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

Part 4:

Conformance testing

**AMENDMENT 2: MPEG-4 conformance
extensions for XMT and media nodes**

Technologies de l'information — Codage des objets audiovisuels —

Partie 4: Essai de conformité

*AMENDEMENT 2: Extensions de conformité pour XMT et nœuds
médias*

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Published in Switzerland

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Amendment 2 to ISO/IEC 14496-4:2004 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 4: Conformance testing

AMENDMENT 2: MPEG-4 conformance extensions for XMT and media nodes

Add the following text at the end of Clause 4.

4.9 Extensible MPEG-4 Textual Format (XMT)

4.9.1 Conformance Points

XMT-A conformance points are:

- The XMT language: XMT-A ,
- SDSM and ODSM in mp4 produced from the XMT-A to mp4.

XMT-O conformance points are:

- The XMT language : XMT-O,
- SDSM and ODSM in mp4 produced from the XMT-O to mp4,
- Consumer behavior.

4.9.2 Measurement Procedure

XMT-A conformance can be measured by the following procedure:

1. Conformance on the format :
 - Validate the syntax by the XML Schema parser against the XMT-A Schema
 - Encode the format with a conforming encoder to mp4 and check its conformance.
2. Conformance on encoders: (A conforming encoder, respecting encoding hints, can produce a deterministically coded binary stream for streams defined in MPEG-4 systems).
 - Maintain a set of test cases and their corresponding bit streams (mp4 files) generated by the conforming encoder.
 - Test encoder generates mp4 files from the test cases.
 - Run smart diff tool in mp4 space against mp4 files pair-wise. SDSM and ODSM in mp4 are conformance points. Note: it's not necessarily the same mp4 file.

XMT-O conformance can be verified by the following procedure:

1. Conformance on the format:
 - Validate the syntax by the XML Schema parser against the XMT-A Schema
 - Encode the format with a conforming encoder to mp4 and check its conformance.
2. Conformance on encoders: (consumer behavior is verified).
 - Maintain a set of test cases and their corresponding bit streams (mp4 files) generated by the conforming encoder.
 - Test encoder generates mp4 files from the test cases.
 - Play mp4 files pair-wise by the conforming player and check visual differences.
 - there should be no frame difference ideally
 - there should be no visual difference practically

4.10 MediaSensor

4.10.1 Bitstream conformance

4.10.1.1 Conformance Requirements

BIFS streams shall comply with the specifications in Clause 9 of ISO/IEC 14496-1:2001.

4.10.1.2 Measurement procedure

Syntax of the BIFS stream shall meet the requirements of Clause 9 of ISO/IEC 14496-1:2001.

4.10.1.3 Tolerance

There is no tolerance for bitstream syntax checking. The diagnosis is pass or fail.

4.10.2 Terminal conformance

4.10.2.1 Conformance Points

MediaSensor conformance points are defined in the **MediaSensor** node by its fields. The **mediaCurrentTime**, **streamObjectStartTime**, **mediaDuration**, and **info** fields may not contain any valid information if the media time of the media in the **url** field is not known.

4.10.2.2 Measurement Procedure

The terminal shall produce formatted output each time a media node that references the same stream as a **MediaSensor** node become active. The output is to include:

- The stream object.
- The **mediaCurrentTime**, **streamObjectStartTime**, **mediaDuration**, and **info**. The times are given in seconds.

Further, the terminal shall then output the **mediaCurrentTime** for each AU in the stream object.

4.10.2.3 Output Format

The output format is in XML. An example is:

```
<MediaSensor url="od:4" mediaCurrentTime="0"
              streamObjectStartTime="1021"
              mediaDuration="1200"
              info="MPEG News Segment"/>
<mediaCurrentTime time="0.016"/ >
<mediaCurrentTime time="0.032"/ >
<mediaCurrentTime time="0.048"/ > . . . . .
```

4.10.2.4 Tolerance

The conformance is passed when the time values reflect the correct media Time, as defined in ISO/IEC 14496-1:2001.

4.11 MediaControl

4.11.1 Bitstream conformance

4.11.1.1 Conformance Requirements

BIFS streams shall comply with the specifications in Clause 9 of ISO/IEC 14496-1:2001.

4.11.1.2 Measurement procedure

Syntax of the BIFS stream shall meet the requirements of Clause 9 of ISO/IEC 14496-1:2001.

4.11.1.3 Tolerance

There is no tolerance for bitstream syntax checking. The diagnosis is pass or fail.

4.11.2 Terminal conformance

4.11.2.1 Conformance Points

MediaControl conformance points the following:

- The **mediaStartTime** and **mediaStopTime** of the delivered stream object shall conform to the definition of these fields in the node.
- The **enabled** flag shall be set to true in the last set node and false in all others referring to the same stream.
- The **mute** field shall cause the rendering to stop.

It is important to note that **preRoll** and **mediaSpeed** are 'best effort' mechanisms that do not constitute conformance points.

4.11.2.2 Measurement Procedure

The terminal shall produce formatted output each time a media node that references the same stream as a MediaSensor node become active. The output is to include:

- The stream object.
- The mediaCurrentTime for the stream for each AU in the stream object.
- The state of the enabled field.
- The state of the mute field.

4.11.2.3 Output Format

The output format is in XML. An example is:

```
<mediaCurrentTime time="0.016" enabled=" TRUE" mute=" FALSE"/>  
<mediaCurrentTime time="0.032" enabled=" TRUE" mute=" FALSE"/>  
<mediaCurrentTime time="0.048" enabled=" TRUE" mute=" TRUE"/> . . . . .
```

4.11.2.4 Tolerance

The conformance is passed when the time values reflect the correct media Time, as defined in ISO/IEC 14496-1:2001. The rendering functionality must be observed visually.

4.12 MediaBuffer

4.12.1 Bitstream conformance

4.12.1.1 Conformance Requirements

BIFS streams shall comply with the specifications in Clause 9 of ISO/IEC 14496-1:2001

4.12.1.2 Measurement procedure

Syntax of the BIFS stream shall meet the requirements of Clause 9 of ISO/IEC 14496-1:2001.

4.12.1.3 Tolerance

There is no tolerance for bitstream syntax checking. The diagnosis is pass or fail.

4.12.2 Terminal conformance

4.12.2.1 Conformance Points

MediaBuffer conformance points the following:

- The buffer size used to store incoming media samples.
- The ability to substitute media samples from the buffer rather than from the server, when appropriate.