

The kvdefinekeys package

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Abstract

Package kvdefinekeys provides `\kv@define@key` to define keys the same way as keyval's `\define@key`. However, it works also using ini-TEX.

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1 Documentation

1.1 Motivation

`\kvsetkeys` serves as replacement for keyval's `\setkeys`. This package adds macros to define keys, closing the gap `\kvsetkeys` leaves.

<code>\kv@define@key {<family>} {<key>} [<default>] {<definition>}</code>

Macro `\kv@define@key` reimplements keyval's `\define@key`. Differences to the original:

- The defined keys also allow `\par` inside values.
- Shorthands of package `babel` are supported in family and key names.
- Macro `\kv@define@key` is made robust if ε -TeX's `\protected` or L^AT_EX's `\DeclareRobustCommand` are found.

2 Implementation

2.1 Identification

```
1 (*package)
```

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

```
2 \begingroup\catcode61\catcode48\catcode32=10\relax%
3 \catcode13=5 % ^M
4 \endlinechar=13 %
5 \catcode35=6 % #
6 \catcode39=12 % '
7 \catcode44=12 % ,
8 \catcode45=12 % -
9 \catcode46=12 % .
10 \catcode58=12 % :
11 \catcode64=11 % @
12 \catcode123=1 % {
13 \catcode125=2 % }
14 \expandafter\let\expandafter\x\csname ver@kvdefinekeys.sty\endcsname
15 \ifx\x\relax % plain-TeX, first loading
16 \else
17 \def\empty{}%
18 \ifx\x\empty % LaTeX, first loading,
19 % variable is initialized, but \ProvidesPackage not yet seen
20 \else
21 \expandafter\ifx\csname PackageInfo\endcsname\relax
22 \def\x#1#2{%
23 \immediate\write-1{Package #1 Info: #2.}%
24 }%
25 \else
26 \def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
27 \fi
28 \x{kvdefinekeys}{The package is already loaded}%
29 \aftergroup\endinput
30 \fi
31 \fi
32 \endgroup%
```

Package identification:

```
33 \begingroup\catcode61\catcode48\catcode32=10\relax%
34 \catcode13=5 % ^M
35 \endlinechar=13 %
36 \catcode35=6 % #
37 \catcode39=12 % '
38 \catcode40=12 % (
39 \catcode41=12 % )
40 \catcode44=12 % ,
41 \catcode45=12 % -
42 \catcode46=12 % .
43 \catcode47=12 % /
44 \catcode58=12 % :
45 \catcode64=11 % @
46 \catcode91=12 % [
47 \catcode93=12 % ]
48 \catcode123=1 % {
```

```

49 \catcode125=2 % }
50 \expandafter\ifx\csname ProvidesPackage\endcsname\relax
51   \def\x#1#2#3[#4]{\endgroup
52     \immediate\write-1{Package: #3 #4}%
53     \xdef#1[#4]%
54   }%
55 \else
56   \def\x#1#2[#3]{\endgroup
57     #2[#3]}%
58   \ifx#1@undefined
59     \xdef#1[#3]%
60   \fi
61   \ifx#1\relax
62     \xdef#1[#3]%
63   \fi
64 }%
65 \fi
66 \expandafter\x\csname ver@kvdefinekeys.sty\endcsname
67 \ProvidesPackage{kvdefinekeys}%
68 [2011/04/07 v1.3 Defining keys (H0)]%
69 \begingroup\catcode61\catcode48\catcode32=10\relax%
70 \catcode13=5 % ^^M
71 \endlinechar=13 %
72 \catcode123=1 % {
73 \catcode125=2 % }
74 \catcode64=11 % @
75 \def\x{\endgroup
76   \expandafter\edef\csname KVD@AtEnd\endcsname{%
77     \endlinechar=\the\endlinechar\relax
78     \catcode13=\the\catcode13\relax
79     \catcode32=\the\catcode32\relax
80     \catcode35=\the\catcode35\relax
81     \catcode61=\the\catcode61\relax
82     \catcode64=\the\catcode64\relax
83     \catcode123=\the\catcode123\relax
84     \catcode125=\the\catcode125\relax
85   }%
86 }%
87 \x\catcode61\catcode48\catcode32=10\relax%
88 \catcode13=5 % ^^M
89 \endlinechar=13 %
90 \catcode35=6 % #
91 \catcode64=11 % @
92 \catcode123=1 % {
93 \catcode125=2 % }
94 \def\TMP@EnsureCode#1#2{%
95   \edef\KVD@AtEnd{%
96     \KVD@AtEnd
97     \catcode#1=\the\catcode#1\relax
98   }%
99   \catcode#1=#2\relax
100 }
101 \TMP@EnsureCode{42}{12}% *
102 \TMP@EnsureCode{46}{12}% .
103 \TMP@EnsureCode{47}{12}% /
104 \TMP@EnsureCode{91}{12}% [
105 \TMP@EnsureCode{93}{12}% ]
106 \edef\KVD@AtEnd{\KVD@AtEnd\noexpand\endinput}

```

2.2 Package loading

```

107 \begingroup\expandafter\expandafter\expandafter\endgroup
108 \expandafter\ifx\csname RequirePackage\endcsname\relax

```

```

109 \def\TMP@RequirePackage#1[#2]{%
110   \begingroup\expandafter\expandafter\expandafter\endgroup
111   \expandafter\ifx\csname ver@#1.sty\endcsname\relax
112   \input #1.sty\relax
113   \fi
114 }%
115 \TMP@RequirePackage{ltxcms}[2010/03/01]%
116 \else
117   \RequirePackage{ltxcms}[2010/03/01]%
118 \fi

```

2.3 Provide key defining macro

`\kv@define@key`

```

119 \ltx@ifundefined{protected}{%
120   \ltx@ifundefined{DeclareRobustCommand}{%
121     \def\kv@define@key#1#2%
122   }{%
123     \DeclareRobustCommand*{\kv@define@key}[2]%
124   }%
125 }{%
126   \protected\def\kv@define@key#1#2%
127 }%
128 {%
129   \begingroup
130   \csname @safe@activestrue\endcsname
131   \let\ifincsname\iftrue
132   \edef\KVD@temp{\endgroup
133     \noexpand\KVD@DefineKey{#1}{#2}%
134   }%
135   \KVD@temp
136 }

```

`\KVD@DefineKey`

```

137 \def\KVD@DefineKey#1#2{%
138   \ltx@ifnextchar [{%
139     \KVD@DefineKeyWithDefault{#1}{#2}%
140   }{%
141     \long\expandafter\def\csname KV@#1@#2\endcsname##1%
142   }%
143 }

```

`\KVD@DefineKeyWithDefault`

```

144 \long\def\KVD@DefineKeyWithDefault#1#2[#3]{%
145   \expandafter\def\csname KV@#1@#2@default\endcsname
146   \expandafter{%
147     \csname KV@#1@#2\endcsname{#3}%
148   }%
149   \long\expandafter\def\csname KV@#1@#2\endcsname##1%
150 }

151 \KVD@AtEnd%
152 </package>

```

3 Test

3.1 Catcode checks for loading

```

153 <*test1>
154 \catcode'\{=1 %
155 \catcode'\}=2 %

```

```

156 \catcode'\#=6 %
157 \catcode'\@=11 %
158 \expandafter\ifx\csname count@\endcsname\relax
159   \countdef\count@=255 %
160 \fi
161 \expandafter\ifx\csname @gobble\endcsname\relax
162   \long\def@gobble#1{}%
163 \fi
164 \expandafter\ifx\csname @firstofone\endcsname\relax
165   \long\def@firstofone#1{#1}%
166 \fi
167 \expandafter\ifx\csname loop\endcsname\relax
168   \expandafter@firstofone
169 \else
170   \expandafter@gobble
171 \fi
172 {%
173   \def\loop#1\repeat{%
174     \def\body{#1}%
175     \iterate
176   }%
177   \def\iterate{%
178     \body
179     \let\next\iterate
180   \else
181     \let\next\relax
182   \fi
183   \next
184 }%
185 \let\repeat=\fi
186 }%
187 \def\RestoreCatcodes{}
188 \count@=0 %
189 \loop
190   \edef\RestoreCatcodes{%
191     \RestoreCatcodes
192     \catcode\the\count@=\the\catcode\count@\relax
193   }%
194 \ifnum\count@<255 %
195   \advance\count@ 1 %
196 \repeat
197
198 \def\RangeCatcodeInvalid#1#2{%
199   \count@=#1\relax
200   \loop
201     \catcode\count@=15 %
202   \ifnum\count@<#2\relax
203     \advance\count@ 1 %
204   \repeat
205 }
206 \def\RangeCatcodeCheck#1#2#3{%
207   \count@=#1\relax
208   \loop
209     \ifnum#3=\catcode\count@
210   \else
211     \errmessage{%
212       Character \the\count@\space
213       with wrong catcode \the\catcode\count@\space
214       instead of \number#3%
215     }%
216   \fi
217 \ifnum\count@<#2\relax

```

```

218   \advance\count@ 1 %
219   \repeat
220 }
221 \def\space{ }
222 \expandafter\ifx\csname LoadCommand\endcsname\relax
223   \def\LoadCommand{\input kvdefinekeys.sty\relax}%
224 \fi
225 \def\Test{%
226   \RangeCatcodeInvalid{0}{47}%
227   \RangeCatcodeInvalid{58}{64}%
228   \RangeCatcodeInvalid{91}{96}%
229   \RangeCatcodeInvalid{123}{255}%
230   \catcode'\@=12 %
231   \catcode'\=0 %
232   \catcode'\%=14 %
233   \LoadCommand
234   \RangeCatcodeCheck{0}{36}{15}%
235   \RangeCatcodeCheck{37}{37}{14}%
236   \RangeCatcodeCheck{38}{47}{15}%
237   \RangeCatcodeCheck{48}{57}{12}%
238   \RangeCatcodeCheck{58}{63}{15}%
239   \RangeCatcodeCheck{64}{64}{12}%
240   \RangeCatcodeCheck{65}{90}{11}%
241   \RangeCatcodeCheck{91}{91}{15}%
242   \RangeCatcodeCheck{92}{92}{0}%
243   \RangeCatcodeCheck{93}{96}{15}%
244   \RangeCatcodeCheck{97}{122}{11}%
245   \RangeCatcodeCheck{123}{255}{15}%
246   \RestoreCatcodes
247 }
248 \Test
249 \csname @@end\endcsname
250 \end
251 </test1>

```

4 Installation

4.1 Download

Package. This package is available on CTAN¹:

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

[CTAN:macros/latex/contrib/oberdiek/kvdefinekeys.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 \TeX 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
```

¹<http://ftp.ctan.org/tex-archive/>

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 `TEX`:

```
tex kvdefinekeys.dtx
```

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

```
kvdefinekeys.sty      → tex/generic/oberdiek/kvdefinekeys.sty
kvdefinekeys.pdf      → doc/latex/oberdiek/kvdefinekeys.pdf
test/kvdefinekeys-test1.tex → doc/latex/oberdiek/test/kvdefinekeys-test1.tex
kvdefinekeys.dtx      → source/latex/oberdiek/kvdefinekeys.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`.

4.4 Refresh file name databases

If your `TEX` distribution (`teTEX`, `mikTEX`, ...) relies on file name databases, you must refresh these. For example, `teTEX` users run `texhash` or `mktexlsr`.

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 kvdefinekeys.pdf unpack_files output .
```

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{kvdefinekeys.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 \LaTeX` :

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

5 References

- [1] David Carlisle: *The keyval package*; 1999/03/16 v1.13; [CTAN:macros/latex/required/graphics/keyval.dtx](#).

6 History

[2010/03/01 v1.0]

- First version.

[2010/08/19 v1.1]

- Documentation fix, no code change.

[2011/01/30 v1.2]

- Already loaded package files are not input in plain \TeX .

[2011/04/07 v1.3]

- Support for package `babel`'s shorthands added.
- `\kv@define@key` is made robust if available.

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