## The rerunfilecheck package

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#### Abstract

The package provides additional rerun warnings if some auxiliary files have changed. It is based on MD5 checksum, provided by  $pdfT_EX$ .

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

#### 1 Documentation

LATEX informs the user, when to run LATEX again, if the references have changed. It has the old references from the first reading of the .aux files already in memory, thus it compares them with the new version of the .aux file at the end of the document. However this rerun warnings are not given for the table of contents and other data stored in the .aux files or other auxiliary files. Usually many of these data as the table of contents is not keep in memory. If someone wants to detect changes, he has either to keep the data in memory. This does not scale well with huge documents. Or he copies the file before they are changed. Slow I/O operations cost time.

Since version 1.30.0 pdfTEX provides \pdfmdfivesum and \pdffilesize. These features are also available in LuaTeX, provided by package pdftexcmds. Thus this package rerunfilecheck uses these features to detect file changes. This saves the packages from keeping the whole files in memory or in file copies. The drawback are different files with the same size and the same MD5 checksum (seldom, hopefully).

#### 1.1 Options

All options are key value options of boolean type. No option or true turns an option on, false disables an option.

mainaux: Check the main .aux file.

partaux: Check the .aux files from \include files.

**starttoc:** Add the rerun checks in \@starttoc that is called by \tableofcontents, \listoffigures, ...

index, glossary: IATEX's original \makeindex and \makeglossary are redefined to add the rerun checks. The options do not have an effect, if \makeindex/\makeglossary are already called or if a package or class had redefined or will redefine them.

aux: This option turns all previous options on or off. "aux" means auxiliary file.

The default for the options is **false**, because some internals must be redefined to insert the rerun checks. The options can be set in \usepackage or the configuration file rerunfilecheck.cfg. Global options are ignored (since 1.4).

#### \RerunFileCheckSetup $\{\langle key\ value\ list \rangle\}$

Options can also be set using \RerunFileCheckSetup. Currently all options are disabled after the package is loaded. Thus \RerunFileCheckSetup makes sense in the configuration file only.

Example for the configuration file:

- 1 (\*cfg)
- 2 \ProvidesFile{rerunfilecheck.cfg}[2016/05/16 Default configuration]%
- 3 \RerunFileCheckSetup{aux}
- 4 (/cfg)

#### 1.2 Interface for class/package authors

#### \RerunFileCheck $\{\langle file \rangle\}\ \{\langle file\ closing\ action \rangle\}\ \{\langle rerun\ warning \rangle\}$

If you want to add a rerun check, call  $\RerunFileCheck$  right before an output file is opened for writing. The macro first remembers the current checksum of  $\langle file \rangle$ . The file is checked again right before the end of the job. Macro  $\AtVeryEndDocument$  of package atveryend is used to place the check after the main aux file

is closed in \end{document}. Before reading the file again, it must be closed. Provide the code for closing in argument \( \file \text{closing action} \)\). Do not forget \improx mediate before \openout. Otherwise the closing action would be delayed to the next shipout that never happens (the last page is already shipped out). If the file has changed, \RerunFileCheck informs the user with a warning that the file has changed and says the magic word "Rerun". If the last argument \( \lambda \text{rerun warning} \rangle \) is not empty, then the rerun sentence is replaced by it. Usually the phrase "to get something right" is added. As example the relevant part of the redefined \makeindex is shown, see package code:

```
\newwrite\@indexfile
\RerunFileCheck{\jobname.idx}{%
  \immediate\closeout\@indexfile
}{%
  Rerun LaTeX/makeindex to get index right%
}%
\immediate\openout\@indexfile=\jobname.idx %
```

## 2 Implementation

```
5 (*package)
  6 \begingroup\catcode61\catcode48\catcode32=10\relax%
          \catcode13=5 % ^^M
          \endlinechar=13 %
          \catcode123=1 % {
         \catcode125=2 % }
10
          \catcode64=11 % @
11
          \def\x{\endgroup
              \expandafter\edef\csname ReFiCh@AtEnd\endcsname{%
13
14
                  \endlinechar=\the\endlinechar\relax
                  \catcode13=\the\catcode13\relax
15
                  \catcode32=\the\catcode32\relax
16
                  \catcode35=\the\catcode35\relax
17
                  \catcode61=\the\catcode61\relax
18
                  \catcode64=\the\catcode64\relax
19
20
                  \catcode123=\the\catcode123\relax
21
                  \color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\the\color=\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
22
              }%
23
         }%
24 \x\catcode61\catcode48\catcode32=10\relax%
25 \catcode13=5 % ^^M
26 \endlinechar=13 %
27 \catcode35=6 % #
28 \catcode64=11 % @
29 \catcode123=1 % {
30 \catcode125=2 % }
31 \def\TMP@EnsureCode#1#2{%
          \edef\ReFiCh@AtEnd{%
              \ReFiCh@AtEnd
33
34
              \catcode#1=\the\catcode#1\relax
35
         }%
         \color= 42\relax
36
37 }
38 \TMP@EnsureCode{39}{12}% '
39 \TMP@EnsureCode{40}{12}% (
40 \TMP@EnsureCode{41}{12}%)
41 \TMP@EnsureCode{42}{12}% *
42 \TMP@EnsureCode{44}{12}%,
43 \TMP@EnsureCode{46}{12}\% .
44 \TMP@EnsureCode{47}{12}% /
45 \TMP@EnsureCode{58}{12}%:
```

```
46 \TMP@EnsureCode{59}{12}%;
                         47 \TMP@EnsureCode{60}{12}% <
                         48 \TMP@EnsureCode{62}{12}% >
                         49 \TMP@EnsureCode{91}{12}% [
                         50 \TMP@EnsureCode{93}{12}% ]
                         51 \TMP@EnsureCode{96}{12}%
                         52 \edef\ReFiCh@AtEnd{\ReFiCh@AtEnd\noexpand\endinput}
                           Package identification.
                         53 \NeedsTeXFormat{LaTeX2e}
                         54 \ProvidesPackage{rerunfilecheck}%
                            [2016/05/16 v1.8 Rerun checks for auxiliary files (HO)]
                        2.1
                              Options
                         56 \RequirePackage{kvoptions}[2010/02/22]
                         57 \SetupKeyvalOptions{%
                         58 family=rerunfilecheck,%
                         59 prefix=ReFiCh@%
                         60 }
 \RerunFileCheckSetup
                         61 \newcommand*{\RerunFileCheckSetup}{%
                         62 \setkeys{rerunfilecheck}%
                         63 }
                         64 \DeclareBoolOption{mainaux}
                         65 \DeclareBoolOption{partaux}
                         66 \DeclareBoolOption{starttoc}
                         67 \DeclareBoolOption{index}
                         68 \DeclareBoolOption{glossary}
                         69 \define@key{rerunfilecheck}{aux}[true]{%
                         70 \RerunFileCheckSetup{%
                              mainaux={#1},%
                         71
                              partaux={#1},%
                         72
                             starttoc={#1},%
                         73
                         74
                              index = {\#1}, \%
                         75
                              glossary={#1}%
                         76 }%
                         77 }
                         78 \InputIfFileExists{rerunfilecheck.cfg}{}{}
                         79 \ProcessLocalKeyvalOptions*
\ReFiCh@DisableOption
                         80 \def\ReFiCh@DisableOption{%
                            \DisableKeyvalOption[%
                              action=warning,%
                         83
                              package=rerunfilecheck%
                         84 ]{rerunfilecheck}%
                         85 }
                        2.2
                              Check for checksum feature
                         86 \RequirePackage{infwarerr}[2007/09/09]
                         87 \RequirePackage{pdftexcmds}[2009/04/10]
                         88 \begingroup\expandafter\expandafter\expandafter\endgroup
                         89 \expandafter\ifx\csname pdf@filemdfivesum\endcsname\relax
                            \@PackageInfoNoLine{rerunfilecheck}{%
                         90
                              Feature \string\pdfmdfivesum\space is not available\MessageBreak
                         91
                              (e.g. pdfTeX or LuaTeX with package `pdftexcmds').\MessageBreak
                         92
                         93
                              Therefore file contents cannot be checked efficiently\MessageBreak
                              and the loading of the package is aborted \!\%
                         94
                         95 }%
```

```
96 \newcommand*{\RerunFileCheck}[3]{}%
97 \renewcommand*{\RerunFileCheckSetup}[1]{}%
98 \expandafter\ReFiCh@AtEnd
99 \fi%
```

#### 2.3 Standard .aux files

```
100 \ifReFiCh@partaux
    \let\ReFiCh@org@include\@include
    \def\@include\#1\ {\%}
102
      \if@filesw
103
       \RerunFileCheck{#1.aux}{}{}%
104
105
      \ReFiCh@org@include{#1} %
106
107 }%
108 \fi
109 \ifReFiCh@mainaux
110
    \AtBeginDocument{%
111
      \ReFiCh@mainauxfalse
112
    \ifReFiCh@mainaux
113
      \AtEndOfPackage{%
114
       \RerunFileCheck{\jobname.aux}{}{}
115
      }%
116
    \else
117
      \if@filesw
118
       \@PackageWarningNoLine{rerunfilecheck}{%
119
         Main aux file check is disabled,\MessageBreak
120
121
         because the file is already opened.\MessageBreak
122
         Load the package before \string\begin{document}%
123
       }%
124
      \fi
    \fi
125
126 \fi
127 \ifReFiCh@starttoc
    \let\ReFiCh@org@starttoc\@starttoc
128
    \def\@starttoc\#1{\%}
129
130
      \if@filesw
        \RerunFileCheck{\jobname.#1}{%
131
132
         \ensuremath{\texttt{@ifundefined}\{tf@\#1\}}{\%}
133
         }{%
           \immediate\closeout\csname tf@#1\endcsname
134
         }%
135
       }{}%
136
137
      \fi
      \ReFiCh@org@starttoc{#1}%
138
139 }%
140 \fi
141 \ifReFiCh@index
    \ifx\makeindex\@empty
143
      \@PackageWarningNoLine{rerunfilecheck}{%
144
       Option `index' ignored,\MessageBreak
       because \string\makeindex\space has already been called%
145
      }%
146
    \else
147
      \def\ReFiCh@temp{%
148
149
        \newwrite\@indexfile
        \immediate\openout\@indexfile=\jobname.idx %
150
       \def\index{\%}
151
         \@bsphack
152
153
         \begingroup
154
         \@sanitize
155
         \@wrindex
```

```
156
                  \typeout{Writing index file \jobname.idx}%
157
                  \let\makeindex\@empty
158
159
               160
161
                  \def\makeindex{%
162
                      \newwrite\@indexfile
163
                      \RerunFileCheck{\jobname.idx}{%
                         \immediate\closeout\@indexfile
164
                     }{%
165
                         Rerun LaTeX/makeindex to get index right%
166
                     }%
167
                      \immediate\openout\@indexfile=\jobname.idx %
168
                      \def\index{\%}
169
                         \@bsphack
170
171
                         \begingroup
172
                         \@sanitize
                         \@wrindex
173
174
175
                      \typeout{Writing index file \jobname.idx}%
                      \let\makeindex\@empty
176
                  }%
177
178
               \else
                  \@PackageInfoNoLine{rerunfilecheck}{%
179
                      Option `index': unsupported version of \string\makeindex
180
181
182
               \fi
           \fi
183
184 \fi
185 \ifReFiCh@glossary
           \ifx\makeglossary\@empty
186
187
               \@PackageWarningNoLine{rerunfilecheck}{%
188
                  Option `glossary' ignored,\MessageBreak
                  because \sqrt{\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\protect\norm{lenglossary}\prote
189
              }%
190
191
192
               \def\ReFiCh@temp{%
193
                  \newwrite\@glossaryfile
194
                  \immediate\openout\@glossaryfile=\jobname.glo %
195
                  \def\glossary{%
                     \@bsphack
196
197
                     \begingroup
                     \@sanitize
198
199
                      \@wrglossary
200
201
                  \typeout{Writing glossary file \jobname.glo }%
202
                  \let\makeglossary\@empty
203
               \ifx\ReFiCh@temp\makeglossary
204
205
                  \def\ReFiCh@temp{%
                      \newwrite\@glossaryfile
206
                      \RerunFileCheck{\jobname.glo}{%
207
                         \immediate\closeout\@glossaryfile
208
209
                     }{%
                         Rerun LaTeX/makeindex to get glossary right%
210
211
212
                      \immediate\openout\@glossaryfile=\jobname.glo %
213
                      \def\glossary{%
214
                         \@bsphack
215
                         \begingroup
                         \@sanitize
216
                         \@wrglossary
217
```

```
218
                                                                                  \typeout{Writing glossary file \jobname.glo}%
                                                             219
                                                                                  220
                                                             221
                                                             222
                                                             223
                                                                              \@PackageInfoNoLine{rerunfilecheck}{%
                                                             224
                                                                                  Option `glossary': unsupported version of \string\makeglossary
                                                             225
                                                                          \fi
                                                             226
                                                             227 \fi
                                                             228 \fi
                                                             229 \ReFiCh@DisableOption{mainaux}
                                                             230 \ReFiCh@DisableOption{partaux}
                                                             231 \ReFiCh@DisableOption{starttoc}
                                                             232 \ReFiCh@DisableOption{index}
                                                             233 \ReFiCh@DisableOption{glossary}
                                                             234 \ReFiCh@DisableOption{aux}
                                                             2.4 Rerun check
                                                             235 \RequirePackage{atveryend}[2016/05/16]
                                                             236 \RequirePackage{uniquecounter}[2009/12/18]
           \ReFiCh@CheckSum
                                                             237 \verb|\engroup\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\expandafter\expandafter\expandafter\expandafter\expandafter\expandafter\expandafter\expandafter\expandafter\expandafter\expandafter\expandafter\e
                                                             238 \expandafter\ifx\csname pdf@filesize\endcsname\relax
                                                             239 \def\ReFiCh@CheckSum\{\%
                                                                        \pdf@filemdfivesum
                                                             240
                                                             241 }%
                                                             242 \else
                                                             243 \def\ReFiCh@CheckSum#1{%
                                                                          \pdf@filemdfivesum{#1}%
                                                             245
                                                                          \ReFiCh@Separator
                                                             246
                                                                          \pdf@filesize{#1}%
                                                             247 }%
                                                             248 \fi
                    \ReFiCh@NoFile
                                                             249 \def\ReFiCh@Separator{;}
                    \ReFiCh@NoFile
                                                             250 \def\ReFiCh@NoFile{<no file>}
                                                             251 \UniqueCounterNew{rerunfilecheck}
                    \RerunFileCheck
                                                             252 \newcommand*{\RerunFileCheck}{%
                                                             253 \UniqueCounterCall{rerunfilecheck}\ReFiCh@RerunFileCheck
                                                             254 }
\ReFiCh@RerunFileCheck
                                                             255 \def\ReFiCh@RerunFileCheck#1{%
                                                                       \expandafter\ReFiCh@@RerunFileCheck\csname ReFiCh@#1\endcsname
                                                             257 }
                     \ReFiCh@Check
                                                             258 \def\ReFiCh@Check#1#2#3\%
                                                             259 % \IfFileExists{#3}{%
                                                                          #1\edef#2{\ReFiCh@CheckSum{#3}}%
                                                             260
                                                             261
                                                                           \ifx#2\ReFiCh@Separator
                                                                              #1\let#2\ReFiCh@NoFile
                                                             263
                                                                          \fi
                                                             264 % }{%
```

```
265 % #1\let#2\ReFiCh@NoFile
266 % }%
267 }
```

#### \ReFiCh@@RerunFileCheck

```
268 \def\ReFiCh@@RerunFileCheck#1#2#3#4{%
           \AtEndAfterFileList{%
270
271
               \begingroup
272
                   #3%
273
                   \ReFiCh@Check{}\x{\#2}\%
274
                   \int x#1\x
                      275
                         File `#2' has not changed.\MessageBreak
276
                         Checksum: \x
277
                     ት%
278
                   \else
279
                      \ifnum
280
                          \ReFiCh@IsAux#2\relax.aux\relax\@nil
281
                          \ifx#1\ReFiCh@NoFile 1\else 0\fi
282
                          \ifx\x\ReFiCh@AuxEmptyUnix 1%
283
284
285
                             \ifx\x\ReFiCh@AuxEmptyDos 1\fi
286
                          \fi
287
                      =111 %
                         \verb|\OPackageInfoNoLine{rerunfilecheck}| \{ \% | \} 
288
                             File \#2' is empty .aux file.MessageBreak
289
                             Before: #1\MessageBreak
290
                             After: \space\x
291
                         }%
292
                      \else
293
                          \@PackageWarningNoLine{rerunfilecheck}{%
294
295
                             File `#2' has changed.%
                             \ifx\\#4\\%
296
297
                                 \space Rerun%
                              \else
298
                                 \MessageBreak
299
                                 #4%
300
301
                             \fi
                         }%
302
                          \@PackageInfoNoLine{rerunfilecheck}{%
303
                             Checksums for `#2':\MessageBreak
304
305
                             Before: #1\MessageBreak
306
                             After: \space\x
307
                         }%
308
                      \fi
                   \fi
309
310
               \endgroup
311
          }%
312 }
313 \def\ReFiCh@IsAux#1.aux\relax#2\@nil{%
314 \ifx\hbox#2\hbox
315
              0%
316
           \else
317
              1%
318 \fi
320 \ensuremath{\mbox{\mbox{$\mbox{$}}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbox{\mbox{\mbox{$}}\mbo
321 \@onelevel@sanitize\ReFiCh@AuxEmptyUnix
322 \def\ReFiCh@AuxEmptyDos{A62A15ECE803E2EBE94952FCC9933BC0;9}%
323 \@onelevel@sanitize\ReFiCh@AuxEmptyDos
```

```
324 \ReFiCh@AtEnd% 325 \langle /package \rangle
```

#### 3 Test

## 3.1 Catcode checks for loading

```
329 (*test1)
330 \catcode`\{=1 \%
331 \catcode`\}=2 %
332 \catcode`\#=6 %
333 \catcode`\@=11 %
334 \expandafter\ifx\csname count@\endcsname\relax
335 \countdef\count@=255 \%
336 \fi
337 \expandafter\ifx\csname @gobble\endcsname\relax
338 \long\def\@gobble#1{}\%
340 \exp and after ifx \csname 
341 \log\left(\frac{41}{\pi}\right)
342 \fi
343 \expandafter\ifx\csname loop\endcsname\relax
344 \expandafter\@firstofone
345 \ensuremath{\setminus} else
346 \expandafter\@gobble
347 \fi
348 {%
349
              \def\loop#1\repeat{%
350
                  \def\body{#1}%
351
                  \iterate
352 }%
              \def\iterate{%
353
                  \body
354
                       \let\next\iterate
355
356
                  \else
                       \let\next\relax
357
                  \fi
358
                  \next
359
360 }%
361 \ \text{let}\peat=\fi
362 }%
363 \def\RestoreCatcodes{}
364 \count@=0 %
365 \loop
              \edef\RestoreCatcodes{%
366
                   \RestoreCatcodes
367
                   \catcode\the\count@=\the\catcode\count@\relax
368
369 }%
370 \ifnum\count@<255 \%
371 \advance\count@ 1 %
372 \repeat
373
374 \def\RangeCatcodeInvalid#1#2\%
375 \count@=#1\relax
              \loop
376
                 \catcode\count@=15 %
377
378 \ifnum\count@<#2\relax
                  \advance\count@ 1 %
```

```
\repeat
380
381 }
382 \def\RangeCatcodeCheck#1#2#3{%
    \c =#1\relax
383
385
      \ifnum#3=\catcode\count@
386
      \else
387
       \errmessage{%
        Character \the\count@\space
388
        with wrong catcode \the\catcode\count@\space
389
        instead of \number#3%
390
      }%
391
392
     \fi
    \index(0) = \frac{2\pi}{2}
393
      \advance\count@ 1 %
394
    \repeat
395
396 }
397 \def\space{ }
398 \expandafter\ifx\csname LoadCommand\endcsname\relax
399
    400 \fi
401 \def\Test{%
    \RangeCatcodeInvalid{0}{47}%
402
    \RangeCatcodeInvalid{58}{64}%
403
    \RangeCatcodeInvalid{91}{96}%
404
    \RangeCatcodeInvalid{123}{255}%
405
406
    \catcode`\@=12 %
    \color=0 \%
407
    \catcode`\%=14 %
408
409
    \LoadCommand
    \RangeCatcodeCheck{0}{36}{15}%
410
    \RangeCatcodeCheck{37}{37}{14}%
411
412
    \RangeCatcodeCheck{38}{47}{15}%
413
    \RangeCatcodeCheck{48}{57}{12}%
    \RangeCatcodeCheck{58}{63}{15}%
414
415
    \RangeCatcodeCheck{64}{64}{12}%
    \RangeCatcodeCheck{65}{90}{11}%
417 \RangeCatcodeCheck{91}{91}{15}%
418
    \RangeCatcodeCheck{92}{92}{0}%
419
    \RangeCatcodeCheck{93}{96}{15}%
    \RangeCatcodeCheck{97}{122}{11}\%
420
    \verb|\RangeCatcodeCheck{123}{255}{15}|%
421
    \RestoreCatcodes
422
423 }
424 \Test
425 \csname @@end\endcsname
426 \end
427 \langle / \text{test1} \rangle
```

#### 4 Installation

#### 4.1 Download

Package. This package is available on CTAN<sup>1</sup>:

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

CTAN:macros/latex/contrib/oberdiek/rerunfilecheck.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 docu-

<sup>&</sup>lt;sup>1</sup>http://ctan.org/pkg/rerunfilecheck

mentation 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
```

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 rerunfilecheck.dtx
```

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

```
\begin{tabular}{ll} rerunfilecheck.sty & $\to$ tex/latex/oberdiek/rerunfilecheck.sty \\ rerunfilecheck.pdf & $\to$ doc/latex/oberdiek/rerunfilecheck.pdf \\ rerunfilecheck-example.cfg & $\to$ doc/latex/oberdiek/rerunfilecheck-example.cfg \\ test/rerunfilecheck-test1.tex & $\to$ doc/latex/oberdiek/rerunfilecheck-test1.tex \\ rerunfilecheck.dtx & $\to$ source/latex/oberdiek/rerunfilecheck.dtx \\ \end{tabular}
```

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

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

plain T<sub>E</sub>X: 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{rerunfilecheck.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 rerunfilecheck.dtx
makeindex -s gind.ist rerunfilecheck.idx
pdflatex rerunfilecheck.dtx
makeindex -s gind.ist rerunfilecheck.idx
pdflatex rerunfilecheck.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 rerunfilecheck.xml.

```
428 (*catalogue)
429 <?xml version='1.0' encoding='us-ascii'?>
430 <!DOCTYPE entry SYSTEM 'catalogue.dtd'>
431 <entry datestamp='$Date$' modifier='$Author$' id='rerunfilecheck'>
    <name>rerunfilecheck</name>
432
    <caption>Checksum based rerun checks on auxiliary files.
433
    <authorref id='auth:oberdiek'/>
434
    <copyright owner='Heiko Oberdiek' year='2009-2011'/>
435
    <license type='lppl1.3'/>
436
    <version number='1.8'/>
437
438
    <description>
      The package provides additional rerun warnings if some
439
      auxiliary files have changed. It is based on MD5 checksum,
440
      provided by pdfTeX.
441
442
      <\a/><
      The package is part of the xref refid='oberdiek'>oberdiek> bundle.
443
444 </description>
445 <documentation details='Package documentation'
       href='ctan:/macros/latex/contrib/oberdiek/rerunfilecheck.pdf'/>
447 <ctan file='true' path='/macros/latex/contrib/oberdiek/rerunfilecheck.dtx'/>
448 <miktex location='oberdiek'/>
449 <texlive location='oberdiek'/>
450 <install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip'/>
451 </entry>
452 (/catalogue)
```

## 6 History

```
[2009/12/10 \text{ v}1.0]
```

• The first version.

## [2009/12/12 v1.1]

• Short info shortened.

#### [2009/12/18 v1.2]

• Required date for package unique counter updated because of bug in this package.

## [2010/01/25 v1.3]

• Moved from TDS:\*/generic/\* to TDS:\*/latex/\*.

## [2010/02/22 v1.4]

• The options of this package are recognized only if they are package options. Global options are ignored. This avoids name clashes with class and other package options (for example, class option 'index=totoc').

## [2010/03/15 v1.5]

• Call of \pdffivesum is wrapped in \IfFileExists to avoid calls of mktextex if this feature is enabled. However \IfFileExists has file name limitations.

## [2010/03/16 v1.6]

 Reverted to version 1.4 and \IfFileExists wrapper of version 1.5 is removed.

## [2011/04/15 v1.7]

• Using \AtEndAfterFileList of package atveryend 2011/04/15 v1.6 instead of \AtVeryEndDocument.

## [2016/05/16 v1.8]

• Documentation updates.

### 7 Index

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