

Checksum5921

The mdframed package ¹

auto-split frame environment

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

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

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

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

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1. Motivation

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

Theorem 1.1 (Pythagorean theorem) *In any right triangle, the area of the square whose side is the hypotenuse is equal to the sum of the areas of the squares whose sides are the two legs.*

¹Extending 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.

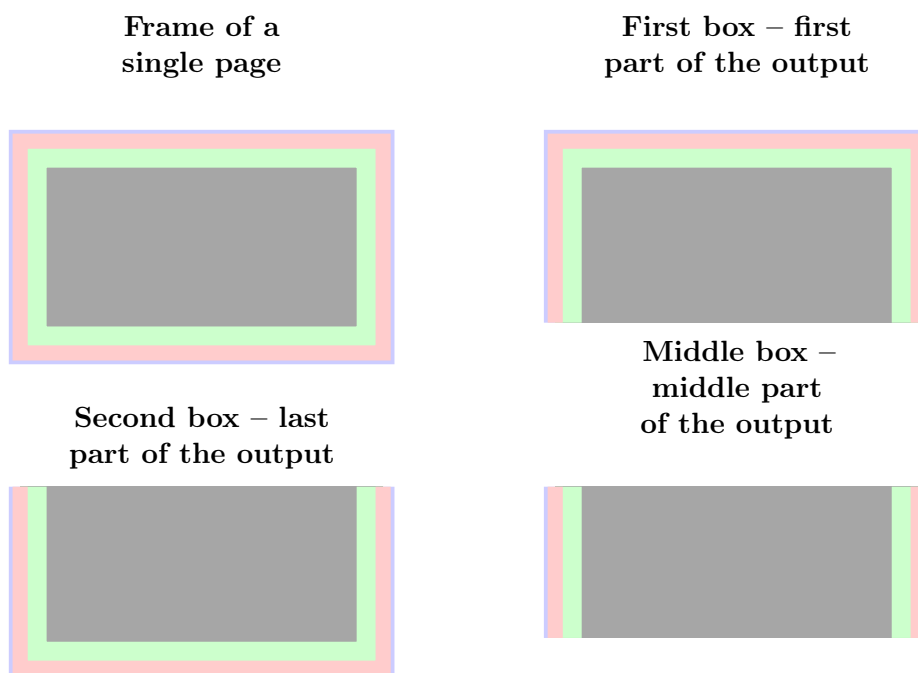


Figure 1: The basic frames

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.²

`\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.³

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`.

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

³Thanks 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. \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
\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.

`defaultunit` default=`pt`

see the sentence above.

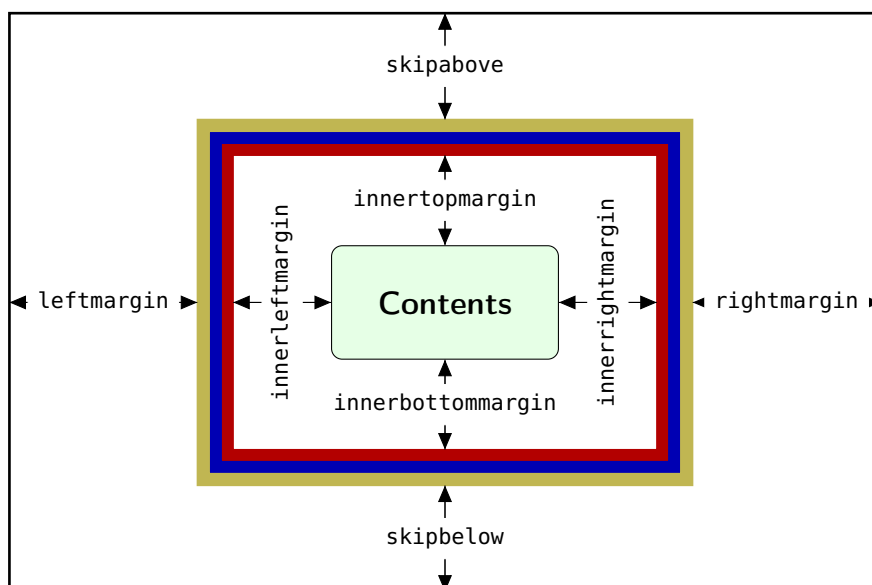


Figure 2: adjustable lengths of mdframed

`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. This option has an effect only in `singleside-mode` or, in `twoside-mode`, if the option `usetwoside=false` has been given. See also options `outermargin` and `innermargin`.

`rightmargin` default=0pt

Sets the length of the right margin of the environment. This option has an effect only in `singleside-mode` or, in `twoside-mode`, if the option `usetwoside=false` has been given. See also options `outermargin` and `innermargin`.

`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).

`userdefinedwidth` default=0pt
 Sets the width of the whole `mdframed` environment. The width represent the width including the line width and the inner margins. The outer margins will be ignored.

`outermargin`
 Sets the length of the outer margin. This option is only available in `twoside`-mode.

`innermargin`
 Sets the length of the inner margin. This option is only available in `twoside`-mode.

`splittopskip` default=0pt
 Sets the length of the skip above the split part of the environment.

`splitbottomskip` default=0pt
 Sets the length of the skip below the split part of the environment.

`linewidth` default=0.4pt
 Sets the width of the line around the environment.
 This works only with `framemethod=default`.

`roundcorner` default=0pt
 Sets the size of the radius of the corners of the frames.
 This works only with `framemethod=TikZ` or `PSTricks`.

`innerlinewidth` default=0pt
 Sets the width of the inner line around the environment.
 This works only with `framemethod=TikZ` or `PSTricks`.

`outerlinewidth` default=0pt
 Sets the width of the outer line around the environment.
 This works only with `framemethod=TikZ` or `PSTricks`.

`middlelinewidth` default=linewidth
 Sets the width of the middle line around the environment.
 This works only with `framemethod=TikZ` or `PSTricks`.

5.2.2. Colored Options

`linecolor` default=black
 Sets the color of the line around the environment.

`backgroundcolor` default=white

Sets the color of the background of the environment.

`fontcolor` 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

`everyline` default=false

Allows to draw a bottom and a top line at splitted frames.

`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.

`ignorelastdescenders` default=`false`

Try to ignore the last descenders of the environment `mdframed`. The complete idea was inspired by Tobias Weh and the solution was provided by Stefan Lemke. See [How to make mdframed ignore descenders in last line](#)

`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=PS Tricks`.

`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`.

`singleextra` default={}

With this key you can put extra material to the drawing environment of `mdframed` only for a non splitted frame.
This works only with `framemethod=TikZ` and `PSTricks`.

`firstextra` default={}

With this key you can put extra material to the drawing environment of `mdframed` only for the first part of the splitted frame.
This works only with `framemethod=TikZ` and `PSTricks`.

`middleextra` default={}

With this key you can put extra material to the drawing environment of `mdframed` only for the middle part of the splitted frame.
This works only with `framemethod=TikZ` and `PSTricks`.

`secondextra` default={}

With this key you can put extra material to the drawing environment of `mdframed` only for the second part of the splitted frame.
This works only with `framemethod=TikZ` and `PSTricks`.

5.3. Hidden Lines

<code>topline</code>	default= <code>true</code>
Draws a line at the top.	
<code>bottomline</code>	default= <code>true</code>
Draws a line at the bottom.	
<code>leftline</code>	default= <code>true</code>
Draws a line on the left.	
<code>rightline</code>	default= <code>true</code>
Draws a line on the right.	
<code>hidealllines</code>	default= <code>false</code>
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= <code>none</code>
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= <code>\normalfont\bfseries</code>
Sets the format of the <code>frametitle</code> .	
<code>frametitlealignment</code>	default= <code>\raggedleft</code>
Align the <code>frametitle</code> . This option must be set via <code>\mdfsetup</code> .	
<code>frametitlerule</code>	default= <code>false</code>
Set this key to <code>true</code> to get a line between the frame title and the text.	
<code>frametitlerulewidth</code>	default= <code>.2pt</code>
Sets the width of the line between the text and the title of <code>mdframed</code> .	
<code>frametitleaboveskip</code>	default= <code>5pt</code>
Sets the skip of the frame title to the margin above of <code>mdframed</code> .	
<code>frametitlebelowskip</code>	default= <code>5pt</code>
Sets the skip of the frame title to the rule of the frame title.	
<code>frametitlebackgroundcolor</code>	default= <code>white</code>
Sets the color of the background of the <code>frametitle</code>	

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, the package provides a command 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}
```

So far there is no `\renewmdtheoremenv`!

`\mdtheorem`

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

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

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

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

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

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

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

`theoremseparator` default={:}

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

`theoremtitlefont` default={}

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

`theoremspace` `\space`

Sets the space after `theoremseparator`.
Examples can be found in the attached files.

5.6. Footnotes

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

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

`footnotedistance` default= `\bigskipamount`

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

`footnoteinside` default=true

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

Note

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

6. Examples

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

mdframed-example-default

Demonstration of examples created with `framemethod=default`.

mdframed-example-tikz

Demonstration of examples created with `framemethod=TikZ`.

mdframed-example-pstricks

Demonstration of examples created with `framemethod=pstricks`.

mdframed-example-texsx

Demonstration of examples like interaction with `listings`

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

The Korean T_EXGroup created a very nice presentation. I want to show the link because it's really a great work: [kts 2012 mdframed](#).

7. Errors, Warnings and Messages

The package `mdframed` provides different errors, warnings and messages in the `log`-file. Some L^AT_EX-editors like T_EXMaker or T_EXStudio have a special tab for errors and warnings but not for messages. So you should look in the `log-File` itself.

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

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

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

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

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

Unknown `framemethod` `mdframed`

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

You have not loaded `ntheorem` yet

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

You have only a width of 3cm

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

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

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

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

See the explanation above.

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

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

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

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

8. Known Problems

In this section I will collect known problems. In case you encounter any further problems, please drop me an email, [marco.daniel 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`.
2. If you load the package `picins` the frame will no be splitted. That based on a problem of the package 'picins' which defines `\@capytype` global. To work with the package `picins` you can use the following hack.

```
\usepackage{picins}
\makeatletter
\let\@capytype\@undefined
\def\newcaption{%
\begingroup%
\def\@capytype{figure}%
\refstepcounter\@capytype\@dblarg{\@newcaption\@capytype}%
\endgroup%
}
\makeatother
```

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`.
8. Create an inline version of `mdframed` that's works like `\fbox`
9. Add `\ht\strutbox` to file `md-frame-1.mdf`

10. Acknowledgements

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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.

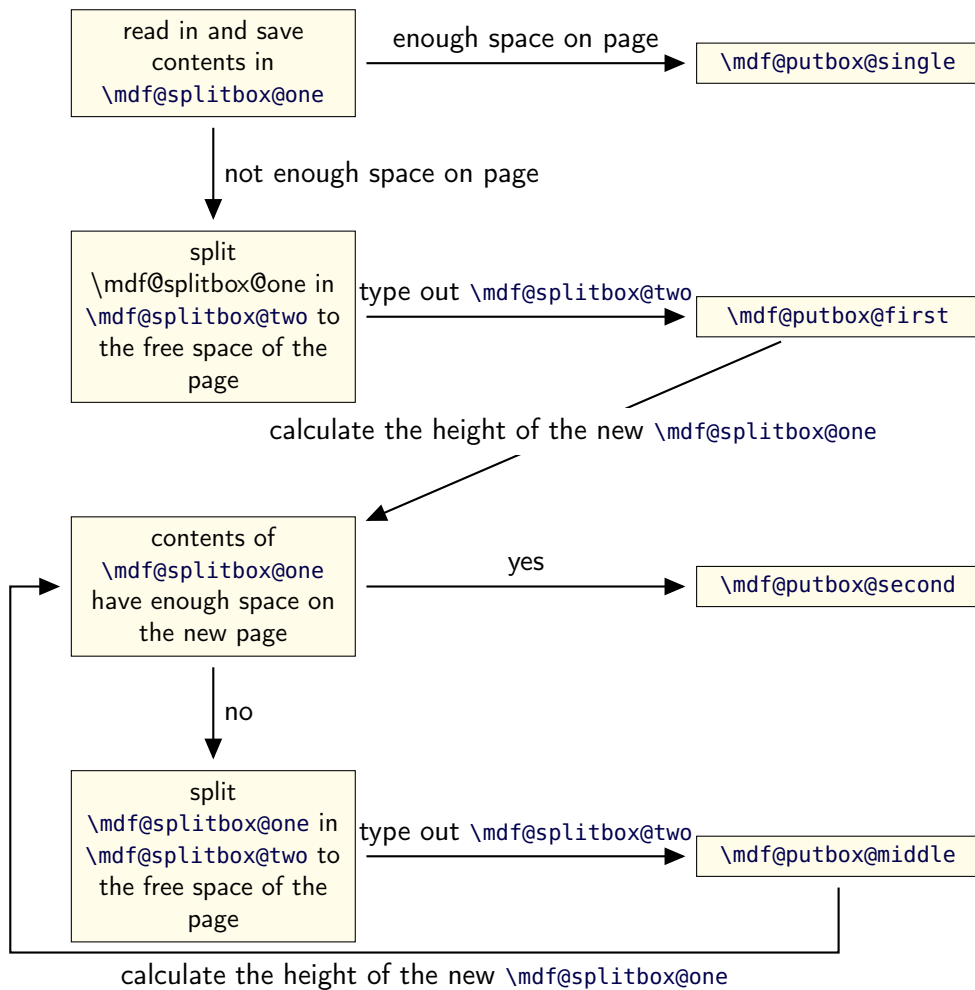


Figure 3: Setting the contents of `mdframed`

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 1.6a submitted DD MMM 2012

- improved formatting of the file `mdframed.dtx` • fixed bug in combination with `Cmdparskip` – Thanks David Carlisle. • added extra loop to compute the splitting point. • added new option `ignorelastdescenders` – Thanks Stephan Lehmke.

Version 1.5a submitted DD MMM 2012

- Tobias Weh inspired the excurs-environment not Tobias Schwan. Sorry, I fixed it. • Improved `\mdtheorem` to handle `\listtheorems` provided by `ntheorem`.

Version 1.5 submitted 10 Mar 2012

- fixed bug (Thanks Nicolas Roy) • expanded documentation (Thanks Martin Wilhelm Leidig)
- added options `singleextra`, `firstextra`, `middleextra` and `secondextra` • expanded examples

Version 1.4d submitted 30 Mar 2012

- fixed bug (Thanks Nicolas Roy) • added approach to documentation to work with `picins`
- new implementation of option `hidealllines`, now you can set `\mdfsetup{hidealllines=true,leftline=true}` printing only the left line (inspired by Tobias Weh)
- added option `everyline` to draw a top and bottom line at splitted frames

Version 1.4 submitted 4 Mar 2012

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

Version 1.3a submitted 5 Feb 2012

- fixed bug (Thanks to Dietrich Grau)

Version 1.3 submitted 4 Feb 2012

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

Version 1.2 submitted 8 Jan 2012

- fixed documentation (Thanks to Dietrich Grau) • fixed bug in combination with `amsthm` • fixed bug in `\newmdtheoremenv` • defined new styles via `\newpsstyle`
- This works only with `framemethod=PSTricks`. • added new commands for interaction with TikZ and PSTricks
- expand frame title option by option `frametitlefont`, `frametitlefontwidth`, `frametitlefontsize`, `frametitlefontcolor`, `frametitlefontfamily`, `frametitlefontseries`, `frametitlefontstyle`, `frametitlefontshape`, `frametitlefontsizefamily`, `frametitlefontsizestyle`, `frametitlefontshapefamily`, `frametitlefontshapestyle` • 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 ϵ -TeX `\dimexpr` • expand documentation • trying to fix problems with `xcolor` • fixed bug with `framemethod=pstricks` • create file `mdframed-example-default` • create file `mdframed-example-tikz` • create file `mdframed-example-pstricks` • create file `mdframed-example-texsx` (`texsx` stands for `tex stackexchange`)

Version 0.9g submitted 08 Oct 2011

- fixed documentation • added small footnote compatibility

Version 0.9f submitted 04 Oct 2011

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

Version 0.9e submitted 11 Sep 2011

- working with twoside modus

Version 0.9d submitted 10 Sep 2011

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

Version 0.9b submitted 7 Sep 2011

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

Version 0.9a submitted 5 Sep 2011

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

Version 0.9 submitted 4 Sep 2011

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

Version 0.8a

- fixes bugs • fixes documentation

Version 0.8 submitted 22 Aug 2011

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

Version 0.7a submitted 6 August 2011

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

Version 0.6a submitted 22 Dec 2010

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

B. Implementation

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

B.1. The Explanation of mdframed.sty

Id : mdframed.dtx4062012-05-18 11:43:01Zmarco Rev : 406 Author : marco

Date : 2012-05-18 11:43:01 +0200(Fr, 18Mai2012)

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

Set package information

```
1 \def\mdversion{v1.6a}
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 406 2012-05-18 11:43:01Z marco $%
7     \mdversion: \mdframedpackagename]
```

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

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

```
8 \newcommand*\mdf@PackageError[1]{\PackageError{\mdframedpackagename}{#1}}
9 \newcommand*\mdf@PackageWarning[1]{\PackageWarning{\mdframedpackagename}{#1}}
10 \newcommand*\mdf@PackageInfo[1]{\PackageInfo{\mdframedpackagename}{#1}}
11 \newcommand*\mdf@LoadFile@IfExist[1]{%
12   \IfFileExists{#1.sty}{%
13     \RequirePackage{#1}%
14   }{%
15     \mdf@PackageWarning{The file #1 does not exist\MessageBreak
16                           but needed by \mdframedpackagename\MessageBreak
17                           see documentation fo further information
18     }%
19   }
20 }
```

Loading required packages

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

Set the family and the prefix of all options.

```
26 \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>}`

```

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

`\mdf@dolist`

Loop used by *mdframed*.

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

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

Command to define a new length width a default value.

```

\mdf@option@length{<name of length>}{<Defaultwert>}
44 \newrobustcmd*{\mdf@option@length}[2]{%
45   \expandafter\newlength\csname mdfl@#1@length\endcsname%
46   \expandafter\setlength\csname mdfl@#1@length\endcsname{#2}%
47 }
```

Command to create a new length option. `\mdf@define@key@length{<name of length option>}`

```

48 \newrobustcmd*{\mdf@define@key@length}[1]{%
49   \define@key{mdf}{#1}{%
50     \def\@tempa{##1}
51     \mdf@iflength{\@tempa}%
52     {\csxdef{mdfl@#1}{\the\mdf@templength}}%
53     {\csxdef{mdfl@#1}{\the\mdf@templength}}%
54     \setlength{\csname mdfl@#1@length\endcsname}{\csname mdfl@#1\endcsname}%
55   }%
56 }
```

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

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

```

57 \def\mdf@do@lengthoption#1{%
58   \mdf@lengthoption@doubledo#1\@nil%
59 }
60 \def\mdf@lengthoption@doubledo#1==#2\@nil{%
61   \mdf@option@length{#1}{#2}%

```

```
62 \mdf@define@key@length{#1}%
63 }
```

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

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

```
64 \def\mdf@do@stringoption#1{%
65   \mdf@stringoption@doubledo#1\@nil%
66 }
67 \def\mdf@stringoption@doubledo#1==#2\@nil{%
68   \expandafter\gdef\csname mdf@#1\endcsname{#2}%
69   \define@key{mdf}{#1}{%
70     \csdef{mdf@#1}{##1}%
71   }%
72 }
```

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

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

```
73 \def\mdf@do@booloption#1{%
74   \mdf@booloption@doubledo#1\@nil%
75 }
76 \def\mdf@booloption@doubledo#1==#2\@nil{%
77   \newbool{mdf@#1}\setbool{mdf@#1}{#2}%
78   \define@key{mdf}{#1}[#2]{%
79     \setbool{mdf@#1}{##1}%
80   }%
81 }
```

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

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

```
82 \def\mdf@do@alignoption#1{%
83   \mdf@alignoption@tripleo#1\@nil%
84 }
85 \def\mdf@alignoption@tripleo#1==#2==#3\@nil{%
86   \csdef{mdf@align@#1@left}{\null\hspace*{#2}}%
87   \csdef{mdf@align@#1@right}{\hspace*{#3}\null}%
88 }
```

Start declaration of options

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

Only provide to be backward compatible

```
92 \define@key{mdf}{style}{%
93   \mdf@PackageWarning{package option style is depreciated^^J
94     use framemethod instead\MessageBreak}%
95   \renewcommand*\mdfglobal@style{#1}%
96   \defcounter{mdf@globalstyle@cnt}{#1}%
97 }
```



```

97  \ifcase\value{mdf@globalstyle@cnt}\relax
98    \or\mdf@LoadFile@IfExist{tikz}%=1
99    \or\mdf@LoadFile@IfExist{pstricks-add}%=2
100   \or\defcounter{mdf@globalstyle@cnt}{2}%=3
101     \mdf@LoadFile@IfExist{pst-node}%
102     \or\mdf@LoadFile@IfExist{pst-node}%=4
103   \else%>4
104     \mdf@PackageWarning{Unknown global style \value{mdf@globalstyle@cnt}}%
105   \fi%
106 }

```

\mdf@framemethod

Defining the global option `framemethod`.

```

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

111 \define@key{mdf}{framemethod}[default]{%
112   \lowercase{\def\mdf@tempa{#1}}%lowercase not expandable
113   \forcsvlist{\listadd\mdf@framemethod@i}{default,tex,latex,none,0}
114   \forcsvlist{\listadd\mdf@framemethod@ii}{pgf,tikz,1}
115   \forcsvlist{\listadd\mdf@framemethod@iii}{pstricks,ps,2,postscript}
116   \xifinlist{\mdf@tempa}{\mdf@framemethod@i}%
117     {\def\mdf@@framemethod{default}\defcounter{mdf@globalstyle@cnt}{0}}%
118     {\xifinlist{\mdf@tempa}{\mdf@framemethod@ii}%
119       {\def\mdf@@framemethod{tikz}\defcounter{mdf@globalstyle@cnt}{1}}%
120       {\xifinlist{\mdf@tempa}{\mdf@framemethod@iii}%
121         {\def\mdf@@framemethod{pstricks}\defcounter{mdf@globalstyle@cnt}{2}}%
122         {\mdf@LoadFile@IfExist{#1}}%
123       }%
124     }%
125   \ifcase\value{mdf@globalstyle@cnt}\relax%
126     \or\mdf@LoadFile@IfExist{tikz}%=1
127     \or\mdf@LoadFile@IfExist{pst-node}%=2
128     \or\mdf@LoadFile@IfExist{pst-node}%=3
129   \fi%
130 }

```

\mdf@do@lengthoption

Here the declaration of all length options.

```

131 \mdf@dolist{\mdf@do@lengthoption}{%
132   {skipabove==\z@},%
133   {skipbelow==\z@},%
134   {leftmargin==\z@},%
135   {rightmargin==\z@},%
136   {innerleftmargin==10pt},%
137   {innerrightmargin==10pt},%
138   {innertopmargin==0.4\baselineskip},%
139   {innerbottommargin==0.4\baselineskip},%
140   {splittopskip==\z@},%
141   {splitbottomskip==\z@},%

```

```

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

```

\mdf@do@lengthoption

Here the declaration of the string options.

```

159 \mdf@dolist{\mdf@do@stringoption}{%
160   {frametitle=={}},%
161   {defaultunit==pt},%
162   {linecolor==black},%
163   {backgroundcolor==white},%
164   {fontcolor==black},%
165   {frametitlefontcolor==black},%
166   {innerlinecolor==\mdf@linecolor},%
167   {outerlinecolor==\mdf@linecolor},%
168   {middlelinecolor==\mdf@linecolor},%
169   {psroundlinecolor==\mdf@backgroundcolor},%
170   {frametitlerulecolor==\mdf@linecolor},
171   {frametitlebackgroundcolor==\mdf@backgroundcolor},%
172   {shadowcolor==black!50},%
173   {settings=={}},%
174   {frametitlesettings=={}},%
175   {font=={}},%
176   {frametitlefont==\normalfont\bfseries},%
177   {printheight==none},%
178   {alignment=={}},%
179   {frametitlealignment=={}},%
180   {theoremseparator=={:}},%
181   {theoremcountersep=={.}},%
182   {theoremtitlefont=={}},%
183   {theoremspace=={\space}},%
184   {singleextra=={}},
185   {firstextra=={}},
186   {middleextra=={}},
187   {secondextra=={}},
188 }

```

\mdf@do@booloption

Here the declaration of all bool options.

```

189 \mdf@dolist{\mdf@do@booloption}{%
190     {ntheorem==false},%
191     {topline==true},%
192     {leftline==true},%
193     {bottomline==true},%
194     {rightline==true},%
195     {frametitletopline==true},%
196     {frametitleleftline==true},%
197     {frametitlebottomline==true},%
198     {frametitlerightline==true},%
199     {frametitlerule==false},%
200     {nobreak==false},%
201     {footnoteinside==true},%
202     {usetwoside==true},%
203     {repeatframetitle==false},%Noch nicht richtig implementiert
204     {shadow==false},%
205     {everyline==false},%
206     {ignorelastdescenders==false},%
207 }
208 %%special boolflag hidealllines:
209 \newbool{mdf@hidealllines}%
210 \define@key{mdf}{hidealllines}[false]{%
211 \setbool{mdf@hidealllines}{#1}%
212 \ifbool{mdf@hidealllines}{%
213     \kvsetkeys{mdf}{leftline=false,topline=false,%
214                 rightline=false,bottomline=false}%
215 }}}%
216 }

```

`\mdf@do@alignoption`

Here the declaration of all align options.

```

217 \mdf@dolist{\mdf@do@alignoption}{%
218     {left==\mdf@leftmargin@length==\z@},%
219     {center==\fill==\fill},%
220     {right==\fill==\mdf@rightmargin@length},%
221     {outer==\fill==\mdf@rightmargin@length},%not supported yet
222     {outer==\mdf@leftmargin@length==\fill},%not supported yet
223 }

```

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

Set the alignment.

```

224 \newcommand*\mdf@align{}%
225 \newcommand*\mdf@makeboxalign@left{\null\hspace*{\mdf@leftmargin@length}}%
226 \newcommand*\mdf@makeboxalign@right{}%
227 \define@key{mdf}{align}[left]{%
228     \ifcsundef{mdf@align@#1@left}{%
229         \mdf@PackageWarning{Unknown alignment #1\MessageBreak}%
230         \letcs\mdf@makeboxalign@left{mdf@align@left@left}%
231         \letcs\mdf@makeboxalign@right{mdf@align@left@right}%
232     }{%

```

```

233     \def\mdf@makeboxalign@left{\csuse{mdf@align@#1@left}}%
234     \def\mdf@makeboxalign@right{\csuse{mdf@align@#1@right}}%
235   }%
236 }

```

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

Option to pass options to tikz or pstricks

```

237 \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={}}}
238 \define@key{mdf}{tikzsetting}{%
239   \def\mdf@tikzset@local{\tikzset{tikzsetting/.style={#1}}}%
240 }
241 \define@key{mdf}{apptotikzsetting}{%
242   \appto\mdf@tikzset@local{#1}%
243 }
244 \def\mdf@psset@local{}
245 \define@key{mdf}{pstrickssetting}{%
246   \def\mdf@psset@local{#1}%
247 }
248 \def\mdfpstricks@appendsettings{}
249 \define@key{mdf}{pstricksappsetting}{%
250   \def\mdfpstricks@appendsettings{#1}%
251 }

```

`\mdf@xcolor`

Problem with xcolor. This part must be reworked!

```

252 \def\mdf@xcolor{}
253 \define@key{mdf}{xcolor}[]{}%
254   \def\@tempa{#1}%
255   \@ifpackageloaded{xcolor}{%
256     \let\mdf@xcolor\@empty %ignoriere die Eingabe der Optionen
257     \def\@tempa{}%
258   }{}%
259   \ifx\relax\@tempa\relax\else
260     \PassOptionsToPackage{\mdf@xcolor}{xcolor}%
261     \RequirePackage{xcolor}%
262   \fi%
263 }%

```

`\mdf@needspace`

Defining the option needspace

```

264 \define@key{mdf}{needspace}[\z@]{}%
265   \begingroup%
266     \setlength{\dimen@}{#1}%
267     \vskip\z@\@plus\dimen@%
268     \penalty -100\vskip\z@\@plus -\dimen@%
269     \vskip\dimen@%
270     \penalty 9999%
271     \vskip -\dimen@%
272     \vskip\z@skip % hide the previous |\vskip| from |\addvspace|
273   \endgroup%

```

```
274 }
```

```
275 \DeclareDefaultOption{%
276   \mdf@PackageError{Unknown Option '\CurrentOption' for mdframed}}
277 \ProcessKeyvalOptions*\relax
```

`\mdfsetup`

Short form of `\setkeys{mdf}`

```
278 \newrobustcmd*{\mdfsetup}{\kvsetkeys{mdf}}
```

`\mdf@style`

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

```
279 \define@key{mdf}{style}{%
280   \ifcsundef{mdf@definestyle@#1}{%
281     \mdf@PackageWarning{Unknown definedstyle #1^^J
282       You have to define a style ^^J
283       via \string\mdfdefinedstyle\MessageBreak
284     }%
285   }%
286   {\expandafter\expandafter\expandafter\mdfsetup%
287     \expandafter\expandafter\expandafter{\csname mdf@definestyle@#1\endcsname}}%
288 }%
```

`\mdf@print@space`

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

```
289 \let\mdf@PackageNoInfo\@gobble
290 \newrobustcmd*{\mdf@ifstrequal@expand{%
291   \expandafter\ifstrequal\expandafter{\mdf@printheight}%
292 }
293 \newrobustcmd*{\mdf@print@space{%
294   %case "none"
295   \mdf@ifstrequal@expand{none}{\def\mdf@tempa{NoInfo}}{%
296     %case "info"
297     \mdf@ifstrequal@expand{info}{\def\mdf@tempa{Info}}{%
298       %case "warning"
299       \mdf@ifstrequal@expand{warning}{\def\mdf@tempa{Warning}}{%
300         %case "unknown"
301         \mdf@PackageWarning{Unknown key for printheight=\mdf@printheight^^J
302           use none, info or warning}%
303         \def\mdf@tempa{none}%
304       }%
305     }%
306   }%
307   \def\mdf@PackageInfoSpace{\csname mdf@Package\mdf@tempa\endcsname}%
308 }
```

`\new...`

Initialize all commands and length which will we used later

```
309 \newsavebox\mdf@frametitlebox
```

```

310 \newsavebox\mdf@footnotebox
311 \newsavebox\mdf@splitbox@one
312 \newsavebox\mdf@splitbox@two
313 \newsavebox\mdf@splitbox@save
314 \newlength\mdfsplitboxwidth
315 \newlength\mdfsplitboxtotalwidth
316 \newlength\mdfsplitboxheight
317 \newlength\mdfsplitboxdepth
318 \newlength\mdfsplitboxtotalheight
319 \newlength\mdfframetitleboxwidth
320 \newlength\mdfframetitleboxtotalwidth
321 \newlength\mdfframetitleboxheight
322 \newlength\mdfframetitleboxdepth
323 \newlength\mdfframetitleboxtotalheight
324 \newlength\mdffootnoteboxwidth
325 \newlength\mdffootnoteboxtotalwidth
326 \newlength\mdffootnoteboxheight
327 \newlength\mdffootnoteboxdepth
328 \newlength\mdffootnoteboxtotalheight
329
330 \newlength\mdftotallinewidth
331
332 \newlength\mdfboundingboxwidth
333 \newlength\mdfboundingboxtotalwidth
334
335 \newlength\mdfboundingboxheight
336 \newlength\mdfboundingboxdepth
337 \newlength\mdfboundingboxtotalheight
338
339 \newlength\mdf@freevspace@length
340 \newlength\mdf@horizontalwidthofbox@length
341 \newlength\mdf@verticalmarginwhole@length
342
343 % Command to expand the tikz code. (see md-frame-1.mdf)
344 \newrobustcmd\mdfcreateextratikz{}
345

```

```

\mdf@lrbox
\endmdf@lrbox

```

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

```

346 \def\mdf@lrbox#1{%
347 %%patch to work with amsthm
348 \mdf@patchamsthm
349 %%end patch
350 \edef\mdf@restoreparams{%
351 \parindent=\the\parindent\relax \parskip=\the\parskip\relax}%
352 \setbox#1\vbox\bgroup%
353 \color@begingroup%
354 \mdf@horizontalmargin@equation%
355 \columnwidth=\hsize%
356 \textwidth=\hsize%
357 \let@if@nobreak\iffalse%
358 \let@if@noskipsec\iffalse%
359 \let\par\@par%

```

```

360 \let\-\@dischyph%
361 \let\'\'@acci\let\'\'@accii\let\=\@acciii%
362 \parindent\z@ \parskip\z@skip%
363 \linewidth\hsize%
364 \@totalleftmargin\z@%
365 \leftskip\z@skip \rightskip\z@skip \@rightskip\z@skip%
366 \parfillskip\@flushglue \lineskip\normallineskip%
367 \baselineskip\normalbaselineskip%
368 %% \sloppy%
369 \let\\\@normalcr%
370 \mdf@restoreparams\relax%
371 \@afterindentfalse%
372 \@afterheading%
373 }
374
375 \def\endmdf@lrbox{\color@endgroup\egroup}
376

```

```

\mdf@ignorevbadness
\mdf@restorevbadness

```

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

```

377 \newrobustcmd*\mdf@ignorevbadness{%
378 \edef\mdf@currentvbadness{\the\vbadness}%
379 \vbadness=\@M%
380 \afterassignment\mdf@restorevbadness}
381 \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`.

```

382 \@ifpackageloaded{amsthm}%
383 {%
384 \newrobustcmd\mdf@patchamsth{%
385 \let\mdf@deferred@thm@head\deferred@thm@head
386 \patchcmd{\deferred@thm@head}{\indent}{}%
387 {\mdf@PackageInfo{mdframed detected package amsthm ^^J
388 changed the theoerem header of amsthm\MessageBreak}%
389 }{%
390 \mdf@PackageError{mdframed detected package amsthm ^^J
391 changed the theoerem header of amsthm failed\MessageBreak}%
392 }%
393 }%
394 }\let\mdf@patchamsth\relax}%

```

```

\mdf@trivlist
\endmdf@trivlist

```

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

```

395 \def\mdf@trivlist#1{%
396 \setlength{\topsep}{#1}%
397 \partopsep\z@%
398 \parsep\z@%

```

```

399 \@nmbolistfalse%
400 \@trivlist%
401 \labelwidth\z@%
402 \leftmargin\z@%
403 \itemindent\z@%
404 \let\@itemlabel\@empty%
405 \def\makelabel##1{##1}%
406 %% \item\leavevmode\hrule \@height\z@ \@width\linewidth\relax%
407 %% \item\mbox{}\relax% second version
408 \item\relax% first Version
409 }
410 \let\endmdf@trivlist\endtrivlist
411 \patchcmd\endmdf@trivlist\endparenv\mdf@endparenv{%
412 \immediate\typeout{^^J***** mdframed patching \string\endmdf@trivlist}%
413 \immediate\typeout{^^J***** -- success*****^^J}%
414 }{%
415 \immediate\typeout{^^J***** mdframed patching \string\endmdf@trivlist}%
416 \immediate\typeout{^^J***** -- failed*****^^J}%
417 }
418 \def\mdf@endparenv{%
419 \addpenalty\@endparpenalty\addvspace\mdf@skipbelow@length\@endpetrue}
420

```

```

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

```

```

421 \newrobustcmd*\mdf@makebox@out[2][\linewidth]{%
422 \noindent\hb@xt@\z@{%
423 \noindent\makebox[\dimexpr #1\relax][l]{#2}%
424 \hss}%
425 }%
426 \newrobustcmd*\mdf@makebox@in[2][\mdf@userdefinedwidth@length]{%
427 \noindent\makebox[\dimexpr #1\relax][l]{#2}%
428 }

```

```

\mdfdefinestyle
\mdfapptodefinestyle

```

See explanation of this commands in the main documentation.

```

429 \newrobustcmd*\mdfdefinestyle[2]{%
430 \csdef{mdf@definestyle@#1}{#2}%
431 }
432 \newrobustcmd*\mdfapptodefinestyle[2]{%
433 \ifcsundef{mdf@definestyle@#1}%
434 {\mdf@PackageWarning{Unknown style #1}}%
435 {\csappto{mdf@definestyle@#1}{, #2}}%
436 }

```

```

\mdflength
\surroundwithmdframed

```

Helper macros to work with *mdframed*

```

437 \newrobustcmd*\mdflength[1]{\csuse{mdf@#1@length}}
438

```



```

439 \newrobustcmd*{\surroundwithmdframed}[2][]{%
440   \BeforeBeginEnvironment{#2}{\begin{mdframed}[#1]}%
441   \AfterEndEnvironment{#2}{\end{mdframed}}%
442 }

```

```

\newmdenv
\renewmdenv
\newmdtheoremenv
\mdtheorem

```

Defining of the new environment definitions.

```

443 \newrobustcmd*{\newmdenv}[2][]{%
444   \newenvironment{#2}{%
445     \mdfsetup{#1}%
446     \begin{mdframed}%
447   }{%
448     \end{mdframed}%
449   }%
450 }
451 \newrobustcmd*{\renewmdenv}[2][]{%
452   \expandafter\let\csname #2\endcsname\relax%
453   \expandafter\let\csname end#2\endcsname\relax%
454   \newmdenv[#1]{#2}%
455 }%

```

Definitions of the standard Theorems surrounded by *mdframed*.

```

456 \DeclareDocumentCommand\newmdtheoremenv{0}{m o m o }{%
457   \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }{%
458     {\newtheorem{#2}{#4}}{%
459       \IfValueTF{#3}{\newtheorem{#2}[#3]{#4}}{%
460         \IfValueTF{#5}{\newtheorem{#2}{#4}[#5]}{%
461           }%
462       }%
463     }%
464     \BeforeBeginEnvironment{#2}{%
465       \begin{mdframed}[#1]}%
466     \AfterEndEnvironment{#2}{%
467       \end{mdframed}}%
468   }%
469 }

```

Compatible with *ntheorem*'s `\listoftheorems`.

```

467 \newrobustcmd*{\mdf@thm@caption}[2]{%
468   \AtBeginDocument{%
469     \@ifpackageloaded{ntheorem}%
470     {\renewrobustcmd*{\mdf@thm@caption}{\thm@thmcaption}}{%
471     }

```

Defining a complete new theorem set by *mdframed*

```

472 \DeclareDocumentCommand{\mdtheorem}{0}{m o m o }%
473 {\ifcsdef{#2}%
474   {\mdf@PackageWarning{Environment #2 already exists\MessageBreak}}%
475   {%
476     \IfNoValueTF {#3}%
477     {%#3 not given -- number relationship
478       \IfNoValueTF {#5}%
479       {%#3+#5 not given
480         \@definecounter{#2}%
481         \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
482         \newenvironment{#2}[1][{}]{%

```

```

483     \refstepcounter{#2}%
484     \ifstrempy{##1}%
485         {\let\@temptitle\relax}%
486         {%
487             \def\@temptitle{\mdf@theoremseparator%
488                 \mdf@theoremspace%
489                 \mdf@theoremtitlefont%
490                 ##1}%
491             \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
492         }%
493     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]%
494     {\end{mdframed}}}%
495 \newenvironment{#2*}[1][1]{%
496     \ifstrempy{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}%
497     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
498     {\end{mdframed}}}%
499 }%
500 {%#5 given -- reset counter
501 \definecounter{#2}\@newctr{#2}[#5]%
502 \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
503 \expandafter\xdef\csname the#2\endcsname{%
504     \expandafter\noexpand\csname the#5\endcsname \@thmcountersep%
505     \@thmcounter{#2}}%
506 \newenvironment{#2}[1][1]{%
507     \refstepcounter{#2}%
508     \ifstrempy{##1}%
509         {\let\@temptitle\relax}%
510         {%
511             \def\@temptitle{\mdf@theoremseparator%
512                 \mdf@theoremspace%
513                 \mdf@theoremtitlefont%
514                 ##1}%
515             \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
516         }
517     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]%
518     {\end{mdframed}}}%
519 \newenvironment{#2*}[1][1]{%
520     \ifstrempy{##1}%
521         {\let\@temptitle\relax}%
522         {%
523             \def\@temptitle{\mdf@theoremseparator%
524                 \mdf@theoremspace%
525                 \mdf@theoremtitlefont%
526                 ##1}%
527             \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
528         }%
529     \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
530     {\end{mdframed}}}%
531 }%
532 }%
533 {%#3 given -- number relationship
534 \global\@namedef{the#2}{\@nameuse{the#3}}%
535 \newenvironment{#2}[1][1]{%
536     \refstepcounter{#3}%
537     \ifstrempy{##1}%
538         {\let\@temptitle\relax}%

```

```

539      {%
540      \def\@temptitle{\mdf@theoremseparator%
541      \mdf@theoremspace%
542      \mdf@theoremtitlefont%
543      ##1}%
544      \mdf@thm@caption{#2}{\csname the#2\endcsname}{##1}}%
545      }
546      \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname\@temptitle}]]%
547      {\end{mdframed}}}%
548      \newenvironment{#2*}[1][1]{%
549      \ifstrepty{##1}{\let\@temptitle\relax}{\def\@temptitle{: \ ##1}}%
550      \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]]%
551      {\end{mdframed}}}%
552      }%
553      }%
554  }
555

```

```

\mdfframedtitleenv
\mdf@@frametitle
\mdf@setopt@body
\mdf@setopt@title

```

Default definition of the frame tile used by `mdframed`. **Need a better documenation and must be improved!!!**

```

556 \newrobustcmd\mdfframedtitleenv[1]{%
557   \mdf@lrbox{\mdf@frametitlebox}%
558   \mdf@frametitlealignment%
559   \leavevmode\color{\mdf@frametitlefontcolor}%
560   \normalfont\mdf@frametitlefont{#1}\par\unskip%
561   \hrule \@height\z@ \@width\hsize
562   \endmdf@lrbox\relax%
563   \mdf@ignorevbadness%
564   \setbox\mdf@frametitlebox=\vbox{\unvbox\mdf@frametitlebox}%
565   \mdfframetitleboxwidth=\wd\mdf@frametitlebox\relax%
566   \mdfframetitleboxheight=\ht\mdf@frametitlebox\relax%
567   \mdfframetitleboxdepth=\dp\mdf@frametitlebox\relax%
568   \mdfframetitleboxtotalheight=\dimexpr
569     \ht\mdf@frametitlebox
570     +\dp\mdf@frametitlebox%
571     +\mdf@frametitleaboveskip@length
572     +\mdf@frametitlebelowskip@length
573     \relax%
574 }
575
576 \newrobustcmd*\mdf@@frametitle{%
577   \mdfframedtitleenv{\mdf@frametitle}%
578 }
579
580 \newrobustcmd*\mdf@@frametitle@use{%
581   \parskip\z@\relax%
582   \parindent\z@\relax%
583   \offinterlineskip\relax%
584   \mdf@ignorevbadness%
585   \setbox\mdf@splitbox@one=\vbox{%
586     \unvcopy\mdf@frametitlebox\relax%

```

```

587      \mdf@frametitlerule\relax%
588      \unvbox\mdf@splitbox@one\relax%
589    }%
590    \mdf@ignorevbadness%
591    \setbox\mdf@splitbox@one=\vbox{\unvbox\mdf@splitbox@one}%
592    \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
593  }

```

`\mdf@checkntheorem`

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

```

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

```

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

Support for footnotes. See source2e.

```

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

```

`\mdf@load@style`

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

```

621 \newrobustcmd*\mdf@load@style{%
622   \ifcase\value{mdf@globalstyle@cnt}\relax%
623     \input{md-frame-0.mdf}%
624     \or\input{md-frame-1.mdf}%
625     \or\input{md-frame-2.mdf}%
626     \or\input{md-frame-3.mdf}%

```

```

627 \else%
628   \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
629   {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
630   {%
631     \input{md-frame-0.mdf}%
632     \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt}
633                        does not exist^^J
634                        mdframed ues instead style=0 \mdframedpackagename}%
635   }%
636 \fi%
637 }%
638 \mdf@load@style

```

\mdf@styledefinition

The default frame method needs special handling.

```

639 \newrobustcmd*{\mdf@styledefinition}{%AVOID!!!Needed for framemethod=default
640   \ifnumequal{\value{mdf@globalstyle@cnt}}{0}%
641   {\deflength{\mdf@innerlinewidth@length}{\z@}%
642    \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
643    \deflength{\mdf@outerlinewidth@length}{\z@}%
644    \let\mdf@innerlinecolor\mdf@linecolor%
645    \let\mdf@middlelinecolor\mdf@linecolor%
646    \let\mdf@outerlinecolor\mdf@linecolor%
647   }{}%
648 }

```

\detected@mdf@put@frame

Detect whether inside a non breakable environment.

```

649 \let\mdf@reserved@a\@empty
650 \newrobustcmd*{\detected@mdf@put@frame}{%
651   \ifmdf@nobreak%Option nobreak=true?
652   \def\mdf@reserved@a{\mdf@put@frame@standalone}%
653   \else
654     \def\mdf@reserved@a{\mdf@put@frame}%
655     \ifx\@capttype\@undefined
656       \def\mdf@reserved@a{\mdf@put@frame}%
657     \else
658       \mdf@PackageInfo{mdframed inside float ^^J
659                        mdframed uses option nobreak \mdframedpackagename}%
660       \def\mdf@reserved@a{\mdf@put@frame@standalone}%
661     \fi
662     \if@minipage%
663       \mdf@PackageInfo{mdframed inside minipage ^^J
664                        mdframed uses option nobreak \mdframedpackagename}%
665       \def\mdf@reserved@a{\mdf@put@frame@standalone}%
666     \fi%
667     \ifinner%
668       \mdf@PackageInfo{mdframed inside a box ^^J
669                        mdframed uses option nobreak \mdframedpackagename}%
670       \def\mdf@reserved@a{\mdf@put@frame@standalone}%
671     \fi%
672   \fi%
673   \mdf@reserved@a%

```

674 }

`\mdframed`

The user environment.

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

Make everything local

```
676 \color@begingroup%
```

Set all options

```
677 \mdfsetup{userdefinedwidth=\linewidth,#1}%
```

```
678 \mdf@twoside@checklength%
```

```
679 \let\width\z@%
```

```
680 \let\height\z@%
```

```
681 \mdf@checkntheorem%
```

```
682 \mdf@styledefinition%
```

```
683 \mdf@footnoteinput%
```

```
684 \color{\mdf@fontcolor}%
```

```
685 \mdf@font%
```

```
686 \ifvmode\nointerlineskip\fi%
```

```
687 \mdf@trivlist{\mdf@skipabove@length}%%
```

```
688 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle}%
```

Special command to allow extra user definitions by the option `settings`.

```
689 \mdf@settings%
```

Start save box and save the whole contents in the box `\mdf@splitbox@one`

```
690 \mdf@lrbox{\mdf@splitbox@one}%
```

```
691 }%
```

```
692 {%
```

Trying to ignore last descenders of the environment.

```
693 \ifbool{mdf@ignorelastdescenders}%
```

```
694 {%
```

```
695 \par\strut\par
```

```
696 \unskip\unskip\setbox0=\lastbox
```

```
697 \vspace*{\dimexpr\ht\strutbox-\baselineskip\relax}%
```

```
698 }{}%
```

```
699 \par\unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%
```

End save box in relation to footnotes

```
700 \ifmdf@footnoteinside%
```

```
701 \def\mdf@reserveda{%
```

```
702 \mdf@footnoteoutput%
```

```
703 \endmdf@lrbox%
```

```
704 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
```

```
705 \detected@mdf@put@frame}%
```

```
706 \else%
```

```
707 \def\mdf@reserveda{%
```

```
708 \endmdf@lrbox%
```

```
709 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
```

```
710 \detected@mdf@put@frame%
```

```
711 \mdf@footnoteoutput%
```

```
712 }%
```

```
713 \fi%
```

```
714 \mdf@reserveda%
```

```
715 \endmdf@trivlist%
```

End group and set the command `\@doendpe` to behave like `\end{center}`

```
716 \color@endgroup\@doendpe%
717 }
718
```

```
\mdf@twoside@checklength
\mdf@zref@label
\if@mdf@pageodd
\mdf@pageisodd
\mdf@pageiseven
\mdf@@setzref
```

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

```
719 \newtoggle{md:checktwoside}
720 \settoggle{md:checktwoside}{false}
721 \newrobustcmd*\mdf@twoside@checklength{%
722   \if@twoside
723     \ifbool{mdf@usetwoside}%
724       {\mdf@PackageInfo{mdframed works in twoside mode}%
725         \settoggle{md:checktwoside}{true}%
726         \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
727         \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
728       }%
729       {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
730         works with oneside mode}%
731         \settoggle{md:checktwoside}{false}%
732       }%
733   \fi%
734 }
735
736 \newcounter{mdf@zref@counter}%keine doppelten laebes
737 \zref@newprop*\mdf@pagevalue}[0]{\number\value{page}}
738 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
739 \newrobustcmd*\mdf@zref@label{%
740   \stepcounter{mdf@zref@counter}
741   \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}%
742 }
743 \newrobustcmd*\if@mdf@pageodd{%
744   \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}%
745   \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}{mdf@pagevalue}%
746     \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
747     \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
748   \else
749     \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
750     \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
751   \fi%
752 }
753 \newrobustcmd*\mdf@@setzref{%
754   \iftoggle{md:checktwoside}{\mdf@zref@label\if@mdf@pageodd}{}%
755 }
```

```
\mdf@freepagevspace
```

```
756 \newrobustcmd*\mdf@freepagevspace{%
```

```

757 \penalty\@M\relax\vskip 2\baselineskip\relax%
758 \penalty9999\relax\vskip -2\baselineskip\relax%
759 \penalty9999%
760 \ifdimequal{\pagegoal}{\maxdimen}%
761     {\mdf@freevspace@length\vsize}%
762     {\mdf@freevspace@length=\pagegoal\relax%
763     \advance\mdf@freevspace@length by -\pagetotal\relax%
764     \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
765     }%
766 }

```

```

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

```

Command used for loop

```

767 \newrobustcmd*\mdf@advancelength@horizontalmargin@sub[1]{%
768 \advance\mdf@horizontalsofbox by -\csname mdf@#1@length\endcsname\relax%
769 }

```

Compute the width of the box

```

770 \newlength\mdf@horizontalsofbox
771 \newrobustcmd*\mdf@horizontalmargin@equation{%
772 \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
773 \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
774     leftmargin,outerlinewidth,middlelinewidth,%
775     innerlinewidth,innerleftmargin,inerrightmargin,%
776     innerlinewidth,middlelinewidth,outerlinewidth,%
777     rightmargin}%
778 \notbool{mdf@leftline}{%
779     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
780     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
781     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
782     }{}%
783 \notbool{mdf@rightline}{%
784     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
785     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
786     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
787     }{}%
788 \ifdimless{\mdf@horizontalsofbox}{3cm}%
789     {\mdf@PackageWarning{You have only a width of 3cm}}{}
790 \hsize=\mdf@horizontalsofbox%
791 }

```

```
\mdf@keeplines@single
```

Space in relation of horizontal lines.

```

792 \newrobustcmd*\mdf@keeplines@single{%
793 \notbool{mdf@topline}{%
794     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
795     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
796     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
797     }{}%
798 \notbool{mdf@bottomline}{%
799     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%

```



```

800     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
801     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
802     }{}%
803 }

```

```

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

```

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

```

804 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
805   \advance\mdf@verticalmarginwhole@length by \csname mdf@#1@length\endcsname\relax%
806 }
807 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
808   \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
809 }
810 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
811   \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
812 }

```

```
\mdf@reset
```

Reset changes

```

813 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
814                               \splittopskip\the\splittopskip}%

```

```
\mdf@put@frame@standalone
```

Output of `mdframed` inside a non breakable environment.

```

815 \newrobustcmd*\mdf@put@frame@standalone{\relax%
816   \ifvoid\mdf@splitbox@one\relax
817     \mdf@PackageWarning{The environment is empty\MessageBreak}%
818     \let\mdf@reserved@a\relax%
819   \else
820     %Hier berechnung Box-Inhalt+Rahmen oben und unten
821     \setlength{\mdf@verticalmarginwhole@length}{%
822       {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
823     \mdf@dolist{\mdf@advancelength@verticalmarginwhole}{%
824       outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
825       innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
826     \mdf@keeplines@single%
827     \def\mdf@reserved@a{\mdf@putbox@single}%
828   \fi
829   \mdf@reserved@a%
830 }

```

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

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

```

831 \def\mdf@put@frame{\relax%
832 \ifvoid\mdf@splitbox@one\relax
833   \mdf@PackageWarning{The environment is empty\MessageBreak}%
834   \let\mdf@reserved@a\relax%

```

```

835 \else
836   \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
837   \mdf@print@space%
838   \mdf@freepagevspace%gives \mdf@freevspace@length
839   \mdf@PackageInfoSpace{\the\mdf@freevspace@length before the
840                       beginning of \MessageBreak
841                       the environment ending on input line \MessageBreak}%
842   \ifdimless{\mdf@freevspace@length}{2\baselineskip}
843     {%
844       \mdf@PackageInfo{Not enough space on this page}
845       \vfill\ eject%
846       \def\mdf@reserved@a{\mdf@put@frame}%
847     }{%
848       %Hier berechnung Box-Inhalt+Rahmen oben und unten
849       \setlength{\mdf@verticalmarginwhole@length}%
850         {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
851       \mdf@dolist{\mdf@advancelength@verticalmarginwhole}%
852         {%
853           outerlinewidth,middlelinewidth,innerlinewidth,%
854           innertopmargin,innerbottommargin,%
855           innerlinewidth,middlelinewidth,outerlinewidth}%
856       \mdf@keeplines@single%
857       \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@freevspace@length}%
858         {%passt auf Seite%
859           \begingroup\mdf@setzref\mdf@putbox@single\endgroup%Output no break
860           \let\mdf@reserved@a\relax%
861         }%
862         {%
863           \def\mdf@reserved@a{\mdf@put@frame@i}%passt nicht auf Seite
864         }
865     }%
866 \fi
867 \mdf@reserved@a%
868 }

```

`\mdf@put@frame@i`

Output of the first splitted box.

```
869 \def\mdf@put@frame@i{%Box must be splitted
```

Compute the vertical free space of the current page

```
870 \mdf@freepagevspace%gives \mdf@freevspace@length
```

Compute whether the width of the lines plus 2 `\baselineskips` can only be set on the current page.

```

871 \dimen@=\the\mdf@freevspace@length\relax%
872 \dimen@i=\mdf@innertopmargin@length\relax%
873 \advance\dimen@i by \mdf@innerlinewidth@length\relax%
874 \advance\dimen@i by \mdf@middlelinewidth@length\relax%
875 \advance\dimen@i by \mdf@outerlinewidth@length\relax%
876 \advance\dimen@i by 2\baselineskip\relax%
877 \ifdimless{\dimen@}{\dimen@i}%

```

force a page / column break and restart printing of the environment

```

878 {\hrule \@height\z@ \@width\hsize%
879   \vfill\ eject%
880   \def\mdf@reserved@a{\mdf@put@frame}%
881 }%

```

The page has enough space.

```

882   {%
compute the needed vertical space of the first frame. Subtract the dimension of the bottom frame
883   \mdf@dolist{\mdf@advance\length@freevspace@sub}{%calculate with \dimen@
884               outerlinewidth,middlelinewidth,innerlinewidth,%
885               innertopmargin,splitbottomskip}%

```

Reduce vertical space if option `everyline` is set to `true`

```

886   \ifbool{mdf@everyline}%
887   {%
888       \ifbool{mdf@bottomline}%
889       {%
890           \advance\dimen@ by -\mdf@innerlinewidth@length%
891           \advance\dimen@ by -\mdf@middlelinewidth@length%
892           \advance\dimen@ by -\mdf@outerlinewidth@length%
893       }{}%
894   }{}%

```

Add vertical space if option `topline` is set to `false`

```

895   \notbool{mdf@topline}%
896   {%
897       \advance\dimen@ by \mdf@innerlinewidth@length%
898       \advance\dimen@ by \mdf@middlelinewidth@length%
899       \advance\dimen@ by \mdf@outerlinewidth@length%
900   }{}%

```

Add a length of `0.8\pageshrink`. I don't know whether it's needed! ;-)

```

901   \advance\dimen@.8\pageshrink

```

Test whether the contents has enough space and the last frame will be empty

```

902   \ifdimless{\ht\mdf@splitbox@one+\dp\mdf@splitbox@one}{\dimen@}%
903   {\mdf@PackageWarning{You got a bad break\MessageBreak
904                       because the last box will be empty\MessageBreak
905                       you have to change it manually\MessageBreak
906                       by changing the text, the space\MessageBreak
907                       or something else}%
908   \advance\dimen@ by -1.8\baselineskip\relax%needed????????????????????
909   }{}%

```

- save the original contents in a new save box,
- set the dimension for splitting
- ignore bad boxes and split

```

910   \setbox\mdf@splitbox@save=\vbox{\unvcopy\mdf@splitbox@one}%
911   \splittmaxdepth\z@ \splitttopskip\mdf@splitttopskip@length%
912   \mdf@ignorevbadness%
913   \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@
914   \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
915   \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%

```

repeating frame title must be improved

```

916   \ifbool{mdf@repeatframetitle}%
917   {%
918       \setbox\mdf@splitbox@one\vbox{%
919           \vbox to \mdf@splitttopskip@length{\hsize\z@}
920           %\par\unskip\nointerlineskip
921           \unvcopy\mdf@frametitlebox%
922           \mdf@@frametitlerule%

```

```

923         \vbox to\dimexpr
924         -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox
925         +\mdf@innertopmargin@length\relax{\hsize\z@}%
926         \unvbox\mdf@splitbox@one}%
927     }{}%
Test whether the splitted box fits the required dimension
928     \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
929     {%splitted wrong
930         \mdf@PackageInfo{Box was splittet wrong^^M starting loop to iterate
931             the splitting point\MessageBreak}%
restore save box \mdf@splitbox@one by the save one \mdf@splitbox@save
932         \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
Start loop until splitting fits – break after 100 attempts
933         \dimen@i=\dimen@%\relax
934         \@tempcnta=\z@\relax
935         \loop
936         \ifdim\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax>\dimen@
937         \advance\dimen@i by -\p@\relax
938         \advance\@tempcnta by \ne\relax
939         \ifnum\@tempcnta>100
940             \let\iterate\relax
941             \mdf@PackageWarning{correct box splittet fails^^M
942                 It seems you are using a non splittable
943                 contents\MessageBreak}
944         \fi
945         \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
946         \splittmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
947         \mdf@ignorevbadness%
948         \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
949         \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
950         \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
951     \repeat
952 }{}%
Test if the last frame is empty
953 \ifvoid\mdf@splitbox@one\relax%
954     \mdf@PackageWarning{You got a bad break because the splittet box is empty^^M
955         You have to change the page settings^^M
956         like enlargethispage or something else^^M
957         the package increases do \enlargethispage{\baselineskip}\MessageBreak}%
958     \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
959     \enlargethispage{\baselineskip}%
960     \def\mdf@reserved@a{\mdf@put@frame}%
961 \fi%
Test if first splitted frame doesn't have the original with.
962 \ifdim\wd\mdf@splitbox@two=\wd\mdf@splitbox@one\relax
963 \else
964     \mdf@PackageInfo{You first box width is to small^^M
965         mdframed fixed it\MessageBreak}%
966     \setbox\mdf@splitbox@two=\vbox%
967         {%
968             \hrule \@height\z@ \@width\wd\mdf@splitbox@one\relax
969             \unvcopy\mdf@splitbox@two%
970         }
971 \fi%

```

Test if the first frame is empty

```

972 \ifvoid\mdf@splitbox@two\relax%
973   {\hrule \@height\fontsize pt \@width\z@%
974    \hrule \@height\z@ \@width\hsize}%
975   \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
976   \def\mdf@reserved@a{\mdf@put@frame}%
977 \else%
978   \ifdimequal{\ht\mdf@splitbox@two}{0pt}%
979   {\hrule \@height\z@ \@width\hsize%
980    \vfill\ject%
981    \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
982    \def\mdf@reserved@a{\mdf@put@frame}%
983   }%
984   {%

```

Output of the first frame

```

985 \beginngroup\mdf@@setzref\mdf@putbox@first\endgroup%
986 \hrule \@height\z@ \@width\hsize%
987 \vfill\ject%
988 \def\mdf@reserved@a{\mdf@put@frame@ii}%

989 }%
990 \fi%
991 }%
992 \mdf@reserved@a%
993 }

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```

994 \def\mdf@put@frame@ii{%

```

After splitting the vertical free space is `\vsize` so you can set it directly.

```

995 \setlength{\mdf@freevspace@length}{\vsize}%

```

`\dimen@` is equal to the natural height of the rest

```

996 \setlength{\dimen@}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%

```

Assume no middle box – add bottom length to the natural height of the contents

```

997 \mdf@dolist{\mdf@advancelength@freevspace@add}%
998   {%used \dimen@
999   innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth,%
1000   }

```

add top length of lines if `everyline` is set to `true`

```

1001 \ifbool{\mdf@everyline}%
1002   {%
1003   \ifbool{\mdf@topline}%
1004     {%
1005     \advance\dimen@ by \mdf@innerlinewidth@length%
1006     \advance\dimen@ by \mdf@middlelinewidth@length%
1007     \advance\dimen@ by \mdf@outerlinewidth@length%
1008     }{}%
1009   }{}%

```

remove length of bottom if `bottomline` is set to `false`

```

1010 \notbool{\mdf@bottomline}%
1011   {%
1012   \advance\dimen@ by -\mdf@innerlinewidth@length%

```

```

1013      \advance\dimen@ by -\mdf@middlelinewidth@length%
1014      \advance\dimen@ by -\mdf@outerlinewidth@length%
1015      \relax%
1016    }{}%

```

Test whether the complete height of the frame fits on the current page

```

1017    \ifdimgreater{\dimen@}{\mdf@freevspace@length}%
1018    {%have a middle box

```

Use `\mdf@freevspace@length` to compute the splitting dimension. The conditionals `everyline`, `topline` and `bottomline` work like the test above.

```

1019      \advance\mdf@freevspace@length by -\mdf@splitbottomskip@length\relax%
1020      \ifbool{mdf@everyline}%
1021      {%
1022        \ifbool{mdf@topline}%
1023        {%
1024          \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1025          \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1026          \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1027        }{}%
1028        \ifbool{mdf@bottomline}%
1029        {%
1030          \advance\mdf@freevspace@length by -\mdf@innerlinewidth@length%
1031          \advance\mdf@freevspace@length by -\mdf@middlelinewidth@length%
1032          \advance\mdf@freevspace@length by -\mdf@outerlinewidth@length%
1033          \relax}{}%
1034        }{}%

```

- save the original contents in a new save box,
- set the dimension for splitting
- ignore bad boxes and split

```

1035    \setbox\mdf@splitbox@save=\vbox{\unvcopy\mdf@splitbox@one}%
1036    \splittmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1037    \mdf@ignorevbadness%
1038    \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \mdf@freevspace@length%
1039    \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}
1040    \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}

```

Test whether the splitted box fits the required dimension

```

1041    \ifdimgreater{\ht\mdf@splitbox@two+\dp\mdf@splitbox@two}{\dimen@}%
1042    {%splitted wrong
1043      \mdf@PackageInfo{Box was splittet wrong^^M starting loop to iterate
1044        the splitting point\MessageBreak}%

```

Start loop until splitting fits – break after 100 attempts

```

1045      \dimen@i=\mdf@freevspace@length%\relax
1046      \@tempcnta=\z@\relax
1047      \loop
1048      \ifdim\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax>\mdf@freevspace@length
1049      \advance\dimen@i by -\p@\relax
1050      \advance\@tempcnta by \@ne\relax
1051      \ifnum\@tempcnta>100
1052        \let\iterate\relax
1053        \mdf@PackageWarning{correct box splittet fails^^M
1054          It seems you are using a non splittable
1055          contents\MessageBreak}
1056      \fi
1057      \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%

```

```

1058      \splitmaxdepth\z@ \splittopskip\mdf@splittopskip@length%
1059      \mdf@ignorevbadness%
1060      \setbox\mdf@splitbox@two\vsplit\mdf@splitbox@one to \dimen@i
1061      \setbox\mdf@splitbox@two\vbox{\unvbox\mdf@splitbox@two}%
1062      \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one}%
1063      \repeat%
1064      }{}%
repeating frame title must be improved
1065      \ifbool{mdf@repeatframetitle}{%
1066          \setbox\mdf@splitbox@one\vbox{%
1067              \vbox to \mdf@splittopskip@length{\hsize\z@}
1068              %\par\unskip\nointerlineskip
1069              \unvcopy\mdf@frametitlebox%
1070              \mdf@@frametitlerule%
1071              \vbox to%
1072                  \dimexpr%
1073                      -\mdf@splittopskip@length+\ht\strutbox+\dp\strutbox%
1074                      +\mdf@innertopmargin@length%
1075                  \relax{\hsize\z@}%
1076              \unvbox\mdf@splitbox@one}%
1077          }{}%
Test whether last frame is empty
1078      \ifvoid\mdf@splitbox@one\relax%
1079          \mdf@PackageWarning{You got a bad break because the splittet box is
1080              empty^^M
1081              You have to change the page settings^^M
1082              like enlargethispage or something else^^M
1083              the package increases do
1084              \enlargethispage{\baselineskip}\MessageBreak}%
1085          \setbox\mdf@splitbox@one=\vbox{\unvcopy\mdf@splitbox@save}%
1086          \enlargethispage{\baselineskip}%
1087          \def\mdf@reserved@a{\mdf@put@frame@ii}%
Output of the middle frame
1088      \else
1089          \begingroup\mdf@@setzref\mdf@putbox@middle\endgroup%
1090          \hrule \@height\z@ \@width\hsize%
1091          \vfill\ject%
1092          \def\mdf@reserved@a{\mdf@put@frame@ii}%
1093          \fi
1094      }%End middle box case
Starting output of last frame
1095      {%start last box case
1096          \ifvoid\mdf@splitbox@one
1097              \mdf@PackageWarning{You got a bad break\MessageBreak
1098                  because the last split box is empty\MessageBreak
1099                  You have to change the settings}%%
1100              \setbox\mdf@splitbox@one=\vbox%
1101                  {%
1102                      \unvbox\mdf@splitbox@one%
1103                      \hrule \@height\z@ \@width\mdfboundingboxwidth
1104                  }%
1105              \fi%
\ifvoid isn't enough – need to test the height
1106          \ifdimless{\ht\mdf@splitbox@one}{1sp}%

```

```

1107      {%
1108      \mdf@PackageWarning{You got a bad break\MessageBreak
1109                        because the last split box is empty\MessageBreak
1110                        You have to change the settings}%
1111
1112      \let\mdf@reserved@a\relax%
1113      \setbox\mdf@splitbox@one=\vbox%
1114      {%
1115      \unvbox\mdf@splitbox@one%
1116      \hrule \@height\z@ \@width\mdf@boundingboxwidth
1117      }%
1118      }{}%

```

Output of the last frame

```

1119      \begingroup\mdf@@setzref\mdf@putbox@second\endgroup%
1120      \hrule \@height\z@ \@width\hsize%
1121      \let\mdf@reserved@a\relax%
1122      }%
1123      \mdf@reserved@a%
1124      }
1125

```

```

\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.

```

1126 %%%%      -----t-----
1127 %%%%      |               |
1128 %%%%      |               |
1129 %%%%      |               |
1130 %%%%      l|               |r
1131 %%%%      |               |
1132 %%%%      |               |
1133 %%%%      |-----b-----|
1134 %%%%
1135 %%Zusammenhaenge abfragen:
1136 \newrobustcmd*\mdf@test@lrb{%
1137   \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1138             and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1139 %3-set
1140 \newrobustcmd*\mdf@test@ltr{%
1141   \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1142             and (bool {mdf@leftline}) and (bool {mdf@rightline})}}

```



```

1143 \newrobustcmd*\mdf@test@ltb{%
1144     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1145                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1146 \newrobustcmd*\mdf@test@trb{%
1147     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1148                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1149 \newrobustcmd*\mdf@test@lrb{%
1150     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1151                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1152 %2-set
1153 \newrobustcmd*\mdf@test@lb{%
1154     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1155                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1156 \newrobustcmd*\mdf@test@rb{%
1157     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1158                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1159 \newrobustcmd*\mdf@test@tr{%
1160     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1161                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1162 \newrobustcmd*\mdf@test@lt{%
1163     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1164                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1165 \newrobustcmd*\mdf@test@lr{%
1166     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1167                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1168 \newrobustcmd*\mdf@test@tb{%
1169     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1170                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1171 %Einzellinien
1172 \newrobustcmd*\mdf@test@l{%
1173     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1174                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1175 \newrobustcmd*\mdf@test@r{%
1176     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1177                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1178 \newrobustcmd*\mdf@test@t{%
1179     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1180                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1181 \newrobustcmd*\mdf@test@b{%
1182     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1183                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1184 %keine Linien
1185 \newrobustcmd*\mdf@test@noline{%
1186     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1187                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1188 \newrobustcmd*\mdf@test@single{%
1189     \ifboolexpr{ not (test {\mdf@test@lrb} or test {\mdf@test@ltr} or
1190                          test {\mdf@test@ltb} or test {\mdf@test@trb} or
1191                          test {\mdf@test@lrb} or test {\mdf@test@lb} or
1192                          test {\mdf@test@rb} or test {\mdf@test@tr} or
1193                          test {\mdf@test@lt} ) }}
1194 %
1195 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1196 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1197

```

```
1198 \endinput
```

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

```
1199 %% Style file for mdframed for package option 'framemethod=default'
1200 %%
1201 %% This package may be distributed under the terms of the LaTeX Project
1202 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1203 %% Either version 1.0 or, at your option, any later version.
1204 %%
1205 %%
1206 %%$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
1207 %
```

```
\mdframed0packagename
\mdf@frame0date@svn
```

local settings

```
1208 \def\mdframed0packagename{md-frame-0}
1209 \def\mdf@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8$#4/#5/#6\space }
1210 \ProvidesFile{md-frame-0.mdf}%
1211     [\mdf@frame0date@svn$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $]
1212     \mdversion: \mdframed0packagename]
```

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

short command

```
1213 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1214 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1215 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1216 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1217 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1218 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1219 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1220 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1221 \def\mdf@@frametitlerule{%
1222   \ifbool{mdf@frametitlerule}{%
1223     \vbox{\hsize\mdfframetitleboxwidth%
1224       \par\unskip\vskip\mdf@frametitlebelowskip@length%
1225       \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1226         \mdf@frametitlerulecolor@default%
1227         \rule{\dimexpr\mdfframetitleboxwidth%
1228           +\mdf@innerleftmargin@length
1229           +\mdf@innerrightmargin@length\relax
1230         }{\mdf@frametitlerulewidth@length}%
1231         }\hrule \@height\z@ \@width\hsize}%
1232   }{}%
1233   \par\unskip\vskip\mdf@innertopmargin@length%
1234 }%
1235
```

```

\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

```

1236 \def\mdf@frame@background@single{%
1237   \ifbool{mdf@shadow}%
1238   {%
1239     \rlap%
1240     {%
1241       \smash%
1242       {%
1243         \mdf@shadow@default%
1244         \rule[\dimexpr
1245           -\mdfboundingboxdepth
1246           -\mdf@shadowsize@length
1247           \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}
1248           \relax]%
1249         {\dimexpr
1250           \mdfboundingboxtotalwidth
1251           +\mdf@shadowsize@length
1252           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1253           \relax}%
1254         {\dimexpr
1255           \mdfboundingboxtotalheight
1256           +\mdf@shadowsize@length
1257           \ifbool{mdf@bottomline}{+\mdf@middlelinewidth@length}{}
1258           \relax}%
1259         }%
1260       }%
1261     }{}%
1262   \rlap%
1263   {%
1264     \mdf@background@default%
1265     \rule[-\mdfboundingboxdepth]%
1266       {\mdfboundingboxtotalwidth}%
1267       {\mdfboundingboxtotalheight}%
1268   }%
1269 }%
1270 \def\mdf@frame@frametitlebackground@single{%
1271   \rlap%
1272   {%
1273     \mdf@frametitlebackground@default%
1274     \rule[\dimexpr
1275       -\mdfboundingboxdepth
1276       +\mdfboundingboxtotalheight
1277       -\mdfframetitleboxtotalheight
1278       \relax]%
1279     {\mdfboundingboxtotalwidth}%
1280     {\mdfframetitleboxtotalheight}%
1281   }%
1282 }%
1283 \def\mdf@frame@topline@single{%

```

```

1284 \rlap%
1285 {%
1286   \mdf@linecolor@default%
1287   \ifbool{mdf@topline}%
1288   {%
1289     \rule[\dimexpr
1290       \mdfboundingboxheight
1291       -\mdfboundingboxdepth%
1292       +\mdf@innerbottommargin@length
1293       +\mdf@innertopmargin@length
1294       \relax]%
1295     {\mdfboundingboxtotalwidth}%
1296     {\mdf@middlelinewidth@length}%
1297   }{}%
1298 }%
1299 }%
1300 \def\mdf@frame@bottomline@single{%
1301   \rlap%
1302   {%
1303     \ifbool{mdf@leftline}%
1304     {%
1305       \hspace*{-\mdf@middlelinewidth@length}%
1306     }{}%
1307     \mdf@linecolor@default%
1308     \ifbool{mdf@bottomline}%
1309     {%
1310       \rule[\dimexpr
1311         -\mdfboundingboxdepth
1312         -\mdf@middlelinewidth@length
1313         \relax]%
1314       {\dimexpr
1315         \mdfboundingboxtotalwidth
1316         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1317         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1318         \relax}%
1319       {\mdf@middlelinewidth@length}%
1320     }{}%
1321   }%
1322 }%
1323 \def\mdf@frame@leftline@single{%
1324   \llap%
1325   {%
1326     \mdf@linecolor@default%
1327     \rule[-\mdfboundingboxdepth]%
1328     {\mdf@middlelinewidth@length}%
1329     {\dimexpr
1330       \mdfboundingboxtotalheight%
1331       \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}%
1332       \relax}%
1333   }%
1334 }%
1335 \def\mdf@frame@rightline@single{%
1336   \rlap%
1337   {%
1338     \mdf@linecolor@default%
1339     \hspace*{\mdfboundingboxwidth}%

```

```

1340 \hspace*{\mdf@innerrightmargin@length}%
1341 \rule[\dimexpr
1342     -\mdfboundingboxdepth%
1343     \relax]%
1344     {\mdf@middlelinewidth@length}%
1345     {\dimexpr
1346         \mdfboundingboxtotalheight%
1347         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}%
1348         \relax}%
1349     }%
1350 }%
1351 \def\mdf@putbox@single{%
1352     \ifvoid\mdf@splitbox@one\relax
1353     \else%
1354         \mdf@makebox@out%
1355         {%
1356             \mdf@makeboxalign@left%
1357             \setlength{\mdfboundingboxwidth}%
1358                 {\wd\mdf@splitbox@one}%
1359             \setlength{\mdfboundingboxtotalwidth}%
1360                 {\dimexpr
1361                     \mdfboundingboxwidth
1362                     +\mdf@innerleftmargin@length%
1363                     +\mdf@innerrightmargin@length
1364                     \relax}%
1365             \setlength{\mdfboundingboxheight}%
1366                 {\dimexpr
1367                     \ht\mdf@splitbox@one
1368                     +\dp\mdf@splitbox@one
1369                     \relax}%
1370             \setlength{\mdfboundingboxdepth}%
1371                 {\dimexpr
1372                     \dp\mdf@splitbox@one
1373                     +\mdf@innerbottommargin@length
1374                     \relax}%
1375             \setlength{\mdfboundingboxtotalheight}%
1376                 {\dimexpr
1377                     \mdfboundingboxheight
1378                     +\mdf@innertopmargin@length%
1379                     +\mdf@innerbottommargin@length
1380                     \relax}%
1381             \setlength{\mdftotalllinewidth}%
1382                 {\dimexpr
1383                     \mdf@innerlinewidth@length
1384                     +\mdf@middlelinewidth@length%
1385                     +\mdf@outerlinewidth@length
1386                     \relax}%
1387             \noindent%
1388             \setlength{\@tempdima}%
1389                 {\dimexpr
1390                     \mdfboundingboxtotalwidth%
1391                     \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1392                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1393                     \relax}%
1394             \mdf@makebox@in[\@tempdima]%
1395             {%

```

```

1396      \null%
1397      \ifbool{mdf@leftline}%
1398      {%
1399          \hspace*{\mdftotalllinewidth}%
1400          \mdf@frame@leftline@single%
1401      }{}%
1402      \mdf@frame@topline@single%
1403      \mdf@frame@background@single%
1404      \mdf@frame@bottomline@single%
1405      \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%
1406      \hspace*{\mdf@innerleftmargin@length}%
1407      \ifbool{mdf@rightline}%
1408      {%
1409          \mdf@frame@rightline@single%
1410      }{}%
1411      {\box\mdf@splitbox@one}%
1412      }%
1413      \mdf@makeboxalign@right%
1414      }%
1415      \fi%
1416  }

```

```

\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

```

1417 \def\mdf@frame@background@first{%
1418     \ifbool{mdf@shadow}%
1419     {%
1420         \rlap%
1421         {%
1422             \smash%
1423             {%
1424                 \mdf@shadow@default%
1425                 \rule[\dimexpr
1426                     -\mdfboundingboxdepth
1427                     -\mdf@shadowsize@length
1428                 \relax]{%
1429                     {\dimexpr
1430                         \mdfboundingboxtotalwidth
1431                         +\mdf@shadowsize@length
1432                         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1433                     \relax}%
1434                     {\dimexpr
1435                         \mdfboundingboxtotalheight
1436                         +\mdf@shadowsize@length
1437                     \relax}%
1438                 }%
1439             }%
1440         }{}%
1441     \rlap%
1442     {%
1443         \mdf@background@default%

```

```

1444 \rule[-\mdfboundingboxdepth]%
1445     {\mdfboundingboxtotalwidth}%
1446     {\mdfboundingboxtotalheight}%
1447 }%
1448 }%
1449 \def\mdf@frame@frametitlebackground@first{%
1450 \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1451 {%
1452 \rlap%
1453 {%
1454 \mdf@frametitlebackground@default%
1455 \rule[\dimexpr
1456     -\mdfboundingboxdepth
1457     +\mdfboundingboxtotalheight
1458     -\mdfframetitleboxtotalheight
1459 \relax]%
1460     {\mdfboundingboxtotalwidth}%
1461     {\mdfframetitleboxtotalheight}%
1462 }%
1463 \global\mdfframetitleboxtotalheight=-\p@\relax%
1464 }%
1465 {%
1466 \mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1467     Current this isn't well supported}%
1468 \rlap%
1469 {%
1470 \mdf@frametitlebackground@default%
1471 \rule[-\mdfboundingboxdepth]%
1472     {\mdfboundingboxtotalwidth}%
1473     {\mdfboundingboxtotalheight}%
1474 }%
1475 \global\mdfframetitleboxtotalheight=%
1476 \dimexpr%
1477     \mdfframetitleboxtotalheight
1478     -\mdfboundingboxheight
1479     +\mdf@frametitlebelowskip@length
1480     +.5\baselineskip-1pt
1481 %
1482     +\dp\strutbox
1483 \relax%
1484 }%
1485 }%
1486 \def\mdf@frame@leftline@first{%
1487 \llap%
1488 {%
1489 \mdf@linecolor@default%
1490 \rule[-\mdfboundingboxdepth]%
1491     {\mdf@middlelinewidth@length}%
1492     {\dimexpr
1493         \mdfboundingboxtotalheight%
1494         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
1495     \relax}%
1496 }%
1497 \def\mdf@frame@topline@first{%
1498 \rlap%
1499 {%

```

```

1500 \mdf@linecolor@default%
1501 \rule[\dimexpr
1502     \mdfboundingboxheight
1503     -\mdfboundingboxdepth
1504     +\mdf@splitbottomskip@length
1505     +\mdf@innertopmargin@length
1506     \relax]%
1507     {\mdfboundingboxtotalwidth}%
1508     {\mdf@middlelinewidth@length}%
1509 }%
1510 }
1511 \def\mdf@frame@rightline@first{%
1512 \rlap%
1513 {%
1514 \mdf@linecolor@default%
1515 \hspace*{\mdfboundingboxwidth}%
1516 \hspace*{\mdf@innerrightmargin@length}%
1517 \rule[-\mdfboundingboxdepth]%
1518     {\mdf@middlelinewidth@length}%
1519     {\dimexpr
1520         \mdfboundingboxtotalheight%
1521         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
1522     \relax}%
1523 }%
1524 }%
1525 \def\mdf@frame@bottomline@first{%
1526 \rlap%
1527 {%
1528 \ifbool{mdf@leftline}%
1529     {%
1530         \hspace*{-\mdf@middlelinewidth@length}%
1531     }{}%
1532 \mdf@linecolor@default%
1533 \ifbool{mdf@bottomline}%
1534     {%
1535         \rule[\dimexpr
1536             -\mdfboundingboxdepth
1537             -\mdf@middlelinewidth@length
1538             \relax]%
1539         {\dimexpr
1540             \mdfboundingboxtotalwidth
1541             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1542             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}}
1543         \relax}%
1544         {\mdf@middlelinewidth@length}%
1545     }{}%
1546 }%
1547 }%
1548 \def\mdf@putbox@first{%
1549 \ifvoid\mdf@splitbox@two\relax
1550 \else%
1551 \mdf@makebox@out[\linewidth]%
1552 {%
1553 \mdf@makeboxalign@left%
1554 \setlength{\mdfboundingboxwidth}%
1555     {\wd\mdf@splitbox@two}%

```



```

1556     \setlength{\mdfboundingboxtotalwidth}%
1557         {\dimexpr
1558             \mdfboundingboxwidth
1559             +\mdf@innerleftmargin@length%
1560             +\mdf@innerrightmargin@length
1561             \relax}%
1562     \setlength{\mdfboundingboxheight}%
1563         {\dimexpr
1564             \ht\mdf@splitbox@two
1565             +\dp\mdf@splitbox@two
1566             \relax}%
1567     \setlength{\mdfboundingboxdepth}%
1568         {\dimexpr
1569             \dp\mdf@splitbox@two
1570             +\mdf@splitbottomskip@length
1571             \relax}%
1572     \setlength{\mdfboundingboxtotalheight}%
1573         {\dimexpr
1574             \mdfboundingboxheight
1575             +\mdf@innertopmargin@length%
1576             +\mdf@splitbottomskip@length
1577             \relax}%
1578     \setlength{\@tempdima}%
1579         {\dimexpr
1580             \mdfboundingboxtotalwidth%
1581             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1582             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1583             \relax}%
1584     \mdf@makebox@in[\@tempdima]%
1585     {%
1586         \null%
1587         \ifbool{mdf@leftline}%
1588         {%
1589             \hspace*{\mdf@middlelinewidth@length}%
1590             \mdf@frame@leftline@first%
1591         }{}%
1592         \ifbool{mdf@everyline}%
1593         {%
1594             \mdf@frame@bottomline@first%
1595         }{}%
1596         \ifbool{mdf@topline}%
1597         {%
1598             \mdf@frame@topline@first%
1599         }{}%
1600         \mdf@frame@background@first%
1601         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1602         \hspace*{\mdf@innerleftmargin@length}%
1603         \ifbool{mdf@rightline}%
1604         {%
1605             \mdf@frame@rightline@first%
1606         }{}%
1607         {\box\mdf@splitbox@two}%
1608     }%
1609     \mdf@makeboxalign@right%
1610 }%
1611 \fi%

```

1612 }

```

\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

```

1613 \def\mdf@frame@background@second{%
1614   \ifbool{mdf@shadow}%
1615     {%
1616       \rlap%
1617       {%
1618         \smash%
1619         {%
1620           \mdf@shadow@default%
1621           \rule[\dimexpr
1622             -\mdfboundingboxdepth
1623             -\mdf@shadowsize@length
1624             \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{}
1625             \relax]%
1626           {\dimexpr
1627             \mdfboundingboxtotalwidth
1628             +\mdf@shadowsize@length
1629             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1630             \relax}%
1631           {\dimexpr
1632             \mdfboundingboxtotalheight
1633             +\mdf@shadowsize@length
1634             \relax}%
1635         }%
1636       }%
1637     }{}%
1638   \rlap%
1639   {%
1640     \mdf@background@default%
1641     \rule[-\mdfboundingboxdepth]%
1642       {\mdfboundingboxtotalwidth}%
1643       {\mdfboundingboxtotalheight}%
1644   }%
1645 }%
1646 \def\mdf@frame@frametitlebackground@second{%
1647   \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1648   {%
1649     {%
1650       \rlap%
1651       {%
1652         \mdf@frametitlebackground@default%
1653         \rule[\dimexpr
1654           -\mdfboundingboxdepth
1655           +\mdfboundingboxtotalheight
1656           -\mdfframetitleboxtotalheight
1657           \relax]%
1658         {\mdfboundingboxtotalwidth}%
1659         {\mdfframetitleboxtotalheight}%

```

```

1660 }%
1661 }%
1662 }%
1663 \def\mdf@frame@leftline@second{%
1664 \llap%
1665 {%
1666 \mdf@linecolor@default%
1667 \rule[-\mdfboundingboxdepth]%
1668 {\mdf@middlelinewidth@length}%
1669 {\dimexpr\mdfboundingboxtotalheight}%
1670 }%
1671 }%
1672 \def\mdf@frame@bottomline@second{%
1673 \rlap%
1674 {%
1675 \ifbool{mdf@leftline}%
1676 {%
1677 \hspace*{-\mdf@middlelinewidth@length}%
1678 }{}%
1679 \mdf@linecolor@default%
1680 \rule[\dimexpr
1681 -\mdfboundingboxdepth
1682 -\mdf@middlelinewidth@length
1683 \relax]%
1684 {\dimexpr
1685 \mdfboundingboxtotalwidth
1686 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}
1687 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}
1688 \relax}%
1689 {\mdf@middlelinewidth@length}%
1690 }%
1691 }%
1692 \def\mdf@frame@rightline@second{%
1693 \rlap%
1694 {%
1695 \mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1696 \hspace*{\mdf@innerrightmargin@length}%
1697 \rule[-\mdfboundingboxdepth]%
1698 {\mdf@middlelinewidth@length}%
1699 {\mdfboundingboxtotalheight}%
1700 }%
1701 }%
1702 \def\mdf@frame@topline@second{%
1703 \rlap%
1704 {%
1705 \ifbool{mdf@leftline}%
1706 {%
1707 \hspace*{-\mdf@middlelinewidth@length}%
1708 }{}%
1709 \mdf@linecolor@default%
1710 \ifbool{mdf@topline}%
1711 {%
1712 \rule[\dimexpr
1713 \mdfboundingboxheight
1714 -\mdfboundingboxdepth%
1715 +\mdf@innerbottommargin@length

```

```

1716         \relax}%
1717     {\dimexpr
1718         \mdfboundingboxtotalwidth
1719         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1720         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{%
1721         \relax}%
1722     {\mdf@middlelinewidth@length}%
1723 }}}%
1724 }%
1725 }%
1726
1727 \def\mdf@putbox@second{%
1728     \ifvoid\mdf@splitbox@one\relax%
1729     \else
1730         \mdf@makebox@out%
1731     {%
1732         \mdf@makeboxalign@left%
1733         \setlength{\mdfboundingboxwidth}%
1734             {\wd\mdf@splitbox@one}%
1735         \setlength{\mdfboundingboxtotalwidth}%
1736             {\dimexpr
1737                 \mdfboundingboxwidth
1738                 +\mdf@innerleftmargin@length%
1739                 +\mdf@innerrightmargin@length
1740                 \relax}%
1741         \setlength{\mdfboundingboxheight}%
1742             {\dimexpr
1743                 \ht\mdf@splitbox@one
1744                 +\dp\mdf@splitbox@one
1745                 \relax}%
1746         \setlength{\mdfboundingboxdepth}%
1747             {\dimexpr
1748                 \dp\mdf@splitbox@one
1749                 +\mdf@innerbottommargin@length
1750                 \relax}%
1751         \setlength{\mdfboundingboxtotalheight}%
1752             {\dimexpr
1753                 \mdfboundingboxheight
1754                 +\mdf@innerbottommargin@length
1755                 \relax}%
1756         \setlength{\@tempdima}%
1757             {\dimexpr
1758                 \mdfboundingboxtotalwidth%
1759                 \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1760                 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1761                 \relax}%
1762         \mdf@makebox@in[\@tempdima]%
1763     {%
1764         \null%
1765         \ifbool{mdf@leftline}%
1766         {%
1767             \hspace*{\mdf@middlelinewidth@length}%
1768             \mdf@frame@leftline@second%
1769         }{}%
1770         \ifbool{mdf@everyline}%
1771         {%

```

```

1772      \mdf@frame@topline@second
1773      }{}%
1774      \mdf@frame@background@second%
1775      \ifbool{mdf@bottomline}%
1776      {%
1777      \mdf@frame@bottomline@second%
1778      }{}%
1779      \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
1780      \hspace*{\mdf@innerleftmargin@length}%
1781      \ifbool{mdf@rightline}%
1782      {%
1783      \mdf@frame@rightline@second%
1784      }{}%
1785      {\box\mdf@splitbox@one}%
1786      }%
1787      \mdf@makeboxalign@right%
1788      }%
1789      \fi%
1790 }%

```

```

\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

```

1791 \def\mdf@frame@leftline@middle{%
1792   \llap%
1793   {%
1794     \mdf@linecolor@default%
1795     \rule[-\mdfboundingboxdepth]%
1796       {\mdf@middlelinewidth@length}%
1797       {\mdfboundingboxtotalheight}%
1798   }%
1799 }%
1800 \def\mdf@frame@background@middle{%
1801   \ifbool{mdf@shadow}%
1802   {%
1803     \rlap%
1804     {%
1805       \smash%
1806       {%
1807         \mdf@shadow@default%
1808         \rule[\dimexpr
1809           -\mdfboundingboxdepth
1810           -\mdf@shadowsize@length
1811           \relax]%
1812         {\dimexpr
1813           \mdfboundingboxtotalwidth
1814           +\mdf@shadowsize@length
1815           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}}
1816         \relax}%
1817         {\mdfboundingboxtotalheight}%
1818       }%
1819     }%
1820   }{}%

```

```

1821 \rlap%
1822 {%
1823   \mdf@background@default%
1824   \rule[-\mdfboundingboxdepth]%
1825     {\mdfboundingboxtotalwidth}%
1826     {\mdfboundingboxtotalheight}%
1827   }%
1828 }%
1829 \def\mdf@frame@frametitlebackground@middle{%
1830 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1831   {%
1832     {%
1833       \rlap%
1834       {%
1835         \mdf@frametitlebackground@default%
1836         \rule[\dimexpr
1837           -\mdfboundingboxdepth
1838           +\mdfboundingboxtotalheight
1839           -\mdfframetitleboxtotalheight
1840           \relax]%
1841           {\mdfboundingboxtotalwidth}%
1842           {\mdfframetitleboxtotalheight}%
1843         }%
1844         \global\mdfframetitleboxtotalheight=-\p@\relax%
1845       }%
1846     }%
1847 \def\mdf@frame@rightline@middle{%
1848   \rlap%
1849   {%
1850     \mdf@linecolor@default%
1851     \hspace*{\mdfboundingboxwidth}%
1852     \hspace*{\mdf@innerrightmargin@length}%
1853     \rule[-\mdfboundingboxdepth]%
1854       {\mdf@middlelinewidth@length}%
1855       {\mdfboundingboxtotalheight}%
1856   }%
1857 }%
1858 \def\mdf@frame@topline@middle{%
1859   \rlap%
1860   {%
1861     \ifbool{mdf@leftline}%
1862     {%
1863       \hspace*{-\mdf@middlelinewidth@length}%
1864     }{}%
1865     \mdf@linecolor@default%
1866     \ifbool{mdf@topline}%
1867     {%
1868       \rule[\dimexpr
1869         \mdfboundingboxtotalheight
1870         -\mdfboundingboxdepth
1871         \relax]%
1872       {\dimexpr
1873         \mdfboundingboxtotalwidth
1874         \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1875         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}
1876         \relax}%

```

```

1877         {\mdf@middlelinewidth@length}%
1878     }{}%
1879 }%
1880}%
1881\def\mdf@frame@bottomline@middle{%
1882    \rlap%
1883    {%
1884        \ifbool{mdf@leftline}%
1885        {%
1886            \hspace*{-\mdf@middlelinewidth@length}%
1887        }{}%
1888        \mdf@linecolor@default%
1889        \ifbool{mdf@bottomline}%
1890        {%
1891            \rule[\dimexpr
1892                -\mdf@boundingboxdepth
1893                -\mdf@middlelinewidth@length
1894                \relax]{%
1895                {\dimexpr
1896                    \mdf@boundingboxtotalwidth
1897                    \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1898                    \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}
1899                    \relax}%
1900                {\mdf@middlelinewidth@length}%
1901                }{}%
1902            }%
1903        }%
1904    }%
1905\def\mdf@putbox@middle{%
1906    \ifvoid\mdf@splitbox@two\relax%
1907    \else
1908        \mdf@makebox@out%
1909        {%
1910            \mdf@makeboxalign@left%
1911            \setlength{\mdf@boundingboxwidth}%
1912                {\wd\mdf@splitbox@two}%
1913            \setlength{\mdf@boundingboxtotalwidth}%
1914                {\dimexpr
1915                    \mdf@boundingboxwidth
1916                    +\mdf@innerleftmargin@length%
1917                    +\mdf@innerrightmargin@length
1918                    \relax}%
1919            \setlength{\mdf@boundingboxheight}%
1920                {\dimexpr
1921                    \ht\mdf@splitbox@two
1922                    +\dp\mdf@splitbox@two
1923                    \relax}%
1924            \setlength{\mdf@boundingboxdepth}%
1925                {\dimexpr
1926                    \dp\mdf@splitbox@two
1927                    +\mdf@splitbottomskip@length
1928                    \relax}%
1929            \setlength{\mdf@boundingboxtotalheight}%
1930                {\dimexpr
1931                    \mdf@boundingboxheight
1932                    +\mdf@splitbottomskip@length

```

```

1933         \relax}%
1934     \setlength{\@tempdima}
1935         {\dimexpr
1936             \mdfboundingboxtotalwidth%
1937             \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}{}%
1938             \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{}%
1939         \relax}%
1940     \mdf@makebox@in[\@tempdima]%
1941     {%
1942         \null%
1943         \ifbool{mdf@leftline}%
1944             {%
1945                 \hspace*{\mdf@middlelinewidth@length}%
1946                 \mdf@frame@leftline@middle%
1947             }{}%
1948         \mdf@frame@background@middle%
1949         \ifbool{mdf@everyline}%
1950             {%
1951                 \mdf@frame@topline@middle
1952             }{}%
1953         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@middle}%
1954         \ifbool{mdf@everyline}%
1955             {%
1956                 \mdf@frame@bottomline@middle%
1957             }{}%
1958         \hspace*{\mdf@innerleftmargin@length}%
1959         \ifbool{mdf@rightline}%
1960             {%
1961                 \mdf@frame@rightline@middle%
1962             }{}%
1963         {\box\mdf@splitbox@two}%
1964     }%
1965     \mdf@makebox@align@right%
1966 }%
1967 \fi%
1968 }

1969 \endinput

```

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

```

1970 %% Style file for mdframed for package option 'framemethod=default'
1971 %%
1972 %% This package may be distributed under the terms of the LaTeX Project
1973 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1974 %% Either version 1.0 or, at your option, any later version.
1975 %%
1976 %%
1977 %%$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
1978 %

```

```

\mdframedIpackagename
\mdf@frameIdate@svn

```

local settings

```
1979 \def\mdframedIpackagename{md-frame-1}
```



```

1980 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
1981 \ProvidesFile{md-frame-1.mdf}%
1982      [\mdf@frameIdate@svn$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $ %
1983      \mdfversion: \mdframedIpackagename]
1984 %

```

\mdf@tikz@settings

Define settings for tikz

```

1985 %Allgemeine Einstellungen fuer tikz
1986 \def\mdf@tikz@settings{%
1987 %
1988   \tikzset{mdfbox/.style={anchor=south west,%
1989                           inner sep=0pt,%
1990                           outer sep=0pt,%
1991                           \mdf@fontcolor,%
1992                           }%
1993           }% anchor der Ausgabebox ist unten links
1994   \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1995   \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1996                                   draw=\mdf@backgroundcolor%
1997                                   }%
1998           }%
1999   \tikzset{mdfframetitlebackground/.style=%
2000           {%
2001             fill=\mdf@frametitlebackgroundcolor,%
2002             draw=none,%
2003             rounded corners={max(\mdf@roundcorner@length%
2004                                   -\mdf@innerlinewidth@length%
2005                                   -.5\mdf@middlelinewidth@length,0)%
2006                               }%
2007           }%
2008           }%
2009 %
2010   \tikzset{mdfouterline/.style={}}%
2011 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
2012   \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
2013     {\tikzset{mdfouterline/.append style={%
2014             draw=\mdf@outerlinecolor,%
2015             line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
2016 %
2017   \tikzset{mdfinnerline/.style={}}%
2018 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
2019   \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
2020     {\tikzset{mdfinnerline/.append style={%
2021             draw=\mdf@innerlinecolor,%
2022             line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
2023 %
2024   \tikzset{mdfshadow/.style={drop shadow={%
2025                               shadow xshift=\mdf@shadowsize@length-2pt,
2026                               shadow yshift=-\mdf@shadowsize@length+2pt,
2027                               fill=\mdf@shadowcolor,
2028                               every shadow }}}%
2029 %
2030   \mdf@tikzset@local

```

```

2031 \tikzset{mdfmiddleline/.style={}}%
2032 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
2033 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
2034   {\tikzset{mdfmiddleline/.append style={%
2035     preaction={draw=\mdf@middlelinecolor,%
2036       line width=\mdf@middlelinewidth@length},%
2037     line width=\mdf@middlelinewidth@length,%
2038     tikzsetting}}}%
2039   }{}%
2040 }%

```

```

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

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

2041 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
2042   \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
2043   \begin{scope}[mdfcorners]%
2044     \clip[preaction=mdfouterline]%
2045       [postaction=mdfbackground]%
2046       [postaction=mdfinnerline]#1;%
2047   \end{scope}%
2048   \path[mdfmiddleline,mdfcorners]#1;
2049 }%
2050
2051
2052
2053 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
2054   \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
2055   \begin{scope}
2056     \path[mdfouterline,mdfcorners]#1;%
2057     \clip[postaction=mdfbackground]#2;%
2058     \path[mdfinnerline,mdfcorners]#1;%
2059   \end{scope}%
2060   \path[mdfmiddleline,mdfcorners]#1;}%

```

```
\mdf@put@frametitlerule
```

frametitlerule with tikz

```

2061 \tikzset{mdfframetitlerule/.style={%
2062   draw=none,
2063   fill=\mdf@frametitlerulecolor,
2064 }%
2065 }
2066 \def\mdf@@frametitlerule{%
2067   \ifbool{mdf@frametitlerule}{%
2068     \vbox{\hsize0pt
2069       \par\unskip\vskip\mdf@frametitlebelowskip@length
2070       \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
2071       \begingroup%
2072       \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth
2073         +\mdf@innerleftmargin@length
2074         +\mdf@innerrightmargin@length}%
2075       \tikz\draw[mdfframetitlerule] (0,0)%
2076         rectangle (\dimen@,\mdf@frametitlerulewidth@length);

```

```

2077     \endgroup}
2078   }%
2079 }{}
2080 \par\unskip\vskip\mdf@innertopmargin@length%
2081 }%
2082

```

\mdf@putbox@single

Output of the non breakable contents.

```

2083 % Info zu den verwendeten Punkten:
2084 % O ist die untere linke Ecke der Mitte der middleline
2085 % P ist die obere rechte Ecke der Mitte der middleline
2086 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2087 %
2088 \def\mdf@putbox@single{%
2089   \ifvoid\mdf@splitbox@one
2090   \else%
2091     \mdf@makebox@out{%
2092       \mdf@makeboxalign@left%
2093       \mdf@tikz@settings%
2094     %
2095     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2096     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2097     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2098     \ifbool{mdf@leftline}{%
2099       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2100       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2101       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2102     \ifbool{mdf@rightline}{%
2103       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2104       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2105       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2106   %
2107   \setlength\mdfboundingboxheight%
2108     {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2109   \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2110   \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2111   \ifbool{mdf@topline}{%
2112     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2113     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2114     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2115   \ifbool{mdf@bottomline}{%
2116     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2117     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2118     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2119   \mdf@makebox@in[\mdfboundingboxwidth]{%
2120   \null%
2121   \begin{tikzpicture}[remember picture]%
2122     \pgfmithsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2123     \pgfmithsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2124     \pgfmithsetlengthmacro\mdf@Ox{+0pt}%
2125     \pgfmithsetlengthmacro\mdf@Oy{+0pt}%
2126     \pgfmithsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2127     \pgfmithsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%

```

```

2128 \ifbool{mdf@leftline}%
2129 {%
2130 \pgfmathsetlengthmacro\mdf@Ax%
2131 {\mdf@Ax+\mdf@outerlinewidth@length+
2132 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2133 \pgfmathsetlengthmacro\mdf@0x%
2134 {\mdf@0x+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2135 }{}%
2136 \ifbool{mdf@rightline}%
2137 {%
2138 \pgfmathsetlengthmacro\mdf@Px%
2139 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2140 }{}%
2141 \ifbool{mdf@bottomline}%
2142 {%
2143 \pgfmathsetlengthmacro\mdf@Ay%
2144 {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
2145 +\mdf@innerlinewidth@length}%
2146 \pgfmathsetlengthmacro\mdf@0y%
2147 {\mdf@0y+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2148 }{}%
2149 \ifbool{mdf@topline}%
2150 {%
2151 \pgfmathsetlengthmacro\mdf@Py%
2152 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2153 }{}%
2154 %
2155 \coordinate(0)at(\mdf@0x,\mdf@0y);%
2156 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2157 %
2158 \ifbool{mdf@shadow}
2159 {\path[mdfshadow,mdfcorners](0) rectangle (P);}{}%
2160 %
2161 \begin{scope}[use as bounding box]
2162 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2163 %
2164 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2165 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2166 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2167 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2168 %
2169 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2170 {\(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2171 }{}%
2172 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
2173 {\(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2174 }{}%
2175 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
2176 {\(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
2177 }{}%
2178 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
2179 {\(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2180 }{}%
2181 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
2182 {\(0)rectangle(P)}%
2183 }{}%

```

```

2184 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|P)(0|-P)--(P)}%
2185             {(0)rectangle(P)}%
2186             }{}%
2187 %
2188 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}%
2189             {(0)rectangle(P)}%
2190             }{}%
2191 \mdf@test@r{\mdf@tikzbox@otl{(0|P)--(P)}%
2192             {(0)rectangle(P)}%
2193             }{}%
2194 \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}%
2195             {(0)rectangle(P)}%
2196             }{}%
2197 \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
2198             {(0)rectangle(P)}%
2199             }{}%
2200 %
2201 \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2202 %
2203 %Frametitlebackground
2204 \drawbackgroundframetitle@single
2205 %
2206 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};%output
2207 \end{scope}
2208 %HIER KOMMT EIN WEITERES MAKRO
2209 \mdf@singleextra
2210 \mdfcreateextratikz
2211 \end{tikzpicture}%
2212 }%
2213 \mdf@makeboxalign@right%
2214 }%
2215 \fi
2216 }%
2217 \def\drawbackgroundframetitle@single{%
2218 \ifdefempty{\mdf@frametitle}{}{}%
2219 \drawbackgroundframetitle@@single%
2220 }%
2221 }%
2222 \def\drawbackgroundframetitle@@single{%
2223 \begin{scope}%background frame title
2224 \ifbool{mdf@leftline}{
2225 \pgfmathsetlengthmacro\mdf@0x%
2226 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2227 }{}%
2228 \ifbool{mdf@rightline}{%
2229 \pgfmathsetlengthmacro\mdf@Px%
2230 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2231 }{}%
2232 \ifbool{mdf@topline}{%
2233 \pgfmathsetlengthmacro\mdf@Py%
2234 {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2235 }{}%
2236 \pgfmathsetlengthmacro\mdf@Fy
2237 {\mdf@Py-\mdfframetitleboxtotalheight}
2238 \path[mdfframetitlebackground]
2239 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%

```

```

2240      --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2241      \end{scope}
2242 }

```

\mdf@putbox@first

Output of the first breakable contents.

```

2243 \def\drawbackgroundframetitle@first{%
2244   \ifdefempty{\mdf@frametitle}{}%
2245   {%
2246     \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
2247     {%
2248       \drawbackgroundframetitle@@first
2249       \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2250     }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2251       Currently this isn't well supported}%
2252     \drawbackgroundframetitle@@first
2253     \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
2254       {\mdfframetitleboxtotalheight
2255        -\mdfboundingboxheight
2256        -\mdf@innerlinewidth@length
2257        -0.5\mdf@middlelinewidth@length%
2258        +\mdf@frametitlebelowskip@length
2259        +\mdf@splitbottomskip@length
2260        +\mdf@splittopskip@length
2261        +\dp\strutbox%
2262       }%
2263   }%
2264 }%
2265 }%
2266 %
2267 \def\drawbackgroundframetitle@@first{%
2268   \begin{scope}%background frame title
2269     \ifbool{\mdf@leftline}{%
2270       \pgfmathsetlengthmacro\mdf@0x%
2271         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2272       }{}%
2273     \ifbool{\mdf@rightline}{%
2274       \pgfmathsetlengthmacro\mdf@Px%
2275         {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2276       }{}%
2277     \ifbool{\mdf@topline}{%
2278       \pgfmathsetlengthmacro\mdf@Py%
2279         {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2280       }{}%
2281     \pgfmathsetlengthmacro\mdf@Fy
2282       {\max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
2283     \path[mdfframetitlebackground]
2284       (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2285       --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2286     \end{scope}%
2287 }%
2288 %
2289 \def\mdf@putbox@first{%
2290   \ifvoid\mdf@splitbox@two

```

```

2291 \else%
2292 \mdf@makebox@out{%
2293 \mdf@makebox@align@left%
2294 \mdf@tikz@settings%
2295 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2296 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2297 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2298 \ifbool{mdf@leftline}{%
2299 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2300 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2301 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2302 \ifbool{mdf@rightline}{%
2303 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2304 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2305 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2306 \setlength\mdfboundingboxheight%
2307 {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2308 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2309 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2310 \ifbool{mdf@topline}{%
2311 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2312 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2313 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2314 %%%%%%%%%%
2315 \ifbool{mdf@everyline}{%
2316 \ifbool{mdf@bottomline}{%
2317 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2318 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2319 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2320 }}%
2321 %%%%%%%%%%
2322 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
2323 \ifdimgreater{\pagegoal-\maxdimen}{0pt}{\enlargethispage{\baselineskip}}%
2324 \mdf@makebox@in[\mdfboundingboxwidth]{%
2325 \null%
2326 \begin{tikzpicture}[remember picture]
2327 \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2328 \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2329 \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2330 \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2331 \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2332 \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2333 \ifbool{mdf@leftline}
2334 {%
2335 \pgfmathsetlengthmacro\mdf@Ax%
2336 {\mdf@Ax+\mdf@outerlinewidth@length+
2337 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2338 \pgfmathsetlengthmacro\mdf@Ox%
2339 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2340 }{%
2341 \ifbool{mdf@rightline}{%
2342 \pgfmathsetlengthmacro\mdf@Px%
2343 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2344 }{%
2345 \ifbool{mdf@topline}{%
2346 \pgfmathsetlengthmacro\mdf@Py%

```

```

2347         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2348     }{}%
2349 %%
2350 \ifbool{mdf@everyline}{%
2351     \ifbool{mdf@bottomline}%
2352     {%
2353         \pgfmathsetlengthmacro\mdf@Ay%
2354             {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
2355             +\mdf@innerlinewidth@length}%
2356         \pgfmathsetlengthmacro\mdf@Oy%
2357             {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2358     }{}%
2359     \ifbool{mdf@topline}%
2360     {%
2361         \pgfmathsetlengthmacro\mdf@Py%
2362             {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2363     }{}%
2364 }{}%
2365 %%
2366 \coordinate(0)at(\mdf@0x,\mdf@0y);%
2367 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2368 \ifbool{mdf@shadow}
2369     {\path[mdfshadow] (0) -- (0|-P) to[mdfcorners] (P) -- (P|-0) -- (0);}%
2370 \begin{scope}[use as bounding box]
2371 %%%%%%%%%%%
2372 \ifbool{mdf@everyline}{%
2373     \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2374     \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2375     \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2376     \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2377     \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2378     \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2379         {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2380     }{}%
2381     \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
2382         {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2383     }{}%
2384     \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
2385         {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
2386     }{}%
2387     \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
2388         {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2389     }{}%
2390     \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
2391         {(0)rectangle(P)}%
2392     }{}%
2393     \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
2394         {(0)rectangle(P)}%
2395     }{}%
2396     \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2397         {(0)rectangle(P)}%
2398     }{}%
2399     \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2400         {(0)rectangle(P)}%
2401     }{}%
2402     \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%

```



```

2403             {(0)rectangle(P)}%
2404         }{}%
2405     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|P)}%
2406             {(0)rectangle(P)}%
2407         }{}%
2408     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
2409 }{
2410     \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@ltr}}%
2411         {\mdf@tikzbox@otl{(0)--(0|P)--(P)--(P|-0)}}%
2412         {}%
2413     \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2414         {%
2415             \mdf@tikzbox@otl{(0)--(0|P)--(P)}
2416             {(P|-0)--(0)[mdfcorners]--(0|P)--(P)}
2417         }%
2418         {}%
2419     \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
2420         {%
2421             \mdf@tikzbox@otl{(0|P)--(P)--(P|-0)}%
2422             {(0)--(0|P)[mdfcorners]--(P)--(P|-0)}}%
2423         {}%
2424     \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2425         {\mdf@tikzbox@otl{(0)--(0|P)(P)--(P|-0)}{(0)rectangle(P)}}%
2426         {}%
2427     \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2428         {\mdf@tikzbox@otl{(0|P)--(P)}{(0)rectangle(P)}}%
2429         {}%
2430     \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2431         {\mdf@tikzbox@otl{(0)--(0|P)}{(0)rectangle(P)}}%
2432         {}%
2433     \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2434         {\mdf@tikzbox@otl{(0|P)--(P)}{(0)rectangle(P)}}%
2435         {}%
2436     \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
2437     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)--(0|P)--(P)--(P|-0);}%
2438         {}%
2439 }
2440 %%%%%%%%%%
2441     \drawbrackgroundframetitle@first
2442     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};%
2443     \end{scope}
2444     %HIER KOMMT EIN WEITERES MAKRO
2445     \mdf@firstextra
2446     \mdfcreateextratikz%
2447     \end{tikzpicture}%
2448     }%
2449     \mdf@makeboxalign@right%
2450 }%
2451 \fi
2452 }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```
2453 \def\drawbrackgroundframetitle@middle{%
```

```

2454 \ifdefempty{\mdf@frametitle}{\}%
2455 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2456 {\}%
2457 \drawbackgroundframetitle@@middle%
2458 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
2459 }%
2460 }%
2461 }%
2462 %
2463 \def\drawbackgroundframetitle@@middle{%
2464     \begin{scope}%background frame title
2465     \ifbool{mdf@leftline}{
2466         \pgfmathsetlengthmacro\mdf@0x%
2467             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2468         }{}%
2469     \ifbool{mdf@rightline}{%
2470         \pgfmathsetlengthmacro\mdf@Px%
2471             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2472         }{}%
2473     \pgfmathsetlengthmacro\mdf@Fy
2474         {\mdf@Py-\mdfframetitleboxtotalheight}
2475     \path[mdfframetitlebackground,rounded corners=\z@]
2476         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2477         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2478     \end{scope}
2479 }%
2480 %
2481 \def\drawbackgroundframetitle@@middle{%
2482     \begin{scope}%background frame title
2483     \ifbool{mdf@leftline}{
2484         \pgfmathsetlengthmacro\mdf@0x%
2485             {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2486         }{}%
2487     \ifbool{mdf@rightline}{%
2488         \pgfmathsetlengthmacro\mdf@Px%
2489             {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2490         }{}%
2491     \pgfmathsetlengthmacro\mdf@Fy
2492         {\mdf@Py-\mdfframetitleboxtotalheight}
2493     \path[mdfframetitlebackground,rounded corners=\z@]
2494         (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2495         --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
2496     \end{scope}
2497 }%
2498 \def\mdf@putbox@middle{%
2499     \ifvoid\mdf@splitbox@two
2500     \else%
2501         \mdf@makebox@out{%
2502             \mdf@makeboxalign@left%
2503             \mdf@tikz@settings%
2504             \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2505             \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2506             \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2507             \ifbool{mdf@leftline}{%
2508                 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2509                 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%

```

```

2510    \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}%
2511    \ifbool{mdf@rightline}{%
2512      \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2513      \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2514      \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}%
2515    \setlength\mdfboundingboxheight%
2516      {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2517    \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2518    %%%%%%%%%%
2519    \ifbool{mdf@everyline}{%
2520      \ifbool{mdf@topline}{%
2521        \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2522        \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2523        \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}%
2524      \ifbool{mdf@bottomline}{%
2525        \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2526        \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2527        \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}%
2528      }{}%
2529    %%%%%%%%%%
2530    \mdf@makebox@in[\mdfboundingboxwidth]{%
2531      \null%
2532      \begin{tikzpicture}[remember picture]
2533        \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2534        \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2535        \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2536        \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2537        \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2538        \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2539        \ifbool{mdf@leftline}%
2540          {%
2541            \pgfmathsetlengthmacro\mdf@Ax%
2542              {\mdf@Ax+\mdf@outerlinewidth@length+
2543               \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2544            \pgfmathsetlengthmacro\mdf@Ox%
2545              {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2546          }{}%
2547        \ifbool{mdf@rightline}%
2548          {%
2549            \pgfmathsetlengthmacro\mdf@Px%
2550              {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2551          }{}%
2552        %%
2553        \ifbool{mdf@everyline}{%
2554          \ifbool{mdf@bottomline}%
2555            {%
2556              \pgfmathsetlengthmacro\mdf@Ay%
2557                {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length
2558                 +\mdf@innerlinewidth@length}%
2559              \pgfmathsetlengthmacro\mdf@Oy%
2560                {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2561            }{}%
2562          \ifbool{mdf@topline}%
2563            {%
2564              \pgfmathsetlengthmacro\mdf@Py%
2565                {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%

```

```

2566     }{}%
2567   }{}%
2568 %%
2569   \coordinate(0)at(\mdf@0x,\mdf@0y);%
2570   \coordinate(P)at(\mdf@Px,\mdf@Py);%
2571   \ifbool{mdf@shadow}
2572     {\path[mdfshadow](0) rectangle (P);}%
2573   \begin{scope}[use as bounding box]
2574   %%%%%%%%%%
2575   \ifbool{mdf@everyline}{%
2576     \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2577     \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2578     \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2579     \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2580     \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2581     \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2582       {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2583     }{}%
2584     \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
2585       {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2586     }{}%
2587     \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
2588       {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
2589     }{}%
2590     \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
2591       {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2592     }{}%
2593     \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
2594       {(0)rectangle(P)}%
2595     }{}%
2596     \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
2597       {(0)rectangle(P)}%
2598     }{}%
2599     \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2600       {(0)rectangle(P)}%
2601     }{}%
2602     \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2603       {(0)rectangle(P)}%
2604     }{}%
2605     \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2606       {(0)rectangle(P)}%
2607     }{}%
2608     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2609       {(0)rectangle(P)}%
2610     }{}%
2611     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}%
2612   }{
2613     \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2614       {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
2615     \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2616       {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
2617     \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2618       {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
2619     \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2620       {\path[mdfbackground](0)rectangle(P);}%
2621   }

```

```

2622 %%%%%%%%%%
2623     \drawbackgroundframetitle@middle
2624     \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};%
2625     \end{scope}
2626     \mdf@middleextra
2627     %HIER KOMMT EIN WEITERES MAKRO
2628     \mdfcreateextratikz
2629     \end{tikzpicture}%
2630 }%
2631 \mdf@makeboxalign@right%
2632 }%
2633 \fi
2634 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

2635 \def\drawbackgroundframetitle@second{%
2636   \ifdefempty{\mdf@frametitle}{}{%
2637     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2638     {}{%
2639       \drawbackgroundframetitle@@second%
2640     }%
2641   }%
2642 }%
2643 %
2644 \def\drawbackgroundframetitle@@second{%
2645   \begin{scope}%background frame title
2646     \ifbool{mdf@leftline}{
2647       \pgfmathsetlengthmacro\mdf@0x%
2648         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
2649     }{%
2650       \ifbool{mdf@rightline}{%
2651         \pgfmathsetlengthmacro\mdf@Px%
2652         {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2653       }{%
2654         \pgfmathsetlengthmacro\mdf@Fy
2655         {\mdf@Py-\mdfframetitleboxtotalheight}
2656         \path[mdfframetitlebackground,rounded corners=\z@]
2657           (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2658           -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);
2659       }
2660     }
2661   \end{scope}
2662 }%
2663 \def\mdf@putbox@second{%
2664   \ifvoid\mdf@splitbox@one
2665   \else%
2666     \mdf@makebox@out{%
2667       \mdf@makeboxalign@left%
2668       \mdf@tikz@settings%
2669       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2670       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2671       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2672       \ifbool{mdf@leftline}{%
2673         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2674       }%
2675       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%

```

```

2673     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}%
2674 \ifbool{mdf@rightline}{%
2675     \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2676     \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2677     \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}%
2678 \setlength\mdfboundingboxheight%
2679     {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2680 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2681 \ifbool{mdf@bottomline}{%
2682     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2683     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2684     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}%
2685 %%%%%%%%%
2686 \ifbool{mdf@everyline}{%
2687     \ifbool{mdf@topline}{%
2688         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2689         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2690         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}%
2691     }{}%
2692 %%%%%%%%%
2693 \mdf@makebox@in[\mdfboundingboxwidth]{%
2694 \null%
2695 \begin{tikzpicture}[remember picture]
2696     \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2697     \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2698     \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2699     \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2700     \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2701     \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2702     \ifbool{mdf@leftline}%
2703     {%
2704         \pgfmathsetlengthmacro\mdf@Ax%
2705             {\mdf@Ax+\mdf@outerlinewidth@length+
2706              \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2707         \pgfmathsetlengthmacro\mdf@Ox%
2708             {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2709     }{}%
2710 \ifbool{mdf@rightline}%
2711 {%
2712     \pgfmathsetlengthmacro\mdf@Px%
2713         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2714 }{}%
2715 \ifbool{mdf@bottomline}%
2716 {%
2717     \pgfmathsetlengthmacro\mdf@Ay%
2718         {\mdf@Ay+\mdf@outerlinewidth@length+
2719          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2720     \pgfmathsetlengthmacro\mdf@Oy%
2721         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2722 }{}%
2723 %
2724 \ifbool{mdf@everyline}{%
2725     \ifbool{mdf@topline}%
2726     {%
2727         \pgfmathsetlengthmacro\mdf@Py%
2728         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%

```

```

2729     }{}%
2730 }{}%
2731 %%
2732 \coordinate(0)at(\mdf@0x,\mdf@0y);%
2733 \coordinate(P)at(\mdf@Px,\mdf@Py);%
2734 \ifbool{mdf@shadow}
2735 {%
2736     \path[mdfshadow] (0|-P) to[mdfcorners] (0)
2737                     to[mdfcorners] (P|-0) -- (P) -- (0|-P);%
2738 }{}%
2739 \begin{scope}[use as bounding box]
2740 %%%%%%%%%%
2741 \ifbool{mdf@everyline}{%
2742     \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
2743     \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2744     \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
2745     \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
2746     \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
2747     \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
2748                     {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2749     }{}%
2750     \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
2751                     {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2752     }{}%
2753     \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
2754                     {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
2755     }{}%
2756     \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
2757                     {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
2758     }{}%
2759     \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
2760                     {(0)rectangle(P)}%
2761     }{}%
2762     \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
2763                     {(0)rectangle(P)}%
2764     }{}%
2765     \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2766                     {(0)rectangle(P)}%
2767     }{}%
2768     \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2769                     {(0)rectangle(P)}%
2770     }{}%
2771     \mdf@test@t{\mdf@tikzbox@otl{(0|-P)--(P)}}%
2772                     {(0)rectangle(P)}%
2773     }{}%
2774     \mdf@test@b{\mdf@tikzbox@otl{(0)--(0|-P)}}%
2775                     {(0)rectangle(P)}%
2776     }{}%
2777     \mdf@test@noline{\path[mdfbackground,mdfcorners](0)rectangle(P);}{}%
2778 }{}%
2779 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2780     {\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}%
2781     {}%
2782 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2783     {%
2784     \mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}%

```

```

2785             {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
2786         }%
2787     {}%
2788     \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2789     {%
2790         \mdf@tikzbox@otl{(P)--(P|-0)--(0)}%
2791         {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
2792     }%
2793     {}%
2794     \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2795     {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
2796     {}%
2797     \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2798     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
2799     {}%
2800     \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2801     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
2802     {}%
2803     \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2804     {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
2805     {}%
2806     \mdf@test@t{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2807     \mdf@test@noline{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}%
2808     {}%
2809 }%
2810 \drawbackgroundframetitle@second
2811 \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};%
2812 \end{scope}
2813 \mdf@secondextra
2814 %HIER KOMMT EIN WEITERES MAKRO
2815 \mdfcreateextratikz
2816 \end{tikzpicture}%
2817 }%
2818 \mdf@makeboxalign@right%
2819 }%
2820 \fi
2821 }%

2822 \endinput

```

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

```

2823 %% Style file for mdframed for package option 'framemethod=default'
2824 %%
2825 %% This package may be distributed under the terms of the LaTeX Project
2826 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2827 %% Either version 1.0 or, at your option, any later version.
2828 %%
2829 %%
2830 %%$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
2831 %

```

```

\mdframedIIPackagename
\mdf@frameIIDate@svn

```

local settings


```

2832 \def\mdframedIIPackagename{md-frame-2}
2833 \def\mdf@frameIIDate@svn$1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2834 \ProvidesFile{md-frame-2.mdf}%
2835      [\mdf@frameIIDate@svn$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $ %
2836      \mdversion: \mdframedIIPackagename]

```

```

\mdf@ptlength@to@pscode
\ptTps

```

Command to calculate a latex length to postscript

```

2837 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2838 \def\mdf@ptlength@to@pscode@length#1{%
2839   \pst@number{\csname mdf@#1@length\endcsname}
2840   \pst@number\psxunit div\space}
2841 \let\ptTps\mdf@ptlength@to@pscode\relax
2842 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax

```

```

\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlerule
\mdfframetitlebackground

```

background and line settings for pstricks

```

2843 \def\mdf@pstricks@settings{%expand by \addtopsstyle
2844   \newsstyle{mdfbackgroundstyle}%
2845   {linecolor=\mdf@backgroundcolor,fillstyle=solid,%
2846     fillcolor=\mdf@backgroundcolor,linestyle=none,%
2847     ,dimen=middle,%
2848   }%
2849 %
2850 \newsstyle{mdfframetitlebackgroundstyle}{%
2851   linecolor=\mdf@frametitlebackgroundcolor,
2852   fillcolor=\mdf@frametitlebackgroundcolor,
2853   fillstyle=solid,linestyle=none,
2854   lineararc=\ifdimgreater{\mdf@roundcorner@length%
2855     -\mdf@innerlinewidth@length%
2856     -.5\mdf@middlelinewidth@length}%
2857     {\z@}{\dimexpr\mdf@roundcorner@length%
2858     -\mdf@innerlinewidth@length%
2859     -.5\mdf@middlelinewidth@length}{\z@},
2860 }
2861 %
2862 \newsstyle{mdfouterlinestyle}{linestyle=none}%
2863 \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
2864   {\newsstyle{mdfouterlinestyle}{%
2865     linecolor=\mdf@outerlinecolor,%
2866     linewidth=\dimexpr2\mdf@outerlinewidth@length
2867       +\mdf@middlelinewidth@length\relax,
2868     dimen=middle,
2869   }}}%
2870 %
2871 \newsstyle{mdfinnerlinestyle}{linestyle=none}%
2872 \ifdimgreater{\mdf@innerlinewidth@length}{\z@}%
2873   {\newsstyle{mdfinnerlinestyle}{%
2874     linecolor=\mdf@innerlinecolor,%

```

```

2875 linewidth=\dimexpr2\mdf@innerlinewidth@length
2876           +\mdf@middlelinewidth@length\relax,
2877   dimen=middle,
2878   }}{}%
2879 %
2880 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
2881 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,
2882           shadowsize=\mdf@shadowsize@length}%
2883 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2884   {\newsstyle{mdfmiddlelinestyle}{%
2885     linewidth=\mdf@middlelinewidth@length,%
2886     linecolor=\mdf@middlelinecolor,dimen=middle
2887   }}{}%
2888 \mdfpstricks@appendsettings
2889 }%
2890 %
2891 \newrobustcmd*\mdf@pstricksbox@fl[2]{%four lines
2892   \psframe[style=mdfouterlinestyle](#1)(#2)%aussen=3mm
2893   \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2894   \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2895   \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2896   \endpsclip
2897   \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2898   }%
2899 \newrobustcmd*\mdf@pstricksbox@tl[1]{%three lines
2900   \psline[style=mdfouterlinestyle]#1%aussen=3mm
2901   \psline[style=mdfbackgroundstyle]#1%Hintergrund
2902   \psclip{\psline[style=mdfmiddlelinestyle]#1}
2903   \psline[style=mdfinnerlinestyle]#1%innere=3mm
2904   \endpsclip
2905   \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2906   }%
2907 \newrobustcmd*\mdf@pstricksbox@tcl[2]{%two combined lines
2908   %%#1 background comple
2909   %%#2 line path
2910   \psline[style=mdfouterlinestyle]#2%aussen=3mm
2911   \psline[style=mdfbackgroundstyle]#2%Hintergrund
2912   \psclip{\pscustom[linestyle=none]{
2913     \psline[style=mdfmiddlelinestyle]#2
2914     \psline[linestyle=none,lineararc=0pt]#1}
2915   }
2916   \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2917   \psline[style=mdfinnerlinestyle]#2%innere=3mm
2918   \endpsclip
2919   \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2920   }%
2921 \newrobustcmd*\mdf@pstricksbox@tncl[2]{%two not combined lines
2922   \begingroup
2923   \psset{lineararc=0pt}
2924   \psline[style=mdfouterlinestyle](mdf@0)#1%aussen=3mm
2925   \psline[style=mdfouterlinestyle](mdf@P)#2%aussen=3mm
2926   \psclip{
2927     \pscustom[linestyle=none]{%
2928       \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2929       \psline[linestyle=none](mdf@0)#2
2930       \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm

```

```

2931      \psline[linestyle=none](mdf@P)#1
2932    }%
2933  }%
2934  \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2935  \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2936  \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2937  \endpsclip
2938  \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2939  \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2940  \endgroup
2941 }%
2942 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2943 \begingroup
2944   \psset{lineararc=0pt}
2945   \psline[style=mdfouterlinestyle]#1%ausen=3mm
2946   \psline[style=mdfbackgroundstyle]#1%Hintergrund
2947   \psclip{\pscustom[linestyle=none]{
2948     \psline[style=mdfmiddlelinestyle]#1
2949     \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2950   }}
2951   \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2952   \psline[style=mdfinnerlinestyle]#1%innere=3mm
2953   \endpsclip
2954   \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2955   \endgroup%
2956 }%
2957
2958 %
2959 \newpsstyle{mdfframetitlerule}{%
2960   linecolor=\mdf@frametitlerulecolor,%
2961   fillcolor=\mdf@frametitlerulecolor,%
2962   fillstyle=solid,dimen=outer,%
2963 }
2964 %

```

\mdf@put@frametitlerule

frametitlerule with pstricks

```

2965 \def\mdf@@frametitlerule{%
2966   \ifbool{mdf@frametitlerule}{%
2967     \vbox{\hsize0pt
2968       \par\unskip\vskip\mdf@frametitlebelowskip@length
2969       \noindent\rlap{%
2970         \begingroup%
2971           \begin{pspicture}(0,0)(0,\mdf@frametitlerulewidth@length)
2972             \psframe[style=mdfframetitlerule]%
2973               (!\ptTpsL{innerleftmargin} neg 0)%
2974               (!\ptTpsL{innerrightmargin})
2975               \ptTps{\mdfframetitleboxwidth} add \ptTpsL{frametitlerulewidth})
2976           \end{pspicture}
2977         \endgroup}
2978       }%
2979     }{}
2980   \par\unskip\vskip\mdf@innertopmargin@length%
2981 }%

```

```

2982 %
2983 % \begin{macro}{mdf@putbox@single}
2984 % Single output
2985 % \begin{macrocode}
2986 % Info zu den verwendeten Punkten:
2987 % O ist die untere linke Ecke der Mitte der middleline
2988 % P ist die obere rechte Ecke der Mitte der middleline
2989 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2990 \def\mdf@putbox@single{%
2991   \ifvoid\mdf@splitbox@one\relax
2992   \else%
2993     \mdf@makebox@out{%
2994       \mdf@makeboxalign@left%
2995       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2996       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2997       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2998       \ifbool{mdf@leftline}{%
2999         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3000         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3001         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
3002       \ifbool{mdf@rightline}{%
3003         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3004         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3005         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
3006 %
3007   \setlength\mdfboundingboxheight%
3008     {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3009   \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3010   \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
3011   \ifbool{mdf@topline}{%
3012     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3013     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3014     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
3015   \ifbool{mdf@bottomline}{%
3016     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3017     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3018     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
3019 %
3020   \setlength\mdftotalllinewidth{\dimexpr\mdf@innerlinewidth@length%
3021     +\mdf@middlelinewidth@length
3022     +\mdf@outerlinewidth@length\relax}%
3023   \psset{unit=1truecm}%
3024   \mdf@makebox@in[\mdfboundingboxwidth]{%
3025     \null%
3026     \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
3027       \mdfpstricks@settings%
3028       \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
3029       \expandafter\psset\expandafter{\mdf@psset@local}%
3030       \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
3031       \pnode(0,0){mdf@O}
3032       \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3033       \ifbool{mdf@leftline}%
3034         {%
3035         \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
3036           +(\mdf@middlelinewidth@length,0)
3037           +(\mdf@innerlinewidth@length,0)}}{mdf@A}%

```

```

3038      \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
3039              +0.5(\mdf@middlelinewidth@length,0)){mdf@0}%
3040      }{}%
3041  \ifbool{mdf@rightline}%
3042  {%
3043      \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
3044              -0.5(\mdf@middlelinewidth@length,0)){mdf@P}%
3045      }{}%
3046  \ifbool{mdf@bottomline}%
3047  {%
3048      \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
3049              +(0,\mdf@middlelinewidth@length)
3050              +(0,\mdf@innerlinewidth@length)){mdf@A}%
3051      \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
3052              +0.5(0,\mdf@middlelinewidth@length)){mdf@0}%
3053      }{}%
3054  \ifbool{mdf@topline}%
3055  {%
3056      \nodexn{(mdf@P)-(0,\mdf@outerlinewidth@length)
3057              -0.5(0,\mdf@middlelinewidth@length)){mdf@P}
3058      }{}%
3059  \ifbool{mdf@shadow}
3060      {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
3061  %
3062  \psclip{%
3063      %Four lines
3064      \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
3065      %three lines
3066      \mdf@test@ltb{%
3067          \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}{}
3068          \mdf@test@trb{%
3069              \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}{}
3070              \mdf@test@ltr{%
3071                  \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{}
3072                  \mdf@test@lrb{%
3073                      \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}{}
3074                      %two lines combined
3075                      \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
3076                          {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}{}
3077                      \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
3078                          {(mdf@0)(mdf@P|mdf@0)(mdf@P)}{}
3079                      \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
3080                          {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}{}
3081                      \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
3082                          {(mdf@0)(mdf@0|mdf@P)(mdf@P)}{}
3083                      %two lines not combined
3084                      \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
3085                          {}
3086                      \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
3087                          {}
3088                      %single line
3089                      \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}{}
3090                      \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}{}
3091                      \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}{}
3092                      \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}{}
3093                      %no line
3094                      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}

```

```

3094 %      }
3095      %Frametitlebackground
3096      \drawbackgroundframetitle@single
3097      %output%
3098      \rput[bl](mdf@A){\box\mdf@splitbox@one}
3099 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3100 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3101 %      \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
3102 %
3103 %      \endpsclip
3104      \mdf@singleextra
3105      \end{pspicture}%
3106  }%
3107  \mdf@makeboxalign@right%
3108  }%
3109  \fi
3110 }%
3111 \def\drawbackgroundframetitle@single{%
3112 \ifdefempty{\mdf@frametitle}}{%
3113   \drawbackgroundframetitle@@single%
3114 }%
3115 }%
3116 \def\drawbackgroundframetitle@@single{%
3117 \begingroup%
3118 \ifbool{mdf@leftline}{%
3119   \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
3120     +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
3121   }{%
3122 \ifbool{mdf@rightline}{%
3123   \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
3124     -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3125   }{%
3126 \ifbool{mdf@topline}{%
3127   \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
3128     -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
3129   }{%
3130 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
3131 \psline[style=mdfframetitlebackgroundstyle](mdf@O|mdf@F)(mdf@O|mdf@P)
3132   (mdf@P)(mdf@P|mdf@F)%
3133 \endgroup
3134 }

```

\mdf@putbox@first

First output

```

3135 \def\mdf@putbox@first{%
3136 \ifvoid\mdf@splitbox@two
3137 \else%
3138 \mdf@makebox@out{%
3139 \mdf@makeboxalign@left%
3140 %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{%
3141 \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@two}%
3142 \advance\mdf@boundingboxwidth by \mdf@innerleftmargin@length\relax%
3143 \advance\mdf@boundingboxwidth by \mdf@innerrightmargin@length\relax%
3144 \ifbool{mdf@leftline}{%

```

```

3145 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3146 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3147 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
3148 \ifbool{mdf@rightline}{%
3149 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3150 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3151 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
3152 \setlength\mdfboundingboxheight%
3153 {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
3154 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
3155 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
3156 \ifbool{mdf@topline}{%
3157 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3158 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3159 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
3160 %%%%%%%%%
3161 \ifbool{mdf@everyline}{%
3162 \ifbool{mdf@bottomline}{%
3163 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3164 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3165 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
3166 }{}%
3167 %%%%%%%%%
3168 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolute}%
3169 \expandafter\psset\expandafter{\mdf@psset@local}%
3170 \mdf@makebox@in[\mdfboundingboxwidth]{%
3171 \null%
3172 \psset{unit=1truecm}%
3173 \ifdimgreater{\mdfboundingboxheight}{\vsize}
3174 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
3175 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
3176 \mdfpstricks@settings%
3177 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
3178 \expandafter\psset\expandafter{\mdf@psset@local}%
3179 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
3180 \pnode(0,0){mdf@0}
3181 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3182 \ifbool{mdf@leftline}%
3183 {%
3184 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
3185 +(\mdf@middlelinewidth@length,0)
3186 +(\mdf@innerlinewidth@length,0)}}{mdf@A}
3187 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
3188 +0.5(\mdf@middlelinewidth@length,0)}}{mdf@0}
3189 }{}%
3190 \ifbool{mdf@rightline}%
3191 {%
3192 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
3193 -0.5(\mdf@middlelinewidth@length,0)}}{mdf@P}
3194 }{}%
3195 \ifbool{mdf@topline}%
3196 {%
3197 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
3198 -0.5(0,\mdf@middlelinewidth@length)}}{mdf@P}
3199 }{}%
3200 %%%%%%%%%

```



```

3201 \ifbool{mdf@everyline}{%
3202 \ifbool{mdf@bottomline}%
3203 {%
3204 \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
3205 +(0,\mdf@middlelinewidth@length)
3206 +(0,\mdf@innerlinewidth@length)}}{mdf@A}%
3207 \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
3208 +0.5(0,\mdf@middlelinewidth@length)}}{mdf@0}%
3209 }{}%
3210 }{}%
3211 %%%%%%%%%%
3212 \ifbool{mdf@shadow}
3213 {\pscustom[style=mdfshadow,linestyle=none]{%
3214 \psline[linejoin=2,linecap=1,]%
3215 (mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)%
3216 \psline[linejoin=2,linecap=1,lineararc=\z@]%
3217 (mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)
3218 \closedshadow
3219 }
3220 }{}
3221 % \psclip{
3222 %%%%%%%%%%
3223 \ifbool{mdf@everyline}{%
3224 %Four lines
3225 \mdf@test@lrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
3226 %three lines
3227 \mdf@test@ltb{%
3228 \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3229 \mdf@test@trb{%
3230 \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
3231 \mdf@test@ltr{%
3232 \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
3233 \mdf@test@lrb{%
3234 \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
3235 %two lines combined
3236 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
3237 {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
3238 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
3239 {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
3240 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
3241 {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
3242 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
3243 {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3244 %two lines not combined combined
3245 \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
3246 }{}
3247 \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
3248 }{}
3249 %single line
3250 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
3251 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
3252 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
3253 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
3254 %no line
3255 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3256 }{}

```



```

3257 %Four or Three lines
3258 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@ltr}}%
3259 {\mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}%
3260 {}%
3261 %two combined lines
3262 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
3263 {\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
3264 {(mdf@0)(mdf@0|mdf@P)(mdf@P)}}%
3265 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
3266 {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
3267 {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}%
3268 %two not combined lines
3269 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
3270 {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}%
3271 %single line
3272 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
3273 {\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}%
3274 \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
3275 {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}%
3276 \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
3277 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}%
3278 %no line
3279 \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}%
3280 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}%
3281 }%
3282 %
3283 %Frame title background
3284 \drawbackgroundframetitle@first
3285 %output%
3286 \rput[bl](mdf@A){\box\mdf@splitbox@two}
3287 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3288 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3289 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
3290 % \endpsclip
3291 \mdf@firstextra
3292 \end{pspicture}
3293 }%
3294 \mdf@makeboxalign@right%
3295 }%
3296 \fi
3297 }%
3298 \def\drawbackgroundframetitle@first{%
3299 \ifdefempty{\mdf@frametitle}}{%
3300 \ifdimgreater{\mdf@boundingboxheight}{\mdf@frametitleboxtotalheight}%
3301 {%
3302 \drawbackgroundframetitle@@first
3303 \global\mdf@frametitleboxtotalheight=-\p@%
3304 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
3305 Currently this isn't well supported}%
3306 \drawbackgroundframetitle@@first
3307 \global\mdf@frametitleboxtotalheight=\dimexpr\mdf@frametitleboxtotalheight
3308 -\mdf@boundingboxheight
3309 -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
3310 +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
3311 +\mdf@splittopskip@length
3312 +\dp\strutbox\relax%

```

```

3313 }%
3314 }%
3315 }%
3316 \def\drawbackgroundframetitle@@first{%
3317 \begingroup%
3318 \ifbool{mdf@leftline}{%
3319     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
3320             +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
3321     }{}%
3322 \ifbool{mdf@rightline}{%
3323     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
3324             -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3325     }{}%
3326 \ifbool{mdf@topline}{%
3327     \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
3328             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
3329     }{}%
3330 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
3331     {\nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}}%
3332     {\nodexn{(mdf@0)}{mdf@F}}%
3333 \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
3334                                             (mdf@P)(mdf@P|mdf@F)%
3335 \endgroup
3336 }

```

\mdf@putbox@middle

Middle output

```

3337 \def\mdf@putbox@middle{%
3338 \ifvoid\mdf@splitbox@two
3339 \else%
3340 \mdf@makebox@out{%
3341 \mdf@makeboxalign@left%
3342 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
3343 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
3344 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3345 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3346 \ifbool{mdf@leftline}{%
3347 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3348 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3349 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
3350 \ifbool{mdf@rightline}{%
3351 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3352 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3353 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
3354 \setlength\mdfboundingboxheight%
3355     {\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
3356 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
3357 %%%%%%%%%%
3358 \ifbool{mdf@everyline}{%
3359 \ifbool{mdf@topline}{%
3360 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3361 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3362 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
3363 \ifbool{mdf@bottomline}{%

```

```

3364 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3365 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3366 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
3367 }{}%
3368 %%%%%%%%%%
3369 \psset{unit=1truecm}%
3370 \mdf@makebox@in[\mdfboundingboxwidth]{%
3371 \null%
3372 \ifdimgreater{\mdfboundingboxheight}{\vsize}
3373 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
3374 {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
3375 \mdfpstricks@settings%
3376 \psset{lineararc=0pt, cornersize=absolut,}%
3377 \expandafter\psset\expandafter{\mdf@psset@local}%
3378 %%%
3379 \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
3380 \pnode(0,0){mdf@0}
3381 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3382 \ifbool{mdf@leftline}%
3383 {%
3384 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
3385 +(\mdf@middlelinewidth@length,0)
3386 +(\mdf@innerlinewidth@length,0)}{mdf@A}
3387 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
3388 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
3389 }{}%
3390 \ifbool{mdf@rightline}%
3391 {%
3392 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
3393 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3394 }{}%
3395 %%
3396 %%%%%%%%%%
3397 \ifbool{mdf@everyline}{%
3398 \ifbool{mdf@bottomline}%
3399 {%
3400 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
3401 +(0,\mdf@middlelinewidth@length)
3402 +(0,\mdf@innerlinewidth@length)}{mdf@A}%
3403 \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
3404 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}%
3405 }{}%
3406 \ifbool{mdf@topline}%
3407 {%
3408 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
3409 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3410 }{}%
3411 }{}%
3412 %%%%%%%%%%
3413 %%
3414 \ifbool{mdf@shadow}
3415 {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
3416 %%%%%%%%%%
3417 \ifbool{mdf@everyline}{%
3418 %Four lines
3419 \mdf@test@ltrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}

```

```

3420 %three lines
3421 \mdf@test@ltb{%
3422     \mdf@pstricksbox@tl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
3423 \mdf@test@trb{%
3424     \mdf@pstricksbox@tl{(mdf@O)(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}}{}
3425 \mdf@test@ltr{%
3426     \mdf@pstricksbox@tl{(mdf@O)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
3427 \mdf@test@lrb{%
3428     \mdf@pstricksbox@tl{(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
3429 %two lines combined
3430 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@P)(mdf@O|mdf@P)}%
3431     {(mdf@O|mdf@P)(mdf@O)(mdf@P|mdf@O)}}{}
3432 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@O|mdf@P)(mdf@O)}%
3433     {(mdf@O)(mdf@P|mdf@O)(mdf@P)}}{}
3434 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@O)(mdf@O)(mdf@O|mdf@P)}%
3435     {(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@O)}}{}
3436 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@O)(mdf@P|mdf@O)(mdf@P)}%
3437     {(mdf@O)(mdf@O|mdf@P)(mdf@P)}}{}
3438 %two lines not combined combined
3439 \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}
3440     {}}
3441 \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@O)}{(mdf@O|mdf@P)}
3442     {}}
3443 %single line
3444 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}
3445 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}
3446 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@O|mdf@P)}}{}
3447 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@O)(mdf@P|mdf@O)}}{}
3448 %no line
3449 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}
3450 }%
3451 \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
3452     {\mdf@pstricksbox@tncl{(mdf@O|mdf@P)}{(mdf@P|mdf@O)}}{}%
3453 \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
3454     {\mdf@pstricksbox@ol{(mdf@O)(mdf@O|mdf@P)}}{}%
3455 \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
3456     {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@O)}}{}%
3457 \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
3458     {\psframe[style=mdfbackgroundstyle](mdf@O)(mdf@P)}}{}
3459 }%
3460 %Frametitlebackground
3461 \drawbackgroundframetitle@middle
3462 %output%
3463 \rput[bl](mdf@A){\box\mdf@splitbox@two}
3464 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3465 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3466 % \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
3467 \mdf@middleextra
3468 \end{pspicture}%
3469 }%
3470 \mdf@makeboxalign@right%
3471 }%
3472 \fi
3473 }%
3474 \def\drawbackgroundframetitle@middle{%
3475 \ifdefempty{\mdf@frametitle}}{}%

```

```

3476 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3477 {}{}%
3478 \drawbrackgroundframetitle@@middle
3479 \global\mdfframetitleboxtotalheight=-\p@{\relax%
3480 }%
3481 }%
3482 }%
3483 \def\drawbrackgroundframetitle@@middle{%
3484 \beginngroup%
3485 \ifbool{mdf@leftline}{%
3486 \nodexn{(\mdf@0)+(\mdf@innerlinewidth@length,0)
3487 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
3488 }{}%
3489 \ifbool{mdf@rightline}{%
3490 \nodexn{(\mdf@P)-(\mdf@innerlinewidth@length,0)
3491 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3492 }{}%
3493 \nodexn{(\mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
3494 \psline[style=mdfframetitlebackgroundstyle,lineararc=\z@]%
3495 (\mdf@0|mdf@F)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@F)%
3496 \endgroup
3497 }

```

\mdf@putbox@second

Last output

```

3498 \def\mdf@putbox@second{
3499 \ifvoid\mdf@splitbox@one
3500 \else%
3501 \mdf@makebox@out{%
3502 \mdf@makeboxalign@left%
3503 % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
3504 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
3505 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
3506 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
3507 \ifbool{mdf@leftline}{%
3508 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3509 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3510 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
3511 \ifbool{mdf@rightline}{%
3512 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
3513 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
3514 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{}%
3515 \setlength\mdfboundingboxheight%
3516 {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
3517 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
3518 \ifbool{mdf@bottomline}{%
3519 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3520 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
3521 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{}%
3522 %%%%%%%%%%
3523 \ifbool{mdf@everyline}{%
3524 \ifbool{mdf@topline}{%
3525 \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
3526 \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%

```

```

3527 \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
3528 }{}%
3529 %%%%%%%%%%
3530 \psset{unit=1truecm}%
3531 \mdf@makebox@in[\mdfboundingboxwidth]{%
3532 \null%
3533 \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
3534 \mdfpstricks@settings%
3535 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
3536 \expandafter\psset\expandafter{\mdf@psset@local}%
3537 \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
3538 \pnode(0,0){mdf@0}
3539 \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
3540 \ifbool{mdf@leftline}%
3541 {%
3542 \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
3543 +(\mdf@middlelinewidth@length,0)
3544 +(\mdf@innerlinewidth@length,0)}{mdf@A}
3545 \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
3546 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
3547 }{}%
3548 \ifbool{mdf@rightline}%
3549 {%
3550 \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
3551 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
3552 }{}%
3553 \ifbool{mdf@bottomline}%
3554 {%
3555 \nodexn{(\mdf@A)+(0,\mdf@outerlinewidth@length)
3556 +(0,\mdf@middlelinewidth@length)
3557 +(0,\mdf@innerlinewidth@length)}{mdf@A}
3558 \nodexn{(\mdf@0)+(0,\mdf@outerlinewidth@length)
3559 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}
3560 }{}%
3561 %%%%%%%%%%
3562 \ifbool{mdf@everyline}{%
3563 \ifbool{mdf@topline}%
3564 {%
3565 \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
3566 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
3567 }{}%
3568 }{}%
3569 %%%%%%%%%%
3570 %%
3571 \ifbool{mdf@shadow}
3572 {\pscustom[style=mdfshadow,linestyle=none]{%
3573 \psline[linejoin=2,linecap=1,](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)%
3574 \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@P)
3575 \closedshadow
3576 }
3577 }{}
3578 %%%%%%%%%%
3579 \ifbool{mdf@everyline}{%
3580 %Four lines
3581 \mdf@test@ltrb{\mdf@pstricksbox@fl{mdf@0}{mdf@P}}{}
3582 %three lines

```

```

3583 \mdf@test@ltb{%
3584 \mdf@pstricksbox@tl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3585 \mdf@test@trb{%
3586 \mdf@pstricksbox@tl{(mdf@0)(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}}{}
3587 \mdf@test@ltr{%
3588 \mdf@pstricksbox@tl{(mdf@0)(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}%
3589 \mdf@test@lrb{%
3590 \mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
3591 %two lines combined
3592 \mdf@test@lb{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
3593 { (mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
3594 \mdf@test@rb{\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
3595 { (mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
3596 \mdf@test@tr{\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
3597 { (mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
3598 \mdf@test@lt{\mdf@pstricksbox@tcl{(mdf@0)(mdf@P|mdf@0)(mdf@P)}%
3599 { (mdf@0)(mdf@0|mdf@P)(mdf@P)}}{}
3600 %two lines not combined combined
3601 \mdf@test@lr{\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}
3602 {}
3603 \mdf@test@tb{\mdf@pstricksbox@tncl{(mdf@P|mdf@0)}{(mdf@0|mdf@P)}
3604 {}
3605 %single line
3606 \mdf@test@l{\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
3607 \mdf@test@r{\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
3608 \mdf@test@t{\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
3609 \mdf@test@b{\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
3610 %no line
3611 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3612 }{}%
3613 %Four + Three
3614 \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
3615 {\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
3616 %Two combined
3617 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
3618 {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
3619 { (mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
3620 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
3621 {\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
3622 { (mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
3623 %Two not combined
3624 \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
3625 {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
3626 %one line
3627 \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
3628 {\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
3629 \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
3630 {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
3631 \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
3632 {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
3633 %no line
3634 \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3635 \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}}{}%
3636 }%
3637 %Frametitlebackground
3638 \drawbackgroundframetitle@second

```



```

3639      %output%
3640      \rput[bl](mdf@A){\box\mdf@splitbox@one}
3641      \mdf@secondextra
3642 %      \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
3643 %      \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
3644 %      \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
3645      \end{pspicture}%
3646      }%
3647      \mdf@makeboxalign@right%
3648      }%
3649 \fi
3650 }%
3651 \def\drawbackgroundframetitle@second{%
3652 \ifdefempty{\mdf@frametitle}{\}%
3653 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
3654 {\}%
3655 \drawbackgroundframetitle@@second
3656 }%
3657 }%
3658 }%
3659 \def\drawbackgroundframetitle@@second{%
3660 \begingroup%
3661 \ifbool{mdf@leftline}{%
3662 \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
3663 +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
3664 }{\}%
3665 \ifbool{mdf@rightline}{%
3666 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
3667 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
3668 }{\}%
3669 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
3670 \psline[style=mdfframetitlebackgroundstyle,linear=\z@]%
3671 (mdf@O|mdf@F)(mdf@O|mdf@P)(mdf@P)(mdf@P|mdf@F)%
3672 \endgroup
3673 }
3674 \endinput
3675 %eof

```

C. The file *mdframed-example-default*

```

3676 %Documentation of the package mdframed
3677 %$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
3678 \setcounter{errorcontextlines}{999}
3679 \documentclass[parskip=false,english,11pt]{ltxmdf}
3680 \ltxmdfsetifoot $Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
3681
3682 \usepackage{showexpl}
3683 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3684
3685 \newcommand\Loadedframemethod{default}
3686 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3687
3688 \title{The \Pack{mdframed} package}
3689 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}

```



```

3690 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3691 \date{\mdfdateID$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $}
3692 \version{\mdversion}
3693 \introduction{In this document I collect various examples for
3694               \Opt{framemethod=\Loadedframemethod}.
3695               Some presented examples are more or less exorbitant.}
3696
3697 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3698 \newrobustcmd\ExampleText{%
3699     An \textit{inhomogeneous linear} differential equation has the form
3700     \begin{align}
3701         L[v] = f,
3702     \end{align}
3703     where  $L$  is a linear differential operator,  $v$  is
3704     the dependent variable, and  $f$  is a given non-zero
3705     function of the independent variables alone.
3706 }
3707
3708 \newcounter{examplecount}
3709 \setcounter{examplecount}{0}
3710 \renewcommand\thesubsection{}
3711 \newcommand\Examplesec[1]{%
3712 \stepcounter{examplecount}%
3713 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3714 }
3715
3716 \begin{document}
3717 \maketitle
3718 \section{Loading}
3719 In the preamble only the package \Pack{mdframed} with the option
3720 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
3721 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
3722
3723 {\large\color{red!50!black}
3724 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
3725 package \Pack{showexpl}.}
3726
3727 \section{Examples}
3728 All examples have the following settings:
3729
3730 \begin{tltxmdfexample}
3731 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3732 \newrobustcmd\ExampleText{%
3733 An \textit{inhomogeneous linear} differential equation
3734 has the form
3735 \begin{align}
3736 L[v] = f,
3737 \end{align}
3738 where  $L$  is a linear differential operator,  $v$  is
3739 the dependent variable, and  $f$  is a given non-zero
3740 function of the independent variables alone.
3741 }
3742 \end{tltxmdfexample}
3743 \clearpage
3744 \Examplesec{very simple}
3745 \begin{LTXexample}

```

```

3746 \global\mdfdefinestyle{exampledefault}{%
3747     linecolor=red,linewidth=3pt,%
3748     leftmargin=1cm,rightmargin=1cm
3749 }
3750 \begin{mdframed}[style=exampledefault]
3751 \ExampleText
3752 \end{mdframed}
3753 \end{LTXexample}
3754
3755 \Examplesec{hidden line + frame title}
3756 \begin{LTXexample}
3757 \global\mdfapptodefinestyle{exampledefault}{%
3758     topline=false,rightline=true,bottomline=false}
3759 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3760 \ExampleText
3761 \end{mdframed}
3762 \end{LTXexample}
3763 \clearpage
3764
3765 \Examplesec{colored frame title}
3766 \begin{LTXexample}
3767
3768 \global\mdfapptodefinestyle{exampledefault}{%
3769     rightline=true,innerleftmargin=10,innerrightmargin=10,
3770     frametitlerule=true,frametitlerulecolor=green,
3771     frametitlebackgroundcolor=yellow,
3772     frametitlerulewidth=2pt}
3773 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3774 \ExampleText
3775 \end{mdframed}
3776 \end{LTXexample}
3777
3778 \Examplesec{framed picture which is centered}
3779 \begin{LTXexample}
3780 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3781     linecolor=blue,linewidth=4pt]
3782 \includegraphics[width=\linewidth]{donald-duck}
3783 \end{mdframed}
3784 \end{LTXexample}
3785
3786 \clearpage
3787 \Examplesec{Theorem environments}
3788 \begin{LTXexample}
3789 \mdfdefinestyle{theoremstyle}{%
3790     linecolor=red,linewidth=2pt,%
3791     frametitlerule=true,%
3792     frametitlebackgroundcolor=gray!20,
3793     innertopmargin=\topskip,
3794 }
3795 \mdtheorem[style=theoremstyle]{definition}{Definition}
3796 \begin{definition}
3797 \ExampleText
3798 \end{definition}
3799 \begin{definition}[Inhomogeneous linear]
3800 \ExampleText
3801 \end{definition}

```

```

3802 \begin{definition*}[Inhomogeneous linear]
3803 \ExampleText
3804 \end{definition*}
3805 \end{LTXexample}
3806
3807
3808 \clearpage
3809 \Examplesec{theorem with separate header and the help of TikZ (complex)}
3810 \begin{LTXexample}
3811 \newcounter{theo}[section]
3812 \newenvironment{theo}[1][]{%
3813 \stepcounter{theo}%
3814 \ifstrempy{#1}%
3815 {\mdfsetup{%
3816 frametitle={%
3817 \tikz[baseline=(current bounding box.east),outer sep=0pt]
3818 \node[anchor=east,rectangle,fill=blue!20]
3819 {\strut Theorem~\thetheo};}}
3820 }%
3821 {\mdfsetup{%
3822 frametitle={%
3823 \tikz[baseline=(current bounding box.east),outer sep=0pt]
3824 \node[anchor=east,rectangle,fill=blue!20]
3825 {\strut Theorem~\thetheo:~#1};}}%
3826 }%
3827 \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3828 linewidth=2pt,topline=true,
3829 frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3830 \begin{mdframed}[]\relax%
3831 }\end{mdframed}}
3832 \begin{theo}[Inhomogeneous Linear]
3833 \ExampleText
3834 \end{theo}
3835
3836 \begin{theo}
3837 \ExampleText
3838 \end{theo}
3839 \end{LTXexample}
3840
3841 \clearpage
3842 \Examplesec{hide only a part of a line}
3843 The example below is inspired by the following post on StackExchange
3844 \href{http://tex.stackexchange.com/questions/24101/theorem-decorations-that-stay-with-theorem-environme
3845 {Theorem decorations that stay with theorem environment}
3846 \begin{LTXexample}
3847 \makeatletter
3848 \newlength{\interruptlength}
3849 \setlength{\interruptlength}{2.5ex}
3850 \newrobustcmd\overlaplines{%
3851 \appto\mdf@frame@leftline@single{%
3852 \llap{\color{white}%
3853 \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
3854 {\mdf@middlelinewidth@length}%
3855 {\dimexpr\mdfboundingboxtotalheight%
3856 \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{%
3857 -2\interruptlength\relax}%

```

```

3858 }%
3859 }%
3860 \appto\mdf@frame@rightline@single{%
3861   \rlap{\color{white}%
3862     \hspace*{\mdfboundingboxwidth}%
3863     \hspace*{\mdf@innerrightmargin@length}%
3864     \rule[\dimexpr-\mdfboundingboxdepth%
3865       +\interruptlength\relax]%
3866       {\mdf@middlelinewidth@length}%
3867       {\dimexpr\mdfboundingboxtotalheight%
3868       +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}
3869       -2\interruptlength\relax}%
3870 }%
3871 }%
3872 }
3873 \makeatother
3874 \overlapiplines
3875
3876 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3877 \ExampleText
3878 \end{mdframed}
3879 \end{LTXexample}
3880 \end{document}
3881 \endinput

```

D. The file mdframed-example-tikz

```

3882 %Documenation of the package mdframed
3883 %$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
3884 \setcounter{errorcontextlines}{999}
3885 \documentclass[parskip=false,english,11pt]{ltxmdf}
3886 \ltxmdfsetifoot $Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
3887
3888
3889 \usepackage{showexpl}
3890 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3891
3892 \newcommand\Loadedframemethod{TikZ}
3893 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3894
3895 \title{The \Pack{mdframed} package}
3896 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3897 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3898 \date{\mdfdateID$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $}
3899 \version{\mdversion}
3900 \introduction{In this document I collect various examples for
3901   \Opt{framemethod=\Loadedframemethod}.
3902   Some presented examples are more or less exorbitant.}
3903
3904 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3905 \newrobustcmd\ExampleText{%
3906   An \textit{inhomogeneous linear} differential equation has the form
3907   \begin{align}
3908     L[v] &= f,
3909   \end{align}
3910   where $L$ is a linear differential operator, $v$ is

```

```

3911         the dependent variable, and  $f$  is a given non-zero
3912         function of the independent variables alone.
3913     }
3914
3915     \newcounter{examplecount}
3916     \setcounter{examplecount}{0}
3917     \renewcommand\thesubsection{}
3918     \newcommand\Examplesec[1]{%
3919     \stepcounter{examplecount}%
3920     \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3921     }
3922
3923     \begin{document}
3924     \maketitle
3925     \section{Loading}
3926     In the preamble only the package \Pack{mdframed} with the option
3927     \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
3928     done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
3929
3930     {\large\color{red!50!black}
3931     \NOTE Every \Cmd{global} inside the examples is necessary to work with the
3932     package \Pack{showexpl}.}
3933
3934     \section{Examples}
3935     All examples have the following settings:
3936
3937     \begin{tltxmdfexample}
3938     \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3939     \newrobustcmd\ExampleText{%
3940     An \textit{inhomogeneous linear} differential equation
3941     has the form
3942     \begin{align}
3943     L[v] &= f,
3944     \end{align}
3945     where  $L$  is a linear differential operator,  $v$  is
3946     the dependent variable, and  $f$  is a given non-zero
3947     function of the independent variables alone.
3948     }
3949     \end{tltxmdfexample}
3950     \clearpage
3951     \ExampleText{round corner}
3952     \begin{LTExample}
3953     \global\mdfdefinestyle{exampledefault}{%
3954         outerlinewidth=5pt,innerlinewidth=0pt,
3955         outerlinecolor=red,roundcorner=5pt
3956     }
3957     \begin{mdframed}[style=exampledefault]
3958     \ExampleText
3959     \end{mdframed}
3960     \end{LTExample}
3961
3962     \Examplesec{hidden line + frame title}
3963     \begin{LTExample}
3964     \global\mdfapptodefinestyle{exampledefault}{%
3965         topline=false,leftline=false,}
3966     \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]

```

```

3967 \ExampleText
3968 \end{mdframed}
3969 \end{LTXexample}
3970 \clearpage
3971 \Examplesec{framed picture which is centered}
3972 \begin{LTXexample}
3973 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3974                 linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3975 \includegraphics[width=\linewidth]{donald-duck}
3976 \end{mdframed}
3977 \end{LTXexample}
3978
3979 \Examplesec{Gimmick}
3980 \begin{LTXexample}
3981 \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
3982           innerrightmargin=2cm,innertopmargin=1cm,%
3983           innerlinewidth=2pt,outerlinewidth=2pt,
3984           middlelinewidth=10pt,backgroundcolor=red,
3985           linecolor=blue,middlelinecolor=gray,
3986           tikzsetting={draw=yellow,line width=3pt,%
3987                       dashed,%
3988                       dash pattern= on 10pt off 3pt},
3989           rightline=false,bottomline=false}
3990 \begin{mdframed}
3991 \ExampleText
3992 \end{mdframed}
3993 \end{LTXexample}
3994
3995 \Examplesec{complex example with TikZ}
3996
3997 \begin{tltxmdfexample}
3998 \tikzstyle{titregris} =
3999     [draw=gray, thick, fill=white, shading = exersicetitle, %
4000     text=gray, rectangle, rounded corners, right,minimum height=.7cm]
4001
4002 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
4003     {color(0bp)=(green!40); color(100bp)=(black!5)}
4004
4005 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
4006     {color(0bp)=(red!40);color(100bp)=(black!5)}
4007
4008 \newcounter{exercise}
4009 \renewcommand*\theexercise{Exercise~n\arabic{exercise}}
4010 \makeatletter
4011 \def\mdf@@exercisepoints{}%new mdframed key:
4012 \define@key{mdf}{exercisepoints}{%
4013     \def\mdf@@exercisepoints{#1}
4014 }
4015 \makeatother
4016
4017 \mdfdefinestyle{exercisestyle}{%
4018     outerlinewidth=1pt,innerlinewidth=0pt,
4019     roundcorner=2pt,linecolor=gray,
4020     tikzsetting={shading = exersicebackground},
4021     innertopmargin=1.2\baselineskip,
4022     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},

```

```

4023 needspace=3\baselineskip,
4024 frametitlefont=\sffamily\bfseries,
4025 settings={\global\stepcounter{exercise}},
4026 singleextra={%
4027     \node[titregris,xshift=1cm] at (P-|0) %
4028         {\~\mdf@frametitlefont{\theexercise}\~};
4029     \ifdefempty{\mdf@@exercisepoints}%
4030     {%
4031         \node[titregris,left,xshift=-1cm] at (P)%
4032             {\~\mdf@frametitlefont{\mdf@@exercisepoints points}\~};}%
4033     },
4034 firstextra={%
4035     \node[titregris,xshift=1cm] at (P-|0) %
4036         {\~\mdf@frametitlefont{\theexercise}\~};
4037     \ifdefempty{\mdf@@exercisepoints}%
4038     {%
4039         \node[titregris,left,xshift=-1cm] at (P)%
4040             {\~\mdf@frametitlefont{\mdf@@exercisepoints points}\~};}%
4041     },
4042 }
4043 \begin{mdframed}[style=exercisestyle,]
4044 \ExampleText
4045 \end{mdframed}
4046
4047 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
4048 \ExampleText
4049 \end{mdframed}
4050 \end{tltxmdfexample}
4051 \clearpage
4052 \Examplesec{Theorem environments}
4053 \begin{LTXexample}
4054 \mdfdefinestyle{theoremstyle}{%
4055     linecolor=red,linewidth=2pt,%
4056     frametitlerule=true,%
4057     apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
4058         shade,left color=white, right color=blue!20}}},
4059     frametitlerulecolor=green!60,
4060     frametitlerulewidth=1pt,
4061     innertopmargin=\topskip,
4062 }
4063 \mdtheorem[style=theoremstyle]{definition}{Definition}
4064 \begin{definition}[Inhomogeneous linear]
4065 \ExampleText
4066 \end{definition}
4067 \begin{definition*}[Inhomogeneous linear]
4068 \ExampleText
4069 \end{definition*}
4070 \end{LTXexample}
4071
4072 \end{document}
4073 \endinput

```

E. The file *mdframed-example-pstricks*

```

4074 %Documentation of the package mdframed
4075 %$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $

```

```

4076 \setcounter{errorcontextlines}{999}
4077 \documentclass[parskip=false,english,11pt]{ltxmdf}
4078 \ltxmdfsetifoot$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
4079
4080 \lstDeleteShortInline{[]}
4081 \newcommand\Loadedframemethod{PSTricks}
4082 \usepackage[framemethod=\Loadedframemethod]{mdframed}
4083
4084 \usepackage{showexpl}
4085 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},}
4086
4087 \title{The \Pack{mdframed} package}
4088 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
4089 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
4090 \date{\mdfdateID$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $}
4091 \version{\mdversion}
4092 \introduction{In this document I collect various examples for
4093               \Opt{framemethod=\Loadedframemethod}.
4094               Some presented examples are more or less exorbitant.}
4095
4096 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4097 \newrobustcmd\ExampleText{%
4098     An \textit{inhomogeneous linear} differential equation has the form
4099     \begin{align}
4100         L[v] = f,
4101     \end{align}
4102     where  $L$  is a linear differential operator,  $v$  is
4103     the dependent variable, and  $f$  is a given non-zero
4104     function of the independent variables alone.
4105 }
4106
4107 \newcounter{examplecount}
4108 \setcounter{examplecount}{0}
4109 \renewcommand\thesubsection{}
4110 \newcommand\Examplesec[1]{%
4111 \stepcounter{examplecount}%
4112 \subsection{Example~\arabic{examplecount}~---~\relax}%
4113 }
4114
4115 \begin{document}
4116 \maketitle
4117 \section{Loading}
4118 In the preamble only the package \Pack{mdframed} with the option
4119 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
4120 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
4121
4122 {\large\color{red!50!black}
4123 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
4124 package \Pack{showexpl}.}
4125 X
4126 \section{Examples}
4127 All examples have the following settings:
4128
4129 \begin{tltxmdfexample}
4130 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4131 \newrobustcmd\ExampleText{%

```



```

4132 An \textit{inhomogeneous linear} differential equation
4133 has the form
4134 \begin{align}
4135 L[v] = f,
4136 \end{align}
4137 where  $L$  is a linear differential operator,  $v$  is
4138 the dependent variable, and  $f$  is a given non-zero
4139 function of the independent variables alone.
4140 }
4141 \end{tltxmdfexample}
4142 \clearpage
4143
4144 \Examplesec{very simple}
4145 \begin{LTExample}
4146 \global\mdfdefinestyle{exampledefault}{%
4147     linecolor=red,middlelinewidth=3pt,%
4148     leftmargin=1cm,rightmargin=1cm
4149 }
4150 \begin{mdframed}[style=exampledefault,roundcorner=5]
4151 \ExampleText
4152 \end{mdframed}
4153 \end{LTExample}
4154
4155 \Examplesec{hidden line + frame title}
4156 \begin{LTExample}
4157 \global\mdfapptodefinestyle{exampledefault}{%
4158     topline=false,rightline=false,bottomline=false,
4159     frametitlerule=true,innertopmargin=6pt,
4160     outerlinewidth=6pt,outerlinecolor=blue,
4161     pstricksappsetting={\addtopsstyle{mdfouterlinestyle}{linestyle=dashed}},
4162     innerlinecolor=yellow,innerlinewidth=5pt}%
4163 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
4164 \ExampleText
4165 \end{mdframed}
4166 \end{LTExample}
4167
4168 \clearpage
4169
4170 \Examplesec{Dash Lines}
4171 \begin{LTExample}
4172 \global\mdfdefinestyle{exampledefault}{%
4173     pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
4174 \begin{mdframed}[style=exampledefault,]
4175 \ExampleText
4176 \end{mdframed}
4177 \end{LTExample}
4178
4179 \Examplesec{Double Lines}
4180 \begin{LTExample}
4181 \global\mdfdefinestyle{exampledefault}{%
4182     pstrickssetting={doubleline=true,doublesep=6pt},
4183     linecolor=red,linewidth=5pt,middlelinewidth=4pt}
4184 \begin{mdframed}[style=exampledefault,]
4185 \ExampleText
4186 \end{mdframed}
4187 \end{LTExample}

```

```

4188
4189 \Examplesec{Shadow frame}
4190 \begin{LTExample}
4191 \newmdenv[shadow=true,
4192           shadowsize=11pt,
4193           linewidth=8pt,
4194           frametitle=rule=true,
4195           roundcorner=10pt,
4196           ]{myshadowbox}
4197 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
4198 \ExampleText
4199 \end{myshadowbox}
4200 \end{LTExample}
4201 \end{document}
4202 \endinput

```

F. The file *mdframed-example-texsx*

```

4203 %Documenation of the package mdframed
4204 %%$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
4205 \setcounter{errorcontextlines}{999}
4206 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}
4207 \ltxmdfsetifoot $Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $
4208
4209
4210 \usepackage{showexpl}
4211 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
4212 \usepackage{tikz}
4213 \usetikzlibrary{calc,arrows,shadings,shadows}
4214 \newcommand\Loadedframemethod{tikz}
4215 \usepackage[framemethod=\Loadedframemethod]{mdframed}
4216
4217 \title{The \Pack{mdframed} package}
4218 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
4219 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
4220 \date{\mdfdateID$Id: mdframed.dtx 406 2012-05-18 11:43:01Z marco $}
4221 \version{\mdversion}
4222 \introduction{In this document I collect various examples for
4223               \Opt{framemethod=\Loadedframemethod}.
4224               Some presented examples are more or less exorbitant.}
4225
4226 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4227 \newrobustcmd\ExampleText{%
4228     An \textit{inhomogeneous linear} differential equation has the form
4229     \begin{align}
4230         L[v] &= f,
4231     \end{align}
4232     where  $L$  is a linear differential operator,  $v$  is
4233     the dependent variable, and  $f$  is a given non-zero
4234     function of the independent variables alone.
4235 }
4236
4237 \newcounter{examplecount}
4238 \setcounter{examplecount}{0}
4239 \renewcommand\thesubsection{}
4240 \newcommand\Examplesec[1]{%

```

```

4241 \stepcounter{examplecount}%
4242 \subsection{Example~\arabic{examplecount}~---~#1\relax}%
4243 }
4244
4245 \begin{document}
4246 \maketitle
4247 \section{Loading}
4248 In the preamble only the package \Pack{mdframed} with the option
4249 \Opt{framemethod=\Loadedframemethod} is loaded. All other modifications will be
4250 done by \Cmd{mdfdefinestyle} or \Cmd{mdfsetup}.
4251
4252 {\large\color{red!50!black}
4253 \NOTE Every \Cmd{global} inside the examples is necessary to work with the
4254 package \Pack{showexpl}.}
4255
4256 \section{Examples}
4257 All examples have the following settings:
4258
4259 \begin{tltxmdfexample}
4260 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
4261 \newrobustcmd\ExampleText{%
4262 An \textit{inhomogeneous linear} differential equation
4263 has the form
4264 \begin{align}
4265 L[v] = f,
4266 \end{align}
4267 where  $L$  is a linear differential operator,  $v$  is
4268 the dependent variable, and  $f$  is a given non-zero
4269 function of the independent variables alone.
4270 }
4271 \end{tltxmdfexample}
4272 \clearpage
4273 \Examplesec{Package listings}
4274 The example below is inspired by the following post on StackExchange
4275 \href{http://tex.stackexchange.com/questions/27673/background-overflows-when-using-rounded-corners-for-}
4276 {Background overflows when using rounded corners for listings (package: 'listings')}
4277
4278 Here the solution which can be decorate as usual.
4279
4280 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},
4281 morekeywords={lstlisting}]
4282 \BeforeBeginEnvironment{lstlisting}{%
4283 \begin{mdframed}[<modification>%
4284 \vspace{-0.7em}}
4285 \AfterEndEnvironment{lstlisting}{%
4286 \vspace{-0.5em}%
4287 \end{mdframed}}
4288 \end{tltxmdfexample}
4289
4290 With the new command \Cmd{surroundwithmdframed} you can use
4291 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},
4292 morekeywords={lstlisting}]
4293 \surroundwithmdframed{listings}
4294 \end{tltxmdfexample}
4295
4296 \Examplesec{Package multicol}

```

```

4297 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with
4298 \Pack{mdframed}. In a simple way without any breaks you can use:
4299 \begin{LTXexample}
4300 \begin{multicols}{2}
4301 \lipsum[1]
4302 \begin{mdframed}
4303 \ExampleText
4304 \end{mdframed}
4305 \lipsum[2]
4306 \end{multicols}
4307 \end{LTXexample}
4308 \clearpage
4309 \twocolumn[\Examplesec{Working in twocolumn mode}]
4310 \begin{tltxmdfexample}
4311 \twocolumn[%
4312   \Examplesec{Working in
4313     twocolumn mode}]
4314 \lipsum[1]\lipsum[2]
4315 \begin{mdframed}[%
4316   leftmargin=10pt,%
4317   rightmargin=10pt,%
4318   linecolor=red,
4319   backgroundcolor=yellow]
4320 \ExampleText
4321 \end{mdframed}
4322 \lipsum[2]
4323 \end{tltxmdfexample}
4324 \lipsum[1]\lipsum[2]
4325 \begin{mdframed}[leftmargin=10pt,%
4326   rightmargin=10pt,%
4327   linecolor=red,
4328   backgroundcolor=yellow]
4329 \ExampleText
4330 \end{mdframed}
4331 \lipsum[2]
4332 \clearpage
4333 \onecolumn
4334 \Examplesec{Working inside enumerate}
4335 \begin{LTXexample}
4336 Text Text Text Text Text Text Text Text
4337 \begin{enumerate}
4338 \item in the following \ldots
4339   \begin{mdframed}[linecolor=blue,linewidth=2]
4340     \ExampleText
4341   \end{mdframed}
4342 \item \lipsum[2]
4343 \end{enumerate}
4344 Text Text Text Text Text Text
4345 \end{LTXexample}
4346 \clearpage
4347 \Examplesec{Position a specific symbol at a line}
4348 \begin{LTXexample}
4349 \tikzset{
4350   warningsymbol/.style={
4351     rectangle,draw=red,
4352     fill=white,scale=1,

```

```

4353     overlay}}
4354 \mdfdefinestyle{warning}{%
4355   hidealllines=true,leftline=true,
4356   skipabove=12,skipbelow=12pt,
4357   innertopmargin=0.4em,%
4358   innerbottommargin=0.4em,%
4359   innerrightmargin=0.7em,%
4360   rightmargin=0.7em,%
4361   innerleftmargin=1.7em,%
4362   leftmargin=0.7em,%
4363   middlelinewidth=.2em,%
4364   linecolor=red,%
4365   fontcolor=red,%
4366   firstextra={\path let \p1=(P), \p2=(O) in ($(\x2,0)+0.5*(0,\y1)$)
4367               node[warningsymbol] {\$}};,%
4368   secondextra={\path let \p1=(P), \p2=(O) in ($(\x2,0)+0.5*(0,\y1)$)
4369               node[warningsymbol] {\$}};,%
4370   middleextra={\path let \p1=(P), \p2=(O) in ($(\x2,0)+0.5*(0,\y1)$)
4371               node[warningsymbol] {\$}};,%
4372   singleextra={\path let \p1=(P), \p2=(O) in ($(\x2,0)+0.5*(0,\y1)$)
4373               node[warningsymbol] {\$}};,%
4374 }
4375 \begin{mdframed}[style=warning]
4376 \ExampleText
4377 \end{mdframed}
4378 \end{LTXexample}
4379
4380 \clearpage
4381 \Examplesec{digression-environement inspired by Tobias Weh}
4382 \begin{lstlisting}
4383 \usetikzlibrary{calc,arrows}
4384 \tikzset{
4385   excursus arrow/.style={%
4386     line width=2pt,
4387     draw=gray!40,
4388     rounded corners=2ex,
4389   },
4390   excursus head/.style={
4391     fill=white,
4392     font=\bfseries\sffamily,
4393     text=gray!80,
4394     anchor=base west,
4395   },
4396 }
4397 \mdfdefinestyle{digressionarrows}{%
4398   singleextra={%
4399     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4400     \path let \p1=(Q), \p2=(O) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4401     \path [excursus arrow, round cap-to]
4402       ($ (O)+(5em,0ex)$) -| (M) |- %
4403       ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4404       ++(23em,2ex);
4405     \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression}};
4406   firstextra={%
4407     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4408     \path [excursus arrow,-to]

```

```

4409         (0) |- %
4410         ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4411         ++(23em,2ex);
4412         \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression}};,
4413     secondextra={%
4414         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
4415         \path [excursus arrow,round cap-]
4416             ($ (0)+(5em,0ex)$) -| (Q)};,
4417     middleextra={%
4418         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
4419         \path [excursus arrow]
4420             (0) -- (Q)};,
4421     middlelinewidth=2.5em,middlelinecolor=white,
4422     hidealllines=true,topline=true,
4423     innertopmargin=0.5ex,
4424     innerbottommargin=2.5ex,
4425     innerrightmargin=2pt,
4426     innerleftmargin=2ex,
4427     skipabove=0.87\baselineskip,
4428     skipbelow=0.62\baselineskip,
4429 }
4430
4431 \begin{mdframed}[style=digressionarrows]
4432     \ExampleText
4433 \end{mdframed}
4434 \end{lstlisting}
4435
4436 \tikzset{
4437     excursus arrow/.style={%
4438         line width=2pt,
4439         draw=gray!40,
4440         rounded corners=2ex,
4441     },
4442     excursus head/.style={
4443         fill=white,
4444         font=\bfseries\sffamily,
4445         text=gray!80,
4446         anchor=base west,
4447     },
4448 }
4449 \mdfdefinestyle{digressionarrows}{%
4450     singleextra={%
4451         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
4452         \path let \p1=(Q), \p2=(0) in (\x1,{(\y1-\y2)/2}) coordinate (M);
4453         \path [excursus arrow, round cap-to]
4454             ($ (0)+(5em,0ex)$) -| (M) |- %
4455             ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4456             ++(23em,2ex);
4457         \node [excursus head] at ($ (Q)+(2.5em,-0.75pt)$) {Digression}};,
4458     firstextra={%
4459         \path let \p1=(P), \p2=(0) in (\x2,\y1) coordinate (Q);
4460         \path [excursus arrow,-to]
4461             (0) |- %
4462             ($ (Q)+(12em,0ex)$) .. controls +(0:16em) and +(185:6em) .. %
4463             ++(23em,2ex);
4464         \node [excursus head] at ($ (Q)+(2.5em,-2pt)$) {Digression}};,

```

```

4465 secondextra={%
4466     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4467     \path [excursus arrow,round cap-]
4468         ($ (O)+(5em,0ex)$) -| (Q);},
4469 middleextra={%
4470     \path let \p1=(P), \p2=(O) in (\x2,\y1) coordinate (Q);
4471     \path [excursus arrow]
4472         (O) -- (Q);},
4473 middlelinewidth=2.5em,middlelinecolor=white,
4474 hidealllines=true,topline=true,
4475 innertopmargin=0.5ex,
4476 innerbottommargin=2.5ex,
4477 innerrightmargin=2pt,
4478 innerleftmargin=2ex,
4479 skipabove=0.87\baselineskip,
4480 skipbelow=0.62\baselineskip,
4481 }
4482
4483 \begin{mdframed}[style=digressionarrows]
4484     \ExampleText
4485 \end{mdframed}
4486
4487 \Examplesec{Theorem style shading background}
4488 \begin{LTXexample}
4489 %\usetikzlibrary{shadings,shadows}% loaded in the header
4490 \mdtheorem[%
4491     apptotikzsetting={\tikzset{mdfbackground/.append style =%
4492                             {top color=yellow!40!white,
4493                             bottom color=yellow!80!black},
4494                             mdfframetitlebackground/.append style =%
4495                             {top color=purple!40!white,
4496                             bottom color=purple!80!black}
4497                             },
4498     },roundcorner=10pt,middlelinewidth=2pt,
4499     shadow=true,frametitlerule=true,frametitlerulewidth=4pt,
4500     innertopmargin=10pt,%
4501     ]{alternativtheorem}{Theorem}
4502 \begin{alternativtheorem}[Inhomogeneous linear]
4503 \ExampleText
4504 \end{alternativtheorem}
4505 \end{LTXexample}
4506 \end{document}
4507
4508 \endinput

```

G. Change History

v1.0a	command have the same prefix <code>\mdf@</code> .. 1
General: Created dtx and fixes bugs 1	
v1.1beta	v1.6
General: added lost semicolons 63	General: Changes the complete definition of
Renamed some commands so that every	<code>\mdf@lrbox</code> to fix problem with <code>itemize</code> 29

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