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**The Font Primary Content Type for
Multipurpose Internet Mail Extensions**

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Abstract

This document serves to register and document the top-level MIME type for fonts, under which the representation formats for fonts may be registered. It also registers some specific font types under that top-level type.

1 Introduction

The process of setting type in computer systems and other forms of text presentation systems uses fonts in order to provide visual representations of the glyphs. Just as with images, for example, there are a number of ways to represent the visual information of the glyphs. Early formats often used bitmaps, as these could be carefully tuned for maximum readability at a given size, and the displays were often 1-bit deep only. More recently, outline fonts have come into use: in these fonts, the outlines of the glyphs are described, and the presentation system renders the outline in the desired position and size.

This document defines a top-level MIME type "font" under which differing representation formats of fonts may be registered (e.g. a bitmap or outline format). It should be emphasized that, just as under the "image" top-level type one does not find registration for, for example, "The Night-watch" (by Rembrandt) but instead "JPEG" (an image representation system), so, under "font" one will not find "Courier" (the name of a popular font) but perhaps "BDF" (the name of a commonly used bitmap font format).

Historically there has not been a registration of formats for fonts. Currently there is only one font representation format registered in MIME, and that is under the "application" top-level type. However, the use of this top-level type is not ideal. First, the "application" sub-tree is treated (correctly) with great caution with respect to viruses and other active code. Secondly, the lack of a top-level type means that there is no opportunity to have a common set of optional attributes, such as are specified here. Third, fonts have a unique set of licensing and usage restrictions, which makes it worthwhile to identify this general category with a unique top-level

type.

2 Security Considerations

Fonts are interpreted data structures.

Fonts may contain 'hints' for the alignment of visual aspects of the glyphs with the display, and these hints may appear to be active code. However, they operate within the confines of the glyph outline conversion system and have no access outside the font rendering machinery.

Fonts can be, however, quite complex, and a maliciously designed complex font could cause undue resource consumption (e.g. memory or CPU cycles) on a machine interpreting it. This is the case for many formats however. Indeed, fonts are sufficiently complex that most if not all interpreters cannot be completely protected from malicious fonts without undue performance penalties.

Fonts are often licensed and that license may place restrictions on the transmission of all or part of the font. It is outside the scope of this specification to mandate any particular behavior, but the authors of MIME registrations under the 'font' top-level type SHOULD at the very least also mention the licensing considerations for the transmission of fonts.

3 Definition

3.1 Encoding

Unrecognized sub-types of "font" should be treated as "application/octet-stream". Implementations may pass unrecognized sub-types to a common font-handling system, if any.

Different subtypes of font may be encoded as textual representations or as binary data. Unless noted in the subtype registration, subtypes of font should be assumed to contain binary data, implying a content encoding of base64 for email and binary transfer for ftp and http.

3.1 Common Parameters

The following two parameters may be supplied for any registration under the "font" top-level type unless specifically disallowed by the registration of that format.

It might be thought desirable to have a sub-parameter for the glyph coverage of a font, but there is no known method that gives an

adequate summary of the coverage in an exact enough form to be useful. This specification does not, therefore, define any such parameter. However, the authors are investigating whether the Unicode sets as defined at <
http://www.unicode.org/reports/tr35/#Unicode_Sets> could meet this need.

These parameters are informative and typically duplicate information found in the font itself. For interpreting the font file, the information within the file is definitive and over-rides any of these parameters. These parameters can be used to determine whether a font can or should be opened, for example. The parameters SHOULD correspond to what is in the file.

font-name="string"

This is the reference name for the font; a non-localized name that is used to refer to it. In many fonts (even those not using PostScript), this is the called "the postscript name". (e.g. "Courier").

font-size="integer"

If a font is designed for use at a particular size (e.g. a bitmap font), then this parameter is used to indicate the intended display size. The value of the parameter is the nominal 'design size' of the font, in pixels (e.g. a font designed for a nominal display size of 10 points on a display with 1 pixel per point would report the value "10" here). This parameter is normally only used for fonts such as a single-size bitmap font, designed for use at one size only.

subformat="string"

For font containers that allow multiple representations, and therefore could require different font machinery, this identifies the format needed, from an enumerated set defined in this specification or specifications of specific formats under the "font/" node. This specification defines "truetype" and "postscript" as possible values for this parameter.

unicode="boolean"

The value of this parameter indicates whether the font supports a mapping from Unicode scalar values or Unicode encoding form to specific glyph(s); it takes the value "true" or "false".

[4](#) Defined and Expected Sub-types

In this section the initial entries under the top-level 'font' MIME type are documented. They also serve as examples for future registrations.

Note that Macintosh operating systems are not particular about the file-type code used for fonts, and that it is correct that the two overlapping formats registered here use the same file type.

4.1 OpenType

The font/opentype content-type refers fonts that conform to the OpenType specification. OpenType fonts are a special case of SFNT fonts, which have a separate MIME type. The specific OpenType MIME type is preferred when the fact that it is an OpenType font is salient to the application or usage, and when the originating system can reasonably determine that a font is a valid OpenType font.

To: ietf-types@iana.org

Subject: Registration of Standard MIME media type font/opentype

MIME media type name:	font
MIME subtype name:	opentype
Required parameters:	none
Optional parameters:	any of the common parameters for 'font' may be used, as documented in RFC XXXX
Encoding considerations:	files are binary and should be transmitted in a suitable encoding without CR/LF conversion, 7-bit stripping etc.; base64 is a suitable encoding;
Security considerations:	see the security considerations section in RFC XXXX
Interoperability considerations:	OpenType fonts should ...
Published specification:	http://www.microsoft.com/typography/otspec/default.htm
Applications which use this media type:	Messaging and multi-media
Additional information:	
Magic number(s):	no true magic number, but currently files start with a 32-bit field, which contains either 0x00010000 or 'OTTO'
File extension(s):	"otf" is the common extension used; "ttf" may be used for OpenType fonts containing TrueType outlines, "ttc" is used for TrueType Collections fonts
Macintosh File Type Code(s):	sfnt may be used but is not required

Person & email address to contact for further information:

??? : ???@???.com

Intended usage:

COMMON

Change controller:

??? : ???@???.com

4.2 Sfont

The font/sfont content-type refers fonts that are contained within an 'sfont' (scalable font) container, but that are not necessarily OpenType. (OpenType fonts also use this container format, but there is a substantial body of fonts using the container format that are not OpenType fonts).

To: ietf-types@iana.org

Subject: Registration of Standard MIME media type font/sfont

MIME media type name:	font
MIME subtype name:	sfont
Required parameters:	none
Optional parameters:	any of the common parameters for 'font' may be used, as documented in RFC XXXX
Encoding considerations:	files are binary and should be transmitted in a suitable encoding without CR/LF conversion, 7-bit stripping etc.; base64 is a suitable encoding;
Security considerations:	see the security considerations section in RFC XXXX
Interoperability considerations:	Sfont fonts may contain a variety of tables, some or all of which may be vendor-specific or otherwise non-standard. The SFNT structure does not require any specific set of tables, though there are tables in common use. Interoperability is not assured.
Published specification:	http://developer.apple.com/fonts/TTRefMan/
Applications which use this media type:	Messaging and multi-media
Additional information:	
Magic number(s):	no true magic number, but currently files start with a 32-bit field, which contains either 0x00010000, or 'OTTO', or 'true' or 'typ1'
File extension(s):	"ttf" is a common extension used, for sfont-housed TrueType fonts

Macintosh File Type Code(s): sfnt may be used but is not required
Person & email address to contact for further information:
 ???: ???@???.com
Intended usage: COMMON
Change controller: ???: ???@???.com

[5](#) IANA Considerations

This document registers the top-level MIME type "font", and the "opentype" font type under "font".

[6](#) RFC Editor Considerations

The references to RFC XXXX in the MIME registrations need to be replaced with the actual RFC number when it is issued.

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