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**Information technology — JPEG 2000  
image coding system —**

Part 12:

**ISO base media file format**

**AMENDMENT 3: Font streams and other  
improvements to file format**

*Technologies de l'information — Système de codage d'images JPEG  
2000 —*

*Partie 12: Format ISO de base pour les fichiers médias*

*AMENDMENT 3: Flux de police et autres améliorations de fichiers*

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## Foreword

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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](http://www.iso.org/directives)).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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# Information technology — JPEG 2000 image coding system —

## Part 12: ISO base media file format

### AMENDMENT 3: Font streams and other improvements to file format

*Technologies de l'information -- Système de codage d'images JPEG 2000 -- Partie 12: Format ISO de base pour les fichiers médias -- Amendement 3: Flux de police et autres améliorations de fichiers*

*In 8.3.3.3 before*

- 'hind' this track depends on the referenced hint track, i.e., it should only be used if the referenced hint track is used.

*add*

- 'font' used to indicate that a track uses fonts carried/defined in the referenced track.

*In 8.4.3.3 after*

'subt' Subtitle track

*add*

'fdsm' Font data stream track

*In 8.5.2.1, after*

- hint tracks an entry format specific to their protocol, with an appropriate name.

*add*

- font tracks **FontSampleEntry**

*In 8.5.2.2 change*

```
aligned(8) class SampleDescriptionBox (unsigned int(32) handler_type)
    extends FullBox('stsd', version, 0){
    int i ;
    unsigned int(32) entry_count;
    for (i = 1 ; i <= entry_count ; i++){
        switch (handler_type){
            case 'soun': // for audio tracks
                AudioSampleEntry();
                break;
            case 'vide': // for video tracks
                VisualSampleEntry();
                break;
            case 'subt': // for subtitle tracks
                SubtitleSampleEntry();
                break;
            case 'text': // for plain text tracks
                TextSampleEntry();
                break;
            case 'hint': // Hint track
                HintSampleEntry();
                break;
```



Box Types: 'url ', 'urn '

Container: Data Information Box ('dref')

Mandatory: Yes (at least one of 'url ' or 'urn ' shall be present)

Quantity: One or more

*and replace*

The DataEntryBox within the DataReferenceBox shall be either a DataEntryUrnBox or a DataEntryUrlBox.  
*with*

The entry\_count in the DataReferenceBox shall be 1 or greater; each DataEntryBox within the DataReferenceBox shall be either a DataEntryUrnBox or a DataEntryUrlBox.

*In 8.7.7.1 change the definition of the sub-sample box to read*

Box Type: 'subs'

Container: Sample Table Box ('stbl') or Track Fragment Box ('traf')

Mandatory: No

Quantity: Zero or more

*and add at the end of 8.7.7.1:*

When more than one Sub-Sample Information box is present in the same container box, the value of flags shall differ in each of these Sub-Sample Information boxes. The semantics of flags, if any, shall be supplied for a given coding system. If flags have no semantics for a given coding system, the flags shall be 0.

*In 8.7.7.2 change*

```
aligned(8) class SubSampleInformationBox
    extends FullBox('subs', version, 0) {
    unsigned int(32) entry_count;
    int i, j;
    for (j=0; i < entry_count; i++) {
        unsigned int(32) sample_delta;
        unsigned int(16) subsample_count;
        if (subsample_count > 0) {
            for (j=0; j < subsample_count; j++) {
                if (version == 1)
                {
                    unsigned int(32) subsample_size;
                }
                Else
                {
                    unsigned int(16) subsample_size;
                }
                unsigned int(8) subsample_priority;
                unsigned int(8) discardable;
                unsigned int(32) reserved = 0;
            }
        }
    }
}
```

to

```
aligned(8) class SubSampleInformationBox
  extends FullBox('subs', version, flags) {
  unsigned int(32) entry_count;
  int i,j;
  for (i=0; i < entry_count; i++) {
    unsigned int(32) sample_delta;
    unsigned int(16) subsample_count;
    if (subsample_count > 0) {
      for (j=0; j < subsample_count; j++) {
        if(version == 1)
        {
          unsigned int(32) subsample_size;
        }
        Else
        {
          unsigned int(16) subsample_size;
        }
        unsigned int(8) subsample_priority;
        unsigned int(8) discardable;
        unsigned int(32) reserved = 0;
      }
    }
  }
}
```

In 8.8.7.1, add before “The following flags” the following paragraph

The base-data-offset, if explicitly provided, is a data offset that is identical to a chunk offset in the Chunk Offset Box, i.e. applying to the complete file (e.g. starting with a file-type box and movie box). In circumstances when the complete file does not exist or its size is unknown, it may be impossible to use an explicit base-data-offset; then, offsets need to be established relative to the movie fragment.

Add to the end of 8.8.12.1

If the time expressed in the track fragment decode time (‘tfdt’) box exceeds the sum of the durations of the samples in the preceding movie and movie fragments, then the duration of the last sample preceding this track fragment is extended such that the sum now equals the time given in this box. In this way, it is possible to generate a fragment containing a sample when the time of the next sample is not yet known.

In particular, an empty track fragment (with no samples, but with a track fragment decode time box) may be used to establish the duration of the last sample.

In 8.9.2.3 semantics, replace

If the sum of the sample count in this box is less than the total sample count, then the reader should effectively extend it with an entry that associates the remaining samples with no group.

with

If the sum of the sample count in this box is less than the total sample count, or there is no sample-to-group box that applies to some samples (e.g. it is absent from a track fragment), then the reader should associate the samples that have no explicit group association with the default group defined in the SampleDescriptionGroup box, if any, or else with no group.

In 8.9.3.2 replace the definition of SampleGroupDescriptionBox with the following

```
aligned(8) class SampleGroupDescriptionBox (unsigned int(32) handler_type)
  extends FullBox('sgpd', version, 0){
  unsigned int(32) grouping_type;
  if (version>=1) { unsigned int(32) default_length; }
  if (version>=2) {
    unsigned int(32) default_sample_description_index;
  }
  unsigned int(32) entry_count;
```

```

int i;
for (i = 1 ; i <= entry_count ; i++){
    if (version>=1) {
        if (default_length==0) {
            unsigned int(32) description_length;
        }
    }
    switch (handler_type){
    case `vide`: // for video tracks
        VisualSampleGroupEntry (grouping_type);
        break;
    case `soun`: // for audio tracks
        AudioSampleGroupEntry (grouping_type);
        break;
    case `subt`: // for subtitle tracks
        SubtitleSampleGroupEntry (grouping_type);
        break;
    case `text`: // for text tracks
        TextSampleGroupEntry (grouping_type);
        break;
    case `hint`: // for hint tracks
        HintSampleGroupEntry (grouping_type);
        break;
    }
}
}

```

*In 8.9.3.3 add*

`default_sample_description_index`: specifies the index of the sample group description entry which applies to all samples in the track for which no sample to group mapping is provided through a `SampleToGroup` box. The default value of this field is zero (indicating that the samples are mapped to no group of this type).

*In 8.9.3.3 add at the end of the grouping\_type semantics:*

If `grouping_type_parameter` is not defined for a given `grouping_type`, then there shall be only one occurrence of this box with this `grouping_type`.

*In 8.11.1.1 delete the sentence*

There should be no conflicts during this process – no duplicate `item_id`, for example – and if there is, it is unspecified which item takes precedence.

*and add after the paragraph which contained it, the following:*

If, during this merge, there are either (a) meta-data items with the same `item_ID` or (b) user-data items with the same type, then the following applies:

- a) all occurrences of the data (user-data box or meta-data item) must be 'true' for the entire movie including all fragments;
- b) the occurrences in higher-numbered movie fragments ('later' occurrences) may be more accurate or 'preferred';
- c) in particular, data in an empty initial movie atom may be only estimates or 'not to exceed' values, and data in a final otherwise empty movie fragment may be the 'final' or most accurate values.

*At the end of 8.11.12.1 add*

An item reference of type `'font'` may be used to indicate that an item uses fonts carried/defined in the referenced item.

*Add a new section in Annex E*

## The 'iso8' brand

## ISO/IEC 15444-12:2012/Amd.3:2015(E)

The brand 'iso8' requires support for all features of the 'iso7' brand.

Support for the following boxes is required under this brand:

				sthd				subtitle media header, overall information (subtitle track only)
--	--	--	--	------	--	--	--	--

Support for the following is required under this brand:

- Support for 'meta' box in movie fragments
- Support for one or more 'subs' box per track

*Replace E.10 in Annex E*

### The 'iso7' brand

The brand 'iso7' requires support for all features of the 'iso6' brand.

Support for the following boxes is required under this brand:

- Support for 32-bit `item_ID` and `item_count` values
- Recognizing incomplete tracks.

*With*

The brand 'iso7' requires support for all features of the 'iso6' brand.

Support for the following boxes is required under this brand:

		trep						track extension properties
			assp					alternative startup sequence properties

Support for the following is required under this brand:

- Support for 32-bit `item_ID` and `item_count` values in 'meta' box
- Recognizing incomplete tracks
- Support for 'meta' box in movie fragments is not required
- Support for only 'subs' box per track is required here

*Add to the end of each E.4, E.6, E.7, E.8, E.9 in Annex E*

### The 'iso2', 'iso3', 'iso4', 'iso5', 'iso6' brand

- Support for only 16-bit `item_ID` and `item_count` values in 'meta' box is required here; 32-bit `item_ID` and `item_count` values in 'meta' box is not required
- Support for 'meta' box in movie fragments is not required
- Support for only 'subs' box per track is required here

*Add the following Annex as Annex K*

## Annex K

(informative)

## Segment Index Examples

## K.1 Introduction

This annex gives some examples of the use of the segment index box, and what values are inserted in it when it is used in various different 'styles' or configurations.

In the following examples, the size of  $i$ -th 'sidx' box is defined as  $S_{i,index}$ , the size of  $i$ -th subsegment, e.g.  $i$ -th 'moof' and 'mdat' boxes, is defined as  $S_{i,media}$ , the duration of  $i$ -th subsegment is defined as  $D_i$ , the number of the last subsegment is defined as  $N$ , and the duration of the segment is defined as  $D_{segment}$ .

## K.2 Examples

## K.2.1 Simple one-level indexing

This example shows a simple segment index (Figure K.1). All entries of the top level sidx point to media content (segments comprising one or more movie fragments), i.e. `reference_type` is equal to 0. The value of `referenced_size` and `subsegment_duration` of each entry are calculated as Table K.1.

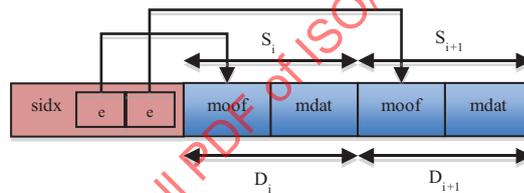


Figure K.1 — Simple Segment Index

Table K.1 — Simple Segment Index

sidx	entries	referenced_size	subsegment_duration
	$e_0$	$S_i$	$D_i$
	$e_1$	$S_{i+1}$	$D_{i+1}$

## K.2.2 Hierarchical

This example shows hierarchical segment index (Figure K.2). All entries of the top level sidx point to another 'sidx' box, i.e. `reference_type` is equal to 1, and all entries of the second level sidx point to media content, i.e. `reference_type` is equal to 0. The value of `referenced_size` and `subsegment_duration` of each entry are calculated as Table K.2.