

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.

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

2 Engine support

If the PDF management is loaded (e.g. 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 `\pdfpageresources` and can clash with other packages that also use `\pdfpageresources`.

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}{2025-06-23}{1.6}
25   {Transparency with color stacks}%
```

Testing if the pdfmanagement is used

```
26 \IfPDFManagementActiveF {\RequirePackage{transparent-nometadata}}
27 \IfPDFManagementActiveF {\endinput}
28 \NewDocumentCommand{\transparent} { m }
29   {
30     \opacity_select:n{\fp_eval:n{ min(max(0,#1),1) } }
31   }
32
33 \NewDocumentCommand{\texttransparent}{m m}
34   {
35     \mode_leave_vertical:
36     \group_begin:
37       \transparent{#1}
38       #2
39     \group_end:
```

```

40 }
41 </package-new>

```

4.2 Old version without the PDF management

```

42 (*package)
43 \NeedsTeXFormat{LaTeX2e}
44 \ProvidesPackage{transparent-nometadata}%
45 [2025-06-23 v1.6 Transparency via pdfTeX's color stack (H0)]%

```

4.3 Initial checks

4.3.1 Check for pdfTeX in PDF mode

```

46 \RequirePackage{iftex}
47 \ifpdf
48 \else
49 \PackageWarningNoLine{transparent}{%
50   Loading aborted, because pdfTeX is not running in PDF mode%
51 }%
52 \expandafter\endinput
53 \fi

```

4.3.2 Check pdfTeX or LuaTeX version

```

54 \ifx\pdfextension\@undefined
55 \let\TRP@pdfcolorstackinit\pdfcolorstackinit
56 \let\TRP@pdfpageresources\pdfpageresources
57 \let\TRP@pdfcolorstack\pdfcolorstack
58 \else
59 \def\TRP@pdfcolorstackinit      {\pdffeedback colorstackinit}
60 \protected\edef\TRP@pdfpageresources {\pdfvariable pageresources}
61 \protected\def\TRP@pdfcolorstack  {\pdfextension colorstack}
62 \fi

63 \ifcsname TRP@pdfcolorstackinit\endcsname\else
64 \PackageWarningNoLine{transparent}{%
65   Your pdfTeX version does not support color stacks%
66 }%
67 \expandafter\endinput
68 \fi

```

4.4 Compatibility with pgf

<https://github.com/ho-tex/transparent/issues/1> <https://github.com/ho-tex/transparent/issues/3>

```

69 \AtBeginDocument
70 {%
71   \ifcsname pgf@sys@addpdfresource@extgs@plain\endcsname
72     \let\TRP@addresource\relax
73     \pgfutil@addpdfresource@extgs{\TRP@list}%
74   \fi
75 }

```

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.

```

76 \RequirePackage{auxhook}
77 \AddLineBeginAux{%
78   \string\providecommand{\string\transparent@use}[1]{}%
79 }
80 \gdef\TRP@list{/TRP1<</ca 1/CA 1>>}
81 \def\transparent@use#1{%
82   \@ifundefined{TRP#1}{%

```

```

83   \g@addto@macro\TRP@list{%
84     /TRP#1<</ca #1/CA #1>>%
85   }%
86   \expandafter\gdef\csname TRP#1\endcsname{/TRP#1 gs}%
87 }{%
88   % #1 is already known, nothing to do
89 }%
90 }
91 \AtBeginDocument{%
92   \TRP@addressource
93   \let\transparent@use\@gobble
94 }

```

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`.

```

95 \def\TRP@addressource{%
96   \begingroup
97   \edef\x{\endgroup
98     \TRP@pdfpageresources{%
99       \the\TRP@pdfpageresources
100      /ExtGState<<\TRP@list>>%
101    }%
102  }%
103  \x
104 }
105 \newif\ifTRP@rerun
106 \xdef\TRP@colorstack{%
107   \TRP@pdfcolorstackinit page direct{/TRP1 gs}%
108 }

```

`\transparent`

```

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

```

```

139 \AtEndDocument{%
140   \ifTRP@rerun
141     \PackageWarningNoLine{transparent}{%
142       Rerun to get transparencies right%
143     }%
144   \fi
145 }
146 \def\transparent@current{/TRP1 gs}
147 \def\transparent@set{%
148   \@ifundefined{TRP\transparent@current}{%
149     \global\TRP@reruntrue
150   }{%
151     \TRP@pdfcolorstack\TRP@colorstack push{%
152       \csname TRP\transparent@current\endcsname
153     }%
154     \aftergroup\transparent@reset
155   }%
156 }
157 \def\transparent@reset{%
158   \TRP@pdfcolorstack\TRP@colorstack pop\relax
159 }

```

`\texttransparent`

```

160 \newcommand*{\texttransparent}[2]{%
161   \protect\leavevmode
162   \begingroup
163     \transparent{#1}%
164     #2%
165   \endgroup
166 }
167 </package>

```

5 Installation

5.1 Download

Package. This package is available on CTAN¹:

[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 `TEX`:

```
tex transparent.dtx
```

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`.

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

5.3 Refresh file name databases

If your $\text{T}_{\text{E}}\text{X}$ distribution ($\text{T}_{\text{E}}\text{X}$ Live, $\text{MikT}_{\text{E}}\text{X}$, ...) relies on file name databases, you must refresh these. For example, $\text{T}_{\text{E}}\text{X}$ Live users run `texhash` or `mktexlsr`.

5.4 Some details for the interested

Unpacking with $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$. The `.dtx` chooses its action depending on the format:

plain $\text{T}_{\text{E}}\text{X}$: Run `docstrip` and extract the files.

$\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$: Generate the documentation.

If you insist on using $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ for `docstrip` (really, `docstrip` does not need $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$), 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 `pdf $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$` :

```
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 $\text{LuaT}_{\text{E}}\text{X}$, remove dependency on $\text{PdfT}_{\text{E}}\text{X}$ 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.

[2025-06-23 v1.6]

- l3opacity is in the l3kernel
- Avoid error if only pdfutil-common is loaded, see <https://github.com/ho-tex/transparent/issues/3>

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