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Part 18: Digital Item Streaming

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Partie 18: Transmission d'élément numérique

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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 21000-18 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 14: Conformance Testing*

— *Part 15: Event Reporting*

— *Part 16: Binary Format*

— *Part 17: Fragment Identification of MPEG Resources*

— *Part 18: Digital Item Streaming*

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Introduction

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.

The result is an open framework for multimedia delivery and consumption, with both the content creator and content consumer as focal points. This open framework provides content creators and service providers with equal opportunities in the MPEG-21 enabled open market. This will also be to the benefit of the content consumer providing them access to a large variety of content in an interoperable manner.

The vision for MPEG-21 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.

Within MPEG-21, a Digital Item is defined as a structured digital object with a standard representation, identification and description. This entity is also the fundamental unit of distribution and transaction within this framework.

Digital Item Streaming enables the incremental delivery of a DI (DID, metadata, resources) in a piece-wise fashion and with temporal constraints in such a way that a receiving User may incrementally consume the DI. What is delivered is potentially a derived DI, i.e. one in which some parts may have been removed or transformed.

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Information technology — Multimedia framework (MPEG-21) —

Part 18:
Digital Item Streaming

1 Scope

This part of ISO/IEC 21000 specifies tools for Digital Item Streaming. The first tool is the Bitstream Binding Language, which describes how Digital Items (comprising the Digital Item Declaration, metadata and resources) can be mapped to delivery channels such as MPEG-2 Transport Streams or the Real-time Transport Protocol.

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 and amendments) applies.

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO/IEC 13818-1 | ITU-T Recommendation H.222.0, *Information technology — Generic coding of moving pictures and associated audio information: Systems*

ISO/IEC 13818-6, *Information technology — Generic coding of moving pictures and associated audio information — Part 6: Extensions for DSM-CC*

ISO/IEC 15938-5, *Information technology — Multimedia content description interface — Part 5: Multimedia description schemes*

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

IETF RFC 3350, *RTP: A Transport Protocol for Real-Time Applications*, IETF Request For Comments: 3550, July 2003

IETF RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax*, IETF Request For Comments: 3986, January 2005

SMPTE 12M-1999, *Television, Audio and Film — Time and Control Code*

W3C DOM, *Document Object Model (DOM) Level 3 Core Specification*, W3C Recommendation, 7 April 2004

W3C XINCLUDE, *XML Inclusions (XInclude) Version 1.0*, W3C Recommendation, 20 December 2004

W3C XML, *Extensible Markup Language (XML) 1.0 (Fourth Edition)*, W3C Recommendation, 16 August 2006

W3C XMLNAMES, *Namespaces in XML 1.0 (Second Edition)*, W3C Recommendation, 16 August 2006

W3C XPATH, *XML Path Language (XPath) Version 1.0*, W3C Recommendation, 16 November 1999

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