Source Han Serif Version 2.003

Released on July 30, 2024

Overview

Source Han Serif, designed by Ryoko Nishizuka (西塚涼子), is the companion serif-style Pan-CJK typeface family to Source Han Sans, and is offered in seven weights—ExtraLight, Light, Regular, Medium, SemiBold, Bold, and Heavy—and in several deployment configurations to accommodate various system requirements or, in some cases, limitations. Pan-CJK fonts, such as those provided in the Source Han typeface families, are intended to support and render the most important characters for Simplified Chinese, Traditional Chinese, Japanese, and Korean.

The samples on this page demonstrate that the differences for each language can be subtle or striking, depending on the ideograph, yet they all clearly share the same typeface design, weight, and other characteristics that are not necessarily tied to a particular language.

The first sample shows the completely shared form of U+4E00, along with the shared Simplified/Traditional Chinese and shared Japanese/Korean forms of U+5B57:

一 字 字
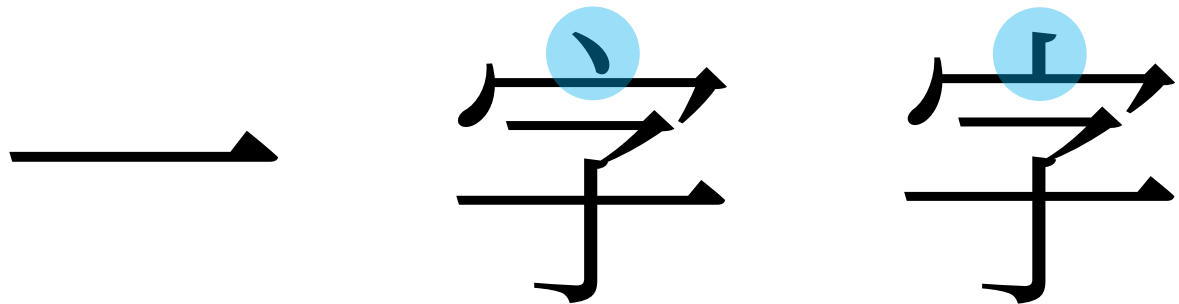
The second sample below shows, from left to right, the Simplified Chinese, Traditional Chinese, and shared Japanese/Korean forms of U+597D:

好 好 好

The third sample shows, again from left to right, the completely unshared Simplified Chinese, Traditional Chinese, Japanese, and Korean forms of U+677E:

松松松松

The short passage shown below is Genesis 11:1 (创世记 11:1 in Simplified Chinese, 創世記 11:1 in Traditional Chinese, 創世記 11:1 in Japanese, and 창세기 11:1 in Korean) displayed in six languages and in three of the seven weights:

ExtraLight

Now the whole world had one language and a common speech.

那时，天下人的口音、言语都是一样。

那時，天下人的口音、言語都是一樣。

那時，天下人的口音、言語都是一樣。

全地は同じ発音、同じ言葉であった。

온 땅의 구음이 하나이요 언어가 하나이었더라.

Regular

Now the whole world had one language and a common speech.

那时，天下人的口音、言语都是一样。

那時，天下人的口音、言語都是一樣。

那時，天下人的口音、言語都是一樣。

全地は同じ発音、同じ言葉であった。

온 땅의 구음이 하나이요 언어가 하나이었더라.

Heavy

Now the whole world had one language and a common speech.

那时，天下人的口音、言语都是一样。

那時，天下人的口音、言語都是一樣。

那時，天下人的口音、言語都是一樣。

全地は同じ発音、同じ言葉であった。

온 땅의 구음이 하나이요 언어가 하나이었더라.

The use of these open source Pan-CJK fonts and their sources is covered under the terms of the SIL Open Font License, Version 1.1.

The pages that follow provide excruciating technical details about the font resources that are included in this open source project, and the information corresponds to Version 2.000.

Configurations

Source Han Serif is provided in a number of possible deployment configurations, each of which is described below, along with typical usage scenarios:

Language-specific OpenType (OTF/TTF) variable fonts — 10 font resources

This deployment configuration is available in five languages—Simplified Chinese, Traditional Chinese (Taiwan), Traditional Chinese (Hong Kong), Japanese, and Korean—and sets one language as the default (a default language is required due to the single 'cmap' table), and the 'locl' (*Localized Forms*) GSUB feature is expected to be used to access glyphs that are appropriate for the other four supported languages. The ten Pan-CJK variable fonts contains all seven of the original static weights.

> *These fonts represent the most compact form that supports all languages and includes the complete set of glyphs, but this comes at the expense of requiring an application to properly support the 'locl' GSUB feature in order to display glyphs for languages other than the default one. In addition to using such an application, a good example of which is* Adobe InDesign, *the text—at the character, paragraph, or document level—must also be properly language-tagged. This configuration also requires a system that supports OTF/CFF2 or TTF variable fonts.*

Language-specific OpenType/CFF (OTF)—35 font resources

This deployment configuration contains the same set of fonts as the variable font configuration as 35 separate static fonts.

Region-specific Subset OpenType (Subset OTF/TTF) variable fonts—10 font resources

This deployment configuration includes five different subsets in two variable formats. Each subset includes only the glyphs that are necessary for Simplified Chinese, Traditional Chinese (Taiwan), Traditional Chinese (Hong Kong), Japanese, or Korean.

> *These fonts are considered the most broadly usable because the 'locl' GSUB feature is not required to access the region-specific glyphs. Instead, only the glyphs that are necessary for each region are included. This deployment configuration is recommended for users who need only the glyphs for a specific region, and also desire the smallest possible footprint. These fonts are expected to behave the same as conventional Simplified Chinese, Traditional Chinese, Japanese, or Korean fonts. This configuration also requires a system that supports OTF/CFF2 or TTF variable fonts.*

Region-specific Subset OpenType/CFF (Subset OTF) —35 font resources

This deployment configuration contains the same set of fonts as the Region-specific Subset OpenType/CFF2 variable font configuration as 35 separate static fonts.

Variable font OTF/CFF2 or TTF Collection (OTC)—2 font resources

This deployment configuration represents a "best of all possible worlds" in that there are separate font instances for each language, and while each font instance necessarily specifies a default language, the 'locl' GSUB feature can still be used to access the glyphs for the other languages. The OTC files contain the 5 language-specific variable OTFs (*SourceHanSerif-VF.otf.ttc*) or TTFs (*SourceHanSerif-VF.ttf.ttc*).

> *These fonts offer the greater flexibility in that there is a single font resource that includes all font instances, each with a different one of the five languages serving as the default. Users of these fonts simply choose the appropriate font in an application's font menu, and the glyphs that are suitable for that language are dis-*

played. However, OpenType/CFF and CFF2 Collections are not supported everywhere. Note that if you install the OTCs, you cannot install any of the corresponding language-specific OTFs, because they share the same names. This configuration also requires a system that supports OTF/CFF2 or TTF variable fonts.

OpenType/CFF Collection (OTC)—7 font resources

This is the same as the OpenType/CFF2 variable font Collection except that it packages all of the static fonts rather than the variable fonts. This deployment configuration represents a "best of all possible worlds (for static fonts)" in that there are separate font instances for each language, and while each font instance necessarily specifies a default language, the 'locl' GSUB feature can still be used to access the glyphs for the other languages.

These fonts offer the greater flexibility in that there is a single font resource that includes five font instances, each with a different one of the five languages serving as the default. Users of these fonts simply choose the appropriate font in an application's font menu, and the glyphs that are suitable for that language are displayed. However, OpenType/CFF and CFF2 Collections are not supported everywhere. Note that if you install the OTCs, you cannot install any of the corresponding language-specific OTFs, because they share the same names.

Super OpenType/CFF Collection (Super OTC)—a single font resource

This deployment configuration packs all seven weights and all five languages into a single font resource that includes a total of 35 font instances and 458,745 total glyphs. As a result of 'sfnt' table sharing, there are seven unique 'CFF ', 'hmtx', and 'vmtx' tables (one per weight), five unique 'GSUB' tables (one per language), and ten unique 'cmap' tables (one per language and proportional/half-width combination). These represent the largest tables, so greater sharing leads to a smaller overall footprint. This saves over 13MB compared to the seven separate static OTCs. While each font instance specifies a default language, the 'locl' GSUB feature can still be used to access the glyphs for the four other supported languages.

This font offers the greatest flexibility for static fonts in that there is a single font resource that includes all 35 font instances, one for each of the seven weights and five languages. Users of this deployment format simply choose the appropriate font in an application's font menu, and the glyphs that are suitable for that language are displayed. The Super OTC is subject to the same caveats and limitations as the weight-specific OTCs. Please be aware that while Windows 10 Anniversary Update (Version 1607) is the first version of Windows OS to support OTCs, Windows 10 Creators Update (Version 1703, released on 2017-04-05) is necessary to support the Super OTC, due to its large number of font instances. If your system supports both variable fonts and OpenType Collections then the language-specific variable OTCs will save even more space.

Font Resources

The table below lists all font resources that are included in this release, organized by format and language, and providing their file and PostScript names:

Format	Language	File Name	PostScript Name/Names
Variable OTF/TTF	Simplified Chinese	SourceHanSerifSC-VF.otf SourceHanSerifSC-VF.ttf	SourceHanSerifSCVF-ExtraLight SourceHanSerifSCVF-Light SourceHanSerifSCVF-Regular SourceHanSerifSCVF-Medium SourceHanSerifSCVF-SemiBold SourceHanSerifSCVF-Bold SourceHanSerifSCVF-Heavy
	Traditional Chinese—Taiwan	SourceHanSerifTC-VF.otf SourceHanSerifTC-VF.ttf	SourceHanSerifTCVF-ExtraLight SourceHanSerifTCVF-Light SourceHanSerifTCVF-Regular SourceHanSerifTCVF-Medium SourceHanSerifTCVF-SemiBold SourceHanSerifTCVF-Bold SourceHanSerifTCVF-Heavy
	Traditional Chinese—Hong Kong	SourceHanSerifHC-VF.otf SourceHanSerifHC-VF.ttf	SourceHanSerifHCVF-ExtraLight SourceHanSerifHCVF-Light SourceHanSerifHCVF-Regular SourceHanSerifHCVF-Medium SourceHanSerifHCVF-SemiBold SourceHanSerifHCVF-Bold SourceHanSerifHCVF-Heavy
	Japanese	SourceHanSerif-VF.otf SourceHanSerif-VF.ttf	SourceHanSerifVF-ExtraLight SourceHanSerifVF-Light SourceHanSerifVF-Regular SourceHanSerifVF-Medium SourceHanSerifVF-SemiBold SourceHanSerifVF-Bold SourceHanSerifVF-Heavy
	Korean	SourceHanSerifK-VF.otf SourceHanSerifK-VF.ttf	SourceHanSerifKVF-ExtraLight SourceHanSerifKVF-Light SourceHanSerifKVF-Regular SourceHanSerifKVF-Medium SourceHanSerifKVF-SemiBold SourceHanSerifKVF-Bold SourceHanSerifKVF-Heavy

Format	Language	File Name	PostScript Name/Names
Variable Subset OTF/TTF	CN	*SourceHanSerifCN-VF.otf* *SourceHanSerifCN-VF.ttf*	SourceHanSerifCNVF-ExtraLight SourceHanSerifCNVF-Light SourceHanSerifCNVF-Regular SourceHanSerifCNVF-Medium SourceHanSerifCNVF-SemiBold SourceHanSerifCNVF-Bold SourceHanSerifCNVF-Heavy
	TW	*SourceHanSerifTW-VF.otf* *SourceHanSerifTW-VF.ttf*	SourceHanSerifTWVF-ExtraLight SourceHanSerifTWVF-Light SourceHanSerifTWVF-Regular SourceHanSerifTWVF-Medium SourceHanSerifTWVF-SemiBold SourceHanSerifTWVF-Bold SourceHanSerifTWVF-Heavy
	HK	*SourceHanSerifHK-VF.otf* *SourceHanSerifHK-VF.ttf*	SourceHanSerifHKVF-ExtraLight SourceHanSerifHKVF-Light SourceHanSerifHKVF-Regular SourceHanSerifHKVF-Medium SourceHanSerifHKVF-SemiBold SourceHanSerifHKVF-Bold SourceHanSerifHKVF-Heavy
	JP	*SourceHanSerifJP-VF.otf* *SourceHanSerifJP-VF.ttf*	SourceHanSerifJPVF-ExtraLight SourceHanSerifJPVF-Light SourceHanSerifJPVF-Regular SourceHanSerifJPVF-Medium SourceHanSerifJPVF-SemiBold SourceHanSerifJPVF-Bold SourceHanSerifJPVF-Heavy
	KR	*SourceHanSerifKR-VF.otf* *SourceHanSerifKR-VF.ttf*	SourceHanSerifKRVF-ExtraLight SourceHanSerifKRVF-Light SourceHanSerifKRVF-Regular SourceHanSerifKRVF-Medium SourceHanSerifKRVF-SemiBold SourceHanSerifKRVF-Bold SourceHanSerifKRVF-Heavy
OTF	Simplified Chinese	*SourceHanSerifSC-ExtraLight.otf* *SourceHanSerifSC-Light.otf* *SourceHanSerifSC-Regular.otf* *SourceHanSerifSC-Medium.otf* *SourceHanSerifSC-SemiBold.otf* *SourceHanSerifSC-Bold.otf* *SourceHanSerifSC-Heavy.otf*	SourceHanSerifSC-ExtraLight SourceHanSerifSC-Light SourceHanSerifSC-Regular SourceHanSerifSC-Medium SourceHanSerifSC-SemiBold SourceHanSerifSC-Bold SourceHanSerifSC-Heavy
	Traditional Chinese—Taiwan	*SourceHanSerifTC-ExtraLight.otf* *SourceHanSerifTC-Light.otf* *SourceHanSerifTC-Regular.otf* *SourceHanSerifTC-Medium.otf* *SourceHanSerifTC-SemiBold.otf* *SourceHanSerifTC-Bold.otf* *SourceHanSerifTC-Heavy.otf*	SourceHanSerifTC-ExtraLight SourceHanSerifTC-Light SourceHanSerifTC-Regular SourceHanSerifTC-Medium SourceHanSerifTC-SemiBold SourceHanSerifTC-Bold SourceHanSerifTC-Heavy

Format	Language	File Name	PostScript Name/Names
OTF (cont'd)	Traditional Chinese—Hong Kong	*SourceHanSerifHC-ExtraLight.otf* *SourceHanSerifHC-Light.otf* *SourceHanSerifHC-Regular.otf* *SourceHanSerifHC-Medium.otf* *SourceHanSerifHC-SemiBold.otf* *SourceHanSerifHC-Bold.otf* *SourceHanSerifHC-Heavy.otf*	SourceHanSerifHC-ExtraLight SourceHanSerifHC-Light SourceHanSerifHC-Regular SourceHanSerifHC-Medium SourceHanSerifHC-SemiBold SourceHanSerifHC-Bold SourceHanSerifHC-Heavy
	Japanese	*SourceHanSerif-ExtraLight.otf* *SourceHanSerif-Light.otf* *SourceHanSerif-Regular.otf* *SourceHanSerif-Medium.otf* *SourceHanSerif-SemiBold.otf* *SourceHanSerif-Bold.otf* *SourceHanSerif-Heavy.otf*	SourceHanSerif-ExtraLight SourceHanSerif-Light SourceHanSerif-Regular SourceHanSerif-Medium SourceHanSerif-SemiBold SourceHanSerif-Bold SourceHanSerif-Heavy
	Korean	*SourceHanSerifK-ExtraLight.otf* *SourceHanSerifK-Light.otf* *SourceHanSerifK-SemiBold.otf* *SourceHanSerifK-Regular.otf* *SourceHanSerifK-Medium.otf* *SourceHanSerifK-Bold.otf* *SourceHanSerifK-Heavy.otf*	SourceHanSerifK-ExtraLight SourceHanSerifK-Light SourceHanSerifK-Regular SourceHanSerifK-Medium SourceHanSerifK-SemiBold SourceHanSerifK-Bold SourceHanSerifK-Heavy
Subset OTF	CN	*SourceHanSerifCN-ExtraLight.otf* *SourceHanSerifCN-Light.otf* *SourceHanSerifCN-Regular.otf* *SourceHanSerifCN-Medium.otf* *SourceHanSerifCN-SemiBold.otf* *SourceHanSerifCN-Bold.otf* *SourceHanSerifCN-Heavy.otf*	SourceHanSerifCN-ExtraLight SourceHanSerifCN-Light SourceHanSerifCN-Regular SourceHanSerifCN-Medium SourceHanSerifCN-SemiBold SourceHanSerifCN-Bold SourceHanSerifCN-Heavy
	TW	*SourceHanSerifTW-ExtraLight.otf* *SourceHanSerifTW-Light.otf* *SourceHanSerifTW-Regular.otf* *SourceHanSerifTW-Medium.otf* *SourceHanSerifTW-SemiBold.otf* *SourceHanSerifTW-Bold.otf* *SourceHanSerifTW-Heavy.otf*	SourceHanSerifTW-ExtraLight SourceHanSerifTW-Light SourceHanSerifTW-Regular SourceHanSerifTW-Medium SourceHanSerifTW-SemiBold SourceHanSerifTW-Bold SourceHanSerifTW-Heavy
	HK	*SourceHanSerifHK-ExtraLight.otf* *SourceHanSerifHK-Light.otf* *SourceHanSerifHK-Regular.otf* *SourceHanSerifHK-Medium.otf* *SourceHanSerifHK-SemiBold.otf* *SourceHanSerifHK-Bold.otf* *SourceHanSerifHK-Heavy.otf*	SourceHanSerifHK-ExtraLight SourceHanSerifHK-Light SourceHanSerifHK-Regular SourceHanSerifHK-Medium SourceHanSerifHK-SemiBold SourceHanSerifHK-Bold SourceHanSerifHK-Heavy
	JP	*SourceHanSerifJP-ExtraLight.otf* *SourceHanSerifJP-Light.otf* *SourceHanSerifJP-Regular.otf* *SourceHanSerifJP-Medium.otf* *SourceHanSerifJP-SemiBold.otf* *SourceHanSerifJP-Bold.otf* *SourceHanSerifJP-Heavy.otf*	SourceHanSerifJP-ExtraLight SourceHanSerifJP-Light SourceHanSerifJP-Regular SourceHanSerifJP-Medium SourceHanSerifJP-SemiBold SourceHanSerifJP-Bold SourceHanSerifJP-Heavy
	KR	*SourceHanSerifKR-ExtraLight.otf* *SourceHanSerifKR-Light.otf* *SourceHanSerifKR-Regular.otf* *SourceHanSerifKR-Medium.otf* *SourceHanSerifKR-SemiBold.otf* *SourceHanSerifKR-Bold.otf* *SourceHanSerifKR-Heavy.otf*	SourceHanSerifKR-ExtraLight SourceHanSerifKR-Light PourceHanSerifKR-Regular SourceHanSerifKR-Medium SourceHanSerifKR-SemiBold SourceHanSerifKR-Bold SourceHanSerifKR-Heavy

Format	Language	File Name	PostScript Name/Names
OTC	All	*SourceHanSerif-ExtraLight.ttc*	SourceHanSerif-ExtraLight, SourceHanSerifK-ExtraLight, SourceHanSerifSC-ExtraLight, SourceHanSerifTC-ExtraLight, SourceHanSerifHC-ExtraLight
		SourceHanSerif-Light.ttc	SourceHanSerif-Light, SourceHanSerifK-Light, SourceHanSerifSC-Light, SourceHanSerifTC-Light, SourceHanSerifHC-Light
		SourceHanSerif-Regular.ttc	SourceHanSerif-Regular, SourceHanSerifK-Regular, SourceHanSerifSC-Regular, SourceHanSerifTC-Regular, SourceHanSerifHC-Regular
		SourceHanSerif-Medium.ttc	SourceHanSerif-Medium, SourceHanSerifK-Medium, SourceHanSerifSC-Medium, SourceHanSerifTC-Medium, SourceHanSerifHC-Medium
		SourceHanSerif-SemiBold.ttc	SourceHanSerif-SemiBold, SourceHanSerifK-SemiBold, SourceHanSerifSC-SemiBold, SourceHanSerifTC-SemiBold, SourceHanSerifHC-SemiBold
		SourceHanSerif-Bold.ttc	SourceHanSerif-Bold, SourceHanSerifK-Bold, SourceHanSerifSC-Bold, SourceHanSerifTC-Bold, SourceHanSerifHC-Bold
		SourceHanSerif-Heavy.ttc	SourceHanSerif-Heavy, SourceHanSerifK-Heavy, SourceHanSerifSC-Heavy, SourceHanSerifTC-Heavy, SourceHanSerifHC-Heavy
Super OTC	All	*SourceHanSerif.ttc*	SourceHanSerif-ExtraLight, SourceHanSerifK-ExtraLight, SourceHanSerifSC-ExtraLight, SourceHanSerifTC-ExtraLight, SourceHanSerifHC-ExtraLight, SourceHanSerif-Light, SourceHanSerifK-Light, SourceHanSerifSC-Light, SourceHanSerifTC-Light, SourceHanSerifHC-Light, SourceHanSerif-Regular, SourceHanSerifK-Regular, SourceHanSerifSC-Regular, SourceHanSerifTC-Regular, SourceHanSerifHC-Regular, SourceHanSerif-Medium, SourceHanSerifK-Medium, SourceHanSerifSC-Medium, SourceHanSerifTC-Medium, SourceHanSerifHC-Medium, SourceHanSerif-SemiBold, SourceHanSerifK-SemiBold, SourceHanSerifSC-SemiBold, SourceHanSerifTC-SemiBold, SourceHanSerifHC-SemiBold, SourceHanSerif-Bold, SourceHanSerifK-Bold, SourceHanSerifSC-Bold, SourceHanSerifTC-Bold, SourceHanSerifHC-Bold, SourceHanSerif-Heavy, SourceHanSerifK-Heavy, SourceHanSerifSC-Heavy, SourceHanSerifTC-Heavy, SourceHanSerifHC-Heavy
Variable OTC	All	*SourceHanSerif-VF.otf.ttc* *SourceHanSerif-VF.ttf.ttc*	SourceHanSerifVF-ExtraLight, SourceHanSerifKVF-ExtraLight, SourceHanSerifSCVF-ExtraLight, SourceHanSerifTCVF-ExtraLight, SourceHanSerifHCVF-ExtraLight, SourceHanSerifVF-Light, SourceHanSerifKVF-Light, SourceHanSerifSCVF-Light, SourceHanSerifTCVF-Light, SourceHanSerifHCVF-Light, SourceHanSerifVF-Regular, SourceHanSerifKVF-Regular, SourceHanSerifSCVF-Regular, SourceHanSerifTCVF-Regular, SourceHanSerifHCVF-Regular, SourceHanSerifVF-Medium, SourceHanSerifKVF-Medium, SourceHanSerifSCVF-Medium, SourceHanSerifTCVF-Medium, SourceHanSerifHCVF-Medium, SourceHanSerifVF-SemiBold, SourceHanSerifKVF-SemiBold, SourceHanSerifSCVF-SemiBold, SourceHanSerifTCVF-SemiBold, SourceHanSerifHCVF-SemiBold, SourceHanSerifVF-Bold, SourceHanSerifKVF-Bold, SourceHanSerifSCVF-Bold, SourceHanSerifTCVF-Bold, SourceHanSerifHCVF-Bold, SourceHanSerifVF-Heavy, SourceHanSerifKVF-Heavy, SourceHanSerifSCVF-Heavy, SourceHanSerifTCVF-Heavy, SourceHanSerifHCVF-Heavy

Glyph Set Particulars

Glyph Set & Region-specific Subsets

The number of glyphs in each font resource—except for the region-specific subset OTFs—is 65,535 (CIDs 0 through 65534), which is at the architectural limit for CID-keyed fonts (65,535 glyphs).

The table below indicates the number of glyphs that are included in the region-specific subset OTFs, whose figures include a common set of 3,232 glyphs that correspond to various characters, symbols, and punctuation. Also provided are the names of the subset definition files that are included in this open source project.

Language	Glyphs	Subset Definition File	Supported Standards
Simplified Chinese	31,058	*AI0-SourceHanSerif.CN*	All hanzi for GB 18030 2022 Implementation Level 2 which includes the 8,105 hanzi of *Tōngyòng Guīfàn Hànzìbiǎo* (通用规范汉字表)
Traditional Chinese — Taiwan	20,939	*AI0-SourceHanSerif.TW*	All Big Five hanzi (aka CNS 11643 Planes 1 and 2), all HKSCS-2016 hanzi (the glyphs may or may not adhere to the Taiwan MOE glyph standard), seven ETen hanzi, 15 additional hanzi
Traditional Chinese — Hong Kong	20,933	*AI0-SourceHanSerif.HK*	All Big Five hanzi (aka CNS 11643 Planes 1 and 2), all HKSCS-2016 hanzi, seven ETen hanzi, 15 additional hanzi
Japanese	17,923	*AI0-SourceHanSerif.JP*	All Adobe-Japan1-6 kanji (a superset of those in JIS X 0208, JIS X 0213 & JIS X 0212)
Korean	24,910	*AI0-SourceHanSerif.KR*	All contemporary (11,172) and 500 high-frequency archaic hangul syllables, conjoining hangul jamo (with full archaic hangul support), all KS X 1001 and KS X 1002 hanja (7,476), 466 additional hanja

Of course, the font resources that include the full set of 65,535 glyphs support all of the standards that are listed in the above table, and employ some method of accessing the glyphs for different languages when they occupy the same Unicode code point and require a different shape.

The ordering file, *AI0-SourceHanSerif*, lists all 65,535 CIDs in the first column, and shows the FDArray and row font structure in the second and third columns, respectively, along with the Unicode-based working glyph names in the fourth column. Glyphs that are represented by (or can be considered) sequences are made up of concatenations of the appropriate Unicode-based glyph names. Identifiers for regions and other purposes are also used.

Weights

The table below shows sample glyphs in each of the seven weights, ranging from ExtraLight to Heavy. The ExtraLight and Heavy weights represent the master designs, and the five intermediate weights are the result of multiple master interpolation (the interpolation ratios are provided):

ExtraLight—0	Light—95	Regular—210	Medium—360	SemiBold—510	Bold—730	Heavy—1000
汉漢漢한	汉漢漢한	汉漢漢한	汉漢漢한	汉漢漢한	汉漢漢한	汉漢漢한

Glyph Complement PDFs

Included in the GlyphComplements folder of the release branch of this open source project are seven per-weight 2,090-page glyph complement PDFs that provide a visual synopsis for all 65,535 glyphs, along with Unicode tables for each of the five languages: Japanese, Korean, Simplified Chinese, Traditional Chinese (Taiwan), and Traditional Chinese (Hong Kong).

Pp 1 through 132 show all 65,535 glyphs by CID. The glyphs for U+2E3A and U+2E3B are excessively wide, and are instead shown in a separate glyph table on page 132. Their blue "P132" placeholders are on pp 3 and 127.

Bookmarked under the "Korean" bookmark, pp 913 through 925 (13 pages) show the 500 pre-composed high-frequency archaic hangul syllables, ordered by their two- or three-character combining sequences.

For the five bookmarked 389-page Unicode tables, for each code point that maps to a glyph, there are three types of annotations, described as follows according to their position relative to the code-point box:

Upper-Left—Glyph width: **F** = Full-width, **H** = Half-width, **M** = Monospaced (hangul letters and syllables), **P** = Proportional, **Q** = Quarter-width, **T** = Tall (U+3031, U+3032, and the vertical forms of U+2E3A and U+2E3B), **W** = Wide (U+2E3A and U+2E3B), **Z** = Zero (non-spacing/combining)

Upper-Right—Language (Region): **C** = Simplified Chinese (China), **H** = Traditional Chinese (Hong Kong), **J** = Japanese, **K** = Korean, **T** = Traditional Chinese (Taiwan)

Bottom—The CID of the glyph

Glyphs that are tall (T), wide (W), or non-spacing/combining (Z) may exceed or appear outside the glyph or code-point box, which include those for U+20DD, U+20DE, U+2E3A, U+2E3B, U+302A through U+302D, U+3031, U+3032, U+3099, and U+309A, along with those for combining jamo.

Unencoded Glyphs

Not shown in the Unicode-based glyph complement PDFs are glyphs that are unencoded.

Ignoring code points that share different Simplified Chinese, Traditional Chinese, Japanese, and Korean glyphs, there are 3,336 unencoded glyphs in each 65,535-glyph font resource. The region-specific subset OTFs include considerably fewer unencoded glyphs.

Approximately one-fourth of the unencoded glyphs are Japanese ideographs (kanji), all of which represent kanji included in Adobe-Japan1-6. Some of these have been explicitly identified as JIS90 (JIS X 0208-1990) glyphs according to their source glyph names and are reflected in the 'jp90' GSUB feature that is specific to the Japanese fonts and font instances, and the remainder have been identified according to their registered IVSes in the *Adobe-Japan1* IVD (Ideographic Variation Database) Collection, and are reflected in the Format 14 'cmap' subtable of the same fonts and font instances.

The bulk of the remaining unencoded glyphs are the 500 high-frequency archaic hangul syllables, the glyphs for combing jamo, vertical forms, and a small number of other variants.

Latin, Greek & Cyrillic Glyphs

Included in all font resources is a rich set of Latin glyphs that support not only ASCII and ISO/IEC 8859-1 (aka ISO Latin 1), but also the characters that are necessary for broadly-used CJK transliteration and transcription systems, along with those that are necessary for Latin-based Vietnamese. A basic set of glyphs for Greek and Cyrillic, with proportional metrics, is also included.

Source Han Serif Versus Source Serif

The Latin, Latin-like, Greek, and Cyrillic glyphs in Source Han Serif are derived from—but not identical to—Source Serif. The Latin and Latin-like glyphs in a typical CJK font represent a minority, and when it comes to

harmonizing glyphs of different scripts, it is better to modify the minority to harmonize with the majority, and not vice versa. In addition, half-width glyphs in typical CJK fonts are also expected to be precisely half-width, and those included in Source Han Serif are derived from Source Serif.

There are two primary differences between the glyphs that are common in Source Han Serif and Source Serif:

- The interpolation ratios for the weights are different. Source Han Serif is available in seven weights: Extra-Light, Light, Regular, Medium, SemiBold, Bold, and Heavy. Source Serif is available in six: ExtraLight, Light, Regular, Semibold, Bold, and Black. While some of the weight names are the same, one should not expect that the interpolation ratios are the same. They will be relatively close, but not precisely the same.

- The glyphs in Source Han Serif that are derived from Source Serif have been adapted for use in Source Han Serif, which mainly involves scaling. In the case of the ExtraLight and Heavy weights, the Source Serif glyphs were scaled to 107.5% and 113.3%, respectively. Thus, the Source Han Serif glyphs appear to be slightly larger than those in Source Serif, particularly in the heavier weights.

The half-width Latin glyphs in Source Han Serif, which are exposed via the 'hwid' GSUB feature, are completely different from the glyphs in Source Code Pro in that they were derived from Source Serif.

The table below compares Source Han Serif with Source Serif—with Source Code Pro added for good measure—for three weights, ExtraLight, Regular, and Heavy/Black:

Weight	Source Han Serif & Source Han Serif 'hwid'	Source Serif & Source Code Pro
ExtraLight	Unicode Version 15.0 ↔ Unicode Version 15.0	
ExtraLight	Unicode Version 15.0 ↔ Unicode Version 15.0	
Regular	Unicode Version 15.0 ↔ Unicode Version 15.0	
Regular	Unicode Version 15.0 ↔ Unicode Version 15.0	
Heavy/Black	Unicode Version 15.0 ↔ Unicode Version 15.0	
Heavy/Black	Unicode Version 15.0 ↔ Unicode Version 15.0	

Vertical Glyphs

The usual and expected set of vertical glyphs is included, some of which are region- or language-specific. In addition, all glyphs for kana, meaning not only those for small kana, include a vertical glyph variant. A small number of vertical glyphs happen to be encoded for compatibility reasons, most of which can be found in the U+FE*xx* range, but they are still accessible via the 'vert' GSUB feature as vertical variants of the horizontal forms that are encoded elsewhere.

The pre-rotated non–full-width glyphs that are typically accessible via the effectively-deprecated 'vrt2' GSUB feature have been intentionally excluded from the glyph set.

CIDFont Resource & CFF Particulars

CIDFont Resource Structure

The font resources that include 65,535 glyphs began their life as an *Adobe-Identity-0* ROS CIDFont resource that includes 18 FDArray elements, each of which specifies its own hinting parameters. The table below shows the names of each of the 18 FDArray elements, its index, the CIDs and CID ranges that are included, and the total number of glyphs:

FDArray Name	Index	CIDs & CID Ranges	Glyphs
Alphabetic	0	59007-59032, 59039-59064	52
AlphabeticDigits	1	959-978, 58990-58999, 59146-59156	41
Bopomofo	2	1656-1698, 1808-1835, 65248	72
Dingbats	3	102, 111, 116, 149, 181, 245-253, 255-256, 720, 723-724, 731-732, 734-737, 742, 744, 748, 753-760, 763, 765-767, 769-770, 795-831, 833-958, 979-1078, 1239-1286, 1288-1293, 1295-1329, 1331-1355, 1391-1466, 1553-1556, 1560, 1651, 1792-1807, 1888-2444, 58907-58989, 59000-59006, 59033-59038, 59065-59069, 59133-59139, 59157-59187, 59189-59246, 59250-59403, 63046-63059, 63185-63188, 65046-65062, 65149-65150, 65154, 65265-65366	1,565
DingbatsDigits	4	771-794	24
Generic	5	0, 1079-1238, 1287, 1294, 59406, 59425, 59431, 59481, 59707, 59719, 59766, 59796, 59937, 59978, 60053, 60084, 60100, 60140, 60175, 60193, 60234, 60260, 60381, 60394, 60502, 60622-60624, 60678-60679, 60690, 60708, 60735, 60765, 60816, 60838, 60995, 61020, 61026, 61032, 61069, 61078, 61098, 61113-61114, 61160, 61338-61339, 61384, 61397, 61400, 61417, 61504, 61520-61521, 61531, 61576, 61606, 61628, 61631, 61661, 61726-61727, 61777, 65391-65534	367
HDingbats	6	59140-59145	6
HKana	7	59070-59132	63
HWidth	8	63071-63086, 63097-63167	87
HWidthCJK	9	63168-63184	17
HWidthDigits	10	63087-63096	10
Hangul	11	372-627, 1699-1791, 47517-58789, 63189-65045	13,479
Ideographs	12	1358-1390, 1836-1871, 2445-47516, 58790-58901, 59404-59405, 59407-59424, 59426-59430, 59432-59480, 59482-59706, 59708-59718, 59720-59765, 59767-59795, 59797-59936, 59938-59977, 59979-60052, 60054-60083, 60085-60099, 60101-60139, 60141-60174, 60176-60192, 60194-60233, 60235-60259, 60261-60380, 60382-60393, 60395-60501, 60503-60621, 60625-60677, 60680-60689, 60691-60707, 60709-60734, 60736-60764, 60766-60815, 60817-60837, 60839-60994, 60996-61019, 61021-61025, 61027-61031, 61033-61068, 61070-61077, 61079-61097, 61099-61112, 61115-61159, 61161-61337, 61340-61383, 61385-61396, 61398-61399, 61401-61416, 61418-61503, 61505-61519, 61522-61530, 61532-61575, 61577-61605, 61607-61627, 61629-61630, 61632-61660, 61662-61725, 61728-61776, 61778-61786, 61819-63014	48,772
Kana	13	1467-1552, 1557-1559, 1561-1650, 1652-1655, 1872-1887, 61795-61818	223
Proportional	14	1-101, 103-110, 112-115, 117-148, 150-180, 182-244, 254, 257-371, 628-719, 721-722, 725-730, 733, 738-741, 743, 745-747, 749-752, 761-762, 764, 768, 832, 1330, 1356-1357, 58902-58906, 59188, 59247-59249, 61787-61794, 63070	494
ProportionalCJK	15	63015-63045	31
ProportionalDigits	16	63060-63069	10
VKana	17	65063-65148, 65151-65153, 65155-65247, 65249-65264, 65367-65390	222

CFF Subroutinization

All 'CFF ' tables have been subroutinized. The size savings range anywhere from 5 to 9MB for the 65,535-glyph OTFs and OTCs. The ExtraLight weight exhibits the greatest size savings.

Unicode Particulars

Unicode Mappings

The Format 12 (UTF-32) 'cmap' subtable of each language-specific OTF and OTC specifies 44,779 meaningful mappings, and the region-specific subset OTFs obviously include less. Note that some glyphs map from multiple code points, such as the entire U+2F*xx* range, along with a large chunk of the CJK Compatibility Ideographs.

In addition to the ideographs for which there are obviously a large number of language-specific glyphs, the following code points also exhibit language-specific variation:

Unicode	Simplified Chinese	Traditional Chinese	Japanese	Korean
U+2018	'	'	'	'
U+2019	'	'	'	'
U+201C	"	"	"	"
U+201D	"	"	"	"
U+2264	≦	≦	≦	≦
U+2265	≧	≧	≧	≧
U+226E	≮	≮	≮	≮
U+226F	≯	≯	≯	≯
U+3001	、	、	、	、
U+3002	。	。	。	。
U+FF01	！	！	！	！
U+FF0C	，	，	，	，
U+FF0E	．	．	．	．
U+FF1A	：	：	：	：
U+FF1B	；	；	；	；
U+FF1F	？	？	？	？

Included as part of this open source project are the raw (and human-readable) UTF-32 mapping files—named *utf32-cn.map*, *utf32-tw.map*, *utf32-hk.map*, *utf32-jp.map*, and *utf32-kr.map*—that were used as the raw sources to compile the UTF-32 CMap resources—named *UniSourceHanSerifCN-UTF32-H*, *UniSourceHanSerifTW-UTF32-H*,

UniSourceHanSerifHK-UTF32-H, *UniSourceHanSerifJP-UTF32-H*, and *UniSourceHanSerifKR-UTF32-H*—that the AFDKO *makeotf* tool uses to generate the Format 12 (UTF-32) 'cmap' subtables.

Matching UTF-16 CMap resources, which should not be used to build the OpenType/CFF fonts, are provided in the Resources folder of the release branch of this open source project for good measure.

Unicode Coverage

In addition to complete URO (*Unified Repertoire & Ordering*; up through U+9FFF for Unicode Version 14.0), Extension A, and modern hangul syllable coverage, the 65,535-glyph font resources completely cover the following 256-character Unicode blocks: U+00*xx*, U+11*xx*, U+2F*xx* through U+33*xx* (except for U+332C), U+D7*xx*, U+FF*xx*, U+1F1*xx* (except for U+1F1E6 through U+1F1FF), and U+1F2*xx* (except for U+1F260 through U+1F265).

Unicode Variation Sequences

All font resources include 16 SVSes (*Standardized Variation Sequences*) that correspond to eight full-width CJK punctuation characters, and can be used to explicitly invoke them, thereby overriding the default glyphs. These SVSes were included in Unicode Version 12.0 (2019). The table below lists these SVSes and the glyphs that correspond to them:

Unicode	VS1 (U+FE00)—Corner-Justified Form	VS2 (U+FE01)—Centered Form
U+3001	あ汉、 汉あ	永、 永
U+3002	あ汉。 汉あ	永 。 永
U+FF01	汉！ 汉	あ永！ 永あ
U+FF0C	あ汉， 汉あ	永，永
U+FF0E	あ汉． 汉あ	永・永
U+FF1A	汉： 汉	あ永：永あ
U+FF1B	汉； 汉	あ永；永あ
U+FF1F	汉？ 汉	あ永？永あ

The use of these SVSes is meant as a "plain text" alternative to language-tagging in order to achieve the same results, which means that subsequent language-tagging of such text, explicit or otherwise, will override the results in potentially unpredictable ways. In other words, these SVSes should be considered a last-resort means of displaying particular forms of these full-width CJK punctuation characters. Also see the table that starts on page 26 to learn how these eight full-width CJK punctuation characters are expected to behave in vertical writing mode.

Each Simplified Chinese font and font instance additionally includes nine SVSes that correspond to nine of the 1,002 Standardized Variants that were introduced in Unicode Version 6.3. Six of these SVSes are default (directly encoded). 14 of its 25 total UVSes are default, and the remaining 11 are non-default. The provided *SourceHanSerif_CN_sequences.txt* file specifies the UVSes.

Each Traditional Chinese (Taiwan) font and font instance additionally includes two SVSes that correspond to two of the 1,002 Standardized Variants that were introduced in Unicode Version 6.3. Both of these SVSes are default (directly encoded). 10 of its 18 total UVSes are default, and the remaining eight are non-default. The provided *SourceHanSerif_TW_sequences.txt* file specifies the UVSes.

Each Traditional Chinese (Hong Kong) font and font instance additionally includes 14 SVSes that correspond to 14 of the 1,002 Standardized Variants that were introduced in Unicode Version 6.3. 10 of its 30 total UVSes are default, and the remaining 20 are non-default. The provided *SourceHanSerif_HK_sequences.txt* file specifies the UVSes.

All IVSes from the registered Adobe-Japan1 IVD Collection—except for <6CE8 E0102> (Adobe-Japan1-6 CID+12869), which is excluded because it is outside the scope of the *Source Han Serif* glyph set—are specified in the Format 14 'cmap' subtable of each Japanese font and font instance, along with 89 of the 1,002 Standardized Variants that were introduced in Unicode Version 6.3. This means that 14,682 *Adobe-Japan1* IVSes and 105 SVSes are included. 13,319 of these UVSes are default, meaning that the glyph is directly encoded, and the remaining 1,468 are non-default (unencoded or encoded in a CJK Compatibility Ideograph block, at least for Japanese fonts and font instances). The provided *SourceHanSerif_JP_sequences.txt* file specifies the UVSes.

Each Korean font and font instance additionally includes 270 SVSes that correspond to 270 of the 1,002 Standardized Variants that were introduced in Unicode Version 6.3. All of these SVSes are default (directly encoded). The 36 IVSes from the registered KRName IVD Collection are also supported. 293 of its 322 total UVSes are default, and the remaining 29 are non-default. The provided *SourceHanSerif_KR_sequences.txt* file specifies the UVSes.

Glyph Sharing Statistics

One of the defining characteristics of Pan-CJK typeface designs is the significant sharing of glyphs across languages or regions. However, to honor regional conventions, some code points, in particular the ideographs, may require more than one glyph per code point. The URO exhibits the greatest variation, in terms of including a large number of code points that require multiple language-specific glyphs. In general, as one progresses through the CJK Unified Ideograph extensions, from Extensions A through Extension G, the number of code points that require multiple language-specific glyphs diminishes. The table below lists several code point categories, and shows how many glyphs are used to represent the 44,748 code points:

			CJK Unified Ideograph Extensions								
		URO	A	B	C	D	E	F	G	Other
Glyphs	1	8796	6127	2028	46	33	108	4	1	14734
	2	7697	451	29						165
	3	3708	14							45
	4	728							2	
	5	63								

Of particular interest should be the 63 highlighted URO code points that have five unique glyphs, one per language. The table below shows these 63 ideographs for each of the five supported languages:

Simplified Chinese	傑僭凞割劘喝塌姿嬴幠廈扇搨摩榻潛瀛瘦瞎磨窖寶篠簉糙綢矗羸翁剪翩肓贏艘裯褐謁譖豁贏轄返迷途造週遍遭選遼鄰釁闕雕雰靡颺飯驎鱻魔麗麟
Traditional Chinese — Taiwan	傑僭凞割劘喝塌姿嬴幠廈扇搨摩榻潛瀛瘦瞎磨窖寶篠簉糙綢矗羸翁剪翩肓贏艘裯褐謁譖豁贏轄返迷途造週遍遭選遼鄰釁闕雕雰靡颺飯驎鱻魔麗麟
Traditional Chinese — Hong Kong	傑僭凞割劘喝塌姿嬴幠廈扇搨摩榻潛瀛瘦瞎磨窖寶篠簉糙綢矗羸翁剪翩肓贏艘裯褐謁譖豁贏轄返迷途造週遍遭選遼鄰釁闕雕雰靡颺飯驎鱻魔麗麟
Japanese	傑僭凞割劘喝塌姿嬴幠廈扇搨摩榻潛瀛瘦瞎磨窖寶篠簉糙綢矗羸翁剪翩肓贏艘裯褐謁譖豁贏轄返迷途造週遍遭選遼鄰釁闕雕雰靡颺飯驎鱻魔麗麟
Korean	傑僭凞割劘喝塌姿嬴幠廈扇搨摩榻潛瀛瘦瞎磨窖寶篠簉糙綢矗羸翁剪翩肓贏艘裯褐謁譖豁贏轄返迷途造週遍遭選遼鄰釁闕雕雰靡颺飯驎鱻魔麗麟

UAX #50 Compliance

Source Han Serif is one of the first font implementations that is compliant with UAX #50 (*Unicode Vertical Text Layout*). Only the substitutions in the 'vert' GSUB feature are expected to be used, and the 'vrt2' GSUB feature, which is a subset of the 'vert' GSUB feature, is included only because some environments, such as Windows and some Microsoft applications, require it to be present. In particular, pre-rotated non–full-width glyphs have been excluded from the 'vrt2' GSUB feature, and substitutions for arrows and arrow-like characters have also been excluded from both GSUB features.

Language Particulars

Simplified Chinese: GB 18030 & China's Tōngyòng Guīfàn Hànzìbiǎo

In addition to supporting GB 18030 2022 Implementation Level 2, which primarily amounts to Simplified Chinese glyphs for all URO and Extension A code points plus six Extension B code points, China's latest list of 8,105 hanzi (通用规范汉字表 *Tōngyòng Guīfàn Hànzìbiǎo*), which includes 196 additional Extension B through E code points is also supported. Among these 196 hanzi, 36 map to Extension B, 44 map to Extension C, eight map to Extension D, and 108 map to Extension E.

Traditional Chinese—Taiwan: Big Five + CNS 11643 Planes 1 & 2

Beginning with version 2.000, there are separate Traditional Chinese fonts and font instances for Taiwan and Hong Kong. The scope of Traditional Chinese for Taiwan is limited to Big Five (equivalent to CNS 11643 Planes 1 and 2), and the glyphs mostly adhere to the Taiwan MOE (Ministry of Education) glyph standard. Any CJK Unified Ideograph code point that is outside the scope of Big Five is not likely to display appropriately for Traditional Chinese (Taiwan) use.

Traditional Chinese—Hong Kong: Big Five & HKSCS-2016

The Traditional Chinese (Hong Kong) fonts and font instances include as their scope Big Five and HKSCS-2016, with the glyphs for both mostly adhering to Hong Kong conventions.

Japanese: Adobe-Japan1-6 Correspondence Table & JIS Coverage

The provided *aj16-kanji.txt* mapping file shows how all Adobe-Japan1-6 kanji map to working glyph names as specified in the fourth field of the included *AI0-SourceHanSerif* ordering file. In order to support the *Adobe-Japan1* IVD Collection, glyphs for all Adobe-Japan1-6 kanji—except for <6CE8 E0102> (Adobe-Japan1-6 CID+12869), which is excluded because it is outside the scope of the Source Han Serif glyph set—are included.

Due to the JIS standard coverage of Adobe-Japan1-6 that is inherited by Source Han Serif, all JIS X 0208, JIS X 0213, and JIS X 0212 kanji are therefore supported. JIS2004 (aka JIS X 0213:2004) glyphs are the default for the relevant code points. A small number of characters in the JIS standards, such as those for IPA, along with additional Latin, Greek, and Cyrillic that were not deemed necessary, have been intentionally excluded.

Although Source Han Serif includes the same kanji as Adobe-Japan1-6, including a large number of kanji variants, compatibility shouldn't be expected for documents that were authored using applications that specify glyphs by CID. The only Adobe-Japan1-6 compatibility that should be expected is at the Unicode level, which includes the *Adobe-Japan1* IVSes that are specified in the Format 14 'cmap' subtable.

Korean: Hangul Glyphs & Hanja Coverage

Glyphs for all contemporary Korean hangul symbols, letters (including compatibility versions), and syllables are included, along with the additional glyphs necessary to compose archaic hangul via the 'ljmo', 'vjmo', and 'tjmo' GSUB features. Also included are glyphs for 500 high-frequency archaic hangul syllables in pre-composed form, which are made accessible via the 'ccmp' GSUB feature.

While the horizontal advances of the glyphs for Korean hangul symbols (in the U+32*xx* block) are full-width (1000 units), those for Korean hangul letters and syllables are monospaced at 966 units.

The provided *ks-hanja.txt* mapping file shows how the hanja in the KS X 1001 (4,620) and KS X 1002 (2,856) standards map to working glyph names as specified in the fourth field of the included *AI0-SourceHanSerif* ordering file.

Proportional & Half-Width CJK Punctuation

Included in these fonts are special forms of the proportional and half-width punctuation shown in the table below, which have been tailored for CJK use in that they are aligned to the em-box, not to Latin features, and which are accessible via the 'locl' GSUB feature:

Unicode	Proportional	Half-Width[1]	Chinese	Japanese	Korean
U+0020	$\rightarrow$				Yes
U+0021	! $\rightarrow$!	! $\rightarrow$!			Yes
U+0022	" $\rightarrow$ "	" $\rightarrow$ "	Yes	Yes	Yes
U+0027	' $\rightarrow$ '	' $\rightarrow$ '	Yes	Yes	Yes
U+0028	($\rightarrow$ (	($\rightarrow$ (			Yes
U+0029	) $\rightarrow$)	) $\rightarrow$)			Yes
U+002C	, $\rightarrow$,	, $\rightarrow$,			Yes
U+002D[2]	- $\rightarrow$ -	- $\rightarrow$ -			Yes
U+002E	. $\rightarrow$.	. $\rightarrow$.			Yes
U+002F	/ $\rightarrow$ /	/ $\rightarrow$ /			Yes
U+0030[2]	0 $\rightarrow$ 0		Yes	Yes	Yes
U+0031[2]	1 $\rightarrow$ 1		Yes	Yes	Yes
U+0032[2]	2 $\rightarrow$ 2		Yes	Yes	Yes
U+0033[2]	3 $\rightarrow$ 3		Yes	Yes	Yes
U+0034[2]	4 $\rightarrow$ 4		Yes	Yes	Yes
U+0035[2]	5 $\rightarrow$ 5		Yes	Yes	Yes
U+0036[2]	6 $\rightarrow$ 6		Yes	Yes	Yes
U+0037[2]	7 $\rightarrow$ 7		Yes	Yes	Yes
U+0038[2]	8 $\rightarrow$ 8		Yes	Yes	Yes
U+0039[2]	9 $\rightarrow$ 9		Yes	Yes	Yes
U+003A	: $\rightarrow$:	: $\rightarrow$:			Yes
U+003B	; $\rightarrow$;	; $\rightarrow$;			Yes
U+003F	? $\rightarrow$?	? $\rightarrow$?			Yes

Unicode	Proportional	Half-Width[1]	Chinese	Japanese	Korean
U+005B	[→ [	[→ [			Yes
U+005D	] →]	] →]			Yes
U+007B	{ → {	{ → {			Yes
U+007D	} → }	} → }			Yes
U+007E	~ → ~	~ → ~			Yes
U+00AD	- → -	- → -			Yes
U+00B7	· → ·				Yes
U+2011	- → -	- → -			Yes
U+2013	– → –				Yes
U+2014	— → —		Yes	Yes	Yes
U+2018	' → '		Yes[3]	Yes	Yes
U+2019	' → '		Yes[3]	Yes	Yes
U+201A	‚ → ‚		Yes	Yes	Yes
U+201C	" → "		Yes[3]	Yes	Yes
U+201D	" → "		Yes[3]	Yes	Yes
U+201E	„ → „		Yes	Yes	Yes
U+2026[2]	… → …		Yes	Yes	Yes
U+203C	‼ → ‼		Yes	Yes	Yes
U+2047	⁇ → ⁇		Yes	Yes	Yes
U+2048	⁈ → ⁈		Yes	Yes	Yes
U+2049	⁉ → ⁉		Yes	Yes	Yes
U+2E3A	⸺ → ⸺		Yes	Yes	Yes
U+2E3B	⸻ → ⸻		Yes	Yes	Yes

1 The half-width glyphs are not encoded by default, and are accessible via the 'hwid' GSUB feature in all fonts and font instances.
2 These characters are unique in that the CJK forms are encoded by default, and the Western forms are accessible when the text is language-tagged for English.
3 The default glyph for this code point is full-width, not proportional, so the 'pwid' GSUB feature must first be invoked to access the proportional glyph that is tailored for CJK use.

OpenType Particulars

Menu Names

The table below shows the English and localized Family names for each font and font instance:

Configuration	Family Name—English	Family Name—Localized
Simplified Chinese OTF & OTC	*Source Han Serif SC*	思源宋体
Traditional Chinese OTF & OTC — Taiwan	*Source Han Serif TC*	思源宋體
Traditional Chinese OTF & OTC — Hong Kong	*Source Han Serif HC*	思源宋體 香港
Japanese OTF & OTC	*Source Han Serif*	源ノ明朝
Korean OTF & OTC	*Source Han Serif K*	본명조
Simplified Chinese OTF (subset)	*Source Han Serif CN*	思源宋体 CN
Traditional Chinese OTF (subset) — Taiwan	*Source Han Serif TW*	思源宋體 TW
Traditional Chinese OTF (subset) — Hong Kong	*Source Han Serif HK*	思源宋體 HK
Japanese OTF (subset)	*Source Han Serif JP*	源ノ明朝 JP
Korean OTF (subset)	*Source Han Serif KR*	본명조 KR
Simplified Chinese Variable OTF/TTF/OTC	*Source Han Serif SC VF*	思源宋体 VF
Traditional Chinese Variable OTF/TTF/OTC — Taiwan	*Source Han Serif TC VF*	思源宋體 VF
Traditional Chinese Variable OTF/TTF/OTC — Hong Kong	*Source Han Serif HC VF*	思源宋體 香港 VF
Japanese Variable OTF/TTF/OTC	*Source Han Serif VF*	源ノ明朝 VF
Korean Variable OTF/TTF/OTC	*Source Han Serif K VF*	본명조 VF
Simplified Chinese Variable OTF/TTF (subset)	*Source Han Serif CN VF*	思源宋体 CN VF
Traditional Chinese Variable OTF/TTF (subset) — Taiwan	*Source Han Serif TW VF*	思源宋體 TW VF
Traditional Chinese Variable OTF/TTF (subset) — Hong Kong	*Source Han Serif HK VF*	思源宋體 HK VF
Japanese Variable OTF/TTF (subset)	*Source Han Serif JP VF*	源ノ明朝 JP VF
Korean Variable OTF/TTF (subset)	*Source Han Serif KR VF*	본명조 KR VF

For the region-specific subset OTFs, the English and localized menu names also include region identifiers. Their PostScript names, as shown in the table in the section entitled "Font Resources" section on page 5, use the same region identifiers. With the exception of Japanese, the language-specific OTFs and OTCs include a one- or two-letter language identifier only for their English menu names.

The Regular weight in all fonts and font instances is style-linked to the Bold weight. For applications that support style-linking, the Regular weight becomes the Bold weight if the "Bold" style is selected.

Because the OTCs and the corresponding language-specific OTFs specify identical PostScript and Family names, they cannot be installed in the same environment.

OpenType Tables

All font resources, with the exception of the OTCs, include the following 16 OpenType tables: 'BASE', 'CFF ', 'DSIG', 'GPOS', 'GSUB', 'OS/2', 'VORG', 'cmap', 'head', 'hhea', 'hmtx', 'maxp', 'name', 'post', 'vhea', and 'vmtx'. The OTCs do not include a 'DSIG' table.

The four font instances in each of the seven OTCs share the following ten OpenType tables: 'BASE', 'CFF ', 'GPOS', 'VORG', 'hhea', 'hmtx', 'maxp', 'post', 'vhea', and 'vmtx'. The following five OpenType tables are not completely shared by the four font instances in each OTC: 'GSUB', 'OS/2', 'cmap', 'head', and 'name'. The Super OTC shares OpenType tables more efficiently.

OpenType Table Overrides

Several values in particular OpenType tables have been overridden from their otherwise default values. The subsections below detail some of the more important table-specific overrides that have been applied.

'OS/2' Table Overrides

The *OS/2.sTypoLineGap* value has been set to 0 (zero) units, and is also reflected in the *hhea.LineGap* and *vhea.lineGap* values. The *OS/2.usWinAscent* and *OS/2.usWinDescent* values have been calculated by removing excessively tall and other vertical-only glyphs—for U+2E3A, U+2E3B, U+302A through U+302D, U+3031, and U+3032—from the equation, and have been harmonized across all seven weights. These same harmonized settings are also reflected in the *hhea.Ascender* and *hhea.Descender* values. This is for the benefit of applications that use these values for determining default leading. These and other 'OS/2' table settings are intended to provide consistent cross-platform line spacing (aka vertical metrics).

'name' Table Overrides

Unlike mainstream OpenType/CFF CJK fonts, a *name.ID=20* string is not specified because there are no legacy (non-Unicode) encodings that meaningfully correspond to these fonts. In addition, the 'name' table does not include any Macintosh (*PlatformID=1*) strings, which was accomplished by invoking the AFDKO *makeotf* tool's *-omitMacNames* command-line option. This means that the 'name' table includes only Unicode strings.

'vmtx' Table Overrides

In addition to specifying alternate vertical origins for full-width Latin and Latin-like glyphs that rest on the Latin baseline, proper vertical origins and vertical advances are also specified for the glyphs that correspond to U+3031 and U+3032, and to the vertical forms of U+2E3A, U+2E3B, U+302E, and U+302F.

OpenType GSUB Features

All fonts and font instances include the OpenType GSUB features (see the OpenType Feature Registry for additional information) as detailed in the table below:

GSUB Feature	OTF & OTC					Subset OTF				
	SC	TC	HC	J	K	CN	TW	HK	JP	KR
aalt	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
calt	Yes	Yes	Yes	Yes	Yes					Yes
ccmp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
dlig	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
fwid[1]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
hist	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
hwid[1]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
jp78[1]				Yes					Yes	
jp83[1]				Yes					Yes	
jp90[1]				Yes					Yes	
liga	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

GSUB Feature	OTF & OTC					Subset OTF				
	SC	TC	HC	J	K	CN	TW	HK	JP	KR
ljmo	Yes	Yes	Yes	Yes	Yes					Yes
locl	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
nlck[1]				Yes					Yes	
pwid[1]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
tjmo	Yes	Yes	Yes	Yes	Yes					Yes
vert[1]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
vjmo	Yes	Yes	Yes	Yes	Yes					Yes
vrt2[2]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

1 This GSUB feature is inherited by the 'aalt' GSUB feature.
2 This GSUB feature is a subset—not superset, as is usually the case—of the 'vert' GSUB feature.

All fonts and font instances that include hangul letters or syllables include a Korean-specific glyph for the *space* character (U+0020), whose width is set to 310 units for all weights. The width of the proportional glyph for the *space* character ranges from 259 units (in ExtraLight) to 247 units (in Heavy) in all fonts and font instances. A contextual substitution in the 'calt' GSUB feature substitutes the proportional *space* glyph with the Korean-specific version only when it is surrounded by a hangul syllable (contemporary or archaic), regardless of whether it is pre-composed or combining.

The 'ccmp' GSUB Feature
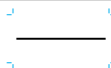
The 'ccmp' GSUB feature is used to form the appropriate glyphs that correspond to the sequences needed to support a small number of kana, many of which are included in JIS X 0213 but are intentionally unencoded, along with the 500 high-frequency pre-composed archaic hangul syllables. PDF specimens for the latter can be found in the GlyphComplements folder of the release branch of this open source project. A complete listing of the former is provided in the table below:

Unicode Sequence	Glyph	Present in JIS X 0213
<004D 0300>	M̀	
<004D 0304>	M̄	
<006D 0300>	m̀	
<006D 0304>	m̄	
<00CA 0304>	Ê̄	
<00CA 030C>	Ê̌	
<00EA 0304>	ê̄	
<00EA 030C>	ê̌	
<3042 3099>	あ゙	
<3044 3099>	い゙	
<3048 3099>	え゙	

Unicode Sequence	Glyph	Present in JIS X 0213
<304A 3099>	お゙	
<304B 309A>	か゚	Yes
<304D 309A>	き゚	Yes
<304F 309A>	く゚	Yes
<3051 309A>	け゚	Yes
<3053 309A>	こ゚	Yes
<3093 3099>	ん゙	
<30A2 3099>	ア゙	
<30A4 3099>	イ゙	
<30A8 3099>	エ゙	
<30AA 3099>	オ゙	
<30AB 309A>	カ゚	Yes
<30AD 309A>	キ゚	Yes
<30AF 309A>	ク゚	Yes
<30B1 309A>	ケ゚	Yes
<30B3 309A>	コ゚	Yes
<30BB 309A>	セ゚	Yes
<30C4 309A>	ツ゚	Yes
<30C8 309A>	ト゚	Yes
<30F3 3099>	ン゙	
<31F7 309A>	プ	Yes

This GSUB feature is also used to support the two- and three-character sequences shown in the table below:

Unicode Sequence	Unicode	Western Glyph	CJK Glyph
<2014 2014 2014>	U+2E3B	———————	
<2014 2014>	U+2E3A	—————	
<2015 2015 2015>	U+2E3B		———————

Unicode Sequence	Unicode	Western Glyph	CJK Glyph
<2015 2015>	U+2E3A		———
<3033 3035>	U+3031		〱
<3034 3035>	U+3032		〲

The glyphs that result from the first four sequences can be overridden, in terms of Western versus CJK glyph style, by applying the 'locl' GSUB feature, which entails using an application that supports this OpenType feature and properly language tagging the text. These sequences merely serve as a convenience mechanism for environments that do not support language tagging.

The 'locl' GSUB Feature

The 'locl' GSUB feature plays a critical role in the language-specific OTFs in that it represents the *only* mechanism within the font resource for accessing the glyphs for the non-default languages. If the 'locl' GSUB feature is not supported or not properly used, the default glyphs are used. Each non-default language is handled via a separate lookup that is associated with the appropriate language and script, and one of its purposes is to mimic the 'cmap' table of the target language.

The font instances of the OTCs also include the 'locl' GSUB feature, but its presence represents an alternate method for accessing the glyphs for the non-default languages that does not involve selecting a different font instance of the OTC.

Note that in addition to using an application that supports the 'locl' GSUB feature, such as Adobe InDesign or particular modern browsers (examples include Chrome, Firefox, and Safari), the text must also be properly language-tagged at the character, paragraph, or document level.

Also note that all font resources, including the region-specific subset OTFs, include the 'locl' GSUB feature. For the region-specific subset OTFs that obviously do not include glyphs for the ideographs of the non-supported regions, the 'locl' GSUB feature instead operates only on a small number of glyphs for punctuation by tailoring them for CJK use. See the table in the "Proportional & Half-Width CJK Punctuation" section on page 18 for a showing of these special glyphs.

The 'vert' GSUB Feature

The 'vert' GSUB feature includes substitutions that may be different for each region or language, which apply to the following code points:

Unicode	Simplified Chinese	Traditional Chinese	Japanese	Korean
U+2018[1]	' → ⌐	' → ，	'	'
U+2019[1]	' → ⌐	' → ／	'	'
U+201C[1]	" → ⌐	" → 〃	"	"
U+201D[1]	" → ⌐	" → 〃	"	"
U+3001	、 → 、	、	、 → 、	、 → 、
U+3002	。 → 。	。	。 → 。	。 → 。

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Unicode	Simplified Chinese	Traditional Chinese	Japanese	Korean
U+FF01	！ → ！	！	！	！ → ！
U+FF0C	， → ，	，	， → ，	， → ，
U+FF0E	． → ．	．	． → ．	． → ．
U+FF1A	： → ：	：	： → ‥	： → ：
U+FF1B	； → ；	；	；	； → ；
U+FF1F	？ → ？	？	？	？ → ？

1 To achieve the same vertical substitution effect as Traditional Chinese for Japanese or Korean, the 'fwid' GSUB feature must first be applied to change the default proportional glyphs to their full-width forms.

OpenType GPOS Features

Seven GPOS features, 'halt', 'kern', 'palt', 'vert', 'vhal', 'vkrn', and 'vpal', are included in all font resources, and their details are listed below (see the OpenType Feature Registry for additional information):

- The 'halt' and 'vhal' GPOS feature are identical across all weights.

- The 'palt' and 'vpal' GPOS features for ExtraLight through Medium are identical, as are those for SemiBold through Heavy. These features cover the glyphs for kana, some full-width punctuation, some full-width symbols, full-width digits, and full-width Latin.

- The 'kern' GPOS feature includes weight-specific kerning pairs for proportional Latin, Greek, and Cyrillic glyphs, along with weight-independent kerning pairs for kana and some punctuation. The 'vkrn' GPOS feature includes only weight-independent kerning pairs for kana and some punctuation.

- The 'vert' GPOS feature is used to adjust the glyphs for U+20DD, U+302A through U+302D, U+3099, U+309A, and those that represent vowels and trailing consonants of combining jamo, which have zero-unit horizontal advances, such that their positions and vertical origins are appropriate for vertical writing.

Noto Serif CJK Differences

Other than by name, the Google-branded version of this typeface design, Noto Serif CJK, differs in the following ways:

- The *name.ID=0* (*Copyright notice*) string does not include a reference to the "Source" name.

- The *name.ID=7* (*Trademark*) string specifies a Google trademark.

- The *name.ID=11* (*URL Vendor*) string specifies a Google URL.

- A *name.ID=12* (*URL Designer*) string was added that specifies an Adobe URL.

- Although localized menu names are not specified, localized 'name' table strings are included, in terms of *name.IDs* 1, 2, 4, 16, and 17, though the actual strings are identical to the English-language ones.

- The *OS/2.usWeightClass* value is set to 200 for ExtraLight (Source Han Serif ExtraLight uses 250) per Noto CJK Issue #86.

- The *OS/2.achVendID* tag is set to *GOOG* (Source Han Serif uses *ADBO*).

- Although glyphs for U+2252 and U+25C8 are included, named *uni2252* and *uni25C8*, the Format 4 and 12 'cmap' subtables do not include mappings for U+2252 and U+25C8, per Noto CJK Issue #24 and Noto CJK Issue #23, respectively.

- The Variable fonts do not include "VF" in the file names or PostScript names.

Changes

Version 2.003

Release Date: July 30, 2024.

Listed below are the changes that were made in this release:

- The copyright year was changed to "2017–2024."
- Fixed missing U+5CB8 and U+6FCA from JP subset per Issue #213.
- Fixed outline issue in uni58D3-JP Heavy source per Issue #212.
- Fixed outline issue in uni5A1B-CN Heavy source per Issue #208.
- Fixed outline issue in uni6D04-JP ExtraLight source per Issue #206.
- Fixed component order in uni704A-CN ExtraLight source per Issue #205.
- Fixed duplicate contours per Issue #203.
- Fixed inconsistent width for vertical kana per Issue #199.
- Adjusted U+5B53 孓 per Issue #187.
- Fixed HK mapping for U+66F8 書 per Issue #175.
- Mapped U+5E3D 帽 to *uni5E3DuE0101-JP* in the CN, TW, and HK CMap resources per Issue #155 A1.
- Mapped U+62CB 抛 to *uni62CB-JP* in the TW and HK CMap resources per Issue #155 A3.
- Mapped U+6F74 潴 to *uni6F74uE0101-JP* in the TW and HK CMap resources per Issue #155 A4.
- Mapped U+588F 壏 to *uni588F-CN* in the HK CMap resources per Issue #155 A6.
- Mapped U+5C07 將 to uni5C07-CN in the HK CMap resources per Issue #155 A7.
- Mapped U+5C4D 屍 to uni5C4D-CN in the HK CMap resources per Issue #155 A8.
- Mapped U+5D88 嶈 to uni5D88-CN in the HK CMap resources per Issue #155 A9.
- Mapped U+613F 愿 to uni613F-JP in the HK CMap resources per Issue #155 A10.
- Mapped U+63C3 揃 to uni63C3-JP90-JP in the HK CMap resources per Issue #155 A11.
- Mapped U+64E5 擥 to uni64E5-TW in the HK CMap resources per Issue #155 A12.
- Mapped U+68C8 梈 to uni68C8uE0101-JP in the HK CMap resources per Issue #155 A13.
- Mapped U+69F3 槳 to uni69F3-CN in the HK CMap resources per Issue #155 A14.
- Mapped U+6B7B 死 to uni6B7B-CN in the HK CMap resources per Issue #155 A15.
- Mapped U+6F3F 漿 to uni6F3F-CN in the HK CMap resources per Issue #155 A16.
- Mapped U+714E 煎 to uni714E-JP90-JP in the HK CMap resources per Issue #155 A17.
- Mapped U+731C 猜 to uni731CuE0101-JP in the HK CMap resources per Issue #155 A18.
- Mapped U+76E5 盟 to uni76E5-JP in the HK CMap resources per Issue #155 A19.
- Mapped U+787B 礻 to uni787B-CN in the HK CMap resources per Issue #155 A20.
- Mapped U+86F8 蛸 to uni86F8-JP90-JP in the HK CMap resources per Issue #155 A21.
- Mapped U+87BF 蚿 to uni87BF-CN in the HK CMap resources per Issue #155 A22.
- Mapped U+8CA7 貧 to uni8CA7-CN in the HK CMap resources per Issue #155 A23.
- Mapped U+8E61 蹡 to uni8E61-CN in the HK CMap resources per Issue #155 A24.
- Mapped U+9306 錆 to uni9306-JP90-JP in the HK CMap resources per Issue #155 A25.
- Mapped U+962A 阪 to uni962AuE0101-JP in the HK CMap resources per Issue #155 A26.
- Mapped U+975C 靜 to uni975CuE0102-JP in the HK CMap resources per Issue #155 A27.
- Mapped U+9BB9 鮹 to uni9BB9uE0101-JP in the HK CMap resources per Issue #155 A28.

- Mapped U+9BD6 鯖 to uni9BD6-JP90-JP in the HK CMap resources per Issue #155 A29.
- Fixed vertical stroke on HK glyphs for uni7562-HK 畢, uni7BF3-HK 篳, and uni7BF3-HK 罼 per Issue #155 C7-C9.
- Fixed missing stroke on uni55F6-TW 嘩 and uni6EED-TW 湭 per Issue #155 C10 and C11.
- Updated U+2C629 綖 per Issue #105.

Version 2.002

Release Date: August 16, 2023.

Listed below are the changes that were made in this release:

- The copyright year was changed to "2017–2023."
- Addition of 翎 Square Era Name Reiwa *uni32FF-JP* was omitted in previous release notes Issue #163.
- Some updates to Latin glyphs from Source Serif were missed in 2.000 and have now been updated.
- The following glyphs were added to support GB 18030 2022 Implementation Level 2: *uni4DB6-CN*, *uni4DB7-CN*, *uni4DB8-CN*, *uni4DBA-CN*, *uni4DBB-CN*, *uni4DBC-CN*, *uni4DBD-CN*, *uni4DBE-CN*, *uni4DBF-CN*, *uni5CB8-JP*, *uni9FEB-CN*, *uni9FEB-TW*, *uni9FEC-CN*, *uni9FED-CN*, *uni9FEE-JP*, *uni9FEF-JP*, *uni9FF0-CN*, *uni9FF1-CN*, *uni9FF2-CN*, *uni9FF3-CN*, *uni9FF4-CN*, *uni9FF5-CN*, *uni9FF6-CN*, *uni9FF7-CN*, *uni9FF8-CN*, *uni9FF9-CN*, *uni9F-FA-CN*, *uni9FFB-CN*, *uni9FFC-CN*, *uni9FFD-CN*, *uni9FFE-CN*, and *uni9FFF-CN*.
- Fixed TW/HK mappings for U+5168 全, U+6D24 淤, U+8DE7 踆, U+8F07 輇, and U+9293 銓 per Issue #109.
- Fixed aj16-kanji.txt per Issue #125.
- Fixed position of *uni309B-V* and *uni309C-V* per Issue #157.
- Fixed HK mapping for U+752D 甭 per Issue #159.
- Fixed CN mapping for U+5141 允 and U+535A 博 per Issue #162.
- Remapped TW glyph for U+7239 爹 per Issue #167.
- Restored JP glyph for U+5CB8 岸 per Issue #169.
- Fixed mapping for U+F9DC 隆 per Issue #165.
- Fixed interpolation bug in uni2299 ⊙ per Issue #181.
- Fixed interpolation bugs in *uni4B4C-CN* 饔 and *uni4B55-CN* 饕 per Issue #193.

Version 2.001

Release Date: January 26, 2022.

Listed below are the changes that were made in this release:

- The copyright year was changed to "2017–2022."
- Map all regions to *uni635C-JP* per Issue #98.
- Fixed mapping for U+3106C 𱁬 in the TW CMap resource per Issue #100.
- Removed DSIG from variable OTCs per Issue #103.
- Fixed TW/HK mapping for glyphs containing 壬. See Issue #105.
- Fixed glyphs missing from CN subset file. See Issues #106, #145 and #147.
- Fixed TW/HK mapping for 倉-composed glyphs. See Issue #107.
- Fixed TW/HK mapping for 全-composed glyphs. See Issue #109.
- Fixed TW/HK mapping for 萬, 兩 and 夾-composed glyphs. See Issue #110.
- Fixed TW/HK mapping for 以-composed glyphs. See Issue #111.
- Fixed HK mapping for U+7238 爸. See Issue #112.

- Fixed TW/HK mapping for 丑-composed glyphs. See Issue #113.
- Fixed TW/HK mapping for 喬-composed glyphs. See Issue #114.
- Fixed TW/HK mapping for ▢攵-composed glyphs. See Issue #115.
- Fixed TW/HK mapping for 戶-composed glyphs. See Issue #119 .
- Fixed mapping for U+5177 具 in the CN, TW, and HK CMap resources per Issue #120.
- Fixed IVS sequence for U+2E569 U+E0100. Fixed mapping for U+884B in JP CMap resource. See Issue #126.
- Fixed contour direction in U+03B8 θ per Issue #117.
- Fixed connection on top of *uni63A1uE0101-JP*, *uni7DB5-JP*, *uni8E29-JP*, and *uni776C-JP* per issue Issue #118.
- Fixed contour order on U+270AE 龗 per Issue #121 A1.
- Removed *uni3FFA-HK* 鿺 with incorrect stroke per Issue #121 B1.
- Restored *uni51F8-CN*, *uni51F9-CN*, and *uni534D-CN* per Issue #121 B3, B4, and B5.
- Restored *uni51F8-CN* per Issue #121 B3.
- Added TW glyph *uni7661-TW* per Issue #121 B9.
- Added CN glyph *uni774F-CN* per Issue #121 B10.
- Added HK glyph *uni8D81-HK* per Issue #121 B13.
- Added CN glyph *uni9D0C-CN* per Issue #121 B16.
- Restored *uni9F0F-CN* per Issue #121 B17.
- Fixed protruding stroke in Heavy master for *uni9F71-TW* per Issue #121 B18.
- Added HK glyph *uni5EF3-HK* per Issue #121 C1.
- Added HK glyph *uni807D-HK* per Issue #121 C2.
- Restored *uni645C-CN* and *uni8CAB-CN* per Issues #121 D1/D2.
- Adjusted 毌 component in *u2037F-HK* per Issue #121 D3.
- Added TW glyphs *uni3A5C-TW*, *uni61E2-TW*, *uni64E5-TW*, and *uni89A7-TW* per Issue #121 E1, E3, E4, and E13.
- Restored *uni5C37-TW*, *uni652C-TW*, *uni6ABB-TW*, *uni6B16-TW*, *uni6FEB-TW*, *uni76EC-CN*, *uni787B-CN*, *uni7925-CN*, *uni81E9-CN*, *uni89A7-CN*, *uni8CE2-CN*, *uni8D12-CN*, *uni8F5E-TW* per Issue #121 E.
- Added glyphs for *uni5F46-TW*, *uni87DE-TW*, *uni8E69-HK*, *uni9128-TW*, *uni9C49-TW*, and *uni9DE9-TW* per Issue #121 F.
- Adjusted 朒 component in *uni9F08-HK* per Issue #121 F7.
- Adjusted 月 component in *uni819A-HK* per Issue #121 K1.
- Added HK glyph *uni3DDB-HK* per Issue #121 L1.
- Adjusted *uni453D-HK*, *uni50E7-HK*, *uni7171-JP* per Issue #121 L2, L3, and L6.
- Restored *uni5DD6-TW* per Issue #121 L5.
- Restored *uni9EE0-TW* 黠 per Issue #136.
- Restored *uni58EF-JP* 壯 (per Issue #149) and other Adobe-Japan1-6 JP glyphs with 山 and 爿 components that were inadvertently removed in 2.000.
- Mapped U+9ED5 to *uni9ED5-JP* in the HK and TW CMap resources per Issue #136.
- Added TW glyph *uni50F0-TW* per Issue #121 B16.
- Updated glyph shape for U+22ACF 抡 per Issue #138.
- Mapped U+68D7 棗 to *uni68D7-JP* in the KR, TW and HK CMap resources per Issue #135.
- Corrected JP IVS sequence mappings for 4E15 E0100, 4ED7 E0100, 5305 E0101, 533E E0100, 569A E0100, 5C22 E0100, 6722 E0100, 7188 E0100, 76AF E0100, 791B E0100, 81FF E0100, 8713 E0100, and 2E569 E0100.

- Corrected KR IVS sequence mappings for 4FBF FE00, 540F FE00, and 66F4 FE00.
- Fixed incorrect mapping for U+5177 具 per Issue #142.
- Adjusted Extralight 刀 component in U+4BBA 驔 and 辶 component in U+329C 適 per Issue #146.

Version 2.000

Release Date: October 25, 2021.

Listed below are the changes that were made in this release:

- The copyright year was changed to "2017–2021."
- Added support for Hong Kong SCS-2016.
- Updated Latin glyphs derived from Source Serif to align with version 4.0.
- All fonts have been built as variable fonts.
- Mapped U+7300 狀 to *uni7300-CN* in the JP and KR CMap resources per Issue #37.
- Mapped U+2F2C 中 to *uniFA3C-JP* in the JP and KR CMap resources.
- Mapped U+2F2C 中 to *uni5C6E-CN* in the CN and TW CMap resources.
- Mapped U+9051 逴 to *uni9051-JP* and U+968D 隍 to *uni968D-JP* in the KR CMap resource per Issue #303.
- Mapped U+51A4 冤 to *uni51A4-JP* in the KR CMap resource per Issue #202.
- Mapped U+732A 猪 to *uni732A-JP* 猪. See Issue #37.
- Mapped U+9FE6 龦 to *uni9FE6-HK* in the TW and HK CMap resources. See Issue #39.
- Mapped U+3B6D 栭 to *uni3B6D-JP*, U+5009 倉 to *uni5009-JP*, and U+5225 別 to *uni5225-JP* in the TW CMap resource per Issue #37.
- Applied mapping overrides for 2420E 炮 → *uni3DB7-CN* and 27EAF 趄 → *uniFA23-JP.*
- Mapped U+89A7 覧 to the HK glyph, *uni89A7-HK* in the TW CMap resource.
- Mapped U+02BB to *uni2018*.
- Mapped U+526A 剪 → *uni526A-CN*, U+5881 堨 → *uni5881-CN*, U+688F 梏 → *uni688F-CN*, U+6ADD 檝 → *uni6ADD-CN*, U+6C4B 汋 → *uni6C4B-CN*, U+7006 濆 → *uni7006-CN*, U+70B7 炷 → *uni70B7-CN*, U+7258 牘 → *uni7258-CN*, U+72A2 犢 → *uni72A2-CN*, U+72B3 犳 → *uni72B3-CN*, U+7431 琱 → *uni7431-CN*, U+501C 個 → *uni501C-CN*, U+5192 冒 → *uni5192-CN*, U+52C7 勇 → *uni52C7-CN*, U+553E 唾 → *uni553E-CN*, U+5DFD 巽 → *u2F884-JP*, U+641C 搜 → *uni641C-CN*, U+73F9 城 → *uni73F9-CN*, U+7A20 稠 → *uni7A20-CN*, U+7C3F 簿 → *uni7C3F-CN*, U+8983 覃 → *uni8983-CN*, U+8D16 贖 → *uni8D16-CN*, U+4E7C 彸 → *uni4E7C-CN,* U+5125 價 → *uni5125-CN,* U+58B0 声 → *uni58B0-CN*, U+60C6 惆 → *uni60C6-CN*, U+6D2C 涬 → *uni6D2C-CN*, U+6E54 湔 → *uni6E54-CN*, U+83C2 葂 → *uni83C2-CN*, U+83DF 菟 → *uni83DF-CN*, U+86C0 蛀 → *uni86C0-CN*, U+8729 蜩 → *uni8729-CN*, U+8CD9 賙 → *uni8CD9-CN*, U+90DC 鄜 → *uni90DC-CN*, U+99B0 駰 → *uni99B0-CN*, U+9C4F 鱏 → *uni9C4F-CN*, U+9D69 鵩 → *uni9D69-CN*, and U+9EF7 黷 → *uni9EF7-CN* in the KR CMap resource.
- Mapped U+284DC 逸 → *uni9038-JP* in all CMap resources.
- Removed the following CN mapping override for U+6FF9 濹: 00006FF9 *uni6FF9uE0101-JP*.
- Adjusted the CN glyph *uni5D75-CN* 嵵 so that the parts of the 寺 component do not connect. See Issue #36.
- Adjusted the TW glyph for U+5DD5 巕, *uni5DD5-TW*, to use Radical #38 as its lower-right component.
- Fixed the TW glyphs *uni64FB-TW* 擻, *uni6578-TW* 數, *uni7C54-TW* 籔, and *uni85EA-TW* 藪 so that the third stroke of the Radical 38 component is horizontal, not diagonal, per Issue #36.
- Fixed the CN glyphs *uni4676-CN* 酴, *uni471B-CN* 讒, and *uni4785-CN* 賑. See Issue #39.
- Fixed the CN glyph for U+8A7C 詼 per Issue #39.
- Fixed the right-side radical of the CN glyph for U+3B9D 棷, *uni3B9D-CN.*
- Fixed the 'dlig' substitution for *uni33A0* ㎠.

- Adjusted *uni9AD3-TW* 髓 to fix the length of the lower-right stroke in the Heavy master per Issue #39.
- Adjusted *uni5369-CN* 卩 and *uni536A-JP* 卪 to be center aligned and match one another. See Issue #39.
- Adjusted the HK glyph for U+9FE6 鿦, *uni9FE6-HK*, per Issue #39.
- Adjusted x-axis position for *uni4E29-JP, uni723F-JP, uni725C-JP, u2099D-JP, u20B1D-JP, u24D14-JP, uni5973uE0101-JP* per Issue #37.
- Adjusted y-axis position for *uni34C1-JP, uni38FA-JP, uni4491-JP, uni4E37-JP, uni4EA0-JP, uni5196-JP, uni5B80-JP, uni6C3A-JP, uni722B-JP, uni7676-JP, uni897E-JP, uni9FB4-JP, u20089-JP, u201A2-JP, u20509-JP, u2053F-JP, u20AD3-JP, u215D7-JP, u241FE-JP, u2626A-JP, u26270-JP, u2696F-JP, uni5927uE0101-JP, uni7A74uE0102-JP* per Issue #37.
- Adjusted the glyph for U+4E3F 丿, *uni4E3F-JP* to be centered in the em–box. See Issue #39.
- Changed the upper-left component of *uni9FE9-CN* 鿩 to be 魚.
- Corrected the shape of JP glyph *uni720B-JP* 爋.
- Corrected the outline in the Heavy master for *uni5929-CN* 天 per Issue #39.
- Corrected the outline for *uni3514-CN* 㔔 per Issue #39.
- Corrected the CN glyphs *uni3CFD-CN* 㳽 (added hook to right side of upper-right component), *uni4A76-CN* 䩶 (modified upper right component), and *uni891D-CN* 褝 (removed center dot from the top of the right component).
- Corrected the glyph for Korean Standard Symbol U+327F ㉿.
- Renamed the TW glyph for U+8D17 贗 from TW to CN. See Issue #40.
- Added CN glyph for U+58C4 壄, *uni58C4-CN*. See Issue #87.
- Added CN glyphs for U+58D3 壓, *uni58D3-CN*, and U+809E 肞, *uni809E-CN*.
- Added CN glyphs for U+3402 㐂, U+3A17 㨗, U+5DC6 巆, and U+69F1 槱. See Issue #40.
- Added JP glyphs for U+54E5 哥, *uni54E5-JP*, and U+68D7 棗, *uni68D7-JP*.
- Added TW glyph *uni4E15-TW* 丕 to be consistent with *uni4F3E-TW* 伾 and *uni576F-TW* 坯. See Issue #38.
- Added TW glyphs for U+5433 吳, *uni5433-TW*, and U+674E 李, *uni674E-TW*. See Issue #40.
- Added KR glyphs for *uni83BDuE0108-KR* 莽 and *uni9F9CuE0108-KR* 龜.
- Added glyphs for *uni00EAuni0304* ê̄, *uni00EAuni030C* ê̌, *uni00CAuni0304* Ê̄, and *uni00CAuni030C* Ê̌.
- Added glyphs for U+02EA ˪, U+02EB ˫, and U+2074 ⁴.
- Added a CN glyph for U+2967F 𩙿, and mapped U+2EDE to it in the CN and TW CMap resources. See Issue #37 & Issue #40.
- Extension G encodings were added for U+30EDD, U+30EDE, and U+3106C.

CJK Unified Ideographs Extension G

Unicode	Simplified Chinese	Traditional Chinese	Hong Kong	Japanese	Korean
U+30EDD	𰻝	𰻝	𰻝	𰻝	𰻝
U+30EDE	𰻞	𰻞	𰻞	𰻞	𰻞
U+3106C	𱁬	𱁬	𱁬	𱁬	𱁬

Version 1.001

Build Date: May 1, 2017. Built By: Dr. Ken Lunde (小林劍). Release Date: May 8, 2017.

General

- Mappings for U+3164 and U+2D544 (Extension F) were added to all CMap resources, and the *Adobe-Japan1* IVS <U+2D544,U+E0100> was added to the Japanese IVS definition file, *SourceHanSerif_JP_sequences.txt*. See Issue #37.

- The glyphs for U+2EC1 虎, U+2EEA 黾, U+2F2C 巾, and U+4EBD 仐 now map to *uni864EuE0101-JP*, *uni9EFE-CN*, *uni5C6E-CN*, and *uni4EBD-CN*, respectively, in all CMap resources. See Issue #37.

- The glyphs for the 52 half-width jamo—U+FFA0 through U+FFBE, U+FFC2 through U+FFC7, U+FFCA through U+FFCF, U+FFD2 through U+FFD7, and U+FFDA through U+FFDC—now map to the glyphs for compatibility jamo (U+3131 through U+3164).

- The alternate proportional digits and punctuation, along with the alternate half-width punctuation, were added to the scope of the 'fwid', 'hwid', and 'pwid' GSUB features.

Simplified Chinese

- CN glyphs for U+35EB 嗆, U+385C 憿, U+5015 倕, U+57F5 埵, U+618F 憏, U+63EF 拎, U+6456 擖, U+6660 晠, U+66A9 暩, U+68B1 梱, U+6F08 潃, U+76E4 盤, U+7808 砈, U+78DC 礜, U+7A07 稇, U+7A44 穄, U+7BA0 箠, U+83D9 葹, U+92EE 鋮, U+9318 錘, U+969B 際, U+9BCE 鯎, and U+9C36 鰶 were added. See Issue #40.

- The glyphs for U+2F22 夂, U+2F58 爻, U+4F8D 侍, U+62FF 拿, U+6301 持, U+6641 晁, U+6C35 氵, U+6DE6 淦, U+6DFC 淼, U+6EB4 溴, and U+81EC 梟 now map to *uni590A-CN*, *uni723B-CN*, *uni4F8D-JP*, *uni62FF-JP*, *uni6301-JP*, *uni6641-JP*, *uni6C35-JP*, *uni6DE6-JP*, *uni6DFC-JP*, *uni6EB4-JP*, and *uni81EC-JP*, respectively. See Issue #37.

- The CN glyphs *uni3E76-CN*, *uni414D-CN*, *uni4A60-CN*, *uni4BD5-CN*, *uni4C53-CN*, *uni4F5B-CN*, *uni4FB9-CN*, *uni596E-CN*, *uni5957-CN*, *uni5A17-CN*, *uni5EAD-CN*, *uni5EF7-CN*, *uni5F73-CN*, *uni602B-CN*, *uni62C2-CN*, *uni633A-CN*, *uni6883-CN*, *uni6C11-CN*, *uni6C1F-CN*, *uni6CB8-CN*, *uni6D8F-CN*, *uni6E88-CN*, *uni70F6-CN*, *uni73FD-CN*, *uni7829-CN*, *uni7D8E-CN*, *uni7ECB-CN*, *uni8121-CN*, *uni8247-CN*, *uni8713-CN*, *uni8A94-CN*, *uni8B04-CN*, *uni92CC-CN*, *uni94E4-CN*, *uni95AE-CN*, *uni9F2E-CN*, *uniFF1B-CN*, *uniFE14-CN*, and *u2CD9F-CN* were tweaked or corrected. See Issue #36 and Issue #39.

Traditional Chinese—TW

- TW glyphs for U+4FB9 侹, U+5EAD 庭, U+5EF7 廷, U+633A 挺, U+6883 梃, U+6D8F 涏, U+6DEB 淫, U+73FD 琚, U+7D8E 綎, U+7F54 罔, U+8713 蜓, U+8DA3 趣, U+92CC 鋌, U+95AE 閮, and U+9832 頌 were added. See Issue #40.

- The glyphs for U+2F61 瓦, U+2FCC 黽, U+504F 偏, U+5553 啓, U+555F 啟, U+58F3 壳, U+58FE 壾, U+591A 多, U+61DC 懜, U+627F 承, U+6902 椂, U+6903 梃, U+6947 楇, U+7171 熰, U+76EC 盬, U+77A2 瞢, U+77D2 矒, U+8019 耙, U+803B 耻, U+8B04 謄, and U+9BF1 鯱 now map to *uni74E6-JP*, *uni9EFD-JP*, *uni504FuE0101-JP*, *uni5553uE0101-JP*, *uni555F-JP*, *uni58F3-JP*, *uni58FE-JP*, *uni591A-JP*, *uni61DC-JP*, *uni627F-JP*, *uni6902-JP*, *uni6903-JP*, *uni6947-JP*, *uni7171-JP*, *uni76EC-CN*, *uni77A2uE0101-JP*, *uni77D2-JP*, *uni8019-JP*, *uni803B-JP*, *uni8B04-CN*, and *uni9BF1-JP*, respectively. See Issue #37.

- The glyphs *uni511A-TW*, *uni5922-TW*, *uni5A6C-TW*, *uni5FB5-TW*, *uni61F5-TW*, *uni750B-TW*, *uni750D-TW*, *uni7AC5-TW*, *uni7D73-TW*, *uni83E1-TW*, *uni858E-TW*, *uni85A8-TW*, *uni8609-TW*, *uni9138-TW*, *uni91C5-TW*, and *uniFF0C-TW* were tweaked or corrected. See Issue #36 and Issue #39.

Japanese

- The JP glyphs *uni3CDA-JP*, *uni3D93-JP*, *uni507D-JP*, *uni5316uE0101-JP*, *uni595C-JP*, *uni6C2B-JP*, *uni70BA-JP*, *uni7669-JP*, *uni81F7-JP*, *uni8285-JP*, *uni82B1uE0101-JP*, and *uni9B58-JP* were tweaked or corrected. See Issue #36 and Issue #39.

- The glyphs for a small number of kana, to include annotated versions thereof, were tweaked in very minor ways.

Korean

- The glyphs for U+5173 关 and U+5BE7 寧 now map to *uni5173-CN* and *uni5BE7uE0100-JP*, respectively. See Issue #37.

- The glyphs *uniC625*, *uniC73D*, *uni1178*, *uni118C.vjmo01*, *uni1190.vjmo01*, *uni1192.vjmo01*, *uni11ED*, *uni11ED.tjmo01*, *uni11ED.tjmo02*, *uni11ED.tjmo03*, *uni11ED.tjmo04*, *uniD7B5*, *uniD7B5.vjmo01*, *uniD7F5*, *uniD7F5.tjmo01*, *uniD7F5.tjmo02*, *uniD7F5.tjmo03*, *uniD7F5.tjmo04*, *uniD7F6*, *uniD7F6.tjmo01*, *uniD7F6.tjmo02*, *uniD7F6.tjmo03*, *uniD7F6.tjmo04*, *uni1112uni119Euni11D9*, *uni1140uni1175uni11D9*, and *uni114Cuni116Funi11D9* were corrected. See Issue #39.

- The no-op *uni115F* to *uni115F* substitutions were removed from the six "ljmo_0*n*" lookups, references to *uni115F* were removed from the six "ljmo_*xxxxxx*" lookups, and glyph classes are now used for the "ljmo_*xxxxxx*," "vjmo_*xxxxxx*," and "tjmo_*xxxxxx*" lookups.

Noto Serif CJK Only

- The *OS/2.usWeightClass* value for ExtraLight was changed from 250 to 200. See Noto CJK Issue #86.

Version 1.000

Build Date: March 21, 2017. Built By: Dr. Ken Lunde (小林劍). Release Date: April 3, 2017.

First public release.

Known Issues

Please report all issues in the GitHub repository so that they can be properly tracked and addressed, and for greater visibility among the user community. The Wiki also conveys some useful information about upcoming releases. Also, be sure to thoroughly check the closed issues prior to submitting a new issue, being sure to exercise the search feature.

Because these fonts exercise several architectural limits, particularly the ones that include 65,535 glyphs, some environments may have difficulties using them properly, sometimes due to implementation limits or poor assumptions. If this is the case, please report such issues so that they can be recorded and tracked. You are also strongly encouraged to contact the developer of such environments to report the same.

General

- 62 CIDs have been reserved for the future addition of glyphs for U+20024 㐤, U+20087 𠂇, U+200D7 𠃗, U+2012C 𠄬, U+2042D 𠐭, U+21155 𡅕, U+2128D 𡊍, U+21594 𡖔, U+21727 𡜧, U+21F5C 𡽜, U+224E1 𢓡, U+22C6F 𢱯, U+22EE0 𢻠, U+230FD 𣃽, U+23343 𣍃, U+23584 𣖄, U+2363B 𣘻, U+23AD9 𣫙, U+23D18 𣴘, U+242F1 𤋱, U+2439D 𤎝, U+24A01 𤨁, U+2533E 𥌾, U+253B5 𥎵, U+253FE 𥏾, U+25832 𥠲, U+2583A 𥠺, U+25978 𥥸, U+25B97 𥮗, U+25E44 𥹄, U+26057 𦁗, U+265A4 𦖤, U+267D8 𦟘, U+27144 𧅄, U+274BD 𧒽, U+275FF 𧗿, U+27625 𧘥, U+27A51 𧩑, U+27B02 𧬂, U+27CEF 𧳯, U+27E7D 𧹽, U+27F1B 𧼛, U+283F6 𨏶, U+28D8A 𨶊, U+28DA1 𨶡, U+291E3 𩇣, U+294DE 𩓞, U+29509 𩔉, U+2983B 𩠻, U+2A2AD 𪊭, U+2A4D0 𪓐, U+2A4DF 𪓟, U+2A664 𪙤, U+2B689 𫚉, U+2B7F7 𫟷, U+2C081 𬂁, U+2C115 𬄕, U+2C386 𬎆, U+2C7D3 𬟓, U+2E014 𮀔, U+2E569 𮕩, and U+30729 𰜩.

Western

- None.

Chinese—Simplified & Traditional

- None

Simplified Chinese

- None

Traditional Chinese

- Redesign of bopomofo is planned for a future release.

Traditional Chinese—TW

- None

Traditional Chinese—HK

- None

Japanese

- None

Korean

- None