

To: T10 Technical Committee  
 From: Dennis Spicher, HP (dennis.spicher@hp.com) and Rob Elliott, HP (elliott@hp.com)  
 Date: 3 July 2007  
 Subject: 07-118r1 SES-2 Enclosure element Power Cycle request

**Revision history**

Revision 0 (9 March 2007) First revision  
 Revision 1 (3 July 2007) Incorporated comments from March 2007 CAP WG - dropped the units of seconds

**Related documents**

ses2r15 - SCSI Enclosure Services - 2 (SES-2) revision 15

**Overview**

Currently there is no standard way to cycle an enclosure's power. Either a vendor-specific element or a vendor-specific diagnostic page must be used to provide remote control of the enclosure's power. This proposal is intended to provide a generalized method for allowing the enclosure's power to be removed and then restored at a later point in time.

Fields are defined to specify:

- a) time until the power cycle begins; and
- b) duration of the power cycle.

**Suggested changes to SES-2**

**7.3.16 Enclosure element**

The Enclosure element manages the enclosure itself.

The format of the control field for an Enclosure element is defined in table 100.

**Table 100 — Enclosure element for control-type diagnostic pages**

Byte\Bit	7	6	5	4	3	2	1	0	
0	COMMON CONTROL								
1	RQST IDENT	Reserved							
2	Reserved <a href="#">POWER CYCLE REQUEST</a>		Reserved <a href="#">POWER CYCLE DELAY</a>						
3	Reserved <a href="#">POWER OFF DURATION</a>					REQUEST FAILURE	REQUEST WARNING		

The COMMON CONTROL field is specified in 7.2.2.

[A RQST IDENT \(request identify\) bit set to one specifies that the enclosure services process identify the element by a visual indication. A RQST IDENT bit set to zero specifies that the enclosure services process not identify the element by a visual indication.](#)

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[Editor's Note 1: that bit description is inadvertantly missing](#)

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A PODR MINUTES bit set to one specifies that the POWER OFF DURATION REQUEST field contains minutes. A PODR MINUTES bit set to zero specifies that the POWER OFF DURATION REQUEST field specifies seconds.

The POWER CYCLE REQUEST field is defined in table 101. A request to begin a power cycle while a previous request is still active shall override the previous request.

**Table 101 — POWER CYCLE REQUEST field**

<u>Code</u>	<u>Description</u>
00b	No power cycle request.
01b	The enclosure shall begin a power cycle beginning when specified in the DELAY TO POWER CYCLE field for the duration specified in the the POWER OFF DURATION field.
10b	The enclosure shall cancel any scheduled power cycle.
11b	Reserved

The POWER CYCLE DELAY field is defined in table 102.

**Table 102 — POWER CYCLE DELAY field**

<u>Code</u>	<u>Description</u>
0	The enclosure shall begin a power cycle immediately after completing the SEND DIAGNOSTIC command.
1 through 60	The enclosure shall begin a power cycle after the specified number of minutes after completing the SEND DIAGNOSTIC command.
61 through 63	Reserved

The POWER OFF DURATION field is defined in table 103.

**Table 103 — POWER OFF DURATION field**

<u>Code</u>	<u>Description</u>
0	The enclosure shall keep power off for a minimal amount of time.
1 through 60	The enclosure shall keep power off for at least the specified number of minutes. Manual restoration shall override this value.
61 through 62	Reserved
63	The enclosure shall keep power off until it is manually restored.

If the REQUEST FAILURE bit is set to one, the enclosure shall enable a visual indication of enclosure failure (e.g., a failure LED). If the REQUEST FAILURE bit is set to zero, the enclosure may enable a visual indication of enclosure failure if the failure is self-detected.

If the REQUEST WARNING bit is set to one, the enclosure shall enable a visual indication of enclosure warning (e.g., a flashing LED or a second LED in addition to a failure LED). If the REQUEST WARNING bit is set to zero, the enclosure may enable a visual indication of enclosure warning if the warning is self-detected.

The format of the status field for an Enclosure element is defined in table 104.

**Table 104 — Enclosure element for status-type diagnostic pages**

Byte\Bit	7	6	5	4	3	2	1	0
0	COMMON STATUS							
1	IDENT	Reserved						
2	Reserved TIME UNTIL POWER CYCLE					FAILURE INDICATION	WARNING INDICATION	
3	Reserved REQUESTED POWER OFF DURATION					FAILURE REQUESTED	WARNING REQUESTED	

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Editor's Note 2: The time field is shifted two bits left from the similar field in the control element...

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The COMMON STATUS field is specified in 7.2.3.

[An IDENT \(identify\) bit set to one indicates that the enclosure services process is currently identifying the element by a visual indication because the RQST IDENT bit was set to one in the control-type diagnostic page. An IDENT bit set to zero indicates that the enclosure services process is not currently identifying the element by a visual indication based on the RQST IDENT bit in the control-type diagnostic page, or a visual indication is not implemented.](#)

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Editor's Note 3: that bit description is inadvertently missing

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[The TIME UNTIL POWER CYCLE field indicates the amount of time until the enclosure's power is scheduled to be removed and is defined in table 105.](#)

**Table 105 — TIME UNTIL POWER CYCLE field**

<u>Code</u>	<u>Description</u>
<u>0</u>	<a href="#">The enclosure is scheduled to begin a power cycle immediately.</a>
<u>1 through 60</u>	<a href="#">The enclosure is scheduled to begin a power cycle in the indicated number of minutes.</a>
<u>61 through 62</u>	<a href="#">Reserved</a>
<u>61 through 63</u>	<a href="#">No power cycle is scheduled.</a>

[The REQUESTED POWER OFF DURATION field indicates the amount of time that power shall remain off when power is cycled and is defined in table 106.](#)

**Table 106 — REQUESTED POWER OFF DURATION field**

<u>Code</u>	<u>Description</u>
<u>0</u>	<a href="#">Power is scheduled to be kept off for a minimal amount of time.</a>
<u>1 through 60</u>	<a href="#">Power is scheduled to be kept off for the indicated number of minutes.</a>
<u>61 through 62</u>	<a href="#">Reserved</a>
<u>63</u>	<a href="#">Power is scheduled to be kept off until manually restored.</a>

A FAILURE INDICATION bit set to one indicates that a failed condition was detected by the enclosure and that the visual indication of enclosure failure is enabled. A FAILURE INDICATION bit set to zero indicates that a failed condition was not detected by the enclosure.

A WARNING INDICATION bit set to one indicates that a warning condition was detected by the enclosure and that the visual indication of enclosure warning is enabled. A WARNING INDICATION bit set to zero indicates that a warning condition was not detected by the enclosure.

A FAILURE REQUESTED bit set to one indicates that a failed condition has been requested by an application client with the Enclosure Control diagnostic page (see 6.1.3) and that the visual indication of enclosure failure is enabled. A FAILURE REQUESTED bit set to zero indicates that a failed condition has not been requested by an application client.

A WARNING REQUESTED bit set to one indicates that a warning condition has been requested by an application client with the Enclosure Control diagnostic page and that the visual indication of enclosure warning is enabled. A WARNING REQUESTED bit set to zero indicates that a warning condition has not been requested by an application client.