The background package

v2.1, dated 2014/03/04.

Gonzalo Medina
Universidad Nacional de Colombia – Sede Manizales
Departamento de Matemáticas y Estadística
gmedinaar@unal.edu.co

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Abstract

This package allows the placement of quite arbitrary background material on the pages of a document. The user can control many aspects (i.e., contents, position, color, opacity) of the background material that will be displayed. The background material can be modified as many times as required and it can be displayed in all the pages or in some specifically chosen ones.

Contents

1 Introduction

The background package relies on the TikZ and everypar packages to provide a simple and flexible mechanism to include background material on all (or on some of) the pages of a LaTeX2e document.

The author will gladly receive suggestions, comments and bug reports.

2 User Interface

Loading this package (without any package options) in the preamble of a document in the standard way:

```
\usepackage{background}
```

activates a set of predefined options that will typeset the word "Draft" across every page of your document (from the lower left corner to the upper right corner), using this color and a huge font size.

Of course, the package can be loaded using some of the options described in the next section; for example:

```
\usepackage[pages=some,placement=bottom]{background}
```

For a later change of options, this package provides the command

```
\backgroundsetup{⟨options⟩}
```

So, for example,

```
\usepackage[contents=Confidential,color=blue]{background}
```

and

```
\usepackage{background}
\backgroundsetup{contents=Confidential,color=blue}
```

produce the same result. The advantage of \backgroundsetup is that it can be used not only in the preamble but on the body of the document, as many times as required.

! The document needs to be processed twice to get the background material in the right position.

2.1 Options

The options described in this section can be used as package options or in the argument of the \backgroundsetup command. The table 1 contains a summary of all the available options and their default values. Since the options used to modify attributes of the background material depend on the \node construct offered by the TikZ package, we strongly encourage the reading of Till Tantau's *PGF/TikZ package manual*.

pages= This option controls wether the background material should appear in all or in some of the pages of the document. The predefined values for this option are all (default) and some. Take into account that using the value some for this option will cause no background material to be displayed at all and the user will have to issue the command \BgThispage for each page in which he/she desires the background material to appear (see example 3).

firstpage= This boolean option allows the user to specify, setting the value `true`, that the background material must be displayed only in the first page of the document. The deafulat value is `false`.

placement= This option allows the user to choose three predefined positions for the background material; the predefined values for this option are `center` (default), `top` and `bottom`. Using `center` will cause the background material to be displayed diagonally across the page, from the bottom left corner to the upper right corner of the page(s); the `top` value will cause the background material to be displayed horizontally at the top of the page(s), and the `bottom` value will cause the background material to be displayed horizontally at the top of the page(s).

contents= This options allows the user to specify the material that will be used in the document. This material can be quite arbitrary: text of arbitrary length, images included via the standard `\includegraphics` command from the graphicx package, or graphics created with the PGF/TikZ package, for example.

If the material that will be used as background contains LaTeX commands or if it is not plain text, then the `\backgroundsetup` command *must* be used to declare the contents instead of using the key `contents` as one of the package options.

color= This option allows the user to specify the color for the background material that will be used in the document. The whole range of colors provided by the xcolor package can be used.

angle= This option allows the user to specify the angle for the background material that will be used in the document. Angles are measred counterclockwise; any value between -360 and 360 can be used.

opacity= This option allows the user to change the transparency level for the background material. Any number between 0 (full transparency) and 1 (no transparency at all) can be used as a valid value for this option.

scale= This option allows the user to change the scaling factor that will be applied to the background material. Any (sensible) positive value can be used.

position= This option allows the user to deïňĄne the position of the background material. Any valid position accepted by the at syntax for nodes placement can be used (see the TikZ manual). When using coordinates, do *not* enclose them inside parentheses. Some examples of valid positions are

```
position={0,0}
position=current page.north
position={5cm,7cm}
```

nodeanchor= This option allows the user to set the anchor for the node containing the background material. Typical values for this key are:

```
nodeanchor=south east
nodeanchor=north
```

anchor=   This option allows the user to set the simplified anchor for the node containing the
          background material. Typical values for this key are:

```
anchor=left
anchor={below=30pt}
```

hshift=   These two options control the horizontal and vertical shifting, respectively, of the node
vshift=   position.

Table 1: Available options.

Key	Possible Values	Default
pages	\<all|some>	all
firstpage	\<true|false>	false
placement	\<center|top|bottom>	center
contents	Text, images, etc.	Draft
color	Any valid color	red!45 ▮
angle	Any value between -360 and 360	60, for center
		0, for top and bottom
opacity	Any value between 0 and 1	0.5
scale	Any positive value	15 for center
		8 for top and bottom
position	Any value for node placement	current page.center for center
		current page.north for top
		current page.south for bottom
anchor	Any simplified value for node anchor	empty for center
		below for top
		above for bottom
nodeanchor	Any value for node anchor	center
hshift	Any length.	0pt
vshift	Any length.	0pt

2.2   User Commands

The following two commands are designed to give the user control on whether the background material should or should not appear on specific pages of the document.

\BgThispage   This command permits to select particular pages in which the background material will be displayed (see example 3).

\NoBgThispage   This command will prevent the background material to be displayed in the page where it was issued.

> **!** Do not use this command in two column documents since its implementation depends on the afterpage package, and this package doesn't cooperate with two-column mode (see example 5) .

3   Examples

In the following examples, the lipsum package was used only to automatically generate text.

Example 1   *This example shows how to display the background material only on the first two pages of the document:*

```
\documentclass{article}
\usepackage{background}
\usepackage{lipsum}

\begin{document}
\lipsum[1-10]
\newpage\backgroundsetup{contents={}}
\lipsum[1-30]
\end{document}
```

Example 2   *This example imitates the page numbering format used in this document:*

```
\documentclass{article}
\usepackage[
  placement=top,
  angle=0,
  color=black!40,
  scale=4,
  hshift=60,
  vshift=-5
  ]{background}
\backgroundsetup{contents={-\thepage-}}
```

```
\usepackage{lipsum}

\pagestyle{empty}

\begin{document}
\lipsum[1-30]
\end{document}
```

Example 3 *This example illustrates how to use of the* \BgThispage *command to add background material on selected pages and how to use* \backgroundsetup.

```
\documentclass{article}
\usepackage[pages=some,placement=top]{background}
\usepackage{lipsum}

\begin{document}
\lipsum[1-5]
\newpage
\backgroundsetup{contents=A,color=yellow}
\BgThispage
\lipsum[1-5]
\newpage
\backgroundsetup{contents=B,color=blue}
\BgThispage
\lipsum[1-5]
\end{document}
```

Example 4 *This example shows how to proceed in order to obtain different background material for the odd and even pages of a document.*

```
\documentclass{article}
\usepackage[
  contents={},
  opacity=1,
  scale=1.5,
  color=blue!90
  ]{background}
\usepackage{lipsum}
\usepackage{ifthen}

\AddEverypageHook{%
  \ifthenelse{\isodd{\value{page}}}%
```

```
    {\backgroundsetup{
        angle=90,
        position={0,-0.65\textheight},
        contents={The background package}
        }%
     }%
    {\backgroundsetup{
        angle=270,
        position={0.9\textwidth,-.7\textheight},%
        contents={Version 2.1}
        }%
    }%
  \BgMaterial}

\begin{document}
\lipsum[1-30]
\end{document}
```

Example 5 | *This example illustrates the use of the* \NoBgThispage *command, to suppress the background material on selected pages (page 2, in this case). Adding the* twocolumn *class option will produce compilation errors*

```
\documentclass{article}
\usepackage{background}
\usepackage{lipsum}

\begin{document}
\lipsum[1-5]
\newpage\NoBgThispage
\lipsum[1-5]
\newpage
\lipsum[1-20]
\end{document}
```

4   Compatibility with version 1.0

The macros used in version 1.0 to control the attributes of the background material are still available for backwards compatibility. However, users of version 2.0 are encouraged to use the newly implemented key=value mechanism instead. The old macros are listed below:

```
\SetBgContents
\SetBgColor
\SetBgAngle
\SetBgOpacity
\SetBgScale
\SetBgPosition
\SetBgAnchor
\SetBgHshift
\SetBgVshift
```

! In version 1.0 there were five package options: `all`, `some`, `center`, `top`, and `bottom`; these options are still available, but the user is encouraged to use the `pages` and `placement` keys; so, for example,

```
\usepackage[some,top]{background}
```

from version 1.0, could be replaced, from version 2.0 on, with

```
\usepackage[pages=some,placement=top]{background}
```

Hystory

Version 1.0 (2009/11/07): first implementation, quite simple and paralleling the one of the `draftwatermark` package by Sergio Callegari, but adding greater control over the background material attributes.

Version 2.0 (2012/08/06):

- Complete reimplementation, now using the `xkeyval` package to handle attributes and options in an unified way through the `key=value` mechanism.

- A bug in version 1.0 with `\SetBgAnchor` was reported by `eudoxos` at `http://tex.stackexchange.com/q/47875/3954`; the bug has been fixed.

- A user command `\BgMaterial` has been added.

Version 2.1 (2014/03/04):

- Added the `nodeanchor` key..

- The containing node has now `inner sep=0pt`.

- Improved documentation.

5 Implementation

Standard identification:

```
1 \NeedsTeXFormat{LaTeX2e}
2 \ProvidesPackage{background}[2014/03/04 v2.1 background material]
```

Next, we check if the needed packages have been already loaded; if not, we load them:

```
3 \@ifpackageloaded{xkeyval}{}{\RequirePackage{xkeyval}}
4 \@ifpackageloaded{tikz}{}{\RequirePackage{tikz}}
5 \@ifpackageloaded{everypage}{}{\RequirePackage{everypage}}
6 \@ifpackageloaded{afterpage}{}{\RequirePackage{afterpage}}
```

contents=
color=
angle=
opacity=
scale=
position=
anchor=
nodeanchor=
hshift=
vshift=

Now we declare the options that will control the background material

```
7 \DeclareOptionX[BG]<background>{contents}{%
8   \def\Background@Contents{#1}}
9 \DeclareOptionX[BG]<background>{color}{%
10   \def\Background@Color{#1}}
11 \DeclareOptionX[BG]<background>{angle}{%
12   \def\Background@Angle{#1}}
13 \DeclareOptionX[BG]<background>{opacity}{%
14   \def\Background@Opacity{#1}}
15 \DeclareOptionX[BG]<background>{scale}{%
16   \def\Background@Scale{#1}}
17 \DeclareOptionX[BG]<background>{position}{%
18   \def\Background@Position{#1}}
19 \DeclareOptionX[BG]<background>{anchor}{%
20   \def\Background@Anchor{#1}}
21 \DeclareOptionX[BG]<background>{nodeanchor}{%
22   \def\Background@NodeAnchor{#1}}
23 \DeclareOptionX[BG]<background>{hshift}{%
24   \def\Background@HShift{#1}}
25 \DeclareOptionX[BG]<background>{vshift}{%
26   \def\Background@VShift{#1}}
```

\bg@some

A boolean (initially set to `false`) to control whether the background material will be displayed in every page or not.

```
27
28 \newif\ifbg@some
29   \bg@somefalse
```

pages=
position=

We define the two choice keys `pages` and `position` and set the default for their options:

```
30
31 \define@choicekey+[BG]{background}{pages}[\val\nr]{all,some}{%
32   \ifcase\nr\relax
33     \bg@somefalse
34   \or
35     \bg@sometrue
36   \fi
```

```
37 }{%
38   \PackageWarning{background}{erroneous input ignored}%
39 }
40
41 \define@choicekey+[BG]{background}{placement}[\val\nr]{center,bottom,top}{%
42   \ifcase\nr\relax
43     \renewcommand\Background@Position{current page.center}%
44     \renewcommand\Background@Anchor{}%
45     \renewcommand\Background@Angle{60}
46   \or
47     \renewcommand\Background@Position{current page.south}%
48     \renewcommand\Background@Anchor{above}%
49     \renewcommand\Background@Angle{0}%
50   \or
51     \renewcommand\Background@Position{current page.north}%
52     \renewcommand\Background@Anchor{below}%
53     \renewcommand\Background@Angle{0}%
54   \fi
55 }{%
56   \PackageWarning{background}{erroneous input ignored}%
57 }
```

firstpage   This boolean key makes the background material to be displayed only in the first page
            of the document; default value=false.

```
58 \define@boolkey+[BG]{background}{firstpage}{%
59   \ifBG@background@firstpage
60     \bg@sometrue%
61     \AtBeginDocument{\BgThispage}%
62   \else
63     \bg@somefalse%
64   \fi
65 }{%
66   \PackageWarning{background}{erroneous input ignored}%
67 }
```

For compatibility with previous version we also provide the package options some,
all, center, top, and, bottom:

```
68
69 \DeclareOptionX[BG]<background>{all}{\bg@somefalse}
70 \DeclareOptionX[BG]<background>{some}{\bg@sometrue}
71 \DeclareOptionX[BG]<background>{center}{%
72   \renewcommand\Background@Position{current page.center}%
73   \renewcommand\Background@Anchor{}%
74   \renewcommand\Background@Angle{60}}
75 \DeclareOptionX[BG]<background>{bottom}{%
76   \renewcommand\Background@Position{current page.south}%
77   \renewcommand\Background@Anchor{above}%
78   \renewcommand\Background@Angle{0}%
79   \renewcommand\Background@Scale{8}}
```

```
80 \DeclareOptionX[BG]<background>{top}{%
81   \renewcommand\Background@Position{current page.north}%
82   \renewcommand\Background@Anchor{below}%
83   \renewcommand\Background@Angle{0}%
84   \renewcommand\Background@Scale{8}}
```

And we execute the options all and center.

```
85
86 \ExecuteOptions{all,center}
87 % \begin{macrocode}
88
89 % Now we process any unknown inputs. A warning will be produced when the
90 % user issues an option that has not been declared.
91 % \begin{macrocode}
92
93 \DeclareOptionX*{\PackageWarningNoLine{background}{Option '\CurrentOption' ignored}
```

We next execute and process the options:

```
94
95 \ExecuteOptionsX[BG]<background>{%
96   firstpage=false,
97   contents=Draft,%
98   color=red!45,%
99   angle=60,%
100  opacity=0.5,%
101  scale=10,%
102  position=current page.center,%
103  anchor={},%
104  nodeanchor={center},%
105  hshift=0pt,%
106  vshift=0pt%
107 }
108
109 \ProcessOptionsX[BG]<background>
```

\backgroundsetup We define \backgroundsetup; our command for changing default values ay any point of the document:

```
110 \DeclareRobustCommand*\backgroundsetup[1]{%
111   \setkeys[BG]{background}{#1}
112 }
```

\bg@material Our main command uses a simple \node construct to build the background material.

```
113
114 \newcommand\bg@material{%
115   \begin{tikzpicture}[remember picture,overlay,scale=\Background@Scale]
116   \node[
117     rotate=\Background@Angle,
118     scale=\Background@Scale,
119     opacity=\Background@Opacity,
120     anchor=\Background@NodeAnchor,
```

```
121     xshift=\Background@HShift,
122     yshift=\Background@VShift,
123     color=\Background@Color,
124     inner sep=0pt
125     ]
126     at (\Background@Position) [\Background@Anchor]
127       {\Background@Contents};
128   \end{tikzpicture}}%
```

\BgThispage   A simple application of the AddThispageHook command provided by the everypage package.

```
129 \newcommand\BgThispage{\AddThispageHook{\bg@material}}
```

\NoBgThispage   A hack that perhaps admits improvements. We make a copy of \bg@material, and redefine it to be empty on the current page. Then we use the afterpage command to restore the original background material.

```
130
131 \newcommand\NoBgThispage{%
132   \let\oldbg@material\bg@material\renewcommand\bg@material{}%
133   \afterpage{\AddEverypageHook{\oldbg@material}}}
```

Finally, we check for the boolean bg@some; if it is true, then no background material is added; otherwise, the material will be added using the AddEverypageHook command.

```
134
135 \ifbg@some
136   \AddThispageHook{}
137 \else
138   \AddEverypageHook{\bg@material}
139 \fi
```

\SetBgContents   Now we take care of backwards compatibility; we create the old commands and use
\SetBgColor   them as aliases for the new ones:
\SetBgAngle
\SetBgOpacity
\SetBgScale
\SetBgPosition
\SetBgAnchor
\SetBgHshift
\SetBgVshift

```
140
141 \newcommand\SetBgContents[1]{%
142   \def\Background@Contents{#1}}
143 \newcommand\SetBgAngle[1]{%
144   \def\Background@Angle{#1}}
145 \newcommand\SetBgColor[1]{%
146   \def\Background@Color{#1}}
147 \newcommand\SetBgScale[1]{%
148   \def\Background@Scale{#1}}
149 \newcommand\SetBgVshift[1]{%
150   \def\Background@VShift{#1}}
151 \newcommand\SetBgHshift[1]{%
152   \def\Background@HShift{#1}}
153 \newcommand\SetBgPosition[1]{%
154   \def\Background@Position{#1}}
155 \newcommand\SetBgAnchor[1]{%
```

```
156    \def\Background@Anchor{#1}}
157 \newcommand\SetBgOpacity[1]{%
158    \def\Background@Opacity{#1}}
```

\BgMaterial We create a copy of `\bg@material` to be used directly in documents

```
159
160 \let\BgMaterial\bg@material
```

Finally, we invoke `\clearpage` at the end of the document to be sure that the background material in the last page will be processed appropriately:

```
161
162 \AtEndDocument{\clearpage}
```

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