

memorandum



Hewlett-Packard Company
3000 Hanover Street
Palo Alto, CA 94304-1185
USA
www.hp.com

T10/05-310r3

To INCITS T10 Committee
From Michael Banther, HP
Subject ADC-2 Add Identification Descriptors to SMC Logical Unit Descriptor Format

Date
11 January 2006

Revision History

Revision 0 – Initial document.

Revision 1 – Corrected value of ADDITIONAL DESCRIPTOR LENGTH field.

Revision 2 – Changed from using identification descriptors to using LUN and added restrictions on automation application client and remote SMC device server for ensure coherent and world-wide unique reporting of identification descriptors.

Revision 3 – Clarified model clause and added a separate LUN field for the remote SMC device server reworking existing text as needed.

Related documents

Automation/Drive Interface – Commands – 2 (ADC-2), T10/1741-D, revision 02a, 14 September 2005.

Background

At present a local SMC logical unit can acquire its identification descriptor(s) only by having the bridging manager request them from the remote SMC logical unit through an INQUIRY command for VPD page 83h. This method presents some difficulties:

- a) The automation device may present multiple logical units to the bridging manager. How does the bridging manager know which one to use to obtain its identification descriptor(s)?
- b) Nothing in the definition of remote SMC logical unit behavior requires it to respond to different bridging managers with different values of identification descriptor. If a remote SMC logical unit uses a constant value for an identification descriptor, then a configuration with multiple bridged DT devices may result in the same logical unit world-wide name appearing in different local SMC logical units within different DT devices. SAM-x clearly states that a logical unit exists within a SCSI device, i.e. the separate local SMC logical units cannot claim to be a single logical unit, so this situation represents a breakdown of world-wide uniqueness.

This proposal provides both a local and a remote SMC LUN and places some restrictions on the automation application client and remote SMC device server regarding reporting of identification descriptors.



Changes to draft standard

4.2.3.3 Remote SMC device server operation

The remote SMC device server shall not support any protocol-specific mode pages or protocol-specific log pages.

The remote SMC device server shall not report Device Identification VPD page identification descriptors with an association value of 1h.

Together the automation application client and remote SMC device server shall ensure:

- a) That SCSI target device identification descriptors with identical IDENTIFICATION TYPE field values have identical IDENTIFICATION field values; and
- b) World-wide uniqueness of the logical unit identification descriptors reported by the local SMC device servers when multiple DT devices bridge to one automation device.

The remote SMC device server shall report unit attention conditions for all initiator ports to the ADC device server using the NOTIFY DATA TRANSFER DEVICE command (see 5.2).

6.2.2.4.3 SMC logical unit descriptor format

The descriptor format for an SMC logical unit is defined in table 53.

Table 53 – SMC logical unit descriptor format

Byte	Bit	7	6	5	4	3	2	1	0
0		LOGICAL UNIT INDEX							
1		DEVICE TYPE (08h)							
2	(MSB)	ADDITIONAL DESCRIPTOR LENGTH (08h)							
3		(LSB)							
4		LOCAL SMC DEVICE SERVER LOGICAL UNIT NUMBER							
5		LOCAL SMC DEVICE SERVER LOGICAL UNIT NUMBER							
6		Reserved						CACHE	ENABLE
7		Reserved							
8		REMOTE SMC DEVICE SERVER LOGICAL UNIT NUMBER							
9		REMOTE SMC DEVICE SERVER LOGICAL UNIT NUMBER							
10		Reserved							
11		Reserved							

The LOCAL SMC DEVICE SERVER LOGICAL UNIT NUMBER field specifies, for the SMC logical unit when accessed through the DT device primary port(s):

- a) The LUN if access controls are not in effect; or
- b) The default LUN if access controls are in effect (see SPC-3).

The bridging manager shall use the value of the REMOTE SMC DEVICE SERVER LOGICAL UNIT NUMBER field when addressing the automation device logical unit containing the remote SMC device server (see 4.2.3).

The LOCAL SMC DEVICE SERVER LOGICAL UNIT NUMBER field and the REMOTE SMC DEVICE SERVER LOGICAL UNIT NUMBER field contains the first two bytes (i.e., bytes 0 and 1) of a single level logical unit structure or the contents of a two byte extended logical unit address (see SAM-3). The LOCAL SMC DEVICE SERVER LOGICAL UNIT NUMBER field and the REMOTE SMC DEVICE SERVER LOGICAL UNIT NUMBER field shall be ignored if the ENABLE bit is set to zero. The ADC device server shall return a CHECK CONDITION to a MODE SELECT command when multiple descriptors with the ENABLE bit set to one have the same value in the LOCAL SMC DEVICE SERVER LOGICAL UNIT NUMBER field. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to INVALID FIELD IN PARAMETER LIST.