Source   **Telecom ParisTech, Canon Research Centre France**
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Title   **Tile Information in ISOBMFF**
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1. Introduction

During its 107th meeting, MPEG issued the Working Draft of Amendment 1 to the ISO/IEC 14996-15 standard for the enhanced carriage of HEVC and the support of MVC with depth information (N14123). This document specifies in section 8.5 how to store HEVC tiled tracks with the definition of two new sample groups (TileRegionGroupEntry and TileSetGroupEntry) and of a new track reference type 'tbas'. In this contribution, we propose to apply these tools to provide tile information for independently coded videos stored in a single ISOBMFF file.

2. Use case and Proposal

Consider the following use case where a 4k source is encoded as a 4k non-tiled video (possibly in HEVC, AVC …) and the same source is encoded as 4 separate HD videos (AVC, HEVC …), each video representing a HD tile of the 4k source. One would like to store these 5 videos in a single ISOBMFF file and store that these videos spatially relate to each other.

With the tools defined in N14123, it would be easy to do so by using 1 sample group of type TileRegionGroupEntry in each video track. However, the TileRegionGroupEntry is defined in ISO/IEC 14496-15 moreover for HEVC only. We think it should be moved to ISO/IEC 14496-12.

The WD uses the track reference of type 'tbas' to indicate that an HEVC Tile Track ('hvt1') reuses the HEVCDecoderConfigurationRecord from the referenced track and that the TileRegionGroupEntry and TileSetGroupEntry of this track are related to the referenced track. Only that second meaning has sense in ISO/IEC 14496-12. We would like to introduce the definition of a track reference type 'tile' in ISO/IEC 14496-12, to represent that second aspect. As a consequence, a track reference of type 'tbas' would be a derived track reference of type 'tile' applicable for tracks of type 'hvt1'.

3. Conclusion

We recommend MPEG to move the definition of tile region sample groups to ISO/IEC 14496-12 and to introduce the generic track reference type 'tile'.