OpenType-CID/CFF CJK Fonts: ‘name’ Table Tutorial

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1.1 Introduction

This tutorial is intended for font developers who plan to build OpenType CJK fonts—specifically fonts that are built from CID-keyed fonts that are based on static character collections, such as Adobe-Japan1-6 for Japanese—regardless of whether they use Adobe-supplied tools supplied in the OpenType FDK. This document is designed to provide guidance that goes beyond the standard OpenType documentation and specifications with regard to the ‘name’ table, and in effect, offers a more easily understood interpretation of those documents. Please note that this document is not to be considered a substitute for the standard documentation and specifications, but rather complements them.

While this initial version is written in English, translations into Chinese, Japanese, and Korean may be forthcoming. Until those translations are available, please note that this English version was specifically written to be clear, concise, and easy to understand.

1.1.1 Conventions

Unicode values are indicated through the use of the common “U+” prefix notation, and while this does notation not imply a particular encoding, it does imply UTF-8, UTF-16, or UTF-32 encoding. For example, U+0020 represents an ASCII “space,” U+4E00 represents the CJK Unified Ideograph that means *one*, and U+20000 represents the first character in Plane 2. The specific encoded values for the three examples are shown in the table below:

Example	UTF-8	UTF-16 (Big Endian)	UTF-32 (Big Endian)
U+0020	0x20	0x0020	0x00000020
U+4E00	0xE4 0xB8 0x80	0x4E00	0x00004E00
U+20000	0xF0 0xA0 0x80 0x80	0xD840 0xDC00	0x00020000

Non-Unicode values are represented using the “0x” prefix followed by hexadecimal digits in multiples of two.

1.2 Platform, Script & Language IDs

The ‘name’ table of an OpenType font contains strings that are used for values such as copyright or trademark attribution, menu names, and the PostScript name. Besides the string value itself, each ‘name’ table entry uses four identifiers. The first three values specify the operating system (PlatformID), encoding (ScriptID), and language (LanguageID) for which

each string is to be used. The fourth value is the NameID that specifies the intended use of the string.

The table below shows the only Platform, Script, and Language ID combinations that you should be using in the ‘name’ tables of OpenType CJK fonts, along with the meanings of each individual value:

Values (Hexadecimal)	PlatformID	ScriptID	LanguageID
1,0,0 (0x01,0x00,0x00)	Macintosh	Roman	English
1,1,11 (0x01,0x01,0x0B)	Macintosh	Japanese	Japanese
1,2,19 (0x01,0x02,0x13)	Macintosh	Traditional Chinese	Traditional Chinese
1,3,23 (0x01,0x03,0x17)	Macintosh	Korean	Korean
1,25,33 (0x01,0x19,0x21)	Macintosh	Simplified Chinese	Simplified Chinese
3,1,1028 (0x03,0x01,0x0404)	Microsoft	Unicode	Traditional Chinese
3,1,1033 (0x03,0x01,0x0409)	Microsoft	Unicode	English
3,1,1041 (0x03,0x01,0x0411)	Microsoft	Unicode	Japanese
3,1,1042 (0x03,0x01,0x0412)	Microsoft	Unicode	Korean
3,1,2052 (0x03,0x01,0x0804)	Microsoft	Unicode	Simplified Chinese

It is important to note that the two highlighted rows represent the ‘name’ table Platform, Script, and Language ID combinations that must, at a minimum, be set for the NameID fields described in this document, unless otherwise noted. Throughout this document, decimal values shall be used when referring to Platform, Script, and Language ID combinations.

1.3 Copyright Symbol Usage

Because the ‘name’ table can represent non-ASCII characters, it is not necessary to represent a copyright symbol using “c” or “C” enclosed by parentheses. In fact, such practice should be avoided, and is considered invalid from a legal perspective. The symbol “©“ should thus be used. How the copyright symbol is encoded requires special attention because it is outside the scope of the ASCII character set.

The table below provides the appropriate copyright symbol values for each PlatformID, ScriptID, and LanguageID combination:

Values	Character Code
1,0,0	0xA9

Values	Character Code
1,1,11	0xFD
1,2,19	0xFD
1,3,23	0x83
1,25,33	0xFD
3,1,*all*	U+00A9

Note that all Unicode strings, meaning PlatformID=3 (Microsoft) and ScriptID=1 (Unicode), use the same value for the copyright symbol, specifically U+00A9.

1.3.1 Copyright String (NameID=0)

When setting the NameID=0 (Copyright) string, multiple versions must typically exist, due to the inclusion of Unicode and non-Unicode (Macintosh) strings, and because the copyright symbol is encoded differently depending on the characteristics of the non-Unicode encoding, as described in the previous section. For example, a Korean font may contain three instances of NameID=0 to handle the following three combinations:

Platform/Script/Language IDs	Copyright Symbol Encoding
1,0,0 (Macintosh,Roman,English)	0xA9
1,3,23 (Macintosh,Korean,Korean)	0x83
3,1,1042 (Microsoft,Unicode,Korean)	U+00A9

1.4 Macintosh Menu Names

The NameID 1 (Family), 2 (Style), and 4 (Full) strings need to be set for PlatformID=1 (Macintosh). These strings must be set for English, and also for Chinese (Simplified or Traditional), Japanese, or Korean, depending on the intended language of the font.

1.4.1 Macintosh English Menu Names

These NameID=1 and NameID=2 strings shall be set in the Family/Face style, whereby the two strings would form a hierarchical structure in an application’s font menu, first showing the font family (NameID=1), followed by one or more styles or weights (NameID=2). The NameID=4 string is ideally set so that it is the same as the concatenation of the NameID=1 and NameID=2 strings with an intervening “space” (0x20) character.

If a font is a single-face family, NameIDs 1 and 4 shall be set the same, and NameID=2 shall be set to "Regular" as its string value.

1.4.2 Macintosh CJK Menu Names

These CJK menu names should be set in the same way as those for English, but composed using non-Unicode character codes for Simplified Chinese (EUC-CN encoding), Traditional Chinese (Big Five encoding), Japanese (Shift-JIS encoding), or Korean (EUC-KR encoding).

The same technique for handling fonts that represent single-face families shall be applied, specifically that NameIDs 1 and 4 shall be set the same, and NameID=2 shall be set to "Regular" as its string value.

1.5 Macintosh PostScript Names (NameIDs 6 & 20)

There are two types of PostScript names that need to be set for PlatformID=1 (Macintosh).

First, the NameID=6 (PostScript) string shall be set to be the CFF.FontName (aka, CIDFontName) string. This needs to be set only for Macintosh,Roman,English (1,0,0).

Second, because the underlying font is CID-keyed, based on a static character collection, the NameID=20 string shall be set to the CFF.FontName string plus an appropriate CMap resource name that corresponds to a Macintosh encoding, separated by a single hyphen (0x2D). The PlatformID shall be set to 1 (Macintosh), the ScriptID shall be set to the appropriate value (1 for Japanese, 2 for Traditional Chinese, 3 for Korean, or 25 for Simplified Chinese), and the LanguageID shall be set to 0xFFFF.

The table below details the CMap resource names that should be used for the NameID=20 string, for each of the four language combinations:

Value	CMap Name	Example
1,1,0xFFFF	83pv-RKSJ-H	KozMinProVI-Regular-*83pv-RKSJ-H*
1,2,0xFFFF	B5pc-H	AdobeMingStd-Light-*B5pc-H*
1,3,0xFFFF	KSCpc-EUC-H	AdobeMyungjoStd-Medium-*KSCpc-EUC-H*
1,25,0xFFFF	GBpc-EUC-H	AdobeSongStd-Light-*GBpc-EUC-H*

1.6 Microsoft/Unicode Menu Names

These NameID 1 (Family), 2 (Style), 16 (Preferred Family), and 17 (Preferred Subfamily) strings need to be set for PlatformID=3 (Microsoft) and ScriptID=1 (Unicode). These strings

must have their LanguageIDs set for English, and also for Chinese (Simplified or Traditional), Japanese, or Korean, depending on the intended language of the font.

Note that for Unicode menu names, the NameID=4 (Full) string has special treatment, covered in the "Unicode PostScript Names" section.

1.6.1 Microsoft/Unicode English Menu Names

This NameID=1 (Family) string shall be set the same as the concatenation of NameID=16 (Preferred Family) and NameID=17 (Preferred Subfamily) with an intervening "space" (U+0020) character.

The NameID=2 (Style) string shall be set to "Regular" as a fixed string unless the head.MacStyle and OS/2.Selection fields are set to values that indicate bold, in which case the string shall be set to "Bold" as a fixed value.

The NameID=16 (Preferred Family) and NameID=17 (Preferred Subfamily) strings shall be set in the Family/Face style, whereby the two strings would form a hierarchical structure in an application's font menu, first showing the font family (NameID=16), followed by one or more styles or weights (NameID=17).

The same technique for handling fonts that represent single-face families shall be applied, specifically that NameIDs 1 and 16 shall be set the same (and NameID=16 is thus omitted, based on the following paragraph), and NameID=2 shall be set to "Regular" as its string value.

If the NameID=16 string is identical to the NameID=1 string, it is omitted. And, if the NameID=17 string is identical to the NameID=2 string, it is omitted.

There are two special circumstances that require special attention, as follows:

- If the string that results from concatenating NameID=16 and NameID=17 with an intervening "space" is 31 characters in length or greater, a shorter form shall be specified.
- If NameID=2 is set to "Bold," the NameID=1 string shall be set to the same value as the NameID=1 string of the base font to which the bold font is style-linked.

1.6.2 Microsoft/Unicode CJK Menu Names

These CJK menu names should be set in the same way as those for English, but composed using Unicode character codes for Simplified Chinese, Traditional Chinese, Japanese, or Korean, and with the LanguageID set appropriately.

The same technique for handling fonts that represent single-face families shall be applied, specifically that NameIDs 1 and 16 shall be set the same (and in this case, NameID=16 is omitted), and NameID=2 shall be set to "Regular" as its string value.

1.7 Microsoft/Unicode PostScript Names (NameIDs 4 & 6)

The NameID=4 (Full) and NameID=6 (PostScript) strings shall be set to be the CFF.FontName string. This needs to be set only for Microsoft,Unicode,English (3,1,1033).

1.8 UniqueID String (NameID=3)

The NameID=3 (UniqueID) string shall contain a string that is unique, and not shared by another font. Ideally, it should also be unique from different versions of the same font.

The convention used by Adobe Systems is to concatenate the head.FontRevision number, OS/2.Vendor string, and CFF.FontName separated by semicolons (0x3B or U+003B, depending on the ScriptID). The following is an example of a NameID=3 string:

```
6.005;ADBE;KozMinProVI-Regular
```

For PlatformID=1 (Macintosh), this string is set only for Roman,English (0,0). For PlatformID=3 (Microsoft), this string is set only for Unicode,English (1,1033).

1.9 Version String (NameID=5)

The NameID=5 (Version) string shall contain a version number, usually the same value as indicated in the head.FontRevision field, after the word "Version" and a space (0x20 or U+0020, depending on the ScriptID). Because this is a string value, it's possible to add more information, such as the version number of the CFF (CFF.Version), and the version number of the tool (or tools) that were used to build the font.

The convention used by Adobe Systems is to concatenate the head.FontRevision number, the CFF.Version number, and the version numbers of the tools or libraries used to build the font. The following is an example of a NameID=5 string:

```
Version 6.005;PS 6.003;Core 1.0.38;makeotf.lib1.6.6565
```

At a minimum, the NameID=5 string must be set for the English language for both Microsoft and Macintosh platforms. This string may be provided for other languages, although these are not currently used by any software.

1.10 Other Strings

Other string values—such as for NameIDs 7 (Trademark), 8 (Manufacturer Name), 9 (Designer), 10 (Description), 11 (URL Vendor), 12 (URL Designer), 13 (License Description), 14 (License Info URL)—should be set according the specification, if needed.

If the strings contain no characters specific to a CJK character set, they need to be set only for Macintosh,Roman,English (1,0,0) and Microsoft,Unicode,English (3,1,1033). It is, of course,

possible to include both English and non-English versions of some of these strings, such as for NameIDs 7, 8, 9, 10, and 13.

1.11 OpenType FDK Usage Notes

The Adobe Systems “OpenType FDK” is a set of command-line driven tools for building OpenType fonts from legacy PostScript font data. Menu names for the OpenType font are established in a plain text file called “FontMenuNameDB,” and the OpenType GSUB and GPOS features, along with some specific ‘name’ table values, are provided by a plain text file called the “features” file. Developers can obtain the OpenType FDK at the following URL

http://partners.adobe.com/public/developer/opentype/afdko/topic.html

1.11.1 “FontMenuNameDB” File Settings

The FontMenuNameDB provides a way to set menu names by specifying English menu names, and also Unicode and non-Unicode menu names for non-English (CJK) menu names.

The identifiers “f,” “s,” and “c” are used to set the Family, Subfamily, and Compatibility menu names. The Compatibility menu name is generally the Full name, made by concatenating the Family and Subfamily names with a “space” between them. The table below shows how these fields relate to NameID strings on a per-PlatformID basis:

Field	Macintosh	Microsoft/Unicode
f	NameID=1	NameID=16
s	NameID=2	NameID=17
c	NameID=4	NameID=1

The notation that is used is based on the principal that ASCII characters represent themselves, regardless of encoding. For Platform/ScriptID 3,1 (Microsoft,Unicode), all non-ASCII characters are represented by a backslash followed by four hexadecimal digits. For PlatformID=1 (Macintosh), any byte value that is 0x80 or greater is represented by a backslash followed by two hexadecimal digits.

Below are typical examples of FontMenuNameDB entries for Simplified Chinese, Traditional Chinese, Japanese, and Korean fonts:

Simplified Chinese:

```
[AdobeSongStd-Light]
     f=3,1,0x804,Adobe \5b8b\4f53 Std
     s=3,1,0x804,L
     c=3,1,0x804,Adobe \5b8b\4f53 Std L
     f=1,25,33,Adobe \cb\ce\cc\e5 Std
     s=1,25,33,L
     c=1,25,33,Adobe \cb\ce\cc\e5 Std L
     f=Adobe Song Std
     s=L
     c=Adobe Song Std L
```

Traditional Chinese:

```
[AdobeMingStd-Light]
     f=3,1,0x404,Adobe \660e\9ad4 Std
     s=3,1,0x404,L
     c=3,1,0x404,Adobe \660e\9ad4 Std L
     f=1,2,19,Adobe \a9\fa\c5\e9 Std
     s=1,2,19,L
     c=1,2,19,Adobe \a9\fa\c5\e9 Std L
     f=Adobe Ming Std
     s=L
     c=Adobe Ming Std L
```

Japanese:

```
[KozMinProVI-Regular]
     f=3,1,0x411,\5c0f\585a\660e\671d Pro-VI
     s=3,1,0x411,R
     c=3,1,0x411,\5c0f\585a\660e\671d Pro-VI R
     f=1,1,11,\8f\ac\92\cb\96\be\92\a9 Pro-VI
     s=1,1,11,R
     c=1,1,11,\8f\ac\92\cb\96\be\92\a9 Pro-VI R
     f=Kozuka Mincho Pro-VI
     s=R
     c=Kozuka Mincho Pro-VI
```

Korean:

```
[AdobeMyungjoStd-Medium]
     f=3,1,0x412,Adobe \ba85\c870 Std
     s=3,1,0x412,M
     c=3,1,0x412,Adobe \ba85\c870 Std M
     f=1,3,23,Adobe \b8\ed\c1\b6 Std
     s=1,3,23,M
     c=1,3,23,Adobe \b8\ed\c1\b6 Std M
     f=Adobe Myungjo Std
     s=M
     c=Adobe Myungjo Std M
```

Note that the "features" file, described next, shall not be used to override menu name strings. MakeOTF, the tool in the OpenType FDK that builds OpenType fonts by reading the FontMenuNameDB and other control files, builds the 'name' table's menu name strings according to the specifications outlined in this document.

1.11.2 “features” File Settings

The “features” file can control ‘name’ table strings other than the menu name strings. It is also used to control other data and strings that are used when building the ‘name’ table. Setting ‘name’ table overrides is the way in which the ‘name’ table is populated with useful information, beyond what is specified in the “FontMenuNameDB” file. The syntax begins with the string “nameid” followed by the NameID identifier. What follows that either assumes or specifies the Platform, Script, and Language IDs. If none is specified, Microsoft,Unicode,English (3,1,1033) is assumed. If only PlatformID=1 (Macintosh) is specified, Script/LanguageID 0,0 (Roman,English) is assumed. For all other Platform, Script, and Language IDs, it must be explicitly stated. What follows is the actual string value, terminated by a semicolon. The notation that is used is identical to what is used in the “FontMenuNameDB” file.

The head.FontRevision number, used in NameIDs 3 and 5, is set as follows as a ‘head’ table override:

```
table head {
     FontRevision 6.005;
} head;
```

The OS/2.Vendor string, used in NameID=3, is set as follows as an ‘OS/2’ table override:

```
table OS/2 {
     Vendor "ADBE";
} OS/2;
```

The following is a typical example of a properly set ‘name’ table description in a “features” file:

```
table name {
     nameid 0 "Copyright \00a9 1997-2004 Adobe Systems Incorporated. All
Rights Reserved.";
     nameid 0 1 "Copyright \a9 1997-2004 Adobe Systems Incorporated. All
Rights Reserved.";
     nameid 0 1 1 11 "Copyright \fd 1997-2004 Adobe Systems Incorporated.
All Rights Reserved.";
     nameid 7 "Kozuka Mincho is either a registered trademark or trademark
of Adobe Systems Incorporated in the United States and/or other
countries.";
     nameid 7 1 "Kozuka Mincho is either a registered trademark or
trademark of Adobe Systems Incorporated in the United States and/or other
countries.";
     nameid 9 "Masahiko Kozuka \5c0f\585a\660c\5f66";
     nameid 9 1 "Masahiko Kozuka";
     nameid 9 1 1 11 "Masahiko Kozuka \8f\ac\92\cb\8f\b9\95F";
     nameid 11 "http://www.adobe.co.jp/products/type/";
     nameid 11 1 "http://www.adobe.co.jp/products/type/";
     nameid 14 "http://www.adobe.com/type/legal.html";
     nameid 14 1 "http://www.adobe.com/type/legal.html";
     nameid 20 1 1 65535 "KozMinProVI-Regular-83pv-RKSJ-H";
} name;
```