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

**Part 1:  
Systems**

**AMENDMENT 3: JPEG 2000 support in  
MPEG-4**

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

*Partie 1: Systèmes*

*AMENDEMENT 3: Support JPEG 2000 dans MPEG-4*

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## Foreword

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The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 3 to ISO/IEC 14496-1:2004 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

It specifies the mechanisms for enabling the use of JPEG 2000 pictures inside an MPEG-4 scene. It consists in defining the `ObjectTypeIndication`, the `DecoderSpecificInfo` and the Access Unit for JPEG 2000.

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# Information technology — Coding of audio-visual objects —

## Part 1: Systems

### AMENDMENT 3: JPEG 2000 support in MPEG-4

In 7.2.6.6.2, Table 5, add the *ObjectTypeIndication* for JPEG 2000 as follows.

Replace:

**Table 5 — objectTypeIndication Values**

| Value     | ObjectTypeIndication Description                                              |
|-----------|-------------------------------------------------------------------------------|
| 0x00      | Forbidden                                                                     |
| 0x01      | Systems ISO/IEC 14496-1 <sup>a</sup>                                          |
| 0x02      | Systems ISO/IEC 14496-1 <sup>b</sup>                                          |
| 0x03      | Interaction Stream                                                            |
| 0x04      | Systems ISO/IEC 14496-1 Extended BIFS Configuration <sup>c</sup>              |
| 0x05      | Systems ISO/IEC 14496-1 AFX <sup>d</sup>                                      |
| 0x06      | Font Data Stream                                                              |
| 0x07      | Synthesized Texture Stream                                                    |
| 0x08      | Streaming Text Stream                                                         |
| 0x09-0x1F | reserved for ISO use                                                          |
| 0x20      | Visual ISO/IEC 14496-2 <sup>e</sup>                                           |
| 0x21      | Visual ITU-T Recommendation H.264   ISO/IEC 14496-10 <sup>f</sup>             |
| 0x22      | Parameter Sets for ITU-T Recommendation H.264   ISO/IEC 14496-10 <sup>f</sup> |
| 0x23-0x3F | reserved for ISO use                                                          |
| 0x40      | Audio ISO/IEC 14496-3 <sup>g</sup>                                            |
| 0x41-0x5F | reserved for ISO use                                                          |
| 0x60      | Visual ISO/IEC 13818-2 Simple Profile                                         |
| 0x61      | Visual ISO/IEC 13818-2 Main Profile                                           |
| 0x62      | Visual ISO/IEC 13818-2 SNR Profile                                            |
| 0x63      | Visual ISO/IEC 13818-2 Spatial Profile                                        |
| 0x64      | Visual ISO/IEC 13818-2 High Profile                                           |
| 0x65      | Visual ISO/IEC 13818-2 422 Profile                                            |
| 0x66      | Audio ISO/IEC 13818-7 Main Profile                                            |
| 0x67      | Audio ISO/IEC 13818-7 LowComplexity Profile                                   |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 0x68                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Audio ISO/IEC 13818-7 Scalable Sampling Rate Profile |
| 0x69                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Audio ISO/IEC 13818-3                                |
| 0x6A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Visual ISO/IEC 11172-2                               |
| 0x6B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Audio ISO/IEC 11172-3                                |
| 0x6C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Visual ISO/IEC 10918-1                               |
| 0x6D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | reserved for registration authority <sup>i</sup>     |
| 0x6E - 0x9F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | reserved for ISO use                                 |
| 0xA0 - 0xBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | reserved for registration authority <sup>i</sup>     |
| 0xC0 - 0xE0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | user private                                         |
| 0xE1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | reserved for registration authority <sup>i</sup>     |
| 0xE2 - 0xFE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | user private                                         |
| 0xFF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | no object type specified <sup>h</sup>                |
| <p><sup>a</sup> This type is used for all 14496-1 streams unless specifically indicated to the contrary. Scene Description scenes, which are identified with StreamType=0x03, using this object type value shall use the BIFSConfig specified in ISO/IEC 14496-11.</p> <p><sup>b</sup> This object type shall be used, with StreamType=0x03, for Scene Description streams that use the BIFSv2Config specified in ISO/IEC 14496-11. Its use with other StreamTypes is reserved.</p> <p><sup>c</sup> This object type shall be used, with StreamType=0x03, for Scene Description streams that use the BIFSConfigEx specified in subclause 7.2.6.7 of this specification. Its use with other StreamTypes is reserved.</p> <p><sup>d</sup> This object type shall be used, with StreamType=0x03, for Scene Description streams that use the AFXConfig specified in subclause 7.2.6.7 of this specification. Its use with other StreamTypes is reserved.</p> <p><sup>e</sup> Includes associated Amendment(s) and Corrigendum(a). The actual object types are defined in ISO/IEC 14496-2 and are conveyed in the DecoderSpecificInfo as specified in ISO/IEC 14496-2, Annex K.</p> <p><sup>f</sup> Includes associated Amendment(s) and Corrigendum(a). The actual object types are defined in ITU-T Recommendation H.264   ISO/IEC 14496-10 and are conveyed in the DecoderSpecificInfo as specified in this amendment, subclause I.2.</p> <p><sup>g</sup> Includes associated Amendment(s) and Corrigendum(a). The actual object types are defined in ISO/IEC 14496-3 and are conveyed in the DecoderSpecificInfo as specified in ISO/IEC 14496-3 subpart 1 subclause 6.2.1.</p> <p><sup>h</sup> Streams with this value with a StreamType indicating a systems stream (values 1,2,3, 6, 7, 8, 9) shall be treated as if the ObjectTypeIndication had been set to 0x01.</p> <p><sup>i</sup> The latest entries registered can be found in <a href="http://mp4ra.apple.com/object.html">http://mp4ra.apple.com/object.html</a>.</p> |                                                      |

with:

**Table 5 — ObjectTypeInfoIndication Values**

| Value       | ObjectTypeInfoIndication Description                                          |
|-------------|-------------------------------------------------------------------------------|
| 0x00        | Forbidden                                                                     |
| 0x01        | Systems ISO/IEC 14496-1 <sup>a</sup>                                          |
| 0x02        | Systems ISO/IEC 14496-1 <sup>b</sup>                                          |
| 0x03        | Interaction Stream                                                            |
| 0x04        | Systems ISO/IEC 14496-1 Extended BIFS Configuration <sup>c</sup>              |
| 0x05        | Systems ISO/IEC 14496-1 AFX <sup>d</sup>                                      |
| 0x06        | Font Data Stream                                                              |
| 0x07        | Synthesized Texture Stream                                                    |
| 0x08        | Streaming Text Stream                                                         |
| 0x09-0x1F   | reserved for ISO use                                                          |
| 0x20        | Visual ISO/IEC 14496-2 <sup>e</sup>                                           |
| 0x21        | Visual ITU-T Recommendation H.264   ISO/IEC 14496-10 <sup>f</sup>             |
| 0x22        | Parameter Sets for ITU-T Recommendation H.264   ISO/IEC 14496-10 <sup>f</sup> |
| 0x23-0x3F   | reserved for ISO use                                                          |
| 0x40        | Audio ISO/IEC 14496-3 <sup>g</sup>                                            |
| 0x41-0x5F   | reserved for ISO use                                                          |
| 0x60        | Visual ISO/IEC 13818-2 Simple Profile                                         |
| 0x61        | Visual ISO/IEC 13818-2 Main Profile                                           |
| 0x62        | Visual ISO/IEC 13818-2 SNR Profile                                            |
| 0x63        | Visual ISO/IEC 13818-2 Spatial Profile                                        |
| 0x64        | Visual ISO/IEC 13818-2 High Profile                                           |
| 0x65        | Visual ISO/IEC 13818-2 422 Profile                                            |
| 0x66        | Audio ISO/IEC 13818-7 Main Profile                                            |
| 0x67        | Audio ISO/IEC 13818-7 LowComplexity Profile                                   |
| 0x68        | Audio ISO/IEC 13818-7 Scaleable Sampling Rate Profile                         |
| 0x69        | Audio ISO/IEC 13818-3                                                         |
| 0x6A        | Visual ISO/IEC 11172-2                                                        |
| 0x6B        | Audio ISO/IEC 11172-3                                                         |
| 0x6C        | Visual ISO/IEC 10918-1                                                        |
| 0x6D        | reserved for registration authority <sup>i</sup>                              |
| 0x6E        | Visual ISO/IEC 15444-1                                                        |
| 0x6F - 0x9F | reserved for ISO use                                                          |
| 0xA0 - 0xBF | reserved for registration authority <sup>i</sup>                              |
| 0xC0 - 0xE0 | user private                                                                  |
| 0xE1        | reserved for registration authority <sup>i</sup>                              |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 0xE2 - 0xFE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | user private                          |
| 0xFF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | no object type specified <sup>h</sup> |
| <p><sup>a</sup> This type is used for all 14496-1 streams unless specifically indicated to the contrary. Scene Description scenes, which are identified with StreamType=0x03, using this object type value shall use the BIFSConfig specified in ISO/IEC 14496-11.</p> <p><sup>b</sup> This object type shall be used, with StreamType=0x03, for Scene Description streams that use the BIFSv2Config specified in ISO/IEC 14496-11. Its use with other StreamTypes is reserved.</p> <p><sup>c</sup> This object type shall be used, with StreamType=0x03, for Scene Description streams that use the BIFSConfigEx specified in subclause 7.2.6.7 of this specification. Its use with other StreamTypes is reserved.</p> <p><sup>d</sup> This object type shall be used, with StreamType=0x03, for Scene Description streams that use the AFXConfig specified in subclause 7.2.6.7 of this specification. Its use with other StreamTypes is reserved.</p> <p><sup>e</sup> Includes associated Amendment(s) and Corrigendum(a). The actual object types are defined in ISO/IEC 14496-2 and are conveyed in the DecoderSpecificInfo as specified in ISO/IEC 14496-2, Annex K.</p> <p><sup>f</sup> Includes associated Amendment(s) and Corrigendum(a). The actual object types are defined in ITU-T Recommendation H.264   ISO/IEC 14496-10 and are conveyed in the DecoderSpecificInfo as specified in this amendment, subclause I.2.</p> <p><sup>g</sup> Includes associated Amendment(s) and Corrigendum(a). The actual object types are defined in ISO/IEC 14496-3 and are conveyed in the DecoderSpecificInfo as specified in ISO/IEC 14496-3, subpart 1, subclause 6.2.1.</p> <p><sup>h</sup> Streams with this value with a StreamType indicating a systems stream (values 1,2,3, 6, 7, 8, 9) shall be treated as if the ObjectTypeIndication had been set to 0x01.</p> <p><sup>i</sup> The latest entries registered can be found in <a href="http://www.mp4ra.org/object.html">http://www.mp4ra.org/object.html</a>.</p> |                                       |

In 7.2.6.6.2, add the Access Unit format for JPEG 2000 as follows.

Replace:

“When the objectTypeIndication value is 0x6C (Visual ISO/IEC 10918-1, which is JPEG) the stream may contain one or more Access Units, where one Access Unit is defined to be a complete JPEG (as defined in Visual ISO/IEC 10918-1). Note, that that timing and other Access Unit and packetization information is to be carried in the transport layer such as the MPEG-4 Sync Layer.”

with:

“When the objectTypeIndication value is 0x6C (Visual ISO/IEC 10918-1, which is JPEG) the stream may contain one or more Access Units, where one Access Unit is defined to be a complete JPEG (as defined in Visual ISO/IEC 10918-1). Note, that timing and other Access Unit and packetization information is to be carried in the transport layer such as the MPEG-4 Sync Layer.

When the objectTypeIndication value is 0x6E (Visual ISO/IEC 15444-1, which is JPEG 2000) the stream may contain one or more Access Units, where one Access Unit is defined to be a complete JPEG 2000 (as defined in Visual ISO/IEC 15444-1). Note, that timing and other Access Unit and packetization information is to be carried in the transport layer such as the MPEG-4 Sync Layer.

NOTE The format defined in ISO/IEC 15444-3 is preferred for the storage of JPEG 2000 sequences in file format of the ISO/IEC 14496-12 family, including MP4.”