

To: T10 Technical Committee  
From: Tim Symons, PMC-Sierra (Tim\_Symons@pmc-sierra.com)  
Date: 24 April 2006  
Subject: 06-215r0 SAS-2 Zone management proxy device

### Revision Information

- Revision 0 : Proposal extracted from 06-019r5 SAS-2 Zoning proposal.

### Referenced Document

sas2r03a Serial Attached SCSI – 2 (SAS-2) revision 3  
06-019r5 SAS-2 Zoning (Tim Symons, PMC-Sierra)  
06-202r1 SAS-2 SMP CONFIGURE ZONE PERMISSION functions (Tim Symons, PMC-Sierra)

### Overview

A ZPSDS consists of multiple zoning expander devices, which may have several management devices attached to it. This proposal is for a single elected active zone proxy device that manages changes to the ZPSDS.

The SMP CONFIGURE ZONE PERMISSION request requires the use of an active zone proxy device to ensure that when the zone permission table is updated by a management device, no other management device can simultaneously attempt to update the ZPSDS, leading to potential inconsistency of zone permission tables in a ZPSDS.

In this proposal a single zoning expander device is elected to act as the active zone proxy device.

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[Suggested addition to SAS-2 existing text (included in black), new additional text (included in blue) and changes between revisions shown in red]

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## 3.1 Definitions

**3.1.270 active zone proxy device:** A zoning expander device that has been elected to serve as the proxy device for SMP CONFIGURE ZONE PERMISSION request in a ZPSDS.

## 4.8.6 ZPSDS Management

### 4.8.6.1 Active zone proxy device

The active zone proxy device is a zoning expander device that is elected from the zoning expander devices within a ZPSDS. The active zone proxy SAS address is the only valid destination for the SMP CONFIGURE ZONE PERMISSION request originated by an SMP initiator (see 10.4.3.17 Proposal 06-202r1).

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Editors Note: Isn't there a term "SMP management client" that should be used here?

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The value of the ZONE PROXY PRIORITY field in each zoning expander device within the ZPSDS is used to elect the active zone proxy device.

Table 1 indicates the significance of priority values in the ZONE PROXY PRIORITY field.

### Table 1 - Zone supervisor priority values

ZONE PROXY PRIORITY value	Description
1111b	Highest priority
1110b	Second highest priority
...	...
0001b	Second lowest priority
0000b	Lowest priority

**4.8.6.2 Zone proxy device election**

During the discovery process a zoning expander device shall evaluate the highest ZONE PROXY PRIORITY value for devices with the ZONE PARTICIPATING bit set to one. If the same ZONE PROXY PRIORITY value is reported by two or more phys or devices, then the highest SAS address is elected. A zone proxy device shall always be elected even if all zoning expander devices have the ZONE PROXY PRIORITY value set to zero.

A zoning expander device shall set the ACTIVE ZONE PROXY PRIORITY and ACTIVE ZONE PROXY SAS ADDRESS fields in the SMP REPORT GENERAL response to zero until the active zone supervisor election process is complete.

**10.4.3.3 REPORT GENERAL function**

Table 199 defines the response format.

**Table 199 - REPORT GENERAL response**

Byte\Bit	7	6	5	4	3	2	1	0	
...	...								
10	ZONE DEVICE	Reserved				CONFIGURING		CONFIGURABLE ROUTE TABLE	
11	ACTIVE ZONE PROXY PRIORITY				ZONE PROXY PRIORITY				
12	ENCLOSURE LOGICAL IDENTIFIER								
19	ENCLOSURE LOGICAL IDENTIFIER								
20	ACTIVE ZONE PROXY SAS ADDRESS								
27	ACTIVE ZONE PROXY SAS ADDRESS								
...	...								

...

The ZONE DEVICE bit shall be set to one if the device supports zoning. If the expander device does not support zoning, the ZONE DEVICE bit shall be set to zero.

The ACTIVE ZONE PROXY PRIORITY field indicates the zone proxy priority of the elected active zone proxy device. This field shall be set to zero if there is no active zone proxy device.

The ZONE PROXY PRIORITY field indicates the zone proxy priority of the zoning expander device.

...

The ACTIVE ZONE PROXY SAS ADDRESS field indicates the SAS address of the elected active zone proxy device. This field shall be set to zero if there is no active zone proxy device.

10.4.3.5 DISCOVER function

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Table 203 - DISCOVER response

Byte\Bit	7	6	5	4	3	2	1	0
...	...							
60	Reserved			ZONE ADDRESS RESOLVED		ZONE GROUP PERSISTENT	ZONE PARTICIPATING	ZONE ENABLED
61	Reserved			ZONE PROXY PRIORITY				
62	Reserved							
63	ZONE GROUP							
...	...							

...

The ZONE PROXY PRIORITY field indicates the value for priority of the device.

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