The \texttt{settobox} package

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Abstract

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

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1 Usage

1.1 Get box dimensions

\begin{verbatim}
\settowidth{⟨\texttt{LaTeX} box⟩}{⟨\texttt{LaTeX} length⟩}
\settoheight{⟨\texttt{LaTeX} box⟩}{⟨\texttt{LaTeX} length⟩}
\settoffset{⟨\texttt{LaTeX} box⟩}{⟨\texttt{LaTeX} length⟩}
\settototalheight{⟨\texttt{LaTeX} box⟩}{⟨\texttt{LaTeX} length⟩}
\end{verbatim}

A \texttt{(LaTeX box)} is allocated by \texttt{\newsavebox}. It can be filled by \texttt{\sbox} or the environment \texttt{\lrbox}. The commands above extract then the desired lengths.

\textsuperscript{*}Please report any issues at https://github.com/ho-tex/oberdiek/issues
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

\documentclass{article}
\usepackage{settobox}
\usepackage{calc}
\newsavebox{\mybox}
\setlength{\fboxsep}{0pt}
\setlength{\parindent}{20pt}
\setlength{\parskip}{10pt}
\pagestyle{empty}
\test{#1}

% The macro is called with commands in #1 that manipulates
% the box \mybox. These commands along with the result of
% the manipulation is shown. Thus the essence of the
% macro is:
% a) \sbox{\mybox}{The cracy fox.}
% b) #1 \% manipulates \mybox
% c) Print #1 commands.
% d) Print box with frame
%
% The implementation looks more weird:
\makeatletter
\newcommand*{\test}[1]{%
  \par
  \begingroup
  \raggedright
  \edef\x{\detokenize{#1}}%
  \let\do\@makeother
  \dospecials
  \catcode`\~\active
  \catcode`\ =10\relax
  \def~{\}%
  \noindent
  \texttt{\scantokens\expandafter{\x}}%
  \par
  \endgroup
  \begingroup
  \let~\relax
  \sbox{\mybox}{The crazy fox.}%
  #1%
  A---\fbox{\usebox{\mybox}}---B%
  \endgroup
  \par
  }
\makeatother
\begin{document}
\test{\setboxwidth{\mybox}{1.25\width}}
\test{\setboxheight{\mybox}{0pt}}
\test{\setboxheight{\mybox}{2\height}}
\test{\setboxdepth{\mybox}{\height}}
\test{\setboxmoveleft{\mybox}{5pt}}
\test{\setboxmoveright{\mybox}{5pt}~\setboxwidth{\mybox}{\width + 5pt}~\setboxheight{\mybox}{\height + 5pt}~\setboxdepth{\mybox}{\depth + 5pt}}
\end{document}
%END
⟨/example⟩

The result:

\setboxwidth{\mybox}{1.25\width}
A––––The crazy fox.––––B
\setboxheight{\mybox}{0pt}
\begin{itemize}
\item The cracy fox.
\end{itemize}

\section{Implementation}

\begin{itemize}
\item \texttt{\NeedsTeXFormat{LaTeX2e}}
\item \texttt{\ProvidesPackage{settobox}}
\item \texttt{\[2016/05/16 v1.5 Assign box dimensions to length registers (HO)]}
\item \texttt{\newcommand*{\settoboxwidth}[2]{\setlength{#1}{\wd#2}}}
\item \texttt{\newcommand*{\settoboxheight}[2]{\setlength{#1}{\ht#2}}}
\item \texttt{\newcommand*{\settoboxdepth}[2]{\setlength{#1}{\dp#2}}}
\item \texttt{\setboxwidth}
\item \texttt{\settoboxtotalheight}
\item \texttt{\setboxheight}
\end{itemize}
\newcommand*{\setboxheight}[2]{\settobox@length\ht{#1}=#2}\新的命令
\newcommand*{\setboxdepth}[2]{\settobox@length\dp{#1}=#2}\新的命令
\newcommand*{\setboxmoveleft}[2]{\settobox@horiz{-}{#1}{#2}}\新的命令
\newcommand*{\setboxmoveright}[2]{\settobox@horiz{}{#1}{#2}}\新的命令
\newcommand*{\setboxlower}[2]{\settobox@vert\lower{#1}{#2}}\新的命令
\newcommand*{\setboxraise}[2]{\settobox@vert\raise{#1}{#2}}\新的命令
\settobox@length
\setbox... \命令的工作由\settobox@length完成。inside

\settobox@calc
\begin{group}\def\width\wd\def\height\ht\def\depth\dp\def\totalheight\totalheight\setlength{#2}{#1}\count\dimen\end{group}
\def\settobox@calc{#2}{#3}{#1#2=##1sp\relax}\新的命令
\def\settobox@horiz#1#2#3{\settobox@calc{#2}{#3}{\setbox#2=\hbox{\kern#1##1sp\copy#2}}\新的命令
\def\settobox@horiz#1#2#3{\settobox@calc{#2}{#3}{\setbox#2=\hbox{#1##1sp\copy#2}}\新的命令
\def\settobox@vert{#1#2#3}{\settobox@calc{#2}{#3}{\setbox#2=\hbox{\kern#1##1sp\copy#2}}\新的命令
\begin{group}\def\width\wd\def\height\ht\def\depth\dp\def\totalheight\totalheight\setlength{#2}{#1}\count\dimen\end{group}
3 Installation

3.1 Download

Package. This package is available on CTAN:\footnote{CTAN:pkg/settobox}


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:pkg/tds). Directories with \texttt{texmf} in their name are usually organized this way.

3.2 Bundle installation

Unpacking. Unpack the \texttt{oberdiek.tds.zip} in the TDS tree (also known as \texttt{texmf} tree) of your choice. Example (linux):

\texttt{unzip oberdiek.tds.zip -d ~/texmf}

3.3 Package installation

Unpacking. The \texttt{.dtx} file is a self-extracting docstrip archive. The files are extracted by running the \texttt{.dtx} through plain \TeX:

\texttt{tex settobox.dtx}

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as \texttt{texmf} tree):

\begin{verbatim}
settobox.sty \rightarrow \text/tex/latex/oberdiek/settobox.sty
settobox.pdf \rightarrow \text/doc/latex/oberdiek/settobox.pdf
settobox-example.tex \rightarrow \text/doc/latex/oberdiek/settobox-example.tex
settobox.dtx \rightarrow \text/source/latex/oberdiek/settobox.dtx
\end{verbatim}

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

3.4 Refresh file name databases

If your \TeX\ distribution (\TeX\ Live, MiK\TeX, …) relies on file name databases, you must refresh these. For example, \TeX\ Live users run \texttt{texhash} or \texttt{mktexlsr}.

\footnote{CTAN:pkg/settobox}
3.5 Some details for the interested

Unpacking with \TeX. 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 \TeX), 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 \pdf\TeX:

\pdf\latex settobox.dtx
makeindex -s gind.ist settobox.idx
\pdf\latex settobox.dtx
makeindex -s gind.ist settobox.idx
\pdf\latex settobox.dtx

4 History

[2000/02/11 v1.0]

• First public release, written as answer in the newsgroup de.comp.text.tex: “Die Hoche von Minipages und Bild”\footnote{Url: https://groups.google.com/group/de.comp.text.tex/msg/c3f6446f54f66c02}

[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.
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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