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**Information technology -
SCSI Stream Commands - 5 Amendment 1 (SSC-5/AM1)**

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**American National Standards
for Information Systems -**

SCSI Stream Commands - 5 Amendment 1 (SSC-5/AM1)

Secretariat
Information Technology Industry Council

Approved mm dd yy

American National Standards Institute, Inc.

Abstract

This amendment specifies changes to INCITS 503-2022

American National Standard

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American National Standard**INCITS 503-2022 AM1****American National Standard
for Information Technology -****SCSI Stream Commands - 5 Amendment 1 (SSC-5/AM1)**

| Key | |
|-------------------------|-------------------|
| Deleted Text | <u>Added Text</u> |

1 Changes to 8.2 Dynamic runtime attributes**8.2 Dynamic runtime attributes****8.2.1 Attribute format**

Each dynamic runtime attribute shall be communicated between the application client and device server in the format shown in table 106. This format shall be used ~~The dynamic runtime attribute format used for attributes~~ in the parameter data for the WRITE DYNAMIC RUNTIME ATTRIBUTE command (see 7.18) and the READ DYNAMIC RUNTIME ATTRIBUTE command (see 7.8) ~~is shown in table 106.~~

Table 106 – Dynamic runtime attribute format

| Bit Byte | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|-------------|---|----------|---|---|---|---|--------|---|
| 0 | (MSB) _____ | | | | | | | |
| 1 | I_T NEXUS INDEX _____ (LSB) | | | | | | | |
| 2 | (MSB) _____ | | | | | | | |
| 3 | ATTRIBUTE IDENTIFIER _____ (LSB) | | | | | | | |
| 4 | READ ONLY | Reserved | | | | | FORMAT | |
| 5 | (MSB) _____ | | | | | | | |
| ... | ATTRIBUTE LENGTH _____ | | | | | | | |
| 8 | _____ (LSB) | | | | | | | |
| 9 | _____ | | | | | | | |
| ... | DYNAMIC RUNTIME ATTRIBUTE VALUE _____ | | | | | | | |
| n | _____ | | | | | | | |

The I_T NEXUS INDEX field contains an index associated to the I_T_L nexus by the device server. The method for maintaining the I_T NEXUS INDEX is not specified by this standard. The I_T nexus index association may change from one command to another. On a read the value of 0000h in the I_T NEXUS INDEX field indicates that there is no I_T_L nexus associated with the attribute specified by the ATTRIBUTE IDENTIFIER field. The device server shall set the I_T NEXUS INDEX field to 0000h in the device type attributes. In the parameter data for a WRITE DYNAMIC RUNTIME ATTRIBUTE command the I_T NEXUS INDEX field should be set to 0000h by the application client and the device server shall ignore the value in the I_T NEXUS INDEX field and shall set the I_T NEXUS INDEX field of the stored

attribute to the I_T nexus index value associated with the I_T_L nexus through which the command was received. A value of FFFFh is reserved.

The ATTRIBUTE IDENTIFIER field contains a code value identifying the attribute (see 8.2.2).

The READ ONLY bit indicates whether the attribute is in the read only state (see 8.2.1). If an attribute is not in the non-existent state or the unsupported state and the READ ONLY bit is set to one, the attribute is in the Read Only state. If an attribute is not in the non-existent state or the unsupported state and the READ ONLY bit is set to zero, then the attribute is in the Read/Write state.

The FORMAT field (see table 107) specifies the format of the data in the [DYNAMIC RUNTIME](#) ATTRIBUTE VALUE field.

Table 107 – Dynamic runtime attribute FORMAT field

| Format | Name | Description |
|-----------|--------|---|
| 00b | BINARY | The DYNAMIC RUNTIME ATTRIBUTE VALUE field contains binary data. |
| 01b | ASCII | The DYNAMIC RUNTIME ATTRIBUTE VALUE field contains left-aligned ASCII data (see SPC-5). |
| 10b - 11b | n/a | Reserved |

The ATTRIBUTE LENGTH field specifies the length in bytes of the [DYNAMIC RUNTIME](#) ATTRIBUTE VALUE field. If the ATTRIBUTE LENGTH field is set to zero, then there is no [DYNAMIC RUNTIME](#) ATTRIBUTE VALUE field.

The [DYNAMIC RUNTIME](#) ATTRIBUTE VALUE field contains the current value of the attribute (see 8.2.1), for the READ DYNAMIC RUNTIME ATTRIBUTE command (see 7.8), or intended value of the attribute, for the WRITE DYNAMIC RUNTIME ATTRIBUTE command (see 7.18).

8.2.2.2 Device type attributes

Device type attributes (see table 108) shall be maintained and updated by the device server. All supported device type attributes shall have a status of read only (see 8.2).

Table 108 – Device type attributes

| Attribute Identifier | Name | Attribute Length (in bytes) | Format | Reference |
|-----------------------|---|-----------------------------|------------------------|---------------------------|
| 0000h | NUMBER OF I_T NEXUSES SUPPORTED BY DYNAMIC RUNTIME ATTRIBUTES | 2 | BINARY | 8.2.2.2.2 |
| 0001h | TIMESTAMP WHEN PROCESSED | 12 | BINARY | 8.2.2.2.3 |
| 0010h | RESERVATION INFORMATION | variable | BINARY | 8.2.2.2.4 |
| 0011h | REGISTRATION INFORMATION | variable | BINARY | 8.2.2.2.5 |
| 0012h | PREVENT ALLOW MEDIUM REMOVAL INFORMATION | variable | BINARY | 8.2.2.2.6 |
| 0013h | LAST FAILED RESERVATION | variable | BINARY | 8.2.2.2.7 |
| 0014h | LAST FAILED RESERVATION INFORMATION | variable | BINARY | 8.2.2.2.8 |
| all others | Reserved | | | |

8.2.2.2.7 LAST FAILED RESERVATION attribute

The LAST FAILED RESERVATION attribute indicates the I_T_L nexus ~~that last failed~~[through which](#) a command requesting a reservation [or releasing a reservation that was most recently terminated](#) with RESERVATION CONFLICT status. The DYNAMIC RUNTIME ATTRIBUTE VALUE field of the LAST FAILED RESERVATION attribute contains the I_T_L nexus identifying information (see 8.2.2.2.1) for ~~the~~[that](#) I_T_L nexus ~~that last received a RESERVATION CONFLICT status to~~[where the command is](#) one of the following commands:

- a) PERSISTENT RESERVE OUT;
- b) PERSISTENT RESERVE IN;
- c) RESERVE (see SPC-2); and
- d) RELEASE (see SPC-2).

8.2.2.2.8 LAST FAILED RESERVATION INFORMATION attribute

[The LAST FAILED RESERVATION INFORMATION attribute contains information about the existing reservation that prevented the attempt to create a new reservation.](#)

[The DYNAMIC RUNTIME ATTRIBUTE VALUE field of the LAST FAILED RESERVATION INFORMATION attribute contains the value from the DYNAMIC RUNTIME ATTRIBUTE VALUE field of the RESERVATION INFORMATION dynamic runtime attribute \(see 8.2.2.2.4\) at the time the most recent LAST FAILED RESERVATION dynamic runtime attribute \(see 8.2.2.2.7\) was created or updated.](#)

2 Changes to 8.3.1 Volume Statistics log page

Table 153 specifies the Volume Statistics log page parameter codes.

Table 153 — Volume Statistics log parameter codes

| Parameter Code | Description | Type | Support | Reference |
|--|--|-------------------|-------------------|---------------------------|
| 0016h | Total native capacity | C | M | 8.3.9.3.23 |
| 0017h | Total used native capacity | C | M | 8.3.9.3.23 |
| 0018h | Application design capacity | C | M | 8.3.9.3.x |
| 0019h | Volume useful life remaining | C | M | 8.3.9.3.y |
| 0018h 001Ah to 003Fh | Reserved | | | |
| 0040h | Volume serial number | S | M | 8.3.9.3.25 |

⋮

| | | | | |
|--|-------------------------|---|---|------------|
| 0046h | Volume manufacture date | S | O | 8.3.9.3.32 |
| 0046h to 007Fh | Reserved | | | |
| Type key: C=Volume statistics counter log parameter (see 8.3.9.2.1) S=Volume statistics string data log parameter (see 8.3.9.2.2) P=Volume statistics partition record log parameter (see 8.3.9.2.3) | | | | |

8.3.9.3.23 Total native capacity

The total native capacity parameter contains the sum of the total native capacity of all partitions in megabytes (i.e., 10^6 bytes) from BOP to EOP. ~~A data counter value with all bytes set to FFh in the PARTITION RECORD DATA COUNTER field (see 8.3.9.2.3) indicates~~ All bytes in the parameter data counter value set to FFh indicates that the total native capacity is unknown.

8.3.9.3.24 Total used native capacity

The total used native capacity parameter contains the sum of the used native capacity of all partitions in megabytes (i.e., 10^6 bytes) from BOP to EOD. ~~A data counter value with all bytes set to FFh in the PARTITION RECORD DATA COUNTER field (see 8.3.9.2.3) indicates~~ All bytes in the parameter data counter value set to FFh indicates that the total used native capacity is unknown.

8.3.9.3.x Application design capacity

The application design capacity parameter contains the maximum capacity for which an application client accessing the volume should be designed (i.e., in the absence of error conditions, the application design capacity should always be able to fit on a volume without spanning to a different volume). The application design capacity assumes:

- a) that compression is disabled;
- b) that normal data and block sizes are used; and
- c) that there is a single partition.

The application design capacity is expressed in megabytes (i.e., 10^6 bytes) from BOP to EOP. All bytes in the parameter data counter value set to FFh indicates that the application design capacity is unknown.

8.3.9.3.y Volume useful life remaining

The volume useful life remaining parameter contains an integer between 100, for a new volume, and, zero for a volume with no useful life remaining. The value returned is an estimate of the percentage of remaining usage available before exceeding the volume's (see 4.2.2.1) useful life. All bytes in the parameter data counter value set to FFh indicates that the volume lifetime remaining is unknown. All other values are reserved.