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AMENDMENT 1
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Information technology — Coding of audio-visual objects —

Part 22: Open Font Format

AMENDMENT 1: Color font technology and other updates

Technologies de l'information — Codage des objets audiovisuels —

Partie 22: Format de police de caractères ouvert

AMENDEMENT 1: Technologie des polices colorées et autres mises à jour

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

A list of all parts in the ISO/IEC 14496 series can be found on the ISO website.

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Information technology — Coding of audio-visual objects —

Part 22:
Open Font Format

AMENDMENT 1: Color font technology and other updates

4.5.2

Replace the description of the "Offset" field in the "Table Directory" table with the following:

Offset from beginning of OFF font file.

5.3.4.1.1

Replace the first sentence of the first paragraph with the following:

This is the table information needed if numberOfContours is greater than or equal to zero, that is, a glyph is not a composite.

Replace the final paragraph (immediately following the "Simple Glyph flags" table) with the following:

A non-zero-fill algorithm is needed to avoid dropouts when contours overlap. The OVERLAP_SIMPLE flag is used by some rasterizer implementations to ensure that a non-zero-fill algorithm is used rather than an even-odd-fill algorithm. Implementations that always use a non-zero-fill algorithm will ignore this flag. Note that some implementations might check this flag specifically in non-variable fonts, but always use a non-zero-fill algorithm for variable fonts. This flag can be used in order to provide broad interoperability of fonts — particularly non-variable fonts — when glyphs have overlapping contours.

Note that variable fonts often make use of overlapping contours. This has implications for tools that generate static-font data for a specific instance of a variable font, if broad interoperability of the derived font is desired: if a glyph has overlapping contours in the given instance, then the tool should either set this flag in the derived glyph data, or else should merge contours to remove overlap of separate contours.

5.4.3.10

In the descriptions of both "FDSelect Format3" and "Range3 Record Format", add the following NOTE after the last paragraph:

NOTE Since a sentinel GID is used to delimit the last range in the array, its value, encoded as a uint16, cannot exceed the value 65535. Therefore, the last GID encoded when using FDSelect Format3 cannot exceed 65534.

In the description of "FDSelect Format4", in the first paragraph, replace the reference to 65536 [glyphs] with 65535.

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In the description of “Range4 Record Format” replace all references to 65536 [glyphs] with 65535.

5.4.3.11

In the 'blend' row of the table – replace "number of blends" with the "numberOfBlends".

5.5.1

Replace the entire content of subclause 5.5.1 with the following:

This table contains SVG descriptions for some or all of the glyphs in the font.

OFF provides various formats for color fonts, one of which is the SVG table. The SVG table provides the benefits of supporting scalable color graphics using the Scalable Vector Graphics markup language, a vector graphics file format that is widely used on the Web and that provides rich graphics capabilities, such as gradients.

SVG was developed for use in environments that allow for a rich set of functionality, including leveraging the full functionality of Cascading Style Sheets for styling, and programmatic manipulation of graphics objects using the SVG Document Object Model. Adoption of SVG for use in OpenType does not entail wholesale incorporation of all SVG capabilities. Text-rendering engines typically have more stringent security, performance and architectural requirements than general-purpose SVG engines. For this reason, when used within OFF fonts, the expressiveness of the language is limited and simplified to be appropriate for environments in which font processing and text layout occurs.

The SVG table is optional, and may be used in OFF fonts with TrueType, CFF or CFF2 outlines. For every SVG glyph description, there must be a corresponding TrueType, CFF or CFF2 glyph description in the font.

SVG Table Header

Type	Name	Description
uint16	version	Table version (starting at 0). Set to 0.
Offset32	offsetToSVGDocumentList	Offset the SVG Documents List, from the start of the SVG table. Must be non-zero.
uint32	reserved	Set to 0.

SVG Document List

The SVG document list provides a set of SVG documents, each of which defines one or more glyph descriptions.

Type	Name	Description
uint16	numEntries	Number of SVG Document Index Entries. Must be non-zero.
SVGDocumentRecord	documentRecords[numEntries]	Array of SVG document records.

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SVGDocumentRecord

Each SVG document record specifies a range of glyph IDs (from startGlyphID to endGlyphID, inclusive), and the location of its associated SVG document in the SVG table.

Type	Name	Description
uint16	startGlyphID	The first glyph ID for the range covered by this record.
uint16	endGlyphID	The last glyph ID for the range covered by this record.
Offset32	svgDocOffset	Offset from the beginning of the SVGDocumentList to an SVG document. Must be non-zero.
uint32	svgDocLength	Length of the SVG document data. Must be non-zero.

Records must be sorted in order of increasing startGlyphID. For any given record, the startGlyphID must be less than or equal to the endGlyphID of that record, and also must be greater than the endGlyphID of any previous record.

NOTE Two or more records can point to the same SVG document. In this way, a single SVG document can provide glyph descriptions for discontinuous glyph ID ranges. See Example 1 in subclause 5.5.6

5.5.2

Insert a new subclause 5.5.2 and renumber the remaining subclauses within subclause 5.5:

5.5.2 SVG Documents

SVG specification

The SVG markup language used in the SVG table shall be as defined in the Scalable Vector Graphics (SVG) 1.1 (2nd edition), W3C Recommendation. Any additional SVG features are not supported, unless explicitly indicated otherwise.

Previous editions of this document allowed use of context-fill and other context-* property values, which are defined in the draft SVG 2 specification. Use of these properties is deprecated: conforming implementations may support these properties, but support is not required or recommended, and use of these properties in fonts is strongly discouraged.

Document encoding and format

SVG documents within an OFF SVG table may either be plain text or gzip-encoded, and applications that support the SVG table shall support both.

The gzip format is defined in RFC 1952 (Reference [31]). Within a gzip-encoded SVG document, the deflate compression method (defined by RFC 1951) must be used. Thus, the first three bytes of the gzip-encoded document header must be 0x1F, 0x8B, 0x08.

Whether compressed or plain-text transfer encoding is used, the SVGDocLength field of the SVG document record specifies the length of the encoded data, not the decoded document.

The encoding of the (uncompressed) SVG document must be UTF-8.

While SVG 1.1 is defined as an XML application, some SVG implementations for the Web use an "HTML dialect". The "HTML dialect" differs from the XML-based definition in various ways, including being case-insensitive (XML is case-sensitive), and not requiring an *xmlns* attribute on the SVG root element. Applications that support the OFF SVG table shall support the XML-based definition for SVG 1.1. Applications may use SVG-parsing libraries that also support the "HTML dialect". However, SVG documents within the OFF fonts must always conform to the XML-based definition.

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While SVG 1.1 requires conforming interpreters to support XML namespace constructs, applications that support the OpenType SVG table are not required to have full support for XML namespaces. The root element of each SVG document must declare SVG as the default namespace:

```
<svg version="1.1" xmlns="http://www.w3.org/2000/svg">
```

If the XLink *href* attribute is used, the root must also declare "xlink" as a namespace in the root element:

```
<svg version="1.1"    xmlns="http://www.w3.org/2000/svg"
                      xmlns:xlink="http://www.w3.org/1999/xlink">
```

No other XLink attributes or other mechanisms may be used anywhere in the document. Also, no other namespace declarations should be made in any element.

SVG capability requirements and restrictions

Most SVG 1.1 capabilities are supported in OFF and should be supported in all OFF applications that support the SVG table. Some SVG 1.1 capabilities are not required and may be optionally supported in applications. Certain other capabilities are not supported in OFF and must not be used in SVG documents within OFF fonts.

The following capabilities are restricted from use in OFF and must not be used in conforming fonts. If use of associated elements is encountered within a font, conforming applications must ignore and not render those elements.

— <text>, <font>, and associated elements

— <foreignObject> elements

— <switch> elements

— <script> elements

— <a> elements

— <view> elements

— XSL processing

— Use of relative units em, ex

— Use of SVG data within <image> elements

— Use of color profiles (the <icccolor> data type, the <color-profile> element, the color-profile property, or the CSS @color-profile rule)

— Use of the contentStyleType attribute

— Use of CSS2 system color keywords

SVG documents may include <desc>, <metadata> or <title> elements, but these are ignored by implementations.

Support for the following capabilities is not required in conforming implementations, though some applications may support them. Font developers should evaluate support for these capabilities in the target environments in which their fonts will be used before using them in fonts. To ensure interoperability across the broadest range of environments, use of these capabilities should be avoided.

— Internal CSS stylesheets (expressed using the <style> element)

— CSS inline styles (expressed using the style attribute)

— CSS variables (custom properties) — but see further qualifications below

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