

# Tutorial: Japanese letters with $\text{\LaTeX}$ and adding CJK fonts

Gernot Hassenpflug

12 January 2008



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# Introduction



# Objectives

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The intent of this tutorial is to answer two questions:

- What class can I use to typeset beautiful letters using  $\text{\LaTeX}$ ?
- How can I include Japanese writing in such letters?

Furthermore, I would like to add:

- How can I add more CJK fonts to  $\text{\LaTeX}$ ?

A limitation of this presentation is that it only covers use of  $\text{\LaTeX}$ , not  $\text{ConTeXt}$ , nor  $\text{XeTeX}$ , nor  $\Omega$ .



# The standard letter class

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L<sup>A</sup>T<sub>E</sub>X has a standard letter class. This has limitations:

- Does not allow sections;
- Does not permit floating (figure and table) environments.

**Gtex-Letter** is a GNOME-based graphical front end to the letter class, which can be useful (accesses GNOME-based address book utility).

Here is a typical comment about the standard letter class:

*“Does anybody have or know of a good LaTeX package for making cover letters? (The default LaTeX letter class is frustrating me.) One with Columbia letterhead would be preferred, if that fits proper protocol.”*

Many academic institutions have a modified letter class with logo available. These are generally useful for cover letters only.



## Options: Other letter classes

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So what options are there for letter classes?

*“LaTeX itself provides a letter document class, which is widely disliked; the present author long since gave up trying with it.”*

- **akletter** for German business letters;
- **newlfm** for US-type letters, faxes and memos;
- **dinbrief** for German letters;
- **brief** in the Dutch ntgclass bundle;
- **scrلتtr2** in the KOMA-Script bundle.



# KOMA-Script

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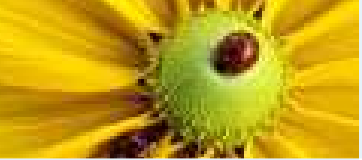
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The KOMA-Script bundle offers alternate classes to the standard ones:

- European typesetting conventions;
- Extended functionality and options;
- Under active development;
- Documentation extensive (German and English);
- Compatible with CJK, Hyperref, Babel and many more;
- Included in distributions: T<sub>E</sub>XLive, MikT<sub>E</sub>X, teT<sub>E</sub>X;
- Has an awesome letter class!

Currently on CTAN: Version 2.98 (not yet updated in Debian and Ubuntu distributions). English reference manual: 252 pages.  
`CTAN:macros/latex/contrib/koma-script`



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# Using scrLttr2



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There are way too many options—you have to read the manual!  
Some features:

- layout options;
- customizable letter option files;
- address file for form letters;
- foldmarks;
- language options;
- header/footer settings (including logos);

In particular, letter option files are now provided for several Japanese envelope and window envelope sizes.

Page 180 of English reference manual shows the letter layout.







# General structure

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```
\documentclass[...]{scrلتtr2}
...
                settings for all letters
...
\begin{document}
...
                settings for all letters
...
\begin{letter}[options]{addressee}
...
                content of the individual letter
...
\end{letter}
.
.
.
\end{document}
```



# Japanese with the CJK Package

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Werner Lemberg, a German musician, has almost single-handedly provided CJK support to T<sub>E</sub>XLive with his packages. For Japanese, there is the following:

- support for various Asian character encodings;
- support for Unicode encoding;
- support for the free Wadalab fonts;
- support for vertical typesetting;
- support for “poor-man’s bold”;
- support for font changes similar to NFSS.

Not as many typesetting rules are gracefully implemented as in pT<sub>E</sub>X, but enough to enable CJK to be used.



# setting up Japanese

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I wish to use exclusively UTF8 for now. So I need the following in my preamble:

```
\usepackage{CJKutf8}
\newenvironment{Japanese}{%
  \CJKfamily{min}%
  \CJKtilde
  \CJKnospace}{}

```

This allows UTF8 encoding to be used for CJK input, and defines one language, with a default font family (Mincho from the Wadalab fonts), and some other options (see CJK documentation).



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Within the document I can then start the CJK environment with:

```
\begin{CJK}{UTF8}{}
```

and subsequently use any of the defined languages with:

```
\begin{Japanese}
```

Japanese content

```
\end{Japanese}
```

Finally, the CJK environment must be ended:

```
\end{CJK}
```



# Japanese envelope

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Lastly, how to set up the letter to format for Japanese envelopes?

- Default letter class option (.lco) file used is for DIN A4 size paper and DIN C6 envelopes in Germany;
- For Japan, new variants to cater for different envelope size and window locations;
- choose one: NipponEL, NipponEH, NipponLL, NipponLH, NipponRL, KakuLL;

Then define just before all or after the start of an individual letter, as follows:

```
\LoadLetterOption{NipponLL}%  
    \setkomavar{myref}{NipponLL}  
\begin{letter}{Person\\Address}
```



# Letter class option files

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The following table shows the supported envelope and window formats that are different from the default DIN A4 letter class option support.

.lco file	Supported	Wsize	Wloc
NipponEL	Chou/You 3 and 4	90x45	l 22, t 12
NipponEH	Chou/You 3 and 4	90x55	l 22, t 12
NipponLL	Chou/You 3 and 4	90x45	l 25, t 12
NipponLH	Chou/You 3 and 4	90x55	l 25, t 12
NipponRL	Chou/You 3 and 4	90x45	l 98, t 28
KakuLL	Kaku A4	90x45	l 25, t 24

Window size and location are in millimeters.



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神戸市東灘区  
西岡本7-10-4  
勝川健一様

Gernot Hassenpflug  
〒181-0001  
東京都三鷹市  
牟礼2-10-1  
デウオ井の頭公園  
302号

2007年10月11日

## 知らせ

勝川様、

Subject: 新しい住所

こんにちちは、ギャノットです。お世話になりました。ご無沙汰してしまい申し訳  
ございません。翔バナイカイの展示会が楽しかったと存じます。知らせていただい  
てありがとうございます。

これからも宜しくお願いします、

Gernot Hassenpflug





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```
\documentclass[enlargefirstpage=on,paper=a4]{scrلتtr2}
\usepackage[english]{babel}
\usepackage{CJKutf8}
\usepackage[overlap, CJK]{ruby}
\usepackage{CJKulem}
\renewcommand{\rubysep}{0.3ex}
\newenvironment{Japanese}{%
  \CJKfamily{goth}%
  \CJKtilde
  \CJKnospace}{}

\KOMAOptions{fromalign=right,fromlogo=false,%
  addrfield=true,backaddress=off,%
  subject=titled,%
  subject=afteropening,%
  locfield=narrow,%
  foldmarks=on,%
  numericaldate=true}
```



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```
\setkomavar{fromname}{Gernot Hassenpflug}
\setkomavar{signature}{Gernot Hassenpflug}
\setkomavar{fromaddress}{
  〒181-0002\\
  東京都三鷹市 \\
  牟礼2-10-1\\
  デウオ井の頭公園\\
  302号}
\setkomavar{title}{知らせ}
\setkomavar{subject}{新しい住所}
\date{2007年10月11日}

\begin{document}

\begin{CJK}{UTF8}{}
\begin{Japanese}
```



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```
\begin{letter}{神戸市東灘区\\西岡本7-10-4\\勝川健一様}
```

```
\LoadLetterOption{NipponEL}% .lco file
```

```
\opening{勝川様、}
```

こんにちは、ギャノットです。お世話になりました。ご無沙汰してしまい申し訳ございません。翔バナイカイの展示会が楽しかったと存じます。

```
\closing{これからも宜しくお願いします、\\ \mbox{}}
```

```
\end{letter}
```

```
\end{Japanese}
```

```
\end{CJK}
```

```
\end{document}
```



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# Adding CJK fonts



# Adding Fonts

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To add fonts to  $\text{\LaTeX}$ , we start with a TTF font, let us say obtained from a vendor, or made by ourselves. I will assume setting up for Unicode only.

The steps are very simple, once all the tools are in place:

- process with fontforge to extract subfonts (.tfm and .pfb files);
- make a .map file;
- make a .fd file;
- copy .tfm, .pfb, .fd and .map files to destinations;
- rehash the tex path;
- enable the new map;
- rehash the path again.



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- First, for Unicode setup, we need to look at the CJK git repository at the utility scripts. There we can find subfonts.pe and Unicode.sfd.
- Extract all .pfb subfonts and create .tfm files:

```
$ fontforge -script subfonts.pe dgjhalf.ttf  
dgjhalf Unicode.sfd
```

- Make a map file dgjhalf.map containing names of all the pfb and tfm files:

```
dgjhalf00 dgjhalf00 < dgjhalf00.pfb  
dgjhalffff dgjhalffff < dgjhalffff.pfb
```



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- Make a Unicode font definition file `c70dgjhalf.fd` for latex to refer to:

```
\ProvidesFile{c70dgjhalf.fd}
\DeclareFontFamily{C70}{dgjhalf}%
    {\hyphenchar \font\m@ne}
\DeclareFontShape{C70}{dgjhalf}{m}{n}%
    {<-> CJK * dgjhalf}{}
\DeclareFontShape{C70}{dgjhalf}{bx}{n}%
    {<-> CJKb * dgjhalf}{\CJKbold}
\endinput
```



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- .tfm files: `$TEXMFLOCAL/fonts/tfm/CJK/djghalf/`
- .pfb files: `$TEXMFLOCAL/fonts/type1/CJK/djghalf/`
- .fd files: `$TEXMFLOCAL/tex/latex/CJK/UTF8/`
- .map files: `$TEXMFLOCAL/fonts/map/dvips/CJK/`

Then,

- `# texhash` or equivalent “ls-R” update command;
- `# updmap-sys --enable Map dgjhalf.map` to enable map;
- rerun “ls-R” update command.





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Now, we should be able to use the new font as the default:

- using `\CJKfamily{dgjhalf}\selectfont` in the document.

これは半角片仮名です：ア!コレハ「ハンカク」カタカナデス。モットホシナラ：ハージョニアッ?また明朝に戻ります。

- This is done as follows:

```
明朝テキスト\CJKfamily{dgjhalf}\selectfont   ハンカクカタカナテキ  
スト\CJKfamily{min}\selectfont  明朝テキスト
```

Now there is no excuse for not using a really good variety of CJK fonts if you have them! Examples: for business card designs and greeting cards.

The End