

Checksum5147

The `mdframed` package ¹

auto-split frame environment

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v1.3a

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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.

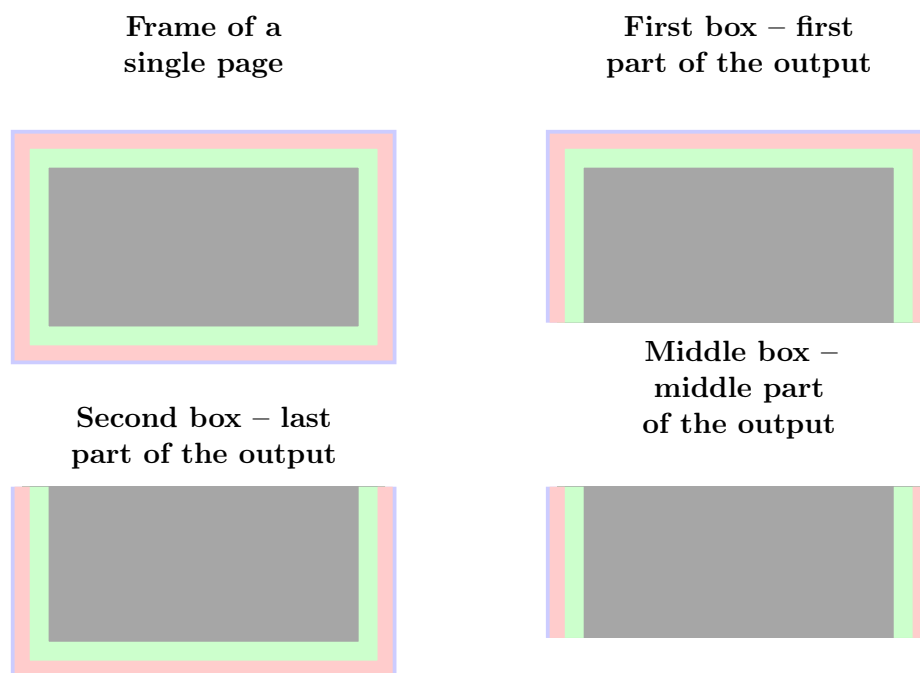


Figure 1: The basic frames

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.

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

`defaultunit` default=`pt`

see the sentence above.

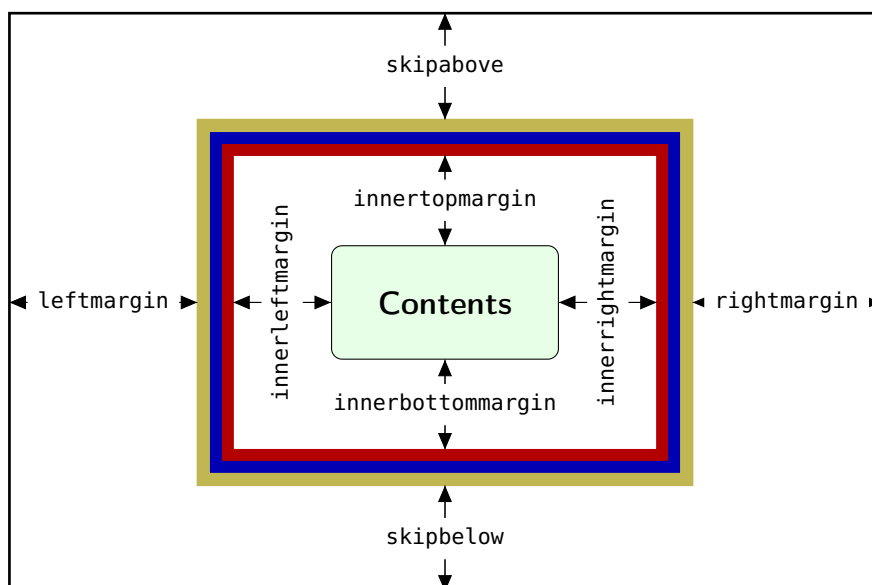


Figure 2: adjustable lengths of mdframed

`skipabove` default=0pt

Sets an additional skip above the frame.

`skipbelow` default=0pt

Sets an additional skip below the frame.

`margin`

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

`leftmargin` default=0pt

Sets the length of the left margin of the environment.

`rightmargin` default=0pt

Sets the length of the right margin of the environment.

`innerleftmargin` default=10pt

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

`innerrightmargin` default=10pt

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

`innertopmargin` default=.4\baselineskip

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

`innerbottommargin` default=.4\baselineskip

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

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

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

5.2.2. Colored Options

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

Sets the color of the contents of the environment.

`innerlinecolor` default=`linecolor`

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

`middlelinecolor` default=`linecolor`

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

`outerlinecolor` default=`linecolor`

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

5.2.3. General options

`font` default=`{}`

Sets the font of the environment.

`ntheorem` default=`false`

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

`nobreak` default=`false`

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

`usetwoside` default=`true`

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

`needspace` default=`0pt`

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

`style`

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

`settings` default=`none`

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

`align` default=`left`

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

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

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

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

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

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

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

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

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

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

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

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

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

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

5.3. Hidden Lines

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

5.4. Frametitle

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

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

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

`frametitlerule` default=false

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

`frametitlerulewidth` default=.2pt

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

`frametitleaboveskip` default=5pt

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

`frametitlebelowskip` default=5pt

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

`frametitlebackgroundcolor` default=white

Sets the color of the background of the frametitle

FYI and Note

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

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

`repeatframetitle` default=false

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

5.5. Theorems

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

`\newmdtheoremenv`

Since the package is often used to highlight theorem environments, I have created a command⁴ 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[linewidth=blue]{lemma}%
    {Lemma}[section]
...
\begin{lemma}[Some title]
foo foo foo foo foo
\end{lemma}
```

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

So far there is no `\renewmdtheoremenv`!

`\mdtheorem`

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

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

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

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

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

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

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

`theoremseparator` default={:}

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

`theoremtitlefont` default={}

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

`theoremspace` `\space`

Sets the space after `theoremseparator`.

Examples can be found in the attached files.

5.6. Footnotes

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

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

`footnotedistance` default= `\bigskipamount`

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

`footnoteinside` default=true

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

Note

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

6. Examples

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

mdframed-example-default

Demonstration of examples created with `framemethod=default`.

mdframed-example-tikz

Demonstration of examples created with `framemethod=TikZ`.

mdframed-example-pstricks

Demonstration of examples created with `framemethod=pstricks`.

mdframed-example-texsx

Demonstration of examples like interaction with `listings`

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

7. Errors, Warnings and Messages

The package `mdframed` provides different errors, warnings and messages in the `log`-file. Some \LaTeX -editors like `TeXMaker` or `TeXStudio` have a special tab for errors and warnings but not for messages. So you should look in the `log-File` itself.

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

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

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

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

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

```
Unknown framemethod .... mdframed
```

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

```
You have not loaded ntheorem yet
```

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

```
You have only a width of 3cm
```

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

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

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

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

See the explanation above.

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

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

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

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

8. Known Problems

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

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

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

9. ToDo

It is important to update the documentation

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

10. Acknowledgements

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

Thanks for proofreading

Alan Munn and Nahid Shajari

I hope I forgot nobody.

A. More information

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

A.1. How does `mdframed` work?

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

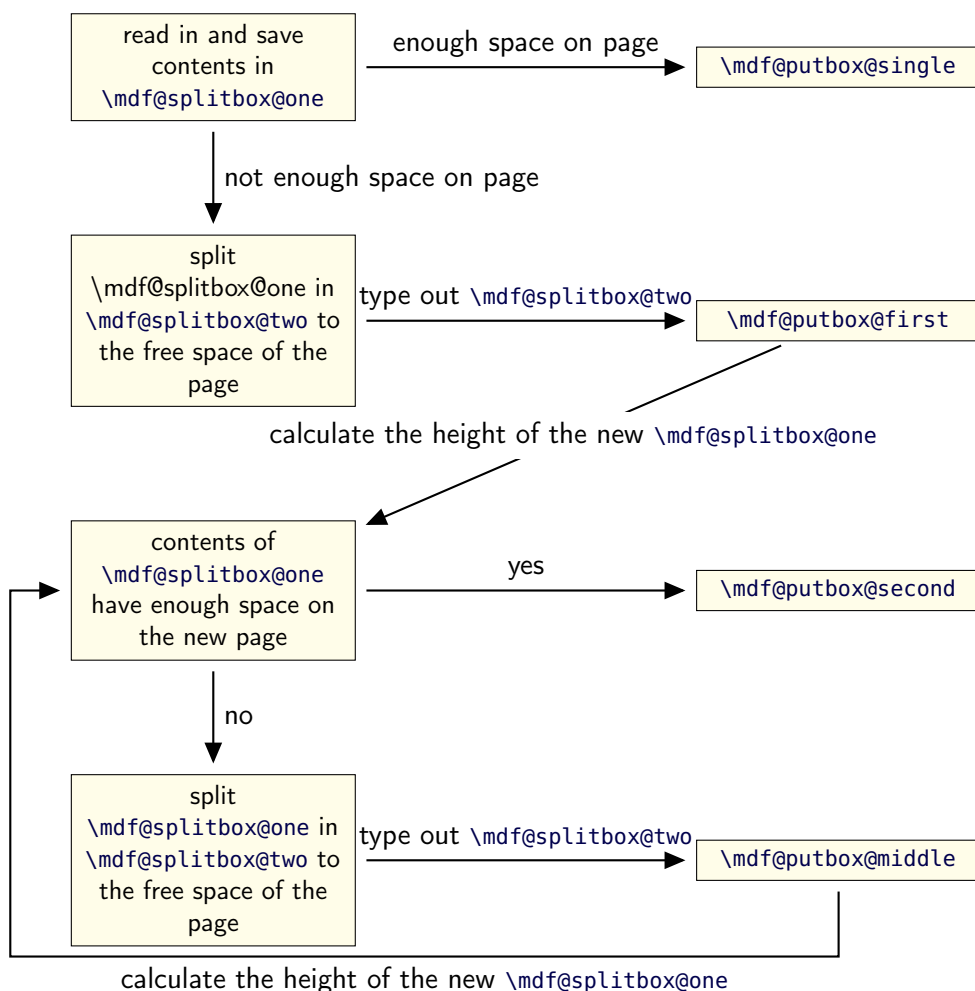


Figure 3: Setting the contents of `mdframed`

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

A.2. The Framecommands

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

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

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

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

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

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

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

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

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

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

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

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

For example the leftmargin is:

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

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

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

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

A.3. Revision history

Version 1.3a 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 `\newsstyle`

This works only with `framemethod=PS Tricks`. • added new commands for interaction with TikZ and PS Tricks • expand frame title option by option `frametitulerule`, `frametitulerulewidth`, `frametitlefont`, `frametitleaboveskip`, `frametitlebelowskip`, `frametitlealignment` • removed limitation of three lines for PS Tricks • defined new commands `\surroundwithmdframed`, `\mdflength`, `\mdtheorem` • load `xparse` by default • changed internal names • expanded examples

Version 1.0b submitted 9 Dec 2011

- fixes documentation (Thanks to Dietrich Grau) • fixes bug in `\newmdtheoremenv` • fixes bug with overfull boxes (Thanks to Dietrich Grau) • defined `\newsstylemdfbackgroundstyle` and `mdflinestyle`

This works only with `framemethod=PS Tricks`. • created dtx-file (Thanks to Kevin Godby) • added `\@parboxrestore` to `\mdf@lrbbox`

Version 1.0 submitted 13 Nov 2011

- add option `userdefinedwidth` • add option `align` • add option `apptotikzsetting` • create new command `\mdfapptodefinestyle` • changed internal algorithm • removed `calc` instead using 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 twocolumn-mode • changed the calculation
- added option `tikzsetting` • added options for hidden lines for all styles • fixes bugs

Version 0.6a submitted 22 Dec 2010

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

B. Implementation

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

B.1. The Explanation of mdframed.sty

Id : mdframed.dtx3442012-02-04 23:50:02Zmarco Rev : 344 Author : marco

Date : 2012-02-05 00:50:02 +0100(So, 05.Feb2012)

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

Set package information

```
1 \def\mdversion{v1.3a}
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 344 2012-02-04 23:50:02Z marco $%
7     \mdversion: \mdframedpackagename]
```

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

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

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

Loading required packages

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

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

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

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

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

```

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

`\mdf@dolist`

Loop used by *mdframed*.

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

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

Command to define a new length with a default value.

```

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

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

```

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

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

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

```

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

```

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

```

```

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

```

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

```

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

```

```

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

```

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

```

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

```

```

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

```

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

```

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

```

Start declaration of options

```

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

```

Only provide to be backward compatible

```

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

```

```

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

```

\mdf@framemethod

```

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

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

```

\mdf@do@lengthoption

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

```

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

```



```

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

```

`\mdf@do@lengthoption`

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

```

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

```

`\mdf@do@booloption`

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

```

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

\mdf@do@alignoption

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

```

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

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

Set the alignment.

```

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

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

Option to pass options to tikz or pstricks

```

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

```

\mdf@xcolor

Problem with xcolor. This part must be reworked!

```

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

```

\mdf@needspace

Defining the option needspace

```

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

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

```

\mdfsetup

Short form of `\setkeys{mdf}`

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

`\mdf@style`

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

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

`\mdf@print@space`

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

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

`\new...`

Initialize all commands and length which will we used later

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

```

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

```

\mdf@lrbox \endmdf@lrbox

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

```

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

```

355

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

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

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

```
\mdf@patchamsth
```

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

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

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

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

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

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

```

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

```

```

\mdfdefinestyle
\mdfapptodefinestyle

```

See explanation of this commands above.

```

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

```

```

\mdflength
\surroundwithmdframed

```

Helper macros to work with *mdframed*

```

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

```

```

\newmdenv
\renewmdenv
\newmdtheoremenv
\mdtheorem

```

Defining of the new environment definitions.

```

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

```

```

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

```



```

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

```

```

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

```

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

```

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

```

```

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

```

```

582 \begingroup
583 \parskip\z@
584 \parindent\z@
585 \offinterlineskip
586 \mdf@ignorevbadness%
587 \global\setbox\mdf@splitbox@one\vbox{%
588   \unvcopy\mdf@frametitlebox%
589   \mdf@frametitlerule%
590   \unvbox\mdf@splitbox@one
591 }%
592 \mdf@ignorevbadness%
593 \global\setbox\mdf@splitbox@one\vbox{%
594   \unvbox\mdf@splitbox@one}%
595 \endgroup
596 \mdfsetup{innertopmargin=\mdf@frametitleaboveskip@length}%
597 }

```

`\mdf@checknththeorem`

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

```

598
599 \newrobustcmd*\mdf@checknththeorem{%
600   \ifbool{mdf@nththeorem}%
601     {\ifundef{\theorempreskipamount}%
602       {\mdf@PackageWarning{You have not loaded nththeorem yet}}%
603       {\setlength{\theorempreskipamount}{\z@}%
604        \setlength{\theorempostskipamount}{\z@}%
605       }%
606     }{}%
607 }

```

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

Support for footnotes.

```

608 \newrobustcmd*\mdf@footnoterule{%
609   \kern0\p@
610   \hrule \@width 1in \kern 2.6\p@}
611 \newrobustcmd*\mdf@footnoteoutput{%
612   \ifvoid\@mpfootins\else
613     \nobreak%
614     \vskip\mdf@footnotedistance@length%
615     \normalcolor%
616     \mdf@footnoterule
617     \unvbox\@mpfootins
618   \fi%
619 }
620 \newrobustcmd*\mdf@footnoteinput{%
621   \def\@mpfn{mpfootnote}%
622   \def\thempfn{\thempfootnote}%
623   \c@mpfootnote\z@
624   \let\@footnotetext\@mpfootnotetext%
625 }

```

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

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

```

626 \newrobustcmd*\mdf@load@style{%
627 \ifcase\value{mdf@globalstyle@cnt}\relax%
628   \input{md-frame-0.mdf}%
629 \or\input{md-frame-1.mdf}%
630 \or\input{md-frame-2.mdf}%
631 \or\input{md-frame-3.mdf}%
632 \else%
633   \IfFileExists{md-frame-\value{mdf@globalstyle@cnt}.mdf}%
634   {\input{md-frame-\value{mdf@globalstyle@cnt}.mdf}}%
635   {%
636     \input{md-frame-0.mdf}%
637     \mdf@PackageWarning{The style number \value{mdf@globalstyle@cnt} does not exist^^J
638                       mdframed ues instead style=0 \mdframedpackagename}%
639   }%
640 \fi%
641 }%
642 \mdf@load@style
643
644 \newrobustcmd*\mdf@styledefinition{%AVOID!!!
645   \ifnumequal{\value{mdf@globalstyle@cnt}}{0}%
646   {\deflength{\mdf@innerlinewidth@length}{\z@}%
647    \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
648    \deflength{\mdf@outerlinewidth@length}{\z@}%
649    \let\mdf@innerlinecolor\mdf@linecolor%
650    \let\mdf@middlelinecolor\mdf@linecolor%
651    \let\mdf@outerlinecolor\mdf@linecolor%
652   }{}%
653 % \ifnumequal{\value{mdf@globalstyle@cnt}}{2}%
654 % {\deflength{\mdf@innerlinewidth@length}{\z@}%
655 %  \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
656 %  \deflength{\mdf@outerlinewidth@length}{\z@}%
657 %  \let\mdf@innerlinecolor\mdf@linecolor%
658 %  }{}%
659 % \ifnumequal{\value{mdf@globalstyle@cnt}}{3}%
660 % {\deflength{\mdf@innerlinewidth@length}{\z@}%
661 %  \deflength{\mdf@middlelinewidth@length}{\mdf@linewidth@length}%
662 %  \deflength{\mdf@outerlinewidth@length}{\z@}%
663 %  \let\mdf@innerlinecolor\mdf@linecolor%
664 %  }{}%
665 }
```

`\detected@mdf@put@frame`

Detect whether inside a non breakable environment.

```

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

```

```

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

```

`\mdf@hidealllines@check`

```

700 \newrobustcmd*\mdf@hidealllines@check{%
701 \ifbool{mdf@hidealllines}{%
702 \boolfalse{mdf@leftline}\boolfalse{mdf@rightline}%
703 \boolfalse{mdf@topline}\boolfalse{mdf@bottomline}%
704 \boolfalse{mdf@frametitleleftline}\boolfalse{mdf@frametitlerightline}%
705 \boolfalse{mdf@frametitletopline}\boolfalse{mdf@frametitlebottomline}%
706 }{}%
707 }

```

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

That the user environment.

```

708 \newenvironment{mdframed}[1][{}]{%
709 \begin{group}%
710 \color@setgroup%
711 \mdfsetup{userdefinedwidth=\linewidth,#1}%
712 \mdf@hidealllines@check%
713 \mdf@twoside@checklength%
714 \let\width\z@%
715 \let\height\z@%

```

```

716 \mdf@checkntheorem%
717 \mdf@styledefinition%
718 \mdf@footnoteinput%
719 \color{\mdf@fontcolor}%
720 \ifvmode\nointerlineskip\fi%
721 \mdf@trivlist{\mdf@skipabove@length}%
722 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle}%
723 \mdf@settings%
724 \mdf@lrbox{\mdf@splitbox@one}%
725 }%
726 {\par\unskip%
727 \ifmdf@footnoteinside%
728 \def\mdf@reserveda{%
729 \mdf@footnoteoutput%
730 \endmdf@lrbox%
731 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
732 \detected@mdf@put@frame}%
733 \else%
734 \def\mdf@reserveda{%
735 \endmdf@lrbox%
736 \ifdefempty{\mdf@frametitle}{\mdf@@frametitle@use}
737 \detected@mdf@put@frame%
738 \mdf@footnoteoutput%
739 }%
740 \fi%
741 \mdf@reserveda%
742 \endmdf@trivlist%
743 \color@endgroup\endgroup\@doendpe%\@endparenv%
744 }
745
746

```

```

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

```

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

```

747 \newtoggle{md:checktwoside}
748 \settoggle{md:checktwoside}{false}
749 \newrobustcmd*\mdf@twoside@checklength{%
750 \if@twoside
751 \ifbool{mdf@usetwoside}%
752 {\mdf@PackageInfo{mdframed works in twoside mode}%
753 \settoggle{md:checktwoside}{true}%
754 \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
755 \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
756 }%
757 {\mdf@PackageInfo{mdframed inside twoside mode but\MessageBreak
758 works with oneside mode}%
759 \settoggle{md:checktwoside}{false}%
760 }%
761 \fi%
762 }

```

```

763
764 \newcounter{mdf@zref@counter}%keine doppelten laebes
765 \zref@newprop*{mdf@pagevalue}[0]{\number\value{page}}
766 \zref@addprop{\ZREF@mainlist}{mdf@pagevalue}
767 \newrobustcmd*{mdf@zref@label}{%
768   \stepcounter{mdf@zref@counter}
769   \zref@label{mdf@pagelabel-\number\value{mdf@zref@counter}}}%
770 }
771 \newrobustcmd*{if@mdf@pageodd}{%
772   \zref@refused{mdf@pagelabel-\the\value{mdf@zref@counter}}}%
773   \ifodd\zref@extract{mdf@pagelabel-\the\value{mdf@zref@counter}}{mdf@pagevalue}%
774     \setlength\mdf@rightmargin@length{\mdf@outermargin@length}%
775     \setlength\mdf@leftmargin@length{\mdf@innermargin@length}%
776   \else
777     \setlength\mdf@rightmargin@length{\mdf@innermargin@length}%
778     \setlength\mdf@leftmargin@length{\mdf@outermargin@length}%
779   \fi%
780 }
781 \newrobustcmd*{mdf@@setzref}{%
782   \iftoggle{md:checktwoside}{\mdf@zref@label\if@mdf@pageodd}{}}%
783 }

```

`\mdf@freepagevspace`

```

784 \newrobustcmd*{mdf@freepagevspace}{%
785   \penalty\@M \vskip 2\baselineskip
786   \penalty9999 \vskip -2\baselineskip
787   \penalty9999
788   \ifdimequal{\pagegoal}{\maxdimen}%
789     {\mdf@freevspace@length\vsiz}%
790     {\mdf@freevspace@length=\pagegoal\relax%
791       \advance\mdf@freevspace@length by -\pagetotal\relax%
792       \addtolength\mdf@freevspace@length{\dimexpr-\parskip\relax}\relax%
793     }%
794 }

```

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

Width of the box

```

795 \newrobustcmd*{mdf@advancelength@horizontalmargin@sub[1]}{%
796   \advance\mdf@horizontalsofbox by -\csname mdf@#1@length\endcsname\relax%
797 }
798 \newlength\mdf@horizontalsofbox
799 \newrobustcmd*{mdf@horizontalmargin@equation}{%
800   \setlength{\mdf@horizontalsofbox}{\mdf@userdefinedwidth@length}%
801   \mdf@dolist{\mdf@advancelength@horizontalmargin@sub}{%
802     leftmargin,outerlinewidth,middlelinewidth,%
803     innerlinewidth,innerleftmargin,inerrightmargin,%
804     innerlinewidth,middlelinewidth,outerlinewidth,%
805     rightmargin}%

```

```

806 \notbool{mdf@leftline}{%
807     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
808     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
809     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
810 }{}%
811 \notbool{mdf@rightline}{%
812     \advance\mdf@horizontalsofbox by \mdf@innerlinewidth@length\relax%
813     \advance\mdf@horizontalsofbox by \mdf@middlelinewidth@length\relax%
814     \advance\mdf@horizontalsofbox by \mdf@outerlinewidth@length\relax%
815 }{}%
816 \ifdimless{\mdf@horizontalsofbox}{3cm}%
817     {\mdf@PackageWarning{You have only a width of 3cm}}{}
818 \hsize=\mdf@horizontalsofbox%
819 }

```

`\mdf@keeplines@single`

horizontal space in relation of the lines.

```

820 \newrobustcmd*\mdf@keeplines@single{%
821 \notbool{mdf@topline}{%
822     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
823     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
824     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
825 }{}%
826 \notbool{mdf@bottomline}{%
827     \advance\mdf@verticalmarginwhole@length by -\mdf@innerlinewidth@length%
828     \advance\mdf@verticalmarginwhole@length by -\mdf@middlelinewidth@length%
829     \advance\mdf@verticalmarginwhole@length by -\mdf@outerlinewidth@length%
830 }{}%
831 }

```

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

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

```

832 \newrobustcmd*\mdf@advancelength@verticalmarginwhole[1]{%
833 \advance\mdf@verticalmarginwhole@length by \csname mdf@#1@length\endcsname\relax%
834 }
835 \newrobustcmd*\mdf@advancelength@freevspace@sub[1]{%
836 \advance\dimen@ by -\csname mdf@#1@length\endcsname\relax%
837 }
838 \newrobustcmd*\mdf@advancelength@freevspace@add[1]{%
839 \advance\dimen@ by \csname mdf@#1@length\endcsname\relax%
840 }

```

`\mdf@reset`

Reset changes

```

841 \protected@edef\mdf@reset{\boxmaxdepth\the\boxmaxdepth
842     \splittopskip\the\splittopskip}%

```

`\mdf@put@frame@standalone`

Output of *mdframed* inside a non breakable environment.

```

843 \newrobustcmd*\mdf@put@frame@standalone{\relax%
844   \ifvoid\mdf@splitbox@one\relax
845     \mdf@PackageWarning{The environment is empty\MessageBreak}%
846     \let\mdf@reserved@a\relax%
847   \else
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@advance@length@verticalmarginwhole}{%
852       outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
853       innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
854     \mdf@keep@lines@single%
855     \def\mdf@reserved@a{\mdf@put@box@single}%
856   \fi
857   \mdf@reserved@a%
858 }
```

\mdf@put@frame

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

```

859 \def\mdf@put@frame{\relax%
860 \ifvoid\mdf@splitbox@one\relax
861 \mdf@PackageWarning{The environment is empty\MessageBreak}%
862 \let\mdf@reserved@a\relax%
863 \else
864 \setlength\mdf@boundingboxwidth{\wd\mdf@splitbox@one}%
865 \mdf@print@space%
866 \mdf@freepage@space@gives \mdf@free@space@length
867 \mdf@PackageInfoSpace{\the\mdf@free@space@length before the beginning of \MessageBreak
868   the environment ending on input line \MessageBreak}%
869 \ifdimless{\mdf@free@space@length}{2\baselineskip}
870   {\mdf@PackageInfo{Not enough space on this page}
871     \vfill\@eject%
872     \def\mdf@reserved@a{\mdf@put@frame}%
873   }{%
874     %Hier berechnung Box-Inhalt+Rahmen oben und unten
875     \setlength{\mdf@verticalmarginwhole@length}%
876       {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
877     \mdf@dolist{\mdf@advance@length@verticalmarginwhole}{%
878       outerlinewidth,middlelinewidth,innerlinewidth,innertopmargin,
879       innerbottommargin,innerlinewidth,middlelinewidth,outerlinewidth}%
880     \mdf@keep@lines@single%
881     \ifdimless{\mdf@verticalmarginwhole@length}{\mdf@free@space@length}%
882       {%passt auf Seite%
883         \begin@group
884         \mdf@set@ref
885         \mdf@put@box@single%
886         \end@group
887         \let\mdf@reserved@a\relax}%
888       {\def\mdf@reserved@a{\mdf@put@frame@i}}}%passt nicht auf Seite
889   }%
890 \fi
891 \mdf@reserved@a%
```

892 }

\mdf@put@frame@i

Output of the first splitted box.

```

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

```

```

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

```

```

998      {%
999      \begingroup%
1000      \mdf@setzref
1001      \mdf@putbox@first%%Groesse des Splittens passt
1002      \endgroup%
1003      \hrule \@height\z@ \@width\hsize%
1004      \vfill\ject%
1005      \def\mdf@reserved@a{\mdf@put@frame@ii}%
1006      }%
1007      \fi%
1008      }%
1009 \mdf@reserved@a%
1010 }

```

`\mdf@put@frame@ii`

Output of the middle and last box.

```

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

```

```

1049                                     You have to change the settings}%
1050     \setbox\mdf@splitbox@one{\unvbox\mdf@splitbox@two}%
1051     \def\mdf@reserved@a{\enlargethispage{\baselineskip}\mdf@put@frame@ii}%
1052 \else
1053     \begingroup
1054     \mdf@@setzref
1055     \mdf@putbox@middle%
1056 \endgroup
1057 \hrule \@height\z@ \@width\hsize
1058 \vfill\@eject
1059 \def\mdf@reserved@a{\mdf@put@frame@ii}%
1060 \fi
1061 }%Hier die Ausgabe der mittleren Box
1062 {\ifvoid\mdf@splitbox@one
1063     \mdf@PackageWarning{You got a bad break\MessageBreak
1064                         because the last split box is empty\MessageBreak
1065                         You have to change the settings}%%
1066     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfbounding
1067 \fi%
1068 \ifdimless{\ht\mdf@splitbox@one}{lsp}}{%
1069     \mdf@PackageWarning{You got a bad break\MessageBreak
1070                         because the last split box is empty\MessageBreak
1071                         You have to change the settings}%
1072     %\hb@xt@\z@{\box\mdf@splitbox@one}%
1073     \let\mdf@reserved@a\relax%
1074     \setbox\mdf@splitbox@one\vbox{\unvbox\mdf@splitbox@one\hrule \@height\z@ \@width\mdfboundin
1075 }}%
1076 \begingroup%
1077     \mdf@@setzref
1078     \mdf@putbox@second%
1079     \hrule \@height\z@ \@width\hsize%
1080 \endgroup%
1081 \let\mdf@reserved@a\relax%
1082 }%Hier kommt die Ausgabe der letzten Box
1083 \mdf@reserved@a%
1084 }
1085

```

```

\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.

```

1086 %%%%      -----t-----
1087 %%%%      |               |
1088 %%%%      |               |
1089 %%%%      |               |
1090 %%%%      l|               |r
1091 %%%%      |               |
1092 %%%%      |               |
1093 %%%%      |-----|
1094 %%%%      b
1095 %%Zusammenhaenge abfragen:
1096 \newrobustcmd*{\mdf@test@ltrb}%
1097     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1098                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1099 %3-set
1100 \newrobustcmd*{\mdf@test@ltr}%
1101     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1102                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1103 \newrobustcmd*{\mdf@test@ltb}%
1104     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1105                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1106 \newrobustcmd*{\mdf@test@trb}%
1107     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1108                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1109 \newrobustcmd*{\mdf@test@lrb}%
1110     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1111                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1112 %2-set
1113 \newrobustcmd*{\mdf@test@lb}%
1114     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1115                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1116 \newrobustcmd*{\mdf@test@rb}%
1117     \ifboolexpr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1118                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1119 \newrobustcmd*{\mdf@test@tr}%
1120     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1121                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1122 \newrobustcmd*{\mdf@test@lt}%
1123     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1124                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1125 \newrobustcmd*{\mdf@test@lr}%
1126     \ifboolexpr{not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1127                 and (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1128 \newrobustcmd*{\mdf@test@tb}%
1129     \ifboolexpr{ (bool {mdf@topline}) and (bool {mdf@bottomline})
1130                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1131 %Einzellinien
1132 \newrobustcmd*{\mdf@test@l}%
1133     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1134                 and (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1135 \newrobustcmd*{\mdf@test@r}%
1136     \ifboolexpr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1137                 and not (bool {mdf@leftline}) and (bool {mdf@rightline})}}
1138 \newrobustcmd*{\mdf@test@t}%
1139     \ifboolexpr{ (bool {mdf@topline}) and not (bool {mdf@bottomline})
1140                 and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}
1141 \newrobustcmd*{\mdf@test@b}%

```

```

1142 \ifbool{expr{ not (bool {mdf@topline}) and (bool {mdf@bottomline})
1143           and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}{
1144 %keine Linien
1145 \newrobustcmd*{\mdf@test@noline}%
1146 \ifbool{expr{ not (bool {mdf@topline}) and not (bool {mdf@bottomline})
1147           and not (bool {mdf@leftline}) and not (bool {mdf@rightline})}}{
1148 \newrobustcmd*{\mdf@test@single}%
1149 \ifbool{expr{ not (test {\mdf@test@lrb} or test {\mdf@test@ltr} or
1150                   test {\mdf@test@ltb} or test {\mdf@test@trb} or
1151                   test {\mdf@test@lrb} or test {\mdf@test@lb} or
1152                   test {\mdf@test@rb} or test {\mdf@test@tr} or
1153                   test {\mdf@test@lt} ) }}{
1154 %
1155 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{framemethod}%
1156 \DisableKeyvalOption[action=warning,package=mdframed]{mdf}{xcolor}%
1157
1158 \endinput

```

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

```

1159 %% Style file for mdframed for package option 'framemethod=default'
1160 %%
1161 %% This package may be distributed under the terms of the LaTeX Project
1162 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1163 %% Either version 1.0 or, at your option, any later version.
1164 %%
1165 %%
1166 %%$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
1167 %

```

```

\mdframed0packagename
\mdf@frame0date@svn

```

local settings

```

1168 \def\mdframed0packagename{md-frame-0}
1169 \def\mdf@frame0date@svn$#1: #2 #3 #4-#5-#6 #7 #8$#4/#5/#6\space }
1170 \ProvidesFile{md-frame-0.mdf}%
1171 [\mdf@frame0date@svn$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $]
1172 \mdversion: \mdframed0packagename]

```

```

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

```

short command

```

1173 \def\mdf@background@default{\color{\mdf@backgroundcolor}}
1174 \def\mdf@frametitlebackground@default{\color{\mdf@frametitlebackgroundcolor}}
1175 \def\mdf@shadow@default{\color{\mdf@shadowcolor}}
1176 \def\mdf@innerlinecolor@default{\color{\mdf@innerlinecolor}}
1177 \def\mdf@middlelinecolor@default{\color{\mdf@middlelinecolor}}
1178 \def\mdf@outerlinecolor@default{\color{\mdf@outerlinecolor}}
1179 \def\mdf@frametitlerulecolor@default{\color{\mdf@frametitlerulecolor}}
1180 \let\mdf@linecolor@default\mdf@middlelinecolor@default
1181 \def\mdf@frametitlerule{%

```

```

1182 \ifbool{mdf@frametitlerule}{%
1183   \vbox to \mdf@frametitlewidth@length {\hsize\mdfframetitleboxwidth%
1184     \par\unskip\vskip\mdf@frametitlebelowskip@length%
1185     \rlap{\noindent\hspace*{-\mdf@innerleftmargin@length}%
1186       \mdf@frametitlecolor@default%
1187       \rule{\dimexpr\mdfframetitleboxwidth%
1188         +\mdf@innerleftmargin@length
1189         +\mdf@innerrightmargin@length\relax
1190       }\mdf@frametitlewidth@length}%
1191     }}%
1192   }{}
1193   \par\unskip\vskip\mdf@innertopmargin@length%
1194 }%
1195

```

```

\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

```

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

```



```

1229         {\mdfboundingboxtotalwidth}%
1230         {\mdf@middlelinewidth@length}}}%
1231     {}%
1232 }%
1233 }%
1234 \def\mdf@frame@bottomline@single{%
1235   \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1236     \ifbool{mdf@bottomline}{%
1237       \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]{%
1238         {\dimexpr\mdfboundingboxtotalwidth
1239           \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}}%
1240         \ifbool{mdf@leftline}{+\mdf@middlelinewidth@length}}{\relax}%
1241         {\mdf@middlelinewidth@length}}}%
1242     {}%
1243   }%
1244 }%
1245 \def\mdf@frame@leftline@single{%
1246   \llap{\mdf@linecolor@default%
1247     \rule[-\mdfboundingboxdepth]{%
1248       {\mdf@middlelinewidth@length}%
1249       {\dimexpr\mdfboundingboxtotalheight%
1250         \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}}{\relax}%
1251     }%
1252 }%
1253 \def\mdf@frame@rightline@single{%
1254   \rlap{\mdf@linecolor@default%
1255     \hspace*{\mdfboundingboxwidth}%
1256     \hspace*{\mdf@innerrightmargin@length}%
1257     \rule[\dimexpr-\mdfboundingboxdepth%
1258       \relax]{%
1259       {\mdf@middlelinewidth@length}%
1260       {\dimexpr\mdfboundingboxtotalheight%
1261         +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}{\relax}%
1262     }%
1263 }%
1264 \def\mdf@putbox@single{%%%% Ausgabe der ungesplitteten Gesamtbox
1265   \ifvoid\mdf@splitbox@one
1266   \else%
1267     \mdf@makebox@out{%
1268       \mdf@makeboxalign@left%
1269       \setlength{\mdfboundingboxwidth}%
1270         {\wd\mdf@splitbox@one}%
1271       \setlength{\mdfboundingboxtotalwidth}%
1272         {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1273           +\mdf@innerrightmargin@length\relax}%
1274       \setlength{\mdfboundingboxheight}%
1275         {\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1276       \setlength{\mdfboundingboxdepth}%
1277         {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1278       \setlength{\mdfboundingboxtotalheight}%
1279         {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1280           +\mdf@innerbottommargin@length\relax}%
1281       \setlength{\mdftotallinewidth}{%
1282         \dimexpr\mdf@innerlinewidth@length+\mdf@middlelinewidth@length%
1283         +\mdf@outerlinewidth@length}%
1284       \noindent%

```

```

1285 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1286 \ifbool{mdf@leftline}%
1287 {\mdf@middlelinewidth@length}{\z@}%
1288 +\ifbool{mdf@rightline}%
1289 {\mdf@middlelinewidth@length}{\z@}\relax}%
1290 \mdf@makebox@in[\@tempdima]{%
1291 \null%
1292 \ifbool{mdf@leftline}{%
1293 \hspace*{\mdftotalllinewidth}%
1294 \mdf@frame@leftline@single%
1295 }{}%
1296 \mdf@frame@topline@single%
1297 \mdf@frame@background@single%
1298 \mdf@frame@bottomline@single%
1299 \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@single}%
1300 \hspace*{\mdf@innerleftmargin@length}%
1301 \ifbool{mdf@rightline}{%
1302 \mdf@frame@rightline@single%
1303 }{}%
1304 {\box\mdf@splitbox@one}%
1305 }%
1306 \mdf@makeboxalign@right%
1307 }%
1308 \fi%
1309 }

```

```

\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

```

1310 \def\mdf@frame@background@first{%
1311 \ifbool{mdf@shadow}{%
1312 \rlap{\smash{\mdf@shadow@default%
1313 \rule[\dimexpr-\mdfboundingboxdepth
1314 -\mdf@shadowsize@length\relax}%
1315 {\dimexpr\mdfboundingboxtotalwidth
1316 +\mdf@shadowsize@length
1317 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}{\relax}%
1318 {\dimexpr\mdfboundingboxtotalheight
1319 +\mdf@shadowsize@length\relax}%
1320 }%
1321 }}{}%
1322 \rlap{\mdf@background@default%
1323 \rule[-\mdfboundingboxdepth]%
1324 {\mdfboundingboxtotalwidth}%
1325 {\mdfboundingboxtotalheight}%
1326 }%
1327 }%
1328 \def\mdf@frame@frametitlebackground@first{%
1329 \ifdimless{\mdfframetitleboxtotalheight}{\mdfboundingboxtotalheight}%
1330 {%
1331 \rlap{\mdf@frametitlebackground@default%

```

```

1332 \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1333 {\mdfboundingboxtotalwidth}%
1334 {\mdfframetitleboxtotalheight}%
1335 }%
1336 \global\mdfframetitleboxtotalheight=-\p@relax%
1337 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1338 Current this isn't well supported}%
1339 \rlap{\mdf@frametitlebackground@default%
1340 \rule[-\mdfboundingboxdepth]%
1341 {\mdfboundingboxtotalwidth}%
1342 {\mdfboundingboxtotalheight}%
1343 }%
1344 \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
1345 -\mdfboundingboxheight
1346 +\mdf@frametitlebelowskip@length
1347 +.5\baselineskip-1pt
1348 % +\dp\strutbox
1349 \relax%
1350 }%
1351 }%
1352 \def\mdf@frame@leftline@first{%
1353 \llap{\mdf@linecolor@default%
1354 \rule[-\mdfboundingboxdepth]%
1355 {\mdf@middlelinewidth@length}%
1356 {\dimexpr\mdfboundingboxtotalheight%
1357 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1358 }%
1359 }%
1360 \def\mdf@frame@topline@first{%
1361 \rlap{\mdf@linecolor@default%
1362 \rule[\dimexpr\mdfboundingboxheight-\mdfboundingboxdepth+
1363 \mdf@splitbottomskip@length+\mdf@innertopmargin@length\relax]%
1364 {\mdfboundingboxtotalwidth}%
1365 {\mdf@middlelinewidth@length}%
1366 }%
1367 }
1368 \def\mdf@frame@rightline@first{%
1369 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1370 \hspace*{\mdf@innerrightmargin@length}%
1371 \rule[-\mdfboundingboxdepth]%
1372 {\mdf@middlelinewidth@length}%
1373 {\dimexpr\mdfboundingboxtotalheight%
1374 +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}\relax}%
1375 }%
1376 }%
1377 \def\mdf@putbox@first{%% % Ausgabe der Teilbox 1
1378 \ifvoid\mdf@splitbox@two
1379 \else%
1380 \mdf@makebox@out[\linewidth]{%
1381 \mdf@makeboxalign@left%
1382 \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@two}%
1383 \setlength{\mdfboundingboxtotalwidth}%
1384 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1385 +\mdf@innerrightmargin@length\relax}%
1386 \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1387 \setlength{\mdfboundingboxdepth}%

```

```

1388         {\dimexpr\dp\mdf@splitbox@two+\mdf@splitbottomskip@length\relax}%
1389     \setlength{\mdfboundingboxtotalheight}%
1390         {\dimexpr\mdfboundingboxheight+\mdf@innertopmargin@length%
1391             +\mdf@splitbottomskip@length\relax}%
1392     \setlength{\@tempdima}%
1393         {\dimexpr\mdfboundingboxtotalwidth%
1394             +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1395             +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1396             \relax}%
1397     \mdf@makebox@in[\@tempdima]{%
1398         \null%
1399         \ifbool{mdf@leftline}{%
1400             \hspace*{\mdf@middlelinewidth@length}%
1401             \mdf@frame@leftline@first}{}%
1402         \ifbool{mdf@topline}{%
1403             \mdf@frame@topline@first}{}%
1404         \mdf@frame@background@first%
1405         \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@first}%
1406         \hspace*{\mdf@innerleftmargin@length}%
1407         \ifbool{mdf@rightline}{%
1408             \mdf@frame@rightline@first}{}%
1409         {\box\mdf@splitbox@two}%
1410     }%
1411     \mdf@makeboxalign@right%
1412 }%
1413 \fi%
1414 }

```

```

\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*

```

1415 \def\mdf@frame@background@second{%
1416     \ifbool{mdf@shadow}{%
1417         \rlap{\smash{\mdf@shadow@default%
1418             \rule[\dimexpr-\mdfboundingboxdepth
1419                 -\mdf@shadowsize@length
1420                 \ifbool{mdf@bottomline}{-\mdf@middlelinewidth@length}{\relax}%
1421                 {\dimexpr\mdfboundingboxtotalwidth
1422                     +\mdf@shadowsize@length
1423                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\relax}%
1424                 {\dimexpr\mdfboundingboxtotalheight
1425                     +\mdf@shadowsize@length\relax}%
1426             }%
1427         }}{%
1428         \rlap{\mdf@background@default%
1429             \rule[-\mdfboundingboxdepth]%
1430                 {\mdfboundingboxtotalwidth}%
1431                 {\mdfboundingboxtotalheight}%
1432             }%
1433     }%
1434 \def\mdf@frame@frametitlebackground@second{%

```

```

1435 \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1436 {}%
1437 {\rlap{\mdf@frametitlebackground@default%
1438 \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]
1439 {\mdfboundingboxtotalwidth}%
1440 {\mdfframetitleboxtotalheight}%
1441 }%
1442 }%
1443 }%
1444 \def\mdf@frame@leftline@second{%
1445 \llap{\mdf@linecolor@default%
1446 \rule[-\mdfboundingboxdepth]%
1447 {\mdf@middlelinewidth@length}%
1448 {\dimexpr\mdfboundingboxtotalheight}%
1449 }%
1450 }%
1451 \def\mdf@frame@bottomline@second{%
1452 \rlap{\ifbool{mdf@leftline}{\hspace*{-\mdf@middlelinewidth@length}}{\mdf@linecolor@default%
1453 \rule[\dimexpr-\mdfboundingboxdepth-\mdf@middlelinewidth@length\relax]%
1454 {\dimexpr\mdfboundingboxtotalwidth
1455 \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}{\hspace*{-\mdf@middlelinewidth@length}}\relax}%
1456 {\mdf@middlelinewidth@length}%
1457 \mdf@middlelinewidth@length}%
1458 }%
1459 }%
1460 \def\mdf@frame@rightline@second{%
1461 \rlap{\mdf@linecolor@default\hspace*{\mdfboundingboxwidth}%
1462 \hspace*{\mdf@innerrightmargin@length}%
1463 \rule[-\mdfboundingboxdepth]%
1464 {\mdf@middlelinewidth@length}%
1465 {\mdfboundingboxtotalheight}%
1466 }%
1467 }%
1468 \def\mdf@putbox@second{%
1469 \ifvoid\mdf@splitbox@one%
1470 \else
1471 \mdf@makebox@out{%
1472 \mdf@makeboxalign@left%
1473 \setlength{\mdfboundingboxwidth}{\wd\mdf@splitbox@one}%
1474 \setlength{\mdfboundingboxtotalwidth}%
1475 {\dimexpr\mdfboundingboxwidth+\mdf@innerleftmargin@length%
1476 +\mdf@innerrightmargin@length\relax}%
1477 \setlength{\mdfboundingboxheight}{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1478 \setlength{\mdfboundingboxdepth}%
1479 {\dimexpr\dp\mdf@splitbox@one+\mdf@innerbottommargin@length\relax}%
1480 \setlength{\mdfboundingboxtotalheight}%
1481 {\dimexpr\mdfboundingboxheight+\mdf@innerbottommargin@length\relax}%
1482 \setlength{\@tempdima}{\dimexpr\mdfboundingboxtotalwidth%
1483 +\ifbool{mdf@leftline}{\mdf@middlelinewidth@length}{\z@}%
1484 +\ifbool{mdf@rightline}{\mdf@middlelinewidth@length}{\z@}%
1485 \relax}%
1486 \mdf@makebox@in[\@tempdima]{%
1487 \null%
1488 \ifbool{mdf@leftline}{%
1489 \hspace*{\mdf@middlelinewidth@length}%
1490 \mdf@frame@leftline@second}{%

```

```

1491      \mdf@frame@background@second%
1492      \ifbool{mdf@bottomline}{%
1493          \mdf@frame@bottomline@second}{}%
1494      \ifdefempty{\mdf@frametitle}{\mdf@frame@frametitlebackground@second}%
1495      \hspace*{\mdf@innerleftmargin@length}%
1496      \ifbool{mdf@rightline}{%
1497          \mdf@frame@rightline@second}{}%
1498      {\box\mdf@splitbox@one}%
1499  }%
1500  \mdf@makeboxalign@right%
1501  }%
1502  \fi%
1503 }%

```

```

\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

```

1504 \def\mdf@frame@leftline@middle{%
1505     \llap{\mdf@linecolor@default%
1506         \rule[-\mdfboundingboxdepth]{%
1507             {\mdf@middlelinewidth@length}%
1508             {\mdfboundingboxtotalheight}}%
1509     }%
1510 }%
1511 \def\mdf@frame@background@middle{%
1512     \ifbool{mdf@shadow}{%
1513         \rlap{\smash{\mdf@shadow@default%
1514             \rule[\dimexpr-\mdfboundingboxdepth
1515                 -\mdf@shadowsize@length\relax]{%
1516                 {\dimexpr\mdfboundingboxtotalwidth
1517                     +\mdf@shadowsize@length
1518                     \ifbool{mdf@rightline}{+\mdf@middlelinewidth@length}}{\relax}%
1519                 {\dimexpr\mdfboundingboxtotalheight\relax}}%
1520         }%
1521     }}{%
1522         \rlap{\mdf@background@default%
1523             \rule[-\mdfboundingboxdepth]{%
1524                 {\mdfboundingboxtotalwidth}%
1525                 {\mdfboundingboxtotalheight}}%
1526         }%
1527 }%
1528 \def\mdf@frame@frametitlebackground@middle{%
1529     \ifdimless{\mdfframetitleboxtotalheight}{\z@}%
1530     {%
1531         {\rlap{\mdf@frametitlebackground@default%
1532             \rule[\dimexpr-\mdfboundingboxdepth+\mdfboundingboxtotalheight-\mdfframetitleboxtotalheight\relax]{%
1533                 {\mdfboundingboxtotalwidth}%
1534                 {\mdfframetitleboxtotalheight}}%
1535         }%
1536         \global\mdfframetitleboxtotalheight=-\p@ \relax%
1537     }%
1538 }%

```

```

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

1581 \endinput

```

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

```

1582 %% Style file for mdframed for package option 'framemethod=default'
1583 %%
1584 %% This package may be distributed under the terms of the LaTeX Project
1585 %% Public License, as described in lppl.txt in the base LaTeX distribution.
1586 %% Either version 1.0 or, at your option, any later version.
1587 %%
1588 %%
1589 %%$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
1590 %

```

```
\mdframedIpackagename
\mdf@frameIdate@svn
```

local settings

```
1591 \def\mdframedIpackagename{md-frame-1}
1592 \def\mdf@frameIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8$#{#4/#5/#6\space }
1593 \ProvidesFile{md-frame-1.mdf}%
1594      [\mdf@frameIdate@svn$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $ %
1595      \mdversion: \mdframedIpackagename]
1596 %
```

```
\mdf@tikz@settings
```

Define settings for tikz

```
1597 %Allgemeine Einstellungen fuer tikz
1598 \def\mdf@tikz@settings{%
1599 %
1600   \tikzset{mdfbox/.style={anchor=south west,%
1601                           inner sep=0pt,%
1602                           outer sep=0pt,%
1603                           \mdf@fontcolor,}}% anchor der Ausgabebox ist unten links
1604   \tikzset{mdfcorners/.style={rounded corners=\mdf@roundcorner@length}}%
1605   \tikzset{mdfbackground/.style={fill=\mdf@backgroundcolor,%
1606                                   draw=\mdf@backgroundcolor}}%
1607   \tikzset{mdfframetitlebackground/.style={fill=\mdf@frametitlebackgroundcolor,%
1608                                               draw=none,%
1609                                               rounded corners={max(\mdf@roundcorner@length%
1610                                                                    -\mdf@innerlinewidth@length%
1611                                                                    -.5\mdf@middlelinewidth@length,0)}}}%
1612 %
1613   \tikzset{mdfouterline/.style={}}%
1614 % nur wenn outerlinewidth>0 wird aussere Linie gezeichnet
1615   \ifdimgreater{\mdf@outerlinewidth@length}{\z@}
1616     {\tikzset{mdfouterline/.append style={%
1617             draw=\mdf@outerlinecolor,%
1618             line width=2\mdf@outerlinewidth@length+\mdf@middlelinewidth@length}}}%
1619 %
1620   \tikzset{mdfinnerline/.style={}}%
1621 % nur wenn innerlinewidth>0 wird innere Linie gezeichnet
1622   \ifdimgreater{\mdf@innerlinewidth@length}{\z@}
1623     {\tikzset{mdfinnerline/.append style={%
1624             draw=\mdf@innerlinecolor,%
1625             line width=2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length}}}%
1626 %
1627   \tikzset{mdfshadow/.style={drop shadow={%
1628                                   shadow xshift=\mdf@shadowsize@length-2pt,
1629                                   shadow yshift=-\mdf@shadowsize@length+2pt,
1630                                   fill=\mdf@shadowcolor,
1631                                   every shadow }}}%
1632 %
1633   \mdf@tikzset@local
1634   \tikzset{mdfmiddleline/.style={}}%
1635 % nur wenn middlelinewidth>0 wird mittlere Linie gezeichnet
1636   \ifdimgreater{\mdf@middlelinewidth@length}{\z@}
1637     {\tikzset{mdfmiddleline/.append style={%
1638             draw=\mdf@middlelinecolor,%
1639             line width=2\mdf@middlelinewidth@length+\mdf@innerlinewidth@length}}}%
1640 %
```



```

1638     preaction={draw=\mdf@middlelinecolor,%
1639               line width=\mdf@middlelinewidth@length},%
1640     line width=\mdf@middlelinewidth@length,%
1641     tikzsetting}}%
1642   }{}%
1643 }%

```

```

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

```

Befehle fuer Ausgabe von Rahmen und Hintergrund

```

1644 \newrobustcmd*\mdf@tikzbox@tfl[1]{%three or four borders
1645   \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
1646   \begin{scope}[mdfcorners]%
1647     \clip[preaction=mdfouterline]%
1648           [postaction=mdfbackground]%
1649           [postaction=mdfinnerline]#1;%
1650   \end{scope}%
1651   \path[mdfmiddleline,mdfcorners]#1;
1652 }%
1653
1654
1655
1656 \newrobustcmd*\mdf@tikzbox@otl[2]{%one or two borders
1657   \clip(0,0)rectangle(\mdf@boundingboxwidth,\mdf@boundingboxheight);%
1658   \begin{scope}
1659     \path[mdfouterline,mdfcorners]#1;%
1660     \clip[postaction=mdfbackground]#2;%
1661     \path[mdfinnerline,mdfcorners]#1;%
1662   \end{scope}%
1663   \path[mdfmiddleline,mdfcorners]#1;}%

```

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

frametitlerule with tikz

```

1664 \tikzset{mdfframetitlerule/.style={%
1665   draw=none,
1666   fill=\mdf@frametitlerulecolor,
1667 }%
1668 }
1669 \def\mdf@@@frametitlerule{%
1670   \ifbool{mdf@frametitlerule}{%
1671     \vbox{\hsize0pt
1672       \par\unskip\vskip\mdf@frametitlebelowskip@length
1673       \noindent\rlap{\hspace*{-\mdf@innerleftmargin@length}%
1674       \begingroup%
1675       \pgfmathsetlength{\dimen@}{\mdfframetitleboxwidth+\mdf@innerleftmargin@length+\mdf@innerrightmargin@length}%
1676       \tikz\draw[mdfframetitlerule] (0,0)%
1677             rectangle (\dimen@,\mdf@frametitlerulewidth@length);
1678       \endgroup}
1679     }%
1680   }{}
1681   \par\unskip\vskip\mdf@innertopmargin@length%
1682 }%
1683

```

\mdf@putbox@single

Output of the non breakable contents.

```

1684 % Info zu den verwendeten Punkten:
1685 % O ist die untere linke Ecke der Mitte der middleline
1686 % P ist die obere rechte Ecke der Mitte der middleline
1687 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
1688 %
1689 \def\mdf@putbox@single{%
1690   \ifvoid\mdf@splitbox@one
1691   \else%
1692     \mdf@makebox@out{%
1693       \mdf@makeboxalign@left%
1694       \mdf@tikz@settings%
1695     %
1696     \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
1697     \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1698     \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1699     \ifbool{mdf@leftline}{%
1700       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1701       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1702       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
1703     \ifbool{mdf@rightline}{%
1704       \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1705       \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1706       \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
1707 %
1708     \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
1709     \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1710     \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
1711     \ifbool{mdf@topline}{%
1712       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1713       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1714       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
1715     \ifbool{mdf@bottomline}{%
1716       \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1717       \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1718       \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
1719     \mdf@makebox@in[\mdfboundingboxwidth]{%
1720     \null%
1721     \begin{tikzpicture}[remember picture]%
1722       \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1723       \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
1724       \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1725       \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1726       \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1727       \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1728       \ifbool{mdf@leftline}{%
1729         {%
1730           \pgfmathsetlengthmacro\mdf@Ax%
1731             {\mdf@Ax+\mdf@outerlinewidth@length+
1732             \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1733           \pgfmathsetlengthmacro\mdf@Ox%
1734             {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1735           }}%
1736       \ifbool{mdf@rightline}{%

```

```

1737     {%
1738     \pgfmathsetlengthmacro\mdf@Px%
1739         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1740     }{}%
1741 \ifbool{mdf@bottomline}%
1742     {%
1743     \pgfmathsetlengthmacro\mdf@Ay%
1744         {\mdf@Ay+\mdf@outerlinewidth@length+\mdf@middlelinewidth@length%
1745         +\mdf@innerlinewidth@length}%
1746     \pgfmathsetlengthmacro\mdf@Oy%
1747         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1748     }{}%
1749 \ifbool{mdf@topline}%
1750     {%
1751     \pgfmathsetlengthmacro\mdf@Py%
1752         {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1753     }{}%
1754 %
1755 \coordinate(0)at(\mdf@0x,\mdf@0y);%
1756 \coordinate(P)at(\mdf@Px,\mdf@Py);%
1757 %
1758 \ifbool{mdf@shadow}
1759     {\path[mdfshadow,mdfcorners](0) rectangle (P);}{}%
1760 %
1761 \begin{scope}[use as bounding box]
1762 \mdf@test@lrb{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)--cycle)}}{}%
1763 %
1764 \mdf@test@ltb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1765 \mdf@test@trb{\mdf@tikzbox@tfl{(0|-P)--(P)--(P|-0)--(0)}}{}%
1766 \mdf@test@ltr{\mdf@tikzbox@tfl{(0)--(0|-P)--(P)--(P|-0)}}{}%
1767 \mdf@test@lrb{\mdf@tikzbox@tfl{(P|-0)--(0)--(0|-P)--(P)}}{}%
1768 %
1769 \mdf@test@lb{\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}}%
1770             {(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}%
1771             }{}%
1772 \mdf@test@rb{\mdf@tikzbox@otl{(P)--(P|-0)--(0)}}%
1773             {(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}%
1774             }{}%
1775 \mdf@test@tr{\mdf@tikzbox@otl{(0|-P)--(P)--(P|-0)}}%
1776             {(0)--(0|-P)[mdfcorners]--(P)--(P|-0)}%
1777             }{}%
1778 \mdf@test@lt{\mdf@tikzbox@otl{(0)--(0|-P)--(P)}}%
1779             {(P|-0)--(0)[mdfcorners]--(0|-P)--(P)}%
1780             }{}%
1781 \mdf@test@lr{\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}}%
1782             {(0)rectangle(P)}%
1783             }{}%
1784 \mdf@test@tb{\mdf@tikzbox@otl{(0)--(0|-P)(0|-P)--(P)}}%
1785             {(0)rectangle(P)}%
1786             }{}%
1787 %
1788 \mdf@test@l{\mdf@tikzbox@otl{(0)--(0|-P)}}%
1789             {(0)rectangle(P)}%
1790             }{}%
1791 \mdf@test@r{\mdf@tikzbox@otl{(0|-P)--(P)}}%
1792             {(0)rectangle(P)}%

```

```

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

```

\mdf@putbox@first

Output of the first breakable contents.

```

1842 \def\drawbrackgroundframetitle@first{%
1843 \ifdefempty{\mdf@frametitle}{}{}%

```

```

1844 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
1845 {%
1846   \drawbrackgroundframetitle@@first
1847   \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1848   }\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
1849     Currently this isn't well supported}%
1850   \drawbrackgroundframetitle@@first
1851   \pgfmathsetlength{\global\mdfframetitleboxtotalheight}%
1852     {\mdfframetitleboxtotalheight-\mdfboundingboxheight-
1853       \mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
1854       +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length+\mdf@splittopskip@length%
1855       +\dp\strutbox%
1856     }%
1857   }%
1858 }%
1859 }%
1860 %
1861 \def\drawbrackgroundframetitle@@first{%
1862   \begin{scope}%background frame title
1863     \ifbool{mdf@leftline}{%
1864       \pgfmathsetlengthmacro\mdf@0x%
1865         {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1866       }{}%
1867     \ifbool{mdf@rightline}{%
1868       \pgfmathsetlengthmacro\mdf@Px%
1869         {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1870       }{}%
1871     \ifbool{mdf@topline}{%
1872       \pgfmathsetlengthmacro\mdf@Py%
1873         {\mdf@Py-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
1874       }{}%
1875     \pgfmathsetlengthmacro\mdf@Fy
1876       {\max(0,\mdf@Py-\mdfframetitleboxtotalheight)}
1877     \path[mdfframetitlebackground]
1878       (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
1879       --(\mdf@Px,\mdf@Py) --(\mdf@Px,\mdf@Fy);
1880   \end{scope}%
1881 }%
1882 %
1883 \def\mdf@putbox@first{%
1884   \ifvoid\mdf@splitbox@two
1885   \else%
1886     \mdf@makebox@out{%
1887       \mdf@makeboxalign@left%
1888       \mdf@tikz@settings%
1889       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
1890       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
1891       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
1892       \ifbool{mdf@leftline}{%
1893         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1894         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1895         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
1896       \ifbool{mdf@rightline}{%
1897         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
1898         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
1899         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%

```

```

1900 %
1901 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
1902 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
1903 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
1904 \ifbool{mdf@topline}{%
1905     \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
1906     \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
1907     \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}%
1908 %
1909 %\ifdimequal{\pagegoal}{\maxdimen}{\enlargethispage{\baselineskip}}}% ???
1910 \ifdimgreater{\pagegoal-\maxdimen}{0pt}{\enlargethispage{\baselineskip}}%
1911 \mdf@makebox@in[\mdfboundingboxwidth]{%
1912     \null%
1913     \begin{tikzpicture}[remember picture]
1914 %
1915     \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
1916     \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
1917     \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
1918     \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
1919     \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
1920     \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
1921     \ifbool{mdf@leftline}{%
1922         {%
1923             \pgfmathsetlengthmacro\mdf@Ax%
1924                 {\mdf@Ax+\mdf@outerlinewidth@length+
1925                 \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
1926             \pgfmathsetlengthmacro\mdf@Ox%
1927                 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
1928             }%
1929         \ifbool{mdf@rightline}{%
1930             \pgfmathsetlengthmacro\mdf@Px%
1931                 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1932             }%
1933         \ifbool{mdf@topline}{%
1934             \pgfmathsetlengthmacro\mdf@Py%
1935                 {\mdf@Py-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
1936             }%
1937 %
1938         \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
1939         \coordinate(P)at(\mdf@Px,\mdf@Py);%
1940 %
1941         \ifbool{mdf@shadow}
1942             {\path[mdfshadow] (0) -- (O|-P) to[mdfcorners] (P) -- (P|-O) -- (0);}%
1943 %
1944         \begin{scope}[use as bounding box]
1945             \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@ltr}}%
1946                 {\mdf@tikzbox@tfl{(0)--(O|-P)--(P)--(P|-O)}}%
1947                 {}%
1948             \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
1949                 {\mdf@tikzbox@otl{(0)--(O|-P)--(P)}{(P|-O)--(0)[mdfcorners]--(O|-P)--(P)}}%
1950                 {}%
1951             \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%
1952                 {\mdf@tikzbox@otl{(0|-P)--(P)--(P|-O)}{(0)--(O|-P)[mdfcorners]--(P)--(P|-O)}}%
1953                 {}%
1954             \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
1955                 {\mdf@tikzbox@otl{(0)--(O|-P)(P)--(P|-O)}{(0)rectangle(P)}}%

```

```

1956      {}%
1957      \ifbool{test {\mdf@test@tb} or test {\mdf@test@t}}%
1958      {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1959      {}%
1960      \ifbool{test {\mdf@test@lb} or test {\mdf@test@l}}%
1961      {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
1962      {}%
1963      \ifbool{test {\mdf@test@rb} or test {\mdf@test@r}}%
1964      {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
1965      {}%
1966      \mdf@test@b{\path[mdfbackground](0)rectangle(P);}%
1967 %
1968      \mdf@test@noline{\path[mdfbackground,mdfcorners](0)--(0|-P)--(P)--(P|-0);}%
1969 %
1970      \drawbackgroundframetitle@first
1971 %
1972      \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfügen
1973      \end{scope}
1974      %HIER KOMMT EIN WEITERES MAKRO
1975      \mdfcreateextratikz%
1976      \end{tikzpicture}%
1977      }%
1978      \mdf@makeboxalign@right%
1979      }%
1980 \fi
1981 }%

```

\mdf@putbox@middle

Output of the middle breakable contents.

```

1982 \def\drawbackgroundframetitle@middle{%
1983 \ifdefempty{\mdf@frametitle}}{}%
1984 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
1985 {}{}%
1986 \drawbackgroundframetitle@@middle%
1987 \pgfmathsetlength{\global\mdfframetitleboxtotalheight}{-\p@}%
1988 }%
1989 }%
1990 }%
1991 %
1992 \def\drawbackgroundframetitle@@middle{%
1993 \begin{scope}%background frame title
1994 \ifbool{mdf@leftline}{
1995 \pgfmathsetlengthmacro\mdf@0x%
1996 {\mdf@0x+\mdf@innerlinewidth@length+0.5\mdf@middlelinewidth@length}
1997 }{}%
1998 \ifbool{mdf@rightline}{%
1999 \pgfmathsetlengthmacro\mdf@Px%
2000 {\mdf@Px-\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length}
2001 }{}%
2002 \pgfmathsetlengthmacro\mdf@Fy
2003 {\mdf@Py-\mdfframetitleboxtotalheight}
2004 \path[mdfframetitlebackground,rounded corners=\z@]
2005 (\mdf@0x,\mdf@Fy) -- (\mdf@0x,\mdf@Py)%
2006 -- (\mdf@Px,\mdf@Py) -- (\mdf@Px,\mdf@Fy);

```

```

2007      \end{scope}
2008 }%
2009 %
2010 \def\mdf@putbox@middle{%
2011   \ifvoid\mdf@splitbox@two
2012   \else%
2013     \mdf@makebox@out{%
2014       \mdf@makeboxalign@left%
2015       \mdf@tikz@settings%
2016 %
2017       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2018       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2019       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2020       \ifbool{mdf@leftline}{%
2021         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2022         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2023         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2024       \ifbool{mdf@rightline}{%
2025         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2026         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2027         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2028 %
2029       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2030       \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2031 %
2032       \mdf@makebox@in[\mdfboundingboxwidth]{%
2033         \null%
2034         \begin{tikzpicture}[remember picture]
2035           \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2036           \pgfmathsetlengthmacro\mdf@Ay{+\mdf@splitbottomskip@length}%
2037           \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2038           \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2039           \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2040           \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2041           \ifbool{mdf@leftline}%
2042             {%
2043               \pgfmathsetlengthmacro\mdf@Ax%
2044                 {\mdf@Ax+\mdf@outerlinewidth@length+
2045                  \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2046               \pgfmathsetlengthmacro\mdf@Ox%
2047                 {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2048             }{}%
2049           \ifbool{mdf@rightline}%
2050             {%
2051               \pgfmathsetlengthmacro\mdf@Px%
2052                 {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2053             }{}%
2054 %
2055           \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2056           \coordinate(P)at(\mdf@Px,\mdf@Py);%
2057 %
2058           \ifbool{mdf@shadow}
2059             {\path[mdfshadow](0) rectangle (P);}%
2060 %
2061           \begin{scope}[use as bounding box]
2062             \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%

```



```

2063         {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}{}%
2064 \ifbool{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2065     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}{}%
2066 \ifbool{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2067     {\mdf@tikzbox@otl{(P)--(P|-0)}{(0)rectangle(P)}}{}%
2068 \ifbool{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2069     {\path[mdfbackground](0)rectangle(P);}{}%
2070 %
2071 \drawbackgroundframetitle@middle
2072 %
2073 \node[mdfbox]at(\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@two};% Ausgabebox einfuegen
2074 \end{scope}
2075 %HIER KOMMT EIN WEITERES MAKRO
2076 \mdfcreateextratikz
2077 \end{tikzpicture}%
2078 }%
2079 \mdf@makeboxalign@right%
2080 }%
2081 \fi
2082 }%

```

\mdf@putbox@second

Output of the last breakable contents.

```

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

```

```

2114 \mdf@tikz@settings%
2115 %
2116 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2117 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2118 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2119 \ifbool{mdf@leftline}{%
2120   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2121   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2122   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2123 \ifbool{mdf@rightline}{%
2124   \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2125   \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2126   \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}{}%
2127 %
2128 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2129 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2130 \ifbool{mdf@bottomline}{%
2131   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2132   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2133   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2134 %
2135 \mdf@makebox@in[\mdfboundingboxwidth]{%
2136 \null%
2137 \begin{tikzpicture}[remember picture]
2138   \pgfmathsetlengthmacro\mdf@Ax{+\mdf@innerleftmargin@length}%
2139   \pgfmathsetlengthmacro\mdf@Ay{+\mdf@innerbottommargin@length}%
2140   \pgfmathsetlengthmacro\mdf@Ox{+0pt}%
2141   \pgfmathsetlengthmacro\mdf@Oy{+0pt}%
2142   \pgfmathsetlengthmacro\mdf@Px{+\mdfboundingboxwidth}%
2143   \pgfmathsetlengthmacro\mdf@Py{+\mdfboundingboxheight}%
2144   \ifbool{mdf@leftline}{%
2145     {%
2146       \pgfmathsetlengthmacro\mdf@Ax%
2147         {\mdf@Ax+\mdf@outerlinewidth@length+
2148          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2149       \pgfmathsetlengthmacro\mdf@Ox%
2150         {\mdf@Ox+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2151     }{}%
2152   \ifbool{mdf@rightline}{%
2153     {%
2154       \pgfmathsetlengthmacro\mdf@Px%
2155         {\mdf@Px-\mdf@outerlinewidth@length-0.5\mdf@middlelinewidth@length}%
2156     }{}%
2157   \ifbool{mdf@bottomline}{%
2158     {%
2159       \pgfmathsetlengthmacro\mdf@Ay%
2160         {\mdf@Ay+\mdf@outerlinewidth@length+
2161          \mdf@middlelinewidth@length+\mdf@innerlinewidth@length}%
2162       \pgfmathsetlengthmacro\mdf@Oy%
2163         {\mdf@Oy+\mdf@outerlinewidth@length+0.5\mdf@middlelinewidth@length}%
2164     }{}%
2165   %
2166   \coordinate(0)at(\mdf@Ox,\mdf@Oy);%
2167   \coordinate(P)at(\mdf@Px,\mdf@Py);%
2168 %
2169   \ifbool{mdf@shadow}

```

```

2170      {\path[mdfshadow] (0|-P) to[mdfcorners] (0) to[mdfcorners] (P|-0) -- (P) -- (0|-P);}}}%
2171 %
2172 \begin{scope}[use as bounding box]
2173   \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lrb}}%
2174     {\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)--(P)}}%
2175     {}%
2176   \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2177     {\mdf@tikzbox@otl{(P|-0)--(0)--(0|-P)}{(P)--(P|-0)[mdfcorners]--(0)--(0|-P)}}%
2178     {}%
2179   \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2180     {\mdf@tikzbox@otl{(P)--(P|-0)--(0)}{(0|-P)--(P)[mdfcorners]--(P|-0)--(0)}}%
2181     {}%
2182   \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2183     {\mdf@tikzbox@otl{(0)--(0|-P)(P)--(P|-0)}{(0)rectangle(P)}}%
2184     {}%
2185   \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2186     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
2187     {}%
2188   \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2189     {\mdf@tikzbox@otl{(0)--(0|-P)}{(0)rectangle(P)}}%
2190     {}%
2191   \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2192     {\mdf@tikzbox@otl{(0|-P)--(P)}{(0)rectangle(P)}}%
2193     {}%
2194   \mdf@test@t{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}}}%
2195 %
2196   \mdf@test@noline{\path[mdfbackground,mdfcorners](0|-P)--(0)--(0|-P)--(P);}}}%
2197 %
2198   \drawbackgroundframetitle@second
2199 %
2200   \node[mdfbox] at (\mdf@Ax,\mdf@Ay){\box\mdf@splitbox@one};% Ausgabebox einfuegen
2201 \end{scope}
2202 %HIER KOMMT EIN WEITERES MAKRO
2203 \mdfcreateextratikz
2204 \end{tikzpicture}%
2205 }%
2206 \mdf@makeboxalign@right%
2207 }%
2208 \fi
2209 }%

2210 \endinput

```

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

```

2211 %% Style file for mdframed for package option 'framemethod=default'
2212 %%
2213 %% This package may be distributed under the terms of the LaTeX Project
2214 %% Public License, as described in lppl.txt in the base LaTeX distribution.
2215 %% Either version 1.0 or, at your option, any later version.
2216 %%
2217 %%
2218 %%$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
2219 %

```

```
\mdframedIIPackagename
\mdf@frameIIdate@svn
```

local settings

```
2220 \def\mdframedIIPackagename{md-frame-2}
2221 \def\mdf@frameIIdate@svn$#1: #2 #3 #4-#5-#6 #7 #8${#4/#5/#6\space }
2222 \ProvidesFile{md-frame-2.mdf}%
2223      [\mdf@frameIIdate@svn$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $ %
2224      \mdversion: \mdframedIIPackagename]
```

```
\mdf@ptlength@to@pscode
\ptTps
```

Command to calculate a latex length to postscript

```
2225 \def\mdf@ptlength@to@pscode#1{\pst@number{#1} \pst@number\psxunit div }
2226 \def\mdf@ptlength@to@pscode@length#1{\pst@number{\csname mdf@#1@length\endcsname} \pst@number\psxunit div }
2227 \let\ptTps\mdf@ptlength@to@pscode\relax
2228 \let\ptTpsL\mdf@ptlength@to@pscode@length\relax
```

```
\mdfbackgroundstyle
\mdflinestyle
\mdfframetitlerule
\mdfframetitlebackground
```

background and line settings for pstricks

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

```

2258     {\newsstyle{mdfinnerlinestyle}}{%
2259         linecolor=\mdf@innerlinecolor,%
2260         linewidth=\dimexpr2\mdf@innerlinewidth@length+\mdf@middlelinewidth@length\relax,
2261         dimen=middle,
2262     }}}%
2263 %
2264 \newsstyle{mdfmiddlelinestyle}{linestyle=none}%
2265 \newsstyle{mdfshadow}{shadow=true,shadowcolor=\mdf@shadowcolor,shadowsize=\mdf@shadowsize@length}%
2266 \ifdimgreater{\mdf@middlelinewidth@length}{\z@}%
2267     {\newsstyle{mdfmiddlelinestyle}}{%
2268         linewidth=\mdf@middlelinewidth@length,%
2269         linecolor=\mdf@middlelinecolor,dimen=middle
2270     }}}%
2271 \mdfpstricks@appendsettings
2272 }%
2273 %
2274 \newrobustcmd*{\mdf@pstricksbox@fl[2]}{%four lines
2275     \psframe[style=mdfouterlinestyle](#1)(#2)%aussen=3mm
2276     \psframe[style=mdfbackgroundstyle](#1)(#2)%Hintergrund
2277     \psclip{\psframe[style=mdfmiddlelinestyle](#1)(#2)}
2278     \psframe[style=mdfinnerlinestyle](#1)(#2)%innere=3mm
2279     \endpsclip
2280     \psframe[style=mdfmiddlelinestyle](#1)(#2)%mittlere=2mm
2281 }%
2282 \newrobustcmd*{\mdf@pstricksbox@tl[1]}{%three lines
2283     \psline[style=mdfouterlinestyle]#1%aussen=3mm
2284     \psline[style=mdfbackgroundstyle]#1%Hintergrund
2285     \psclip{\psline[style=mdfmiddlelinestyle]#1}
2286     \psline[style=mdfinnerlinestyle]#1%innere=3mm
2287     \endpsclip
2288     \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2289 }%
2290 \newrobustcmd*{\mdf@pstricksbox@tcl[2]}{%two combined lines
2291 %>#1 background comple
2292 %>#2 line path
2293     \psline[style=mdfouterlinestyle]#2%aussen=3mm
2294     \psline[style=mdfbackgroundstyle]#2%Hintergrund
2295     \psclip{\pscustom[linestyle=none]{
2296         \psline[style=mdfmiddlelinestyle]#2
2297         \psline[linestyle=none,lineararc=0pt]#1}
2298     }
2299     \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2300     \psline[style=mdfinnerlinestyle]#2%innere=3mm
2301     \endpsclip
2302     \psline[style=mdfmiddlelinestyle]#2%mittlere=2mm
2303 }%
2304 \newrobustcmd*{\mdf@pstricksbox@tncl[2]}{%two not combined lines
2305 \begingroup
2306     \psset{lineararc=0pt}
2307     \psline[style=mdfouterlinestyle](mdf@0)#1%aussen=3mm
2308     \psline[style=mdfouterlinestyle](mdf@P)#2%aussen=3mm
2309     \psclip{
2310         \pscustom[linestyle=none]{%
2311             \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2312             \psline[linestyle=none](mdf@0)#2
2313             \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm

```

```

2314     \psline[linestyle=none](mdf@P)#1
2315   }%
2316 }%
2317   \psframe[style=mdfbackgroundstyle,lineararc=0pt](mdf@0)(mdf@P)%Hintergrund
2318   \psline[style=mdfinnerlinestyle](mdf@0)#1%innere=3mm
2319   \psline[style=mdfinnerlinestyle](mdf@P)#2%innere=3mm
2320 \endpsclip
2321 \psline[style=mdfmiddlelinestyle](mdf@0)#1%mittlere=2mm
2322 \psline[style=mdfmiddlelinestyle](mdf@P)#2%mittlere=2mm
2323 \endgroup
2324 }%
2325 \newrobustcmd*\mdf@pstricksbox@ol[1]{%one line
2326 \begingroup
2327   \psset{lineararc=0pt}
2328   \psline[style=mdfouterlinestyle]#1%ausen=3mm
2329   \psline[style=mdfbackgroundstyle]#1%Hintergrund
2330   \psclip{\pscustom[linestyle=none]{
2331     \psline[style=mdfmiddlelinestyle]#1
2332     \psframe[linestyle=none,fillstyle=none,dimen=inner](mdf@0)(mdf@P)
2333   }}
2334   \psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)
2335   \psline[style=mdfinnerlinestyle]#1%innere=3mm
2336 \endpsclip
2337 \psline[style=mdfmiddlelinestyle]#1%mittlere=2mm
2338 \endgroup%
2339 }%
2340
2341 %
2342 \newpsstyle{mdfframetitlerule}{%
2343   linecolor=\mdf@frametitlerulecolor,%
2344   fillcolor=\mdf@frametitlerulecolor,%
2345   fillstyle=solid,dimen=outer,%
2346 }
2347 %

```

\mdf@put@frametitlerule

frametitlerule with pstricks

```

2348 \def\mdf@@frametitlerule{%
2349   \ifbool{mdf@frametitlerule}{%
2350     \vbox{\hsize0pt
2351       \par\unskip\vskip\mdf@frametitlebelowskip@length
2352       \noindent\rlap{%
2353         \begingroup%
2354           \begin{pspicture}(0,0)(0,\mdf@frametitlerulewidth@length)
2355             \psframe[style=mdfframetitlerule](!\ptTpsL{innerleftmargin} neg 0)%
2356                                   (! \ptTpsL{innerrightmargin}
2357                                   \ptTps{\mdfframetitleboxwidth} add \ptTpsL{frametitlerulewidth})
2358           \end{pspicture}
2359         \endgroup}
2360       }%
2361     }{}
2362     \par\unskip\vskip\mdf@innertopmargin@length%
2363   }%
2364 %

```

```

2365 % \begin{macro}{mdf@putbox@single}
2366 % Single output
2367 % \begin{macrocode}
2368 % Info zu den verwendeten Punkten:
2369 % O ist die untere linke Ecke der Mitte der middleline
2370 % P ist die obere rechte Ecke der Mitte der middleline
2371 % A ist der Punkt fuer den anchor (d.h. die untere linke Ecke) der Ausgabebox
2372 \def\mdf@putbox@single{%
2373   \ifvoid\mdf@splitbox@one
2374   \else%
2375     \mdf@makebox@out{%
2376       \mdf@makeboxalign@left%
2377       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2378       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2379       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2380       \ifbool{mdf@leftline}{%
2381         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2382         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2383         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}{%
2384       \ifbool{mdf@rightline}{%
2385         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2386         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2387         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}}}%
2388 %
2389 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2390 \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2391 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2392 \ifbool{mdf@topline}{%
2393   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2394   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2395   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}{%
2396 \ifbool{mdf@bottomline}{%
2397   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2398   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2399   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}}}%
2400 %
2401 \setlength\mdftotalllinewidth{\dimexpr\mdf@innerlinewidth@length%
2402                                     +\mdf@middlelinewidth@length
2403                                     +\mdf@outerlinewidth@length\relax}%
2404 \psset{unit=1truecm}%
2405 \mdf@makebox@in[\mdfboundingboxwidth]{%
2406   \null%
2407   \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2408     \mdfpstricks@settings%
2409     \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2410     \expandafter\psset\expandafter{\mdf@psset@local}%
2411     \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2412     \pnode(0,0){mdf@O}
2413     \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2414     \ifbool{mdf@leftline}%
2415     {%
2416       \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2417               +(\mdf@middlelinewidth@length,0)
2418               +(\mdf@innerlinewidth@length,0)}{mdf@A}%
2419       \nodexn{(mdf@O)+(\mdf@outerlinewidth@length,0)
2420               +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%

```



```

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

```



```

2477 %          \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2478 %          \psdot(mdf@O)\uput[90](mdf@O){mdf at O}
2479 %
2480 %          \endpsclip
2481 %          \end{pspicture}%
2482 %      }%
2483 %      \mdf@makeboxalign@right%
2484 %      }%
2485 %      \fi
2486 %      }%
2487 \def\drawbackgroundframetitle@single{%
2488 \ifdefempty{\mdf@frametitle}{}%
2489 \drawbackgroundframetitle@@single%
2490 }%
2491 }%
2492 \def\drawbackgroundframetitle@@single{%
2493 \begingroup%
2494 \ifbool{mdf@leftline}{%
2495 \nodexn{(mdf@O)+(\mdf@innerlinewidth@length,0)
2496 +0.5(\mdf@middlelinewidth@length,0)}{mdf@O}%
2497 }{%
2498 \ifbool{mdf@rightline}{%
2499 \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2500 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2501 }{%
2502 \ifbool{mdf@topline}{%
2503 \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2504 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2505 }{%
2506 \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2507 \psline[style=mdfframetitlebackgroundstyle](mdf@O|mdf@F)(mdf@O|mdf@P)
2508 (mdf@P)(mdf@P|mdf@F)%
2509 \endgroup
2510 }

```

\mdf@putbox@first

First output

```

2511 \def\mdf@putbox@first{%
2512 \ifvoid\mdf@splitbox@two
2513 \else%
2514 \mdf@makebox@out{%
2515 \mdf@makeboxalign@left%
2516 %\ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{%
2517 \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@two}%
2518 \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2519 \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2520 \ifbool{mdf@leftline}{%
2521 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2522 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2523 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%
2524 \ifbool{mdf@rightline}{%
2525 \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2526 \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2527 \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%

```

```

2528 \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@two+\dp\mdf@splitbox@two\relax}%
2529 \advance\mdfboundingboxheight by \mdf@innertopmargin@length\relax%
2530 \advance\mdfboundingboxheight by \mdf@splitbottomskip@length\relax%
2531 \ifbool{mdf@topline}{%
2532   \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2533   \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2534   \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}{}%
2535 \psset{lineararc=\mdf@roundcorner@length, cornersize=absolute}%
2536 \expandafter\psset\expandafter{\mdf@psset@local}%
2537 \mdf@makebox@in[\mdfboundingboxwidth]{%
2538   \null%
2539   \psset{unit=1truecm}%
2540   \ifdimgreater{\mdfboundingboxheight}{\vsize}
2541     {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\vsize)}
2542     {\begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)}
2543       \mdfpstricks@settings%
2544       \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2545       \expandafter\psset\expandafter{\mdf@psset@local}%
2546       \pnode(\mdf@innerleftmargin@length,\mdf@splitbottomskip@length){mdf@A}
2547       \pnode(0,0){mdf@0}
2548       \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2549       \ifbool{mdf@leftline}%
2550         {%
2551           \nodexn{(\mdf@A)+(\mdf@outerlinewidth@length,0)
2552                 +(\mdf@middlelinewidth@length,0)
2553                 +(\mdf@innerlinewidth@length,0)}{mdf@A}
2554           \nodexn{(\mdf@0)+(\mdf@outerlinewidth@length,0)
2555                 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2556         }{}%
2557       \ifbool{mdf@rightline}%
2558         {%
2559           \nodexn{(\mdf@P)-(\mdf@outerlinewidth@length,0)
2560                 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2561         }{}%
2562       \ifbool{mdf@topline}%
2563         {%
2564           \nodexn{(\mdf@P)-(0,\mdf@outerlinewidth@length)
2565                 -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}
2566         }{}%
2567       \ifbool{mdf@shadow}
2568         {\pscustom[style=mdfshadow,linestyle=none]{%
2569           \psline[linejoin=2,linecap=1,](\mdf@P|\mdf@0)(\mdf@P)(\mdf@0|\mdf@P)%
2570           \psline[linejoin=2,linecap=1,lineararc=\z@](\mdf@0|\mdf@P)(\mdf@0)(\mdf@P|\mdf@0)
2571           \closedshadow
2572         }
2573       }{}
2574 % \psclip{
2575 %Four or Three lines
2576 \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@ltr}}%
2577   {\mdf@pstricksbox@tl{(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)(\mdf@P|\mdf@0)}}%
2578   {}%
2579 %two combined lines
2580 \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lt}}%
2581   {\mdf@pstricksbox@tcl{(\mdf@0)(\mdf@P|\mdf@0)(\mdf@P)}%
2582     {(\mdf@0)(\mdf@0|\mdf@P)(\mdf@P)}}%
2583 \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@tr}}%

```

```

2584          {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@0)(mdf@0|mdf@P)}%
2585              {(mdf@0|mdf@P)(mdf@P)(mdf@P|mdf@0)}}{}
2586      %two not combined lines
2587      \ifboolexpr{test {\mdf@test@lrb} or test {\mdf@test@lr}}%
2588          {\mdf@pstricksbox@tnc1{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}
2589      %single line
2590      \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@t}}%
2591          {\mdf@pstricksbox@ol{(mdf@P)(mdf@0|mdf@P)}}{}
2592      \ifboolexpr{test {\mdf@test@lb} or test {\mdf@test@l}}%
2593          {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2594      \ifboolexpr{test {\mdf@test@rb} or test {\mdf@test@r}}%
2595          {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2596      %no line
2597      \mdf@test@b{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2598      \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2599 %    }
2600 %Frametitlebackground
2601     \drawbackgroundframetitle@first
2602 %output%
2603     \rput[bl](mdf@A){\box\mdf@splitbox@two}
2604 %     \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2605 %     \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2606 %     \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2607 %     \endpsclip
2608     \end{pspicture}
2609 }%
2610 \mdf@makeboxalign@right%
2611 }%
2612 \fi
2613 }%
2614 \def\drawbackgroundframetitle@first{%
2615 \ifdefempty{\mdf@frametitle}}{}%
2616 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}%
2617 {%
2618     \drawbackgroundframetitle@@first
2619     \global\mdfframetitleboxtotalheight=-\p@%
2620 }{\mdf@PackageWarning{You got a page break inside the frame title\MessageBreak
2621     Currently this isn't well supported}%
2622     \drawbackgroundframetitle@@first
2623     \global\mdfframetitleboxtotalheight=\dimexpr\mdfframetitleboxtotalheight
2624         -\mdfboundingboxheight
2625         -\mdf@innerlinewidth@length-0.5\mdf@middlelinewidth@length%
2626         +\mdf@frametitlebelowskip@length+\mdf@splitbottomskip@length
2627         +\mdf@splittopskip@length
2628         +\dp\strutbox\relax%
2629 }%
2630 }%
2631 }%
2632 \def\drawbackgroundframetitle@@first{%
2633 \begingroup%
2634 \ifbool{mdf@leftline}{%
2635     \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
2636         +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2637     }{}%
2638 \ifbool{mdf@rightline}{%
2639     \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)

```

```

2640             -0.5(\mdf@middlelinewidth@length,0)){mdf@P}%
2641         }{}%
2642     \ifbool{mdf@topline}{%
2643         \nodexn{(mdf@P)-(0,\mdf@innerlinewidth@length)
2644             -0.5(0,\mdf@middlelinewidth@length)}{mdf@P}%
2645     }{}%
2646 \ifdimgreater{\mdfboundingboxheight}{\mdfframetitleboxtotalheight}
2647     {\nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}}%
2648     {\nodexn{(mdf@0)}{mdf@F}}%
2649     \psline[style=mdfframetitlebackgroundstyle](mdf@0|mdf@F)(mdf@0|mdf@P)
2650             (mdf@P)(mdf@P|mdf@F)%
2651 \endgroup
2652 }

```

\mdf@putbox@middle

Middle output

```

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

```

```

2691             +0.5(\mdf@middlelinewidth@length,0)){mdf@0}
2692         }{}%
2693     \ifbool{mdf@rightline}%
2694     {%
2695         \nodexn{(mdf@P) - (\mdf@outerlinewidth@length,0)
2696             -0.5(\mdf@middlelinewidth@length,0)){mdf@P}
2697     }{}%
2698 %%
2699 %%
2700 \ifbool{mdf@shadow}
2701     {\psframe[style=mdfshadow](mdf@0)(mdf@P)}{}
2702 \ifboolexpr{bool {mdf@leftline} and bool {mdf@rightline}}%
2703     {\mdf@pstricksbox@tncl{(\mdf@0|mdf@P)}{(\mdf@P|mdf@0)}}{}%
2704 \ifboolexpr{bool {mdf@leftline} and not (bool {mdf@rightline})}%
2705     {\mdf@pstricksbox@ol{(\mdf@0)(mdf@0|mdf@P)}}{}%
2706 \ifboolexpr{not (bool {mdf@leftline}) and bool {mdf@rightline}}%
2707     {\mdf@pstricksbox@ol{(\mdf@P)(mdf@P|mdf@0)}}{}%
2708 \ifboolexpr{not (bool {mdf@leftline}) and not (bool {mdf@rightline})}%
2709     {\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2710 %Frametitlebackground
2711 \drawbackgroundframetitle@middle
2712 %output%
2713 \rput[bl](mdf@A){\box\mdf@splitbox@two}
2714 % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2715 % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2716 % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2717 \end{pspicture}%
2718 }%
2719 \mdf@makeboxalign@right%
2720 }%
2721 \fi
2722 }%
2723 \def\drawbackgroundframetitle@middle{%
2724 \ifdefempty{\mdf@frametitle}{}{}%
2725 \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2726 {}{}%
2727 \drawbackgroundframetitle@@middle
2728 \global\mdfframetitleboxtotalheight=-\p@ \relax%
2729 }%
2730 }%
2731 }%
2732 \def\drawbackgroundframetitle@@middle{%
2733 \begingroup%
2734 \ifbool{mdf@leftline}%
2735     \nodexn{(mdf@0) + (\mdf@innerlinewidth@length,0)
2736         +0.5(\mdf@middlelinewidth@length,0)){mdf@0}%
2737     }{}%
2738 \ifbool{mdf@rightline}%
2739     \nodexn{(mdf@P) - (\mdf@innerlinewidth@length,0)
2740         -0.5(\mdf@middlelinewidth@length,0)){mdf@P}%
2741     }{}%
2742 \nodexn{(mdf@P) - (0,\mdfframetitleboxtotalheight)}{mdf@F}%
2743 \psline[style=mdfframetitlebackgroundstyle,linear=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
2744     (mdf@P)(mdf@P|mdf@F)%
2745 \endgroup
2746 }

```

\mdf@putbox@second

Last output

```

2747 \def\mdf@putbox@second{
2748   \ifvoid\mdf@splitbox@one
2749   \else%
2750     \mdf@makebox@out{%
2751       \mdf@makeboxalign@left%
2752       % \ifbool{mdf@leftline}{\hspace*{\mdf@middlelinewidth@length}}{}%
2753       \setlength\mdfboundingboxwidth{\wd\mdf@splitbox@one}%
2754       \advance\mdfboundingboxwidth by \mdf@innerleftmargin@length\relax%
2755       \advance\mdfboundingboxwidth by \mdf@innerrightmargin@length\relax%
2756       \ifbool{mdf@leftline}{%
2757         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2758         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2759         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2760       \ifbool{mdf@rightline}{%
2761         \advance\mdfboundingboxwidth by \mdf@innerlinewidth@length\relax%
2762         \advance\mdfboundingboxwidth by \mdf@middlelinewidth@length\relax%
2763         \advance\mdfboundingboxwidth by \mdf@outerlinewidth@length\relax}%{}%
2764       \setlength\mdfboundingboxheight{\dimexpr\ht\mdf@splitbox@one+\dp\mdf@splitbox@one\relax}%
2765       \advance\mdfboundingboxheight by \mdf@innerbottommargin@length\relax%
2766       \ifbool{mdf@bottomline}{%
2767         \advance\mdfboundingboxheight by \mdf@innerlinewidth@length\relax%
2768         \advance\mdfboundingboxheight by \mdf@middlelinewidth@length\relax%
2769         \advance\mdfboundingboxheight by \mdf@outerlinewidth@length\relax}%{}%
2770       \psset{unit=1truecm}%
2771       \mdf@makebox@in[\mdfboundingboxwidth]{%
2772         \null%
2773         \begin{pspicture}(0,0)(\mdfboundingboxwidth,\mdfboundingboxheight)
2774           \mdf@psstricks@settings%
2775           \psset{lineararc=\mdf@roundcorner@length, cornersize=absolut,}%
2776           \expandafter\psset\expandafter{\mdf@psset@local}%
2777           \pnode(\mdf@innerleftmargin@length,\mdf@innerbottommargin@length){mdf@A}
2778           \pnode(0,0){mdf@0}
2779           \pnode(\mdfboundingboxwidth,\mdfboundingboxheight){mdf@P}
2780           \ifbool{mdf@leftline}%
2781             {%
2782               \nodexn{(mdf@A)+(\mdf@outerlinewidth@length,0)
2783                 +(\mdf@middlelinewidth@length,0)
2784                 +(\mdf@innerlinewidth@length,0)}{mdf@A}
2785               \nodexn{(mdf@0)+(\mdf@outerlinewidth@length,0)
2786                 +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}
2787             }{}%
2788           \ifbool{mdf@rightline}%
2789             {%
2790               \nodexn{(mdf@P)-(\mdf@outerlinewidth@length,0)
2791                 -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}
2792             }{}%
2793           \ifbool{mdf@bottomline}%
2794             {%
2795               \nodexn{(mdf@A)+(0,\mdf@outerlinewidth@length)
2796                 +(0,\mdf@middlelinewidth@length)
2797                 +(0,\mdf@innerlinewidth@length)}{mdf@A}
2798               \nodexn{(mdf@0)+(0,\mdf@outerlinewidth@length)
2799                 +0.5(0,\mdf@middlelinewidth@length)}{mdf@0}

```

```

2800     }{}%
2801   %%
2802   \ifbool{mdf@shadow}
2803     {\pscustom[style=mdfshadow,linestyle=none]{%
2804       \psline[linejoin=2,linecap=1,](mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)%
2805       \psline[linejoin=2,linecap=1,lineararc=\z@](mdf@0|mdf@P)(mdf@P)
2806       \closedshadow
2807     }
2808   }{}
2809   %Four + Three
2810   \ifboolexpr{test {\mdf@test@ltrb} or test {\mdf@test@lrb}}%
2811     {\mdf@pstricksbox@tl{(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}%
2812   %Two combined
2813   \ifboolexpr{test {\mdf@test@ltb} or test {\mdf@test@lb}}%
2814     {\mdf@pstricksbox@tcl{(mdf@P|mdf@0)(mdf@P)(mdf@0|mdf@P)}%
2815       {(mdf@0|mdf@P)(mdf@0)(mdf@P|mdf@0)}}{}
2816   \ifboolexpr{test {\mdf@test@trb} or test {\mdf@test@rb}}%
2817     {\mdf@pstricksbox@tcl{(mdf@P)(mdf@0|mdf@P)(mdf@0)}%
2818       {(mdf@0)(mdf@P|mdf@0)(mdf@P)}}{}
2819   %Two not combined
2820   \ifboolexpr{test {\mdf@test@ltr} or test {\mdf@test@lr}}%
2821     {\mdf@pstricksbox@tncl{(mdf@0|mdf@P)}{(mdf@P|mdf@0)}}{}%
2822   %one line
2823   \ifboolexpr{test {\mdf@test@tb} or test {\mdf@test@b}}%
2824     {\mdf@pstricksbox@ol{(mdf@0)(mdf@P|mdf@0)}}{}
2825   \ifboolexpr{test {\mdf@test@lt} or test {\mdf@test@l}}%
2826     {\mdf@pstricksbox@ol{(mdf@0)(mdf@0|mdf@P)}}{}
2827   \ifboolexpr{test {\mdf@test@tr} or test {\mdf@test@r}}%
2828     {\mdf@pstricksbox@ol{(mdf@P)(mdf@P|mdf@0)}}{}
2829   %no line
2830   \mdf@test@t{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2831   \mdf@test@noline{\psframe[style=mdfbackgroundstyle](mdf@0)(mdf@P)}{}%
2832   %Frametitlebackground
2833   \drawbackgroundframetitle@second
2834   %output%
2835   \rput[bl](mdf@A){\box\mdf@splitbox@one}
2836   % \psdot(mdf@A)\uput[90](mdf@A){mdf at A}
2837   % \psdot(mdf@P)\uput[90](mdf@P){mdf at P}
2838   % \psdot(mdf@0)\uput[90](mdf@0){mdf at 0}
2839   \end{pspicture}%
2840   }%
2841   \mdf@makeboxalign@right%
2842   }%
2843   \fi
2844   }%
2845   \def\drawbackgroundframetitle@second{%
2846     \ifdefempty{\mdf@frametitle}}{}%
2847     \ifdimless{\mdfframetitleboxtotalheight}{\z@}
2848     {}{}%
2849     \drawbackgroundframetitle@@second
2850   }%
2851   }%
2852   }%
2853   \def\drawbackgroundframetitle@@second{%
2854     \begingroup%
2855     \ifbool{mdf@leftline}{%

```



```

2856      \nodexn{(mdf@0)+(\mdf@innerlinewidth@length,0)
2857              +0.5(\mdf@middlelinewidth@length,0)}{mdf@0}%
2858      }{}%
2859      \ifbool{mdf@rightline}{%
2860          \nodexn{(mdf@P)-(\mdf@innerlinewidth@length,0)
2861                  -0.5(\mdf@middlelinewidth@length,0)}{mdf@P}%
2862          }{}%
2863      \nodexn{(mdf@P)-(0,\mdfframetitleboxtotalheight)}{mdf@F}%
2864      \psline[style=mdfframetitlebackgroundstyle,linearcl=\z@](mdf@0|mdf@F)(mdf@0|mdf@P)
2865              (mdf@P)(mdf@P|mdf@F)%
2866      \endgroup
2867  }

2868 \endinput
2869 %eof

```

C. The file *mdframed-example-default*

```

2870 %Documentation of the package mdframed
2871 %$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
2872 \setcounter{errorcontextlines}{999}
2873 \documentclass[parskip=false,english,11pt]{ltxmdf}
2874 \ltxmdfsetifoot $Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
2875
2876 \usepackage{showexpl}
2877 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
2878
2879 \newcommand\Loadedframemethod{default}
2880 \usepackage[framemethod=\Loadedframemethod]{mdframed}
2881
2882 \title{The \Pack{mdframed} package}
2883 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
2884 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
2885 \date{\mdfdateID$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $}
2886 \version{\mdversion}
2887 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
2888 Some presented examples are more or less exorbitant.}
2889
2890 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2891 \newrobustcmd\ExampleText{%
2892     An \textit{inhomogeneous linear} differential equation has the form
2893     \begin{align}
2894         L[v] &= f,
2895     \end{align}
2896     where  $L$  is a linear differential operator,  $v$  is
2897     the dependent variable, and  $f$  is a given non-zero
2898     function of the independent variables alone.
2899 }
2900
2901 \newcounter{examplecount}
2902 \setcounter{examplecount}{0}
2903 \renewcommand\thesubsection{}
2904 \newcommand\Examplesec[1]{%
2905     \stepcounter{examplecount}%
2906     \subsection{Example~\arabic{examplecount}---#1\relax}%

```



```

2907 }
2908
2909 \begin{document}
2910 \maketitle
2911 \section{Loading}
2912 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
2913
2914 {\large\color{red!50!black}
2915 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
2916
2917 \section{Examples}
2918 All examples have the following settings:
2919
2920 \begin{tltxmdfexample}
2921 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
2922 \newrobustcmd\ExampleText{%
2923 An \textit{inhomogeneous linear} differential equation
2924 has the form
2925 \begin{align}
2926 L[v] = f,
2927 \end{align}
2928 where  $L$  is a linear differential operator,  $v$  is
2929 the dependent variable, and  $f$  is a given non-zero
2930 function of the independent variables alone.
2931 }
2932 \end{tltxmdfexample}
2933 \clearpage
2934 \Examplesec{very simple}
2935 \begin{LTXexample}
2936 \global\mdfdefinestyle{exampledefault}{%
2937     linecolor=red,linewidth=3pt,%
2938     leftmargin=1cm,rightmargin=1cm
2939 }
2940 \begin{mdframed}[style=exampledefault]
2941 \ExampleText
2942 \end{mdframed}
2943 \end{LTXexample}
2944
2945 \Examplesec{hidden line + frame title}
2946 \begin{LTXexample}
2947 \global\mdfapptodefinestyle{exampledefault}{%
2948     topline=false,rightline=true,bottomline=false}
2949 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2950 \ExampleText
2951 \end{mdframed}
2952 \end{LTXexample}
2953 \clearpage
2954
2955 \Examplesec{colored frame title}
2956 \begin{LTXexample}
2957
2958 \global\mdfapptodefinestyle{exampledefault}{%
2959     rightline=true,innerleftmargin=10,innerrightmargin=10,
2960     frametitlerule=true,frametitlerulecolor=green,
2961     frametitlebackgroundcolor=yellow,
2962     frametitlerulewidth=2pt}

```

```

2963 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
2964 \ExampleText
2965 \end{mdframed}
2966 \end{LTXexample}
2967
2968 \Examplesec{framed picture which is centered}
2969 \begin{LTXexample}
2970 \begin{mdframed}[userdefinedwidth=6cm,align=center,
2971                 linecolor=blue,linewidth=4pt]
2972 \includegraphics[width=\linewidth]{donald-duck}
2973 \end{mdframed}
2974 \end{LTXexample}
2975
2976 \clearpage
2977 \Examplesec{Theorem environments}
2978 \begin{LTXexample}
2979 \mdfdefinestyle{theoremstyle}{%
2980     linecolor=red,linewidth=2pt,%
2981     frametitlerule=true,%
2982     frametitlebackgroundcolor=gray!20,
2983     innertopmargin=\topskip,
2984 }
2985 \mdtheorem[style=theoremstyle]{definition}{Definition}
2986 \begin{definition}
2987 \ExampleText
2988 \end{definition}
2989 \begin{definition}[Inhomogeneous linear]
2990 \ExampleText
2991 \end{definition}
2992 \begin{definition*}[Inhomogeneous linear]
2993 \ExampleText
2994 \end{definition*}
2995 \end{LTXexample}
2996
2997
2998 \clearpage
2999 \Examplesec{theorem with separate header and the help of TikZ (complex)}
3000 \begin{LTXexample}
3001 \newcounter{theo}[section]
3002 \newenvironment{theo}[1][{}]{%
3003     \stepcounter{theo}%
3004     \ifstrempy{#1}%
3005     {\mdfsetup{%
3006         frametitle={%
3007             \tikz[baseline=(current bounding box.east),outer sep=0pt]
3008             \node[anchor=east,rectangle,fill=blue!20]
3009             {\strut Theorem~\thetheo};}}
3010     }%
3011     {\mdfsetup{%
3012         frametitle={%
3013             \tikz[baseline=(current bounding box.east),outer sep=0pt]
3014             \node[anchor=east,rectangle,fill=blue!20]
3015             {\strut Theorem~\thetheo:~#1};}}%
3016     }%
3017     \mdfsetup{innertopmargin=10pt,linecolor=blue!20,%
3018               linewidth=2pt,topline=true,

```

```

3019         frametitleaboveskip=\dimexpr-\ht\strutbox\relax,}
3020     \begin{mdframed}[]\relax%
3021     }\end{mdframed}}
3022 \begin{theo}[Inhomogeneous Linear]
3023 \ExampleText
3024 \end{theo}
3025
3026 \begin{theo}
3027 \ExampleText
3028 \end{theo}
3029 \end{LTXexample}
3030
3031 \clearpage
3032 \Examplesec{hide only a part of a line}
3033 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3034 \begin{LTXexample}
3035 \makeatletter
3036 \newlength{\interruptlength}
3037 \setlength{\interruptlength}{2.5ex}
3038 \newrobustcmd\overlaplines{%
3039   \appto\mdf@frame@leftline@single{%
3040     \llap{\color{white}%
3041       \rule[\dimexpr-\mdfboundingboxdepth+\interruptlength\relax]{%
3042         {\mdf@middlelinewidth@length}%
3043         {\dimexpr\mdfboundingboxtotalheight%
3044           \ifbool{mdf@topline}{+\mdf@middlelinewidth@length}{}}
3045         -2\interruptlength\relax}%
3046     }%
3047   }%
3048   \appto\mdf@frame@rightline@single{%
3049     \rlap{\color{white}%
3050       \hspace*{\mdfboundingboxwidth}%
3051       \hspace*{\mdf@innerrightmargin@length}%
3052       \rule[\dimexpr-\mdfboundingboxdepth%
3053         +\interruptlength\relax]{%
3054         {\mdf@middlelinewidth@length}%
3055         {\dimexpr\mdfboundingboxtotalheight%
3056           +\ifbool{mdf@topline}{\mdf@middlelinewidth@length}{0pt}}
3057         -2\interruptlength\relax}%
3058     }%
3059   }%
3060 }
3061 \makeatother
3062 \overlaplines
3063
3064 \begin{mdframed}[linecolor=blue,linewidth=8pt]
3065 \ExampleText
3066 \end{mdframed}
3067 \end{LTXexample}
3068 \end{document}
3069 \endinput

```

D. The file mdframed-example-tikz

```

3070 %Documentation of the package mdframed
3071 %$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $

```

```

3072 \setcounter{errorcontextlines}{999}
3073 \documentclass[parskip=false,english,11pt]{ltxmdf}
3074 \ltxmdfsetifoot $Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
3075
3076
3077 \usepackage{showexpl}
3078 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},}
3079
3080 \newcommand\Loadedframemethod{TikZ}
3081 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3082
3083 \title{The \Pack{mdframed} package}
3084 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3085 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3086 \date{\mdfdateID$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $}
3087 \version{\mdversion}
3088 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3089 Some presented examples are more or less exorbitant.}
3090
3091 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3092 \newrobustcmd\ExampleText{%
3093     An \textit{inhomogeneous linear} differential equation has the form
3094     \begin{align}
3095         L[v] &= f,
3096     \end{align}
3097     where  $L$  is a linear differential operator,  $v$  is
3098     the dependent variable, and  $f$  is a given non-zero
3099     function of the independent variables alone.
3100 }
3101
3102 \newcounter{examplecount}
3103 \setcounter{examplecount}{0}
3104 \renewcommand\thesubsection{}
3105 \newcommand\Examplesec[1]{%
3106 \stepcounter{examplecount}%
3107 \subsection{Example~\arabic{examplecount}~---~\#1\relax}%
3108 }
3109
3110 \begin{document}
3111 \maketitle
3112 \section{Loading}
3113 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3114
3115 {\large\color{red!50!black}
3116 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3117
3118 \section{Examples}
3119 All examples have the following settings:
3120
3121 \begin{tltxmdfexample}
3122 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3123 \newrobustcmd\ExampleText{%
3124 An \textit{inhomogeneous linear} differential equation
3125 has the form
3126 \begin{align}
3127 L[v] &= f,

```

```

3128 \end{align}
3129 where  $L$  is a linear differential operator,  $v$  is
3130 the dependent variable, and  $f$  is a given non-zero
3131 function of the independent variables alone.
3132 }
3133 \end{tltxmdfexample}
3134 \clearpage
3135 \ExampleText{round corner}
3136 \begin{LTXexample}
3137 \global\mdfdefinestyle{exampledefault}{%
3138     outerlinewidth=5pt,innerlinewidth=0pt,
3139     outerlinecolor=red,roundcorner=5pt
3140 }
3141 \begin{mdframed}[style=exampledefault]
3142 \ExampleText
3143 \end{mdframed}
3144 \end{LTXexample}
3145
3146 \Examplesec{hidden line + frame title}
3147 \begin{LTXexample}
3148 \global\mdfapptodefinestyle{exampledefault}{%
3149     topline=false,leftline=false,}
3150 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3151 \ExampleText
3152 \end{mdframed}
3153 \end{LTXexample}
3154 \clearpage
3155 \Examplesec{framed picture which is centered}
3156 \begin{LTXexample}
3157 \begin{mdframed}[userdefinedwidth=6cm,align=center,
3158     linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
3159 \includegraphics[width=\linewidth]{donald-duck}
3160 \end{mdframed}
3161 \end{LTXexample}
3162
3163 \Examplesec{Gimmick}
3164 \begin{LTXexample}
3165 \mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
3166     innerrightmargin=2cm,innertopmargin=1cm,%
3167     innerlinewidth=2pt,outerlinewidth=2pt,
3168     middlelinewidth=10pt,backgroundcolor=red,
3169     linecolor=blue,middlelinecolor=gray,
3170     tikzsetting={draw=yellow,line width=3pt,%
3171         dashed,%
3172         dash pattern= on 10pt off 3pt},
3173     rightline=false,bottomline=false}
3174 \begin{mdframed}
3175 \ExampleText
3176 \end{mdframed}
3177 \end{LTXexample}
3178
3179 \Examplesec{complex example with TikZ}
3180
3181 \begin{tltxmdfexample}
3182 \tikzstyle{titregris} =
3183     [draw=gray, thick, fill=white, shading = exersicetitle, %

```

```

3184         text=gray, rectangle, rounded corners,
3185         right,minimum height=.7cm]
3186
3187 \pgfdeclarehorizontalshading{exersicebackground}{100bp}
3188 {color(0bp)=(green!40);
3189 color(100bp)=(black!5)}
3190
3191 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3192 {color(0bp)=(red!40);
3193 color(100bp)=(black!5)}
3194
3195 \newcounter{exercise}
3196 \renewcommand\theexercise{Exercise~\n\arabic{exercise}}
3197 \makeatletter
3198 \def\mdf@@exercisepoints{}
3199 \define@key{mdf}{exercisepoints}{%
3200     \def\mdf@@exercisepoints{#1}
3201 }
3202 \renewrobustcmd\mdfcreateextratikz{%
3203     \node[titregris,xshift=1cm] at (P-|0) %
3204         {\mdf@frametitlefont{\theexercise}~};
3205     \ifdefempty{\mdf@@exercisepoints}%
3206         {}%
3207     {\node[titregris,left,xshift=-1cm] at (P)%
3208         {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3209 }
3210 \makeatother
3211
3212 \mdfdefinestyle{exercisestyle}{%
3213     outerlinewidth=1pt,
3214     innerlinewidth=0pt,
3215     roundcorner=2pt,
3216     linecolor=gray,
3217     tikzsetting={shading = exersicebackground},
3218     innertopmargin=1.2\baselineskip,
3219     skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3220     needspace=3\baselineskip,
3221     frametitlefont=\sffamily\bfseries,
3222     settings={\global\stepcounter{exercise}},
3223 }
3224
3225 \begin{mdframed}[style=exercisestyle,]
3226 \ExampleText
3227 \end{mdframed}
3228
3229 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3230 \ExampleText
3231 \end{mdframed}
3232 \end{tltxmdfexample}
3233
3234 \tikzstyle{titregris} =
3235     [draw=gray, thick, fill=white, shading = exersicetitle, %
3236     text=gray, rectangle, rounded corners,
3237     right,minimum height=.7cm]
3238
3239 \pgfdeclarehorizontalshading{exersicebackground}{100bp}

```

```

3240 {color(0bp)=(green!40);
3241 color(100bp)=(black!5)}
3242
3243 \pgfdeclarehorizontalshading{exersicetitle}{100bp}
3244 {color(0bp)=(red!40);
3245 color(100bp)=(black!5)}
3246
3247 \newcounter{exercise}
3248 \renewcommand\theexercise{Exercise~n\arabic{exercise}}
3249 \makeatletter
3250 \def\mdf@@exercisepoints{}
3251 \define@key{mdf}{exercisepoints}{%
3252   \def\mdf@@exercisepoints{#1}
3253 }
3254 \newrobustcmd\mdfcreateextratikzlocal{%
3255   \node[titregris,xshift=1cm] at (P-|0) {\textbf{\theexercise}~};
3256   \ifdefempty{\mdf@@exercisepoints}%
3257     {}%
3258     {\node[titregris,left,xshift=-1cm] at (P)%
3259       {\mdf@frametitlefont{\mdf@@exercisepoints points}~};}%
3260 }
3261 \makeatother
3262
3263 \mdfdefinestyle{exercisestyle}{%
3264   outerlinewidth=1pt,
3265   innerlinewidth=0pt,
3266   roundcorner=2pt,
3267   linecolor=gray,
3268   tikzsetting={shading = exersicebackground},
3269   innertopmargin=1.2\baselineskip,
3270   skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
3271   needspace=3\baselineskip,
3272   frametitlefont=\sffamily\bfseries,
3273   settings={\global\stepcounter{exercise}\let\mdfcreateextratikz\mdfcreateextratikzlocal},
3274 }
3275
3276 \begin{mdframed}[style=exercisestyle,]
3277 \ExampleText
3278 \end{mdframed}
3279
3280 \begin{mdframed}[style=exercisestyle,exercisepoints=10]
3281 \ExampleText
3282 \end{mdframed}
3283
3284 \clearpage
3285 \Examplesec{Theorem environments}
3286 \begin{LTXexample}
3287 \mdfdefinestyle{theoremstyle}{%
3288   linecolor=red,linewidth=2pt,%
3289   frametitlerule=true,%
3290   apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
3291     shade,left color=white, right color=blue!20}}},
3292   frametitlerulecolor=green!60,
3293   frametitlerulewidth=1pt,
3294   innertopmargin=\topskip,
3295 }

```

```

3296 \mdtheorem[style=theoremstyle]{definition}{Definition}
3297 \begin{definition}[Inhomogeneous linear]
3298 \ExampleText
3299 \end{definition}
3300 \begin{definition*}[Inhomogeneous linear]
3301 \ExampleText
3302 \end{definition*}
3303 \end{LTXexample}
3304
3305 \end{document}
3306 \endinput

```

E. The file *mdframed-example-pstricks*

```

3307 %Documenation of the package mdframed
3308 %$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
3309 \setcounter{errorcontextlines}{999}
3310 \documentclass[parskip=false,english,11pt]{ltxmdf}
3311 \ltxmdfsetifoot$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
3312
3313 \lstDeleteShortInline{[]}
3314 \newcommand\Loadedframemethod{PSTricks}
3315 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3316
3317 \usepackage{showexpl}
3318 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}},}
3319
3320 \title{The \Pack{mdframed} package}
3321 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3322 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3323 \date{\mdfdateID$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $}
3324 \version{\mdversion}
3325 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3326 Some presented examples are more or less exorbitant.}
3327
3328 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3329 \newrobustcmd\ExampleText{%
3330     An \textit{inhomogeneous linear} differential equation has the form
3331     \begin{align}
3332         L[v] &= f,
3333     \end{align}
3334     where  $L$  is a linear differential operator,  $v$  is
3335     the dependent variable, and  $f$  is a given non-zero
3336     function of the independent variables alone.
3337 }
3338
3339 \newcounter{examplecount}
3340 \setcounter{examplecount}{0}
3341 \renewcommand\thesubsection{}
3342 \newcommand\Examplesec[1]{%
3343 \stepcounter{examplecount}%
3344 \subsection{Example~\arabic{examplecount}~---~\relax}%
3345 }
3346
3347 \begin{document}
3348 \maketitle

```



```

3349 \section{Loading}
3350 In the preamble only the package \Pack{mdframed} with the option \Opt{framemethod=\Loadedframemethod}
3351
3352 {\large\color{red!50!black}
3353 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3354 X
3355 \section{Examples}
3356 All examples have the following settings:
3357
3358 \begin{tltxmdfexample}
3359 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3360 \newrobustcmd\ExampleText{%
3361 An \textit{inhomogeneous linear} differential equation
3362 has the form
3363 \begin{align}
3364 L[v] = f,
3365 \end{align}
3366 where  $L$  is a linear differential operator,  $v$  is
3367 the dependent variable, and  $f$  is a given non-zero
3368 function of the independent variables alone.
3369 }
3370 \end{tltxmdfexample}
3371 \clearpage
3372
3373 \Examplesec{very simple}
3374 \begin{LTExample}
3375 \global\mdfdefinestyle{exampledefault}{%
3376     linecolor=red,middlelinewidth=3pt,%
3377     leftmargin=1cm,rightmargin=1cm
3378 }
3379 \begin{mdframed}[style=exampledefault,roundcorner=5]
3380 \ExampleText
3381 \end{mdframed}
3382 \end{LTExample}
3383
3384 \Examplesec{hidden line + frame title}
3385 \begin{LTExample}
3386 \global\mdfapptodefinestyle{exampledefault}{%
3387     topline=false,rightline=false,bottomline=false,
3388     frametitlerule=true,innertopmargin=6pt,
3389     outerlinewidth=6pt,outerlinecolor=blue,
3390     pstricksappsetting={\addtopstyle{mdfouterlinestyle}{linestyle=dashed}},
3391     innerlinecolor=yellow,innerlinewidth=5pt}%
3392 \begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
3393 \ExampleText
3394 \end{mdframed}
3395 \end{LTExample}
3396
3397 \clearpage
3398
3399 \Examplesec{Dash Lines}
3400 \begin{LTExample}
3401 \global\mdfdefinestyle{exampledefault}{%
3402     pstrickssetting={linestyle=dashed,},linecolor=red,linewidth=5pt}
3403 \begin{mdframed}[style=exampledefault,]
3404 \ExampleText

```

```

3405 \end{mdframed}
3406 \end{LTXexample}
3407
3408 \Examplesec{Double Lines}
3409 \begin{LTXexample}
3410 \global\mdfdefinestyle{exampledefault}{%
3411     pstrickssetting={doubleline=true,doublesep=6pt},
3412     linecolor=red,linewidth=5pt,middlelinewidth=4pt}
3413 \begin{mdframed}[style=exampledefault,]
3414 \ExampleText
3415 \end{mdframed}
3416 \end{LTXexample}
3417
3418 \Examplesec{Shadow frame}
3419 \begin{LTXexample}
3420 \newmdenv[shadow=true,
3421     shadowsize=11pt,
3422     linewidth=8pt,
3423     frametitlerule=true,
3424     roundcorner=10pt,
3425     ]{myshadowbox}
3426 \begin{myshadowbox}[frametitle={Inhomogeneous linear}]
3427 \ExampleText
3428 \end{myshadowbox}
3429 \end{LTXexample}
3430 \end{document}
3431 \endinput

```

F. The file *mdframed-example-texsx*

```

3432 %Documenation of the package mdframed
3433 %$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
3434 \setcounter{errorcontextlines}{999}
3435 \documentclass[parskip=false,english,11pt,ltxlipsum]{ltxmdf}
3436 \ltxmdfsetifoot $Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $
3437
3438
3439 \usepackage{showexpl}
3440 \lstset{style=lstltxmdf,explpreset={pos=b,rframe={}}},
3441
3442 \newcommand\Loadedframemethod{default}
3443 \usepackage[framemethod=\Loadedframemethod]{mdframed}
3444
3445 \title{The \Pack{mdframed} package}
3446 \subtitle{Examples for \Opt{framemethod=\Loadedframemethod}}
3447 \author{\href{mailto:marco.daniel@mada-nada.de}{Marco Daniel}}
3448 \date{\mdfdateID$Id: mdframed.dtx 344 2012-02-04 23:50:02Z marco $}
3449 \version{\mdversion}
3450 \introduction{In this document I collect various examples for \Opt{framemethod=\Loadedframemethod}.
3451 Some presented examples are more or less exorbitant.}
3452
3453 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3454 \newrobustcmd\ExampleText{%
3455     An \textit{inhomogeneous linear} differential equation has the form
3456     \begin{align}
3457         L[v] &= f,

```

```

3458         \end{align}
3459         where  $L$  is a linear differential operator,  $v$  is
3460         the dependent variable, and  $f$  is a given non-zero
3461         function of the independent variables alone.
3462     }
3463
3464     \newcounter{examplecount}
3465     \setcounter{examplecount}{0}
3466     \renewcommand\thesubsection{}
3467     \newcommand\Examplesec[1]{%
3468     \stepcounter{examplecount}%
3469     \subsection{Example~\arabic{examplecount}~---~#1\relax}%
3470 }
3471
3472 \begin{document}
3473 \maketitle
3474 \section{Loading}
3475 In the preamble only the package \Pack{mdframed} width the option \Opt{framemethod=\Loadedframemethod}
3476
3477 {\large\color{red!50!black}
3478 \NOTE Every \Cmd{global} inside the examples is necessary to work with the package \Pack{showexpl}.}
3479
3480 \section{Examples}
3481 All examples have the following settings:
3482
3483 \begin{tltxmdfexample}
3484 \mdfsetup{skipabove=\topskip,skipbelow=\topskip}
3485 \newrobustcmd\ExampleText{%
3486 An \textit{inhomogeneous linear} differential equation
3487 has the form
3488 \begin{align}
3489 L[v] = f,
3490 \end{align}
3491 where  $L$  is a linear differential operator,  $v$  is
3492 the dependent variable, and  $f$  is a given non-zero
3493 function of the independent variables alone.
3494 }
3495 \end{tltxmdfexample}
3496 \clearpage
3497 \Examplesec{Package listings}
3498 The example below is inspired by the following post on StackExchange \href{http://tex.stackexchange.com}
3499
3500 Here the solution which can be decorate as usual.
3501
3502 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}
3503 \BeforeBeginEnvironment{lstlisting}{%
3504     \begin{mdframed}[<modification>%
3505     \vspace{-0.7em}}
3506 \AfterEndEnvironment{lstlisting}{%
3507     \vspace{-0.5em}%
3508     \end{mdframed}}
3509 \end{tltxmdfexample}
3510
3511 With the new command \Cmd{surroundwithmdframed} you can use
3512 \begin{tltxmdfexample}[moretexcs={BeforeBeginEnvironment,AfterEndEnvironment},morekeywords={lstlisting}
3513 \surroundwithmdframed{listings}

```

```

3514 \end{tltxmdfexample}
3515
3516 \Examplesec{Package multicol}
3517 How I wrote in \enquote{Known Problems} you can't combine \Pack{multicol} with \Pack{mdframed}. In a s
3518 \begin{LTXexample}
3519 \begin{multicols}{2}
3520 \lipsum[1]
3521 \begin{mdframed}
3522 \ExampleText
3523 \end{mdframed}
3524 \lipsum[2]
3525 \end{multicols}
3526 \end{LTXexample}
3527 \clearpage
3528 \twocolumn[\Examplesec{Working in twocolumn mode}]
3529 \begin{tltxmdfexample}
3530 \twocolumn[%
3531   \Examplesec{Working in
3532     twocolumn mode}]
3533 \lipsum[1]\lipsum[2]
3534 \begin{mdframed}[%
3535   leftmargin=10pt,%
3536   rightmargin=10pt,%
3537   linecolor=red,
3538   backgroundcolor=yellow]
3539 \ExampleText
3540 \end{mdframed}
3541 \lipsum[2]
3542 \end{tltxmdfexample}
3543 \lipsum[1]\lipsum[2]
3544 \begin{mdframed}[leftmargin=10pt,%
3545   rightmargin=10pt,%
3546   linecolor=red,
3547   backgroundcolor=yellow]
3548 \ExampleText
3549 \end{mdframed}
3550 \lipsum[2]
3551 \clearpage
3552 \onecolumn
3553 \Examplesec{Working inside enumerate}
3554 \begin{LTXexample}
3555 Text Text Text Text Text Text Text Text
3556 \begin{enumerate}
3557 \item in the following \ldots
3558   \begin{mdframed}[linecolor=blue,linewidth=2]
3559     \ExampleText
3560   \end{mdframed}
3561 \item \lipsum[2]
3562 \end{enumerate}
3563 Text Text Text Text Text Text
3564 \end{LTXexample}
3565 \end{document}
3566 \endinput

```

G. Change History

v1.0a		Removing <code>\@arrayparboxrestore</code>	39
General: Created dtx and fixes bugs	1	Renamed some commands so that every command have the same prefix <code>\mdf@</code> . .	1
v1.0b			
General: added command <code>\@parboxrestore</code> to <code>\mdf@lrbox</code>	29		
removed <code>\setbox\mdf@splitbox@two</code> <code>\vbox\unvbox \mdf@splitbox@two</code> . . .	42		
v1.1beta			
General: added command to avoid overfull box warning by <code>vsplit</code>	30		
Added frametitle detection to <code>\detected@mdf@put@frame</code>	36		
added lost semicolons	56		
Added method frame title via <code>\savebox</code>	33		
Added option <code>frametitlerulecolor</code> , <code>frametitlebackgroundcolor</code> , <code>font</code> . . .	25		
Added option <code>titleaboveskip</code> , <code>titlebelowskip</code> , <code>frametitlerulewidth</code>	24		
Added option <code>usetwoside</code>	25		
Changed the definition of <code>\mdf@trivlist</code>	37		
Create new <code>\savebox</code> and renamed <code>\@tempboxa</code>	28		
Defining <code>mdframed</code> with <code>\newenvironment</code>	37		
Joining all new definitions	28		
Redefinition of <code>\newmdtheoremenv</code> . – Now check of theorem definition.	31		
		v1.1release	
		General: Added <code>\mbox</code> to the definition. <code>\item\mbox\relax</code> – Need for <code>amsthm</code>	30
		changed definition of <code>\mdf@lrbox</code> (Thanks Lars Madsen)	29
		Changed the enddefinition of <code>mdframed</code> . Uses now <code>\@doendpe</code> instead of <code>\endparenv</code>	37
		Edit algorithm to combine the saveboxes <code>\mdf@frametitlebox</code> and <code>\mdf@splitboxone</code> by the predefined set- tings: <code>\parskip\z@</code> , <code>\parindent\z@</code> and <code>\offinterlineskip</code>	33
		v1.2a	
		General: take account of <code>\parskip</code> for the vertical calculation	39
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