

T10/06-202r4 SAS-2 SMP CONFIGURE ZONE PERMISSION function.

To: T10 Technical Committee
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Subject: 06-202r4 SAS-2 SMP CONFIGURE ZONE PERMISSION functions

Revision Information

- Revision 0: Proposal extracted from 06-019r5 SAS-2 Zoning proposal.
- Revision 1: Added further description and function result fields.
- Revision 2: Added rules for devices that receive requests, and more function result fields to provide additional information in responses.
- Revision 3: Changes to accommodate zone management client lock, load, activate & release procedure.
- **Revision 4: Revisions per conference call. Added function response priorities, and revised setting of configuring bit to one based on ZONE LOCK request.**

Referenced Document

Sas2r03a Serial Attached SCSI – 2 (SAS-2) revision 3
06-019r5 SAS-2 Zoning (Tim Symons, PMC-Sierra)
06-203r1 SAS-2 SMP Report zone permission (Tim Symons, PMC-Sierra)
06-281r2 SAS-2 Enable and disable zoning (Rob Elliott, HP)
06-286r0 SAS-2 Zone Management lock. (Tim Symons, PMC-Sierra)
06-288r2 SAS-2 SMP ACTIVATE ZONE LOCKED UPDATE function (Tim Symons, PMC-Sierra)
06-304r0 SAS 2.0 SMP Function Result Priority (Zenta Darnell, Vitesse)

Overview

SMP CONFIGURE ZONE PERMISSION is a function for the active zone management client to update the access permissions of the zone permission tables of zoning expander devices. **When a zoning expander device has the ZONING ENABLED bit set to one then a CONFIGURE ZONE PERMISSION request shall only be accepted if it originates from the active zone management client(see 06-286).**

[Editors Note: Require selection of one of these definitions for the standard...]

If a zoning expander device has the ZONING ENABLED bit set to zero then:

- a) the zoning expander device shall accept the CONFIGURE ZONE PERMISSION request from any zone management client device;
- b) the zoning expander device shall be locked by a zone lock operation and then only accept the CONFIGURE ZONE PERMISSION request from the active zone management client device;

Option b) requires the following text to be added to 06-286 SAS-2 Zone Management Lock.

Section "10.4.3.x ZONE LOCK function" :

"If a zoning expander device has the ZONE ENABLED bit set to zero, then it shall be locked by any zone management client. The lock operates separately on each zoning expander device that has the ZONING ENABLED bit set to zero. "

- c) if the zoning expander device has the PHYSICAL PRESENCE ASSERTED bit set to one then it shall accept the CONFIGURE ZONE PERMISSION request from a zone management client device that also has the PHYSICAL PRESENCE ASSERTED bit set to one;

[Suggested addition to SAS-2. Additions to existing text are shown in blue. Changes between revisions shown in red]

10.4.3.1 SMP function request frame format

Table 196 – SMP functions (FUNCTION field)

Code	SMP function	Description	Reference
83h	CONFIGURE ZONE PERMISSION	Change entries within a zone permission table	10.4.3.1x

10.4.3.2 SMP function response frame format

Table 199 – 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 CONFIGURE PHY ZONE, CONFIGURE ZONE PERMISSION, ZONE LOCK	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	CONFIGURE PHY ZONE, CONFIGURE ZONE PERMISSION, ZONE LOCK	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
CONFIGURE ZONE PERMISSION	1) INVALID REQUEST FRAME LENGTH 2) SMP ZONE VIOLATION 3) ZONE LOCK VIOLATION 4) SMP FUNCTION FAILED 5) SMP FUNCTION ACCEPTED

Editors Note: SMP ZONE LOCK VIOLATION is defined in proposal 06-286

10.4.3.x CONFIGURE ZONE PERMISSION function

This function shall be supported by all zone management clients and all zoning expander devices. The CONFIGURE ZONE PERMISSION function requests a change to the zone permissions table entries.

A CONFIGURE ZONE PERMISSION request should only be originated by the active zone management client. If a zoning expander device receives a CONFIGURE ZONE PERMISSION request from a device that is not the active zone management client then the function result shall be SMP ZONE LOCK VIOLATION (see 10.4.3.2).

 Editors Note: SMP ZONE LOCK VIOLATION is defined in proposal 06-286

When a **ZONE LOCK** request is received by a zoning expander device, the ZONE PERMISSION CONFIGURING bit shall be set to one in the REPORT ZONE PERMISSION response (see 10.4.3.18). When a zoning expander device receives an ACTIVATE ZONE LOCKED UPDATE request and responds with SMP FUNCTION ACCEPTED then the zoning expander device shall set the ZONE PERMISSION CONFIGURING bit to zero.

 Editors Note: SMP ZONE LOCK is defined in proposal 06-286, ZONE PERMISSION CONFIGURING bit is defined in proposal 06-203

The active zone management client shall send CONFIGURE ZONE PERMISSION requests to all locked zoning expander devices within the ZPSDS, **and any zoning expander devices that are not part of a ZPSDS that require permission update prior to zone enable being set to one.**

Table 1 defines the CONFIGURE ZONE PERMISSION request format.

Table 1 – CONFIGURE ZONE PERMISSION request

Byte\Bit	7	6	5	4	3	2	1	0
0	SMP FRAME TYPE (40h)							
1	FUNCTION (83h)							
2	Reserved							
3	REQUEST LENGTH ((n - 7) / 4)							
4	Reserved							
5								
6	STARTING SOURCE ZONE GROUP INDEX							
7	FINAL REQUEST	NUMBER OF ZONE PERMISSION ENTRIES						
Zone permission entry descriptor list								
8	Zone permission entry descriptor (first)(see Table 2)							
23								
...	...							
n - 20	Zone permission entry descriptor (last)(see Table 2)							
n - 4								
n - 3	(MSB)	CRC						(LSB)
n								

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

The FUNCTION field shall be set to 83h.

The REQUEST LENGTH field shall be set to ((n - 7) / 4).

The STARTING SOURCE ZONE GROUP INDEX specifies the first source zone group to be written with the first zone permission entry descriptor.

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A FINAL REQUEST bit set to one specifies that the current request is the last of a sequence of requests. A LAST REQUEST bit set to zero specifies that there is at least one more request frame to be issued by the originator to complete the total configuration change request.

The NUMBER OF ZONE PERMISSION ENTRIES field specifies how many zone permission entry descriptors follow.

Table 2 defines the zone permission entry descriptor field format.

Table 2 - Zone permission entry descriptor format

Byte\Bit	7	6	5	4	3	2	1	0
0	ZP [s, 7] Ignored	ZP [s, 6] Ignored	ZP [s, 5] Ignored	ZP [s, 4] Ignored	ZP [s, 3]	ZP [s, 2]	ZP[s, 1] 1	ZP[s, 0] 0
1	ZP [s, 15]							ZP [s, 8]
...	Zone permission entries							...
15	ZP [s,127]							ZP [s, 120]

The zone permission entry descriptor contains access permission for a zone group (s) as defined in Table 23.

A request to change zone permission to zone group 0 or zone group 1 shall be ignored.
A request to change reserved zone group shall be ignored (e.g., zone groups 4,5,6 and 7).

The CRC field is defined in 10.4.3.2.

The CONFIGURE ZONE PERMISSION response format is defined in Table 3.

Table 3 – CONFIGURE ZONE PERMISSION response

Byte\Bit	7	6	5	4	3	2	1	0	
0	SMP FRAME TYPE (41h)								
1	FUNCTION (83h)								
2	FUNCTION RESULT								
3	RESPONSE LENGTH (01h)								
4	Reserved							FINAL	
5	Reserved								
7	Reserved								
8	(MSB)	CRC							
11								(LSB)	

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

The FUNCTION field shall be set to 83h.

The FUNCTION RESULT field is defined in 10.4.3.2.

The FINAL field indicates that the response is from a request that had the FINAL REQUEST bit set to one.

The RESPONSE LENGTH field shall be set to 01h.

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The CRC field is defined in 10.4.3.1.