The transparent package

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Abstract

Since version 1.40 pdfTeX supports several color stacks. This package shows, how a separate color stack can be used for transparency, a property besides color.

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.

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

Because of the poor interface for page resources, there can be problems with packages that also use `\pdfpageresources`.

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⟩
```

2 Implementation

2.1 Identification

```
⟨*package⟩
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{transparent}%
  [2019/11/29 v1.4 Transparency via pdfTeX's color stack (HO)]%
```

2.2 Initial checks

2.2.1 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
```

2.2.2 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
```

2.3 Compatibility with pgf

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

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

2.4 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⟩

3 Installation

3.1 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.

Bundle. All the packages of the bundle 'transparent' 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/transparent.tds.zip

TDS refers to the standard "A Directory Structure for TEX Files" (CTAN:pkg/tds). Directories with `texmf` in their name are usually organized this way.

3.2 Bundle installation

Unpacking. Unpack the `transparent.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip transparent.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 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.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

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 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
```

4 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.

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.