INTERNATIONAL STANDARD

**ISO/IEC 17826**

Second edition
2016-07-15

# Information technology — Cloud Data Management Interface (CDMI)

*Technologies de l'information — Interface de management des données du nuage informatique (CDMI)*

Reference number
ISO/IEC 17826:2016(E)

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ISO/IEC 17826 was prepared by SNIA and was adopted, under the PAS procedure, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

This second edition cancels and replaces the first edition (ISO/IEC 17826:2012), which has been technically revised.

# Cloud Data Management Interface (CDMI™)

## Version 1.1.1

*ABSTRACT*: This CDMI International Standard is intended for application developers who are implementing or using cloud storage. It documents how to access cloud storage and to manage the data stored there.

This document has been released and approved by the SNIA. The SNIA believes that the ideas, methodologies, and technologies described in this document accurately represent the SNIA goals and are appropriate for widespread distribution. Suggestion for revision should be directed to http://www.snia.org/feedback/.

## *SNIA Technical Position*

**March 19, 2015**

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## Revision History

| Version | Date | Originator | Comments |
|---|---|---|---|
| 1.1.1 | March 19, 2015 | CDMI TWG | Released as a SNIA Technical Position. |

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# Figures

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# Section I

# CDMI Preamble

# Introduction

This Cloud Data Management Interface (CDMI™) International Standard is intended for application developers who are implementing or using cloud storage. It documents how to access cloud storage and to manage the data stored there.

This document is organized as follows:

| | |
|---|---|
| 1 - Scope | Defines the scope of this document |
| 2 - References | Lists the normative references for this document |
| 3 - Terms | Provides terminology used in this document |
| 4 - Conventions | Describes the conventions used in presenting the interfaces and the typographical conventions used in this document |
| 5 - Overview of Cloud Storage | Provides a brief overview of cloud storage and details the philosophy behind this International Standard as a model for the operations |
| 6 - Data Object Resource Operations using HTTP | Provides the normative standard of data object resource operations using HTTP |
| 7 - Container Object Resource Operations using HTTP | Provides the normative standard of container object resource operations using HTTP |
| 8 - Data Object Resource Operations using CDMI | Provides the normative standard of data object resource operations using CDMI |
| 9 - Container Object Resource Operations using CDMI | Provides the normative standard of container object resource operations using CDMI |
| 10 - Domain Object Resource Operations using CDMI | Provides the normative standard of domain object resource operations using CDMI |
| 11 - Queue Object Resource Operations using CDMI | Provides the normative standard of queue object resource operations using CDMI |
| 12 - Capability Object Resource Operations using CDMI | Provides the normative standard of capability object resource operations using CDMI |
| 13 - Exported Protocols | Discusses how virtual machines in the cloud computing environment can use the exported protocols from CDMI containers |
| 14 - Snapshots | Discusses how snapshots are accessed under CDMI containers |
| 15 - Serialization/Deserialization | Discusses serialization and deserialization, including import and export of serialized data under CDMI |
| 16 - Metadata | Provides the normative standard of the metadata used in the interface |
| 17 - Retention and Hold Management | Describes the optional retention management disciplines to be implemented into the system management functions |
| 18 - Scope Specification | Describes the structure of the scope specification for JSON objects |
| 19 - Results Specification | Provides a standardized mechanism to define subsets of CDMI object contents |

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| 20 - Logging | Describes CDMI functional logging for object functions, security events, data management events, and queues |
| 21 - Notification Queues | Describes how CDMI clients may efficiently discover what changes have occurred to the system |
| 22 - Query Queues | Describes how CDMI clients may efficiently discover what content matches a given set of metadata query criteria or full-content search criteria |
| Annex A - (informative) Extensions | Provides informative vendor extensions. Each extension is added to the standard when at least two vendors implement the extension. |
| Bibliography | Provides informative references that may contain additional useful information |

# 1 Scope

This CDMI™ International Standard specifies the interface to access cloud storage and to manage the data stored therein. This International Standard applies to developers who are implementing or using cloud storage.

# 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable 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.

The provisions of the referenced specifications other than ISO/IEC, IEC, ISO, and ITU documents, as identified in this clause, are valid within the context of this International Standard. The reference to such a specification within this International Standard does not give it any further status within ISO/IEC. In particular, it does not give the referenced specifications the status of an International Standard.

ISO 3166, *Codes for the representation of names of countries and their subdivisions (Parts 1, 2 and 3)*

ISO 4217:2008, *Codes for the representation of currencies and funds*

ISO 8601:2004, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO/IEC 9594-8:2008, *Information technology — Open Systems Interconnection — The Directory: Public-key and attribute certificate frameworks*

ISO/IEC 14776-414, *SCSI Architecture Model — 4 (SAM-4)*

ISO/IEC 17788:2014, *Information technology — Cloud computing — Overview and vocabulary*

ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards, 6th edition, 2011*

IEEE Std 1003.1, 2004*, POSIX ERE, The Open Group, Base Specifications Issue 6,* available at <http://www.unix.org/version3/ieee_std.html>

RFC 1867, *Form-based File Upload in HTML,* available at <http://www.ietf.org/rfc/rfc1867.txt>

RFC 2045, *Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies,* available at <http://www.ietf.org/rfc/rfc2045.txt>

RFC 2046, *Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types*, available at <http://www.ietf.org/rfc/rfc2046.txt>

RFC 2578, *Structure of Management Information Version 2 (SMIv2)*, available at <http://www.ietf.org/rfc/rfc2578.txt>

RFC 2616, *Hypertext Transfer Protocol — HTTP/1.1*, available at <http://www.ietf.org/rfc/rfc2616.txt>

RFC 2617, *HTTP Authentication: Basic and Digest Access Authentication*, available at <http://datatracker.ietf.org/doc/rfc2617/>

RFC 3530, *Network File System (NFS) Version 4 Protocol*, available at <http://www.ietf.org/rfc/rfc3530.txt>

RFC 3720, *Internet Small Computer Systems Interface (iSCSI)*, available at <http://www.ietf.org/rfc/rfc3720.txt>

RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax*, available at <http://www.ietf.org/rfc/rfc3986.txt>

RFC 4627, *The Application/JSON Media Type for JavaScript Object Notation (JSON)*, available at <http://www.ietf.org/rfc/rfc4627.txt>

RFC 4648, *The Base16, Base32, and Base64 Data Encodings,* available at <http://www.ietf.org/rfc/rfc4648.txt>

RFC 4918, *HTTP Extensions for Web Distributed Authoring and Versioning (WebDAV),* available at <http://www.ietf.org/rfc/rfc4918.txt>

RFC 6208, *Cloud Data Management Interface (CDMI) Media Types,* available at <http://www.ietf.org/rfc/rfc6208.txt>

RFC 6839, *Additional Media Type Structured Syntax Suffixes,* available at <http://www.ietf.org/rfc/rfc6839.txt>

SNIA TLS, *TLS Specification for Storage Systems, version 1.0,* available at <https://snia.org/tech_activities/standards/curr_standards/tls>