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CODING OF MOVING PICTURES AND AUDIO

Source	**Telecom ParisTech**
Status	**For consideration during MPEG #117**
Title	**Analysis of the ISOBMFF Test Suite**
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1   Introduction

The current ISOBMFF test suite consists of 129 ISOBMFF files along with two Excel sheets: one relates ISOBMFF "File Concepts" with "Files"; one for the HEIFF describes the features of the standard that are covered. The first Excel is incomplete and hard to read and maintain. The second is good because of the standard coverage but it does not permit to easily find a file from a given feature. In this contribution we propose a unified approach .

2   Current problems

The following files have been submitted in the past but are not described in the Excel sheets:
- a3b-tone-deprot.mp4
- 16_vtt.mp4
- 17_negative_ctso.mp4
- 18_pssh.mp4
- 19_ttml.mp4
- 20_stxt.mp4
- 21_segment.mp4
- 22_tx3g.mp4
- iff_hevc_single_item.heic
- iff_hevc_single_item_main10.heic
- iff_hevc_tile_multiple_items_tbas.heic

The following files present in the Excel sheet have problems:
- rs_example.3gp was found to be incorrect regarding the RateShare sample group syntax. Ericsson proposed to update the file, but it has not resubmitted yet.
- a11 is a zip of a zip. The second zip cannot be unzipped on Windows, it can only on Linux.
- The *.iso3 uses a media header timescale value of 0. Although this is not explicitly forbidden by the standard (it should be), a different value should be used.
- The subs_slice_hvc1.mp4 and subs_tile_hvc1.mp4 use a first sample_delta of 0 in the SubSampleInformationBox instead of 1.
- The hvc2_extractors.mp4 file has problems

3   Proposed approach

We propose to adopt the following approach:

- publish all files on a public available repository (without zip). This should allow for people to easily access and test those files. Telecom ParisTech already setup a mirror here: http://download.tsi.telecom-paristech.fr/gpac/MPEG/ISOBMFF-Conformance/
- create an HTML report (also publicly available) indicating for each feature, the sequence(s) using it. The term feature here means:
  - 4CC of a box, possibly for a given version, with given flags
  - ftyp major_brand
  - hdlr handler_type
  - saiz/saio aux_info_type
  - leva grouping_type
  - sbgp/sgpd grouping_type
  - tsel attribute
  - infe extension_type
  - infe item_type
  - schm scheme_type
  - stsg grouping_type
  - colr colour_type

As a first version, we propose the conformance report available in the mirror[1]. According to this report many features (highlighted in red) are not used in any of the conformance files.

This report was generated based on an XML dump of the ISO structures in the conformance test suite using MP4Box and based on an XSLT transformation for the HTML generation. If the proposed approach is accepted, MP4Box and the XSLT can be provided as utility software and the latter can be hosted on a revision system (e.g. GitHub).

Note all boxes are not yet implemented in MP4Box's XML dump. Therefore the report is not complete. We plan on extending our support. Alternatively, the reference software could be used to generate (similar) XML files if desired.

We would like to suggest also that this approach be followed on the registration authority such that example bitstreams are linked for each new registered box.

4   Conclusion

We recommend updating ISO/IEC 14496-32 to include the above report, replacing the ISOBMFF Excel file.

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[1] http://download.tsi.telecom-paristech.fr/gpac/MPEG/ISOBMFF-Conformance/conformance_report.html