

ABSTRACT

einfart is part of the minimalist class series, whose name is taken from German word “einfach” (“simple”), combined with the first three letters of “artikel” (“article”). The entire collection includes minimart and einfart for typesetting articles, and minimbook and simplivre for typesetting books. My original intention in designing them was to write drafts and notes that look simple yet not shabby.

einfart has multi-language support, including Chinese (simplified and traditional), English, French, German, Italian, Japanese, Portuguese (European and Brazilian), Russian and Spanish. These languages can be switched seamlessly in a single document. Due to the usage of custom fonts, einfart requires X_YLaTeX or LuaLaTeX to compile.

This documentation is typeset using einfart. You can think of it as a short introduction and demonstration.

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TIP

Multi-language support, theorem-like environments, draft marks and some other features are provided by the [ProjLib](#) toolkit. Here we only briefly discuss how to use it with this document class. For more detailed information, you can refer to the documentation of [ProjLib](#).

1.1 | How to load it

One only needs to put

```
\documentclass{einfart}
```

as the first line to use the `einfart` class. Please note that you need to use either \LaTeX or \LuaTeX engine to compile.

1.2 | Options

`einfart` offers the following options:

- The language options `EN / english / English`, `FR / french / French`, etc.
 - For the option names of a specific language, please refer to $\langle language\ name \rangle$ in the next section. The first specified language will be used as the default language.
- `draft` or `fast`
 - The option `fast` enables a faster but slightly rougher style, main differences are:
 - * Use simpler math font configuration;
 - * Do not use `hyperref`;
 - * Enable the fast mode of `ProjLib` toolkit.

TIP

During the draft stage, it is recommended to use the `fast` option to speed up compilation. When in `fast` mode, there will be a watermark “DRAFT” to indicate that you are currently in the draft mode.

- `a4paper` or `b5paper`
 - Optional paper size. The default paper size is $7\text{in} \times 10\text{in}$.
- `palatino`, `times`, `garamond`, `biolinum` | `useosf`
 - Font options. As the name suggest, font with corresponding name will be loaded.
 - The `useosf` option is used to enable the old-style figures.
- `allowbf`
 - Allow boldface. When this option is enabled, the main title, the titles of all levels and the names of theorem-like environments will be bolded.
- `classical`
 - Classic mode. When this option is enabled, the style will become more regular: paragraphs are indented, the use of underlines are reduced, heading styles are changed, and the theorem styles will be much closer to common styles.

TIP

`allowbf + classical` is probably a good choice if you prefer traditional style.

- `useindent`
 - Use paragraph indentation instead of inter-paragraph spacing.

- 1 • `runin`
 - 2 – Use the “runin” style for `\subsubsection`
- 3 • `puretext` or `nothms`
 - 4 – Pure text mode. Does not load theorem-like environments.
- 5 • `nothmnum`
 - 6 – Theorem-like environments will not be numbered.

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On the default fonts

7 By default, `einfort` uses Palatino Linotype as the English font, FounderType’s YouSong and
 8 YouHei GBK as the Chinese fonts, and partially uses Neo Euler as the math font. Among
 9 them, Neo Euler can be downloaded at <https://github.com/khaledhosny/euler-otf>.
 10 The other fonts are not free, you need to purchase and install them on your own. (For the
 11 Chinese fonts, visit FounderType’s website for detail: <https://www.foundertype.com>).

12 When the corresponding font is not installed, fonts that comes with TeX Live will be used
 13 instead. In this case, the experience might be reduced.

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Instructions

14 Many of the features described next are provided by the [ProjLib](#) toolkit. Only the basic usage
 15 is mentioned here. For more details, please refer to its user documentation.

3.1 | Language configuration

16 `einfort` has multi-language support, including Chinese (simplified and traditional), English,
 17 French, German, Italian, Japanese, Portuguese (European and Brazilian), Russian and Span-
 18 ish. The language can be selected by the following macros:

- 19 • `\UseLanguage{<language name>}` is used to specify the language. The corresponding set-
 20 ting of the language will be applied after it. It can be used either in the preamble or in the
 21 main body. When no language is specified, “English” is selected by default.
- 22 • `\UseOtherLanguage{<language name>}{<content>}`, which uses the specified language set-
 23 tings to typeset `<content>`. Compared with `\UseLanguage`, it will not modify the line spac-
 24 ing, so line spacing would remain stable when CJK and Western texts are mixed.

25 `<language name>` can be (it is not case sensitive, for example, French and french have the
 26 same effect):

- 27 • Simplified Chinese: `CN`, `Chinese`, `SChinese` or `SimplifiedChinese`
- 28 • Traditional Chinese: `TC`, `TChinese` or `TraditionalChinese`
- 29 • English: `EN` or `English`
- 30 • French: `FR` or `French`
- 31 • German: `DE`, `German` or `ngerman`
- 32 • Italian: `IT` or `Italian`
- 33 • Portuguese: `PT` or `Portuguese`
- 34 • Portuguese (Brazilian): `BR` or `Brazilian`
- 35 • Spanish: `ES` or `Spanish`

- Japanese: JP or Japanese
- Russian: RU or Russian

In addition, you can also add new settings to selected language:

- `\AddLanguageSetting{⟨settings⟩}`
– Add *⟨settings⟩* to all supported languages.
- `\AddLanguageSetting(⟨language name⟩){⟨settings⟩}`
– Add *⟨settings⟩* to the selected language *⟨language name⟩*.

For example, `\AddLanguageSetting(German){\color{orange}}` can make all German text displayed in orange (of course, one then need to add `\AddLanguageSetting{\color{black}}` in order to correct the color of the text in other languages).

3.2 | Theorems and how to reference them

Environments such as definition and theorem have been pre-defined and can be used directly.

More specifically, preset environments include: assumption, axiom, conjecture, convention, corollary, definition, definition-proposition, definition-theorem, example, exercise, fact, hypothesis, lemma, notation, observation, problem, property, proposition, question, remark, theorem, and the corresponding unnumbered version with an asterisk `*` in the name. The titles will change with the current language. For example, theorem will be displayed as “Theorem” in English mode and “Théorème” in French mode.

When referencing a theorem-like environment, it is recommended to use `\cref{⟨label⟩}`. In this way, there is no need to explicitly write down the name of the corresponding environment every time.

EXAMPLE

```
\begin{definition}[Strange things] \label{def: strange} ...
```

will produce

DEFINITION 3.1 | (Strange things) This is the definition of some strange objects. There is approximately an one-line space before and after the theorem environment, and there will be a symbol to mark the end of the environment. □

`\cref{def: strange}` will be displayed as: DEFINITION 3.1.

After using `\UseLanguage{French}`, a theorem will be displayed as:

THÉORÈME 3.1 | (Inutile) Un théorème en français. □

By default, when referenced, the name of the theorem always matches the language of the context in which the theorem is located. For example, the definition above is still displayed in English in the current French mode : DEFINITION 3.1 and THÉORÈME 3.1. If you want the name of the theorem to match the current context when referencing, you can add `regionalref` to the global options.

3.3 | Define a new theorem-like environment

If you need to define a new theorem-like environment, you must first define the name of the environment in the language to use:

- `\NameTheorem[⟨language name⟩]{⟨name of environment⟩}{⟨name string⟩}`

For *⟨language name⟩*, please refer to the section on language configuration. When *⟨language name⟩* is not specified, the name will be set for all supported languages. In addition, environments with or without asterisk share the same name, therefore, `\NameTheorem{envname*}{...}` has the same effect as `\NameTheorem{envname}{...}`.

And then define this environment in one of following five ways:

- `\CreateTheorem*{⟨name of environment⟩}`
 - Define an unnumbered environment *⟨name of environment⟩*
- `\CreateTheorem{⟨name of environment⟩}`
 - Define a numbered environment *⟨name of environment⟩*, numbered in order 1,2,3,...
- `\CreateTheorem{⟨name of environment⟩}[⟨numbered like⟩]`
 - Define a numbered environment *⟨name of environment⟩*, which shares the counter *⟨numbered like⟩*
- `\CreateTheorem{⟨name of environment⟩}<⟨numbered within⟩>`
 - Define a numbered environment *⟨name of environment⟩*, numbered within the counter *⟨numbered within⟩*
- `\CreateTheorem{⟨name of environment⟩}(⟨existed environment⟩)`
`\CreateTheorem*{⟨name of environment⟩}(⟨existed environment⟩)`
 - Identify *⟨name of environment⟩* with *⟨existed environment⟩* or *⟨existed environment⟩**.
 - This method is usually useful in the following two situations:
 1. To use a more concise name. For example, with `\CreateTheorem{thm}` (theorem), one can then use the name `thm` to write theorem.
 2. To remove the numbering. For example, one can remove the numbering of the remark environment with `\CreateTheorem{remark}(remark*)`.

TIP

This macro utilizes the feature of `amsthm` internally, so the traditional `theoremstyle` is also applicable to it. One only needs declare the style before the relevant definitions.

Here is an example. The following code:

```
\NameTheorem[EN]{proofidea}{Idea}
\CreateTheorem*{proofidea*}
\CreateTheorem{proofidea}<subsection>
```

defines an unnumbered environment `proofidea*` and a numbered environment `proofidea` (numbered within subsection) respectively. They can be used in English context. The effect is as follows:

Idea | The `proofidea*` environment. ☐

Idea 3.3.1 | The `proofidea` environment. ☐

3.4 | Draft mark

You can use `\dnf` to mark the unfinished part. For example:

- `\dnf` or `\dnf<...>`. The effect is: `To be finished #1` or `To be finished #2: ...`.

The prompt text changes according to the current language. For example, it will be displayed as `Pas encore fini #3` in French mode.

Similarly, there is `\needgraph`:

- `\needgraph` or `\needgraph<...>`. The effect is:

`A graph is needed here #1`

or

`A graph is needed here #2: ...`

The prompt text changes according to the current language. For example, in French mode, it will be displayed as

`Il manque une image ici #3`

3.5 | On the title, abstract and keywords

`einfart` has both the features of standard classes and that of the \mathcal{AMS} classes.

Therefore, the title part can either be written in the usual way, in accordance with the standard class article:

```
\title{\<title>}
\author{\<author>\thanks{\<text>}}
\date{\<date>}
\maketitle
\begin{abstract}
  \<abstract>
\end{abstract}
\begin{keyword}
  \<keywords>
\end{keyword}
```

or written in the way of \mathcal{AMS} classes:

```
\title{\<title>}
\author{\<author>}
\thanks{\<text>}
\address{\<address>}
\email{\<email>}
\date{\<date>}
\keywords{\<keywords>}
\subclass{\<subclass>}
\begin{abstract}
  \<abstract>
\end{abstract}
\maketitle
```

1 The author information can contain multiple groups, written as:

```
\author{\langle author 1 \rangle}
\address{\langle address 1 \rangle}
\email{\langle email 1 \rangle}
\author{\langle author 2 \rangle}
\address{\langle address 2 \rangle}
\email{\langle email 2 \rangle}
...
```

2 Among them, the mutual order of `\address`, `\curraddr`, `\email` is not important.

3.6 | On the line numbers

3 Line numbers can be turned on and off at any time. `\linenumbers` is used to enable the
4 line numbers, and `\nolinenumbers` is used to disable them. For the sake of beauty, the
5 title, table of contents, index and some other elements are not numbered.

3.7 | On the footnotes in the title

6 In `\section` or `\subsection`, if you wish to add footnotes, you can only:

- 7 • first write `\mbox{\protect\footnotemark}`,
- 8 • then add `\footnotetext{...}` afterwards.

9 This is a disadvantage brought about by the underline decoration of the title.

3.8 | On the QED symbols

10 Since the font in the theorem-like environments is the same as that of the main text, in order
11 to indicate where the environments end, a hollow QED symbol \square is placed at the end of
12 the theorem-like environments. However, if your theorem ends with an equation or list
13 (itemize, enumerate, description, etc.), this symbol cannot be automatically placed in the
14 correct position. In this case, you need to manually add a `\qedhere` at the end of your
15 equation or the last entry of your list to make the QED symbol appear at the end of the line.

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Known issues

- 16 • The font settings are still not perfect.
- 17 • Since many features are based on the ProjLib toolkit, einfart inherits all its problems. For
18 details, please refer to the "Known Issues" section of the ProjLib documentation.
- 19 • The error handling mechanism is incomplete: there is no corresponding error prompt
20 when some problems occur.
- 21 • There are still many things that can be optimized in the code.

5.1 | The standard way

- 1 If you want to write in the standard way, you can refer to the following example:

```
\documentclass{einfart}
\usepackage{ProjLib} % Load ProjLib toolkit

\UseLanguage{French} % Use French from here

\begin{document}

\title{Le Titre}
\author{Auteur}
\date{\PLdate{2022-04-01}}

\maketitle

\begin{abstract}
  Ceci est un résumé. \dnf<Plus de contenu est nécessaire.>
\end{abstract}
\begin{keyword}
  AAA, BBB, CCC, DDD, EEE
\end{keyword}

\section{Un théorème}

%% Theorem-like environments can be used directly
\begin{theorem}\label{thm:abc}
  Ceci est un théorème.
\end{theorem}

Référence du théorème: \cref{thm:abc}
  % It is recommended to use clever reference

\end{document}
```

- 2 If you wish to switch to the standard class later, just replace the first two lines with:

```
\documentclass{article}
\usepackage[a4paper,margin=1in]{geometry}
\usepackage[hidelinks]{hyperref}
\usepackage[palatino]{ProjLib} % Load ProjLib toolkit
```

5.2 | The \mathcal{AMS} way

- 1 If you intend to switch to the journal template in the future and thus want to use the writing
2 style as in the \mathcal{AMS} classes, you can refer to the following example:

```
\documentclass{einfart}
\usepackage{ProjLib} % Load ProjLib toolkit

\UseLanguage{French} % Use French from here

\begin{document}

\title{Le Titre}
\author{Auteur 1}
\address{Adresse 1}
\email{\href{Courriel 1}{Courriel 1}}
\author{Auteur 1}
\address{Adresse 1}
\email{\href{Courriel 2}{Courriel 2}}
\date{\PLdate{2022-04-01}}
\subjclass{*****}
\keywords{...}

\begin{abstract}
    Ceci est un résumé. \dnf<Plus de contenu est nécessaire.>
\end{abstract}

\maketitle

\section{Première section}

%% Theorem-like environments can be used directly
\begin{theorem}\label{thm:abc}
    Ceci est un théorème.
\end{theorem}

Référence du théorème: \cref{thm:abc}
    % It is recommended to use clever reference

\end{document}
```

- 3 In this way, if you wish to switch to \mathcal{AMS} class later, just replace the first two lines with:

```
\documentclass{amsart}
\usepackage[a4paper,margin=1in]{geometry}
\usepackage[hidelinks]{hyperref}
\usepackage[palatino]{ProjLib} % Load ProjLib toolkit
```
