

The `engord` package

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Abstract

The package generates the suffix of English ordinal numbers. It can be used with plain and L^AT_EX formats.

Contents

1	Usage	1
1.1	Package options	2
1.2	Examples	2
2	Implementation	3
2.1	Reload check and identification	3
2.2	Help commands for plain compatibility	4
2.3	User macros	4
2.4	Suffix generation	5
3	Installation	7
3.1	Download	7
3.2	Bundle installation	7
3.3	Package installation	7
3.4	Refresh file name databases	7
3.5	Some details for the interested	8
4	History	8
	[2000/05/23 v1.0]	8
	[2003/04/28 v1.1]	8
	[2006/02/20 v1.2]	8
	[2007/04/11 v1.3]	8
	[2007/04/26 v1.4]	8
5	Index	9

1 Usage

`\engord{<LATEX counter name>}`

It prints the value of the L^AT_EX counter as English ordinal number. It can be used in the same way as `\arabic`, `\roman`, or `\alph`. The command is not available in plain-T_EX.

`\engordnumber{<any TEX number>}`

It prints the number as English ordinal number.

`\engordletters{#1}`

This command formats the English ordinal letters after the number. It defaults to `\textsuperscript`.

`\engorderror{#1}`

It can be redefined, if an other error handling is wanted. The argument is a negative number or zero.

`\engordraisetrue`
`\engordraisefalse`

These commands set the switch `\ifengordraise` that is asked by the default `\engordletters` before raising the ordinal letters.

1.1 Package options

normal: `\engordraisefalse`

raise: `\engordraisetrue`

Default is raise.

1.2 Examples

- `\usepackage[normal]{engord}`
`\engordnumber{1}` → 1st
`\engordnumber{12}` → 12th
`\engordnumber{123}` → 123rd
`\engord{page}` → 1st (if page has the value of one)
`\engordraisetrue`
`\engordnumber{12}` → 12th

- The default output of a counter can be redefined:

```
\newcounter{mycounter}  
\renewcommand{\theengcounter}{\engord{mycounter}}
```

- Because the implementation of `\engord` and `\engordnumber` is kept expandable, these commands can be used to make command names with an appropriate definition of `\engordletters`:

```
\renewcommand*{\engordletters}[1]{#1}  
\@namedef{My\engordnumber{3}Command}{...}
```

This generates the command name ‘`My4rdCommand`’. Since version 1.2 the redefinition can be dropped if the letters are not raised.

- If the letters should not be raised, use L^AT_EX package option `normal` or use

```
\engordraisefalse
```

Also `\engordletters` could be redefined for this purpose:

```
\renewcommand*{\engordletters}[1]{#1}
```

2 Implementation

2.1 Reload check and identification

```
1 (*package)
```

Reload check, especially if the package is not used with L^AT_EX.

```
2 \begingroup
3   \catcode44 12 % ,
4   \catcode45 12 % -
5   \catcode46 12 % .
6   \catcode58 12 % :
7   \catcode64 11 % @
8   \expandafter\let\expandafter\x\csname ver@engord.sty\endcsname
9   \ifcase 0%
10    \ifx\x\relax % plain
11    \else
12      \ifx\x\empty % LaTeX
13      \else
14        1%
15      \fi
16    \fi
17  \else
18    \expandafter\ifx\csname PackageInfo\endcsname\relax
19      \def\x#1#2{%
20        \immediate\write-1{Package #1 Info: #2.}%
21      }%
22    \else
23      \def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
24    \fi
25    \x{engord}{The package is already loaded}%
26  \endgroup
27  \expandafter\endinput
28  \fi
29 \endgroup
```

Package identification:

```
30 \begingroup
31   \catcode40 12 % (
32   \catcode41 12 % )
33   \catcode44 12 % ,
34   \catcode45 12 % -
35   \catcode46 12 % .
36   \catcode47 12 % /
37   \catcode58 12 % :
38   \catcode64 11 % @
39   \expandafter\ifx\csname ProvidesPackage\endcsname\relax
40     \def\x#1#2#3[#4]{\endgroup
41       \immediate\write-1{Package: #3 #4}%
42       \xdef#1{#4}%
43     }%
44   \else
45     \def\x#1#2[#3]{\endgroup
46       #2[#3]%
47       \ifx#1\relax
48         \xdef#1{#3}%
49       \fi
50     }%
51   \fi
52   \expandafter\x\csname ver@engord.sty\endcsname
53   \ProvidesPackage{engord}%
54   [2007/04/26 v1.4 Provides the ifpdf switch (H0)]
```

2.2 Help commands for plain compatibility

`\EO@atcode` Save catcode of @.

```

55 \expandafter\chardef\csname EO@atcode\endcsname\catcode'\@
56 \catcode'\@=11 %

\EO@def Definitions, \newcommand does not exist in plain-TeX.

57 \begingroup\expandafter\expandafter\expandafter\endgroup
58 \expandafter\ifx\csname newcommand\endcsname\relax
59   \def\EO@def{\def}%
60 \else
61   \def\EO@def#1{%
62     \newcommand*{#1}{}%
63     \def#1%
64   }%
65 \fi

66 \begingroup\expandafter\expandafter\expandafter\endgroup
67 \expandafter\ifx\csname RequirePackage\endcsname\relax
68   \input infwarerr.sty\relax
69 \else
70   \RequirePackage{infwarerr}%
71 \fi

```

2.3 User macros

`\ifengordraise` The switch `\ifengordraise`, whether the ordinal letters are raised or not. Default is raised because of compatibility.

```

72 \newif\ifengordraise
73 \engordraisetrue

```

In L^AT_EX this also can be controlled by option `normal` or `raise`.

```

74 \begingroup\expandafter\expandafter\expandafter\endgroup
75 \expandafter\ifx\csname DeclareOption\endcsname\relax
76 \else
77   \DeclareOption{normal}{\engordraisefalse}%
78   \DeclareOption{raise}{\engordraisetrue}%
79   \ProcessOptions*\relax
80 \fi

```

`\engordletters` `\engordletters` is called with one argument, the english ordinal letters, and contains the code to format them. It defaults to `\textsuperscript` depending on `\ifengordraise`.

```

81 \expandafter\ifx\csname engordletters\endcsname\relax
82   \EO@def\engordletters{%
83     \ifengordraise
84       \expandafter\engordtextsuperscript
85     \fi
86   }%
87 \fi

```

`\engordtextsuperscript` For plain-TeX the definition is quite ugly, redefine `\engordtextsuperscript` if you have a better one.

```

88 \expandafter\ifx\csname engordtextsuperscript\endcsname\relax
89   \begingroup\expandafter\expandafter\expandafter\endgroup
90   \expandafter\ifx\csname textsuperscript\endcsname\relax
91     \def\engordtextsuperscript#1{%
92       \relax
93       \ifmode
94         ~{\rm#1}%
95       \else

```

```

96      $\rm#1}$%
97      \fi
98    }%
99    \else
100      \def\engordtextsuperscript{\textsuperscript}%
101      \fi
102    \fi

\engorderror \engorderror is called, if the number is zero or negative.
103 \expandafter\ifx\csname engorderror\endcsname\relax
104   \EO@def\engorderror#1{%
105     #1\engordletters{!ERROR!}%
106     \@PackageWarning{engord}{%
107       ‘#1’ is not an ordinal number%
108     }%
109   }%
110   \fi

\engord \engord expects a LATEX counter name as argument and calls \engordnumber. It
is defined only, if LATEX is used.
111 \begingroup\expandafter\expandafter\expandafter\endgroup
112 \expandafter\ifx\csname newcounter\endcsname\relax
113 \else
114   \EO@def\engord#1{%
115     \engordnumber{\value{#1}}%
116   }%
117   \fi

\engordnumber \engordnumber is the user command to print a number as english ordinal number.
The argument can be any TEX number like explicit numbers, register values, ...
In a safe way it converts the TEX number argument into a form that only
consists of decimal digits.
118 \EO@def\engordnumber#1{%
119   \expandafter\EO@number\expandafter{\number#1}%
120 }
```

2.4 Suffix generation

```

\EO@number \EO@number expects a number with decimal digits as argument and looks at the
size of the number and the count of the digits:
121 \def\EO@number#1{%
122   \ifnum#1<1 % handle the error case
123     \engorderror{#1}%
124   \else
125     \ifnum#1<21 %
126       \EO@ord{#1}%
127     \else
128       \ifnum#1<100 %
129         \EO@twodigits#1%
130       \else
131         \@ReturnAfterFi{%
132           \EO@reverse#1\@nil}\EO@afterreverse
133         }%
134       \fi
135     \fi
136   \fi
137 }

\@ReturnAfterFi An internal help macro to prevent a too deep \if nesting.
138 \long\def\@ReturnAfterFi#1\fi{\fi#1}
```

```

\EO@ord \EO@ord prints the number with ord letters.
#1: decimal digits, #1 < 21
139 \def\EO@ord#1{%
140   #1%
141   \expandafter\engordletters
142   \ifcase#1{th}\or
143     {st}\or
144     {nd}\or
145     {rd}\else
146     {th}%
147   \fi
148 }

\EO@twodigits \EO@twodigits expects a number with two digits,
20 < number < 100
149 \def\EO@twodigits#1#2{%
150   #1\EO@ord{#2}%
151 }

\EO@reverse \EO@reverse reverses the digits of the number.
#1: next digit
#2: rest of the digits
#3: already reversed digits
#4: next command to call with the reversed number as argument
152 \def\EO@reverse#1#2\@nil#3#4{%
153   \ifx\#2\%
154     #4{#1#3}%
155   \else
156     \@ReturnAfterFi{%
157       \EO@reverse#2\@nil{#1#3}{#4}%
158     }%
159   \fi
160 }

\EO@afterreverse \EO@afterreverse calls \EO@reverseback so that \EO@reverseback can inspect
the digits of the number.
161 \def\EO@afterreverse#1{%
162   \EO@reverseback#1\@nil
163 }

\EO@reverseback \EO@reverseback reverses the reversion.
#1: the last digit of the number
#2: the second last digit of the number
#3: first digits of the number in reversed order, it is not empty, because
\EO@reverseback is only called with numbers > 100.
164 \def\EO@reverseback#1#2#3\@nil{%
165   \EO@reverse#3\@nil{}\@firstofone
166   \ifnum#2#1<21 %
167     \EO@ord{#2#1}%
168   \else
169     #2\EO@ord{#1}%
170   \fi
171 }

Restore catcode of @.
172 \catcode'\@=\EO@atcode
173 </package>

```

3 Installation

3.1 Download

Package. This package is available on CTAN¹:

[CTAN:macros/latex/contrib/oberdiek/engord.dtx](#) The source file.

[CTAN:macros/latex/contrib/oberdiek/engord.pdf](#) Documentation.

Bundle. All the packages of the bundle ‘oberdiek’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

[CTAN:macros/latex/contrib/oberdiek/oberdiek-tds.zip](#)

TDS refers to the standard “A Directory Structure for \TeX Files” ([CTAN:tds/tds.pdf](#)). Directories with `texmf` in their name are usually organized this way.

3.2 Bundle installation

Unpacking. Unpack the `oberdiek-tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek-tds.zip -d ~/texmf
```

Script installation. Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package `attachfile2` comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

```
chmod +x scripts/oberdiek/pdfatfi.pl
cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/
```

3.3 Package installation

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

```
tex engord.dtx
```

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

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

3.4 Refresh file name databases

If your \TeX distribution (te \TeX , mi \TeX , ...) relies on file name databases, you must refresh these. For example, te \TeX users run `texhash` or `mktextlsr`.

¹<http://ftp.ctan.org/tex-archive/>

3.5 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 engord.pdf unpack_files output .
```

Unpacking with L^AT_EX. The `.dtx` chooses its action depending on the format:

plain-T_EX: Run `docstrip` and extract the files.

L^AT_EX: Generate the documentation.

If you insist on using L^AT_EX for `docstrip` (really, `docstrip` does not need L^AT_EX), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{engord.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 pdfL^AT_EX:

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

4 History

[2000/05/23 v1.0]

- First public release.

[2003/04/28 v1.1]

- Bug fix for 30, 40, 50, ..., 100, 130, ...
- `\ordletters` renamed to documented `\engordletters`.

[2006/02/20 v1.2]

- Support for plain-T_EX.
- Switch `\ifengordraise` added.
- Package options `raise` and `normal` added.
- DTX framework.

[2007/04/11 v1.3]

- Line ends sanitized.

[2007/04/26 v1.4]

- Use of package `infwarerr`.

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	
\@	55, 56, 172
\@PackageWarning	106
\@ReturnAfterFi	131, <u>138</u> , 156
\@firstofone	165
\@nil	132, 152, 157, 162, 164, 165
\\	153
C	
\catcode	3, 4, 5, 6, 7, 31, 32, 33, 34, 35, 36, 37, 38, 55, 56, 172
\chardef	55
\csname	8, 18, 39, 52, 55, 58, 67, 75, 81, 88, 90, 103, 112
D	
\DeclareOption	77, 78
E	
\empty	12
\endcsname	8, 18, 39, 52, 55, 58, 67, 75, 81, 88, 90, 103, 112
\endinput	27
\engord	1, <u>111</u>
\engorderror	2, <u>103</u> , 123
\engordletters	2, <u>81</u> , 105, 141
\engordnumber	1, 115, <u>118</u>
\engordraisefalse	2, 77
\engordraisetrue	2, 73, 78
\engordtextsuperscript	84, <u>88</u>
\EO@afterreverse	132, <u>161</u>
\EO@atcode	<u>55</u> , 172
\EO@def	<u>57</u> , 82, 104, 114, 118
\EO@number	119, <u>121</u>
\EO@ord	126, <u>139</u> , 150, 167, 169
\EO@reverse	132, <u>152</u> , 165
\EO@reverseback	162, <u>164</u>
\EO@twodigits	129, <u>149</u>
I	
\ifcase	9, 142
\ifengordraise	<u>72</u> , 83
\ifmmode	93
\ifnum	122, 125, 128, 166
\ifx	10, 12, 18, 39, 47, 58, 67, 75, 81, 88, 90, 103, 112, 153
\immediate	20, 41
\input	68
N	
\newcommand	62
\newif	72
\number	119
P	
\PackageInfo	23
\ProcessOptions	79
\ProvidesPackage	53
R	
\RequirePackage	70
\rm	94, 96
T	
\textsuperscript	100
V	
\value	115
W	
\write	20, 41
X	
\x	8, 10, 12, 19, 23, 25, 40, 45, 52