

T10/04-173r0

**Project Proposal
for a new
INCITS Standard**

**SCSI Object-Based Storage Device Commands - 2
(OSD-2)**

July 15, 2004

1. Source of Proposed Project

1.1 Title: SCSI Object-Based Storage Device Commands - 2.

1.2 Date Submitted: July 15, 2004.

1.3 Proposing Group: T10.

2. Process Description for the Proposed Project

2.1 Project Type: D - Development.

2.2 Type of Document: Standard.

2.3 Definitions of Concepts and Special Terms: none.

2.4 Expected Relationship with Approved Reference Models, Frameworks, Architectures, etc.

None, it is expected that this standard will be used in closed systems.

2.5 Recommended INCITS Development Technical Committee: T10.

2.6 Anticipated Frequency and Duration of Meetings

Technical Committee T10 meets on a regularly scheduled basis (see <http://www.t10.org> for the current meeting schedule). Specific task ad hoc groups are called as required between the regular meetings but their results are not binding.

2.7 Target Date for Initial Public Review (Milestone 4): November 2006.

2.8 Estimated Useful Life of Standard or Technical Report: 5 Years.

3. Business Case for Developing the Proposed Standard or Technical Report

3.1 Description

The SCSI Object-Based Storage Device Commands - 2 standard will be based on the SCSI Object-Based Storage Device Commands standard that defines a SCSI command set for that stores data objects instead of blocks of data.

The purpose of this abstraction is to assign to the storage device more responsibility for managing the location of the data. The advantages for this approach are:

- a) Easier sharing of files with multiple initiators,
- b) Sharing of files among initiators that use different operating systems,
- c) Moving responsibility for data management functions such as defragmentation to the storage device, and
- d) Easier implementation of third party backup and restore operations.

OSD-2 will maintain a high degree of compatibility with the present OSD standard, which is nearing completion of its development cycle.

The following items should be considered for inclusion into OSD-2:

- 1) Operations that affect multiple objects with extensions to:
 - Collections definitions;
 - Capability definitions;
 - Security definitions;
 - Support for multi-object Flush, Remove, Get Attributes, and Set Attributes;
- 2) Improved error handling, including:
 - Object Fencing;
 - Boot Epoch support;
 - Proactive Error Detection and Reporting;
- 3) Extensions to Collections support, including:
 - Query Collections for specified attributes;
 - Collection Copy;
- 4) High-performance mechanisms for saving the current contents of an object while continuing to modify the object's contents (aka Snapshot), applicable to both user objects and collections;
- 5) Improved Space Management support;
- 6) Support for IEEE P1619 Data At Rest security; and
- 7) Other capabilities that may fit within the general application scope of this project.

3.2 Existing Practice and the Need for a Standard

The proposed project involves a compatible evolution of the present SCSI architecture model to use a standard modeling construct. In addition, the evolution of SCSI as an interface creates an ongoing need to enhance and revise the SCSI architecture model.

3.3 Implementation Impacts of the Proposed Standard

3.3.1 Development Costs

Members of T10 will provide the necessary resources. The T10 members will host the required meetings for development, provide for the necessary lab experiments, and provide the Technical Editor for the project.

3.3.2 Impact on Existing or Potential Markets

The nature of the proposed project is to provide for growth in the SCSI products industry. This ensures that current investments in SCSI devices will have a stable managed migration path in the face of technological developments.

3.3.3 Costs and Methods for Conformity Assessment

The committee will consider the results of testing that may be available to the committee through the voluntary efforts of the various participants in T10. With this method, all costs are borne by the organizations of the various participants and have for the most part been mainly an adjunct of their normal development costs.

3.3.4 Return on Investment

ROI information is considered proprietary data by the member organizations, but members have stated that the ROI is expected to be large.

3.4 Legal Considerations

3.4.1 Patent Assertions

Calls will be made to identify assertions of patent rights in accordance with the relevant INCITS, ANSI, and ISO/IEC policies and procedures.

3.4.2 Dissemination of the Standard or Technical Report

Drafts of this document will be disseminated electronically. Dissemination of the final standard will be restricted, as the document becomes property of INCITS, ANSI, and/or ISO/IEC.

4. Related Standards Activities

4.1 Existing Standards:

ID Number	Title
INCITS.366:2003	SCSI Architecture Model - 2 (SAM-2)
NCITS.351-2001	SCSI Primary Commands - 2 (SPC-2)
NCITS.306-1998	SCSI Block Commands (SBC)
INCITS.380-2003	SCSI Stream Commands - 2 (SSC-2)

4.2 Related Standards Activity

ID Number	Title
T10/1561-D	SCSI Architecture Model - 3 (SAM-3)
T10/1683-D	SCSI Architecture Model - 4 (SAM-4)
T10/1416-D	SCSI Primary Commands - 3 (SPC-3)
T10/1417-D	SCSI Block Commands - 2 (SBC-2)
T10/1611-D	SCSI Stream Commands - 3 (SSC-3)

4.3 Corresponding ISO projects

ID Number	Title
ISO/IEC 14776	Multipart SCSI standard

4.4 Recommendations for Close Liaison

Technical Committee T11.
Storage Networking Industry Association (SNIA) OSD Technical Working Group.
IEEE P1619 Working Group.

5. Units of Measurement used in the Standard

Not Measurement Sensitive.