

To: T10 Technical Committee  
From: Cris Simpson, Intel Corp. *cris.simpson@intel.com*  
Date: 6 March 2001  
Subject: SRP Initiator Inactivity Timeout Proposal

### **Revision History**

Revision 1: 6 March 2001  
Revision 0: First Revision

### **Related Documents**

srp-r02 - SCSI over RDMA protocol

### **Overview**

To allow recovery of connection resources, an SRP target may close the connection with the initiator after a period of inactivity. The minimum length of this period is the Initiator Inactivity Timeout (IIT). This value is established when the SRP\_LOGIN\_REQ and SRP\_LOGIN\_RSP IUs are exchanged.

### **Summary of Proposed Changes**

Add a one-byte field, IIT\_EXP, to the SRP\_LOGIN\_REQ and SRP\_LOGIN\_RSP IUs. This field represents the IIT value, interpreted as follows:

IIT_EXP = 0	Target may logout whenever there are no commands pending from initiator
IIT_EXP = 1-31	IIT = $2^{\text{IIT\_EXP}-1}$ seconds ( $2^{30}$ s $\cong$ 34 years)
IIT_EXP = 32-254	Reserved
IIT_EXP = 255	Target may never logout

The IIT value is proposed by the initiator in the SRP\_LOGIN\_REQ IU. The value to be used is returned by the target in the SRP\_LOGIN\_RSP IU. If the value returned by the target is unacceptable to the initiator, the initiator may logout.

This standard does not specify how the target's IIT value is determined.

NOTE 1 - This proposal assumes an SRP\_LOGOUT IU, which has yet to be defined.

**Proposed Changes****5.2 SRP\_LOGIN\_REQ information unit****Table 2 - SRP\_LOGIN\_REQ information unit**

Bit Byte	7	6	5	4	3	2	1	0	
0	TYPE								
1									
2	RESERVED								
7									
8									
...	TAG								
15									
16	MSB								
...	REQUESTEDMAXCMDIU								
19								LSB	
20	MSB								
...	NEWMAXRSPIU								
23								LSB	
24	EXP_IIT								
25									
...	RESERVED								
63									

The EXP\_IIT field contains the exponent of the Initiator Inactivity Timeout value being requested by the initiator. The field is to be interpreted as:

IIT_EXP = 0	Target may logout whenever there are no commands pending from initiator
IIT_EXP = 1-31	$IIT = 2^{IIT\_EXP-1}$ seconds
IIT_EXP = 32-254	Reserved
IIT_EXP = 255	Target may never logout

A target shall not send an SRP\_LOGOUT IU before the IIT period has elapsed since the target sent the SRP\_RSP IU for the last pending command from the initiator. (See NOTE 2 -) Receipt of an IU from the initiator shall cause the IIT period to be restarted upon sending the last pending command from the initiator.

NOTE 2 - There may be a significant delay between the target 'sending' the SRP\_RSP IU and it actually being placed on the wire (not to mention being received by the initiator). I'd like to start the timer on *receipt* of the IB ACK from the initiator, but that implies a tight coupling between IOC and TCA which we can not assume. There appears to be no way to handle this delay other than the initiator choosing a 'big enough' IIT.

## 5.3 SRP\_LOGIN\_RSP information unit

Table 3 - SRP\_LOGIN\_RSP information unit

Bit Byte	7	6	5	4	3	2	1	0
0	TYPE							
1								
2	RESERVED							
3								
4								
...	REQUESTLIMITDELTA							
7								
8	MSB							
...	TAG							
15								LSB
16	MSB							
...	CURRENTTGTMAXCMDIU							
19								LSB
20	MSB							
...	CURRENTTGTMAXRSPIU							
23								LSB
24	EXP_IIT							
25								
...	RESERVED							
51								

The value of the EXP\_IIT field represents the IIT that will be used by the target. This field is interpreted as defined for SRP\_LOGIN\_REQ. A target may, but is not required to issue an SRP\_LOGOUT upon completion of the IIT period.