The overpic package

Rolf Niepraschk
(Rolf.Niepraschk@gmx.de)

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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` (*env.*) `\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).

The macros `\width`, `\height`, `\depth`, and `\totalheight` are defined within the environment. They contain the dimensions of the graphic (parameter 2).

`Overpic` (*env.*) `\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. The macros `\width`, `\height`, `\depth`, and `\totalheight` are defined within the environment. They contain the dimensions of the box created by the TEX code (parameter 2).

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

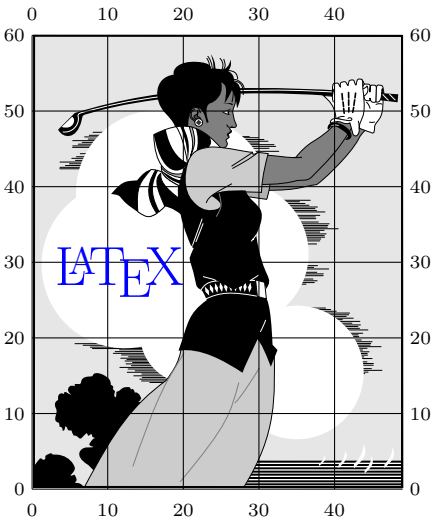
Sets new default values.

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)

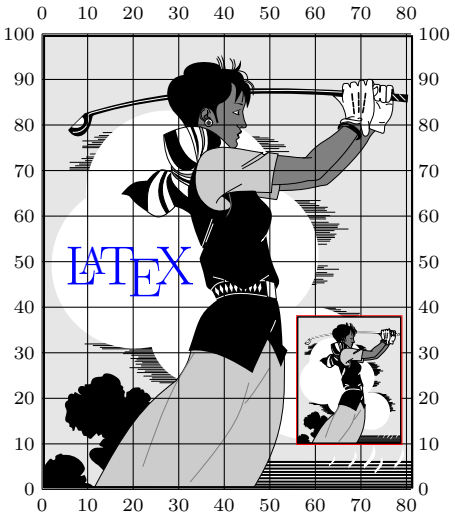
```
\begin{overpic}[abs,unit=1mm,scale=.25,grid]{golfer.eps}
  \put(3,27){\color{blue}\huge\LaTeX}
\end{overpic}
```



3.2 Environment “overpic” (relative positioning)

The longer dimension is defined as 100%.

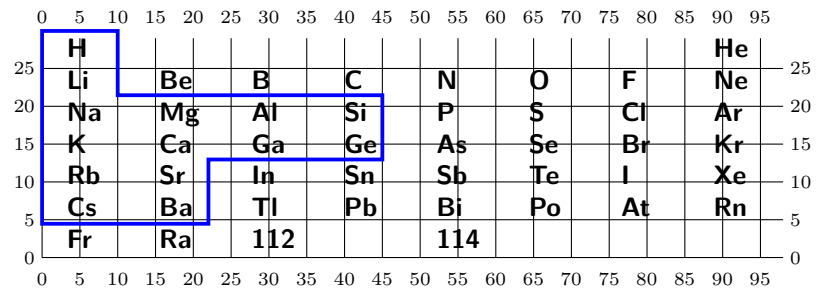
```
\begin{overpic}[scale=.25,percent,grid]{golfer.eps}
  \put(5,45){\color{blue}\huge\LaTeX}
  \put(55,10){\color{red}%
    \frame{\includegraphics[scale=.07]{golfer.eps}}}
\end{overpic}
```



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{keyval,graphicx,epic}
```

`\OVP@scale` Reference value for rel mode (percent: 100, permil: 1000)

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

All the keys:

```
\define@key{OVP}{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{OVP}{percent}[]{%
  \setkeys{OVP}{rel=100}%
}
\define@key{OVP}{permil}[]{%
  \setkeys{OVP}{rel=\@m}%
}
\define@key{OVP}{abs}[]{%
  \let\OVP@calc\OVP@calc@abs
}
\def\OVP@boolkey#1#2{%
  \csname OVP@#2\ifx\relax#1\relax true\else#1\fi\endcsname}
\newif\ifOVP@grid
\define@key{OVP}{grid}[true]{\lowercase{\OVP@boolkey{#1}}{grid}}
\define@key{OVP}{tics}{\count@=#1}
\define@key{OVP}{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{OVP}{rel=100}}
\DeclareOption{permil}{\setkeys{OVP}{rel=\@m}}
\DeclareOption{abs}{\setkeys{OVP}{abs}}
\DeclareOption*{\PassOptionsToPackage{\CurrentOption}{graphicx}}
\ExecuteOptions{percent}
\ProcessOptions
\AtBeginDocument{%
  \@ifpackageloaded{xkeyval}{%
    \def\OVP@setkeys@relaxed{%
      \let\OVP@setkeys\setkeys
      \def\setkeys{\OVP@setkeys*}
    }
    \def\OVP@setkeys@strict{%
      \let\setkeys\OVP@setkeys
    }
  }{%
    \def\OVP@setkeys@relaxed{%
      \let\OVP@KV@errx\KV@errx
      \let\KV@errx\@gobble
    }
    \def\OVP@setkeys@strict{%
      \let\KV@errx\OVP@KV@errx
    }
  }
}
\newsavebox\OVP@box
\newdimen\OVP@totalheight
```

`overpic` (*env.*) Box `\OVP@box` gets a graphic.

```
\newenvironment{overpic}[2][]{%
```

Silently ignore unknown keys.

```
  \OVP@setkeys@relaxed
  \sbox\OVP@box{\includegraphics[#1]{#2}}%
  \count@=\z@ \OVP@gridfalse
  \setkeys{OVP}{#1}%
```

Stop ignoring unknown keys.

```
  \OVP@setkeys@strict
```

```
  \OVP@picture
}{\endpicture}
```

`Overpic` (*env.*) Box `\OVP@box` gets any TEX code.

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

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

```
\newcommand*\OVP@picture{%
  \def\width{\wd\OVP@box}%
  \def\height{\ht\OVP@box}%
  \def\depth{\dp\OVP@box}%
  \let\totalheight\OVP@totalheight
  \totalheight=\height
  \advance\totalheight\depth
  \@tempcnta=\width
  \@tempcntb=\totalheight
  \OVP@calc
  \picture(\@tempcnta,\@tempcntb)%
    \put(0,0){\makebox(0,0)[bl]{\usebox\OVP@box}}%
    \ifOVP@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{OVP}{#1}%
}
```

```
\endinput
```

Change History

0.60

General: Converted to .dtx 1

1.0

General: mostly rewritten 1

`Overpic`: Suggested by Herbert Voß 6

`\OVP@calc@rel`: Suggested by Heiko Oberdiek 4

1.2

`overpic`: Wrong place of `\setkeys`(bug report from 'aminophen') 5

1.3

`Overpic`: Added missing `\setkeys` 6

2.0
General: Use a separate namespace for the keys to avoid unfavorable influence on `\includegraphics`. 4
`overpic`: Better key handling 5
2.1
`overpic`: Consideration of xkeyval's `\setkeys` 5
2.2
`\OVP@picture`: Added `\width` and similar macros 6

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