

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

# 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`  $\langle name \rangle$

A new color stack is initialized by `\pdfcolInitStack`. The  $\langle name \rangle$  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`  $\langle name \rangle$   $\langle then \rangle$   $\langle else \rangle$

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

`\pdfcolSetCurrentColor`

Macro `\pdfcolSetCurrentColor` replaces the topmost entry of the stack by the current color (`\current@color`).

`\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 `LATEX`.

```
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@pdfcol.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{pdfcol}{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@pdfcol.sty\endcsname
67 \ProvidesPackage{pdfcol}%
68 [2019/12/29 v1.6 Handle new color stacks for pdfTeX (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 PDFCOL@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\PDFCOL@AtEnd{%
96     \PDFCOL@AtEnd
97     \catcode#1=\the\catcode#1\relax
98   }%
99   \catcode#1=#2\relax
100 }
101 \TMP@EnsureCode{39}{12}% '
102 \TMP@EnsureCode{40}{12}% (
103 \TMP@EnsureCode{41}{12}% )
104 \TMP@EnsureCode{43}{12}% +
105 \TMP@EnsureCode{44}{12}% ,
106 \TMP@EnsureCode{46}{12}% .
107 \TMP@EnsureCode{47}{12}% /
108 \TMP@EnsureCode{91}{12}% [
109 \TMP@EnsureCode{93}{12}% ]
110 \TMP@EnsureCode{96}{12}% '
111 \edef\PDFCOL@AtEnd{\PDFCOL@AtEnd\noexpand\endinput}

```

## 2.3 Check requirements

\PDFCOL@RequirePackage

```

112 \begingroup\expandafter\expandafter\expandafter\endgroup
113 \expandafter\ifx\csname RequirePackage\endcsname\relax
114   \def\PDFCOL@RequirePackage#1[#2]{\input #1.sty\relax}%
115 \else
116   \def\PDFCOL@RequirePackage#1[#2]{%
117     \RequirePackage{#1}[#2]}%
118   }%
119 \fi

```

LuaTeX Compatability

```

120 \ifx\pdfextension\@undefined\else
121   \def\pdfcolorstackinit {\pdffeedback colorstackinit}
122   \protected\def\pdfcolorstack      {\pdfextension colorstack}
123 \fi
124 \PDFCOL@RequirePackage{ltxcmds}[2010/03/01]

```

ifpdfcolAvailable

```

125 \ltx@newif\ifpdfcolAvailable
126 \pdfcolAvailabletrue

```

### 2.3.1 Check package luacolor

```

127 \ltx@newif\ifPDFCOL@luacolor
128 \begingroup\expandafter\expandafter\expandafter\endgroup
129 \expandafter\ifx\csname ver@luacolor.sty\endcsname\relax
130   \PDFCOL@luacolorfalse
131 \else
132   \PDFCOL@luacolortrue
133 \fi

```

### 2.3.2 Check PDF mode

```

134 \PDFCOL@RequirePackage{infwerr}[2007/09/09]
135 \PDFCOL@RequirePackage{iftex}[2019/11/07]
136 \ifcase\ifpdf\ifPDFCOL@luacolor 1\fi\else 1\fi0 %
137   \def\PDFCOL@Message{%
138     \@PackageWarningNoLine{pdfcol}%
139   }%
140 \else
141   \pdfcolAvailablefalse
142   \def\PDFCOL@Message{%
143     \@PackageInfoNoLine{pdfcol}%
144   }%
145   \PDFCOL@Message{%
146     Interface disabled because of %
147     \ifPDFCOL@luacolor
148       package ‘luacolor’%
149     \else
150       missing PDF mode of pdfTeX%
151     \fi
152   }%
153 \fi

```

### 2.3.3 Check version of pdfTeX

```

154 \ifpdfcolAvailable
155   \begingroup\expandafter\expandafter\expandafter\endgroup
156   \expandafter\ifx\csname pdfcolorstack\endcsname\relax
157     \pdfcolAvailablefalse
158     \PDFCOL@Message{%
159       Interface disabled because of too old pdfTeX.\MessageBreak
160       Required is version 1.40+ for \string\pdfcolorstack
161     }%
162   \fi
163 \fi
164 \ifpdfcolAvailable
165   \begingroup\expandafter\expandafter\expandafter\endgroup
166   \expandafter\ifx\csname pdfcolorstack\endcsname\relax
167     \pdfcolAvailablefalse
168     \PDFCOL@Message{%
169       Interface disabled because of too old pdfTeX.\MessageBreak
170       Required is version 1.40+ for \string\pdfcolorstackinit
171     }%
172   \fi
173 \fi

```

### 2.3.4 Check pdftex.def

```

174 \ifpdfcolAvailable
175   \begingroup\expandafter\expandafter\expandafter\endgroup
176   \expandafter\ifx\csname @pdfcolorstack\endcsname\relax

```

Try to load package color if it is not yet loaded (L<sup>A</sup>T<sub>E</sub>X case).

```

177   \begingroup\expandafter\expandafter\expandafter\endgroup
178   \expandafter\ifx\csname ver@color.sty\endcsname\relax
179     \begingroup\expandafter\expandafter\expandafter\endgroup
180     \expandafter\ifx\csname documentclass\endcsname\relax
181     \else
182       \RequirePackage[pdftex]{color}\relax
183     \fi
184   \fi
185   \begingroup\expandafter\expandafter\expandafter\endgroup
186   \expandafter\ifx\csname @pdfcolorstack\endcsname\relax

```

```

187     \pdfcolAvailablefalse
188     \PDFCOL@Message{%
189         Interface disabled because 'pdftex.def'\MessageBreak
190         is not loaded or it is too old.\MessageBreak
191         Required is version 0.04b or greater%
192     }%
193     \fi
194 \fi
195 \fi
196 \let\pdfcolAvailabletrue\relax
197 \let\pdfcolAvailablefalse\relax

```

## 2.4 Enabled interface macros

```

198 \ifpdfcolAvailable

```

`\pdfcolErrorNoStacks`

```

199     \let\pdfcolErrorNoStacks\relax

```

`\pdfcol@Value`

```

200     \expandafter\ifx\csname pdfcol@Value\endcsname\relax
201     \def\pdfcol@Value{0 g 0 G}%
202     \fi

```

`\pdfcol@LiteralModifier`

```

203     \expandafter\ifx\csname pdfcol@LiteralModifier\endcsname\relax
204     \def\pdfcol@LiteralModifier{direct}%
205     \fi

```

`\pdfcolInitStack`

```

206     \def\pdfcolInitStack#1{%
207         \expandafter\ifx\csname pdfcol@Stack@#1\endcsname\relax
208         \global\expandafter\chardef\csname pdfcol@Stack@#1\endcsname=%
209             \pdfcolorstackinit\pdfcol@LiteralModifier{\pdfcol@Value}%
210             \relax
211         \@PackageInfo{pdfcol}{%
212             New color stack '#1' = \number\csname pdfcol@Stack@#1\endcsname
213         }%
214     \else
215         \@PackageError{pdfcol}{%
216             Stack '#1' is already defined%
217         }\@ehc
218     \fi
219 }%

```

`\pdfcolIfStackExists`

```

220     \def\pdfcolIfStackExists#1{%
221         \expandafter\ifx\csname pdfcol@Stack@#1\endcsname\relax
222         \expandafter\@secondoftwo
223     \else
224         \expandafter\@firstoftwo
225     \fi
226 }%

```

`\@firstoftwo`

```

227     \expandafter\ifx\csname @firstoftwo\endcsname\relax
228     \long\def\@firstoftwo#1#2{#1}%
229     \fi

```

```

\@secondoftwo
230 \expandafter\ifx\csname @secondoftwo\endcsname\relax
231 \long\def\@secondoftwo#1#2{#2}%
232 \fi

\pdfcolSwitchStack
233 \def\pdfcolSwitchStack#1{%
234 \pdfcolIfStackExists{#1}{%
235 \expandafter\let\expandafter\@pdfcolorstack
236 \csname pdfcol@Stack@#1\endcsname
237 }{%
238 \pdfcol@ErrorNoStack{#1}%
239 }%
240 }%

\pdfcolSetCurrentColor
241 \def\pdfcolSetCurrentColor{%
242 \pdfcolorstack\@pdfcolorstack set{\current@color}%
243 }%

\pdfcolSetCurrent
244 \def\pdfcolSetCurrent#1{%
245 \ifx\#1\%
246 \pdfcolorstack\@pdfcolorstack current\relax
247 \else
248 \pdfcolIfStackExists{#1}{%
249 \pdfcolorstack\csname pdfcol@Stack@#1\endcsname current\relax
250 }{%
251 \pdfcol@ErrorNoStack{#1}%
252 }%
253 \fi
254 }%

\pdfcol@ErrorNoStack
255 \def\pdfcol@ErrorNoStack#1{%
256 \@PackageError{pdfcol}{Stack '#1' does not exists}\@ehc
257 }%

2.5 Disabled interface macros
258 \else

\pdfcolErrorNoStacks
259 \def\pdfcolErrorNoStacks{%
260 \@PackageError{pdfcol}{%
261 Color stacks are not available%
262 }{%
263 Update pdfTeX (1.40) and 'pdftex.def' (0.04b) %
264 if necessary.\MessageBreak
265 Ensure that 'pdftex.def' is loaded %
266 (package 'color' or 'xcolor').\MessageBreak
267 Further messages can be found in TeX's %
268 protocol file '\jobname.log'.\MessageBreak
269 \MessageBreak
270 \@ehc
271 }%
272 \global\let\pdfcolErrorNoStacks\relax
273 }%

```

```

\PDFCOL@Disabled
274 \def\PDFCOL@Disabled{%
275   \PDFCOL@Message{%
276     pdfTeX's color stacks are not available%
277   }%
278   \global\let\PDFCOL@Disabled\relax
279 }%

\pdfcolInitStack
280 \def\pdfcolInitStack#1{%
281   \PDFCOL@Disabled
282 }%

\pdfcolIfStackExists
283 \long\def\pdfcolIfStackExists#1#2#3{#3}%

\pdfcolSwitchStack
284 \def\pdfcolSwitchStack#1{%
285   \PDFCOL@Disabled
286 }%

\pdfcolSetCurrentColor
287 \def\pdfcolSetCurrentColor{%
288   \PDFCOL@Disabled
289 }%

\pdfcolSetCurrent
290 \def\pdfcolSetCurrent#1{%
291   \PDFCOL@Disabled
292 }%

293 \fi
294 \PDFCOL@AtEnd%
295 \</package>

```

## 3 Installation

### 3.1 Download

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

[CTAN:macros/latex/contrib/oberdiek/pdfcol.dtx](https://ctan.org/ctan/packages/macros/latex/contrib/oberdiek/pdfcol.dtx) The source file.

[CTAN:macros/latex/contrib/oberdiek/pdfcol.pdf](https://ctan.org/ctan/packages/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:install/macros/latex/contrib/oberdiek.tds.zip](https://ctan.org/ctan/packages/install/macros/latex/contrib/oberdiek.tds.zip)

*TDS* refers to the standard “A Directory Structure for T<sub>E</sub>X Files” ([CTAN:pkg/tds](https://ctan.org/ctan/packages/pkg/tds)). Directories with `texmf` in their name are usually organized this way.

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<sup>1</sup>[CTAN:pkg/pdfcol](https://ctan.org/ctan/packages/pkg/pdfcol)

## 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
```

## 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 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
pdfcol.dtx → source/latex/oberdiek/pdfcol.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`, `MiKTEX`, ...) 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 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{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 pdfL<sup>A</sup>T<sub>E</sub>X:

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

## 4 History

[2007/09/09 v1.0]

- First version.

[2007/12/09 v1.1]

- `\pdfcolSetCurrentColor` added.

[2007/12/12 v1.2]

- Detection for package `luacolor` added.

[2016/05/16 v1.3]

- Documentation updates.

[2016/05/17 v1.4]

- Use `luatex85` package for new `luatex` compatibility

[2018/11/01 v1.5]

- Remove `luatex85` dependency

[2019/12/29 v1.6]

- `iftex` package.

## 5 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; plain numbers refer to the code lines where the entry is used.

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