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ORGANISATION INTERNATIONALE DE NORMALISATION
ISO/IEC JTC1/SC29/WG11
CODING OF MOVING PICTURES AND AUDIO**

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Title: Call for Proposals for a Rights Data Dictionary and a Rights Expression Language
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**Call for Proposals for a Rights Data Dictionary
and a Rights Expression Language**

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Introduction

MPEG, a working group in ISO/IEC, has produced three important standards (MPEG-1, MPEG-2 and MPEG-4) and is working on MPEG-7 and MPEG-21. Extension work is ongoing on the ‘Intellectual Property Management and Protection’ (IPMP) specification, with the goal to enhance interoperability in the consumption of protected content. The Content Description Standard MPEG-7 is in Final Draft International Standard status, to be completed by Fall 2001. The ‘Multimedia Framework’ MPEG-21 standard is in early development stages, with the Requirements phase well advanced and the first Call for Proposals issued in October 2000.

MPEG has identified the need for a Rights Expression Language and a Rights Data Dictionary in the context of three of its standards:

- MPEG-4, in the efforts to create more interoperable IPMP,

- MPEG-7, to describe, as a part of content descriptions, the conditions to access content, and
- MPEG-21, to achieve the goal of expressing rights for all Users of MPEG-21's so-called 'Digital Items'. (A User is any entity that interacts in the MPEG-21 environment or makes use of a Digital Item. Such Users include individuals, consumers, communities, organisations, corporations, consortia, governments and other standards bodies and initiatives around the world).

MPEG has defined the requirements for a Rights Data Dictionary and a Rights Expression Language based on input from a wide variety of interested parties. **This Call for Proposals invites submissions that fulfil some or all of these requirements.**

Call for Proposals

All parties that believe they possess relevant technologies for a Rights Data Dictionary or a Rights Expression Language are invited to submit proposals for consideration by MPEG. These parties do not necessarily have to be MPEG members. A full list explaining what proponents will be expected to submit can be found below.

Proposals are to be received by both Jean Stride and Jan Bormans, either by postal mail or (preferred) electronically. Submissions shall be received by Wednesday 21 November, 23:59 hours GMT. Proposals are to be formatted as Word97, HTML or PDF documents. If submitted by mail, they must be provided on a 1.44 MByte floppy disk or an ISO9660 CD-R.

Jean Stride, BSi

*Address: 389 Chiswick High Road
London W4 4AL
UK*

Email: jean.stride@bsi-global.com

Tel: +44 20 8996 9000

Fax: +44 20 8996 7400

Jan Bormans, IMEC

*Address: Kapeldreef 75
B-3001 Leuven
Belgium*

Email: jan.bormans@imec.be

Tel: +32 1628 1572

Fax: +32 1628 1515

Pre-registration is encouraged, as it will help in planning the evaluation meeting. Please use Annex D to pre-register, fill it out, and send it by fax or email to Jean Stride and Jan Bormans, by 16 October 2001.

A list of pre-registrations will be made available to accredited MPEG members at the October MPEG meeting.

It is advisable that proponents attend the MPEG meeting, in Pattaya, Thailand, where they will be asked to present their proposals. They are also invited to participate in the ensuing discussions at that meeting. Notably, the proposals will be discussed on the 30th of November and the 1st and 2nd of December during a so-called 'MPEG Ad Hoc Group meeting', and during the regular MPEG meeting, 3rd through the 7th of December (Monday through Friday). Please contact Rob Koenen for details on attending the meeting (see address below).

After hearing the presentations, MPEG will evaluate the proposals against the requirements as set forth in Attachment A to this Call. The evaluation leads to selecting relevant elements in the proposals and developing a specification based upon the responses to this Call. However, MPEG reserves the right to adopt none, one, or a combination of several proposals. All decisions will be made by consensus within the MPEG committee.

Proponents who are accredited MPEG delegates are responsible for the registration of their own proposals and their submission to the MPEG document repository in the usual manner. They shall upload their proposal before the submission deadline (Wednesday 21st November 2001 at 23:59 GMT) **and** send a notification email to both Jean Stride and Jan Bormans. Proposals submitted by proponents who are not accredited MPEG delegates, will be made available to MPEG by the recipients to the call.

Proposals will be made available to accredited MPEG delegates through its password protected document repository. Proposals will also be disclosed to other Proponents at the meeting. MPEG will not disclose proposals to non-MPEG delegates but will not prevent such disclosure by the proponents themselves. The disclosure of proposals to all proponents, after the submission deadline but before the meeting, is highly encouraged. This will allow an informed discussion at the meeting. The email addresses of proponents who are not accredited MPEG delegates will be provided to all proponents to facilitate the exchange of proposals.

Further information (including documents mentioned above and this Call) can be obtained from the MPEG home page at <http://www.cselt.it/mpeg>. The following can also provide information:

Rob Koenen (Chairman MPEG Requirements Group)
InterTrust Technologies Corporation, USA
Tel: +1 408 855 6891
Email: rkoenen@intertrust.com

Keith Hill, (Leader MPEG-21 Requirements Activity)
Rightscom Ltd, UK
Tel: +44 20 7620 4439
Email: keith.hill@rightscom.com

Note: Please do not send confidential information or proposals to Rob Koenen or Keith Hill.

Requirements for Responding to the CfP

A submission shall provide **any or all** of the following:

1. A Rights Data Dictionary and supporting terminology
2. A Rights Expression Language
3. A model that:
 - was used in developing the submission, and/or
 - is useful in developing the Standard

Note: MPEG believes that a model for a Rights Data Dictionary and a Rights Expression Language is a useful means of communicating the values and relationships between the Elements required to support these tools. Proponents are therefore asked to propose a model in support of their submissions. This could either reference an existing model or be an entirely new model, as appropriate (see Annex A: Background Information)

4. Other relevant standards and specifications, either ready or work in progress
5. Comments on the appropriateness of the requirements and/or additional requirements for the Standard under development
6. A recommendation for the governance of a Rights Data Dictionary and a Rights Expression Language

Also, any submission shall include **all** of the following:

1. A completed Registration Form as found in Annex E
2. An assessment (e.g., a table) of which requirements are met and how (see attached Requirements Document, N4336).
Note: Proponents are not expected to provide a solution with the objective of meeting as many of the requirements as possible. However, as an aid to the evaluation process, it is very important that proponents identify those requirements that their submission aims to address;
3. A description of how a Rights Data Dictionary and Rights Expression Language will interact with the other elements of the Multimedia Framework as presently described in the Proposed Draft Technical Report (see **References and Supporting Information** below);
4. Evidence of an implementation (e.g. an accompanying demonstrator) including a detailed documented description of the system, and any other relevant information;

Also, any submission **may** include:

1. Any other additional information relevant to help the evaluation of the submission.

Source code and IPR

Proponents are advised that, upon acceptance by MPEG for further evaluation, MPEG may require that software support for certain parts of any proposed technology be made available in source code. This code is then to be included in the MPEG-21 standard, in the form of Reference Software. Commitment to provide such software is required by the December MPEG meeting. Actual availability in that case is required in March 2002. If Proponents feel that any aspects of their technology should not be made available in source code, then they should clearly state which aspects and why.

Furthermore proponents are advised that this Call is being made under the auspices of ISO/IEC, and as such, subject to the ISO/IEC Intellectual Property Rights Policy as approved by the ISO and IEC councils in 1994 (see attachment iso_iec_ipr_policy.doc).

Timetable and Logistics

16 th October, 2001	Pre-registration deadline. Pre-registration is encouraged. Send pre-registration by email or fax to Jean Stride and Jan Bormans.
Wednesday 21 st November, 23:59 hours GMT	Proposals to be received by both Jean Stride and Jan Bormans either by postal mail or (preferred) electronically. See above for addresses In addition, proponents who are accredited MPEG delegates are responsible for the registration of their own proposals and their submission to the MPEG document repository in the usual manner. Proposals submitted by proponents who are not accredited MPEG

	delegates, and therefore cannot do this, will be registered by the above individuals. Proposals are to be formatted as Word97, HTML or PDF documents. If submitted by mail, they must be provided on a 1.4MB floppy disk or an ISO9660 CD-R
30 th November, 1 st & 2 nd December 2001	MPEG Ad-Hoc Meeting for evaluation of proposals Proponents are invited to attend to present their proposals and participate in discussions
3 rd to 7 th December 2001	MPEG Meeting (Pattaya) Proponents are invited to attend, further present their proposal(s), and participate in relevant discussions
December 2001	Commitment to provide Reference Software
March 2002	Delivery of Reference Software

The development plan is currently as follows:

December 2001	Adoption of <i>Working Draft</i>
March 2002	Adoption of <i>Working Draft v2.0</i>
July 2002	Adoption of <i>Committee Draft</i>
October 2002	Adoption of <i>Final Committee Draft</i>
March 2003	Adoption of <i>Final Draft International Standard</i>

References and Supporting Information

Annexes to this document:

- A: Background information
- B: Definition of Key Terms
- C: Introduction to the MPEG-21 Multimedia Framework
- D: Pre-registration form
- E: Registration form

Attached in the archive file containing the CfP are the following documents:

- Requirements for a Rights Data Dictionary and a Rights Expression Language (ISO/IEC JTC1 SC29 WG11 N4336)
- Overview of the MPEG-21 Standard (ISO/IEC JTC1 SC29 WG11 N4318)
- ISO/IEC Intellectual Property Policy (iso_iec_ipr_policy.doc)

The following referenced documents can be found on MPEG's website:

www.cselt.it/mpeg

- MPEG-21 Proposed Draft Technical Report (ISO/IEC JTC1 SC29 WG11 N3939)
- MPEG-21 Digital Item Declaration Committee Draft (ISO/IEC JTC1 SC29 WG11 N4248)
- MPEG-21 Digital Item Identification and Description Working Draft (ISO/IEC JTC1 SC29 WG11 N4249)

Annex A: Background Information

MPEG-21 seeks to describe the multimedia framework and set out a vision for an environment that supports the delivery and use of all content types by different categories of users in multiple application domains.

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.

In March 2001, MPEG published a Proposed Draft Technical Report (ISO/IEC PDTR 21000-1) to document the multimedia framework, its architectural elements and a definition of the requirements for their interaction. This Call for Proposals invites responses relating to one of these elements, called Intellectual Property Management and Protection (IPMP).

In January of this year, MPEG started to gather requirements for a Rights Data Dictionary and a Rights Expression Language. A Call for Requirements, issued at the Pisa MPEG meeting in January 2001, resulted in fourteen responses, which were assessed during the MPEG meeting held in Singapore during March. At the request of a number of parties MPEG re-issued the Call for Requirements in March, which brought in another ten responses in June. All these responses have been condensed into version 1.0 of the Requirements for a Rights Data Dictionary and a Rights Expression Language, which was approved in July.

In order to fully understand the context in which this CfP is being issued, Proponents are advised to take into account the other parts of the MPEG-21 standard that are currently under development:

- Part 1: Proposed Draft Technical Report - Vision, Technologies and Strategy
- Part 2: Digital Item Declaration (at Committee Draft stage)
- Part 3: Digital Item Identification and Description (at Working Draft stage)

All proponents are particularly encouraged to read the PDTR to understand the context of MPEG-21 and where the requirements for a Rights Data Dictionary and Rights Expression Language fit within the multimedia framework. Proponents should also understand the concept of a Digital Item, which is explained in the PDTR. Within MPEG-21 a Digital Item is defined as *a structured digital object with a standard representation, identification and description within the MPEG-21 framework. This entity is also the fundamental unit of distribution and transaction within this framework.* (Other key terms can be found in Annex B).

MPEG has a long history in working with members of the creative industries and rights holders' communities on the identification, management and protection of intellectual property carried on systems designed to MPEG specifications. This started with work on the MPEG-2 standard, which was finalised in 1994 and has continued throughout the development of MPEG-4. Participation is ongoing in MPEG-7, and these communities have been involved in MPEG-21 from its inception. MPEG is therefore well placed to lead this important initiative to standardise a Rights Data Dictionary and a Rights Expression Language.

Scope of the CfP

A number of recent projects and proposals for projects have recognised the need for standard ways of expressing information about intellectual property rights in the machine-to-machine network environment. These proposals have typically focused on a relatively small segment of the overall problem, such as usage permissions expressed by content producers and publishers down the delivery and value chain to consumers. As the requirements for a Rights Data Dictionary and Rights Expression Language illustrates, there is a need for standard mechanisms for the expressing the rules associated with content across a wide range of different transaction types and application domains.

To achieve the goal of being able to manage rights it is necessary to develop a consistent, ordered and machine-readable language for describing the rights in intellectual property from the beginning. In this fashion, permissions for actions such as print, copy, play, etc., can be meaningfully implemented across the networked environment. For unless the rights granted by any User in the value and delivery chain can be expressed in a machine-readable language, the permissions granted to Users through Intellectual Property Management and Protection (IPMP) processes will be limited by what can be conveyed on the basis of contractual databases that rely on a conversion of original paper-based expressions into local and probably proprietary machine readable languages.

Furthermore, unless a standard language is developed, IPMP systems will be forced to interpret contractual expressions from different origins describing the same types of rights in different terms. With the vast number of corporate rights holders in publishing, recording, broadcasting and the still image industries, each with a different contract system, the lack of a standard language would cause contractual chaos.

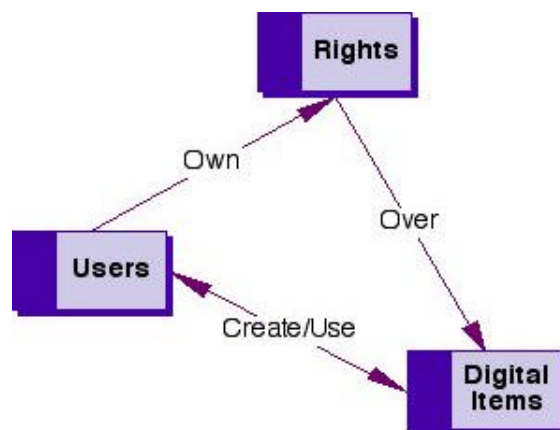
The fundamental issue is that rights do not operate in a discrete space. Not only is “rights management” a continuum from creator to user, media convergence mandates that rights management solutions must look beyond individual media sectors to cover the IP industries as a whole. The object-based MPEG-4 standard allows for the packaging of ‘digital objects’ of various types from many different sources, which suggests that an integrated approach is required. And as usage permissions innately rely on the original rights granted, unless there is a machine-readable continuum, it will be difficult to arrive at automated rights transactions.

In addition to the issues with rights articulated above, the public is growing increasingly concerned with issues of privacy and the use and abuse of personal information. Clearly, the collective requirements must adequately address the rights of the full spectrum of all parties involved in the exchange or transfer of content, including end users, creators, publishers, producers, aggregators and distributors.

Using Modelling in support of a Rights Data Dictionary and Rights Expression Language

It is an important requirement that MPEG adopt a clear and extensible model to support the creation of a Rights Data Dictionary and a Rights Expression Language. Many of the submissions received during the requirements definition activity reference existing work.

Research to date indicates that the model should support at least the clear separation and identification of the three principle entities expressed using MPEG-21 terminology: Users, Digital Items, and Rights assertions as shown in the diagram below.

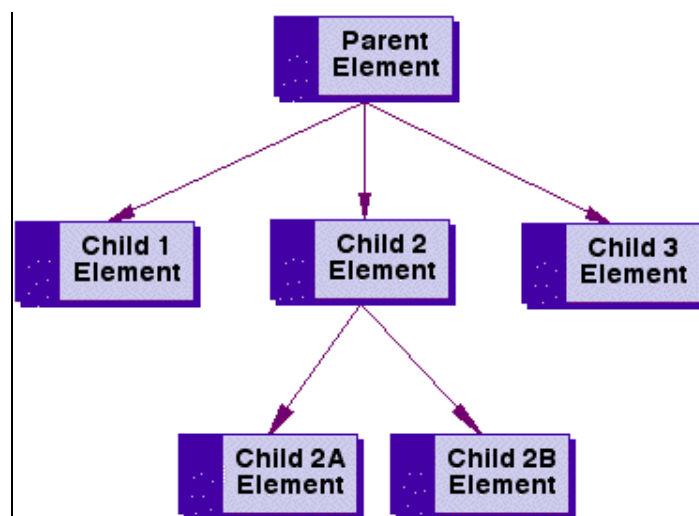


This model illustrates the basic relationship among the three principle entities within the model.

The Rights Data Dictionary will define all the semantics of the terms to be used in the Rights Expression Language. The structure of these definitions should follow standard data element specification methods.

Within a Rights Data Dictionary model there are various Elements that need to be supported. These Elements can then be related to other classes of Elements. For example, a 'parent' Element can be related to 'child' Elements.

A possible way to express the RDD-REL Element model (which follows the same modelling convention that is adopted in the Digital Item Declaration¹ and Digital Item Identification and Description² specifications) is as follows:



MPEG has deliberately avoided recommending its own model for a Rights Data Dictionary and a Rights Expression Language as that could constrain the submissions by either proposing a model which is too generic to have been effective or by proposing a model which is too

¹ ISO/IEC JTC-1/ SC29/WG11 M7174 MPEG-21 Digital Item Declaration WD (v2.1)

² ISO/IEC JTC-1/ SC29/WG11 M7169 MPEG-21 Digital Item Identification and Description WD (v1.5)

specific and may not accommodate all possible solutions. Proponents are therefore invited to recommend their own model in support of their submissions. They may choose to reference an existing model or to present their own.

Annex B: Definition of Key Terms

Term	Definition or synonymous term(s)
Digital Item	A Digital Item is a structured digital object with a standard representation, identification and description within the MPEG -21 framework. This entity is also the fundamental unit of distribution and transaction within this framework
Digital Item Declaration	A uniform and flexible abstraction and interoperable schema for defining Digital Items
Digital Item Identifier	A token that uniquely designates and enables the recognition of a digital item, its organisation and attributes
Digital Item Description	The information used to describe a Digital Item
Identifier carrier	A mechanism to transport an identifier persistently bound with the digital item
Action	Any kind of interaction with a Digital Item
Transaction	Exchange between two or more parties involving a Digital Item
User	User of a system. This includes all members of the value chain (e.g., creator, rights holders, distributors and consumers of Digital Items)

Annex C: Introduction to MPEG-21 Multimedia Framework

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 the specification of these elements, either in existence or under development, relate to each other. The aim of starting MPEG-21 has been: 1) to understand if and how these various components fit together and 2) to discuss which new standards may be required, if gaps in the infrastructure exist and, once the above two points have been reached, 3) to actually accomplish the integration of different standards.

The digital market place, which is founded upon ubiquitous international communication networks such as the Internet, rewrites existing business models for trading physical goods with new models for distributing and trading digital content electronically. In this new market place, it is becoming increasingly difficult to separate the different intellectual property rights which are associated with multimedia content. The quest to bring to the consumer the ultimate experience in multimedia entertainment means 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. New, complex solutions are required to manage the delivery process of these different content types in an integrated and harmonised way, entirely transparent to the consumer of multimedia services. And this is only one of the issues that needs to be addressed; there are others, like finding content and ensuring quality of service.

A multimedia framework is required to support this new type of commerce. Such a framework requires that a shared vision, or roadmap, is understood by its architects, to ensure that the systems that deliver e-content are *interoperable* and that transactions are simplified and, if possible, *automated*. This should apply to the infrastructure requirements for content delivery, content security, rights management, secure payment, and the technologies enabling them – and the list is probably not exhaustive. The scope of MPEG-21 could therefore be described as the integration of two critical technologies: how consumers can search for and obtain content – either personally, or through the use of intelligent agents – and how content can be presented for consumption according to usage rights associated with the content.

As an initial method of working, MPEG has decided to start the analysis of such a multimedia framework through the eyes of the consumer. This approach demands a high level description of consumer needs and expectations which, by doing a 'top-down' analysis, will produce a set of requirements for interoperable multimedia content (delivery) services.

From its background in key technology and information management standards related to the management and delivery of multimedia content, MPEG is uniquely positioned to initiate such an activity. However, it is recognised that the integration of such disparate technologies can only be achieved by working in collaboration with other bodies.

Annex D: Pre-Registration Form

Company:	
Contact name:	
Address:	
Phone number:	
Fax:	
Email:	
Title of submission:	

Annex E: Registration form

Company:	
Contact name:	
Address:	
Phone number:	
Fax:	
Email:	
Title of submission:	
Abstract:	
Time requested for presentation (subject to review by organisers):	
Demo intended:	yes / no
Equipment and other support required for demo:	

Name:

Date:

Signature: