The **kvdefinekeys** package

Heiko Oberdiek
<heiko.oberdiek at googlemail.com>

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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.

Contents

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.

$\boxed{\texttt{\textbackslash kv@define@key}\,\{\langle\mathit{family}\rangle\}\,\{\langle\mathit{key}\rangle\}\,[\langle\mathit{default}\rangle]\,\{\langle\mathit{definition}\rangle\}}$

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 LaTeX's `\DeclareRobustCommand` are found.

2 Implementation

2.1 Identification

```
1 ⟨*package⟩
```

Reload check, especially if the package is not used with LaTeX.

```
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 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@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\expandafter\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 CTAN[1]:

`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]`ftp://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 pdfLaTeX:

```
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 [TeX 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='1.3'/>
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 TeX.

[2011/04/07 v1.3]

- Support for package babel's shorthands added.

- `\kv@define@key` is made robust if available.

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.