

# The transparent package

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## Abstract

pdfTeX and luaTeX supports several color stacks. This package shows, how a separate color stack can be used for transparency, a property besides color, that also works across page break.

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## 1 User interface

The package transparent defines `\transparent` and `\texttransparent`. They are used like `\color` and `\textcolor`. The first argument is the transparency value between 0 and 1 where 0 is fully transparent and 1 is opaque.

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

## 2 Engine support

If the PDF management is loaded by using `\DocumentMetadata{}` at the beginning of the document the package makes use of `l3opacity` and can be used with all engines supported by `l3backend`. But only with `pdfTeX` and `luaTeX` the transparency will also work across page break.

Without the PDF management, the package works only with `pdfTeX` and `luaTeX`. It then uses the original code by Heiko Oberdiek. It then uses the primitive `\pdfpagemresources` and can clash with other packages that also use `\pdfpagemresources`.

## 3 Example for usage

```
1 (*example)
2 \documentclass[12pt]{article}
3
4 \usepackage{color}
5 \usepackage{transparent}
6
7 \begin{document}
8 \colorbox{yellow}{%
9   \bfseries
10  \color{blue}%
11  Blue and %
12  \transparent{0.6}%
13  transparent blue%
14 }
15
16 \bigskip
17 Hello World
18 \texttransparent{0.5}{Hello\newpage World}
19 Hello World
20 \end{document}
21 </example>
```

## 4 Implementation

### 4.1 New version using the methods of the PDF management

Identification

```
22 (*package-new)
23 \NeedsTeXFormat{LaTeX2e}[2020/10/01]
24 \ProvidesExplPackage{transparent}{2022-10-27}{1.5}
25   {Transparency with color stacks}%
```

Testing if the pdfmanagement is used

```
26 \@ifl@t@r\fmtversion{2022-06-01}
27   {
28     \IfDocumentMetadataTF {}{\RequirePackage{transparent-nometadata}}
29     \IfDocumentMetadataTF {}{\endinput}
30   }
31   {\RequirePackage{transparent-nometadata}}
32 \RequirePackage{l3opacity}
33
34 \NewDocumentCommand{\transparent} { m }
35   {
36     \opacity_select:n{\fp_eval:n{ min(max(0,#1),1) } }
37   }
38
39 \NewDocumentCommand{\texttransparent}{m m}
```

```

40 {
41   \mode_leave_vertical:
42   \group_begin:
43     \transparent{#1}
44     #2
45   \group_end:
46 }
47 </package-new>

```

## 4.2 Old version without the PDF management

```

48 (*package)
49 \NeedsTeXFormat{LaTeX2e}
50 \ProvidesPackage{transparent-nometadata}%
51 [2022-10-27 v1.5 Transparency via pdfTeX's color stack (H0)]%

```

## 4.3 Initial checks

### 4.3.1 Check for pdfTeX in PDF mode

```

52 \RequirePackage{iftex}
53 \ifpdf
54 \else
55   \PackageWarningNoLine{transparent}{%
56     Loading aborted, because pdfTeX is not running in PDF mode%
57   }%
58   \expandafter\endinput
59 \fi

```

### 4.3.2 Check pdfTeX or LuaTeX version

```

60 \ifx\pdfextension\undefined
61   \let\TRP@pdfcolorstackinit\pdfcolorstackinit
62   \let\TRP@pdfpageresources\pdfpageresources
63   \let\TRP@pdfcolorstack\pdfcolorstack
64 \else
65   \def\TRP@pdfcolorstackinit          {\pdffeedback colorstackinit}
66   \protected\edef\TRP@pdfpageresources {\pdfvariable pageresources}
67   \protected\def\TRP@pdfcolorstack    {\pdfextension colorstack}
68 \fi

69 \ifcsname TRP@pdfcolorstackinit\endcsname\else
70   \PackageWarningNoLine{transparent}{%
71     Your pdfTeX version does not support color stacks%
72   }%
73   \expandafter\endinput
74 \fi

```

## 4.4 Compatibility with pgf

<https://github.com/ho-tex/transparent/issues/1>

```

75 \AtBeginDocument
76 {%
77   \ifcsname pgfutil@addpdfresource@extgs\endcsname
78     \let\TRP@addresource\relax
79     \pgfutil@addpdfresource@extgs{\TRP@list}%
80   \fi
81 }

```

## 4.5 Transparency

The setting for the different transparency values must be added to the page resources. In the first run the values are recorded in the `.aux` file. In the second run the values are set and transparency is available.

```

82 \RequirePackage{auxhook}

```

```

83 \AddLineBeginAux{%
84   \string\providecommand{\string\transparent@use}[1]{}%
85 }
86 \gdef\TRP@list{/TRP1<</ca 1/CA 1>>}
87 \def\transparent@use#1{%
88   \@ifundefined{TRP#1}{%
89     \g@addto@macro\TRP@list{%
90       /TRP#1<</ca #1/CA #1>>%
91     }%
92     \expandafter\gdef\csname TRP#1\endcsname{/TRP#1 gs}%
93   }{%
94     % #1 is already known, nothing to do
95   }%
96 }
97 \AtBeginDocument{%
98   \TRP@addresource
99   \let\transparent@use@gobble
100 }

```

Unhappily the interface setting page resources is very poor, only a token register `\pdfpageresources`. Thus this package tries to be cooperative in the way that it embeds the previous contents of `\pdfpageresources`. However it does not solve the problem, if several packages want to set `/ExtGState`.

```

101 \def\TRP@addresource{%
102   \begingroup
103     \edef\x{\endgroup
104       \TRP@pdfpageresources{%
105         \the\TRP@pdfpageresources
106         /ExtGState<<\TRP@list>>%
107       }%
108     }%
109   \x
110 }
111 \newif\ifTRP@rerun
112 \xdef\TRP@colorstack{%
113   \TRP@pdfcolorstackinit page direct{/TRP1 gs}%
114 }

```

`\transparent`

```

115 \newcommand*{\transparent}[1]{%
116   \begingroup
117     \dimen@=#1\p@ \relax
118     \ifdim\dimen@>\p@
119       \dimen@=\p@
120     \fi
121     \ifdim\dimen@<\z@
122       \dimen@=\z@
123     \fi
124     \ifdim\dimen@=\p@
125       \def\x{1}%
126     \else
127       \ifdim\dimen@=\z@
128         \def\x{0}%
129       \else
130         \edef\x{\strip@pt\dimen@}%
131         \edef\x{\expandafter@gobble\x}%
132       \fi
133     \fi
134     \if@filesw
135       \immediate\write\@auxout{%
136         \string\transparent@use{\x}%
137       }%
138     \fi

```

```

139   \edef\x{\endgroup
140     \def\noexpand\transparent@current{\x}%
141   }%
142   \x
143   \transparent@set
144 }

145 \AtEndDocument{%
146   \ifTRP@rerun
147     \PackageWarningNoLine{transparent}{%
148       Rerun to get transparencies right%
149     }%
150   \fi
151 }

152 \def\transparent@current{/TRP1 gs}
153 \def\transparent@set{%
154   \@ifundefined{TRP\transparent@current}{%
155     \global\TRP@reruntrue
156   }{%
157     \TRP@pdfcolorstack\TRP@colorstack push{%
158       \csname TRP\transparent@current\endcsname
159     }%
160     \aftergroup\transparent@reset
161   }%
162 }

163 \def\transparent@reset{%
164   \TRP@pdfcolorstack\TRP@colorstack pop\relax
165 }

\texttransparent

166 \newcommand*{\texttransparent}[2]{%
167   \protect\leavevmode
168   \begingroup
169     \transparent{#1}%
170     #2%
171   \endgroup
172 }

173 </package>

```

## 5 Installation

### 5.1 Download

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

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

[CTAN:macros/latex/contrib/transparent/transparent.pdf](https://ctan.org/ctan/packages/macros/latex/contrib/transparent/transparent.pdf) Documentation.

### 5.2 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 transparent.dtx
```

---

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

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

```
transparent.sty           → tex/latex/transparent/transparent.sty
transparent-nometadata.sty → tex/latex/transparent/transparent-nometadata.sty
transparent.pdf           → doc/latex/transparent/transparent.pdf
transparent-example.tex   → doc/latex/transparent/transparent-example.tex
transparent.dtx           → source/latex/transparent/transparent.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`.

### 5.3 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 `mktextlsr`.

### 5.4 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{transparent.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 `pdfLATEX`:

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

## 6 History

[2007/01/08 v1.0]

- First version.

[2016/05/16 v1.1]

- Documentation updates.

[2018/09/10 v1.2]

- Update for `LuaTeX`, remove dependency on `PdfTEX` command names.

[2018/11/18 v1.3]

- Added code for pgf compatibility, see <https://github.com/ho-tex/transparent/issues/1>

[2019/11/29 v1.4]

- Documentation updates.
- Use iftex package.

[2022-10-27 v1.5]

- Made the package compatible with the PDF management.

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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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