Date: July 20, 2000
To: T10 Committee (SCSI)
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Subject: TransportIDs for Access Controls

**ABSTRACT**:

The Access Controls proposal 99-245r9 (approved at the T10 plenary meeting in May, 2000) and amended by 00-261r0 (approved in July, 2000) defined a TransportID for SPI and for FCP devices.  However, the SPI definition was ambiguous; additionally there was no obvious means to differentiate the SPI format from the FCP format.  This proposal addresses both of those concerns.   00-287r0 addressed only the SPI vs FCP problem.

## 1.0  TransportID specifications for SPI-4 and FCP-2

**AUTHOR'S NOTE**: *cross-references to specific clauses here are to 99-245r9 unless otherwise qualified. All of the cross-references specified here are hard-coded and would need careful editing when incorporated into a complete document. All change bars are relative to the text in 00-261r0.*

Change the clause 4.3 of 99-245r9 as amended in 00-261r0 to:

### 4.3 Access Identifiers

Initiators are identified in ACL entries on the basis of one or more of three types of access identifiers (see 7.1):

a) **AccessID**, as enrolled (see 4.4.1) by an initiator using the ACCESS CONTROL OUT command with ACCESS ID ENROLL service action (see 6.2.4);

b) **TransportID**, protocol and interconnect-specific;

c) vendor-specific identifiers.

An AccessID shall be sixteen (16) bytes. AccessIDs are included in parameter data as specified in 7.1.2.

Use of the TransportID is protocol and interconnect-specific. The description of the TransportID and its inclusion in parameter data for parallel SCSI and for SCSI over Fibre Channel initiators is given in 7.1.3 and 7.1.4, respectively. Other protocol standards may specify the description and use of the TransportID. A protocol specification for a TransportID shall only include address objects that persist across common reset events in the service delivery subsystem. Additionally, a TransportID shall be no more than twenty-four (24) bytes long and shall have in its first byte a value which uniquely identifies the transport protocol.  See 7.1.1.

At any given time, an initiator may be identified or associated with at most one TransportID and with at most one AccessID. Multiple initiators may be associated with the same AccessID.

Change the structure and the contents of clause 7.1 of 99-245r9 as amended in 00-261r0 to the following:

## 7.1 Access Identifiers

### 7.1.1 Access Identifier types and lengths

Access identifiers are used in conjunction with access controls (see 4.0 and specifically 4.3) to identify an initiator or initiators for the purpose of granting, revoking or reporting on access rights. Access identifiers are specified in parameter data with an IDENTIFIER TYPE code and ACCESS IDENTIFIER field as defined in Table 33, as well as with a length field.

TABLE 33: IDENTIFIER TYPE and ACCESS IDENTIFIER values.

| Code | Description | Length (bytes) |
|------|-------------|----------------|
| 00h | AccessID | 24 |
| 01h | TransportID | 24 |
| 02h-7Fh | Reserved | n/a |
| 80h-FFh | Vendor-specific | VS |

The specification of the AccessID within the ACCESS IDENTIFIER field is given in 7.1.2. The specification of the TransportID within the ACCESS IDENTIFIER field for parallel SCSI initiators is given in 7.1.3 and for initiators using the SCSI over Fibre Channel protocol in 7.1.4. Other SCSI protocol standards may specify the structure of the TransportID and its description within the ACCESS IDENTIFIER field.

The TransportID format shall have a value in Byte 0 which uniquely identifies the tranport protocol. Table 34 specifies the value for the parallel SCSI and SCSI over Fibre Channel protocols.

TABLE 34: Protocol identifiers for TransportIDs (Byte 0)

| Protocol | TransportID Byte 0 |
|----------|--------------------|
| parallel SCSI | 00h |
| SCSI over Fibre Channel | 01h |
| Other | Reserved |

### 7.1.2 AccessIDs

The format of the AccessID within the ACCESS IDENTIFIER field in parameter data is described in Table 35. There are sixteen (16) bytes of significant data in this structure.

Table 35. AccessID data structure

| | Bit | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Byte** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| 0 | MSB | | | | | | | |
| 15 | | ACCESSID | | | | | | LSB |
| 16 | | | | | | | | |
| 23 | RESERVED | | | | | | | |

## 7.1.3 TransportIDs for initiators using a parallel SCSI bus

The format of the TransportID within the ACCESS IDENTIFIER field in parameter data for the parallel interface is described in Table 36.

Table 36. TransportID for parallel SCSI.

| | Bit | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Byte** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| 0 | | | 00h | | | | | |
| 1 | RESERVED | | | | | | | |
| 2 | MSB | | | | | | | |
| 3 | | SCSI ADDRESS | | | | | | LSB |
| 4 | MSB | | | | | | | |
| 7 | | RELATIVE PORT IDENTIFIER | | | | | | LSB |
| 8 | | | | | | | | |
| 23 | RESERVED | | | | | | | |

The SCSI ADDRESS field indicates the SCSI address of the initiator.

**AUTHOR'S NOTE:** *The SCSI Address is defined in the glossary of SPI-4 (rev 00) in item SPI-3.1.82.*

The RELATIVE PORT IDENTIFIER shall indicate the four-byte binary number identifying a specific port in the device (see Table SPC-182). The relative port identifies a SCSI domain in which the SCSI ADDRESS is a unique identifier of a SCSI device. If the RELATIVE PORT IDENTIFIER does not reference a port in the device, the TransportID is invalid.

## 7.1.4 TransportIDs for initiators using SCSI over Fibre Channel

The format of the TransportID within the ACCESS IDENTIFIER field in parameter data for the SCSI over Fibre Channel protocol is described in Table 37.

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Table 37. TransportID for SCSI over Fibre Channel.

| Byte | | Bit | | | | | | | |
|------|---|---|---|---|---|---|---|---|---|
| | | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| 0 | | | 01h | | | | | | |
| 1 | | | RESERVED | | | | | PN_VAL | NN_VAL |
| 2 | | | | | | | | | |
| 7 | | | RESERVED | | | | | | |
| 8 | MSB | | | | | | | | |
| 15 | | | WWPORTNAME | | | | | | LSB |
| 16 | MSB | | | | | | | | |
| 23 | | | WWNODENAME | | | | | | LSB |

A PN_VAL bit of one indicates that the WWPORTNAME field is valid. Similarly, the NN_VAL bit of one indicate that the WWNODENAME field is valid. A value of zero for any of these bits indicate that the corresponding field is invalid and shall be ignored. At least one of these validity bits must be set to one. If not, then the TransportID is invalid.

If both WWN fields are valid but are inconsistent, that is, they do not correspond to a device in the fabric, then the TransportID is invalid.