INTERNATIONAL STANDARD

ISO/IEC 14496-25

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Information technology — Coding of audio-visual objects —

Part 25: 3D Graphics Compression Model

Technologies de l'information — Codage d'objets audiovisuels —

Partie 25: Modèle de compression graphique 3D

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

ISO/IEC 14496-25 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This second edition cancels and replaces the first edition (ISO/IEC 14496-25:2009), which has been technically revised.

ISO/IEC 14496 consists of the following parts, under the general title *Information technology — Coding of audio-visual objects*:

— *Part 1: Systems*

— *Part 2: Visual*

— *Part 3: Audio*

— *Part 4: Conformance testing*

— *Part 5: Reference software*

— *Part 6: Delivery Multimedia Integration Framework (DMIF)*

— *Part 7: Optimized reference software for coding of audio-visual objects* [Technical Report]

— *Part 8: Carriage of ISO/IEC 14496 contents over IP networks*

— *Part 9: Reference hardware description* [Technical Report]

— *Part 10: Advanced Video Coding*

— *Part 11: Scene description and application engine*

— *Part 12: ISO base media file format*

— *Part 13: Intellectual Property Management and Protection (IPMP) extensions*

— *Part 14: MP4 file format*

— *Part 15: Advanced Video Coding (AVC) file format*

— *Part 16: Animation Framework eXtension (AFX)*

— *Part 17: Streaming text format*

— *Part 18: Font compression and streaming*

— *Part 19: Synthesized texture stream*

— *Part 20: Lightweight Application Scene Representation (LASeR) and Simple Aggregation Format (SAF)*

— *Part 21: MPEG-J Graphics Framework eXtensions (GFX)*

— *Part 22: Open Font Format*

— *Part 23: Symbolic Music Representation*

— *Part 24: Audio and systems interaction* [Technical Report]

— *Part 25: 3D Graphics Compression Model*

— *Part 26: Audio conformance*

— *Part 27: 3D Graphics conformance*

Introduction

Within ISO/IEC 14496-11 and ISO/IEC 14496-16, several tools for compression of 3D graphics primitives are standardized (for geometry, texture and animation). Such tools are designed to apply on representations information as defined in ISO/IEC 14496-11 (commonly know as BIFS).

In this International Standard, the paradigm changes, making it possible to apply the compression tools for 3D graphics defined in ISO/IEC 14496-11 and ISO/IEC 14496-16 to potentially any representation formats for scene graph and graphics primitives expressed in XML.

Currently, the model is implemented for XMT, COLLADA and X3D.

Information technology — Coding of audio-visual objects —

Part 25:
3D Graphics Compression Model

1 Scope

This part of ISO/IEC 14496 describes a model for connecting 3D graphics compression tools defined in ISO/IEC 14496 to graphics primitives defined in any other standard, specification or recommendation.

The goal of this part of ISO/IEC 14496 is to specify an architectural model able to accommodate

- third-party XML based descriptions of scene graph and graphics primitives with
- (potential) binarization tools and with
- MPEG-4 3D graphics compression tools specified in ISO/IEC 14496-2, ISO/IEC 14496-11 and ISO/IEC 14496-16.

The advantages of such an approach are on the one side the use of powerful compression tools for graphics and on the other side the generality of graphics primitives representation. Hence, compression tools developed in ISO/IEC 14496-2, ISO/IEC 14496-11 and ISO/IEC 14496-16 would be applied not only to the scene graph defined by ISO/IEC 14496-11 but to any scene graph definition. The bitstreams obtained when using the model are MP4 formatted and contain XML (or binarized XML) for the scene graph and binary elementary streams for graphics compression (geometry, texture and animation).