
**Information technology — MPEG systems
technologies —**

Part 3:
XML IPMP messages

*Technologies de l'information — Technologies des systèmes MPEG —
Partie 3: Messages XML IPMP*

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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.

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 23001-3 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 23001 consists of the following parts, under the general title *Information technology — MPEG systems technologies*:

- *Part 1: Binary MPEG format for XML*
- *Part 2: Fragment request units*
- *Part 3: XML IPMP messages*
- *Part 4: Codec configuration representation*
- *Part 5: Bitstream Syntax Description Language (BSDL)*

Introduction

This part of ISO/IEC 23001 specifies a set of XML messages exchanged between the components of a device or between devices while performing Intellectual Property Management and Protection (IPMP) operations.

The protection mechanisms are based on the IPMP Tool model as defined in ISO/IEC 13818-11, ISO/IEC 14496-13 (MPEG-2/4 IPMP Extensions), and ISO/IEC 21000-4 (MPEG-21 IPMP Components). In order to support the operation of IPMP Tools on a device in an interoperable fashion, this part of ISO/IEC 23001 complements ISO/IEC 21000-4 by defining an XML API for the communication between IPMP Tools and the device on which they operate, or between two IPMP Tools.

Information technology — MPEG systems technologies —

Part 3: XML IPMP messages

1 Scope

This part of ISO/IEC 23001 specifies XML IPMP messages (hereinafter IPMP Messages) which are a simple and natural extension of the IPMP Information Descriptors defined in ISO/IEC 21000-4. They allow dispatching of the IPMP information related to a protected content element retrieved from the associated digital item to the modules in charge of performing the IPMP operations required to access the protected content element. Furthermore, the XML IPMP Messages provide a standard API allowing the exchange of IPMP information (e.g. decryption keys, authentication information, licenses, etc.) between the modules – the IPMP Tools – in charge of providing access to the protected content elements (e.g. audio/visual resources).

The API specified by this part of ISO/IEC 23001 is based on a set of XML messages defining the format of the information exchanged between the various components on a device, or between two devices. Most of the IPMP Messages defined in this specification are a translation of the messages originally defined in ISO/IEC 13818-11 and ISO/IEC 14496-13 from the binary representation into an XML representation. A number of these XML messages have been adapted in order to harmonise ISO/IEC 13818-11 and ISO/IEC 14496-13 in the MPEG-21 Multimedia Framework and with ISO/IEC 21000-4 specifically. Additionally, a number of new XML messages have been defined to support extended IPMP requirements such as the separation between the IPMP algorithms and the logic enabling them to communicate with the other components in a device.

The XML IPMP Messages are employed in two different contexts:

- a. Intra-device communication: enabling interoperable communication among two IPMP Tools or the IPMP Processor and IPMP Tools (allowing for instance the two to authenticate or to exchange IPMP information), as well as performing management tasks of different components on a device.
- b. Inter-device communication: in a context where digital items are streamed from one device to another by means of the Digital Item Streaming technology (addressed by ISO/IEC 23000-5), a standard set of IPMP Messages extending the IPMP Information Descriptor enables interoperable communication and management of IPMP Tools running on a device from a remote device streaming the digital item.

The XML IPMP messages defined in this part of ISO/IEC 23001 are grouped in the following macro-categories:

- IPMP Message Containers: the containers for IPMP Messages
- Mutual Authentication Messages: messages enabling one module to request mutual authentication with another one and to carry out the necessary steps in order to achieve it
- IPMP Tool Connection and Disconnection messages: enabling one IPMP Tool to request the instantiation as well as the disposal of another IPMP Tool
- IPMP Tool Notification Messages: enabling one component to request notification in case certain events occur, and conveying information about the event occurred
- IPMP Processing Messages: a set of messages enabling the exchange of IPMP information ranging from licenses and decryption keys, watermarking data, etc.
- User Interaction Messages: allowing the exchange of information between an IPMP Tool and a user or vice versa

- Additional IPMP Messages: messages that on the one hand allow a greater decoupling between the IPMP algorithm implementations and the logic necessary to instantiate/initialize/manage them, and on the other do not require content providers and IPMP Tool providers to disclose the details of the IPMP modules
- Legacy Messages: messages originally defined in ISO/IEC 13818-11 and ISO/IEC 14496-13 and translated to XML for the sake of completeness.

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 13818-11, *Information technology — Generic coding of moving pictures and associated audio information — Part 11: IPMP on MPEG-2 systems*

ISO/IEC 14496-13:2004, *Information technology — Coding of audio-visual objects — Part 13: Intellectual Property Management and Protection (IPMP) extensions*

ISO/IEC 21000-4:2006, *Information technology — Multimedia framework (MPEG-21) — Part 4: Intellectual Property Management and Protection Components*