

T10/06-202r3 SAS-2 SMP CONFIGURE ZONE PERMISSION function.

To: T10 Technical Committee  
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Subject: 06-202r3 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.

**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)  
 06-286r0 SAS-2 Zone Management lock. (Tim Symons, PMC-Sierra)  
 06-288r2 SAS-2 SMP ACTIVATE ZONE LOCKED UPDATE function (Tim Symons, PMC-Sierra)

**Overview**

SMP CONFIGURE ZONE PERMISSION is a function for the active zone management client to update the access permissions in the zone permission tables of the zoning expander devices in a ZPSDS.

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 [Suggested addition to SAS-2. Additions to existing text are shown in blue. Changes between revisions shown in red]  
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**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.x CONFIGURE ZONE PERMISSION function**

This function shall be supported by 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).

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 Editors Note: SMP ZONE LOCK VIOLATION is defined in proposal 06-286  
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When a CONFIGURE ZONE PERMISSION 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.

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 Editors Note: ZONE PERMISSION CONFIGURING bit refers to proposal 06-203  
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The **active zone management client** shall send CONFIGURE ZONE PERMISSION requests to all **locked** zoning expander devices within the ZPSDS.

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)

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						
<b>Zone permission entry descriptor list</b>								
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						
n								(LSB)

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.

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. 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 to unlock the zoning expander (see 10.4.3.3 – Proposal 06-286r0). A BROADCAST (Change) shall be sent to the zone management client device.

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 Editors Note: This text is from proposal 06-288 Activate Zone Locked Update. It may be unnecessary to repeat it here, but is included completeness in this context.  
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The NUMBER OF ZONE PERMISSION ENTRIES field specifies how many zone permission entry descriptors follow  $((n - 15) / 16)$ .

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. For a CONFIGURE ZONE PERMISSION request the following rules apply:

- a) zone permission entries ZP[s, 1 and 0] shall be ignored;
- b) zone permission entries ZP[1 and 0, d] shall be ignored;
- c) zone permission entries ZP[s, 2 and 3] apply the same value to ZP [2 and 3, d];
- d) zone permission entries ZP[s, 4 thru 7] shall be ignored;
- e) zone permission entries ZP[4 thru 7, d] shall be ignored; and
- f) zone permission entries ZP[s, 8 to 127] apply the same value to ZP[8 to 127, d].

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.

The CRC field is defined in 10.4.3.1.