

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 transferred 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 T_EX dimension, only effective in abs mode).

`Overpic (env.)` `\begin{Overpic}[\langle options \rangle]{\langle TEX code \rangle} \langle picture code \rangle \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{\langle options \rangle}`

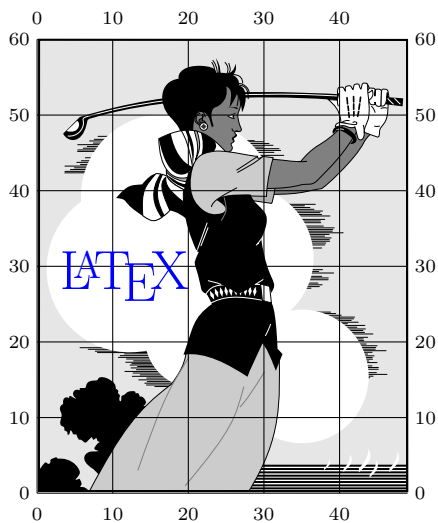
Sets new default values.

3 Examples

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

3.1 Environment “overpic” (absolute positioning)

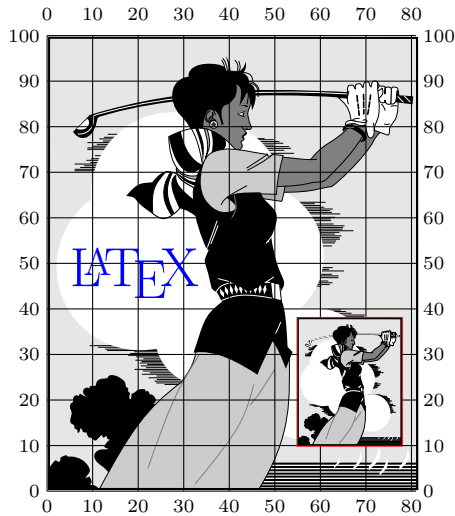
```
\begin{overpic}[abs,unit=1mm,scale=.25,grid]{golfer.eps}
  \put(3,27){\color{blue}\huge\LaTeX}
\end{overpic}
```



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{keyval,graphicx,epic}
```

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

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

All the keys:

```
3 \define@key{OVP}{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{OVP}{percent}[]{%
12   \setkeys{OVP}{rel=100}%
13 }
14 \define@key{OVP}{permil}[]{%
15   \setkeys{OVP}{rel=\@m}%
16 }
17 \define@key{OVP}{abs}[]{%
18   \let\OVP@calc\OVP@calc@abs
19 }
20 \def\OVP@boolkey#1#2{%
21   \csname OVP@#2\ifx\relax#1\relax true\else#1\fi\endcsname}
22 \newif\ifOVP@grid
23 \define@key{OVP}{grid}[true]{\lowercase{\OVP@boolkey{#1}}{grid}}
24 \define@key{OVP}{tics}{\count@=#1}
25 \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.

```
26 \newcommand*\OVP@calc@abs{%
27   \divide\@tempcnta by \unitlength
28   \divide\@tempcntb by \unitlength
29   \ifnum\count@=\z@\count@=10\fi
30 }
```

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

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

```

45   \divide\count@ by 10 %
46   \fi
47 }

```

The package options set the defaults:

```

48 \DeclareOption{percent}{\setkeys{OVP}{rel=100}}
49 \DeclareOption{permil}{\setkeys{OVP}{rel=@m}}
50 \DeclareOption{abs}{\setkeys{OVP}{abs}}
51 \DeclareOption*{\PassOptionsToPackage{\CurrentOption}{graphicx}}
52 \ExecuteOptions{percent}
53 \ProcessOptions
54 \AtBeginDocument{%
55   \ifpackageloaded{xkeyval}{%
56     \def\OVP@setkeys@relaxed{%
57       \let\OVP@setkeys\setkeys
58       \def\setkeys{\OVP@setkeys*}
59     }
60     \def\OVP@setkeys@strict{%
61       \let\setkeys\OVP@setkeys
62     }
63   }{%
64     \def\OVP@setkeys@relaxed{%
65       \let\OVP@KV@errx\KV@errx
66       \let\KV@errx@gobble
67     }
68     \def\OVP@setkeys@strict{%
69       \let\KV@errx\OVP@KV@errx
70     }
71   }
72 }
73 \newsavebox\OVP@box

```

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

```

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

```

Silently ignore unknown keys.

```

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

```

Stop ignoring unknown keys.

```

79   \OVP@setkeys@strict
80   \OVP@picture{#1}%
81 }{\endpicture}

```

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

```

82 \newenvironment{Overpic}[2] [] {%
83   \sbox\OVP@box{#2}%

```

```

84 \count@=\z@ \OVP@gridfalse
85 \setkeys{OVP}{#1}%
86 \OVP@picture{#1}%
87 }\endpicture}

```

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

```

88 \newcommand*\OVP@picture[1]{%
89 \settodepth{\@tempcnta}{\usebox\OVP@box}%
90 \settoheight{\@tempcntb}{\usebox\OVP@box}%
91 \advance\@tempcntb\@tempcnta
92 \settowidth{\@tempcnta}{\usebox\OVP@box}%
93 \OVP@calc
94 \picture(\@tempcnta,\@tempcntb)%
95 \put(0,0){\makebox(0,0)[bl]{\usebox\OVP@box}}%
96 \ifOVP@grid
97 \put(0,0){\normalfont\fontsize\@viipt\@viipt\selectfont
98 \grid(\@tempcnta,\@tempcntb)(\count@,\count@)[0,0]}%
99 \fi
100 }

```

`\setOverpic` Sets new defaults.

```

101 \newcommand*\setOverpic[1]{%
102 \setkeys{OVP}{#1}%
103 }

104 \endinput

```

Change History

0.60		1.3	
General: Converted to .dtx	1	Overpic: Added missing <code>\setkeys</code>	5
1.0		2.0	
General: mostly rewritten	1	General: Use a separate namespace	
Overpic: Suggested by		for the keys to avoid	
Herbert Voß	5	unfavorable influence on	
<code>\OVP@calc@rel</code> : Suggested by		<code>\includegraphics</code>	4
Heiko Oberdiek	4	overpic: Better key handling	5
1.2		2.1	
overpic: Wrong place of		overpic: Consideration of	
<code>\setkeys</code> (bug report from		<code>xkeyval</code> 's <code>\setkeys</code>	5
'aminophen')	5		

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