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TECHNICAL CORRIGENDUM 1

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

Part 1:
MPEG media transport (MMT)

TECHNICAL CORRIGENDUM 1

Élément introductif — Élément central —

Partie 1: Titre de partie

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to ISO/IEC 23008-1:2014 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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1 Scope

The corrigendum fixes an issue with forward compatibility with the signalling messages and corrects several typos and adds some clarifications to the protocol description.

1 Amended clauses

In subclause 6.2, replace
Non-timed media data are stored as metadata items inside a `'meta'` box. The `'meta'` box shall appear at the file level. Each file of the non-timed media data shall be stored as a separate item of the `'meta'` box. The entry point to the non-timed media shall be marked as the primary item of the `'meta'` box. (see sub-clause 8.11.4 of 14496-12)

With

Non-timed media data are stored as metadata items that are described by a `'meta'` box. The `'meta'` box shall appear at the file level. Each file of the non-timed media data shall be stored as a separate floating item of the MPU, i.e. it shall not be contained by any box and shall appear after any boxes of the MPU. The entry point to the non-timed media shall be marked as the primary item of the `'meta'` box. (see sub-clause 8.11.4 of 14496-12)
In subclause 7.1.3.1, replace
Each media sample will be assigned to one or more MFUs. Each sample of the MMT hint track will generate one or more MFUs.

With

Each media sample will be assigned to one or more MFUs. Each sample of the MMT hint track will generate one or more MFUs. The hint sample may omit certain bytes of an MFU if deemed redundant, such as the length field of a NAL unit in the case of AVC or HEVC video bitstreams.

In subclause 8.1, replace

> MMT provides a generic media streaming solution that supports the transport of virtually any media type and codec.

With

> MMT provides a generic media streaming solution that supports the transport of different media types and codecs.

In subclause 8.1, replace

> The MMTP payload format is defined as a generic payload format for the packetization of the media data components of a Package. It is agnostic to media codecs used for encoded media data, so that any type of media data that are encapsulated as an MPU can be packetized into MMTP payloads that are to be delivered using an application layer transport protocol supporting delivery of media data. Thus MMTP payload format can be used as a payload format for MMT protocol or for other packet transport protocols, e.g. the Real Time Protocol (RTP). The MMTP payload format is also used to packetize signalling messages. The MMTP payload format also supports fragmentation and aggregation of data to be delivered.

With

> The MMTP payload format is defined as a generic payload format for the packetization of media data components of a Package. It is agnostic to media codecs used for encoded media data, so that any type of media data that are encapsulated as an MPU can be packetized into MMTP. The MMTP payload

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format is also used to packetize signalling messages. The MMTP payload format also supports fragmentation and aggregation of data to be delivered.

In subclause 8.1,replace

In addition, MMTP delivers streaming support data such Application Layer Forward Error Correction (AL-FEC) repair data and signalling messages.

With

In addition, MMTP enables to deliver streaming support data such as Application Layer Forward Error Correction (AL-FEC) repair data and signalling messages.

In subclause 8.2.1, replace the text of the subclause

With

The MMT protocol is an application layer transport protocol that is designed to efficiently and reliably transport Packages. MMT protocol can be used for both timed and non-timed media data. These features are designed to deliver content composed of various types of encoded media data more efficiently. The MMT protocol may run on top of existing network protocols, e.g. UDP and IP. In this specification, the carriage of data formatted in a format other than the MMTP payload format as specified in 8.3 is not defined.

The MMT protocol is designed to support a wide variety of applications and does not specify congestion control. Congestion control is left to implementation.

The MMT protocol supports the multiplexing of different media data such as MPUs from various Assets over a single MMTP packet flow. It delivers multiple types of data in the order of consumption to the receiving entity to help synchronization between different types of media data without introducing a large delay or requiring large buffer. MMT protocol also supports the multiplexing of media data and signalling messages within a single packet flow.

A single MMTP payload shall be carried in only one MMTP packet. Fragmentation and aggregation are only provided by the payload format and not by MMTP itself.MMT protocol defines two packetization modes, Generic File Delivery (GFD) mode as specified in 8.3.3 and MPU mode as specified in 8.3.2. The GFD mode identifies data units using their byte position inside a transport object. The MPU mode identifies data units using their role and media position inside an MPU. MMT protocol supports mixed use of packets with two different modes in a single delivery session. A single packet flow of MMT packets can be arbitrarily composed of payloads with two types.

MMT protocol also provides means to calculate and remove jitter introduced by the underlying delivery network, so that constant end-to-end packet delivery delay can be achieved. By using the timestamp field in the packet header, jitter can be precisely calculated without requiring any additional signalling information and protocols.

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