ISO/IEC 24775-1

Edition 1.0   2014-10

INTERNATIONAL STANDARD

colour inside

Information technology – Storage management –
Part 1: Overview

PRICE CODE   **D**

ICS 35.200

ISBN 978-2-8322-1892-1

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

INFORMATION TECHNOLOGY –
STORAGE MANAGEMENT –

Part 1: Overview

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.

2) The formal decisions or agreements of IEC and ISO on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees and ISO member bodies.

3) IEC, ISO and ISO/IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees and ISO member bodies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC, ISO and ISO/IEC publications is accurate, IEC or ISO cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees and ISO member bodies undertake to apply IEC, ISO and ISO/IEC publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any ISO, IEC or ISO/IEC publication and the corresponding national or regional publication should be clearly indicated in the latter.

5) ISO and IEC do not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. ISO or IEC are not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or ISO or its directors, employees, servants or agents including individual experts and members of their technical committees and IEC National Committees or ISO member bodies for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication of, use of, or reliance upon, this ISO/IEC publication or any other IEC, ISO or ISO/IEC publications.

8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that some of the elements of this ISO/IEC publication may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 24775-1 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 24775-2 to ISO/IEC 24775-8, replaces ISO/IEC 24775, second edition, published in 2011, and constitutes a technical revision.

The significant technical changes with respect to the previous edition are listed in the INTRODUCTION.

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 is to be used in conjunction with all other parts of this series of standards.

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

The Overview part of the Storage Management International Standard contains informative clauses that provide an overview of how SMI-S works. It is a useful base for understanding the details of the standard. While the normative information of the ISO/IEC 24775 series of standards is contained in other parts, ISO/IEC 24775-1 provides high-level introductory material on key concepts.

ISO/IEC 24775 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*

The significant changes with respect to the second edition of ISO/IEC 24775 are listed below.

- **Improved organization**. The International Standard has been reorganized 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 ISO/IEC 24775 series of standards.

  - *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 are deprecated:

    - *Part 3 Common Profiles:* Cascading (replaced by direct use of cascading classes).

    - *Part 4 Block Devices:* Volume Management (not replaced).

    - *Part 6 Fabric:* Router (not replaced).

    - *Part 7 Host Elements:* FC HBA (replaced by Storage HBA), SB Multipath Management (not replaced).

    - *Part 8 Media Libraries:* InterLibraryPort Connection (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*).

INFORMATION TECHNOLOGY – STORAGE MANAGEMENT –

Part 1: Overview

1 Scope

This part of ISO/IEC 24775 defines an interface for the secure, extensible, and interoperable management of a distributed and heterogeneous storage system. This interface uses an object-oriented, XML-based, messaging-based protocol designed to support the specific requirements of managing devices and subsystems in this storage environment. Using this protocol, this part of ISO/IEC 24775 describes the information available to a WBEM Client from an Information Technology – Storage Management compliant CIM WBEM Server.

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, *Information technology – Storage management – Part 2: Common architecture*

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