To: T10 Technical Committee
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Subject: 07-118r0 SES-2 Enclosure element Power Cycle request

Revision history
Revision 0 (9 March 2007) First revision

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.

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					~~Reserved~~ PCDR MINUTES	~~Reserved~~ PODR MINUTES
2	~~Reserved~~ POWER CYCLE DELAY REQUEST					Reserved		
3	~~Reserved~~ POWER OFF DURATION REQUEST						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.

> Editor's Note 1: that bit description is inadvertently missing

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 PCDR MINUTES bit and the POWER CYCLE DELAY REQUEST field specify the amount of time until the enclosure services process shall remove the enclosure's power and are defined in table 101. A request to cycle power while a previous request is still active shall override the previous request.

Table 101 — PCDR MINUTES bit and POWER CYCLE DELAY REQUEST field

PCDR MINUTES bit	POWER CYCLE DELAY REQUEST field	Description
0	0	No power cycle request.
	1 through 60	The enclosure shall begin a power cycle the specified number of seconds after completing the SEND DIAGNOSTIC command.
	61 through 63	Reserved
1	0	The enclosure shall begin a power cycle immediately after completing the SEND DIAGNOSTIC command.
	1	The enclosure shall abort any scheduled power cycle. [a]
	2 through 60	The enclosure shall begin a power cycle the specified number of minutes after completing the SEND DIAGNOSTIC command.
	61 through 63	Reserved
[a] To specify one minute, set the PCDR MINUTES bit to zero and the POWER CYCLE DELAY REQUEST field to 60.		

The PODR MINUTES bit and the POWER OFF DURATION REQUEST field specify the amount of time that power shall remain off when power is cycled and are defined in table 102.

Table 102 — PODR MINUTES bit and POWER OFF DURATION REQUEST field

PODR MINUTES bit	POWER OFF DURATION REQUEST field	Description
0	0	Power off time shall be minimal.
	1 through 60	Power off for the specified number of seconds.
	61 through 63	Reserved
1	0	Power off until manually restored.
	1	Reserved
	2 through 60	Power off for the specified number of minutes.
	61 through 63	Reserved
[a] To specify one minute, set the PODR MINUTES bit to zero and the POWER OFF DURATION REQUEST field to 60.		

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 103.

Table 103 — Enclosure element for status-type diagnostic pages

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

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 2: that bit description is inadvertantly missing

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The TUPC MINUTES bit and the TIME UNTIL POWER CYCLE field indicate the amount of time until the enclosure's power is scheduled to be removed and are defined in table 104.

Table 104 — TUPC MINUTES bit and TIME UNTIL POWER CYCLE field

TUPC MINUTES bit	TIME UNTIL POWER CYCLE field	Description
0	0	No power cycle is scheduled.
	1 through 60	The enclosure is scheduled to begin a power cycle in the indicated number of seconds.
	61 through 63	Reserved
1	0 through 1	Reserved
	2 through 60	The enclosure is scheduled to begin a power cycle in the indicated number of minutes.
	61 through 63	Reserved

The RPOD MINUTES bit and the REQUESTED POWER OFF DURATION field specify the amount of time that power shall remain off when power is cycled and are defined in table 105.

Table 105 — RPOD MINUTES bit and REQUESTED POWER OFF DURATION field

RPOD MINUTES bit	REQUESTED POWER OFF DURATION field	Description
0	0 through 60	Power is scheduled to be off for the indicated number of seconds.
	61 through 63	Reserved
1	0	Power is scheduled to remain off until manually restored.
	1	Reserved
	2 through 60	Power is scheduled to be off for the indicated number of minutes.
	61 through 63	Reserved
[a] To indicate one minute, set the RPOD MINUTES bit to zero and the REQUESTED POWER OFF DURATION field to 60.		

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.