The \texttt{overpic} package

Rolf Niepraschk
(Rolf.Niepraschk@gmx.de)

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1 Introduction

The \texttt{overpic} environment is a combination between the \LaTeX{} picture environment and another \LaTeX{} object like an image used with the command \texttt{\includegraphics} of graphicx or a tabular. The resulting picture environment has the same dimensions as the included object. \LaTeX{} commands can be placed on the object at any position; setting a grid for the orientation is possible.

2 Usage

Put \texttt{\usepackage\{overpic\}} in the preamble of the document. The following package options are available:

- \texttt{abs}: Absolute positioning in multiples of \texttt{\unitlength}.
- \texttt{percent}: Relative positioning; the longer dimension has value 100. The \texttt{\unitlength} will be calculated accordingly. This is the default mode.
- \texttt{permil}: Relative positioning; the longer dimension has value 1000. The \texttt{\unitlength} will be calculated accordingly.

Other options will be transferred to package \texttt{graphicx}.

\begin{overpic}\{\texttt{options}\}\{\texttt{filename}\} \langle \texttt{picture code} \rangle \end{overpic}

Sets the graphic \texttt{\{filename\}} and puts the \texttt{\{picture code\}} on the top of the graphic. The picture code can be any \LaTeX{} code inclusive other graphics.

The following options are possible:

- \texttt{abs, percent, permil}: The same as the package options (true or false).
• `rel`: Other value as base for relative positioning (e.g. 10000)
• `grid`: Drawing a grid for better orientation (true or false, default: false).
• `tics`: The distance of the grid tics (default: 10).
• `unit`: Sets `\unitlength` (any \TeX{} dimension, only effective in abs mode).

\begin{Overpic}[⟨options⟩]{⟨TEX code⟩} ⟨picture code⟩ \end{Overpic}

Similar to environment `overpic` but instead of a graphic any \TeX{} code (e.g. a tabular) is set as basement of the following picture overlay.

\setOverpic{⟨options⟩}

Sets new default values.

3 Examples

The graphic (`golfer.eps`) in the following examples is part of the program `ghostscript` and must be accesible to \TeX{}. To use the command `\color` the package `xcolor` (or `color`) must be loaded.

3.1 Environment “overpic” (absolute positioning)

\begin{overpic}[abs,unit=1mm,scale=.25,grid]{golfer.eps}
\put(3,27){\color{blue}\huge LaTeX}
\end{overpic}

![Diagram of a golfer with grid and text](golfer.eps)
3.2 Environment “overpic” (relative positioning)

The longer dimension is defined as 100%.

\begin{overpic}[scale=.25,percent,grid]{golfer.eps}
\put(5,45){\color{blue}\huge LaTeX}
\put(55,10){\color{red}{\frame{\includegraphics[scale=.07]{golfer.eps}}}}
\end{overpic}

3.3 Environment “Overpic” (absolute positioning)

To use the picture command \polygon the package pict2e must be loaded.

\begin{Overpic}[abs,unit=1mm,grid=true,tics=5]{%}
\begin{tabular}{*{8}{p{8mm}}}
H & & & & & & & He \\
Li & Be & B & & C & & N & & O & F & Ne \\
Na & Mg & Al & Si & P & S & Cl & Ar \\
K & Ca & Ga & Ge & As & Se & Br & Kr \\
Rb & Sr & In & Sn & Sb & Te & I & Xe \\
Cs & Ba & Tl & Pb & Bi & Po & At & Rn \\
Fr & Ra & & 112 & & 114 & & \end{tabular}}%
\linethickness{0.5mm} \color{blue}%
\put(0,0){\polygon(0,30)(10,30)(10,21.5)(44,21.5)(44,13.5)(22,13.5)(22,4.5)(0,4.5)}
\end{Overpic}
4 Implementation

\RequirePackage{graphicx, epic}

\OVP@scale

Reference value for rel mode (percent: 100, permil: 1000)

\newcommand*{\OVP@scale}{\z@}

All the keys:

\define@key{Gin}{rel}{%\def\OVP@scale{#1}\
\ifnum\OVP@scale>\z@
\let\OVP@calc\OVP@calc@rel
\else
\PackageError{overpic}{Invalid number for option ‘rel’}\@ehc\fi}
\define@key{Gin}{percent}{}{\setkeys{Gin}{rel=100}}
\define@key{Gin}{permil}{}{\setkeys{Gin}{rel=\@m}}
\define@key{Gin}{abs}{}{\let\OVP@calc\OVP@calc@abs}
\newif\ifGin@grid
\define@key{Gin}{grid}{}{\lowercase{\Gin@boolkey{#1}}{grid}}
\define@key{Gin}{tics}{}{\count@=#1}
\define@key{Gin}{unit}{}{\unitlength=\dimexpr#1\relax}

\OVP@calc@abs

Some calculations in abs mode. ~\@tempcnta~ is the normalized width and ~\@tempcntb~ is the normalized height. ~\count@~ is the tics value.

\newcommand*{\OVP@calc@abs}{%\divide\@tempcnta by \unitlength
\divide\@tempcntb by \unitlength
\ifnum\count@=\z@\count@=10\fi}

\OVP@calc@abs
Some calculations in rel mode. The bigger value of width or height is the base.

\newcommand*{\OVP@calc@rel}{% \ifnum\@tempcnta>\@tempcntb \divide\@tempcnta by \OVP@scale \unitlength=\@tempcnta sp \% \@tempcnta=\OVP@scale \divide\@tempcntb by \unitlength \else \divide\@tempcntb by \OVP@scale \unitlength=\@tempcntb sp \% \@tempcntb=\OVP@scale \divide\@tempcnta by \unitlength \fi \ifnum\count@=\z@ \count@=\OVP@scale \divide\count@ by 10 \% \fi }

The package options set the defaults:

\DeclareOption{percent}{\setkeys{Gin}{rel=100}}
\DeclareOption{permil}{\setkeys{Gin}{rel=\@m}}
\DeclareOption{abs}{\setkeys{Gin}{abs}}
\DeclareOption*{\PassOptionsToPackage{\CurrentOption}{graphicx}}
\ExecuteOptions{percent}
\ProcessOptions
\newsavebox\OVP@box

overpic Box 0 gets a graphic.

\newenvironment{overpic}[2][% \sbox\OVP@box{\includegraphics[#1]{#2}}% \count@=\z@ \Gin@gridfalse \setkeys{Gin}{#1}% Reset the graphics parameter:
\let\Gin@outer@scalex\relax
\let\Gin@outer@scaley\relax
\let\Gin@angle\relax
\let\Gin@ewidth\Gin@exclamation
\let\Gin@eheight\Gin@exclamation
\def\Gin@scalex{1}% \let\Gin@scaley\Gin@exclamation
\OVP@picture{#1}%}{
Overpic  Box 0 gets any \TeX{} code.

\newenvironment{Overpic}[2][{}% 66
\sbox\OVP@box{#2}%%% 67
\OVP@picture{#1}%%% 68
\endpicture
\OVP@picture

\setOverpic
Sets new defaults.

\newcommand*{\setOverpic}[1]{% 83
\setkeys{Gin}{#1}%% 84
\endinput

\begin{changehistory}

0.60 Overpic: Suggested by
  General: Converted to \texttt{.dtx} \hfill 1 Herbert Voß \hfill 5

1.0 \OVP@calc@rel: Suggested by
  \texttt{overpic}: Wrong place of
  Heiko Oberdiek \hfill 5 \texttt{\setkeys{bug report from}
  General: mostly rewritten \hfill 1 'aminophen') \hfill 5

\end{changehistory}

\begin{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; numbers in roman refer to the code lines where the entry is used.

\CurrentOption \hfill 49

\end{index}