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Information technology — Coding of audio-visual objects —

Part 15: Carriage of network abstraction layer (NAL) unit structured video in the ISO base media file format

*Technologies de l'information — Codage des objets audiovisuels —
Partie 15: Transport de vidéo structurée en unités NAL sur la couche
réseau au format ISO de base pour les fichiers médias*



Reference number
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Contents

Page

Foreword	vi
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms, definitions and abbreviated terms	1
3.1 Terms and definitions.....	1
3.2 Abbreviated terms.....	7
4 General definitions	8
4.1 Overview.....	8
4.2 Elementary stream structure.....	8
4.3 Sample and configuration definition.....	9
4.3.1 General.....	9
4.3.2 Canonical order and restrictions.....	9
4.3.3 Sample format.....	10
4.3.4 Optional boxes in the sample entry.....	11
4.4 Video track structure.....	11
4.5 Template fields used.....	11
4.6 Visual width and height.....	11
4.7 Decoding time (DTS) and composition time (CTS).....	12
4.8 Sample groups on random access recovery points 'roll' and random access points 'rap'.....	12
4.9 Hinting.....	12
4.10 On change of sample entry.....	12
4.11 SEI information box.....	14
4.11.1 Definition.....	14
4.11.2 Syntax.....	14
4.11.3 Semantics.....	14
4.12 Post-decoder requirements scheme for signalling of SEI.....	14
4.12.1 General.....	14
4.12.2 Definition.....	15
5 AVC elementary streams and sample definitions	15
5.1 Overview.....	15
5.2 Elementary stream structure.....	15
5.3 Sample and configuration definition.....	18
5.3.1 Overview.....	18
5.3.2 Canonical order and restrictions.....	18
5.3.3 Decoder configuration information.....	19
5.4 Derivation from ISO base media file format.....	22
5.4.1 AVC file type and identification.....	22
5.4.2 AVC video stream definition.....	23
5.4.3 AVC parameter set stream definition.....	24
5.4.4 Parameter sets.....	25
5.4.5 Sync sample.....	26
5.4.6 Shadow sync.....	26
5.4.7 Layering and sub-sequences.....	27
5.4.8 Alternate streams and switching pictures.....	30
5.4.9 Definition of a sub-sample for AVC.....	33
6 SVC elementary stream and sample definitions	33
6.1 Overview.....	33
6.2 Elementary stream structure.....	34
6.3 Use of the plain AVC file format.....	35
6.4 Sample and configuration definition.....	35

6.4.1	Overview.....	35
6.4.2	Canonical order and restrictions.....	35
6.5	Derivation from the ISO base media file format.....	37
6.5.1	SVC track structure.....	37
6.5.2	Data sharing and extraction.....	37
6.5.3	SVC video stream definition.....	38
6.5.4	SVC visual width and height.....	40
6.5.5	Sync sample.....	40
6.5.6	Shadow sync.....	41
6.5.7	Independent and disposable samples box.....	41
6.5.8	Sample groups on random access recovery points 'roll' and random access points 'rap'.....	41
6.5.9	Definition of a sub-sample for SVC.....	41
7	MVC and MVD elementary stream and sample definitions.....	43
7.1	Overview.....	43
7.2	Overview of MVC or MVD storage.....	44
7.3	MVC and MVD elementary stream structures.....	46
7.4	Use of the plain AVC file format.....	48
7.5	Sample and configuration definition.....	48
7.5.1	Overview.....	48
7.5.2	Canonical order and restriction.....	48
7.5.3	Decoder configuration record.....	48
7.6	Derivation from the ISO base media file format.....	51
7.6.1	MVC and MVD track structures.....	51
7.6.2	Reconstruction of an access unit.....	51
7.6.3	Sample entry.....	52
7.6.4	Sync sample.....	64
7.6.5	Shadow sync.....	64
7.6.6	Independent and disposable samples box.....	65
7.6.7	Sample groups on random access recovery points 'roll' and random access points 'rap'.....	65
7.7	MVC specific information boxes.....	65
7.7.1	Overview.....	65
7.7.2	Multiview information box.....	66
7.7.3	Multiview group box.....	66
7.7.4	Multiview group relation box.....	68
7.7.5	Multiview relation attribute box.....	69
7.7.6	Multiview scene info box.....	75
7.7.7	MVC view priority assignment box.....	76
8	HEVC elementary streams and sample definitions.....	76
8.1	Overview.....	76
8.2	Elementary stream structure.....	77
8.3	Sample and configuration definition.....	77
8.3.1	Overview.....	77
8.3.2	Canonical order and restrictions.....	77
8.3.3	Decoder configuration information.....	78
8.4	Derivation from ISO base media file format.....	82
8.4.1	HEVC video stream definition.....	82
8.4.2	Parameter sets in sample entry.....	83
8.4.3	Sync sample.....	83
8.4.4	Sync sample sample grouping.....	84
8.4.5	Temporal scalability sample grouping.....	85
8.4.6	Temporal sub-layer access sample grouping.....	87
8.4.7	Step-wise temporal layer access sample grouping.....	87
8.4.8	Definition of a sub-sample for HEVC.....	88
8.4.9	Handling non-output samples.....	90
9	Layered HEVC elementary stream and sample definitions.....	91

9.1	Overview	91
9.2	Overview of L-HEVC storage	92
9.3	L-HEVC elementary stream structure	92
9.4	Sample and configuration definition	93
9.4.1	Overview	93
9.4.2	Canonical order and restrictions	93
9.4.3	Decoder configuration record	93
9.5	Derivation from the ISO base media file format and the HEVC file format (Clause 8)	94
9.5.1	L-HEVC track structure	94
9.5.2	Data sharing and reconstruction of an L-HEVC bitstream	95
9.5.3	L-HEVC video stream definition	97
9.5.4	L-HEVC visual width and height	100
9.5.5	Sync sample	100
9.5.6	Independent and disposable samples box	101
9.5.7	Stream access point sample group	101
9.5.8	The 'roll', 'rap', 'sync', 'tsas' and 'stsa' sample groups	102
9.5.9	Definition of a sub-sample for L-HEVC	102
9.5.10	Handling non-output samples	102
9.6	L-HEVC specific structures	103
9.6.1	External base layer sample group	103
9.6.2	The operating points information sample group	103
9.6.3	The layer information sample group	107
9.6.4	The layer information sample group	108
10	Storage of tiled HEVC and L-HEVC video streams	109
10.1	Overview	109
10.2	NAL unit map entry	110
10.2.1	Definition	110
10.2.2	Syntax	110
10.2.3	Semantics	111
10.3	Tile region group entry	111
10.3.1	Definition	111
10.3.2	Syntax	112
10.3.3	Semantics	112
10.4	Tile sub track definition	114
10.4.1	Overview	114
10.4.2	TileSubTrackGroupBox	114
10.5	HEVC and L-HEVC tile track	115
10.5.1	Overview	115
10.5.2	Sample entry name and format for HEVC tile tracks	116
10.5.3	Sample entry name and format for L-HEVC tile tracks	117
10.5.4	Bitstream reconstruction from tile base and tile tracks	117
10.5.5	Sample entry names for tile base tracks	118
	Annex A (normative) In-stream structures	119
	Annex B (normative) SVC, MVC, and MVD sample group and sub-track definitions	128
	Annex C (normative) Temporal metadata support	152
	Annex D (normative) File format toolsets and brands	162
	Annex E (normative) Sub-parameters for the MIME type 'codecs' parameter	165
	Annex F (informative) Unspecified nal_unit_type value management	170

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.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This fifth edition cancels and replaces the fourth edition (ISO/IEC 14496-15:2017), which has been technically revised. It also incorporates Amendments ISO/IEC 14496-15:2017/Amd.1:2018 and ISO/IEC 14496-15:2017/Amd.2:2019.

The main changes compared to the previous edition are as follows:

- additional content incorporated as subclauses [4.11](#), [4.12](#), [9.6.4](#), [D.4.3](#), [D.4.4](#) and [D.4.5](#) and [Annex F](#);
- corrections in [Tables 2](#), [3](#) and [6](#) and subclause [A.1](#);
- deletion of subclause 5.4.10;
- minor editorial changes to align the document with the drafting rules in ISO/IEC Directives Part 2.

A list of all parts in the ISO/IEC 14496 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document defines a storage format based on, and compatible with, the ISO base media file format (ISO/IEC 14496-12), which is used by the MP4 file format (ISO/IEC 14496-14) and the motion JPEG 2000 file format (ISO/IEC 15444-3) among others. This document enables video streams formatted as network adaptation layer units (NAL units) to

- a) be used in conjunction with other media streams, such as audio,
- b) be used in an MPEG-4 systems environment, if desired,
- c) be formatted for delivery by a streaming server, using hint tracks, and
- d) inherit all the use cases and features of the ISO base media file format on which MP4 and MJ2 are based.

This document can be used as a standalone specification; it specifies how NAL unit structured video content is stored in an ISO base media file format compliant format. However, it is normally used in the context of a specification, such as the MP4 file format, derived from the ISO base media file format, that permits the use of NAL unit structured video such as AVC (ISO/IEC 14496-10) video and high efficiency video coding (HEVC, ISO/IEC 23008-2) video.

The ISO base media file format is becoming increasingly common as a general-purpose media container format for the exchange of digital media, and its use in this context should accelerate both adoption and interoperability.

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Information technology — Coding of audio-visual objects —

Part 15: Carriage of network abstraction layer (NAL) unit structured video in the ISO base media file format

1 Scope

This document specifies the storage format for streams of video that is structured as NAL units, such as AVC (ISO/IEC 14496-10) and HEVC (ISO/IEC 23008-2) video streams.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 14496-10:2014, *Information technology — Coding of audio-visual objects — Part 10: Advanced Video Coding*

ISO/IEC 14496-12:2015, *Information technology — Coding of audio-visual objects — Part 12: ISO base media file format*

ISO/IEC 23008-2:2017, *Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 2: High efficiency video coding*