The overpic package

Rolf Niepraschk
(Rolf.Niepraschk@gmx.de)

Version 1.3 – 2020/02/22

1 Introduction

The overpic environment is a combination between the LaTeX picture environment and another LaTeX object like an image used with the command `\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 `\usepackage[`⟨*options*⟩`]{overpic}` in the preamble of the document. The following package options are available:

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

Other options will be tranfered to package `graphicx`.

`overpic` `\begin{overpic}[`⟨*options*⟩`]{`⟨*filename*⟩`}` ⟨*picture code*⟩ `\end{overpic}`

Sets the graphic ⟨*filename*⟩ and puts the ⟨*picture code*⟩ on the top of the graphic. The picture code can be any TeX code inclusive other graphics.

The following options are possible:

- `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).

`Overpic` `\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` `\setOverpic{`⟨*options*⟩`}`

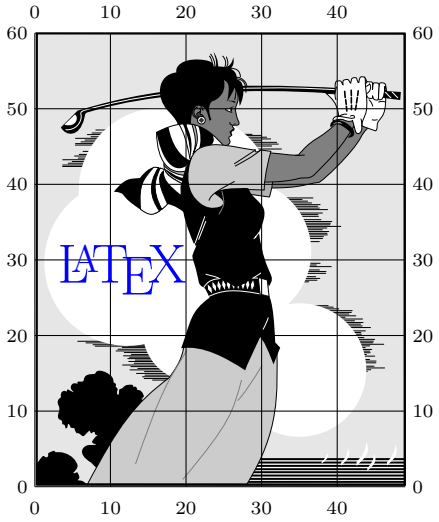
Sets new default values.

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)

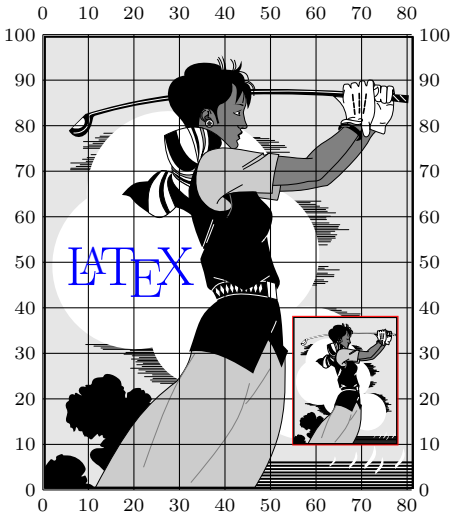
```
\begin{overpic}[abs,unit=1mm,scale=.25,grid]{golfer.eps}
  \put(3,27){\color{blue}\huge\LaTeX}
\end{overpic}
```



3.2 Environment “overpic” (relative positioning)

The longer dimension is defined as 100%.

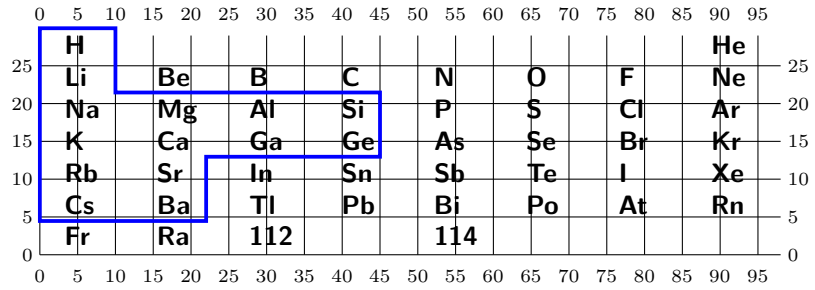
```
\begin{overpic}[scale=.25,percent,grid]{golfer.eps}
  \put(5,45){\color{blue}\huge\LaTeX}
  \put(55,10){\color{red}%
    \frame{\includegraphics[scale=.07]{golfer.eps}}}
\end{overpic}
```



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]{%
  \bfseries\sffamily
  \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}}%
  \put(0,0){\color{blue}\linethickness{0.5mm}
    \polygon(0,30)(10,30)(10,21.5)(45,21.5)(45,13)(22,13)%
      (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}[true]{\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@rel` 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}%
}{\endpicture}
```

`Overpic` Box 0 gets any TEX code.

```
\newenvironment{Overpic}[2][]{%
  \sbox\OVP@box{#2}%
  \count@=\z@ \Gin@gridfalse
  \setkeys{Gin}{#1}%
  \OVP@picture{#1}%
}{\endpicture}
```

`\OVP@picture` Put box 0 and and optionally grid at the lower left corner of a picture environment.

```
\newcommand*\OVP@picture[1]{%
  \settodepth{\@tempcnta}{\usebox\OVP@box}%
  \settoheight{\@tempcntb}{\usebox\OVP@box}%
  \advance\@tempcntb\@tempcnta
  \settowidth{\@tempcnta}{\usebox\OVP@box}%
  \OVP@calc
  \picture(\@tempcnta,\@tempcntb)%
    \put(0,0){\makebox(0,0)[bl]{\usebox\OVP@box}}%
    \ifGin@grid
      \put(0,0){\normalfont\fontsize\@viipt\@viiipt\selectfont
        \grid(\@tempcnta,\@tempcntb)(\count@,\count@)[0,0]}%
    \fi
}
```

`\setOverpic` Sets new defaults.

```
\newcommand*\setOverpic[1]{%
  \setkeys{Gin}{#1}%
}
```

```
\endinput
```

Change History

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.