

# The `settobox` package

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## Abstract

Commands are defined for getting box sizes similar to L<sup>A</sup>T<sub>E</sub>X's `\settowidth` commands.

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\*Please report any issues at <https://github.com/ho-tex/oberdiek/issues>

# 1 Usage

## 1.1 Get box dimensions

```
\setboxwidth{\langle\LaTeX length\rangle}{\langle\LaTeX box\rangle}  
\setboxheight{\langle\LaTeX length\rangle}{\langle\LaTeX box\rangle}  
\setboxdepth{\langle\LaTeX length\rangle}{\langle\LaTeX box\rangle}  
\setboxtotalheight{\langle\LaTeX length\rangle}{\langle\LaTeX box\rangle}
```

A  $\langle\LaTeX box\rangle$  is allocated by `\newsavebox`. It can be filled by `\sbox` or the environment `lrbox`. The commands above extract then the desired lengths.

## 1.2 Set box dimensions

```
\setboxwidth{\langle\LaTeX box\rangle}{\langle\LaTeX length expression\rangle}  
\setboxheight{\langle\LaTeX box\rangle}{\langle\LaTeX length expression\rangle}  
\setboxdepth{\langle\LaTeX box\rangle}{\langle\LaTeX length expression\rangle}
```

These commands allow the manipulation of the box. Package `calc` is supported in the  $\langle\LaTeX length expression\rangle$ . Also the following length are available in this expression:

<code>\width</code>	width of the box
<code>\height</code>	height of the box
<code>\depth</code>	depth of the box
<code>\totalheight</code>	totalheight of the box

Note, the base point (point at the left margin of the baseline) always remain constant.

## 1.3 Move box

```
\setboxmoveleft{\langle\LaTeX box\rangle}{\langle\LaTeX length expression\rangle}  
\setboxmoveright{\langle\LaTeX box\rangle}{\langle\LaTeX length expression\rangle}  
\setboxlower{\langle\LaTeX box\rangle}{\langle\LaTeX length expression\rangle}  
\setboxright{\langle\LaTeX box\rangle}{\langle\LaTeX length expression\rangle}
```

Note, the box is shifted relative to the base point. The base point is always inside the box, however the width and height of the box change along with the movement.

## 1.4 Example

### 1.4.1 Short example

```
\newsavebox{\mybox}  
\newlength{\mylength}  
\sbox{\mybox}{Hello World}  
\setboxwidth{\mylength}{\mybox}
```

### 1.4.2 Test file that shows box manipulations

```
1 \langle*example\rangle  
2 %<<END  
3 \documentclass{article}
```

```

4
5 \usepackage{settoebox}
6 \usepackage{calc}
7
8 \newsavebox{\mybox}
9
10 \setlength{\fboxsep}{0pt}
11 \setlength{\parindent}{20pt}
12 \setlength{\parskip}{10pt}
13 \pagestyle{empty}
14
15 % \test{#1}
16 % The macro is called with commands in #1 that manipulates
17 % the box \mybox. These commands along with the result of
18 % the manipulation is shown. Thus the essence of the
19 % macro is:
20 %
21 %   a) \sbox{\mybox}{The cracy fox.}
22 %   b) #1 % manipulates \mybox
23 %   c) Print #1 commands.
24 %   d) Print box with frame
25 %
26 % The implemenation looks more weird:
27 \makeatletter
28 \newcommand*\test}[1]{%
29   \par
30   \begingroup
31     \raggedright
32     \edef\x{\detokenize{#1}}%
33     \let\do\makeoother
34     \dospecials
35     \catcode'\active
36     \catcode'\ =10\relax
37     \def~{\}%
38     \noindent
39     \texttt{\scantokens\expandafter{\x}}%
40     \par
41   \endgroup
42   \begingroup
43     \let~\relax
44     \sbox{\mybox}{The cracy fox.}%
45     #1%
46     A---\fbox{\usebox{\mybox}}---B%
47   \endgroup
48   \par
49 }
50 \makeatother
51
52 \begin{document}
53
54 \test{\setboxwidth{\mybox}{1.25\width}}
55 \test{\setboxheight{\mybox}{0pt}}
56 \test{\setboxheight{\mybox}{2\height}}
57 \test{\setboxdepth{\mybox}{\height}}
58 \test{\setboxmoveleft{\mybox}{5pt}}
59 \test{%
60   \setboxmoveleft{\mybox}{5pt}~%
61   \setboxwidth{\mybox}{\width + 5pt}%

```

```

62 }
63 \test{\setboxmoveright{\mybox}{0.5\width}}
64 \test{\setboxlower{\mybox}{\height}}
65 \test{\setboxraise{\mybox}{\depth}}
66 \test{%
67   \setboxmoveright{\mybox}{5pt}~%
68   \setboxwidth{\mybox}{\width + 5pt}~%
69   \setboxheight{\mybox}{\height + 5pt}~%
70   \setboxdepth{\mybox}{\depth + 5pt}%
71 }
72
73 \end{document}
74 %END
75 \end{example}

```

The result:

---

`\setboxwidth {\mybox }{1.25\width }`

A—The cracy fox.—B

`\setboxheight {\mybox }{0pt}`

A—The cracy fox.—B

`\setboxheight {\mybox }{2\height }`

A—The cracy fox.—B

`\setboxdepth {\mybox }{\height }`

A—The cracy fox.—B

`\setboxmoveleft {\mybox }{5pt}`

A—The cracy fox.—B

`\setboxmoveleft {\mybox }{5pt}`

`\setboxwidth {\mybox }{\width + 5pt}`

A—The cracy fox.—B

`\setboxmoveright {\mybox }{0.5\width }`

A—The cracy fox.—B

`\setboxlower {\mybox }{\height }`

A—The cracy fox.—B

`\setboxraise {\mybox }{\depth }`

A—The cracy fox.—B

`\setboxmoveright {\mybox }{5pt}`

`\setboxwidth {\mybox }{\width + 5pt}`

`\setboxheight {\mybox }{\height + 5pt}`

`\setboxdepth {\mybox }{\depth + 5pt}`

A—The cracy fox.—B

---

## 2 Implementation

76 `(*package)`

Package identification.

77 `\NeedsTeXFormat{LaTeX2e}`

78 `\ProvidesPackage{settoebox}%`

79 `[2016/05/16 v1.5 Assign box dimensions to length registers (H0)]`

80 `\newcommand*{\settoeboxwidth}[2]{\setlength{#1}{\wd#2}}`

81 `\newcommand*{\settoeboxheight}[2]{\setlength{#1}{\ht#2}}`

82 `\newcommand*{\settoeboxdepth}[2]{\setlength{#1}{\dp#2}}`

83 `\newcommand*{\settoeboxtotalheight}[2]{%`

84 `\setlength{#1}{\ht#2}%`

85 `\addtolength{#1}{\dp#2}%`

86 `}`

`\setboxwidth`

87 `\newcommand*{\setboxwidth}[2]{%`

88 `\settoebox@length\wd{#1}{#2}%`

89 `}`

`\setboxheight`

90 `\newcommand*{\setboxheight}[2]{%`

91 `\settoebox@length\ht{#1}{#2}%`

92 `}`

`\setboxdepth`

93 `\newcommand*{\setboxdepth}[2]{%`

94 `\settoebox@length\dp{#1}{#2}%`

95 `}`

`\setboxmoveleft`

96 `\newcommand*{\setboxmoveleft}[2]{%`

97 `\settoebox@horiz{-}{#1}{#2}%`

98 `}`

`\setboxmoveright`

99 `\newcommand*{\setboxmoveright}[2]{%`

100 `\settoebox@horiz{}{#1}{#2}%`

101 `}`

`\setboxlower`

102 `\newcommand*{\setboxlower}[2]{%`

103 `\settoebox@vert\lower{#1}{#2}%`

104 `}`

`\setboxraise`

105 `\newcommand*{\setboxraise}[2]{%`

106 `\settoebox@vert\raise{#1}{#2}%`

107 `}`

```

\settobox@length The work for the \setbox... commands is done by \settobox@length. Inside
                  the length expression \width, \height, \depth, \totalheight are set to the
                  dimensions of the box.
                  #1: the property of the box that is to be changed (\wd, \ht, \dp)
                  #2: the box
                  #3: length expression
108 \def\settobox@length#1#2#3{%
109   \settobox@calc{#2}{#3}{#1#2=##1sp\relax}%
110 }

\settobox@horiz
111 \def\settobox@horiz#1#2#3{%
112   \settobox@calc{#2}{#3}{\setbox#2=\hbox{\kern#1##1sp\copy#2}}%
113 }

\settobox@vert
114 \def\settobox@vert#1#2#3{%
115   \settobox@calc{#2}{#3}{\setbox#2=\hbox{#1##1sp\copy#2}}%
116 }

\settobox@calc
117 \def\settobox@calc#1#2#3{%
118   \begingroup
119     \def\width{\wd#1}%
120     \def\height{\ht#1}%
121     \def\depth{\dp#1}%
122     \dimen@ \ht#1\relax
123     \advance\dimen@ \dp#1\relax
124     \def\totalheight{\dimen@}%
125     \setlength{\dimen@}{#2}%
126     \count@\dimen@
127     \def\x##1{\endgroup
128       #3%
129     }%
130     \expandafter\x\expandafter{\the\count@}%
131 }
132 </package>

```

## 3 Installation

### 3.1 Download

**Package.** This package is available on CTAN<sup>1</sup>:

[CTAN:macros/latex/contrib/oberdiek/settobox.dtx](https://ctan.org/ctan/packages/macros/latex/contrib/oberdiek/settobox.dtx) The source file.

[CTAN:macros/latex/contrib/oberdiek/settobox.pdf](https://ctan.org/ctan/packages/macros/latex/contrib/oberdiek/settobox.pdf) Documentation.

**Bundle.** All the packages of the bundle ‘oberdiek’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

[CTAN:install/macros/latex/contrib/oberdiek.tds.zip](https://ctan.org/ctan/packages/macros/latex/contrib/oberdiek.tds.zip)

*TDS* refers to the standard “A Directory Structure for T<sub>E</sub>X Files” ([CTAN:pkg/tds](https://ctan.org/ctan/packages/pkg/tds)). Directories with `texmf` in their name are usually organized this way.

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<sup>1</sup>[CTAN:pkg/settobox](https://ctan.org/ctan/packages/pkg/settobox)

## 3.2 Bundle installation

**Unpacking.** Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek.tds.zip -d ~/texmf
```

## 3.3 Package installation

**Unpacking.** The `.dtx` file is a self-extracting `docstrip` archive. The files are extracted by running the `.dtx` through plain `TEX`:

```
tex settobox.dtx
```

**TDS.** Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
settobox.sty      → tex/latex/oberdiek/settobox.sty
settobox.pdf      → doc/latex/oberdiek/settobox.pdf
settobox-example.tex → doc/latex/oberdiek/settobox-example.tex
settobox.dtx      → source/latex/oberdiek/settobox.dtx
```

If you have a `docstrip.cfg` that configures and enables `docstrip`'s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

## 3.4 Refresh file name databases

If your `TEX` distribution (`TEX Live`, `MiKTEX`, ...) relies on file name databases, you must refresh these. For example, `TEX Live` users run `texhash` or `mktextlsr`.

## 3.5 Some details for the interested

**Unpacking with L<sup>A</sup>T<sub>E</sub>X.** The `.dtx` chooses its action depending on the format:

**plain T<sub>E</sub>X:** Run `docstrip` and extract the files.

**L<sup>A</sup>T<sub>E</sub>X:** Generate the documentation.

If you insist on using L<sup>A</sup>T<sub>E</sub>X for `docstrip` (really, `docstrip` does not need L<sup>A</sup>T<sub>E</sub>X), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{settobox.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

**Generating the documentation.** You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with `pdfLATEX`:

```
pdflatex settobox.dtx
makeindex -s gind.ist settobox.idx
pdflatex settobox.dtx
makeindex -s gind.ist settobox.idx
pdflatex settobox.dtx
```

## 4 History

[2000/02/11 v1.0]

- First public release, written as answer in the newsgroup [de.comp.text.tex](https://groups.google.com/group/de.comp.text.tex/msg/c3f6446f54f66c02): “Die Hoehe von Minipages und Bild”<sup>2</sup>

[2000/09/07 v1.1]

- Documentation added.
- CTAN release.

[2006/02/20 v1.2]

- `\setboxwidth`, `\setboxheight`, `\setboxdepth` added.
- Box move commands added.
- DTX framework.
- LPPL 1.3

[2007/04/11 v1.3]

- Line ends sanitized.

[2008/08/11 v1.4]

- Code is not changed.
- URLs updated.

[2016/05/16 v1.5]

- Documentation updates.

## 5 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; plain numbers refer to the code lines where the entry is used.

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<sup>2</sup>Url: <https://groups.google.com/group/de.comp.text.tex/msg/c3f6446f54f66c02>



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