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Information technology — Multimedia application format (MPEG-A) —

Part 9:
Digital Multimedia Broadcasting application format

AMENDMENT 2: Harmonization on MPEG-2 TS storage

Technologies de l'information — Format pour application multimédia (MPEG-A) —

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AMENDEMENT 2: Harmonisation sur stockage MPEG-2 TS

Foreword

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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.

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Amendment 2 to ISO/IEC 23000-9:2008 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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AMENDMENT 2: Harmonization on MPEG-2 TS storage

Replace 6.5 with the following:

6.5   Storage and playback of transport stream

6.5.1   Introduction

A simple storage and playback method of MPEG-2 TS is defined by utilizing a subset of MPEG-2 TS Reception Hint Track functionalities defined in the ISO-FF (more specifically, ISO/IEC 14496-12:2008/Amd.1:2009, *Information technology — Coding of audio-visual objects — Part 12: ISO base media file format — AMENDMENT 1: General improvements including hint tracks, metadata support, and sample groups*. Thus, if otherwise mentioned in this standard, the restrictions in the ISO-FF shall apply.

6.5.2   File structure and track type definition

An MPEG-2 TS is stored sequentially (i.e., untouched) as a sample data. A sample can be the whole TS to be stored or a segment of it. All the sample boundaries shall be aligned with the TS packet boundaries.

A handler type of 'hint' (hint track) is used for the stored MPEG-2 TS and the matching media information header shall be 'hmhd' (hint media header). The maxPDUsize and avgPDUsize fields in the 'hmhd' of the TS hint track shall take the value of 188 (the TS packet size).

MPEG-2 TS hint tracks can be used in two contexts; one is to guide streaming servers to easily generate a transport stream from the stored MPEG-2 TS and the other is to guide players for local playback or preview of stored (or recorded) MPEG-2 TS. Note that this standard defines the latter one only.

In this standard, an MPEG-2 TS is always stored as 'already-prepared' samples regardless of whether it is from direct reception or from content providers. Thus the MPEG-2 TS hint track defined in this standard does not refer to other media tracks for dynamic composition of MPEG-2 TS from the media data. The track header flags in the tkhd (track header box) would normally be set as follows:

— track_enabled = 1

— track_in_movie = 1

— track_in_preview = 1.

6.5.3   Sample format

In this standard, the MPEG-2 TS sample format defined in the ISO-FF standard is restricted to be some group of complete MPEG-2 TS packets.

In case `stss` (sync sample box) is absent, a sample is defined as a group of TS packets containing independently decodable group of video or audio access units. More specifically, following rules apply;

—   If video exist in the TS to be stored, then TS packets corresponding to a GOP (Group of Pictures) are defined as one sample. The `random_access_indicator` inside the adaptation_field() of TS packet can be used to identify the starting TS packet corresponding to a GOP; In this case, a sample starts from a TS packet having `random_access_indicator`=1 and ends just before the firstly encountered another TS packet having `random_access_indicator`=1.

—   If video does not exist in the TS to be stored, then TS packets corresponding to an audio frame are defined as one sample.

In case `stss` box exists, then the `entry_count` in the `stss` box shall take the value of 0, which means that the sync sample positions are unknown and a sample is defined as the whole TS packets.

Note that the Player should check the existence of `stss` box to determine which sample definition should be applied.

6.5.4   Sample description format

The MPEG-2 TS sample description format defined in ISO-FF shall apply except the following restrictions.

—   `MPEG2TSServerSampleEntry` is not used and only `MPEG2TSReceptionSampleEntry` with code point of 'rm2t' is used for this standard.

—   When using `MPEG2TSReceptionSampleEntry`, the following restrictions apply;

  —   `precedingbyteslen` = 0

  —   `trailingbyteslen` = 0

  —   `precomputed_only_flag` = 1

  —   Exactly one `PMTBox` and one `TSTimingBox` shall be included in `additionaldata[]`. At most one `ODBox`, `BIFSBox`, and `InitialSampleTimeBox` may be present in `additionaldata[]`. If other box appears in `additionaldata[]`, it may be ignored and discarded.

—   The syntax of the `BIFSBox` is defined in this standard as follows:

```
aligned(8) class BIFSBox () extends Box ('tBFS') {
    uint(3)   reserved;
    uint(13)  PID;
    uint(8)   sectiondata[];
```

—   For the `ODBox` and `BIFSBox`, the following restrictions shall apply;

  —   PID is the PID of the MPEG-2 TS packets correspond only to the non-dependent OD (BIFS) stream; The non-dependent OD (BIFS) stream is defined as the OD (BIFS) stream whose `streamDependenceFlag` value in the corresponding ES_Descriptor/IOD/PMT is set to 0.