

The `overpic` package

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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 transferred 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 T_EX 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 T_EX code (e.g. a tabular) is set as basement of the following picture overlay.

`\setOverpic` `\setOverpic{<options>}`

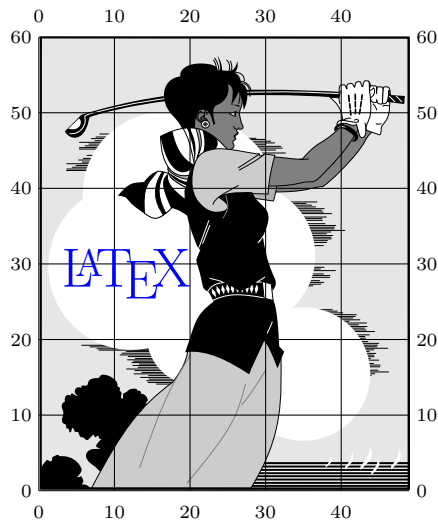
Sets new default values.

3 Examples

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

3.1 Environment “overpic” (absolute positioning)

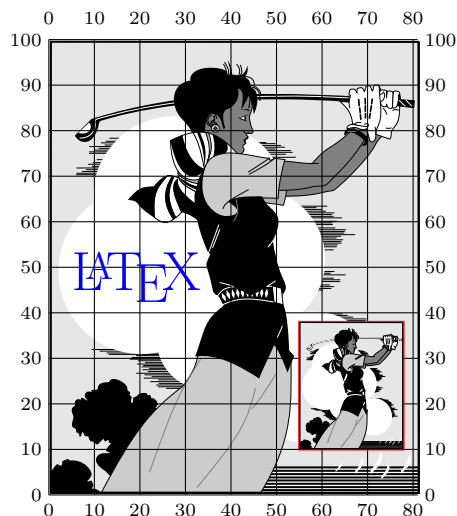
```
\begin{overpic}[abs,unit=1mm,scale=.25,grid]{golfer.eps}
  \put(3,27){\color{blue}\huge\LaTeX}
\end{overpic}
```



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}
```

| | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|-----|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | |
| 25 | H | | | | | | | | | | | | | | | | | | He | 25 |
| 20 | Li | Be | | B | | C | | N | | O | | F | | | | | | | Ne | 20 |
| 15 | Na | Mg | | Al | | Si | | P | | S | | Cl | | | | | | | Ar | 15 |
| 10 | K | Ca | | Ga | | Ge | | As | | Se | | Br | | | | | | | Kr | 10 |
| 5 | Rb | Sr | | In | | Sn | | Sb | | Te | | I | | | | | | | Xe | 5 |
| 0 | Cs | Ba | | Tl | | Pb | | Bi | | Po | | At | | | | | | | Rn | 0 |
| 0 | Fr | Ra | | 112 | | | | 114 | | | | | | | | | | | | 0 |
| 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | |

4 Implementation

```
1 \RequirePackage{graphicx,epic}
```

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

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

All the keys:

```
3 \define@key{Gin}{rel}{%
4   \def\OVP@scale{#1}%
5   \ifnum\OVP@scale>\z@
6     \let\OVP@calc\OVP@calc@rel
7   \else
8     \PackageError{overpic}{Invalid number for option 'rel'}\@ehc
9   \fi
10 }
11 \define@key{Gin}{percent}[]{%
12   \setkeys{Gin}{rel=100}%
13 }
14 \define@key{Gin}{permil}[]{%
15   \setkeys{Gin}{rel=\@m}%
16 }
17 \define@key{Gin}{abs}[]{%
18   \let\OVP@calc\OVP@calc@abs
19 }
20 \newif\ifGin@grid
21 \define@key{Gin}{grid}[true]{\lowercase{\Gin@boolkey{#1}}{grid}}
22 \define@key{Gin}{tics}{\count@=#1}
23 \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.

```
24 \newcommand*\OVP@calc@abs{%
25   \divide\@tempcnta by \unitlength
26   \divide\@tempcntb by \unitlength
27   \ifnum\count@=\z@\count@=10\fi
28 }
```

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

```
29 \newcommand*\OVP@calc@rel{%
30   \ifnum\@tempcnta>\@tempcntb
31     \divide\@tempcnta by \OVP@scale
32     \unitlength=\@tempcnta sp %
33     \@tempcnta=\OVP@scale
34     \divide\@tempcntb by \unitlength
35   \else
36     \divide\@tempcntb by \OVP@scale
37     \unitlength=\@tempcntb sp %
38     \@tempcntb=\OVP@scale
39     \divide\@tempcnta by \unitlength
40   \fi
41   \ifnum\count@=\z@
42     \count@=\OVP@scale
43     \divide\count@ by 10 %
44   \fi
45 }
```

The package options set the defaults:

```
46 \DeclareOption{percent}{\setkeys{Gin}{rel=100}}
47 \DeclareOption{permil}{\setkeys{Gin}{rel=\@m}}
48 \DeclareOption{abs}{\setkeys{Gin}{abs}}
49 \DeclareOption*{\PassOptionsToPackage{\CurrentOption}{graphicx}}
50 \ExecuteOptions{percent}
51 \ProcessOptions
52 \newsavebox\OVP@box
```

`overpic` Box 0 gets a graphic.

```
53 \newenvironment{overpic}[2][[]]{%
54   \sbox\OVP@box{\includegraphics[#1]{#2}}%
55   \count@=\z@ \Gin@gridfalse
56   \setkeys{Gin}{#1}%

```

Reset the graphics parameter:

```
57   \let\Gin@outer@scalex\relax
58   \let\Gin@outer@scaley\relax
59   \let\Gin@angle\relax
60   \let\Gin@ewidth\Gin@exclamation
61   \let\Gin@eheight\Gin@exclamation
62   \def\Gin@scalex{1}%
63   \let\Gin@scaley\Gin@exclamation
64   \OVP@picture{#1}%
65 }\endpicture}
```

Overpic Box 0 gets any T_EX code.

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

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

```
72 \newcommand*\OVP@picture[1]{%
73   \settodepth{\@tempcnta}{\usebox\OVP@box}%
74   \settoheight{\@tempcntb}{\usebox\OVP@box}%
75   \advance\@tempcntb\@tempcnta
76   \settowidth{\@tempcnta}{\usebox\OVP@box}%
77   \OVP@calc
78   \picture(\@tempcnta,\@tempcntb)%
79     \put(0,0){\makebox(0,0)[bl]{\usebox\OVP@box}}%
80     \ifGin@grid
81       \put(0,0){\normalfont\fontsize\@viipt\@viipt\selectfont
82         \grid(\@tempcnta,\@tempcntb)(\count@,\count@)[0,0]}%
83     \fi
84 }
```

\setOverpic Sets new defaults.

```
85 \newcommand*\setOverpic[1]{%
86   \setkeys{Gin}{#1}%
87 }

88 \endinput
```

Change History

| | | | |
|------|-------------------------------------|--|---|
| 0.60 | | Herbert Voß | 5 |
| | General: Converted to .dtx | 1 1.2 | |
| 1.0 | | overpic : Wrong place of | |
| | \OVP@calc@rel : Suggested by | \setkeys (bug report from | |
| | Heiko Oberdiek | 'aminophen') | 5 |
| | General: mostly rewritten | 1 1.3 | |
| | Overpic : Suggested by | Overpic : Added missing \setkeys | 5 |

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