

# The `mcaption` package\*

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## Abstract

This package provides a `margincap` environment for putting captions into the outer document margin with either a top or bottom alignment.

## 1 Package options

The `mcaption` package provides the following options:

option	brief description	page
<code>bottom</code>	vertical caption alignment	2
<code>top</code>	vertical caption alignment	2
<code>v2.2</code>	compatibility option	1

## 2 Usage

`margincap` The `margincap` environment places its contents into a box whose width matches the current line width and attaches a caption (with an optional label) next to the box in the outer margin. Caption text and the label are taken from `\caption` and `\label` commands within the environment. A typical use-case is to put the `margincap` environment into a float, such as a `figure` or `tabular` environment:

```
\begin{figure}
  \begin{margincap}
    \centering
    \includegraphics{picture}
    \caption[short caption text]{long caption text}
    \label{fig:pic}
  \end{margincap}
\end{figure}
```

`wrapfigure` The `margincap` environment also works with the `wrapfigure` environment pro-

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\*This document corresponds to `mcaption` v3.0, dated 2009/03/13.

vided by the `wrapfig` package. Note, wrapped figures or tables have to appear in the outer margin, *i. e.*, parameters ‘o’ or ‘O’ have to be applied to the `wrapfigure` environment. This even works in two-column mode. See file `example.tex` for an example.

- v2.2 Up to `mcaption v2.2` the `margincap` environment had a different syntax. Macros `\caption` and `\label` haven’t been recognized inside the environment. Instead, short and long caption texts had to be given as optional and mandatory arguments to the `margincap` environment. To apply a label to a `margincap` environment, the `\label` command had to be passed as part of the long caption text.
- v2.2 The `mcaption` package provides a compatibility option `v2.2` that enables the old behaviour. This option is disabled by default.

### 3 Caption Format

#### 3.1 Vertical alignment

`top` Vertical alignment of margin captions can be controlled by package options `top`  
`bottom` or `bottom`.

Option `top` aligns the top-most line of the caption to the top of the `margincap` environment’s contents (an image, tabular, *etc.*) Similarly, option `bottom` aligns the bottom-most line of the caption to the bottom of the `margincap` environment’s contents. In case a caption has a larger height or depth than a figure, it will hang or grow beneath the running text. Option `bottom` is the default.

- v2.2 Up to `mcaption v2.2`, the vertical alignment of captions required some user-interaction. For tabulars, the baseline alignment had to match that of the caption. For that reason a macro `\margincapalign` had been provided that had to be passed as an alignment specifier to all tabular declarations. Newer versions of `mcaption` don’t need this alignment specifier. For backwards compatibility macro `\margincapalign` is still provided, but it’s use is deprecated. Legacy documents, that use `\margincapalign` in tabular declarations, should still compile as soon as `mcaption` is loaded with package option `v2.2` (see section 2).

#### 3.2 Horizontal alignment

`\margincapsep` Horizontal spacing between a `margincap` environment’s contents and the caption can be adjusted by the length `\margincapsep`. This has to be done after `\begin{document}` or via `\AtBeginDocument` in the preamble. Since changing `\margincapsep` will affect all further `margincap` environments, the author suggests one document wide setting to get a consistent look throughout the document. Default value is `\marginparsep`.

#### 3.3 Further tweaks

To get visually pleasing results you should provide wide enough outer margins. To further smoothen line breaking consider using a smaller caption font and setting

captions ragged. The author suggests using the `caption` package to format captions. *E. g.*, issuing the following line in the document preamble

```
\usepackage[font=footnotesize,justification=raggedright]{caption}
```

will typeset all further captions at a smaller font size and flush left. The `RaggedRight` option might be useful here, too, to allow for hyphenation inside ragged text.

## 4 Known Problems

1. Captions may appear in the wrong margin, sometimes. Running  $\text{\LaTeX}$  twice should solve that problem. *Background:* For robustness, `mcaption` relies on the `changepage` package with option `strict` to detect left- and right-hand pages. This requires two  $\text{\LaTeX}$ -passes. The behaviour can be changed with macro `\easypagecheck` (see package `changepage`).
2. Captions are positioned slightly too high. This is because `margincap` doesn't reliably know the contents' exact bottom-most base line. Additional artificial zero height lines are used to align environment contents and caption text. For that reason, the true depth of both are not taken into account. *Todo:* Provide means for vertical fine-tuning of captions.
3. When using the `wrapfig` package the auto sizing feature of the `wrapfigure` environment won't work when putting a `margincap` environment in. You'll have to specify the width of a `wrapfigure` manually.

## 5 Bugs

If you find bugs, feel free to contact me at `stephanhennig@arcor.de`.

## 6 Implementation

Make sure the `changepage` package is loaded.

```
1 \RequirePackage[strict]{changepage}
```

`\mcaption@alignv` This macro is used by options `bottom` and `top`.

```
2 \newcommand*{\mcaption@alignv}{}
```

Declare options `bottom` and `top` to determine vertical alignment of a caption. Default package option is `bottom`.

```
3 \DeclareOption{top}{\renewcommand*{\mcaption@alignv}{t}}
```

```
4 \DeclareOption{bottom}{\renewcommand*{\mcaption@alignv}{b}}
```

```
5 \ExecuteOptions{bottom}
```

Declare compatibility option v2.2, that restores the behaviour of `mcaption` v2.2 for the `margincap` environment.

```
6 \DeclareOption{v2.2}{%
7   \AtEndOfPackage{%
```

Activate `margincap` with optional and mandatory caption argument.

```
8   \let\margincap\mcaption@mcIIIdotII%
9   \let\endmargincap\endmcaption@mcIIIdotII%
```

`\margincapalign` Macro `\margincapalign` is deprecated (cf. macro `\mcaption@alignv`). It is only provided for backwards compatibility.

```
10  \newcommand*{\margincapalign}{\mcaption@alignv}
11  }%
12 }%
```

Process the options.

```
13 \ProcessOptions\relax
```

`\margincapsep` Length `\margincapsep` determines the horizontal distance between contents and caption and can be adjusted by the user. This length has to be set only after `\begin{document}` and equals `\marginparsep` by default.

```
14 \newlength{\margincapsep}
15 \AtBeginDocument{%
16   \setlength{\margincapsep}{\marginparsep}%
17 }
```

Declare macros for storing long and short caption text and a flag.

```
18 \newcommand*{\mcaption@CaptionLong}{}
19 \newcommand*{\mcaption@CaptionShort}{}
20 \newcommand*{\mcaption@CaptionFlag}{}%
```

Declare macros for storing a label and a flag.

```
21 \newcommand*{\mcaption@Label}{}
22 \newcommand*{\mcaption@LabelFlag}{}%
```

Declare boxes to store the contents and caption of a `margincap` environment.

```
23 \newsavebox{\mcaption@ObjectBox}
24 \newsavebox{\mcaption@CaptionBox}
```

`mcaption@mcIIIdotII` Declare a template for the traditional `margincap` environment as of `mcaption` v2.2, that takes an optional and a mandatory caption text argument, cf. environment `mcaption@mcIIIdot`.

```
25 \newenvironment{mcaption@mcIIIdotII}[2][\mcaption@DefaultOpt]{%
```

Call `\caption` with or without optional argument. Trick taken from UK-TeX-FAQ, question 286: ‘Optional arguments like `\section`’.

```
26 \def\mcaption@DefaultOpt{#2}%
```

Store optional and mandatory caption arguments for later processing. Flag a caption without label.

```
27 \def\mcaption@CaptionShort{#1}%
28 \def\mcaption@CaptionLong{#2}%
29 \gdef\mcaption@CaptionFlag{t}%
30 \gdef\mcaption@LabelFlag{f}%
```

Collect environment contents in a box `\mcaption@ObjectBox` of width `\linewidth`.

```
31 \begin{lrbox}{\mcaption@ObjectBox}%
32   \begin{minipage}{\linewidth}%
33 }{%
34   \end{minipage}%
35 \end{lrbox}%
```

Call the working macros.

```
36 \mcaption@align@boxes%
37 \mcaption@output@boxes%
```

We're done.

```
38 }%
```

`mcaption@mcIIIdot` Declare a template for the new `margincap` environment as of `mcaption` v3.0, that accepts `\caption` and `\label` arguments inside the environment, *cf.* environment `mcaption@mcIIIdotII`.

```
39 \newenvironment{mcaption@mcIIIdot}{%
```

Replace `\caption` and `\label` commands by custom variants and unset flags.

```
40 \let\mcaption@origcaption\caption%
41 \let\caption\mcaption@caption%
42 \gdef\mcaption@CaptionFlag{f}%
43 \let\mcaption@origlabel\label%
44 \let\label\mcaption@label%
45 \gdef\mcaption@LabelFlag{f}%
```

Collect environment contents in a box `\mcaption@ObjectBox` of width `\linewidth`.

```
46 \begin{lrbox}{\mcaption@ObjectBox}%
47   \begin{minipage}{\linewidth}%
48 }{%
49   \end{minipage}%
50 \end{lrbox}%
```

Restore original `\caption` and `\label` definitions.

```
51 \let\caption\mcaption@origcaption%
52 \let\label\mcaption@origlabel%
```

Call the working macros.

```
53 \mcaption@align@boxes%
54 \mcaption@output@boxes%
```

We're done.

```
55 }%
```

`margincap` Provide the `margincap` environment.

```

56 \newenvironment{margincap}{}{}%
    Activate the new behaviour for the margincap environment.
57 \let\margincap\mcaption@mcIIIidot%
58 \let\endmargincap\endmcaption@mcIIIidot%

    Define auxillary macros and environments.
    These macros are used for saving the original \caption and \label definitions.
59 \newcommand*\mcaption@origcaption{}
60 \newcommand*\mcaption@origlabel{}

    Declare an auxillary macro for storing the unexpanded optional \caption argument.
61 \newcommand*\mcaption@DefaultOpt{}

```

`\mcaption@caption` This `\caption` replacement macro just stores its arguments in `\mcaption@CaptionShort` and `\mcaption@CaptionLong` for later reference and sets a flag.

```

62 \newcommand*\mcaption@caption}[2][\mcaption@DefaultOpt]{%
63   \gdef\mcaption@DefaultOpt{#2}%
64   \gdef\mcaption@CaptionShort{#1}%
65   \gdef\mcaption@CaptionLong{#2}%
66   \gdef\mcaption@CaptionFlag{t}%
67   \ignorespaces
68 }%

```

`\mcaption@label` This `\label` replacement macro just stores its arguments in `\mcaption@Label` for later reference and sets a flag.

```

69 \newcommand*\mcaption@label}[1]{%
70   \gdef\mcaption@Label{#1}%
71   \gdef\mcaption@LabelFlag{t}%
72   \ignorespaces
73 }%

```

`\mcaption@align@boxes` This macro prepares and aligns contents and caption boxes.

```

74 \newcommand*\mcaption@align@boxes}{%
    If the user issued a \caption command, put the caption text into box \mcaption@CaptionBox. Else prepare an empty box.
75 \begin{lrbox}{\mcaption@CaptionBox}%
76   \setlength{\@tempdima}{\marginparwidth}%
77   \addtolength{\@tempdima}{\marginparsep}%
78   \addtolength{\@tempdima}{-\margincapsep}%
79   \begin{minipage}{\@tempdima}%
80     \if\mcaption@CaptionFlag t%
81       \setlength{\abovecaptionskip}{0pt}%
82       \setlength{\belowcaptionskip}{0pt}%
83       \caption[\mcaption@CaptionShort]{\strut\mcaption@CaptionLong\strut}%
84     \fi%
85     \if\mcaption@LabelFlag t%

```

```

86     \label{\mcaption@Label}%
87     \fi%
88     \end{minipage}%
89     \end{lrbox}%

```

Wrap contents into zero height top and bottom lines to get the desired reference point. Then use `\vtop` or `\vbox` for aligning boxes.

```

90 \sbox{\mcaption@ObjectBox}{%
91   \if\mcaption@alignv t\vtop
92   \else\vbox
93   \fi
94   {%
95     \vskip0pt%
96     \hbox{\usebox{\mcaption@ObjectBox}}%
97     \vskip0pt%
98   }%
99 }%
100 \sbox{\mcaption@CaptionBox}{%
101   \if\mcaption@alignv t\vtop
102   \else\vbox
103   \fi
104   {%
105     \vskip0pt%
106     \hbox{\usebox{\mcaption@CaptionBox}}%
107     \vskip0pt%
108   }%
109 }%
110 }%

```

`\mcaption@output@oddpage` This macro first outputs the contents and then the caption box.

```

111 \newcommand*\mcaption@output@oddpage{%
112   \makebox[\linewidth][l]{%
113     \usebox{\mcaption@ObjectBox}%
114     \hspace*\margincapsep%
115     \smash{\usebox{\mcaption@CaptionBox}}%
116   }%
117 }%

```

`\mcaption@output@evenpage` This macro first outputs the caption and then the contents box.

```

118 \newcommand*\mcaption@output@evenpage{%
119   \makebox[\linewidth][r]{%
120     \smash{\usebox{\mcaption@CaptionBox}}%
121     \hspace*\margincapsep%
122     \usebox{\mcaption@ObjectBox}%
123   }%
124 }%

```

`\mcaption@output@boxes` This macro outputs contents and caption boxes in the correct order.

```

125 \newcommand*\mcaption@output@boxes{%

```

In two-sided documents check for odd and even pages. In one-sided documents treat every page as an odd page.

```

126 \if@twoside%
127   \checkoddpage%
128   \ifoddpage%
129     \mcaption@output@oddpage%
130   \else%
131     \mcaption@output@evenpage%
132   \fi%
133 \else%
134   \mcaption@output@oddpage%
135 \fi%
136 }%
```

## Change History

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General: Prepared .dtx package. . .		3
v2.1	<code>mcaption@mcIIIdotII</code> : Delay caption handling. . . . .	5
<code>mcaption@mcIIIdotII</code> : Now works with standard classes. . . . .		4
v2.2	<code>mcaption@mcIIIIdot</code> : Recognize <code>\caption</code> and <code>\label</code> commands. . . . .	5
General: New package options ‘bottom’ and ‘top’. . . . .		3
<code>\mcaption@output@boxes</code> : Fixed: In one-sided documents captions were put into the wrong margin. . . . .		8
v3.0	<code>\marginalign</code> : Deprecated. . . . .	4
General: Complete revision of vertical alignment mechanism. . . . .		3
New package option ‘v2.2’. . . . .		4
	<code>\mcaption@align@boxes</code> : Use temporary L <sup>A</sup> T <sub>E</sub> X length. . . . .	6
	<code>\mcaption@output@boxes</code> : Fixed: In one-sided documents <code>chngepage/changeage</code> ’s even/odd page detection was subtly broken by <code>mcaption</code> . . . . .	8

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