Date: Feb 16, 2001

To: T10 Committee (SCSI)

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Subject: Defination of Well Known Logical Units

1 Overview

This proposal defines an extension to logical unit addressing that would allow definition of a logical unit that only does a specific function. The commands these special logical units would accept would be limited to a small (e.g., one or two) number of commands. Any device that accepts a well known logical unit number would be required to support every command defined for that specific well known logical unit.

One of two methods could be used for discovering well known logical units. The preferred method would be to define a well know logical unit that would accept the REPORT LUNs command. Another method would be to return the information on a REPORT LUNs command to LUN zero.

2 Terminology

2.0.1 Well known logical unit: A logical unit that only supports a specific number of commands. Usually only one or two commands are associated with a single W-LUN (well known logic unit number). If a well known logical unit is supported within a SCSI target device then that logical unit shall support all the commands associated with it. Well known logical units allow an application client to issue requests to receive specific information usually relating to a SCSI target.

3 LUN structure

An application client selects a well known logical unit using LUN extended addressing LUN. See xxx for the LUN format.

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Table 1 — Format of addressing fields

Bit / Byte	7	6	5	4	3	2	1	0
n-1	ADDRESS METHOD		(MSB)					
n	ADDRESS METHOD SPECIFIC							(LSB)

The ADDRESS METHOD field defines the contents of the ADDRESS METHOD SPECIFIC field. See table 2 for the address methods defined for the ADDRESS METHOD field. The ADDRESS METHOD field only defines address methods for entities that are directly addressable by an application client.

Table 2 — ADDRESS METHOD field values

Code	Description	Clause
10b	Logical unit addressing method	xxx
00b	Peripheral device addressing method	xxx
01b	Device type specific	
11b	Extended addressing	xxx

3.1 Extended addressing

Extended addressing allows for more address methods to be defined for the 8 byte LUN. These may include additional 2 byte formats or formats that use more that 2 bytes. See table 3 for the format of the 2 byte EXTENDED ADDRESS METHOD field and table 4 for the format of the 8 byte EXTENDED ADDRESS METHOD field.

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Table 3 — Format of 2 byte extended addressing fields

Bit / Byte	7	6	5	4	3	2	1	0
n-1	1	1	LENGTH	EXTENDED ADDRESS METHOD				
n	EXTENDED ADDRESS METHOD SPECIFIC							

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Table 4 — Format of 8 byte extended addressing fields

Bit / Byte	7	6	5	4	3	2	1	0
0	1	1	LENGTH	EXTENDED ADDRESS METHOD				
1	EXTENDED ADDRESS METHOD SPECIFIC							
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A length (LENGTH) bit of zero indicates the EXTENDED ADDRESS METHOD SPECIFIC field is 1 byte in length. A LENGTH bit of one indicates the EXTENDED ADDRESS METHOD SPECIFIC field is 7 bytes in length.

The EXTENDED ADDRESS METHOD field defines the contents of the EXTENDED ADDRESS METHOD SPECIFIC field. See table 2 for the address methods defined for the EXTENDED ADDRESS METHOD field. The EXTENDED ADDRESS METHOD field only defines address methods for entities that are directly addressable by an application client.

Table 5 — EXTENDED ADDRESS METHOD field values

LENGTH	Code	Description	Subclause
0 or 1	00000b	Reserved	
0	00001b	Well known logical unit	xxx
0 or 1	00010b - 11111b	Reserved	

3.2 Well known logical unit addressing

A SCSI target device may support zero or more W-LUNs however a single SCSI target device shall only support one instance of each supported well known logical unit regardless of the number of target ports allow access to the well know logical unit.

See table 6 for the definition of the EXTENDED ADDRESS METHOD SPECIFIC field used when the well know logical unit extended address method is selected.

Table 6 — SCSI target function

Bit / Byte	7	6	5	4	3	2	1	0
n-1	1	1	0	WELL KNOWN LOGICAL UNIT(000001b)				
n	LUN							

The LUN field identifies well known logical unit to be addressed. See xxx for a list of well know address.

Table 7 — FUNCTION field values

LUN	Description	Clause
00h	Reserved	xxx
01h	Reports addressable objects	xxx
02h	Reports addressable objects associations	xxx
03h	Reports SCSI target device identification	xxx
04h-FFh	Reserved	

3.3 REPORT ADDRESSABLE OBJECTS

Reports the address of all source target ports and the destination target ports that are accessed through each source target port. In addition to the address each source port includes information on the type of network it is attached to (i.e., FC NL_Port, FC N_Port, IB, Ethernet, Parallel SCSI).

Editors Note 1 - GOP: A command will be defined if this technique is agreed to.

3.4 REPORT ADDRESSABLE OBJECTS ASSOCIATIONS

Reports the address of all the target ports and the LUNs of the logical units that are accessed through each target port contained within the SCSI target device.

Editors Note 2 - GOP: A command will be defined if this technique is agreed to.

3.5 REPORT SCSI TARGET DEVICE IDENTIFICATION

Reports a unique world wide name for the addressed SCSI target device. Other information may be returned such as a list of all the target ports and all the logical units contained within the SCSI target device.

Editors Note 3 - GOP: A command will be defined if this technique is agreed to.

3.6 Other target function issues

There is further information which would need to be added. Such as:

If a SCSI target device receives a W-LUN it has no such W-LUN then it should handle the request in the same manner as it does today when it receives a command that is addressed to an unknown LUN.

There should also be a method defined to allow notification of a change to any of the reported information. This would be protocol specific as some protocols do not have a good way to do this.