
**Information technology — Multimedia
service platform technologies —**

**Part 3:
Conformance and reference software**

*Technologies de l'information — Technologies de la plate-forme de
services multimédia —*

Partie 3: Conformité et logiciel de référence

This document is a preview generated by EBS



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms, definitions and abbreviated terms	1
3.1 Terms and definitions	1
3.2 Abbreviated terms	3
4 Namespaces and conventions	4
5 Reference software overview	8
5.1 General	8
5.2 The MXM software repository	8
6 MXM Java software implementation	10
6.1 General	10
6.2 mxm-core (normative)	10
6.3 mxm-engines (informative)	11
6.4 mxm-es (informative)	12
6.5 mxm-applications (informative)	12
6.6 mxm-dataobject (informative)	12
6.7 Java MXM Technology Engines	13
6.7.1 Digital item engine	13
6.7.2 MPEG21 File Format Engine	13
6.7.3 REL Engine	13
6.7.4 IPMP Engine	14
6.7.5 Media Framework Engine	14
6.7.6 Metadata Engine	15
6.7.7 Event Report Engine	15
6.7.8 Security Engine	15
6.7.9 Search Engine	16
6.7.10 Contract Engine	16
6.7.11 Overlay Engine	16
6.7.12 Sensory Effect Engine	16
6.8 Java MXM Protocol Engines	16
6.8.1 Java MXM Elementary Services	17
6.8.2 Technical guidelines	17
6.8.3 Create Content Usage scenario	18
7 Profiles	18
7.1 Overview	18
7.2 "strict" profile	19
7.3 "lax" profile	19
7.4 ProfileCS	19
Annex A (informative) Check out of MXM source code from the MXM svn repository	21
Annex B (informative) Building of MXM JAVA reference software	22
Annex C (informative) Development with the MXM Java implementation	30
Bibliography	34

Foreword

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/IEC JTC 1, *Information technology, SC 29, Coding of audio, picture, multimedia and hypermedia information*.

This third edition cancels and replaces the second edition (ISO/IEC 23006-3:2013), which has been technically revised.

A list of all parts in the ISO/IEC 23006 series can be found on the ISO website.

Introduction

The ISO/IEC 23006 series is a suite of standards that has been developed for the purpose of enabling the easy design and implementation of media-handling value chains whose devices interoperate because they are all based on the same set of technologies, especially MPEG technologies, accessible from the middleware APIs, elementary services and aggregated services.

The ISO/IEC 23006 series is referred to as MPEG Extensible Middleware (MXM) in its first edition, and it specifies an architecture (ISO/IEC 23006-1), an API (ISO/IEC 23006-2), a conformance and reference software (ISO/IEC 23006-3) and a set of protocols which MXM Devices had to adhere (ISO/IEC 23006-4). It specifies also how to combine elementary services into aggregated services (ISO/IEC 23006-5).

The ISO/IEC 23006 series is subdivided in five parts:

Part 1 — Architecture: specifies the architecture that can be used as a guide to an MPEG-M implementation;

Part 2 — MPEG Extensible Middleware (MXM) Application Programming Interface (APIs): specifies the middleware APIs;

Part 3 — Conformance and Reference Software (the present document): specifies conformance criteria and a reference software implementation with a normative value;

Part 4 — Elementary Services: specifies elementary service protocols between MPEG-M applications;

Part 5 — Service Aggregation: specifies mechanisms enabling the combination of Elementary Services and other services to build Aggregated Services.

Information technology — Multimedia service platform technologies —

Part 3: Conformance and reference software

1 Scope

This document describes the reference software implementing the normative clauses of ISO/IEC 23006-1, ISO/IEC 23006-2 and ISO/IEC 23006-4 and specifies conformance criteria. The information provided are applicable for determining the reference software modules available for ISO/IEC 23006-1, understanding the functionality of the available reference software modules and utilizing the available reference software modules.

The conformance profiles are applicable to MPEG-M Services as defined in ISO/IEC 23006-4 and in ISO/IEC 23006-5.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 23006-2:2016, *Information technology — MPEG-M (Multimedia Service Platform Technologies) — Part 2: MPEG extensible middleware (MXM) API*

ISO/IEC 23006-4:2013, *Information technology — MPEG-M (Multimedia Service Platform Technologies) — Part 4: Elementary services*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1.1

Aggregated Service

service resulting from the combination of *Elementary Services* ([3.1.2](#))

3.1.2

Elementary Service

basic unit of *service* ([3.1.13](#))

3.1.3

content

Digital Item and its component elements, namely resources (e.g. media, scripts, executable), identifiers, descriptions (e.g. metadata), event reports