

To: T10 Technical Committee
From: Dennis Spicher (dennis.spicher@hp.com) and Rob Elliott, HP (elliott@hp.com)
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Subject: T10/02-190r0 SES-2 Enclosure busy indication

Revision History

Revision 0 (15 May 2002) first revision

Related Documents

ses-r08b - SCSI Enclosure Services revision 8b

Overview

Section 4.1.2 *Access through non-enclosure services device* of SES describes a method for accessing SES pages indirectly via another device. An example of this access method is illustrated in Figure 2 of the specification. A problem inherent to this access method is that the enclosure services device (EMU) does not have a method to indicate that it is busy to the application client. In other words, the application client may request an SES page that is being constructed by the EMU and the EMU cannot force the application client to wait until the page construction is complete. This is particularly important when the application client processor is significantly faster than the EMU's processor.

Suggested Changes

Define a new page to indicate that the EMU is busy. Upon receiving a request for one of the RECEIVE DIAGNOSTIC RESULTS pages, the EMU returns either the requested page or the new page depending upon whether or not the EMU is busy. If the EMU cannot return the requested page, it returns the new page instead. The application client repetitively requests the required SES page as long as the new page is returned; upon receiving the requested page the application client continues its processing.

An alternative is to return the Enclosure Status page instead, adding a BUSY bit. A new page is more flexible.

4.1.2 Access through non-enclosure services device

An application client may also be able to address the enclosure services using some other peripheral device type as a transport for enclosure services information to and from the application client. Such peripheral devices have a vendor specific communications connection to the enclosure services process. The actual enclosure services device is not visible as an SCSI device or logical unit, but merely transports the standard enclosure services information through the addressed SCSI device. Such devices shall use the same SEND DIAGNOSTIC and RECEIVE DIAGNOSTIC RESULTS commands and page formats used by an enclosure services device, but otherwise support the device model specified by their peripheral device type value. SCSI device servers set the enclosure services bit (ENC SERV) in the standard INQUIRY data (see ANSI X3.301) to indicate that they are capable of transporting enclosure services information if an enclosure services process is connected to the device. An application client determines that an enclosure services process is actually connected to the device by using the RECEIVE DIAGNOSTIC RESULTS command to request a configuration page. If the SCSI device is not able to communicate with an enclosure services process, a CHECK CONDITION status is returned and the sense data is set appropriately. The enclosure services management mode page may be implemented by an SCSI device that allows access to the enclosure services process.

4.1.4 Use of short status page

Some simple enclosure processors are not capable of reporting any enclosure service page except the short status page, defined in 6.1.12. Such devices shall always provide the short status page, regardless of which enclosure services page is requested by a RECEIVE DIAGNOSTIC RESULTS command. Such devices shall terminate any SEND DIAGNOSTIC

command using an enclosure services page code with CHECK CONDITION. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to UNSUPPORTED ENCLOSURE FUNCTION.

4.1.x Enclosure busy

Enclosure devices may return the Enclosure Busy page rather than the requested page when they are temporarily unable to provide the requested page (see 6.1.x).

6.1 Diagnostic parameters

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Page Code	Description	Control or Status	Reference
00h	Supported diagnostics	Status	ANSI X3.301
01h	Configuration	Status	6.1.1
02h	Enclosure Control	Control	6.1.2
02h	Enclosure Status	Status	6.1.3
03h	Help Text	Status	6.1.4
04h	String Out	Control	6.1.5
04h	String In	Status	6.1.6
05h	Threshold Out	Control	6.1.7
05h	Threshold In	Status	6.1.8
06h	Array Control	Control	6.1.9
06h	Array Status	Status	6.1.10
07h	Element Descriptor	Status	6.1.11
08h	Short Enclosure Status	Status	6.1.12
<u>09h</u>	<u>Enclosure Busy</u>	<u>Status</u>	<u>6.1.x</u>
09h 0Ah-0Fh	Reserved for SES	N/A	6.1
10h-3Fh	Reserved (applies to all device type pages)	N/A	ANSI X3.301
40h-7Fh	See specific device type for definition	N/A	ANSI X3.301
80h-FFh	Vendor-specific pages	N/A	ANSI X3.301

6.1.x Enclosure Busy page

The Enclosure Busy page indicates the enclosure services device is busy and is unable to return the requested page.

Table 2. Enclosure Busy page

	<u>7</u>	<u>6</u>	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	<u>0</u>
<u>0</u>	<u>PAGE CODE (09h)</u>							
<u>1</u>	<u>Reserved</u>							<u>BUSY</u>
<u>2</u>	<u>(MSB)</u>							
<u>3</u>	<u>PAGE LENGTH (0000h)</u>							<u>(LSB)</u>

A BUSY bit set to one means the enclosure services device is busy and the application client should retry the RECEIVE DIAGNOSTIC RESULTS command. A busy bit set to zero means the enclosure services device is not busy and responds to a RECEIVE DIAGNOSTIC RESULTS command.

The BUSY bit shall be set to one whenever this page is returned in place of another page.