The **settobox** package

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Abstract

Commands are defined for getting box sizes similar to LaTeX's `\settowidth` commands.

Contents

1 Usage

1.1 Get box dimensions

```
\settoboxwidth {⟨LaTeX length⟩} {⟨LaTeX box⟩}
\settoboxheight {⟨LaTeX length⟩} {⟨LaTeX box⟩}
\settoboxdepth {⟨LaTeX length⟩} {⟨LaTeX box⟩}
\settoboxtotalheight {⟨LaTeX length⟩} {⟨LaTeX box⟩}
```

A ⟨LaTeX box⟩ 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 {⟨*LATEX box*⟩} {⟨*LATEX length expression*⟩}
\setboxheight {⟨*LATEX box*⟩} {⟨*LATEX length expression*⟩}
\setboxdepth {⟨*LATEX box*⟩} {⟨*LATEX length expression*⟩}

These commands allow the manipulation of the box. Package calc is supported in the ⟨*LATEX length expression*⟩. Also the following length are available in this expression:

\width	width of the box
\height	height of the box
\depth	depth of the box
\totalheight	totalheight of the box

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

1.3 Move box

\setboxmoveleft {⟨*LATEX box*⟩} {⟨*LATEX length expression*⟩}
\setboxmoveright {⟨*LATEX box*⟩} {⟨*LATEX length expression*⟩}
\setboxlower {⟨*LATEX box*⟩} {⟨*LATEX length expression*⟩}
\setboxright {⟨*LATEX box*⟩} {⟨*LATEX length expression*⟩}

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}
\settoboxwidth{\mylength}{\mybox}
```

1.4.2 Test file that shows box manipulations

```
 1 ⟨*example⟩
 2 %<<END
 3 \documentclass{article}
 4
 5 \usepackage{settobox}
 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\@makeother
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 ⟨/example⟩
```

The result:

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

    A—| The cracy fox. |—B
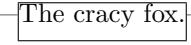
```
\setboxheight {\mybox }{0pt}
```

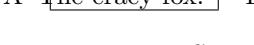A——The cracy fox.——B

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

A——The cracy fox.——B
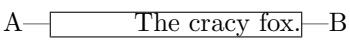
```
\setboxdepth {\mybox }{\height }
```

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——   ——B
The cracy fox.

```
\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

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2   Implementation

76 ⟨*package⟩

Package identification.

```
77 \NeedsTeXFormat{LaTeX2e}
78 \ProvidesPackage{settobox}%
79   [2008/08/11 v1.4 Getting box sizes (HO)]
80 \newcommand*{\settoboxwidth}[2]{\setlength{#1}{\wd#2}}
81 \newcommand*{\settoboxheight}[2]{\setlength{#1}{\ht#2}}
82 \newcommand*{\settoboxdepth}[2]{\setlength{#1}{\dp#2}}
83 \newcommand*{\settoboxtotalheight}[2]{%
84   \setlength{#1}{\ht#2}%
85   \addtolength{#1}{\dp#2}%
86 }
```

\setboxwidth

```
87 \newcommand*{\setboxwidth}[2]{%
88   \settobox@length\wd{#1}{#2}%
89 }
```

\setboxheight

```
90 \newcommand*{\setboxheight}[2]{%
91   \settobox@length\ht{#1}{#2}%
92 }
```

\setboxheight

```
93 \newcommand*{\setboxdepth}[2]{%
94   \settobox@length\dp{#1}{#2}%
95 }
```

\setboxmoveleft

```
96 \newcommand*{\setboxmoveleft}[2]{%
97   \settobox@horiz{-}{#1}{#2}%
98 }
```

\setboxmoveright

```
 99 \newcommand*{\setboxmoveright}[2]{%
100   \settobox@horiz{}{#1}{#2}%
101 }
```

\setboxlower

```
102 \newcommand*{\setboxlower}[2]{%
103   \settobox@vert\lower{#1}{#2}%
104 }
```

\setboxraise

```
105 \newcommand*{\setboxraise}[2]{%
106   \settobox@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[1]:

CTAN:macros/latex/contrib/oberdiek/settobox.dtx The source file.

CTAN: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

TDS refers to the standard "A Directory Structure for TeX Files" (CTAN:tds/tds.pdf). Directories with `texmf` in their name are usually organized this way.

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

Script installation. Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package `attachfile2` comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

    chmod +x scripts/oberdiek/pdfatfi.pl
    cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/

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`.

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[1] ftp://ftp.ctan.org/tex-archive/

3.4 Refresh file name databases

If your TeX distribution (teTeX, mikTeX, . . .) relies on file name databases, you must refresh these. For example, teTeX users run `texhash` or `mktexlsr`.

3.5 Some details for the interested

Attached source. The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk settobox.pdf unpack_files output .
```

Unpacking with LaTeX. The `.dtx` chooses its action depending on the format:

plain TeX: Run docstrip and extract the files.

LaTeX: Generate the documentation.

If you insist on using LaTeX for docstrip (really, docstrip does not need LaTeX), 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: "Die Hoehe von Minipages und Bild"[2]

[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

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[2]Url: http://groups.google.com/group/de.comp.text.tex/msg/c3f6446f54f66c02

[2007/04/11 v1.3]

- Line ends sanitized.

[2008/08/11 v1.4]

- Code is not changed.
- URLs updated.

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.