

The letltxmacro package

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2019/12/03 v1.6

Abstract

T_EX's `\let` assignment does not work for L^AT_EX macros with optional arguments or for macros that are defined as robust macros by `\DeclareRobustCommand`. This package defines `\LetLtxMacro` that also takes care of the involved internal macros.

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*Please report any issues at <https://github.com/ho-tex/letltxmacro/issues>

1 Documentation

If someone wants to redefine a macro with using the old meaning, then one method is $\text{T}_{\text{E}}\text{X}$'s command `\let`:

```
\newcommand{\Macro}{\typeout{Test Macro}}
\let\SavedMacro=\Macro
\renewcommand{\Macro}{%
  \typeout{Begin}%
  \SavedMacro
  \typeout{End}%
}
```

However, this method fails, if `\Macro` is defined by `\DeclareRobustCommand` and/or has an optional argument. In both cases $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ defines an additional internal macro that is forgotten in the simple `\let` assignment of the example above.

`\LetLtxMacro {<new macro>} {<old macro>}`

Macro `\LetLtxMacro` behaves similar to $\text{T}_{\text{E}}\text{X}$'s `\let` assignment, but it takes care of macros that are defined by `\DeclareRobustCommand` and/or have optional arguments. Example:

```
\DeclareRobustCommand{\Macro}[1][default]{...}
\LetLtxMacro{\SavedMacro}{\Macro}
```

Then macro `\SavedMacro` only uses internal macro names that are derived from `\SavedMacro`'s macro name. Macro `\Macro` can now be redefined without affecting `\SavedMacro`.

`\GlobalLetLtxMacro {<new macro>} {<old macro>}`

Like `\LetLtxMacro`, but the `<new macro>` is defined globally. Since version 2019/12/03 v1.4.

1.1 Supported macro definition commands

<code>\newcommand</code> , <code>\renewcommand</code>	latex/base
<code>\newenvironment</code> , <code>\renewenvironment</code>	latex/base
<code>\DeclareRobustCommand</code>	latex/base
<code>\newrobustcmd</code> , <code>\renewrobustcmd</code>	etoolbox
<code>\robustify</code>	etoolbox 2008/06/22 v1.6

2 Implementation

2.1 Show cases

2.1.1 letltxmacro-showcases.tex

```
1 (*showcases)
2 \NeedsTeXFormat{LaTeX2e}
3 \makeatletter
```

`\Line` The result is displayed by macro `\Line`. The percent symbol at line start allows easy grepping and inserting into the DTX file.

```

4 \newcommand*\Line}[1]{%
5   \typeout{\@percentchar#1}%
6 }

7 \newcommand*\ShowCmdName}[1]{%
8   \@ifundefined{#1}{}{%
9     \Line{%
10      \space\space(\expandafter\string\csname#1\endcsname) = %
11      (\expandafter\meaning\csname#1\endcsname)%
12    }%
13  }%
14 }

15 \newcommand*\ShowCmds}[1]{%
16   \ShowCmdName{#1}%
17   \ShowCmdName{#1 }%
18   \ShowCmdName{\#1}%
19   \ShowCmdName{\#1 }%
20 }
21 \let\\@backslashchar

```

\ShowDef

```

22 \newcommand*\ShowDef}[2]{%
23   \begingroup
24   \Line{}%
25   \newcommand*\DefString{#2}%
26   \@onelevel@sanitize\DefString
27   \Line{\DefString}%
28   #2%
29   \ShowCmds{#1}%
30   \endgroup
31 }

32 \typeout{}
33 \Line{* LaTeX definitions:}
34 \ShowDef{cmd}{%
35   \newcommand{\cmd}[2][default]{}%
36 }
37 \ShowDef{cmd}{%
38   \DeclareRobustCommand{\cmd}{}%
39 }
40 \ShowDef{cmd}{%
41   \DeclareRobustCommand{\cmd}[2][default]{}%
42 }
43 \typeout{}

```

The minimal version of package etoolbox is 2008/06/12 v1.6a because it fixes \robustify.

```

44 \RequirePackage{etoolbox}[2008/06/12]%
45 \Line{}
46 \Line{* etoolbox's robust definitions:}
47 \ShowDef{cmd}{%
48   \newrobustcmd{\cmd}{}%
49 }
50 \ShowDef{cmd}{%
51   \newrobustcmd{\cmd}[2][default]{}%
52 }
53 \Line{}
54 \Line{* etoolbox's \string\robustify:}
55 \ShowDef{cmd}{%

```

```

56 \newcommand{\cmd}[2][default]{} %
57 \robustify{\cmd}%
58 }
59 \ShowDef{cmd}{%
60 \DeclareRobustCommand{\cmd}{} %
61 \robustify{\cmd}%
62 }
63 \ShowDef{cmd}{%
64 \DeclareRobustCommand{\cmd}[2][default]{} %
65 \robustify{\cmd}%
66 }
67 \typeout{}
68 \@@end
69 </showcases>

```

2.1.2 Result

* LaTeX definitions:

```

\newcommand {\cmd }[2][default]{
  (\cmd) = (macro:->\@protected@testopt \cmd \cmd {default})
  (\\cmd) = (\long macro:[#1]#2->)

\DeclareRobustCommand {\cmd }{}
  (\cmd) = (macro:->\protect \cmd_ )
  (\cmd_) = (\long macro:->)

\DeclareRobustCommand {\cmd }[2][default]{
  (\cmd) = (macro:->\protect \cmd_ )
  (\cmd_) = (macro:->\@protected@testopt \cmd_ \cmd_ {default})
  (\\cmd_) = (\long macro:[#1]#2->)

```

* etoolbox's robust definitions:

```

\newrobustcmd {\cmd }{}
  (\cmd) = (\protected\long macro:->)

\newrobustcmd {\cmd }[2][default]{
  (\cmd) = (\protected macro:->\@testopt \cmd {default})
  (\\cmd) = (\long macro:[#1]#2->)

```

* etoolbox's \robustify:

```

\newcommand {\cmd }[2][default]{\robustify {\cmd }}
  (\cmd) = (\protected macro:->\@protected@testopt \cmd \cmd {default})
  (\\cmd) = (\long macro:[#1]#2->)

\DeclareRobustCommand {\cmd }{} \robustify {\cmd }
  (\cmd) = (\protected macro:->)

\DeclareRobustCommand {\cmd }[2][default]{\robustify {\cmd }}
  (\cmd) = (\protected macro:->\@protected@testopt \cmd_ \cmd_ {default})
  (\cmd_) = (macro:->\@protected@testopt \cmd_ \cmd_ {default})
  (\\cmd_) = (\long macro:[#1]#2->)

```

2.2 Package

```

70 (*package)

```

2.2.1 Catcodes and identification

```
71 \begingroup\catcode61\catcode48\catcode32=10\relax%
72 \catcode13=5 % ^^M
73 \endlinechar=13 %
74 \catcode123=1 % {
75 \catcode125=2 % }
76 \catcode64=11 % @
77 \def\x{\endgroup
78 \expandafter\edef\csname llm@AtEnd\endcsname{%
79 \endlinechar=\the\endlinechar\relax
80 \catcode13=\the\catcode13\relax
81 \catcode32=\the\catcode32\relax
82 \catcode35=\the\catcode35\relax
83 \catcode61=\the\catcode61\relax
84 \catcode64=\the\catcode64\relax
85 \catcode123=\the\catcode123\relax
86 \catcode125=\the\catcode125\relax
87 }%
88 }%
89 \x\catcode61\catcode48\catcode32=10\relax%
90 \catcode13=5 % ^^M
91 \endlinechar=13 %
92 \catcode35=6 % #
93 \catcode64=11 % @
94 \catcode123=1 % {
95 \catcode125=2 % }
96 \def\TMP@EnsureCode#1#2{%
97 \edef\llm@AtEnd{%
98 \llm@AtEnd
99 \catcode#1=\the\catcode#1\relax
100 }%
101 \catcode#1=#2\relax
102 }
103 \TMP@EnsureCode{40}{12}% (
104 \TMP@EnsureCode{41}{12}% )
105 \TMP@EnsureCode{42}{12}% *
106 \TMP@EnsureCode{45}{12}% -
107 \TMP@EnsureCode{46}{12}% .
108 \TMP@EnsureCode{47}{12}% /
109 \TMP@EnsureCode{58}{12}% :
110 \TMP@EnsureCode{62}{12}% >
111 \TMP@EnsureCode{91}{12}% [
112 \TMP@EnsureCode{93}{12}% ]
113 \edef\llm@AtEnd{%
114 \llm@AtEnd
115 \escapechar\the\escapechar\relax
116 \noexpand\endinput
117 }
118 \escapechar=92 % '\

Package identification.
119 \NeedsTeXFormat{LaTeX2e}
120 \ProvidesPackage{letltxmacro}%
121 [2019/12/03 v1.6 Let assignment for LaTeX macros (HO)]
```

2.2.2 Main macros

\LetLtxMacro

```
122 \newcommand*{\LetLtxMacro}{%
```

```

123 \llm@ModeLetLtxMacro{%
124 }

\GlobalLetLtxMacro

125 \newcommand*{\GlobalLetLtxMacro}{%
126 \llm@ModeLetLtxMacro\global
127 }

\llm@ModeLetLtxMacro

128 \newcommand*{\llm@ModeLetLtxMacro}[3]{%
129 \edef\llm@escapechar{\the\escapechar}%
130 \escapechar=-1 %
131 \edef\reserved@a{%
132 \noexpand\protect
133 \expandafter\noexpand
134 \csname\string#3 \endcsname
135 }%
136 \ifx\reserved@a#3\relax
137 #1\edef#2{%
138 \noexpand\protect
139 \expandafter\noexpand
140 \csname\string#2 \endcsname
141 }%
142 #1\expandafter\let
143 \csname\string#2 \expandafter\endcsname
144 \csname\string#3 \endcsname
145 \expandafter\llm@LetLtxMacro
146 \csname\string#2 \expandafter\endcsname
147 \csname\string#3 \endcsname{#1}%
148 \else
149 \llm@LetLtxMacro{#2}{#3}{#1}%
150 \fi
151 \escapechar=\llm@escapechar\relax
152 }

\llm@LetLtxMacro

153 \def\llm@LetLtxMacro#1#2#3{%
154 \escapechar=92 %
155 \expandafter\llm@CheckParams\meaning#2:->\@nil{%
156 \begingroup
157 \def\@protected@testopt{%
158 \expandafter\@testopt\@gobble
159 }%
160 \def\@testopt##1##2{%
161 \toks@={##2}%
162 }%
163 \let\llm@testopt\@empty
164 \edef\x{%
165 \noexpand\@protected@testopt
166 \noexpand#2%
167 \expandafter\noexpand\csname\string#2\endcsname
168 }%
169 \expandafter\expandafter\expandafter\def
170 \expandafter\expandafter\expandafter\y
171 \expandafter\expandafter\expandafter{%
172 \expandafter\llm@CarThree#2}{-}{-}\llm@nil
173 }%
174 \ifx\x\y

```

```

175     #2%
176     \def\llm@testopt{%
177         \noexpand\@protected@testopt
178         \noexpand#1%
179     }%
180 \else
181     \edef\x{%
182         \noexpand\@testopt
183         \expandafter\@noexpand
184         \csname\string#2\endcsname
185     }%
186     \expandafter\expandafter\expandafter\def
187     \expandafter\expandafter\expandafter\y
188     \expandafter\expandafter\expandafter{%
189         \expandafter\llm@CarTwo#2{}}\llm@nil
190     }%
191     \ifx\x\y
192         #2%
193         \def\llm@testopt{%
194             \noexpand\@testopt
195         }%
196     \fi
197 \fi
198 \ifx\llm@testopt\@empty
199 \else
200     \llm@protected\xdef\llm@GlobalTemp{%
201         \llm@testopt
202         \expandafter\@noexpand
203         \csname\string#1\endcsname
204         {\the\toks@}%
205     }%
206 \fi
207 \expandafter\endgroup\ifx\llm@testopt\@empty
208     #3\let#1=#2\relax
209 \else
210     #3\let#1=\llm@GlobalTemp
211     #3\expandafter\let
212         \csname\string#1\expandafter\endcsname
213         \csname\string#2\endcsname
214 \fi
215 }{%
216     #3\let#1=#2\relax
217 }%
218 }

```

\llm@CheckParams

```

219 \def\llm@CheckParams#1:->#2\@nil{%
220     \begingroup
221     \def\x{#1}%
222     \ifx\x\llm@macro
223     \endgroup
224     \def\llm@protected{}%
225     \expandafter\@firstoftwo
226 \else
227     \ifx\x\llm@protectedmacro
228     \endgroup
229     \def\llm@protected{\protected}%
230     \expandafter\expandafter\expandafter\@firstoftwo

```

```

231     \else
232     \endgroup
233     \expandafter\expandafter\expandafter\@secondoftwo
234     \fi
235     \fi
236 }

\llm@macro
237 \def\llm@macro{macro}
238 \@onelevel@sanitize\llm@macro

\llm@protectedmacro
239 \def\llm@protectedmacro{\protected macro}
240 \@onelevel@sanitize\llm@protectedmacro

\llm@CarThree
241 \def\llm@CarThree#1#2#3#4\llm@nil{#1#2#3}%

\llm@CarTwo
242 \def\llm@CarTwo#1#2#3\llm@nil{#1#2}%

243 \llm@AtEnd%
244 \endpackage

```

3 Installation

3.1 Download

Package. This package is available on CTAN¹:

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

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

Bundle. All the packages of the bundle ‘letltxmacro’ 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/letltxmacro.tds.zip](#)

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

3.2 Bundle installation

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

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

3.3 Package installation

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

```
tex letltxmacro.dtx
```

¹[CTAN:pkg/letltxmacro](#)

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

```
letltxmacro.sty      → tex/latex/letltxmacro/letltxmacro.sty
letltxmacro.pdf      → doc/latex/letltxmacro/letltxmacro.pdf
letltxmacro-showcases.tex → doc/latex/letltxmacro/letltxmacro-showcases.tex
letltxmacro.dtx      → source/latex/letltxmacro/letltxmacro.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 (`TEX Live`, `mikTEX`, ...) relies on file name databases, you must refresh these. For example, `TEX Live` users run `texhash` or `mktextlsr`.

3.5 Some details for the interested

Unpacking with `LATEX`. The `.dtx` chooses its action depending on the format:

plain `TEX`: Run `docstrip` and extract the files.

`LATEX`: Generate the documentation.

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

```
latex \let\install=y\input{letltxmacro.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 `pdfLATEX`:

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

4 History

[2008/06/09 v1.0]

- First version.

[2008/06/12 v1.1]

- Support for `etoolbox`'s `\newrobustcmd` added.

[2008/06/13 v1.2]

- Support for `etoolbox`'s `\robustify` added.

[2008/06/24 v1.3]

- Test file adapted for etoolbox 2008/06/22 v1.6.

[2010/09/02 v1.4]

- \GlobalLetLtxMacro added.

[2016/05/16 v1.5]

- Documentation updates.

[2019/12/03 v1.6]

- Documentation updates.

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