

The kvdefinekeys package

Heiko Oberdiek*

<heiko.oberdiek at gmail.com>

2016/05/16 v1.4

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.

Contents

1	Documentation	2
1.1	Motivation	2
2	Implementation	2
2.1	Identification	2
2.2	Package loading	4
2.3	Provide key defining macro	4
3	Test	5
3.1	Catcode checks for loading	5
4	Installation	6
4.1	Download	6
4.2	Bundle installation	7
4.3	Package installation	7
4.4	Refresh file name databases	7
4.5	Some details for the interested	7
5	Catalogue	8
6	References	8
7	History	8
	[2010/03/01 v1.0]	8
	[2010/08/19 v1.1]	8
	[2011/01/30 v1.2]	9
	[2011/04/07 v1.3]	9
	[2016/05/16 v1.4]	9
8	Index	9

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

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.

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

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 [2016/05/16 v1.4 Define keys (HO)]%
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{ltxcmds}[2010/03/01]%
116 \else
117 \RequirePackage{ltxcmds}[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@activetrue\endcsname
131 \let\ifin\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](http://ctan.org/pkg/kvdefinekeys) The source file.

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

¹<http://ctan.org/pkg/kvdefinekeys>

TDS refers to the standard “A Directory Structure for $\text{T}_{\text{E}}\text{X}$ 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 $\text{T}_{\text{E}}\text{X}$:

```
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):

<code>kvdefinekeys.sty</code>	→ <code>tex/generic/oberdiek/kvdefinekeys.sty</code>
<code>kvdefinekeys.pdf</code>	→ <code>doc/latex/oberdiek/kvdefinekeys.pdf</code>
<code>test/kvdefinekeys-test1.tex</code>	→ <code>doc/latex/oberdiek/test/kvdefinekeys-test1.tex</code>
<code>kvdefinekeys.dtx</code>	→ <code>source/latex/oberdiek/kvdefinekeys.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 $\text{T}_{\text{E}}\text{X}$ distribution (`te $\text{T}_{\text{E}}\text{X}$` , `mik $\text{T}_{\text{E}}\text{X}$` , ...) relies on file name databases, you must refresh these. For example, `te $\text{T}_{\text{E}}\text{X}$` users run `texhash` or `mktextlsr`.

4.5 Some details for the interested

Unpacking with $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$. The `.dtx` chooses its action depending on the format:

plain $\text{T}_{\text{E}}\text{X}$: Run `docstrip` and extract the files.

$\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$: Generate the documentation.

If you insist on using $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ for `docstrip` (really, `docstrip` does not need $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$), 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 pdfL^AT_EX:

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

5 Catalogue

The following XML file can be used as source for the [T_EX Catalogue](#). The elements `caption` and `description` are imported from the original XML file from the Catalogue. The name of the XML file in the Catalogue is `kvdefinekeys.xml`.

```
252 (*catalogue)
253 <?xml version='1.0' encoding='us-ascii'?>
254 <!DOCTYPE entry SYSTEM 'catalogue.dtd'>
255 <entry datestamp='$Date$' modifier='$Author$' id='kvdefinekeys'>
256   <name>kvdefinekeys</name>
257   <caption>Define keys for use in the kvsetkeys package.</caption>
258   <authorref id='auth:oberdiek'>/>
259   <copyright owner='Heiko Oberdiek' year='2010,2011'>/>
260   <license type='lppl1.3'>/>
261   <version number='1.4'>/>
262   <description>
263     The package provides a macro <tt>\kv@define@key</tt> (analogous to
264     <xref refid='keyval'>keyval&#x2019;s</xref> <tt>\define@key</tt>, to
265     define keys for use by <xref refid='kvsetkeys'>kvsetkeys</xref>.
266   <p/>
267   The package is part of the <xref refid='oberdiek'>oberdiek</xref>
268   bundle.
269 </description>
270 <documentation details='Package documentation'
271   href='ctan:/macros/latex/contrib/oberdiek/kvdefinekeys.pdf'>/>
272 <ctan file='true' path='/macros/latex/contrib/oberdiek/kvdefinekeys.dtx'>/>
273 <miktex location='oberdiek'>/>
274 <texlive location='oberdiek'>/>
275 <install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip'>/>
276 </entry>
277 </catalogue>
```

6 References

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

7 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 T_EX.

[2011/04/07 v1.3]

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

[2016/05/16 v1.4]

- Documentation updates.

8 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; plain numbers refer to the code lines where the entry is used.

Symbols			
<code>\#</code>	156	<code>\endcsname</code>	14, 21, 50, 66, 76, 108, 111, 130, 141, 145, 147, 149, 158, 161, 164, 167, 222, 249
<code>\%</code>	232	<code>\endinput</code>	29, 106
<code>\@</code>	157, 230	<code>\endlinechar</code>	4, 35, 71, 77, 89
<code>\@firstofone</code>	165, 168	<code>\errmessage</code>	211
<code>\@gobble</code>	162, 170	I	
<code>\@undefined</code>	58	<code>\ifcsname</code>	131
<code>\\</code>	231	<code>\ifnum</code>	194, 202, 209, 217
<code>\{</code>	154	<code>\iftrue</code>	131
<code>\}</code>	155	<code>\ifx</code>	15, 18, 21, 50, 58, 61, 108, 111, 158, 161, 164, 167, 222
A		<code>\immediate</code>	23, 52
<code>\advance</code>	195, 203, 218	<code>\input</code>	112, 223
<code>\aftergroup</code>	29	<code>\iterate</code>	175, 177, 179
B		K	
<code>\body</code>	174, 178	<code>\kv@define@key</code>	2, 119, 263
C		<code>\KVD@AtEnd</code>	95, 96, 106, 151
<code>\catcode</code>	2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 69, 70, 72, 73, 74, 78, 79, 80, 81, 82, 83, 84, 87, 88, 90, 91, 92, 93, 97, 99, 154, 155, 156, 157, 192, 201, 209, 213, 230, 231, 232	<code>\KVD@DefineKey</code>	133, 137
<code>\count@</code>	159, 188, 192, 194, 195, 199, 201, 202, 203, 207, 209, 212, 213, 217, 218	<code>\KVD@DefineKeyWithDefault</code>	139, 144
<code>\countdef</code>	159	<code>\KVD@temp</code>	132, 135
<code>\csname</code>	14, 21, 50, 66, 76, 108, 111, 130, 141, 145, 147, 149, 158, 161, 164, 167, 222, 249	L	
D		<code>\LoadCommand</code>	223, 233
<code>\DeclareRobustCommand</code>	123	<code>\loop</code>	173, 189, 200, 208
<code>\define@key</code>	264	<code>\ltx@ifnextchar</code>	138
E		<code>\ltx@ifUndefined</code>	119, 120
<code>\empty</code>	17, 18	N	
<code>\end</code>	250	<code>\next</code>	179, 181, 183
		<code>\number</code>	214
		P	
		<code>\PackageInfo</code>	26
		<code>\protected</code>	126
		<code>\ProvidesPackage</code>	19, 67
		R	
		<code>\RangeCatcodeCheck</code>	206, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245

\RangeCatcodeInvalid	198, 226, 227, 228, 229	\the	77, 78, 79, 80, 81, 82, 83, 84, 97, 192, 212, 213
\repeat	173, 185, 196, 204, 219	\TMP@EnsureCode	94, 101, 102, 103, 104, 105
\RequirePackage	117	\TMP@RequirePackage	109, 115
\RestoreCatcodes ..	187, 190, 191, 246		
S		W	
\space	212, 213, 221	\write	23, 52
T		X	
\Test	225, 248	\x	14, 15, 18, 22, 26, 28, 51, 56, 66, 75, 87