T10/06-288r2 SAS-2 SMP ACTIVATE ZONE LOCKED UPDATE function.

To: T10 Technical Committee
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Subject: 06-288r2 SAS-2 SMP ACTIVATE ZONE LOCKED UPDATE function

Revision Information

- Revision 0: First draft.
- Revision 1: Revisions to align with zone management client lock, load, activate and unlock procedure discussed and Denver face to face.
- Revision 2: Added usage for CONFIGURING bit and function result information.

Referenced Document

Sas2r04 Serial Attached SCSI – 2 (SAS-2) r4
06-286r0 SAS-2 Registered Zone Management client.
06-304r0 SAS 2.0 SMP Function Result Priority (Zenta Darnell, Vitesse)

Overview

When the active zone management client has completed all zone updates and received SMP FUNCTION ACCEPTED from all zoning expander devices in the ZPSDS it shall activate the changes. If any device fails to respond before the [tbd] zone locked timeout occurs then the shadow registers are ignored, the zone lock bit is set to zero and a BROADCAST (Change) to zone group 1 is originated. The activate function causes each zoning expander device to make the shadow zone permission table active. This proposal defines the ACTIVATE ZONE UPDATE functions.

10.4.3.1 SMP function request frame format

Table 196 – SMP functions (FUNCTION field)

Code	SMP function	Description	Reference
		…	
84h	ZONE LOCK	A zone management client sends the ZONE LOCK request to all zoning expanders in the ZPSDS. The zoning expander device shall register the ZONE LOCK ADDRESS and set the zone lock bit to one.	10.4.3.xx
85h	ACTIVATE ZONE LOCKED UPDATE	The zoning expander device shall make the shadow register data operational.	10.4.3.xx
86h	ZONE LOCK RELEASE	The zoning expander device shall set the zone lock bit to zero.	10.4.3.xx
		…	

10.4.3.2 SMP function response frame format

Table 198 – FUNCTION RESULT field

Code	Name	SMP function(s)	Description
		…	
20h	SMP ZONE VIOLATION	CONFIGURE GENERAL, ZONED BROADCAST, PHY CONTROL, PHY TEST FUNCTION, CONFIGURE PHY EVENT INFORMATION, ZONE LOCK, ACTIVATE ZONE LOCKED UPDATE, ZONE LOCK RELEASE	The SMP target port supports the function, but zoning is enabled and the SMP initiator port does not have access to a necessary zone group according to the zone permission table (see 4.8.3.2).
21h	ZONE LOCK VIOLATION	ZONE LOCK ADDRESS, ACTIVATE ZONE LOCKED UPDATE, ZONE LOCK RELEASE	A zoning expander device that is zone locked, receives an SMP request function from a source that is not the active zone management client.
		…	

…

Table xx - Function result priority per SMP Function

SMP Function (per table 197)	SMP Function Result Priority
…	
ACTIVATE ZONE LOCKED UPDATE	1) INVALID REQUEST FRAME LENGTH 2) SMP ZONE VIOLATION 3) ZONE LOCK VIOLATION 4) SMP FUNCTION FAILED 5) SMP FUNCTION ACCEPTED
…	

…

10.4.3.xx ACTIVATE ZONE UPDATE function

The following are SMP zone locked functions and shall only be issued when the zoning expander device is locked:

    a) SMP CONFIGURE ZONE PERMISSION TABLE request; and
    b) SMP CONFIGURE PHY ZONE request.

The zoning expander device shall store the requested changes in shadow registers. The shadow register information shall not be operational until an ACTIVATE ZONE UPDATE request is received from the active zone management client.

The zone management client shall only originate an ACTIVATE ZONE UPDATE request when all of the zoning expander devices have returned an SMP FUNCTION ACCEPTED response to requested changes.

Time-out

When a zone management client receives an SMP FUNCTION ACCEPTED response to SMP zone locked function requests, the zone management client should originate an ACTIVATE ZONE UPDATE request before a [tbd] zone lock timeout expires.

If a [tbd] timeout occurs then the shadow zone permission table shall be ignored and the zoning expander device shall set the ZONE LOCKED bit to zero (see 10.4.3.3 – Proposal 06-286r0) to unlock the zoning expander. A BROADCAST (Change) shall be sent to zone group 1.

Event results

The ACTIVATE ZONE UPDATE request shall only be originated by a zone management client that has received an SMP FUNCTION ACCEPTED response to an SMP CONFIGURE ZONE PERMISSION request from all zoning expander devices in the ZPSDS.

When a zoning expander device receives the ACTIVATE ZONE UPDATE request the CONFIGURING bit shall be set to one. If there is a change to any zone group then:

    a) if the phy has zone group access permission to zone group 3 then the zoning expander device shall originate a BROADCAST (Change) on each expander port that has access permission to the expander phy before the change, and after the change based on the zone permission table including the phy with that changed; or

    b) if the phy does not have zone group access permission to zone group 3 then the zoning expander device shall originate a BROADCAST (Change) with access to zone group 1 on all ports.

The ACTIVATE ZONE UPDATE request format is defined in Table 1.

Table 1 – ACTIVATE ZONE UPDATE request

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (40h)							
1	FUNCTION (84h)							
2	Reserved							
3	REQUEST LENGTH (00)							
4	(MSB)							
7			CRC					(LSB)

The SMP FRAME TYPE field shall be set to 40h.

The FUNCTION field shall be set to 84h.

The REQUEST LENGTH field shall be set to (00).

The CRC field is defined in 10.4.3.1.

The ACTIVATE ZONE UPDATE response format is defined in Table 2.

Table 2 – ACTIVATE ZONE UPDATE response

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (41h)							
1	FUNCTION (84h)							
2	FUNCTION RESULT							
3	RESPONSE LENGTH (00h)							
4	(MSB)							
7			CRC					(LSB)

The SMP FRAME TYPE field shall be set to 41h.

The FUNCTION field shall be set to 84h.

The FUNCTION RESULT field is defined in 10.4.3.2

The RESPONSE LENGTH field shall be set to 00h.

The CRC field is defined in 10.4.3.1.