

# The pdfrender package

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## Abstract

The PDF format has some graphics parameter like line width or text rendering mode. This package provides an interface for setting these parameters.

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

## 1 Documentation

This package `pdfrender` defines an interface for PDF specific parameters that affects the rendering of graphics or text. The interface and its implementation uses the same technique as package `color` for color settings. Therefore this package is loaded to enable L<sup>A</sup>T<sub>E</sub>X's color interface.

At different places L<sup>A</sup>T<sub>E</sub>X uses `\normalcolor` to avoid that header, footer or floats are print in the current color of the main text. `\setgroup@color` is used to start a save box with the color that is set at box saving time. Package `pdfrender` extends these macros to add its own hooks of its parameters. Therefore L<sup>A</sup>T<sub>E</sub>X<sub>3</sub> should generalize L<sup>A</sup>T<sub>E</sub>X<sub>2 $\epsilon$</sub> 's color interface.

### 1.1 Usage

In L<sup>A</sup>T<sub>E</sub>X the package is loaded as normal package. Options are not defined for this package.

```
\usepackage{pdfrender}
```

This package can also be used in plain T<sub>E</sub>X and even iniT<sub>E</sub>X:

```
input pdfrender.sty
```

### 1.2 Macros

`\pdfrender {⟨key value list⟩}`

The first parameter *⟨key value list⟩* contains a list of parameter settings. The key entry is the parameter name. The macro works like `\color` (without optional argument) for color setting.

`\textpdfrender {⟨key value list⟩} {⟨text⟩}`

In the same way as `\pdfrender` the first argument specifies the parameters that should be set. This parameter setting affects *⟨text⟩* only. Basically it works the same way as `\textcolor` (without optional argument).

### 1.3 Parameters

The following table shows an overview for the supported parameters and values:

Parameter	Value	Alias
TextRenderingMode	0	Fill
	1	Stroke
	2	FillStroke
	3	Invisible
	4	FillClip
	5	StrokeClip
	6	FillStrokeClip
	7	Clip
LineWidth	<i>positive number, unit is bp</i>	<i>TeX dimen</i>
LineCapStyle	0	Butt
	1	Round
	2	ProjectingSquare
LineJoinStyle	0	Miter
	1	Round
	2	Bevel
MiterLimit	<i>positive number</i>	
Flatness	<i>number between 0 and 100</i>	
LineDashPattern	<i>numbers in square brackets, followed by number, units are bp</i>	
RenderingIntent	AbsoluteColorimetric RelativeColorimetric Saturation Perceptual	
FillColor		<i>color specification</i>
StrokeColor		<i>color specification</i>

### 1.3.1 Details

The description and specification of these parameters are available in the PDF specification [1]. Therefore they are not repeated here.

**Value:** The values in the second column lists or describe the values that are specified by the PDF specification.

**Alias:** Instead of magic numbers the package also defines some aliases that can be given as value. Example: `LineCapStyle=Round` has the same effect as `LineCapStyle=1`.

**Number:** The term *number* means an integer or real number. The real number is given as plain decimal number without exponent. The decimal separator is a period. At least one digit must be present.

**LineWidth:** As alias a TeX dimen specification can be given. This includes explicit specifications with number and unit, e.g. `LineWidth=0.5pt`. Also L<sup>A</sup>T<sub>E</sub>X length registers may be used. If  $\varepsilon$ -T<sub>E</sub>X's `\dimexpr` is available, then it is automatically added. However package `calc` is not supported.

**FillColor, StrokeColor:** Package `color` or `xcolor` must be loaded before these options can be used (since version 1.2). L<sup>A</sup>T<sub>E</sub>X's color support sets both colors at the same time to the same value. However parameter `TextRenderingMode` offers the value `FillStroke` that makes only sense, if the two color types can be set separately. If one of the options `FillColor` or `StrokeColor` is specified, then also the color is set. For compatibility with the L<sup>A</sup>T<sub>E</sub>X color packages (`color` or `xcolor`), always both colors must be set. Thus if one of them is not specified, it is taken from the current color.

Both options `FillColor` and `StrokeColor` expect a L<sup>A</sup>T<sub>E</sub>X color specification as value. Also the optional color model argument is supported. Example:

```
FillColor=yellow,
StrokeColor=[cmyk]{1,.5,0,0}
```

## 1.4 Color stack

If the pdfT<sub>E</sub>X version provides color stacks, then each parameter is assigned a page based color stack. The assignment of a stack takes place, when its parameter is set the first time. This avoids the use of color stacks that are not needed.

## 2 Implementation

```
1 (*package)
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@pdfrender.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{pdfrender}{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@pdfrender.sty\endcsname
67 \ProvidesPackage{pdfrender}%
68 [2019/12/29 v1.6 Access to some PDF graphics parameters (HO)]%
69 \begingroup\catcode61\catcode48\catcode32=10\relax%
70 \catcode13=5 % ^~M
71 \endlinechar=13 %
72 \catcode123=1 % {
73 \catcode125=2 % }
74 \catcode64=11 % @
75 \def\x{\endgroup
76 \expandafter\edef\csname PdfRender@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\PdfRender@AtEnd{%
96     \PdfRender@AtEnd
97     \catcode#1=\the\catcode#1\relax
98   }%
99   \catcode#1=#2\relax
100 }
101 \TMP@EnsureCode{10}{12}% ^^J
102 \TMP@EnsureCode{36}{3}% $
103 \TMP@EnsureCode{39}{12}% '
104 \TMP@EnsureCode{40}{12}% (
105 \TMP@EnsureCode{41}{12}% )
106 \TMP@EnsureCode{42}{12}% *
107 \TMP@EnsureCode{43}{12}% +
108 \TMP@EnsureCode{44}{12}% ,
109 \TMP@EnsureCode{45}{12}% -
110 \TMP@EnsureCode{46}{12}% .
111 \TMP@EnsureCode{47}{12}% /
112 \TMP@EnsureCode{58}{12}% :
113 \TMP@EnsureCode{59}{12}% ;
114 \TMP@EnsureCode{60}{12}% <
115 \TMP@EnsureCode{62}{12}% >
116 \TMP@EnsureCode{63}{12}% ?
117 \TMP@EnsureCode{91}{12}% [
118 \TMP@EnsureCode{93}{12}% ]
119 \TMP@EnsureCode{94}{7}% ^ (superscript)
120 \TMP@EnsureCode{96}{12}% '
121 \TMP@EnsureCode{124}{12}% |

122 \def\PdfRender@AtEndHook{}
123 \expandafter\def\expandafter\PdfRender@AtEnd\expandafter{%
124   \expandafter\PdfRender@AtEndHook
125   \PdfRender@AtEnd
126   \endinput
127 }

```

## 2.1 Look for pdfTeX, its mode and features

\PdfRender@newif

```

128 \def\PdfRender@newif#1{%
129   \expandafter\edef\csname PdfRender@#1true\endcsname{%
130     \let
131     \expandafter\noexpand\csname ifPdfRender@#1\endcsname
132     \noexpand\iftrue
133   }%
134   \expandafter\edef\csname PdfRender@#1false\endcsname{%
135     \let
136     \expandafter\noexpand\csname ifPdfRender@#1\endcsname
137     \noexpand\iffalse
138   }%
139   \csname PdfRender@#1false\endcsname
140 }

```

\ifPdfRender@Stack

```

141 \PdfRender@newif{Stack}

\ifPdfRender@Match
142 \PdfRender@newif{Match}

\PdfRender@RequirePackage
143 \begingroup\expandafter\expandafter\expandafter\endgroup
144 \expandafter\ifx\csname RequirePackage\endcsname\relax
145 \def\PdfRender@RequirePackage#1[#2]{%
146 \expandafter\def\expandafter\PdfRender@AtEndHook\expandafter{%
147 \PdfRender@AtEndHook
148 \ltx@ifpackagelater{#1}{#2}{}{%
149 \@PackageWarningNoLine{pdfrender}{%
150 You have requested version\MessageBreak
151 '#2' of package '#1',\MessageBreak
152 but only version\MessageBreak
153 '\csname ver@#1.\ltx@pkgextension\endcsname'\MessageBreak
154 is available%
155 }%
156 }%
157 }%
158 \input #1.sty\relax
159 }%
160 \else
161 \let\PdfRender@RequirePackage\RequirePackage
162 \fi

```

#### Luatex compatibility

```

163 \ifx\pdfextension\@undefined\else
164 \def\pdfcolorstackinit {\pdffeedback colorstackinit}
165 \protected\def\pdfcolorstack {\pdfextension colorstack}
166 \protected\def\pdfliteral {\pdfextension literal}
167 \fi

168 \PdfRender@RequirePackage{iftex}[2019/11/07]
169 \PdfRender@RequirePackage{infwarerr}[2007/09/09]
170 \PdfRender@RequirePackage{ltxcmds}[2010/01/28]

171 \ifpdf
172 \ltx@ifundefined{pdfcolorstackinit}{%
173 \@PackageWarning{pdfrender}{%
174 Missing \string\pdfcolorstackinit
175 }%
176 }{%
177 \PdfRender@Stacktrue
178 }%
179 \ltx@ifundefined{pdfmatch}{%
180 \@PackageInfoNoLine{pdfrender}{%
181 \string\pdfmatch\ltx@space not found. %
182 Therefore the values\MessageBreak
183 of some parameters are not validated%
184 }%
185 }{%
186 \PdfRender@Matchtrue
187 }%
188 \else
189 \@PackageWarning{pdfrender}{%
190 Missing pdfTeX in PDF mode%
191 }%

```

```

192 \ltx@ifundefined{newcommand}{%
\pdfrender
193 \def\pdfrender#1{%
\textpdfrender
194 \long\def\textpdfrender#1#2{#2}%
195 }{%
\pdfrender
196 \newcommand*{\pdfrender}[1]{%
\textpdfrender
197 \newcommand{\textpdfrender}[2]{#2}%
198 }%
199 \expandafter\PdfRender@AtEnd
200 \fi%

```

## 2.2 Enable color support of L<sup>A</sup>T<sub>E</sub>X

```

201 \ltx@ifpackageloaded{color}{}%
202 \def\color@setgroup{\begingroup\set@color}%
203 \let\color@begingroup\begingroup
204 \def\color@endgroup{\endgraf\endgroup}%
205 \def\color@hbox{\hbox\bgroup\color@begingroup}%
206 \def\color@vbox{\vbox\bgroup\color@begingroup}%
207 \def\color@endbox{\color@endgroup\egroup}%
208 \ltx@ifundefined{bgroup}{%
209 \let\bgroup={\let\egroup=}
210 }{}%
211 \ltx@ifundefined{endgraf}{%
212 \let\endgraf=\par
213 }{}%
214 }

```

## 2.3 Hook into \normalcolor

The problem is that packages `color` and `xcolor` each overwrite `\normalcolor`. For example, after the package loading order `color`, `pdfrender` and `xcolor` the patched version of `\normalcolor` is overwritten by package `xcolor`. Also using `\AtBeginDocument` for patching is not enough. If package `hyperref` is loaded later, it might load package `color` using `\AtBeginDocument`.

```

\PdfRender@NormalColorHook
215 \def\PdfRender@NormalColorHook{}
\PdfRender@ColorSetGroupHook
216 \def\PdfRender@ColorSetGroupHook{}
\PdfRender@TestBox
217 \def\PdfRender@TestBox#1{%
218 \setbox0=\color@hbox#1\color@endbox
219 }

```



\PdfRender@PatchNormalColor

```
220 \def\PdfRender@PatchNormalColor{%
221   \ltx@ifundefined{normalcolor}{%
222     \gdef\normalcolor{\PdfRender@NormalColorHook}%
223   }{%
224     \begingroup
225       \def\PdfRender@NormalColorHook{\let\PdfRender@temp=Y}%
226       \PdfRender@TestBox{%
227         \let\set@color\relax
228         \normalcolor
229         \ifx\PdfRender@temp Y%
230           \else
231             \ltx@GlobalAppendToMacro\normalcolor{%
232               \PdfRender@NormalColorHook
233             }%
234           \fi
235         }%
236       \endgroup
237     }%
238     \ifx\nodocument\relax
239       \global\let\PdfRender@PatchNormalColor\relax
240     \fi
241 }%
```

\PdfRender@PatchColorSetGroup

```
242 \def\PdfRender@PatchColorSetGroup{%
243   \begingroup
244     \def\PdfRender@ColorSetGroupHook{\let\PdfRender@temp=Y}%
245     \PdfRender@TestBox{%
246       \let\set@color\relax
247       \color@setgroup\color@endgroup
248       \ifx\PdfRender@temp Y%
249         \else
250           \ltx@GlobalAppendToMacro\color@setgroup{%
251             \PdfRender@ColorSetGroupHook
252           }%
253         \fi
254       }%
255     \endgroup
256     \ifx\nodocument\relax
257       \global\let\PdfRender@PatchColorSetGroup\relax
258     \fi
259 }%
```

\PdfRender@PatchColor

```
260 \def\PdfRender@PatchColor{%
261   \PdfRender@PatchNormalColor
262   \PdfRender@PatchColorSetGroup
263 }

264 \PdfRender@PatchColor
265 \ltx@ifundefined{AtBeginDocument}{-}{%
266   \AtBeginDocument{\PdfRender@PatchColor}%
267 }

\AfterPackage is provided by package scrfile.
268 \ltx@ifundefined{AfterPackage}{-}{%
269 }%
```

```

270 \AfterPackage{color}{\PdfRender@PatchColor}%
271 \AfterPackage{xcolor}{\PdfRender@PatchColor}%
272 \AfterPackage{etoolbox}{%
273   \AfterEndPreamble{\PdfRender@PatchColor}%
274 }%
275 }%
\AfterEndPreamble is provided by package etoolbox.
276 \ltx@ifundefined{AfterEndPreamble}{%
277 }{%
278   \AfterEndPreamble{\PdfRender@PatchColor}%
279 }%
280 \PdfRender@RequirePackage{kvsetkeys}[2010/01/28]

```

\PdfRender@texorpdfstring

```

281 \def\PdfRender@texorpdfstring{%
282   \ltx@ifundefined{texorpdfstring}\ltx@firstoftwo\texorpdfstring
283 }

```

\pdfrender

```

284 \ltx@ifundefined{DeclareRobustCommand}%
285 \ltx@firstoftwo\ltx@secondoftwo
286 {%
287   \def\pdfrender#1%
288 }{%
289   \newcommand{\pdfrender}{}%
290   \DeclareRobustCommand*\pdfrender[1]%
291 }%
292 {%
293   \PdfRender@texorpdfstring{%
294     \PdfRender@PatchNormalColor
295     \global\let\PdfRender@FillColor\ltx@empty
296     \global\let\PdfRender@StrokeColor\ltx@empty
297     \kvsetkeys{PDFRENDER}{#1}%
298     \PdfRender@SetColor
299   }{%
300 }

```

\textpdfrender

```

301 \ltx@ifundefined{DeclareRobustCommand}%
302 \ltx@firstoftwo\ltx@secondoftwo
303 {%
304   \long\def\textpdfrender#1#2%
305 }{%
306   \newcommand{\textpdfrender}{}%
307   \DeclareRobustCommand{\textpdfrender}[2]%
308 }%
309 {%
310   \PdfRender@texorpdfstring{%
311     \begingroup
312       \pdfrender{#1}%
313       #2%
314     \endgroup
315   }{#2}%
316 }

```

\ifPdfRender@Values

```

317 \PdfRender@newif{Values}

```

\PdfRender@NewClassValues

```
318 \def\PdfRender@NewClassValues#1#2#3#4{%
319   \PdfRender@Valuestrue
320   \PdfRender@NewClass{#1}{#2}{#3}{#4}{}%
321 }
```

\PdfRender@NewClass

```
322 \def\PdfRender@NewClass#1#2#3#4#5{%
323   \PdfRender@newif{Active#1}%
324   \expandafter\def\csname PdfRender@Default#1\endcsname{#2}%
325   \expandafter\let\csname PdfRender@Current#1\expandafter\endcsname
326     \csname PdfRender@Default#1\endcsname
327   \ifPdfRender@Stack
328     \expandafter\edef\csname PdfRender@Init#1\endcsname{%
329       \global\chardef
330       \expandafter\noexpand\csname PdfRender@Stack#1\endcsname=%
331         \noexpand\pdfcolorstackinit page direct{%
332           \noexpand#3%
333           \expandafter\noexpand\csname PdfRender@Default#1\endcsname
334         }\relax
335       \noexpand\@PackageInfo{pdfrender}{%
336         New color stack '#1' = \noexpand\number
337         \expandafter\noexpand\csname PdfRender@Stack#1\endcsname
338       }%
339       \gdef\expandafter\noexpand\csname PdfRender@Init#1\endcsname{%
340         }%
341       \expandafter\edef\csname PdfRender@Set#1\endcsname{%
342         \expandafter\noexpand\csname PdfRender@Init#1\endcsname
343         \noexpand\pdfcolorstack
344         \expandafter\noexpand\csname PdfRender@Stack#1\endcsname
345         push{%
346           #3{\expandafter\noexpand\csname PdfRender@Current#1\endcsname}%
347         }%
348         \noexpand\aftergroup
349         \expandafter\noexpand\csname PdfRender@Reset#1\endcsname
350       }%
351       \expandafter\edef\csname PdfRender@Reset#1\endcsname{%
352         \expandafter\noexpand\csname PdfRender@Init#1\endcsname
353         \noexpand\pdfcolorstack
354         \expandafter\noexpand\csname PdfRender@Stack#1\endcsname
355         pop\relax
356       }%
357     \else
358       \expandafter\edef\csname PdfRender@Set#1\endcsname{%
359         \noexpand\pdfliteral direct{%
360           #3{\expandafter\noexpand\csname PdfRender@Current#1\endcsname}%
361         }%
362         \noexpand\aftergroup
363         \expandafter\noexpand\csname PdfRender@Reset#1\endcsname
364       }%
365       \expandafter\edef\csname PdfRender@Reset#1\endcsname{%
366         \noexpand\pdfliteral direct{%
367           #3{\expandafter\noexpand\csname PdfRender@Current#1\endcsname}%
368         }%
369       }%
370     \fi
371   \expandafter\edef\csname PdfRender@Normal#1\endcsname{%
372     \let
```

```

373 \expandafter\noexpand\csname PdfRender@Current#1\endcsname
374 \expandafter\noexpand\csname PdfRender@Default#1\endcsname
375 \noexpand\PdfRender@Set{#1}%
376 }%
377 \expandafter\ltx@GlobalAppendToMacro\expandafter\PdfRender@NormalColorHook
378 \expandafter{%
379 \csname PdfRender@Normal#1\endcsname
380 }%
381 \ltx@GlobalAppendToMacro\PdfRender@ColorSetGroupHook{%
382 \PdfRender@Set{#1}%
383 }%
384 \ifPdfRender@Values
385 \kv@parse@normalized{#4}{%
386 \expandafter\let\csname PdfRender@#1@\kv@key\endcsname\kv@key
387 \ifx\kv@value\relax
388 \else
389 \expandafter\let\csname PdfRender@#1@\kv@value\endcsname\kv@key
390 \fi
391 \ltx@gobbletwo
392 }%
393 \PdfRender@define@key{PDFRENDER}{#1}{%
394 \global\csname PdfRender@Active#1true\endcsname
395 \def\PdfRender@Current{##1}%
396 \PdfRender@SetValidateValues{#1}%
397 }%
398 \PdfRender@Valuesfalse
399 \else
400 \PdfRender@define@key{PDFRENDER}{#1}{%
401 \global\csname PdfRender@Active#1true\endcsname
402 \expandafter\def\csname PdfRender@Current#1\endcsname{##1}%
403 \ltx@ifundefined{PdfRender@PostProcess#1}{%
404 }{%
405 \csname PdfRender@PostProcess#1\endcsname
406 }%
407 \PdfRender@SetValidate{#1}{#4}{#5}%
408 }%
409 \fi
410 }%

```

\PdfRender@define@key

```

411 \ltx@ifundefined{define@key}{%
412 \def\PdfRender@define@key#1#2{%
413 \expandafter\def\csname KV@#1@#2\endcsname##1%
414 }%
415 }{%
416 \let\PdfRender@define@key\define@key
417 }

```

\PdfRender@Set

```

418 \def\PdfRender@Set#1{%
419 \csname ifPdfRender@Active#1\endcsname
420 \csname PdfRender@Set#1\expandafter\endcsname
421 \fi
422 }

```

\PdfRender@Reset

```

423 \def\PdfRender@Reset#1{%
424 \csname ifPdfRender@Active#1\endcsname

```

```

425 \csname PdfRender@Reset#1\expandafter\endcsname
426 \fi
427 }

```

\PdfRender@ErrorInvalidValue

```

428 \def\PdfRender@ErrorInvalidValue#1{%
429 \PackageError{pdfrender}{%
430 Ignoring parameter setting for ‘#1’\MessageBreak
431 because of invalid value %
432 ‘\csname PdfRender@Current#1\endcsname’%
433 }\@ehc
434 \expandafter\let\csname PdfRender@Current#1\endcsname\ltx@empty
435 }%

```

\PdfRender@SetValidate

```

436 \ifPdfRender@Match
437 \def\PdfRender@SetValidate#1#2#3{%
438 \ifnum\pdfmatch{^(#2)$}\csname PdfRender@Current#1\endcsname}=1 %
439 \csname PdfRender@Set#1\expandafter\endcsname
440 \else
441 \PdfRender@ErrorInvalidValue{#1}%
442 \fi
443 }%
444 \else
445 \def\PdfRender@SetValidate#1#2#3{%
446 \expandafter\let\expandafter\PdfRender@Current
447 \csname PdfRender@Current#1\endcsname
448 #3%
449 \ifx\PdfRender@Current\@empty
450 \PdfRender@ErrorInvalidValue{#1}%
451 \else
452 \csname PdfRender@Set#1\expandafter\endcsname
453 \fi
454 }%
455 \fi

```

\PdfRender@SetValidateValues

```

456 \def\PdfRender@SetValidateValues#1{%
457 \ltx@ifundefined{PdfRender@#1@\PdfRender@Current}{%
458 \expandafter\let\csname PdfRender@Current#1\endcsname
459 \PdfRender@Current
460 \PdfRender@ErrorInvalidValue{#1}%
461 }{%
462 \expandafter\edef\csname PdfRender@Current#1\endcsname{%
463 \csname PdfRender@#1@\PdfRender@Current\endcsname
464 }%
465 \csname PdfRender@Set#1\endcsname
466 }%
467 }

```

\PdfRender@OpValue

```

468 \def\PdfRender@OpValue#1#2{#2\ltx@space#1}%

```

\PdfRender@OpName

```

469 \def\PdfRender@OpName#1#2{/#2\ltx@space#1}%

```

## 2.4 Declare and setup parameters

```
470 \PdfRender@NewClassValues{TextRenderingMode}%
471     {0}%
472     {\PdfRender@OpValue{Tr}}{%
473     0=Fill,%
474     1=Stroke,%
475     2=FillStroke,%
476     3=Invisible,%
477     4=FillClip,%
478     5=StrokeClip,%
479     6=FillStrokeClip,%
480     7=Clip,%
481 }%
482 \PdfRender@NewClass{LineWidth}{1}{\PdfRender@OpValue{w}}{%
483     [0-9]+\string\.[0-9]*|\string\.[0-9]+%
484 }{%
485 \ltx@ifundefined{dimexpr}{%
486     \def\PdfRender@dimexpr{%
487     }{%
488     \let\PdfRender@dimexpr\dimexpr
489 }
490 \def\PdfRender@PostProcessLineWidth{%
491     \begingroup
492     \afterassignment\PdfRender@PostProcessLineWidth
493     \dimen0=\PdfRender@dimexpr\PdfRender@CurrentLineWidth bp %
494     \PdfRender@let\PdfRender@relax\PdfRender@relax
495 }
496 \let\PdfRender@let\let
497 \let\PdfRender@relax\relax
498 \def\PdfRender@PostProcessLineWidth#1\PdfRender@let{%
499     \ifx\#1\%
500     \endgroup
501     \else
502     \dimen0=.996264\dimen0 % 72/72.27
503     \edef\x{\endgroup
504     \def\noexpand\PdfRender@CurrentLineWidth{%
505     \strip@pt\dimen0%
506     }%
507     }%
508     \expandafter\x
509     \fi
510 }
511 \PdfRender@NewClassValues{LineCapStyle}{0}{\PdfRender@OpValue{J}}{%
512     0=Butt,%
513     1=Round,%
514     2=ProjectingSquare,%
515 }%
516 \PdfRender@NewClassValues{LineJoinStyle}{0}{\PdfRender@OpValue{j}}{%
517     0=Miter,%
518     1=Round,%
519     2=Bevel,%
520 }%
521 \PdfRender@NewClass{MiterLimit}{10}{\PdfRender@OpValue{M}}{%
522     [0-9]*[1-9][0-9]*\string\.[0-9]*|%
523     [0-9]*\string\.[0-9]*[1-9][0-9]*%
524 }{%
525 \PdfRender@NewClass{Flatness}{0}{\PdfRender@OpValue{i}}{%
526     100(\string\.[0-9]*| [0-9][0-9](\string\.[0-9]*)?|\string\.[0-9]+%
```

```

527 }{}%
528 \PdfRender@NewClass{LineDashPattern}{[]}{\PdfRender@OpValue{d}}{%
529   \string\[%
530   ( ?([0-9]+\string\.[0-9]*|\string\.[0-9]+) ?)*%
531   \string\] ?%
532   ([0-9]+\string\.[0-9]*|\string\.[0-9]+)%
533 }{}%
534 \PdfRender@NewClassValues{RenderingIntent}%
535   {RelativeColorimetric}%
536   {\PdfRender@OpName{ri}}{%
537   AbsoluteColorimetric,%
538   RelativeColorimetric,%
539   Saturation,%
540   Perceptual,%
541 }%

```

## 2.5 Fill and stroke color support

```

542 \PdfRender@define@key{PDFRENDER}{FillColor}{%
543   \begingroup
544     \def\PdfRender@Color{#1}%
545     \ifx\PdfRender@Color\ltx@empty
546       \global\let\PdfRender@FillColor\ltx@empty
547     \else
548       \PdfRender@ColorAvailable{%
549         \PdfRender@TestBox{%
550           \expandafter\PdfRender@TryColor\PdfRender@Color\ltx@empty
551           \PdfRender@GetFillColor
552           \ifx\PdfRender@FillColor\ltx@empty
553             \@PackageWarning{pdfrender}{%
554               Cannot extract fill color\MessageBreak
555               from value ‘#1’%
556             }%
557           \fi
558         }%
559       }%
560     \fi
561   \endgroup
562 }
563 \PdfRender@define@key{PDFRENDER}{StrokeColor}{%
564   \begingroup
565     \def\PdfRender@Color{#1}%
566     \ifx\PdfRender@Color\ltx@empty
567       \global\let\PdfRender@StrokeColor\ltx@empty
568     \else
569       \PdfRender@ColorAvailable{%
570         \PdfRender@TestBox{%
571           \expandafter\PdfRender@TryColor\PdfRender@Color\ltx@empty
572           \PdfRender@GetStrokeColor
573           \ifx\PdfRender@StrokeColor\ltx@empty
574             \@PackageWarning{pdfrender}{%
575               Cannot extract stroke color\MessageBreak
576               from value ‘#1’%
577             }%
578           \fi
579         }%
580       }%
581     \fi
582   \endgroup

```

```

583 }

\PdfRender@ColorAvailable

584 \def\PdfRender@ColorAvailable{%
585   \@ifundefined{set@color}{%
586     \@PackageError{pdfrender}{%
587       Ignoring color options, because neither\MessageBreak
588       package 'color' nor package 'xcolor' is loaded%
589     }\@ehc
590     \global\let\PdfRender@ColorAvailable\ltx@gobble
591   }{%
592     \global\let\PdfRender@ColorAvailable\ltx@firstofone
593   }%
594 \PdfRender@ColorAvailable
595 }

\PdfRender@TryColor

596 \def\PdfRender@TryColor{%
597   \@ifnextchar[\color\PdfRender@@TryColor
598 }

\PdfRender@@TryColor

599 \def\PdfRender@@TryColor#1\ltx@empty{%
600   \expandafter\color\expandafter{\PdfRender@Color}%
601 }

\PdfRender@SetColor

602 \def\PdfRender@SetColor{%
603   \chardef\PdfRender@NeedsCurrentColor=0 %
604   \ifx\PdfRender@FillColor\ltx@empty
605     \ifx\PdfRender@StrokeColor\ltx@empty
606       \else
607         \edef\PdfRender@CurrentColor{%
608           \noexpand\PdfRender@FillColor\ltx@space\PdfRender@StrokeColor
609         }%
610         \chardef\PdfRender@NeedsCurrentColor=1 %
611       \fi
612     \else
613       \ifx\PdfRender@StrokeColor\ltx@empty
614         \edef\PdfRender@CurrentColor{%
615           \PdfRender@FillColor\ltx@space\noexpand\PdfRender@StrokeColor
616         }%
617         \chardef\PdfRender@NeedsCurrentColor=2 %
618       \else
619         \edef\current@color{%
620           \PdfRender@FillColor\ltx@space\PdfRender@StrokeColor
621         }%
622         \set@color
623       \fi
624     \fi
625     \ifnum\PdfRender@NeedsCurrentColor=1 %
626       \PdfRender@GetFillColor
627       \ifx\PdfRender@FillColor\ltx@empty
628         \@PackageWarning{pdfrender}{%
629           Cannot extract current fill color%
630         }%
631       \else
632         \edef\current@color{\PdfRender@CurrentColor}%

```



```

633     \set@color
634     \fi
635   \else
636     \ifnum\PdfRender@NeedsCurrentColor=2 %
637       \PdfRender@GetStrokeColor
638       \ifx\PdfRender@StrokeColor\ltx@empty
639         \@PackageWarning{pdfrender}{%
640           Cannot extract current stroke color%
641         }%
642       \else
643         \edef\current@color{\PdfRender@CurrentColor}%
644         \set@color
645       \fi
646     \fi
647   \fi
648 }

```

\PdfRender@PatternFillColor

```

649 \edef\PdfRender@PatternFillColor{ % space
650   (%
651     [0-9\string\.] + g!%
652     [0-9\string\.] + [0-9\string\.] + [0-9\string\.] + rg!%
653     [0-9\string\.] + [0-9\string\.] + %
654     [0-9\string\.] + [0-9\string\.] + k%
655   ) % space
656   (.*)$%
657 }

```

\PdfRender@PatternStrokeColor

```

658 \edef\PdfRender@PatternStrokeColor{ % space
659   (%
660     [0-9\string\.] + G!%
661     [0-9\string\.] + [0-9\string\.] + [0-9\string\.] + RG!%
662     [0-9\string\.] + [0-9\string\.] + %
663     [0-9\string\.] + [0-9\string\.] + K%
664   ) % space
665   (.*)$%
666 }

```

\PdfRender@MatchPattern

```

667 \def\PdfRender@MatchPattern#1{%
668   \ifnum\pdfmatch{\PdfRender@Pattern}{\PdfRender@String}=1 %
669     \xdef#1{%
670       \expandafter\strip@prefix\pdflastmatch 1%
671     }%
672   \edef\PdfRender@String{%
673     \expandafter\strip@prefix\pdflastmatch 2%
674   }%
675   \ifx\PdfRender@String\ltx@empty
676     \else
677       \expandafter\expandafter\expandafter\PdfRender@MatchPattern
678       \expandafter\expandafter\expandafter#1%
679     \fi
680   \fi
681 }

```

\PdfRender@GetFillColor

```

682 \def\PdfRender@GetFillColor{%

```

```

683 \global\let\PdfRender@FillColor\ltx@empty
684 \begingroup
685 \ifPdfRender@Match
686 \let\PdfRender@Pattern\PdfRender@PatternFillColor
687 \edef\PdfRender@String{\ltx@space\current@color\ltx@space}%
688 \PdfRender@MatchPattern\PdfRender@FillColor
689 \else
690 \edef\current@color{\current@color\ltx@space}%
691 \let\PdfRender@OP\relax
692 \PdfRender@FindOp{g}0%
693 \PdfRender@FindOp{G}1%
694 \PdfRender@FindOp{rg}0%
695 \PdfRender@FindOp{RG}1%
696 \PdfRender@FindOp{k}0%
697 \PdfRender@FindOp{K}1%
698 \PdfRender@FilterOp 0\PdfRender@FillColor
699 \fi
700 \endgroup
701 }

```

\PdfRender@GetStrokeColor

```

702 \def\PdfRender@GetStrokeColor{%
703 \global\let\PdfRender@StrokeColor\ltx@empty
704 \begingroup
705 \ifPdfRender@Match
706 \let\PdfRender@Pattern\PdfRender@PatternStrokeColor
707 \edef\PdfRender@String{\ltx@space\current@color\ltx@space}%
708 \PdfRender@MatchPattern\PdfRender@StrokeColor
709 \else
710 \edef\current@color{\current@color\ltx@space}%
711 \let\PdfRender@OP\relax
712 \PdfRender@FindOp{g}0%
713 \PdfRender@FindOp{G}1%
714 \PdfRender@FindOp{rg}0%
715 \PdfRender@FindOp{RG}1%
716 \PdfRender@FindOp{k}0%
717 \PdfRender@FindOp{K}1%
718 \PdfRender@FilterOp 1\PdfRender@StrokeColor
719 \fi
720 \endgroup
721 }

```

```

722 \ifPdfRender@Match
723 \expandafter\PdfRender@AtEnd
724 \fi%

```

\PdfRender@FindOp

```

725 \def\PdfRender@FindOp#1#2{%
726 \def\PdfRender@temp##1 #1 ##2\@nil{%
727 ##1%
728 \ifx\##2\%
729 \expandafter\@gobble
730 \else
731 \PdfRender@OP{#1}#2%
732 \expandafter\@firstofone
733 \fi
734 {%
735 \PdfRender@temp##2\@nil

```

```

736   }%
737 }%
738 \edef\current@color{%
739   \@firstofone{\expandafter\PdfRender@temp\current@color} #1 \@nil
740 }%
741 }

\PdfRender@FilterOp
742 \def\PdfRender@FilterOp#1#2{%
743   \expandafter\PdfRender@@FilterOp\expandafter#1\expandafter#2%
744   \current@color\PdfRender@OP{ }{ }%
745 }

\PdfRender@@FilterOp
746 \def\PdfRender@@FilterOp#1#2#3\PdfRender@OP#4#5{%
747   \ifx\#4#5\%
748   \else
749     \ifnum#1=#5 %
750       \xdef#2{#3 #4}%
751       \fi
752       \expandafter\PdfRender@@FilterOp\expandafter#1\expandafter#2%
753       \fi
754 }

755 \PdfRender@AtEnd%
756 \endpackage

```

## 3 Installation

### 3.1 Download

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

[CTAN:macros/latex/contrib/oberdiek/pdfrender.dtx](#) The source file.

[CTAN:macros/latex/contrib/oberdiek/pdfrender.pdf](#) Documentation.

**Bundle.** All the packages of the bundle ‘oberdiek’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

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

*TDS* refers to the standard “A Directory Structure for  $\TeX$  Files” ([CTAN:pkg/tds](#)). Directories with `texmf` in their name are usually organized this way.

### 3.2 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
```

---

<sup>1</sup>[CTAN:pkg/pdfrender](#)

### 3.3 Package installation

**Unpacking.** The `.dtx` file is a self-extracting `docstrip` archive. The files are extracted by running the `.dtx` through plain  $\TeX$ :

```
tex pdfrenderer.dtx
```

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

```
pdfrenderer.sty → tex/generic/oberdiek/pdfrenderer.sty
pdfrenderer.pdf → doc/latex/oberdiek/pdfrenderer.pdf
pdfrenderer.dtx → source/latex/oberdiek/pdfrenderer.dtx
```

If you have a `docstrip.cfg` that configures and enables `docstrip`'s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

### 3.4 Refresh file name databases

If your  $\TeX$  distribution ( $\TeX$  Live, MiK $\TeX$ , ...) relies on file name databases, you must refresh these. For example,  $\TeX$  Live users run `texhash` or `mktexlsr`.

### 3.5 Some details for the interested

**Unpacking with  $\LaTeX$ .** The `.dtx` chooses its action depending on the format:

**plain  $\TeX$ :** Run `docstrip` and extract the files.

**$\LaTeX$ :** Generate the documentation.

If you insist on using  $\LaTeX$  for `docstrip` (really, `docstrip` does not need  $\LaTeX$ ), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{pdfrenderer.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 `pdf $\LaTeX$` :

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

## 4 Acknowledgement

**Friedrich Vosberg** asked in the newsgroup `de.comp.text.tex` for the font outline feature [2].

**Gaius Pupus** proposed the basic method using `\pdfliteral` in this thread [3].

**Rolf Niepraschk** added color support [4].

## 5 References

- [1] Adobe Systems Incorporated. *PDF Reference – Adobe Portable Document format – Version 1.7*. 6th ed. 2006. URL: [http://www.adobe.com/devnet/acrobat/pdfs/pdf\\_reference\\_1-7.pdf](http://www.adobe.com/devnet/acrobat/pdfs/pdf_reference_1-7.pdf).
- [2] Friedrich Vosberg, *Text in Buchstabenumrissen*, de.comp.text.tex, 2010-01-22. URL: <https://groups.google.com/group/de.comp.text.tex/msg/f442310ac8b2d506>.
- [3] Gaius Pupus, *Re: Text in Buchstabenumrissen*, de.comp.text.tex, 2010-01-23. URL: <https://groups.google.com/group/de.comp.text.tex/msg/95d890d77ac47eb1>.
- [4] Rolf Niepraschk, *Re: Text in Buchstabenumrissen*, de.comp.text.tex, 2010-01-24. URL: <https://groups.google.com/group/de.comp.text.tex/msg/4eb61a5879db54db>.

## 6 History

[2010/01/26 v1.0]

- The first version.

[2010/01/27 v1.1]

- Macros `\pdfrender` and `\textpdfrender` are made robust.
- Color extraction rewritten for the case that `\pdfmatch` is not available. This fixes wrong color assignments in case of nesting.
- Color extraction of case `\pdfmatch` is fixed for the case that the color string contains several fill or several stroke operations.

[2010/01/28 v1.2]

- Dependency from package `color` is removed.
- Compatibility for plain `TEX` and even `iniTEX` added.

[2016/05/14 v1.3]

- Use package `luatex85` for compatibility with new `LuaTEX`.

[2016/05/17 v1.4]

- Documentation updates.
- adjust `luatex85` reference so that it works in plain `TEX`.

[2018/11/01 v1.5]

- Remove `luatex85` dependency

[2019/12/29 v1.6]

- `iftex` package.

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