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

**Part 4:
Intellectual Property Management and
Protection Components**

Technologies de l'information — Cadre multimédia (MPEG-21) —

*Partie 4: Composants de gestion et de protection de propriété
intellectuelle*

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO/IEC 2006

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	vi
Introduction	viii
1 Scope	1
2 Normative references	1
3 Terms and definitions, symbols, abbreviated terms.....	2
3.1 Terms and definitions.....	2
3.2 Symbols and abbreviated terms	3
4 IPMP Components Overview	4
4.1 Organization of the specification	4
4.2 Overview of IPMP Components.....	4
4.3 Relationship between IPMP Components and other parts of ISO/IEC 21000.....	5
4.3.1 Introduction	5
4.3.2 Relationship between IPMP Components and ISO/IEC 21000-2 Digital Item Declaration.....	5
4.3.3 Relationship between IPMP Components and ISO/IEC 21000-3 Digital Item Identification.....	5
4.3.4 Relationship between IPMP Components and ISO/IEC 21000-5 Rights Expression Language	5
4.3.5 Relationship between IPMP Components and ISO/IEC 21000-7 Digital Item Adaptation	6
4.4 Namespaces and conventions	6
4.4.1 Namespaces	6
4.4.2 Namespace conventions.....	6
5 IPMP Digital Item Declaration Language Overview.....	6
5.1 Introduction	6
5.2 Schema wrapper	7
6 IPMP Digital Item Declaration Representation.....	7
6.1 Introduction	7
6.2 IPMP DIDL elements for the DID model.....	8
6.2.1 ipmpdidl:Container.....	9
6.2.2 ipmpdidl:Item	10
6.2.3 ipmpdidl:Descriptor.....	10
6.2.4 ipmpdidl:Statement	11
6.2.5 ipmpdidl:Component.....	12
6.2.6 ipmpdidl:Anchor	12
6.2.7 ipmpdidl:Fragment	13
6.2.8 ipmpdidl:Condition	14
6.2.9 ipmpdidl:Choice.....	14
6.2.10 ipmpdidl:Selection.....	15
6.2.11 ipmpdidl:Resource	16
6.2.12 ipmpdidl:Annotation.....	16
6.2.13 ipmpdidl:Assertion	17
6.3 IPMP DIDL Elements particular to the IPMP DIDL Representation.....	18
6.3.1 ipmpdidl:ProtectedAsset	18
6.3.2 ipmpdidl:Identifier.....	19
6.3.3 ipmpdidl:Info	20
6.3.4 ipmpdidl:ContentInfo.....	20
6.3.5 ipmpdidl:Contents	20
7 IPMP Information Descriptor	21
7.1 Introduction	21
7.2 Schema wrapper	22

7.3	IPMPInfoDescriptor	22
7.3.1	Introduction	22
7.3.2	Syntax.....	22
7.3.3	Semantics	23
7.3.4	Example.....	23
7.4	Tool.....	23
7.4.1	Introduction	23
7.4.2	Syntax.....	23
7.4.3	Semantics	24
7.4.4	ToolBaseDescription	24
7.4.5	ToolRef.....	32
7.4.6	InitializationSettings	33
7.4.7	RightsDescriptor	34
7.4.8	Signature.....	36
7.4.9	Example.....	37
7.5	RightsDescriptor	37
7.5.1	Syntax.....	37
7.5.2	Semantics	37
7.6	Signature.....	37
7.6.1	Syntax.....	37
7.6.2	Semantics	37
8	IPMP General Information Descriptor	37
8.1	Introduction	37
8.2	Schema wrapper	38
8.3	IPMPGeneralInfoDescriptor	38
8.3.1	Syntax.....	39
8.3.2	Semantics	39
8.3.3	Example.....	39
8.4	ToolList	39
8.4.1	Introduction	39
8.4.2	Syntax.....	40
8.4.3	Semantics	40
8.4.4	ToolDescription	40
8.4.5	Signature.....	45
8.4.6	Example.....	45
8.5	LicenseCollection	46
8.5.1	Syntax.....	46
8.5.2	Semantics	46
8.5.3	RightsDescriptor	46
8.5.4	Example.....	46
8.6	Signature.....	47
8.6.1	Syntax.....	47
8.6.2	Semantics	47
Annex A	(informative) IPMP DIDL Schema	48
Annex B	(informative) IPMP Information Schema.....	51
Annex C	(informative) IPMP General Information Schema	54
Annex D	(informative) Processing IPMP DIDL Elements.....	55
Annex E	(informative) Examples of IPMP DIDL Elements with IPMP Information.....	58
E.1	Example 1: Protecting an Item.....	58
E.2	Example 2: Protecting several Items in the same DIDL	59
Annex F	(normative) List of Registration Authorities.....	61
F.1	Registered Data	61
F.2	Procedure for the request of Registered Data	61
F.3	Responsibilities of the Registration Authority.....	61
F.4	Contact information for the Registration Authority.....	62
F.5	Responsibilities of Parties Requesting Registered Data	62

F.6	Appeal Procedure for Denied Applications	62
F.7	Registration Application Form	62
F.7.1	Contact Information of organization requesting a RID	62
F.7.2	Request for specific registered data.....	63
F.7.3	Short description of the Registered Data that is in use and date system was implemented	63
F.7.4	Statement of an intention to apply the assigned Registered Data	63
F.7.5	Date of intended implementation of the Registered Data.....	63
F.7.6	Authorized representative	63
F.7.7	For official use of the Registration Authority	64
Annex G	(informative) Example for protect resource fragment	65
Annex H	(informative) IPMP Tool Updating Mechanism	67
Bibliography	70

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national 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 and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 21000-4 was prepared by Joint Technical Committee ISO/IEC 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* [Technical Report]
- *Part 12: Test Bed for MPEG-21 Resource Delivery* [Technical Report]
- *Part 15: Event Reporting*
- *Part 16: Binary Format*
- *Part 17: Fragment Identification of MPEG Resources*

The following parts are under preparation:

- *Part 14: Conformance Testing*
- *Part 18: Digital Item Streaming*

Introduction

The appetite of end users for content and the accessibility of information is growing at an incredible pace. Access devices with a wide range of terminal and network capabilities are becoming an integral part of end users' lives; furthermore, these devices are used in different locations and environments. As yet, users are not sufficiently empowered with the necessary tools to deal efficiently with the intricacies of this new multimedia usage environment.

The enabling of "ease of use" is becoming increasingly important as individuals produce more and more digital media for personal use and for sharing among family and friends (as is evidenced by the large number of amateur music, photo and media sharing web sites). These amateur "content providers" have many of the same concerns as commercial content providers, including management of content, re-purposing of content based on consumer/device capabilities, protection of rights, protection from unauthorized access/modification, privacy protection for providers and consumers, etc.

Such developments provide new models for distributing and trading digital content electronically in addition to existing business models for trading physical goods. Such new business models mean that the boundaries between the delivery of audio sound (music and spoken word), accompanying artwork (graphics), text (lyrics), video (visual) and synthetic spaces will become increasingly blurred. Indeed, it is becoming more and more difficult to identify the different intellectual property rights that are associated with multimedia content. New solutions are required to manage the access and delivery process of these different content types in an integrated and harmonized way, entirely transparent to the user of multimedia services.

With this motivation, the ISO/IEC 21000 MPEG-21 Multimedia Framework aims to enable the transparent and augmented use of multimedia resources across a wide range of networks and devices. This fourth part of ISO/IEC 21000 aims to address the need for effective management and protection of intellectual property in the Multimedia Framework over heterogeneous access and delivery infrastructures. It specifies components for Intellectual Property Management and Protection (IPMP) applied to Digital Items (see ISO/IEC 21000-2) to facilitate the exchange of governed content between peers.

Information technology — Multimedia framework (MPEG-21) —

Part 4: Intellectual Property Management and Protection Components

1 Scope

This part of ISO/IEC 21000 specifies how to include IPMP information and protected parts of Digital Items in a DIDL document. It purposely does not specify protection measures, keys, key management, trust management, encryption algorithms, certification infrastructures or other components that would also be needed as part of a complete IPMP solution.

The IPMP DIDL encapsulates and protects a part of the hierarchy of a Digital Item, and associates appropriate identification and protection information with it. The description of IPMP governance and tools is required to satisfy IPMP for a Digital Item or its parts to be accessed.

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

W3C REC-xml-20040204, *Extensible Markup Language (XML) 1.0 (Third Edition)*, W3C Recommendation 4 February 2004, available at <<http://www.w3.org/TR/2004/REC-xml-20040204>>.

W3C REC-xmlschema-1-20041028, *XML Schema Part 1: Structures Second Edition*, W3C Recommendation 28 October 2004

W3C REC-xmlschema-2-20041028, *XML Schema Part 2: Datatypes Second Edition*, W3C Recommendation 28 October 2004

Canonical XML Version 1.0, W3C Recommendation, 15 March 2001

IETF RFC 3986, Uniform Resource Identifiers (URI): Generic Syntax, January 2005

IETF RFC 2616, *Hypertext Transfer Protocol — HTTP/1.1*, IETF Request for Comments: 2616, June 1999

XMLDSIG, XML-Signature Syntax and Processing, W3C Recommendation, 12 February 2002, available at <<http://www.w3.org/TR/2002/REC-xmlsig-core-20020212>>.