
**Information technology — Multimedia
framework (MPEG-21) —**

**Part 16:
Binary Format**

*Technologies de l'information — Cadre multimédia (MPEG-21) —
Partie 16: Format binaire*

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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO/IEC 21000-16 was prepared by Technical Committee ISO/TC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

ISO/IEC 21000 consists of the following parts, under the general title *Information technology — Multimedia framework (MPEG-21)*:

- *Part 1: Vision, Technologies and Strategy* [Technical Report]
- *Part 2: Digital Item Declaration*
- *Part 3: Digital Item Identification*
- *Part 4: Intellectual Property Management and Protection Components*
- *Part 5: Rights Expression Language*
- *Part 6: Rights Data Dictionary*
- *Part 7: Digital Item Adaptation*
- *Part 8: Reference Software*
- *Part 9: File Format*
- *Part 10: Digital Item Processing*
- *Part 11: Evaluation Tools for Persistent Association Technologies*
- *Part 12: Test Bed for MPEG-21 Resource Delivery* [Technical Report]
- *Part 16: Binary Format*

The following parts are under preparation:

- *Part 14: Conformance Testing*
- *Part 15: Event Reporting*
- *Part 17: Fragment Identification of MPEG Resources*

Introduction

Today, many elements exist to build an infrastructure for the delivery and consumption of multimedia content. There is, however, no “big picture” to describe how these elements, either in existence or under development, relate to each other. The aim for MPEG-21 is to describe how these various elements fit together. Where gaps exist, MPEG-21 will recommend which new standards are required. ISO/IEC JTC 1/SC 29/WG 11 (MPEG) will then develop new standards as appropriate while other relevant standards may be developed by other bodies. These specifications will be integrated into the multimedia framework through collaboration between MPEG and these bodies.

The result is an open framework for multimedia delivery and consumption, with both the content creator and content consumer as focal points. This open framework provides content creators and service providers with equal opportunities in the MPEG-21 enabled open market. This will also be to the benefit of the content consumer, providing them access to a large variety of content in an interoperable manner.

The vision for MPEG-21 is to define a multimedia framework *to enable transparent and augmented use of multimedia resources across a wide range of networks and devices* used by different communities.

Information technology — Multimedia framework (MPEG-21) —

Part 16: Binary Format

1 Scope

This part of ISO/IEC 21000 specifies the ISO/IEC 21000 binary format which is an alternative serialization format of descriptions as specified within other ISO/IEC 21000 parts, e.g. ISO/IEC 21000-2. This enables the efficient interchange or storage of ISO/IEC 21000 descriptions.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 23001-1, *Information technology — MPEG systems technologies — Part 1: Binary MPEG format for XML*

ISO/IEC 21000 (all parts), *Information technology — Multimedia framework (MPEG-21)*

SCC14N, *Schema Centric XML Canonicalization Version 1.0, Organization for the Advancement of Structured Information Standards (OASIS) Universal Description, Discovery, and Integration (UDDI) Technical Committee (TC) Committee Specification*, 19 July 2002, available at <http://www.uddi.org/pubs/SchemaCentricCanonicalization-20020710.htm>

Extensible Markup Language (XML) 1.0 (Second Edition), 6 October 2000, <http://www.w3.org/TR/2000/REC-xml-20001006>

XML Schema: W3C Recommendation, 2 May 2001, <http://www.w3.org/XML/Schema>

- *XML Schema Part 0: Primer*, W3C Recommendation, 2 May 2001, <http://www.w3.org/TR/xmlschema-0/>
- *XML Schema Part 1: Structures*, W3C Recommendation, 2 May 2001, <http://www.w3.org/TR/xmlschema-1/>
- *XML Schema Part 2: Datatypes*, W3C Recommendation 2 May 2001, <http://www.w3.org/TR/xmlschema-2/>

xPath, *XML Path Language*, W3C Recommendation, 16 November 1999, <http://www.w3.org/TR/1999/REC-xpath-19991116>

Namespaces in XML, W3C Recommendation, 14 January 1999, <http://www.w3.org/TR/1999/REC-xml-names-19990114>

Canonical XML, W3C Recommendation, 15 March 2001, <http://www.w3.org/TR/xml-c14n>

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

binarization

process which consists of encoding a description in XML format into an equivalent and more compact binary form

3.2

current description

description that is conveyed by the initial description and all access units up to a given composition time

3.3

binary current description tree

XML tree that represents the current description

3.4

binary description stream

XML stream consisting of binary access units

3.5

delivery layer

abstraction of any underlying transport or storage functionality

3.6

ISO/IEC 21000 description (abbreviated description or MPEG-21 description)

ISO/IEC 21000 XML-based document following syntax and semantics as specified within other ISO/IEC 21000 parts, e.g. ISO/IEC 21000-2, ISO/IEC 21000-5, or ISO/IEC 21000-7

4 Symbols and abbreviated terms

AU	Access Unit
BiM	Binary format for document streams
DL	Delivery Layer
FU	Fragment Update
FUU	Fragment Update Unit
SU	Schema Update
SUU	Schema Update Unit
XML	Extensible Markup Language
XPath	XML Path Language

5 ISO/IEC 21000 Binary Format Overview

5.1 BiM Overview (informative)

This clause describes the methods to binarize MPEG-21 descriptions. This specification consists in additions and constraints applied on ISO/IEC 23001-1 specification clauses 5, 6, 7, 8 and 9 (so-called BiM).