

# The pdftexcmds package

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## Abstract

LuaTeX provides most of the commands of pdfTeX 1.40. However a number of utility functions are removed. This package tries to fill the gap and implements some of the missing primitive using Lua.

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

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## 1 Documentation

Some primitives of pdfTeX [[pdftex-manual](#)] are not defined by LuaTeX [[luatex-manual](#)]. This package implements macro based solutions using Lua code for the following missing pdfTeX primitives;

- `\pdfstrcmp`
- `\pdfunescapehex`
- `\pdfescapehex`

- `\pdfescapename`
- `\pdfescapestring`
- `\pdffilesize`
- `\pdffilemoddate`
- `\pdffiledump`
- `\pdfmdfivesum`
- `\pdfresettimer`
- `\pdfelapsedtime`
- `\immediate\write18`

The original names of the primitives cannot be used:

- The syntax for their arguments cannot easily simulated by macros. The primitives using key words such as `file` (`\pdfmdfivesum`) or `offset` and `length` (`\pdffiledump`) and uses  $\langle general\ text \rangle$  for the other arguments. Using token registers assignments,  $\langle general\ text \rangle$  could be caught. However, the simulated primitives are expandable and register assignments would destroy this important property. ( $\langle general\ text \rangle$  allows something like `\expandafter\bgroup ...`.)
- The original primitives can be expanded using one expansion step. The new macros need two expansion steps because of the additional macro expansion. Example:

```
\expandafter\foo\pdffilemoddate{file}
vs.
\expandafter\expandafter\expandafter
\foo\pdf@filemoddate{file}
```

LuaTeX isn't stable yet and thus the status of this package is *experimental*. Feedback is welcome.

## 1.1 General principles

**Naming convention:** Usually this package defines a macro `\pdf@ $\langle cmd \rangle$`  if pdfTeX provides `\pdf $\langle cmd \rangle$` .

**Arguments:** The order of arguments in `\pdf@ $\langle cmd \rangle$`  is the same as for the corresponding primitive of pdfTeX. The arguments are ordinary undelimited TeX arguments, no  $\langle general\ text \rangle$  and without additional keywords.

**Expandibility:** The macro `\pdf@ $\langle cmd \rangle$`  is expandable if the corresponding pdfTeX primitive has this property. Exact two expansion steps are necessary (first is the macro expansion) except for `\pdf@primitive` and `\pdf@ifprimitive`. The latter ones are not macros, but have the direct meaning of the primitive.

**Without LuaTeX:** The macros `\pdf@ $\langle cmd \rangle$`  are mapped to the commands of pdfTeX if they are available. Otherwise they are undefined.

**Availability:** The macros that the packages provides are undefined, if the necessary primitives are not found and cannot be implemented by Lua.

## 1.2 Macros

### 1.2.1 Strings [pdfTeX-manual]

<code>\pdf@strcmp {<math>\langle stringA \rangle</math>} {<math>\langle stringB \rangle</math>}</code>
--

Same as `\pdfstrcmp{ $\langle stringA \rangle$ }{ $\langle stringB \rangle$ }`.

`\pdf@unescapehex {⟨string⟩}`

Same as `\pdfunescapehex{⟨string⟩}`. The argument is a byte string given in hexadecimal notation. The result are character tokens from 0 until 255 with catcode 12 and the space with catcode 10.

`\pdf@escapehex {⟨string⟩}`  
`\pdf@escapestring {⟨string⟩}`  
`\pdf@escapename {⟨string⟩}`

Same as the primitives of pdfTeX. However pdfTeX does not know about characters with codes 256 and larger. Thus the string is treated as byte string, characters with more than eight bits are ignored.

### 1.2.2 Files [pdftex-manual]

`\pdf@filesize {⟨filename⟩}`

Same as `\pdffilesize{⟨filename⟩}`.

`\pdf@filemoddate {⟨filename⟩}`

Same as `\pdffilemoddate{⟨filename⟩}`.

`\pdf@filedump {⟨offset⟩} {⟨length⟩} {⟨filename⟩}`

Same as `\pdffiledump offset ⟨offset⟩ length ⟨length⟩ {⟨filename⟩}`. Both `⟨offset⟩` and `⟨length⟩` must not be empty, but must be a valid TeX number.

`\pdf@mdfivesum {⟨string⟩}`

Same as `\pdfmdfivesum{⟨string⟩}`. Keyword `file` is supported by macro `\pdf@filemdfivesum`.

`\pdf@filemdfivesum {⟨filename⟩}`

Same as `\pdfmdfivesum file{⟨filename⟩}`.

### 1.2.3 Timekeeping [pdftex-manual]

The timekeeping macros are based on Andy Thomas' work [**AndyThomas:Analog**].

`\pdf@resettimer`

Same as `\pdfresettimer`, it resets the internal timer.

`\pdf@elapsedtime`

Same as `\pdfelapsedtime`. It behaves like a read-only integer. For printing purposes it can be prefixed by `\the` or `\number`. It measures the time in scaled seconds (seconds multiplied with 65536) since the latest call of `\pdf@resettimer` or start of program/package. The resolution, the shortest time interval that can be measured, depends on the program and system.

- pdfTeX with `gettimeofday`:  $\geq 1/65536$  s

- pdfTeX with `ftime`:  $\geq 1$  ms
- pdfTeX with `time`:  $\geq 1$  s
- LuaTeX:  $\geq 10$  ms  
(`os.clock()` returns a float number with two decimal digits in LuaTeX beta-0.70.1-2011061416 (rev 4277)).

#### 1.2.4 Miscellaneous [pdfTeX-manual]

`\pdf@draftmode`

If the TeX compiler knows `\pdfdraftmode` or `\draftmode` (pdfTeX, LuaTeX), then `\pdf@draftmode` returns, whether this mode is enabled. The result is an implicit number: one means the draft mode is available and enabled. If the value is zero, then the mode is not active or `\pdfdraftmode` is not available. An explicit number is yielded by `\number\pdf@draftmode`. The macro cannot be used to change the mode, see `\pdf@setdraftmode`.

`\pdf@ifdraftmode {<true>} {<false>}`

If `\pdfdraftmode` is available and enabled, `<true>` is called, otherwise `<false>` is executed.

`\pdf@setdraftmode {<value>}`

Macro `\pdf@setdraftmode` expects the number zero or one as `<value>`. Zero deactivates the mode and one enables the draft mode. The macro does not have an effect, if the feature `\pdfdraftmode` is not available.

`\pdf@shellescape`

Same as `\pdfshellescape`. It is or expands to 1 if external commands can be executed and 0 otherwise. In pdfTeX external commands must be enabled first by command line option or configuration option. In LuaTeX option `--safer` disables the execution of external commands.

In LuaTeX before 0.68.0 `\pdf@shellescape` is not available due to a bug in `os.execute()`. The argumentless form crashes in some circumstances with segmentation fault. (It is fixed in version 0.68.0 or revision 4167 of LuaTeX. and packported to some version of 0.67.0).

Hints for usage:

- Before its use `\pdf@shellescape` should be tested, whether it is available. Example with package `ltxcmds` (loaded by package `pdftexcmds`):

```
\ltx@ifundefined{pdf@shellescape}{%
  % \pdf@shellescape is undefined
}{%
  % \pdf@shellescape is available
}
```

Use `\ltx@ifundefined` in expandable contexts.

- `\pdf@shellescape` might be a numerical constant, expands to the primitive, or expands to a plain number. Therefore use it in contexts where these differences does not matter.
- Use in comparisons, e.g.:

`\ifnum\pdf@shellescape=0 ...`

- Print the number: `\number\pdf@shellescape`

`\pdf@system {<cmdline>}`

It is a wrapper for `\immediate\write18` in pdfTeX or `os.execute` in LuaTeX.

In theory `os.execute` returns a status number. But its meaning is quite undefined. Are there some reliable properties? Does it make sense to provide an user interface to this status exit code?

`\pdf@primitive \cmd`

Same as `\pdfprimitive` in pdfTeX or LuaTeX. In XeTeX the primitive is called `\primitive`. Despite the current definition of the command `\cmd`, it's meaning as primitive is used.

`\pdf@ifprimitive \cmd`

Same as `\ifpdfprimitive` in pdfTeX or LuaTeX. XeTeX calls it `\ifprimitive`. It is a switch that checks if the command `\cmd` has it's primitive meaning.

### 1.2.5 Additional macro: `\pdf@isprimitive`

`\pdf@isprimitive \cmd1 \cmd2 {<true>} {<false>}`

If `\cmd1` has the primitive meaning given by the primitive name of `\cmd2`, then the argument `<true>` is executed, otherwise `<false>`. The macro `\pdf@isprimitive` is expandable. Internally it checks the result of `\meaning` and is therefore available for all TeX variants, even the original TeX. Example with L<sup>A</sup>TeX:

```
\makeatletter
\pdf@isprimitive{@@input}{input}{%
  \typeout{\string\@@input\space is original\string\input}%
}{%
  \typeout{Oops, \string\@@input\space is not the %
    original\string\input}%
}
```

### 1.2.6 Experimental

`\pdf@unescapehexnative {<string>}`  
`\pdf@escapehexnative {<string>}`  
`\pdf@escapenamenative {<string>}`  
`\pdf@mdfivesumnative {<string>}`

The variants without **native** in the macro name are supposed to be compatible with pdfTeX. However characters with more than eight bits are not supported and are ignored. If LuaTeX is running, then its UTF-8 coded strings are used. Thus the full unicode character range is supported. However the result differs from pdfTeX for characters with eight or more bits.

`\pdf@pipe {<cmdline>}`

It calls `<cmdline>` and returns the output of the external program in the usual manner as byte string (catcode 12, space with catcode 10). The Lua documen-

tation says, that the used `io.popen` may not be available on all platforms. Then macro `\pdf@pipe` is undefined.

## 2 Implementation

```
1 \langle *package \rangle
```

### 2.1 Reload check and package identification

Reload check, especially if the package is not used with L<sup>A</sup>T<sub>E</sub>X.

```
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@pdftexcmds.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{pdftexcmds}{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@pdftexcmds.sty\endcsname
67 \ProvidesPackage{pdftexcmds}%
68 [2019/07/25 v0.30 Utility functions of pdfTeX for LuaTeX (HO)]%

```

## 2.2 Catcodes

```

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 pdftexcmds@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\pdftexcmds@AtEnd{%
96 \pdftexcmds@AtEnd
97 \catcode#1=\the\catcode#1\relax
98 }%
99 \catcode#1=#2\relax
100 }
101 \TMP@EnsureCode{0}{12}%
102 \TMP@EnsureCode{1}{12}%
103 \TMP@EnsureCode{2}{12}%
104 \TMP@EnsureCode{10}{12}% ^^J
105 \TMP@EnsureCode{33}{12}% !
106 \TMP@EnsureCode{34}{12}% "
107 \TMP@EnsureCode{38}{4}% &
108 \TMP@EnsureCode{39}{12}% '
109 \TMP@EnsureCode{40}{12}% (
110 \TMP@EnsureCode{41}{12}% )

```



```

111 \TMP@EnsureCode{42}{12}% *
112 \TMP@EnsureCode{43}{12}% +
113 \TMP@EnsureCode{44}{12}% ,
114 \TMP@EnsureCode{45}{12}% -
115 \TMP@EnsureCode{46}{12}% .
116 \TMP@EnsureCode{47}{12}% /
117 \TMP@EnsureCode{58}{12}% :
118 \TMP@EnsureCode{60}{12}% <
119 \TMP@EnsureCode{62}{12}% >
120 \TMP@EnsureCode{91}{12}% [
121 \TMP@EnsureCode{93}{12}% ]
122 \TMP@EnsureCode{94}{7}% ^ (superscript)
123 \TMP@EnsureCode{95}{12}% _ (other)
124 \TMP@EnsureCode{96}{12}% `
125 \TMP@EnsureCode{126}{12}% ~ (other)
126 \edef\pdf texcmds@AtEnd{%
127   \pdf texcmds@AtEnd
128   \escapechar=\number\escapechar\relax
129   \noexpand\endinput
130 }
131 \escapechar=92 %

```

## 2.3 Load packages

```

132 \begingroup\expandafter\expandafter\expandafter\endgroup
133 \expandafter\ifx\csname RequirePackage\endcsname\relax
134   \def\TMP@RequirePackage#1[#2]{%
135     \begingroup\expandafter\expandafter\expandafter\endgroup
136     \expandafter\ifx\csname ver@#1.sty\endcsname\relax
137       \input #1.sty\relax
138     \fi
139   }%
140   \TMP@RequirePackage{infwarerr}[2007/09/09]%
141   \TMP@RequirePackage{ifluatex}[2010/03/01]%
142   \TMP@RequirePackage{ltxcmds}[2010/12/02]%
143   \TMP@RequirePackage{ifpdf}[2010/09/13]%
144 \else
145   \RequirePackage{infwarerr}[2007/09/09]%
146   \RequirePackage{ifluatex}[2010/03/01]%
147   \RequirePackage{ltxcmds}[2010/12/02]%
148   \RequirePackage{ifpdf}[2010/09/13]%
149 \fi

```

## 2.4 Without LuaTeX

```

150 \ifluatex
151 \else
152   \@PackageInfoNoLine{pdf texcmds}{LuaTeX not detected}%
153   \def\pdf texcmds@nopdftex{%
154     \@PackageInfoNoLine{pdf texcmds}{pdfTeX >= 1.30 not detected}%
155     \let\pdf texcmds@nopdftex\relax
156   }%
157   \def\pdf texcmds@temp#1{%
158     \begingroup\expandafter\expandafter\expandafter\endgroup
159     \expandafter\ifx\csname pdf#1\endcsname\relax
160       \pdf texcmds@nopdftex
161     \else
162       \expandafter\def\csname pdf@#1\endcsname
163       \expandafter##\expandafter{%
164         \csname pdf#1\endcsname
165       }%
166     \fi
167   }%
168   \pdf texcmds@temp{strcmp}%

```

```

169 \pdfTexcmds@temp{escapehex}%
170 \let\pdf@escapehexnative\pdf@escapehex
171 \pdfTexcmds@temp{unescapehex}%
172 \let\pdf@unescapehexnative\pdf@unescapehex
173 \pdfTexcmds@temp{escapestring}%
174 \pdfTexcmds@temp{escapename}%
175 \pdfTexcmds@temp{filesize}%
176 \pdfTexcmds@temp{filemoddate}%
177 \beginGroup\expandAfter\expandAfter\expandAfter\endGroup
178 \expandAfter\ifx\csname pdfshellescape\endcsname\relax
179 \pdfTexcmds@nopdftex
180 \ltx@ifundefined{pdftexversion}{%
181 }{%
182 \ifnum\pdftexversion>120 % 1.21a supports \ifeof18
183 \ifeof18 %
184 \chardef\pdf@shellescape=0 %
185 \else
186 \chardef\pdf@shellescape=1 %
187 \fi
188 \fi
189 }%
190 \else
191 \def\pdf@shellescape{%
192 \pdfshellescape
193 }%
194 \fi
195 \beginGroup\expandAfter\expandAfter\expandAfter\endGroup
196 \expandAfter\ifx\csname pdffiledump\endcsname\relax
197 \pdfTexcmds@nopdftex
198 \else
199 \def\pdf@filedump#1#2#3{%
200 \pdffiledump offset#1 length#2{#3}%
201 }%
202 \fi
203 \beginGroup\expandAfter\expandAfter\expandAfter\endGroup
204 \expandAfter\ifx\csname pdfmdfivesum\endcsname\relax
205 \beginGroup\expandAfter\expandAfter\expandAfter\endGroup
206 \expandAfter\ifx\csname mdfivesum\endcsname\relax
207 \pdfTexcmds@nopdftex
208 \else
209 \def\pdf@mdfivesum#{\mdfivesum}%
210 \let\pdf@mdfivesumnative\pdf@mdfivesum
211 \def\pdf@filemdfivesum#{\mdfivesum file}%
212 \fi
213 \else
214 \def\pdf@mdfivesum#{\pdfmdfivesum}%
215 \let\pdf@mdfivesumnative\pdf@mdfivesum
216 \def\pdf@filemdfivesum#{\pdfmdfivesum file}%
217 \fi
218 \def\pdf@system#{%
219 \immediate\write18%
220 }%
221 \def\pdfTexcmds@temp#1{%
222 \beginGroup\expandAfter\expandAfter\expandAfter\endGroup
223 \expandAfter\ifx\csname pdf#1\endcsname\relax
224 \pdfTexcmds@nopdftex
225 \else
226 \expandAfter\let\csname pdf@#1\endcsname
227 \csname pdf#1\endcsname
228 \fi
229 }%
230 \pdfTexcmds@temp{resettimer}%

```

```

231 \pdf texcmds@temp{elapsedtime}%
232 \fi

```

## 2.5 \pdf@primitive, \pdf@ifprimitive

Since version 1.40.0 pdfTeX has \pdfprimitive and \ifpdfprimitive. And \pdfprimitive was fixed in version 1.40.4.

X<sub>Y</sub>TeX provides them under the name \primitive and \ifprimitive. LuaTeX knows both name variants, but they have possibly to be enabled first (tex.enableprimitives).

Depending on the format TeX Live uses a prefix luatex.

Caution: \let must be used for the definition of the macros, especially because of \ifpdfprimitive.

### 2.5.1 Using LuaTeX's tex.enableprimitives

```

233 \ifluatex

\pdf texcmds@directlua

234 \ifnum\luatexversion<36 %
235   \def\pdf texcmds@directlua{\directlua0 }%
236 \else
237   \let\pdf texcmds@directlua\directlua
238 \fi

239 \begingroup
240   \newlinechar=10 %
241   \endlinechar=\newlinechar
242   \pdf texcmds@directlua{%
243     if tex.enableprimitives then
244       tex.enableprimitives(
245         'pdf@',
246         {'primitive', 'ifprimitive', 'pdfdraftmode','draftmode'}
247       )
248       tex.enableprimitives('',{luaescapestring'})
249     end
250   }%
251 \endgroup %

252 \fi

```

### 2.5.2 Trying various names to find the primitives

```

\pdf texcmds@strip@prefix

253 \def\pdf texcmds@strip@prefix#1>{}

254 \def\pdf texcmds@temp#1#2#3{%
255   \begingroup\expandafter\expandafter\expandafter\endgroup
256   \expandafter\ifx\csname pdf@#1\endcsname\relax
257     \begingroup
258       \def\x{#3}%
259       \edef\x{\expandafter\pdf texcmds@strip@prefix\meaning\x}%
260       \escapechar=-1 %
261       \edef\y{\expandafter\meaning\csname#2\endcsname}%
262       \expandafter\endgroup
263       \ifx\x\y
264         \expandafter\let\csname pdf@#1\expandafter\endcsname
265         \csname #2\endcsname
266       \fi
267     \fi
268 }

```

\pdf@primitive

```

269 \pdfTexcmds@temp{primitive}{pdfprimitive}{pdfprimitive}% pdfTeX, oldLuaTeX
270 \pdfTexcmds@temp{primitive}{primitive}{primitive}% XeTeX, luatex
271 \pdfTexcmds@temp{primitive}{luatexpprimitive}{pdfprimitive}% oldLuaTeX
272 \pdfTexcmds@temp{primitive}{luatexpdfprimitive}{pdfprimitive}% oldLuaTeX

```

\pdf@ifprimitive

```

273 \pdfTexcmds@temp{ifprimitive}{ifpdfprimitive}{ifpdfprimitive}% pdfTeX, oldLu-
    aTeX
274 \pdfTexcmds@temp{ifprimitive}{ifprimitive}{ifprimitive}% XeTeX, luatex
275 \pdfTexcmds@temp{ifprimitive}{luatexpifprimitive}{ifpdfprimitive}% oldLuaTeX
276 \pdfTexcmds@temp{ifprimitive}{luatexpdfprimitive}{ifpdfprimitive}% oldLuaTeX

```

Disable broken \pdfprimitive.

```

277 \ifluatex\else
278 \begingroup
279 \expandafter\ifx\csname pdf@primitive\endcsname\relax
280 \else
281 \expandafter\ifx\csname pdftexversion\endcsname\relax
282 \else
283 \ifnum\pdftexversion=140 %
284 \expandafter\ifx\csname pdftexrevision\endcsname\relax
285 \else
286 \ifnum\pdftexrevision<4 %
287 \endgroup
288 \let\pdf@primitive\@undefined
289 \@PackageInfoNoLine{pdftexcmds}{%
290 \string\pdf@primitive\space disabled, %
291 because\MessageBreak
292 \string\pdfprimitive\space is broken until pdfTeX 1.40.4%
293 }%
294 \begingroup
295 \fi
296 \fi
297 \fi
298 \fi
299 \fi
300 \endgroup
301 \fi

```

### 2.5.3 Result

```

302 \begingroup
303 \@PackageInfoNoLine{pdftexcmds}{%
304 \string\pdf@primitive\space is %
305 \expandafter\ifx\csname pdf@primitive\endcsname\relax not \fi
306 available%
307 }%
308 \@PackageInfoNoLine{pdftexcmds}{%
309 \string\pdf@ifprimitive\space is %
310 \expandafter\ifx\csname pdf@ifprimitive\endcsname\relax not \fi
311 available%
312 }%
313 \endgroup

```

## 2.6 X<sub>Y</sub>TeX

Look for primitives \shellescape, \stricmp.

```

314 \def\pdfTexcmds@temp#1{%
315 \begingroup\expandafter\expandafter\expandafter\endgroup
316 \expandafter\ifx\csname pdf@#1\endcsname\relax
317 \begingroup
318 \escapechar=-1 %
319 \edef\x{\expandafter\meaning\csname#1\endcsname}%

```

```

320 \def\y{#1}%
321 \def\z##1->{}%
322 \edef\y{\expandafter\z\meaning\y}%
323 \expandafter\endgroup
324 \ifx\x\y
325 \expandafter\def\csname pdf@#1\expandafter\endcsname
326 \expandafter{%
327 \csname#1\endcsname
328 }%
329 \fi
330 \fi
331 }%
332 \pdfTexcmds@temp{shellescape}%
333 \pdfTexcmds@temp{strcmp}%

```

## 2.7 \pdf@isprimitive

```

334 \def\pdf@isprimitive{%
335 \begingroup\expandafter\expandafter\expandafter\endgroup
336 \expandafter\ifx\csname pdf@strcmp\endcsname\relax
337 \long\def\pdf@isprimitive##1{%
338 \expandafter\pdfTexcmds@isprimitive\expandafter{\meaning##1}%
339 }%
340 \long\def\pdfTexcmds@isprimitive##1##2{%
341 \expandafter\pdfTexcmds@@isprimitive\expandafter{\string##2}{##1}%
342 }%
343 \def\pdfTexcmds@@isprimitive##1##2{%
344 \ifnum0\pdfTexcmds@equal##1\delimiter##2\delimiter=1 %
345 \expandafter\ltx@firstoftwo
346 \else
347 \expandafter\ltx@secondoftwo
348 \fi
349 }%
350 \def\pdfTexcmds@equal##1##2\delimiter##3##4\delimiter{%
351 \ifx##1##3%
352 \ifx\relax##2##4\relax
353 1%
354 \else
355 \ifx\relax##2\relax
356 \else
357 \ifx\relax##4\relax
358 \else
359 \pdfTexcmds@equalcont{##2}{##4}%
360 \fi
361 \fi
362 \fi
363 \fi
364 }%
365 \def\pdfTexcmds@equalcont##1{%
366 \def\pdfTexcmds@equalcont####1####2##1##1##1##1{%
367 ##1##1##1##1%
368 \pdfTexcmds@equal####1\delimiter####2\delimiter
369 }%
370 }%
371 \expandafter\pdfTexcmds@equalcont\csname fi\endcsname
372 \else
373 \long\def\pdf@isprimitive##1##2{%
374 \ifnum\pdf@strcmp{\meaning##1}{\string##2}=0 %
375 \expandafter\ltx@firstoftwo
376 \else
377 \expandafter\ltx@secondoftwo
378 \fi

```

```

379 }%
380 \fi
381 }
382 \ifluatex
383 \ifx\pdfdraftmode\@undefined
384 \let\pdfdraftmode\draftmode
385 \fi
386 \else
387 \pdf@isprimitive
388 \fi

```

## 2.8 \pdf@draftmode

```

389 \let\pdftexcmds@temp\ltx@zero %
390 \ltx@ifUndefined{pdfdraftmode}{%
391 \@PackageInfoNoLine{pdftexcmds}{\ltx@backslashchar pdfdraftmode not found}%
392 }{%
393 \ifpdf
394 \let\pdftexcmds@temp\ltx@one
395 \@PackageInfoNoLine{pdftexcmds}{\ltx@backslashchar pdfdraftmode found}%
396 \else
397 \@PackageInfoNoLine{pdftexcmds}{%
398 \ltx@backslashchar pdfdraftmode is ignored in DVI mode%
399 }%
400 \fi
401 }
402 \ifcase\pdftexcmds@temp

```

\pdf@draftmode

```
403 \let\pdf@draftmode\ltx@zero
```

\pdf@ifdraftmode

```
404 \let\pdf@ifdraftmode\ltx@secondoftwo
```

\pdftexcmds@setdraftmode

```
405 \def\pdftexcmds@setdraftmode#1{%

```

```
406 \else

```

\pdftexcmds@draftmode

```
407 \let\pdftexcmds@draftmode\pdfdraftmode
```

\pdf@ifdraftmode

```

408 \def\pdf@ifdraftmode{%
409 \ifnum\pdftexcmds@draftmode=\ltx@one
410 \expandafter\ltx@firstoftwo
411 \else
412 \expandafter\ltx@secondoftwo
413 \fi
414 }%

```

\pdf@draftmode

```

415 \def\pdf@draftmode{%
416 \ifnum\pdftexcmds@draftmode=\ltx@one
417 \expandafter\ltx@one
418 \else
419 \expandafter\ltx@zero
420 \fi
421 }%

```

\pdftexcmds@setdraftmode

```

422 \def\pdftexcmds@setdraftmode#1{%
423 \pdftexcmds@draftmode=#1\relax
424 }%

```

425 \fi

\pdf@setdraftmode

```
426 \def\pdf@setdraftmode#1{%
427   \begingroup
428     \count\ltx@cclv=#1\relax
429   \edef\x{\endgroup
430     \noexpand\pdf@texcmds@@setdraftmode{\the\count\ltx@cclv}%
431   }%
432   \x
433 }
```

\pdf@texcmds@@setdraftmode

```
434 \def\pdf@texcmds@@setdraftmode#1{%
435   \ifcase#1 %
436     \pdf@texcmds@setdraftmode{#1}%
437   \or
438     \pdf@texcmds@setdraftmode{#1}%
439   \else
440     \@PackageWarning{pdf@texcmds}{%
441       \string\pdf@setdraftmode: Ignoring\MessageBreak
442       invalid value `#1'%
443     }%
444   \fi
445 }
```

## 2.9 Load Lua module

```
446 \ifluatex
447 \else
448   \expandafter\pdf@texcmds@AtEnd
449 \fi%

450 \ifnum\luatexversion<80
451   \begingroup\expandafter\expandafter\expandafter\endgroup
452   \expandafter\ifx\csname RequirePackage\endcsname\relax
453     \def\TMP@RequirePackage#1[#2]{%
454       \begingroup\expandafter\expandafter\expandafter\endgroup
455       \expandafter\ifx\csname ver@#1.sty\endcsname\relax
456         \input #1.sty\relax
457       \fi
458     }%
459     \TMP@RequirePackage{luatex-loader}[2009/04/10]%
460   \else
461     \RequirePackage{luatex-loader}[2009/04/10]%
462   \fi
463 \fi

464 \pdf@texcmds@directlua{%
465   require("pdf@texcmds")%
466 }

467 \ifnum\luatexversion>37 %
468   \ifnum0%
469     \pdf@texcmds@directlua{%
470       if status.ini_version then %
471         tex.write("1")%
472       end%
473     }>0 %
474   \everyjob\expandafter{%
475     \the\everyjob
476     \pdf@texcmds@directlua{%
477       require("pdf@texcmds")%
478     }%
479   }%
```

```

480 \fi
481 \fi
482 \begingroup
483 \def\x{2019/07/25 v0.30}%
484 \ltx@onelevel@sanitize\x
485 \edef\y{%
486   \pdf texcmds@directlua{%
487     if oberdiek.pdf texcmds.getversion then %
488       oberdiek.pdf texcmds.getversion()%
489     end%
490   }%
491 }%
492 \ifx\x\y
493 \else
494   \@PackageError{pdf texcmds}{%
495     Wrong version of lua module.\MessageBreak
496     Package version: \x\MessageBreak
497     Lua module: \y
498   }\@ehc
499 \fi
500 \endgroup

```

## 2.10 Lua functions

### 2.10.1 Helper macros

\pdf texcmds@toks

```

501 \begingroup\expandafter\expandafter\expandafter\endgroup
502 \expandafter\ifx\csname newtoks\endcsname\relax
503   \toksdef\pdf texcmds@toks=0 %
504 \else
505   \csname newtoks\endcsname\pdf texcmds@toks
506 \fi

```

\pdf texcmds@Patch

```

507 \def\pdf texcmds@Patch{0}
508 \ifnum\luatexversion>40 %
509   \ifnum\luatexversion<66 %
510     \def\pdf texcmds@Patch{1}%
511   \fi
512 \fi

513 \ifcase\pdf texcmds@Patch
514   \catcode`\&=14 %
515 \else
516   \catcode`\&=9 %

```

\pdf texcmds@PatchDecode

```

517 \def\pdf texcmds@PatchDecode#1\@nil{%
518   \pdf texcmds@DecodeA#1^^A^^A\@nil{%
519   }%

```

\pdf texcmds@DecodeA

```

520 \def\pdf texcmds@DecodeA#1^^A^^A#2\@nil#3{%
521   \ifx\relax#2\relax
522     \ltx@ReturnAfterElseFi{%
523       \pdf texcmds@DecodeB#3#1^^A^^B\@nil{%
524       }%
525     \else
526       \ltx@ReturnAfterFi{%
527         \pdf texcmds@DecodeA#2\@nil{#3#1^^@}%
528       }%
529     \fi
530   }%

```



\pdftexcmds@DecodeB

```
531 \def\pdftexcmds@DecodeB#1^^A^^B#2\@nil#3{%
532   \ifx\relax#2\relax%
533     \ltx@ReturnAfterElseFi{%
534       \ltx@zero
535       #3#1%
536     }%
537   \else
538     \ltx@ReturnAfterFi{%
539       \pdftexcmds@DecodeB#2\@nil{#3#1^^A}%
540     }%
541   \fi
542 }%

543 \fi

544 \ifnum\luatexversion<36 %
545 \else
546   \catcode`\0=9 %
547 \fi
```

## 2.10.2 Strings [pdfTeX-manual]

\pdf@strcmp

```
548 \long\def\pdf@strcmp#1#2{%
549   \directlua0{%
550     oberdiek.pdfTexcmds strcmp("\luaescapestring{#1}",%
551       "\luaescapestring{#2}")%
552   }%
553 }%

554 \pdf@isprimitive
```

\pdf@escapehex

```
555 \long\def\pdf@escapehex#1{%
556   \directlua0{%
557     oberdiek.pdfTexcmds.escapehex("\luaescapestring{#1}", "byte")%
558   }%
559 }%
```

\pdf@escapehexnative

```
560 \long\def\pdf@escapehexnative#1{%
561   \directlua0{%
562     oberdiek.pdfTexcmds.escapehex("\luaescapestring{#1}")%
563   }%
564 }%
```

\pdf@unescapehex

```
565 \def\pdf@unescapehex#1{%
566   & \romannumeral\expandafter\pdfTexcmds@PatchDecode
567   \the\expandafter\pdfTexcmds@toks
568   \directlua0{%
569     oberdiek.pdfTexcmds.toks="pdfTexcmds@toks"%
570     oberdiek.pdfTexcmds.unescapehex("\luaescapestring{#1}", "byte", \pdfTex-
571       cmds@Patch)%
572   }%
573   & \@nil
574 }%
```

\pdf@unescapehexnative

```
574 \def\pdf@unescapehexnative#1{%
575   & \romannumeral\expandafter\pdfTexcmds@PatchDecode
576   \the\expandafter\pdfTexcmds@toks
```

```

577 \directlua0{%
578   oberdiek.pdfdocmds.toks="pdfdocmds@toks"%
579   oberdiek.pdfdocmds.unescapehex("\luaescapestring{#1}", \pdfdocmds@Patch)%
580 }%
581 & \@nil
582 }%

```

\pdf@escapestring

```

583 \long\def\pdf@escapestring#1{%
584   \directlua0{%
585     oberdiek.pdfdocmds.escapestring("\luaescapestring{#1}", "byte")%
586   }%
587 }

```

\pdf@escapename

```

588 \long\def\pdf@escapename#1{%
589   \directlua0{%
590     oberdiek.pdfdocmds.escapename("\luaescapestring{#1}", "byte")%
591   }%
592 }

```

\pdf@escapenamenative

```

593 \long\def\pdf@escapenamenative#1{%
594   \directlua0{%
595     oberdiek.pdfdocmds.escapename("\luaescapestring{#1}")%
596   }%
597 }

```

### 2.10.3 Files [pdfdoc-manual]

\pdf@filesize

```

598 \def\pdf@filesize#1{%
599   \directlua0{%
600     oberdiek.pdfdocmds.filesize("\luaescapestring{#1}")%
601   }%
602 }

```

\pdf@filemoddate

```

603 \def\pdf@filemoddate#1{%
604   \directlua0{%
605     oberdiek.pdfdocmds.filemoddate("\luaescapestring{#1}")%
606   }%
607 }

```

\pdf@filedump

```

608 \def\pdf@filedump#1#2#3{%
609   \directlua0{%
610     oberdiek.pdfdocmds.filedump("\luaescapestring{\number#1}",%
611       "\luaescapestring{\number#2}",%
612       "\luaescapestring{#3}")%
613   }%
614 }%

```

\pdf@mdfivesum

```

615 \long\def\pdf@mdfivesum#1{%
616   \directlua0{%
617     oberdiek.pdfdocmds.mdfivesum("\luaescapestring{#1}", "byte")%
618   }%
619 }%

```

\pdf@mdfivesumnative

```
620 \long\def\pdf@mdfivesumnative#1{%
621   \directlua0{%
622     oberdiek.pdf_texcmds.mdfivesum("\luaescapestring{#1}")%
623   }%
624 }
```

\pdf@filemdfivesum

```
625 \def\pdf@filemdfivesum#1{%
626   \directlua0{%
627     oberdiek.pdf_texcmds.filemdfivesum("\luaescapestring{#1}")%
628   }%
629 }
```

#### 2.10.4 Timekeeping [pdfTeX-manual]

\protected

```
630 \let\pdf_texcmds@temp=Y%
631 \begingroup\expandafter\expandafter\expandafter\endgroup
632 \expandafter\ifx\csname protected\endcsname\relax
633   \pdf_texcmds@directlua0{%
634     if tex.enableprimitives then %
635       tex.enableprimitives('', {'protected'})%
636     end%
637   }%
638 \fi
639 \begingroup\expandafter\expandafter\expandafter\endgroup
640 \expandafter\ifx\csname protected\endcsname\relax
641   \let\pdf_texcmds@temp=N%
642 \fi
```

\numexpr

```
643 \begingroup\expandafter\expandafter\expandafter\endgroup
644 \expandafter\ifx\csname numexpr\endcsname\relax
645   \pdf_texcmds@directlua0{%
646     if tex.enableprimitives then %
647       tex.enableprimitives('', {'numexpr'})%
648     end%
649   }%
650 \fi
651 \begingroup\expandafter\expandafter\expandafter\endgroup
652 \expandafter\ifx\csname numexpr\endcsname\relax
653   \let\pdf_texcmds@temp=N%
654 \fi

655 \ifx\pdf_texcmds@temp N%
656   \@PackageWarningNoLine{pdfTeX}{%
657     Definitions of \ltx@backslashchar pdf@resettimer and%
658     \MessageBreak
659     \ltx@backslashchar pdf@elapsed time are skipped, because%
660     \MessageBreak
661     e-TeX's \ltx@backslashchar protected or %
662     \ltx@backslashchar numexpr are missing%
663   }%
664 \else
```

\pdf@resettimer

```
665 \protected\def\pdf@resettimer{%
666   \pdf_texcmds@directlua0{%
667     oberdiek.pdf_texcmds.resettimer()%
668   }%
669 }
```

\pdf@elapsedtime

```
670 \protected\def\pdf@elapsedtime{%
671   \numexpr
672   \pdftexcmds@directlua{%
673     oberdiek.pdf texcmds.elapsedtime()}%
674   }%
675   \relax
676 }%

677 \fi
```

### 2.10.5 Shell escape

\pdf@shellescape

```
678 \ifnum\luatexversion<68 %
679 \else
680 \protected\edef\pdf@shellescape{%
681   \numexpr\directlua{tex.sprint(%
682     \number\catcodetable@string,status.shell_escape)}\relax}
683 \fi
```

\pdf@system

```
684 \def\pdf@system#1{%
685   \directlua{%
686     oberdiek.pdf texcmds.system("\luaescapestring{#1}")%
687   }%
688 }
```

\pdf@lastsystemstatus

```
689 \def\pdf@lastsystemstatus{%
690   \directlua{%
691     oberdiek.pdf texcmds.lastsystemstatus()}%
692   }%
693 }
```

\pdf@lastsystemexit

```
694 \def\pdf@lastsystemexit{%
695   \directlua{%
696     oberdiek.pdf texcmds.lastsystemexit()}%
697   }%
698 }
```

```
699 \catcode`\0=12 %
```

\pdf@pipe Check availability of io.popen first.

```
700 \ifnum0%
701   \pdftexcmds@directlua{%
702     if io.popen then %
703       tex.write("1")%
704     end%
705   }%
706   =1 %
707   \def\pdf@pipe#1{%
708 & \romannumeral\expandafter\pdf texcmds@PatchDecode
709   \the\expandafter\pdf texcmds@toks
710   \pdf texcmds@directlua{%
711     oberdiek.pdf texcmds.toks="pdf texcmds@toks"%
712     oberdiek.pdf texcmds.pipe("\luaescapestring{#1}", \pdf texcmds@Patch)%
713   }%
714 & \@nil
715   }%
716 \fi
```

```

717 \pdfTexcmds@AtEnd%
718 \</package>

```

## 2.11 Lua module

```

719 \<*lua>

720 oberdiek = oberdiek or {}
721 local pdfTexcmds = oberdiek.pdfTexcmds or {}
722 oberdiek.pdfTexcmds = pdfTexcmds
723 local systemexitstatus
724 function pdfTexcmds.getVersion()
725   tex.write("2019/07/25 v0.30")
726 end

```

### 2.11.1 Strings [pdfTeX-manual]

```

727 function pdfTexcmds.strcmp(A, B)
728   if A == B then
729     tex.write("0")
730   elseif A < B then
731     tex.write("-1")
732   else
733     tex.write("1")
734   end
735 end

736 local function utf8_to_byte(str)
737   local i = 0
738   local n = string.len(str)
739   local t = {}
740   while i < n do
741     i = i + 1
742     local a = string.byte(str, i)
743     if a < 128 then
744       table.insert(t, string.char(a))
745     else
746       if a >= 192 and i < n then
747         i = i + 1
748         local b = string.byte(str, i)
749         if b < 128 or b >= 192 then
750           i = i - 1
751         elseif a == 194 then
752           table.insert(t, string.char(b))
753         elseif a == 195 then
754           table.insert(t, string.char(b + 64))
755         end
756       end
757     end
758   end
759   return table.concat(t)
760 end

761 function pdfTexcmds.escapehex(str, mode)
762   if mode == "byte" then
763     str = utf8_to_byte(str)
764   end
765   tex.write((string.gsub(str, ".",
766     function (ch)
767       return string.format("%02X", string.byte(ch))
768     end
769   )))
770 end

```

See procedure `unescapehex` in file `utils.c` of pdfTeX. Caution: `tex.write` ignores leading spaces.

```

771 function pdftexcmds.unescapehex(str, mode, patch)
772   local a = 0
773   local first = true
774   local result = {}
775   for i = 1, string.len(str), 1 do
776     local ch = string.byte(str, i)
777     if ch >= 48 and ch <= 57 then
778       ch = ch - 48
779     elseif ch >= 65 and ch <= 70 then
780       ch = ch - 55
781     elseif ch >= 97 and ch <= 102 then
782       ch = ch - 87
783     else
784       ch = nil
785     end
786     if ch then
787       if first then
788         a = ch * 16
789         first = false
790       else
791         table.insert(result, a + ch)
792         first = true
793       end
794     end
795   end
796   if not first then
797     table.insert(result, a)
798   end
799   if patch == 1 then
800     local temp = {}
801     for i, a in ipairs(result) do
802       if a == 0 then
803         table.insert(temp, 1)
804         table.insert(temp, 1)
805       else
806         if a == 1 then
807           table.insert(temp, 1)
808           table.insert(temp, 2)
809         else
810           table.insert(temp, a)
811         end
812       end
813     end
814     result = temp
815   end
816   if mode == "byte" then
817     local utf8 = {}
818     for i, a in ipairs(result) do
819       if a < 128 then
820         table.insert(utf8, a)
821       else
822         if a < 192 then
823           table.insert(utf8, 194)
824           a = a - 128
825         else
826           table.insert(utf8, 195)
827           a = a - 192
828         end
829         table.insert(utf8, a + 128)
830       end
831     end
832     result = utf8

```

```
833 end
```

this next line added for current luatex; this is the only change in the file. eroux,  
28apr13. (v 0.21)

```
834 local unpack = _G["unpack"] or table.unpack
835 tex.settoks(pdftexcmds.toks, string.char(unpack(result)))
836 end
```

See procedure `escapestring` in file `utils.c` of pdf<sub>T</sub>E<sub>X</sub>.

```
837 function pdftexcmds.escapestring(str, mode)
838   if mode == "byte" then
839     str = utf8_to_byte(str)
840   end
841   tex.write((string.gsub(str, ".",
842     function (ch)
843       local b = string.byte(ch)
844       if b < 33 or b > 126 then
845         return string.format("\\%.3o", b)
846       end
847       if b == 40 or b == 41 or b == 92 then
848         return "\\\" .. ch
849       end
850     end)))
851 end
```

Lua 5.1 returns the match in case of return value `nil`.

```
850     return nil
851   end
852 )))
853 end
```

See procedure `escapename` in file `utils.c` of pdf<sub>T</sub>E<sub>X</sub>.

```
854 function pdftexcmds.escapename(str, mode)
855   if mode == "byte" then
856     str = utf8_to_byte(str)
857   end
858   tex.write((string.gsub(str, ".",
859     function (ch)
860       local b = string.byte(ch)
861       if b == 0 then
```

In Lua 5.0 `nil` could be used for the empty string, But `nil` returns the match in  
Lua 5.1, thus we use the empty string explicitly.

```
862     return ""
863   end
864   if b <= 32 or b >= 127
865     or b == 35 or b == 37 or b == 40 or b == 41
866     or b == 47 or b == 60 or b == 62 or b == 91
867     or b == 93 or b == 123 or b == 125 then
868     return string.format("#%.2X", b)
869   else
```

Lua 5.1 returns the match in case of return value `nil`.

```
870     return nil
871   end
872 end
873 )))
874 end
```

### 2.11.2 Files [pdf<sub>tex</sub>-manual]

```
875 function pdftexcmds.filesize(filename)
876   local foundfile = kpse.find_file(filename, "tex", true)
877   if foundfile then
878     local size = lfs.attributes(foundfile, "size")
879     if size then
880       tex.write(size)
881     end
882   end
```

883 end

See procedure `makepdftime` in file `utils.c` of `pdfTeX`.

```
884 function pdftexcmds.filemoddate(filename)
885   local foundfile = kpse.find_file(filename, "tex", true)
886   if foundfile then
887     local date = lfs.attributes(foundfile, "modification")
888     if date then
889       local d = os.date("!*t", date)
890       if d.sec >= 60 then
891         d.sec = 59
892       end
893       local u = os.date("!*t", date)
894       local off = 60 * (d.hour - u.hour) + d.min - u.min
895       if d.year ~= u.year then
896         if d.year > u.year then
897           off = off + 1440
898         else
899           off = off - 1440
900         end
901       elseif d.yday ~= u.yday then
902         if d.yday > u.yday then
903           off = off + 1440
904         else
905           off = off - 1440
906         end
907       end
908       local timezone
909       if off == 0 then
910         timezone = "Z"
911       else
912         local hours = math.floor(off / 60)
913         local mins = math.abs(off - hours * 60)
914         timezone = string.format("%+03d'%02d'", hours, mins)
915       end
916       tex.write(string.format("D:%04d%02d%02d%02d%02d%s",
917         d.year, d.month, d.day, d.hour, d.min, d.sec, timezone))
918     end
919   end
920 end
921 function pdftexcmds.filedump(offset, length, filename)
922   length = tonumber(length)
923   if length and length > 0 then
924     local foundfile = kpse.find_file(filename, "tex", true)
925     if foundfile then
926       offset = tonumber(offset)
927       if not offset then
928         offset = 0
929       end
930       local filehandle = io.open(foundfile, "rb")
931       if filehandle then
932         if offset > 0 then
933           filehandle:seek("set", offset)
934         end
935         local dump = filehandle:read(length)
936         pdftexcmds.escapehex(dump)
937         filehandle:close()
938       end
939     end
940   end
941 end
942 function pdftexcmds.md5sum(str, mode)
943   if mode == "byte" then
```



```

944  str = utf8_to_byte(str)
945  end
946  pdftexcmds.escapehex(md5.sum(str))
947 end
948 function pdftexcmds.filemdfivesum(filename)
949  local foundfile = kpse.find_file(filename, "tex", true)
950  if foundfile then
951    local filehandle = io.open(foundfile, "rb")
952    if filehandle then
953      local contents = filehandle:read("*a")
954      pdftexcmds.escapehex(md5.sum(contents))
955      filehandle:close()
956    end
957  end
958 end

```

### 2.11.3 Timekeeping [pdftex-manual]

The functions for timekeeping are based on Andy Thomas' work [AndyThomas:Analog]. Changes:

- Overflow check is added.
- `string.format` is used to avoid exponential number representation for sure.
- `tex.write` is used instead of `tex.print` to get tokens with catcode 12 and without appended `\endlinechar`.

```

959 local basetime = 0
960 function pdftexcmds.resettimer()
961  basetime = os.clock()
962 end
963 function pdftexcmds.elapsedtime()
964  local val = (os.clock() - basetime) * 65536 + .5
965  if val > 2147483647 then
966    val = 2147483647
967  end
968  tex.write(string.format("%d", val))
969 end

```

### 2.11.4 Miscellaneous [pdftex-manual]

```

970 function pdftexcmds.shellescape()
971  if os.execute then
972    if status
973      and status.luatex_version
974      and status.luatex_version >= 68 then
975      tex.write(os.execute())
976    else
977      local result = os.execute()
978      if result == 0 then
979        tex.write("0")
980      else
981        if result == nil then
982          tex.write("0")
983        else
984          tex.write("1")
985        end
986      end
987    end
988  else
989    tex.write("0")
990  end
991 end
992 function pdftexcmds.system(cmdline)

```

```

993 systemexitstatus = nil
994 texio.write_nl("log", "system(" .. cmdline .. ") ")
995 if os.execute then
996     texio.write("log", "executed.")
997     systemexitstatus = os.execute(cmdline)
998 else
999     texio.write("log", "disabled.")
1000 end
1001 end
1002 function pdftexcmds.lastsystemstatus()
1003     local result = tonumber(systemexitstatus)
1004     if result then
1005         local x = math.floor(result / 256)
1006         tex.write(result - 256 * math.floor(result / 256))
1007     end
1008 end
1009 function pdftexcmds.lastsystemexit()
1010     local result = tonumber(systemexitstatus)
1011     if result then
1012         tex.write(math.floor(result / 256))
1013     end
1014 end
1015 function pdftexcmds.pipe(cmdline, patch)
1016     local result
1017     systemexitstatus = nil
1018     texio.write_nl("log", "pipe(" .. cmdline .. ") ")
1019     if io.popen then
1020         texio.write("log", "executed.")
1021         local handle = io.popen(cmdline, "r")
1022         if handle then
1023             result = handle:read("*a")
1024             handle:close()
1025         end
1026     else
1027         texio.write("log", "disabled.")
1028     end
1029     if result then
1030         if patch == 1 then
1031             local temp = {}
1032             for i, a in ipairs(result) do
1033                 if a == 0 then
1034                     table.insert(temp, 1)
1035                     table.insert(temp, 1)
1036                 else
1037                     if a == 1 then
1038                         table.insert(temp, 1)
1039                         table.insert(temp, 2)
1040                     else
1041                         table.insert(temp, a)
1042                     end
1043                 end
1044             end
1045             result = temp
1046         end
1047         tex.settoks(pdftexcmds.toks, result)
1048     else
1049         tex.settoks(pdftexcmds.toks, "")
1050     end
1051 end
1052 </lua>

```

## 3 Test

### 3.1 Catcode checks for loading

```
1053 <*test1>
1054 \catcode`\{=1 %
1055 \catcode`\}=2 %
1056 \catcode`\#=6 %
1057 \catcode`\@=11 %
1058 \expandafter\ifx\csname count@\endcsname\relax
1059 \countdef\count@=255 %
1060 \fi
1061 \expandafter\ifx\csname @gobble\endcsname\relax
1062 \long\def\@gobble#1{%
1063 \fi
1064 \expandafter\ifx\csname @firstofone\endcsname\relax
1065 \long\def\@firstofone#1{#1}%
1066 \fi
1067 \expandafter\ifx\csname loop\endcsname\relax
1068 \expandafter\@firstofone
1069 \else
1070 \expandafter\@gobble
1071 \fi
1072 {%
1073 \def\loop#1\repeat{%
1074 \def\body{#1}%
1075 \iterate
1076 }%
1077 \def\iterate{%
1078 \body
1079 \let\next\iterate
1080 \else
1081 \let\next\relax
1082 \fi
1083 \next
1084 }%
1085 \let\repeat=\fi
1086 }%
1087 \def\RestoreCatcodes{}
1088 \count@=0 %
1089 \loop
1090 \edef\RestoreCatcodes{%
1091 \RestoreCatcodes
1092 \catcode\the\count@=\the\catcode\count@\relax
1093 }%
1094 \ifnum\count@<255 %
1095 \advance\count@ 1 %
1096 \repeat
1097
1098 \def\RangeCatcodeInvalid#1#2{%
1099 \count@=#1\relax
1100 \loop
1101 \catcode\count@=15 %
1102 \ifnum\count@<#2\relax
1103 \advance\count@ 1 %
1104 \repeat
1105 }
1106 \def\RangeCatcodeCheck#1#2#3{%
1107 \count@=#1\relax
1108 \loop
1109 \ifnum#3=\catcode\count@
1110 \else
```

```

1111 \errmessage{%
1112   Character \the\count@\space
1113   with wrong catcode \the\catcode\count@\space
1114   instead of \number#3%
1115 }%
1116 \fi
1117 \ifnum\count@<#2\relax
1118   \advance\count@ 1 %
1119 \repeat
1120 }
1121 \def\space{ }
1122 \expandafter\ifx\csname LoadCommand\endcsname\relax
1123 \def\LoadCommand{\input pdftexcmds.sty\relax}%
1124 \fi
1125 \def\Test{%
1126   \RangeCatcodeInvalid{0}{47}%
1127   \RangeCatcodeInvalid{58}{64}%
1128   \RangeCatcodeInvalid{91}{96}%
1129   \RangeCatcodeInvalid{123}{255}%
1130   \catcode`\@=12 %
1131   \catcode`\=0 %
1132   \catcode`\%=14 %
1133   \LoadCommand
1134   \RangeCatcodeCheck{0}{36}{15}%
1135   \RangeCatcodeCheck{37}{37}{14}%
1136   \RangeCatcodeCheck{38}{47}{15}%
1137   \RangeCatcodeCheck{48}{57}{12}%
1138   \RangeCatcodeCheck{58}{63}{15}%
1139   \RangeCatcodeCheck{64}{64}{12}%
1140   \RangeCatcodeCheck{65}{90}{11}%
1141   \RangeCatcodeCheck{91}{91}{15}%
1142   \RangeCatcodeCheck{92}{92}{0}%
1143   \RangeCatcodeCheck{93}{96}{15}%
1144   \RangeCatcodeCheck{97}{122}{11}%
1145   \RangeCatcodeCheck{123}{255}{15}%
1146   \RestoreCatcodes
1147 }
1148 \Test
1149 \csname @@end\endcsname
1150 \end
1151 </test1>

```

### 3.2 Test for \pdf@isprimitive

```

1152 <*test2>
1153 \catcode`\{=1 %
1154 \catcode`\}=2 %
1155 \catcode`\#=6 %
1156 \catcode`\@=11 %
1157 \input pdftexcmds.sty\relax
1158 \def\msg#1{%
1159   \begingroup
1160     \escapechar=92 %
1161     \immediate\write16{#1}%
1162   \endgroup
1163 }
1164 \long\def\test#1#2#3#4{%
1165   \begingroup
1166     #4%
1167   \def\str{%
1168     Test \string\pdf@isprimitive
1169     {\string #1}{\string #2}{...}: %
1170   }%

```

```

1171 \pdf@isprimitive{#1}{#2}{%
1172 \ifx#3Y%
1173 \msg{\str true ==> OK.}%
1174 \else
1175 \errmessage{\str false ==> FAILED}%
1176 \fi
1177 }{%
1178 \ifx#3Y%
1179 \errmessage{\str true ==> FAILED}%
1180 \else
1181 \msg{\str false ==> OK.}%
1182 \fi
1183 }%
1184 \endgroup
1185 }
1186 \test\relax\relax Y{}
1187 \test\foobar\relax Y{\let\foobar\relax}
1188 \test\foobar\relax N{}
1189 \test\hbox\hbox Y{}
1190 \test\foobar@hbox\hbox Y{\let\foobar@hbox\hbox}
1191 \test\if\if Y{}
1192 \test\if\ifx N{}
1193 \test\ifx\if N{}
1194 \test\par\par Y{}
1195 \test\hbox\par N{}
1196 \test\par\hbox N{}
1197 \csname @@end\endcsname\end
1198 </test2>

```

### 3.3 Test for \pdf@shellescape

```

1199 <*test-shell>
1200 \catcode`\{=1 %
1201 \catcode`\}=2 %
1202 \catcode`\#=6 %
1203 \catcode`\@=11 %
1204 \input pdftexcmds.sty\relax
1205 \def\msg#{\immediate\write16}
1206 \def\MaybeEnd{}
1207 \ifx\luatexversion\UnDeFiNeD
1208 \else
1209 \ifnum\luatexversion<68 %
1210 \ifx\pdf@shellescape\@undefined
1211 \msg{SHELL=U}%
1212 \msg{OK (LuaTeX < 0.68)}%
1213 \else
1214 \msg{SHELL=defined}%
1215 \errmessage{Failed (LuaTeX < 0.68)}%
1216 \fi
1217 \def\MaybeEnd{\csname @@end\endcsname\end}%
1218 \fi
1219 \fi
1220 \MaybeEnd
1221 \ifx\pdf@shellescape\@undefined
1222 \msg{SHELL=U}%
1223 \else
1224 \msg{SHELL=\number\pdf@shellescape}%
1225 \fi
1226 \ifx\expected\@undefined
1227 \else
1228 \ifx\expected\relax
1229 \msg{EXPECTED=U}%
1230 \ifx\pdf@shellescape\@undefined

```

```

1231 \msg{OK}%
1232 \else
1233 \errmessage{Failed}%
1234 \fi
1235 \else
1236 \msg{EXPECTED=\number\expected}%
1237 \ifnum\pdf@shellescape=\expected\relax
1238 \msg{OK}%
1239 \else
1240 \errmessage{Failed}%
1241 \fi
1242 \fi
1243 \fi
1244 \csname @@end\endcsname\end
1245 \</test-shell>

```

### 3.4 Test for escape functions

```

1246 \<*test-escape>
1247 \catcode`\{=1 %
1248 \catcode`\}=2 %
1249 \catcode`\#=6 %
1250 \catcode`\^=7 %
1251 \catcode`\@=11 %
1252 \errorcontextlines=1000 %
1253 \input pdftexcmds.sty\relax
1254 \def\msg#1{%
1255 \begingroup
1256 \escapechar=92 %
1257 \immediate\write16{#1}%
1258 \endgroup
1259 }

1260 \begingroup
1261 \catcode`\@=11 %
1262 \countdef\count@=255 %
1263 \def\space{ }%
1264 \long\def\@whilenum#1\do #2{%
1265 \ifnum #1\relax
1266 #2\relax
1267 \@iwhilenum{#1\relax#2\relax}%
1268 \fi
1269 }%
1270 \long\def\@iwhilenum#1{%
1271 \ifnum #1%
1272 \expandafter\@iwhilenum
1273 \else
1274 \expandafter\ltx@gobble
1275 \fi
1276 {#1}%
1277 }%
1278 \gdef\AllBytes{%
1279 \count@=0 %
1280 \catcode0=12 %
1281 \@whilenum\count@<256 \do{%
1282 \lccode0=\count@
1283 \ifnum\count@=32 %
1284 \xdef\AllBytes{\AllBytes\space}%
1285 \else
1286 \lowercase{%
1287 \xdef\AllBytes{\AllBytes^^@}%
1288 }%
1289 \fi
1290 \advance\count@ by 1 %

```

```

1291 }%
1292 \endgroup

1293 \def\AllBytesHex{%
1294 000102030405060708090A0B0C0D0E0F%
1295 101112131415161718191A1B1C1D1E1F%
1296 202122232425262728292A2B2C2D2E2F%
1297 303132333435363738393A3B3C3D3E3F%
1298 404142434445464748494A4B4C4D4E4F%
1299 505152535455565758595A5B5C5D5E5F%
1300 606162636465666768696A6B6C6D6E6F%
1301 707172737475767778797A7B7C7D7E7F%
1302 808182838485868788898A8B8C8D8E8F%
1303 909192939495969798999A9B9C9D9E9F%
1304 A0A1A2A3A4A5A6A7A8A9AAABACADAEAF%
1305 B0B1B2B3B4B5B6B7B8B9BABBBCBDBEBF%
1306 C0C1C2C3C4C5C6C7C8C9CACBCCCDCECF%
1307 D0D1D2D3D4D5D6D7D8D9DADBDCDDDEDF%
1308 E0E1E2E3E4E5E6E7E8E9EAEBECEDEEEF%
1309 F0F1F2F3F4F5F6F7F8F9FAFBFCFDFEFF%
1310 }

1311 \ltx@onelevel@sanitize\AllBytesHex
1312 \expandafter\lowercase\expandafter{%
1313 \expandafter\def\expandafter\AllBytesHexLC
1314 \expandafter{\AllBytesHex}%
1315 }

1316 \begingroup
1317 \catcode`\#=12 %
1318 \xdef\AllBytesName{%
1319 #01#02#03#04#05#06#07#08#09#0A#0B#0C#0D#0E#0F%
1320 #10#11#12#13#14#15#16#17#18#19#1A#1B#1C#1D#1E#1F%
1321 #20!"#23$#25&'#28#29*+,-.#2F%
1322 0123456789:;#3C=#3E?%
1323 @ABCDEFGHIJKLMNO%
1324 PQRSTUVWXYZ#5B\ltx@backslashchar#5D^_%
1325 `abcdefghijklmnopqrstuvwxyz
1326 pqrstuvwxyz#7B| #7D\string~#7F%
1327 #80#81#82#83#84#85#86#87#88#89#8A#8B#8C#8D#8E#8F%
1328 #90#91#92#93#94#95#96#97#98#99#9A#9B#9C#9D#9E#9F%
1329 #A0#A1#A2#A3#A4#A5#A6#A7#A8#A9#AA#AB#AC#AD#AE#AF%
1330 #B0#B1#B2#B3#B4#B5#B6#B7#B8#B9#BA#BB#BC#BD#BE#BF%
1331 #C0#C1#C2#C3#C4#C5#C6#C7#C8#C9#CA#CB#CC#CD#CE#CF%
1332 #D0#D1#D2#D3#D4#D5#D6#D7#D8#D9#DA#DB#DC#DD#DE#DF%
1333 #E0#E1#E2#E3#E4#E5#E6#E7#E8#E9#EA#EB#EC#ED#EE#EF%
1334 #F0#F1#F2#F3#F4#F5#F6#F7#F8#F9#FA#FB#FC#FD#FE#FF%
1335 }%
1336 \endgroup
1337 \ltx@onelevel@sanitize\AllBytesName
1338 \edef\AllBytesFromName{\expandafter\ltx@gobble\AllBytes}
1339 \begingroup
1340 \def\{|}%
1341 \edef%\{\ltx@percentchar}%
1342 \catcode`\|=0 %
1343 \catcode`\#=12 %
1344 \catcode`\~=12 %
1345 \catcode`\=12 %
1346 |xdef\AllBytesString{%
1347 \000\001\002\003\004\005\006\007\010\011\012\013\014\015\016\017%
1348 \020\021\022\023\024\025\026\027\030\031\032\033\034\035\036\037%
1349 \040!"#$%&'(\)*+,-./%
1350 0123456789:;<=>?%
1351 @ABCDEFGHIJKLMNO%
1352 PQRSTUVWXYZ[\]^_%

```

```

1353   `abcdefghijklmnopqrstuvwxyz%
1354   pqrstuvwxyz{|}~\177%
1355   \200\201\202\203\204\205\206\207\210\211\212\213\214\215\216\217%
1356   \220\221\222\223\224\225\226\227\230\231\232\233\234\235\236\237%
1357   \240\241\242\243\244\245\246\247\250\251\252\253\254\255\256\257%
1358   \260\261\262\263\264\265\266\267\270\271\272\273\274\275\276\277%
1359   \300\301\302\303\304\305\306\307\310\311\312\313\314\315\316\317%
1360   \320\321\322\323\324\325\326\327\330\331\332\333\334\335\336\337%
1361   \340\341\342\343\344\345\346\347\350\351\352\353\354\355\356\357%
1362   \360\361\362\363\364\365\366\367\370\371\372\373\374\375\376\377%
1363 }%
1364 |endgroup
1365 \ltx@onelevel@sanitize\AllBytesString
1366 \def\Test#1#2#3{%
1367   \begingroup
1368     \expandafter\expandafter\expandafter\def
1369     \expandafter\expandafter\expandafter\TestResult
1370     \expandafter\expandafter\expandafter{%
1371       #1{#2}%
1372     }%
1373     \ifx\TestResult#3%
1374     \else
1375       \newlinechar=10 %
1376       \msg{Expect:^^J#3}%
1377       \msg{Result:^^J\TestResult}%
1378       \errmessage{\string#2 -\string#1-> \string#3}%
1379     \fi
1380   \endgroup
1381 }
1382 \def\test#1#2#3{%
1383   \edef\TestFrom{#2}%
1384   \edef\TestExpect{#3}%
1385   \ltx@onelevel@sanitize\TestExpect
1386   \Test#1\TestFrom\TestExpect
1387 }
1388 \test\pdf@unescapehex{74657374}{test}
1389 \begingroup
1390   \catcode0=12 %
1391   \catcode1=12 %
1392   \test\pdf@unescapehex{740074017400740174}{t^^@t^^At^^@t^^At}%
1393 \endgroup
1394 \Test\pdf@escapehex\AllBytes\AllBytesHex
1395 \Test\pdf@unescapehex\AllBytesHex\AllBytes
1396 \Test\pdf@escapename\AllBytes\AllBytesName
1397 \Test\pdf@escapestring\AllBytes\AllBytesString
1398 \csname @@end\endcsname\end
1399 </test-escape>

```

## 4 Installation

### 4.1 Download

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

[CTAN:macros/latex/contrib/oberdiek/pdftexcmds.dtx](http://ctan.org/pkg/oberdiek/pdftexcmds.dtx) The source file.

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

<sup>1</sup><http://ctan.org/pkg/pdftexcmds>



[CTAN:install/macros/latex/contrib/oberdiek.tds.zip](#)

*TDS* refers to the standard “A Directory Structure for T<sub>E</sub>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 T<sub>E</sub>X:

```
tex pdftexcmds.dtx
```

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

<code>pdftexcmds.sty</code>	→ <code>tex/generic/oberdiek/pdftexcmds.sty</code>
<code>oberdiek.pdftexcmds.lua</code>	→ <code>scripts/oberdiek/oberdiek.pdftexcmds.lua</code>
<code>pdftexcmds.lua</code>	→ <code>scripts/oberdiek/pdftexcmds.lua</code>
<code>pdftexcmds.pdf</code>	→ <code>doc/latex/oberdiek/pdftexcmds.pdf</code>
<code>test/pdftexcmds-test1.tex</code>	→ <code>doc/latex/oberdiek/test/pdftexcmds-test1.tex</code>
<code>test/pdftexcmds-test2.tex</code>	→ <code>doc/latex/oberdiek/test/pdftexcmds-test2.tex</code>
<code>test/pdftexcmds-test-shell.tex</code>	→ <code>doc/latex/oberdiek/test/pdftexcmds-test-shell.tex</code>
<code>test/pdftexcmds-test-escape.tex</code>	→ <code>doc/latex/oberdiek/test/pdftexcmds-test-escape.tex</code>
<code>pdftexcmds.dtx</code>	→ <code>source/latex/oberdiek/pdftexcmds.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 T<sub>E</sub>X distribution (teT<sub>E</sub>X, mikT<sub>E</sub>X, ...) relies on file name databases, you must refresh these. For example, teT<sub>E</sub>X users run `texhash` or `mktextlsr`.

## 4.5 Some details for the interested

**Unpacking with L<sup>A</sup>T<sub>E</sub>X.** The `.dtx` chooses its action depending on the format:

**plain T<sub>E</sub>X:** Run `docstrip` and extract the files.

**L<sup>A</sup>T<sub>E</sub>X:** Generate the documentation.

If you insist on using L<sup>A</sup>T<sub>E</sub>X for `docstrip` (really, `docstrip` does not need L<sup>A</sup>T<sub>E</sub>X), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{pdftexcmds.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<sup>A</sup>T<sub>E</sub>X:

```
pdflatex pdftexcmds.dtx
bibtex pdftexcmds.aux
makeindex -s gind.ist pdftexcmds.idx
pdflatex pdftexcmds.dtx
makeindex -s gind.ist pdftexcmds.idx
pdflatex pdftexcmds.dtx
```

## 5 Catalogue

The following XML file can be used as source for the [T<sub>E</sub>X 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 `pdftexcmds.xml`.

```
1400 <*catalogue>
1401 <?xml version='1.0' encoding='us-ascii'?>
1402 <!DOCTYPE entry SYSTEM 'catalogue.dtd'>
1403 <entry datestamp='$Date$' modifier='$Author$' id='pdftexcmds'>
1404   <name>pdftexcmds</name>
1405   <caption>LuaTeX support for pdfTeX utility functions.</caption>
1406   <authorref id='auth:oberdiek' />
1407   <copyright owner='Heiko Oberdiek' year='2007,2009-2011' />
1408   <license type='lppl1.3' />
1409   <version number='0.20' />
1410   <description>
1411     LuaTeX provides most of the commands of
1412     <xref refid='pdfTeX'>pdfTeX</xref> 1.40. However, a number of
1413     utility functions are not available. This package tries to fill
1414     the gap and implements some of the missing primitives using Lua.
1415     <p/>
1416     The package is part of the <xref refid='oberdiek'>oberdiek</xref>
1417     bundle.
1418   </description>
1419   <documentation details='Package documentation'
1420     href='ctan:/macros/latex/contrib/oberdiek/pdftexcmds.pdf' />
1421   <ctan file='true' path='/macros/latex/contrib/oberdiek/pdftexcmds.dtx' />
1422   <miktex location='oberdiek' />
1423   <texlive location='oberdiek' />
1424   <install path='/macros/latex/contrib/oberdiek/oberdiek.tds.zip' />
1425 </entry>
1426 </catalogue>
```

## 6 History

[2007/11/11 v0.1]

- First version.

[2007/11/12 v0.2]

- Short description fixed.

[2007/12/12 v0.3]

- Organization of Lua code as module.

[2009/04/10 v0.4]

- Adaptation for syntax change of `\directlua` in LuaTeX 0.36.

[2009/09/22 v0.5]

- `\pdf@primitive`, `\pdf@ifprimitive` added.
- X<sub>Y</sub>TeX's variants are detected for `\pdf@shellescape`, `\pdf@strcmp`, `\pdf@primitive`, `\pdf@ifprimitive`.

[2009/09/23 v0.6]

- Macro `\pdf@isprimitive` added.

[2009/12/12 v0.7]

- Short info shortened.

[2010/03/01 v0.8]

- Required date for package `ifluatex` updated.

[2010/04/01 v0.9]

- Use `\ifeof18` for defining `\pdf@shellescape` between pdfTeX 1.21a (inclusive) and 1.30.0 (exclusive).

[2010/11/04 v0.10]

- `\pdf@draftmode`, `\pdf@ifdraftmode` and `\pdf@setdraftmode` added.

[2010/11/11 v0.11]

- Missing `\RequirePackage` for package `ifpdf` added.

[2011/01/30 v0.12]

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

[2011/03/04 v0.13]

- Improved Lua function `shellescape` that also uses the result of `os.execute()` (thanks to Philipp Stephani).

[2011/04/10 v0.14]

- Version check of loaded module added.
- Patch for bug in LuaTeX between 0.40.6 and 0.65 that is fixed in revision 4096.

[2011/04/16 v0.15]

- LuaTeX: `\pdf@shellescape` is only supported for version 0.70.0 and higher due to a bug, `os.execute()` crashes in some circumstances. Fixed in LuaTeX beta-0.70.0, revision 4167.

[2011/04/22 v0.16]

- Previous fix was not working due to a wrong catcode of digit zero (due to easily support the old `\directlua0`). The version border is lowered to 0.68, because some beta-0.67.0 seems also to work.

[2011/06/29 v0.17]

- Documentation addition to `\pdf@shellescape`.

[2011/07/01 v0.18]

- Add Lua module loading in `\everyjob` for `iniTeX` (LuaTeX only).

[2011/07/28 v0.19]

- Missing space in an info message added (Martin Münch).

[2011/11/29 v0.20]

- `\pdf@resettimer` and `\pdf@elapsedtime` added (thanks Andy Thomas).

[2016/05/10 v0.21]

- local unpack added (thanks Élie Roux).

[2016/05/21 v0.22]

- adjust `\textbackslash` usage in bib file for biber bug.

[2016/10/02 v0.23]

- add `file.close` to lua filehandles (github pull request).

[2017/01/29 v0.24]

- Avoid loading `luatex-loader` for current `luatex`. (Use `pdftexcmds.lua` not `oberdiek.pdfdoccmds.lua` to simplify file search with standard require)

[2017/03/19 v0.25]

- New `\pdf@shellescape` for LuaTeX, see github issue 20.

[2018/01/21 v0.26]

- use `rb` not `r` mode for file open github issue 34.

[2018/01/30 v0.27]

- `\pdf@mdfivesum` for `XYTeX`

[2018/09/07 v0.28]

- Fix catcode regime in `luatex sprint` for `\pdf@shellescape` GH issue 45

[2018/09/10 v0.29]

- Actually do the fix described above in the code, not just document it.

- remove uses of module function, see PR70

## 7 Index

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