The \texttt{settobox} package

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2016/05/16 v1.5

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

A ⟨\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.

*Please report any issues at \url{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 \texttt{calc} is supported in the \texttt{⟨LATEX length expression⟩}. Also the following length are available in this expression:

\begin{itemize}
\item \texttt{\width} width of the box
\item \texttt{\height} height of the box
\item \texttt{\depth} depth of the box
\item \texttt{\totalheight} totalheight of the box
\end{itemize}

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

\begin{verbatim}
\newsavebox{\mybox}
\newlength{\mylength}
\sbox{\mybox}{Hello World}
\settoboxwidth{\mylength}{\mybox}
\end{verbatim}

1.4.2 Test file that shows box manipulations

\begin{verbatim}
1 \langle*example
2 \langle<<END
3 \documentclass{article}
4 \newsavebox{mybox}
5 \usepackage{settobox}
6 \usepackage{calc}
7 \newsavebox{mybox}
8 \setlength{\fboxsep}{0pt}
9 \setlength{\parindent}{20pt}
10 \setlength{\parskip}{10pt}
11 \pagestyle{empty}
12 % \test{#1}
13 % The macro is called with commands in #1 that manipulates
14 % the box \texttt{mybox}. These commands along with the result of
15 % the manipulation is shown. Thus the essence of the
16 % macro is:
17 %
18 % a) \sbox{\mybox}{The cracy fox.}
19 %
20 %
21 %
22 \end{verbatim}
\% 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~{\textbackslash}\\\noindent\texttt{\scantokens\expandafter{\x}}\par\endgroup\begingroup\let~\relax\sbox{\mybox}{The cracy fox.}#1\endgroup\par\}
\% \makeatother
\%
\begin{document}
\test{\setboxwidth{\mybox}{1.25\width}}
\test{\setboxheight{\mybox}{0pt}}
\test{\setboxheight{\mybox}{2\height}}
\test{\setboxdepth{\mybox}{\depth}}
\test{\setboxmoveleft{\mybox}{5pt}}
\test{\setboxmoveright{\mybox}{5pt}~\setboxwidth{\mybox}{\width + 5pt}~\setboxheight{\mybox}{\height + 5pt}~\setboxdepth{\mybox}{\depth + 5pt}}
\end{document}
\%
\langle \end{example} \rangle

The result:

\setboxwidth \mybox \{1.25\width \}
A—The cracy fox.—B
\setboxheight \mybox \{0pt\}
2 Implementation

76 ⟨*package⟩
Package identification.
77 \NeedsTeXFormat{LaTeX2e}
78 \ProvidesPackage{settobox}[
79 2016/05/16 v1.5 Assign box dimensions to length registers (H0)]
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 %
84 \setboxwidth
85 \settoboxtotalheight
86 }
87 \settoboxwidth
88 \settoboxheight
The work for the \texttt{\bbox...} commands is done by \texttt{\bbox@length}. Inside the length expression \texttt{\width}, \texttt{\height}, \texttt{\depth}, \texttt{\totalheight} are set to the dimensions of the box.

- \texttt{#1}: the property of the box that is to be changed (\texttt{\wd, \ht, \dp})
- \texttt{#2}: the box
- \texttt{#3}: length expression

\begin{verbatim}
\def\bbox@calc#1#2#3{\begingroup\def\width{\wd#1}\def\height{\ht#1}\def\depth{\dp#1}\dimen@\ht#1\relax\advance\dimen@\dp#1\relax\def\totalheight{\dimen@}\setlength{\dimen@}{#2}\count@\dimen@\x##1\endgroup}
\end{verbatim}
3 Installation

3.1 Download

Package. This package is available on CTAN\textsuperscript{1}:

\begin{itemize}
  \item \texttt{CTAN:macros/latex/contrib/oberdiek/settobox.dtx} The source file.
  \item \texttt{CTAN:macros/latex/contrib/oberdiek/settobox.pdf} Documentation.
\end{itemize}

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.

\begin{itemize}
  \item \texttt{CTAN:install/macros/latex/contrib/oberdiek.tds.zip}\textsuperscript{6}
\end{itemize}

TDS refers to the standard “A Directory Structure for \texttt{TeX} Files” (\texttt{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):

\begin{verbatim}
unzip oberdiek.tds.zip -d ~/texmf
\end{verbatim}

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 \texttt{TeX}:

\begin{verbatim}
tex settobox.dtx
\end{verbatim}

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

\begin{itemize}
  \item \texttt{settobox.sty} \rightarrow \texttt{tex/latex/oberdiek/settobox.sty}
  \item \texttt{settobox.pdf} \rightarrow \texttt{doc/latex/oberdiek/settobox.pdf}
  \item \texttt{settobox-example.tex} \rightarrow \texttt{doc/latex/oberdiek/settobox-example.tex}
  \item \texttt{settobox.dtx} \rightarrow \texttt{source/latex/oberdiek/settobox.dtx}
\end{itemize}

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

\textsuperscript{1}\url{CTAN:pkg/settobox}

\textsuperscript{6}\url{CTAN:install/macros/latex/contrib/oberdiek.tds.zip}
3.5 Some details for the interested

Unpacking with \TeX. The \texttt{.dtx} chooses its action depending on the format:

plain \TeX: Run \texttt{docstrip} and extract the files.

\LaTeX: Generate the documentation.

If you insist on using \LaTeX for \texttt{docstrip} (really, \texttt{docstrip} does not need \LaTeX), then inform the autodetect routine about your intention:

\begin{verbatim}
latex \let\install=y\input{settobox.dtx}
\end{verbatim}

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

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

\begin{verbatim}
\PassOptionsToClass{a4paper}{article}
\end{verbatim}

An example follows how to generate the documentation with pdf\TeX:

\begin{verbatim}
pdflatex settobox.dtx
makeindex -s gind.ist settobox.idx
pdflatex settobox.dtx
makeindex -s gind.ist settobox.idx
pdflatex settobox.dtx
\end{verbatim}

4 History

[2000/02/11 v1.0]

- First public release, written as answer in the newsgroup \texttt{de.comp.text.tex}: “Die Hoche von Minipages und Bild”\footnote{2}

[2000/09/07 v1.1]

- Documentation added.
- CTAN release.

[2006/02/20 v1.2]

- \texttt{\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.

\footnote{2}Url: https://groups.google.com/group/de.comp.text.tex/msg/c3f6446f54f66c02
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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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