables 1 and 2.

This is a proposal for resolution of comment IBM-P010 in the INCITS letter ballot to forward FC-NVMe Rev 1.18 for public review. The clearing effects tables are just too confusing, are full of exceptions and are still drawing comments. The rules simply need to be stated in text.

Note to editor: This proposed text replaces the entire section 4.13 and is suggested to be placed after 11.5 (Responses to frames before PLOGI or PRLI) or after 4.16 (Link Management)

Clearing effects of NVMeoFC, FC-FS-5, and FC-LS-4 actions

Certain Fibre Channel link actions and NVMeoFC operations have clearing effects on more than just a single I/O operation and may influence Connection, and login states.

Clearing effects of N_Port Logout (LOGO)

Once a login is established between an initiator NVMe_Port and target NVMe_Port, transmission or reception of a LOGO ELS has these clearing effects;

- a) open NVMeoFC Exchanges are terminated;
- b) active NVMeoFC Connections are terminated;
- c) active NVMeoFC Associations are terminated;
- d) Process Login (PRLI) ELS parameters are cleared; and
- e) N_Port Login (PLOGI) ELS service parameters set to default values (see FC-LS-4).

Clearing effects of Process Logout (PRLO, TPRLO)

Once a process login is established between an initiator NVMe_Port and target NVMe_Port, transmission or reception of a PRLO ELS with Type Code 0x28 has these clearing effects;

- a) open NVMeoFC Exchanges are terminated;
- b) active NVMeoFC Connections are terminated;
- c) active NVMeoFC Associations are terminated; and
- d) Process Login (PRLI) ELS parameters are cleared

If a target NVMe_Port receives a Third Party Process Logout (TPRLO) ELS, the actions listed above shall be performed for all initiator NVMe_Ports that have an established Process Login with the recipient target NVME_Port when the GLOBAL bit is set to one. If the GLOBAL bit is set to zero, then the actions shall be performed for the designated initiator NVMe_Port. A target NVMe_Port should transmit a PRLO ELS to all additional logged-in initiator NVMe_Ports that are logged out as a result of processing a TPRLO ELS with the GLOBAL bit set to one. The PRLO ELS(es) may be transmitted before or after transmitting the LS_ACC for the TPRLO ELS.

Clearing effects of N_Port Login (PLOGI)

Once a login is established between an initiator NVMe_Port and target NVMe_Port, transmission or reception of another PLOGI causes an implicit logout followed by relogin with the new service parameters, if the PLOGI is successful.

Implicit logout has the same clearing effects as N_Port Logout (see Clearing effects of N_Port Logout (LOGO)).

The new login parameters take effect at the responder when an LS_ACC is transmitted and at the originator when the LS_ACC is received.

Clearing effects of Process Login (PRLI)

Once a process login is established between an initiator NVMe_Port and target NVMe_Port, transmission or reception of a PRLI ELS causes an implicit process logout, followed by process login with the new parameters. The implicit process logout has the these clearing effects;

(Same as PRLO/TPRLO, none, or case by case for each of the features? FC-SB-6 does the latter for non-disruptive enablement of new features. If all current features are specified the same, there are no clearing effects.)

The new process login parameters take effect at the responder when an LS_ACC is transmitted and at the originator when the LS_ACC is received.

Clearing Effects of NVMeoFC Disconnect LS

A Disconnect NVMeoFC LS causes an NVMeoFC Association to be terminated. Transmission or reception of a Disconnect LS also cause all related Exchanges and Connections to be terminated (see 4.3.2 NVMeoFC Association termination process).

Clearing Effects of NVMe Controller Reset or Shutdown

If the NVMe Host performs a Controller Reset or Shutdown action (See NVM Express), the following clearing actions take place for the Association and the Connections related to the controller being reset;

- a) open NVMeoFC Exchanges are terminated;
- b) active NVMeoFC Connections are terminated; and
- c) the corresponding NVMeoFC Association is terminated;

Controller Reset and Shutdown do not cause explicit or implicit Process Logout or N_Port Logout.

Note to committee:

- 1) I left out clearing effects of ABTS_LS as this explained at nauseum in other parts of the document.