

# The pdfcol package

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## Abstract

Since version 1.40 pdfTeX supports color stacks. The driver file `pdftex.def` for package `color` defines and uses a main color stack since version v0.04b. Package `pdfcol` is intended for package writers. It defines macros for setting and maintaining new color stacks.

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## 1 Documentation

Version 1.40 of pdfTeX adds new primitives `\pdfcolorstackinit` and `\pdfcolorstack`. Now color stacks can be defined and used. A main color stack is maintained by the driver file `pdftex.def` similar to dvips or dvipdfm. However the number of color stacks is not limited to one in pdfTeX. Thus further color problems can now be solved, such as footnotes across pages or text that is set in parallel columns

(e.g. packages `parallel` or `parcolumn`). Unlike the main color stack, the support by additional color stacks cannot be done in a transparent manner.

This package `pdfcol` provides an easier interface to additional color stacks without the need to use the low level primitives.

## 1.1 Requirements

- pdfTeX 1.40 or greater.
- pdfTeX in PDF mode. (I don't know a DVI driver that support several color stacks.)
- `pdftex.def` 2007/01/02 v0.04b.

Package `pdfcol` checks the requirements and sets switch `\ifpdfcolAvailable` accordingly.

## 1.2 Interface

`\ifpdfcolAvailable`

If the requirements of section 1.1 are met the switch `\ifpdfcolAvailable` behaves as `\iftrue`. Otherwise the other interface macros in this section will be disabled with a message. Also the first use of such a macro will print a message. The messages are print to the `..log` file only if pdfTeX is not used in PDF mode.

`\pdfcolErrorNoStacks`

The first call of `\pdfcolErrorNoStacks` prints an error message, if color stacks are not available.

`\pdfcolInitStack {<name>}`

A new color stack is initialized by `\pdfcolInitStack`. The `<name>` is used for indentifying the stack. It usually consists of letters and digits. (The name must survive a `\csname`.)

The intension of the macro is the definition of an additional color stack. Thus the stack is not page bounded like the main color stack. Black (`0 g 0 G`) is used as initial color value. And colors are written with modifier `direct` that means without setting the current transfer matrix and changing the current point (see documentation of pdfTeX for `\pdfliteral direct{...}`).

`\pdfcolIfStackExists {<name>} {<then>} {<else>}`

Macro `\pdfcolIfStackExists` checks whether color stack `<name>` exists. In case of success argument `<then>` is executed and `<else>` otherwise.

`\pdfcolSwitchStack {<name>}`

Macro `\pdfcolSwitchStack` switches the color stack. The color macros of package `color` (or `xcolor`) now uses the new color stack with name `<name>`.

`\pdfcolSetCurrent {<name>}`

Macro `\pdfcolSetCurrent` sets the color that is read in the top-most entry of color stack `<name>`. If `<name>` is empty, the default color stack is used.

## 2 Implementation

1 `\package`

### 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
3   \catcode44 12 % ,
4   \catcode45 12 % -
5   \catcode46 12 % .
6   \catcode58 12 % :
7   \catcode64 11 % @
8   \expandafter\let\expandafter\x\csname ver@pdfcol.sty\endcsname
9   \ifcase 0%
10    \ifx\x\relax % plain
11    \else
12      \ifx\x\empty % LaTeX
13      \else
14        1%
15      \fi
16    \fi
17  \else
18    \catcode35 6 % #
19    \catcode123 1 % {
20    \catcode125 2 % }
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{pdfcol}{The package is already loaded}%
29  \endgroup
30  \expandafter\endinput
31 \fi
32 \endgroup

```

Package identification:

```

33 \begingroup
34   \catcode35 6 % #
35   \catcode40 12 % (
36   \catcode41 12 % )
37   \catcode44 12 % ,
38   \catcode45 12 % -
39   \catcode46 12 % .
40   \catcode47 12 % /
41   \catcode58 12 % :
42   \catcode64 11 % @
43   \catcode123 1 % {
44   \catcode125 2 % }
45   \expandafter\ifx\csname ProvidesPackage\endcsname\relax
46     \def\x#1#2#3[#4]{\endgroup
47       \immediate\write-1{Package: #3 #4}%
48       \xdef#1{#4}%
49     }%
50   \else
51     \def\x#1#2[#3]{\endgroup
52       #2[#3]}%
53     \ifx#1\relax
54       \xdef#1{#3}%
55     \fi
56   }%

```

```

57 \fi
58 \expandafter\x\csname ver@pdfcol.sty\endcsname
59 \ProvidesPackage{pdfcol}%
60 [2007/09/09 v1.0 Maintaining additional color stacks for pdfTeX (HO)]

```

## 2.2 Catcodes

```

61 \begingroup
62 \catcode123 1 % {
63 \catcode125 2 % }
64 \def\x{\endgroup
65 \expandafter\edef\csname PDFCOL@AtEnd\endcsname{%
66 \catcode35 \the\catcode35\relax
67 \catcode64 \the\catcode64\relax
68 \catcode123 \the\catcode123\relax
69 \catcode125 \the\catcode125\relax
70 }%
71 }%
72 \x
73 \catcode35 6 % #
74 \catcode64 11 % @
75 \catcode123 1 % {
76 \catcode125 2 % }
77 \def\TMP@EnsureCode#1#2{%
78 \edef\PDFCOL@AtEnd{%
79 \PDFCOL@AtEnd
80 \catcode#1 \the\catcode#1\relax
81 }%
82 \catcode#1 #2\relax
83 }
84 \TMP@EnsureCode{39}{12}% '
85 \TMP@EnsureCode{40}{12}% (
86 \TMP@EnsureCode{41}{12}% )
87 \TMP@EnsureCode{43}{12}% +
88 \TMP@EnsureCode{44}{12}% ,
89 \TMP@EnsureCode{46}{12}% .
90 \TMP@EnsureCode{47}{12}% /
91 \TMP@EnsureCode{61}{12}% =
92 \TMP@EnsureCode{96}{12}% `

```

## 2.3 Check requirements

ifpdfcolAvailable

```

93 \newif\ifpdfcolAvailable
94 \pdfcolAvailabletrue

```

\PDFCOL@RequirePackage

```

95 \begingroup\expandafter\expandafter\expandafter\endgroup
96 \expandafter\ifx\csname RequirePackage\endcsname\relax
97 \def\PDFCOL@RequirePackage#1[#2]{\input #1.sty\relax}%
98 \else
99 \def\PDFCOL@RequirePackage#1[#2]{%
100 \RequirePackage{#1}[#2]}%
101 }%
102 \fi

```

### 2.3.1 Check PDF mode

```

103 \PDFCOL@RequirePackage{infwarerr}[2007/09/09]
104 \PDFCOL@RequirePackage{ifpdf}[2007/09/09]
105 \ifpdf
106 \def\PDFCOL@Message{%
107 \@PackageWarningNoLine{pdfcol}%

```

```

108 }%
109 \else
110   \pdfcolAvailablefalse
111   \def\PDFCOL@Message{%
112     \@PackageInfoNoLine{pdfcol}%
113   }%
114   \PDFCOL@Message{%
115     Interface disabled because of missing PDF mode of pdfTeX%
116   }%
117 \fi

```

### 2.3.2 Check version of pdfTeX

```

118 \ifpdfcolAvailable
119   \begingroup\expandafter\expandafter\expandafter\endgroup
120   \expandafter\ifx\csname pdfcolorstack\endcsname\relax
121     \pdfcolAvailablefalse
122     \PDFCOL@Message{%
123       Interface disabled because of too old pdfTeX.\MessageBreak
124       Required is version 1.40+ for \string\pdfcolorstack
125     }%
126   \fi
127 \fi
128 \ifpdfcolAvailable
129   \begingroup\expandafter\expandafter\expandafter\endgroup
130   \expandafter\ifx\csname pdfcolorstack\endcsname\relax
131     \pdfcolAvailablefalse
132     \PDFCOL@Message{%
133       Interface disabled because of too old pdfTeX.\MessageBreak
134       Required is version 1.40+ for \string\pdfcolorstackinit
135     }%
136   \fi
137 \fi

```

### 2.3.3 Check pdftex.def

```

138 \ifpdfcolAvailable
139   \begingroup\expandafter\expandafter\expandafter\endgroup
140   \expandafter\ifx\csname @pdfcolorstack\endcsname\relax
141     Try to load package color if it is not yet loaded (LATEX case).
142     \begingroup\expandafter\expandafter\expandafter\endgroup
143     \expandafter\ifx\csname ver@color.sty\endcsname\relax
144       \begingroup\expandafter\expandafter\expandafter\endgroup
145       \expandafter\ifx\csname documentclass\endcsname\relax
146         \RequirePackage[pdftex]{color}\relax
147       \fi
148     \fi
149     \begingroup\expandafter\expandafter\expandafter\endgroup
150     \expandafter\ifx\csname @pdfcolorstack\endcsname\relax
151       \pdfcolAvailablefalse
152       \PDFCOL@Message{%
153         Interface disabled because 'pdftex.def'\MessageBreak
154         is not loaded or it is too old.\MessageBreak
155         Required is version 0.04b or greater%
156       }%
157     \fi
158   \fi
159 \fi
160 \let\pdfcolAvailabletrue\relax
161 \let\pdfcolAvailablefalse\relax

```

## 2.4 Enabled interface macros

```

162 \ifpdfcolAvailable

\pdfcolErrorNoStacks

163 \let\pdfcolErrorNoStacks\relax

\pdfcol@Value

164 \expandafter\ifx\csname pdfcol@Value\endcsname\relax
165 \def\pdfcol@Value{0 g 0 G}%
166 \fi

\pdfcol@LiteralModifier

167 \expandafter\ifx\csname pdfcol@LiteralModifier\endcsname\relax
168 \def\pdfcol@LiteralModifier{direct}%
169 \fi

\pdfcolInitStack

170 \def\pdfcolInitStack#1{%
171 \expandafter\ifx\csname pdfcol@Stack@#1\endcsname\relax
172 \global\expandafter\chardef\csname pdfcol@Stack@#1\endcsname=%
173 \pdfcolorstackinit\pdfcol@LiteralModifier{\pdfcol@Value}%
174 \relax
175 \@PackageInfo{pdfcol}{%
176 New color stack '#1' = \number\csname pdfcol@Stack@#1\endcsname
177 }%
178 \else
179 \@PackageError{pdfcol}{%
180 Stack '#1' is already defined%
181 }\@ehc
182 \fi
183 }%

\pdfcolIfStackExists

184 \def\pdfcolIfStackExists#1{%
185 \expandafter\ifx\csname pdfcol@Stack@#1\endcsname\relax
186 \expandafter\@secondoftwo
187 \else
188 \expandafter\@firstoftwo
189 \fi
190 }%

\@firstoftwo

191 \expandafter\ifx\csname @firstoftwo\endcsname\relax
192 \long\def\@firstoftwo#1#2{#1}%
193 \fi

\@secondoftwo

194 \expandafter\ifx\csname @secondoftwo\endcsname\relax
195 \long\def\@secondoftwo#1#2{#2}%
196 \fi

\pdfcolSwitchStack

197 \def\pdfcolSwitchStack#1{%
198 \pdfcolIfStackExists{#1}{%
199 \expandafter\let\expandafter\@pdfcolorstack
200 \csname pdfcol@Stack@#1\endcsname
201 }{%
202 \pdfcol@ErrorNoStack{#1}%
203 }%
204 }%

```

\pdfcolSetCurrent

```
205 \def\pdfcolSetCurrent#1{%
206   \ifx\#1\%
207     \pdfcolorstack\@pdfcolorstack current\relax
208   \else
209     \pdfcolIfStackExists{#1}{%
210       \pdfcolorstack\csname pdfcol@Stack@#1\endcsname current\relax
211     }{%
212       \pdfcol@ErrorNoStack{#1}%
213     }%
214   \fi
215 }%
```

\pdfcol@ErrorNoStack

```
216 \def\pdfcol@ErrorNoStack#1{%
217   \@PackageError{pdfcol}{Stack ‘#1’ does not exists}\@ehc
218 }%
```

## 2.5 Disabled interface macros

219 \else

\pdfcolErrorNoStacks

```
220 \def\pdfcolErrorNoStacks{%
221   \@PackageError{pdfcol}{%
222     Color stacks are not available%
223   }{%
224     Update pdfTeX (1.40) and ‘pdftex.def’ (0.04b) %
225     if necessary.\MessageBreak
226     Ensure that ‘pdftex.def’ is loaded %
227     (package ‘color’ or ‘xcolor’).\MessageBreak
228     Further messages can be found in TeX’s %
229     protocol file ‘\jobname.log’.\MessageBreak
230   \MessageBreak
231   \@ehc
232 }%
233 \global\let\pdfcolErrorNoStacks\relax
234 }%
```

\PDFCOL@Disabled

```
235 \def\PDFCOL@Disabled{%
236   \PDFCOL@Message{%
237     pdfTeX’s color stacks are not available%
238   }%
239   \global\let\PDFCOL@Disabled\relax
240 }%
```

\pdfcolInitStack

```
241 \def\pdfcolInitStack#1{%
242   \PDFCOL@Disabled
243 }%
```

\pdfcolIfStackExists

```
244 \long\def\pdfcolIfStackExists#1#2#3{#3}%
```

\pdfcolSwitchStack

```
245 \def\pdfcolSwitchStack#1{%
246   \PDFCOL@Disabled
247 }%
```

\pdfcolSetCurrent

```
248 \def\pdfcolSetCurrent#1{%
249     \PDFCOL@Disabled
250 }%

251 \fi

252 \PDFCOL@AtEnd

253 \</package>
```

## 3 Test

### 3.1 Catcode checks for loading

```
254 \<test1>

255 \catcode'\{=1 %
256 \catcode'\}=2 %
257 \catcode'\#=6 %
258 \catcode'\@=11 %
259 \expandafter\ifx\csname count@\endcsname\relax
260     \countdef\count@=255 %
261 \fi
262 \expandafter\ifx\csname @gobble\endcsname\relax
263     \long\def\@gobble#1{%
264 \fi
265 \expandafter\ifx\csname @firstofone\endcsname\relax
266     \long\def\@firstofone#1{#1}%
267 \fi
268 \expandafter\ifx\csname loop\endcsname\relax
269     \expandafter\@firstofone
270 \else
271     \expandafter\@gobble
272 \fi
273 {%
274     \def\loop#1\repeat{%
275         \def\body{#1}%
276         \iterate
277     }%
278     \def\iterate{%
279         \body
280         \let\next\iterate
281     \else
282         \let\next\relax
283     \fi
284     \next
285 }%
286 \let\repeat=\fi
287 }%
288 \def\RestoreCatcodes{}
289 \count@=0 %
290 \loop
291     \edef\RestoreCatcodes{%
292         \RestoreCatcodes
293         \catcode\the\count@=\the\catcode\count@\relax
294     }%
295 \ifnum\count@<255 %
296     \advance\count@ 1 %
297 \repeat
298
299 \def\RangeCatcodeInvalid#1#2{%
300     \count@=#1\relax
```



```

301 \loop
302   \catcode\count@=15 %
303   \ifnum\count@<#2\relax
304     \advance\count@ 1 %
305   \repeat
306 }
307 \def\Test{%
308   \RangeCatcodeInvalid{0}{47}%
309   \RangeCatcodeInvalid{58}{64}%
310   \RangeCatcodeInvalid{91}{96}%
311   \RangeCatcodeInvalid{123}{255}%
312   \catcode'\@=12 %
313   \catcode'\=0 %
314   \catcode'\{=1 %
315   \catcode'\}=2 %
316   \catcode'\#=6 %
317   \catcode'\[=12 %
318   \catcode'\]=12 %
319   \catcode'\%=14 %
320   \catcode'\ =10 %
321   \catcode13=5 %
322   \input pdfcol.sty\relax
323   \RestoreCatcodes
324 }
325 \Test
326 \csname @@end\endcsname
327 \end
328 </test1>

```

### 3.2 Very simple test

```

329 <*test2 | test3>
330 \NeedsTeXFormat{LaTeX2e}
331 \nofiles
332 \documentclass{article}
333 \usepackage{pdfcol}[2007/09/09]
334 \usepackage{qstest}
335 \IncludeTests{*}
336 \LogTests{log}{*}{*}
337 \begin{document}
338   \begin{qstest}{pdfcol}{}%
339     \makeatletter
340 <*test2>
341     \Expect*{\ifpdfcolAvailable true\else false\fi}{false}%
342 </test2>
343 <*test3>
344     \Expect*{\ifpdfcolAvailable true\else false\fi}{true}%
345     \Expect*{\number\@pdfcolorstack}{0}%
346 </test3>
347     \setbox0=\hbox{%
348       \pdfcolInitStack{test}%
349 <*test3>
350       \Expect*{\number\pdfcol@Stack@test}{1}%
351       \Expect*{\number\@pdfcolorstack}{0}%
352 </test3>
353       \pdfcolSwitchStack{test}%
354 <*test3>
355       \Expect*{\number\@pdfcolorstack}{1}%
356 </test3>
357       \pdfcolSetCurrent{test}%
358       \pdfcolSetCurrent{}%
359     }%
360     \Expect*{\the\wd0}{0.0pt}%

```

```

361 (*test3)
362   \Expect*{\number\@pdfcolorstack}{0}%
363   \Expect*{\number\pdfcol@Stack@test}{1}%
364   \Expect*{\pdfcolIfStackExists{test}{true}{false}}{true}%
365 </test3>
366   \Expect*{\pdfcolIfStackExists{dummy}{true}{false}}{false}%
367   \end{qstest}%
368 \end{document}
369 </test2 | test3>

```

## 4 Installation

### 4.1 Download

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

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

[CTAN:macros/latex/contrib/oberdiek/pdfcol.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:macros/latex/contrib/oberdiek/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 pdfcol.dtx
```

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

```

pdfcol.sty      → tex/generic/oberdiek/pdfcol.sty
pdfcol.pdf      → doc/latex/oberdiek/pdfcol.pdf
test/pdfcol-test1.tex → doc/latex/oberdiek/test/pdfcol-test1.tex
test/pdfcol-test2.tex → doc/latex/oberdiek/test/pdfcol-test2.tex
test/pdfcol-test3.tex → doc/latex/oberdiek/test/pdfcol-test3.tex
pdfcol.dtx      → source/latex/oberdiek/pdfcol.dtx

```

---

<sup>1</sup><http://ftp.ctan.org/tex-archive/>

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

## 4.4 Refresh file name databases

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

## 4.5 Some details for the interested

**Attached source.** The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk pdfcol.pdf unpack_files output .
```

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

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

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

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

```
latex \let\install=y\input{pdfcol.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 pdfcol.dtx
makeindex -s gind.ist pdfcol.idx
pdflatex pdfcol.dtx
makeindex -s gind.ist pdfcol.idx
pdflatex pdfcol.dtx
```

## 5 History

[2007/09/09 v1.0]

- First version.

## 6 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

	<b>Symbols</b>	<code>\@</code> ..... 258, 312
<code>\#</code> .....	257, 316	<code>\@PackageError</code> ..... 179, 217, 221
<code>\%</code> .....	319	<code>\@PackageInfo</code> ..... 175



<b>T</b>		<b>W</b>	
<code>\Test</code> .....	307, 325	<code>\wd</code> .....	360
<code>\the</code> .....	66, 67, 68, 69, 80, 293, 360	<code>\write</code> .....	23, 47
<code>\TMP@EnsureCode</code> .....	77,		
	84, 85, 86, 87, 88, 89, 90, 91, 92		
<b>U</b>		<b>X</b>	
<code>\usepackage</code> .....	333, 334	<code>\x</code> 8, 10, 12, 22, 26, 28, 46, 51, 58, 64, 72	