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Information technology — Generic coding of moving pictures and associated audio information —

Part 1: Systems

iTeh STANDARD PREVIEW AMENDMENT 7: Virtual segmentation

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Technologies de l'information — Codage générique des images animées et du son associé —

ISO/IEC 13818-1:2015/FDAmD 7
Partie 1: Systèmes

<https://standards.iteh.ai/catalog/standards/sist/cf707e59-dba8-4d6b-a987-2546589>
AMENDEMENT 7: Segmentation virtuelle

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INTERNATIONAL STANDARD
RECOMMENDATION ITU-T

Information technology – Generic coding of moving pictures and
associated audio information: Systems

Amendment 7

Carriage of MPEG-H 3D audio over MPEG-2 Systems

In clause 2.6.90, replace Table 2-107 with:

Table 2-107 – Extension descriptor

Syntax	No. of bits	Mnemonic
<pre> Extension_descriptor () { descriptor_tag descriptor_length extension_descriptor_tag if (extension_descriptor_tag == 0x02) { ObjectDescriptorUpdate() } else if (extension_descriptor_tag == 0x03) { HEVC_timing_and_HRD_descriptor() } else if (extension_descriptor_tag == 0x04) { af_extension_descriptor() } else if (extension_descriptor_tag == 0x05) { HEVC_operation_point_descriptor() } else if (extension_descriptor_tag == 0x06) { HEVC_hierachy_extension_descriptor() } else if (extension_descriptor_tag == 0x07) { Green_extension_descriptor () } else if (extension_descriptor_tag == 0x08) { MPEG-H_3dAudio_descriptor() } else if (extension_descriptor_tag == 0x09) { MPEG-H_3dAudio_config_descriptor() } else if (extension_descriptor_tag == 0x0A) { MPEG-H_3dAudio_scene_descriptor() } else if (extension_descriptor_tag == 0x0B) { MPEG-H_3dAudio_text_label_descriptor() } else if (extension_descriptor_tag == 0x0C) { MPEG-H_3dAudio_multi-stream_descriptor() } } </pre>	<p>8</p> <p>8</p> <p>8</p>	<p>uimsbf</p> <p>uimsbf</p> <p>uimsbf</p>

Syntax	No. of bits	Mnemonic
<pre> else if (extension_descriptor_tag == 0x0D) { MPEG-H_3dAudio_drc_loudness_descriptor() } else if (extension_descriptor_tag == 0x0E) { MPEG-H_3dAudio_command_descriptor() } else if (extension_descriptor_tag == 0x0F) { Quality_extension_descriptor () } else if (extension_descriptor_tag == 0x10) { Virtual_segmentation_descriptor () } else { for (i=0; i<N; i++) { reserved } } </pre>	8	bslbf

Replace Table 2-108 with:

Table 2-108: Extension descriptor Tag values

Extension_descriptor_tag	TS	PS	Identification
0	n/a	n/a	Reserved
1	n/a	X	Forbidden
2	X	X	ODUpdate_descriptor
3	X	n/a	HEVC_timing_and_HRD_descriptor()
4	X	n/a	af_extensions_descriptor()
5	X	n/a	HEVC_operation_point_descriptor()
6	X	n/a	HEVC_hierarchy_extension_descriptor()
7	X	n/a	Green_extension_descriptor()
8	X	n/a	MPEG-H_3dAudio_descriptor()
9	X	n/a	MPEG-H_3dAudio_config_descriptor()
0x0A	X	n/a	MPEG-H_3dAudio_scene_descriptor()
0x0B	X	n/a	MPEG-H_3dAudio_text_label_descriptor()
0x0C	X	n/a	MPEG-H_3dAudio_multi-stream_descriptor()
0x0D	X	n/a	MPEG-H_3dAudio_drc_loudness_descriptor()
0x0E	X	n/a	MPEG-H_3dAudio_command_descriptor()
0x0F	X	n/a	Quality_extension_descriptor()
0x10	X	n/a	Virtual_segmentation_descriptor()
0x11-0xFF	n/a	n/a	Rec. ITU-T H.222.0 ISO/IEC 13818-1 Reserved

Add the following clauses after 2.6.119

2.6.120 Virtual segmentation descriptor

The virtual segmentation descriptor appears in the elementary stream descriptor loop in the PMT and is used to indicate that the current elementary stream is virtually segmented using boundary descriptors (see Annex U sec. 3.9). This segmentation may come in a set of partitions – e.g., one partition demarcates the stream into 10-sec virtual segments, while another creates 2-sec virtual segments. If the boundary descriptor carried in transport stream packets appears in the elemental stream, it is an explicit indication of segment boundary point, otherwise a reference PID shall be defined in the virtual segmentation descriptor which indicates segment boundary point is decided by referring another elemental stream, in which the boundary descriptor shall be explicitly carried.

Table 2-111quindecies - Virtual segmentation descriptor

Syntax	No. bits	Mnemonic
Virtual_segmentation_descriptor(){		
if (descriptor_length > 1) {		
num_partitions	3	uimsbf
timescale_flag	1	bslbf
reserved	4	bslbf
if (timescale_flag == 1) {		
ticks_per_second	21	uimsbf
maximum_duration_length_minus_1 (MDL)	2	uimsbf
reserved	1	bslbf
}		
for (i = 0; i < num_partitions; i++) {		
explicit_boundary_flag	1	bslbf
partition_id	3	uimsbf
reserved	4	bslbf
SAP_type_max	3	uimsbf
if (explicit_boundary_flag == 0) {		
reserved	5	bslbf
boundary_PID	13	uimsbf
reserved	3	bslbf
}		
else {		
maximum_duration	MDL*8 + 5	uimsbf
}		
}		
}		
}		

Semantics

timescale_flag: If set to 1, timescale information is present. If set to 0, ticks_per_second is inferred to be 1, and MDL is inferred to be 0 (i.e., maximum_duration_length_minus_1=-1). The value of 0 allows maximum segment duration of up to 31 seconds, expressed in integer seconds.

ticks_per_second: Precision, in ticks per second, of the maximum_duration field, e.g., 0.1 second precision is 10 ticks/sec, 0.01 second precision with 100 ticks/sec, etc.

maximum_duration_length_minus_1: length, in bytes (minus one), of the maximum_duration field variable byte length. This provides additional bytes in addition to the 5 bits pre-allocated to the maximum_duration field

num_partitions: Number of partitions described in the virtual segmentation descriptor.

explicit_boundary_flag: If set to 0, this elementary stream is a dependent stream, and boundary data for it is provided on a reference partition on a different PID, specified by boundary_PID; otherwise, the current PID carries boundary descriptors.

partition_id: ID of the partition described in the boundary descriptor.

boundary_PID: PID carrying boundary_descriptor() that is used by this partition of this elementary stream.

SAP_type_max: Maximum possible value of SAP in this partition. If SAP_type_max value is 0, any SAP value may appear in the stream.

maximum_duration: Maximum virtual segment duration for a segment on partition partition_id, expressed in units of ticks_per_second. For consecutive virtual segments S(i) and S(i+1) on the above partition, if PTS(i) stands for the earliest PTS in segment S(i), and PTS(i+1) stands for the earliest PTS in segment S(i+1) this duration equals $(PTS(i+1) - PTS(i)) * ticks_per_second / 90000$. If set to 0, virtual segment duration is unlimited.

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Add the following changes to ISO/IEC 13818-1 Annex U

Make current text of U.1 a section named U.1.1 General

Append the following text to the end of clause U.1 (Introduction):

...

This annex also specifies a format for carriage of boundary and labeling descriptors that may be used to indicate a boundary type for seamless content splicing or switching in the applications of Ad insertion, cloud DVR recording and segmentation of adaptive bit rate streaming. The possible resolving and consumption of the boundary descriptor and labeling descriptor indicated in the stream are out of scope of this Recommendation | International Standard.

U.1.2 Notation

This annex makes extensive use of variable-length, where field length is specified prior to the field itself. An additional short-hand notation is used to improve readability in these cases: length field names are referenced within the "number of bits" column of syntax tables. The alias name for the length field is provided in parenthesis in non-bold font at the same line as the length field, and the number of bits is given as a function of that field.

In the example below, SFL is an alias for the `some_field_length_qwords` field. As the latter can have values of 0..3, `some_field` can have lengths of 0, 64, 128 and 192 bits. Stating that `some_field` is a 0-bit field implies that `some_field` is not present (in the example below this would result in `some_structure()` being a 1-byte structure).

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Table U-1 – Variable field length notation example

Syntax	No. bits	Mnemonic
<code>some_structure</code> { some_field_length_qwords (SFL) reserved some_field }	2 6 SFL*64	uimsbf bslbf uismbf

The full notation of the same structure is given in Table U-1bis.

Table U-1bis – Table U-1 in equivalent full notation