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INTERNATIONAL STANDARD

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Information technology – Storage management – Part 6: Fabric

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IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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FOREWORD

1) ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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International Standard ISO/IEC 24775-6 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This International Standard, together with ISO/IEC 24775-1 to ISO/IEC 24775-5 and ISO/IEC 24775-7 and ISO/IEC 24775-8, replaces ISO/IEC 24775, second edition, published in 2011, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) reorganization into eight parts;

b) maturity identification using stages; and

c) new profiles.

The list of all currently available parts of the ISO/IEC 24775 series, under the general title *Information technology – Storage management*, can be found on the IEC web site.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IMPORTANT – The "colour inside" logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

Introduction

This part of ISO/IEC 24775 defines management profiles for Autonomous (top level) profiles for programs and devices whose central function is providing support for storage networking. The standard includes fabric management including topology and device management for switches. This standard also provides management of extenders that pass fibre channel frames over other protocols as well as a gateway that maps and translates iSCSI to Fibre Channel. As part of fabric management, this International Standard also has controls for fibre channel zoning and fibre channel security.

Parts of this Standard

This International Standard is subdivided into the following parts:

- *Information technology – Storage management – Part 1: Overview*
- *Information technology – Storage management – Part 2: Common architecture*
- *Information technology – Storage management – Part 3: Common profiles*
- *Information technology – Storage management – Part 4: Block devices*
- *Information technology – Storage management – Part 5: Filesystems*
- *Information technology – Storage management – Part 6: Fabric*
- *Information technology – Storage management – Part 7: Host elements*
- *Information technology – Storage management – Part 8: Media libraries*

Changes since the Last Edition

The changes since ISO/IEC 24775:2011 fall into three broad categories:

- **Improved organization**. The stand-alone standard has been split into eight parts to provide more information more easily. The parts are:
  - *Part 1 Overview*: The overview book provides a high level overview of the standard.
  - *Part 2 Common Architecture*: This part covers general information about the interface, such as security and protocols.
  - *Part 3 Common Profiles*: This part covers component profiles that extend profiles in other books, such as target ports and job control.
  - *Part 4 Block Devices*: This part covers storage profiles that support various forms of disk storage.
  - *Part 5 Filesystems*: This part covers profiles that support filesystems, such as NAS (Network Attached Storage).
  - *Part 6 Fabric*: This part covers profiles that deal with interconnection of host servers and storage devices, such as switches.
  - *Part 7 Host Elements*: This part covers profiles for storage software on host servers, such as disk partitioning and Host Hardware RAID controllers.
  - *Part 8 Media Libraries*: This part covers profiles that deal with removable media such as tape libraries.
- **Maturity identification.** As material is added to the standard it goes through various stages of maturity. The initial stage is *Experimental*, which is material that has not yet been implemented and is subject to change. The other stages indicate the degree of implementations. The stages are:
  - **Experimental**: Full design review, no commercial implementations.
  - **Implemented**: Initial implementations available, may be removed at minor revision.
  - **Stable**: Three or more vendors have implemented the identified material, backward compatibility assured, removed only at major revision.

- **Finalized**: Relies solely on Finalized content, deprecated only at major revision.
- **Deprecated**: Obsolete material, may be removed in future revisions.

  For a more detailed explanation of each maturity level and its typographical indication, see Clause 4 Typographical Conventions.

- **Expanded scope.** The range of SAN components modeled by the profiles defined in the parts has been greatly expanded.
  - New profiles include:
    - *Part 3 Common Profiles:* Serial Attached SCSI (SAS) Target Port, Serial ATA (SATA) Target Ports, SB Target Port, SAS Initiator Ports, ATA Initiator Ports, FC-SB-x Initiator Ports, FCoE Initiator Ports, Power Supply, Fan, Sensors, Base Server, Media Access Device, Storage Enclosure, Software Inventory, Profile Registration, Proxy Server System Management, Operational Power.
    - *Part 4 Block Devices:* Block Storage Views, CKD Block Services, Erasure, Storage Server Asymmetry, Volume Composition, Storage Element Protection, Replication Services, Pools from Volumes, Group Masking and Mapping, Thin Provisioning.
    - *Part 5 Filesystems:* File Export, File Server Manipulation, File Storage, Filesystem, Filesystem Copy Services, Filesystem Performance, Filesystem Quotas, NAS Network Port, Host Filesystem, Filesystem Remote Copy Services.
    - *Part 6 Fabric:* Fibre Channel Security, Fabric Views, Virtual Fabrics, Switch Partitioning, SAS Expander, N Port Virtualizer, Inter Fabric Routing.
    - *Part 7 Host Elements:* Storage HBA, Host Hardware RAID Controller.
    - *Part 8 Media Libraries:* Partitioned Tape Library, Virtual Tape Library, Virtual Tape Library Copy and Library Views.
  - The following experimental profiles were removed from the International Standard:
    - *Part 3 Common Profiles:* Security, 3rd Party Authentication, Authorization, Credential Management, Identity Management, Security Role Based Access Control and Security Resource Ownership.
    - *Part 4 Block Devices:* Pool Management Policy.
  - The following profiles were deprecated:
    - *Part 3 Common Profiles:* Cascading (replaced by direct use of cascading classes).
    - *Part 4 Block Devices:* Volume Management (and not replaced).
    - *Part 6 Fabric:* Router (and not replaced).
    - *Part 7 Host Elements:* FC HBA (replaced by Storage HBA), SB Multipath Management (and not replaced).
    - *Part 8 Media Libraries:* InterLibraryPort Connection (and not replaced).
  - In addition, many of the existing profiles have been enhanced.

This International Standard was prepared by the SNIA (Storage Networking Industry Association)[1]. The standard is often referred to as ***SMI-S*** (*Storage Management Initiative Specification*).

1. Storage Networking Industry Association, 425 Market Street, Suite 1020, San Francisco, CA 94105, U.S.A., http://www.snia.org

INFORMATION TECHNOLOGY –
STORAGE MANAGEMENT –
Part 6: Fabric

1 Scope

This part of ISO/IEC 24775 defines management profiles for Autonomous (top level) profiles for programs and devices whose central function is providing support for storage networking. This standard includes four autonomous profiles:

- Fabric

  This profile defines the model and functions of a storage network including topology and zoning control.

- Switch

  This profile defines the model and functions of a Fibre Channel Switch including state, status, and control of the device and its connections and product information,

- Extender

  This profile defines the model and functions of a networking device that allows for fibre channel to be extended over other networks, and specifically over IP (FCIP).

- iSCSI to FC Gateway

  This profile defines the model and functions of a networking device that maps and switches iSCSI frames from an IP network to a fibre channel fabric.

2 Normative references

The following documents, in whole or in part, are normatively referenced in the document and are indispensible for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document, including any amendments, applies.

ISO/IEC 24775-2:2014, *Information technology – Storage management – Part 2: Common architecture*

ISO/IEC 24775-3:2014, *Information technology – Storage management – Part 3: Common profiles*

ISO/IEC 24775-7:2014, *Information technology – Storage management – Part 7: Host elements*

ISO/IEC 24775-8:2014, *Information technology – Storage management – Part 8: Media libraries*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 24775-2, apply.