

The mdframed package¹

auto-split frame environment

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Abstract

Working with the command `\fbox` or `\fcolorbox`, one has to handle page breaks by hand, meaning that you have to split up the `\fbox` into two. The present package defines the environment `mdframed` which automatically deals with page breaks, whence the name „breakable“.

By using `\newenvironment` the user may choose between several individual designs.

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1 Motivation

Many users wish to (further) emphasize lemmata, definitions, proofs etc.. The package `mdframed` allows to create environments with breakable frames. I think an example is the best way to demonstrate the properties.

The following example gives an idea of how to use `mdframed`. (For the theorem environment we use the package `amsthm`.)

```
\usepackage{mdframed,amsthm}
\newtheorem{mdtheorem}{Theorem}[section]
\newenvironment{theorem}{\begin{mdframed}%
  [linewidth=2;margin=40,backgroundcolor=yellow,linewidth=blue]%
  \begin{mdtheorem}}{\end{mdtheorem}\end{mdframed}}
...
\begin{theorem}[Pythagorean theorem]
  In any right triangle, the area of the square whose side is the hypotenuse
  is equal to the sum of the areas of the squares whose sides are the two legs.
  \begin{equation}
    a^2+b^2=c^2
  \end{equation}
\end{theorem}
```

Theorem 1.1 (Pythagorean theorem). *In any right triangle, the area of the square whose side is the hypotenuse (the side opposite the right angle)*

¹Extending the package `framed.sty`.

²With thanks to Heiko Oberdiek, Rolf Niepraschk, Martin Scharrer and Herbert Voss.

*is equal to the sum of the areas of the squares whose sides are the two legs
(the two sides that meet at a right angle).*

$$a^2 + b^2 = c^2 \quad (1)$$

2 Syntax

Load the package as usual:

```
\usepackage[<GLOBAL OPTIONS>]{mdframed}
```

The package defines only one environment with the following syntax:

```
\begin{mdframed}[<LOCAL OPTIONS>]  
  <CONTENT>  
\end{mdframed}
```

3 Options

The package allows to set global and local options which are explained below.

3.1 Global Options

The following options are only global options.

skipabove =<LENGTH>	Sets an additional skip above the frame.	default=0pt
skipbelow =<LENGTH>	Sets an additional skip below the frame.	default=0pt
xcolor =<VALUE(S)>	By setting this key, the package xcolor will be loaded with the given value(s). Without any value mdframed loads the package color without any options.	default=none
style =<VALUE>	With this key you can change the way frames are drawn. By using style=0 the frames are drawn by the commands \vrule and \rule. By setting the key to style=1 the package tikz will draw the frames. So you can manipulate the frames more comfortably with options like roundcorner (see below).	default=0

By setting one of these options locally, you get a warning like

```
Option ‘...’ is already consumed(mdframed) and has no effect on input line ...
```

3.2 Global and Local Options

The options listed below can be set globally or locally.

linecolor =<COLOR>	Sets the color of the line around the environment to <COLOR>.	default=black
backgroundcolor =<COLOR>	Sets the color of the background of the environment to <COLOR>.	default=white
fontcolor =<COLOR>	Sets the color of the contents of the environment to <COLOR>.	default=black
margin =<LENGTH>	Sets the length of the margin text frame of the environment. The basic unit of the length is pt. So it is possible to set length to 6 which is equal to 6pt.	default=2pt
leftmargin =<LENGTH>	Sets the length of the left margin of the environment. The basic unit of the length is pt. So it is possible to set length to 6 which is equal to 6pt.	default=2pt
rightmargin =<LENGTH>	Sets the length of the right margin of the environment. The basic unit of the length is pt. So it is possible to set length to 6 which is equal to 6pt.	default=2pt
linewidth =<LENGTH>	Sets the width of the line around the environment. The basic unit of the length is pt. So it is possible to set length to 6 which is equal to 6pt.	default=20pt
nttheorem =<BOOLEAN>	Before setting this key, you have to load the package <code>nttheorem</code> . With this option you set the values <code>\theorempreskipamount</code> and <code>\theorem-postskipamount</code> to 0pt.	default=false

3.2.1 The Option **nttheorem**

Theorem 3.1. *This environment is created with **nttheorem**=false.*

Lemma 3.1. *This environment is created with **nttheorem**=true.*

3.3 Added options by the style 1

The following options only work with **style**=1. First you have to know that by default the frame is drawn with a double line. So you can manipulate every line. It is possible to get a single line – the section „Examples“ shows how this can be done.

roundcorner =<LENGTH>	Sets the size of the radius of the corners of the frames. The basic unit of the length is pt. So it is possible to set length to 6 which is equal to 6pt.	default=0pt
innerlinewidth =<LENGTH>	Sets the width of the inner line around the environment. The basic unit of the length is pt. So it is possible to set length to 6 which is equal to 6pt.	default=0pt
outerlinewidth =<LENGTH>	Sets the width of the outer line around the environment. The basic unit of the length is pt. So it is possible to set length to 6 which is equal to 6pt.	default=0pt
middlelinewidth =<LENGTH>	Sets the width of the middle line around the environment. The basic unit of the length is pt. So it is possible to set length to 6 which is equal to 6pt.	default= linewidth
innerlinecolor =<COLOR>	Sets the color of the inner line around the environment.	default= linecolor
outerlinecolor =<COLOR>	Sets the color of the outer line around the environment.	default= linecolor
middlelinecolor =<COLOR>	Sets the color of the middle line around the environment.	default= backgroundcolor

4 Examples

The header for the following examples is

```
\documentclass[10pt]{article}
\usepackage[style=1,leftmargin=20pt,rightmargin=20pt]{mdframed}
\usepackage{lipsum}
```

Example 1

```
\begin{mdframed}
\lipsum[1]
\end{mdframed}
```

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Example 2

```
\begin{mdframed}[outerlinewidth=4pt,middlelinewidth=2pt,innerlinewidth=1pt,%
                 outerlinecolor=blue,middlelinecolor=yellow,innerlinecolor=red,%
                 backgroundcolor=orange]
\lipsum[1]
\end{mdframed}
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

5 Known Problems

In this section I will collect known problems. In case you encounter any further problems, please drop me an email, marco.daniel@mada-nada.de.

Do you have any ideas / wishes on further extensions to this package? Please let me know!

1. So far the environment isn't compatible with the package gmverb.
2. So far it isn't possible to use the multicolumn environment.

6 Acknowledgement

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