OPmac

OPmac – A powerful lightweight plain TEX package

http://petr.olsak.net/opmac-e.html

Do you use **plain TEX** or **LATEX** for your mathematical texts? **Plain TEX** is much more simple. And **OPmac** keeps all substantial LATEX features without LATEX complexity. The main credo of **OPmac** macro package is

Simplicity is Power

```
\documentclass{book}
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage{amsmath}
\usepackage{amssymb}
\usepackage{xcolor}
\usepackage{url}
\usepackage{hyperref}
\usepackage{biblatex}
\usepackage{listings}
\usepackage{graphicx}
\usepackage{geometry}
\usepackage{lastpage}
\usepackage ...
```

→

```
\input opmac
```

Thousands of pages of documentation → 16 pages of documentation*

Hundreds of thousands of code lines in dozens of various package files → One macro file with 1700 lines

You can compare **LATEX** and **plain TEX** syntax:

```
\begin{equation}
f(x) =
\begin{cases}
-1 & \text{for } x \ge 0, \\
 0 & \text{otherwise}.
\end{cases}
\end{equation}
```

→

```
$$
  f(x) = \cases{ -1 & for $x\ge 0$,\cr
                  0 & otherwise.}     \eqmark
$$
```

Features:

- Inserting images
- Creating tables
- Autogenerating table of contents
- Cross references
- Support of bibliography citations
- Direct access to .bib without any external program
- Generating index
- Sorting index without any external program
- Nested numbered | non-numbered lists
- Simple way to change font size
- Simple way to set margins and paper size
- Colors
- Internal and external hyperlinks
- AMS-TEX symbols
- Multilingual support
- ...

Availability: **OPmac** is included in new TEX distributions (TEXlive, mikTEX) since 2013. It is a part of *CSplain* package at CTAN. *CSplain* is a small extension of plain TEX. It provides UTF-8 input in pdfTEX (by encTEX extension) and preloads Czech and Slovak fonts as default. Simple but powerful font selection system for various other font families is available.

Processing: You can run the command `pdfcsplain document` or `pdftex document`. You can use LuaTEX or XeTEX too.

Additional: Dozens of other additional LATEX packages can be implemented by few lines of code, see http://petr.olsak.net/opmac-tricks-e.html.

---

* Of course, you need to know the basics of plain TEX. See chapters 1 to 6 of the book P. Olšák: *TEX pro pragmatiky* (in Czech, http://petr.olsak.net/tpp.html) or M. Doob: A Gentle Introduction to TEX (English, http://www.ctan.org/tex-archive/info/gentle)

```
\input opmac

\margins/1 a5 (1,1,1,1.4)cm    % A5 paper + 1cm margins
\typosize[9/10.5]              % 9pt font / 10.5pt baselineskip
\parindent=10pt                % typesetting parameters
\hyperlinks \Blue\Blue         % active hyperlinks
\activettchar"                 % in-text verbatim by "..."
\def\intthook{\localcolor\Red} % in-text verbatim Red

\tit Demonstration

\nonum\notoc\sec Contents

\maketoc  % Table of Contents is auto-generated here

\sec Lists

The lists have to be surrounded by "\begitems"
and "\enditems" sequences.

\begitems
* First item.
* Second item.
  \begitems \style i
    * Nested item list,
    * numbered by roman numerals.
  \enditems
* Last item.
\enditems

\secc Title of Subsection

The subsection text\dots

\sec References

There is a numbered equation.
The number is auto-generated by "\eqmark" sequence.
$$\label[my-eq]
  a^2 + b^2 = c^2  \eqmark
$$
We can refer to Equation~\ref[my-eq]
on page~\pgref[my-eq].
We can refer to Table~\ref[my-tab] in
Section~\ref[tab-sec] too. And Figure~\ref[my-pic]
is on page~\pgref[my-pic].

\sec Hyperlinks

You can refer to \url{http://petr.olsak.net} using "\url".
Or use "\ulink" if the raw URL needs to be hidden:
\ulink[http://www.olsak.net/opmac-e.html]{OPmac page}.
The parameter text is colorized and it becomes
an active link if the "\hyperlinks" sequence
is used at the beginning of the document.
Internal links are activated too.

\label[tab-sec]
\sec Tables

The "\table" sequence can be used
instead of ``low level'' "\halign".
The following table is framed by "\frame" sequence
in order to get a double frame.

\label[my-tab]
\medskip
\caption/t  Testing table.
\smallskip\nobreak
\centerline{%
   \frame{\table{|r|c|l|}{\crl
            \bf Title A & \bf Title B & \bf Title C \crll
            first & second & third \cr
            next  & text  & last  \crl }}}

\sec Images

The images (PDF, JPG, PNG, TIFF) can be inserted
by "\inspic" sequence. The "\label" and "\caption/f"
can be added if you need to refer to a figure.

\centerline {\picwidth=2.7cm \inspic ring.png }
\label[my-pic]
\nobreak
\caption/f The nonempty ideal of a simple ring --
           the ring itself.

\sec Verbatim

In-text verbatim is surrounded by the character declared
by "\activettchar" sequence. The listing can be surrounded
by "\begtt" and "\endtt" sequences
\begtt
This is verbatim.
  All characters are printed $$, \, # etc.
\endtt
or it can be included by "\verbinput" from external file.

\verbinput (95-97) opmac-demo.tex

\sec Math

The Math alphabets
"\mit", "\cal", "\script", "\frak", "\bbchar", "\bi"
are provided. For example:
$$
  {\bi A} = \pmatrix {\cal C  & \script C \cr
                      \frak M & \bbchar R }.
$$
Hundreds of AMS symbols are available:
$\sphericalangle, \Finv, \boxplus, \Cup, \Cap, \ldots$

\sec Others

The "\typosize" or "\typoscale" sequences set the size
and baselineskip of used fonts (including math fonts).
The "\fnote" generates a footnote\fnote{Like this} and
"\mnote" generates a margin note.
The "\margins" sets margins and paper dimensions.
The "\cite" sequence can be used for bibliographic citations.
The "\bib" sequence creates one bibliography record. Or
you can use "\usebib" for direct access to the {\tt.bib} files.
The list of features does not end here\dots

\bye
```

Demonstration

Contents

1 Lists

The lists have to be surrounded by \begitems and \enditems sequences.

- First item.
- Second item.

  (i) Nested item list,
  (ii) numbered by roman numerals.

- Last item.

1.1 Title of subsection

The subsection text...

2 References

There is an numbered equation. The number is auto-generated by \eqmark sequence.

$$a^2 + b^2 = c^2 \tag{1}$$

We can refer to the equation (1) at the page 1. We can refer to the table 4.1 in the section 4 too. And the picture 5.1 is at the page 2.

3 Hyperlinks

You can refer http://petr.olsak.net using \url. Or use \ulink if the raw URL needs to be hidden: OPmac page. The parameter text is colorized and it becomes an active link if the \hyperlinks sequence is used at the beginning of the document. Internal links are activated too.

4 Tables

The \table sequence can be used instead of "low level" \halign. The following table is framed by \frame sequence in order to get double frame.

Table 4.1 Testing table.

Title A	Title B	Title C
first	second	third
next	text	last

5 Images

The images (PDF, JPG, PNG, TIFF) can be inserted by \inspic sequence. The \label and \caption/f can be added if you need to refer the figure.

Figure 5.1 The nonempty ideal of a simple ring – the ring itself.

6 Verbatim

In-text verbatim is surrounded by the character declared by \activettchar sequence. The listing can be surrounded by \begtt and \endtt sequences

```
This is verbatim.
  All characters are printed $$, \, # etc.
```

or it can be included by \verbinput from external file.

```
  All characters are printed $$, \, # etc.
\endtt
or it can be included by "\verbinput" from external file.
```

7 Math

The Math alphabets \mit, \cal, \script, \frak, \bbchar, \bi are provided. For example:

$$\boldsymbol{A} = \begin{pmatrix} \mathcal{C} & \mathscr{C} \\ \mathfrak{M} & \mathbb{R} \end{pmatrix}.$$

Hundreds of AMS symbols are available: $\sphericalangle, \dashv, \boxplus, \Cup, \Cap, \ldots$

8 Others

The \typosize or \typoscale sequences set the size and baselineskip of used fonts (including math fonts). The \fnote generates the footnote[1]) and \mnote generates margin note. The \margins sets the margins and paper dimensions. The \cite sequence can be used for bibliography citations. The \bib sequence creates one bibliography record. Or you can use \usebib for direct access to the .bib files. The list of features is not ended here...

[1]) Like this