

Checksum5147

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

auto-split frame environment

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v1.3

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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.

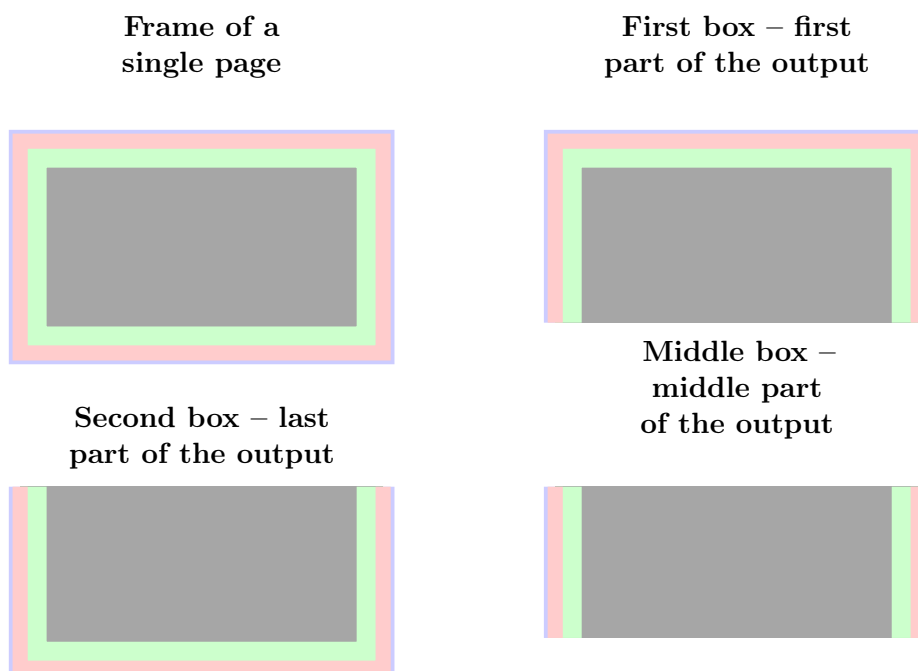


Figure 1: The basic frames

## 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.

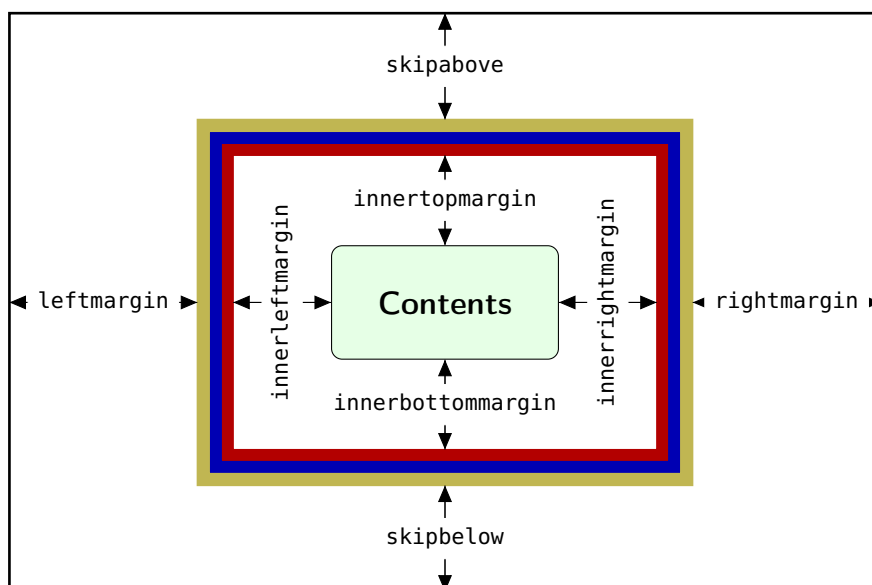


Figure 2: adjustable lengths of mdframed

`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.

## 7. Errors, Warnings and Messages

The package `mdframed` provides different errors, warnings and messages in the `log`-file. Some  $\text{\LaTeX}$ -editors like `TeXMaker` or `TeXStudio` 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 depreciated
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 at mada-nada.de](mailto:marco.daniel@mada-nada.de).

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

1. So far the environment isn't compatible with the package `gmverb`.

## 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.

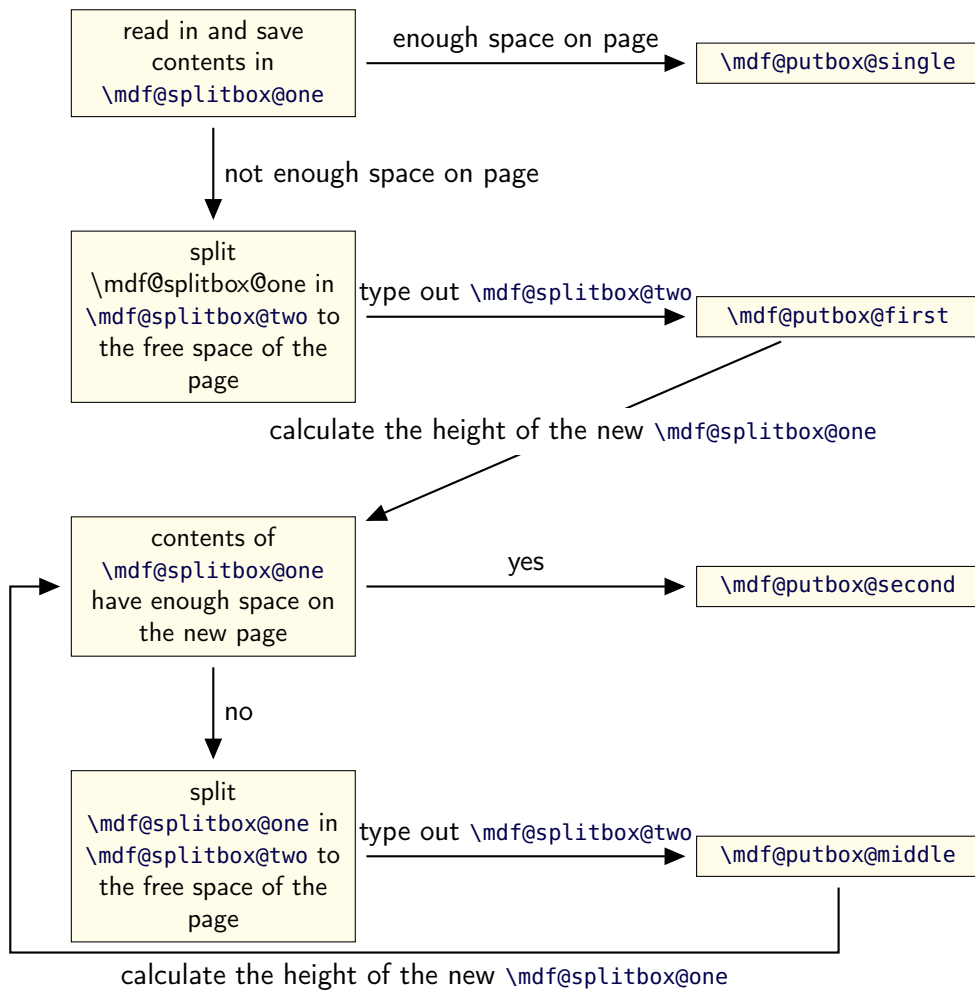


Figure 3: Setting the contents of `mdframed`

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 1.3 submitted 8 Jan 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=PSTricks`. • added new commands for interaction with TikZ and PSTricks • expand frame title option by option `frametitulerule`, `frametitulerulewidth`, `frametitlefont`, `frametitleaboveskip`, `frametitlebelowskip`, `frametitlealignment` • removed limitation of three lines for PSTricks • 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=PSTricks`. • created dtx-file (Thanks to Kevin Godby) • added `\@parboxrestore` to `\mdf@lrbox`

### 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 Madsen) • 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 `twocolumn`-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.dtx3412012-02-04 16:26:51Zmarco Rev : 341 Author : marco*

*Date : 2012-02-04 17:26:51 +0100(Sa, 04.Feb2012)*

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

Set package information

```
1 \def\mdversion{v1.3}
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 341 2012-02-04 16:26:51Z 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{<Laengenbezeichnung>}{<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

```

```

\mdf@lrbox
\endmdf@lrbox

```

Modification of the default `\lrbox` and `\endlrbox`

```

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

```

```

\mdf@ignorevbadness
\mdf@restorevbadness

```

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

`\vsplit?`

```

349 \newrobustcmd*\mdf@ignorevbadness{%
350   \edef\mdf@currentvbadness{\the\vbadness}%
351   \vbadness=\@M%
352   \afterassignment\mdf@restorevbadness}
353 \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`.

```

354 \ifpackageloaded{amsthm}{%
355   \newrobustcmd*\mdf@patchamsthm{%
356     \let\mdf@deferred@thm@head\deferred@thm@head
357     \patchcmd{\deferred@thm@head}{\indent}{\relax}{}{}
358   }%
359 }{\let\mdf@patchamsthm\relax}%

```

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

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

```

360 \def\mdf@trivlist#1{%
361   \setlength{\topsep}{#1}%
362   \partopsep\z@%
363   \parsep\z@%
364   \@nmblistfalse%
365   \@trivlist%
366   \labelwidth\z@%
367   \leftmargin\z@%
368   \itemindent\z@%
369   \let\itemlabel\empty%
370   \def\makelabel##1{##1}%
371   %% \item\leavevmode\hrule \@height\z@ \@width\linewidth\relax%
372   %% \item\mbox{}\relax% second version
373   \item\relax% first Version
374 }
375 \let\endmdf@trivlist\endtrivlist
376 \patchcmd\endmdf@trivlist\endparent\mdf@endparent{}{}
377 \def\mdf@endparent{%
378   \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\endparenttrue}
379

```

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

```

380 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
381   \noindent\hb@xt@\z@{%
382     \noindent\makebox[\dimexpr #1\relax][l]{#2}%
383   \hss}%
384 }%
385 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
386   \noindent\makebox[\dimexpr #1\relax][l]{#2}%
387 }

```

```
\mdfdefinestyle
\mdfapptodefinestyle
```

See explanation of this commands above.

```
388 \newrobustcmd*\mdfdefinestyle[2]{%
389   \csdef{mdf@definestyle@#1}{#2}%
390 }
391 \newrobustcmd*\mdfapptodefinestyle[2]{%
392   \ifcsundef{mdf@definestyle@#1}%
393     {\mdf@PackageWarning{Unknown style #1}}%
394     {\csappto{mdf@definestyle@#1}{, #2}}%
395 }
```

```
\mdflength
\surroundwithmdframed
```

Helper macros to work with *mdframed*

```
396 \newrobustcmd*\mdflength[1]{\csuse{mdf@#1@length}}
397
398 \newrobustcmd*\surroundwithmdframed[2][]{%
399   \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
400   \AfterEndEnvironment{#2}{\end{mdframed}}%
401 }
```

```
\newmdenv
\renewmdenv
\newmdtheoremenv
\mdtheorem
```

Defining of the new environment definitions.

```
402 \newrobustcmd*\newmdenv[2][]{%
403   \newenvironment{#2}{%
404     \mdfsetup{#1}%
405     \begin{mdframed}%
406   }{%
407     \end{mdframed}%
408   }%
409 }
410 \newrobustcmd*\renewmdenv[2][]{%
411   \expandafter\let\csname #2\endcsname\relax%
412   \expandafter\let\csname end#2\endcsname\relax%
413   \newmdenv[#1]{#2}%
414   }%
415
416
417 \DeclareDocumentCommand\newmdtheoremenv{0}{m o m o}{%
418   \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }{%
419     {\newtheorem{#2}{#4}}{%
420       \IfValueTF{#3}{\newtheorem{#2}[#3]{#4}}{%
421         \IfValueTF{#5}{\newtheorem{#2}[#4][#5]}{%
422           }%
423       }%
424     }%
425   }%
426   \BeforeBeginEnvironment{#2}{%
427     \begin{mdframed}[#1]}%
428   }%
429 }
```

```

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

```



```

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

```

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

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

```

509 %TESTVERSION
510 % \newrobustcmd*\mdf@setopt@title{%
511 %   \ifbool{mdf@frametitulerule}{\booltrue{mdf@bottomline}}{\boolfalse{mdf@bottomline}}%
512 %   \let\ifmdf@leftline\ifmdf@frametitleleftline%
513 %   \let\ifmdf@topline\ifmdf@frametitletopline%
514 %   \let\ifmdf@rightline\ifmdf@frametitlerightline%
515 %   \let\ifmdf@bottomline\ifmdf@frametitlebottomline%
516 %   \mdfsetup{innerbottommargin=\mdf@titlebelowskip@length,%
517 %             innertopmargin=\mdf@titleaboveskip@length,%
518 %             middlelinecolor=\mdf@frametitulerulecolor,%
519 %             backgroundcolor=\mdf@frametitlebackgroundcolor,%
520 %             middlelinewidth=\mdf@frametitulerulewidth@length,%
521 %             innerleftmargin=\mdf@frametitleleftmargin@length,%
522 %             innerrightmargin=\mdf@frametitlerightmargin@length,%
523 %             alignment=\mdf@frametitlealignment,%
524 %             skipbelow=\z@}%
525 %   \def\mdf@linecolor@bottom{\color{\mdf@frametitlebottomrulecolor}}%
526 %   \mdf@frametitlesettings%
527 % }

```

```

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

```

```

584 }%
585 \mdf@ignorevbadness%
586 \global\setbox\mdf@splitbox@one\vbox{%
587   \unvbox\mdf@splitbox@one}%
588 \endgroup
589 \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
590 }

```

```
\mdf@checkntheorem
```

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

```

591
592 \newrobustcmd*\mdf@checkntheorem{%
593   \ifbool{mdf@ntheorem}%
594     {\ifundef{\theorempreskipamount}%
595       {\mdf@PackageWarning{You have not loaded ntheorem yet}}%
596       {\setlength{\theorempreskipamount}{\z@}%
597        \setlength{\theorempostskipamount}{\z@}%
598       }%
599     }{}%
600 }

```

```

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

```

Support for footnotes.

```

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

```

```

\mdf@load@style
\mdf@styledefinition

```

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

```

619 \newrobustcmd*\mdf@load@style{%
620   \ifcase\value{mdf@globalstyle@cnt}\relax%
621     \input{md-frame-0.mdf}%
622   \or\input{md-frame-1.mdf}%

```

```

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

`\detected@mdf@put@frame`

Detect whether inside a non breakable environment.

```

659 \let\mdf@reserved@a\@empty
660 \newrobustcmd*{\detected@mdf@put@frame}{%
661   \ifmdf@nobreak%Option nobreak=true?
662   \def\mdf@reserved@a{\mdf@put@frame@standalone}%
663   \else
664     \def\mdf@reserved@a{\mdf@put@frame}%
665     \ifnum\@floatpenalty<0\relax%Detecting float
666       \if@twocolumn%
667         \ifx\@capttype\@undefined
668           \def\mdf@reserved@a{\mdf@put@frame}%
669         \else
670           \mdf@PackageInfo{mdframed inside float ^^J
671                          mdframed uses option nobreak \mdframedpackagename}%
672           \def\mdf@reserved@a{\mdf@put@frame@standalone}%

```

```

673     \fi
674   \else
675     \mdf@PackageInfo{mdframed inside float ^^J
676                     mdframed uses option nobreak \mdframedpackagename}%
677     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
678     \fi%
679   \fi%
680   \if@minipage%
681     \mdf@PackageInfo{mdframed inside minipage ^^J
682                     mdframed uses option nobreak \mdframedpackagename}%
683     \def\mdf@reserved@a{\mdf@put@frame@standalone}%
684     \fi%
685     \ifinner%
686       \mdf@PackageInfo{mdframed inside a box ^^J
687                       mdframed uses option nobreak \mdframedpackagename}%
688       \def\mdf@reserved@a{\mdf@put@frame@standalone}%
689       \fi%
690     \fi%
691   \mdf@reserved@a%
692 }

```

`\mdf@hidealllines@check`

```

693 \newrobustcmd*\mdf@hidealllines@check{%
694   \ifbool{mdf@hidealllines}{%
695     \boolfalse{mdf@leftline}\boolfalse{mdf@rightline}%
696     \boolfalse{mdf@topline}\boolfalse{mdf@bottomline}%
697     \boolfalse{mdf@frametitleleftline}\boolfalse{mdf@frametitlerightline}%
698     \boolfalse{mdf@frametitletopline}\boolfalse{mdf@frametitlebottomline}%
699   }{}%
700 }

```

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

That the user environment.

```

701 \newenvironment{mdframed}[1][{}]{%
702   \begin{group}%
703   \color@setgroup%
704   \mdf@setup{userdefinedwidth=\linewidth,#1}%
705   \mdf@hidealllines@check%
706   \mdf@twoside@checklength%
707   \let\width\z@%
708   \let\height\z@%
709   \mdf@checkntheorem%
710   \mdf@styledefinition%
711   \mdf@footnoteinput%
712   \color{\mdf@fontcolor}%
713   \ifvmode\nointerlineskip\fi%
714   \mdf@trivlist{\mdf@skipabove@length}%
715   \ifdefempty{\mdf@frametitle}{\mdf@@frametitle}%
716   \mdf@settings%

```

```

717 \mdf@lrbox{\mdf@splitbox@one}%
718 }%
719 {\par\unskip%
720 \ifmdf@footnoteinside%
721 \def\mdf@reserveda{%
722 \mdf@footnoteoutput%
723 \endmdf@lrbox%
724 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
725 \detected@mdf@put@frame}%
726 \else%
727 \def\mdf@reserveda{%
728 \endmdf@lrbox%
729 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
730 \detected@mdf@put@frame%
731 \mdf@footnoteoutput%
732 }%
733 \fi%
734 \mdf@reserveda%
735 \endmdf@trivlist%
736 \color@endgroup\endgroup\@doendpe%\@endparenv%
737 }
738
739

```

```

\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.

```

740 \newtoggle{md:checktwoside}
741 \settoggle{md:checktwoside}{false}
742 \newrobustcmd*\mdf@twoside@checklength{%
743 \if@twoside
744 \ifbool{mdf@usetwoside}%
745 {\mdf@PackageInfo{mdframed works in twoside mode}%
746 \settoggle{md:checktwoside}{true}%
747 \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
748 \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
749 }%
750 {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
751 works with oneside mode}%
752 \settoggle{md:checktwoside}{false}%
753 }%
754 \fi%
755 }
756
757 \newcounter{mdf@zref@counter}%keine doppelten laebes
758 \zref@newprop*\mdf@pagevalue}[0]{\number\value{page}}
759 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
760 \newrobustcmd*\mdf@zref@label{%
761 \stepcounter{mdf@zref@counter}
762 \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}%
763 }

```

```

764 \newrobustcmd*\if@mdf@pageodd{%
765     \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}}%
766     \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}{mdf@pagevalue}%
767     \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
768     \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
769     \else
770     \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
771     \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
772     \fi%
773 }
774 \newrobustcmd*\mdf@@setzref{%
775     \iftoggle{md:checktwoside}{\mdf@zref@label\if@mdf@pageodd}{}}%
776 }

```

`\mdf@freepagevspace`

```

777 \newrobustcmd*\mdf@freepagevspace{%
778     \penalty\@M \vskip 2\baselineskip
779     \penalty9999 \vskip -2\baselineskip
780     \penalty9999
781     \ifdimequal{\pagegoal}{\maxdimen}%
782         {\mdf@freevspace@length\vsize}%
783         {\mdf@freevspace@length=\pagegoal\relax%
784         \advance\mdf@freevspace@length by -\pagetotal\relax%
785         \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
786         }%
787 }

```

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

Width of the box

```

788 \newrobustcmd*\mdf@advancelength@horizontalmargin@sub[1]{%
789     \advance\mdf@horizontalsofbox by -\csname md f@#1@length\endcsname\relax%
790 }
791 \newlength\mdf@horizontalsofbox
792 \newrobustcmd*\mdf@horizontalmargin@equation{%
793     \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
794     \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
795         leftmargin,outerlinewidth,middlelinewidth,%
796         innerlinewidth,innerleftmargin,inerrightmargin,%
797         innerlinewidth,middlelinewidth,outerlinewidth,%
798         rightmargin}%
799     \notbool{mdf@leftline}{%
800         \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
801         \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
802         \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
803     }{}%
804     \notbool{mdf@rightline}{%
805         \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
806         \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%

```

```

807         \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
808     }{}%
809     \ifdimless{\mdf@horizontalsofbox}{3cm}%
810         {\mdf@PackageWarning{You have only a width of 3cm}}{}
811     \hsize=\mdf@horizontalsofbox%
812 }

```

`\mdf@keeplines@single`

horizontal space in relation of the lines.

```

813 \newrobustcmd*\mdf@keeplines@single{%
814     \notbool{mdf@topline}{%
815         \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
816         \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
817         \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
818     }{}%
819     \notbool{mdf@bottomline}{%
820         \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
821         \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
822         \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
823     }{}%
824 }

```

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

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

```

825 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
826     \advance\mdf@verticalmarginwhole@length by \csname mdf@#1@length\endcsname\relax%
827 }
828 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
829     \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
830 }
831 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
832     \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
833 }

```

`\mdf@reset`

Reset changes

```

834 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
835     \splittopskip\the\splittopskip}%

```

`\mdf@put@frame@standalone`

Output of `mdframed` inside a non breakable environment.

```

836 \newrobustcmd*\mdf@put@frame@standalone{\relax%
837     \ifvoid\mdf@splitbox@one\relax
838         \mdf@PackageWarning{The environment is empty\MessageBreak}%
839         \let\mdf@reserved@a\relax%
840     \else
841         %Hier berechnung Box-Inhalt+Rahmen oben und unten

```



```

842 \setlength{\mdf@verticalmarginwhole@length}%
843 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
844 \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
845     outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
846     innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
847 \mdf@keeplines@single%
848 \def\mdf@reserved@a{\mdf@putbox@single}%
849 \fi
850 \mdf@reserved@a%
851 }

```

`\mdf@put@frame`

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

```

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

```

`\mdf@put@frame@i`

Output of the first splitted box.

```

886 \def\mdf@put@frame@i{%Box muss gesplittet werden -- Ausgabe der ersten Teilbox

```

```

887 %Berechnung der Splittgroesse -- Linien und Abstand oben
888 %\vbox to 0pt{}%
889 %\rlap{\smash{\the\mdf@freevspace@length}}%\hrule \@height\z@ \@width\hsize
890 \mdf@freepagevspace%gives \mdf@freevspace@length
891 %Berechnung ob nur oberen Linien nur auf die Seite passe
892 \dimen@=\the\mdf@freevspace@length%
893 \dimen@i=\mdf@innertopmargin@length%
894 \advance\dimen@i by \mdf@innerlinewidth@length%
895 \advance\dimen@i by \mdf@middlelinewidth@length%
896 \advance\dimen@i by \mdf@outerlinewidth@length%
897 \advance\dimen@i by 2\baselineskip%
898 \ifdimless{\dimen@}{\dimen@i}%
899   {\hrule \@height\z@ \@width\hsize%
900     \vfill\ject%
901     \def\mdf@reserved@a{\mdf@put@frame}%
902   }{%
903     \mdf@freepagevspace%
904     \dimen@=\the\mdf@freevspace@length%
905     \mdf@dolist{\mdf@advance@length@freevspace@sub}{%calculate with \dimen@
906               outerlinewidth,middlelinewidth,innerlinewidth,%
907               innertopmargin,splitbottomskip}%
908     \ifbool{\mdf@topline}{}%
909       {\advance\dimen@ by \mdf@innerlinewidth@length%
910         \advance\dimen@ by \mdf@middlelinewidth@length%
911         \advance\dimen@ by \mdf@outerlinewidth@length%
912       }%
913     \advance\dimen@.8\pageshrink
914     \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
915       {\mdf@PackageWarning{You got a bad break\MessageBreak
916                           you have to change it manually\MessageBreak
917                           by changing the text, the space\MessageBreak
918                           or something else}%
919       \advance\dimen@ by -1.8\baselineskip\relax%
920     }{%
921 %     \advance\dimen@ by -1pt\relax%Box darf nicht zu Groß werden.
922     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
923     \mdf@ignorevbadness%
924     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
925     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
926     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
927     \ifbool{\mdf@repeatframetitle}{%
928       \setbox\mdf@splitbox@one\vbox{%
929         \vbox to \mdf@splittopskip@length{\hsize\z@}
930         %\par\unskip\nointerlineskip
931         \unvcopy\mdf@frametitlebox%
932         \mdf@@frametitlerule%
933         \vbox to\dimexpr
934           -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
935           +\mdf@innertopmargin@length\relax{\hsize\z@}%
936         \unvbox\mdf@splitbox@one}%
937     }{%
938     \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
939       {%Falsch gesplittet
940       \mdf@PackageInfo{Box was splittet wrong\MessageBreak}%
941       \dimen@i=\dimen@
942       \advance\dimen@ by -\ht\mdf@splitbox@two

```

```

943      \advance\dimen@ by -\dp\mdf@splitbox@two
944      \advance\dimen@i by 0.5\dimen@
945      \splittopskip\z@%
946      \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
947          %benoetigt um Tiefe zu haben
948          \hrule \@height\dp\strutbox \@width\z@
949          \unvbox\mdf@splitbox@one}
950      \splittopskip\mdf@splittopskip@length%
951      \mdf@ignorevbadness%
952      \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
953      \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
954      \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
955      \ifbool{mdf@repeatframetitle}{%
956          \setbox\mdf@splitbox@one\vbox{%
957              \vbox to \mdf@splittopskip@length{\hsize\z@}
958              %\par\unskip\nointerlineskip
959              \unvcopy\mdf@frametitlebox%
960              \mdf@@frametitlerule%
961              \vbox to\dimexpr
962                  -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
963                  +\mdf@innertopmargin@length\relax{\hsize\z@}%
964              \unvbox\mdf@splitbox@one}%
965          }{}%
966      }{}%
967      \ifvoid\mdf@splitbox@one
968          \mdf@PackageWarning{You got a bad break\MessageBreak
969              because the splittet box is empty\MessageBreak
970              You have to change the page settings\MessageBreak
971              like enlargethispage or something else}%
972          \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two%
973              %benoetigt um Tiefe zu haben
974              \hrule \@height\dp\strutbox \@width\z@
975              \unvbox\mdf@splitbox@one}%
976          \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
977          \enlargethispage{\baselineskip}%
978          \def\mdf@reserved@a{\mdf@put@frame}%
979      \fi
980      \ifvoid\mdf@splitbox@two%%pruefe, ob erste Box leer ist
981          \hrule \@height\z@ \@width\hsize
982          \vfill\@eject%
983          \def\mdf@reserved@a{\mdf@put@frame}%
984      \else
985          \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
986              {\hrule \@height\z@ \@width\hsize%
987              \vfill\@eject%
988              \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@two\unvbox\mdf@splitbox@one}
989              \def\mdf@reserved@a{\mdf@put@frame}%
990              }%
991              {%
992              \begingroup%
993                  \mdf@@setzref
994                  \mdf@putbox@first%%Groesse des Splittens passt
995              \endgroup%
996              \hrule \@height\z@ \@width\hsize%
997              \vfill\@eject%
998              \def\mdf@reserved@a{\mdf@put@frame@ii}%

```

```

999      }%
1000    \fi%
1001  }%
1002 \mdf@reserved@a%
1003 }

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```

1004 \def\mdf@put@frame@ii{%Ausgabe der mittleren Box(en) wenn vorhanden
1005   \setlength{\mdf@freevspace@length}{\vsize}%
1006   \setlength{\dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1007   \mdf@dolist{\mdf@advance@length@freevspace@add}{%used \dimen@
1008     outerlinewidth,middlelinewidth,innerlinewidth,%
1009     innerbottommargin}%%Addition der Linien unten
1010   \ifbool{mdf@bottomline}{}%
1011     \advance\dimen@i by \mdf@innerlinewidth@length%
1012     \advance\dimen@i by \mdf@middlelinewidth@length%
1013     \advance\dimen@i by \mdf@outerlinewidth@length%
1014     \relax}%
1015   \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1016     {%
1017     \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1018     \ifbool{mdf@bottomline}{}%
1019       \advance\dimen@i by -\mdf@innerlinewidth@length%
1020       \advance\dimen@i by -\mdf@middlelinewidth@length%
1021       \advance\dimen@i by -\mdf@outerlinewidth@length%
1022       \relax}%
1023     \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1024     \mdf@ignorevbadness%
1025     \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1026     \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%PRUEFEN!!!
1027     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%PRUEFEN!!!!
1028     \ifbool{mdf@repeatframetitle}{%
1029       \setbox\mdf@splitbox@one\vbox{%
1030         \vbox to \mdf@splittopskip@length{\hsize\z@}
1031         %\par\unskip\nointerlineskip
1032         \unvcopy\mdf@frametitlebox%
1033         \mdf@@@frametitulerule%
1034         \vbox to\dimexpr
1035           -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
1036           +\mdf@innertopmargin@length\relax{\hsize\z@}%
1037         \unvbox\mdf@splitbox@one}%
1038       }{%
1039       \ifvoid\mdf@splitbox@one\relax%
1040         \mdf@PackageWarning{You got a bad break\MessageBreak
1041           because the split box is empty\MessageBreak
1042           You have to change the settings}%
1043         \setbox\mdf@splitbox@one{\unvbox\mdf@splitbox@two}%
1044         \def\mdf@reserved@a{\enlargethispage{\baselineskip}\mdf@put@frame@ii}%
1045       \else
1046         \begingroup
1047         \mdf@@@setzref
1048         \mdf@putbox@middle%
1049         \endgroup

```

```

1050      \hrule \@height\z@ \@width\hsize
1051      \vfill\ject
1052      \def\mdf@reserved@a{\mdf@put@frame@ii}%
1053      \fi
1054      }%Hier die Ausgabe der mittleren Box
1055      {\ifvoid\mdf@splitbox@one
1056        \mdf@PackageWarning{You got a bad break\MessageBreak
1057                          because the last split box is empty\MessageBreak
1058                          You have to change the settings}%
1059        \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfbounding
1060      \fi%
1061      \ifdimless{\ht\mdf@splitbox@one}{lsp}{%
1062        \mdf@PackageWarning{You got a bad break\MessageBreak
1063                          because the last split box is empty\MessageBreak
1064                          You have to change the settings}%
1065        %\hb@xt@\z@{\box\mdf@splitbox@one}%
1066        \let\mdf@reserved@a\relax%
1067        \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfboundin
1068      }{}%
1069      \begingroup%
1070        \mdf@@@setzref
1071        \mdf@putbox@second%
1072        \hrule \@height\z@ \@width\hsize%
1073      \endgroup%
1074      \let\mdf@reserved@a\relax%
1075      }%Hier kommt die Ausgabe der letzten Box
1076      \mdf@reserved@a%
1077  }
1078

```

```

\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.

```

1079 %%%      -----t-----
1080 %%%      |               |
1081 %%%      |               |
1082 %%%      |               |
1083 %%%      l|               |r
1084 %%%      |               |
1085 %%%      |               |
1086 %%%      |-----|

```

```

1087 %%%          b
1088 %%Zusammenhaenge abfragen:
1089 \newrobustcmd*{\mdf@test@ltrb}%
1090     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1091                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1092 %3-set
1093 \newrobustcmd*{\mdf@test@ltr}%
1094     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1095                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1096 \newrobustcmd*{\mdf@test@ltb}%
1097     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1098                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1099 \newrobustcmd*{\mdf@test@trb}%
1100     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1101                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1102 \newrobustcmd*{\mdf@test@lrb}%
1103     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1104                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1105 %2-set
1106 \newrobustcmd*{\mdf@test@lb}%
1107     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1108                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1109 \newrobustcmd*{\mdf@test@rb}%
1110     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1111                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1112 \newrobustcmd*{\mdf@test@tr}%
1113     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1114                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1115 \newrobustcmd*{\mdf@test@lt}%
1116     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1117                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1118 \newrobustcmd*{\mdf@test@lr}%
1119     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1120                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1121 \newrobustcmd*{\mdf@test@tb}%
1122     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1123                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1124 %Einzellinien
1125 \newrobustcmd*{\mdf@test@l}%
1126     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1127                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1128 \newrobustcmd*{\mdf@test@r}%
1129     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1130                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1131 \newrobustcmd*{\mdf@test@t}%
1132     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1133                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1134 \newrobustcmd*{\mdf@test@b}%
1135     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1136                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1137 %keine Linien
1138 \newrobustcmd*{\mdf@test@noline}%
1139     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1140                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1141 \newrobustcmd*{\mdf@test@single}%
1142     \ifboolexpr{ not (test {\mdf@test@ltrb} or test {\mdf@test@ltr} or

```

```

1143      test {\mdf@test@ltb} or test {\mdf@test@trb} or
1144      test {\mdf@test@lrb} or test {\mdf@test@lb} or
1145      test {\mdf@test@rb} or test {\mdf@test@tr} or
1146      test {\mdf@test@lt} ) }}
1147 %

1148 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1149 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1150
1151 \endinput

```

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

```

1152 %% Style file for mdframed for package option 'framemethod=default'
1153 %%
1154 %% This package may be distributed under the terms of the LaTeX Project
1155 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1156 %% Either version 1.0 or, at your option, any later version.
1157 %%
1158 %%
1159 %%$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
1160 %

```

```

\mdframed0packagename
\mdf@frame0date@svn

```

local settings

```

1161 \def\mdframed0packagename{md-frame-0}
1162 \def\mdf@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8$#4/#5/#6\space }
1163 \ProvidesFile{md-frame-0.mdf}%
1164     [\mdf@frame0date@svn$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $]
1165     \mdversion: \mdframed0packagename]

```

```

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

```

short command

```

1166 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1167 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1168 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1169 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1170 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1171 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1172 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1173 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1174 \def\mdf@@frametitlerule{%
1175   \ifbool{mdf@frametitlerule}{%
1176     \vbox to \mdf@frametitlerulewidth@length {\hsize\mdfframetitleboxwidth%
1177       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1178       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1179         \mdf@frametitlerulecolor@default%
1180         \rule{\dimexpr\mdfframetitleboxwidth%
1181           +\mdf@innerleftmargin@length
1182           +\mdf@innerrightmargin@length\relax

```

```

1183         }\mdf@frametitlewidth@length}%
1184     }}%
1185 }{}
1186 \par\unskip\vskip\mdf@innertopmargin@length%
1187 }%
1188

```

```

\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`

```

1189 \def\mdf@frame@background@single{%
1190     \ifbool{mdf@shadow}{%
1191         \rlap{\smash{\mdf@shadow@default%
1192             \rule[\dimexpr-\mdfboundingboxdepth
1193                 -\mdf@shadowsize@length
1194                 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
1195                 {\dimexpr\mdfboundingboxtotalwidth
1196                     +\mdf@shadowsize@length
1197                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1198                 {\dimexpr\mdfboundingboxtotalheight
1199                     +\mdf@shadowsize@length
1200                     \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{\relax}%
1201                 }%
1202             }}}%
1203         \rlap{\mdf@background@default%
1204             \rule[-\mdfboundingboxdepth]%
1205                 {\mdfboundingboxtotalwidth}%
1206                 {\mdfboundingboxtotalheight}%
1207             }%
1208     }%
1209 \def\mdf@frame@frametitlebackground@single{%
1210     \rlap{\mdf@frametitlebackground@default%
1211         \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]%
1212             {\mdfboundingboxtotalwidth}%
1213             {\mdfframetitleboxtotalheight}%
1214         }%
1215     }%
1216
1217 \def\mdf@frame@topline@single{%
1218     \rlap{\mdf@linecolor@default%
1219         \ifbool{mdf@topline}{%
1220             \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth%
1221                 +\mdf@innerbottommargin@length+\mdf@innertopmargin@length\relax]%
1222                 {\mdfboundingboxtotalwidth}%
1223                 {\mdf@middlelinewidth@length}}%
1224         }%
1225     }%
1226 }%
1227 \def\mdf@frame@bottomline@single{%
1228     \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1229         \ifbool{mdf@bottomline}{%

```



```

1230     \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1231         {\dimexpr\mdfboundingboxtotalwidth
1232             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1233             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}\relax}%
1234         {\mdf@middlelinewidth@length}}%
1235     }%
1236 }%
1237 }%
1238 \def\mdf@frame@leftline@single{%
1239     \llap{\mdf@linecolor@default%
1240         \rule[-\mdfboundingboxdepth]%
1241             {\mdf@middlelinewidth@length}%
1242             {\dimexpr\mdfboundingboxtotalheight%
1243                 \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}\relax}%
1244         }%
1245     }%
1246 \def\mdf@frame@rightline@single{%
1247     \rlap{\mdf@linecolor@default%
1248         \hspace*{\mdfboundingboxwidth}%
1249         \hspace*{\mdf@innerrightmargin@length}%
1250         \rule[\dimexpr-\mdfboundingboxdepth%
1251             \relax]%
1252             {\mdf@middlelinewidth@length}%
1253             {\dimexpr\mdfboundingboxtotalheight%
1254                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1255         }%
1256     }%
1257 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1258     \ifvoid\mdf@splitbox@one
1259     \else%
1260         \mdf@makebox@out{%
1261             \mdf@makeboxalign@left%
1262             \setlength{\mdfboundingboxwidth}%
1263                 {\wd\mdf@splitbox@one}%
1264             \setlength{\mdfboundingboxtotalwidth}%
1265                 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1266                     +\mdf@innerrightmargin@length\relax}%
1267             \setlength{\mdfboundingboxheight}%
1268                 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1269             \setlength{\mdfboundingboxdepth}%
1270                 {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1271             \setlength{\mdfboundingboxtotalheight}%
1272                 {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1273                     +\mdf@innerbottommargin@length\relax}%
1274             \setlength{\mdftotallinewidth}{%
1275                 \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1276                 +\mdf@outerlinewidth@length}%
1277             \noindent%
1278             \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1279                 +\ifbool{mdf@leftline}%
1280                     {\mdf@middlelinewidth@length}{\z@}%
1281                 +\ifbool{mdf@rightline}%
1282                     {\mdf@middlelinewidth@length}{\z@}\relax}%
1283             \mdf@makebox@in[\@tempdima]{%
1284                 \null%
1285                 \ifbool{mdf@leftline}{%

```

```

1286      \hspace*{\mdftotalllinewidth}%
1287      \mdf@frame@leftline@single%
1288      }{}%
1289      \mdf@frame@topline@single%
1290      \mdf@frame@background@single%
1291      \mdf@frame@bottomline@single%
1292      \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%
1293      \hspace*{\mdf@innerleftmargin@length}%
1294      \ifbool{mdf@rightline}{%
1295        \mdf@frame@rightline@single%
1296      }{}%
1297      {\box\mdf@splitbox@one}%
1298    }%
1299    \mdf@makeboxalign@right%
1300  }%
1301  \fi%
1302 }

```

```

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

```

The first frame of of a splitted contents of mdframed

```

1303 \def\mdf@frame@background@first{%
1304   \ifbool{mdf@shadow}{%
1305     \rlap{\smash{\mdf@shadow@default%
1306       \rule[\dimexpr-\mdfboundingboxdepth
1307         -\mdf@shadowsize@length\relax]%
1308         {\dimexpr\mdfboundingboxtotalwidth
1309           +\mdf@shadowsize@length
1310           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1311         {\dimexpr\mdfboundingboxtotalheight
1312           +\mdf@shadowsize@length\relax}%
1313       }%
1314     }}{}%
1315     \rlap{\mdf@background@default%
1316       \rule[-\mdfboundingboxdepth]%
1317         {\mdfboundingboxtotalwidth}%
1318         {\mdfboundingboxtotalheight}%
1319     }%
1320   }%
1321 \def\mdf@frame@frametitlebackground@first{%
1322   \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1323   {%
1324     \rlap{\mdf@frametitlebackground@default%
1325       \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1326         {\mdfboundingboxtotalwidth}%
1327         {\mdfframetitleboxtotalheight}%
1328     }%
1329     \global\mdfframetitleboxtotalheight=-\p@%
1330   }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1331     Current this isn't well supported}%
1332   \rlap{\mdf@frametitlebackground@default%

```

```

1333     \rule[-\mdfboundingboxdepth]%
1334         {\mdfboundingboxtotalwidth}%
1335         {\mdfboundingboxtotalheight}%
1336     }%
1337     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1338         -\mdfboundingboxheight
1339         +\mdf@frametitlebelowskip@length
1340         +.5\baselineskip-1pt
1341     %
1342         +\dp\strutbox
1343     \relax%
1344 }%
1345 \def\mdf@frame@leftline@first{%
1346     \llap{\mdf@linecolor@default%
1347         \rule[-\mdfboundingboxdepth]%
1348             {\mdf@middlelinewidth@length}%
1349             {\dimexpr\mdfboundingboxtotalheight%
1350                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}\relax}%
1351     }%
1352 }%
1353 \def\mdf@frame@topline@first{%
1354     \rlap{\mdf@linecolor@default%
1355         \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+%
1356             \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]%
1357             {\mdfboundingboxtotalwidth}%
1358             {\mdf@middlelinewidth@length}%
1359         }%
1360     }
1361 \def\mdf@frame@rightline@first{%
1362     \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1363         \hspace*{\mdf@innerrightmargin@length}%
1364         \rule[-\mdfboundingboxdepth]%
1365             {\mdf@middlelinewidth@length}%
1366             {\dimexpr\mdfboundingboxtotalheight%
1367                 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}\relax}%
1368     }%
1369 }%
1370 \def\mdf@putbox@first{%%% Ausgabe der Teilbox 1
1371     \ifvoid\mdf@splitbox@two
1372     \else%
1373         \mdf@makebox@out[\linewidth]{%
1374             \mdf@makeboxalign@left%
1375             \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1376             \setlength{\mdfboundingboxtotalwidth}%
1377                 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1378                     +\mdf@innerrightmargin@length\relax}%
1379             \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1380             \setlength{\mdfboundingboxdepth}%
1381                 {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1382             \setlength{\mdfboundingboxtotalheight}%
1383                 {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1384                     +\mdf@splitbottomskip@length\relax}%
1385             \setlength{\@tempdima}%
1386                 {\dimexpr\mdfboundingboxtotalwidth%
1387                     +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1388                     +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%

```

```

1389         \relax}%
1390     \mdf@makebox@in[\@tempdima]{%
1391         \null%
1392         \ifbool{mdf@leftline}{%
1393             \hspace*{\mdf@middlelinewidth@length}%
1394             \mdf@frame@leftline@first}{}%
1395         \ifbool{mdf@topline}{%
1396             \mdf@frame@topline@first}{}%
1397         \mdf@frame@background@first%
1398         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1399         \hspace*{\mdf@innerleftmargin@length}%
1400         \ifbool{mdf@rightline}{%
1401             \mdf@frame@rightline@first}{}%
1402         {\box\mdf@splitbox@two}%
1403     }%
1404     \mdf@makebox@align@right%
1405 }%
1406 \fi%
1407 }

```

```

\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

```

1408 \def\mdf@frame@background@second{%
1409     \ifbool{mdf@shadow}{%
1410         \rlap{\smash{\mdf@shadow@default%
1411             \rule[\dimexpr-\mdf@boundingboxdepth
1412                 -\mdf@shadowsize@length
1413                 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
1414                 {\dimexpr\mdf@boundingboxtotalwidth
1415                     +\mdf@shadowsize@length
1416                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1417                     {\dimexpr\mdf@boundingboxtotalheight
1418                         +\mdf@shadowsize@length\relax}%
1419                 }%
1420             }}}%
1421         \rlap{\mdf@background@default%
1422             \rule[-\mdf@boundingboxdepth]%
1423                 {\mdf@boundingboxtotalwidth}%
1424                 {\mdf@boundingboxtotalheight}%
1425             }%
1426     }%
1427 \def\mdf@frame@frametitlebackground@second{%
1428     \ifdimless{\mdf@frametitleboxtotalheight}{\z@}%
1429     {%
1430         \rlap{\mdf@frametitlebackground@default%
1431             \rule[\dimexpr-\mdf@boundingboxdepth+\mdf@boundingboxtotalheight-\mdf@frametitleboxtotalheight\relax]
1432                 {\mdf@boundingboxtotalwidth}%
1433                 {\mdf@frametitleboxtotalheight}%
1434             }%
1435     }%

```

```

1436 }%
1437 \def\mdf@frame@leftline@second{%
1438   \llap{\mdf@linecolor@default%
1439     \rule[-\mdfboundingboxdepth]{\mdf@middlelinewidth@length}%
1440     {\dimexpr\mdfboundingboxtotalheight}%
1441   }%
1442 }%
1443 }%
1444 \def\mdf@frame@bottomline@second{%
1445   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1446     \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]{\dimexpr\mdfboundingboxtotalwidth
1447       {\ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{\relax}%
1448         {\mdf@middlelinewidth@length}%
1449       }%
1450     }%
1451   }%
1452 }%
1453 \def\mdf@frame@rightline@second{%
1454   \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1455     \hspace*{\mdf@innerrightmargin@length}%
1456     \rule[-\mdfboundingboxdepth]{\mdf@middlelinewidth@length}%
1457     {\mdfboundingboxtotalheight}%
1458   }%
1459 }%
1460 }%
1461 \def\mdf@putbox@second{%
1462   \ifvoid\mdf@splitbox@one%
1463   \else
1464     \mdf@makebox@out{%
1465       \mdf@makeboxalign@left%
1466       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
1467       \setlength{\mdfboundingboxtotalwidth}{\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length
1468         +\mdf@innerrightmargin@length\relax}%
1469       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1470       \setlength{\mdfboundingboxdepth}{\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1471       \setlength{\mdfboundingboxtotalheight}{\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1472       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth
1473         +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1474         +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1475         \relax}%
1476       \mdf@makebox@in[\@tempdima]{%
1477       \null%
1478       \ifbool{mdf@leftline}{%
1479         \hspace*{\mdf@middlelinewidth@length}%
1480         \mdf@frame@leftline@second}%
1481       \mdf@frame@background@second%
1482       \ifbool{mdf@bottomline}{%
1483         \mdf@frame@bottomline@second}%
1484       \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
1485       \hspace*{\mdf@innerleftmargin@length}%
1486       \ifbool{mdf@rightline}{%
1487         \mdf@frame@rightline@second}%
1488       {\box\mdf@splitbox@one}%
1489     }%
1490   }%
1491 }%

```

```

1492 }%
1493 \mdf@makeboxalign@right%
1494 }%
1495 \fi%
1496 }%

```

```

\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*

```

1497 \def\mdf@frame@leftline@middle{%
1498   \llap{\mdf@linecolor@default%
1499     \rule[-\mdf@boundingboxdepth]%
1500       {\mdf@middlelinewidth@length}%
1501       {\mdf@boundingboxtotalheight}%
1502   }%
1503 }%
1504 \def\mdf@frame@background@middle{%
1505   \ifbool{mdf@shadow}{%
1506     \rlap{\smash{\mdf@shadow@default%
1507       \rule[\dimexpr-\mdf@boundingboxdepth
1508         -\mdf@shadowsize@length\relax]%
1509         {\dimexpr\mdf@boundingboxtotalwidth
1510           +\mdf@shadowsize@length
1511           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}\relax}%
1512       {\dimexpr\mdf@boundingboxtotalheight\relax}%
1513     }%
1514   }{}%
1515   \rlap{\mdf@background@default%
1516     \rule[-\mdf@boundingboxdepth]%
1517       {\mdf@boundingboxtotalwidth}%
1518       {\mdf@boundingboxtotalheight}%
1519   }%
1520 }%
1521 \def\mdf@frame@frametitlebackground@middle{%
1522   \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1523   {%
1524     \rlap{\mdf@frametitlebackground@default%
1525       \rule[\dimexpr-\mdf@boundingboxdepth+\mdf@boundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1526         {\mdf@boundingboxtotalwidth}%
1527         {\mdfframetitleboxtotalheight}%
1528     }%
1529     \global\mdfframetitleboxtotalheight=-\p@ \relax%
1530   }%
1531 }%
1532 \def\mdf@frame@rightline@middle{%
1533   \rlap{\mdf@linecolor@default\hspace*{\mdf@boundingboxwidth}%
1534     \hspace*{\mdf@innerrightmargin@length}%
1535     \rule[-\mdf@boundingboxdepth]%
1536       {\mdf@middlelinewidth@length}%
1537       {\mdf@boundingboxtotalheight}%
1538   }%
1539 }%

```

```

1540 \def\mdf@putbox@middle{%
1541   \ifvoid\mdf@splitbox@two%
1542   \else
1543     \mdf@makebox@out{%
1544       \mdf@makeboxalign@left%
1545       \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1546       \setlength{\mdfboundingboxtotalwidth}%
1547         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1548           +\mdf@innerrightmargin@length\relax}%
1549       \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1550       \setlength{\mdfboundingboxdepth}%
1551         {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1552       \setlength{\mdfboundingboxtotalheight}%
1553         {\dimexpr\mdfboundingboxheight+\mdf@splitbottomskip@length\relax}%
1554       \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1555         +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1556         +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1557         \relax}%
1558       \mdf@makebox@in[\@tempdima]{%
1559         \null%
1560         \ifbool{mdf@leftline}{%
1561           \hspace*{\mdf@middlelinewidth@length}%
1562           \mdf@frame@leftline@middle}{}%
1563         \mdf@frame@background@middle%
1564         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@middle}%
1565         \hspace*{\mdf@innerleftmargin@length}%
1566         \ifbool{mdf@rightline}{%
1567           \mdf@frame@rightline@middle}{}%
1568         {\box\mdf@splitbox@two}%
1569       }%
1570     \mdf@makeboxalign@right%
1571   }
1572 \fi
1573 }

1574 \endinput

```

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

```

1575 %% Style file for mdframed for package option 'framemethod=default'
1576 %%
1577 %% This package may be distributed under the terms of the LaTeX Project
1578 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1579 %% Either version 1.0 or, at your option, any later version.
1580 %%
1581 %%
1582 %%$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
1583 %

```

```

\mdframedIpackagename
\mdf@frameIdate@svn

```

local settings

```

1584 \def\mdframedIpackagename{md-frame-1}
1585 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1586 \ProvidesFile{md-frame-1.mdf}%

```

```

1587      [\mdf@frameIdate@svn$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $ %
1588      \mdversion: \mdframedIpackagename]
1589 %

```

\mdf@tikz@settings

Define settings for tikz

```

1590 %Allgemeine Einstellungen fuer tikz
1591 \def\mdf@tikz@settings{%
1592 %
1593   \tikzset{mdfbox/.style={anchor=south west,%
1594                           inner sep=0pt,%
1595                           outer sep=0pt,%
1596                           \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1597   \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1598   \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1599                                   draw=\mdf@backgroundcolor}}%
1600   \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1601                                               draw=none,%
1602                                               rounded corners={max(\mdf@roundcorner@length%
1603                               -\mdf@innerlinewidth@length%
1604                               -.5\mdf@middlelinewidth@length,0)}}}%
1605 %
1606   \tikzset{mdfouterline/.style={}}%
1607 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1608   \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1609     {\tikzset{mdfouterline/.append style={%
1610         draw=\mdf@outerlinecolor,%
1611         line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
1612 %
1613   \tikzset{mdfinnerline/.style={}}%
1614 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1615   \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1616     {\tikzset{mdfinnerline/.append style={%
1617         draw=\mdf@innerlinecolor,%
1618         line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1619 %
1620   \tikzset{mdfshadow/.style={drop shadow={%
1621       shadow xshift=\mdf@shadowsize@length-2pt,
1622       shadow yshift=-\mdf@shadowsize@length+2pt,
1623       fill=\mdf@shadowcolor,
1624       every shadow }}}%
1625 %
1626   \mdf@tikzset@local
1627   \tikzset{mdfmiddleline/.style={}}%
1628 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1629   \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1630     {\tikzset{mdfmiddleline/.append style={%
1631         preaction={draw=\mdf@middlelinecolor,%
1632                     line width=\mdf@middlelinewidth@length},%
1633         line width=\mdf@middlelinewidth@length,%
1634         tikzsetting}}%
1635     }{}%
1636 }%

```



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

Befehle fuer Ausgabe von Rahmen und Hintergrund

```
1637 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1638     \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1639     \begin{scope}[mdfcorners]%
1640         \clip[preaction=mdfouterline]%
1641             [postaction=mdfbackground]%
1642             [postaction=mdfinnerline]#1;%
1643     \end{scope}%
1644     \path[mdfmiddleline,mdfcorners]#1;
1645 }%
1646
1647
1648
1649 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
1650     \clip(0,0)rectangle(\mdfboundingboxwidth,\mdfboundingboxheight);%
1651     \begin{scope}
1652         \path[mdfouterline,mdfcorners]#1;%
1653         \clip[postaction=mdfbackground]#2;%
1654         \path[mdfinnerline,mdfcorners]#1;%
1655     \end{scope}%
1656     \path[mdfmiddleline,mdfcorners]#1;}%

```

```
\mdf@put@frametitrerule
```

frametitrerule with tikz

```
1657 \tikzset{mdfframetitrerule/.style={%
1658     draw=none,
1659     fill=\mdf@frametitrerulecolor,
1660 }%
1661 }
1662 \def\mdf@@frametitrerule{%
1663     \ifbool{mdf@frametitrerule}{%
1664         \vbox{\hsize0pt
1665             \par\unskip\vskip\mdf@frametitlebelowskip@length
1666             \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
1667             \begingroup%
1668             \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargin@length}%
1669             \tikz\draw[mdfframetitrerule] (0,0)%
1670                 rectangle (\dimen@,\mdf@frametitrerulewidth@length);
1671             \endgroup}
1672         }%
1673     }{}
1674     \par\unskip\vskip\mdf@innertopmargin@length%
1675 }%
1676

```

```
\mdf@putbox@single
```

Output of the non breakable contents.

```
1677 % Info zu den verwendeten Punkten:
1678 % 0 ist die untere linke Ecke der Mitte der middleline

```

```

1679 % P ist die obere rechte Ecke der Mitte der middleline
1680 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1681 %
1682 \def\mdf@putbox@single{%
1683   \ifvoid\mdf@splitbox@one
1684   \else%
1685     \mdf@makebox@out{%
1686       \mdf@makeboxalign@left%
1687       \mdf@tikz@settings%
1688 %
1689       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1690       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1691       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1692       \ifbool{mdf@leftline}{%
1693         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1694         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1695         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1696       \ifbool{mdf@rightline}{%
1697         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1698         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1699         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1700 %
1701       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1702       \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1703       \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1704       \ifbool{mdf@topline}{%
1705         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1706         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1707         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
1708       \ifbool{mdf@bottomline}{%
1709         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1710         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1711         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1712       \mdf@makebox@in[\mdfboundingboxwidth]{%
1713       \null%
1714       \begin{tikzpicture}[remember picture]%
1715         \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1716         \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1717         \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1718         \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1719         \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1720         \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1721         \ifbool{mdf@leftline}%
1722           {%
1723             \pgfmathsetlengthmacro\mdf@Ax%
1724               {\mdf@Ax+\mdf@outerlinewidth@length+
1725                \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1726             \pgfmathsetlengthmacro\mdf@Ox%
1727               {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1728             }{%
1729             \ifbool{mdf@rightline}%
1730               {%
1731                 \pgfmathsetlengthmacro\mdf@Px%
1732                   {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1733                 }{%
1734                   \ifbool{mdf@bottomline}%

```

```

1735     {%
1736     \pgfmathsetlengthmacro\mdf@Ay%
1737         {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
1738         +\mdf@innerlinewidth@length}%
1739     \pgfmathsetlengthmacro\mdf@Oy%
1740         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1741     }{%
1742     \ifbool{mdf@topline}%
1743     {%
1744     \pgfmathsetlengthmacro\mdf@Py%
1745         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1746     }{%
1747     %
1748     \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
1749     \coordinate(P)at(\mdf@Px,\mdf@Py);%
1750     %
1751     \ifbool{mdf@shadow}
1752         {\path[mdfshadow,mdfcorners](0) rectangle (P);}%
1753     %
1754     \begin{scope}[use as bounding box]
1755     \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{%
1756     %
1757     \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{%
1758     \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{%
1759     \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{%
1760     \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{%
1761     %
1762     \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
1763         {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
1764     }{%
1765     \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
1766         {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
1767     }{%
1768     \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
1769         {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
1770     }{%
1771     \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
1772         {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
1773     }{%
1774     \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
1775         {(0)rectangle(P)}%
1776     }{%
1777     \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
1778         {(0)rectangle(P)}%
1779     }{%
1780     %
1781     \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
1782         {(0)rectangle(P)}%
1783     }{%
1784     \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
1785         {(0)rectangle(P)}%
1786     }{%
1787     \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
1788         {(0)rectangle(P)}%
1789     }{%
1790     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%

```

```

1791                                {(0)rectangle(P)}%
1792                                }{}%
1793 %
1794 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
1795 %
1796 %Frametitlebackground
1797 \drawbrackgroundframetitle@single
1798 %
1799 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
1800 \end{scope}
1801 %HIER KOMMT EIN WEITERES MAKRO
1802 \mdfcreateextratikz
1803 \end{tikzpicture}%
1804 }%
1805 \mdf@makeboxalign@right%
1806 }%
1807 \fi
1808 }%
1809 \def\drawbrackgroundframetitle@single{%
1810 \ifdefempty{\mdf@frametitle}{}{}%
1811 \drawbrackgroundframetitle@@single%
1812 }%
1813 }%
1814 \def\drawbrackgroundframetitle@@single{%
1815 \begin{scope}%background frame title
1816 \ifbool{mdf@leftline}{
1817 \pgfmathsetlengthmacro\mdf@0x%
1818 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1819 }{}%
1820 \ifbool{mdf@rightline}{%
1821 \pgfmathsetlengthmacro\mdf@Px%
1822 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1823 }{}%
1824 \ifbool{mdf@topline}{%
1825 \pgfmathsetlengthmacro\mdf@Py%
1826 {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1827 }{}%
1828 \pgfmathsetlengthmacro\mdf@Fy
1829 {\mdf@Py-\mdfframetitleboxtotalheight}
1830 \path[mdfframetitlebackground]
1831 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1832 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
1833 \end{scope}
1834 }

```

\mdf@putbox@first

Output of the first breakable contents.

```

1835 \def\drawbrackgroundframetitle@first{%
1836 \ifdefempty{\mdf@frametitle}{}{}%
1837 \ifdimgreater{\mdf@boundingboxheight}{\mdfframetitleboxtotalheight}%
1838 {%
1839 \drawbrackgroundframetitle@@first
1840 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1841 }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak

```

```

1842             Currently this isn't well supported}%
1843 \drawbackgroundframetitle@@first
1844 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
1845             {\mdfframetitleboxtotalheight-\mdfboundingboxheight-
1846             \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
1847             +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@length%
1848             +\dp\strutbox%
1849             }%
1850 }%
1851 }%
1852 }%
1853 %
1854 \def\drawbackgroundframetitle@@first{%
1855 \begin{scope}%background frame title
1856     \ifbool{mdf@leftline}{%
1857         \pgfmathsetlengthmacro\mdf@0x%
1858             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1859     }{}%
1860     \ifbool{mdf@rightline}{%
1861         \pgfmathsetlengthmacro\mdf@Px%
1862             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1863     }{}%
1864     \ifbool{mdf@topline}{%
1865         \pgfmathsetlengthmacro\mdf@Py%
1866             {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1867     }{}%
1868     \pgfmathsetlengthmacro\mdf@Fy
1869         {max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
1870     \path[mdfframetitlebackground]
1871         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1872         -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
1873 \end{scope}%
1874 }%
1875 %
1876 \def\mdf@putbox@first{%
1877 \ifvoid\mdf@splitbox@two
1878 \else%
1879     \mdf@makebox@out{%
1880     \mdf@makeboxalign@left%
1881     \mdf@tikz@settings%
1882     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
1883     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1884     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1885     \ifbool{mdf@leftline}{%
1886         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1887         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1888         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
1889     \ifbool{mdf@rightline}{%
1890         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1891         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1892         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
1893 %
1894     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1895     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1896     \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
1897     \ifbool{mdf@topline}{%

```

```

1898 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1899 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1900 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1901 %
1902 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
1903 \ifdimgreater{\pagegoal-\maxdimen}{0pt}}{\enlargethispage{\baselineskip}}%
1904 \mdf@makebox@in[\mdfboundingboxwidth]{%
1905 \null%
1906 \begin{tikzpicture}[remember picture]
1907 %
1908 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1909 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
1910 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1911 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1912 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1913 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1914 \ifbool{mdf@leftline}{%
1915 {%
1916 \pgfmathsetlengthmacro\mdf@Ax%
1917 {\mdf@Ax+\mdf@outerlinewidth@length+
1918 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1919 \pgfmathsetlengthmacro\mdf@Ox%
1920 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1921 }}}%
1922 \ifbool{mdf@rightline}{%
1923 \pgfmathsetlengthmacro\mdf@Px%
1924 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1925 }}}%
1926 \ifbool{mdf@topline}{%
1927 \pgfmathsetlengthmacro\mdf@Py%
1928 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1929 }}}%
1930 %
1931 \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
1932 \coordinate(P)at(\mdf@Px,\mdf@Py);%
1933 %
1934 \ifbool{mdf@shadow}{
1935 {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}}}%
1936 %
1937 \begin{scope}[use as bounding box]
1938 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
1939 {\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}%
1940 {}%
1941 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
1942 {\mdf@tikzbox@otl{(0)--(0|-P)--(P)}{(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}}%
1943 {}%
1944 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
1945 {\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}{(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}}%
1946 {}%
1947 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
1948 {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
1949 {}%
1950 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
1951 {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1952 {}%
1953 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%

```

```

1954      {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
1955      }%
1956      \ifbool{test {\mdf@test@rb} or test {\mdf@test@r}}%
1957      {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1958      }%
1959      \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
1960 %
1961      \mdf@test@noline{\path[mdfbackground,mdfcorners](0)--(0|-P)--(P)--(P|-0);}%
1962 %
1963      \drawbackgroundframetitle@first
1964 %
1965      \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfügen
1966      \end{scope}
1967      %HIER KOMMT EIN WEITERES MAKRO
1968      \mdfcreateextratikz%
1969      \end{tikzpicture}%
1970      }%
1971      \mdf@makeboxalign@right%
1972      }%
1973      \fi
1974      }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

1975 \def\drawbackgroundframetitle@middle{%
1976   \ifdefempty{\mdf@frametitle}{}{}%
1977   \ifdimless{\mdfframetitleboxtotalheight}{\z@}
1978   {}{}%
1979   \drawbackgroundframetitle@@middle%
1980   \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1981   }%
1982   }%
1983   }%
1984   %
1985   \def\drawbackgroundframetitle@@middle{%
1986     \begin{scope}%background frame title
1987       \ifbool{mdf@leftline}{
1988         \pgfmathsetlengthmacro\mdf@0x%
1989           {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1990         }{}%
1991       \ifbool{mdf@rightline}{%
1992         \pgfmathsetlengthmacro\mdf@Px%
1993           {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1994         }{}%
1995       \pgfmathsetlengthmacro\mdf@Fy
1996         {\mdf@Py-\mdfframetitleboxtotalheight}
1997       \path[mdfframetitlebackground,rounded corners=\z@]
1998         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1999         -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2000       \end{scope}
2001     }%
2002     %
2003     \def\mdf@putbox@middle{%
2004       \ifvoid\mdf@splitbox@two

```



```

2005 \else%
2006     \mdf@makebox@out{%
2007     \mdf@makebox@align@left%
2008     \mdf@tikz@settings%
2009 %
2010     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2011     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2012     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2013     \ifbool{mdf@leftline}{%
2014         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2015         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2016         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2017     \ifbool{mdf@rightline}{%
2018         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2019         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2020         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2021 %
2022     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2023     \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2024 %
2025     \mdf@makebox@in[\mdfboundingboxwidth]{%
2026     \null%
2027     \begin{tikzpicture}[remember picture]
2028         \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2029         \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2030         \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2031         \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2032         \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2033         \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2034         \ifbool{mdf@leftline}%
2035         {%
2036             \pgfmathsetlengthmacro\mdf@Ax%
2037                 {\mdf@Ax+\mdf@outerlinewidth@length+
2038                 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2039             \pgfmathsetlengthmacro\mdf@Ox%
2040                 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2041             }{%
2042         \ifbool{mdf@rightline}%
2043         {%
2044             \pgfmathsetlengthmacro\mdf@Px%
2045                 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2046             }{%
2047 %
2048         \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2049         \coordinate(P)at(\mdf@Px,\mdf@Py);%
2050 %
2051         \ifbool{mdf@shadow}
2052         {\path[mdfshadow](0) rectangle (P);}%
2053 %
2054         \begin{scope}[use as bounding box]
2055             \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2056                 {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{%
2057             \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2058                 {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{%
2059             \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2060                 {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{%

```



```

2061      \ifbool{expr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}%
2062          {\path[mdfbackground](0)rectangle(P);}%
2063 %
2064      \drawbackgroundframetitle@middle
2065 %
2066      \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2067      \end{scope}
2068      %HIER KOMMT EIN WEITERES MAKRO
2069      \mdfcreateextratikz
2070      \end{tikzpicture}%
2071      }%
2072      \mdf@makeboxalign@right%
2073      }%
2074 \fi
2075 }%

```

`\mdf@putbox@second`

Output of the last breakable contents.

```

2076 \def\drawbackgroundframetitle@second{%
2077   \ifdefempty{\mdf@frametitle}{}%
2078   \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2079   {%
2080     \drawbackgroundframetitle@@second%
2081   }%
2082 }%
2083 }%
2084 %
2085 \def\drawbackgroundframetitle@@second{%
2086   \begin{scope}%background frame title
2087     \ifbool{mdf@leftline}{
2088       \pgfmathsetlengthmacro\mdf@0x%
2089         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2090     }{%
2091       \ifbool{mdf@rightline}{%
2092         \pgfmathsetlengthmacro\mdf@Px%
2093           {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2094       }{%
2095         \pgfmathsetlengthmacro\mdf@Fy
2096           {\mdf@Py-\mdfframetitleboxtotalheight}
2097         \path[mdfframetitlebackground,rounded corners=\z@]
2098           (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2099           -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2100       }
2101     }
2102   \end{scope}
2103 }%
2104 \def\mdf@putbox@second{%
2105   \ifvoid\mdf@splitbox@one
2106   \else%
2107     \mdf@makebox@out{%
2108       \mdf@makeboxalign@left%
2109       \mdf@tikz@settings%
2110     }%
2111     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2112     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2113     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%

```

```

2112 \ifbool{mdf@leftline}{%
2113   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2114   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2115   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2116 \ifbool{mdf@rightline}{%
2117   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2118   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2119   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2120 %
2121 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2122 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2123 \ifbool{mdf@bottomline}{%
2124   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2125   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2126   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2127 %
2128 \mdf@makebox@in[\mdfboundingboxwidth]{%
2129 \null%
2130 \begin{tikzpicture}[remember picture]
2131   \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2132   \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2133   \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2134   \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2135   \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2136   \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2137   \ifbool{mdf@leftline}%
2138     {%
2139     \pgfmathsetlengthmacro\mdf@Ax%
2140       {\mdf@Ax+\mdf@outerlinewidth@length+%
2141        \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2142     \pgfmathsetlengthmacro\mdf@Ox%
2143       {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2144     }{}%
2145   \ifbool{mdf@rightline}%
2146     {%
2147     \pgfmathsetlengthmacro\mdf@Px%
2148       {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2149     }{}%
2150   \ifbool{mdf@bottomline}%
2151     {%
2152     \pgfmathsetlengthmacro\mdf@Ay%
2153       {\mdf@Ay+\mdf@outerlinewidth@length+%
2154        \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2155     \pgfmathsetlengthmacro\mdf@Oy%
2156       {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2157     }{}%
2158 %
2159   \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2160   \coordinate(P)at(\mdf@Px,\mdf@Py);%
2161 %
2162   \ifbool{mdf@shadow}
2163     {\path[mdfshadow] (0|-P) to[mdfcorners] (0) to[mdfcorners] (P|-0) -- (P) -- (0|-P);}%
2164 %
2165   \begin{scope}[use as bounding box]
2166     \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2167       {\mdf@tikzbox@tfl{(P|-0) -- (0) -- (0|-P) -- (P)}}%

```

```

2168     {}%
2169     \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2170     {\mdf@tikzbox@otl{(P|-|0)--(0)--(0|-|P)}{(P)--(P|-|0)[mdfcorners]--(0)--(0|-|P)}}%
2171     {}%
2172     \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2173     {\mdf@tikzbox@otl{(P)--(P|-|0)--(0)}{(0|-|P)--(P)[mdfcorners]--(P|-|0)--(0)}}%
2174     {}%
2175     \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2176     {\mdf@tikzbox@otl{(0)--(0|-|P)(P)--(P|-|0)}{(0)rectangle(P)}}%
2177     {}%
2178     \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2179     {\mdf@tikzbox@otl{(0)--(0|-|P)}{(0)rectangle(P)}}%
2180     {}%
2181     \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2182     {\mdf@tikzbox@otl{(0)--(0|-|P)}{(0)rectangle(P)}}%
2183     {}%
2184     \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2185     {\mdf@tikzbox@otl{(0|-|P)--(P)}{(0)rectangle(P)}}%
2186     {}%
2187     \mdf@test@t{\path[mdfbackground,mdfcorners](0|-|P)--(0)--(0|-|P)--(P);}%
2188 %
2189     \mdf@test@online{\path[mdfbackground,mdfcorners](0|-|P)--(0)--(0|-|P)--(P);}%
2190 %
2191     \drawbackgroundframetitle@second
2192 %
2193     \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2194     \end{scope}
2195     %HIER KOMMT EIN WEITERES MAKRO
2196     \mdfcreateextratikz
2197     \end{tikzpicture}%
2198     }%
2199     \mdf@makeboxalign@right%
2200 }%
2201 \fi
2202 }%

2203 \endinput

```

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

```

2204 %% Style file for mdframed for package option 'framemethod=default'
2205 %%
2206 %% This package may be distributed under the terms of the LaTeX Project
2207 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2208 %% Either version 1.0 or, at your option, any later version.
2209 %%
2210 %%
2211 %%$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
2212 %

```

```

\mdframedIIPackagename
\mdf@frameIIDate@svn

```

local settings

```

2213 \def\mdframedIIPackagename{md-frame-2}
2214 \def\mdf@frameIIDate@svn$#1: #2 #3 #4-#5-#6 #7 #8$#{#4/#5/#6\space }

```

```

2215 \ProvidesFile{md-frame-2.mdf}%
2216      [\mdf@frameIIdate@svn$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $ %
2217      \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

2218 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2219 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname mdf@#1@length\endcsname} \pst@number\psxunit o
2220 \let\ptTps\mdf@ptlength@to@pscode\relax
2221 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlestyle
\mdfframetitlebackground

```

background and line settings for pstricks

```

2222 \def\mdfpstricks@settings{%expand by \addtopsstyle
2223   \newsstyle{mdfbackgroundstyle}%
2224   {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2225    fillcolor=\mdf@backgroundcolor,linestyle=none,%
2226    ,dimen=middle,%
2227   }%
2228 %
2229 \newsstyle{mdfframetitlebackgroundstyle}{%
2230   linecolor=\mdf@frametitlebackgroundcolor,
2231   fillcolor=\mdf@frametitlebackgroundcolor,
2232   fillstyle=solid,linestyle=none,
2233   linearc=\ifdimgreater{\mdf@roundcorner@length%
2234             -\mdf@innerlinewidth@length%
2235             -.5\mdf@middlelinewidth@length}%
2236   {\z@}{\dimexpr\mdf@roundcorner@length%
2237             -\mdf@innerlinewidth@length%
2238             -.5\mdf@middlelinewidth@length}{\z@},
2239   }
2240 %
2241 \newsstyle{mdfouterlinestyle}{linestyle=none}%
2242 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}%
2243   {\newsstyle{mdfouterlinestyle}{%
2244     linecolor=\mdf@outerlinecolor,%
2245     linewidth=\dimexpr2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length\relax,
2246     dimen=middle,
2247   }}}%
2248 %
2249 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
2250 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2251   {\newsstyle{mdfinnerlinestyle}{%
2252     linecolor=\mdf@innerlinecolor,%
2253     linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2254     dimen=middle,
2255   }}}%
2256 %
2257 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%

```

```

2258 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,shadowsize=\mdf@shadowsize@length}%
2259 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2260   {\newsstyle{mdfmiddlelinestyle}{%
2261     linewidth=\mdf@middlelinewidth@length,%
2262     linecolor=\mdf@middlelinecolor,dimen=middle
2263   }}}%
2264 \mdfpstricks@appendsettings
2265 }%
2266 %
2267 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
2268   \psframe[style=mdfouterlinestyle](#1)(#2)%ausen=3mm
2269   \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2270   \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2271   \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2272   \endpsclip
2273   \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2274 }%
2275 \newrobustcmd*\mdf@pstricksbox@tl[1]{%three lines
2276   \psline[style=mdfouterlinestyle]#1%ausen=3mm
2277   \psline[style=mdfbackgroundstyle]#1%Hintergrund
2278   \psclip{\psline[style=mdfmiddlelinestyle]#1}
2279   \psline[style=mdfinnerlinestyle]#1%innere=3mm
2280   \endpsclip
2281   \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2282 }%
2283 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
2284 %%#1 background comple
2285 %%#2 line path
2286   \psline[style=mdfouterlinestyle]#2%ausen=3mm
2287   \psline[style=mdfbackgroundstyle]#2%Hintergrund
2288   \psclip{\pscustom[linestyle=none]{
2289     \psline[style=mdfmiddlelinestyle]#2
2290     \psline[linestyle=none,lineararc=0pt]#1}
2291   }
2292   \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2293   \psline[style=mdfinnerlinestyle]#2%innere=3mm
2294   \endpsclip
2295   \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2296 }%
2297 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
2298 \begingroup
2299   \psset{lineararc=0pt}
2300   \psline[style=mdfouterlinestyle](mdf@0)#1%ausen=3mm
2301   \psline[style=mdfouterlinestyle](mdf@P)#2%ausen=3mm
2302   \psclip{
2303     \pscustom[linestyle=none]{%
2304       \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2305       \psline[linestyle=none](mdf@0)#2
2306       \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2307       \psline[linestyle=none](mdf@P)#1
2308     }%
2309   }%
2310   \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2311   \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2312   \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2313   \endpsclip

```

```

2314 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2315 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2316 \endgroup
2317 }%
2318 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2319 \begin{group
2320 \psset{linearc=0pt}
2321 \psline[style=mdfouterlinestyle]#1%ausser=3mm
2322 \psline[style=mdfbackgroundstyle]#1%Hintergrund
2323 \psclip{\pscustom[linestyle=none]{
2324 \psline[style=mdfmiddlelinestyle]#1
2325 \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2326 }}
2327 \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2328 \psline[style=mdfinnerlinestyle]#1%innere=3mm
2329 \endpsclip
2330 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2331 \endgroup%
2332 }%
2333
2334 %
2335 \newpsstyle{mdfframetitrerule}{%
2336 linecolor=\mdf@frametitrerulecolor,%
2337 fillcolor=\mdf@frametitrerulecolor,%
2338 fillstyle=solid,dimen=outer,%
2339 }
2340 %

```

\mdf@put@frametitrerule

frametitrerule with pstricks

```

2341 \def\mdf@@frametitrerule{%
2342 \ifbool{mdf@frametitrerule}{%
2343 \vbox{\hsize0pt
2344 \par\unskip\vskip\mdf@frametitlebelowskip@length
2345 \noindent\rlap{%
2346 \begin{group}%
2347 \begin{pspicture}(0,0)(0,\mdf@frametitrerulewidth@length)
2348 \psframe[style=mdfframetitrerule](!\ptTpsL{innerleftmargin} neg 0)%
2349 (! \ptTpsL{innerrightmargin}
2350 \ptTps{\mdfframetitleboxwidth} add \ptTpsL{frametitrerulewidth})
2351 \end{pspicture}
2352 \end{group}}
2353 }%
2354 }{}
2355 \par\unskip\vskip\mdf@innertopmargin@length%
2356 }%
2357 %
2358 % \begin{macro}{mdf@putbox@single}
2359 % Single output
2360 % \begin{macrocode}
2361 % Info zu den verwendeten Punkten:
2362 % 0 ist die untere linke Ecke der Mitte der middleline
2363 % P ist die obere rechte Ecke der Mitte der middleline
2364 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox

```

```

2365 \def\mdf@putbox@single{%
2366   \ifvoid\mdf@splitbox@one
2367   \else%
2368     \mdf@makebox@out{%
2369       \mdf@makeboxalign@left%
2370       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2371       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2372       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2373       \ifbool{mdf@leftline}{%
2374         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2375         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2376         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2377       \ifbool{mdf@rightline}{%
2378         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2379         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2380         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2381 %
2382 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2383 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2384 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2385 \ifbool{mdf@topline}{%
2386   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2387   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2388   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2389 \ifbool{mdf@bottomline}{%
2390   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2391   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2392   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2393 %
2394 \setlength\mdftotallinewidth{\dimexpr\mdf@innerlinewidth@length%
2395                               +\mdf@middlelinewidth@length
2396                               +\mdf@outerlinewidth@length\relax}%
2397 \psset{unit=1truecm}%
2398 \mdf@makebox@in[\mdfboundingboxwidth]{%
2399   \null%
2400   \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2401     \mdf@psstricks@settings%
2402     \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2403     \expandafter\psset\expandafter{\mdf@psset@local}%
2404     \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2405     \pnode(0,0){mdf@0}
2406     \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2407     \ifbool{mdf@leftline}%
2408     {%
2409       \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2410              +(\mdf@middlelinewidth@length,0)
2411              +(\mdf@innerlinewidth@length,0)}}{mdf@A}%
2412       \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2413              +0.5(\mdf@middlelinewidth@length,0)}}{mdf@0}%
2414     }{}%
2415     \ifbool{mdf@rightline}%
2416     {%
2417       \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2418              -0.5(\mdf@middlelinewidth@length,0)}}{mdf@P}%
2419     }{}%
2420     \ifbool{mdf@bottomline}%

```



```

2421 {%
2422   \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2423           +(0,\mdf@middlelinewidth@length)
2424           +(0,\mdf@innerlinewidth@length)}{mdf@A}%
2425   \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2426           +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
2427   }{}%
2428 \ifbool{mdf@topline}%
2429 {%
2430   \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
2431           -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2432   }{}%
2433 \ifbool{mdf@shadow}
2434   {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2435 % \psclip{%
2436 %Four lines
2437   \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
2438 %three lines
2439   \mdf@test@ltb{\mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@P|mdf@P)(mdf@P)}}{}
2440   \mdf@test@trb{\mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
2441   \mdf@test@ltr{\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
2442   \mdf@test@lrb{\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2443 %two lines combined
2444   \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2445               {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2446   \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2447               {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2448   \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2449               {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2450   \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
2451               {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
2452 %two lines not combined combined
2453   \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
2454               {}}
2455   \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
2456               {}}
2457 %single line
2458   \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2459   \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2460   \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
2461   \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2462 %no line
2463   \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}
2464 % }
2465 %Frametitlebackground
2466   \drawbackgroundframetitle@single
2467 %output%
2468   \rput[bl](mdf@A){\box\mdf@splitbox@one}
2469 %   \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2470 %   \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2471 %   \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2472 %
2473 %   \endpsclip
2474 \end{pspicture}%
2475 }%
2476 \mdf@makeboxalign@right%

```



```

2477 }%
2478 \fi
2479 }%
2480 \def\drawbackgroundframetitle@single{%
2481 \ifdefempty{\mdf@frametitle}{}%
2482 \drawbackgroundframetitle@@single%
2483 }%
2484 }%
2485 \def\drawbackgroundframetitle@@single{%
2486 \begingroup%
2487 \ifbool{mdf@leftline}{%
2488 \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
2489 +0.5(\mdf@middlelinewidth@length,0)}{\mdf@0}%
2490 }{}%
2491 \ifbool{mdf@rightline}{%
2492 \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
2493 -0.5(\mdf@middlelinewidth@length,0)}{\mdf@P}%
2494 }{}%
2495 \ifbool{mdf@topline}{%
2496 \nodexn{(\mdf@P)-(0,\mdf@innerlinewidth@length)
2497 -0.5(0,\mdf@middlelinewidth@length)}{\mdf@P}%
2498 }{}%
2499 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{\mdf@F}%
2500 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2501 (mdf@P)(mdf@P|mdf@F)%
2502 \endgroup
2503 }

```

\mdf@putbox@first

First output

```

2504 \def\mdf@putbox@first{%
2505 \ifvoid\mdf@splitbox@two
2506 \else%
2507 \mdf@makebox@out{%
2508 \mdf@makeboxalign@left%
2509 %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2510 \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@two}%
2511 \advance\mdf@boundingboxwidth by \mdf@innerleftmargin@length\relax%
2512 \advance\mdf@boundingboxwidth by \mdf@innerrightmargin@length\relax%
2513 \ifbool{mdf@leftline}{%
2514 \advance\mdf@boundingboxwidth by \mdf@innerlinewidth@length\relax%
2515 \advance\mdf@boundingboxwidth by \mdf@middlelinewidth@length\relax%
2516 \advance\mdf@boundingboxwidth by \mdf@outerlinewidth@length\relax}%
2517 \ifbool{mdf@rightline}{%
2518 \advance\mdf@boundingboxwidth by \mdf@innerlinewidth@length\relax%
2519 \advance\mdf@boundingboxwidth by \mdf@middlelinewidth@length\relax%
2520 \advance\mdf@boundingboxwidth by \mdf@outerlinewidth@length\relax}%
2521 \setlength\mdf@boundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2522 \advance\mdf@boundingboxheight by \mdf@innertopmargin@length\relax%
2523 \advance\mdf@boundingboxheight by \mdf@splitbottomskip@length\relax%
2524 \ifbool{mdf@topline}{%
2525 \advance\mdf@boundingboxheight by \mdf@innerlinewidth@length\relax%
2526 \advance\mdf@boundingboxheight by \mdf@middlelinewidth@length\relax%
2527 \advance\mdf@boundingboxheight by \mdf@outerlinewidth@length\relax}%

```

```

2528 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolute}%
2529 \expandafter\psset\expandafter{\mdf@psset@local}%
2530 \mdf@makebox@in[\mdf@boundingboxwidth]{%
2531 \null%
2532 \psset{unit=1truecm}%
2533 \ifdimgreater{\mdf@boundingboxheight}{\vsize}
2534 {\begin{pspicture}(0,0)(\mdf@boundingboxwidth,\vsize)}
2535 {\begin{pspicture}(0,0)(\mdf@boundingboxwidth,\mdf@boundingboxheight)}
2536 \mdfpstricks@settings%
2537 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,%}
2538 \expandafter\psset\expandafter{\mdf@psset@local}%
2539 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2540 \pnode(0,0){mdf@0}
2541 \pnode(\mdf@boundingboxwidth,\mdf@boundingboxheight){mdf@P}
2542 \ifbool{mdf@leftline}%
2543 {%
2544 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2545 +(\mdf@middlelinewidth@length,0)
2546 +(\mdf@innerlinewidth@length,0)}{mdf@A}
2547 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2548 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2549 }{}%
2550 \ifbool{mdf@rightline}%
2551 {%
2552 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2553 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2554 }{}%
2555 \ifbool{mdf@topline}%
2556 {%
2557 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
2558 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2559 }{}%
2560 \ifbool{mdf@shadow}
2561 {\pscustom[style=mdfshadow, linestyle=none]{%
2562 \psline[linejoin=2, linecap=1,](\mdf@P|\mdf@0)(\mdf@P)(\mdf@0|\mdf@P)%
2563 \psline[linejoin=2, linecap=1, lineararc=\z@](\mdf@0|\mdf@P)(\mdf@0)(\mdf@P|\mdf@0)
2564 \closedshadow
2565 }
2566 }{}
2567 % \psclip{
2568 %Four or Three lines
2569 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2570 {\mdf@pstricksbox@tl{(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}}%
2571 {}%
2572 %two combined lines
2573 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2574 {\mdf@pstricksbox@tcl{(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}%
2575 {(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)}}{}
2576 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2577 {\mdf@pstricksbox@tcl{(\mdf@P|\mdf@0)(\mdf@0)(\mdf@0|\mdf@P)}%
2578 {(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}}{}
2579 %two not combined lines
2580 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2581 {\mdf@pstricksbox@tncl{(\mdf@0|\mdf@P)}{(\mdf@P|\mdf@0)}}{}
2582 %single line
2583 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%

```

```

2584      {\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
2585      \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2586      {\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
2587      \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2588      {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
2589      %no line
2590      \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}%
2591      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}%
2592 %    }
2593 %Frametitlebackground
2594     \drawbackgroundframetitle@first
2595     %output%
2596     \rput[bl](mdf@A){\box\mdf@splitbox@two}
2597 %     \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2598 %     \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2599 %     \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2600 %     \endpsclip
2601     \end{pspicture}
2602   }%
2603   \mdf@makeboxalign@right%
2604 }%
2605 \fi
2606 }%
2607 \def\drawbackgroundframetitle@first{%
2608   \ifdefempty{\mdf@frametitle}}{}%
2609   \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
2610   {%
2611     \drawbackgroundframetitle@@first
2612     \global\mdfframetitleboxtotalheight=-\p@%
2613   }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2614     Currently this isn't well supported}%
2615     \drawbackgroundframetitle@@first
2616     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
2617       -\mdfboundingboxheight
2618       -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2619       +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
2620       +\mdf@splittopskip@length
2621       +\dp\strutbox\relax%
2622   }%
2623 }%
2624 }%
2625 \def\drawbackgroundframetitle@@first{%
2626   \begingroup%
2627     \ifbool{mdf@leftline}{%
2628       \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
2629         +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
2630     }{}%
2631     \ifbool{mdf@rightline}{%
2632       \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2633         -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2634     }{}%
2635     \ifbool{mdf@topline}{%
2636       \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2637         -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2638     }{}%
2639     \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}

```

```

2640      {\nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}}%
2641      {\nodexn{(mdf@0)}{mdf@F}}%
2642      \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2643              (mdf@P)(mdf@P|mdf@F)%
2644  \endgroup
2645 }

```

\mdf@putbox@middle

Middle output

```

2646 \def\mdf@putbox@middle{%
2647   \ifvoid\mdf@splitbox@two
2648   \else%
2649     \mdf@makebox@out{%
2650       \mdf@makeboxalign@left%
2651       % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2652       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2653       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2654       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2655       \ifbool{mdf@leftline}{%
2656         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2657         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2658         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2659       \ifbool{mdf@rightline}{%
2660         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2661         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2662         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2663       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2664       \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2665       \psset{unit=1truecm}%
2666       \mdf@makebox@in[\mdfboundingboxwidth]{%
2667         \null%
2668         \ifdimgreater{\mdfboundingboxheight}{\vsize}
2669           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2670           {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2671             \mdfpstricks@settings%
2672             \psset{lineararc=0pt, cornersize=absolut,}%
2673             \expandafter\psset\expandafter{\mdf@psset@local}%
2674             %%%
2675             \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2676             \pnode(0,0){mdf@0}
2677             \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2678             \ifbool{mdf@leftline}%
2679               {%
2680                 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2681                   +(\mdf@middlelinewidth@length,0)
2682                   +(\mdf@innerlinewidth@length,0)}{mdf@A}
2683                 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2684                   +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2685               }{}%
2686             \ifbool{mdf@rightline}%
2687               {%
2688                 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2689                   -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2690               }{}%

```

```

2691 %%
2692 %%
2693 \ifbool{mdf@shadow}
2694   {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2695 \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2696   {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
2697 \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2698   {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}%
2699 \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2700   {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}%
2701 \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2702   {\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2703 %Frametitlebackground
2704 \drawbackgroundframetitle@middle
2705 %output%
2706 \rput[bl](mdf@A){\box\mdf@splitbox@two}
2707 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2708 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2709 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2710 \end{pspicture}%
2711 }%
2712 \mdf@makeboxalign@right%
2713 }%
2714 \fi
2715 }%
2716 \def\drawbackgroundframetitle@middle{%
2717 \ifdefempty{\mdf@frametitle}}{}%
2718 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2719 {}{}%
2720 \drawbackgroundframetitle@@middle
2721 \global\mdfframetitleboxtotalheight=-\p@{\relax%
2722 }%
2723 }%
2724 }%
2725 \def\drawbackgroundframetitle@@middle{%
2726 \begingroup%
2727 \ifbool{mdf@leftline}{%
2728   \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
2729     +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2730   }{}%
2731 \ifbool{mdf@rightline}{%
2732   \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2733     -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2734   }{}%
2735 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2736 \psline[style=mdfframetitlebackgroundstyle,lineararc=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
2737   (mdf@P)(mdf@P|mdf@F)%
2738 \endgroup
2739 }

```

\mdf@putbox@second

Last output

```

2740 \def\mdf@putbox@second{
2741   \ifvoid\mdf@splitbox@one

```

```

2742 \else%
2743 \mdf@makebox@out{%
2744 \mdf@makeboxalign@left%
2745 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{%
2746 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2747 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2748 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2749 \ifbool{mdf@leftline}{%
2750 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2751 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2752 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2753 \ifbool{mdf@rightline}{%
2754 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2755 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2756 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2757 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2758 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2759 \ifbool{mdf@bottomline}{%
2760 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2761 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2762 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2763 \psset{unit=1truecm}%
2764 \mdf@makebox@in[\mdfboundingboxwidth]{%
2765 \null%
2766 \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2767 \mdfpstricks@settings%
2768 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2769 \expandafter\psset\expandafter{\mdf@psset@local}%
2770 \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2771 \pnode(0,0){mdf@0}
2772 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2773 \ifbool{mdf@leftline}%
2774 {%
2775 \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2776 +(\mdf@middlelinewidth@length,0)
2777 +(\mdf@innerlinewidth@length,0)}{mdf@A}
2778 \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2779 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2780 }{%
2781 \ifbool{mdf@rightline}%
2782 {%
2783 \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2784 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2785 }{%
2786 \ifbool{mdf@bottomline}%
2787 {%
2788 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2789 +(0,\mdf@middlelinewidth@length)
2790 +(0,\mdf@innerlinewidth@length)}{mdf@A}
2791 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2792 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}
2793 }{%
2794 %%
2795 \ifbool{mdf@shadow}
2796 {\pscustom[style=mdfshadow,linestyle=none]{%
2797 \psline[linejoin=2,linecap=1,](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)%

```

```

2798         \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@P)
2799         \closedshadow
2800     }
2801 }{}
2802 %Four + Three
2803 \ifbool{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}{%
2804     {\mdf@pstricksbox@tl{(\mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2805 %Two combined
2806 \ifbool{test {\mdf@test@ltb} or test {\mdf@test@lb}}{%
2807     {\mdf@pstricksbox@tcl{(\mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}%
2808         {(\mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}%
2809 \ifbool{test {\mdf@test@trb} or test {\mdf@test@rb}}{%
2810     {\mdf@pstricksbox@tcl{(\mdf@P)(mdf@0|mdf@P)(mdf@0)}}%
2811         {(\mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2812 %Two not combined
2813 \ifbool{test {\mdf@test@ltr} or test {\mdf@test@lr}}{%
2814     {\mdf@pstricksbox@tncl{(\mdf@0|mdf@P)}}{(\mdf@P|mdf@0)}}{}%
2815 %one line
2816 \ifbool{test {\mdf@test@tb} or test {\mdf@test@b}}{%
2817     {\mdf@pstricksbox@ol{(\mdf@0)(mdf@P|mdf@0)}}{}%
2818 \ifbool{test {\mdf@test@lt} or test {\mdf@test@l}}{%
2819     {\mdf@pstricksbox@ol{(\mdf@0)(mdf@0|mdf@P)}}{}%
2820 \ifbool{test {\mdf@test@tr} or test {\mdf@test@r}}{%
2821     {\mdf@pstricksbox@ol{(\mdf@P)(mdf@P|mdf@0)}}{}%
2822 %no line
2823 \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
2824 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
2825 %Frametitlebackground
2826 \drawbackgroundframetitle@second
2827 %output%
2828 \rput[bl](mdf@A){\box\mdf@splitbox@one}
2829 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2830 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2831 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2832 \end{pspicture}%
2833 }%
2834 \mdf@makeboxalign@right%
2835 }%
2836 \fi
2837 }%
2838 \def\drawbackgroundframetitle@second{%
2839 \ifdefempty{\mdf@frametitle}}{}{%
2840 \ifdimless{\mdf@frametitleboxtotalheight}{\z@}
2841 {}{}%
2842 \drawbackgroundframetitle@@second
2843 }%
2844 }%
2845 }%
2846 \def\drawbackgroundframetitle@@second{%
2847 \begingroup%
2848 \ifbool{mdf@leftline}{%
2849     \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
2850         +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2851     }{}%
2852 \ifbool{mdf@rightline}{%
2853     \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)

```



```

2854             -0.5(\mdf@middlelinewidth@length,0)){mdf@P}%
2855         }{}%
2856     \nodexn{(\mdf@P) - (0,\mdfframetitleboxtotalheight)}{mdf@F}%
2857     \psline[style=mdfframetitlebackgroundstyle,linearcs=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
2858             (mdf@P)(mdf@P|mdf@F)%
2859 \endgroup
2860 }

2861 \endinput
2862 %eof

```

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

```

2863 %Documentation of the package mdframed
2864 %$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
2865 \setcounter{errorcontextlines}{999}
2866 \documentclass[parskip=false,english,11pt]{ltxmdf}
2867 \ltxmdfsetifoot $Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
2868
2869 \usepackage{showexpl}
2870 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
2871
2872 \newcommand\Loadedframemethod{default}
2873 \usepackage[framemethod=\Loadedframemethod]{mdframed}
2874
2875 \title{The \Pack{mdframed} package}
2876 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
2877 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
2878 \date{\mdfdateID$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $}
2879 \version{\mdversion}
2880 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
2881 Some presented examples are more or less exorbitant.}
2882
2883 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2884 \newrobustcmd\ExampleText{%
2885     An \textit{inhomogeneous linear} differential equation has the form
2886     \begin{align}
2887         L[v] &= f,
2888     \end{align}
2889     where  $L$  is a linear differential operator,  $v$  is
2890     the dependent variable, and  $f$  is a given non-zero
2891     function of the independent variables alone.
2892 }
2893
2894 \newcounter{examplecount}
2895 \setcounter{examplecount}{0}
2896 \renewcommand\thesubsection{}
2897 \newcommand\Examplesec[1]{%
2898 \stepcounter{examplecount}%
2899 \subsection{Example~\arabic{examplecount}~---~\#1\relax}%
2900 }
2901
2902 \begin{document}
2903 \maketitle
2904 \section{Loading}

```



```

2905 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
2906
2907 {\large\color{red!50!black}
2908 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
2909
2910 \section{Examples}
2911 All examples have the following settings:
2912
2913 \begin{tltxmdfexample}
2914 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2915 \newrobustcmd\ExampleText{%
2916 An \textit{inhomogeneous linear} differential equation
2917 has the form
2918 \begin{align}
2919 L[v] = f,
2920 \end{align}
2921 where  $L$  is a linear differential operator,  $v$  is
2922 the dependent variable, and  $f$  is a given non-zero
2923 function of the independent variables alone.
2924 }
2925 \end{tltxmdfexample}
2926 \clearpage
2927 \Examplesec{very simple}
2928 \begin{LTXexample}
2929 \global\mdfdefinestyle{exampledefault}{%
2930     linecolor=red,linewidth=3pt,%
2931     leftmargin=1cm,rightmargin=1cm
2932 }
2933 \begin{mdframed}[style=exampledefault]
2934 \ExampleText
2935 \end{mdframed}
2936 \end{LTXexample}
2937
2938 \Examplesec{hidden line + frame title}
2939 \begin{LTXexample}
2940 \global\mdfapptodefinestyle{exampledefault}{%
2941     topline=false,rightline=true,bottomline=false}
2942 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2943 \ExampleText
2944 \end{mdframed}
2945 \end{LTXexample}
2946 \clearpage
2947
2948 \Examplesec{colored frame title}
2949 \begin{LTXexample}
2950
2951 \global\mdfapptodefinestyle{exampledefault}{%
2952     rightline=true,innerleftmargin=10,innerrightmargin=10,
2953     frametitlerule=true,frametitlerulecolor=green,
2954     frametitlebackgroundcolor=yellow,
2955     frametitlerulewidth=2pt}
2956 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2957 \ExampleText
2958 \end{mdframed}
2959 \end{LTXexample}
2960

```

```

2961 \Examplesec{framed picture which is centered}
2962 \begin{LTXexample}
2963 \begin{mdframed}[userdefinedwidth=6cm,align=center,
2964                 linecolor=blue,linewidth=4pt]
2965 \includegraphics[width=\linewidth]{donald-duck}
2966 \end{mdframed}
2967 \end{LTXexample}
2968
2969 \clearpage
2970 \Examplesec{Theorem environments}
2971 \begin{LTXexample}
2972 \mdfdefinestyle{theoremstyle}{%
2973     linecolor=red,linewidth=2pt,%
2974     frametitle=rule=true,%
2975     frametitlebackgroundcolor=gray!20,
2976     innertopmargin=\topskip,
2977 }
2978 \mdtheorem[style=theoremstyle]{definition}{Definition}
2979 \begin{definition}
2980 \ExampleText
2981 \end{definition}
2982 \begin{definition}[Inhomogeneous linear]
2983 \ExampleText
2984 \end{definition}
2985 \begin{definition*}[Inhomogeneous linear]
2986 \ExampleText
2987 \end{definition*}
2988 \end{LTXexample}
2989
2990
2991 \clearpage
2992 \Examplesec{theorem with separate header and the help of TikZ (complex)}
2993 \begin{LTXexample}
2994 \newcounter{theo}[section]
2995 \newenvironment{theo}[1][1]{%
2996     \stepcounter{theo}%
2997     \ifstrempy{#1}%
2998     {\mdfsetup{%
2999         frametitle={%
3000             \tikz[baseline=(current bounding box.east),outer sep=0pt]
3001             \node[anchor=east,rectangle,fill=blue!20]
3002             {\strut Theorem~\thetheo};}}
3003     }%
3004     {\mdfsetup{%
3005         frametitle={%
3006             \tikz[baseline=(current bounding box.east),outer sep=0pt]
3007             \node[anchor=east,rectangle,fill=blue!20]
3008             {\strut Theorem~\thetheo:~#1};}}%
3009     }%
3010     \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3011               linewidth=2pt,topline=true,
3012               frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3013     \begin{mdframed}[]\relax%
3014     }\end{mdframed}}
3015 \begin{theo}[Inhomogeneous Linear]
3016 \ExampleText

```

```

3017 \end{theo}
3018
3019 \begin{theo}
3020 \ExampleText
3021 \end{theo}
3022 \end{LTXexample}
3023
3024 \clearpage
3025 \Examplesec{hide only a part of a line}
3026 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3027 \begin{LTXexample}
3028 \makeatletter
3029 \newlength{\interruptlength}
3030 \setlength{\interruptlength}{2.5ex}
3031 \newrobustcmd\overlaplines{%
3032   \appto\mdf@frame@leftline@single{%
3033     \llap{\color{white}%
3034       \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
3035         {\mdf@middlelinewidth@length}%
3036         {\dimexpr\mdfboundingboxtotalheight%
3037           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
3038         -2\interruptlength\relax}%
3039     }%
3040   }%
3041   \appto\mdf@frame@rightline@single{%
3042     \rlap{\color{white}%
3043       \hspace*{\mdfboundingboxwidth}%
3044       \hspace*{\mdf@innerrightmargin@length}%
3045       \rule[\dimexpr-\mdfboundingboxdepth%
3046         +\interruptlength\relax]{%
3047         {\mdf@middlelinewidth@length}%
3048         {\dimexpr\mdfboundingboxtotalheight%
3049           +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}
3050         -2\interruptlength\relax}%
3051     }%
3052   }%
3053 }
3054 \makeatother
3055 \overlaplines
3056
3057 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3058 \ExampleText
3059 \end{mdframed}
3060 \end{LTXexample}
3061 \end{document}
3062 \endinput

```

## D. The file *mdframed-example-tikz*

```

3063 %Documenation of the package mdframed
3064 %%$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
3065 \setcounter{errorcontextlines}{999}
3066 \documentclass[parskip=false,english,11pt]{ltxmdf}
3067 \ltxmdfsetifoot $Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
3068
3069

```

```

3070 \usepackage{showexpl}
3071 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3072
3073 \newcommand\Loadedframemethod{TikZ}
3074 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3075
3076 \title{The \Pack{mdframed} package}
3077 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3078 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3079 \date{\mdfdateID$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $}
3080 \version{\mdversion}
3081 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3082 Some presented examples are more or less exorbitant.}
3083
3084 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3085 \newrobustcmd\ExampleText{%
3086     An \textit{inhomogeneous linear} differential equation has the form
3087     \begin{align}
3088         L[v] = f,
3089     \end{align}
3090     where  $L$  is a linear differential operator,  $v$  is
3091     the dependent variable, and  $f$  is a given non-zero
3092     function of the independent variables alone.
3093 }
3094
3095 \newcounter{examplecount}
3096 \setcounter{examplecount}{0}
3097 \renewcommand\thesubsection{}
3098 \newcommand\Examplesec[1]{%
3099 \stepcounter{examplecount}%
3100 \subsection{Example~\arabic{examplecount}~---~\#1\relax}%
3101 }
3102
3103 \begin{document}
3104 \maketitle
3105 \section{Loading}
3106 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3107
3108 {\large\color{red!50!black}
3109 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3110
3111 \section{Examples}
3112 All examples have the following settings:
3113
3114 \begin{tltxmdfexample}
3115 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3116 \newrobustcmd\ExampleText{%
3117 An \textit{inhomogeneous linear} differential equation
3118 has the form
3119 \begin{align}
3120 L[v] = f,
3121 \end{align}
3122 where  $L$  is a linear differential operator,  $v$  is
3123 the dependent variable, and  $f$  is a given non-zero
3124 function of the independent variables alone.
3125 }

```

```

3126 \end{tltxmdfexample}
3127 \clearpage
3128 \ExampleText{round corner}
3129 \begin{LTXexample}
3130 \global\mdfdefinestyle{exampledefault}{%
3131     outerlinewidth=5pt,innerlinewidth=0pt,
3132     outerlinecolor=red,roundcorner=5pt
3133 }
3134 \begin{mdframed}[style=exampledefault]
3135 \ExampleText
3136 \end{mdframed}
3137 \end{LTXexample}
3138
3139 \Examplesec{hidden line + frame title}
3140 \begin{LTXexample}
3141 \global\mdfapptodefinestyle{exampledefault}{%
3142     topline=false,leftline=false,}
3143 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3144 \ExampleText
3145 \end{mdframed}
3146 \end{LTXexample}
3147 \clearpage
3148 \Examplesec{framed picture which is centered}
3149 \begin{LTXexample}
3150 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3151     linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3152 \includegraphics[width=\linewidth]{donald-duck}
3153 \end{mdframed}
3154 \end{LTXexample}
3155
3156 \Examplesec{Gimmick}
3157 \begin{LTXexample}
3158 \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
3159     innerrightmargin=2cm,innertopmargin=1cm,%
3160     innerlinewidth=2pt,outerlinewidth=2pt,
3161     middlelinewidth=10pt,backgroundcolor=red,
3162     linecolor=blue,middlelinecolor=gray,
3163     tikzsetting={draw=yellow,line width=3pt,%
3164         dashed,%
3165         dash pattern= on 10pt off 3pt},
3166     rightline=false,bottomline=false}
3167 \begin{mdframed}
3168 \ExampleText
3169 \end{mdframed}
3170 \end{LTXexample}
3171
3172 \Examplesec{complex example with TikZ}
3173
3174 \begin{tltxmdfexample}
3175 \tikzstyle{titregris} =
3176     [draw=gray, thick, fill=white, shading = exersicetitle, %
3177     text=gray, rectangle, rounded corners,
3178     right,minimum height=.7cm]
3179
3180 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3181 {color(0bp)=(green!40);

```

```

3182 color(100bp)=(black!5)}
3183
3184 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3185 {color(0bp)=(red!40);
3186 color(100bp)=(black!5)}
3187
3188 \newcounter{exercise}
3189 \renewcommand\theexercise{Exercise~\n\arabic{exercise}}
3190 \makeatletter
3191 \def\mdf@@exercisepoints{}
3192 \define@key{mdf}{exercisepoints}{%
3193   \def\mdf@@exercisepoints{#1}
3194 }
3195 \renewrobustcmd\mdfcreateextratikz{%
3196   \node[titregris,xshift=1cm] at (P-|0) %
3197     {\mdf@frametitlefont{\theexercise}~};
3198   \ifdefempty{\mdf@@exercisepoints}%
3199     {}%
3200     {\node[titregris,left,xshift=-1cm] at (P)%
3201       {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3202 }
3203 \makeatother
3204
3205 \mdfdefinestyle{exercisestyle}{%
3206   outerlinewidth=1pt,
3207   innerlinewidth=0pt,
3208   roundcorner=2pt,
3209   linecolor=gray,
3210   tikzsetting={shading = exersicebackground},
3211   innertopmargin=1.2\baselineskip,
3212   skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3213   needspace=3\baselineskip,
3214   frametitlefont=\sffamily\bfseries,
3215   settings={\global\stepcounter{exercise}},
3216 }
3217
3218 \begin{mdframed}[style=exercisestyle,]
3219 \ExampleText
3220 \end{mdframed}
3221
3222 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3223 \ExampleText
3224 \end{mdframed}
3225 \end{tltxmdfexample}
3226
3227 \tikzstyle{titregris} =
3228   [draw=gray, thick, fill=white, shading = exersicetitle, %
3229   text=gray, rectangle, rounded corners,
3230   right,minimum height=.7cm]
3231
3232 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3233 {color(0bp)=(green!40);
3234 color(100bp)=(black!5)}
3235
3236 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3237 {color(0bp)=(red!40);

```

```

3238 color(100bp)=(black!5)}
3239
3240 \newcounter{exercise}
3241 \renewcommand\theexercise{Exercise~\arabic{exercise}}
3242 \makeatletter
3243 \def\mdf@@exercisepoints{}
3244 \define@key{mdf}{exercisepoints}{%
3245     \def\mdf@@exercisepoints{#1}
3246 }
3247 \newrobustcmd\mdfcreateextratikzlocal{%
3248     \node[titregris,xshift=1cm] at (P-|0) {\textbf{\theexercise}~};
3249     \ifdefempty{\mdf@@exercisepoints}%
3250     {%
3251         \node[titregris,left,xshift=-1cm] at (P)%
3252         {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3253 }
3254 \makeatother
3255
3256 \mdfdefinestyle{exercisestyle}{%
3257     outerlinewidth=1pt,
3258     innerlinewidth=0pt,
3259     roundcorner=2pt,
3260     linecolor=gray,
3261     tikzsetting={shading = exersicebackground},
3262     innertopmargin=1.2\baselineskip,
3263     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3264     needspace=3\baselineskip,
3265     frametitlefont=\sfamily\bfseries,
3266     settings={\global\stepcounter{exercise}\let\mdfcreateextratikz\mdfcreateextratikzlocal},
3267 }
3268
3269 \begin{mdframed}[style=exercisestyle,]
3270 \ExampleText
3271 \end{mdframed}
3272
3273 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3274 \ExampleText
3275 \end{mdframed}
3276
3277 \clearpage
3278 \Examplesec{Theorem environments}
3279 \begin{LTxexample}
3280 \mdfdefinestyle{theoremstyle}{%
3281     linecolor=red,linewidth=2pt,%
3282     frametitlerule=true,%
3283     apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3284         shade,left color=white, right color=blue!20}}},
3285     frametitlerulecolor=green!60,
3286     frametitlerulewidth=1pt,
3287     innertopmargin=\topskip,
3288 }
3289 \mdtheorem[style=theoremstyle]{definition}{Definition}
3290 \begin{definition}[Inhomogeneous linear]
3291 \ExampleText
3292 \end{definition}
3293 \begin{definition*}[Inhomogeneous linear]

```

```

3294 \ExampleText
3295 \end{definition*}
3296 \end{LTXexample}
3297
3298 \end{document}
3299 \endinput

```

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

```

3300 %Documenation of the package mdframed
3301 %$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
3302 \setcounter{errorcontextlines}{999}
3303 \documentclass[parskip=false,english,11pt]{ltxmdf}
3304 \ltxmdfsetifoot$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
3305
3306 \lstDeleteShortInline{||}
3307 \newcommand\Loadedframemethod{PSTricks}
3308 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3309
3310 \usepackage{showexpl}
3311 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3312
3313 \title{The \Pack{mdframed} package}
3314 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3315 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3316 \date{\mdfdateID$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $}
3317 \version{\mdversion}
3318 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3319 Some presented examples are more or less exorbitant.}
3320
3321 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3322 \newrobustcmd\ExampleText{%
3323     An \textit{inhomogeneous linear} differential equation has the form
3324     \begin{align}
3325         L[v] &= f,
3326     \end{align}
3327     where  $L$  is a linear differential operator,  $v$  is
3328     the dependent variable, and  $f$  is a given non-zero
3329     function of the independent variables alone.
3330 }
3331
3332 \newcounter{examplecount}
3333 \setcounter{examplecount}{0}
3334 \renewcommand\thesubsection{}
3335 \newcommand\Examplesec[1]{%
3336 \stepcounter{examplecount}%
3337 \subsection{Example~\arabic{examplecount}~---~\relax}%
3338 }
3339
3340 \begin{document}
3341 \maketitle
3342 \section{Loading}
3343 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3344
3345 {\large\color{red!50!black}
3346 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}

```



```

3347 X
3348 \section{Examples}
3349 All examples have the following settings:
3350
3351 \begin{tltxmdfexample}
3352 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3353 \newrobustcmd\ExampleText{%
3354 An \textit{inhomogeneous linear} differential equation
3355 has the form
3356 \begin{align}
3357 L[v] = f,
3358 \end{align}
3359 where  $L$  is a linear differential operator,  $v$  is
3360 the dependent variable, and  $f$  is a given non-zero
3361 function of the independent variables alone.
3362 }
3363 \end{tltxmdfexample}
3364 \clearpage
3365
3366 \Examplesec{very simple}
3367 \begin{LTExample}
3368 \global\mdfdefinestyle{exampledefault}{%
3369     linecolor=red,middlelinewidth=3pt,%
3370     leftmargin=1cm,rightmargin=1cm
3371 }
3372 \begin{mdframed}[style=exampledefault,roundcorner=5]
3373 \ExampleText
3374 \end{mdframed}
3375 \end{LTExample}
3376
3377 \Examplesec{hidden line + frame title}
3378 \begin{LTExample}
3379 \global\mdfapptodefinestyle{exampledefault}{%
3380     topline=false,rightline=false,bottomline=false,
3381     frametitlerule=true,innertopmargin=6pt,
3382     outerlinewidth=6pt,outerlinecolor=blue,
3383     pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
3384     innerlinecolor=yellow,innerlinewidth=5pt}%
3385 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3386 \ExampleText
3387 \end{mdframed}
3388 \end{LTExample}
3389
3390 \clearpage
3391
3392 \Examplesec{Dash Lines}
3393 \begin{LTExample}
3394 \global\mdfdefinestyle{exampledefault}{%
3395     pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
3396 \begin{mdframed}[style=exampledefault,]
3397 \ExampleText
3398 \end{mdframed}
3399 \end{LTExample}
3400
3401 \Examplesec{Double Lines}
3402 \begin{LTExample}

```

```

3403 \global\mdfdefinestyle{exampledefault}{%
3404   pstrickssetting={doubleline=true,doublesep=6pt},
3405   linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3406 \begin{mdframed}[style=exampledefault,]
3407 \ExampleText
3408 \end{mdframed}
3409 \end{LTXexample}
3410
3411 \Examplesec{Shadow frame}
3412 \begin{LTXexample}
3413 \newmdenv[shadow=true,
3414           shadowsize=11pt,
3415           linewidth=8pt,
3416           frametitlerule=true,
3417           roundcorner=10pt,
3418           ]{myshadowbox}
3419 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
3420 \ExampleText
3421 \end{myshadowbox}
3422 \end{LTXexample}
3423 \end{document}
3424 \endinput

```

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

```

3425 %Documenation of the package mdframed
3426 %$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
3427 \setcounter{errorcontextlines}{999}
3428 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}
3429 \ltxmdfsetifoot $Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $
3430
3431
3432 \usepackage{showexpl}
3433 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},}
3434
3435 \newcommand\Loadedframemethod{default}
3436 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3437
3438 \title{The \Pack{mdframed} package}
3439 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3440 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3441 \date{\mdfdateID$Id: mdframed.dtx 341 2012-02-04 16:26:51Z marco $}
3442 \version{\mdversion}
3443 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3444 Some presented examples are more or less exorbitant.}
3445
3446 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3447 \newrobustcmd\ExampleText{%
3448   An \textit{inhomogeneous linear} differential equation has the form
3449   \begin{align}
3450     L[v] &= f,
3451   \end{align}
3452   where  $L$  is a linear differential operator,  $v$  is
3453   the dependent variable, and  $f$  is a given non-zero
3454   function of the independent variables alone.
3455 }

```

```

3456
3457 \newcounter{examplecount}
3458 \setcounter{examplecount}{0}
3459 \renewcommand\thesubsection{}
3460 \newcommand\Examplesec[1]{%
3461 \stepcounter{examplecount}%
3462 \subsection{Example~\arabic{examplecount}~---\#1\relax}%
3463 }
3464
3465 \begin{document}
3466 \maketitle
3467 \section{Loading}
3468 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3469
3470 {\large\color{red!50!black}
3471 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3472
3473 \section{Examples}
3474 All examples have the following settings:
3475
3476 \begin{tltxmdfexample}
3477 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3478 \newrobustcmd\ExampleText{%
3479 An \textit{inhomogeneous linear} differential equation
3480 has the form
3481 \begin{align}
3482 L[v] = f,
3483 \end{align}
3484 where  $L$  is a linear differential operator,  $v$  is
3485 the dependent variable, and  $f$  is a given non-zero
3486 function of the independent variables alone.
3487 }
3488 \end{tltxmdfexample}
3489 \clearpage
3490 \Examplesec{Package listings}
3491 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3492
3493 Here the solution which can be decorate as usual.
3494
3495 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}
3496 \BeforeBeginEnvironment{lstlisting}{%
3497 \begin{mdframed}[<modification>%
3498 \vspace{-0.7em}}
3499 \AfterEndEnvironment{lstlisting}{%
3500 \vspace{-0.5em}%
3501 \end{mdframed}}
3502 \end{tltxmdfexample}
3503
3504 With the new command \Cmd{surroundwithmdframed} you can use
3505 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}
3506 \surroundwithmdframed{listings}
3507 \end{tltxmdfexample}
3508
3509 \Examplesec{Package multicol}
3510 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with \Pack{mdframed}. In a s
3511 \begin{LTXexample}

```

```

3512 \begin{multicols}{2}
3513 \lipsum[1]
3514 \begin{mdframed}
3515 \ExampleText
3516 \end{mdframed}
3517 \lipsum[2]
3518 \end{multicols}
3519 \end{LTExample}
3520 \clearpage
3521 \twocolumn[\Examplesec{Working in twocolumn mode}]
3522 \begin{tltxmdfexample}
3523 \twocolumn[%
3524   \Examplesec{Working in
3525     twocolumn mode}]
3526 \lipsum[1]\lipsum[2]
3527 \begin{mdframed}[%
3528   leftmargin=10pt,%
3529   rightmargin=10pt,%
3530   linecolor=red,
3531   backgroundcolor=yellow]
3532 \ExampleText
3533 \end{mdframed}
3534 \lipsum[2]
3535 \end{tltxmdfexample}
3536 \lipsum[1]\lipsum[2]
3537 \begin{mdframed}[leftmargin=10pt,%
3538   rightmargin=10pt,%
3539   linecolor=red,
3540   backgroundcolor=yellow]
3541 \ExampleText
3542 \end{mdframed}
3543 \lipsum[2]
3544 \clearpage
3545 \onecolumn
3546 \Examplesec{Working inside enumerate}
3547 \begin{LTExample}
3548 Text Text Text Text Text Text Text Text
3549 \begin{enumerate}
3550 \item in the following \ldots
3551   \begin{mdframed}[linecolor=blue,linewidth=2]
3552     \ExampleText
3553   \end{mdframed}
3554 \item \lipsum[2]
3555 \end{enumerate}
3556 Text Text Text Text Text Text
3557 \end{LTExample}
3558 \end{document}
3559 \endinput

```

## G. Change History

v1.0a		Removing <code>\@arrayparboxrestore</code> . . . . .	38
General: Created dtx and fixes bugs . . . . .	1	Renamed some commands so that every command have the same prefix <code>\mdf@</code> ..	1
v1.0b			
General: added command <code>\@parboxrestore</code> to <code>\mdf@lrbox</code> . . . . .	28		
removed <code>\setbox\mdf@splitbox@two</code> <code>\vbox\unvbox \mdf@splitbox@two</code> . . .	40		
v1.1beta			
General: added command to avoid overfull box warning by <code>vsplit</code> . . . . .	28		
Added <code>frametitle</code> detection to <code>\detected@mdf@put@frame</code> . . . . .	35		
added lost semicolons . . . . .	54		
Added method frame title via <code>\savebox</code>	32		
Added option <code>frametitlerulecolor</code> , <code>frametitlebackgroundcolor</code> , <code>font</code> . . .	24		
Added option <code>titleaboveskip</code> , <code>titlebelowskip</code> , <code>frametitlerulewidth</code>	23		
Added option <code>usetwoside</code> . . . . .	24		
Changed the definition of <code>\mdf@trivlist</code>	36		
Create new <code>\savebox</code> and renamed <code>\@tempboxa</code> . . . . .	27		
Defining <code>mdframed</code> with <code>\newenvironment</code>	36		
Joining all new definitions . . . . .	27		
Redefinition of <code>\newmdtheoremenv</code> . – Now check of theorem definition. . . . .	30		
		v1.1release	
		General: Added <code>\mbox</code> to the definition. <code>\item\mbox\relax</code> – Need for <code>amsthm</code>	29
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