AS ISO/IEC 14496.18—2004

Australian Standard™

Information technology—Coding of audio-visual objects

Part 18: Font compression and streaming

STANDARDS AUSTRALIA

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PREFACE

This Standard was prepared by the Standards Australia Committee IT-029, Coded Representation of Picture, Audio and Multimedia/Hypermedia Information.

This Standard is identical with, and has been reproduced from, ISO/IEC 14496-18:2004, *Information technology—Coding of audio-visual objects*—Part 18: *Font compression and streaming*.

The objective of this Standard is to provide the multimedia designer with efficient data compression and streaming techniques to embed font data in MPEG-4 encoded presentations.

The terms 'normative' and 'informative' are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

As this Standard is reproduced from an international standard, the following applies:

(a) Its number appears on the cover and title page while the international standard number appears only on the cover.

(b) In the source text 'this International Standard' should read 'this Australian Standard'.

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References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian Standard/New Zealand Standard*	
ISO/IEC		AS/NZS	
14496	Information technology—Coding of audio-visual objects	14496	Information technology—Coding of audio-visual objects
14496-1	Part 1: Systems	14496.1	Part 1: Systems

Only referenced documents that have been adopted as Australian or Australian/New Zealand Standards have been listed.

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INTRODUCTION

ISO/IEC 14496 specifies a system for the communication of interactive audio-visual scenes. The specification includes the following elements:

1. the coded representation of natural or synthetic, two-dimensional (2D) or three-dimensional (3D) objects that can be manifested audibly and/or visually (audio-visual objects) (specified in part 1,2 and 3 of ISO/IEC 14496);

2. the coded representation of the spatio-temporal positioning of audio-visual objects as well as their behaviour in response to interaction (scene description, specified in part 11 of ISO/IEC 14496);

3. the coded representation of information related to the management of data streams (synchronization, identification, description and association of stream content, specified in part 11 of ISO/IEC 14496);

4. a generic interface to the data stream delivery layer functionality (specified in part 6 of ISO/IEC 14496);

5. an application engine for programmatic control of the player: format, delivery of downloadable Java byte code as well as its execution lifecycle and behaviour through APIs (specified in part 11 of ISO/IEC 14496); and

6. a file format to contain the media information of an ISO/IEC 14496 presentation in a flexible, extensible format to facilitate interchange, management, editing, and presentation of the media.

The information representation, specified in ISO/IEC 14496-1 and in ISO/IEC 14496-11, describes the means to create an interactive audio-visual scene in terms of coded audio-visual information and associated scene description information. The encoded content is presented to a terminal as the collection of elementary streams. Elementary streams contain the coded representation of either audio or visual data or scene description information or user interaction data. Elementary streams may as well themselves convey information to identify streams, to describe logical dependencies between streams, or to describe information related to the content of the streams. Each elementary stream contains only one type of data.

Elementary streams are decoded using their respective stream-specific decoders. The audio-visual objects are composed according to the scene description information and presented by the terminal's presentation device(s). All these processes are synchronized according to the systems decoder model (SDM) using the synchronization information provided at the synchronization layer.

The scene description stream identifies different types of objects, such as audio, visual, 2D and 3D graphics, etc. that define a scene composition of the content. Among these objects, the essential part of almost any multimedia presentation is text objects that are created utilizing specific custom fonts. Font selection determines the appearance of a text in multimedia content and it's the most critical factor that assures text legibility and readability. It also plays critical role in the overall scene composition since the metric properties of a font are used for textual parts of multimedia content layout. Many thousands of fonts are available today for use in content creation and in order to assure correct appearance and layout of a content the font data have to be included (embedded) with the text objects as part of the multimedia presentation.

Font data compression and streaming technology presented in this document provide efficient mechanism to embed font data in MPEG-4 encoded presentations.

AUSTRALIAN STANDARD

Information technology — Coding of audio-visual objects —

Part 18:
Font compression and streaming

1 Scope

This part of ISO/IEC 14496 specifies functionalities for the communication of font data as part of the MPEG-4 encoded audio-visual presentation. More specifically, it defines:

1. Font format representation that is utilized for font data encoding (OpenType);
2. Font compression technology for TrueType and OpenType fonts with TrueType outlines; and
3. The coded representation of information in font data streams.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 14496-1, *Information technology — Coding of audio-visual objects — Part 1: Systems*

ISO/IEC 14496-11, *Information technology — Coding of audio-visual objects — Part 11: Scene description and application engine*

The OpenType Specification - available on the Microsoft Typography website at <http://www.microsoft.com/typography/otspec/default.htm> or the Adobe Solutions Network website at <http://partners.adobe.com/asn/tech/type/opentype/index.jsp>

3 Font Data Format

In order to guarantee the original appearance of the content, to preserve corporate branding and identity in streaming multimedia presentations and to provide support for all languages, MPEG-4 supports text rendering utilizing rich formatting capabilities and custom fonts.

MPEG-4 adopts OpenType®[1)], version 1.4, as its font data format for the purposes of uniform font data transmission and predictable text rendering. OpenType has emerged as the font solution for high-quality text processing, multimedia applications and cross platform Internet document portability. OpenType is a full-featured font format that enables the highest quality of text rendering on low-resolution displays, advanced typographic features and international character support. It is fully compatible with the existing and widely adopted TrueType™[2)] fonts.

MPEG-4 requires fonts to contain a Unicode character map ('cmap') table.

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1) OpenType is a registered trademark of Microsoft Corporation.

2) TrueType is a trademark of Apple Computer Incorporated.