

memorandum



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

Date
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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.

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 links the local and remote SMC LUNs 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) Coherent reporting of SCSI target device identification descriptors by the RMC and local SMC device servers; and
- b) World-wide uniqueness of the logical unit identification descriptors reported by the local SMC device servers 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 (04h)							(LSB)
3									
4		LOGICAL UNIT NUMBER							
5									
6		Reserved						CACHE	ENABLE
7		Reserved							

The 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 LOGICAL UNIT NUMBER field when addressing the automation device logical unit containing the remote SMC device server (see 4.2.3).

The 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 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 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.