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**Information technology — Coding of  
audio-visual objects —**

Part 12:  
**ISO base media file format**

AMENDMENT 1: Various enhancements  
including support for large metadata

**(standards.iteh.ai)**

*Technologies de l'information — Codage des objets audiovisuels —*

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

*AMENDEMENT 1: Plusieurs améliorations, y compris un support pour  
métadonnées volumineuses*

ISO/IEC 14496-12:2012/iso 1:2013  
<https://standards.iteh.ai/catalog/standards/sist/89741f01-d698-4c13-89d1-8de293e17529/iso-iec-14496-12-2012-amd-1-2013>

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[ISO/IEC 14496-12:2012/Amd.1:2013](https://standards.iteh.ai/catalog/standards/sist/89741f01-d698-4c13-89d1-8de293e17526/iso-iec-14496-12-2012-amd-1-2013)  
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Amendment 1 to ISO/IEC 14496-12:2012 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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# Information technology — Coding of audio-visual objects —

## Part 12: ISO base media file format

### AMENDMENT 1: Various enhancements including support for large metadata

*In 8.6.1.4.1, add Track Extension Properties Box ('trep') as a container box as follows:*

Box Type: 'cslg'  
 Container: Sample Table Box ('stbl') or Track Extension Properties Box ('trep')  
 Mandatory: No  
 Quantity: Zero or one

*Add the following sentence after the sentence starting with "When the Composition to Decode Box is included in the Sample Table Box":*

When the Composition to Decode Box is included in the Track Extension Properties Box, it documents the composition and decoding time relations of the samples in all movie fragments following the Movie Box.

*In 8.8, add the following Subclauses:*  
<http://standards.iteh.ai/catalog/standards/sist/89741f01-d698-4c13-89d1-8de293e17526/iso-iec-14496-12-2012-amd-1-2013>

#### 8.8.12 Track Extension Properties Box

##### 8.8.12.1 Definition

Box Type: 'trep'  
 Container: Movie Extends Box ('mvex')  
 Mandatory: No  
 Quantity: Zero or more. (Zero or one per track)

This box can be used to document or summarize characteristics of the track in the subsequent movie fragments. It may contain any number of child boxes.

##### 8.8.12.2 Syntax

```
class TrackExtensionPropertiesBox extends FullBox('trep', 0, 0) {
    unsigned int(32) track_id;
    // Any number of boxes may follow
}
```

##### 8.8.12.3 Semantics

`track_id` indicates the track for which the track extension properties are provided in this box.

Add the following Subclauses:

**8.8.13 Alternative Startup Sequence Properties Box**

**8.8.13.1 Definition**

Box Type: 'assp'  
 Container: Track Extension Properties Box ('trep')  
 Mandatory: No  
 Quantity: Zero or one

This box indicates the properties of alternative startup sequence sample groups in the subsequent track fragments of the track indicated in the containing Track Extension Properties box.

Version 0 of the Alternative Startup Sequence Properties box shall be used if version 0 of the Sample to Group box is used for the alternative startup sequence sample grouping. Version 1 of the Alternative Startup Sequence Properties box shall be used if version 1 of the Sample to Group box is used for the alternative startup sequence sample grouping.

**8.8.13.2 Syntax**

```
class AlternativeStartupSequencePropertiesBox extends FullBox('assp', version, 0)
{
    if (version == 0) {
        signed int(32) min_initial_alt_startup_offset;
    }
    else if (version == 1) {
        unsigned int(32) num_entries;
        for (j=1; j <= num_entries; j++) {
            unsigned int(32) grouping_type_parameter;
            signed int(32) min_initial_alt_startup_offset;
        }
    }
}
```



**8.8.13.3 Semantics**

`min_initial_alt_startup_offset`: No value of `sample_offset[ 1 ]` of the referred sample group description entries of the alternative startup sequence sample grouping shall be smaller than `min_initial_alt_startup_offset`. In version 0 of this box, the alternative startup sequence sample grouping using version 0 of the Sample to Group box is referred to. In version 1 of this box, the alternative startup sequence sample grouping using version 1 of the Sample to Group box is referred to as further constrained by `grouping_type_parameter`.

`num_entries` indicates the number of alternative startup sequence sample groupings documented in this box.

`grouping_type_parameter` indicates which one of the alternative sample groupings this loop entry applies to.

In 8.11.3.1 Definition, replace:

The box starts with three or four values, specifying the size in bytes of the `offset` field, `length` field, `base_offset` field, and, in version 1 of this box, the `extent_index` fields, respectively. These values must be from the set {0, 4, 8}.

with:

The box starts with three or four values, specifying the size in bytes of the `offset` field, `length` field, `base_offset` field, and, in versions 1 and 2 of this box, the `extent_index` fields, respectively. These values must be from the set {0, 4, 8}.

**Replace:**

For maximum compatibility, version 0 of this box should be used in preference to version 1 with `construction_method==0`, when possible.

**with:**

For maximum compatibility, version 0 of this box should be used in preference to version 1 with `construction_method==0`, or version 2 when possible. Similarly, version 2 of this box should only be used when support for large `item_ID` values (exceeding 65535) is required or expected to be required.

*In 8.11.3.2 Syntax, replace a definition of "aligned(8) class ItemLocationBox" with:*

```
aligned(8) class ItemLocationBox extends FullBox('iloc', version, 0) {
    unsigned int(4)    offset_size;
    unsigned int(4)    length_size;
    unsigned int(4)    base_offset_size;
    if ((version == 1) || (version == 2)) {
        unsigned int(4)    index_size;
    } else {
        unsigned int(4)    reserved;
    }
    if (version < 2) {
        unsigned int(16)    item_count;
    } else if (version == 2) {
        unsigned int(32)    item_count;
    }
    for (i=0; i<item_count; i++) {
        if (version < 2) {
            unsigned int(16)    item_ID;
        } else if (version == 2) {
            unsigned int(32)    item_ID;
        }
        if ((version == 1) || (version == 2)) {
            unsigned int(12)    reserved;
            unsigned int(4)    construction_method;
        }
        unsigned int(16)    data_reference_index;
        unsigned int(base_offset_size*8)    base_offset;
        unsigned int(16)    extent_count;
        for (j=0; j<extent_count; j++) {
            if (((version == 1) || (version == 2)) && (index_size > 0)) {
                unsigned int(index_size*8)    extent_index;
            }
            unsigned int(offset_size*8)    extent_offset;
            unsigned int(length_size*8)    extent_length;
        }
    }
}
```

*In 8.11.4.2, replace a definition of "aligned(8) class PrimaryItemBox" with:*

```
aligned(8) class PrimaryItemBox
    extends FullBox('pitm', version, 0) {
    if (version == 0) {
        unsigned int(16)    item_ID;
    } else {
        unsigned int(32)    item_ID;
    }
}
```

*In 8.11.4.3, replace:*

`item_ID` is the identifier of the primary item

with:

`item_ID` is the identifier of the primary item. Version 1 should only be used when large `item_ID` values (exceeding 65535) are required or expected to be required.

In 8.11.6.1, replace:

Three versions of the item info entry are defined. Version 1 includes additional information to version 0 as specified by an extension type. For instance, it shall be used with extension type 'fdel' for items that are referenced by the file partition box ('fpar'), which is defined for source file partitionings and applies to file delivery transmissions. Version 2 provides an alternative structure in which metadata item types are indicated by a 32-bit (typically 4-character) registered or defined code; two of these codes are defined to indicate a MIME type or metadata typed by a URI.

If no extension is desired, the box may terminate without the `extension_type` field and the extension; if, in addition, `content_encoding` is not desired, that field also may be absent and the box terminate before it. If an extension is desired without an explicit `content_encoding`, a single null byte, signifying the empty string, must be supplied for the `content_encoding`, before the indication of `extension_type`.

If file delivery item information is needed and a version 2 ItemInfoEntry is used, then the file delivery information is stored (a) as a separate item of type 'fdel') (b) linked by an item reference from the item, to the file delivery information, of type 'fdel'. There must be exactly one such reference if file delivery information is needed.

It is possible that there are valid URI forms for MPEG-7 metadata (e.g. a schema URI with a fragment identifying a particular element), and it may be possible that these structures could be used for MPEG-7. However, there is explicit support for MPEG-7 in ISO base media file format family files, and this explicit support is preferred as it allows, among other things:

- a) incremental update of the metadata (logically, I/P coding, in video terms) whereas this draft is 'I-frame only';
- b) binarization and thus compaction;
- c) the use of multiple schemas.

Therefore, the use of these structures for MPEG-7 is deprecated (and undocumented).

Information on URI forms for some metadata systems can be found in Annex G.

with:

Four versions of the item info entry are defined. Version 1 includes additional information to version 0 as specified by an extension type. For instance, it shall be used with extension type 'fdel' for items that are referenced by the file partition box ('fpar'), which is defined for source file partitionings and applies to file delivery transmissions. Versions 2 and 3 provide an alternative structure in which metadata item types are indicated by a 32-bit (typically 4-character) registered or defined code; two of these codes are defined to indicate a MIME type or metadata typed by a URI. Version 2 supports 16-bit `item_ID` values, whereas version 3 supports 32-bit `item_ID` values.

If no extension is desired, the box may terminate without the `extension_type` field and the extension; if, in addition, `content_encoding` is not desired, that field also may be absent and the box terminate before it. If an extension is desired without an explicit `content_encoding`, a single null byte, signifying the empty string, must be supplied for the `content_encoding`, before the indication of `extension_type`.

If file delivery item information is needed and a version 2 or 3 ItemInfoEntry is used, then the file delivery information is stored (a) as a separate item of type 'fdel') (b) linked by an item reference from the item, to the



file delivery information, of type 'fdel'. There must be exactly one such reference if file delivery information is needed.

It is possible that there are valid URI forms for MPEG-7 metadata (e.g. a schema URI with a fragment identifying a particular element), and it may be possible that these structures could be used for MPEG-7. However, there is explicit support for MPEG-7 in ISO base media file format family files, and this explicit support is preferred as it allows, among other things:

- a) incremental update of the metadata (logically, I/P coding, in video terms) whereas this draft is 'I-frame only';
- b) binarization and thus compaction;
- c) the use of multiple schemas.

Therefore, the use of these structures for MPEG-7 is deprecated (and undocumented).

Information on URI forms for some metadata systems can be found in Annex G.

Version 1 of `ItemInfoBox` should only be used when support for a large number of `itemInfoEntries` (exceeding 65535) is required or expected to be required.

*In 8.11.6.2, replace definitions of "aligned(8) class ItemInfoEntry" and "aligned(8) class ItemInfoBox" with:*

```
aligned(8) class ItemInfoEntry
    extends FullBox('infe', version, 0) {
    if ((version == 0) | (version == 1)) {
        unsigned int(16)  item_ID;
        unsigned int(16)  item_protection_index;
        string            item_name;
        string            content_type;
        string            content_encoding; //optional
    }
    if (version == 1) {
        unsigned int(32)  extension_type; //optional
        ItemInfoExtension(extension_type); //optional
    }
    if (version >= 2) {
        if (version == 2) {
            unsigned int(16)  item_ID;
        } else if (version == 3) {
            unsigned int(32)  item_ID;
        }
        unsigned int(16)  item_protection_index;
        unsigned int(32)  item_type;
    }
}
```