ISO/IEC JTC 1/SC 29/WG 11

Coding of moving pictures and audio

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INTERNATIONAL ORGANISATION FOR STANDARDISATION
ORGANISATION INTERNATIONALE DE NORMALISATION
ISO/IEC JTC 1/SC 29/WG 11
CODING OF MOVING PICTURES AND AUDIO

ISO/IEC JTC 1/SC 29/WG 11 N19175
Online Meeting – April 2020

WG11 (MPEG) issues Final Draft International Standard of MPEG-5 Essential Video Coding

The 130th WG 11 (MPEG) meeting was held online, 20-24 April 2020

WG11 (MPEG) issues Final Draft International Standard of MPEG-5 Essential Video Coding

At its 130th meeting, WG11 (MPEG) is proud to announce the completion of the new ISO/IEC 23094-1 standard, *i.e., MPEG-5 Essential Video Coding (EVC)*, which has been promoted to Final Draft International Standard (FDIS) status. There is a constant demand for more efficient video coding technologies, but coding efficiency is not the only factor determining the industry's choice of video coding technology for products and services. The standard offers improved compression efficiency compared to existing video coding standards and is based on the statements of all contributors to the standard who have committed to announce their license terms for the MPEG-5 EVC standard no later than two years after the FDIS publication date.

The MPEG-5 EVC defines two important profiles, including "Baseline profile" and "Main profile". The "Baseline profile" contains only technologies that are older than 20 years or otherwise freely available for use in the standard. In addition, the "Main profile" adds a small number of additional tools, each of which can be either cleanly disabled or switched to the corresponding baseline tool on an individual basis.

WG11 (MPEG) issues the Final Draft International Standards for parts 1, 2, 4, and 5 of MPEG-G 2nd edition

WG 11 (MPEG) and ISO TC 276/WG 5 have addressed the emerging problem of managing the large quantities of genomic sequencing data by developing the ISO/IEC 23092 standard series also known as MPEG-G. The series provides the specification of a file and transport format (Part 1), compression technology (Part 2), metadata specifications, protection support, and standard APIs for the access of sequencing data in the native compressed format (Part 3).

In line with the traditional MPEG practice of continuous improvement of the quality and performance of its standards, at its 130th meeting, MPEG promoted to FDIS a new edition of Part 1 and 2 and to FDIS Part 4 "Reference Software" and Part 5 "Conformance". Such

components of the MPEG-G standard series provide important supports to those willing to implement the standard or interested to verify the correctness and interoperability of their own implementations.

Compared to the first edition, the second editions of ISO/IEC 23092-1 and ISO/IEC 23092-2, haves been improved by taking into accounts comments received from users.

The ISO/IEC 23092-4 (MPEG-G Reference Software) standard provides a normative implementation of the standard. In conjunction with the ISO/IEC 23092-5 (MPEG-G Conformance) standard, it provides a comprehensive specification and validation support for the development of conforming decoder implementations. Interoperability of applications relying on normative decoding processes is facilitated by a reference normative decoding process and a rich set of tests and corresponding golden references.

WG11 (MPEG) expands the Coverage of
ISO Base Media File Format (ISOBMFF) Family of Standards

At the 130th WG11 (MPEG) meeting, *three* new amendments to the ISOBMFF family have reached their final milestone, *i.e.,* Final Draft Amendment (FDAM): *(1)* Amendment 4 to ISO/IEC 14496-12 (ISO Base Media File Format) allows the use of a more compact version of metadata for movie fragments; *(2) Amendment 1 to ISO/IEC 14496-15* (Carriage of network abstraction layer (NAL) unit structured video in the ISO base media file format) adds support of HEVC slice segment data track and additional extractor types for HEVC such as track reference and track groups; and *(3)* Amendment 2 to ISO/IEC 23008-12 (Image File Format) adds support for more advanced features related to the storage of short image sequences such as burst and bracketing shots.

At the same time, new amendments have reached their first milestone, *i.e.,* Committee Draft Amendment (CDAM): *(1)* Amendment 2 to ISO/IEC 14496-15 (Carriage of network abstraction layer (NAL) unit structured video in the ISO base media file format) extends its scope to newly developed video coding standards such as Essential Video Coding (EVC) and Versatile Video Coding (VVC); and *(2)* the first edition of ISO /IEC 23001-16 (Derived visual tracks in the ISO base media file format) allows a new type of visual track whose content can be dynamically generated at the time of presentation by applying some operations to the content in other tracks, such as crossfading over two tracks. They are expected to reach their final milestone in mid 2021.

Finally, the final text for the ISO/IEC 14496-12 6th edition Final Draft International Standard (FDIS) is now ready for the ballot after converting MP4RA to the Maintenance Agency. WG11 (MPEG) notes that *Apple Inc.* has been appointed as the Maintenance Agency and MPEG appreciates its valuable efforts for the many years while already acting as the official registration authority for the ISOBMFF family of standards, *i.e.*, MP4RA (https://mp4ra.org/). It is expected to be published by ISO by the end of this year.

A New Standard for Large Scale Client-specific Streaming with DASH

Historically, in ISO/IEC 23009 (Dynamic Adaptive Streaming over HTTP; DASH), every client has used the same manifest as it best serves the scalability of the service. However, there

have been increasing requests from the industry to enable customized manifests for more personalized services. WG11 (MPEG) has studied a solution to this problem without sacrificing scalability, and it has reached the first milestone of its standardization at the 130th MPEG meeting.

ISO/IEC 23009-8 adds a mechanism to the Media Presentation Description (MPD) to refer to another document, called Session-based Description (SBD), which allows per-session information. The DASH client can use this information (*i.e.,* variables and their values) provided in the SBD to derive the URLs for HTTP GET requests. This standard is expected to reach its final milestone in mid 2021.

Additional Important Activities

Because of the Covid-19 pandemic, the 130th WG11 (MPEG) meeting was fully online, the first in MPEG's 30+ years of history. Some 600 experts attending from 19 time zones worked in tens of meeting sessions supported by an online calendar and by collaborative tools that involved MPEG experts in both online and offline sessions. Although the productivity of the online meeting could not reach the level of regular face-to-face meetings, the results posted in the press release show that MPEG experts managed the challenge quite well. Additional important activities include *(i)* the carriage of visual volumetric video-based coding data, *(ii)* Network-Based Media Processing (NBMP) function templates, *(iii)* the conversion from MPEG-21 contracts to smart contracts, *(iv)* deep neural network based video coding, *(v)* Low Complexity Enhancement Video Coding (LCEVC) reaching DIS stage, and *(vi)* a new level of the MPEG-4 Audio ALS Simple Profile for high-resolution audio among others.

How to contact WG 11 (MPEG), learn more, and find other MPEG facts

To learn about MPEG basics, discover how to participate in the committee, or find out more about the array of technologies developed or currently under development by WG 11 (MPEG), visit WG 11 (MPEG)'s home page at https://mpeg.chiariglione.org/. There you will find information publicly available from WG 11 (MPEG) experts past and present including tutorials, white papers, vision documents, short articles and requirements under consideration for new standards efforts. You can also find useful information in many public documents by using the search window including publicly available output documents of each meeting (note: some may have editing periods and in case of questions please contact Dr. Christian Timmerer).

Examples of tutorials that can be found there include tutorials for: High Efficiency Video Coding, Advanced Audio Coding, Universal Speech and Audio Coding, and DASH to name a few. A rich repository of white papers can also be found and continues to grow. You can find these papers and tutorials for many of WG 11 (MPEG)'s standards freely available. Press releases from previous WG 11 (MPEG) meetings are also available.

Journalists that wish to receive WG 11 (MPEG) Press Releases by email should contact Dr. Christian Timmerer at christian.timmerer@itec.uni-klu.ac.at or christian.timmerer@bitmovin.com or subscribe via https://lists.aau.at/mailman/listinfo/mpeg-pr. For timely updates follow us on Twitter (https://twitter.com/mpeggroup).

Further Information

Future WG 11 (MPEG) meetings are planned as follows:
    No. 131, Online, 29 June – 03 July 2020
    No. 132, Rennes, FR, 12 – 16 October 2020
    No. 133, Cape Town, ZA, 11 – 15 January 2021
    No. 134, Geneva, CH, 26 – 30 April 2021

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