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

**Part 5:  
Rights Expression Language**

*Technologies de l'information — Cadre multimédia (MPEG-21) —  
Partie 5: Langage d'expression des droits*

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## 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.

ISO/IEC 21000-5 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 5: Rights Expression Language*
- *Part 6: Rights Data Dictionary*
- *Part 7: Digital Item Adaptation*

## Introduction

The growth of the Internet has enabled worldwide distribution and consumption of valuable multimedia resources, reduced the cost of doing business, enabled new business models for industry participants, and provided consumers with unprecedented access to high-quality multimedia resources. Internal distribution, external distribution, and retail sales now are conducted on the Internet to establish cost effective, reliable, flexible, highly available, and secure means of managing the delivery of multimedia resources. Consumers routinely search for and download multimedia resources from sources world-wide and can conveniently redistribute those resources. This has fuelled the development of technologies to manage, secure, control, and automate the flow of multimedia resources over the Internet.

The free and convenient flow of multimedia resources through the Internet presents many challenges to content owners and distributors. Before making high-quality and valuable multimedia resources available online, content owners want to be assured that their rights to those resources are respected. In addition, the business models and contracts of content distributors often involve conditions regarding distribution, such as fees, territory restrictions, time limits, and so on.

To meet these requirements, the players involved in the online distribution and consumption of multimedia resources need to exchange information about the rights, terms, and conditions associated with each resource at each step in the multimedia resource lifecycle. For example, a publisher needs to communicate the available consumption rights and the terms and conditions under which those rights may be exercised. To use the multimedia resources, a consumer needs to know the types of usage allowed and the terms and conditions that must be met. In distribution and super distribution business models, this information needs to be communicated to each participant in the distribution chain.

Depending on the business model, expressing rights, terms, and conditions can be simple or complex. In a simple example, a consumer might pay a flat fee to obtain unlimited rights to play a video file. In a more complex example, a video publisher might grant a distributor the right to sell usage rights for classic movie titles to consumers. The distribution agreement might specify the rights that consumers may purchase, the maximum fee the distributor may charge, and a percentage of the fee that must be paid to the publisher.

In an end-to-end system, other considerations such as authenticity and integrity of Rights Expressions become important. For example, any party who issues rights to use or distribute multimedia resources must be identified and authorized. In addition, a Rights Expression may be accessed by different participants during its life cycle, which requires mechanisms and semantics for validating the authenticity and integrity of the Rights Expression.

To address many of these issues, a common Rights Expression Language that can be shared among all participants in this digital workflow is required. A common Rights Expression Language addresses important aspects of the interoperability issues inherent in digital multimedia resource distribution; the issues relating to exchanging Rights Expressions during their life cycle; and the system issues such as trust, authorization, and authentication.

This part of ISO/IEC 21000 addresses a part of the overall vision for ISO/IEC 21000, which 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 5: Rights Expression Language

### 1 Scope

This part of ISO/IEC 21000 specifies the syntax and semantics of a Rights Expression Language.

This part of ISO/IEC 21000 does not give any permission, including permissions about who is legally or technically allowed to create Rights Expressions. It does not specify the security measures of trusted systems, propose specific applications, or describe the details of the systems required for accounting (monetary transactions, state transactions, and so on). It also does not specify if or when Rights Expressions shall be consulted.

However, this part of ISO/IEC 21000 does define an authorization model to specify whether the semantics of a set of Rights Expressions permit a given Principal to perform a given Right upon a given optional Resource during a given time interval based on a given authorization context and a given trust root.

Clause 1 gives the scope of this part of ISO/IEC 21000. Clause 2 gives the normative references. Clause 3 gives pertinent terms, definitions, symbols, and abbreviated terms. Clause 4 gives the namespaces and conventions. Clause 5 specifies the authorization model. Clause 6 defines architectural concepts. Clause 7 specifies the syntax and semantics integral to the architecture. Clause 8 specifies syntax and semantics peripheral to the architecture but still useful in many domains beyond multimedia. Clause 9 specifies syntax and semantics specific to multimedia. Annex A uses W3C XML Schema to normatively specify the syntax of the types and elements defined throughout this part of ISO/IEC 21000. Annex B normatively defines Qualified Names for identifying countries, regions, and currencies. Annex C gives an informative simplified equality algorithm. Annex D gives some example Rights Expressions. Annex E describes the design philosophy for extensions and profiles of this part of ISO/IEC 21000. Annex F demonstrates how to introduce new rights as an extension to this part of ISO/IEC 21000. Annex G gives an example profile of this part of ISO/IEC 21000. Annex H describes the relationship between ISO/IEC 21000-6 and this part of ISO/IEC 21000. Annex I describes the relationship between ISO/IEC 21000-2 and this part of ISO/IEC 21000. Annex J describes an example revocation mechanism and gives a walk-through of revocation.

### 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 3166 (all parts), *Codes for the representation of names of countries and their subdivisions*

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

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

ISO/IEC 10021-2, *Information technology — Message Handling Systems (MHS): Overall architecture*

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

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