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

## Part 23: Smart Contracts for Media

*Technologies de l'information — Cadre multimédia (MPEG-21) — Partie 23: Contrats intelligents pour les médias*

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# Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

A list of all parts in the ISO/IEC 21000 series can be found on the ISO and IEC websites.

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# Introduction

The Moving Picture Experts Group (MPEG) standards include a set of RDF ontologies for the codification of intellectual property (IP) rights information related to media. The ISO/IEC 21000-19 Media Value Chain Ontology (MVCO) which facilitates rights tracking for fair, timely, and transparent payment of royalties by capturing user roles and their permissible actions on a particular IP entity. The ISO/IEC 21000-19/AMD1 Audio Value Chain Ontology (AVCO) which extends MVCO functionality related to the description of IP entities in the audio domain (e.g. multitrack audio and time segments). The ISO/IEC 21000-21 Media Contract Ontology (MCO) which facilitates the conversion of narrative contracts to digital ones related to exploitation of IP rights, payments and notifications. With respect to the latter, an equivalent standard has also been developed but using XML schemas, known as ISO/IEC 21000-20 Contract Expression Language (CEL).

Furthermore, the axioms in these XML schemas and RDF ontologies can drive the execution of rights-related workflows in controlled environments, for example, Distributed Ledger Technologies (DLTs), where transparency and interoperability are favored toward fair trade of music and media. Thus, the aim of this document is to provide the means (e.g. protocols and application programming interfaces) for converting these XML and RDF media contracts to smart contracts executable on existing DLT environments.

By doing this conversion in a standard way for several smart contract languages it is going to ensure that MPEG schemas and ontologies prevail as the interlingua for transferring verified contractual data from one DLT to another.

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

# Part 23: Smart Contracts for Media

## 1 Scope

This document specifies the means (e.g. protocols and application programming interfaces) for converting MPEG-21 XML and RDF media contracts (ISO/IEC 21000-19, ISO/IEC 21000-20, and ISO/IEC 21000-21) to smart contracts executable on existing DLT environments.

## 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 21000-19, *Information technology — Multimedia framework (MPEG-21) — Part 19: Media Value Chain Ontology*

ISO/IEC 21000-20, *Information technology — Multimedia framework (MPEG-21) — Part 20: Contract Expression Language*

ISO/IEC 21000-21, *Information technology — Multimedia framework (MPEG-21) — Part 21: Media contract ontology*