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**Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 12: Image File Format — Amendment 1: Support for progressive rendering signalling and other improvements**

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 12: Image File Format — Amendment 1: Support for progressive rendering signalling and other improvements

*6.5*

Replace the following in subclause 6.5.1 (“*General*”)

Descriptive properties are non-essential, unless stated otherwise in their specification.

with

Descriptive properties should be marked as non-essential, unless stated otherwise in their specification or derived specification.

Replace the content of subclause 6.5.5.1 (“*Definition*” for “*Colour information”*) with the following

|  |  |
| --- | --- |
| Box type: | 'colr' |
| Property type: | Descriptive item property |
| Container: | ItemPropertyContainerBox |
| Mandatory (per item): | No |
| Quantity (per item): | Either at most one, or two with restriction described below |
|  |  |

The definition of Colour Information provided in ISO/IEC 14496-12 applies.

In addition, following definitions specific to the use of colour information in image items also applies:

* When two ColourInformationBoxes are associated with an image item, one shall have a colour\_type value of 'rICC' or 'prof' (providing either restricted or unrestricted ICC profiles respectively) and the other one shall have a colour\_type value of 'nclx' with colour\_primaries equal to 2 and transfer\_characteristics equal to 2 (2 indicating "unspecified", since these data are supplied by the ICC profile instead).
* When generating an image item from the content of a visual track, the order of ColourInformationBoxes in the VisualSampleEntry should be preserved in the ItemPropertyAssociationBox(es). Similarly, when creating a visual track from an image item, the order of boxes should be preserved.
* While in a visual track, the order of boxes may be important per ISO/IEC 14496-12, in this specification, the order is not relevant. Colour information with different values of colour\_type are intended for different purposes. Colour information with a value of colour\_type set to 'nclx' is intended to be used for some processing such as colour conversion or image derivation, while colour information carrying an ICC profile is intended to be used for processes such as display matching.

Add the following new subclauses after subclause 6.5.36:

### Progressive derived image item information property

#### Definition

|  |  |
| --- | --- |
| Box type: | 'prdi' |
| Property type: | Descriptive item property |
| Container: | ItemPropertyContainerBox |
| Mandatory (per item): | No |
| Quantity (per item): | Zero or one for a derived image item |
|  |  |

The progressive derived image item information property describes progressive rendering steps associated with a derived image item.

Each progressive rendering step specifies which input image items to use for the reconstruction of the derived image item and is described as a difference from the previous step.

NOTE the ProgressiveDerivedImageItemInformationProperty is intended to be used with derived image items using several input images.

#### Syntax

aligned(8) class ProgressiveDerivedImageItemInformationProperty  
extends ItemFullProperty('prdi', version = 0, flags = 0){  
 unsigned int(16) step\_count;  
 for (i=0; i < step\_count; i++)  
 unsigned int(16) item\_count;  
}

#### Semantics

step\_count is the number of progressive steps for the associated derived image item.

item\_count is the number of input image items added by the progressive step.

*6.8*

Add the following new subclause after subclause 6.8.9:

### Progressive rendering entity group

The progressive rendering entity group (with a grouping\_type 'prgr') signals a set of image items that can be used for a progressive rendering of one of these image items.

The semantics of the 'prgr' entity group are that the image items included in a 'prgr' entity group are listed in increasing quality order from the lowest quality to the highest quality. All the image items inside a 'prgr' entity group shall correspond to similar images albeit with different quality levels. In this way, a first image item occurring earlier in the list than a second image item can be used as a temporary replacement of the second image item for a progressive rendering of this second image item.

The data corresponding to the image items included in a 'prgr' entity group shall be stored in the same order as the one used for the image items inside the 'prgr' entity group, such that a renderer progressively obtaining a file can perform a progressive display as item data becomes available.

A 'prgr' entity group shall only contain image items, not tracks.

Image items of the same 'prgr' entity group shall be members of the same 'altr' entity group.

NOTE This requirement guarantees that legacy players without capability of processing 'prgr' entity groups treat the image items as alternatives to be displayed.

*Annex H.2*

Replace the following in subclause H.2.1 (“*Definition*”)

The concatenation of the contents of the optional JPEG configuration box (the JPEGprefix bytes) with the extents of the JPEG image item shall conform to the specification for a JPEG compressed image as defined in ISO/IEC 10918-1, starting with the SOI (start of image) marker and ending with the EOI (end of image) marker.

With

The concatenation of the contents of the optional JPEG configuration item property (the JPEGprefix bytes) with the extents of the JPEG image item shall conform to the specification for a JPEG compressed image as defined in ISO/IEC 10918-1, starting with the SOI (start of image) marker and ending with the EOI (end of image) marker.

Replace the following in subclause H.2.2 (“*JPEG configuration item property*”)

Each JPEG image item may have an associated configuration property.

with

Each JPEG image item may have an associated item property of type 'jpgC' with the syntax identical to the JPEGConfigurationBox as defined in H.2.3.

NOTE The JPEG configuration item property extends ItemProperty which is equivalent to Box.

Rename the subclause H.2.3 (“*Syntax*”) to “JPEG configuration box syntax”.

*Annex L.2.2.1*

Replace entire NOTE 3 in subclause L.2.2.1.2 (“*Image item of type 'vvc1'*”) with the following:

NOTE 3 ISO/IEC 23090-3 requires that a VVC decoder conforming to a profile at a specific level and specific tier is able to decode the first picture of a VVC bitstream when all of the following applies:

* at least one of the following:
  + the VVC decoder conforms to the Main 10 Still Picture profile and the bitstream conforms to the Main 10 profile;
  + the VVC decoder conforms to the Main 10 4:4:4 Still picture profile and the bitstream conforms to the Main 10 profile or the Main 10 4:4:4 profile;
  + the VVC decoder conforms to the Main 12 Still Picture profile and the bitstream conforms to one of the Main 10, Main 10 4:4:4, Main 12, or Main 12 Intra profiles;
  + the VVC decoder conforms to the Main 12 4:4:4 Still Picture profile and the bitstream conforms to one of the Main 10, Main 10 4:4:4, Main 12, Main 12 Intra, Main 12 4:4:4, or Main 12 4:4:4 Intra profiles;
  + the VVC decoder conforms to the Main 16 4:4:4 Still Picture profile and the bitstream conforms to one of the Main 10, Main 10 4:4:4, Main 12, Main 12 Intra, Main 12 4:4:4, Main 12 4:4:4 Intra, Main 16 4:4:4, or Main 16 4:4:4 Intra profiles;
* the VVC bitstream conforms to a tier that is lower than or equal to the specified tier;
* the VVC bitstream conforms to a level that is not level 15.5 and is lower than or equal to the specified level;
* the first picture of the VVC bitstream is an IRAP picture or a GDR picture with ph\_recovery\_poc\_cnt equal to 0, is in an output layer, and has ph\_pic\_output\_flag equal to 1.