

ENDL TEXAS

Date: 3 June 2003
 To: T10 Technical Committee
 From: Ralph O. Weber
 Subject: TransportID Cleanup

Revision History

- r0 Initial proposal
- r1 Correct the iSCSI initiator port identifier in table x3 to match the equivalent structure defined in the iSCSI draft
- r2 Move the proposed changes to the PERSISTENT RESERVE OUT SPEC_I_PT additional parameter data to 03-210r0 because it is going to be controversial

During the May SPC-3 editing review, a technical problem was discovered with the definition of TransportIDs (SPC-3 r13 subclause 7.5.4).

TransportIDs are supposed to reference initiator ports as the following citations prove:

- "An initiator port is identified by a TransportID if that initiator port..." (SPC-3 r12 7.5.4)
- "An application client may use a TransportID to identify an initiator port..." (SPC-3 r13 7.5.4)
- "If the SPEC_I_PT bit is set to one for the REGISTER or REGISTER AND IGNORE EXISTING KEY service actions, the additional parameter data shall include a list of transport IDs (see table 107) and the device server shall apply the registration to the I_T nexus for each initiator port specified by a TransportID." (SPC-3 r13 6.12.3, PERSISTENT RESERVE OUT parameter list)
 [Note: this text is unchanged since 01-100r4 was incorporated in SPC-3 r06.]
- "An initiator port is allowed access to the logical units in an ACE containing a TransportID type access identifier when the identification for the initiator port matches that found in the TransportID in a way that is consistent with the TransportID definition (see 7.5.4)." (SPC-3 r13 8.3.1.3.2, Access identifiers)

All currently defined TransportID formats identify initiator ports (matching the expectations for TransportIDs cited above) except one. TransportID for initiators using SCSI over Internet SCSI (SPC-3 r13 7.5.4.6) identify an initiator device, not an initiator port.

To cleanup existing ambiguities and establish a situation where future definition of incorrect TransportID formats are avoided, the following changes are proposed.

Change 1: In all 7.5.4 subclauses, change the title from "TransportID for initiators using SCSI over..." to "TransportID for initiator [ports](#) using SCSI over..."

Change 2: So that iSCSI TransportIDs can be specified in a backwards compatible manner, add a new field to the general TransportID format as follows.

TransportIDs (see table 258) shall be at least 24 bytes long and shall be a multiple of four bytes in length.

Table 258 — TransportID format

Bit Byte	7	6	5	4	3	2	1	0
0	FORMAT CODE		Reserved		PROTOCOL IDENTIFIER			
1	SCSI protocol specific data							
n								

The PROTOCOL IDENTIFIER field (see table 238 in 7.5.1) identifies the SCSI protocol to which the TransportID applies.

The FORMAT CODE field identifies the format of the TransportID. All format code values not specified in this standard are reserved.

Change 3: Modify all 7.5.4 subclauses (except the iSCSI subclause) to add the format code field by:

- Restructuring byte 0 bits 7-4 to match the field structure in the modified table 258; and
- Placing "FORMAT CODE (00b)" in the FORMAT CODE field.

Examination of the structure of the 7.5.4 subclauses shows that no other changes are needed.

Change 4: Rewrite 7.5.4.6 (TransportID for initiators using SCSI over Internet SCSI) as follows:

7.5.4.6 TransportID for initiator **ports** using SCSI over Internet SCSI

An iSCSI TransportID identifies an iSCSI initiator port using one of the TransportID formats listed in table x1.

Table x1 — iSCSI TransportID formats

Format code	Description
00b	Initiator port is identified using the world wide unique initiator device name of the iSCSI initiator device containing the initiator port
01b	Initiator port is identified using the world wide unique initiator port identifier
10b-11b	Reserved

iSCSI TransportIDs with a format code set to 00b may be rejected. iSCSI TransportIDs with a format code set to 01b should not be rejected.

A iSCSI TransportID with format code set to 00b (see table x2) identifies an iSCSI initiator port based on the world wide unique initiator device name of the iSCSI initiator device containing the initiator port.

Table x2 — iSCSI initiator device TransportID format

Bit Byte	7	6	5	4	3	2	1	0
0	FORMAT CODE (00b)		Reserved		PROTOCOL IDENTIFIER (5h)			
1	Reserved							
3								
4	(MSB)							
4m	ISCSI NAME							(LSB)

The null-terminated, null-padded (see 4.4.2) ISCSI NAME field shall contain the iSCSI name of an iSCSI initiator node (see iSCSI). The first ISCSI NAME field byte containing an ASCII null character terminates the ISCSI NAME field without regard for the specified length of the iSCSI TransportID.

NOTE 1 - The maximum length of the iSCSI TransportID is 228 bytes because the iSCSI name length does not exceed 223 bytes.

If a iSCSI TransportID with format code set to 00b is appears in a PERSISTENT RESERVE OUT parameter list (see 6.12.3), all initiator ports known to the device server with an iSCSI node name matching the one in the TransportID shall be registered.

If a iSCSI TransportID with format code set to 00b is appears in an ACE access identifier (see 8.3.1.3.2), the logical units listed in the ACE shall be accessible to any initiator port with an iSCSI node name matching the value in the TransportID. The access controls coordinator shall reject any command that attempts to define more than one ACEs with an iSCSI TransportID access identifier containing the same iSCSI name. The command shall be terminated with a CHECK CONDITION status, the sense key shall be ILLEGAL REQUEST, and the additional sense code shall be INVALID FIELD IN PARAMETER LIST.

A iSCSI TransportID with format code set to 01b (see table x3) identifies an iSCSI initiator port based on its world wide unique initiator port identifier.

Table x3 — iSCSI initiator port TransportID format

Bit Byte	7	6	5	4	3	2	1	0
0	FORMAT CODE (01b)		Reserved		PROTOCOL IDENTIFIER (5h)			
1	Reserved							
3								
4	(MSB)							
n-1	ISCSI NAME							(LSB)
n	(MSB)							
n+4	SEPARATOR (2C 692C 3078h)							(LSB)
n+5	(MSB)							
4m	ISCSI INITIATOR SESSION ID							(LSB)

The ISCSI NAME field shall contain the iSCSI name of an iSCSI initiator node (see iSCSI). The ISCSI NAME field shall not be null-terminated (see 4.4.2) and shall not be padded.

The SEPARATOR field shall contain the five ASCII characters ",i,0x" excluding the leading and trailing quotation marks.

The null-terminated, null-padded ISCSI INITIATOR SESSION ID field shall contain the iSCSI initiator session identifier (see iSCSI) in the form of ASCII characters that are the hexadecimal digits converted from the binary iSCSI initiator session identifier value. The first ISCSI INITIATOR SESSION ID field byte containing an ASCII null character terminates the ISCSI INITIATOR SESSION ID field without regard for the specified length of the iSCSI TransportID.