The unique counter package

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Abstract

This package provides a kind of counter that provides unique number values. Several counters can be created by different names. The numeric values are not limited.

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 $^{{\}rm *Please\ report\ any\ issues\ at\ https://github.com/ho-tex/oberdiek/issues}$

1 Documentation

\UniqueCounterNew $\{\langle name \rangle\}$

Macro \UniqueCounterNew creates a new unique counter $\langle name \rangle$. An error is thrown, if the counter already exists.

```
\UniqueCounterCall \{\langle name \rangle\}\ \{\langle code \rangle\}
```

Macro \UniqueCounterCall calls the given $\langle code \rangle$ with a new value of counter $\langle name \rangle$ as argument.

```
\UniqueCounterIncrement \{\langle name \rangle\}
```

Macro \UniqueCounterIncrement generates a new value for the counter $\langle name \rangle$ by incrementing by one (globally).

```
\UniqueCounterGet \{\langle name \rangle\}
```

Expandable macro \UniqueCounterGet returns the current value of counter $\langle name \rangle$

1.1 Example

```
1 (*example)
2 \documentclass{minimal}
3 \usepackage{uniquecounter}
4 \UniqueCounterNew{anchor}
5 \makeatletter
6 \newcommand*{\DefNewAnchorName}[2]{%
7 % #1 is unique counter value
8 % #2 is name of anchor
   \@namedef{anchor@#2}{a#1}%
9
10 }
11 \newcommand*{\NewAnchorName}[1]{%
   12
13 }
14 \newcommand*{\PrintAnchorName}[1]{%
15
   \@nameuse{anchor@#1}%
16 }
17 \begin{document}
18 \NewAnchorName{Top}%
   \NewAnchorName{Left}%
19
   \noindent
21 Top: \PrintAnchorName{Top}\\%
22 Left: \PrintAnchorName{Left}%
23 \end{document}
24 (/example)
```

2 Implementation

\endlinechar=13 %

```
25 (*package)
```

2.1 Reload check and package identification

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

```
26 \begingroup\catcode61\catcode48\catcode32=10\relax% 27 \catcode13=5 % ^^M
```

```
\catcode35=6 % #
29
    \catcode39=12 % '
30
    \catcode44=12 %,
31
    \catcode45=12 % -
32
    \catcode46=12 % .
33
34
    \catcode58=12 %:
    \catcode64=11 % @
35
36
    \catcode123=1 % {
    \catcode125=2 % }
37
    \verb|\expandafter\expandafter\x\csname| ver@uniquecounter.sty\endcsname|
38
    39
    \else
40
      \def\empty{}%
41
      \ifx\x\empty % LaTeX, first loading,
42
       % variable is initialized, but \ProvidesPackage not yet seen
43
44
       \expandafter\ifx\csname PackageInfo\endcsname\relax
45
        \def\x#1#2{\%}
46
          \immediate\write-1{Package #1 Info: #2.}%
47
48
        }%
49
       \else
        \def\x#1#2{\PackageInfo{#1}{#2, stopped}}%
50
51
       \x{uniquecounter}{The package is already loaded}%
52
       \aftergroup\endinput
53
54
      \fi
    \fi
55
56 \endgroup%
Package identification:
57 \begingroup\catcode61\catcode48\catcode32=10\relax%
    \catcode13=5~\%~^{n}M
    \endlinechar=13 %
    \catcode35=6 % #
60
    \catcode39=12 % '
61
    \catcode40=12 % (
62
63 \catcode41=12 %)
64 \catcode44=12 %,
65 \catcode45=12 % -
66 \catcode46=12 % .
67 \catcode47=12 % /
68 \catcode58=12 %:
69 \catcode64=11 % @
70 \catcode91=12 % [
71 \catcode93=12 % ]
72 \catcode123=1 % {
    \catcode125=2 % }
73
    \expandafter\ifx\csname ProvidesPackage\endcsname\relax
74
      \def \x#1#2#3[#4]{\endgroup}
75
       \immediate\write-1{Package: #3 #4}%
76
77
       \xdef#1{#4}%
     }%
78
79
    \else
     \def\x#1#2[#3]{\endgroup}
80
       #2[{#3}]%
81
       \inf #1\
82
        \xdef#1{#3}%
83
       \fi
84
       \ifx#1\relax
85
        \xdef#1{#3}%
86
       \fi
87
     }%
88
    \fi
```

```
90 \expandafter\x\csname ver@uniquecounter.sty\endcsname
```

- 91 \ProvidesPackage{uniquecounter}%
- 92 [2016/05/16 v1.3 Provide unlimited unique counter (HO)]%

2.2 Catcodes

```
93 \begingroup\catcode61\catcode48\catcode32=10\relax%
                     \color=5 \% ^M
   94
    95
                     \endlinechar=13 %
                    \catcode123=1 % {
    97
                     \catcode125=2 % }
    98
                     \catcode64=11 % @
    99
                     \def\x{\endgroup
                           \verb|\expandafter\edef| csname uqc@AtEnd\endcsname{% } \\
100
                                  \endlinechar=\the\endlinechar\relax
101
                                  \catcode13=\the\catcode13\relax
102
                                  \color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\t
103
                                  \color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\t
104
105
                                  \colored{catcode61=\the\catcode61\relax}
                                  \colored{catcode64} \to \colored{catcode64}
106
                                  \color=\the\color=123\
107
108
                                  \color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\t
109
                          }%
110 }%
111 \x\catcode61\catcode48\catcode32=10\relax\%
112 \catcode13=5 % ^^M
113 \endlinechar=13 %
114 \catcode35=6 % #
115 \catcode64=11 % @
116 \catcode123=1 % {
117 \catcode125=2 % }
118 \def\TMP@EnsureCode#1#2{%
119 \edef\uqc@AtEnd{%
120
                          \uqc@AtEnd
                           \verb|\catcode#1=\\ the \verb|\catcode#1\\ relax|
121
122 }%
123 \catcode#1=#2\relax
124 }
125 \TMP@EnsureCode{33}{12}%!
126 \TMP@EnsureCode{39}{12}% '
127 \TMP@EnsureCode{42}{12}% *
128 \TMP@EnsureCode\{43\}\{12\}\% +
129 \TMP@EnsureCode\{46\}\{12\}\%.
130 \TMP@EnsureCode{47}{12}% /
131 \TMP@EnsureCode{91}{12}% [
132 \TMP@EnsureCode{93}{12}% ]
133 \TMP@EnsureCode{96}{12}%
134 \edf\uqc@AtEnd\noexpand\endinput\}
135 \begingroup\expandafter\expandafter\expandafter\endgroup
136 \expandafter\ifx\csname RequirePackage\endcsname\relax
137
                     \def\TMP@RequirePackage#1[#2]{%
                            \begingroup\expandafter\expandafter\expandafter\endgroup
138
139
                            \expandafter\ifx\csname ver@#1.sty\endcsname\relax
                                  \input #1.sty\relax
140
                           ١fi
141
142 }%
                    \TMP@RequirePackage{bigintcalc}[2007/11/11]%
143
144 \TMP@RequirePackage{infwarerr}[2007/09/09]%
145 \else
                    \RequirePackage{bigintcalc}[2007/11/11]%
147 \RequirePackage{infwarerr}[2007/09/09]%
148 \fi
```

```
\uqc@IncNum
              149 \begingroup\expandafter\expandafter\expandafter\endgroup
              150 \expandafter\ifx\csname numexpr\endcsname\relax
                  \def\uqc@IncNum#1{\%}
              152
                    \begingroup
                     \count@=\csname uqc@cnt@#1\endcsname\relax
              153
                     \advance\count@\@ne
              154
                     \expandafter\xdef\csname uqc@cnt@#1\endcsname{%
              155
                      \number\count@
              156
                     }%
              157
                     \ifnum\count@=2147483647 %
              158
              159
                       \global\expandafter\let\csname uqc@inc@#1\endcsname
              160
                       \uqc@IncBig
              161
              162
                    \endgroup
                  }%
              163
              164 \else
                  \def\uqc@IncNum#1{%
              165
                    \expandafter\xdef\csname uqc@cnt@#1\endcsname{%
              166
                     \verb|\number| uqc@cnt@\#1\endcsname+1\%|
              167
              168
```

169 \ifnum\csname uqc@cnt@#1\endcsname=2147483647 %
170 \global\expandafter\let\csname uqc@inc@#1\endcsname

171 \uqc@IncBig

172 \fi 173 }%

174 \fi

\uqc@IncBig

```
175 \def\uqc@IncBig#1{%

176 \expandafter\xdef\csname uqc@cnt@#1\endcsname{%

177 \expandafter\expandafter

178 \BigIntCalcInc\csname uqc@cnt@#1\endcsname!%

179 }%

180 }
```

\uqc@Def

```
181 \begingroup\expandafter\expandafter\endgroup
182 \expandafter\ifx\csname newcommand\endcsname\relax
183 \def\uqc@Def#1{\def#1##1}%
184 \else
185 \def\uqc@Def#1{\newcommand*{#1}[1]}%
186 \fi
```

\UniqueCounterNew

```
187 \uqc@Def\UniqueCounterNew{%
  188
                                                                  \expandafter\ifx\csname uqc@cnt@#1\endcsname\relax
                                                                                    \expandafter\xdef\csname uqc@cnt@#1\endcsname{0}%
  189
                                                                                    \global\expandafter\let\csname uqc@inc@#1\endcsname\uqc@IncNum
  190
  191
                                                                                    \ensuremath{\texttt{OPackageInfo\{uniquecounter\}\{New\ unique\ counter\ `\#1'\}\%}
  192
                                                                \else
                                                                                \label{lem:counter} $$ \operatorname{\down} \operatorname{\do
  193
                                                           \fi
194
195 }
```

\UniqueCounterIncrement

```
196 \uqc@Def\UniqueCounterIncrement{%
197 \expandafter\ifx\csname uqc@cnt@#1\endcsname\relax
198 \@PackageError{uniquecounter}{Unique counter `#1' is undefined}\@ehc
199 \else
200 \csname uqc@inc@#1\endcsname{#1}%
201 \fi
202 }
```

```
\UniqueCounterGet
                                                      203 \uqc@Def\UniqueCounterGet{%
                                                                  \csname uqc@cnt@#1\endcsname
                                                      205 }
\UniqueCounterCall
                                                      206 \ugc@Def\UniqueCounterCall{%
                                                                  \expandafter\ifx\csname uqc@cnt@#1\endcsname\relax
                                                                       \@PackageError{uniquecounter}{Unique counter `#1' is undefined}\@ehc
                                                      208
                                                      209
                                                                      \expandafter\uqc@Call\expandafter0%
                                                      210
                                                                       \UniqueCounterIncrement{#1}%
                                                      211
                                                                       \verb|\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\expandafter=\
                                                      212
                                                                      \expandafter\expandafter\expandafter{%
                                                      213
                                                                          \csname uqc@cnt@#1\expandafter\endcsname\expandafter
                                                      214
                                                                      }%
                                                      215
                                                      216
                                                                  \fi
                                                      217 }
                        \uqc@Call
                                                      218 \long\def\uqc@Call#1#2{#2{#1}}%
                                                      219 \uqc@AtEnd%
                                                      220 (/package)
                                                      3
                                                                   Test
                                                                       Catcode checks for loading
                                                      221 \langle *test1 \rangle
                                                      222 \catcode`\{=1 %
                                                      223 \catcode`\}=2 %
                                                      224 \catcode`\#=6 %
                                                      225 \catcode`\@=11 %
                                                      226 \verb|\expandafter\ifx\csname| count@\endcsname\relax|
                                                      227 \countdef\count@=255 %
                                                      228 \fi
                                                      231 \fi
                                                      232 \expandafter\ifx\csname @firstofone\endcsname\relax
                                                      233 \long\def\@firstofone#1{#1}%
                                                      234 \fi
                                                      235 \expandafter\ifx\csname loop\endcsname\relax
                                                      236 \expandafter\@firstofone
                                                      237 \else
                                                      238 \expandafter\@gobble
                                                      239 \fi
                                                     240 {%
                                                                  241
```

 $\def\body{#1}%$

\let\next\iterate

\let\next\relax

\iterate

\body

\else

\next

\fi

\def\iterate{%

242

243 \i 244 }% 245 \de

246

247

248

249

250 251

252 }%

```
253 \let\repeat=\fi
254 }%
255 \def\RestoreCatcodes{}
256 \count@=0 %
257 \loop
258 \edef\RestoreCatcodes{%
259
     \RestoreCatcodes
     \verb|\catcode| the \count@= \\ the \catcode \count@\\ relax
260
261 }%
262 \ifnum\count@<255 \%
263 \advance\count@ 1 \%
264 \repeat
265
266 \def\RangeCatcodeInvalid#1#2{%
    \count@=#1\relax
267
    \loop
268
     \catcode\count@=15 %
269
    \ifnum\count@<#2\relax
270
     \advance\count@ 1 %
271
272
    \repeat
273 }
274 \def\RangeCatcodeCheck#1#2#3{%
    \count@=#1\relax
275
276
    \loop
     \ifnum#3=\catcode\count@
277
278
     \else
279
       \errmessage{%
        Character \the\count@\space
280
281
        with wrong catcode \the\catcode\count@\space
        instead of \number#3%
282
      }%
283
     ١fi
284
    285
286
     \advance\count@ 1 %
287
    \repeat
288 }
289 \def\space{ }
290 \expandafter\ifx\csname LoadCommand\endcsname\relax
291 \def\LoadCommand{\input uniquecounter.sty\relax}%
292 \fi
293 \left\{ \text{Test} \right\}
294 \RangeCatcodeInvalid{0}{47}%
    \RangeCatcodeInvalid{58}{64}%
295
296
    \RangeCatcodeInvalid{91}{96}%
297
    \RangeCatcodeInvalid{123}{255}%
298
    \catcode`\@=12 %
    \color=0 \%
300
    \catcode`\%=14 %
301
    \LoadCommand
302
    \RangeCatcodeCheck{0}{36}{15}%
303 \RangeCatcodeCheck{37}{37}{14}\%
    \RangeCatcodeCheck{38}{47}{15}%
304
    \RangeCatcodeCheck{48}{57}{12}%
305
    \RangeCatcodeCheck{58}{63}{15}%
306
307
    \RangeCatcodeCheck{64}{64}{12}%
308
    \RangeCatcodeCheck{65}{90}{11}%
309 \RangeCatcodeCheck{91}{91}{15}%
310 \RangeCatcodeCheck{92}{92}{0}\%
312 \RangeCatcodeCheck{97}{122}{11}%
313 \RangeCatcodeCheck{123}{255}{15}%
314 \RestoreCatcodes
```

```
315 }
316 \Test
317 \csname @@end\endcsname
318 \end
319 \/test1\>
```

3.2 Macro tests

3.2.1 Test with LATEX

```
320 (*test2)
321 \NeedsTeXFormat{LaTeX2e}
322 \nofiles
323 \documentclass{minimal}
324 \ \texttt{\ } usepackage \{unique counter\} [2016/05/16]
325 \usepackage{qstest}
326 \IncludeTests{*}
327 \LogTests\{log\}\{*\}\{*\}
328
329 \newcommand*{\CheckValue}[2]{%
330 \Expect*{#2}*{\UniqueCounterGet{#1}}%
331 }
332 \newcommand*{\CheckSpace}[1]{%
            \strut_{sbox0{\#1}\%}
            \text{Expect}\{0.0pt\}*{\text{wd}0}\%
335 }
336
337 \begin{qstest}{creation}{creation}
            \CheckSpace{%
338
                \UniqueCounterNew{test}%
339
340
            \CheckValue{test}{0}%
341
342 \end{qstest}
343
344 \begin{qstest}{increment}{increment}
345
            \CheckSpace{%
346
                \UniqueCounterIncrement{test}%
347 }%
348 \CheckValue{test}{1}%
            \mbox{\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\
349
            \def\uqc@cnt@test{2147483645}%
350
            \CheckValue{test}{2147483645}%
351
            \CheckSpace{%
352
                \UniqueCounterIncrement{test}%
353
354
            \CheckValue{test}{2147483646}\%
355
356
            \CheckSpace{%
                \UniqueCounterIncrement{test}%
357
            }%
358
            359
            \label{lem:checkValue} $$ \checkValue{test}{2147483647}\% $$
360
            \CheckSpace{%
361
                \UniqueCounterIncrement{test}%
362
363 }%
            \CheckValue{test}{2147483648}%
            \CheckSpace{%
              \UniqueCounterIncrement{test}%
366
367 }%
_{368} \CheckValue{test}{2147483649}%
369 \end{qstest}
370
371 \begin{qstest}{call}{call}
372 \def\CheckCall#1#2{%
```

```
\Expect{#1}{#2}%
373
374
    }%
    \CheckSpace{%
375
      \UniqueCounterNew{foo}%
376
377
378
    \CheckValue{foo}{0}%
379
    \def\Check#1{\%}
380
      \CheckSpace{%
       \label{lem:conterCall} $$ \UniqueCounterCall{foo}{\CheckCall}{\#1}\%$
381
382
      \CheckValue{foo}{#1}%
383
384 }%
    \Check{1}%
385
    \Check{2}%
386
387 \Check{3}%
388 \Check{4}%
389 \Check{5}%
390 \Check{6}%
391 \Check{7}%
392 \Check{8}%
393 \Check{9}%
394 \Check{10}%
    \Check{11}%
395
396 \Check{12}%
397 \end{qstest}
398
399 \csname @@end\endcsname
400 (/test2)
3.2.2 Test with plain-TeX
401 (*test3)
402 \input uniquecounter.sty\relax
403 \catcode`\@=11 %
404 \ensuremath{\mbox{def}\mbox{CheckValue}\#1\#2}
405
    \begingroup
      \left(442\right)\%
      \verb|\edgh| B{\UniqueCounterGet{#1}}|%
407
408
      \int A B
409
      \else
       \@PackageError{TEST}{Failed: \A\space<> \B}\@ehc
410
      \fi
411
412
    \endgroup
413 }
414 \def\CheckSpace#1{%
415
    \stbox0=\hbox{\#1}\%
416
    \left| d = \right| z@
418
      419
    \fi
420 }
421
422 \begingroup
    \CheckSpace{%
423
      \UniqueCounterNew{test}%
424
425
426
    \CheckValue{test}{0}%
427 \endgroup
428
429 \begingroup
    \CheckSpace{%
430
      \verb|\UniqueCounterIncrement{test}| \%
431
432
    }%
    \CheckValue{test}{1}%
433
```

```
\def\uqc@cnt@test{2147483645}%
434
     \CheckValue{test}{2147483645}%
435
    \CheckSpace{%
436
      \UniqueCounterIncrement{test}%
437
438
439
    \CheckValue{test}{2147483646}\%
440
    \CheckSpace{%
441
      \UniqueCounterIncrement{test}%
442
    }%
    \ifx\uqc@inc\uqc@NumInc
443
    \else
444
      \@PackageError{TEST}{Failed: wrong inc function}\@ehc
445
    \fi
446
    \CheckValue{test}{2147483647}%
447
    \CheckSpace{%
448
      \UniqueCounterIncrement{test}%
449
450
    }%
    \CheckValue{test}{2147483648}%
451
     \CheckSpace{%
452
453
      \UniqueCounterIncrement{test}%
454
    }%
    \CheckValue{test}{2147483649}%
455
456 \endgroup
457 \begingroup
    \def\CheckCall#1#2{%
458
      \begingroup
459
        \left(4\%\right)
460
461
        \def\B{#2}%
462
       \int A B
463
        \else
         \@PackageError{TEST}{Failed: \A\space <> \B}\@ehc
464
       ١fi
465
466
      \endgroup
467
    }%
     \CheckSpace{%
468
469
      \UniqueCounterNew{foo}%
470
    \CheckValue{foo}{0}%
471
472
    \CheckSpace{%
      \label{lem:conterCall} $$\operatorname{CheckCall}_{1}\%$ 
473
    }%
474
    \CheckSpace{%
475
      \UniqueCounterCall{foo}{\CheckCall}{2}%
476
477
    }%
478
    \CheckValue{foo}{2}%
479 \endgroup
480 \csname @@end\endcsname\end
481 (/test3)
```

4 Installation

4.1 Download

Package. This package is available on CTAN¹:

CTAN:macros/latex/contrib/oberdiek/uniquecounter.dtx The source file.

CTAN:macros/latex/contrib/oberdiek/uniquecounter.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.

¹ http://ctan.org/pkg/uniquecounter

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
```

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 TFX:

```
tex uniquecounter.dtx
```

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

```
\begin{array}{lll} \mbox{uniquecounter.sty} & \rightarrow \mbox{tex/generic/oberdiek/uniquecounter.sty} \\ \mbox{uniquecounter.pdf} & \rightarrow \mbox{doc/latex/oberdiek/uniquecounter.pdf} \\ \mbox{uniquecounter-example.tex} & \rightarrow \mbox{doc/latex/oberdiek/uniquecounter-example.tex} \\ \mbox{test/uniquecounter-test1.tex} & \rightarrow \mbox{doc/latex/oberdiek/test/uniquecounter-test2.tex} \\ \mbox{test/uniquecounter-test2.tex} & \rightarrow \mbox{doc/latex/oberdiek/test/uniquecounter-test3.tex} \\ \mbox{uniquecounter-test3.tex} & \rightarrow \mbox{doc/latex/oberdiek/test/uniquecounter-test3.tex} \\ \mbox{uniquecounter-dtx} & \rightarrow \mbox{source/latex/oberdiek/uniquecounter.dtx} \end{array}
```

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_EX distribution (te T_EX , mik T_EX , ...) relies on file name databases, you must refresh these. For example, te T_EX users run texhash or mktexlsr.

4.5 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{uniquecounter.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 pdfIATEX:

```
pdflatex uniquecounter.dtx
makeindex -s gind.ist uniquecounter.idx
pdflatex uniquecounter.dtx
makeindex -s gind.ist uniquecounter.idx
pdflatex uniquecounter.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 uniquecounter.xml.

```
482 (*catalogue)
483 <?xml version='1.0' encoding='us-ascii'?>
484 <!DOCTYPE entry SYSTEM 'catalogue.dtd'>
485 <entry datestamp='$Date$' modifier='$Author$' id='uniquecounter'>
    <name>uniquecounter</name>
486
    <caption>Provides unlimited unique counter.</caption>
487
    <authorref id='auth:oberdiek'/>
488
    <copyright owner='Heiko Oberdiek' year='2009,2011'/>
489
    <license type='lppl1.3'/>
    <version number='1.3'/>
491
492
    <description>
      This package provides a kind of counter that provides unique
493
      number values. Several counters can be created with different names.
494
      The numeric values are not limited.
495
496
      <\a>>
497
      The package is part of the xref refid='oberdiek'>oberdiek</pref>
     bundle.
498
499 </description>
    <documentation details='Package documentation'</pre>
       href='ctan:/macros/latex/contrib/oberdiek/uniquecounter.pdf'/>
501
502 <ctan file='true' path='/macros/latex/contrib/oberdiek/uniquecounter.dtx'/>
503 <miktex location='oberdiek'/>
504 <texlive location='oberdiek'/>
505 <install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip'/>
506 </entry>
507 (/catalogue)
```

6 History

[2009/09/11 v1.0]

First public version.

[2009/12/18 v1.1]

• Bug fix in \UniqueCounterCall for values > 9 (bug report of Lev Bishop).

[2011/01/30 v1.2]

• Already loaded package files are not input in plain TeX.

$[2016/05/16\ v1.3]$

• Documentation updates.

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