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.

Contents

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

```
⟨*example⟩
\documentclass[12pt]{article}

\usepackage{color}
\usepackage{transparent}

\begin{document}
\colorbox{yellow}{%
  \bfseries
  \color{blue}%
  Blue and %
  \transparent{0.6}%
  transparent blue%
}

\bigskip
Hello World
\texttransparent{0.5}{Hello\newpage World}
Hello World
\end{document}
⟨/example⟩
```

4 Implementation

4.1 New version using the methods of the PDF management

Identification

```
⟨*package-new⟩
\NeedsTeXFormat{LaTeX2e}[2020/10/01]
\ProvidesExplPackage{transparent}{2025-06-23}{1.6}
  {Transparency with color stacks}%
```

Testing if the pdfmanagement is used

```
\IfPDFManagementActiveF {\RequirePackage{transparent-nometadata}}
\IfPDFManagementActiveF {\endinput}
```

```
\NewDocumentCommand{\transparent} { m }
      {
       \opacity_select:n{\fp_eval:n{ min(max(0,#1),1) } }
      }

\NewDocumentCommand{\texttransparent}{m m}
  {
   \mode_leave_vertical:
   \group_begin:
     \transparent{#1}
     #2
   \group_end:
```

```
  }
⟨/package-new⟩
```

4.2 Old version without the PDF management

```
⟨*package⟩
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{transparent-nometadata}%
  [2025-06-23 v1.6 Transparency via pdfTeX's color stack (HO)]%
```

4.3 Initial checks

4.3.1 Check for pdfTeX in PDF mode

```
\RequirePackage{iftex}
\ifpdf
\else
  \PackageWarningNoLine{transparent}{%
    Loading aborted, because pdfTeX is not running in PDF mode%
  }%
  \expandafter\endinput
\fi
```

4.3.2 Check pdfTeX or LuaTeX version

```
\ifx\pdfextension\@undefined
  \let\TRP@pdfcolorstackinit\pdfcolorstackinit
  \let\TRP@pdfpageresources\pdfpageresources
  \let\TRP@pdfcolorstack\pdfcolorstack
\else
  \def\TRP@pdfcolorstackinit           {\pdffeedback colorstackinit}
  \protected\edef\TRP@pdfpageresources {\pdfvariable pageresources}
  \protected\def\TRP@pdfcolorstack     {\pdfextension colorstack}
\fi
```

```
\ifcsname TRP@pdfcolorstackinit\endcsname\else
  \PackageWarningNoLine{transparent}{%
    Your pdfTeX version does not support color stacks%
  }%
  \expandafter\endinput
\fi
```

4.4 Compatibility with pgf

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

```
\AtBeginDocument
 {%
   \ifcsname pgf@sys@addpdfresource@extgs@plain\endcsname
    \let\TRP@addresource\relax
    \pgfutil@addpdfresource@extgs{\TRP@list}%
   \fi
 }
```

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.

```
\RequirePackage{auxhook}
\AddLineBeginAux{%
  \string\providecommand{\string\transparent@use}[1]{}%
}
\gdef\TRP@list{/TRP1<</ca 1/CA 1>>}
\def\transparent@use#1{%
  \@ifundefined{TRP#1}{%
```

```
    \g@addto@macro\TRP@list{%
      /TRP#1<</ca #1/CA #1>>%
    }%
    \expandafter\gdef\csname TRP#1\endcsname{/TRP#1 gs}%
  }{%
    % #1 is already known, nothing to do
  }%
}
\AtBeginDocument{%
  \TRP@addresource
  \let\transparent@use\@gobble
}
```

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`.

```
\def\TRP@addresource{%
  \begingroup
    \edef\x{\endgroup
      \TRP@pdfpageresources{%
        \the\TRP@pdfpageresources
        /ExtGState<<\TRP@list>>%
      }%
    }%
  \x
}
\newif\ifTRP@rerun
\xdef\TRP@colorstack{%
  \TRP@pdfcolorstackinit page direct{/TRP1 gs}%
}
```

`\transparent`

```
\newcommand*{\transparent}[1]{%
  \begingroup
    \dimen@=#1\p@\relax
    \ifdim\dimen@>\p@
      \dimen@=\p@
    \fi
    \ifdim\dimen@<\z@
      \dimen@=\z@
    \fi
    \ifdim\dimen@=\p@
      \def\x{1}%
    \else
      \ifdim\dimen@=\z@
        \def\x{0}%
      \else
        \edef\x{\strip@pt\dimen@}%
        \edef\x{\expandafter\@gobble\x}%
      \fi
    \fi
    \if@filesw
      \immediate\write\@auxout{%
        \string\transparent@use{\x}%
      }%
    \fi
    \edef\x{\endgroup
      \def\noexpand\transparent@current{\x}%
    }%
  \x
  \transparent@set
}
```

```
\AtEndDocument{%
  \ifTRP@rerun
    \PackageWarningNoLine{transparent}{%
      Rerun to get transparencies right%
    }%
  \fi
}
\def\transparent@current{/TRP1 gs}
\def\transparent@set{%
  \@ifundefined{TRP\transparent@current}{%
    \global\TRP@reruntrue
  }{%
    \TRP@pdfcolorstack\TRP@colorstack push{%
      \csname TRP\transparent@current\endcsname
    }%
    \aftergroup\transparent@reset
  }%
}
\def\transparent@reset{%
  \TRP@pdfcolorstack\TRP@colorstack pop\relax
}
```

`\texttransparent`

```
\newcommand*{\texttransparent}[2]{%
  \protect\leavevmode
  \begingroup
    \transparent{#1}%
    #2%
  \endgroup
}
```

⟨/package⟩

5 Installation

5.1 Download

Package. This package is available on CTAN[1]:

CTAN:macros/latex/contrib/transparent/transparent.dtx The source file.

CTAN: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

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 `mktexlsr`.

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.

[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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