

# The mdframed package <sup>1</sup>

auto-split frame environment

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The standard methods for framing text (`\fbox` or `\fcolorbox`) require you to handle page breaks by hand, meaning that you have to split the `\fbox` into two. The present package defines the environment `mdframed` which automatically deals with pagebreaks in framed text.

By defining new environments the user may choose between several individual designs.

Linked files: [mdframed-example-default.pdf](#) [mdframed-example-tikz.pdf](#)  
[mdframed-example-pstricks.pdf](#) [mdframed-example-texsx.pdf](#)

FYI: I create a repository for `mdframed` on [github](#) where you can [download](#) the current development status.

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## 1. Motivation

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

**Theorem 1.1 (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.*

---

<sup>1</sup>Extending the package `framed.sty`

$$a^2 + b^2 = c^2$$

The frame was defined with the following settings.

```
\newmdtheoremenv[outerlinewidth=2,leftmargin=40,%
  rightmargin=40,backgroundcolor=yellow,%
  outerlinecolor=blue,innertopmargin=0pt,%
  splittopskip=\topskip,skipbelow=\baselineskip,%
  skipabove=\baselineskip,ntheorem]{theorem}%
{Theorem}[section]
\begin{theorem}[Pythagorean theorem]
...
\end{theorem}
```

## 2. Syntax

### Loadings `mdframed`

The package itself loads the packages

- `kvoptions`,
- `xparse` (new),
- `etoolbox` and
- `color`.

Depending on the options `mdframed` will load

- `xcolor`,
- `tikz` or
- `pstricks`.

Load the package as usual:

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

Only the option `framemethod` should be loaded by the optional argument of `\usepackage`. All other options should be loaded with `\mdfsetup` or related environments. The package should be loaded after `amsthm` if you need the package.

### Provided environment

The package defines only one environment with the following syntax:

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

To create own environments with `mdframed` see section 4.

### Autodetecting floats

`mdframed` detects whether the environment is used inside `float` or `minipage` environments. If you use `mdframed` in such an environment `mdframed` will use the option `nobreak` automatically.

### Twoside-mode

If you are using `mdframed` inside `twoside`-mode you can set the option `innermargin` and `outermargin` (see section 5.2.1). The length will be ignored if you use the option `usetwoside`.

## 3. The frames

Normally you can say `mdframed` draws only some lines. To allow page breaks the following designs are supported. If you load the package with `framemethod=default` you can only draw a single line. Inside the gray box the text will be printed.

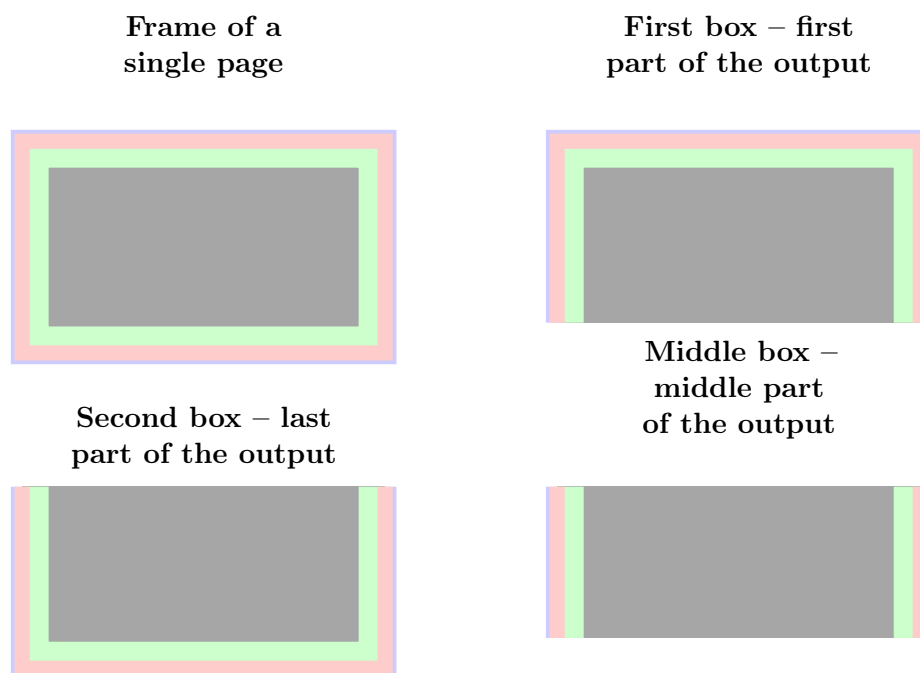


Figure 1: The basic frames

## 4. Commands

The following commands should countenance your by the handling with `mdframed`

`\newmdenv`

The command has the following syntax:

```
\newmdenv[<MDFRAMED OPTIONS>]{Name of the environment}
```

In this way you can simply use:

```
\newmdenv[linecolor=red,frametitle=Infobox]{infobox}
...
\begin{infobox}[backgroundcolor=yellow]
foo foo foo foo foo foo
\end{infobox}
```

`\renewmdenv`

By using this command you can redefine environments which are created by `\newmdenv`.

#### `\surroundwithmdframed`

Sometimes you have predefined environments. This commands allows you to set an `environment` surround this predefined environment. To set a `mdframed` around the environment `verbatim` you can simple say without changing the original name.

```
\surroundwithmdframed[linewidth=2pt]{verbatim}
```

#### `\mdflength`

If you want to work with length defined by `mdframed` (for example `innerleftmargin`) you can now simple use the command `\mdflength`.

```
Some Text \hspace{\mdflength{innerleftmargin}} Some Text  
  
\the\mdflength{innerleftmargin}
```

#### `\mdfsetup`

To set the options you can use the optional argument of `\usepackage` or you can use the command `\mdfsetup` which is not limited to the preamble. Inside a group the settings work only local.

**At this point I want to recommend the using of the command `\mdfsetup` instead of setting package option via the optional argument of `\usepackage`. So you are avoiding breaking of non robust commands.**<sup>2</sup>

#### `\mdfdefinestyle`

`\mdfdefinestyle` allows the user to define different styles and use as an option of `mdframed` via `style`. The option `style` is explained in section 5.2.3.

Here a small example:

```
\mdfdefinestyle{mystyle}{leftmargin=0pt,%  
                                linecolor=blue}  
....  
\begin{mdframed}[style=mystyle]  
  foo  
\end{mdframed}
```

#### `\mdfapptodefinestyle`

This commands allows to expand a defined style.<sup>3</sup>

## 5. Options

The package provides various options to manipulate frames. In the following section all options are listed. Some internal macros which can be manipulated are not shown in this documentation. The listed options are divided in global and local options. The global options can not be used inside `\mdfsetup`.

<sup>2</sup>Thanks to Heiko Oberdiek and Philipp Stephani [kvoptions-Declaration von Optionen schlägt fehl](#)

<sup>3</sup>Thanks to Martin Scharrer and Enrico Gregorio:

<http://tex.stackexchange.com/questions/34684/argument-of-setkeys>

## 5.1. Global Options

The following options are only global options.

**xcolor** default=`none`

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. If the package `xcolor` is already loaded the given option will be ignored. I recommend to load `xcolor` before `mdframed`.

**framemethod** default=`default`

With this key you can change the way frames are drawn. You can decide whether the frame is drawn with

1.  $\text{\LaTeX}$ -commands `\hrule`, `\vrule`, `\rule`,
2. `TikZ` (the package `TikZ` will be loaded) or
3. `PSTricks` (the package `pstricks` will be loaded).

The option `framemethod` requires a string. Allowed combinations are listed in the following table.

Table 1: Allowed keys for `framemethod`

Method	Allowed keys
$\text{\LaTeX}$ -commands	<code>default</code> , <code>tex</code> , <code>latex</code> , <code>none</code> , <code>0</code>
<code>TikZ</code>	<code>tikz</code> , <code>pgf</code> , <code>1</code>
<code>PSTricks</code>	<code>pstricks</code> , <code>ps</code> , <code>postscript</code> , <code>2</code>

### FYI

It is independently whether the `method` is written with no, one or more capital letter.

### Note

The manipulation of the frames depends on the option `framemethod`. For further information see below.

## 5.2. Global and Local Options

The options listed below can be set globally or locally and they are not limited to the preamble. I tried to define self explained names.

### 5.2.1. Options with lengths

In figure (2) you can see the adjustable lengths (compare also figure (1)) which will be described below. All lengths accept two kinds of input. The first one is a length (e.g. `2pt`) and the second one is a number (e.g. `2`) which will be multiplied by `1 defaultunit`. The figure shows three different colored frames.

I know that the predefined lengths are not well prepared. Maybe I will change it later.

**defaultunit** default=`pt`

see the sentence above.

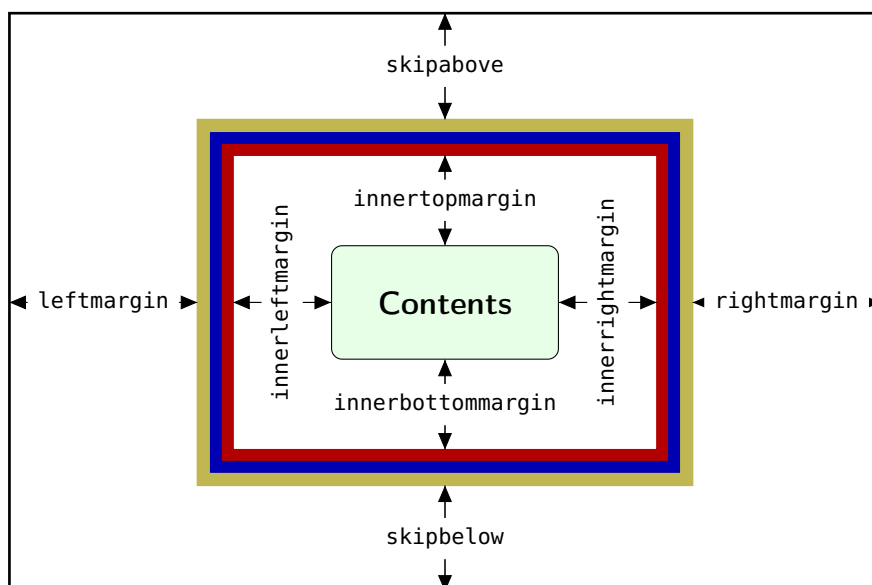


Figure 2: adjustable lengths of mdframed

`skipabove` default=0pt

Sets an additional skip above the frame.

`skipbelow` default=0pt

Sets an additional skip below the frame.

`margin`  
This option is not longer supported. Use `leftmargin` and `rightmargin` instead.

`leftmargin` default=0pt

Sets the length of the left margin of the environment.

`rightmargin` default=0pt

Sets the length of the right margin of the environment.

`innerleftmargin` default=10pt

Sets the length of the inner left margin of the environment.

`innerrightmargin` default=10pt

Sets the length of the inner right margin of the environment.

`innertopmargin` default=.4\baselineskip

Sets the length of the inner top margin of the environment.

`innerbottommargin` default=.4\baselineskip

Sets the length of the inner bottom margin of the environment.

The following lengths are not shown in figure (2).

<code>userdefinedwidth</code>	default=0pt
Sets the width of the whole <code>mdframed</code> environment. The width represent the width including the line width and the inner margins. The outer margins will be ignored.	
<code>outermargin</code>	
Sets the length of the outer margin. This option is only available in <code>twoside</code> -mode.	
<code>innermargin</code>	
Sets the length of the inner margin. This option is only available in <code>twoside</code> -mode.	
<code>splittopskip</code>	default=0pt
Sets the length of the skip above the split part of the environment.	
<code>splitbottomskip</code>	default=0pt
Sets the length of the skip below the split part of the environment.	
<code>linewidth</code>	default=0.4pt
Sets the width of the line around the environment.	
<code>roundcorner</code>	default=0pt
Sets the size of the radius of the corners of the frames. This works only with <code>framemethod=TikZ</code> or <code>PSTricks</code> .	
<code>innerlinewidth</code>	default=0pt
Sets the width of the inner line around the environment. This works only with <code>framemethod=TikZ</code> or <code>PSTricks</code> .	
<code>outerlinewidth</code>	default=0pt
Sets the width of the outer line around the environment. This works only with <code>framemethod=TikZ</code> or <code>PSTricks</code> .	
<code>middlelinewidth</code>	default=linewidth
Sets the width of the middle line around the environment. This works only with <code>framemethod=TikZ</code> .	

### 5.2.2. Colored Options

<code>linecolor</code>	default=black
Sets the color of the line around the environment.	
<code>backgroundcolor</code>	default=white
Sets the color of the background of the environment.	
<code>fontcolor</code>	default=black

Sets the color of the contents of the environment.

`innerlinecolor` default=`linecolor`

Sets the color of the inner line around the environment.  
This works only with `framemethod=TikZ` or `PSTricks`.

`middlelinecolor` default=`linecolor`

Sets the color of the middle line around the environment.  
This works only with `framemethod=TikZ` or `PSTricks`.

`outerlinecolor` default=`linecolor`

Sets the color of the outer line around the environment.  
This works only with `framemethod=TikZ` or `PSTricks`.

### 5.2.3. General options

`font` default=`{}`

Sets the font of the environment.

`ntheorem` default=`false`

Before setting this boolean key, you have to load the package `ntheorem`. With this option you set the values `\theorempreskipamount` and `\theorempostskipamount` to 0pt.

`nobreak` default=`false`

Sometimes it is useful to prevent a frame from splitting. The `nobreak` option is used for this purpose. If you activate this option you can enable it by setting `nobreak=false`.

`usetwoside` default=`true`

If you set the `twoside` option you can work with `outermargin`. This option disable this and you work with `leftmargin` and `rightmargin`.

`needspace` default=`0pt`

Sometimes it is useful to set a minimum height before a frame should be splitted. For such cases you can use `needspace`. The option requires a length which sets the minimum height before a frame will be splitted.

`style`

If you define a special style with `\mdfdefinestyle` you can use the key `style` to load the style. `mdframed` has no predefined styles yet.

`settings` default=`none`

This option allows the user to commit some macros. An example is shown in the example files.

`align` default=`left`

Sometimes it is useful to align the environment itself. For this you have the option `align` which can be set to the following strings:



- `left`,
- `right` and
- `center`.

The alignments `left` or `right` depend on the given lengths `leftmargin` and `rightmargin`. Later I will present an example to demonstrate my bad English explanation.

**shadow** default=`false`  
 Draw a shadow. The shadow doesn't influence the bounding box so the shadow can be drawn in the margin without any overflow box. Note if you are using the TikZ you must load the library. `mdframed` doesn't do the job to avoid double loading of a library.

**shadowsize** default=`8pt`  
 Specify the size of the shadow.

**shadowcolor** default=`black!50`  
 Specify the color of the shadow.

**pstrickssetting** default=`none`  
 With this key you can pass several options to `\psset`. For example if you want all lines dashed you will have to set `pstrickssetting={linestyle=dashed}`. It is very important to put the options of `pstrickssetting` in brackets.  
 This works only with `framemethod=PSTricks`.

**pstricksappsetting** default=`none`  
`mdframed` works with defined style for the different elements. By using `\addtopstyle` in combination with this option you can expand the definition. The predefined styles are

- `mdfbackgroundstyle`
- `mdfframetitlebackgroundstyle`
- `mdfouterlinestyle`
- `mdfinnerlinestyle`
- `mdfmiddlelinestyle`

**Before you change one please have a look at the file `md-frame-2.mdf` to see the settings.**  
 This works only with `framemethod=PSTricks`.

**tikzsetting** default=`none`  
 With this key you can pass several options to `\tikzset`. Some examples are listed in the next section. It is very important to put the options of `tikzsetting` in brackets.  
 This works only with `framemethod=TikZ`.

**apptotikzsetting** default=`none`  
 With this key you can add several options to `tikzsetting`. This key based on the idea of manipulation of predefined keys of `mdframed`. The package `mdframed` defines via `\tikzset` the following keys to draw frames.

- `\tikzset{mdfbox/.style}`
- `\tikzset{mdfcorners/.style}`
- `\tikzset{mdfbackground/.style}`
- `\tikzset{mdfinnerline/.style}`
- `\tikzset{mdfouterline/.style}`
- `\tikzset{mdfmiddleline/.style}`
- `\tikzset{mdfframetitlerule/.style}`
- `\tikzset{mdfframetitlebackground/.style}`
- `\tikzset{mdfshadow/.style}`

Before you change one please have a look at the file **md-frame-1.mdf** to see the settings. This works only with `framemethod=TikZ`.

### 5.3. Hidden Lines

<code>topline</code>	default=true
Draws a line at the top.	
<code>bottomline</code>	default=true
Draws a line at the bottom.	
<code>leftline</code>	default=true
Draws a line on the left.	
<code>rightline</code>	default=true
Draws a line on the right.	
<code>hidealllines</code>	default=false
With this option you can decide whether all lines should be drawn or not.	

### 5.4. Frametitle

In this section all relevant options of the frame title will be presented. They are not divided in their properties.

<code>frametitle</code>	default=none
The environment gets a title. To set a title use <code>frametitle={The Title of the frame}</code> as an option of the environment.	
<code>frametitlefont</code>	default=\normalfont\bfseries
Sets the format of the <code>frametitle</code> .	
<code>frametitlealignment</code>	default=\raggedleft

Align the `frametitle`. This option must be set via `\mdfsetup`.

`frametitlerule` default=false

Set this key to `true` to get a line between the frame title and the text.

`frametitlerulewidth` default=.2pt

Sets the width of the line between the text and the title of `mdframed`.

`frametitleaboveskip` default=5pt

Sets the skip of the frame title to the margin above of `mdframed`.

`frametitlebelowskip` default=5pt

Sets the skip of the frame title to the rule of the frame title.

`frametitlebackgroundcolor` default=white

Sets the color of the background of the frametitle

### FYI and Note

`mdframed` can't handle page breaks inside the frametitle well. If you get a page break please have a closer look to the output.

If a frame title is given the optional length `innertopmargin` is set between the rule under the frame title and the contents of `mdframed`.

`repeatframetitle` default=false

Repeat the frame title on every frame. The feature is currently not well implemented!!!

## 5.5. Theorems

In this section is described which commands can help you to define theorem environments with `mdframed`.

`\newmdtheoremenv`

Since the package is often used to highlight theorem environments, I have created a command<sup>4</sup> to simplify this process. The command has the following syntax:

```
\newmdtheoremenv[<mdframed-options>]{<envname>}%
    [<numberedlike>]{<caption>}[<within>]
```

The last four arguments are equivalent to the command `\newtheorem`. Only the first optional argument is able to pass `mdframed`-options. A simple example is:

```
\theoremstyle{<some style>}
\newmdtheoremenv[linecolor=blue]{lemma}%
    {Lemma}[section]

...
\begin{lemma}[Some title]
    foo foo foo foo foo foo
\end{lemma}
```

---

<sup>4</sup>Thanks to Martin Scharrer and Enrico Gregorio:  
[Own command to create new environment](#)

So far there is no `\renewmdtheoremenv`!

### `\mdtheorem`

This is a special kind of `\newtheorem`. The command has the following syntax.

```
\mdtheorem[<mdframed-options>]{<envname>}%
      [<numberedlike>]{<caption>}{<within>}
```

As you can see the arguments are equal to `\newtheorem` but the command ignores every `\theoremstyle`. This is based on the following behavior.

The command `\mdtheorem` creates two environments based on the given first mandatory argument. The first environment is named like the given argument and creates a numbered theorem. The second environment is named like the first mandatory argument with a star. This environment has the same formatting but isn't numbered.

The syntax of the new defined environments is equal to the normal theorem environments.

```
\begin{environment}[optional title]
...
\end{environment}
```

What happened? The caption of the command will be set as the frame title. In this way all options of the frame title are available. Furthermore `mdframed` provides additional options explained below.

`theoremseparator` default={:}

Sets the separator of the caption and the title of the theorem. The `theoremseparator` will be printed only if an theorem title is given.

`theoremtitlefont` default={}

Via the option `frametitlefont` you can manipulate the font of the frame title. The option `theoremtitlefont` allows to set a different font to the title of the theorem.

`theoremspace` `\space`

Sets the space after `theoremseparator`.

Examples can be found in the attached files.

## 5.6. Footnotes

Inside the environment you can use the command `\footnote` as usual. `mdframed` uses the syntax of environment `minipage` with the same counter.

Every footnote text will be collected inside a box and will be displayed at the end of the environment `mdframed`.

`footnotedistance` default= `\bigskipamount`

The length is the distance between the end of the environment `mdframed` and the displaying of the `\footnoterule`.

`footnoteinside` default=true

The position of the footnotes can be changed with the option `footnoteinside`. The footnotes will be displayed at the end of the environment but you can decide whether the output is inside `mdframed` or after.

**Note**

The output of the footnotes with the option `footnoteinside=false` are not in a splitted frame. I think it isn't useful because the first line of a new page shouldn't be a footnote.

## 6. Examples

I outsource the examples in four files to limit the documentation. The files are

**mdframed-example-default**

Demonstration of examples created with `framemethod=default`.

**mdframed-example-tikz**

Demonstration of examples created with `framemethod=TikZ`.

**mdframed-example-pstricks**

Demonstration of examples created with `framemethod=pstricks`.

**mdframed-example-texsx**

Demonstration of examples like interaction with `listings`

The examples are often not equivalent but normally they can be adapted to another method. So I really recommend to have a look to all example files.

The Korean T<sub>E</sub>XGroup created a very nice presentation. I want to show the link because it's really a great work: [kts 2012 mdframed](#).

## 7. Errors, Warnings and Messages

The package `mdframed` provides different errors, warnings and messages in the `log`-file. Some L<sup>A</sup>T<sub>E</sub>X-editors like T<sub>E</sub>XMaker or T<sub>E</sub>XStudio have a special tab for errors and warnings but not for messages. So you should look in the `log-File` itself.

The following errors and warnings are generated by `mdframed`.

The package ... does not exist but  
needed by **mdframed**

To avoid this problem you should install the required packages which are listed in section 2.

package option **style** is deprecated  
use **framemethod** instead **style**

With version 0.9d `mdframed` changed the meaning of the option `style`. The option is used to load a defined style by `\mdfdefinestyle`. Instead use `framemethod` (see section 5.1).

Unknown **framemethod** .... **mdframed**

The input string for the option `framemethod` is unknown. See section 5.1.

You have not loaded **ntheorem** yet

To use the option `ntheorem` you have to load the package `ntheorem`.

You have only a width of 3cm

The package `mdframed` calculates the width of the contents based on the given options. If the width of the contents is smaller than 3cm you will get this warnings. You should change the settings to get a greater width.

You got a bad break  
 you have to change it manually  
 by changing the `text`, the space  
 or something else

Sometimes you have enough vertical space for the rules and the space between the rules and the contents but not for the contents itself. In this situation you will get this warning because the contents of this box is empty. You have the possibility to change the settings or include a `\clearpage` in front of the environment `mdframed`. So far I have no idea how to avoid such things.

You got a bad break  
 because the split box is empty  
 You have to change the page `settings`  
 like `enlargethispage` or something else  
 You got a bad break

See the explanation above.

You got a bad break  
 because the last split box is empty  
 You have to change the `settings`

The same reason as above but only in the last box.

Option ... is already consumed  
 and has no effect on input line ...

If you set a global option inside the document body you will get this warning.

## 8. Known Problems

In this section I will collect known problems. In case you encounter any further problems, please drop me an email, [marco.daniel](mailto:marco.daniel@mada-nada.de) at [mada-nada.de](http://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`.

## 9. ToDo

### It is important to update the documentation

1. see "Known Problems".
2. So far it isn't possible to combine the environment `\begin{multicols}` of the package `multicol` with `mdframed` with the whole option list.
3. Create new styles.
4. Improve page breaks.
5. Improve footnotes.

6. Improve documentation and examples.
7. Create styles for `frametitle`.

## 10. Acknowledgements

Dick Nickalls; Dietrich Grau; Piazza Luca; Jobst Hoffmann; Martin Scharrer; Enrico Gregorio;  
Heiko Oberdiek; Philipp Stephani.

Thanks for proofreading  
Alan Munn and Nahid Shajari  
I hope I forgot nobody.

## A. More information

In the following section I want to present how to create your own frame.

### A.1. How does `mdframed` work?

With the environment `\begin{mdframed} ... \end{mdframed}` the whole contents will be saved in a `\savebox` called `\mdf@splitbox@one`. After the calculation of the width and the height of the `\mdf@splitbox@one` (done by `mdframed.sty`) the box will be set sequentially (done by `md-frame-X.mdf`). The following figure demonstrates this.

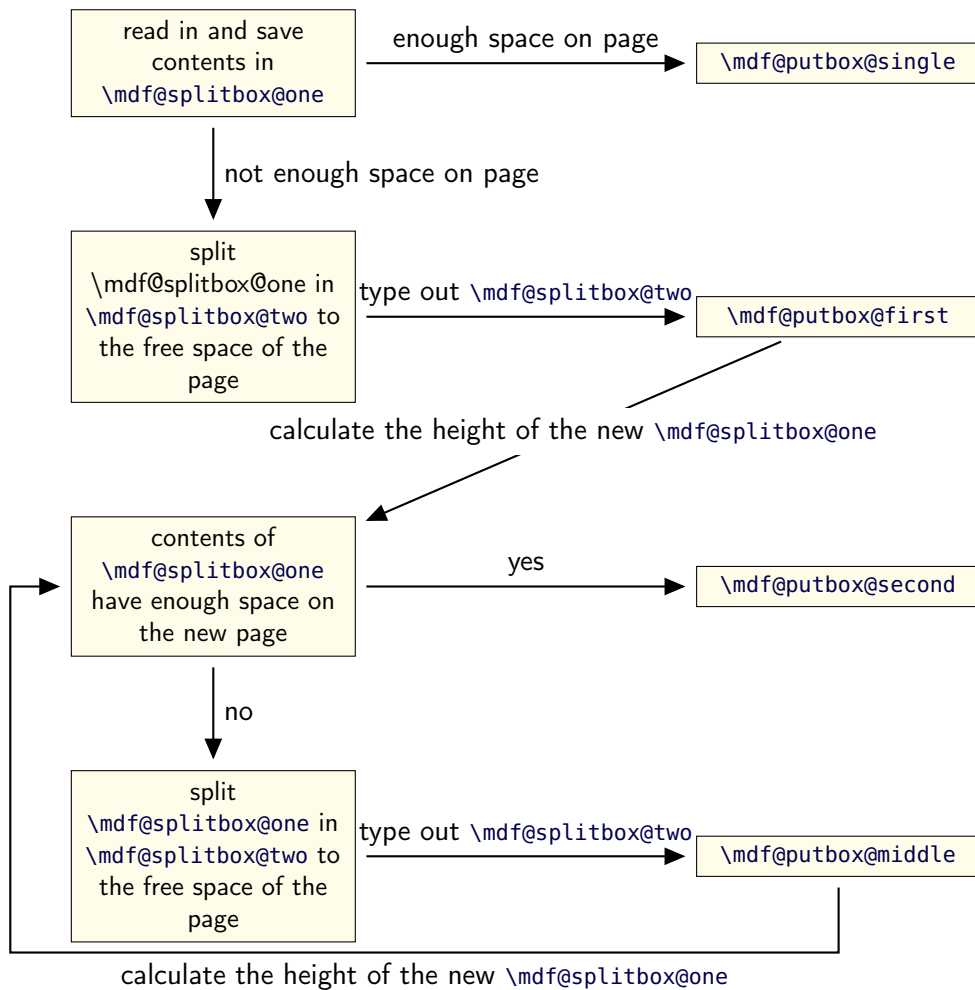


Figure 3: Setting the contents of `mdframed`

The width of the contents is the result of the settings of `leftmargin`, `rightmargin`, `linewidth`, `innerleftmargin` and `innerrightmargin` (see figure (2)).

### A.2. The Framecommands

The package `mdframed` knows four kinds of “Framecommand”. These commands tell `LATEX` how to set the contents of `mdframed`.

`\mdf@putbox@single` This command sets the contents of a single unsplit frame.



`\mdf@putbox@first` This command sets the contents of the first frame of a split frame.

`\mdf@putbox@middle` This command sets the contents of the middle frame of a split frame.

`\mdf@putbox@second` This command sets the contents of the last frame of a split frame.

Using the explained commands we give an example. The command `\box` uses the contents of the savebox and types them out.

First we want to type out the single box without any settings (but with the calculated width).

```
\makeatletter
\def\mdf@putbox@single{\box\mdf@splitbox@one}
\makeatother
```

I am using the command `\leftline` to start the “Framecommands” at the left.

```
\makeatletter
\def\mdf@putbox@single{\leftline{\box\mdf@splitbox@one}}
\makeatother
```

Now you have to know how the lengths are named. Every length which can be modified by the options has the following syntax:

```
\mdf@<Name of the Length>@length
```

For example the leftmargin is:

```
\mdf@leftmargin@length
```

To create only a line at the left with the correct `leftmargin` you can set `\mdf@putboxsingle` as follows

```
\makeatletter
\def\mdf@putbox@single{%
    \leftline{%
        \hspace*{\mdf@leftmargin@length}%
        \rule[-\dp\mdf@splitbox@one]{\mdf@linewidth}%
        {\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}%
        \box\mdf@splitbox@one
    }%
}
\makeatother
```

In this way you can do what you want. If you create your own style you can save the file as `md-frame-X.mdf`. `X` must be an integer. In this way you can use the option `framemethod` to load the file by setting `framemethod=X`.

## A.3. Revision history

### Version 1.4 submitted 4 Mar 2012

- fixed bug in combination with `\marginpar` (Thanks Juan Carlos Trujillo Ortega) • fixed bug with option `font` • fixed bug inside `frametitle` (Thanks Yi, Hoze) • removed unnecessary groups (Thanks Yi, Hoze) • changed the definition of `listings` to allow copy paste of the examples

### Version 1.3a submitted 5 Feb 2012

- fixed bug (Thanks to Dietrich Grau)

### Version 1.3 submitted 4 Feb 2012

- fixed documentation (Thanks to Dietrich Grau) • added option `shadow` • improved handling `\parindent` and `\parskip` (Thanks to Enrico Gregorio and Joseph Wright)

### Version 1.2 submitted 8 Jan 2012

- fixed documentation (Thanks to Dietrich Grau) • fixed bug in combination with `amsthm` • fixed bug in `\newmdtheoremenv` • defined new styles via `\newpsstyle`
- This works only with `framemethod=PS Tricks`. • added new commands for interaction with TikZ and PS Tricks • expand frame title option by option `frametitulerule`, `frametitulerulewidth`, `frametitlefont`, `frametitleaboveskip`, `frametitlebelowskip`, `frametitlealignment` • removed limitation of three lines for PS Tricks • defined new commands `\surroundwithmdframed`, `\mdflength`, `\mdtheorem` • load `xparse` by default • changed internal names • expanded examples

### Version 1.0b submitted 9 Dec 2011

- fixes documentation (Thanks to Dietrich Grau) • fixes bug in `\newmdtheoremenv` • fixes bug with overfull boxes (Thanks to Dietrich Grau) • defined `\newpsstylemdfbackgroundstyle` and `mdflinestyle`
- This works only with `framemethod=PS Tricks`. • created dtx-file (Thanks to Kevin Godby) • added `\@parboxrestore` to `\mdf@lrbbox`

### Version 1.0 submitted 13 Nov 2011

- add option `userdefinedwidth` • add option `align` • add option `apptotikzsetting` • create new command `\mdfapptodefinestyle` • changed internal algorithm • removed `calc` instead using  $\epsilon$ -TeX `\dimexpr` • expand documentation • trying to fix problems with `xcolor` • fixed bug with `framemethod=pstricks` • create file `mdframed-example-default` • create file `mdframed-example-tikz` • create file `mdframed-example-pstricks` • create file `mdframed-example-texsx` (`texsx` stands for `tex stackexchange`)

### Version 0.9g submitted 08 Oct 2011

- fixed documentation • added small footnote compatibility

### Version 0.9f submitted 04 Oct 2011

- fixes bugs (thanks to Lars Madsen) • added option `hidealllines` • fixed documentation

### Version 0.9e submitted 11 Sep 2011

- working with `twoside` modus

### Version 0.9d submitted 10 Sep 2011

- **changed the meaning of the option `style`!!!** (inspired by Lars Madsen) • added option `framemethod` (inspired by Lars Madsen) • added options `needspace` (inspired by Lars Madsen) • added new command `\mdfdefinestyle` (inspired by Lars Madsen) • fixes documentation • renamed `md-frame-3.mdf` to `md-frame-2.mdf`

### Version 0.9b submitted 7 Sep 2011

- fixes bugs in `\newmdtheoremenv` (Thanks to Enrico Gregorio)

### Version 0.9a submitted 5 Sep 2011

- fixes bugs (Thanks to Lars Madson) • expanded documentation (added revision history)

### Version 0.9 submitted 4 Sep 2011

- added option `nobreak` • detecting float environments to prevent split calculation • expand documentation (Thanks to Alan Munn)

**Version 0.8a**

- fixes bugs • fixes documentation

**Version 0.8 submitted 22 Aug 2011**

- added commands: `\newmdenv`, `\renewmdenv`, `\newmdtheoremenv` • fixes bugs • fixes documentation

**Version 0.7a submitted 6 August 2011**

- added option `frametitle` • added option `frametitlefont` • allow twolumn-mode • changed the calculation
- added option `tikzsetting` • added options for hidden lines for all styles • fixes bugs

**Version 0.6a submitted 22 Dec 2010**

- fixes bugs • added `\mdfsetup` • expanded documentation

## B. Implementation

And finally, here's how it all works...

### B.1. The Explanation of mdframed.sty

*Id : mdframed.dtx3492012-03-0617:40:51Zmarco Rev : 349 Author : marco*

*Date : 2012-03-0618:40:51+0100(Di,06.Mr2012)*

```
\mdversion
\mdframedpackagename
\mdf@maindate@svn
```

Set package information

```
1 \def\mdversion{v1.4a}
2 \def\mdframedpackagename{mdframed}
3 \def\mdf@maindate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }

4 \NeedsTeXFormat{LaTeX2e}
5 \ProvidesPackage{mdframed}%
6     [\mdf@maindate@svn$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $%
7     \mdversion: \mdframedpackagename]
```

```
\mdf@PackageWarning
\mdf@PackageInfo
\mdf@LoadFile@IfExist
```

Set short form of `\PackageWarning`, `\PackageInfo` and `IfFileExists` in combination with `\RequirePackage`.

```
8 \newcommand*\mdf@PackageWarning[1]{\PackageWarning{\mdframedpackagename}{#1}}
9 \newcommand*\mdf@PackageInfo[1]{\PackageInfo{\mdframedpackagename}{#1}}
10 \newcommand*\mdf@LoadFile@IfExist[1]{%
11   \IfFileExists{#1.sty}{%
12     \RequirePackage{#1}%
13   }{%
14     \mdf@PackageWarning{The file #1 does not exist\MessageBreak
15       but needed by \mdframedpackagename\MessageBreak
16       see documentation fo further information
17     }%
18   }
19 }
```

Loading required packages

```
20 \RequirePackage{kvoptions}
21 \RequirePackage{xparse}
22 \RequirePackage{etoolbox}[2011/01/03]
23 \RequirePackage{zref-abspage}
24 \RequirePackage{color}
```

Set the family and the prefix of all options. (see documentation of `kvoptions`)

```
25 \SetupKeyvalOptions{family=mdf,prefix=mdf@}
```

```
\mdf@iflength
\mdf@iflength@check
\mdf@iflength@check
```

Command which checks the input of length options. If the length option is only a number the `defaultunit` will be used. Syntax: `\mdf@iflength{<Input>}{<length>}{<no length>}`

```

26 \newlength{\mdf@templength}
27 \def\mdf@iflength#1{%
28   \afterassignment\mdf@iflength@check%
29   \mdf@templength=#1\mdf@defaultunit\relax\relax
30   \expandafter\endgroup\next
31 }
32 \def\mdf@iflength@check#1{%
33   \begingroup
34   \ifx\relax#1\@empty
35     \def\next{\@secondoftwo}
36   \else
37     \def\next{\@firstoftwo}
38     \expandafter\mdf@iflength@cleanup
39   \fi
40 }
41 \def\mdf@iflength@cleanup#1\relax{}
```

`\mdf@dolist`

Loop used by *mdframed*.

```
42 \DeclareListParser*{\mdf@dolist}{,}
```

`\mdf@option@length`  
`\mdf@define@key@length`

Command to define a new length with a default value.

```

\mdf@option@length{<Laengebezeichnung>}{<Defaultwert>}
43 \newrobustcmd*{\mdf@option@length}[2]{%
44   \expandafter\newlength\csname mdfl@#1@length\endcsname%
45   \expandafter\setlength\csname mdfl@#1@length\endcsname{#2}%
46 }
```

Command to create a new length option. `\mdf@define@key@length{<Bezeichnung der Option der Laenge>}`

```

47 \newrobustcmd*{\mdf@define@key@length}[1]{%
48   \define@key{mdf}{#1}{%
49     \def\@tempa{##1}
50     \mdf@iflength{\@tempa}%
51     {\csxdef{mdfl@#1}{\the\mdf@templength}}%
52     {\csxdef{mdfl@#1}{\the\mdf@length}}%
53     \expandafter\setlength\csname mdfl@#1@length\endcsname{\csname mdfl@#1\endcsname}%
54   }%
55 }
```

`\mdf@do@lengthoption`  
`\mdf@lengthoption@doubledo`

The loop of `\mdf@dolist` expected one argument. So I have to define two commands to allow a loop with two arguments. The separation for the input is `==`.

```

56 \def\mdf@do@lengthoption#1{%
57   \mdf@lengthoption@doubledo#1\@nil%
58 }
59 \def\mdf@lengthoption@doubledo#1==#2\@nil{}
```

```

60 \mdf@option@length{#1}{#2}%
61 \mdf@define@key@length{#1}%
62 }

```

```

\mdf@do@stringoption
\mdf@stringoption@doubledo

```

Same as `\mdf@do@lengthoption` and `\mdf@lengthoption@doubledo`.

```

63 \def\mdf@do@stringoption#1{%
64   \mdf@stringoption@doubledo#1\@nil%
65 }
66 \def\mdf@stringoption@doubledo#1==#2\@nil{%
67   \expandafter\gdef\csname mdf@#1\endcsname{#2}%
68   \define@key{mdf}{#1}{%
69     \csdef{mdf@#1}{##1}%
70   }%
71 }

```

```

\mdf@do@booloption
\mdf@booloption@doubledo

```

Same as `\mdf@do@lengthoption` and `\mdf@lengthoption@doubledo`.

```

72 \def\mdf@do@booloption#1{%
73   \mdf@booloption@doubledo#1\@nil%
74 }
75 \def\mdf@booloption@doubledo#1==#2\@nil{%
76   \newbool{mdf@#1}\setbool{mdf@#1}{#2}%
77   \define@key{mdf}{#1}[#2]{%
78     \setbool{mdf@#1}{##1}%
79   }%
80 }

```

```

\mdf@do@alignoption
\mdf@alignoption@tripleo

```

Same as `\mdf@do@lengthoption` and `\mdf@lengthoption@doubledo`. Here three arguments are required.

```

81 \def\mdf@do@alignoption#1{%
82   \mdf@alignoption@tripleo#1\@nil%
83 }
84 \def\mdf@alignoption@tripleo#1==#2==#3\@nil{%
85   \csdef{mdf@align@#1@left}{\null\hspace*{#2}}%
86   \csdef{mdf@align@#1@right}{\hspace*{#3}\null}%
87 }

```

Start declaration of options

```

88 \newcounter{mdf@globalstyle@cnt}
89 \defcounter{mdf@globalstyle@cnt}{0}
90 \newcommand*\mdfglobal@style{0}

```

Only provide to be backward compatible

```

91 \define@key{mdf}{style}{%
92   \mdf@PackageWarning{package option style is depreciated^^J
93     use framemethod instead\MessageBreak}%
94   \renewcommand*\mdfglobal@style{#1}%

```

```

95      \defcounter{mdf@globalstyle@cnt}{#1}%
96      \ifcase\value{mdf@globalstyle@cnt}\relax
97          %0 <- kein Grafikpaket
98      \or\mdf@LoadFile@IfExist{tikz}%
99      \or\mdf@LoadFile@IfExist{pstricks-add}%
100     \or\defcounter{mdf@globalstyle@cnt}{2}%
101         \mdf@LoadFile@IfExist{pst-node}%
102     \or\mdf@LoadFile@IfExist{pst-node}%
103     \else\mdf@PackageWarning{Unknown global style \value{mdf@globalstyle@cnt}}%
104     \fi%
105 }

```

\mdf@framemethod

```

106 \providecommand*\mdf@framemethod{}
107 \def\mdf@framemethod@i{}%
108 \def\mdf@framemethod@ii{}%
109 \def\mdf@framemethod@iii{}%

110 \define@key{mdf}{framemethod}[default]{%
111     \lowercase{\def\mdf@tempa{#1}}
112     \forcsvlist{\listadd\mdf@framemethod@i}{default,tex,latex,none,0}
113     \forcsvlist{\listadd\mdf@framemethod@ii}{pgf,tikz,1}
114     \forcsvlist{\listadd\mdf@framemethod@iii}{pstricks,ps,2,postscript}
115     \xifinlist{\mdf@tempa}{\mdf@framemethod@i}%
116         {\def\mdf@@framemethod{default}\defcounter{mdf@globalstyle@cnt}{0}}%
117     {\xifinlist{\mdf@tempa}{\mdf@framemethod@ii}%
118         {\def\mdf@@framemethod{tikz}\defcounter{mdf@globalstyle@cnt}{1}}%
119     {\xifinlist{\mdf@tempa}{\mdf@framemethod@iii}%
120         {\def\mdf@@framemethod{pstricks}\defcounter{mdf@globalstyle@cnt}{2}}}%
121     {%
122         \mdf@LoadFile@IfExist{#1}%
123     }%
124 }%
125 }%
126 \ifcase\value{mdf@globalstyle@cnt}\relax%
127     %0 <- kein Grafikpaket
128     \or\mdf@LoadFile@IfExist{tikz}%
129     \or\mdf@LoadFile@IfExist{pst-node}%
130     \or\mdf@LoadFile@IfExist{pst-node}%
131 \fi%
132 }

```

\mdf@do@lengthoption

Here the declaration of the length option. The input method is explained above.

```

133 \mdf@dolist{\mdf@do@lengthoption}{%
134     {skipabove==\z@},%
135     {skipbelow==\z@},%
136     {leftmargin==\z@},%
137     {rightmargin==\z@},%
138     {innerleftmargin==10pt},%
139     {innerrightmargin==10pt},%

```

```

140 {innertopmargin==0.4\baselineskip},%
141 {innerbottommargin==0.4\baselineskip},%
142 {splittopskip==\z@},%
143 {splitbottomskip==\z@},%
144 {outermargin==\z@},%
145 {innermargin==\z@},%
146 {linewidth==0.4pt},%
147 {innerlinewidth==\z@},%
148 {middlelinewidth==\expandafter\mdf@linewidth@length},%
149 {outerlinewidth==\z@},%
150 {roundcorner==\z@},%
151 {footenotedistance==\medskipamount},
152 {userdefinedwidth==\linewidth},
153 {frametitleaboveskip==5pt},
154 {frametitlebelowskip==5pt},
155 {frametitlerulewidth==.2pt},
156 {frametitleleftmargin==10pt},%
157 {frametitlerightmargin==10pt},%
158 {shadowsize==8pt},%
159 }

```

`\mdf@do@lengthoption`

Here the declaration of the string option. The input method is explained above.

```

160 \mdf@dolist{\mdf@do@stringoption}{%
161   {frametitle=={}},%
162   {defaultunit==pt},%
163   {linecolor==black},%
164   {backgroundcolor==white},%
165   {fontcolor==black},%
166   {frametitlefontcolor==black},%
167   {innerlinecolor==\mdf@linecolor},%
168   {outerlinecolor==\mdf@linecolor},%
169   {middlelinecolor==\mdf@linecolor},%
170   {psroundlinecolor==\mdf@backgroundcolor},%
171   {frametitlerulecolor==\mdf@linecolor},
172   {frametitlebackgroundcolor==\mdf@backgroundcolor},%
173   {shadowcolor==black!50},%
174   {settings=={}},%
175   {frametitlesettings=={}},%
176   {font=={}},%
177   {frametitlefont==\normalfont\bfseries},%
178   {printheight==none},%
179   {alignment=={}},%
180   {frametitlealignment=={}},%
181   {theoremseparator=={:}},%
182   {theoremcountersep=={.}},%
183   {theoremtitlefont=={}},%
184   {theoremspace=={\space}},%
185 }

```

`\mdf@do@booloption`



Here the declaration of the string option. The input method is explained above.

```

186 \mdf@dolist{\mdf@do@booloption}{%
187     {ntheorem==false},%
188     {topline==true},%
189     {leftline==true},%
190     {bottomline==true},%
191     {rightline==true},%
192     {frametitletopline==true},%
193     {frametitleleftline==true},%
194     {frametitlebottomline==true},%
195     {frametitlerightline==true},%
196     {hidealllines==false},%
197     {frametitlerule==false},%
198     {nobreak==false},%
199     {footnoteinside==true},%
200     {usetwoside==true},%
201     {repeatframetitle==false},%Noch nicht richtig implementiert
202     {shadow==false},%
203 }
```

`\mdf@do@alignoption`

Here the declaration of the align option. The input method is explained above.

```

204 \mdf@dolist{\mdf@do@alignoption}{%
205     {left==\mdf@leftmargin@length==\z@},%
206     {center==\fill==\fill},%
207     {right==\fill==\mdf@rightmargin@length},%
208     {outer==\fill==\mdf@rightmargin@length},%not supported yet
209     {outer==\mdf@leftmargin@length==\fill},%not supported yet
210 }
```

`\mdf@align`  
`\mdf@makeboxalign@left`  
`\mdf@makeboxalign@right`  
`\mdf@makeboxalign@right`

Set the alignment.

```

211 \newcommand*\mdf@align{}%
212 \newcommand*\mdf@makeboxalign@left{\null\hspace*{\mdf@leftmargin@length}}%
213 \newcommand*\mdf@makeboxalign@right{}%
214 \define@key{mdf}{align}[left]{%
215     \ifcsundef{mdf@align@#1@left}{%
216         \mdf@PackageWarning{Unknown alignment #1\MessageBreak}%
217         \letcs\mdf@makeboxalign@left{mdf@align@left@left}%
218         \letcs\mdf@makeboxalign@right{mdf@align@left@right}%
219     }{%
220         \def\mdf@makeboxalign@left{\csuse{mdf@align@#1@left}}%
221         \def\mdf@makeboxalign@right{\csuse{mdf@align@#1@right}}%
222     }%
223 }
```

`\mdf@tikzset@local`  
`\mdf@psset@local`

Option to pass options to tikz or pstricks

```

224 \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={}}}
225 \define@key{mdf}{tikzsetting}{%
226   \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={#1}}}%
227 }
228 \define@key{mdf}{apptotikzsetting}{%
229   \appto\mdf@tikzset@local{#1}%
230 }
231 \def\mdf@psset@local{}
232 \define@key{mdf}{pstrickssetting}{%
233   \def\mdf@psset@local{#1}%
234 }
235 \def\mdf@pstricks@appendsettings{}
236 \define@key{mdf}{pstricksappsetting}{%
237   \def\mdf@pstricks@appendsettings{#1}%
238 }
239

```

\mdf@xcolor

**Problem with xcolor. This part must be reworked!**

```

240 \def\mdf@xcolor{}
241 \define@key{mdf}{xcolor}[none]{%
242   \def\@tempa{#1}%
243   \ifpackageloaded{xcolor}{%
244     \let\mdf@xcolor\@empty %ignoriere die Eingabe der Optionen
245     \def\@tempa{}%
246   }{}%
247   \ifx\relax\@tempa\relax\else
248     \PassOptionsToPackage{\mdf@xcolor}{xcolor}%
249     \RequirePackage{xcolor}%
250   \fi%
251 }%

```

\mdf@needspace

Defining the option needspace

```

252 \define@key{mdf}{needspace}[\z@]{%
253   \begingroup%
254     \setlength{\dimen@}{#1}%
255     \vskip\z@\@plus\dimen@%
256     \penalty -100\vskip\z@\@plus -\dimen@%
257     \vskip\dimen@%
258     \penalty 9999%
259     \vskip -\dimen@%
260     \vskip\z@skip % hide the previous |\vskip| from |\addvspace|
261   \endgroup%
262 }

263 \DeclareDefaultOption{%
264   \mdf@PackageWarning{Unknown Option '\CurrentOption' for mdframed}}
265 \ProcessKeyvalOptions*\relax

```

\mdfsetup

Short form of `\setkeys{mdf}`

```
266 \newrobustcmd*{\mdfsetup}{\setkeys{mdf}}
```

`\mdf@style`

Redefinition of the option `style` to use the key in combination with `mdfdefinedstyle`.

```
267 \define@key{mdf}{style}{%
268   \ifcsundef{mdf@definestyle@#1}{%
269     \mdf@PackageWarning{Unknown definedstyle #1^^J
270                       You have to define a style ^^J
271                       via \string\mdfdefinedstyle\MessageBreak
272                       }%
273   }%
274   {\expandafter\expandafter\expandafter\mdfsetup%
275     \expandafter\expandafter\expandafter{\csname mdf@definestyle@#1\endcsname}}%
276 }
```

`\mdf@print@space`

Option to type out the free vertical space of the current page.

```
277 \let\mdf@PackageNoInfo\@gobble
278 \newrobustcmd*{\mdf@ifstrequal@expand{%
279   \expandafter\ifstrequal\expandafter{\mdf@printheight}%
280 }
281 \newrobustcmd*{\mdf@print@space{%
282   %case "none"
283   \mdf@ifstrequal@expand{none}{\def\mdf@tempa{NoInfo}}{%
284     %case "info"
285     \mdf@ifstrequal@expand{info}{\def\mdf@tempa{Info}}{%
286       %case "warning"
287       \mdf@ifstrequal@expand{warning}{\def\mdf@tempa{Warning}}{%
288         %case "unknown"
289         \mdf@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
290                           use none, info or warning}%
291         \def\mdf@tempa{none}%
292       }%
293     }%
294   }%
295   \def\mdf@PackageInfoSpace{\csname mdf@Package\mdf@tempa\endcsname}%
296 }
```

`\new...`

Initialize all commands and length which will we used later

```
297 \newsavebox\mdf@frametitlebox
298 \newsavebox\mdf@footnotebox
299 \newsavebox\mdf@splitbox@one
300 \newsavebox\mdf@splitbox@two
301 \newlength\mdf@splitboxwidth
302 \newlength\mdf@splitboxtotalwidth
303 \newlength\mdf@splitboxheight
304 \newlength\mdf@splitboxdepth
305 \newlength\mdf@splitboxtotalheight
```

```

306 \newlength\mdfframetitleboxwidth
307 \newlength\mdfframetitleboxtotalwidth
308 \newlength\mdfframetitleboxheight
309 \newlength\mdfframetitleboxdepth
310 \newlength\mdfframetitleboxtotalheight
311 \newlength\mdffootnoteboxwidth
312 \newlength\mdffootnoteboxtotalwidth
313 \newlength\mdffootnoteboxheight
314 \newlength\mdffootnoteboxdepth
315 \newlength\mdffootnoteboxtotalheight
316
317 \newlength\mdftotallinewidth
318
319 \newlength\mdfboundingboxwidth
320 \newlength\mdfboundingboxtotalwidth
321
322 \newlength\mdfboundingboxheight
323 \newlength\mdfboundingboxdepth
324 \newlength\mdfboundingboxtotalheight
325
326 \newlength\mdf@freevspace@length
327 \newlength\mdf@horizontalwidthofbox@length
328 \newlength\mdf@verticalmarginwhole@length
329
330 % Command to expand the tikz code. (see md-frame-1.mdf)
331 \newrobustcmd\mdfcreateextratikz{}
332

```

$\backslash$ mdf@lrbox $\backslash$ endmdf@lrbox
---

Modification of the default  $\backslash$ lrbox and  $\backslash$ endlrbox

```

333
334 \def\mdf@lrbox#1{%
335 %%patch to work with amsthm
336 \mdf@patchamsthm
337 %%end patch
338 \edef\mdf@restoreparams{%
339 \parindent=\the\parindent \parskip=\the\parskip}
340 \setbox#1\vbox\bgroup
341 \color@begingroup%
342 \mdf@horizontalmargin@equation%
343 \columnwidth=\hsize%
344 \textwidth=\hsize%
345 \@parboxrestore%
346 \mdf@restoreparams%
347 %SETZE
348 \@afterindentfalse%
349 \@afterheading%
350 %STREICHE
351 %\doendpe
352 }
353
354 \def\endmdf@lrbox{\color@endgroup\egroup}

```

355

```
\mdf@ignorevbadness
\mdf@restorevbadness
```

Avoiding warnings during the splitting process by `\vsplit`. see [How to avoid underfull vbox in combination with \vsplit?](#)

```
356 \newrobustcmd*\mdf@ignorevbadness{%
357   \edef\mdf@currentvbadness{\the\vbadness}%
358   \vbadness=\@M%
359   \afterassignment\mdf@restorevbadness}
360 \newrobustcmd*\mdf@restorevbadness{\vbadness=\mdf@currentvbadness\relax}
```

```
\mdf@patchamsth
```

The package `amsthm` provides a not compatible starting of theorem. So I have to change the header of `amsthm`.

```
361 \@ifpackageloaded{amsthm}{%
362   \newrobustcmd\mdf@patchamsth{%
363     \let\mdf@deferred@thm@head\deferred@thm@head
364     \patchcmd{\deferred@thm@head}{\indent}{\relax}{}{}
365   }%
366   \let\mdf@patchamsth\relax}%
```

```
\mdf@trivlist
\endmdf@trivlist
```

Modification of the default `\trivlist` and `\endtrivlist`.

```
367 \def\mdf@trivlist#1{%
368   \setlength{\topsep}{#1}%
369   \partopsep\z@%
370   \parsep\z@%
371   \@nmblistfalse%
372   \@trivlist%
373   \labelwidth\z@%
374   \leftmargin\z@%
375   \itemindent\z@%
376   \let\@itemlabel\@empty%
377   \def\makelabel##1{##1}%
378   %% \item\leavevmode\hrule \@height\z@ \@width\linewidth\relax%
379   %% \item\mbox{}\relax% second version
380   \item\relax% first Version
381 }
382 \let\endmdf@trivlist\endtrivlist
383 \patchcmd\endmdf@trivlist\@endparenv\mdf@endparenv{}{}
384 \def\mdf@endparenv{%
385   \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}
386
```

```
\mdf@makebox@out
\mdf@makebox@in
```

```

387 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
388 \noindent\hb@xt@\z@{%
389 \noindent\makebox[\dimexpr #1\relax][l]{#2}%
390 \hss}%
391 }%
392 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
393 \noindent\makebox[\dimexpr #1\relax][l]{#2}%
394 }

```

```

\mdfdefinestyle
\mdfapptodefinestyle

```

See explanation of this commands above.

```

395 \newrobustcmd*\mdfdefinestyle[2]{%
396 \csdef{mdf@definestyle@#1}{#2}%
397 }
398 \newrobustcmd*\mdfapptodefinestyle[2]{%
399 \ifcsundef{mdf@definestyle@#1}%
400 {\mdf@PackageWarning{Unknown style #1}}%
401 {\csappto{mdf@definestyle@#1}{, #2}}%
402 }

```

```

\mdflength
\surroundwithmdframed

```

Helper macros to work with *mdframed*

```

403 \newrobustcmd*\mdflength[1]{\csuse{mdf@#1@length}}
404
405 \newrobustcmd*\surroundwithmdframed[2][]{%
406 \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
407 \AfterEndEnvironment{#2}{\end{mdframed}}%
408 }

```

```

\newmdenv
\renewmdenv
\newmdtheoremenv
\mdtheorem

```

Defining of the new environment defintions.

```

409 \newrobustcmd*\newmdenv[2][]{%
410 \newenvironment{#2}{%
411 \mdfsetup{#1}%
412 \begin{mdframed}%
413 }{%
414 \end{mdframed}%
415 }%
416 }
417 \newrobustcmd*\renewmdenv[2][]{%
418 \expandafter\let\csname #2\endcsname\relax%
419 \expandafter\let\csname end#2\endcsname\relax%
420 \newmdenv[#1]{#2}%
421 }%
422

```

```

423
424 \DeclareDocumentCommand\newmdtheoremenv{0}{ m o m o }{%
425   \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }{%
426     {\newtheorem{#2}{#4}}{%
427       \IfValueTF{#3}{\newtheorem{#2}[#3]{#4}}{%
428         \IfValueTF{#5}{\newtheorem{#2}{#4}[#5]}{%
429           }%
430         \BeforeBeginEnvironment{#2}{%
431           \begin{mdframed}[#1]}%
432         \AfterEndEnvironment{#2}{%
433           \end{mdframed}}%
434       }%
435     }%
436 \DeclareDocumentCommand{\mdtheorem}{ 0{ } m o m o }%
437 {\ifcsdef{#2}%
438   {\mdf@PackageWarning{Environment #2 already exists\MessageBreak}}%
439   {%
440     \IfNoValueTF {#3}%
441     {%#3 not given -- number relationship
442       \IfNoValueTF {#5}
443       {%#3+#5 not given
444         \@definecounter{#2}%
445         \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}
446         \newenvironment{#2}[1][{%
447           \refstepcounter{#2}
448           \ifstrempy{##1}%
449           {\let\@temptitle\relax}%
450           {%
451             \def\@temptitle{\mdf@theoremseparator%
452               \mdf@theoremspace%
453               \mdf@theoremtitlefont%
454               ##1}%
455           }
456           \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]{%
457             {\end{mdframed}}}%
458         \newenvironment{#2*}[1][{%
459           \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}
460           \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]{%
461             {\end{mdframed}}}%
462         }%
463         {%#5 given -- reset counter
464           \@definecounter{#2}\@newctr{#2}[#5]%
465           \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}
466           \expandafter\xdef\csname the#2\endcsname{%
467             \expandafter\noexpand\csname the#5\endcsname \@thmcountersep
468             \@thmcounter{#2}}%
469           \newenvironment{#2}[1][{%
470             \refstepcounter{#2}
471             \ifstrempy{##1}%
472             {\let\@temptitle\relax}%
473             {%
474               \def\@temptitle{\mdf@theoremseparator%
475                 \mdf@theoremspace%
476                 \mdf@theoremtitlefont%
477                 ##1}%
478             }

```

```

479      \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]}%
480      {\end{mdframed}}}%
481      \newenvironment{#2*}[1][]{%
482      \ifstrempy{##1}%
483      {\let\@temptitle\relax}%
484      {%
485      \def\@temptitle{\mdf@theoremseparator%
486      \mdf@theoremspace%
487      \mdf@theoremtitlefont%
488      ##1}%
489      }
490      \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]}%
491      {\end{mdframed}}}%
492      }%
493      }%
494      {%#3 given -- number relationship
495      \global\@namedef{the#2}{\@nameuse{the#3}}}%
496      \newenvironment{#2}[1][]{%
497      \refstepcounter{#3}
498      \ifstrempy{##1}%
499      {\let\@temptitle\relax}%
500      {%
501      \def\@temptitle{\mdf@theoremseparator%
502      \mdf@theoremspace%
503      \mdf@theoremtitlefont%
504      ##1}%
505      }
506      \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]}%
507      {\end{mdframed}}}%
508      \newenvironment{#2*}[1][{%
509      \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}
510      \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]}%
511      {\end{mdframed}}}%
512      }%
513      }%
514      }
515

```

<pre> \mdfframedtitleenv \mdf@frametitle \mdf@setopt@body \mdf@setopt@title </pre>
--

Default definition of the frame tile used by *mdframed*.

```

516 %TESTVERSION
517 % \newrobustcmd*\mdf@setopt@title{%
518 %   \ifbool{mdf@frametitlerule}{\booltrue{mdf@bottomline}}{\boolfalse{mdf@bottomline}}}%
519 %   \let\ifmdf@leftline\ifmdf@frametitleleftline%
520 %   \let\ifmdf@topline\ifmdf@frametitletopline%
521 %   \let\ifmdf@rightline\ifmdf@frametitlerightline%
522 %   \let\ifmdf@bottomline\ifmdf@frametitlebottomline%
523 %   \mdfsetup{innerbottommargin=\mdf@titlebelowskip@length,%
524 %             innertopmargin=\mdf@titleaboveskip@length,%
525 %             middlelinecolor=\mdf@frametitlerulecolor,%

```



```

526 %             backgroundcolor=\mdf@frametitlebackgroundcolor,%
527 %             middlelinewidth=\mdf@frametitlerulewidth@length,%
528 %             innerleftmargin=\mdf@frametitleleftmargin@length,%
529 %             innerrightmargin=\mdf@frametitlerightmargin@length,%
530 %             alignment=\mdf@frametitlealignment,
531 %             skipbelow=\z@}%
532 % \def\mdf@linecolor@bottom{\color{\mdf@frametitlebottomrulecolor}}%
533 % \mdf@frametitlesettings%
534 % }
535 %
536 % \newrobustcmd*\mdf@setopt@body{%
537 %   \mdfsetup{topline=false,skipabove=\z@}%
538 %   \unskip\nointerlineskip%
539 % }
540 %
541 % \newrobustcmd\mdfframedtitleenv[1]{%
542 %   \begingroup
543 %     \mdf@setopt@title
544 %     \color@setgroup
545 %     \mdf@frametitlefont
546 %     \mdf@lrbox{\mdf@splitbox@one}%
547 %       \mdf@frametitlealignment
548 %       #1\par\unskip
549 %     \endmdf@lrbox
550 %     \mdf@ignorevbadness
551 %     \global\setbox\mdf@frametitlebox\vbox{\unvbox\mdf@splitbox@one}%
552 %     \mdf@ignorevbadness
553 %     \global\setbox\mdf@splitbox@one\vbox{\unvcopy\mdf@frametitlebox}%
554 %     \detected@mdf@put@frame%
555 %     \color@endgroup%
556 %   \endgroup
557 % }
558 % \newrobustcmd\mdfframedtitleenv[1]{%
559 %   \color@begingroup%
560 %     \mdf@lrbox{\mdf@frametitlebox}%
561 %       \mdf@frametitlealignment%
562 %       \color{\mdf@frametitlefontcolor}%
563 %       \normalfont\mdf@frametitlefont{#1}\par\unskip
564 %     \endmdf@lrbox%
565 %     \mdf@ignorevbadness%
566 %     \global\setbox\mdf@frametitlebox\vbox{\unvbox\mdf@frametitlebox}%
567 %     \global\mdfframetitleboxwidth=\wd\mdf@frametitlebox\relax%
568 %     \global\mdfframetitleboxheight=\ht\mdf@frametitlebox\relax%
569 %     \global\mdfframetitleboxdepth=\dp\mdf@frametitlebox\relax%
570 %     \global\mdfframetitleboxtotalheight=\dimexpr\ht\mdf@frametitlebox+\dp\mdf@frametitlebox
571 %       +\mdf@frametitleaboveskip@length+\mdf@frametitlebelowskip@length\relax%
572 %     \color@endgroup%
573 % }
574 %
575 % \newrobustcmd*\mdf@@frametitle{%
576 %   \mdfframedtitleenv{\mdf@frametitle}%
577 % }
578 %
579 % \newrobustcmd*\mdf@@frametitle@use{%
580 %   \begingroup
581 %     \parskip\z@

```

```

582 \parindent\z@
583 \offinterlineskip
584 \mdf@ignorevbadness%
585 \global\setbox\mdf@splitbox@one\vbox{%
586   \unvcopy\mdf@frametitlebox%
587   \mdf@frametitlerule%
588   \unvbox\mdf@splitbox@one
589 }%
590 \mdf@ignorevbadness%
591 \global\setbox\mdf@splitbox@one\vbox{%
592   \unvbox\mdf@splitbox@one}%
593 \endgroup
594 \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
595 }

```

`\mdf@checkntheorem`

Command which checks only `ntheorem`. Later I will support also `thmtools`.

```

596
597 \newrobustcmd*\mdf@checkntheorem{%
598   \ifbool{mdf@ntheorem}%
599     {\ifundef{\theorempreskipamount}%
600       {\mdf@PackageWarning{You have not loaded ntheorem yet}}%
601       {\setlength{\theorempreskipamount}{\z@}%
602        \setlength{\theorempostskipamount}{\z@}%
603      }%
604     }{}%
605 }

```

`\mdf@footnoterule`  
`\mdf@footnoteoutput`  
`\mdf@footnoteinput`

Support for footnotes.

```

606 \newrobustcmd*\mdf@footnoterule{%
607   \kern0\p@%
608   \hrule \@width 1in \kern 2.6\p@}
609 \newrobustcmd*\mdf@footnoteoutput{%
610   \ifvoid\@mpfootins\else
611     \nobreak%
612     \vskip\mdf@footnotedistance@length%
613     \normalcolor%
614     \mdf@footnoterule
615     \unvbox\@mpfootins
616   \fi%
617 }
618 \newrobustcmd*\mdf@footnoteinput{%
619   \def\@mpfn{mpfootnote}%
620   \def\thempfn{\thempfootnote}%
621   \c@mpfootnote\z@%
622   \let\@footnotetext\@mpfootnotetext%
623 }

```

```
\mdf@load@style
\mdf@styledefinition
```

Load the method to draw the frame and set style definition.

```
624 \newrobustcmd*\mdf@load@style{%
625 \ifcase\value{mdf@globalstyle@cnt}\relax%
626 \input{md-frame-0.mdf}%
627 \or\input{md-frame-1.mdf}%
628 \or\input{md-frame-2.mdf}%
629 \or\input{md-frame-3.mdf}%
630 \else%
631 \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
632 {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
633 {%
634 \input{md-frame-0.mdf}%
635 \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt} does not exist^^J
636 mdframed ues instead style=0 \mdframedpackagename}%
637 }%
638 \fi%
639 }%
640 \mdf@load@style
641
642 \newrobustcmd*\mdf@styledefinition{%AVOID!!!
643 \ifnumequal{\value{mdf@globalstyle@cnt}}{0}%
644 {\deflength{\mdf@innerlinewidth@length}{\z@}%
645 \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
646 \deflength{\mdf@outerlinewidth@length}{\z@}%
647 \let\mdf@innerlinecolor\mdf@linecolor%
648 \let\mdf@middlelinecolor\mdf@linecolor%
649 \let\mdf@outerlinecolor\mdf@linecolor%
650 }{}%
651 %
652 % {\deflength{\mdf@innerlinewidth@length}{\z@}%
653 % \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
654 % \deflength{\mdf@outerlinewidth@length}{\z@}%
655 % \let\mdf@innerlinecolor\mdf@linecolor%
656 % }{}%
657 %
658 % {\deflength{\mdf@innerlinewidth@length}{\z@}%
659 % \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
660 % \deflength{\mdf@outerlinewidth@length}{\z@}%
661 % \let\mdf@innerlinecolor\mdf@linecolor%
662 % }{}%
663 }
```

```
\detected@mdf@put@frame
```

Detect whether inside a non breakable environment.

```
664 \let\mdf@reserved@a\@empty
665 \newrobustcmd*\detected@mdf@put@frame{%
666 \ifmdf@nobreak%Option nobreak=true?
667 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
668 \else
669 \def\mdf@reserved@a{\mdf@put@frame}%
```

```

670 \ifx\@capttype\undefined
671 \def\mdf@reserved@a{\mdf@put@frame}%
672 \else
673 \mdf@PackageInfo{mdframed inside float ^^J
674 mdframed uses option nobreak \mdframedpackagename}%
675 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
676 \fi
677 %% \ifnum\@floatpenalty<0\relax%Detecting float
678 %% \if@twocolumn%
679 %% \ifx\@capttype\undefined
680 %% \def\mdf@reserved@a{\mdf@put@frame}%
681 %% \else
682 %% \mdf@PackageInfo{mdframed inside float ^^J
683 %% mdframed uses option nobreak \mdframedpackagename}%
684 %% \def\mdf@reserved@a{\mdf@put@frame@standalone}%
685 %% \fi
686 %% \else
687 %% \mdf@PackageInfo{mdframed inside float ^^J
688 %% mdframed uses option nobreak \mdframedpackagename}%
689 %% \def\mdf@reserved@a{\mdf@put@frame@standalone}%
690 %% \fi%
691 %% \fi%
692 \if@minipage%
693 \mdf@PackageInfo{mdframed inside minipage ^^J
694 mdframed uses option nobreak \mdframedpackagename}%
695 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
696 \fi%
697 \ifinner%
698 \mdf@PackageInfo{mdframed inside a box ^^J
699 mdframed uses option nobreak \mdframedpackagename}%
700 \def\mdf@reserved@a{\mdf@put@frame@standalone}%
701 \fi%
702 \fi%
703 \mdf@reserved@a%
704 }

```

`\mdf@hidealllines@check`

```

705 \newrobustcmd*\mdf@hidealllines@check{%
706 \ifbool{mdf@hidealllines}{%
707 \boolfalse{mdf@leftline}\boolfalse{mdf@rightline}%
708 \boolfalse{mdf@topline}\boolfalse{mdf@bottomline}%
709 \boolfalse{mdf@frametitleleftline}\boolfalse{mdf@frametitlerightline}%
710 \boolfalse{mdf@frametitletopline}\boolfalse{mdf@frametitlebottomline}%
711 }{}%
712 }

```

`\mdframed`  
`\mdframed@ii`  
`\mdframed@i`

That the user environment.

```
713 \newenvironment{mdframed}[1][[]]{%
```

```

714 \color@begingroup%
715   \mdfsetup{userdefinedwidth=\linewidth,#1}%
716   \mdf@hidealllines@check%
717   \mdf@twoside@checklength%
718   \let\width\z@%
719   \let\height\z@%
720   \mdf@checknththeorem%
721   \mdf@styledefinition%
722   \mdf@footnoteinput%
723   \color{\mdf@fontcolor}%
724   \mdf@font%
725   \ifvmode\nointerlineskip\fi%
726   \mdf@trivlist{\mdf@skipabove@length}%%
727   \ifdefempty{\mdf@frametitle}{\mdf@@frametitle}%
728   \mdf@settings%
729   \mdf@lrbox{\mdf@splitbox@one}%
730 }%
731 {\par\unskip\nointerlineskip\hrule \@height\z@ \@width\hsize%%
732   \ifmdf@footnoteinside%
733     \def\mdf@reserveda{%
734       \mdf@footnoteoutput%
735       \endmdf@lrbox%
736       \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
737       \detected@mdf@put@frame}%
738   \else%
739     \def\mdf@reserveda{%
740       \endmdf@lrbox%
741       \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
742       \detected@mdf@put@frame%
743       \mdf@footnoteoutput%
744     }%
745   \fi%
746   \mdf@reserveda%
747   \endmdf@trivlist%
748 \color@endgroup\@doendpe%
749 }
750
751

```

```

\mdf@twoside@checklength
\mdf@zref@label
\ifmdf@pageodd
\mdf@pageisodd
\mdf@pageiseven
\mdf@@setzref

```

The whole bunch is used to work width twoside mode and uses the correct margins.

```

752 \newtoggle{md:checktwoside}
753 \settoggle{md:checktwoside}{false}
754 \newrobustcmd*\mdf@twoside@checklength{%
755   \if@twoside
756     \ifbool{mdf@usetwoside}%
757       {\mdf@PackageInfo{mdframed works in twoside mode}%
758        \settoggle{md:checktwoside}{true}%
759        \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
760        \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%

```

```

761     }%
762     {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
763         works with oneside mode}%
764     \settoggle{md:checktwoside}{false}%
765     }%
766 \fi%
767 }
768
769 \newcounter{mdf@zref@counter}%keine doppelten laebes
770 \zref@newprop*{mdf@pagevalue}[0]{\number\value{page}}
771 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
772 \newrobustcmd*{\mdf@zref@label{%
773     \stepcounter{mdf@zref@counter}
774     \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}}%
775 }
776 \newrobustcmd*{\ifmdf@pageodd{%
777     \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}}%
778     \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}{mdf@pagevalue}%
779     \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
780     \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
781     \else
782     \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
783     \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
784     \fi%
785 }
786 \newrobustcmd*{\mdf@@setzref{%
787     \iftoggle{md:checktwoside}{\mdf@zref@label\ifmdf@pageodd}{}}%
788 }

```

`\mdf@freepagevspace`

```

789 \newrobustcmd*{\mdf@freepagevspace{%
790     \penalty\@M \vskip 2\baselineskip
791     \penalty9999 \vskip -2\baselineskip
792     \penalty9999
793     \ifdimequal{\pagegoal}{\maxdimen}%
794         {\mdf@freevspace@length\vsiz}%
795         {\mdf@freevspace@length=\pagegoal\relax%
796         \advance\mdf@freevspace@length by -\pagetotal\relax%
797         \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
798         }%
799 }

```

`\mdf@advancelength@horizontalmargin@add`  
`\mdf@horizontalsofbox`  
`\mdf@horizontalmargin@equation`

Width of the box

```

800 \newrobustcmd*{\mdf@advancelength@horizontalmargin@sub[1]{%
801     \advance\mdf@horizontalsofbox by -\csname mdf@#1@length\endcsname\relax%
802 }
803 \newlength\mdf@horizontalsofbox

```

```

804 \newrobustcmd*\mdf@horizontalmargin@equation{%
805   \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
806   \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
807     leftmargin,outerlinewidth,middlelinewidth,%
808     innerlinewidth,innerleftmargin,inerrightmargin,%
809     innerlinewidth,middlelinewidth,outerlinewidth,%
810     rightmargin}%
811   \notbool{mdf@leftline}{%
812     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
813     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
814     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
815   }{}%
816   \notbool{mdf@rightline}{%
817     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
818     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
819     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
820   }{}%
821   \ifdimless{\mdf@horizontalsofbox}{3cm}%
822     {\mdf@PackageWarning{You have only a width of 3cm}}{}
823   \hsize=\mdf@horizontalsofbox%
824 }

```

`\mdf@keep@lines@single`

horizontal space in relation of the lines.

```

825 \newrobustcmd*\mdf@keep@lines@single{%
826   \notbool{mdf@topline}{%
827     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
828     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
829     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
830   }{}%
831   \notbool{mdf@bottomline}{%
832     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
833     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
834     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
835   }{}%
836 }

```

`\mdf@advancelength@verticalmarginwhole`  
`\mdf@advancelength@freevspace@sub`  
`\mdf@advancelength@freevspace@add`

Loop macros to calculate the height. Used by `\mdf@dolist`.

```

837 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
838   \advance\mdf@verticalmarginwhole@length by \csname md f@#1@length\endcsname\relax%
839 }
840 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
841   \advance\dimen@ by -\csname md f@#1@length\endcsname\relax%
842 }
843 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
844   \advance\dimen@ by \csname md f@#1@length\endcsname\relax%
845 }

```

`\mdf@reset`

Reset changes

```
846 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
847 \splittopskip\the\splittopskip}%
```

`\mdf@put@frame@standalone`

Output of `mdframed` inside a non breakable environment.

```
848 \newrobustcmd*\mdf@put@frame@standalone{\relax%
849 \ifvoid\mdf@splitbox@one\relax
850 \mdf@PackageWarning{The environment is empty\MessageBreak}%
851 \let\mdf@reserved@a\relax%
852 \else
853 %Hier berechnung Box-Inhalt+Rahmen oben und unten
854 \setlength{\mdf@verticalmarginwhole@length}%
855 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
856 \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
857 outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
858 innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
859 \mdf@keeplines@single%
860 \def\mdf@reserved@a{\mdf@putbox@single}%
861 \fi
862 \mdf@reserved@a%
863 }
```

`\mdf@put@frame`

Output of `mdframed` inside a breakable environment. The comparison are only check whether the contents must be split or not.

```
864 \def\mdf@put@frame{\relax%
865 \ifvoid\mdf@splitbox@one\relax
866 \mdf@PackageWarning{The environment is empty\MessageBreak}%
867 \let\mdf@reserved@a\relax%
868 \else
869 \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@one}%
870 \mdf@print@space%
871 \mdf@freepagevspace@gives \mdf@freevspace@length
872 \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the beginning of \MessageBreak
873 the environment ending on input line \MessageBreak}%
874 \ifdimless{\mdf@freevspace@length}{2\baselineskip}
875 {\mdf@PackageInfo{Not enough space on this page}
876 \vfill\eject%
877 \def\mdf@reserved@a{\mdf@put@frame}%
878 }{%
879 %Hier berechnung Box-Inhalt+Rahmen oben und unten
880 \setlength{\mdf@verticalmarginwhole@length}%
881 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
882 \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
883 outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
884 innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
885 \mdf@keeplines@single%
886 \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
887 {%passt auf Seite%
888 \beginngroup
889 \mdf@setzref
```



```

890             \mdf@putbox@single%
891         \endgroup
892         \let\mdf@reserved@a\relax}%
893         {\def\mdf@reserved@a{\mdf@put@frame@i}}%passt nicht auf Seite
894     }%
895 \fi
896 \mdf@reserved@a%
897 }

```

`\mdf@put@frame@i`

Output of the first splitted box.

```

898 \def\mdf@put@frame@i{%Box muss gesplittet werden -- Ausgabe der ersten Teilbox
899 %Berechnung der Splittgroesse -- Linien und Abstand oben
900 %\vbox to 0pt{}%
901 %\rlap{\smash{\the\mdf@freeevspace@length}}%\hrule \@height\z@ \@width\hsize
902 \mdf@freepagevspace@gives \mdf@freeevspace@length
903 %Berechnung ob nur oberen Linien nur auf die Seite passe
904 \dimen@=\the\mdf@freeevspace@length%
905 \dimen@i=\mdf@innertopmargin@length%
906 \advance\dimen@i by \mdf@innerlinewidth@length%
907 \advance\dimen@i by \mdf@middlelinewidth@length%
908 \advance\dimen@i by \mdf@outerlinewidth@length%
909 \advance\dimen@i by 2\baselineskip%
910 \ifdimless{\dimen@}{\dimen@i}%
911     {\hrule \@height\z@ \@width\hsize%
912       \vfill\ject%
913       \def\mdf@reserved@a{\mdf@put@frame}%
914     }{%
915       \mdf@freepagevspace%
916       \dimen@=\the\mdf@freeevspace@length%
917       \mdf@dolist{\mdf@advancelength@freeevspace@sub}{%calculate with \dimen@
918         outerlinewidth,middlelinewidth,innerlinewidth,%
919         innertopmargin,splitbottomskip}%
920       \ifbool{mdf@topline}{%
921         \advance\dimen@ by \mdf@innerlinewidth@length%
922         \advance\dimen@ by \mdf@middlelinewidth@length%
923         \advance\dimen@ by \mdf@outerlinewidth@length%
924       }%
925       \advance\dimen@.8\pageshrink
926       \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
927         {\mdf@PackageWarning{You got a bad break\MessageBreak
928           you have to change it manually\MessageBreak
929           by changing the text, the space\MessageBreak
930           or something else}%
931         \advance\dimen@ by -1.8\baselineskip\relax%
932       }{%
933 %       \advance\dimen@ by -1pt\relax%Box darf nicht zu Groß werden.
934       \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
935       \mdf@ignorevbadness%
936       \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
937       \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
938       \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
939       \ifbool{mdf@repeatframetitle}{%

```

```

940         \setbox\mdf@splitbox@one\vbox{%
941             \vbox to \mdf@splittopskip@length{\hsize\z@}
942             %\par\unskip\nointerlineskip
943             \unvcopy\mdf@frametitlebox%
944             \mdf@@frametitlerule%
945             \vbox to\dimexpr
946                 -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
947                 +\mdf@innertopmargin@length\relax{\hsize\z@}%
948             \unvbox\mdf@splitbox@one}%
949     }{}%
950 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
951 {%Falsch gesplittet
952 \mdf@PackageInfo{Box was splittet wrong\MessageBreak}%
953 \dimen@i=\dimen@
954 \advance\dimen@ by -\ht\mdf@splitbox@two
955 \advance\dimen@ by -\dp\mdf@splitbox@two
956 \advance\dimen@i by 0.5\dimen@
957 \splittopskip\z@%
958 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
959     %benoetigt um Tiefe zu haben
960     \hrule \@height\dp\strutbox \@width\z@
961     \unvbox\mdf@splitbox@one}
962 \splittopskip\mdf@splittopskip@length%
963 \mdf@ignorevbadness%
964 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
965 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
966 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
967 \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
968 {%
969     \splittopskip\z@\mdf@ignorevbadness%
970     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
971         %benoetigt um Tiefe zu haben
972         \hrule \@height\dp\strutbox \@width\z@
973         \unvbox\mdf@splitbox@one}%
974     \mdf@ignorevbadness%
975     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
976 }{}%
977 \ifbool{\mdf@repeatframetitle}{%
978     \setbox\mdf@splitbox@one\vbox{%
979         \vbox to \mdf@splittopskip@length{\hsize\z@}
980         %\par\unskip\nointerlineskip
981         \unvcopy\mdf@frametitlebox%
982         \mdf@@frametitlerule%
983         \vbox to\dimexpr
984             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
985             +\mdf@innertopmargin@length\relax{\hsize\z@}%
986         \unvbox\mdf@splitbox@one}%
987     }{}%
988 }{}%
989 \ifvoid\mdf@splitbox@one
990 \mdf@PackageWarning{You got a bad break\MessageBreak
991     because the splittet box is empty\MessageBreak
992     You have to change the page settings\MessageBreak
993     like enlargethispage or something else}%
994 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
995     %benoetigt um Tiefe zu haben

```

```

996             \hrule \@height\dp\strutbox \@width\z@
997             \unvbox\mdf@splitbox@one}%
998     \setbox\mdf@splitbox@one\ vbox{\unvbox\mdf@splitbox@one}%
999     \enlargethispage{\baselineskip}%
1000     \def\mdf@reserved@a{\mdf@put@frame}%
1001 \fi
1002 \ifvoid\mdf@splitbox@two%%pruefe, ob erste Box leer ist
1003     \hrule \@height\z@ \@width\hsize
1004     \vfill\ eject%
1005     \def\mdf@reserved@a{\mdf@put@frame}%
1006 \else
1007     \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
1008         {\hrule \@height\z@ \@width\hsize%
1009         \vfill\ eject%
1010         \setbox\mdf@splitbox@one\ vbox{\unvbox\mdf@splitbox@two\unvbox\mdf@splitbox@one}
1011         \def\mdf@reserved@a{\mdf@put@frame}%
1012         }%
1013         {%
1014         \begingroup%
1015             \mdf@@setzref
1016             \mdf@putbox@first%%Groesse des Splittens passt
1017         \endgroup%
1018         \hrule \@height\z@ \@width\hsize%
1019         \vfill\ eject%
1020         \def\mdf@reserved@a{\mdf@put@frame@ii}%
1021         }%
1022     \fi%
1023 }%
1024 \mdf@reserved@a%
1025 }

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```

1026 \def\mdf@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
1027     \setlength{\mdf@freevspace@length}{\vsize}%
1028     \setlength{\dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1029     \mdf@dolist{\mdf@advance@length@freevspace@add}{%used \dimen@
1030         outerlinewidth,middlelinewidth,innerlinewidth,%
1031         innerbottommargin}%%Addition der Linien unten
1032     \ifbool{mdf@bottomline}{}%
1033         \advance\dimen@i by \mdf@innerlinewidth@length%
1034         \advance\dimen@i by \mdf@middlelinewidth@length%
1035         \advance\dimen@i by \mdf@outerlinewidth@length%
1036     \relax}%
1037     \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1038     {%
1039     \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1040     \ifbool{mdf@bottomline}{}%
1041         \advance\dimen@i by -\mdf@innerlinewidth@length%
1042         \advance\dimen@i by -\mdf@middlelinewidth@length%
1043         \advance\dimen@i by -\mdf@outerlinewidth@length%
1044     \relax}%
1045     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1046     \mdf@ignorevbadness%

```

```

1047 \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1048 \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%PRUEFEN!!!
1049 \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%PRUEFEN!!!!
1050 \ifbool{mdf@repeatframetitle}{%
1051     \setbox\mdf@splitbox@one\vbox{%
1052         \vbox to \mdf@splittopskip@length{\hsize\z@}
1053         %\par\unskip\nointerlineskip
1054         \unvcopy\mdf@frametitlebox%
1055         \mdf@@frametitlerule%
1056         \vbox to\dimexpr
1057             -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1058             +\mdf@innertopmargin@length\relax{\hsize\z@}%
1059         \unvbox\mdf@splitbox@one}%
1060     }{}%
1061 \ifvoid\mdf@splitbox@one\relax%
1062     \mdf@PackageWarning{You got a bad break\MessageBreak
1063         because the split box is empty\MessageBreak
1064         You have to change the settings}%
1065     \setbox\mdf@splitbox@one{\unvbox\mdf@splitbox@two}%
1066     \def\mdf@reserved@a{\enlargethispage{\baselineskip}\mdf@put@frame@ii}%
1067 \else
1068     \begingroup
1069     \mdf@@setzref
1070     \mdf@putbox@middle%
1071 \endgroup
1072 \hrule \@height\z@ \@width\hsize
1073 \vfill\eject
1074 \def\mdf@reserved@a{\mdf@put@frame@ii}%
1075 \fi
1076 }%Hier die Ausgabe der mittleren Box
1077 {\ifvoid\mdf@splitbox@one
1078     \mdf@PackageWarning{You got a bad break\MessageBreak
1079         because the last split box is empty\MessageBreak
1080         You have to change the settings}%
1081     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfbounding
1082 \fi%
1083 \ifdimless{\ht\mdf@splitbox@one}{1sp}{%
1084     \mdf@PackageWarning{You got a bad break\MessageBreak
1085         because the last split box is empty\MessageBreak
1086         You have to change the settings}%
1087     %\hb@xt@\z@{\box\mdf@splitbox@one}%
1088     \let\mdf@reserved@a\relax%
1089     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfboundin
1090 }{}%
1091 \begingroup%
1092     \mdf@@setzref
1093     \mdf@putbox@second%
1094     \hrule \@height\z@ \@width\hsize%
1095 \endgroup%
1096     \let\mdf@reserved@a\relax%
1097 }%Hier kommt die Ausgabe der letzten Box
1098 \mdf@reserved@a%
1099 }
1100

```

```

\mdf@test@lrb
\mdf@test@ltr
\mdf@test@ltb
\mdf@test@trb
\mdf@test@lrb
\mdf@test@lb
\mdf@test@rb
\mdf@test@tr
\mdf@test@lt
\mdf@test@lr
\mdf@test@tb
\mdf@test@l
\mdf@test@r
\mdf@test@t
\mdf@test@b
\mdf@test@noline

```

Short forms of checking the option which lines should be drawn.

```

1101 %%%      -----t-----
1102 %%%      |               |
1103 %%%      |               |
1104 %%%      |               |
1105 %%%      l|               |r
1106 %%%      |               |
1107 %%%      |               |
1108 %%%      |-----|
1109 %%%      b
1110 %Zusammenhaenge abfragen:
1111 \newrobustcmd*\mdf@test@lrb{%
1112   \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1113               and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1114 %3-set
1115 \newrobustcmd*\mdf@test@ltr{%
1116   \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1117               and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1118 \newrobustcmd*\mdf@test@ltb{%
1119   \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1120               and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1121 \newrobustcmd*\mdf@test@trb{%
1122   \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1123               and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1124 \newrobustcmd*\mdf@test@lrb{%
1125   \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1126               and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1127 %2-set
1128 \newrobustcmd*\mdf@test@lb{%
1129   \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1130               and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1131 \newrobustcmd*\mdf@test@rb{%
1132   \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1133               and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1134 \newrobustcmd*\mdf@test@tr{%
1135   \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1136               and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1137 \newrobustcmd*\mdf@test@lt{%
1138   \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})

```

```

1139         and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1140 \newrobustcmd*{\mdf@test@lr{%
1141     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1142         and (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1143 \newrobustcmd*{\mdf@test@tb{%
1144     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1145         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1146 %Einzellinien
1147 \newrobustcmd*{\mdf@test@l{%
1148     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1149         and (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1150 \newrobustcmd*{\mdf@test@r{%
1151     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1152         and not (bool {mdf@leftline}) and (bool {mdf@rightline}}})
1153 \newrobustcmd*{\mdf@test@t{%
1154     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1155         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1156 \newrobustcmd*{\mdf@test@b{%
1157     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1158         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1159 %keine Linien
1160 \newrobustcmd*{\mdf@test@noline{%
1161     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1162         and not (bool {mdf@leftline}) and not (bool {mdf@rightline}}})
1163 \newrobustcmd*{\mdf@test@single{%
1164     \ifboolexpr{ not (test {\mdf@test@ltrb} or test {\mdf@test@ltr} or
1165         test {\mdf@test@ltb} or test {\mdf@test@trb} or
1166         test {\mdf@test@lrb} or test {\mdf@test@lb} or
1167         test {\mdf@test@rb} or test {\mdf@test@tr} or
1168         test {\mdf@test@lt} ) }}
1169 %
1170 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1171 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1172
1173 \endinput

```

## B.2. The Explanation of md-frame-0.mdf

```

1174 %% Style file for mdframed for package option 'framemethod=default'
1175 %%
1176 %% This package may be distributed under the terms of the LaTeX Project
1177 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1178 %% Either version 1.0 or, at your option, any later version.
1179 %%
1180 %%
1181 %%$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
1182 %

```

```

\mdframed0packagename
\mdf@frame0date@svn

```

local settings

```

1183 \def\mdframed0packagename{md-frame-0}
1184 \def\mdf@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1185 \ProvidesFile{md-frame-0.mdf}%

```

```

1186      [\mdf@frame0date@svn$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $%
1187      \mdversion: \mdframed0packagename]

```

```

\mdf@background@default
\mdf@linecolor@default
\mdf@linecolor@bottom

```

short command

```

1188 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1189 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1190 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1191 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1192 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1193 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1194 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1195 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1196 \def\mdf@@frametitlerule{%
1197   \ifbool{mdf@frametitlerule}{%
1198     \vbox to \mdf@frametitlerulewidth@length {\hsize\mdfframetitleboxwidth%
1199       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1200       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1201         \mdf@frametitlerulecolor@default%
1202         \rule{\dimexpr\mdfframetitleboxwidth%
1203           +\mdf@innerleftmargin@length
1204           +\mdf@innerrightmargin@length\relax
1205           }\mdf@frametitlerulewidth@length}%
1206       }}%
1207   }{}
1208   \par\unskip\vskip\mdf@innertopmargin@length%
1209 }%
1210

```

```

\mdf@putbox@single
\mdf@frame@background@single
\mdf@frame@topandbottomline@single
\mdf@frame@leftline@single
\mdf@frame@rightline@single
\mdf@frame@rightline@single

```

The frame of of a non splitted contents of mdframed

```

1211 \def\mdf@frame@background@single{%
1212   \ifbool{mdf@shadow}{%
1213     \rlap{\smash{\mdf@shadow@default%
1214       \rule{\dimexpr-\mdfboundingboxdepth
1215         -\mdf@shadowsize@length
1216         \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}}\relax}%
1217     {\dimexpr\mdfboundingboxtotalwidth
1218       +\mdf@shadowsize@length
1219       \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}\relax}%
1220     {\dimexpr\mdfboundingboxtotalheight
1221       +\mdf@shadowsize@length
1222       \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{}}\relax}%
1223   }%
1224   }{}%
1225   \rlap{\mdf@background@default%

```

```

1226     \rule[-\mdfboundingboxdepth]%
1227         {\mdfboundingboxtotalwidth}%
1228         {\mdfboundingboxtotalheight}%
1229     }%
1230 }%
1231 \def\mdf@frame@frametitlebackground@single{%
1232     \rlap{\mdf@frametitlebackground@default%
1233         \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1234             {\mdfboundingboxtotalwidth}%
1235             {\mdfframetitleboxtotalheight}%
1236         }%
1237     }%
1238
1239 \def\mdf@frame@topline@single{%
1240     \rlap{\mdf@linecolor@default%
1241         \ifbool{mdf@topline}{%
1242             \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1243                 +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax]%
1244                 {\mdfboundingboxtotalwidth}%
1245                 {\mdf@middlelinewidth@length}}%
1246         }%
1247     }%
1248 }%
1249 \def\mdf@frame@bottomline@single{%
1250     \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1251         \ifbool{mdf@bottomline}{%
1252             \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1253                 {\dimexpr\mdfboundingboxtotalwidth
1254                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}%
1255                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}}{\relax}%
1256                 {\mdf@middlelinewidth@length}}%
1257         }%
1258     }%
1259 }%
1260 \def\mdf@frame@leftline@single{%
1261     \llap{\mdf@linecolor@default%
1262         \rule[-\mdfboundingboxdepth]%
1263             {\mdf@middlelinewidth@length}%
1264             {\dimexpr\mdfboundingboxtotalheight%
1265                 \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}}{\relax}%
1266         }%
1267     }%
1268 \def\mdf@frame@rightline@single{%
1269     \rlap{\mdf@linecolor@default%
1270         \hspace*{\mdfboundingboxwidth}%
1271         \hspace*{\mdf@innerrightmargin@length}%
1272         \rule[\dimexpr-\mdfboundingboxdepth%
1273             \relax]%
1274             {\mdf@middlelinewidth@length}%
1275             {\dimexpr\mdfboundingboxtotalheight%
1276                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1277         }%
1278     }%
1279 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1280     \ifvoid\mdf@splitbox@one
1281     \else%

```



```

1282 \mdf@makebox@out{%
1283 \mdf@makeboxalign@left%
1284 \setlength{\mdfboundingboxwidth}%
1285     {\wd\mdf@splitbox@one}%
1286 \setlength{\mdfboundingboxtotalwidth}%
1287     {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1288     +\mdf@innerrightmargin@length\relax}%
1289 \setlength{\mdfboundingboxheight}%
1290     {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1291 \setlength{\mdfboundingboxdepth}%
1292     {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1293 \setlength{\mdfboundingboxtotalheight}%
1294     {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1295     +\mdf@innerbottommargin@length\relax}%
1296 \setlength{\mdftotallinewidth}{%
1297     \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1298     +\mdf@outerlinewidth@length}%
1299 \noindent%
1300 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1301     +\ifbool{mdf@leftline}%
1302         {\mdf@middlelinewidth@length}{\z@}%
1303     +\ifbool{mdf@rightline}%
1304         {\mdf@middlelinewidth@length}{\z@}\relax}%
1305 \mdf@makebox@in[\@tempdima]{%
1306 \null%
1307 \ifbool{mdf@leftline}{%
1308 \hspace*{\mdftotallinewidth}%
1309 \mdf@frame@leftline@single%
1310 }{}%
1311 \mdf@frame@topline@single%
1312 \mdf@frame@background@single%
1313 \mdf@frame@bottomline@single%
1314 \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%
1315 \hspace*{\mdf@innerleftmargin@length}%
1316 \ifbool{mdf@rightline}{%
1317 \mdf@frame@rightline@single%
1318 }{}%
1319 {\box\mdf@splitbox@one}%
1320 }%
1321 \mdf@makeboxalign@right%
1322 }%
1323 \fi%
1324 }

```

```

\mdf@putbox@first
\mdf@frame@background@first
\mdf@frame@leftline@first
\mdf@frame@topline@first
\mdf@frame@rightline@first

```

The first frame of a splitted contents of *mdframed*

```

1325 \def\mdf@frame@background@first{%
1326 \ifbool{mdf@shadow}{%
1327 \rlap{\smash{\mdf@shadow@default%
1328 \rule[\dimexpr-\mdfboundingboxdepth

```

```

1329             -\mdf@shadowsize@length\relax}%
1330         {\dimexpr\mdfboundingboxtotalwidth
1331             +\mdf@shadowsize@length
1332             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}\relax}%
1333         {\dimexpr\mdfboundingboxtotalheight
1334             +\mdf@shadowsize@length\relax}%
1335     }%
1336 }}{}%
1337 \rlap{\mdf@background@default%
1338     \rule[-\mdfboundingboxdepth]%
1339         {\mdfboundingboxtotalwidth}%
1340         {\mdfboundingboxtotalheight}%
1341 }%
1342 }%
1343 \def\mdf@frame@frametitlebackground@first{%
1344 \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1345 {%
1346     \rlap{\mdf@frametitlebackground@default%
1347         \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1348             {\mdfboundingboxtotalwidth}%
1349             {\mdfframetitleboxtotalheight}%
1350     }%
1351     \global\mdfframetitleboxtotalheight=-\p@relax%
1352 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1353     Current this isn't well supported}%
1354     \rlap{\mdf@frametitlebackground@default%
1355         \rule[-\mdfboundingboxdepth]%
1356             {\mdfboundingboxtotalwidth}%
1357             {\mdfboundingboxtotalheight}%
1358     }%
1359     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1360         -\mdfboundingboxheight
1361         +\mdf@frametitlebelowskip@length
1362         +.5\baselineskip-1pt
1363 %
1364         +\dp\strutbox
1365         \relax%
1366 }%
1367 }%
1367 \def\mdf@frame@leftline@first{%
1368     \llap{\mdf@linecolor@default%
1369         \rule[-\mdfboundingboxdepth]%
1370             {\mdf@middlelinewidth@length}%
1371             {\dimexpr\mdfboundingboxtotalheight%
1372                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1373     }%
1374 }%
1375 \def\mdf@frame@topline@first{%
1376     \rlap{\mdf@linecolor@default%
1377         \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+
1378             \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]%
1379             {\mdfboundingboxtotalwidth}%
1380             {\mdf@middlelinewidth@length}%
1381     }%
1382 }
1383 \def\mdf@frame@rightline@first{%
1384     \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%

```

```

1385 \hspace*{\mdf@innerrightmargin@length}%
1386 \rule[-\mdfboundingboxdepth]%
1387     {\mdf@middlelinewidth@length}%
1388     {\dimexpr\mdfboundingboxtotalheight%
1389      +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1390 }%
1391 }%
1392 \def\mdf@putbox@first{%%%% Ausgabe der Teilbox 1
1393 \ifvoid\mdf@splitbox@two
1394 \else%
1395 \mdf@makebox@out[\linewidth]{%
1396 \mdf@makeboxalign@left%
1397 \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1398 \setlength{\mdfboundingboxtotalwidth}%
1399     {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1400      +\mdf@innerrightmargin@length\relax}%
1401 \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1402 \setlength{\mdfboundingboxdepth}%
1403     {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1404 \setlength{\mdfboundingboxtotalheight}%
1405     {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1406      +\mdf@splitbottomskip@length\relax}%
1407 \setlength{\@tempdima}%
1408     {\dimexpr\mdfboundingboxtotalwidth%
1409      +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1410      +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1411      \relax}%
1412 \mdf@makebox@in[\@tempdima]{%
1413 \null%
1414 \ifbool{mdf@leftline}{%
1415 \hspace*{\mdf@middlelinewidth@length}%
1416 \mdf@frame@leftline@first}{}%
1417 \ifbool{mdf@topline}{%
1418 \mdf@frame@topline@first}{}%
1419 \mdf@frame@background@first%
1420 \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1421 \hspace*{\mdf@innerleftmargin@length}%
1422 \ifbool{mdf@rightline}{%
1423 \mdf@frame@rightline@first}{}%
1424 {\box\mdf@splitbox@two}%
1425 }%
1426 \mdf@makeboxalign@right%
1427 }%
1428 \fi%
1429 }

```

```

\mdf@putbox@second
\mdf@frame@background@second
\mdf@frame@leftline@second
\mdf@frame@bottomline@second
\mdf@frame@rightline@second

```

The last frame of of a splitted contents of mdframed

```

1430 \def\mdf@frame@background@second{%
1431 \ifbool{mdf@shadow}{%

```

```

1432 \rlap{\smash{\mdf@shadow@default%
1433 \rule[\dimexpr-\mdfboundingboxdepth
1434 -\mdf@shadowsize@length
1435 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}}{\relax}%
1436 {\dimexpr\mdfboundingboxtotalwidth
1437 +\mdf@shadowsize@length
1438 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}{\relax}%
1439 {\dimexpr\mdfboundingboxtotalheight
1440 +\mdf@shadowsize@length\relax}%
1441 }%
1442 }}{}%
1443 \rlap{\mdf@background@default%
1444 \rule[-\mdfboundingboxdepth]%
1445 {\mdfboundingboxtotalwidth}%
1446 {\mdfboundingboxtotalheight}%
1447 }%
1448 }%
1449 \def\mdf@frame@frametitlebackground@second{%
1450 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1451 {}%
1452 {\rlap{\mdf@frametitlebackground@default%
1453 \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1454 {\mdfboundingboxtotalwidth}%
1455 {\mdfframetitleboxtotalheight}%
1456 }%
1457 }%
1458 }%
1459 \def\mdf@frame@leftline@second{%
1460 \llap{\mdf@linecolor@default%
1461 \rule[-\mdfboundingboxdepth]%
1462 {\mdf@middlelinewidth@length}%
1463 {\dimexpr\mdfboundingboxtotalheight}%
1464 }%
1465 }%
1466 \def\mdf@frame@bottomline@second{%
1467 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1468 \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1469 {\dimexpr\mdfboundingboxtotalwidth
1470 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}
1471 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}}{\relax}%
1472 {\mdf@middlelinewidth@length}%
1473 }%
1474 }%
1475 \def\mdf@frame@rightline@second{%
1476 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1477 \hspace*{\mdf@innerrightmargin@length}%
1478 \rule[-\mdfboundingboxdepth]%
1479 {\mdf@middlelinewidth@length}%
1480 {\mdfboundingboxtotalheight}%
1481 }%
1482 }%
1483 \def\mdf@putbox@second{%
1484 \ifvoid\mdf@splitbox@one%
1485 \else
1486 \mdf@makebox@out{%
1487 \mdf@makeboxalign@left%

```

```

1488 \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
1489 \setlength{\mdfboundingboxtotalwidth}%
1490     {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1491      +\mdf@innerrightmargin@length\relax}%
1492 \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1493 \setlength{\mdfboundingboxdepth}%
1494     {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1495 \setlength{\mdfboundingboxtotalheight}%
1496     {\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1497 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1498     +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1499     +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1500     \relax}%
1501 \mdf@makebox@in[\@tempdima]{%
1502 \null%
1503   \ifbool{mdf@leftline}{%
1504     \hspace*{\mdf@middlelinewidth@length}%
1505     \mdf@frame@leftline@second}{}%
1506   \mdf@frame@background@second%
1507   \ifbool{mdf@bottomline}{%
1508     \mdf@frame@bottomline@second}{}%
1509   \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
1510   \hspace*{\mdf@innerleftmargin@length}%
1511   \ifbool{mdf@rightline}{%
1512     \mdf@frame@rightline@second}{}%
1513   {\box\mdf@splitbox@one}%
1514 }%
1515 \mdf@makeboxalign@right%
1516 }%
1517 \fi%
1518 }%

```

```

\mdf@putbox@middle
\mdf@frame@background@middle
\mdf@frame@leftline@middle
\mdf@frame@rightline@middle

```

The last frame of of a splitted contents of mdframed

```

1519 \def\mdf@frame@leftline@middle{%
1520   \llap{\mdf@linecolor@default%
1521     \rule[-\mdfboundingboxdepth]{%
1522       {\mdf@middlelinewidth@length}%
1523       {\mdfboundingboxtotalheight}%
1524     }%
1525 }%
1526 \def\mdf@frame@background@middle{%
1527   \ifbool{mdf@shadow}{%
1528     \rlap{\smash{\mdf@shadow@default%
1529       \rule[\dimexpr-\mdfboundingboxdepth%
1530         -\mdf@shadowsize@length\relax]{%
1531           {\dimexpr\mdfboundingboxtotalwidth%
1532             +\mdf@shadowsize@length%
1533             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}\relax}%
1534           {\dimexpr\mdfboundingboxtotalheight\relax}%
1535         }%

```

```

1536   }}{}%
1537   \rlap{\mdf@background@default%
1538     \rule[-\mdfboundingboxdepth]%
1539       {\mdfboundingboxtotalwidth}%
1540       {\mdfboundingboxtotalheight}%
1541   }%
1542 }%
1543 \def\mdf@frame@frametitlebackground@middle{%
1544   \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1545   {}%
1546   {\rlap{\mdf@frametitlebackground@default%
1547     \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1548       {\mdfboundingboxtotalwidth}%
1549       {\mdfframetitleboxtotalheight}%
1550   }%
1551   \global\mdfframetitleboxtotalheight=-\p@ \relax%
1552 }%
1553 }%
1554 \def\mdf@frame@rightline@middle{%
1555   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1556     \hspace*{\mdf@innerrightmargin@length}%
1557     \rule[-\mdfboundingboxdepth]%
1558       {\mdf@middlelinewidth@length}%
1559       {\mdfboundingboxtotalheight}%
1560   }%
1561 }%
1562 \def\mdf@putbox@middle{%
1563   \ifvoid\mdf@splitbox@two%
1564   \else
1565     \mdf@makebox@out{%
1566       \mdf@makeboxalign@left%
1567       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1568       \setlength{\mdfboundingboxtotalwidth}%
1569         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1570           +\mdf@innerrightmargin@length\relax}%
1571       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1572       \setlength{\mdfboundingboxdepth}%
1573         {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1574       \setlength{\mdfboundingboxtotalheight}%
1575         {\dimexpr\mdfboundingboxheight+\mdf@splitbottomskip@length\relax}%
1576       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1577         +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1578         +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1579         \relax}%
1580       \mdf@makebox@in[\@tempdima]{%
1581         \null%
1582         \ifbool{mdf@leftline}{%
1583           \hspace*{\mdf@middlelinewidth@length}%
1584           \mdf@frame@leftline@middle}{}%
1585         \mdf@frame@background@middle%
1586         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@middle}%
1587         \hspace*{\mdf@innerleftmargin@length}%
1588         \ifbool{mdf@rightline}{%
1589           \mdf@frame@rightline@middle}{}%
1590         {\box\mdf@splitbox@two}%
1591     }%

```

```

1592 \mdf@makeboxalign@right%
1593 }
1594 \fi%
1595 }

```

```

1596 \endinput

```

### B.3. The Explanation of md-frame-1.mdf

```

1597 %% Style file for mdframed for package option 'framemethod=default'
1598 %%
1599 %% This package may be distributed under the terms of the LaTeX Project
1600 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1601 %% Either version 1.0 or, at your option, any later version.
1602 %%
1603 %%
1604 %%$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
1605 %

```

```

\mdframedIpackagename
\mdf@frameIdate@svn

```

local settings

```

1606 \def\mdframedIpackagename{md-frame-1}
1607 \def\mdf@frameIdate@svn$1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1608 \ProvidesFile{md-frame-1.mdf}%
1609 [\mdf@frameIdate@svn$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $ %
1610 \mdversion: \mdframedIpackagename]
1611 %

```

```

\mdf@tikz@settings

```

Define settings for tikz

```

1612 %Allgemeine Einstellungen fuer tikz
1613 \def\mdf@tikz@settings{%
1614 %
1615 \tikzset{mdfbox/.style={anchor=south west,%
1616 inner sep=0pt,%
1617 outer sep=0pt,%
1618 \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1619 \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1620 \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1621 draw=\mdf@backgroundcolor}}%
1622 \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1623 draw=none,%
1624 rounded corners={max(\mdf@roundcorner@length%
1625 -\mdf@innerlinewidth@length%
1626 -.5\mdf@middlelinewidth@length,0)}}}%
1627 %
1628 \tikzset{mdfouterline/.style={}}%
1629 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1630 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1631 {\tikzset{mdfouterline/.append style={%
1632 draw=\mdf@outerlinecolor,%
1633 line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%

```

```

1634 %
1635 \tikzset{mdfinnerline/.style={}}%
1636 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1637 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1638   {\tikzset{mdfinnerline/.append style={%
1639     draw=\mdf@innerlinecolor,%
1640     line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1641 %
1642 \tikzset{mdfshadow/.style={drop shadow={%
1643   shadow xshift=\mdf@shadowsize@length-2pt,
1644   shadow yshift=-\mdf@shadowsize@length+2pt,
1645   fill=\mdf@shadowcolor,
1646   every shadow }}}%
1647 %
1648 \mdf@tikzset@local
1649 \tikzset{mdfmiddleline/.style={}}%
1650 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1651 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1652   {\tikzset{mdfmiddleline/.append style={%
1653     preaction={draw=\mdf@middlelinecolor,%
1654       line width=\mdf@middlelinewidth@length},%
1655     line width=\mdf@middlelinewidth@length,%
1656     tikzsetting}}}%
1657   }{}%
1658 }%

```

```

\mdf@tikzbox@tfl
\mdf@tikzbox@otl

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

1659 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1660   \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
1661   \begin{scope}[mdfcorners]%
1662     \clip[preaction=mdfouterline]%
1663       [postaction=mdfbackground]%
1664       [postaction=mdfinnerline]#1;%
1665   \end{scope}%
1666   \path[mdfmiddleline,mdfcorners]#1;
1667 }%
1668
1669
1670
1671 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
1672   \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
1673   \begin{scope}
1674     \path[mdfouterline,mdfcorners]#1;%
1675     \clip[postaction=mdfbackground]#2;%
1676     \path[mdfinnerline,mdfcorners]#1;%
1677   \end{scope}%
1678   \path[mdfmiddleline,mdfcorners]#1;%

```

```

\mdf@put@frametitlerule

```

frametitlerule with tikz

```

1679 \tikzset{mdfframetitlerule/.style={%

```



```

1680   draw=none,
1681   fill=\mdf@frametitlecolor,
1682 }%
1683 }
1684 \def\mdf@@frametitlerule{%
1685   \ifbool{mdf@frametitlerule}{%
1686     \vbox{\hsize0pt
1687       \par\unskip\vskip\mdf@frametitlebelowskip@length
1688       \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
1689       \begingroup%
1690       \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargin@length}
1691       \tikz\draw[mdfframetitlerule] (0,0)%
1692           rectangle (\dimen@,\mdf@frametitlewidth@length);
1693       \endgroup}
1694     }%
1695   }{}
1696   \par\unskip\vskip\mdf@innertopmargin@length%
1697 }%
1698

```

\mdf@putbox@single

Output of the non breakable contents.

```

1699 % Info zu den verwendeten Punkten:
1700 % O ist die untere linke Ecke der Mitte der middleline
1701 % P ist die obere rechte Ecke der Mitte der middleline
1702 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1703 %
1704 \def\mdf@putbox@single{%
1705   \ifvoid\mdf@splitbox@one
1706   \else%
1707     \mdf@makebox@out{%
1708       \mdf@makeboxalign@left%
1709       \mdf@tikz@settings%
1710     }%
1711     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1712     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1713     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1714     \ifbool{mdf@leftline}{%
1715       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1716       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1717       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
1718     \ifbool{mdf@rightline}{%
1719       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1720       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1721       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
1722   }%
1723   \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1724   \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1725   \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1726   \ifbool{mdf@topline}{%
1727     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1728     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1729     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%
1730   \ifbool{mdf@bottomline}{%

```

```

1731 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1732 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1733 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1734 \mdf@makebox@in[\mdfboundingboxwidth]{%
1735 \null%
1736 \begin{tikzpicture}[remember picture]%
1737 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1738 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1739 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1740 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1741 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1742 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1743 \ifbool{mdf@leftline}%
1744 {%
1745 \pgfmathsetlengthmacro\mdf@Ax%
1746 {\mdf@Ax+\mdf@outerlinewidth@length+
1747 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1748 \pgfmathsetlengthmacro\mdf@Ox%
1749 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1750 }}}%
1751 \ifbool{mdf@rightline}%
1752 {%
1753 \pgfmathsetlengthmacro\mdf@Px%
1754 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1755 }}}%
1756 \ifbool{mdf@bottomline}%
1757 {%
1758 \pgfmathsetlengthmacro\mdf@Ay%
1759 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
1760 +\mdf@innerlinewidth@length}%
1761 \pgfmathsetlengthmacro\mdf@Oy%
1762 {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1763 }}}%
1764 \ifbool{mdf@topline}%
1765 {%
1766 \pgfmathsetlengthmacro\mdf@Py%
1767 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1768 }}}%
1769 %
1770 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
1771 \coordinate(P)at(\mdf@Px,\mdf@Py);%
1772 %
1773 \ifbool{mdf@shadow}
1774 {\path[mdfshadow,mdfcorners](0) rectangle (P);}%
1775 %
1776 \begin{scope}[use as bounding box]
1777 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}}%
1778 %
1779 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}}%
1780 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}}%
1781 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}}%
1782 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}}%
1783 %
1784 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}%
1785 {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
1786 }}}%

```

```

1787 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
1788             {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
1789             }{}%
1790 \mdf@test@tr{\mdf@tikzbox@otl{(0|P)--(P)--(P|-0)}%
1791             {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
1792             }{}%
1793 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}%
1794             {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
1795             }{}%
1796 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}%
1797             {(0)rectangle(P)}%
1798             }{}%
1799 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|P)(0|-P)--(P)}%
1800             {(0)rectangle(P)}%
1801             }{}%
1802 %
1803 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}%
1804             {(0)rectangle(P)}%
1805             }{}%
1806 \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}%
1807             {(0)rectangle(P)}%
1808             }{}%
1809 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}%
1810             {(0)rectangle(P)}%
1811             }{}%
1812 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
1813             {(0)rectangle(P)}%
1814             }{}%
1815 %
1816 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
1817 %
1818 %Frametitlebackground
1819 \drawbackgroundframetitle@single
1820 %
1821 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
1822 \end{scope}
1823 %HIER KOMMT EIN WEITERES MAKRO
1824 \mdfcreateextratikz
1825 \end{tikzpicture}%
1826 }%
1827 \mdf@makeboxalign@right%
1828 }%
1829 \fi
1830 }%
1831 \def\drawbackgroundframetitle@single{%
1832 \ifdefempty{\mdf@frametitle}{}{}%
1833 \drawbackgroundframetitle@single%
1834 }%
1835 }%
1836 \def\drawbackgroundframetitle@@single{%
1837 \begin{scope}%background frame title
1838 \ifbool{mdf@leftline}{
1839 \pgfmathsetlengthmacro\mdf@0x%
1840 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1841 }{}%
1842 \ifbool{mdf@rightline}{%

```

```

1843 \pgfmathsetlengthmacro\mdf@Px%
1844     {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1845 }{}%
1846 \ifbool{mdf@topline}{%
1847     \pgfmathsetlengthmacro\mdf@Py%
1848     {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1849 }{}%
1850 \pgfmathsetlengthmacro\mdf@Fy
1851     {\mdf@Py-\mdfframetitleboxtotalheight}
1852 \path[mdfframetitlebackground]
1853     (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1854     --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1855 \end{scope}
1856 }

```

\mdf@putbox@first

Output of the first breakable contents.

```

1857 \def\drawbrackgroundframetitle@first{%
1858 \ifdefempty{\mdf@frametitle}{}{%
1859 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
1860 {%
1861 \drawbrackgroundframetitle@@first
1862 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1863 }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1864     Currently this isn't well supported}%
1865 \drawbrackgroundframetitle@@first
1866 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
1867     {\mdfframetitleboxtotalheight-\mdfboundingboxheight-
1868     \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1869     +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@length
1870     +\dp\strutbox%
1871 }%
1872 }%
1873 }%
1874 }%
1875 %
1876 \def\drawbrackgroundframetitle@@first{%
1877 \begin{scope}%background frame title
1878 \ifbool{mdf@leftline}{%
1879 \pgfmathsetlengthmacro\mdf@0x%
1880     {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1881 }{}%
1882 \ifbool{mdf@rightline}{%
1883 \pgfmathsetlengthmacro\mdf@Px%
1884     {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1885 }{}%
1886 \ifbool{mdf@topline}{%
1887 \pgfmathsetlengthmacro\mdf@Py%
1888     {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1889 }{}%
1890 \pgfmathsetlengthmacro\mdf@Fy
1891     {\max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
1892 \path[mdfframetitlebackground]
1893     (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%

```

```

1894      --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1895      \end{scope}%
1896 }%
1897 %
1898 \def\mdf@putbox@first{%
1899   \ifvoid\mdf@splitbox@two
1900   \else%
1901     \mdf@makebox@out{%
1902       \mdf@makeboxalign@left%
1903       \mdf@tikz@settings%
1904       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
1905       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1906       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1907       \ifbool{mdf@leftline}{%
1908         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1909         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1910         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1911       \ifbool{mdf@rightline}{%
1912         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1913         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1914         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1915 %
1916 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1917 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1918 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
1919 \ifbool{mdf@topline}{%
1920   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1921   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1922   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1923 %
1924 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
1925 \ifdimgreater{\pagegoal-\maxdimen}{0pt}{\enlargethispage{\baselineskip}}%
1926 \mdf@makebox@in[\mdfboundingboxwidth]{%
1927   \null%
1928   \begin{tikzpicture}[remember picture]
1929 %
1930   \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1931   \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
1932   \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1933   \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1934   \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1935   \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1936   \ifbool{mdf@leftline}
1937   {%
1938     \pgfmathsetlengthmacro\mdf@Ax%
1939       {\mdf@Ax+\mdf@outerlinewidth@length+
1940        \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1941     \pgfmathsetlengthmacro\mdf@Ox%
1942       {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1943   }{%
1944     \ifbool{mdf@rightline}{%
1945       \pgfmathsetlengthmacro\mdf@Px%
1946       {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1947     }{%
1948       \ifbool{mdf@topline}{%
1949         \pgfmathsetlengthmacro\mdf@Py%

```

```

1950         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1951     }{}%
1952 %
1953     \coordinate(0)at(\mdf@0x,\mdf@0y);%
1954     \coordinate(P)at(\mdf@Px,\mdf@Py);%
1955 %
1956     \ifbool{mdf@shadow}
1957         {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}%
1958 %
1959     \begin{scope}[use as bounding box]
1960         \ifbool{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
1961             {\mdf@tikzbox@otl{(0)--(0|-P)--(P)--(P|-0)}}%
1962             {}%
1963         \ifbool{test {\mdf@test@ltb} or test {\mdf@test@ltb}}%
1964             {\mdf@tikzbox@otl{(0)--(0|-P)--(P)}{(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}%
1965             {}%
1966         \ifbool{test {\mdf@test@trb} or test {\mdf@test@trb}}%
1967             {\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}{(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
1968             {}%
1969         \ifbool{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
1970             {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
1971             {}%
1972         \ifbool{test {\mdf@test@tb} or test {\mdf@test@tb}}%
1973             {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1974             {}%
1975         \ifbool{test {\mdf@test@lb} or test {\mdf@test@lb}}%
1976             {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
1977             {}%
1978         \ifbool{test {\mdf@test@rb} or test {\mdf@test@rb}}%
1979             {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1980             {}%
1981         \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
1982 %
1983         \mdf@test@noline{\path[mdfbackground,mdfcorners](0)--(0|-P)--(P)--(P|-0);}%
1984 %
1985         \drawbrackgroundframetitle@first
1986 %
1987         \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfüegen
1988     \end{scope}
1989     %HIER KOMMT EIN WEITERES MAKRO
1990     \mdfcreateextratikz%
1991     \end{tikzpicture}%
1992 }%
1993 \mdf@makeboxalign@right%
1994 }%
1995 \fi
1996 }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

1997 \def\drawbrackgroundframetitle@middle{%
1998 \ifdefempty{\mdf@frametitle}{}%
1999 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2000 {}%

```

```

2001 \drawbackgroundframetitle@@middle%
2002 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2003 }%
2004 }%
2005 }%
2006 %
2007 \def\drawbackgroundframetitle@@middle{%
2008     \begin{scope}%background frame title
2009     \ifbool{mdf@leftline}{
2010         \pgfmathsetlengthmacro\mdf@0x%
2011             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2012         }{}%
2013     \ifbool{mdf@rightline}{%
2014         \pgfmathsetlengthmacro\mdf@Px%
2015             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2016         }{}%
2017     \pgfmathsetlengthmacro\mdf@Fy
2018         {\mdf@Py-\mdfframetitleboxtotalheight}
2019     \path[mdfframetitlebackground,rounded corners=\z@]
2020         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2021         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2022     \end{scope}
2023 }%
2024 %
2025 \def\mdf@putbox@middle{%
2026     \ifvoid\mdf@splitbox@two
2027     \else%
2028         \mdf@makebox@out{%
2029             \mdf@makeboxalign@left%
2030             \mdf@tikz@settings%
2031         }%
2032     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2033     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2034     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2035     \ifbool{mdf@leftline}{%
2036         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2037         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2038         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2039     \ifbool{mdf@rightline}{%
2040         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2041         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2042         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2043     %
2044     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2045     \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2046     %
2047     \mdf@makebox@in[\mdfboundingboxwidth]{%
2048         \null%
2049         \begin{tikzpicture}[remember picture]
2050             \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2051             \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2052             \pgfmathsetlengthmacro\mdf@0x{+0pt}%
2053             \pgfmathsetlengthmacro\mdf@0y{+0pt}%
2054             \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2055             \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2056             \ifbool{mdf@leftline}%

```



```

2057     {%
2058         \pgfmathsetlengthmacro\mdf@Ax%
2059             {\mdf@Ax+\mdf@outerlinewidth@length+
2060              \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2061         \pgfmathsetlengthmacro\mdf@Ox%
2062             {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2063     }{}%
2064     \ifbool{mdf@rightline}%
2065     {%
2066         \pgfmathsetlengthmacro\mdf@Px%
2067             {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2068     }{}%
2069 %
2070     \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2071     \coordinate(P)at(\mdf@Px,\mdf@Py);%
2072 %
2073     \ifbool{mdf@shadow}
2074     {\path[mdfshadow](0) rectangle (P);}{}%
2075 %
2076     \begin{scope}[use as bounding box]
2077         \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2078             {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
2079         \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2080             {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
2081         \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2082             {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
2083         \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2084             {\path[mdfbackground](0) rectangle(P);}{}%
2085 %
2086         \drawbrackgroundframetitle@middle
2087 %
2088         \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2089     \end{scope}
2090     %HIER KOMMT EIN WEITERES MAKRO
2091     \mdfcreateextratikz
2092     \end{tikzpicture}%
2093     }%
2094     \mdf@makeboxalign@right%
2095 }%
2096 \fi
2097 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

2098 \def\drawbrackgroundframetitle@second{%
2099     \ifdefempty{\mdf@frametitle}{}{}%
2100     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2101     {}{}%
2102     \drawbrackgroundframetitle@@second%
2103 }%
2104 }%
2105 }%
2106 %
2107 \def\drawbrackgroundframetitle@@second{%

```



```

2108 \begin{scope}%background frame title
2109 \ifbool{mdf@leftline}{
2110 \pgfmathsetlengthmacro\mdf@0x%
2111 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2112 }{}%
2113 \ifbool{mdf@rightline}{%
2114 \pgfmathsetlengthmacro\mdf@Px%
2115 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2116 }{}%
2117 \pgfmathsetlengthmacro\mdf@Fy
2118 {\mdf@Py-\mdfframetitleboxtotalheight}
2119 \path[mdfframetitlebackground,rounded corners=\z@]
2120 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2121 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2122 \end{scope}
2123 }%
2124 \def\mdf@putbox@second{%
2125 \ifvoid\mdf@splitbox@one
2126 \else%
2127 \mdf@makebox@out{%
2128 \mdf@makeboxalign@left%
2129 \mdf@tikz@settings%
2130 %
2131 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2132 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2133 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2134 \ifbool{mdf@leftline}{%
2135 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2136 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2137 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2138 \ifbool{mdf@rightline}{%
2139 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2140 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2141 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2142 %
2143 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2144 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2145 \ifbool{mdf@bottomline}{%
2146 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2147 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2148 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2149 %
2150 \mdf@makebox@in[\mdfboundingboxwidth]{%
2151 \null%
2152 \begin{tikzpicture}[remember picture]
2153 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2154 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2155 \pgfmathsetlengthmacro\mdf@0x{+0pt}%
2156 \pgfmathsetlengthmacro\mdf@0y{+0pt}%
2157 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2158 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2159 \ifbool{mdf@leftline}%
2160 {%
2161 \pgfmathsetlengthmacro\mdf@Ax%
2162 {\mdf@Ax+\mdf@outerlinewidth@length+%
2163 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%

```

```

2164      \pgfmathsetlengthmacro\mdf@0x%
2165          {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2166      }{}%
2167      \ifbool{mdf@rightline}%
2168      {%
2169          \pgfmathsetlengthmacro\mdf@Px%
2170              {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2171          }{}%
2172      \ifbool{mdf@bottomline}%
2173      {%
2174          \pgfmathsetlengthmacro\mdf@Ay%
2175              {\mdf@Ay+\mdf@outerlinewidth@length+%
2176                  \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2177          \pgfmathsetlengthmacro\mdf@0y%
2178              {\mdf@0y+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2179          }{}%
2180 %
2181      \coordinate(0)at(\mdf@0x,\mdf@0y);%
2182      \coordinate(P)at(\mdf@Px,\mdf@Py);%
2183 %
2184      \ifbool{mdf@shadow}
2185          {\path[mdfshadow] (0|-P) to[mdfcorners] (0) to[mdfcorners] (P|-0) -- (P) -- (0|-P);}%
2186 %
2187      \begin{scope}[use as bounding box]
2188          \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2189              {\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)--(P))}%
2190              }{}%
2191          \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2192              {\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}{(P)--(P|-0)[mdfcorners]--(0)--(0|-P))}%
2193              }{}%
2194          \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2195              {\mdf@tikzbox@otl{(P)--(P|-0)--(0))}{(0|-P)--(P)[mdfcorners]--(P|-0)--(0))}%
2196              }{}%
2197          \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2198              {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P))}%
2199              }{}%
2200          \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2201              {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P))}%
2202              }{}%
2203          \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2204              {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P))}%
2205              }{}%
2206          \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2207              {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P))}%
2208              }{}%
2209          \mdf@test@t{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2210 %
2211          \mdf@test@noline{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2212 %
2213          \drawbackgroundframetitle@second
2214 %
2215          \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2216      \end{scope}
2217      %HIER KOMMT EIN WEITERES MAKRO
2218      \mdfcreateextratikz
2219      \end{tikzpicture}%

```

```

2220     }%
2221     \mdf@makeboxalign@right%
2222     }%
2223     \fi
2224 }%

```

```

2225 \endinput

```

## B.4. The Explanation of md-frame-2.mdf / md-frame-3.mdf

```

2226 %% Style file for mdframed for package option 'framemethod=default'
2227 %%
2228 %% This package may be distributed under the terms of the LaTeX Project
2229 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2230 %% Either version 1.0 or, at your option, any later version.
2231 %%
2232 %%
2233 %%$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
2234 %

```

```

\mdframedIIPackagename
\mdf@frameIIDate@svn

```

local settings

```

2235 \def\mdframedIIPackagename{md-frame-2}
2236 \def\mdf@frameIIDate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2237 \ProvidesFile{md-frame-2.mdf}%
2238     [\mdf@frameIIDate@svn$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $ %
2239     \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

2240 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2241 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname mdf@#1@length\endcsname} \pst@number\psxunit c
2242 \let\ptTps\mdf@ptlength@to@pscode\relax
2243 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlerule
\mdfframetitlebackground

```

background and line settings for pstricks

```

2244 \def\mdf@pstricks@settings{%expand by \addtopsstyle
2245     \newpsstyle{mdfbackgroundstyle}%
2246     {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2247     fillcolor=\mdf@backgroundcolor,linestyle=none,%
2248     ,dimen=middle,%
2249     }%
2250 %
2251     \newpsstyle{mdfframetitlebackgroundstyle}{%
2252     linecolor=\mdf@frametitlebackgroundcolor,

```

```

2253     fillcolor=\mdf@frametitlebackgroundcolor,
2254     fillstyle=solid,linestyle=none,
2255     lineararc=\ifdimgreater{\mdf@roundcorner@length%
2256                 -\mdf@innerlinewidth@length%
2257                 -.5\mdf@middlelinewidth@length}
2258     {\z@}{\dimexpr\mdf@roundcorner@length%
2259             -\mdf@innerlinewidth@length%
2260             -.5\mdf@middlelinewidth@length}{\z@},
2261 }
2262 %
2263 \newsstyle{mdfouterlinestyle}{linestyle=none}%
2264 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
2265   {\newsstyle{mdfouterlinestyle}{%
2266     linecolor=\mdf@outerlinecolor,%
2267     linewidth=\dimexpr2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length\relax,
2268     dimen=middle,
2269   }}}%
2270 %
2271 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
2272 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2273   {\newsstyle{mdfinnerlinestyle}{%
2274     linecolor=\mdf@innerlinecolor,%
2275     linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2276     dimen=middle,
2277   }}}%
2278 %
2279 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
2280 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,shadowsize=\mdf@shadowsize@length}%
2281 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2282   {\newsstyle{mdfmiddlelinestyle}{%
2283     linewidth=\mdf@middlelinewidth@length,%
2284     linecolor=\mdf@middlelinecolor,dimen=middle
2285   }}}%
2286 \mdfpstricks@appendsettings
2287 }%
2288 %
2289 \newrobustcmd*{\mdf@pstricksbox@fl[2]}{%four lines
2290   \psframe[style=mdfouterlinestyle](#1)(#2)%ausen=3mm
2291   \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2292   \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2293     \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2294   \endpsclip
2295   \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2296 }%
2297 \newrobustcmd*{\mdf@pstricksbox@tl[1]}{%three lines
2298   \psline[style=mdfouterlinestyle]#1%ausen=3mm
2299   \psline[style=mdfbackgroundstyle]#1%Hintergrund
2300   \psclip{\psline[style=mdfmiddlelinestyle]#1}
2301     \psline[style=mdfinnerlinestyle]#1%innere=3mm
2302   \endpsclip
2303   \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2304 }%
2305 \newrobustcmd*{\mdf@pstricksbox@tcl[2]}{%two combined lines
2306 %%#1 background comple
2307 %%#2 line path
2308   \psline[style=mdfouterlinestyle]#2%ausen=3mm

```

```

2309 \psline[style=mdfbackgroundstyle]#2%Hintergrund
2310 \psclip{\pscustom[linestyle=none]{
2311     \psline[style=mdfmiddlelinestyle]#2
2312     \psline[linestyle=none,lineararc=0pt]#1}
2313 }
2314 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2315 \psline[style=mdfinnerlinestyle]#2%innere=3mm
2316 \endpsclip
2317 \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2318 }%
2319 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
2320 \beginngroup
2321 \psset{lineararc=0pt}
2322 \psline[style=mdfouterlinestyle](mdf@0)#1%ausseren=3mm
2323 \psline[style=mdfouterlinestyle](mdf@P)#2%ausseren=3mm
2324 \psclip{
2325 \pscustom[linestyle=none]{%
2326     \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2327     \psline[linestyle=none](mdf@0)#2
2328     \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2329     \psline[linestyle=none](mdf@P)#1
2330 }%
2331 }%
2332 \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2333 \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2334 \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2335 \endpsclip
2336 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2337 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2338 \endgroup
2339 }%
2340 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2341 \beginngroup
2342 \psset{lineararc=0pt}
2343 \psline[style=mdfouterlinestyle]#1%ausseren=3mm
2344 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2345 \psclip{\pscustom[linestyle=none]{
2346     \psline[style=mdfmiddlelinestyle]#1
2347     \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2348 }}
2349 \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2350 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2351 \endpsclip
2352 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2353 \endgroup%
2354 }%
2355
2356 %
2357 \newpsstyle{mdfframetitlerule}{%
2358     linecolor=\mdf@frametitlerulecolor,%
2359     fillcolor=\mdf@frametitlerulecolor,%
2360     fillstyle=solid,dimen=outer,%
2361 }
2362 %

```

\mdf@put@frametitulerule

frametitulerule with pstricks

```

2363 \def\mdf@@frametitulerule{%
2364   \ifbool{mdf@frametitulerule}{%
2365     \vbox{\hsize0pt
2366       \par\unskip\vskip\mdf@frametitlebelowskip@length
2367       \noindent\rlap{%
2368         \begin{group}%
2369         \begin{pspicture}(0,0)(0,\mdf@frametitulerulewidth@length)
2370           \psframe[style=mdfframetitulerule](!\ptTpsL{innerleftmargin} neg 0)%
2371           (! \ptTpsL{innerrightmargin}
2372             \ptTps{\mdfframetitleboxwidth} add \ptTpsL{frametitulerulewidth})
2373         \end{pspicture}
2374         \endgroup}
2375     }%
2376   }{}
2377   \par\unskip\vskip\mdf@innertopmargin@length%
2378 }%
2379 %
2380 % \begin{macro}{mdf@putbox@single}
2381 % Single output
2382 %   \begin{macrocode}
2383 % Info zu den verwendeten Punkten:
2384 % 0 ist die untere linke Ecke der Mitte der middleline
2385 % P ist die obere rechte Ecke der Mitte der middleline
2386 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2387 \def\mdf@putbox@single{%
2388   \ifvoid\mdf@splitbox@one
2389     \else%
2390     \mdf@makebox@out{%
2391       \mdf@makeboxalign@left%
2392       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2393       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2394       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2395       \ifbool{mdf@leftline}{%
2396         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2397         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2398         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2399       \ifbool{mdf@rightline}{%
2400         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2401         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2402         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2403     }%
2404     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2405     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2406     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2407     \ifbool{mdf@topline}{%
2408       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2409       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2410       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2411     \ifbool{mdf@bottomline}{%
2412       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2413       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2414       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2415   }%

```

```

2416 \setlength\mdftotalllinewidth{\dimexpr\mdf@innerlinewidth@length%
2417                                     +\mdf@middlelinewidth@length
2418                                     +\mdf@outerlinewidth@length\relax}%
2419 \psset{unit=1truecm}%
2420 \mdf@makebox@in[\mdf@boundingboxwidth]{%
2421     \null%
2422     \begin{pspicture}(0,0)(\mdf@boundingboxwidth,\mdf@boundingboxheight)
2423         \mdfpstricks@settings%
2424         \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2425         \expandafter\psset\expandafter{\mdf@psset@local}%
2426         \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2427         \pnode(0,0){mdf@0}
2428         \pnode(\mdf@boundingboxwidth,\mdf@boundingboxheight){mdf@P}
2429         \ifbool{mdf@leftline}%
2430             {%
2431                 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2432                         +(\mdf@middlelinewidth@length,0)
2433                         +(\mdf@innerlinewidth@length,0)}{mdf@A}%
2434                 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2435                         +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2436             }{}%
2437         \ifbool{mdf@rightline}%
2438             {%
2439                 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2440                         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2441             }{}%
2442         \ifbool{mdf@bottomline}%
2443             {%
2444                 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
2445                         +(0,\mdf@middlelinewidth@length)
2446                         +(0,\mdf@innerlinewidth@length)}{mdf@A}%
2447                 \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
2448                         +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
2449             }{}%
2450         \ifbool{mdf@topline}%
2451             {%
2452                 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
2453                         -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2454             }{}%
2455         \ifbool{mdf@shadow}
2456             {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2457 % \psclip{%
2458 %Four lines
2459     \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2460 %three lines
2461     \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2462     \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2463     \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2464     \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2465 %two lines combined
2466     \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2467                                     {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2468     \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2469                                     {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2470     \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2471                                     {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}

```



```

2472 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
2473 {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2474 %two lines not combined combined
2475 \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
2476 {}{}
2477 \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
2478 {}{}
2479 %single line
2480 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2481 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2482 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
2483 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2484 %no line
2485 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}
2486 %
2487 %Frametitlebackground
2488 \drawbackgroundframetitle@single
2489 %output%
2490 \rput[bl](mdf@A){\box\mdf@splitbox@one}
2491 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2492 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2493 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2494 %
2495 % \endpsclip
2496 \end{pspicture}%
2497 }%
2498 \mdf@makeboxalign@right%
2499 }%
2500 \fi
2501 }%
2502 \def\drawbackgroundframetitle@single{%
2503 \ifdefempty{\mdf@frametitle}}{}{}%
2504 \drawbackgroundframetitle@@single%
2505 }%
2506 }%
2507 \def\drawbackgroundframetitle@@single{%
2508 \begingroup%
2509 \ifbool{mdf@leftline}{%
2510 \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
2511 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2512 }{}%
2513 \ifbool{mdf@rightline}{%
2514 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2515 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2516 }{}%
2517 \ifbool{mdf@topline}{%
2518 \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2519 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2520 }{}%
2521 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2522 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2523 (mdf@P)(mdf@P|mdf@F)%
2524 \endgroup
2525 }

```



\mdf@putbox@first

First output

```

2526 \def\mdf@putbox@first{%
2527   \ifvoid\mdf@splitbox@two
2528   \else%
2529     \mdf@makebox@out{%
2530       \mdf@makeboxalign@left%
2531       %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2532       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2533       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2534       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2535       \ifbool{mdf@leftline}{%
2536         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2537         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2538         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2539       \ifbool{mdf@rightline}{%
2540         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2541         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2542         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2543       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2544       \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2545       \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2546       \ifbool{mdf@topline}{%
2547         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2548         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2549         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2550       \psset{linear=\mdf@roundcorner@length, cornersize=absolute}%
2551       \expandafter\psset\expandafter{\mdf@psset@local}%
2552       \mdf@makebox@in[\mdfboundingboxwidth]{%
2553         \null%
2554         \psset{unit=1truecm}%
2555         \ifdimgreater{\mdfboundingboxheight}{\vsize}
2556           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2557           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2558             \mdf@psstricks@settings%
2559             \psset{linear=\mdf@roundcorner@length, cornersize=absolut,%
2560             \expandafter\psset\expandafter{\mdf@psset@local}%
2561             \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2562             \pnode(0,0){mdf@0}
2563             \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2564             \ifbool{mdf@leftline}%
2565               {%
2566                 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2567                   +(\mdf@middlelinewidth@length,0)
2568                   +(\mdf@innerlinewidth@length,0)}{mdf@A}
2569                 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2570                   +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2571               }{}%
2572             \ifbool{mdf@rightline}%
2573               {%
2574                 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2575                   -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2576               }{}%
2577             \ifbool{mdf@topline}%
2578               {%

```

```

2579      \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
2580              -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2581    }{}%
2582    \ifbool{mdf@shadow}
2583      {\pscustom[style=mdfshadow,linestyle=none]{%
2584        \psline[linejoin=2,linecap=1,](mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)%
2585        \psline[linejoin=2,linecap=1,linearc=\z@](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)
2586        \closedshadow
2587      }
2588    }{}
2589 %    \psclip{
2590 %Four or Three lines
2591    \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2592      {\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}%
2593    }{}%
2594 %two combined lines
2595    \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2596      {\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
2597        {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}%
2598    \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2599      {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2600        {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
2601 %two not combined lines
2602    \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2603      {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
2604 %single line
2605    \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2606      {\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}%
2607    \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2608      {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}%
2609    \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2610      {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}%
2611 %no line
2612    \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2613    \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2614 %  }
2615 %Frametitlebackground
2616    \drawbackgroundframetitle@first
2617 %output%
2618    \rput[bl](mdf@A){\box\mdf@splitbox@two}
2619 %    \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2620 %    \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2621 %    \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2622 %    \endpsclip
2623    \end{pspicture}
2624  }%
2625  \mdf@makeboxalign@right%
2626 }%
2627 \fi
2628 }%
2629 \def\drawbackgroundframetitle@first{%
2630 \ifdefempty{\mdf@frametitle}}{}%
2631 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
2632 {%
2633   \drawbackgroundframetitle@@first
2634   \global\mdfframetitleboxtotalheight=-\p@%

```

```

2635 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2636           Currently this isn't well supported}%
2637   \drawbrackgroundframetitle@@first
2638   \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
2639           -\mdfboundingboxheight
2640           -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2641           +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
2642           +\mdf@splittopskip@length
2643           +\dp\strutbox\relax%
2644 }%
2645 }%
2646 }%
2647 \def\drawbrackgroundframetitle@@first{%
2648   \begingroup%
2649   \ifbool{mdf@leftline}{%
2650     \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
2651             +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
2652     }{}%
2653   \ifbool{mdf@rightline}{%
2654     \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
2655             -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
2656     }{}%
2657   \ifbool{mdf@topline}{%
2658     \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
2659             -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
2660     }{}%
2661   \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
2662     {\nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}}%
2663     {\nodexn{(\mdf@0)}{\mdf@F}}%
2664   \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2665           (mdf@P)(mdf@P|mdf@F)%
2666   \endgroup
2667 }

```

\mdf@putbox@middle

Middle output

```

2668 \def\mdf@putbox@middle{%
2669   \ifvoid\mdf@splitbox@two
2670   \else%
2671     \mdf@makebox@out{%
2672       \mdf@makeboxalign@left%
2673       % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2674       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2675       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2676       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2677       \ifbool{mdf@leftline}{%
2678         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2679         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2680         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2681       \ifbool{mdf@rightline}{%
2682         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2683         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2684         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2685       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%

```

```

2686 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2687 \psset{unit=1truecm}%
2688 \mdf@makebox@in[\mdfboundingboxwidth]{%
2689 \null%
2690 \ifdimgreater{\mdfboundingboxheight}{\vsize}
2691 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2692 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2693 \mdfpstricks@settings%
2694 \psset{lineararc=0pt, cornersize=absolut,}%
2695 \expandafter\psset\expandafter{\mdf@psset@local}%
2696 %%%
2697 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2698 \pnode(0,0){mdf@0}
2699 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2700 \ifbool{mdf@leftline}%
2701 {%
2702 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2703 +(\mdf@middlelinewidth@length,0)
2704 +(\mdf@innerlinewidth@length,0)}{mdf@A}
2705 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2706 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2707 }{}%
2708 \ifbool{mdf@rightline}%
2709 {%
2710 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2711 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2712 }{}%
2713 %%
2714 %%
2715 \ifbool{mdf@shadow}
2716 {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2717 \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2718 {\mdf@pstricksbox@tncl{(\mdf@0|mdf@P)}{(\mdf@P|mdf@0)}}{}%
2719 \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2720 {\mdf@pstricksbox@ol{(\mdf@0)(mdf@0|mdf@P)}}{}%
2721 \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2722 {\mdf@pstricksbox@ol{(\mdf@P)(mdf@P|mdf@0)}}{}%
2723 \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2724 {\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2725 %Frametitlebackground
2726 \drawbrackgroundframetitle@middle
2727 %output%
2728 \rput[bl](mdf@A){\box\mdf@splitbox@two}
2729 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2730 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2731 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2732 \end{pspicture}%
2733 }%
2734 \mdf@makeboxalign@right%
2735 }%
2736 \fi
2737 }%
2738 \def\drawbrackgroundframetitle@middle{%
2739 \ifdefempty{\mdf@frametitle}}{}{%
2740 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2741 {}{}%

```

```

2742 \drawbackgroundframetitle@@middle
2743 \global\mdfframetitleboxtotalheight=-\p@\relax%
2744 }%
2745 }%
2746 }%
2747 \def\drawbackgroundframetitle@@middle{%
2748 \begingroup%
2749 \ifbool{mdf@leftline}{%
2750 \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
2751 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2752 }{}%
2753 \ifbool{mdf@rightline}{%
2754 \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
2755 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2756 }{}%
2757 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2758 \psline[style=mdfframetitlebackgroundstyle,linearc=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
2759 (mdf@P)(mdf@P|mdf@F)%
2760 \endgroup
2761 }

```

\mdf@putbox@second

Last output

```

2762 \def\mdf@putbox@second{
2763 \ifvoid\mdf@splitbox@one
2764 \else%
2765 \mdf@makebox@out{%
2766 \mdf@makeboxalign@left%
2767 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2768 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2769 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2770 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2771 \ifbool{mdf@leftline}{%
2772 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2773 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2774 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2775 \ifbool{mdf@rightline}{%
2776 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2777 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2778 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
2779 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2780 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2781 \ifbool{mdf@bottomline}{%
2782 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2783 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2784 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
2785 \psset{unit=1truecm}%
2786 \mdf@makebox@in[\mdfboundingboxwidth]{%
2787 \null%
2788 \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2789 \mdfpstricks@settings%
2790 \psset{linearc=\mdf@roundcorner@length, cornersize=absolut,}%
2791 \expandafter\psset\expandafter{\mdf@psset@local}%
2792 \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}

```

```

2793 \node(0,0){mdf@0}
2794 \node(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2795 \ifbool{mdf@leftline}%
2796 {%
2797 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2798 +(\mdf@middlelinewidth@length,0)
2799 +(\mdf@innerlinewidth@length,0)){mdf@A}
2800 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2801 +0.5(\mdf@middlelinewidth@length,0)){mdf@0}
2802 }{}%
2803 \ifbool{mdf@rightline}%
2804 {%
2805 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2806 -0.5(\mdf@middlelinewidth@length,0)){mdf@P}
2807 }{}%
2808 \ifbool{mdf@bottomline}%
2809 {%
2810 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2811 +(0,\mdf@middlelinewidth@length)
2812 +(0,\mdf@innerlinewidth@length)){mdf@A}
2813 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2814 +0.5(0,\mdf@middlelinewidth@length)){mdf@0}
2815 }{}%
2816 %%
2817 \ifbool{mdf@shadow}
2818 {\pscustom[style=mdfshadow,linestyle=none]{%
2819 \psline[linejoin=2,linecap=1,](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)%
2820 \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@P)
2821 \closedshadow
2822 }
2823 }{}
2824 %Four + Three
2825 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2826 {\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2827 %Two combined
2828 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2829 {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}%
2830 {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2831 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2832 {\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}}%
2833 {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2834 %Two not combined
2835 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2836 {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
2837 %one line
2838 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2839 {\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2840 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2841 {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2842 \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2843 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2844 %no line
2845 \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2846 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2847 %Frametitlebackground
2848 \drawbackgroundframetitle@second

```

```

2849      %output%
2850      \rput[bl](mdf@A){\box\mdf@splitbox@one}
2851 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2852 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2853 %      \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2854      \end{pspicture}%
2855      }%
2856      \mdf@makeboxalign@right%
2857      }%
2858 \fi
2859 }%
2860 \def\drawbackgroundframetitle@second{%
2861 \ifdefempty{\mdf@frametitle}{\}%
2862 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2863 {\}%
2864 \drawbackgroundframetitle@@second
2865 }%
2866 }%
2867 }%
2868 \def\drawbackgroundframetitle@@second{%
2869 \begingroup%
2870 \ifbool{mdf@leftline}{%
2871 \nodexn{(\mdf@O)+(\mdf@innerlinewidth@length,0)
2872 +0.5(\mdf@middlelinewidth@length,0)}{\mdf@O}%
2873 }{\}%
2874 \ifbool{mdf@rightline}{%
2875 \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
2876 -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
2877 }{\}%
2878 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
2879 \psline[style=mdfframetitlebackgroundstyle,linear=\z@](mdf@O|mdf@F)(mdf@O|mdf@P)
2880 (mdf@P)(mdf@P|mdf@F)%
2881 \endgroup
2882 }
2883 \endinput
2884 %eof

```

## C. The file *mdframed-example-default*

```

2885 %Documentation of the package mdframed
2886 %%$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
2887 \setcounter{errorcontextlines}{999}
2888 \documentclass[parskip=false,english,11pt]{ltxmdf}
2889 \ltxmdfsetifoot $Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
2890
2891 \usepackage{showexpl}
2892 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
2893
2894 \newcommand\Loadedframemethod{default}
2895 \usepackage[framemethod=\Loadedframemethod]{mdframed}
2896
2897 \title{The \Pack{mdframed} package}
2898 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
2899 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}

```



```

2900 \date{\mdfdateID$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $}
2901 \version{\mdversion}
2902 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
2903 Some presented examples are more or less exorbitant.}
2904
2905 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2906 \newrobustcmd\ExampleText{%
2907     An \textit{inhomogeneous linear} differential equation has the form
2908     \begin{align}
2909         L[v] = f,
2910     \end{align}
2911     where  $L$  is a linear differential operator,  $v$  is
2912     the dependent variable, and  $f$  is a given non-zero
2913     function of the independent variables alone.
2914 }
2915
2916 \newcounter{examplecount}
2917 \setcounter{examplecount}{0}
2918 \renewcommand\thesubsection{}
2919 \newcommand\Examplesec[1]{%
2920 \stepcounter{examplecount}%
2921 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
2922 }
2923
2924 \begin{document}
2925 \maketitle
2926 \section{Loading}
2927 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
2928
2929 {\large\color{red!50!black}
2930 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
2931
2932 \section{Examples}
2933 All examples have the following settings:
2934
2935 \begin{tltxmdfexample}
2936 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2937 \newrobustcmd\ExampleText{%
2938 An \textit{inhomogeneous linear} differential equation
2939 has the form
2940 \begin{align}
2941 L[v] = f,
2942 \end{align}
2943 where  $L$  is a linear differential operator,  $v$  is
2944 the dependent variable, and  $f$  is a given non-zero
2945 function of the independent variables alone.
2946 }
2947 \end{tltxmdfexample}
2948 \clearpage
2949 \Examplesec{very simple}
2950 \begin{LTXexample}
2951 \global\mdfdefinestyle{exampledefault}{%
2952     linecolor=red,linewidth=3pt,%
2953     leftmargin=1cm,rightmargin=1cm
2954 }
2955 \begin{mdframed}[style=exampledefault]

```



```

2956 \ExampleText
2957 \end{mdframed}
2958 \end{LTXexample}
2959
2960 \Examplesec{hidden line + frame title}
2961 \begin{LTXexample}
2962 \global\mdfapptodefinestyle{exampledefault}{%
2963   topline=false,rightline=true,bottomline=false}
2964 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2965 \ExampleText
2966 \end{mdframed}
2967 \end{LTXexample}
2968 \clearpage
2969
2970 \Examplesec{colored frame title}
2971 \begin{LTXexample}
2972
2973 \global\mdfapptodefinestyle{exampledefault}{%
2974   rightline=true,innerleftmargin=10,innerrightmargin=10,
2975   frametitle=rule=true,frametitle=rulecolor=green,
2976   frametitlebackgroundcolor=yellow,
2977   frametitle=rulewidth=2pt}
2978 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2979 \ExampleText
2980 \end{mdframed}
2981 \end{LTXexample}
2982
2983 \Examplesec{framed picture which is centered}
2984 \begin{LTXexample}
2985 \begin{mdframed}[userdefinedwidth=6cm,align=center,
2986   linecolor=blue,linewidth=4pt]
2987 \includegraphics[width=\linewidth]{donald-duck}
2988 \end{mdframed}
2989 \end{LTXexample}
2990
2991 \clearpage
2992 \Examplesec{Theorem environments}
2993 \begin{LTXexample}
2994 \mdfdefinestyle{theoremstyle}{%
2995   linecolor=red,linewidth=2pt,%
2996   frametitle=rule=true,%
2997   frametitlebackgroundcolor=gray!20,
2998   innertopmargin=\topskip,
2999 }
3000 \mdtheorem[style=theoremstyle]{definition}{Definition}
3001 \begin{definition}
3002 \ExampleText
3003 \end{definition}
3004 \begin{definition}[Inhomogeneous linear]
3005 \ExampleText
3006 \end{definition}
3007 \begin{definition*}[Inhomogeneous linear]
3008 \ExampleText
3009 \end{definition*}
3010 \end{LTXexample}
3011

```

```

3012
3013 \clearpage
3014 \Examplesec{theorem with separate header and the help of TikZ (complex)}
3015 \begin{LTXexample}
3016 \newcounter{theo}[section]
3017 \newenvironment{theo}[1][{}]{%
3018   \stepcounter{theo}%
3019   \ifstrempy{#1}%
3020   {\mdfsetup{%
3021     frametitle={%
3022       \tikz[baseline=(current bounding box.east),outer sep=0pt]
3023       \node[anchor=east,rectangle,fill=blue!20]
3024       {\strut Theorem~\thetheo};}}
3025   }%
3026   {\mdfsetup{%
3027     frametitle={%
3028       \tikz[baseline=(current bounding box.east),outer sep=0pt]
3029       \node[anchor=east,rectangle,fill=blue!20]
3030       {\strut Theorem~\thetheo:~#1};}}%
3031   }%
3032   \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3033     linewidth=2pt,topline=true,
3034     frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3035   \begin{mdframed}[]\relax%
3036   }\end{mdframed}}
3037 \begin{theo}[Inhomogeneous Linear]
3038 \ExampleText
3039 \end{theo}
3040
3041 \begin{theo}
3042 \ExampleText
3043 \end{theo}
3044 \end{LTXexample}
3045
3046 \clearpage
3047 \Examplesec{hide only a part of a line}
3048 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3049 \begin{LTXexample}
3050 \makeatletter
3051 \newlength{\interruptlength}
3052 \setlength{\interruptlength}{2.5ex}
3053 \newrobustcmd\overlaplines{%
3054   \appto\mdf@frame@leftline@single{%
3055     \llap{\color{white}%
3056       \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
3057         {\mdf@middlelinewidth@length}%
3058         {\dimexpr\mdfboundingboxtotalheight%
3059           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
3060         -2\interruptlength\relax}%
3061     }%
3062   }%
3063   \appto\mdf@frame@rightline@single{%
3064     \rlap{\color{white}%
3065       \hspace*{\mdfboundingboxwidth}%
3066       \hspace*{\mdf@innerrightmargin@length}%
3067       \rule[\dimexpr-\mdfboundingboxdepth%

```

```

3068         +\interruptlength\relax}%
3069     {\mdf@middlelinewidth@length}%
3070     {\dimexpr\mdfboundingboxtotalheight%
3071         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}
3072         -2\interruptlength\relax}%
3073     }%
3074 }%
3075 }
3076 \makeatother
3077 \overlapiines
3078
3079 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3080 \ExampleText
3081 \end{mdframed}
3082 \end{LTXexample}
3083 \end{document}
3084 \endinput

```

## D. The file mdframed-example-tikz

```

3085 %Documenation of the package mdframed
3086 %$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
3087 \setcounter{errorcontextlines}{999}
3088 \documentclass[parskip=false,english,11pt]{ltxmdf}
3089 \ltxmdfsetifoot $Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
3090
3091
3092 \usepackage{showexpl}
3093 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3094
3095 \newcommand\Loadedframemethod{TikZ}
3096 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3097
3098 \title{The \Pack{mdframed} package}
3099 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3100 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3101 \date{\mdfdateID$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $}
3102 \version{\mdversion}
3103 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3104 Some presented examples are more or less exorbitant.}
3105
3106 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3107 \newrobustcmd\ExampleText{%
3108     An \textit{inhomogeneous linear} differential equation has the form
3109     \begin{align}
3110         L[v] &= f,
3111     \end{align}
3112     where  $L$  is a linear differential operator,  $v$  is
3113     the dependent variable, and  $f$  is a given non-zero
3114     function of the independent variables alone.
3115 }
3116
3117 \newcounter{examplecount}
3118 \setcounter{examplecount}{0}
3119 \renewcommand\thesubsection{}
3120 \newcommand\Examplesec[1]{%

```

```

3121 \stepcounter{examplecount}%
3122 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3123 }
3124
3125 \begin{document}
3126 \maketitle
3127 \section{Loading}
3128 In the preamble only the package \Pack{mdfamed} with the option \Opt{framemethod=\Loadedframemethod}
3129
3130 {\large\color{red!50!black}
3131 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3132
3133 \section{Examples}
3134 All examples have the following settings:
3135
3136 \begin{tltxmdfexample}
3137 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3138 \newrobustcmd\ExampleText{%
3139 An \textit{inhomogeneous linear} differential equation
3140 has the form
3141 \begin{align}
3142 L[v] = f,
3143 \end{align}
3144 where  $L$  is a linear differential operator,  $v$  is
3145 the dependent variable, and  $f$  is a given non-zero
3146 function of the independent variables alone.
3147 }
3148 \end{tltxmdfexample}
3149 \clearpage
3150 \ExampleText{round corner}
3151 \begin{LTExample}
3152 \global\mdfdefinestyle{exampledefault}{%
3153     outerlinewidth=5pt,innerlinewidth=0pt,
3154     outerlinecolor=red,roundcorner=5pt
3155 }
3156 \begin{mdfamed}[style=exampledefault]
3157 \ExampleText
3158 \end{mdfamed}
3159 \end{LTExample}
3160
3161 \Examplesec{hidden line + frame title}
3162 \begin{LTExample}
3163 \global\mdfapptodefinestyle{exampledefault}{%
3164     topline=false,leftline=false,
3165 \begin{mdfamed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3166 \ExampleText
3167 \end{mdfamed}
3168 \end{LTExample}
3169 \clearpage
3170 \Examplesec{framed picture which is centered}
3171 \begin{LTExample}
3172 \begin{mdfamed}[userdefinedwidth=6cm,align=center,
3173     linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3174 \includegraphics[width=\linewidth]{donald-duck}
3175 \end{mdfamed}
3176 \end{LTExample}

```

```

3177
3178 \Examplesec{Gimmick}
3179 \begin{LTXexample}
3180 \mdfsetup{splitbottomskip=0.8cm, splittopskip=0cm,
3181           innerrightmargin=2cm, innertopmargin=1cm,%
3182           innerlinewidth=2pt, outerlinewidth=2pt,
3183           middlelinewidth=10pt, backgroundcolor=red,
3184           linecolor=blue, middlelinecolor=gray,
3185           tikzsetting={draw=yellow, line width=3pt,%
3186                       dashed,%
3187                       dash pattern= on 10pt off 3pt},
3188           rightline=false, bottomline=false}
3189 \begin{mdframed}
3190 \ExampleText
3191 \end{mdframed}
3192 \end{LTXexample}
3193
3194 \Examplesec{complex example with TikZ}
3195
3196 \begin{tltxmdfexample}
3197 \tikzstyle{titregris} =
3198     [draw=gray, thick, fill=white, shading = exersicetitle, %
3199     text=gray, rectangle, rounded corners,
3200     right, minimum height=.7cm]
3201
3202 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3203 {color(0bp)=(green!40);
3204 color(100bp)=(black!5)}
3205
3206 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3207 {color(0bp)=(red!40);
3208 color(100bp)=(black!5)}
3209
3210 \newcounter{exercise}
3211 \renewcommand\theexercise{Exercise~\arabic{exercise}}
3212 \makeatletter
3213 \def\mdf@@exercisepoints{}
3214 \define@key{mdf}{exercisepoints}{%
3215     \def\mdf@@exercisepoints{#1}
3216 }
3217 \renewrobustcmd\mdfcreateextratikz{%
3218     \node[titregris,xshift=1cm] at (P-|0) %
3219         {\mdf@frametitlefont{\theexercise}~};
3220     \ifdefempty{\mdf@@exercisepoints}%
3221         {}%
3222     {\node[titregris,left,xshift=-1cm] at (P)%
3223         {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3224 }
3225 \makeatother
3226
3227 \mdfdefinestyle{exercisestyle}{%
3228     outerlinewidth=1pt,
3229     innerlinewidth=0pt,
3230     roundcorner=2pt,
3231     linecolor=gray,
3232     tikzsetting={shading = exersicebackground},

```

```

3233 innertopmargin=1.2\baselineskip,
3234 skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3235 needspace=3\baselineskip,
3236 frametitlefont=\sffamily\bfseries,
3237 settings={\global\stepcounter{exercise}},
3238 }
3239
3240 \begin{mdframed}[style=exercisestyle,]
3241 \ExampleText
3242 \end{mdframed}
3243
3244 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3245 \ExampleText
3246 \end{mdframed}
3247 \end{tltxmdfexample}
3248
3249 \tikzstyle{titregris} =
3250     [draw=gray, thick, fill=white, shading = exersicetitle, %
3251     text=gray, rectangle, rounded corners,
3252     right,minimum height=.7cm]
3253
3254 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3255 {color(0bp)=(green!40);
3256 color(100bp)=(black!5)}
3257
3258 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3259 {color(0bp)=(red!40);
3260 color(100bp)=(black!5)}
3261
3262 \newcounter{exercise}
3263 \renewcommand\theexercise{Exercise~\arabic{exercise}}
3264 \makeatletter
3265 \def\mdf@@exercisepoints{}
3266 \define@key{mdf}{exercisepoints}{%
3267     \def\mdf@@exercisepoints{#1}
3268 }
3269 \newrobustcmd\mdfcreateextratikzlocal{%
3270     \node[titregris,xshift=1cm] at (P-|0) {\textbf{\theexercise}~};
3271     \ifdefempty{\mdf@@exercisepoints}%
3272     {}%
3273     {\node[titregris,left,xshift=-1cm] at (P)%
3274         {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3275 }
3276 \makeatother
3277
3278 \mdfdefinestyle{exercisestyle}{%
3279     outerlinewidth=1pt,
3280     innerlinewidth=0pt,
3281     roundcorner=2pt,
3282     linecolor=gray,
3283     tikzsetting={shading = exersicebackground},
3284     innertopmargin=1.2\baselineskip,
3285     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3286     needspace=3\baselineskip,
3287     frametitlefont=\sffamily\bfseries,
3288     settings={\global\stepcounter{exercise}\let\mdfcreateextratikz\mdfcreateextratikzlocal},

```

```

3289 }
3290
3291 \begin{mdframed}[style=exercisestyle,]
3292 \ExampleText
3293 \end{mdframed}
3294
3295 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3296 \ExampleText
3297 \end{mdframed}
3298
3299 \clearpage
3300 \Examplesec{Theorem environments}
3301 \begin{LTXexample}
3302 \mdfdefinestyle{theoremstyle}{%
3303     linecolor=red,linewidth=2pt,%
3304     frametitlerule=true,%
3305     apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3306         shade,left color=white, right color=blue!20}}},
3307     frametitlerulecolor=green!60,
3308     frametitlerulewidth=1pt,
3309     innertopmargin=\topskip,
3310 }
3311 \mdtheorem[style=theoremstyle]{definition}{Definition}
3312 \begin{definition}[Inhomogeneous linear]
3313 \ExampleText
3314 \end{definition}
3315 \begin{definition*}[Inhomogeneous linear]
3316 \ExampleText
3317 \end{definition*}
3318 \end{LTXexample}
3319
3320 \end{document}
3321 \endinput

```

## E. The file *mdframed-example-pstricks*

```

3322 %Documentation of the package mdframed
3323 %$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
3324 \setcounter{errorcontextlines}{999}
3325 \documentclass[parskip=false,english,11pt]{ltxmdf}
3326 \ltxmdfsetifoot$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
3327
3328 \lstDeleteShortInline{[]}
3329 \newcommand\Loadedframemethod{PSTricks}
3330 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3331
3332 \usepackage{showexpl}
3333 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},
3334
3335 \title{The \Pack{mdframed} package}
3336 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3337 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3338 \date{\mdfdateID$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $}
3339 \version{\mdversion}
3340 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3341 Some presented examples are more or less exorbitant.}

```

```

3342
3343 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3344 \newrobustcmd\ExampleText{%
3345     An \textit{inhomogeneous linear} differential equation has the form
3346     \begin{align}
3347         L[v] = f,
3348     \end{align}
3349     where  $L$  is a linear differential operator,  $v$  is
3350     the dependent variable, and  $f$  is a given non-zero
3351     function of the independent variables alone.
3352 }
3353
3354 \newcounter{examplecount}
3355 \setcounter{examplecount}{0}
3356 \renewcommand\thesubsection{}
3357 \newcommand\Examplesec[1]{%
3358 \stepcounter{examplecount}%
3359 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3360 }
3361
3362 \begin{document}
3363 \maketitle
3364 \section{Loading}
3365 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3366
3367 {\large\color{red!50!black}
3368 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3369 X
3370 \section{Examples}
3371 All examples have the following settings:
3372
3373 \begin{tltxmdfexample}
3374 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3375 \newrobustcmd\ExampleText{%
3376 An \textit{inhomogeneous linear} differential equation
3377 has the form
3378 \begin{align}
3379 L[v] = f,
3380 \end{align}
3381 where  $L$  is a linear differential operator,  $v$  is
3382 the dependent variable, and  $f$  is a given non-zero
3383 function of the independent variables alone.
3384 }
3385 \end{tltxmdfexample}
3386 \clearpage
3387
3388 \Examplesec{very simple}
3389 \begin{LTExample}
3390 \global\mdfdefinestyle{exampledefault}{%
3391     linecolor=red,middlelinewidth=3pt,%
3392     leftmargin=1cm,rightmargin=1cm
3393 }
3394 \begin{mdframed}[style=exampledefault,roundcorner=5]
3395 \ExampleText
3396 \end{mdframed}
3397 \end{LTExample}

```



```

3398
3399 \Examplesec{hidden line + frame title}
3400 \begin{LTExample}
3401 \global\mdfapptodefinestyle{exampledefault}{%
3402   topline=false,rightline=false,bottomline=false,
3403   frametitlerule=true,innertopmargin=6pt,
3404   outerlinewidth=6pt,outerlinecolor=blue,
3405   pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
3406   innerlinecolor=yellow,innerlinewidth=5pt}%
3407 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3408 \ExampleText
3409 \end{mdframed}
3410 \end{LTExample}
3411
3412 \clearpage
3413
3414 \Examplesec{Dash Lines}
3415 \begin{LTExample}
3416 \global\mdfdefinestyle{exampledefault}{%
3417   pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
3418 \begin{mdframed}[style=exampledefault,]
3419 \ExampleText
3420 \end{mdframed}
3421 \end{LTExample}
3422
3423 \Examplesec{Double Lines}
3424 \begin{LTExample}
3425 \global\mdfdefinestyle{exampledefault}{%
3426   pstrickssetting={doubleline=true,doublesep=6pt},
3427   linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3428 \begin{mdframed}[style=exampledefault,]
3429 \ExampleText
3430 \end{mdframed}
3431 \end{LTExample}
3432
3433 \Examplesec{Shadow frame}
3434 \begin{LTExample}
3435 \newmdenv[shadow=true,
3436           shadowsize=11pt,
3437           linewidth=8pt,
3438           frametitlerule=true,
3439           roundcorner=10pt,
3440           ]{myshadowbox}
3441 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
3442 \ExampleText
3443 \end{myshadowbox}
3444 \end{LTExample}
3445 \end{document}
3446 \endinput

```

## F. The file *mdframed-example-texsx*

```

3447 %Documentation of the package mdframed
3448 %$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
3449 \setcounter{errorcontextlines}{999}
3450 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}

```

```

3451 \ltxmdfsetifoot $Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $
3452
3453
3454 \usepackage{showexpl}
3455 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3456
3457 \newcommand\Loadedframemethod{default}
3458 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3459
3460 \title{The \Pack{mdframed} package}
3461 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3462 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3463 \date{\mdfdateID$Id: mdframed.dtx 349 2012-03-06 17:40:51Z marco $}
3464 \version{\mdversion}
3465 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3466 Some presented examples are more or less exorbitant.}
3467
3468 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3469 \newrobustcmd\ExampleText{%
3470     An \textit{inhomogeneous linear} differential equation has the form
3471     \begin{align}
3472         L[v] = f,
3473     \end{align}
3474     where  $L$  is a linear differential operator,  $v$  is
3475     the dependent variable, and  $f$  is a given non-zero
3476     function of the independent variables alone.
3477 }
3478
3479 \newcounter{examplecount}
3480 \setcounter{examplecount}{0}
3481 \renewcommand\thesubsection{}
3482 \newcommand\Examplesec[1]{%
3483 \stepcounter{examplecount}%
3484 \subsection{Example~\arabic{examplecount}~---~\#1\relax}%
3485 }
3486
3487 \begin{document}
3488 \maketitle
3489 \section{Loading}
3490 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3491
3492 {\large\color{red!50!black}
3493 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3494
3495 \section{Examples}
3496 All examples have the following settings:
3497
3498 \begin{tltxmdfexample}
3499 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3500 \newrobustcmd\ExampleText{%
3501 An \textit{inhomogeneous linear} differential equation
3502 has the form
3503 \begin{align}
3504 L[v] = f,
3505 \end{align}
3506 where  $L$  is a linear differential operator,  $v$  is

```

```

3507 the dependent variable, and  $f$  is a given non-zero
3508 function of the independent variables alone.
3509 }
3510 \end{tltxmdfexample}
3511 \clearpage
3512 \Examplesec{Package listings}
3513 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3514
3515 Here the solution which can be decorate as usual.
3516
3517 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3518 \BeforeBeginEnvironment{lstlisting}{%
3519     \begin{mdframed}[<modification>%
3520         \vspace{-0.7em}}
3521 \AfterEndEnvironment{lstlisting}{%
3522     \vspace{-0.5em}%
3523     \end{mdframed}}
3524 \end{tltxmdfexample}
3525
3526 With the new command \Cmd{surroundwithmdframed} you can use
3527 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}]
3528 \surroundwithmdframed{listings}
3529 \end{tltxmdfexample}
3530
3531 \Examplesec{Package multicol}
3532 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with \Pack{mdframed}. In a s
3533 \begin{LTXexample}
3534 \begin{multicols}{2}
3535 \lipsum[1]
3536 \begin{mdframed}
3537 \ExampleText
3538 \end{mdframed}
3539 \lipsum[2]
3540 \end{multicols}
3541 \end{LTXexample}
3542 \clearpage
3543 \twocolumn[\Examplesec{Working in twocolumn mode}]
3544 \begin{tltxmdfexample}
3545 \twocolumn[%
3546     \Examplesec{Working in
3547         twocolumn mode}]
3548 \lipsum[1]\lipsum[2]
3549 \begin{mdframed}[%
3550     leftmargin=10pt,%
3551     rightmargin=10pt,%
3552     linecolor=red,
3553     backgroundcolor=yellow]
3554 \ExampleText
3555 \end{mdframed}
3556 \lipsum[2]
3557 \end{tltxmdfexample}
3558 \lipsum[1]\lipsum[2]
3559 \begin{mdframed}[leftmargin=10pt,%
3560     rightmargin=10pt,%
3561     linecolor=red,
3562     backgroundcolor=yellow]

```

```
3563 \ExampleText
3564 \end{mdframed}
3565 \lipsum[2]
3566 \clearpage
3567 \onecolumn
3568 \Examplesec{Working inside enumerate}
3569 \begin{LTXexample}
3570 Text Text Text Text Text Text Text Text
3571 \begin{enumerate}
3572 \item in the following \ldots
3573     \begin{mdframed}[linecolor=blue,linewidth=2]
3574     \ExampleText
3575     \end{mdframed}
3576 \item \lipsum[2]
3577 \end{enumerate}
3578 Text Text Text Text Text Text
3579 \end{LTXexample}
3580 \end{document}
3581 \endinput
```

## G. Change History

v1.0a		\item\mbox\relax – Need for amsthm	28
General: Created dtx and fixes bugs	1	changed definition of \mdf@lrbox (Thanks Lars Madsen)	27
v1.0b		Changed the enddefinition of mdframed.	
General: added command \@parboxrestore to \mdf@lrbox	27	Uses now \@doendpe instead of \endparenv	35
removed \setbox\mdf@splitbox@two \vbox\unvbox \mdf@splitbox@two	40	Edit algorithm to combine the saveboxes \mdf@frametitlebox and \mdf@splitboxone by the predefined settings: \parskip\z@, \parindent\z@ and \offinterlineskip	31
v1.1beta		v1.2a	
General: added command to avoid overfull box warning by vsplit	28	General: take account of \parskip for the vertical calculation	37
Added frametitle detection to \detected@mdf@put@frame	34	v1.3	
added lost semicolons	54	General: Added option shadow	23
Added method frame title via \savebox	31	Use now \item\mbox\relax	28
Added option frametitlerulecolor, frametitlebackgroundcolor, font	23	v1.3a	
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