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Information technology — High efficiency coding and media delivery in heterogeneous environments —

Part 11: MPEG Media Transport Composition Information

Technologies de l'information — Codage à haute efficacité et livraison des medias dans des environnements hétérogènes —

Partie 11: Informations de composition pour le transport des medias MPEG

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

ISO/IEC 23008 consists of the following parts, under the general title *Information technology — High efficiency coding and media delivery in heterogeneous environments*:

— *Part 1: MPEG media transport (MMT)*

— *Part 2: High efficiency video coding (HEVC)*

— *Part 3: 3D Audio*

— *Part 5: HEVC Conformance testing and reference software*

— *Part 8: Confomance Specification for HEVC*

— *Part 10: MPEG Media Transport Forward Error Correction (FEC) codes*

— *Part 11: MPEG Media Transport Composition Information*

— *Part 12: Image file format*

— *Part 13: MMT Implementation guidelines*

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Introduction

This part of ISO/IEC 23008 specifies technologies for the delivery of coded media data for multimedia services over concatenation of heterogeneous packet-based network segments, including bidirectional IP networks and unidirectional digital broadcasting networks. In this part of ISO/IEC 23008, "coded media data" includes both timed audiovisual media data requiring synchronized decoding and presentation of each specific unit of data at a designated time and non-timed data that could be decoded and presented at an arbitrary time based on the context of the service or the user interaction.

MMT is designed under the assumption that the coded media data will be delivered through a packet-based delivery network. Several characteristics of such delivery environments have been taken into consideration, such as non-constant end-to-end delivery delay of each packet from the sending entity to the receiving entity and means to distinguish signaling messages from the media data provided by the underlying network.

For efficient and effective delivery of coded media data over heterogeneous packet-based delivery networks, this part of ISO/IEC 23008 provides the following elements:

— logical model to construct content composed of components from various sources (e.g. content for mash-up applications);

— structure of data conveying information about the coded media data for processing by the delivery layer (e.g. packetization and adaptation);

— packetization method and the structure of the packet to deliver media content over packet-based delivery networks supporting hybrid multichannel delivery that is agnostic to the specific type of media or coding method;

— format of signaling messages to manage the presentation and delivery of media content;

— format of information to be exchanged across layers of the delivery network to facilitate cross layer communication.

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Information technology — High efficiency coding and media delivery in heterogeneous environments —

Part 11: MPEG Media Transport Composition Information

1 Scope

This part of ISO/IEC 23008 specifies MPEG Composition Information (CI), a method describing composition information of media for delivery of multimedia services over packet-based heterogeneous networks.

The technologies for composition function specify the method associating content delivered in the format defined in this part of ISO/IEC 23008 to the presentation and the method representing synchronization between timed and non-timed content.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

W3C HTML5, A vocabulary and associated APIs for HTML and XHTML, W3C Candidate Recommendation 17 December 2012

3 Symbols and abbreviated terms

AU	access unit
CI	composition information
MMT	MPEG media transport
MPU	media processing unit
SVC	scalable video coding
URL	uniform resource locator
URN	uniform resource name
XML	extensible mark-up language

4 Overview

This part of ISO/IEC 23008 defines a Composition Information (CI) layer that controls the temporal and spatial layout of media. The composition layer is currently specified using HTML5 and XML technologies.

The composition layer defines the presentation aspects of a multimedia presentation such as an MMT Package. The composition layer in this part of ISO/IEC 23008 addresses delivery of synchronization information of content that is composed of various content components and where multiple device screens may be used to present the content. Some parts of the content component may be replaced by others based on the context of the user, such as location or personal preferences. Presentation time of

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