About pLaTeX 2ε

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Attention:

This document provides a brief description of pLaTeX 2ε, the Japanese extended version of LaTeX 2ε. The original version of pLaTeX 2ε ('ASCII pLaTeX 2ε') was developed by ASCII MEDIA WORKS[1] (formerly ASCII CORPORATION) during 1995 and 2006. The current version, which is now distributed in CTAN and TeX Live, is a forked version called 'pLaTeX 2ε Community Edition.' It is now maintained by Japanese TeX Development Community[2].

pLaTeX is a Japanese LaTeX format, which is adjusted/extended to be more suitable for writing Japanese documents. It requires pTeX (TeX engine with extensions for Japanese typesetting; it is designed for high-quality Japanese book publishing, and the 'p' stands for 'publishing'[3]), and the developent of both pTeX and pLaTeX was done by ASCII Corporation.

In 2010, ASCII pTeX was incorporated into the world-wide TeX distribution 'TeX Live.' Since then, pTeX has been maintained/improved/changed along with TeX Live sources. In recent versions of TeX Live and W32TeX, the default engine of pLaTeX changed from original pTeX to ε-pTeX (pTeX with ε-pTeX extension), and the original LaTeX itself is also frequently updated. On the other hand, pLaTeX remained unchanged since 2006, which resulted in some incompatibility and limitations.

To follow these upstream changes, we (Japanese TeX Development Community) decided to fork ASCII pLaTeX and distribute the 'community edition.' The development version is available from GitHub repository[4]. The forked community

[1] `http://ascii.asciimw.jp/pb/ptex/`

[2] `https://texjp.org`

[3] There is another old implementation of Japanese LaTeX, called JLaTeX 2ε (but not includeded in TeX Live). Also, MiKTeX has another program called 'platex,' but it has nothing to do with our Japanese pLaTeX!

[4] `https://github.com/texjporg/platex`

edition is different from the original ASCII edition, so any bug reports and requests should be sent to Japanese TEX Development Community, using GitHub Issue system.

This document (platex-en.pdf) is a brief explanation of the pLATEX 2_ε community edition. It is somewhat of a historical document now, since pLATEX 2_ε came into existence in 1995 (although the English translation has been done by Japanese TEX Development Community since 2017). The detail of source codes are described separately in pldoc-en.pdf.

1 Introduction to this document

This document briefly describes pLaTeX 2ε, but is not a manual of pLaTeX 2ε. For the basic functions of pLaTeX 2ε, see [1] (in Japanese). For extensions of some commands for vertical writing (which were first described in [2] in Japanese), see `plext.dtx` section in `pldoc-en.pdf`.

For Japanese typesetting, please refer to the documentation of pTeX (or "Japanese TeX"; the preliminary version of pTeX), [3] (in Japanese), [4] (in English) and [5] (in English).

This document consists of following parts:

Section 1 This section; describes this document itself.

Section 2 Brief explanation of extensions in pLaTeX 2ε. Also describes the standard classes and packages.

Section 3 The compatibility note for users of the old version of pLaTeX 2ε or those of the original LaTeX 2ε.

Appendix A Describes DOCSTRIP Options for this document.

Appendix B Description of 'pldoc.tex' (counterpart for 'source2e.tex' in LaTeX 2ε).

Appendix C Description of a shell script to process 'pldoc.tex', and a tiny perl program to check DOCSTRIP guards, etc.

2 About Functions of pLaTeX 2ε

The structure of pLaTeX 2ε is similar to that of LaTeX 2ε; it consists of 3 types of files: a format (platex.ltx), classes and packages.

2.1 About the Format

To make a format for pLaTeX, process "platex.ltx" with INI mode of ε-pTeX.[5] A handy command 'fmtutil-sys' (or 'fmtutil') for this purpose is available in TeX Live. The following command generates `platex.fmt`.

```
fmtutil-sys --byfmt platex
```

[5] Formerly both pTeX and ε-pTeX can make the format file for pLaTeX, however, it's not true anymore because LaTeX requires ε-pTeX since 2017.

The content of `platex.ltx` is shown below. In the current version of pLaTeX, first we simply load `latex.ltx` and modify/extend some definitions by loading `plcore.ltx`.

```
⟨*plcore⟩
```

Temporarily disable `\dump` at the end of `latex.ltx`.

```
\let\orgdump\dump
\let\dump\relax
```

Load `latex.ltx` here. Within the standard installation of TeX Live, `hyphen.cfg` provided by "Babel" package will be used.

```
\input latex.ltx
```

Load `plcore.ltx`.

```
\typeout{**************************^^J%
         *^^J%
         * making pLaTeX format^^J%
         *^^J%
         **************************}
\makeatletter
\input plcore.ltx
```

Load font-related default settings, `pldefs.ltx`. If a file `pldefs.cfg` is found, then that file will be used instead.

```
\InputIfFileExists{pldefs.cfg}
           {\typeout{************************************^^J%
                     * Local config file pldefs.cfg used^^J%
                     ************************************}}%
           {\input{pldefs.ltx}}
```

Display pLaTeX version on the terminal, so that it can be easily recognized during format creation.

```
\the\everyjob
```

Load `platex.cfg` if it exists at runtime.

```
\everyjob\expandafter{%
  \the\everyjob
  \IfFileExists{platex.cfg}{%
    \typeout{**************************^^J%
             * Loading platex.cfg.^^J%
             **************************}%
    \input{platex.cfg}}{}%
}
```

Dump to the format file.

```
\let\dump\orgdump
\let\orgdump\@undefined
\makeatother
```

```
\dump
%\endinput
```
⟨/plcore⟩

The file `plcore.ltx`, which provides modifications/extensions to make pLaTeX 2ε, is a concatenation of stripped files below using DOCSTRIP program.

- `plvers.dtx` defines the format version of pLaTeX 2ε.
- `plfonts.dtx` extends NFSS2 for Japanese font selection.
- `plcore.dtx` defines other modifications to LaTeX 2ε.

Moreover, default settings of pre-loaded fonts and typesetting parameters are done by loading `pldefs.ltx` inside `platex.ltx`.[6] This file `pldefs.ltx` is also stripped from `plfonts.dtx`.

Attention:

You can customize pLaTeX 2ε by tuning these settings. If you need to do that, copy/rename it as `pldefs.cfg` and edit it, instead of overwriting `pldefs.ltx` itself. If a file named `pldefs.cfg` is found at a format creation time, it will be read as a substitute of `pldefs.ltx`.

2.1.1 Version

The version (like "2018/03/18") and the format name ("pLaTeX2e") of pLaTeX 2ε are defined in `plvers.dtx`.

2.1.2 NFSS2 Commands

LaTeX 2ε uses NFSS2 as a font selection scheme, however, it supports only alphabetic fonts. pLaTeX 2ε extends NFSS2 to enable selection of Japanese fonts in a consistent manner with the original NFSS2.

Most of the interface commands are defined to be clever enough, so that it can automatically judge whether it is going to change alphpabetic fonts or Japanese fonts. It works almost fine with most of the widely used classes and packages, without any modification.

For the defail of (the original) NFSS2, please refer to `fntguide.tex` in LaTeX 2ε.

[6] ASCII pLaTeX loaded `pldefs.ltx` inside `plcore.ltx`; however, pLaTeX community edition newer than 2018 loads `pldefs.ltx` inside `platex.ltx`.

2.1.3 Output Routine and Floats

`plcore.dtx` modifies and extends some LaTeX 2$_\varepsilon$ commands for Japanese processing.

- Preamble commands
- Page breaking
- Line breaking
- The order of float objects
- Crop marks ("tombow")
- Footnote macros
- Cross-referencing
- Verbatim

2.2 Classes and Packages

Classes and packages bundled with pLaTeX 2$_\varepsilon$ are based on those in original LaTeX 2$_\varepsilon$, with some Japanese localization.

pLaTeX 2$_\varepsilon$ classes:

- jarticle.cls, jbook.cls, jreport.cls

  Standard *yoko-kumi* (horizontal writing) classes; stripped from `jclasses.dtx`.

- tarticle.cls, tbook.cls, treport.cls

  Standard *tate-kumi* (vertical writing) classes; stripped from `jclasses.dtx`.

- jltxdoc.cls

  Class for typesetting Japanese `.dtx` file; stripped from `jltxdoc.dtx`.

pLaTeX 2$_\varepsilon$ packages:

- plext.sty

  Useful macros and extensions for vertical writing; stripped from `plext.dtx`.

- ptrace.sty

  pLaTeX 2$_\varepsilon$ version of `tracefnt.sty`; the package `tracefnt.sty` overwrites pLaTeX 2$_\varepsilon$-style NFSS2 commands, so `ptrace.sty` provides redefinitions to recover pLaTeX 2$_\varepsilon$ extensions. Stripped from `plfonts.dtx`.

- pfltrace.sty

  pLaTeX 2$_\varepsilon$ version of `fltrace.sty` (introduced in LaTeX 2$_\varepsilon$ 2014/05/01); stripped from `plcore.dtx`.

- oldpfont.sty

  Provides pLaTeX 2.09 font commands; stripped from `pl209.dtx`.

The packages "ascmac.sty" and "nidanfloat.sty", which had been included in previous versions of pLaTeX, is now distributed as a separate bundle.

3 Compatibility with Other Formats and Older Versions

Here we provide some information about the compatibility between current pLaTeX 2$_\varepsilon$ and older versions or original LaTeX 2$_\varepsilon$.

3.1 Compatibility with LaTeX 2$_\varepsilon$

pLaTeX 2$_\varepsilon$ is in most part upper compatible with LaTeX 2$_\varepsilon$, but some parameters are adjusted to be suitable for Japanese. Therefore, you should not expect identical output, even though the same source can be processed on both LaTeX 2$_\varepsilon$ and pLaTeX 2$_\varepsilon$.

We hope that most classes and packages meant for LaTeX 2$_\varepsilon$ works also for pLaTeX 2$_\varepsilon$ without any modification. However for example, if a class or a package redefines a command which is already modified by pLaTeX 2$_\varepsilon$, it might cause an error at the worst case. We cannot tell whether a class or a package works fine with pLaTeX 2$_\varepsilon$ beforehand; the easiest way is to try to use it. If it fails, please refer to the log file or a package manual.

3.2 Compatibility with pLaTeX 2.09

pLaTeX 2$_\varepsilon$ has 'pLaTeX 2.09 compatibility mode'; use `\documentstyle` to enter it, but the support might be limited. Note that the 2.09 compatibility mode is

provided solely to allow you to process very old documents, which were written for a very old system.

3.3 Support for Package 'latexrelease'

pLaTeX provides 'platexrelease' package, which is based on 'latexrelease' package (introduced in LaTeX `<2015/01/01>`). It may be used to ensure stability where needed, by emulating the specified format date without regenerating the format file. For more detail, please refer to its documentation.

A DOCSTRIP Options

By processing `platex.dtx` with DOCSTRIP program, different files can be generated. Here are the DOCSTRIP options for this document:

Option	*Function*
plcore	Generates a fragment of format sources
pldoc	Generates 'pldoc.tex' for typesetting pLaTeX 2_ε sources
shprog	Generates a shell script to process 'pldoc.tex'
plprog	Generates a tiny perl program to check DOCSTRIP guards nesting
Xins	Generates a DOCSTRIP batch file 'Xins.ins' for generating the above shell/perl scripts

B Documentation of pLaTeX 2_ε sources

The contents of 'pldoc.tex' for typesetting pLaTeX 2_ε sources is described here. Compared to individual processings, batch processing using 'pldoc.tex' prints also changes and an index. The whole document will have about 200 pages.

By default, the description of pLaTeX 2_ε sources is written in Japanese. If you need English version, first save

```
\newif\ifJAPANESE
```

as `platex.cfg`, and process `pldoc.tex` (pLaTeX 2_ε Community Edition newer than July 2016 is required).

First, create `pldoc.dic`; it serves as a dictionary for 'mendex' (Japanese index processor[7]), which is necessary for indexing control sequences containing Japanese characters (\ 西暦 and \ 和暦).

[7]Developed by ASCII Corporation; the program 'makeindex' cannot handle Japanese characters properly, especially Kanji characters which should be sorted by its readings.

```
⟨*pldoc⟩
\begin{filecontents}{pldoc.dic}
西暦　　せいれき
和暦　　われき
\end{filecontents}
```

We use `jltxdoc` class; we also require `plext` package, since `plext.dtx` contains several examples of partial vertical writing.

```
\documentclass{jltxdoc}
\usepackage{plext}
\listfiles

```

Do not index some TEX primitives, and some common plain TEX commands.

```
\DoNotIndex{\def,\long,\edef,\xdef,\gdef,\let,\global}
\DoNotIndex{\if,\ifnum,\ifdim,\ifcat,\ifmmode,\ifvmode,\ifhmode,%
            \iftrue,\iffalse,\ifvoid,\ifx,\ifeof,\ifcase,\else,\or,\fi}
\DoNotIndex{\box,\copy,\setbox,\unvbox,\unhbox,\hbox,%
            \vbox,\vtop,\vcenter}
\DoNotIndex{\@empty,\immediate,\write}
\DoNotIndex{\egroup,\bgroup,\expandafter,\begingroup,\endgroup}
\DoNotIndex{\divide,\advance,\multiply,\count,\dimen}
\DoNotIndex{\relax,\space,\string}
\DoNotIndex{\csname,\endcsname,\@spaces,\openin,\openout,%
            \closein,\closeout}
\DoNotIndex{\catcode,\endinput}
\DoNotIndex{\jobname,\message,\read,\the,\m@ne,\noexpand}
\DoNotIndex{\hsize,\vsize,\hskip,\vskip,\kern,\hfil,\hfill,\hss,\vss,\unskip}
\DoNotIndex{\m@ne,\z@,\z@skip,\@ne,\tw@,\p@,\@minus,\@plus}
\DoNotIndex{\dp,\wd,\ht,\setlength,\addtolength}
\DoNotIndex{\newcommand, \renewcommand}

```

Set up the Index and Change History to use `\part`.

```
\ifJAPANESE
\IndexPrologue{\part*{索 引}%
                  \markboth{索 引}{索 引}%
                  \addcontentsline{toc}{part}{索 引}%
イタリック体の数字は、その項目が説明されているページを示しています。
下線の引かれた数字は、定義されているページを示しています。
その他の数字は、その項目が使われているページを示しています。}
\else
\IndexPrologue{\part*{Index}%
                  \markboth{Index}{Index}%
                  \addcontentsline{toc}{part}{Index}%
The italic numbers denote the pages where the corresponding entry
is described, numbers underlined point to the definition,
all others indicate the places where it is used.}
\fi
%
```

```
\ifJAPANESE
\GlossaryPrologue{\part*{変更履歴}%
                  \markboth{変更履歴}{変更履歴}%
                  \addcontentsline{toc}{part}{変更履歴}}
\else
\GlossaryPrologue{\part*{Change History}%
                  \markboth{Change History}{Change History}%
                  \addcontentsline{toc}{part}{Change History}}
\fi

```

Modify the standard `\changes` command slightly, to better cope with this multiple file document.

```
\makeatletter
\def\changes@#1#2#3{%
  \let\protect\@unexpandable@protect
  \edef\@tempa{\noexpand\glossary{#2\space\currentfile\space#1\levelchar
               \ifx\saved@macroname\@empty
                  \space\actualchar\generalname
               \else
                  \expandafter\@gobble
                  \saved@macroname\actualchar
                  \string\verb\quotechar*%
                  \verbatimchar\saved@macroname
                  \verbatimchar
               \fi
               :\levelchar #3}}%
  \@tempa\endgroup\@esphack}
\makeatother
```

Produce a Change Log and (2 column) Index.

```
\RecordChanges
\CodelineIndex
\EnableCrossrefs
\setcounter{IndexColumns}{2}
\settowidth\MacroIndent{\ttfamily\scriptsize 000\ }
```

Here starts the document body.

```
\begin{document}
 \title{The \pLaTeXe\ Sources}
 \author{Ken Nakano \& Japanese \TeX\ Development Community}

% Get the date and patch level from plvers.dtx
\makeatletter
\let\patchdate=\@empty
\begingroup
   \def\ProvidesFile#1\pfmtversion#2#3\ppatch@level#4{%
      \date{#2}\xdef\patchdate{#4}\endinput}
   \input{plvers.dtx}
\endgroup
```

```
% Add the patch version if available.
\def\Xpatch{0}
\ifx\patchdate\Xpatch\else
% number is assumed
\ifnum\patchdate>0
  \edef\@date{\@date\space Patch level\space\patchdate}
\else
  \edef\@date{\@date\space Pre-Release\patchdate}
\fi\fi
\makeatother

\pagenumbering{roman}
\maketitle
\renewcommand\maketitle{}
\tableofcontents
\clearpage
\pagenumbering{arabic}

\DocInclude{plvers}   % pLaTeX version

\DocInclude{plfonts}  % NFSS2 commands

\DocInclude{plcore}   % kernel commands

\DocInclude{plext}    % external commands

\DocInclude{pl209}    % 2.09 compatibility mode commands

\DocInclude{kinsoku}  % kinsoku parameter

\DocInclude{jclasses} % Standard class

\DocInclude{jltxdoc}  % dtx documents class
```

Stop here if `ltxdoc.cfg` says `\AtEndOfClass{\OnlyDescription}`.

```
\StopEventually{\end{document}}
```

Print Change History and Index. Please refer to Appendix C.1 for processing of Change History and Index.

```
\clearpage
\pagestyle{headings}
% Make TeX shut up.
\hbadness=10000
\newcount\hbadness
\hfuzz=\maxdimen
%
\PrintChanges
```

```
\clearpage
%
\begingroup
  \def\endash{--}
  \catcode`\-\active
  \def-{\futurelet\temp\indexdash}
  \def\indexdash{\ifx\temp-\endash\fi}

  \PrintIndex
\endgroup
```

Make sure that the index is not printed twice (ltxdoc.cfg might have a second command).

```
\let\PrintChanges\relax
\let\PrintIndex\relax
\end{document}
⟨/pldoc⟩
```

C Additional Utility Programs

C.1 Shell Script `mkpldoc.sh`

A shell script to process 'pldoc.tex' and produce a fully indexed source code description. Run `sh mkpldoc.sh` to use it.

C.1.1 Content of `mkpldoc.sh`

First, delete auxiliary files which might be created in the previous runs.

```
⟨*shprog⟩
for f in pldoc.toc pldoc.idx pldoc.glo ; do
if [ -e $f ]; then rm $f; fi
done
```

First run: empty the config file `ltxdoc.cfg`.

```
echo "" > ltxdoc.cfg
```

Now process `pldoc.tex`.

```
platex pldoc.tex
```

Make the Change log and Glossary (Change History) using mendex. 'Mendex' is a Japanese index processor, which is mostly upper compatible with 'makeindex' and automatically handles readings of Kanji words.

Option `-s` employs a style file for formatting. Here we use `gind.ist` and `gglo.ist` from LaTeX 2_ε.

Option `-o` specifies output index file name.

Option `-f` forces to output Kanji characters even non-existent in dictionaries. (Makeindex does not have this option.)

```
mendex -s gind.ist -d pldoc.dic -o pldoc.ind pldoc.idx
mendex -f -s gglo.ist -o pldoc.gls pldoc.glo
```

Second run: append `\includeonly{}` to `ltxdoc.cfg` to speed up things. This run is needed only to get changes and index listed in `.toc` file.

```
echo "\includeonly{}" > ltxdoc.cfg
platex pldoc.tex
```

Third and final run: restore the cfg file to put everything together.

```
echo "" > ltxdoc.cfg
platex pldoc.tex
# EOT
```

⟨/shprog⟩

C.2 Perl Script `dstcheck.pl`

Here we provide a perl script which helps checking the nested DOCSTRIP guards. Usage:

```
perl dstcheck.pl <file-name>
```

The description of this script itself is available only in Japanese.

⟨∗plprog⟩

```
##
## DOCSTRIP 文書内の環境や条件の入れ子を調べる perl スクリプト
##
push(@dst,"DUMMY"); push(@dst,"000");
push(@env,"DUMMY"); push(@env,"000");
while (<>) {
  if (/^%<\*([^>]+)>/) { # check conditions
    push(@dst,$1);
    push(@dst,$.);
  } elsif (/^%<\/([^>]+)>/) {
    $linenum = pop(@dst);
    $conditions = pop(@dst);
    if ($1 ne $conditions) {
      if ($conditions eq "DUMMY") {
        print "$ARGV: `</$1>' (l.$.) is not started.\n";
        push(@dst,"DUMMY");
        push(@dst,"000");
      } else {
        print "$ARGV: `<*$conditions>' (l.$linenum) is ended ";
        print "by `<*$1>' (l.$.)\n";
```

```
      }
    }
  }
  if (/^% *\\begin\{verbatim\}/) { # check environments
    while(<>) {
        last if (/^% *\\end\{verbatim\}/);
    }
  } elsif (/^% *\\begin\{([^{}]+)\}\{(.*)\}/) {
    push(@env,$1);
    push(@env,$.);
  } elsif (/^% *\\begin\{([^{}]+)\}/) {
    push(@env,$1);
    push(@env,$.);
  } elsif (/^% *\\end\{([^{}]+)\}/) {
    $linenum = pop(@env);
    $environment = pop(@env);
    if ($1 ne $environment) {
      if ($environment eq "DUMMY") {
        print "$ARGV: `\\end{$1}' (l.$.) is not started.\n";
        push(@env,"DUMMY");
        push(@env,"000");
      } else {
        print "$ARGV: \\begin{$environement} (l.$linenum) is ended ";
        print "by \\end{$1} (l.$.)\n";
      }
    }
  }
}
$linenum = pop(@dst);
$conditions = pop(@dst);
while ($conditions ne "DUMMY") {
    print "$ARGV: `<*$conditions>' (l.$linenum) is not ended.\n";
    $linenum = pop(@dst);
    $conditions = pop(@dst);
}
$linenum = pop(@env);
$environment = pop(@env);
while ($environment ne "DUMMY") {
    print "$ARGV: `\\begin{$environment}' (l.$linenum) is not ended.\n";
    $linenum = pop(@env);
    $environment = pop(@env);
}
exit;
```
⟨/plprog⟩

C.3 DOCSTRIP Batch file

Here we introduce a DOCSTRIP batch file 'Xins.ins,' which generates the scripts described in Appendix C.1 and C.2.

```
⟨*Xins⟩
\input docstrip
\keepsilent
{\catcode`#=12 \gdef\MetaPrefix{## }}
\declarepreamble\thispre
\endpreamble
\usepreamble\thispre
\declarepostamble\thispost
\endpostamble
\usepostamble\thispost
\generate{
   \file{dstcheck.pl}{\from{platex.dtx}{plprog}}
   \file{mkpldoc.sh}{\from{platex.dtx}{shprog}}
}
\endbatchfile
⟨/Xins⟩
```

References

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Change History