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Enabling PDF Font Embedding for CID-Keyed Fonts

Adobe Developer Support

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1 Introduction

This document explains how developers of CID fonts can specifiy whether their fonts can be embedded in PDF documents.

2 Acrobat Font Embedding Overview

When creating a PDF file using Adobe® Acrobat®, users can choose whether to embed the fonts being used in their document. If the fonts are embedded, they become part of the PDF document. Whenever the PDF document is viewed or printed, the embedded fonts are used. By using embedded fonts, the author ensures that the document will display and print exactly as it was intended.

However, embedding fonts in a PDF file does result in a larger file. When the look of a particular font is not important, an author may choose not to embed the font. In this case, Acrobat will place just the name of the font in the PDF file. When the PDF file is viewed or printed, the correct font will be used if it is already installed on the user's system or printer; if not, then Acrobat will use a substitute font.

For font substitution for Roman fonts, Acrobat creates a font dynamically that matches some of the characteristics of the original font. For double-byte fonts, Acrobat tries to choose a font on the system or printer that is similar to the original font.

Currently, the following Roman typeface vendors are among those that allow embedding, and appear in the Acrobat documentation: Linotype-Hell AG, International Typeface Corporation, Agfa-Gevaert, Alpha-Omega, Bigelow &Holmes, Fundicion Tipografica Neufville, Adobe Originals, and Monotype Typography, Ltd.

3   Double-Byte Font Embedding in Acrobat

In future versions of Acrobat, double-byte CJK (Chinese, Japanese and Korean) fonts wil be able to be embedded in PDF files created by the Acrobat Distiller®. The Distiller will only embed CID-keyed Type 1 fonts or TrueType fonts. OCF-format Type 1 fonts cannot be embedded. The Distiller will embed only those fonts that have the vendor's permission to be embedded (see below).

When embedded, a double-byte font is both subsetted and compacted. Only the outlines of the characters actually used in the PDF document are included. The character outlines are not encrypted, but they are compacted using the Compact Font Format (see Adobe Technical Note #5176: *The Compact Font Format Specification*).

The fonts embedded in the PDF file are then used whenever the document is displayed or printed, including when printing to high-resolution devices.

4   Enabling Embedding Of CID fonts

The original CID-keyed font specification did not have a way to indicate what type of embedding rights a font has. In contrast, TrueType fonts and OpenType fonts have an entry in the OS/2 table that specifies embedding rights.

Adobe is extending the CID font specification to allow the inclusion of embedding licensing rights information. The following section describes this extension.

5   CIDFont Extension to Define Embedding Rights

A CID-keyed font can contain information that indicates the font embedding licensing rights for the font. Embedding licensing rights are determined and granted by the vendor of the font. This information will be consulted by Adobe applications that produce PDF files, to determine whether font embedding is permitted.

Font embedding licensing rights for a CIDFont must be specified in the **FontInfo** dictionary of the CIDFont dictionary. The **FontInfo** dictionary should have a key named **FSType** with a value that is an integer with values between 0 and 65536. The bits in the integer are set according to the specification of the **fsType** field in the OS/2 table as defined for OpenType fonts by the "OpenType Specification version 1.0." This description can be found at the following URL:

http://www.adobe.com/supportservice/devrelations/opentype/os2.htm.

If a font has a **FSType** value of 4 or 8 (Preview & Print embedding and Editable embedding) Acrobat will permit embedding. In the absence of the **FSType** entry in a CIDFont font embedding will in general not be permitted.

Example:

To indicate that a CIDFont can be embedded for preview or print, the following entry must be put in the **FontInfo** dictionary:

```
/FontInfo 3 dict dup begin
/Notice
((c) Copyright 1998 Adobe Systems Incorporated. All rights
reserved.) def
/FullName (KozMin-Regular) def
/FSType 4 def
end readonly def
```

To prevent embedding of fonts, the following entry would be used:

```
/FontInfo 3 dict dup begin
/Notice
((c) Copyright 1998 Adobe Systems Incorporated. All rights
reserved.) def
/FullName (KozMin-Regular) def
/FSType 2 def
end readonly def
```

For your reference, the following is a portion of the *OpenType Specification version 1.0* that describes the **fsType** flag. This full and current specification can be found at the following URL:

http://www.adobe.com/supportservice/devrelations/opentype/os2.htm.

fsType

Format: 2-byte unsigned short

Title: Type flags.

Description: Indicates font embedding licensing rights for the font. Embeddable fonts may be stored in a document. When a document with embedded fonts is opened on a system that does not have the font installed (the remote system), the embedded font may be loaded for temporary (and in some cases, permanent) use on that system by an embedding-aware application. Embedding licensing rights are granted by the vendor of the font.

The OpenType Font Embedding DLL Specification and DLL release notes describe the APIs used implement support for OpenType font embedding and loading. Applications that implement support for font embedding, either through use of the Font Embedding DLL or through other means, must not embed fonts which are not licensed to permit embedding. Further, applications loading embedded fonts for temporary use (see Preview & Print and Editable embedding below) must delete the fonts when thedocument containing the embedded font is closed.

		TABLE 1
BIT	**BIT MASK**	**DESCRIPTION**
0		Reserved, must be zero.
1	0x0002	Restricted License embedding: When only this bit is set, this font may not be embedded, copied or modified.
2	0x0004	Preview & Print embedding: When this bit is set, the font may be embedded, and temporarily loaded on the remote system. Documents containing Preview & Print fonts must be opened "read-only;" no edits can be applied to the document.

		TABLE 1
BIT	**BIT MASK**	**DESCRIPTION**
3	0x0008	Editable embedding: When this bit is set, the font may be embedded and temporarilyloaded on other systems. Documents containing Editable fonts may be opened for reading and writing.
4–7		Reserved, must be zero.
8	0x0100	No subsetting: When this bit is set, the font may not be subsetted prior to embedding.
9	0x0200	Bitmap embedding only: When this bit is set, only bitmaps contained in the font may be embedded. No outline data may be embedded.
10–15		Reserved, must be zero.

Comments: If multiple embedding bits are set, the least restrictive license granted takes precedence.

For example, if bits 1 and 3 are set, bit 3 takes precedence over bit 1and the font may be embedded with Editable rights. For compatibility purposes, most vendors granting Editable embedding rights are also setting the Preview & Print bit (0x000C). This will permit an application that only supports Preview & Print embedding to detect that font embedding is allowed.

Restricted License embedding (0x0002): Fonts that have this bit set must not be modified, embedded or exchanged in any manner without first obtaining permission of the legal owner. Caution: note that for Restricted License embedding to take effect, it must be the only level of embedding selected (as noted in the previous paragraph).

Preview & Print embedding (0x0004): Fonts with this bit set indicate that they may be embedded within documents but must only be installed temporarily on the remote system. Any document which includes a Preview & Print embedded font must be opened "read-only;" the application must not allow the user to edit the document; it can only be viewed and/or printed.

Editable embedding (0x0008): Fonts with this bit set indicate that they may be embedded in documents, but must only be installed temporarily on the remote system. In contrast to Preview & Print fonts, documents containing Editable fonts may be opened "read-write;" editing is permitted, and changes may be saved.

Installable embedding (0x0000): Fonts with this setting indicate that they may be embedded and permanently installed on the remote system by an application. The user of the remote system acquires the identical rights, obligations and licenses for that font as the original purchaser of the font, and is subject to the same end-user license agreement, copyright, design patent, and/or trademark as was the original purchaser.

No subsetting (0x0100): Fonts with this setting indicate that they may not be subset when they are embedded. Other embedding restrictions specified in the lower byte also apply.

Embed bitmaps only (0x0200): Fonts with this setting indicate that only bitmaps contained in the font may be embedded by the authoring tool. If there are no bitmaps available in the font, then the font is considered unembeddable and the embedding services will fail. Other embedding restrictions specified in the lower byte also apply.