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Title	Clarifications on ISOBMFF Subsample
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1   Introduction

This contribution reviews some unclear aspects of SubSample usage found while improving the storage in GPAC (http://gpac.io) of TTML.

2   SubSampleBox and sample number

The semantics indicates:

"`sample_delta` is an integer that specifies the sample number of the sample having sub-sample structure. It is coded as the difference between the desired sample number, and the sample number indicated in the previous entry. If the current entry is the first entry, the value indicates the sample number of the first sample having sub-sample information, that is, the value is the difference between the sample number and zero (0)."

The 'subs' box is allowed at the 'stbl' and 'traf' level. It is ambiguous what sample 0 means in the case of 'subs' in 'traf'.

There is no formal definition of "sample number". On the one hand, the definition of 'stts' hints that it follows the decoding order, but does not specified if it is 1-based or 0-based. Curiously enough the 'stss' box which codes this number does not explicitly define it. On the other hand, 'tfra' indicates that the sample number is 1-based in each 'trun'. This can be confusing.

We suggest defining the sample number as follows:

sample number
1-based index of the sample in the track in decoding order

We suggest fixing the definition of 'tfra' to use a different terminology.

"`sample_delta` is an integer that ~~specifies~~ _indicates_ the sample ~~number of the sample~~ having sub-sample structure. It is coded as the difference_, in decoding order,_ between the desired sample number, and the sample number indicated in the previous entry. If the current entry is the first entry, the value indicates ~~the sample number of~~ the first sample having sub-sample information~~,~~_._ ~~that is, the value~~ _the coded value_ is the difference between the sample number _of this sample_ and _the sample number of the first sample in the track (if the 'subs' box is in the 'stbl' box) or the first sample in the track fragment (if the 'subs' box is in a 'traf' box_~~zero (0)~~_)_."

3   Presence of SampleToGroupBox

Given the work done in Part 15 regarding the NALUMapEntry, we suggest adding a note in Part-12 saying:

"NOTE: There may not be a SampleToGroupBox of a given grouping_type corresponding to a SampleGroupDescriptionBox with the same grouping_type because references to the SampleGroupDescriptionBox (in particular to its entries) may be provided by specific constructs in derived specifications."

4   Conclusion

We recommend clarifying the ISO/IEC 14496-12 specification as described in this contribution.