

# The **flags** package

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## Abstract

Package **flags** allows the setting and clearing of flags in bit fields and converts the bit field into a decimal number. Currently the bit field is limited to 31 bits.

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## 1 Documentation

### 1.1 User interface

`\resetflags {⟨fname⟩}`

The bit field  $\langle fname \rangle$  is cleared. Currently is also used for initialization, because a `\newflags` macro is not implemented.

`\setflag {⟨fname⟩} {⟨position⟩}`

The flag at bit position  $\langle position \rangle$  is set in the bit field  $\langle fname \rangle$ .

`\clearflag {⟨fname⟩} {⟨position⟩}`

The flag at bit position  $\langle position \rangle$  is cleared in the bit field  $\langle fname \rangle$ .

`\printflags {⟨fname⟩}`

The bit field  $\langle fname \rangle$  is converted to a decimal number. The macro is expandible.

**Example.** See package `bookmark`. It uses package `flags` for its font style options.

## 1.2 ToDo

- Named positions.
- Setting positions by a key-value interface.
- Support for more than 31 bits while maintaining expandibility of `\printflags`.
- Eventually `\newflags`, `\newflagstype`.

## 2 Implementation

```

1 <*package>
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{flags}%
4   [2007/02/18 v0.1 Flag setting in bit fields (HO)]

\resetflags

5 \newcommand*{\resetflags}[1]{%
6   \expandafter\let\csname flags@#1\endcsname\@empty
7 }

\printflags Macro \printflags converts the bit field into a decimal number.

8 \newcommand*{\printflags}[1]{%
9   \expandafter\@printflags\csname flags@#1\endcsname
10 }
11 \def\@printflags#1{%
12   \expandafter\@firstofone\expandafter{%
13     \number\numexpr
14     \ifx#1\@empty
15       0%
16     \else
17       \expandafter\@@printflags#1%
18     \fi
19   }%
20 }
21 \def\@@printflags#1#2\fi{%
22   \fi
23   #1%
24   \ifx\#2\%
25   \else
26     +2*\numexpr\expandafter\@@printflags#2%
27   \fi
28 }

\setflag

29 \newcommand*{\setflag}[2]{%
30   \expandafter\@setflag\csname flags@#1\endcsname
31   \expandafter{\romannumeral\number\numexpr#2-1\relax000}%
32 }
33 \def\@setflag#1#2{%
34   \edef#1{%
35     \expandafter\@@setflag\expandafter{#1}{#2}%
36   }%
37 }
38 \def\@@setflag#1#2{%
39   \ifx\#1\%
40     \FLAGS@zero#2\relax
41     1%

```

```

42 \else
43 \ifx\#2\%
44 1\@gobble#1%
45 \else
46 \@car#1\@nil
47 \expandafter\@@setflag\expandafter{\@gobble#2}{#1}%
48 \fi
49 \fi
50 }
51 \def\@@setflag#1#2\fi\fi{%
52 \fi\fi
53 \expandafter\@@setflag\expandafter{\@cdr#2\@nil}{#1}%
54 }

\clearflag

55 \newcommand*\clearflag[2]{%
56 \expandafter\@clearflag\csname flags@#1\expandafter\endcsname
57 \expandafter{\romannumeral\number\numexpr#2-1\relax000}%
58 }
59 \def\@clearflag#1#2{%
60 \edef#1{%
61 \expandafter\@@clearflag\expandafter{#1}{#2}%
62 }%
63 }
64 \def\@@clearflag#1#2{%
65 \ifx\#1\%
66 \else
67 \ifx\#2\%
68 0\@gobble#1%
69 \else
70 \@car#1\@nil
71 \expandafter\@@clearflag\expandafter{\@gobble#2}{#1}%
72 \fi
73 \fi
74 }
75 \def\@@clearflag#1#2\fi\fi{%
76 \fi\fi
77 \expandafter\@@clearflag\expandafter{\@cdr#2\@nil}{#1}%
78 }

79 \def\FLAGS@zero#1{%
80 \ifx#1\relax
81 \else
82 0%
83 \expandafter\FLAGS@zero
84 \fi
85 }

86 \endpackage

```

### 3 Installation

**CTAN.** This package is available on CTAN<sup>1</sup>:

[CTAN:macros/latex/contrib/oberdiek/flags.dtx](http://ctan.org/ctan/ctan/macros/latex/contrib/oberdiek/flags.dtx) The source file.

[CTAN:macros/latex/contrib/oberdiek/flags.pdf](http://ctan.org/ctan/ctan/macros/latex/contrib/oberdiek/flags.pdf) Documentation.

**Unpacking.** The .dtx file is a self-extracting docstrip archive. The files are extracted by running the .dtx through plain-TEX:

```
tex flags.dtx
```

---

<sup>1</sup>[ftp://ftp.ctan.org/tex-archive/](http://ftp.ctan.org/tex-archive/)

**TDS.** Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
flags.sty → tex/latex/oberdiek/flags.sty
flags.pdf → doc/latex/oberdiek/flags.pdf
flags.dtx → source/latex/oberdiek/flags.dtx
```

If you have a `docstrip.cfg` that configures and enables `docstrip`'s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

**Refresh file databases.** If your  $\text{\TeX}$  distribution (`te $\text{\TeX}$` , `mik $\text{\TeX}$` , ...) rely on file databases, you must refresh these. For example, `te $\text{\TeX}$`  users run `texhash` or `mktextlsr`.

### 3.1 Some details for the interested

**Attached source.** The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk flags.pdf unpack_files output .
```

**Unpacking with  $\text{\LaTeX}$ .** The `.dtx` chooses its action depending on the format:

**plain- $\text{\TeX}$ :** Run `docstrip` and extract the files.

**$\text{\LaTeX}$ :** Generate the documentation.

If you insist on using  $\text{\LaTeX}$  for `docstrip` (really, `docstrip` does not need  $\text{\LaTeX}$ ), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{flags.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

**Generating the documentation.** You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with `pdf $\text{\LaTeX}$` :

```
pdflatex flags.dtx
makeindex -s gind.ist flags.idx
pdflatex flags.dtx
makeindex -s gind.ist flags.idx
pdflatex flags.dtx
```

## 4 History

[2007/02/18 v1.0]

- First version.

## 5 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

Symbols		F	
\@@@clearflag	71, 75	\FLAGS@zero	40, 79, 83
\@@@setflag	47, 51	I	
\@@clearflag	61, 64, 77	\ifx	14, 24, 39, 43, 65, 67, 80
\@@printflags	17, 21, 26	N	
\@@setflag	35, 38, 53	\NeedsTeXFormat	2
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C		\setflag	1, 29
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E			
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