

The mdframed package¹

auto-split frame environment

Marco Daniel² version 0.3b May 1, 2010

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,linecolor=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}
```

¹Extending the package `framed.sty`.

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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) 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

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
ntheorem =<BOOLEAN>	Before setting this key, you have to load the package <code>ntheorem</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 `ntheorem`

Theorem 3.1. *This environment is created with `ntheorem=false`.*

Lemma 3.1. *This environment is created with `ntheorem=true`.*

4 Example

```
\documentclass[10pt]{article}
\usepackage[linewidth=10,%
            margin=40,%
            backgroundcolor=yellow,
            linecolor=blue,
            skipbelow=0,
            skipabove=0]{mdframed}
\usepackage{amsmath,amsthm}
\newtheorem{mdlemma}{Lemma}[section]
\newenvironment{lemma}{%
  \begin{mdframed}[linewidth=2,margin=40,%
                  backgroundcolor=red,linecolor=black]%
  \begin{mdlemma}%
  }{%
  \end{mdlemma}%
  \end{mdframed}%
}
\usepackage{lipsum}
\usepackage{hyperref}
\begin{document}
\section{foo}
\lipsum[1]
\begin{mdframed}
\lipsum[5]
\end{mdframed}

\lipsum[1]

\begin{lemma}\label{lem:testA}\mbox{ }
\begin{itemize}
\item Some Text
\item  $x^2+y^2=1$ 
\item \lipsum[1]
\end{itemize}
\end{lemma}
\end{document}
```

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 it is not possible to extend a frame to more than two pages
2. So far there is no implementation for choosing different styles of the frame but I am working on that.

6 Acknowledgement

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