

opacity-pro

as suggested by Jürgen Gilg

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¹ `<*package>`

This is a short package that provides one command and one environment: `\settransparency` and `settransparency`. They are used to set the opacity and blend of an object. The reader interested in transparency should read Chapter 7 of the *PDF Reference, Sixth Edition* for Version 1.7. The techniques used in this package were derived from the *pdfmark Reference* (Adobe Acrobat 8.0 SDK), pages 38–43.

As the suffix “pro” might suggest, this package is for those who use distiller version 6.0 or greater to produce PDFs. The `opacity-pro` uses distiller with the Adobe PDF Settings set to process the transparency operator. For your convenience, the Adobe PDF Settings file `Standard.transparency.joboptions` is included in the distribution. Place this file wherever distiller looks for the `.joboptions` files.¹

The package doesn’t really require other packages, but normally, it is used with the color or the graphicx packages. It does require that a .dvi to .ps converter be used that recognizes the special `\special{ps: ...}`. This includes, of course, dvips.

¹Go to **Settings > Edit Adobe PDF Settings ...** in the Distiller application window, then click the **SaveAs** button. A **Save Adobe PDF Settings As** dialog box opens, and you can then see where Distiller likes to save its `.joboptions` file. Copy the provided `.joboptions` to the folder and restart Distiller, the `Standard.transparency` should now be visible in the drop down **Default Settings** list.

1 Package Options

```
2 \DeclareOption{dvips}{\def\op@driver{0}}
3 \DeclareOption{dvipsone}{\def\op@driver{1}}
4 \def\op@driver{0}
5 \@ifundefined{!@tex@@@driver}{\ExecuteOptions{dvips}}
6   {\ExecuteOptions{dvipsone}}
7 \ProcessOptions
```

2 Some documentation

There is a command and an environment version for setting transparency. Use the environment when the content contains verbatim text, for example; otherwise, the content is taken in as one of the parameters. The syntax of these two are,

```
\settransparency*[\langle BM \rangle]{\langle ca \rangle}{\langle CA \rangle}[\langle PDFKVs \rangle]{\langle content \rangle}

\begin{settransparency}[\langle BM \rangle]{\langle ca \rangle}{\langle CA \rangle}[\langle PDFKVs \rangle]
  \langle contents \rangle
\end{settransparency}

\begin{settransparency*}[\langle BM \rangle]{\langle ca \rangle}{\langle CA \rangle}[\langle PDFKVs \rangle]
  \langle contents \rangle
\end{settransparency*}
```

The parameters are

- * (optional) If present, the PDF entries **ca** and **CA** are set as /ca $\langle ca \rangle$ and /CA $\langle CA \rangle$; otherwise, the algorithm for setting the **ca** and **CA** entries into the PDF is used. The algorithm is described in the paragraph **Algorithm for assigning ca and CA entries** below.
- $\langle BM \rangle$: Current blend mode. Names recognized are Normal, Multiply, Screen, Overlay, Darken, Lighten, ColorDodge, ColorBurn, HardLight, SoftLight, Difference, Exclusion, Hue, Color, Saturation and Luminosity. See the accompanying file `blend-modes.tex` for a description of each.
- $\langle ca \rangle$: Current alpha constant, specifying the constant shape or constant opacity value to be used for *non-stroking operations*. A number between 0 and 1, inclusive. Default is 1.0.
- $\langle CA \rangle$: Current stroking alpha constant, specifying the constant shape or constant opacity value to be used for *stroking operations*. A number between 0 and 1, inclusive. Default is 1.0.
- $\langle PDFKVs \rangle$ (optional) These pairs can be inserted using the optional fourth parameter (see page 38 of the *pdfmark Reference, Version 8.0*, for a listing of these other key-value pairs).
- $\langle contents \rangle$ The target object, this can be text, pictures, color boxes, and so on. $\langle contents \rangle$ is either the fifth argument of the command version, or the contents of the environment version.

In the environment case, the last parameter is optional, so L^AT_EX will be looking for a left brace ‘[’, if the contents of the environment begin with a command, that command will get expanded while L^AT_EX looks for a left brace; if this is a potential problem. As a workaround, simply put an empty optional argument ‘[]’ to make L^AT_EX happy.

3 The main code

Below you will find the code for this package.

```

8 \let\op@YES=y \let\op@NO=n \def\op@mark{[\space}%]
9 \def\settransparency@env{settransparency}
10 \def\settransparency@envs{settransparency*}
11 \let\op@isEnv\op@NO
12 \let\op@isStar\op@NO

\settransparency The command sets transparency for its fifth argument contents

settransparency When the content to be operated on is large, or contains verbatim text, use the
environment version.

settransparency* When the star-option is present for the command, or the settransparency* envi-
ronment is used, the algorithm (Algorithm for assigning ca and CA entries)
is bypassed.
13 \newenvironment{settransparency}{%
14 \ifstar{\let\op@isStar\op@YES\settransparency@next}
15 {\let\op@isStar\op@NO\settransparency@next}%
16 }\special{ps:grestore}}
17 \newenvironment{settransparency*}{\let\op@isStar\op@YES
18 \settransparency@next}{\endsettransparency}
19 \newcommand{\settransparency@next}[3][Normal]{%
20 \ifnextchar[%]
21 {\settransparencysi{#1}{#2}{#3}}%
22 {\settransparencysi{#1}{#2}{#3}[]}%
23 \long\def\settransparencysi#1#2#3[#4]{%
24 \ifx\@currentvir\settransparency@env
25 \let\op@next\settransparencysi@env\else
26 \ifx\@currentvir\settransparency@envs
27 \let\op@next\settransparencysi@env\else
28 \let\op@next\settransparencysi@fi\fi\op@next{#1}{#2}{#3}{#4}%
29 }
30 \def\settransparencysi#1#2#3#4#5{\op@ck@defs{#2}{#3}\leavevmode
31 \special{ps:gsave \op@mark\op@ca\op@CA/BM/#1#4/SetTransparency
32 pdfmark}#5\special{ps:grestore}%
33 }
34 \def\settransparencysi@env#1#2#3#4{\op@ck@defs{#2}{#3}\leavevmode
35 \special{ps:gsave \op@mark\op@ca\op@CA/BM/#1#4/SetTransparency
36 pdfmark}%
37 }

```

Algorithm for assigning `ca` and `CA` entries Recall that `ca` = filling (non-stroking) and `CA` = stroking. The `dvipsone` strokes some paths that `dvips` fills. If the star-option is not taken, as a workaround, we always assure that `ca` = `CA`, provided the `dvips` driver is used.

```

38 \def\op@ck@defs#1#2{\def\op@argi{#1}\def\op@argii{#2}%
39 \ifx\op@argii\@empty
40 \let\op@CA\@empty\else\def\op@CA{/CA #2}\fi
41 \ifx\op@argi\@empty\let\op@ca\@empty
42 \else\def\op@ca{/ca #1}%

```

If the star-option is taken, we skip this part; otherwise, we apply the algorithm only if the driver is `dvips`.

```

43 \ifx\op@isStar\op@N0
44 \if\op@driver0\relax
45 \ifx\op@argii\@empty\else
46 \def\op@ca{/ca #2}\fi
47 \fi
48 \fi
49 \fi
50 }

51 \</package>

```

4 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; numbers in *roman* refer to the code lines where the entry is used.

Symbols			
<code>\@currentenv</code>	24, 26	<code>\op@isEnv</code>	11
D			
<code>\DeclareOption</code>	2, 3	<code>\op@isStar</code>	12, 14, 15, 17, 43
E		<code>\op@mark</code>	8, 31, 35
<code>\endsettransparency</code>	18	<code>\op@next</code>	25, 27, 28
environments:		<code>\op@NO</code>	8, 11, 12, 15, 43
<code>settransparency</code>	<u>13</u>	<code>\op@YES</code>	8, 14, 17
<code>settransparency*</code>	<u>13</u>	P	
<code>\ExecuteOptions</code>	5, 6	<code>\ProcessOptions</code>	7
O		S	
<code>\op@argi</code>	38, 41	<code>\settransparency</code>	<u>13</u>
<code>\op@argii</code>	38, 39, 45	<code>settransparency (environment)</code>	<u>13</u>
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<code>\op@ca</code>	31, 35, 41, 42, 46	<code>\settransparency@env</code>	9, 24
<code>\op@ck@defs</code>	30, 34, 38	<code>\settransparency@envs</code>	10, 26
<code>\op@driver</code>	2–4, 44	<code>\settransparency@next</code>	14, 15, 18, 19
		<code>\settransparencyi</code>	21–23
		<code>\settransparencyii</code>	28, 30
		<code>\settransparencyyii@env</code>	25, 27, 34