

# The ltxcmds package

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## Abstract

The package `ltxcmds` exports some utility macros from the L<sup>A</sup>T<sub>E</sub>X kernel into a separate namespace and also provides them for other formats such as plain-T<sub>E</sub>X.

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# 1 Documentation

## 1.1 Introduction

Many of my packages also support other formats such as plain-TeX. Because I am rather familiar with the utility macros from L<sup>A</sup>T<sub>E</sub>X's kernel (e.g. `\@gobble`, `\@firstoftwo`), I found myself rewriting them again and again, because they are lacking in plain-TeX.

Therefore this package provides often used macros and similar ones with the name prefix `\ltx@`. This avoids also faulty redefinitions. I remember an example where a package redefined `\@firstoftwo` with forgetting `\long`.

## 1.2 Argument killers

|                                                      |   |
|------------------------------------------------------|---|
| <code>\ltx@gobble {⟨1⟩}</code>                       | → |
| <code>\ltx@gobbletwo {⟨1⟩} {⟨2⟩}</code>              | → |
| <code>\ltx@gobblethree {⟨1⟩} {⟨2⟩} {⟨3⟩}</code>      | → |
| <code>\ltx@gobblefour {⟨1⟩} {⟨2⟩} {⟨3⟩} {⟨4⟩}</code> | → |

## 1.3 Argument grabbers

|                                           |   |                  |
|-------------------------------------------|---|------------------|
| <code>\ltx@firstofone {⟨1⟩}</code>        | → | <code>⟨1⟩</code> |
| <code>\ltx@firstoftwo {⟨1⟩} {⟨2⟩}</code>  | → | <code>⟨1⟩</code> |
| <code>\ltx@secondoftwo {⟨1⟩} {⟨2⟩}</code> | → | <code>⟨2⟩</code> |

## 1.4 List helpers

|                                       |   |                  |
|---------------------------------------|---|------------------|
| <code>\ltx@car {⟨1⟩} ... \@nil</code> | → | <code>⟨1⟩</code> |
| <code>\ltx@cdr {⟨1⟩} ... \@nil</code> | → | <code>...</code> |

## 1.5 Tail recursion

|                                                           |   |                      |
|-----------------------------------------------------------|---|----------------------|
| <code>\ltx@ReturnAfterFi {⟨1⟩} \fi</code>                 | → | <code>\fi ⟨1⟩</code> |
| <code>\ltx@ReturnAfterElseFi {⟨1⟩} \else {⟨2⟩} \fi</code> | → | <code>\fi ⟨1⟩</code> |

## 1.6 Empty macro

|                         |
|-------------------------|
| <code>\ltx@empty</code> |
|-------------------------|

## 1.7 Characters

|                                 |
|---------------------------------|
| <code>\ltx@space</code>         |
| <code>\ltx@percentchar</code>   |
| <code>\ltx@backslashchar</code> |

## 1.8 Command definitions

`\ltx@ifundefined {<cmd>} {<yes>} {<no>}`

If  $\varepsilon$ -TeX is available, `\ifcename` is used that does not have the side effect of defining undefined commands with meaning of `\relax`.

`\ltx@LocalExpandAfter`

It expands the token after the next token but in a local context. That is the difference to `\expandafter`. The local context discards the side effect of `\cename` and let the command undefined after the expansion step.

## 2 Implementation

### 2.1 Identification

```
1 (*package)
```

Reload check, especially if the package is not used with L<sup>A</sup>T<sub>E</sub>X.

```
2 \begingroup
3 \catcode44 12 % ,
4 \catcode45 12 % -
5 \catcode46 12 % .
6 \catcode58 12 % :
7 \catcode64 11 % @
8 \catcode123 1 % {
9 \catcode125 2 % }
10 \expandafter\let\expandafter\x\cename ver@ltxcmds.sty\endcename
11 \ifx\x\relax % plain-TeX, first loading
12 \else
13 \def\empty{}%
14 \ifx\x\empty % LaTeX, first loading,
15 % variable is initialized, but \ProvidesPackage not yet seen
16 \else
17 \catcode35 6 % #
18 \expandafter\ifx\cename PackageInfo\endcename\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{ltxcmds}{The package is already loaded}%
26 \aftergroup\endinput
27 \fi
28 \fi
29 \endgroup
```

Package identification:

```
30 \begingroup
31 \catcode35 6 % #
32 \catcode40 12 % (
33 \catcode41 12 % )
34 \catcode44 12 % ,
35 \catcode45 12 % -
36 \catcode46 12 % .
37 \catcode47 12 % /
38 \catcode58 12 % :
39 \catcode64 11 % @
40 \catcode91 12 % [
```

```

41 \catcode93 12 % ]
42 \catcode123 1 % {
43 \catcode125 2 % }
44 \expandafter\ifx\csname ProvidesPackage\endcsname\relax
45   \def\x#1#2#3[#4]{\endgroup
46     \immediate\write-1{Package: #3 #4}%
47     \xdef#1{#4}%
48   }%
49 \else
50   \def\x#1#2[#3]{\endgroup
51     #2[#3]}%
52   \ifx#1\undefined
53     \xdef#1{#3}%
54   \fi
55   \ifx#1\relax
56     \xdef#1{#3}%
57   \fi
58 }%
59 \fi
60 \expandafter\x\csname ver@ltxcmds.sty\endcsname
61 \ProvidesPackage{ltxcmds}%
62 [2009/08/05 v1.0 Some LaTeX kernel commands for general use (H0)]
63 \begingroup
64 \catcode123 1 % {
65 \catcode125 2 % }
66 \def\x{\endgroup
67   \expandafter\edef\csname ltx@AtEnd\endcsname{%
68     \catcode35 \the\catcode35\relax
69     \catcode64 \the\catcode64\relax
70     \catcode123 \the\catcode123\relax
71     \catcode125 \the\catcode125\relax
72   }%
73 }%
74 \x
75 \catcode35 6 % #
76 \catcode64 11 % @
77 \catcode123 1 % {
78 \catcode125 2 % }
79 \def\TMP@EnsureCode#1#2{%
80   \edef\ltx@AtEnd{%
81     \ltx@AtEnd
82     \catcode#1 \the\catcode#1\relax
83   }%
84   \catcode#1 #2\relax
85 }
86 \TMP@EnsureCode{61}{12}% =
87 \TMP@EnsureCode{96}{12}% ‘

```

## 2.2 Argument killers

\ltx@gobble

```
88 \long\def\ltx@gobble#1{}
```

\ltx@gobbletwo

```
89 \long\def\ltx@gobbletwo#1#2{}
```

\ltx@gobblethree

```
90 \long\def\ltx@gobblethree#1#2#3{}
```

\ltx@gobblefour

```
91 \long\def\ltx@gobblefour#1#2#3#4{}
```

## 2.3 Argument grabbers

```
\ltx@firstofone
92 \long\def\ltx@firstofone#1{#1}

\ltx@firstoftwo
93 \long\def\ltx@firstoftwo#1#2{#1}

\ltx@secondoftwo
94 \long\def\ltx@secondoftwo#1#2{#2}
```

## 2.4 List helpers

```
\ltx@car
95 \long\def\ltx@car#1#2\@nil{#1}

\ltx@cdr
96 \long\def\ltx@cdr#1#2\@nil{#2}
```

## 2.5 Tail recursion

```
\ltx@ReturnAfterFi
97 \long\def\ltx@ReturnAfterFi#1\fi{#1}

\ltx@ReturnAfterElseFi
98 \long\def\ltx@ReturnAfterFi#1\else#2\fi{#1}
```

## 2.6 Empty macro

```
\ltx@empty
99 \def\ltx@empty{}
```

## 2.7 Characters

```
\ltx@space
100 \def\ltx@space{ }

\ltx@percentchar
101 \begingroup
102 \lccode'0='%\relax
103 \lowercase{\endgroup
104 \def\ltx@percentchar{0}%
105 }

\ltx@backslashchar
106 \begingroup
107 \lccode'0='\\ \relax
108 \lowercase{\endgroup
109 \def\ltx@backslashchar{0}%
110 }
```

## 2.8 Command definitions

`\ltx@ifundefined`

```
111 \begingroup\expandafter\expandafter\expandafter\endgroup
112 \expandafter\ifx\csname ifcsname\endcsname\relax
113   \def\ltx@ifundefined#1{%
114     \expandafter\ifx\csname #1\endcsname\relax
115       \expandafter\ltx@firstoftwo
116     \else
117       \expandafter\ltx@secondoftwo
118     \fi
119   }%
120   \expandafter\ltx@gobble
121 \else
122   \expandafter\ltx@firstofone
123 \fi
124 {%
125   \def\ltx@ifundefined#1{%
126     \ifcsname #1\endcsname
127       \expandafter\ltx@secondoftwo
128     \else
129       \expandafter\ltx@firstoftwo
130     \fi
131   }%
132 }
```

`\ltx@LocalExpandAfter`

```
133 \def\ltx@LocalExpandAfter{%
134   \begingroup
135     \expandafter\expandafter\expandafter
136   \endgroup
137   \expandafter
138 }

139 \ltx@AtEnd
140 </package>
```

## 3 Test

### 3.1 Catcode checks for loading

```
141 <test1>
142 \catcode'\{=1 %
143 \catcode'\}=2 %
144 \catcode'\#=6 %
145 \catcode'\@=11 %
146 \expandafter\ifx\csname count@\endcsname\relax
147   \countdef\count@=255 %
148 \fi
149 \expandafter\ifx\csname @gobble\endcsname\relax
150   \long\def\@gobble#1{}%
151 \fi
152 \expandafter\ifx\csname @firstofone\endcsname\relax
153   \long\def\@firstofone#1{#1}%
154 \fi
155 \expandafter\ifx\csname loop\endcsname\relax
156   \expandafter\@firstofone
157 \else
158   \expandafter\@gobble
159 \fi
160 {%
```

```

161 \def\loop#1\repeat{%
162   \def\body{#1}%
163   \iterate
164 }%
165 \def\iterate{%
166   \body
167   \let\next\iterate
168   \else
169     \let\next\relax
170   \fi
171   \next
172 }%
173 \let\repeat=\fi
174 }%
175 \def\RestoreCatcodes{}
176 \count@=0 %
177 \loop
178   \edef\RestoreCatcodes{%
179     \RestoreCatcodes
180     \catcode\the\count@=\the\catcode\count@\relax
181   }%
182   \ifnum\count@<255 %
183     \advance\count@ 1 %
184   \repeat
185
186 \def\RangeCatcodeInvalid#1#2{%
187   \count@=#1\relax
188   \loop
189     \catcode\count@=15 %
190     \ifnum\count@<#2\relax
191       \advance\count@ 1 %
192     \repeat
193 }
194 \expandafter\ifx\csname LoadCommand\endcsname\relax
195   \def\LoadCommand{\input ltxcmds.sty\relax}%
196 \fi
197 \def\Test{%
198   \RangeCatcodeInvalid{0}{47}%
199   \RangeCatcodeInvalid{58}{64}%
200   \RangeCatcodeInvalid{91}{96}%
201   \RangeCatcodeInvalid{123}{255}%
202   \catcode'\@=12 %
203   \catcode'\=0 %
204   \catcode'\{=1 %
205   \catcode'\}=2 %
206   \catcode'\#=6 %
207   \catcode'\[=12 %
208   \catcode'\]=12 %
209   \catcode'\%=14 %
210   \catcode'\ =10 %
211   \catcode\l3=5 %
212   \LoadCommand
213   \RestoreCatcodes
214 }
215 \Test
216 \csname @@end\endcsname
217 \end
218 </test1>

```

## 4 Installation

### 4.1 Download

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

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

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

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

### 4.2 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/
```

### 4.3 Package installation

**Unpacking.** The `.dtx` file is a self-extracting `docstrip` archive. The files are extracted by running the `.dtx` through plain-T<sub>E</sub>X:

```
tex ltxcmds.dtx
```

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

|                                     |                                                          |
|-------------------------------------|----------------------------------------------------------|
| <code>ltxcmds.sty</code>            | → <code>tex/generic/oberdiek/ltxcmds.sty</code>          |
| <code>ltxcmds.pdf</code>            | → <code>doc/latex/oberdiek/ltxcmds.pdf</code>            |
| <code>test/ltxcmds-test1.tex</code> | → <code>doc/latex/oberdiek/test/ltxcmds-test1.tex</code> |
| <code>ltxcmds.dtx</code>            | → <code>source/latex/oberdiek/ltxcmds.dtx</code>         |

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`.

### 4.4 Refresh file name databases

If your T<sub>E</sub>X distribution (teT<sub>E</sub>X, miK<sub>T</sub>E<sub>X</sub>, ...) relies on file name databases, you must refresh these. For example, teT<sub>E</sub>X users run `texhash` or `mktextlsr`.

---

<sup>1</sup><http://ftp.ctan.org/tex-archive/>



## 4.5 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 ltxcmds.pdf unpack_files output .
```

**Unpacking with L<sup>A</sup>T<sub>E</sub>X.** The `.dtx` chooses its action depending on the format:

**plain-T<sub>E</sub>X:** Run `docstrip` and extract the files.

**L<sup>A</sup>T<sub>E</sub>X:** Generate the documentation.

If you insist on using L<sup>A</sup>T<sub>E</sub>X for `docstrip` (really, `docstrip` does not need L<sup>A</sup>T<sub>E</sub>X), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{ltxcmds.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<sup>A</sup>T<sub>E</sub>X:

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

## 5 History

[2009/08/05 v1.0]

- First version.

## 6 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.

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